



Suzhou Pulim Sealing Technology Co., Ltd

## Manual of Hydraulic & Pneumatic Seal



Engineering polymer product manufacturer



## COMPANY VISION

Committed to be world-class manufacture of engineering polymer products

## COMPANY CULTURE

Resilience, professionalism, warmth, and vision,  
We preserve deep technical strength and stay highly responsive to technological advancement.



# CONTENTS

|                                                                                                        |     |
|--------------------------------------------------------------------------------------------------------|-----|
| ♦PART01 Technical Data .....                                                                           | 03  |
| ♦Material Introduction .....                                                                           | 03  |
| ♦Application Cases .....                                                                               | 11  |
| ♦Seal Groove Design .....                                                                              | 13  |
| ♦PART02 Machined Seal Product Cross-Sections .....                                                     | 23  |
| ♦PART03 Standard Seal Cross-Sections and Specifications .....                                          | 28  |
| ♦Wiper .....                                                                                           | 28  |
|  PLMW01A .....        | 28  |
|  PLMW38 .....         | 32  |
|  PLMW11 .....         | 36  |
|  PLMW12 .....         | 41  |
|  PLMW02 .....         | 43  |
|  PLMW11A .....        | 47  |
|  PLMW03B .....        | 51  |
|  PLMW03C .....        | 55  |
|  PLMW03CWS .....      | 58  |
| ♦Rod Seal .....                                                                                        | 61  |
|  PLMR01 .....         | 61  |
|  PLMR17 .....         | 70  |
|  PLMR09S .....        | 75  |
|  PLMR09D .....        | 81  |
|  PLMR02BS .....       | 87  |
|  PLMRA01 .....        | 90  |
| ♦Piston Seal .....                                                                                     | 92  |
|  PLMP01 .....       | 92  |
|  PLMP08D .....      | 98  |
|  PLMP08DPS .....    | 101 |
|  PLMP08S .....      | 104 |
|  PLMP09B .....      | 107 |
|  PLMP23LF .....     | 110 |
|  PLMAQ1 .....       | 113 |
|  PLMAQ2 .....       | 116 |
| ♦Piston and Rod SEAL .....                                                                             | 119 |
|  PLMR07 .....         | 119 |
|  PLMR06/PLMR06S ..... | 126 |
| ♦Static Seal .....                                                                                     | 133 |
|  PLMRT15 .....        | 133 |
|  PLMRT13 .....        | 136 |
| ♦Guide Ring .....                                                                                      | 161 |
|  PLMG01 .....         | 161 |
| ♦contamination Retaining Ring .....                                                                    | 167 |
|  PLMG01SK .....       | 167 |
| ♦Track Pin Seal .....                                                                                  | 170 |
|  PLMPLD .....         | 170 |
| ♦PART04 Installation Guide .....                                                                       | 172 |
| ♦PART05 Seal Storage Matters .....                                                                     | 174 |
| ♦PART06 Hydraulic and Pneumatic Seal Product Selection Table .....                                     | 176 |
| ♦PART07 Working Condition Survey .....                                                                 | 177 |

# Technical Data

## ●Material Introduction

Elastomer Material Table

| Type | Material Code | Description | Hardness | Tensile Strength (MPa) | Elongation at break (%) | 100% Modulus (MPa) | Tear Strength (N/mm) | Compression Set(%)                         | Operating Temperature (°C) | Application                                                                                                                                     |
|------|---------------|-------------|----------|------------------------|-------------------------|--------------------|----------------------|--------------------------------------------|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
|      |               |             |          |                        |                         |                    |                      | A:70°C, 24h<br>B:100°C, 24h<br>C:150°C,24h |                            |                                                                                                                                                 |
| TPU  | P1101         | PLMPUR      | 95(ShA)  | ≥48                    | ≥450                    | ≥12                | ≥110                 | ≤27(A)<br>≤33(B)                           | -30 ~ +110                 | Standard oil-resistant polyurethane material for hydraulic seals (Standard machined version)                                                    |
|      | P1102         | PLMPUR-93A  | 93(ShA)  | ≥48                    | ≥450                    | ≥10                | ≥100                 | ≤27(A)<br>≤33(B)                           | -30 ~ +110                 | Standard oil-resistant polyurethane material for hydraulic seals (Standard moulded version)                                                     |
|      | P1105         | PLMPUR-52D  | 52(ShD)  | ≥50                    | ≥400                    | ≥14                | ≥120                 | ≤27(A)<br>≤33(B)                           | -30 ~ +110                 | High performance material, used in heavy duty applications, e.g. Oil field equipment                                                            |
|      | P1401         | PLMPUR-LT   | 95(ShA)  | ≥45                    | ≥430                    | ≥11                | ≥110                 | ≤27(A)<br>≤33(B)                           | -50 ~ +110                 | Low temperature resistant material                                                                                                              |
|      | P1104         | PLMPUR-X    | 58(ShD)  | ≥48                    | ≥400                    | ≥18                | ≥140                 | ≤27(A)<br>≤33(B)                           | -30 ~ +110                 | High hardness polyurethane material with improved pressure resistance, used as step seal and/or composite seal                                  |
|      | P1201         | PLMPUR-H    | 95(ShA)  | ≥50                    | ≥330                    | ≥12                | ≥110                 | ≤27(A)<br>≤33(B)                           | -20 ~ +115                 | High temperature and hydrolysis resistant material, suitable for use in hydraulic media such as water-based hydraulic fluids or other chemicals |
|      | P1204         | PLMPUR-XH   | 60(ShD)  | ≥50                    | ≥300                    | ≥20                | ≥140                 | ≤27(A)<br>≤33(B)                           | -20 ~ +115                 | High hardness polyurethane material, showing high temperature and hydrolysis resistance as well as improved pressure resistance                 |
|      | P1203         | PLMPUR-SL   | 95(ShA)  | ≥48                    | ≥350                    | ≥15                | ≥110                 | ≤27(A)<br>≤33(B)                           | -20 ~ +115                 | Self-lubricated material, suitable for pure water applications or even non-lubricated conditions                                                |

Elastomer Material Table

| Type | Material Code | Description   | Hardness | Tensile Strength (MPa) | Elongation at break (%) | 100% Modulus (MPa) | Tear Strength (N/mm) | Compression Set(%)                          | Operating Temperature (°C) | Application                                                                                                                                                                   |
|------|---------------|---------------|----------|------------------------|-------------------------|--------------------|----------------------|---------------------------------------------|----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|      |               |               |          |                        |                         |                    |                      | A:70°C, 24h<br>B:100°C, 24h<br>C:150°C, 24h |                            |                                                                                                                                                                               |
| TPU  | P1205         | PLMPUR-XSL    | 60(ShD)  | ≥48                    | ≥300                    | ≥20                | ≥140                 | ≤27(A)<br>≤33(B)                            | -20 ~ +115                 | Self-lubricated material with increased hardness                                                                                                                              |
|      | P1151         | PLMPUR-75A    | 75(ShA)  | ≥30                    | ≥550                    | ≥3                 | ≥70                  | ≤37(A)<br>≤43(B)                            | -30 ~ +110                 | Standard material for pneumatic seals with outstanding low-temperature resistance                                                                                             |
|      | P1351         | PLMPUR-LL85A  | 85(ShA)  | ≥35                    | ≥500                    | ≥5                 | ≥80                  | ≤50(A)                                      | -40 ~ +90                  | Standard material for pneumatic seals with outstanding low-temperature resistance                                                                                             |
|      | P1354         | PLMPUR-LL     | 95(ShA)  | ≥45                    | ≥450                    | ≥12                | ≥100                 | ≤40(A)                                      | -40 ~ +90                  | Low temperature resistant material                                                                                                                                            |
|      | P1353         | PLMPUR-LL92A  | 92(ShA)  | ≥45                    | ≥450                    | ≥10                | ≥100                 | ≤40(A)                                      | -40 ~ +90                  | Low temperature resistant material                                                                                                                                            |
|      | P1352         | PLMPUR-LL90A  | 90(ShA)  | ≥40                    | ≥480                    | ≥6                 | ≥90                  | ≤45(A)                                      | -40 ~ +90                  | Pneumatic sealing material, used for low temperature applications                                                                                                             |
|      | P2251         | PLMPUR-HHT    | 94(ShA)  | ≥50                    | ≥400                    | ≥12                | ≥120                 | ≤27(A)<br>≤33(B)                            | -25 ~ +130                 | High temperature resistant material with outstanding chemical resistance, suitable for high temperature, high frequency and heavy load conditions such as excavator cylinders |
| NBR  | P3151         | PLMPUR-HT-J   | 95(ShA)  | ≥50                    | ≥400                    | ≥12                | ≥120                 | ≤33(A)<br>≤42(B)                            | -25 ~ +125                 | High temperature resistant material with outstanding chemical resistance, suitable for high temperature, high frequency and heavy load conditions such as excavator cylinders |
|      | N701          | PLM-N70 black | 70(ShA)  | ≥12                    | ≥300                    | ≥3                 | ≥10                  | ≤20(B)                                      | -35 ~ +100                 | Standard O-Ring material, elastomer material for composite seals                                                                                                              |
|      | N702          | PLM-N70 LT    | 70(ShA)  | ≥12                    | ≥300                    | ≥3                 | ≥10                  | ≤25(B)                                      | -50 ~ +100                 | Low temperature resistant elastomer material                                                                                                                                  |

Elastomer Material Table

| Type     | Material Code | Description      | Hardness | Tensile Strength (MPa) | Elongation at break (%) | 100% Modulus (MPa) | Tear Strength (N/mm) | Compression Set(%)                         | Operating Temperature (°C) | Application                                                      |
|----------|---------------|------------------|----------|------------------------|-------------------------|--------------------|----------------------|--------------------------------------------|----------------------------|------------------------------------------------------------------|
|          |               |                  |          |                        |                         |                    |                      | A:70°C, 24h<br>B:100°C, 24h<br>C:150°C,24h |                            |                                                                  |
| NBR      | N801          | PLM-N80 black    | 80(ShA)  | ≥14                    | ≥150                    | ≥5                 | ≥15                  | ≤25(B)                                     | -35 ~ +100                 | Standard O-Ring material                                         |
|          | N802          | PLM-N80 LT black | 80(ShA)  | ≥16                    | ≥180                    | ≥6                 | ≥30                  | ≤25(B)                                     | -50 ~ +100                 | Low temperature resistant elastomer material                     |
|          | N851          | PLM-N85 black    | 85(ShA)  | ≥16                    | ≥130                    | ≥11                | ≥20                  | ≤15(B)                                     | -35 ~ +110                 | Standard O-Ring material, elastomer material for composite seals |
|          | N852          | PLM-N85 white    | 85(ShA)  | ≥8                     | ≥120                    | ≥6.5               | ≥20                  | ≤30(B)                                     | -35 ~ +100                 | Standard O-Ring material                                         |
|          | N901          | PLM-N90 black    | 90(ShA)  | ≥14                    | ≥100                    | ≥13                | ≥20                  | ≤30(B)                                     | -35 ~ +110                 | Standard O-Ring material                                         |
| HNBR     | HN701         | PLM-HN70 black   | 70(ShA)  | ≥16                    | ≥250                    | ≥7                 | ≥25                  | ≤35(C)                                     | -25 ~ +150                 | Standard O-Ring material                                         |
|          | HN851         | PLM-HN85 black   | 85(ShA)  | ≥18                    | ≥180                    | ≥10                | ≥24                  | ≤25(C)                                     | -25 ~ +150                 | High temperature resistant and wear resistant material           |
|          | HN881         | PLM-HN-ED black  | 88(ShA)  | ≥19                    | ≥150                    | ≥8                 | ≥30                  | ≤30(C)                                     | -25 ~ +150                 | High temperature resistant and wear resistant material           |
| FKM      | F701          | PLM-F70 black    | 70(ShA)  | ≥8                     | ≥200                    | ≥2                 | ≥25                  | ≤25(175°C,22h)                             | -20 ~ +200                 | High temperature resistant and corrosion resistant material      |
|          | F702          | PLM-F70 brown    | 70(ShA)  | ≥10                    | ≥200                    | ≥2                 | ≥25                  | ≤25(175°C,22h)                             | -20 ~ +200                 | High temperature resistant and corrosion resistant material      |
|          | F851          | PLM-F85 brown    | 85(ShA)  | ≥10                    | ≥130                    | ≥6                 | ≥24                  | ≤25(175°C,22h)                             | -20 ~ +200                 | High temperature resistant and corrosion resistant material      |
|          | F852          | PLM-F85 black    | 85(ShA)  | ≥10                    | ≥130                    | ≥6                 | ≥24                  | ≤25(175°C,22h)                             | -20 ~ +200                 | High temperature resistant and corrosion resistant material      |
|          | F881          | PLM-F-ED black   | 88(ShA)  | ≥12                    | ≥120                    | ≥6                 | ≥20                  | ≤30(175°C,22h)                             | -20 ~ +200                 | High temperature resistant and corrosion resistant material      |
| EPDM     | E701          | PLM-E70 black    | 70(ShA)  | ≥8                     | ≥200                    | ≥2                 | ≥10                  | ≤16(B)                                     | -45 ~ +150                 | Polar medium resistant material                                  |
|          | E851          | PLM-E85 black    | 85(ShA)  | ≥12                    | ≥110                    | ≥6                 | ≥20                  | ≤16(B)                                     | -45 ~ +150                 | Polar medium resistant material                                  |
| Silicone | S701          | PLM-S70 red      | 70(ShA)  | ≥6                     | ≥170                    | ≥2                 | ≥9                   | ≤30(175°C,22h)                             | -60 ~ +200                 | High and low temperature resistant material                      |

Engineering Plastics Material Table

| Type           | Material Code | Description         | Hardness | Tensile Strength (MPa) | Elongation at break (%) | 100% Modulus (MPa) | Tear Strength (N/mm) | Compression Set(%)                         | Operating Temperature (°C) | Application                                               |
|----------------|---------------|---------------------|----------|------------------------|-------------------------|--------------------|----------------------|--------------------------------------------|----------------------------|-----------------------------------------------------------|
|                |               |                     |          |                        |                         |                    |                      | A:70°C, 24h<br>B:100°C, 24h<br>C:150°C,24h |                            |                                                           |
| Silicon        | S851          | PLM-S85 red         | 85(ShA)  | ≥6.5                   | ≥130                    | ≥4.5               | ≥9                   | ≤<br>20(175°C,22h)                         | -60~<br>+200               | High and low temperature resistant material               |
|                | S852          | PLM-S85 Transparent | 80(ShA)  | ≥6.5                   | ≥130                    | ≥4.5               | ≥9                   | ≤<br>45(175°C,22h)                         | -60~<br>+200               | High and low temperature resistant material               |
| Fluorosilicone | FS851         | PLM-Fsil85 black    | 80(ShA)  | ≥6.5                   | ≥150                    | ≥3                 | ≥9                   | ≤<br>30(175°C,22h)                         | -60~<br>+220               | Oil-resistant and high-low temperature resistant material |
|                | FS701         | PLM-Fsil70 blue     | 70(ShA)  | ≥6.5                   | ≥150                    | ≥3                 | ≥9                   | ≤<br>30(175°C,22h)                         | -60~<br>+220               | Oil-resistant and high-low temperature resistant material |

Elastomer Material Table

| Type            | Material Code | Description                   | Hardness  | Tensile Strength (MPa) | Elongation at break (%) | Tensile Modulus (MPa) | Flexural strength (MPa) | Charpy Notched Impact Strength (KJ/m <sup>2</sup> ) | Operating Temperature (°C) | Application                                                                                                                                                                                                                                          |
|-----------------|---------------|-------------------------------|-----------|------------------------|-------------------------|-----------------------|-------------------------|-----------------------------------------------------|----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PA              | PLMPA-1       | PA6                           | 80(ShD)   | ≥75                    | ≥50                     | ≥3000                 | ≥95                     | ≥5                                                  | -40 ~ +100                 | Used for low-cost general seals, with high toughness, stable performance at low temperatures (-40°C) and high temperature (≤100°C), with low water absorption                                                                                        |
|                 | PLMPA-3       | PA6+40%GF+15%PTFE             | 105(HRM)  | ≥150                   | ≥2                      | ≥12000                | -                       | -                                                   | -40 ~ +135                 | Modified nylon, used for high-performance guide rings, with improved friction properties compared to PA-4                                                                                                                                            |
|                 | PLMPA-4       | PA6+40%GF                     | 95(HRM)   | ≥150                   | ≥2                      | ≥12000                | -                       | -                                                   | -40 ~ +135                 | Modified nylon, used for high-performance guide rings.                                                                                                                                                                                               |
|                 | PLMPA-10      | PA66                          | 80(ShD)   | ≥80                    | ≥40                     | ≥3000                 | ≥100                    | ≥4                                                  | -40 ~ +120                 | Moderate-cost, covering most engineering requirements, with low water absorption rate, used for automotive structural components, high-load mechanical parts, and precision parts requiring dimensional stability                                    |
|                 | PLMPA-14      | PA66+33%GF+4%MoS <sub>2</sub> | 95(HRM)   | ≥150                   | ≥2                      | ≥10000                | -                       | -                                                   | -40 ~ +125                 | Modified nylon, with high strength, excellent wear resistance and self-lubrication properties, used for plastic bearing components, etc.                                                                                                             |
|                 | PLMPA-40      | PA46                          | 80(ShD)   | ≥100                   | ≥30                     | ≥3000                 | ≥150                    | ≥8                                                  | -40 ~ +150                 | Can meet extreme performance requirements, suitable for high-temperature and high-load working conditions. High water absorption rate, not recommended in high-humidity applications.                                                                |
| POM             | PLMPOM-1      | POM-C                         | 80(ShD)   | ≥70                    | ≥30                     | ≥2500                 | -                       | ≥7                                                  | -50 ~ +100                 | Standard material, used for backup rings, guide rings, etc.                                                                                                                                                                                          |
|                 | PLMPOM-2      | POM+20%GF                     | 86(ShD)   | ≥110                   | ≥2                      | ≥9000                 | -                       | -                                                   | -40 ~ +110                 | High-strength modified POM, with excellent side-load resistance, used for backup rings, guide rings, etc.                                                                                                                                            |
| Polyester Resin | PLMPR-1       | 聚酯纤维夹布 Polyester Resin        | 105(HRM)  | ≥70                    | -                       | -                     | ≥85                     | -                                                   | -45 ~ +120                 | Self-lubricated and shock-absorbing material, used for guide rings.                                                                                                                                                                                  |
|                 | PLMPR-2       | 聚酯纤维夹布 Polyester Resin        | 105(HRM)  | ≥70                    | -                       | -                     | ≥105                    | -                                                   | -45 ~ +130                 | Wear-resistant, low friction coefficient, stable under high load and high temperature, resistant to impact load and vibration                                                                                                                        |
| Phenolic Resin  | PLMPF-1       | 酚醛夹布 Phenolic Resin           | 105 (HRM) | ≥100                   |                         |                       | ≥95                     | -                                                   | -45 ~ +120                 | Excellent wear resistance and load-bearing capacity, high dimensional stability, first choice for heavy-duty applications (e.g. hydraulic support guide rings).                                                                                      |
| PTFE            | PLMFLON-1     | PTFE                          | 58(ShD)   | ≥28                    | ≥300                    | -                     | -                       | -                                                   | -200 ~ +260                | Used for static applications and low-speed, low-pressure dynamic seals; Used for backup rings                                                                                                                                                        |
|                 | PLMFLON-2     | PTFE+15%GF+5%MoS <sub>2</sub> | 63(ShD)   | ≥22                    | ≥250                    | -                     | -                       | -                                                   | -200 ~ +260                | Used for dynamic seals, with wide temperature operating range and high pressure, good wear resistance, low friction coefficient. Not suitable for Hydrofluoric acid. When used as a slip ring, the hardness of the grinding surface must be ≥ HRC55. |

| Type | Material Code  | Description               | Hardness | Tensile Strength (MPa) | Elongation at break (%) | Tensile Modulus (MPa) | Flexural strength (MPa) | Charpy Notched Impact Strength (KJ/m2) | Operating Temperature (°C) | Application                                                                                                                                                                                                                 |
|------|----------------|---------------------------|----------|------------------------|-------------------------|-----------------------|-------------------------|----------------------------------------|----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| PTFE | PLMFLON-2A     | PTFE+25%GF                | 62(ShD)  | ≥18                    | ≥200                    | -                     | -                       | -                                      | -200 ~ +260                | Used for dynamic seals, with wide temperature and high pressure operating range, good wear resistance. Not suitable for Hydrofluoric acid. When used as a slip ring, the hardness of the grinding surface must be ≥ HRC55.  |
|      | PLMFLON-3      | PTFE+40%Bronze+3%MoS2     | 62(ShD)  | ≥25                    | ≥250                    | -                     | -                       | -                                      | -200 ~ +260                | Used for dynamic seals, with wide temperature and high pressure operating range, good wear resistance compared to PTFE virgin                                                                                               |
|      | PLMFLON-4      | PTFE+23%Carbon+2%Graphite | 64(ShD)  | ≥22                    | ≥210                    | -                     | -                       | -                                      | -200 ~ +260                | Excellent wear resistance, used for demanding pressure/temperature dynamic seals, such as in metallurgy and heavy machinery hydraulic cylinders                                                                             |
|      | PLMFLON-5      | PTFE+10%Ekonol            | 58(ShD)  | ≥20                    | ≥270                    | -                     | -                       | -                                      | -200 ~ +260                | Excellent self-lubrication, compression set resistance, and wear resistance, also good thermal and electrical insulation, though lower strength; used for dynamic, pneumatic, or low-pressure/cryogenic applications.       |
|      | PLMFLON-6      | PTFE+10%PEEK              | 59(ShD)  | ≥22                    | ≥250                    | -                     | -                       | -                                      | -200 ~ +260                | Maintains low friction while improving wear and creep resistance, used for valve seals                                                                                                                                      |
|      | PLMFLON-8      | PTFE+15%Graphite          | 58(ShD)  | ≥21                    | ≥230                    | -                     | -                       | -                                      | -200 ~ +260                | Excellent self-lubrication, with good wear resistance, thermal conductivity, and antistatic properties; lower hardness makes it unsuitable for ultra-clean applications                                                     |
|      | PLMFLON-11     | PTFE+20%CF (Pan)          | 61(ShD)  | ≥16                    | ≥160                    | -                     | -                       | -                                      | -200 ~ +260                | Excellent wear resistance and rebound elasticity under high load, suitable for valve seals                                                                                                                                  |
|      | PLM-M-FLON-1-M | MPTEFE (M111)             | 62(ShD)  | ≥28                    | ≥450                    | -                     | -                       | -                                      | -200 ~ +180                | Good rebound and low-temperature characteristics, limited wear resistance, mainly used in ultra-low-temperature and vacuum applications                                                                                     |
|      | PLM-M-FLON-11  | TFM1700+20%CF (Pan)       | 62(ShD)  | ≥25.6                  | ≥272.8                  | -                     | -                       | -                                      | -200 ~ +260                | Excellent wear resistance and rebound elasticity under high load, good cryogenic performance, used for LNG and similar dynamic low-temperature seals                                                                        |
|      | PLM-C-FLON-1   | PCTFE                     | 80(ShD)  | ≥32                    | ≥80                     | -                     | -                       | -                                      | -200 ~ +150                | Excellent mechanical strength and hardness, good rebound elasticity, expensive; used in cryogenic and ambient sealing applications                                                                                          |
| TPI  | PLMTPI-1       | TPI                       | -        | ≥70                    | ≥15                     | -                     | ≥120(折弯强度/Strength)     | -                                      | -250 ~ +230                | Excellent high temperature resistance, stable dimension, low friction, clean, used for excavator cylinder guide rings                                                                                                       |
| PEEK | PLMPEEK-1      | PEEK                      | 87(ShD)  | ≥110                   | ≥45                     | ≥4500                 | -                       | ≥8                                     | -100 ~ +260                | Excellent mechanical strength, compression set, and heat resistance, good self-lubrication and chemical resistance; recommended for backup rings or special applications (e.g. high-temperature, high-pressure conditions). |
| UPE  | PLMUPE         | UPE                       | 63(ShD)  | ≥20                    | ≥250                    | ≥650                  | -                       | ≥100                                   | -250 ~ +90                 | Excellent low-temperature resistance and wear resistance, low friction, used for slide rings, etc.                                                                                                                          |
| TPE  | PLMTPE-58      | TPEE                      | 58(ShD)  | ≥35                    | ≥300                    | -                     | -                       | ≥8                                     | -30 ~ +120                 | Polyester-based material, with high-pressure resistance, anti-extrusion, for open groove designs such as pneumatic cushioning rings.                                                                                        |
|      | PLMTPE-63      | TPEE                      | 63(ShD)  | ≥38                    | ≥280                    | -                     | -                       | ≥9                                     | -30 ~ +120                 | Used for hydraulic backup rings                                                                                                                                                                                             |
|      | PLMTPE-70      | TPEE                      | 70(ShD)  | ≥40                    | ≥250                    | -                     | -                       | ≥9                                     | -30 ~ +120                 | Used for backup rings                                                                                                                                                                                                       |

## Material resistance to media

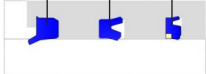
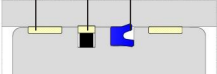
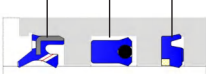
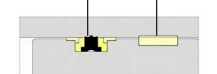
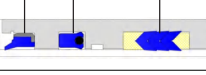
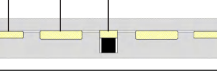
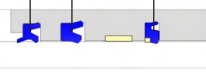
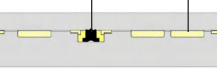
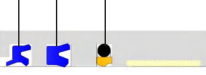
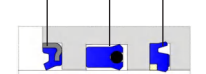
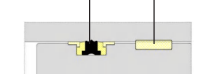
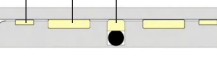
|                                                      |                           |                     | Polyurethanes&Rubber grades         |                                                  |                 |                                       |                                          |                  |                 |                 |
|------------------------------------------------------|---------------------------|---------------------|-------------------------------------|--------------------------------------------------|-----------------|---------------------------------------|------------------------------------------|------------------|-----------------|-----------------|
| Material                                             |                           | Temperature         | PLMPUR<br>PLMPUR-L<br>T<br>PLMPUR-X | PLMPUR-H<br>PLMPUR-SL<br>PLMPUR-XH<br>PLMPUR-XSL | PLMPUR<br>-H LD | PLMRUBBER-<br>N<br>PLMRUBBER-<br>N75A | PLMRUBBER<br>-F<br>PLMRUBBER<br>-F black | PLMRUBBER-<br>HN | PLMRUBBE<br>R-E | PLMRUBBE<br>R-S |
| Chemical &<br>Environmental Resistance               |                           |                     | TPU                                 | TPU                                              | CPU             | NBR                                   | FKM,FPM                                  | H-NBR            | EPDM            | MVQ             |
|                                                      |                           |                     |                                     |                                                  |                 |                                       |                                          |                  |                 |                 |
| Oil hydraulic fluids                                 |                           |                     |                                     |                                                  |                 |                                       |                                          |                  |                 |                 |
| mineral oil based                                    |                           | RT                  | +                                   | +                                                | +               | +                                     | +                                        | +                | -               | O               |
|                                                      |                           | 60°C                | +                                   | +                                                | +               | +                                     | +                                        | +                | +               | -               |
| synthetic<br>oils                                    | HETG<br>(triglyceride)    | RT                  | +                                   | +                                                | +               | O                                     | +                                        | O                | -               | O               |
|                                                      |                           | 60°C                | O                                   | +                                                | +               | O                                     | +                                        | O                | -               | O               |
|                                                      | HEES<br>(synthetic ester) | RT                  | +                                   | +                                                | +               | O                                     | +                                        | O                | -               | -               |
|                                                      |                           | 60°C                | O                                   | +                                                | +               | O                                     | +                                        | O                | -               | -               |
|                                                      | HEPG<br>(polyglycols)     | RT                  | O                                   | +                                                | +               | +                                     | +                                        | +                | +               | O               |
|                                                      |                           | 60°C                | -                                   | O                                                | O               | +                                     | +                                        | +                | +               | O               |
|                                                      | PAO                       | RT                  | +                                   | +                                                | +               | +                                     | +                                        | +                | -               | O               |
|                                                      |                           | (polyalphaolefines) | 60°C                                | O                                                | +               | +                                     | O                                        | +                | O               | -               |
| Fire resistant hydraulic fluids and water hydraulics |                           |                     |                                     |                                                  |                 |                                       |                                          |                  |                 |                 |
| HFA(water<br>- oil<br>emulsion)                      | HFA-E                     | RT                  | O                                   | +                                                | +               | +                                     | +                                        | +                | -               | O               |
|                                                      |                           | 60°C                | -                                   | +                                                | +               | +                                     | O                                        | +                | -               | -               |
|                                                      | HFA-S                     | RT                  | O                                   | +                                                | +               | +                                     | +                                        | +                | +               | +               |
|                                                      |                           | 60°C                | -                                   | +                                                | +               | O                                     | O                                        | O                | +               | +               |
| HFB(oil - water emulsion)                            |                           | RT                  | O                                   | +                                                | +               | +                                     | +                                        | +                | -               | O               |
|                                                      |                           | 60°C                | -                                   | +                                                | +               | +                                     | +                                        | +                | -               | -               |
| HFC(water - glycol)                                  |                           | RT                  | -                                   | +                                                | +               | +                                     | O                                        | +                | +               | O               |
|                                                      |                           | 60°C                | -                                   | O                                                | O               | +                                     | -                                        | +                | -               | O               |
| HFD(water<br>free)                                   | HFD-R                     | RT                  | -                                   | -                                                | -               | -                                     | O                                        | -                | +               | O               |
|                                                      |                           | 60°C                | -                                   | -                                                | -               | -                                     | O                                        | -                | +               | O               |
|                                                      | HFD-S                     | RT                  | -                                   | -                                                | -               | -                                     | +                                        | -                | -               | +               |
|                                                      |                           | 60°C                | -                                   | -                                                | -               | -                                     | +                                        | -                | -               | +               |
|                                                      | HFD-T                     | RT                  | -                                   | -                                                | -               | -                                     | +                                        | -                | -               | +               |
|                                                      |                           | 60°C                | -                                   | -                                                | -               | -                                     | +                                        | -                | -               | +               |
|                                                      | HFD-U                     | RT                  | +                                   | +                                                | +               | +                                     | +                                        | +                | -               | -               |
|                                                      |                           | 60°C                | O                                   | +                                                | +               | O                                     | +                                        | O                | -               | -               |
| Chemicals & solvents                                 |                           |                     |                                     |                                                  |                 |                                       |                                          |                  |                 |                 |
| Acids                                                | inorganic diluted         | RT                  | -                                   | +                                                | +               | O                                     | +                                        | O                | +               | O               |
|                                                      | inorganic concentrated    | RT                  | -                                   | -                                                | -               | -                                     | +                                        | -                | +               | O               |
|                                                      | organic diluted           | RT                  | O                                   | +                                                | +               | +                                     | +                                        | +                | +               | O               |
|                                                      | organic concentrated      | RT                  | -                                   | O                                                | O               | -                                     | -                                        | -                | +               | O               |
| Alkalies                                             |                           | RT                  | -                                   | O                                                | O               | O                                     | O                                        | O                | +               | O               |
| Alcohols(except Methanol)                            |                           | RT                  | -                                   | +                                                | +               | +                                     | +                                        | +                | +               | +               |
| Glycols                                              |                           | RT                  | -                                   | O                                                | O               | +                                     | +                                        | +                | +               | +               |
| Hydrocarb<br>ons                                     | aliphatic                 | RT                  | +                                   | +                                                | +               | +                                     | +                                        | +                | -               | -               |
|                                                      | aromatic                  | RT                  | -                                   | -                                                | -               | O                                     | +                                        | O                | -               | -               |
| Methanol                                             | diluted                   | RT                  | -                                   | +                                                | +               | +                                     | O                                        | +                | +               | +               |
|                                                      | concentrated              | RT                  | -                                   | -                                                | -               | O                                     | -                                        | +                | +               | +               |
| Solvents                                             | Toluene                   | RT                  | -                                   | -                                                | -               | -                                     | +                                        | -                | -               | -               |
|                                                      | Acetone                   | RT                  | -                                   | -                                                | -               | -                                     | -                                        | -                | +               | -               |
|                                                      | MEK                       | RT                  | -                                   | -                                                | -               | -                                     | -                                        | -                | +               | -               |
| Steam                                                |                           | /                   | -                                   | -                                                | -               | -                                     | -                                        | -                | -               | -               |
| Water                                                |                           | RT                  | +                                   | +                                                | +               | +                                     | +                                        | +                | +               | +               |
|                                                      |                           | 60°C                | -                                   | +                                                | +               | +                                     | +                                        | +                | +               | +               |
| +: Excellent<br>O: Good / fair<br>-: Poor            |                           |                     |                                     |                                                  |                 |                                       |                                          |                  |                 |                 |

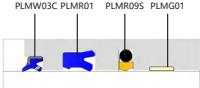
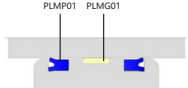
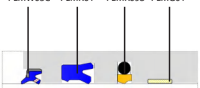
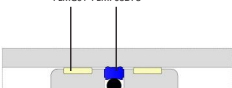
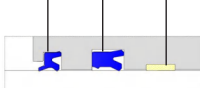
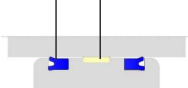
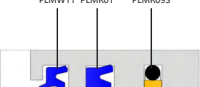
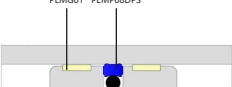
## Material resistance to media

|                                                      |                         |             | Thermoplastics |         |             |                       |                  |                  |
|------------------------------------------------------|-------------------------|-------------|----------------|---------|-------------|-----------------------|------------------|------------------|
| Material                                             |                         | Temperature | PLMPOM         | PLMPEEK | PLMFLON-1   | PLMFLON-2             | PLMFLON-3        | PLMFLON-4        |
| Chemical & Environmental Resistance                  |                         |             | POM-C          | PEEK    | PTFE virgin | PTFE +15% glass fiber | PTFE +40% bronze | PTFE +20% carbon |
| Oil hydraulic fluids                                 |                         |             |                |         |             |                       |                  |                  |
| mineral oil based                                    |                         | RT          | +              | +       | +           | +                     | +                | +                |
|                                                      |                         | 60°C        | +              | +       | +           | +                     | +                | +                |
| synthetic oils                                       | HETG (triglyceride)     | RT          | +              | +       | +           | +                     | +                | +                |
|                                                      |                         | 60°C        | +              | +       | +           | +                     | +                | +                |
|                                                      | HEES (synthetic ester)  | RT          | +              | +       | +           | +                     | +                | +                |
|                                                      |                         | 60°C        | +              | +       | +           | +                     | +                | +                |
|                                                      | HEPG (polyglycols)      | RT          | +              | +       | +           | +                     | +                | +                |
|                                                      |                         | 60°C        | +              | +       | +           | +                     | +                | +                |
|                                                      | PAO (polyalphaolefines) | RT          | +              | +       | +           | +                     | +                | +                |
|                                                      |                         | 60°C        | +              | +       | +           | +                     | +                | +                |
| Fire resistant hydraulic fluids and water hydraulics |                         |             |                |         |             |                       |                  |                  |
| HFA(water - oil emulsion)                            | HFA-E                   | RT          | +              | +       | +           | +                     | +                | +                |
|                                                      |                         | 60°C        | +              | +       | +           | +                     | +                | +                |
|                                                      | HFA-S                   | RT          | +              | +       | +           | +                     | +                | +                |
|                                                      |                         | 60°C        | +              | +       | +           | +                     | +                | +                |
| HFB(oil - water emulsion)                            |                         | RT          | +              | +       | +           | +                     | +                | +                |
|                                                      |                         | 60°C        | +              | +       | +           | +                     | +                | +                |
| HFC(water - glycol)                                  |                         | RT          | +              | +       | +           | +                     | +                | +                |
|                                                      |                         | 60°C        | +              | +       | +           | +                     | +                | +                |
| HFD(water free)                                      | HFD-R                   | RT          | +              | +       | +           | +                     | +                | +                |
|                                                      |                         | 60°C        | +              | +       | +           | +                     | +                | +                |
|                                                      | HFD-S                   | RT          | +              | +       | +           | +                     | +                | +                |
|                                                      |                         | 60°C        | +              | +       | +           | +                     | +                | +                |
|                                                      | HFD-T                   | RT          | +              | +       | +           | +                     | +                | +                |
|                                                      |                         | 60°C        | +              | +       | +           | +                     | +                | +                |
|                                                      | HFD-U                   | RT          | +              | +       | +           | +                     | +                | +                |
|                                                      |                         | 60°C        | +              | +       | +           | +                     | +                | +                |
| Chemicals & solvents                                 |                         |             |                |         |             |                       |                  |                  |
| Acids                                                | inorganic diluted       | RT          | O              | +       | +           | +                     | +                | +                |
|                                                      | inorganic concentrated  | RT          | -              | O       | +           | +                     | +                | +                |
|                                                      | organic diluted         | RT          | O              | +       | +           | +                     | +                | +                |
|                                                      | organic concentrated    | RT          | O              | +       | +           | +                     | +                | +                |
| Alkalies                                             |                         | RT          | O              | +       | +           | O                     | O                | O                |
| Alcohols(except Methanol)                            |                         | RT          | +              | O       | +           | +                     | +                | +                |
| Glycols                                              |                         | RT          | +              | +       | O           | O                     | O                | O                |
| Hydrocarbons                                         | aliphatic               | RT          | +              | +       | +           | +                     | +                | +                |
|                                                      | aromatic                | RT          | +              | +       | +           | +                     | +                | +                |
| Methanol                                             | diluted                 | RT          | +              | +       | +           | +                     | +                | +                |
|                                                      | concentrated            | RT          | +              | +       | +           | +                     | +                | +                |
| Solvents                                             | Toluene                 | RT          | +              | +       | +           | +                     | +                | +                |
|                                                      | Acetone                 | RT          | +              | +       | +           | +                     | +                | +                |
|                                                      | MEK                     | RT          | O              | +       | +           | +                     | +                | +                |
| Steam                                                |                         | /           | +              | +       | +           | +                     | +                | +                |
| Water                                                |                         | RT          | +              | +       | +           | +                     | +                | +                |
|                                                      |                         | 60°C        | +              | +       | +           | +                     | +                | +                |
| +: Excellent<br>O: Good / fair<br>-: Poor            |                         |             |                |         |             |                       |                  |                  |



## • Typical Sealing System Configurations

|                                                                                                                    | Sealing System Configuration                                                                                         |                                                                                                                 |
|--------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------|
|                                                                                                                    | Rod Seal Sealing System                                                                                              | Piston Seal Sealing System                                                                                      |
| Pump Truck Boom Cylinder<br>      | PLMW38 PLMR01 PLMR028S<br>          | PLMG01 PLMP08DH PLMP01<br>     |
| Pump Truck Outrigger Oil Seal<br> | PLMW03CWS PLMR07 PLMR028S<br>       | PLMP09B PLMG01<br>             |
| Pump Truck Main Cylinder<br>      | PLMW03A PLMR07 PLMR1012<br>         | PLMG01SK PLMG01 PLMP08DH<br>   |
| Crane Telescopic Cylinder<br>     | PLMW11 PLMR01 PLMR028S<br>          | PLMG01SK PLMP09B PLMG01<br>    |
| Crane Luffing Cylinder<br>        | PLMW11 PLMR01 PLMR09S<br>           | PLMG01 PLMP09B<br>             |
| Crane Outrigger Cylinder<br>    | PLMW03 PLMR07 PLMR028S<br>        | PLMP09B PLMG01<br>           |
| Loader Cylinder<br>             | PLMW38 PLMR17 PLMR028S PLMG01<br> | PLMG01SK PLMG01 PLMP08D<br>  |
| Excavator Cylinder<br>          | PLMW03CWS PLMR01 PLMR028S<br>     | PLMG01SK PLMG01 PLMP23LF<br> |

|                                                                                                                       |                                                                                                                        |                                                                                                            |
|-----------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------|
| <p>Forklift Lift Cylinder</p>        | <p>PLMW03CWS PLMR01 PLMG01</p>        | <p>PLMP01 PLMG01</p>      |
| <p>Forklift Tilt Cylinder</p>        | <p>PLMW03CWS PLMR01 PLMG01</p>        | <p>PLMG01 PLMP01</p>      |
| <p>Tractor Steering Cylinder</p>     | <p>PLMW03C PLMR01 PLMR09S PLMG01</p>  | <p>PLMP01 PLMG01</p>      |
| <p>Tractor Lift Cylinder</p>         | <p>PLMW03C PLMR01 PLMR09S PLMG01</p>  | <p>PLMG01 PLMP08DPS</p>   |
| <p>Harvester Unloading Cylinder</p>  | <p>PLMW11 PLMR17 PLMG01</p>           | <p>PLMP01 PLMG01</p>      |
| <p>Press Brake Cylinder</p>         | <p>PLMW11 PLMR01 PLMR09S</p>         | <p>PLMG01 PLMP08DPS</p>  |

# Sealing Groove Design

## ●Introduction to Surface Roughness

Surface roughness is crucial for ensuring optimal sealing and extending seal life. It is important to consider the different measurement systems: Ra, Rt, Rz, and Rmax.

Ra, Rt, Rz, and R max are shown in the following figures (Figures 3.1-1 and 3.1-2). The values for mating surface roughness and groove surface roughness are given in Table 3.1-1.

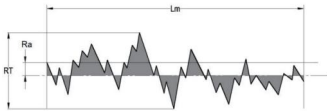


Figure3.1-1

$$Ra = \frac{1}{Lm} \int_0^{Lm} |y| dx$$

Ra = Arithmetic Mean

Maximum Height. Maximum clearance

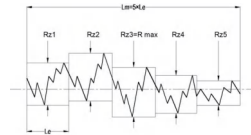


Figure3.1-2

$$Rz = \frac{1}{5} (Rz1 + Rz2 + Rz3 + Rz4 + Rz5)$$

R max = Rz3

| Surface Roughness ( $\mu$ ) |                |                       |                |
|-----------------------------|----------------|-----------------------|----------------|
| Parameters                  | Mating Surface |                       | Groove Surface |
|                             | PTFE           | Polyurethane + Rubber |                |
| R max                       | 0.63~2.5       | 1~4                   | <16            |
| Rz                          | 0.4~1.6        | 0.63~2.5              | <10            |
| Ra                          | 0.05~0.2       | 0.1~0.4               | <1.6           |

Table3.1-2

However, Ra, Rz, and R max are not sufficient to determine roughness. The Rmr value (see Figure 3.1-3) must also be considered and should not be too low.

Rmr is the percentage of material in the LM area at a given depth C. For good results, Rmr must be between 50% and 70% at a depth of 0.25 Rz.

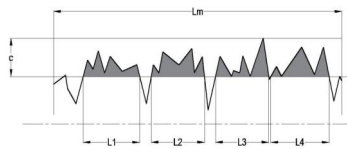


Table3.1-3

$$Rmr = \frac{1}{Lm} (L1 + L2 + L3 + L4) \times 100\%$$

## ● Rod Seals and Wiper

### ★ Assembly in Open or Closed Grooves

To determine whether assembly in closed grooves is possible, refer to the table "Assembly in Open or Closed Grooves".

For section B, if the rod diameter is less than  $d_{min}$ , the seal must be assembled in an open groove. Middle

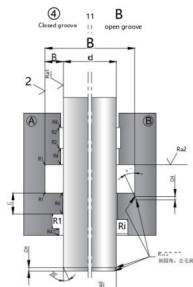


Figure3.1-2

| Assembly in Open or Closed Grooves |    |    |    |     |    |      |     |
|------------------------------------|----|----|----|-----|----|------|-----|
| c/s B (mm)                         | 4  | 5  | 6  | 7.5 | 10 | 12.5 | 15  |
| d min (mm)                         | 30 | 40 | 50 | 65  | 80 | 150  | 200 |

### ★ Surface Roughness

For Ra, Rz, and R max values, please observe the data in the "Surface Roughness" table.

| Surface Roughness ( $\mu m$ ) |                |                       |                      |
|-------------------------------|----------------|-----------------------|----------------------|
| Parameters                    | Ra1-Rz1-R max1 |                       | Ra2<br>Rz2<br>R max2 |
|                               | PTFE           | Polyurethane + Rubber |                      |
| Ra                            | 0.05~0.2       | 0.1~0.4               | <1.6                 |
| Rz                            | 0.4~1.6        | 0.63~2.5              | <10                  |
| R max                         | 0.63~2.5       | 1~4                   | <16                  |

### ★ Radius Values

Avoid sharp edges. The radius is specified in the table "Radius Values".

| Radius value (mm) |      |      |    |     |
|-------------------|------|------|----|-----|
| Section B         | R1   | R2   | R3 | R4  |
| ≤7.5              | ≤0.3 | ≤0.2 | ≤2 | 0.2 |
| >7.5              | ≤0.6 |      | ≤4 | 0.4 |



### ★Chamfers

Chamfer length is calculated as  $CH = 0.7B$ ;  
for compact designs, it may be reduced to  $CH = 0.5B$ .

| Chamfers                 |
|--------------------------|
| $0.5B \leq CH \leq 0.7B$ |

### ★Dimension G

To ensure sufficient material behind the seal to withstand the pressure of the hydraulic oil, G must always be greater than or equal to B.

| Dimension G |
|-------------|
| $G \geq B$  |

## ● Piston Seals and Guide Rings

### ★ Surface Roughness

For Ra, Rz, and R max values, please observe the data in the "Surface Roughness" table.

### ★ Radius Values

Avoid sharp edges. The radius is specified in the table "Radius Values".

### ★ Chamfers

Chamfer length is calculated as  $CH = 0.7B$ ;

for compact designs, it may be reduced to  $CH = 0.5B$ .

### ★ Dimension G

To ensure sufficient material behind the seal to withstand the pressure of the hydraulic oil, G must always be greater than or equal to B.

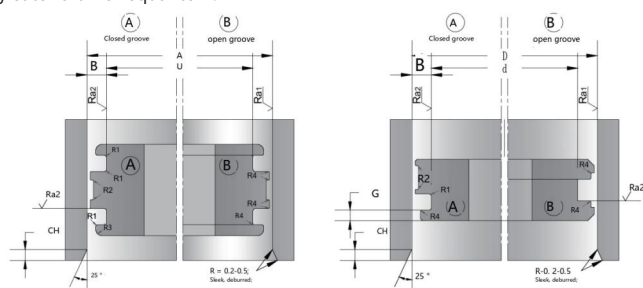


Figure 3.1-2

### Sealing Surface Metal Hardness

For low to medium speed reciprocating motion, the recommended surface hardness of the metal contact surface is HRC40 or higher. The recommended hardness for medium to high speed linear or rotary motion is HRC58 to 62. Electroplated or anodized surfaces must be polished.

## ● Extrusion and Sticking

Compared to direct mating of metal parts, using guide rings offers numerous advantages, leading to their increasing use in hydraulic cylinders. However, the use of guide rings can present two problems:

- Excessive extrusion gap between the rear and rear ends of the seal may cause the seal to be squeezed out (Figure 3.4-1)
- If the extrusion gap on the guide sleeve or piston is too small, it can easily cause scratches on the piston rod and cylinder surface (Figure 3.4-2)

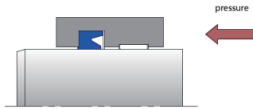


Figure3.4-1



Figure3.4-2

### ★ Extrusion

To prevent extrusion, the primary recommendation is to use a product with an integrated retaining ring or pair the seal with a separate retaining ring (this will require a larger groove width for the seal). An integrated retaining ring (Figure 3.4-3) has the advantage of following the radial movement of the rod; however, if significant lateral forces are present, a separate retaining ring (Figure 3.4-4) may become oval.

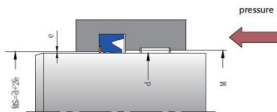


Figure3.4-3

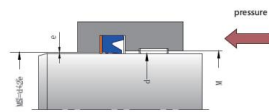


Figure3.4-4

The MS diameter of the seal is located in the extrusion area, and its calculated value depends on the clearance size  $e$  for the corresponding type of seal. Tables 3.4-1 to 3.4-2 and Table 3.4-3 provide the clearance values  $e$  applicable to rod seals and piston seals. It should be noted that the following clearance values are typical recommendations; variations may occur depending on the seal structure. For specific requirements, please contact our company.

| Theoretical value of the gap $e$ between the guide sleeve and the piston rod (without retaining ring) |                |             |
|-------------------------------------------------------------------------------------------------------|----------------|-------------|
| Pressure (MPa)                                                                                        | $e$ (mm)       |             |
|                                                                                                       | $d \leq 60$ mm | $d > 60$ mm |
| 5                                                                                                     | $\leq 0.4$     | $\leq 0.5$  |
| 10                                                                                                    | $\leq 0.3$     | $\leq 0.4$  |
| 20                                                                                                    | $\leq 0.2$     | $\leq 0.3$  |
| 30                                                                                                    | $\leq 0.15$    | $\leq 0.2$  |
| 40                                                                                                    | $\leq 0.1$     | $\leq 0.15$ |

Table3.4-1

| Theoretical value of the gap $e$ between the guide sleeve and the piston rod (with retaining ring) |                |             |
|----------------------------------------------------------------------------------------------------|----------------|-------------|
| Pressure (MPa)                                                                                     | $e$ (mm)       |             |
|                                                                                                    | $d \leq 60$ mm | $d > 60$ mm |
| 5                                                                                                  | $\leq 0.6$     | $\leq 0.8$  |
| 10                                                                                                 | $\leq 0.6$     | $\leq 0.8$  |
| 20                                                                                                 | $\leq 0.4$     | $\leq 0.6$  |
| 30                                                                                                 | $\leq 0.3$     | $\leq 0.4$  |
| 40                                                                                                 | $\leq 0.2$     | $\leq 0.3$  |
| 50                                                                                                 | $\leq 0.1$     | $\leq 0.2$  |

Table3.4-2

| Theoretical value of the assembly gap e between the guide piston and the cylinder |        |        |        |        |
|-----------------------------------------------------------------------------------|--------|--------|--------|--------|
| Pressure                                                                          | 10 MPa | 20 MPa | 30 MPa | 40 MPa |
| L(mm)                                                                             | e(mm)  |        |        |        |
| 2.2                                                                               | 0.35   | 0.23   | 0.18   | 0.15   |
| 3.2                                                                               | 0.4    | 0.25   | 0.2    | 0.15   |
| 4.2                                                                               | 0.4    | 0.25   | 0.2    | 0.18   |
| 6.3                                                                               | 0.45   | 0.28   | 0.23   | 0.18   |
| 8.1                                                                               | 0.55   | 0.35   | 0.25   | 0.2    |
| $> 40 \text{ MPa} \rightarrow e = H8/f8$                                          |        |        |        |        |

Table3.4-3

To prevent extrusion, seals with integrated back-up rings should be preferred, or alternatively, use separate back-up rings (which require a wider groove). The integrated back-up ring (Figure 3.4-3) can move radially with the rod; however, under high lateral loads, a separate back-up ring (Figure 3.4-4) may deform into an oval shape.

M is the step diameter at the guide ring. The value of M depends on the type of seal used. Tables 3.4-4-5 provide M values for common seal types. Typically, the clearance at M is larger than the clearance at MS. Therefore, the risk of metal-to-metal contact or seizure primarily occurs in the area of the MS diameter.

| Piston Rod Guide Step Diameter M |       |
|----------------------------------|-------|
| d(mm)                            | M(mm) |
| 8-20                             | d+0.5 |
| 21-100                           | d+0.7 |
| 101-250                          | d+0.9 |
| 251-300                          | d+1.2 |

Table3.4-4

| Piston Guide Step Diameter M |       |
|------------------------------|-------|
| D(mm)                        | M(mm) |
| 8-20                         | D-0.5 |
| 21-100                       | D-0.7 |
| 101-250                      | D-0.9 |
| 251-300                      | D-1.2 |

Table3.4-5

### ★ Sticking

To prevent sticking between metal components of the hydraulic cylinder, the actual minimum clearance  $K_{\min}$  between the rod or the cylinder and the MS dimension should be calculated according to the methods shown in Figure 3.4-5 (rod design) and Figure 3.4-6 (piston design). In general, under normal radial load conditions, the effective clearance between the piston rod and the cylinder tube should be greater than 0.1 mm, i.e.,  $K_{\min} > 0.1 \text{ mm}$ . The same applies to the clearance between the piston and the cylinder tube.

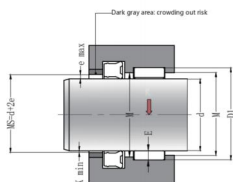


Table3.4-5

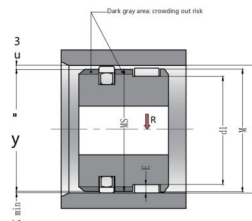


Table3.4-6

Seal between guide sleeve and piston rod: Calculation of maximum practical clearance and risk of seizure (Figure 3.4-5)

$$e_{\max}(\text{mm}) = \frac{MS_{\max}}{2} + \frac{D1_{\max}}{2} - d_{\min} - E_{\min} + \Delta E$$

To avoid extrusion, we recommend

-- Radial Thickness Change under Radial Load R

$$K_{\min}(\text{mm}) = E_{\min} - \Delta E - \left( \frac{D1_{\max}}{2} - \frac{MS_{\min}}{2} \right)$$

To avoid seizure, we recommend

### Example:

Calculation for the use of a PLMPUR R17 seal + retaining ring and a G01 guide ring.

In this case:→ Please contact us for thickness tolerances for E.

When using the PLMPUR R17 seal + retaining ring, the clearance, e, can be increased to 0.3 mm.

When calculating the maximum actual clearance, we obtain the maximum value of e:

$$e_{\max} = \frac{50.646}{2} + \frac{55.046}{2} - 49.95 - 2.45 = 0.446 \text{ mm}$$

$e_{\max} = 0.446 < 1.5 \times 0.3 \rightarrow$  No risk of extrusion.

$$K_{\min} = 2.45 - \left( \frac{55.046}{2} - \frac{50.6}{2} \right) = 0.227 \text{ mm}$$

$K_{\min} = 0.227 > 0.1 \text{ mm} \rightarrow$  No risk of seizure.

Guide Piston: Calculation of the K value and determination of the actual maximum clearance  $e_{\max}$  (Figure 3.4-6).

For piston seals, the same calculation and explanation methods as described in "Maximum Actual Clearance Between Guide Sleeve and Piston Rod and Risk of Seizure" can be used.

For the guide piston, additional consideration and consideration must be given to the cylinder expansion due to pressure in order to calculate the value of  $e_{\max}$ .

$$e_{\max}(\text{mm}) = D_{\max} - \left( \frac{MS_{\min}}{2} + \frac{d1_{\min}}{2} + E_{\min} \right) + \Delta D + \Delta E$$

$\Delta D$ ——Tube Expansion Under Fluid Pressure

$\Delta E$ ——Radial Thickness Change under Radial Load R

$$K_{\min}(\text{mm}) = E_{\min} - \Delta E - \left( \frac{MS_{\max}}{2} - \frac{d1_{\min}}{2} \right) > 0.1$$

### Recommendations for Reducing Seizure Risk:

Reduce the number of metal components that may cause seizure, such as the guide sleeve component shown in Figure 3.4-7 and the piston component shown in Figure 3.4-8.

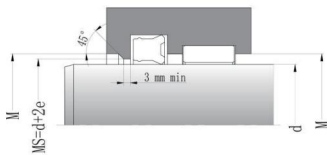


Figure3.4-7

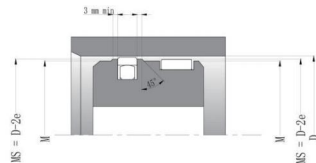


Figure3.4-8

## ● Shaft and Bore Tolerance Grade

| RODS<br>Ø | d10  | f7   | f8   | h6  | h7  | h8   | j6  | m6  | r6   |
|-----------|------|------|------|-----|-----|------|-----|-----|------|
| mm        | µm   | µm   | µm   | µm  | µm  | µm   | µm  | µm  | µm   |
| >1        | -20  | -6   | -6   | 0   | 0   | 0    | +4  | +8  | +16  |
| ≤3        | -60  | -16  | -20  | -6  | -10 | -14  | -2  | +2  | +10  |
| 3         | -30  | -10  | -10  | 0   | 0   | 0    | +6  | +12 | +23  |
| 6         | -78  | -22  | -28  | -8  | -12 | -18  | -2  | +4  | +15  |
| 6         | -40  | -13  | -13  | 0   | 0   | 0    | +7  | +15 | +28  |
| 10        | -98  | -28  | -35  | -9  | -15 | -22  | -2  | +6  | +19  |
| 10        | -50  | -16  | -16  | 0   | 0   | 0    | +8  | +18 | +34  |
| 18        | -120 | -34  | -43  | -11 | -18 | -27  | -3  | +7  | +23  |
| 18        | -65  | -20  | -20  | 0   | 0   | 0    | +9  | +21 | +41  |
| 30        | -149 | -41  | -53  | -13 | -21 | -33  | -4  | +8  | +28  |
| 30        | -80  | -25  | -25  | 0   | 0   | 0    | +11 | +25 | +50  |
| 50        | -180 | -50  | -64  | -16 | -25 | -39  | -5  | +9  | +34  |
| 50        | -100 | -30  | -30  | 0   | 0   | 0    | +12 | +30 | +62  |
| 80        | -220 | -60  | -76  | -19 | -30 | -46  | -7  | +11 | +41  |
| 80        | -120 | -36  | -36  | 0   | 0   | 0    | +13 | +35 | +76  |
| 120       | -250 | -71  | -90  | -22 | -35 | -54  | -9  | +13 | +51  |
| 120       | -145 | -43  | -43  | 0   | 0   | 0    | +14 | +40 | +93  |
| 180       | -305 | -83  | -106 | -25 | -40 | -63  | -11 | +15 | +63  |
| 180       | -170 | -50  | -50  | 0   | 0   | 0    | +16 | +46 | +113 |
| 250       | -355 | -96  | -122 | -29 | -46 | -72  | -13 | +17 | +77  |
| 250       | -190 | -56  | -56  | 0   | 0   | 0    | +16 | +52 | +130 |
| 315       | -400 | -108 | -137 | -32 | -52 | -81  | -16 | +20 | +94  |
| 315       | -210 | -62  | -62  | 0   | 0   | 0    | +18 | +57 | +150 |
| 400       | -440 | -119 | -151 | -36 | -57 | -89  | -18 | +21 | +108 |
| 400       | -230 | -68  | -68  | 0   | 0   | 0    | +20 | +63 | +172 |
| 500       | -480 | -131 | -165 | -40 | -63 | -97  | -20 | +23 | +126 |
| 500       | -263 | -76  | -76  | 0   | 0   | 0    | +22 | +70 | +194 |
| 560       | -540 | -146 | -186 | -44 | -70 | -110 | -22 | +26 | +150 |
| 560       | -263 | -76  | -76  | 0   | 0   | 0    | +22 | +70 | +199 |
| 630       | -540 | -146 | -186 | -44 | -70 | -110 | -22 | +26 | +155 |
| 630       | -293 | -80  | -80  | 0   | 0   | 0    | +25 | +80 | +225 |
| 710       | -610 | -160 | -205 | -50 | -80 | -125 | -25 | +30 | +175 |
| 710       | -293 | -80  | -80  | 0   | 0   | 0    | +25 | +80 | +235 |
| 800       | -610 | -160 | -205 | -50 | -80 | -125 | -25 | +30 | +185 |

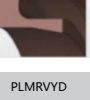
| BORE <sup>⊙</sup> | D10  | H7  | H8   | H9   | H10  | H11  | K7  | M7   | N7   |
|-------------------|------|-----|------|------|------|------|-----|------|------|
| mm                | μm   | μm  | μm   | μm   | μm   | μm   | μm  | μm   | μm   |
| >1                | +60  | +10 | +14  | +25  | +40  | +60  | 0   | -2   | -4   |
| ≤3                | +20  | 0   | 0    | 0    | 0    | 0    | -10 | -12  | -14  |
| 3                 | +78  | +12 | +18  | +30  | +48  | +75  | +3  | 0    | -4   |
| 6                 | +30  | 0   | 0    | 0    | 0    | 0    | -9  | -12  | -16  |
| 6                 | +98  | +15 | +22  | +36  | +58  | +90  | +5  | 0    | -4   |
| 10                | +40  | 0   | 0    | 0    | 0    | 0    | -10 | -15  | -19  |
| 10                | +120 | +18 | +27  | +43  | +70  | +110 | +6  | 0    | -5   |
| 18                | +50  | 0   | 0    | 0    | 0    | 0    | -12 | -18  | -23  |
| 18                | +149 | +21 | +33  | +52  | +84  | +130 | +6  | 0    | -7   |
| 30                | +65  | 0   | 0    | 0    | 0    | 0    | -15 | -21  | -28  |
| 30                | +180 | +25 | +39  | +62  | +100 | +160 | +7  | 0    | -8   |
| 50                | +80  | 0   | 0    | 0    | 0    | 0    | -18 | -25  | -33  |
| 50                | +220 | +30 | +46  | +74  | +120 | +190 | +9  | 0    | -9   |
| 80                | +100 | 0   | 0    | 0    | 0    | 0    | -21 | -30  | -39  |
| 80                | +260 | +35 | +54  | +87  | +140 | +220 | +10 | 0    | -10  |
| 120               | +120 | 0   | 0    | 0    | 0    | 0    | -25 | -35  | -45  |
| 120               | +305 | +40 | +63  | +100 | +160 | +250 | +12 | 0    | -12  |
| 180               | +145 | 0   | 0    | 0    | 0    | 0    | -28 | -40  | -52  |
| 180               | +355 | +46 | +72  | +115 | +185 | +290 | +13 | 0    | -14  |
| 250               | +170 | 0   | 0    | 0    | 0    | 0    | -33 | -46  | -60  |
| 250               | +400 | +52 | +81  | +130 | +210 | +320 | +16 | 0    | -14  |
| 315               | +190 | 0   | 0    | 0    | 0    | 0    | -36 | -52  | -66  |
| 315               | +440 | +57 | +89  | +140 | +230 | +360 | +17 | 0    | -16  |
| 400               | +210 | 0   | 0    | 0    | 0    | 0    | -40 | -57  | -73  |
| 400               | +480 | +63 | +97  | +155 | +250 | +400 | +18 | 0    | -17  |
| 500               | +230 | 0   | 0    | 0    | 0    | 0    | -45 | -63  | -80  |
| 500               | +540 | +70 | +110 | +175 | +280 | +440 | 0   | -26  | -44  |
| 560               | +260 | 0   | 0    | 0    | 0    | 0    | -70 | -96  | -114 |
| 560               | +540 | +70 | +110 | +175 | +280 | +440 | 0   | -26  | -44  |
| 630               | +260 | 0   | 0    | 0    | 0    | 0    | -70 | -96  | -114 |
| 630               | +610 | +80 | +125 | +200 | +320 | +500 | 0   | -30  | -50  |
| 710               | +290 | 0   | 0    | 0    | 0    | 0    | -80 | -110 | -130 |
| 710               | +610 | +80 | +125 | +200 | +320 | +500 | 0   | -30  | -50  |
| 800               | +290 | 0   | 0    | 0    | 0    | 0    | -80 | -110 | -130 |

# Machined Seal Product Cross-Sections

If you do not find the required seal profile in the standard seal profile catalog, you can select the required seal product from the following machined seal profiles. We can process seal diameters ranging from 5mm to 2500mm.

| WIPERS                                                                            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
|  |  |  |  |  |  |
| PLMW01C                                                                           | PLMW01D                                                                           | PLMW02                                                                            | PLMW02-2                                                                          | PLMW02C                                                                           | PLMW03                                                                            |
|  |  |  |  |  |  |
| PLMW05C                                                                           | PLMW11                                                                            | PLMW11-R                                                                          | PLMW11A                                                                           | PLMW12                                                                            | PLMW12A                                                                           |
|  |  |  |  |  |  |
| PLMW13                                                                            | PLMW17                                                                            | PLMW18                                                                            | PLMW25                                                                            | PLMW26                                                                            | PLMW27E2                                                                          |
|  |  |  |                                                                                   |                                                                                   |                                                                                   |
| PLMW27E5                                                                          | PLMW28                                                                            | PLMW38                                                                            |                                                                                   |                                                                                   |                                                                                   |



| ROD SEALS                                                                           |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|    |    |    |    |    |    |
| PLMR01                                                                              | PLMR01-R                                                                            | PLMR02                                                                              | PLMR02-R                                                                            | PLMR02A                                                                             | PLMR02A-R                                                                           |
|    |    |    |    |    |    |
| PLMR02B                                                                             | PLMR02C                                                                             | PLMR03                                                                              | PLMR03A                                                                             | PLMR05                                                                              | PLMR05-R                                                                            |
|    |    |    |    |    |    |
| PLMR05A                                                                             | PLMR08                                                                              | PLMR08B                                                                             | PLMR08C                                                                             | PLMR08D                                                                             | PLMR09D                                                                             |
|    |    |    |    |    |    |
| PLMR09DH                                                                            | PLMR09S                                                                             | PLMR09SH                                                                            | PLMR09SK                                                                            | PLMR14A                                                                             | PLMR14B                                                                             |
|    |    |    |    |    |    |
| PLMR16A                                                                             | PLMR16B                                                                             | PLMR16C                                                                             | PLMR17                                                                              | PLMR17-R                                                                            | PLMR20                                                                              |
|  |  |  |  |  |  |
| PLMR20-R                                                                            | PLMR24A                                                                             | PLMR35                                                                              | PLMR35-R                                                                            | PLMR1012                                                                            | PLMRV02                                                                             |
|  |  |  |  |  |  |
| PLMRV03                                                                             | PLMR1315                                                                            | PLMR32                                                                              | PLMRA01                                                                             | PLMRTVD                                                                             | PLMRTVD1                                                                            |
|  |  |  |  |  |  |
| PLMRTVD2                                                                            | PLMRRVD1                                                                            | PLMRRDVD                                                                            | PLMRRHM                                                                             | PLMRVYD                                                                             | PLMRVYD1                                                                            |

| PISTON SEALS                                                                        |                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|    |    |    |    |    |    |
| PLMP01                                                                              | PLMP01-R                                                                            | PLMP02                                                                              | PLMP02A                                                                             | PLMP03                                                                              | PLMP04                                                                              |
|    |    |    |    |    |    |
| PLMP04A                                                                             | PLMP05                                                                              | PLMP05A                                                                             | PLMP08D                                                                             | PLMP08DP                                                                            | PLMP08DT                                                                            |
|    |    |    |    |    |    |
| PLMP08DH                                                                            | PLMP08S                                                                             | PLMP08SH                                                                            | PLMP08P                                                                             | PLMP08R                                                                             | PLMP09A                                                                             |
|    |    |    |    |    |    |
| PLMP09AE                                                                            | PLMP09H                                                                             | PLMP16A                                                                             | PLMP16B                                                                             | PLMP16C                                                                             | PLMP17                                                                              |
|    |    |    |    |    |    |
| PLMP17R                                                                             | PLMP17A                                                                             | PLMP17AR                                                                            | PLMP20                                                                              | PLMP20-R                                                                            | PLMP23-H                                                                            |
|   |   |   |   |   |   |
| PLMP23A                                                                             | PLMP23AE                                                                            | PLMP23LF                                                                            | PLMP24B                                                                             | PLMP35                                                                              | PLMPAQ1                                                                             |
|  |  |  |  |  |  |
| PLMPAQ2                                                                             | PLMPGDKK                                                                            | PLMPRVD                                                                             | PLMPRVD1                                                                            | PLMPTVD                                                                             | PLMPRHM                                                                             |
|  |  |                                                                                     |                                                                                     |                                                                                     |                                                                                     |
| PLMPRVM                                                                             | PLMPRVM-L                                                                           |                                                                                     |                                                                                     |                                                                                     |                                                                                     |

| Dual use of hole and shaft                                                        |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
|  |  |  |  |  |  |
| PLMR06                                                                            | PLMR07                                                                            | PLMR21                                                                            | PLMPR13B                                                                          | PLMPR16                                                                           | PLMPR29P                                                                          |

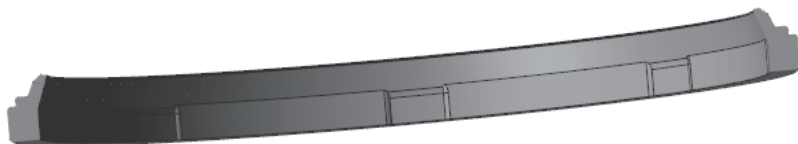
| Static                                                                            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
|  |  |  |  |  |  |
| PLMRT13                                                                           | PLMRT13B                                                                          | PLMRT13C                                                                          | PLMRT13D                                                                          | PLMRT13E                                                                          | PLMRT13H                                                                          |
|  |  |  |  |  |  |
| PLMRT13T                                                                          | PLMRT13V                                                                          | PLMRT15                                                                           | PLMRT15A                                                                          | PLMRT15AR                                                                         | PLMRT16                                                                           |
|  |  |  |  |  |                                                                                   |
| PLMRT16AR                                                                         | PLMRT16BR                                                                         | PLMRT35                                                                           | PLMRT35AR                                                                         | PLMRT35T                                                                          |                                                                                   |

| Rotary                                                                            |                                                                                   |                                                                                   |                                                                                   |                                                                                   |                                                                                   |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|
|  |  |  |  |  |  |
| PLMRT01                                                                           | PLMRT01-R                                                                         | PLMRT01A                                                                          | PLMRT01A-R                                                                        | PLMRT02                                                                           | PLMRT02-R                                                                         |
|  |  |  |  |  |  |
| PLMRT02A                                                                          | PLMRT02A-R                                                                        | PLMRT04B                                                                          | PLMRT05B                                                                          | PLMRT06                                                                           | PLMRT06-R                                                                         |
|  |  |  |  |  |  |
| PLMRT08                                                                           | PLMRT09                                                                           | PLMRT09H                                                                          | PMRT10                                                                            | PLMRT10H                                                                          | PLMRT20A                                                                          |
|  |  |  |  |  |  |
| PLMRT28A                                                                          | PLMRT29A                                                                          | PLMRT37A                                                                          | PLMRTTVD                                                                          | PLMRTTVD1                                                                         | PLMRTTVYD                                                                         |
|  |  |  |                                                                                   |                                                                                   |                                                                                   |
| PLMRTTVD2                                                                         | PLMRTTHD                                                                          | PLMRTTHD1                                                                         |                                                                                   |                                                                                   |                                                                                   |

| Guide rings                                                                         |                                                                                     |                                                                                     |                                                                                    |                                                                                    |                                                                                    |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
|   |   |   |  |  |  |
| PLMG01                                                                              | PLMG05                                                                              | PLMG06                                                                              | PLMG07                                                                             | PLMG08                                                                             | PLMG09                                                                             |
|  |                                                                                     |                                                                                     |                                                                                    |                                                                                    |                                                                                    |
| PLMG10                                                                              |                                                                                     |                                                                                     |                                                                                    |                                                                                    |                                                                                    |
| Back up                                                                             |                                                                                     |                                                                                     |                                                                                    |                                                                                    |                                                                                    |
|  |  |  |                                                                                    |                                                                                    |                                                                                    |
| PLMB09                                                                              | PLMB09-2                                                                            | PLMB10                                                                              |                                                                                    |                                                                                    |                                                                                    |

## Standard Seal Cross-Sections and Specifications

### PLMW01A



#### ●Product Description

The PLMW01A wiper seal is designed to prevent dust, dirt, sand, and metal particles from entering the sealing system. The interference-fit outer diameter ensures a tight installation in the groove, effectively blocking contaminants and moisture to extend system life. The inner lip with a raised shoulder prevents tilting or twisting of the seal and reduces the risk of it being pulled out.

#### ●Applications

Applicable to axial motion components such as hydraulic and pneumatic cylinders, plungers, and guide bushings.

#### ●Application Parameters

Operating Temperature:  $-35^{\circ}\text{C} \sim 100^{\circ}\text{C}$  (PLMPUR)  
 $-40^{\circ}\text{C} \sim 90^{\circ}\text{C}$  (PLMPUR-LL92A)

Surface Speed:  $\leq 1\text{m/s}$

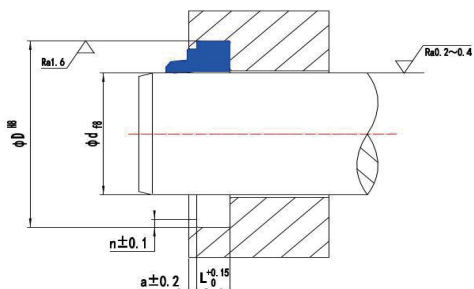
Media: Mineral hydraulic oil and grease

Standard material: PLMPUR PLMPUR-LL92A

Note: The maximum values listed above cannot be used simultaneously

#### ●Installation Requirements

Installed in closed grooves by manually bending and pressing the wiper into the groove. Apply appropriate lubricant to the wiper before installation.



| Serial Number | Order Number       | d  | D  | H | L   | a   | n   |
|---------------|--------------------|----|----|---|-----|-----|-----|
| 1             | PLMW01A 4×12×4/7   | 4  | 12 | 7 | 4   | 1   | 1   |
| 2             | PLMW01A 5×8×2.2/4  | 5  | 8  | 4 | 2.2 | 0.5 | 0.5 |
| 3             | PLMW01A 6×10×2.2/4 | 6  | 10 | 4 | 2.2 | 0.5 | 0.5 |
| 4             | PLMW01A 8×16×4/7   | 8  | 16 | 7 | 4   | 1   | 1   |
| 5             | PLMW01A 10×18×4/7  | 10 | 18 | 7 | 4   | 1   | 1   |
| 6             | PLMW01A 12×20×4/7  | 12 | 20 | 7 | 4   | 1   | 1   |
| 7             | PLMW01A 14×22×4/7  | 14 | 22 | 7 | 4   | 1   | 1   |
| 8             | PLMW01A 15×23×4/7  | 15 | 23 | 7 | 4   | 1   | 1   |
| 9             | PLMW01A 16×24×4/7  | 16 | 24 | 7 | 4   | 1   | 1   |
| 10            | PLMW01A 18×26×4/7  | 18 | 26 | 7 | 4   | 1   | 1   |
| 11            | PLMW01A 20×28×4/7  | 20 | 28 | 7 | 4   | 1   | 1   |
| 12            | PLMW01A 22×30×4/7  | 22 | 30 | 7 | 4   | 1   | 1   |
| 13            | PLMW01A 24×32×4/7  | 24 | 32 | 7 | 4   | 1   | 1   |
| 14            | PLMW01A 25×33×4/7  | 25 | 33 | 7 | 4   | 1   | 1   |
| 15            | PLMW01A 28×36×4/7  | 28 | 36 | 7 | 4   | 1   | 1   |
| 16            | PLMW01A 30×38×4/7  | 30 | 38 | 7 | 4   | 1   | 1   |
| 17            | PLMW01A 32×40×4/7  | 32 | 40 | 7 | 4   | 1   | 1   |
| 18            | PLMW01A 35×43×4/7  | 35 | 43 | 7 | 4   | 1   | 1   |
| 19            | PLMW01A 36×44×4/7  | 36 | 44 | 7 | 4   | 1   | 1   |
| 20            | PLMW01A 38×46×4/7  | 38 | 46 | 7 | 4   | 1   | 1   |
| 21            | PLMW01A 40×48×4/7  | 40 | 48 | 7 | 4   | 1   | 1   |
| 22            | PLMW01A 42×50×4/7  | 42 | 50 | 7 | 4   | 1   | 1   |
| 23            | PLMW01A 45×53×4/7  | 45 | 53 | 7 | 4   | 1   | 1   |
| 24            | PLMW01A 48×56×4/7  | 48 | 56 | 7 | 4   | 1   | 1   |
| 25            | PLMW01A 50×58×4/7  | 50 | 58 | 7 | 4   | 1   | 1   |
| 26            | PLMW01A 55×63×4/7  | 55 | 63 | 7 | 4   | 1   | 1   |
| 27            | PLMW01A 56×64×4/7  | 56 | 64 | 7 | 4   | 1   | 1   |
| 28            | PLMW01A 60×68×4/7  | 60 | 68 | 7 | 4   | 1   | 1   |



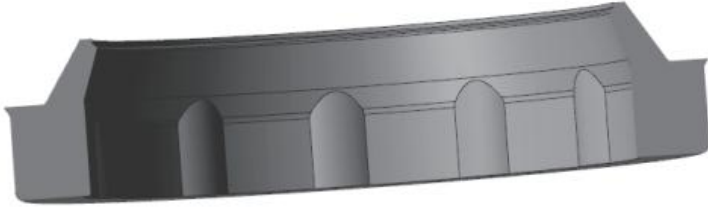
| Serial Number | Order Number           | d   | D   | H  | L   | a   | n   |
|---------------|------------------------|-----|-----|----|-----|-----|-----|
| 29            | PLMW01A 63×71×4/7      | 63  | 71  | 7  | 4   | 1   | 1   |
| 30            | PLMW01A 65×73×4/7      | 65  | 73  | 7  | 4   | 1   | 1   |
| 31            | PLMW01A 70×78×4/7      | 70  | 78  | 7  | 4   | 1   | 1   |
| 32            | PLMW01A 75×83×4/7      | 75  | 83  | 7  | 4   | 1   | 1   |
| 33            | PLMW01A 80×88×4/7      | 80  | 88  | 7  | 4   | 1   | 1   |
| 34            | PLMW01A 82×90×4/7      | 82  | 90  | 7  | 4   | 1   | 1   |
| 35            | PLMW01A 85×93×4/7      | 85  | 93  | 7  | 4   | 1   | 1   |
| 36            | PLMW01A 90×98×4/7      | 90  | 98  | 7  | 4   | 1   | 1   |
| 37            | PLMW01A 95×103×4/7     | 95  | 103 | 7  | 4   | 1   | 1   |
| 38            | PLMW01A 100×108×4/7    | 100 | 108 | 7  | 4   | 1   | 1   |
| 39            | PLMW01A 105×117×5.5/10 | 105 | 117 | 10 | 5.5 | 1.5 | 1.5 |
| 40            | PLMW01A 110×122×5.5/10 | 110 | 122 | 10 | 5.5 | 1.5 | 1.5 |
| 41            | PLMW01A 115×127×5.5/10 | 115 | 127 | 10 | 5.5 | 1.5 | 1.5 |
| 42            | PLMW01A 120×132×5.5/10 | 120 | 132 | 10 | 5.5 | 1.5 | 1.5 |
| 43            | PLMW01A 125×137×5.5/10 | 125 | 137 | 10 | 5.5 | 1.5 | 1.5 |
| 44            | PLMW01A 130×142×5.5/10 | 130 | 142 | 10 | 5.5 | 1.5 | 1.5 |
| 45            | PLMW01A 135×147×5.5/10 | 135 | 147 | 10 | 5.5 | 1.5 | 1.5 |
| 46            | PLMW01A 140×152×5.5/10 | 140 | 152 | 10 | 5.5 | 1.5 | 1.5 |
| 47            | PLMW01A 145×157×5.5/10 | 145 | 157 | 10 | 5.5 | 1.5 | 1.5 |
| 48            | PLMW01A 150×162×5.5/10 | 150 | 162 | 10 | 5.5 | 1.5 | 1.5 |
| 49            | PLMW01A 160×172×5.5/10 | 160 | 172 | 10 | 5.5 | 1.5 | 1.5 |
| 50            | PLMW01A 170×182×5.5/10 | 170 | 182 | 10 | 5.5 | 1.5 | 1.5 |
| 51            | PLMW01A 180×192×5.5/10 | 180 | 192 | 10 | 5.5 | 1.5 | 1.5 |
| 52            | PLMW01A 190×202×5.5/10 | 190 | 202 | 10 | 5.5 | 1.5 | 1.5 |
| 53            | PLMW01A 195×207×5.5/10 | 195 | 207 | 10 | 5.5 | 1.5 | 1.5 |
| 54            | PLMW01A 200×212×5.5/10 | 200 | 212 | 10 | 5.5 | 1.5 | 1.5 |
| 55            | PLMW01A 210×225×6.5/13 | 210 | 225 | 13 | 6.5 | 2   | 2   |
| 56            | PLMW01A 220×235×6.5/13 | 220 | 235 | 13 | 6.5 | 2   | 2   |
| 57            | PLMW01A 230×245×6.5/13 | 230 | 245 | 13 | 6.5 | 2   | 2   |
| 58            | PLMW01A 235×250×6.5/13 | 235 | 250 | 13 | 6.5 | 2   | 2   |
| 59            | PLMW01A 240×255×6.5/13 | 240 | 255 | 13 | 6.5 | 2   | 2   |
| 60            | PLMW01A 250×265×6.5/13 | 250 | 265 | 13 | 6.5 | 2   | 2   |
| 61            | PLMW01A 260×275×6.5/13 | 260 | 275 | 13 | 6.5 | 2   | 2   |
| 62            | PLMW01A 265×280×6.5/13 | 265 | 280 | 13 | 6.5 | 2   | 2   |
| 63            | PLMW01A 300×315×6.5/13 | 300 | 315 | 13 | 6.5 | 2   | 2   |
| 64            | PLMW01A 305×320×6.5/13 | 305 | 320 | 13 | 6.5 | 2   | 2   |
| 65            | PLMW01A 310×325×6.5/13 | 310 | 325 | 13 | 6.5 | 2   | 2   |
| 66            | PLMW01A 315×330×6.5/13 | 315 | 330 | 13 | 6.5 | 2   | 2   |
| 67            | PLMW01A 320×335×6.5/13 | 320 | 335 | 13 | 6.5 | 2   | 2   |
| 68            | PLMW01A 340×355×6.5/13 | 340 | 355 | 13 | 6.5 | 2   | 2   |
| 69            | PLMW01A 365×380×6.5/13 | 365 | 380 | 13 | 6.5 | 2   | 2   |
| 70            | PLMW01A 400×415×6.5/13 | 400 | 415 | 13 | 6.5 | 2   | 2   |

| Serial Number | Order Number           | d   | D   | H  | L   | a | n |
|---------------|------------------------|-----|-----|----|-----|---|---|
| 71            | PLMW01A 450×465×6.5/13 | 450 | 465 | 13 | 6.5 | 2 | 2 |
| 72            | PLMW01A 500×515×6.5/13 | 500 | 515 | 13 | 6.5 | 2 | 2 |

In addition to the above specifications, Puli can provide customized product dimensions.



## PLMW38



### ●Product Description

As a single-acting wiper seal, the product features an interference-fit outer surface with the groove bottom, ensuring a stable position within the groove. The secondary lip on the outer circumference effectively minimizes the ingress of fine contaminants and moisture. The optimized rounded lip design maintains excellent wiping performance while preserving the lubricating oil film on the piston rod surface. The inner shoulder structure reduces friction during reciprocating motion, thereby lowering the risk of the wiper being pulled out.

### ●Applications

For use in low- to medium-pollution applications such as construction machinery hydraulic equipment, plungers, injection molding machines, forklifts, and agricultural machinery.

### ●Application Parameters

Operating Temperature: -35°C to 100°C (PLMPUR)  
-40°C ~ 90°C (PLMPUR-LL92A)

Surface Speed:  $\leq 1\text{ms}$

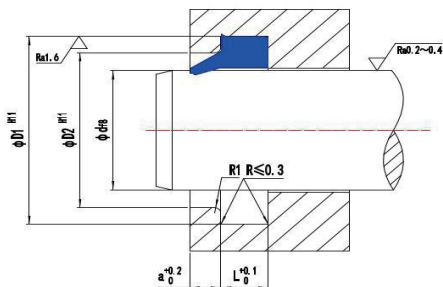
Media: Mineral hydraulic oil and grease

Standard material: PLMPUR PLMPUR-LL92A

Note: The maximum values listed above cannot be used simultaneously

### ●Installation Requirements

Installed in closed grooves by manually bending and pressing the wiper into the groove. Apply appropriate lubricant to the wiper before installation.



| Serial Number | Order Number                  | d    | D1   | H   | L   | D2   |
|---------------|-------------------------------|------|------|-----|-----|------|
| 1             | PLMW38 4×12×9.5×5/8           | 4    | 12   | 8   | 5   | 9.5  |
| 2             | PLMW38 5×13×10.5×5/8          | 5    | 13   | 8   | 5   | 10.5 |
| 3             | PLMW38 6×14×11.5×5/8          | 6    | 14   | 8   | 5   | 11.5 |
| 4             | PLMW38 8×16×13.5×5/8          | 8    | 16   | 8   | 5   | 13.5 |
| 5             | PLMW38 10×18×15.5×5/8         | 10   | 18   | 8   | 5   | 15.5 |
| 6             | PLMW38 12×20×17.5×5/8         | 12   | 20   | 8   | 5   | 17.5 |
| 7             | PLMW38 14×22×19.5×5/8         | 14   | 22   | 8   | 5   | 19.5 |
| 8             | PLMW38 16×24×21.5×5/8         | 16   | 24   | 8   | 5   | 21.5 |
| 9             | PLMW38 18×26×23.5×5/8         | 18   | 26   | 8   | 5   | 23.5 |
| 10            | PLMW38 19.1×28.6×23.4×4.8/7.1 | 19.1 | 28.6 | 7.1 | 4.8 | 23.4 |
| 11            | PLMW38 20×28×25.5×5/8         | 20   | 28   | 8   | 5   | 25.5 |
| 12            | PLMW38 20×28.6×23×5.3/7       | 20   | 28.6 | 7   | 5.3 | 23   |
| 13            | PLMW38 22×30×27.5×5/8         | 22   | 30   | 8   | 5   | 27.5 |
| 14            | PLMW38 25×33×30.5×5/8         | 25   | 33   | 8   | 5   | 30.5 |
| 15            | PLMW38 25×33.6×28×5.3/7       | 25   | 33.6 | 7   | 5.3 | 28   |
| 16            | PLMW38 25.4×34.9×28.4×4.8/7.1 | 25.4 | 34.9 | 7.1 | 4.8 | 28.4 |
| 17            | PLMW38 28×36×33.5×5/8         | 28   | 36   | 8   | 5   | 33.5 |
| 18            | PLMW38 30×40×35.5×5/8         | 30   | 40   | 8   | 5   | 35.5 |
| 19            | PLMW38 32×40×37.5×5/8         | 32   | 40   | 8   | 5   | 37.5 |
| 20            | PLMW38 32×40.6×35×5.3/7       | 32   | 40.6 | 7   | 5.3 | 35   |
| 21            | PLMW38 35×43.6×38×5.3/7       | 35   | 43.6 | 7   | 5.3 | 38   |
| 22            | PLMW38 36×44×41.5×5/8         | 36   | 44   | 8   | 5   | 41.5 |
| 23            | PLMW38 36×44.6×39×5.3/7       | 36   | 44.6 | 7   | 5.3 | 39   |
| 24            | PLMW38 38.1×47.6×42.4×4.8/7.1 | 38.1 | 47.6 | 7.1 | 4.8 | 42.4 |
| 25            | PLMW38 40×48×45.5×5/8         | 40   | 48   | 8   | 5   | 45.5 |
| 26            | PLMW38 40×48.6×43×5.3/7       | 40   | 48.6 | 7   | 5.3 | 43   |
| 27            | PLMW38 42×50×46.2×4/6         | 42   | 50   | 6   | 4   | 46.2 |
| 28            | PLMW38 42×50.6×45×5.3/7       | 42   | 50.6 | 7   | 5.3 | 45   |
| 29            | PLMW38 44.5×54×47.5×4.8/7.1   | 44.5 | 54   | 7.1 | 4.8 | 47.5 |

| Serial Number | Order Number                      | d     | D1     | H    | L    | D2    |
|---------------|-----------------------------------|-------|--------|------|------|-------|
| 30            | PLMW38 45×53×50.5×5/8             | 45    | 53     | 8    | 5    | 50.5  |
| 31            | PLMW38 45×55.6×48×5.3/7           | 45    | 55.6   | 7    | 5.3  | 48    |
| 32            | PLMW38 50×58×55.5×5/8             | 50    | 58     | 8    | 5    | 55.5  |
| 33            | PLMW38 50×60.6×53×5.3/7           | 50    | 60.6   | 7    | 5.3  | 53    |
| 34            | PLMW38 50.8×63.5×57×6.4/10        | 50.8  | 63.5   | 10   | 6.4  | 57    |
| 35            | PLMW38 55×65.6×58×5.3/7           | 55    | 65.6   | 7    | 5.3  | 58    |
| 36            | PLMW38 56×66×63×6.3/10            | 56    | 66     | 10   | 6.3  | 63    |
| 37            | PLMW38 56×66.6×59×5.3/7           | 56    | 66.6   | 7    | 5.3  | 59    |
| 38            | PLMW38 60×70×63×5/7.5             | 60    | 70     | 7.5  | 5    | 63    |
| 39            | PLMW38 60×70.6×63×5.3/7           | 60    | 70.6   | 7    | 5.3  | 63    |
| 40            | PLMW38 63×73×70×6.3/10            | 63    | 73     | 10   | 6.3  | 70    |
| 41            | PLMW38 63×73.6×66×5.3/7           | 63    | 73.6   | 7    | 5.3  | 66    |
| 42            | PLMW38 65×75.6×68×5.3/7           | 65    | 75.6   | 7    | 5.3  | 68    |
| 43            | PLMW38 70×80×75.7×6.5/10          | 70    | 80     | 10   | 6.5  | 75.7  |
| 44            | PLMW38 70×80.6×73×5.3/7           | 70    | 80.6   | 7    | 5.3  | 73    |
| 45            | PLMW38 73×80×77×6.3/10            | 73    | 80     | 10   | 6.3  | 77    |
| 46            | PLMW38 80×88.6×83×5.3/7           | 80    | 88.6   | 7    | 5.3  | 83    |
| 47            | PLMW38 80×90×87×6.3/10            | 80    | 90     | 10   | 6.3  | 87    |
| 48            | PLMW38 85×97.2×91×7.1/12          | 85    | 97.2   | 12   | 7.1  | 91    |
| 49            | PLMW38 90×100×97×6.3/10           | 90    | 100    | 10   | 6.3  | 97    |
| 50            | PLMW38 90×102×96×7/10.5           | 90    | 102    | 10.5 | 7    | 96    |
| 51            | PLMW38 90×102.2×96×7.1/12         | 90    | 102.2  | 12   | 7.1  | 96    |
| 52            | PLMW38 100×112.2×106×7.1/12       | 100   | 112.2  | 12   | 7.1  | 106   |
| 53            | PLMW38 100×115×110×9.5/14         | 100   | 115    | 14   | 9.5  | 110   |
| 54            | PLMW38 101.6×114.6×109.1×6.1/9.5  | 101.6 | 114.6  | 9.5  | 6.1  | 109.1 |
| 55            | PLMW38 110×122.2×116×7.1/12       | 110   | 122.2  | 12   | 7.1  | 116   |
| 56            | PLMW38 110×125×120×9.5/14         | 110   | 125    | 14   | 9.5  | 120   |
| 57            | PLMW38 120×140×129.3×9.5/14.5     | 120   | 140    | 14.5 | 9.5  | 129.3 |
| 58            | PLMW38 125×137.2×131×7.6/12       | 125   | 137.2  | 12   | 7.6  | 131   |
| 59            | PLMW38 125×140×135×9.5/14         | 125   | 140    | 14   | 9.5  | 135   |
| 60            | PLMW38 130×142.2×136×7.1/12       | 130   | 142.2  | 12   | 7.1  | 136   |
| 61            | PLMW38 139.7×158.7×152.2×9.5/14.5 | 139.7 | 158.7  | 14.5 | 9.5  | 152.2 |
| 62            | PLMW38 140×155×147.6×10.1/16      | 140   | 155    | 16   | 10.1 | 147.6 |
| 63            | PLMW38 140×155×150×9.5/14         | 140   | 155    | 14   | 9.5  | 150   |
| 64            | PLMW38 150×165×157.6×10.1/16      | 150   | 165    | 16   | 10.1 | 157.6 |
| 65            | PLMW38 160×175×167.6×10.1/16      | 160   | 175    | 16   | 10.1 | 167.6 |
| 66            | PLMW38 160×175×170×9.5/14         | 160   | 175    | 14   | 9.5  | 170   |
| 67            | PLMW38 165×173.6×168×5.3/7        | 165   | 173.60 | 7    | 5.3  | 168   |
| 68            | PLMW38 170×182.2×176×7.1/12       | 170   | 182.2  | 12   | 7.1  | 176   |
| 69            | PLMW38 177.8×196.6×190.3×9.5/14.5 | 177.8 | 196.6  | 14.5 | 9.5  | 190.3 |
| 70            | PLMW38 180×195×190×9.5/14         | 180   | 195    | 14   | 9.5  | 190   |
| 71            | PLMW38 180×200×190×10.2/18        | 180   | 200    | 18   | 10.2 | 190   |
| 72            | PLMW38 185×193.6×188×5.3/7        | 185   | 193.6  | 7    | 5.3  | 188   |

| Serial Number | Order Number                 | d   | D1    | H  | L    | D2    |
|---------------|------------------------------|-----|-------|----|------|-------|
| 73            | PLMW38 190×198.6×193×5.3/7   | 190 | 198.6 | 7  | 5.3  | 193   |
| 74            | PLMW38 200×215×210×9.5/14    | 200 | 215   | 14 | 9.5  | 210   |
| 75            | PLMW38 200×220×210×10.2/18   | 200 | 220   | 18 | 10.2 | 210   |
| 76            | PLMW38 220×240×230×10.2/18   | 220 | 240   | 18 | 10.2 | 230   |
| 77            | PLMW38 220×240×233.5×12.5/18 | 220 | 240   | 18 | 12.5 | 233.5 |
| 78            | PLMW38 240×260×250×10.2/18   | 240 | 260   | 18 | 10.2 | 250   |
| 79            | PLMW38 250×270×260×10.2/18   | 250 | 270   | 18 | 10.2 | 260   |
| 80            | PLMW38 250×270×263.5×12.5/18 | 250 | 270   | 18 | 12.5 | 263.5 |
| 81            | PLMW38 280×300×293.5×12.5/18 | 280 | 300   | 18 | 12.5 | 293.5 |
| 82            | PLMW38 320×340×333.5×12.5/18 | 320 | 340   | 18 | 12.5 | 333.5 |
| 83            | PLMW38 360×380×370×10.2/18   | 360 | 380   | 18 | 10.2 | 370   |
| 84            | PLMW38 360×380×373.5×12.5/18 | 360 | 380   | 18 | 12.5 | 373.5 |
| 85            | PLMW38 400×420×413.5×12.5/18 | 400 | 420   | 18 | 12.5 | 413.5 |
| 86            | PLMW38 450×470×463.5×12.5/18 | 450 | 470   | 18 | 12.5 | 463.5 |

In addition to the above specifications, Puli can provide customized product dimensions.



## PLMW11



### ●Product Description

The PLMW11 is a dual-purpose wiper. Its outer surface has an interference fit with the groove bottom, ensuring a stable seal within the groove. The sealing lip reduces residual lubricant film. When using PTFE rod seals, the PLMW11 wiper is recommended. The rounded corners of the wiper lip reduce oil carryover on the piston rod.

### ●Applications

For use in low- to medium-pollution applications such as construction machinery hydraulic equipment, plungers, injection molding machines, forklifts, and agricultural machinery.

### ●Application Parameters

Operating Temperature: -35°C to 100°C (PLMPUR)  
-40°C ~ 90°C (PLMPUR-LL92A)

Surface Speed:  $\leq 1\text{ms}$

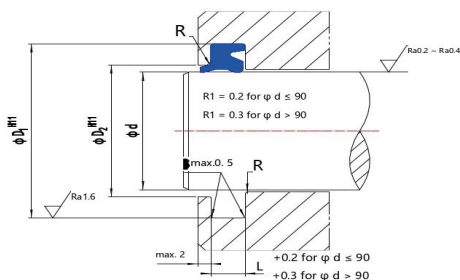
Media: Mineral hydraulic oil and grease

Standard material: PLMPUR PLMPUR-LL92A

Note: The maximum values listed above cannot be used simultaneously

### ●Installation Requirements

Installed in closed grooves by manually bending and pressing the wiper into the groove. Apply appropriate lubricant to the wiper before installation.



| ISO standard groove |                          |    |    |     |      |     |
|---------------------|--------------------------|----|----|-----|------|-----|
| Serial Number       | Order Number             | d  | D1 | H   | D2   | L   |
| 1                   | PLMW11 8×13×10.5×3.5/4.1 | 8  | 13 | 4.1 | 10.5 | 3.5 |
| 2                   | PLMW11 10×16×12.5×4/4.8  | 10 | 16 | 4.8 | 12.5 | 4   |
| 3                   | PLMW11 12×18×14.5×4/4.8  | 12 | 18 | 4.8 | 14.5 | 4   |
| 4                   | PLMW11 14×20×16.5×4/4.8  | 14 | 20 | 4.8 | 16.5 | 4   |
| 5                   | PLMW11 15×21×17.5×4/4.8  | 15 | 21 | 4.8 | 17.5 | 4   |
| 6                   | PLMW11 16×22×18.5×4/4.8  | 16 | 22 | 4.8 | 18.5 | 4   |
| 7                   | PLMW11 18×24×20.5×4/4.8  | 18 | 24 | 4.8 | 20.5 | 4   |
| 8                   | PLMW11 20×26×22.5×4/4.8  | 20 | 26 | 4.8 | 22.5 | 4   |
| 9                   | PLMW11 22×28×24.5×4/4.8  | 22 | 28 | 4.8 | 24.5 | 4   |
| 10                  | PLMW11 25×31×27.5×4/4.8  | 25 | 31 | 4.8 | 27.5 | 4   |
| 11                  | PLMW11 28×36×31×5/5.8    | 28 | 36 | 5.8 | 31   | 5   |
| 12                  | PLMW11 30×38×33×5/5.8    | 30 | 38 | 5.8 | 33   | 5   |
| 13                  | PLMW11 32×40×35×5/5.8    | 32 | 40 | 5.8 | 35   | 5   |
| 14                  | PLMW11 35×43×38×5/5.8    | 35 | 43 | 5.8 | 38   | 5   |
| 15                  | PLMW11 36×44×39×5/5.8    | 36 | 44 | 5.8 | 39   | 5   |
| 16                  | PLMW11 37×45×40×5/5.8    | 37 | 45 | 5.8 | 40   | 5   |
| 17                  | PLMW11 40×48×43×5/5.8    | 40 | 48 | 5.8 | 43   | 5   |
| 18                  | PLMW11 45×53×48×5/5.8    | 45 | 53 | 5.8 | 48   | 5   |
| 19                  | PLMW11 46×54×49×5/5.8    | 46 | 54 | 5.8 | 49   | 5   |
| 20                  | PLMW11 50×58×53×5/5.8    | 50 | 58 | 5.8 | 53   | 5   |
| 21                  | PLMW11 55×65×58×6/6.8    | 55 | 65 | 6.8 | 58   | 6   |
| 22                  | PLMW11 56×66×59×6/6.8    | 56 | 66 | 6.8 | 59   | 6   |
| 23                  | PLMW11 60×70×63×6/6.8    | 60 | 70 | 6.8 | 63   | 6   |
| 24                  | PLMW11 63×73×66×6/6.8    | 63 | 73 | 6.8 | 66   | 6   |
| 25                  | PLMW11 65×75×68×6/6.8    | 65 | 75 | 6.8 | 68   | 6   |
| 26                  | PLMW11 70×80×73×6/6.8    | 70 | 80 | 6.8 | 73   | 6   |
| 27                  | PLMW11 75×85×78×6/6.8    | 75 | 85 | 6.8 | 78   | 6   |



| Serial Number | Order Number               | d   | D1  | H   | D2  | L   |
|---------------|----------------------------|-----|-----|-----|-----|-----|
| 28            | PLMW11 80×90×83×6/6.8      | 80  | 90  | 6.8 | 83  | 6   |
| 29            | PLMW11 85×95×88×6/6.8      | 85  | 95  | 6.8 | 88  | 6   |
| 30            | PLMW11 90×100×93×6/6.8     | 90  | 100 | 6.8 | 93  | 6   |
| 31            | PLMW11 100×110×103×6/6.8   | 100 | 110 | 6.8 | 103 | 6   |
| 32            | PLMW11 110×125×114×8.5/9.5 | 110 | 125 | 9.5 | 114 | 8.5 |
| 33            | PLMW11 125×140×129×8.5/9.5 | 125 | 140 | 9.5 | 129 | 8.5 |
| 34            | PLMW11 140×155×144×8.5/9.5 | 140 | 155 | 9.5 | 144 | 8.5 |
| 35            | PLMW11 150×165×154×8.5/9.5 | 150 | 165 | 9.5 | 154 | 8.5 |
| 36            | PLMW11 160×175×164×8.5/9.5 | 160 | 175 | 9.5 | 164 | 8.5 |

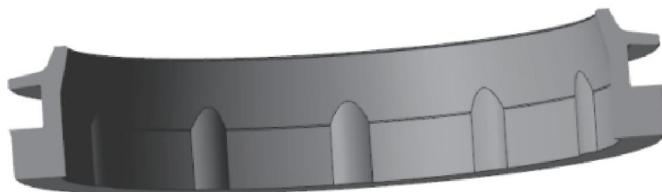
In addition to the above specifications, Puli can provide customized product dimensions.

| JIS standard groove |                           |      |      |     |      |   |
|---------------------|---------------------------|------|------|-----|------|---|
| Serial Number       | Order Number              | d    | D1   | H   | D2   | L |
| 1                   | PLMW11 12×20×16.3×5/6     | 12   | 20   | 6   | 16.3 | 5 |
| 2                   | PLMW11 16×24×20.3×5/6     | 16   | 24   | 6   | 20.3 | 5 |
| 3                   | PLMW11 18×26×22.3×5/6     | 18   | 26   | 6   | 22.3 | 5 |
| 4                   | PLMW11 20×28×24.3×5/6     | 20   | 28   | 6   | 24.3 | 5 |
| 5                   | PLMW11 22×30×26.3×5/6     | 22   | 30   | 6   | 26.3 | 5 |
| 6                   | PLMW11 22.4×30.4×26.7×5/6 | 22.4 | 30.4 | 6   | 26.7 | 5 |
| 7                   | PLMW11 25×33×29.3×5/6     | 25   | 33   | 6   | 29.3 | 5 |
| 8                   | PLMW11 28×36×32.3×5/6     | 28   | 36   | 6   | 32.3 | 5 |
| 9                   | PLMW11 30×38×34×6/5       | 30   | 38   | 6.5 | 34   | 6 |
| 10                  | PLMW11 32×40×36×6/5       | 32   | 40   | 6.5 | 36   | 6 |
| 11                  | PLMW11 35×43×39×6/5       | 35   | 43   | 6.5 | 39   | 6 |
| 12                  | PLMW11 35.5×43.5×39.5×6/5 | 35.5 | 43.5 | 6.5 | 39.5 | 6 |
| 13                  | PLMW11 36×44×40×6/5       | 36   | 44   | 6.5 | 40   | 6 |
| 14                  | PLMW11 40×48×44×6/5       | 40   | 48   | 6.5 | 44   | 6 |
| 15                  | PLMW11 45×53×49×6/5       | 45   | 53   | 6.5 | 49   | 6 |
| 16                  | PLMW11 50×58×54×6/5       | 50   | 58   | 6.5 | 54   | 6 |
| 17                  | PLMW11 53×61×57×6/5       | 53   | 61   | 6.5 | 57   | 6 |
| 18                  | PLMW11 55×63×59×6/5       | 55   | 63   | 6.5 | 59   | 6 |
| 19                  | PLMW11 56×64×60×6/5       | 56   | 64   | 6.5 | 60   | 6 |
| 20                  | PLMW11 60×68×64×6/5       | 60   | 68   | 6.5 | 64   | 6 |
| 21                  | PLMW11 63×71×67×6/5       | 63   | 71   | 6.5 | 67   | 6 |
| 22                  | PLMW11 65×73×69×6/5       | 65   | 73   | 6.5 | 69   | 6 |
| 23                  | PLMW11 67×75×71×6/5       | 67   | 75   | 6.5 | 71   | 6 |
| 24                  | PLMW11 70×80×75×7/8       | 70   | 80   | 8   | 75   | 7 |
| 25                  | PLMW11 71×81×76×7/8       | 71   | 81   | 8   | 76   | 7 |
| 26                  | PLMW11 75×85×80×7/8       | 75   | 85   | 8   | 80   | 7 |
| 27                  | PLMW11 80×90×85×7/8       | 80   | 90   | 8   | 85   | 7 |
| 28                  | PLMW11 85×95×90×7/8       | 85   | 95   | 8   | 90   | 7 |
| 29                  | PLMW11 90×100×95×7/8      | 90   | 100  | 8   | 95   | 7 |
| 30                  | PLMW11 95×105×100×7/8     | 95   | 105  | 8   | 100  | 7 |
| 31                  | PLMW11 100×110×105×7/8    | 100  | 110  | 8   | 105  | 7 |
| 32                  | PLMW11 105×115×110×7/8    | 105  | 115  | 8   | 110  | 7 |
| 33                  | PLMW11 110×120×115×7/8    | 110  | 120  | 8   | 115  | 7 |
| 34                  | PLMW11 112×122×117×7/8    | 112  | 122  | 8   | 117  | 7 |
| 35                  | PLMW11 120×130×125×7/8    | 120  | 130  | 8   | 125  | 7 |
| 36                  | PLMW11 125×138×132×8/9.5  | 125  | 138  | 9.5 | 132  | 8 |
| 37                  | PLMW11 130×143×137×8/9.5  | 130  | 143  | 9.5 | 137  | 8 |
| 38                  | PLMW11 135×148×142×8/9.5  | 135  | 148  | 9.5 | 142  | 8 |
| 39                  | PLMW11 136×149×143×8/9.5  | 136  | 149  | 9.5 | 143  | 8 |

| Serial Number | Order Number               | d   | D1  | H    | D2  | L  |
|---------------|----------------------------|-----|-----|------|-----|----|
| 40            | PLMW11 140×153×147×8/9.5   | 140 | 153 | 9.5  | 147 | 8  |
| 41            | PLMW11 145×158×152×8/9.5   | 145 | 158 | 9.5  | 152 | 8  |
| 42            | PLMW11 150×163×157×8/9.5   | 150 | 163 | 9.5  | 157 | 8  |
| 43            | PLMW11 160×173×167×8/9.5   | 160 | 173 | 9.5  | 167 | 8  |
| 44            | PLMW11 165×178×172×8/9.5   | 165 | 178 | 9.5  | 172 | 8  |
| 45            | PLMW11 170×183×177×8/9.5   | 170 | 183 | 9.5  | 177 | 8  |
| 46            | PLMW11 175×188×182×8/9.5   | 175 | 188 | 9.5  | 182 | 8  |
| 47            | PLMW11 180×193×187×8/9.5   | 180 | 193 | 9.5  | 187 | 8  |
| 48            | PLMW11 190×203×197×8/9.5   | 190 | 203 | 9.5  | 197 | 8  |
| 49            | PLMW11 200×213×207×8/9.5   | 200 | 213 | 9.5  | 207 | 8  |
| 50            | PLMW11 210×223×217×8/9.5   | 210 | 223 | 9.5  | 217 | 8  |
| 51            | PLMW11 220×233×227×8/9.5   | 220 | 233 | 9.5  | 227 | 8  |
| 52            | PLMW11 230×243×237×8/9.5   | 230 | 243 | 9.5  | 237 | 8  |
| 53            | PLMW11 240×253×247×8/9.5   | 240 | 253 | 9.5  | 247 | 8  |
| 54            | PLMW11 250×265×258×10/11.5 | 250 | 265 | 11.5 | 258 | 10 |

In addition to the above specifications, Puli can provide customized product dimensions.

## PLMW12



### ●Product Description

PLMW12 is a wiper seal that provides protection from the front face, effectively preventing dust, mud, water, and other external media from entering the sealing system. The inner shoulder structure reduces friction during reciprocating motion, thereby minimizing the risk of the wiper being pulled out.

### ●Applications

For use in reciprocating applications such as mining equipment cylinders, plunger cylinders, and construction machinery cylinders.

### ●Application Parameters

Operating Temperature: -35°C to 100°C (PLMPUR)  
-40°C ~ 90°C (PLMPUR-LL92A)

Surface Speed:  $\leq 1\text{ms}$

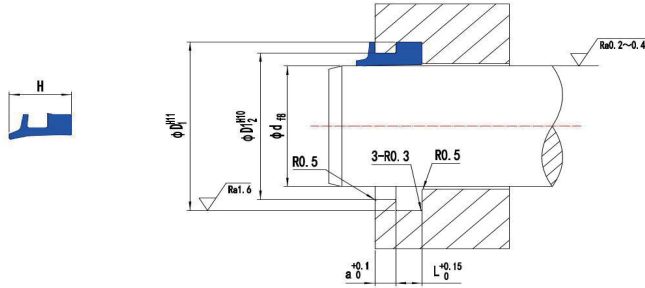
Media: Mineral hydraulic oil and grease

Standard material: PLMPUR PLMPUR-LL92A

Note: The maximum values listed above cannot be used simultaneously

### ●Installation Requirements

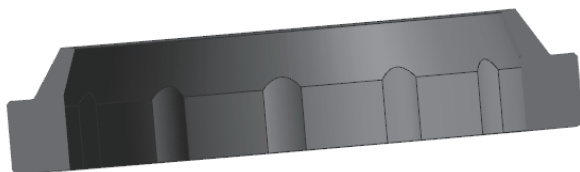
Installed in closed grooves by manually bending and pressing the seal into the groove.



| Serial Number | Order Number               | d   | D2  | D1  | L    | H  | a   |
|---------------|----------------------------|-----|-----|-----|------|----|-----|
| 1             | PLMW12 40×52×46×4.1/10     | 40  | 46  | 52  | 4.1  | 10 | 2.5 |
| 2             | PLMW12 45×57×51×4.1/10     | 45  | 51  | 57  | 4.1  | 10 | 2.5 |
| 3             | PLMW12 50×62×56×4.1/11     | 50  | 56  | 62  | 4.1  | 11 | 2.5 |
| 4             | PLMW12 55×67×61×4.1/11     | 55  | 61  | 67  | 4.1  | 11 | 2.5 |
| 5             | PLMW12 60×72×66×4.1/12     | 60  | 66  | 72  | 4.1  | 12 | 2.5 |
| 6             | PLMW12 70×85×78×5.1/12     | 70  | 78  | 85  | 5.1  | 12 | 3   |
| 7             | PLMW12 80×93×86×7/14       | 80  | 86  | 93  | 7    | 14 | 3   |
| 8             | PLMW12 80×95×88×5.1/12     | 80  | 88  | 95  | 5.1  | 12 | 3   |
| 9             | PLMW12 90×103×96×7/14      | 90  | 96  | 103 | 7    | 14 | 3   |
| 10            | PLMW12 90×105×98×5.1/12    | 90  | 98  | 105 | 5.1  | 12 | 3   |
| 11            | PLMW12 100×115×108×5.1/12  | 100 | 108 | 115 | 5.1  | 12 | 3   |
| 12            | PLMW12 100×113×106×7/14    | 100 | 106 | 113 | 7    | 14 | 3   |
| 13            | PLMW12 110×123×116×7/14    | 110 | 116 | 123 | 7    | 14 | 3   |
| 14            | PLMW12 120×135×128×5.1/12  | 120 | 128 | 135 | 5.1  | 12 | 3   |
| 15            | PLMW12 120×139×129×6.1/14  | 120 | 129 | 139 | 6.1  | 14 | 4   |
| 16            | PLMW12 125×140×133×5.1/12  | 125 | 133 | 140 | 5.1  | 12 | 3   |
| 17            | PLMW12 130×143×138×5.1/12  | 130 | 138 | 143 | 5.1  | 12 | 3   |
| 18            | PLMW12 150×169×159×6.1/14  | 150 | 159 | 169 | 6.1  | 14 | 4   |
| 19            | PLMW12 150×173×161×10.2/24 | 150 | 161 | 173 | 10.2 | 24 | 8.2 |
| 20            | PLMW12 160×179×169×6.1/14  | 160 | 169 | 179 | 6.1  | 14 | 4   |
| 21            | PLMW12 170×189×179×6.1/14  | 170 | 179 | 189 | 6.1  | 14 | 4   |
| 22            | PLMW12 180×199×189×6.1/14  | 180 | 189 | 199 | 6.1  | 14 | 4   |
| 23            | PLMW12 200×219×209×6.1/14  | 200 | 209 | 219 | 6.1  | 14 | 4   |
| 24            | PLMW12 200×223×211×8.3/20  | 200 | 211 | 223 | 8.3  | 20 | 4.8 |
| 25            | PLMW12 200×223×211×10.2/24 | 200 | 211 | 223 | 10.2 | 24 | 8.2 |
| 26            | PLMW12 220×243×231×8.3/20  | 220 | 231 | 243 | 8.3  | 20 | 4.8 |
| 27            | PLMW12 230×253×241×8.3/20  | 230 | 241 | 253 | 8.3  | 20 | 4.8 |

In addition to the above specifications, Puli can provide customized product dimensions.

## PLMW02



### ●Product Description

As a single-acting wiper seal, the PLMW02 features an interference fit between its outer diameter and the groove bottom, ensuring stable installation within the groove. Compared with the W38 type, its outer profile has no secondary lip, while the sharp-edged lip design provides stronger wiping performance, making it suitable for low-speed applications. The inner shoulder structure reduces friction during reciprocating motion and lowers the risk of the wiper being pulled out.

### ●Applications

For use in construction machinery hydraulic equipment, agricultural machinery, mining equipment hydraulic cylinders, and logistics equipment.

### ●Application Parameters

Operating Temperature: -35°C to 100°C (PLMPUR)  
 -40°C ~ 90°C (PLMPUR-LL92A)  
 -25°C ~ 110°C (PLMPUR-HPU)

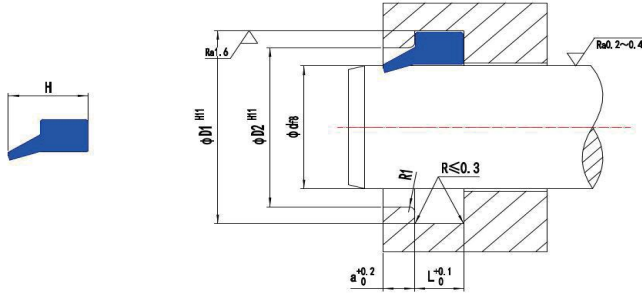
Surface Speed:  $\leq 1$  m/s

Standard material: PLMPUR PLMPUR-LL92A PLMPUR-HPU

### ●Installation Requirements

Installed in closed grooves by manually bending and pressing the wiper into the groove. Apply appropriate lubricant to the wiper before installation.





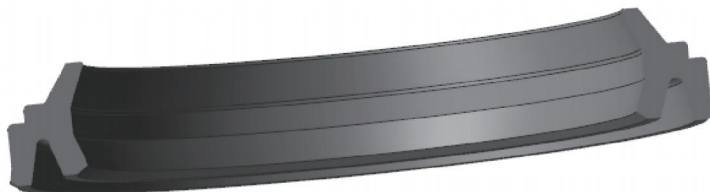
| Serial Number | Order Number                  | d    | D1   | H   | L   | D2   |
|---------------|-------------------------------|------|------|-----|-----|------|
| 1             | PLMW02 4×12×9.5×5/8           | 4    | 12   | 8   | 5   | 9.5  |
| 2             | PLMW02 5×13×10.5×5/8          | 5    | 13   | 8   | 5   | 10.5 |
| 3             | PLMW02 6×14×11.5×5/8          | 6    | 14   | 8   | 5   | 11.5 |
| 4             | PLMW02 8×16×13.5×5/8          | 8    | 16   | 8   | 5   | 13.5 |
| 5             | PLMW02 10×18×15.5×5/8         | 10   | 18   | 8   | 5   | 15.5 |
| 6             | PLMW02 12×20×17.5×5/8         | 12   | 20   | 8   | 5   | 17.5 |
| 7             | PLMW02 14×22×19.5×5/8         | 14   | 22   | 8   | 5   | 19.5 |
| 8             | PLMW02 16×24×21.5×5/8         | 16   | 24   | 8   | 5   | 21.5 |
| 9             | PLMW02 18×26×23.5×5/8         | 18   | 26   | 8   | 5   | 23.5 |
| 10            | PLMW02 19.1×28.6×23.4×4.8/7.1 | 19.1 | 28.6 | 7.1 | 4.8 | 23.4 |
| 11            | PLMW02 20×28×25.5×5/8         | 20   | 28   | 8   | 5   | 25.5 |
| 12            | PLMW02 20×28.6×23×5.3/7       | 20   | 28.6 | 7   | 5.3 | 23   |
| 13            | PLMW02 22×30×27.5×5/8         | 22   | 30   | 8   | 5   | 27.5 |
| 14            | PLMW02 25×33×30.5×5/8         | 25   | 33   | 8   | 5   | 30.5 |
| 15            | PLMW02 25×33.6×28×5.3/7       | 25   | 33.6 | 7   | 5.3 | 28   |
| 16            | PLMW02 25.4×34.9×28.4×4.8/7.1 | 25.4 | 34.9 | 7.1 | 4.8 | 28.4 |
| 17            | PLMW02 28×36×33.5×5/8         | 28   | 36   | 8   | 5   | 33.5 |
| 18            | PLMW02 30×40×35.5×5/8         | 30   | 40   | 8   | 5   | 35.5 |
| 19            | PLMW02 32×40×37.5×5/8         | 32   | 40   | 8   | 5   | 37.5 |
| 20            | PLMW02 32×40.6×35×5.3/7       | 32   | 40.6 | 7   | 5.3 | 35   |
| 21            | PLMW02 35×43.6×38×5.3/7       | 35   | 43.6 | 7   | 5.3 | 38   |
| 22            | PLMW02 36×44×41.5×5/8         | 36   | 44   | 8   | 5   | 41.5 |
| 23            | PLMW02 36×44.6×39×5.3/7       | 36   | 44.6 | 7   | 5.3 | 39   |
| 24            | PLMW02 38.1×47.6×42.4×4.8/7.1 | 38.1 | 47.6 | 7.1 | 4.8 | 42.4 |
| 25            | PLMW02 40×48×45.5×5/8         | 40   | 48   | 8   | 5   | 45.5 |
| 26            | PLMW02 40×48.6×43×5.3/7       | 40   | 48.6 | 7   | 5.3 | 43   |
| 27            | PLMW02 42×50×46.2×4/6         | 42   | 50   | 6   | 4   | 46.2 |
| 28            | PLMW02 42×50.6×45×5.3/7       | 42   | 50.6 | 7   | 5.3 | 45   |
| 29            | PLMW02 44.5×54×47.5×4.8/7.1   | 44.5 | 54   | 7.1 | 4.8 | 47.5 |

| Serial Number | Order Number                      | d     | D1    | H    | L    | D2    |
|---------------|-----------------------------------|-------|-------|------|------|-------|
| 30            | PLMW02 45×53×50.5×5/8             | 45    | 53    | 8    | 5    | 50.5  |
| 31            | PLMW02 45×55.6×48×5.3/7           | 45    | 55.6  | 7    | 5.3  | 48    |
| 32            | PLMW02 50×58×55.5×5/8             | 50    | 58    | 8    | 5    | 55.5  |
| 33            | PLMW02 50×60.6×53×5.3/7           | 50    | 60.6  | 7    | 5.3  | 53    |
| 34            | PLMW02 50.8×63.5×57×6.4/10        | 50.8  | 63.5  | 10   | 6.4  | 57    |
| 35            | PLMW02 55×65.6×58×5.3/7           | 55    | 65.6  | 7    | 5.3  | 58    |
| 36            | PLMW02 56×66×63×6.3/10            | 56    | 66    | 10   | 6.3  | 63    |
| 37            | PLMW02 56×66.6×59×5.3/7           | 56    | 66.6  | 7    | 5.3  | 59    |
| 38            | PLMW02 60×70×63×5/7.5             | 60    | 70    | 7.5  | 5    | 63    |
| 39            | PLMW02 60×70.6×63×5.3/7           | 60    | 70.6  | 7    | 5.3  | 63    |
| 40            | PLMW02 63×73×70×6.3/10            | 63    | 73    | 10   | 6.3  | 70    |
| 41            | PLMW02 63×73.6×66×5.3/7           | 63    | 73.6  | 7    | 5.3  | 66    |
| 42            | PLMW02 65×75.6×68×5.3/7           | 65    | 75.6  | 7    | 5.3  | 68    |
| 43            | PLMW02 70×80×75.7×6.5/10          | 70    | 80    | 10   | 6.5  | 75.7  |
| 44            | PLMW02 70×80.6×73×5.3/7           | 70    | 80.6  | 7    | 5.3  | 73    |
| 45            | PLMW02 73×80×77×6.3/10            | 73    | 80    | 10   | 6.3  | 77    |
| 46            | PLMW02 80×88.6×83×5.3/7           | 80    | 88.6  | 7    | 5.3  | 83    |
| 47            | PLMW02 80×90×87×6.3/10            | 80    | 90    | 10   | 6.3  | 87    |
| 48            | PLMW02 85×97.2×91×7.1/12          | 85    | 97.2  | 12   | 7.1  | 91    |
| 49            | PLMW02 90×100×97×6.3/10           | 90    | 100   | 10   | 6.3  | 97    |
| 50            | PLMW02 90×102×96×7/10.5           | 90    | 102   | 10.5 | 7    | 96    |
| 51            | PLMW02 90×102.2×96×7.1/12         | 90    | 102.2 | 12   | 7.1  | 96    |
| 52            | PLMW02 100×112.2×106×7.1/12       | 100   | 112.2 | 12   | 7.1  | 106   |
| 53            | PLMW02 100×115×110×9.5/14         | 100   | 115   | 14   | 9.5  | 110   |
| 54            | PLMW02 101.6×114.6×109.1×6.1/9.5  | 101.6 | 114.6 | 9.5  | 6.1  | 109.1 |
| 55            | PLMW02 110×122.2×116×7.1/12       | 110   | 122.2 | 12   | 7.1  | 116   |
| 56            | PLMW02 110×125×120×9.5/14         | 110   | 125   | 14   | 9.5  | 120   |
| 57            | PLMW02 120×140×129.3×9.5/14.5     | 120   | 140   | 14.5 | 9.5  | 129.3 |
| 58            | PLMW02 125×137.2×131×7.6/12       | 125   | 137.2 | 12   | 7.6  | 131   |
| 59            | PLMW02 125×140×135×9.5/14         | 125   | 140   | 14   | 9.5  | 135   |
| 60            | PLMW02 130×142.2×136×7.1/12       | 130   | 142.2 | 12   | 7.1  | 136   |
| 61            | PLMW02 139.7×158.7×152.2×9.5/14.5 | 139.7 | 158.7 | 14.5 | 9.5  | 152.2 |
| 62            | PLMW02 140×155×147.6×10.1/16      | 140   | 155   | 16   | 10.1 | 147.6 |
| 63            | PLMW02 140×155×150×9.5/14         | 140   | 155   | 14   | 9.5  | 150   |
| 64            | PLMW02 150×165×157.6×10.1/16      | 150   | 165   | 16   | 10.1 | 157.6 |
| 65            | PLMW02 160×175×167.6×10.1/16      | 160   | 175   | 16   | 10.1 | 167.6 |
| 66            | PLMW02 160×175×170×9.5/14         | 160   | 175   | 14   | 9.5  | 170   |
| 67            | PLMW02 165×173.6×168×5.3/7        | 165   | 173.6 | 7    | 5.3  | 168   |
| 68            | PLMW02 170×182.2×176×7.1/12       | 170   | 182.2 | 12   | 7.1  | 176   |
| 69            | PLMW02 177.8×196.6×190.3×9.5/14.5 | 177.8 | 196.6 | 14.5 | 9.5  | 190.3 |
| 70            | PLMW02 180×195×190×9.5/14         | 180   | 195   | 14   | 9.5  | 190   |
| 71            | PLMW02 180×200×190×10.2/18        | 180   | 200   | 18   | 10.2 | 190   |
| 72            | PLMW02 185×193.6×188×5.3/7        | 185   | 193.6 | 7    | 5.3  | 188   |

| Serial Number | Order Number                 | d   | D1    | H  | L    | D2    |
|---------------|------------------------------|-----|-------|----|------|-------|
| 73            | PLMW02 190×198.6×193×5.3/7   | 190 | 198.6 | 7  | 5.3  | 193   |
| 74            | PLMW02 200×215×210×9.5/14    | 200 | 215   | 14 | 9.5  | 210   |
| 75            | PLMW02 200×220×210×10.2/18   | 200 | 220   | 18 | 10.2 | 210   |
| 76            | PLMW02 220×240×230×10.2/18   | 220 | 240   | 18 | 10.2 | 230   |
| 77            | PLMW02 220×240×233.5×12.5/18 | 220 | 240   | 18 | 12.5 | 233.5 |
| 78            | PLMW02 240×260×250×10.2/18   | 240 | 260   | 18 | 10.2 | 250   |
| 79            | PLMW02 250×270×260×10.2/18   | 250 | 270   | 18 | 10.2 | 260   |
| 80            | PLMW02 250×270×263.5×12.5/18 | 250 | 270   | 18 | 12.5 | 263.5 |
| 81            | PLMW02 280×300×293.5×12.5/18 | 280 | 300   | 18 | 12.5 | 293.5 |
| 82            | PLMW02 320×340×333.5×12.5/18 | 320 | 340   | 18 | 12.5 | 333.5 |
| 83            | PLMW02 360×380×370×10.2/18   | 360 | 380   | 18 | 10.2 | 370   |
| 84            | PLMW02 360×380×373.5×12.5/18 | 360 | 380   | 18 | 12.5 | 373.5 |
| 85            | PLMW02 400×420×413.5×12.5/18 | 400 | 420   | 18 | 12.5 | 413.5 |
| 86            | PLMW02 450×470×463.5×12.5/18 | 450 | 470   | 18 | 12.5 | 463.5 |

In addition to the above specifications, Puli can provide customized product dimensions.

## PLMW11A



### ●Product Description

PLMW11A is a dual-function wiper seal. The outer surface features an interference fit with the groove bottom, ensuring a stable position within the groove. The sealing lip helps reduce residual oil film, while the special structural design allows easy installation and removal. The rounded edge of the dust lip minimizes oil carryover on the piston rod.

### ●Applications

For use in low- to medium-pollution applications such as construction machinery hydraulic equipment, plungers, and injection molding machines.

### ●Application Parameters

Operating Temperature: -35°C to 100°C (PLMPUR)  
-40°C ~ 90°C (PLMPUR-LL92A)

Surface Speed:  $\leq 1\text{ms}$

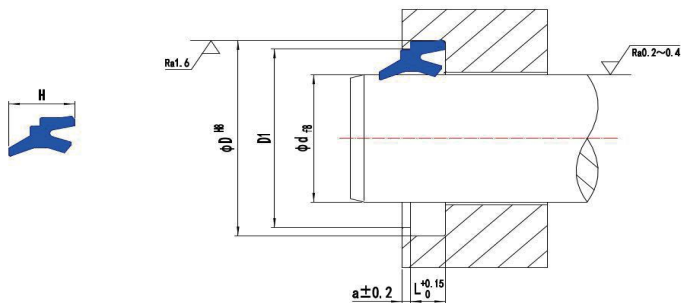
Media: Mineral hydraulic oil and grease

Standard material: PLMPUR PLMPUR-LL92A

Note: The maximum values listed above cannot be used simultaneously

### ●Installation Requirements

Installed in closed grooves by manually bending and pressing the wiper into the groove. Apply appropriate lubricant to the wiper before installation.



| Serial Number | Order Number               | d  | D    | D1   | L   | a | H |
|---------------|----------------------------|----|------|------|-----|---|---|
| 1             | PLMW11A 10×18×16×4/8       | 10 | 18   | 16   | 4   | 2 | 8 |
| 2             | PLMW11A 10×16.2×14.2×4.2/6 | 10 | 16.2 | 14.2 | 4.2 | 2 | 6 |
| 3             | PLMW11A 12×20×18×4/8       | 12 | 20   | 18   | 4   | 2 | 8 |
| 4             | PLMW11A 14×22×20×4/8       | 14 | 22   | 20   | 4   | 2 | 8 |
| 5             | PLMW11A 15×23×21×4/8       | 15 | 23   | 21   | 4   | 2 | 8 |
| 6             | PLMW11A 16×24×22×4/8       | 16 | 24   | 22   | 4   | 2 | 8 |
| 7             | PLMW11A 16×23×21.6×3.2/8   | 16 | 23   | 21.6 | 3.2 | 2 | 8 |
| 8             | PLMW11A 18×26×24×4/8       | 18 | 26   | 24   | 4   | 2 | 8 |
| 9             | PLMW11A 20×28×26×4/8       | 20 | 28   | 26   | 4   | 2 | 8 |
| 10            | PLMW11A 22×30×28×4/8       | 22 | 30   | 28   | 4   | 2 | 8 |
| 11            | PLMW11A 24×32×30×4/8       | 24 | 32   | 30   | 4   | 2 | 8 |
| 12            | PLMW11A 25×33×31×4/8       | 25 | 33   | 31   | 4   | 2 | 8 |
| 13            | PLMW11A 26×34×32×4/8       | 26 | 34   | 32   | 4   | 2 | 8 |
| 14            | PLMW11A 28×36×34×4/8       | 28 | 36   | 34   | 4   | 2 | 8 |
| 15            | PLMW11A 30×38×36×4/8       | 30 | 38   | 36   | 4   | 2 | 8 |
| 16            | PLMW11A 32×40×38×4/8       | 32 | 40   | 38   | 4   | 2 | 8 |
| 17            | PLMW11A 35×43×41×4/8       | 35 | 43   | 41   | 4   | 2 | 8 |
| 18            | PLMW11A 36×44×42×4/8       | 36 | 44   | 42   | 4   | 2 | 8 |
| 19            | PLMW11A 37×45×43×4/8       | 37 | 45   | 43   | 4   | 2 | 8 |
| 20            | PLMW11A 38×46×44×4/8       | 38 | 46   | 44   | 4   | 2 | 8 |
| 21            | PLMW11A 40×48×46×4/8       | 40 | 48   | 46   | 4   | 2 | 8 |
| 22            | PLMW11A 40×48×46×3/8       | 40 | 48   | 46   | 3   | 2 | 8 |
| 23            | PLMW11A 42×50×48×4/8       | 42 | 50   | 48   | 4   | 2 | 8 |
| 24            | PLMW11A 45×53×51×4/8       | 45 | 53   | 51   | 4   | 2 | 8 |
| 25            | PLMW11A 46×54×52×4/8       | 46 | 54   | 52   | 4   | 2 | 8 |
| 26            | PLMW11A 48×56×54×4/8       | 48 | 56   | 54   | 4   | 2 | 8 |
| 27            | PLMW11A 50×58×56×4/8       | 50 | 58   | 56   | 4   | 2 | 8 |
| 28            | PLMW11A 52×60×58×4/8       | 52 | 60   | 58   | 4   | 2 | 8 |

| Serial Number | Order Number               | d   | D   | D1  | L   | a | H  |
|---------------|----------------------------|-----|-----|-----|-----|---|----|
| 29            | PLMW11A 55×63×61×4/8       | 55  | 63  | 61  | 4   | 2 | 8  |
| 30            | PLMW11A 56×64×62×4/8       | 56  | 64  | 62  | 4   | 2 | 8  |
| 31            | PLMW11A 60×68×66×4/8       | 60  | 68  | 66  | 4   | 2 | 8  |
| 32            | PLMW11A 63×71×69×4/8       | 63  | 71  | 69  | 4   | 2 | 8  |
| 33            | PLMW11A 65×73×71×4/8       | 65  | 73  | 71  | 4   | 2 | 8  |
| 34            | PLMW11A 68×76×74×4/8       | 68  | 76  | 74  | 4   | 2 | 8  |
| 35            | PLMW11A 70×78×76×4/8       | 70  | 78  | 76  | 4   | 2 | 8  |
| 36            | PLMW11A 75×83×81×4/8       | 75  | 83  | 81  | 4   | 2 | 8  |
| 37            | PLMW11A 80×88×86×4/8       | 80  | 88  | 86  | 4   | 2 | 8  |
| 38            | PLMW11A 85×93×91×4/8       | 85  | 93  | 91  | 4   | 2 | 8  |
| 39            | PLMW11A 90×98×96×4/8       | 90  | 98  | 96  | 4   | 2 | 8  |
| 40            | PLMW11A 95×103×101×4/8     | 95  | 103 | 101 | 4   | 2 | 8  |
| 41            | PLMW11A 100×108×106×4/8    | 100 | 108 | 106 | 4   | 2 | 8  |
| 42            | PLMW11A 105×117×114×5.5/11 | 105 | 117 | 114 | 5.5 | 3 | 11 |
| 43            | PLMW11A 110×122×119×5.5/11 | 110 | 122 | 119 | 5.5 | 3 | 11 |
| 44            | PLMW11A 113×125×122×5.5/11 | 113 | 125 | 122 | 5.5 | 3 | 11 |
| 45            | PLMW11A 115×127×124×5.5/11 | 115 | 127 | 124 | 5.5 | 3 | 11 |
| 46            | PLMW11A 120×132×129×5.5/11 | 120 | 132 | 129 | 5.5 | 3 | 11 |
| 47            | PLMW11A 125×137×134×5.5/11 | 125 | 137 | 134 | 5.5 | 3 | 11 |
| 48            | PLMW11A 130×142×139×5.5/11 | 130 | 142 | 139 | 5.5 | 3 | 11 |
| 49            | PLMW11A 135×147×144×5.5/11 | 135 | 147 | 144 | 5.5 | 3 | 11 |
| 50            | PLMW11A 140×152×149×5.5/11 | 140 | 152 | 149 | 5.5 | 3 | 11 |
| 51            | PLMW11A 142×154×151×5.5/11 | 142 | 154 | 151 | 5.5 | 3 | 11 |
| 52            | PLMW11A 145×157×154×5.5/11 | 145 | 157 | 154 | 5.5 | 3 | 11 |
| 53            | PLMW11A 150×162×159×5.5/11 | 150 | 162 | 159 | 5.5 | 3 | 11 |
| 54            | PLMW11A 155×167×164×5.5/11 | 155 | 167 | 164 | 5.5 | 3 | 11 |
| 55            | PLMW11A 160×172×169×5.5/11 | 160 | 172 | 169 | 5.5 | 3 | 11 |
| 56            | PLMW11A 165×177×174×5.5/11 | 165 | 177 | 174 | 5.5 | 3 | 11 |
| 57            | PLMW11A 170×182×179×5.5/11 | 170 | 182 | 179 | 5.5 | 3 | 11 |
| 58            | PLMW11A 172×184×181×5.5/11 | 172 | 184 | 181 | 5.5 | 3 | 11 |
| 59            | PLMW11A 175×187×184×5.5/11 | 175 | 187 | 184 | 5.5 | 3 | 11 |
| 60            | PLMW11A 180×192×189×5.5/11 | 180 | 192 | 189 | 5.5 | 3 | 11 |
| 61            | PLMW11A 185×197×194×5.5/11 | 185 | 197 | 194 | 5.5 | 3 | 11 |
| 62            | PLMW11A 190×202×199×5.5/11 | 190 | 202 | 199 | 5.5 | 3 | 11 |
| 63            | PLMW11A 192×204×201×5.5/11 | 192 | 204 | 201 | 5.5 | 3 | 11 |
| 64            | PLMW11A 195×207×204×5.5/11 | 195 | 207 | 204 | 5.5 | 3 | 11 |
| 65            | PLMW11A 200×212×209×5.5/11 | 200 | 212 | 209 | 5.5 | 3 | 11 |
| 66            | PLMW11A 205×220×216×6.4/13 | 205 | 220 | 216 | 6.4 | 3 | 13 |
| 67            | PLMW11A 210×225×221×6.4/13 | 210 | 225 | 221 | 6.4 | 3 | 13 |
| 68            | PLMW11A 215×230×227×6.4/13 | 215 | 230 | 227 | 6.4 | 3 | 13 |
| 69            | PLMW11A 220×235×231×6.4/13 | 220 | 235 | 231 | 6.4 | 3 | 13 |
| 70            | PLMW11A 225×240×236×6.4/13 | 225 | 240 | 236 | 6.4 | 3 | 13 |
| 71            | PLMW11A 230×245×241×6.4/13 | 230 | 245 | 241 | 6.4 | 3 | 13 |

| Serial Number | Order Number               | d   | D   | D1  | L   | a | H  |
|---------------|----------------------------|-----|-----|-----|-----|---|----|
| 72            | PLMW11A 235×250×247×6.4/13 | 235 | 250 | 247 | 6.4 | 3 | 13 |
| 73            | PLMW11A 240×255×251×6.4/13 | 240 | 255 | 251 | 6.4 | 3 | 13 |
| 74            | PLMW11A 245×260×257×6.4/13 | 245 | 260 | 257 | 6.4 | 3 | 13 |
| 75            | PLMW11A 250×265×261×6.4/13 | 250 | 265 | 261 | 6.4 | 3 | 13 |
| 76            | PLMW11A 255×270×266×6.4/13 | 255 | 270 | 266 | 6.4 | 3 | 13 |
| 77            | PLMW11A 258×273×270×6.4/13 | 258 | 273 | 270 | 6.4 | 3 | 13 |
| 78            | PLMW11A 260×275×271×6.4/13 | 260 | 275 | 271 | 6.4 | 3 | 13 |
| 79            | PLMW11A 265×280×277×6.4/13 | 265 | 280 | 277 | 6.4 | 3 | 13 |
| 80            | PLMW11A 270×285×282×6.4/13 | 270 | 285 | 282 | 6.4 | 3 | 13 |
| 81            | PLMW11A 275×290×286×6.4/13 | 275 | 290 | 286 | 6.4 | 3 | 13 |
| 82            | PLMW11A 280×295×291×6.4/13 | 280 | 295 | 291 | 6.4 | 3 | 13 |
| 83            | PLMW11A 285×300×297×6.4/13 | 285 | 300 | 297 | 6.4 | 3 | 13 |
| 84            | PLMW11A 290×305×301×6.4/13 | 290 | 305 | 301 | 6.4 | 3 | 13 |
| 85            | PLMW11A 295×310×306×6.4/13 | 295 | 310 | 306 | 6.4 | 3 | 13 |
| 86            | PLMW11A 300×315×311×6.4/13 | 300 | 315 | 311 | 6.4 | 3 | 13 |
| 87            | PLMW11A 310×325×321×6.4/13 | 310 | 325 | 321 | 6.4 | 3 | 13 |
| 88            | PLMW11A 320×335×331×6.4/13 | 320 | 335 | 331 | 6.4 | 3 | 13 |
| 89            | PLMW11A 325×340×337×6.4/13 | 325 | 340 | 337 | 6.4 | 3 | 13 |
| 90            | PLMW11A 330×345×342×6.4/13 | 330 | 345 | 342 | 6.4 | 3 | 13 |
| 91            | PLMW11A 340×355×352×6.4/13 | 340 | 355 | 352 | 6.4 | 3 | 13 |
| 92            | PLMW11A 345×360×357×6.4/13 | 345 | 360 | 357 | 6.4 | 3 | 13 |
| 93            | PLMW11A 350×365×361×6.4/13 | 350 | 365 | 361 | 6.4 | 3 | 13 |
| 94            | PLMW11A 355×370×367×6.4/13 | 355 | 370 | 367 | 6.4 | 3 | 13 |
| 95            | PLMW11A 360×375×371×6.4/13 | 360 | 375 | 371 | 6.4 | 3 | 13 |
| 96            | PLMW11A 370×385×381×6.4/13 | 370 | 385 | 381 | 6.4 | 3 | 13 |
| 97            | PLMW11A 400×415×412×6.4/13 | 400 | 415 | 412 | 6.4 | 3 | 13 |
| 98            | PLMW11A 410×425×422×6.4/13 | 410 | 425 | 422 | 6.4 | 3 | 13 |
| 99            | PLMW11A 420×435×432×6.4/13 | 420 | 435 | 432 | 6.4 | 3 | 13 |
| 100           | PLMW11A 450×465×462×6.4/13 | 450 | 465 | 462 | 6.4 | 3 | 13 |
| 101           | PLMW11A 460×475×472×6.4/13 | 460 | 475 | 472 | 6.4 | 3 | 13 |
| 102           | PLMW11A 500×515×512×6.4/13 | 500 | 515 | 512 | 6.4 | 3 | 13 |

In addition to the above specifications, Puli can provide customized product dimensions.

## PLMW03B



### ● Product Description

The PLMW03B metal-cased wiper seal is designed for dust protection of the pin shafts at the cylinder head, preventing dust, mud, and other debris from entering the rotary shaft mating surface and affecting lubrication performance. Its compact groove design saves structural space, while the metal case's outer diameter provides an interference fit for excellent stability within the groove. During grease injection, the optimized lip thickness allows the wiper to open under pressure to discharge excess grease, ensuring the lubrication chamber is fully filled. It is suitable for dusty and humid working conditions.

### ● Applications

For use in construction machinery hydraulic equipment, construction machinery, pin seals, truck cranes, truck-mounted cranes, and agricultural machinery.

### ● Application Parameters

Operating temperature: -35°C to 100°C.

Surface Speed:  $\leq 1\text{ms}$

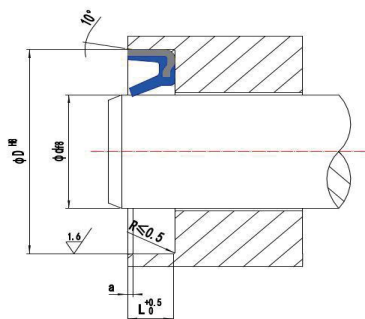
Media: Mineral hydraulic oil and grease

Standard Material: PLMPUR

Note: The maximum values listed above cannot be used simultaneously

### ● Installation Requirements

Installed in open grooves using metal press-fitting. The sealing lip should be kept clear of the piston rod bore and any other connecting components.



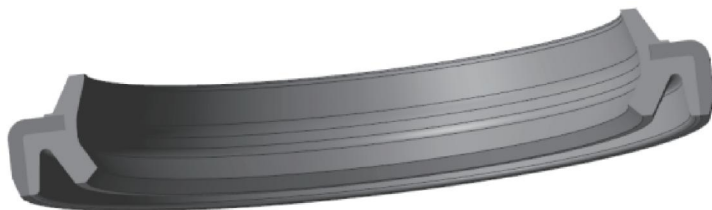
| Serial Number | Order Number      | d  | D  | L   | a   |
|---------------|-------------------|----|----|-----|-----|
| 1             | PLMW03B 25×35×4   | 25 | 35 | 4   | 1   |
| 2             | PLMW03B 30×40×4   | 30 | 40 | 4   | 1   |
| 3             | PLMW03B 35×45×4   | 35 | 45 | 4   | 1   |
| 4             | PLMW03B 35×47×7   | 35 | 47 | 7   | 1   |
| 5             | PLMW03B 36×46×5   | 36 | 46 | 5   | 1   |
| 6             | PLMW03B 40×50×4   | 40 | 50 | 4   | 1   |
| 7             | PLMW03B 40×52×7   | 40 | 52 | 7   | 1   |
| 8             | PLMW03B 45×55×4   | 45 | 55 | 4   | 1   |
| 9             | PLMW03B 45×57×7   | 45 | 57 | 7   | 1   |
| 10            | PLMW03B 45×60×5   | 45 | 60 | 5   | 1   |
| 11            | PLMW03B 50×60×4.2 | 50 | 60 | 4.2 | 1   |
| 12            | PLMW03B 50×60×5   | 50 | 60 | 5   | 1   |
| 13            | PLMW03B 50×60×6   | 50 | 60 | 6   | 1   |
| 14            | PLMW03B 50×62×7   | 50 | 62 | 7   | 1   |
| 15            | PLMW03B 50×65×7.5 | 50 | 65 | 7.5 | 1   |
| 16            | PLMW03B 50×65×5   | 50 | 65 | 5   | 1   |
| 17            | PLMW03B 50×65×6   | 50 | 65 | 6   | 1   |
| 18            | PLMW03B 55×69×8   | 55 | 69 | 8   | 1.5 |
| 19            | PLMW03B 55×70×8   | 55 | 70 | 8   | 1.5 |
| 20            | PLMW03B 55×65×4.2 | 55 | 65 | 4.2 | 1   |
| 21            | PLMW03B 55×65×5   | 55 | 65 | 5   | 1   |
| 22            | PLMW03B 56×66×7   | 56 | 66 | 7   | 1.5 |
| 23            | PLMW03B 60×74×8   | 60 | 74 | 8   | 1.5 |
| 24            | PLMW03B 60×70×4.5 | 60 | 70 | 4.5 | 1   |
| 25            | PLMW03B 60×70×5   | 60 | 70 | 5   | 1   |
| 26            | PLMW03B 60×75×4   | 60 | 75 | 4   | 1   |
| 27            | PLMW03B 60×75×5   | 60 | 75 | 5   | 1   |
| 28            | PLMW03B 63×75×7   | 63 | 75 | 7   | 1.5 |
| 29            | PLMW03B 63×77×8   | 63 | 77 | 8   | 1.5 |

| Serial Number | Order Number        | d     | D    | L   | a   |
|---------------|---------------------|-------|------|-----|-----|
| 30            | PLMW03B 63.5×76.2×8 | 63.5  | 76.2 | 8   | 1.5 |
| 31            | PLMW03B 65×79×8     | 65    | 79   | 8   | 1.5 |
| 32            | PLMW03B 65×75×4     | 65    | 75   | 4   | 1   |
| 33            | PLMW03B 65×75×5     | 65    | 75   | 5   | 1   |
| 34            | PLMW03B 65×80×5     | 65    | 80   | 5   | 1   |
| 35            | PLMW03B 70×84×8     | 70    | 84   | 8   | 1.5 |
| 36            | PLMW03B 70×80×4.5   | 70    | 80   | 4.5 | 1   |
| 37            | PLMW03B 70×80×5     | 70    | 80   | 5   | 1   |
| 38            | PLMW03B 70×85×4     | 70    | 85   | 4   | 1   |
| 39            | PLMW03B 70×85×5     | 70    | 85   | 5   | 1   |
| 40            | PLMW03B 70×85×8     | 70    | 85   | 8   | 1   |
| 41            | PLMW03B 71×86×5     | 71    | 86   | 5   | 1   |
| 42            | PLMW03B 75×89×8     | 75    | 89   | 8   | 1.5 |
| 43            | PLMW03B 75×90×5     | 75    | 90   | 5   | 1   |
| 44            | PLMW03B 76.2×88.9×8 | 76.2  | 88.9 | 8   | 1.5 |
| 45            | PLMW03B 80×94×8     | 80    | 94   | 8   | 1.5 |
| 46            | PLMW03B 80×90×4.5   | 80    | 90   | 4.5 | 1   |
| 47            | PLMW03B 80×95×5     | 80    | 95   | 5   | 1   |
| 48            | PLMW03B 80×95×6.5   | 80    | 95   | 6.5 | 1   |
| 49            | PLMW03B 85×99×8     | 85    | 99   | 8   | 1.5 |
| 50            | PLMW03B 85×95×4.5   | 85    | 95   | 4.5 | 1   |
| 51            | PLMW03B 85×100×4    | 85    | 100  | 4   | 1   |
| 52            | PLMW03B 85×100×6    | 85    | 100  | 6   | 1   |
| 53            | PLMW03B 90×104×8    | 90    | 104  | 8   | 1.5 |
| 54            | PLMW03B 90×105×4    | 90    | 105  | 4   | 1   |
| 55            | PLMW03B 90×105×5    | 90    | 105  | 5   | 1   |
| 56            | PLMW03B 90×105×6    | 90    | 105  | 6   | 1   |
| 57            | PLMW03B 95×109×8    | 95    | 109  | 8   | 1.5 |
| 58            | PLMW03B 100×114×8   | 100   | 114  | 8   | 1.5 |
| 59            | PLMW03B 100×115×5   | 100   | 115  | 5   | 1   |
| 60            | PLMW03B 100×115×6   | 100   | 115  | 6   | 1   |
| 61            | PLMW03B 100×115×7   | 100   | 115  | 7   | 1   |
| 62            | PLMW03B 100×120×6.5 | 100   | 120  | 6.5 | 1   |
| 63            | PLMW03B 100×120×8   | 100   | 120  | 8   | 1   |
| 64            | PLMW03B 100×125×4   | 100   | 125  | 4   | 1   |
| 65            | PLMW03B 101.6×114×8 | 101.6 | 114  | 8   | 1.5 |
| 66            | PLMW03B 105×120×5   | 105   | 120  | 5   | 1   |
| 67            | PLMW03B 110×126×9   | 110   | 126  | 9   | 2   |
| 68            | PLMW03B 110×125×4   | 110   | 125  | 4   | 1   |
| 69            | PLMW03B 110×125×5   | 110   | 125  | 5   | 1   |
| 70            | PLMW03B 110×130×4.5 | 110   | 130  | 4.5 | 1   |
| 71            | PLMW03B 120×136×9   | 120   | 136  | 9   | 2   |
| 72            | PLMW03B 120×140×8   | 120   | 140  | 8   | 2   |

| Serial Number | Order Number        | d   | D   | L   | a |
|---------------|---------------------|-----|-----|-----|---|
| 73            | PLMW03B 120×135×8   | 120 | 135 | 8   | 1 |
| 74            | PLMW03B 120×140×4.5 | 120 | 140 | 4.5 | 1 |
| 75            | PLMW03B 140×160×10  | 140 | 160 | 10  | 2 |
| 76            | PLMW03B 140×160×10  | 140 | 160 | 10  | 1 |
| 77            | PLMW03B 150×170×10  | 150 | 170 | 10  | 2 |
| 78            | PLMW03B 150×180×10  | 150 | 180 | 10  | 1 |
| 79            | PLMW03B 160×180×10  | 160 | 180 | 10  | 2 |
| 80            | PLMW03B 170×190×10  | 170 | 190 | 10  | 2 |
| 81            | PLMW03B 180×205×12  | 180 | 205 | 12  | 2 |
| 82            | PLMW03B 180×200×8   | 180 | 200 | 8   | 1 |
| 83            | PLMW03B 200×225×12  | 200 | 225 | 12  | 2 |
| 84            | PLMW03B 210×235×12  | 210 | 235 | 12  | 2 |

In addition to the above specifications, Puli can provide customized product dimensions.

## PLMW03C



### ● Product Description

The PLMW03C metal-cased wiper seal is designed for dust sealing of hydraulic cylinder piston rods, preventing dust, mud, and other debris from entering the hydraulic sealing system. The double-lip structure effectively blocks external contaminants while reducing oil film buildup on the piston rod. The metal case outer diameter ensures a secure interference fit within the groove. By selecting the version with a relief hole (PLMW03CS), installation can be achieved without retaining rings or cover plates, eliminating the risk of the wiper being pulled out. It is suitable for heavy-contamination operating conditions.

### ● Applications

For use in construction machinery hydraulic equipment, construction machinery, excavators, loaders, bulldozers, dump trucks, and forklifts.

### ● Application Parameters

Operating Temperature: -35°C to 100°C (PLMPUR)  
-25°C ~ 125°C (PLMPUR-HHT)

Surface Speed:  $\leq 1\text{ms}$

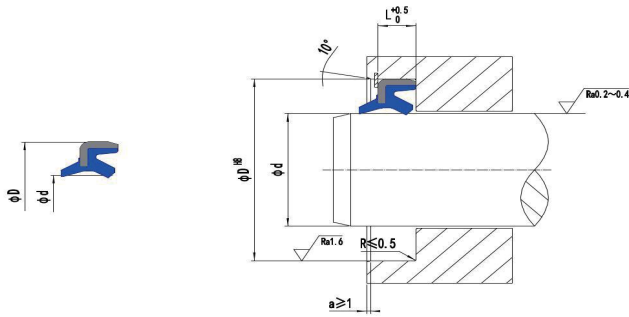
Media: Mineral hydraulic oil and grease

Standard Material: PLMPUR PLMPUR-HHT

Note: The maximum values listed above cannot be used simultaneously

### ● Installation Requirements

Installed in open grooves using metal press-fitting. The sealing lip should be kept clear of the piston rod bore and any other connecting components.



| Serial Number | Order Number      | d   | D   | L |
|---------------|-------------------|-----|-----|---|
| 1             | PLMW03C 20×32×6   | 20  | 32  | 6 |
| 2             | PLMW03C 22×34×6   | 22  | 34  | 6 |
| 3             | PLMW03C 25×37×6   | 25  | 37  | 6 |
| 4             | PLMW03C 30×42×6   | 30  | 42  | 6 |
| 5             | PLMW03C 30×45×7   | 30  | 45  | 7 |
| 6             | PLMW03C 32×44×7   | 32  | 44  | 7 |
| 7             | PLMW03C 32×52×8   | 32  | 52  | 8 |
| 8             | PLMW03C 35×47×7   | 35  | 47  | 7 |
| 9             | PLMW03C 36×48×7   | 36  | 48  | 7 |
| 10            | PLMW03C 40×52×7   | 40  | 52  | 7 |
| 11            | PLMW03C 45×57×7   | 45  | 57  | 7 |
| 12            | PLMW03C 50×60×7   | 50  | 60  | 7 |
| 13            | PLMW03C 50×62×7   | 50  | 62  | 7 |
| 14            | PLMW03C 55×69×7   | 55  | 69  | 7 |
| 15            | PLMW03C 55×69×8   | 55  | 69  | 8 |
| 16            | PLMW03C 56×66×5   | 56  | 66  | 5 |
| 17            | PLMW03C 60×70×7   | 60  | 70  | 7 |
| 18            | PLMW03C 60×73×6   | 60  | 73  | 6 |
| 19            | PLMW03C 60×74×8   | 60  | 74  | 8 |
| 20            | PLMW03C 65×79×8   | 65  | 79  | 8 |
| 21            | PLMW03C 70×80×7   | 70  | 80  | 7 |
| 22            | PLMW03C 70×84×8   | 70  | 84  | 8 |
| 23            | PLMW03C 75×89×8   | 75  | 89  | 8 |
| 24            | PLMW03C 80×94×8   | 80  | 94  | 8 |
| 25            | PLMW03C 85×99×8   | 85  | 99  | 8 |
| 26            | PLMW03C 90×104×8  | 90  | 104 | 8 |
| 27            | PLMW03C 95×109×8  | 95  | 109 | 8 |
| 28            | PLMW03C 100×110×7 | 100 | 110 | 7 |
| 29            | PLMW03C 100×114×8 | 100 | 114 | 8 |
| 30            | PLMW03C 105×121×9 | 105 | 121 | 9 |

| Serial Number | Order Number       | d   | D   | L  |
|---------------|--------------------|-----|-----|----|
| 31            | PLMW03C 110×126×9  | 110 | 126 | 9  |
| 32            | PLMW03C 115×131×9  | 115 | 131 | 9  |
| 33            | PLMW03C 120×136×9  | 120 | 136 | 9  |
| 34            | PLMW03C 125×141×9  | 125 | 141 | 9  |
| 35            | PLMW03C 130×146×9  | 130 | 146 | 9  |
| 36            | PLMW03C 135×155×10 | 135 | 155 | 10 |
| 37            | PLMW03C 140×160×10 | 140 | 160 | 10 |
| 38            | PLMW03C 150×170×10 | 150 | 170 | 10 |
| 39            | PLMW03C 160×180×10 | 160 | 180 | 10 |
| 39            | PLMW03C 170×190×10 | 170 | 190 | 10 |
| 39            | PLMW03C 180×200×10 | 180 | 200 | 10 |

In addition to the above specifications, Puli can provide customized product dimensions.

**PLMW03CWS**

**●Product Description**

The PLMW03CWS metal-cased wiper seal is designed for dust sealing of hydraulic cylinder piston rods, preventing dust, mud, and other debris from entering the hydraulic sealing system. Its double-lip structure effectively blocks external contaminants while reducing oil film accumulation on the piston rod. The additional outer circumferential lip prevents mud and water from entering the sealing system through the groove surface, extending the system's service life. The metal case outer diameter ensures a secure interference fit within the groove. The design with a relief hole allows installation without retaining rings or cover plates, eliminating the risk of the wiper being pulled out. It is suitable for heavy-contamination working conditions.

**●Applications**

For use in construction machinery hydraulic equipment, construction machinery, excavators, loaders, bulldozers, dump trucks, and forklifts.

**●Application Parameters**

Operating Temperature: -35°C to 100°C (PLMPUR)  
-25°C ~ 125°C(PLMPUR-HHT)

Surface Speed:  $\leq 1\text{ms}$

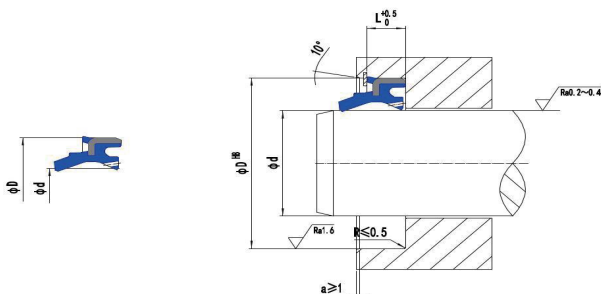
Media: Mineral hydraulic oil and grease

Standard Material: PLMPUR PLMPUR-HHT

Note: The maximum values listed above cannot be used simultaneously

**●Installation Requirements**

Installed in open grooves using metal press-fitting. The sealing lip should be kept clear of the piston rod bore and any other connecting components.



| Serial Number | Order Number        | d   | D   | L |
|---------------|---------------------|-----|-----|---|
| 1             | PLMW03CWS 20×32×6   | 20  | 32  | 6 |
| 2             | PLMW03CWS 22×34×6   | 22  | 34  | 6 |
| 3             | PLMW03CWS 25×37×6   | 25  | 37  | 6 |
| 4             | PLMW03CWS 30×42×6   | 30  | 42  | 6 |
| 5             | PLMW03CWS 30×45×7   | 30  | 45  | 7 |
| 6             | PLMW03CWS 32×44×7   | 32  | 44  | 7 |
| 7             | PLMW03CWS 32×52×8   | 32  | 52  | 8 |
| 8             | PLMW03CWS 35×47×7   | 35  | 47  | 7 |
| 9             | PLMW03CWS 36×48×7   | 36  | 48  | 7 |
| 10            | PLMW03CWS 40×52×7   | 40  | 52  | 7 |
| 11            | PLMW03CWS 45×57×7   | 45  | 57  | 7 |
| 12            | PLMW03CWS 50×60×7   | 50  | 60  | 7 |
| 13            | PLMW03CWS 50×62×7   | 50  | 62  | 7 |
| 14            | PLMW03CWS 55×69×7   | 55  | 69  | 7 |
| 15            | PLMW03CWS 55×69×8   | 55  | 69  | 8 |
| 16            | PLMW03CWS 56×66×5   | 56  | 66  | 5 |
| 17            | PLMW03CWS 60×70×7   | 60  | 70  | 7 |
| 18            | PLMW03CWS 60×73×6   | 60  | 73  | 6 |
| 19            | PLMW03CWS 60×74×8   | 60  | 74  | 8 |
| 20            | PLMW03CWS 65×79×8   | 65  | 79  | 8 |
| 21            | PLMW03CWS 70×80×7   | 70  | 80  | 7 |
| 22            | PLMW03CWS 70×84×8   | 70  | 84  | 8 |
| 23            | PLMW03CWS 75×89×8   | 75  | 89  | 8 |
| 24            | PLMW03CWS 80×94×8   | 80  | 94  | 8 |
| 25            | PLMW03CWS 85×99×8   | 85  | 99  | 8 |
| 26            | PLMW03CWS 90×104×8  | 90  | 104 | 8 |
| 27            | PLMW03CWS 95×109×8  | 95  | 109 | 8 |
| 28            | PLMW03CWS 100×110×7 | 100 | 110 | 7 |
| 29            | PLMW03CWS 100×114×8 | 100 | 114 | 8 |
| 30            | PLMW03CWS 105×121×9 | 105 | 121 | 9 |



| Serial Number | Order Number         | d   | D   | L  |
|---------------|----------------------|-----|-----|----|
| 31            | PLMW03CWS 110×126×9  | 110 | 126 | 9  |
| 32            | PLMW03CWS 115×131×9  | 115 | 131 | 9  |
| 33            | PLMW03CWS 120×136×9  | 120 | 136 | 9  |
| 34            | PLMW03CWS 125×141×9  | 125 | 141 | 9  |
| 35            | PLMW03CWS 130×146×9  | 130 | 146 | 9  |
| 36            | PLMW03CWS 135×155×10 | 135 | 155 | 10 |
| 37            | PLMW03CWS 140×160×10 | 140 | 160 | 10 |
| 38            | PLMW03CWS 150×170×10 | 150 | 170 | 10 |
| 39            | PLMW03CWS 160×180×10 | 160 | 180 | 10 |
| 40            | PLMW03CWS 170×190×10 | 170 | 190 | 10 |
| 41            | PLMW03CWS 180×200×10 | 180 | 200 | 10 |

In addition to the above specifications, Puli can provide customized product dimensions.

## Rod Seal

### PLMR01



#### ● Product Description

PLMR01 is a single-acting polyurethane lip seal with an asymmetrical design, featuring different heights between the inner and outer lips to optimize pressure transmission to the sealing lip. The shorter inner lip reduces the contact length, resulting in lower friction under low-pressure conditions compared to the outer lip. The longer sealing lip helps compensate for piston rod deflection to a certain extent. Commonly used as the primary seal in various reciprocating hydraulic cylinders, it offers superior wear and pressure resistance compared with conventional rubber Y-type seals. It is insensitive to shock loads and pressure peaks, and when used together with a back-up ring, its pressure resistance can be further increased. The interference-fit outer diameter ensures a secure installation in the groove, forming an effective static seal.

#### ● Applications

Used for seals of oil cylinders, plungers or piston rods of engineering machinery in harsh working conditions

#### ● Application Parameters

Operating Temperature: -35°C ~ 100°C (PLMPUR-93A)  
 -40°C ~ 90°C (PLMPUR-LL92A)  
 -50°C ~ 100°C (PLMPUR-LT92A)  
 -25°C ~ 125°C (PLMPUR-HHT)

Working Pressure:  $\leq 40$ MPa

Surface Speed:  $\leq 0.5$ m/s

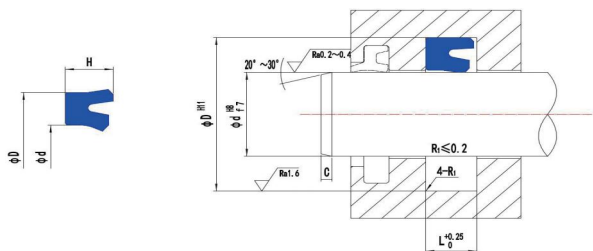
Media: Mineral hydraulic oil and grease

Standard Material: PLMPUR-93A, PLMPUR-LL92A, PLMPUR-LT92A, PLMPUR-HHT

Note: The maximum values listed above cannot be used simultaneously

#### ● Installation Requirements

To avoid damage to the lip during installation, do not slide on sharp metal edges during installation. Closed groove, manually bend to a heart shape for installation. If installation is difficult, use special tools to bend the seal for installation.



| Serial Number | Order Number                | d     | D    | H    | L    |
|---------------|-----------------------------|-------|------|------|------|
| 1             | PLMR01 4×12×6/7             | 4     | 12   | 6    | 7    |
| 2             | PLMR01 6×13×5/5.6           | 6     | 13   | 5    | 5.6  |
| 3             | PLMR01 6×14×5.7/6.3         | 6     | 14   | 5.7  | 6.3  |
| 4             | PLMR01 8×14×5/5.6           | 8     | 14   | 5    | 5.6  |
| 5             | PLMR01 8×16×5.7/6.3         | 8     | 16   | 5.7  | 6.3  |
| 6             | PLMR01 9×14.5×5/5.6         | 9     | 14.5 | 5    | 5.6  |
| 7             | PLMR01 10×14×3.7/4.2        | 10    | 14   | 3.7  | 4.2  |
| 8             | PLMR01 10×16×4.5/5.2        | 10    | 16   | 4.5  | 5.2  |
| 9             | PLMR01 11×16×4/4.5          | 11    | 16   | 4    | 4.5  |
| 10            | PLMR01 12×19×5/5.6          | 12    | 19   | 5    | 5.6  |
| 11            | PLMR01 12×20×5.7/6.3        | 12    | 20   | 5.7  | 6.3  |
| 12            | PLMR01 12×22×7.3/8          | 12    | 22   | 7.3  | 8    |
| 13            | PLMR01 14×21×5/5.6          | 14    | 21   | 5    | 5.6  |
| 14            | PLMR01 14×22×5/5.7          | 14    | 22   | 5    | 5.7  |
| 15            | PLMR01 14×22×7.3/8          | 14    | 22   | 7.3  | 8    |
| 16            | PLMR01 14×24×7.3/8          | 14    | 24   | 7.3  | 8    |
| 17            | PLMR01 15×20×5/5.6          | 15    | 20   | 5    | 5.6  |
| 18            | PLMR01 15×23×5/5.7          | 15    | 23   | 5    | 5.7  |
| 19            | PLMR01 15×25×8/9            | 15    | 25   | 8    | 9    |
| 20            | PLMR01 16×22×5/5.6          | 16    | 22   | 5    | 5.6  |
| 21            | PLMR01 16×24×5/5.7          | 16    | 24   | 5    | 5.7  |
| 22            | PLMR01 16×26×5.7/6.3        | 16    | 26   | 5.7  | 6.3  |
| 23            | PLMR01 16×26×7.3/8          | 16    | 26   | 7.3  | 8    |
| 24            | PLMR01 18×24×5/5.6          | 18    | 24   | 5    | 5.6  |
| 25            | PLMR01 18×25×5/5.6          | 18    | 25   | 5    | 5.6  |
| 26            | PLMR01 18×26×5.7/6.3        | 18    | 26   | 5.7  | 6.3  |
| 27            | PLMR01 18×28×7.3/8          | 18    | 28   | 7.3  | 8    |
| 28            | PLMR01 18×28×8/9            | 18    | 28   | 8    | 9    |
| 29            | PLMR01 19.05×25.4×6.35/7.14 | 19.05 | 25.4 | 6.35 | 7.14 |
| 30            | PLMR01 20×25×5/6            | 20    | 25   | 5    | 6    |

| Serial Number | Order Number         | d    | D    | H   | L   |
|---------------|----------------------|------|------|-----|-----|
| 31            | PLMR01 20×26×5/5.6   | 20   | 26   | 5   | 5.6 |
| 32            | PLMR01 20×28×5/5.7   | 20   | 28   | 5   | 5.7 |
| 33            | PLMR01 20×30×6/7     | 20   | 30   | 6   | 7   |
| 34            | PLMR01 20×30×7.3/8   | 20   | 30   | 7.3 | 8   |
| 35            | PLMR01 22×28×5/5.6   | 22   | 28   | 5   | 5.6 |
| 36            | PLMR01 22×29×5/5.6   | 22   | 29   | 5   | 5.6 |
| 37            | PLMR01 22×30×5/6     | 22   | 30   | 5   | 6   |
| 38            | PLMR01 22×30×5.7/6.3 | 22   | 30   | 5.7 | 6.3 |
| 39            | PLMR01 22×32×7.3/8   | 22   | 32   | 7.3 | 8   |
| 40            | PLMR01 22.4×30×5/5.7 | 22.4 | 30   | 5   | 5.7 |
| 41            | PLMR01 25×31×4/4.5   | 25   | 31   | 4   | 4.5 |
| 42            | PLMR01 25×32×6/7     | 25   | 32   | 6   | 7   |
| 43            | PLMR01 25×33×5/5.7   | 25   | 33   | 5   | 5.7 |
| 44            | PLMR01 25×33×5.7/6.3 | 25   | 33   | 5.7 | 6.3 |
| 45            | PLMR01 25×33×6.5/7.3 | 25   | 33   | 6.5 | 7.3 |
| 46            | PLMR01 25×35×5/5.7   | 25   | 35   | 5   | 5.7 |
| 47            | PLMR01 25×35×6/7     | 25   | 35   | 6   | 7   |
| 48            | PLMR01 25×35×7.3/8   | 25   | 35   | 7.3 | 8   |
| 49            | PLMR01 25×40×11/12   | 25   | 40   | 11  | 12  |
| 50            | PLMR01 28×35.5×5/5.7 | 28   | 35.5 | 5   | 5.7 |
| 51            | PLMR01 28×36×5.7/6.3 | 28   | 36   | 5.7 | 6.3 |
| 52            | PLMR01 28×38×7.3/8   | 28   | 38   | 7.3 | 8   |
| 53            | PLMR01 30×38×5.7/6.3 | 30   | 38   | 5.7 | 6.3 |
| 54            | PLMR01 30×38×8/9     | 30   | 38   | 8   | 9   |
| 55            | PLMR01 30×40×6/7     | 30   | 40   | 6   | 7   |
| 56            | PLMR01 30×40×7/8     | 30   | 40   | 7   | 8   |
| 57            | PLMR01 30×40×7.3/8   | 30   | 40   | 7.3 | 8   |
| 58            | PLMR01 30×40×10/11   | 30   | 40   | 10  | 11  |
| 59            | PLMR01 32×40×6/7     | 32   | 40   | 6   | 7   |
| 60            | PLMR01 32×40×6.7/7.5 | 32   | 40   | 6.7 | 7.5 |
| 61            | PLMR01 32×42×6/7     | 32   | 42   | 6   | 7   |
| 62            | PLMR01 32×42×7.3/8   | 32   | 42   | 7.3 | 8   |
| 63            | PLMR01 32×42×10/11   | 32   | 42   | 10  | 11  |
| 64            | PLMR01 32×45×10/11   | 32   | 45   | 10  | 11  |
| 65            | PLMR01 32×48×10/11   | 32   | 48   | 10  | 11  |
| 66            | PLMR01 35×42×7/8     | 35   | 42   | 7   | 8   |
| 67            | PLMR01 35×43×6/6.7   | 35   | 43   | 6   | 6.7 |
| 68            | PLMR01 35×45×6/7     | 35   | 45   | 6   | 7   |
| 69            | PLMR01 35×45×7/8     | 35   | 45   | 7   | 8   |
| 70            | PLMR01 35×45×8/9     | 35   | 45   | 8   | 9   |
| 71            | PLMR01 35×45×10/11   | 35   | 45   | 10  | 11  |
| 72            | PLMR01 35×50×9/10    | 35   | 50   | 9   | 10  |
| 73            | PLMR01 35×50×10/11   | 35   | 50   | 10  | 11  |

| Serial Number | Order Number               | d     | D    | H    | L    |
|---------------|----------------------------|-------|------|------|------|
| 74            | PLMR01 35.5×45×6/7         | 35.5  | 45   | 6    | 7    |
| 75            | PLMR01 36×44×5.7/6.3       | 36    | 44   | 5.7  | 6.3  |
| 76            | PLMR01 36×44×6/7           | 36    | 44   | 6    | 7    |
| 77            | PLMR01 36×46×7/7           | 36    | 46   | 7    | 7    |
| 78            | PLMR01 37×47×7.3/8         | 37    | 47   | 7.3  | 8    |
| 79            | PLMR01 38×48×6/7           | 38    | 48   | 6    | 7    |
| 80            | PLMR01 39×50×10/11         | 39    | 50   | 10   | 11   |
| 81            | PLMR01 40×48×5.7/6.3       | 40    | 48   | 5.7  | 6.3  |
| 82            | PLMR01 40×48×6/7           | 40    | 48   | 6    | 7    |
| 83            | PLMR01 40×48×8/9           | 40    | 48   | 8    | 9    |
| 84            | PLMR01 40×50×6/7           | 40    | 50   | 6    | 7    |
| 85            | PLMR01 40×50×7.3/8         | 40    | 50   | 7.3  | 8    |
| 86            | PLMR01 40×50×8/9           | 40    | 50   | 8    | 9    |
| 87            | PLMR01 40×50×10/11         | 40    | 50   | 10   | 11   |
| 88            | PLMR01 40×55×9/10          | 40    | 55   | 9    | 10   |
| 89            | PLMR01 40×55×10/11         | 40    | 55   | 10   | 11   |
| 90            | PLMR01 41.22×50.8×8.3/9.1  | 41.22 | 50.8 | 8.3  | 9.1  |
| 91            | PLMR01 42.25×52×9.5/10.5   | 42.25 | 52   | 9.5  | 10.5 |
| 92            | PLMR01 45×53×5.6/6.3       | 45    | 53   | 5.6  | 6.3  |
| 93            | PLMR01 45×53×8/9           | 45    | 53   | 8    | 9    |
| 94            | PLMR01 45×53×10/11         | 45    | 53   | 10   | 11   |
| 95            | PLMR01 45×55×5.8/6.5       | 45    | 55   | 5.8  | 6.5  |
| 96            | PLMR01 45×55×6/7           | 45    | 55   | 6    | 7    |
| 97            | PLMR01 45×55×7.3/8         | 45    | 55   | 7.3  | 8    |
| 98            | PLMR01 45×55×8/9           | 45    | 55   | 8    | 9    |
| 99            | PLMR01 45×55×10/11         | 45    | 55   | 10   | 11   |
| 100           | PLMR01 45×56×7/8           | 45    | 56   | 7    | 8    |
| 101           | PLMR01 45×60×9/10          | 45    | 60   | 9    | 10   |
| 102           | PLMR01 45×60×10/11         | 45    | 60   | 10   | 11   |
| 103           | PLMR01 50×58×8/9           | 50    | 58   | 8    | 9    |
| 104           | PLMR01 50×60×6/7           | 50    | 60   | 6    | 7    |
| 105           | PLMR01 50×60×7/8           | 50    | 60   | 7    | 8    |
| 106           | PLMR01 50×60×7.3/8         | 50    | 60   | 7.3  | 8    |
| 107           | PLMR01 50×60×8/9           | 50    | 60   | 8    | 9    |
| 108           | PLMR01 50×60×10/11         | 50    | 60   | 10   | 11   |
| 109           | PLMR01 50×63×10/11         | 50    | 63   | 10   | 11   |
| 110           | PLMR01 50×65×9/10          | 50    | 65   | 9    | 10   |
| 111           | PLMR01 50×65×10/11         | 50    | 65   | 10   | 11   |
| 112           | PLMR01 50×65×11.4/12.5     | 50    | 65   | 11.4 | 12.5 |
| 113           | PLMR01 50×66×12/13         | 50    | 66   | 12   | 13   |
| 114           | PLMR01 50×70×12/13         | 50    | 70   | 12   | 13   |
| 115           | PLMR01 50.8×63.5×9.52/10.5 | 50.8  | 63.5 | 9.52 | 10.5 |
| 116           | PLMR01 53×63×6/7           | 53    | 63   | 6    | 7    |

| Serial Number | Order Number               | d    | D    | H    | L    |
|---------------|----------------------------|------|------|------|------|
| 117           | PLMR01 55×63×8/9           | 55   | 63   | 8    | 9    |
| 118           | PLMR01 55×65×6/7           | 55   | 65   | 6    | 7    |
| 119           | PLMR01 55×65×7.3/8         | 55   | 65   | 7.3  | 8    |
| 120           | PLMR01 55×65×8/9           | 55   | 65   | 8    | 9    |
| 121           | PLMR01 55×65×10/11         | 55   | 65   | 10   | 11   |
| 122           | PLMR01 55×65×12/13         | 55   | 65   | 12   | 13   |
| 123           | PLMR01 55×68×10/11         | 55   | 68   | 10   | 11   |
| 124           | PLMR01 55×70×9/10          | 55   | 70   | 9    | 10   |
| 125           | PLMR01 55×70×10/11         | 55   | 70   | 10   | 11   |
| 126           | PLMR01 55×75×12/13         | 55   | 75   | 12   | 13   |
| 127           | PLMR01 56×66×6/7           | 56   | 66   | 6    | 7    |
| 128           | PLMR01 56×66×6.5/7.5       | 56   | 66   | 6.5  | 7.5  |
| 129           | PLMR01 56×71×8.6/9.5       | 56   | 71   | 8.6  | 9.5  |
| 130           | PLMR01 56×71×11.4/12.5     | 56   | 71   | 11.4 | 12.5 |
| 131           | PLMR01 60×68×8/9           | 60   | 68   | 8    | 9    |
| 132           | PLMR01 60×70×6/7           | 60   | 70   | 6    | 7    |
| 133           | PLMR01 60×70×10/11         | 60   | 70   | 10   | 11   |
| 134           | PLMR01 60×73×10/11         | 60   | 73   | 10   | 11   |
| 135           | PLMR01 60×75×9/10          | 60   | 75   | 9    | 10   |
| 136           | PLMR01 60×75×10/11         | 60   | 75   | 10   | 11   |
| 137           | PLMR01 60×80×12/13         | 60   | 80   | 12   | 13   |
| 138           | PLMR01 63×73×6/7           | 63   | 73   | 6    | 7    |
| 139           | PLMR01 63×73×6.5/7.3       | 63   | 73   | 6.5  | 7.3  |
| 140           | PLMR01 63×73×12/13         | 63   | 73   | 12   | 13   |
| 141           | PLMR01 63×75×10/11         | 63   | 75   | 10   | 11   |
| 142           | PLMR01 63×78×11.5/12.5     | 63   | 78   | 11.5 | 12.5 |
| 143           | PLMR01 63.5×76.2×9.53/10.3 | 63.5 | 76.2 | 9.53 | 10.3 |
| 144           | PLMR01 65×73×8/9           | 65   | 73   | 8    | 9    |
| 145           | PLMR01 65×75×6/7           | 65   | 75   | 6    | 7    |
| 146           | PLMR01 65×75×7/8           | 65   | 75   | 7    | 8    |
| 147           | PLMR01 65×75×12/13         | 65   | 75   | 12   | 13   |
| 148           | PLMR01 65×78×10/11         | 65   | 78   | 10   | 11   |
| 149           | PLMR01 65×80×9/10          | 65   | 80   | 9    | 10   |
| 150           | PLMR01 65×80×10/11         | 65   | 80   | 10   | 11   |
| 151           | PLMR01 65×80×12/13         | 65   | 80   | 12   | 13   |
| 152           | PLMR01 65×85×12/13         | 65   | 85   | 12   | 13   |
| 153           | PLMR01 67×77×6/7           | 67   | 77   | 6    | 7    |
| 154           | PLMR01 70×78×7/7.8         | 70   | 78   | 7    | 7.8  |
| 155           | PLMR01 70×78×8/9           | 70   | 78   | 8    | 9    |
| 156           | PLMR01 70×80×6.5/7.5       | 70   | 80   | 6.5  | 7.5  |
| 157           | PLMR01 70×80×12/13         | 70   | 80   | 12   | 13   |
| 158           | PLMR01 70×83×10/11         | 70   | 83   | 10   | 11   |
| 159           | PLMR01 70×85×9/10          | 70   | 85   | 9    | 10   |

| Serial Number | Order Number                | d    | D     | H    | L    |
|---------------|-----------------------------|------|-------|------|------|
| 160           | PLMR01 70×85×10/11          | 70   | 85    | 10   | 11   |
| 161           | PLMR01 70×85×11.4/12.5      | 70   | 85    | 11.4 | 12.5 |
| 162           | PLMR01 70×90×12/13          | 70   | 90    | 12   | 13   |
| 163           | PLMR01 71×81×6/7            | 71   | 81    | 6    | 7    |
| 164           | PLMR01 75×85×6/7            | 75   | 85    | 6    | 7    |
| 165           | PLMR01 75×85×7/8            | 75   | 85    | 7    | 8    |
| 166           | PLMR01 75×85×12/13          | 75   | 85    | 12   | 13   |
| 167           | PLMR01 75×88×10/11          | 75   | 88    | 10   | 11   |
| 168           | PLMR01 75×90×9/10           | 75   | 90    | 9    | 10   |
| 169           | PLMR01 75×90×10/11          | 75   | 90    | 10   | 11   |
| 170           | PLMR01 75×90×12/13          | 75   | 90    | 12   | 13   |
| 171           | PLMR01 75×95×12/13          | 75   | 95    | 12   | 13   |
| 172           | PLMR01 76×88×6/7            | 76   | 88    | 6    | 7    |
| 173           | PLMR01 76.2×88.9×9.53/10.3  | 76.2 | 88.9  | 9.53 | 10.3 |
| 174           | PLMR01 78×86×8.5/9.5        | 78   | 86    | 8.5  | 9.5  |
| 175           | PLMR01 80×90×6/7            | 80   | 90    | 6    | 7    |
| 176           | PLMR01 80×90×7/8            | 80   | 90    | 7    | 8    |
| 177           | PLMR01 80×90×10/11          | 80   | 90    | 10   | 11   |
| 178           | PLMR01 80×90×12/13          | 80   | 90    | 12   | 13   |
| 179           | PLMR01 80×93×10/11          | 80   | 93    | 10   | 11   |
| 180           | PLMR01 80×95×9/10           | 80   | 95    | 9    | 10   |
| 181           | PLMR01 80×95×10/11          | 80   | 95    | 10   | 11   |
| 182           | PLMR01 80×95×11.4/12.5      | 80   | 95    | 11.4 | 12.5 |
| 183           | PLMR01 80×100×12/13         | 80   | 100   | 12   | 13   |
| 184           | PLMR01 85×100×9/10          | 85   | 100   | 9    | 10   |
| 185           | PLMR01 85×100×10/11         | 85   | 100   | 10   | 11   |
| 186           | PLMR01 85×100×12/13         | 85   | 100   | 12   | 13   |
| 187           | PLMR01 85×105×12/13         | 85   | 105   | 12   | 13   |
| 188           | PLMR01 88.9×101.6×9.53/10.3 | 88.9 | 101.6 | 9.53 | 10.3 |
| 189           | PLMR01 90×100×6/7           | 90   | 100   | 6    | 7    |
| 190           | PLMR01 90×100×6.5/7.5       | 90   | 100   | 6.5  | 7.5  |
| 191           | PLMR01 90×102×9/10          | 90   | 102   | 9    | 10   |
| 192           | PLMR01 90×105×9/10          | 90   | 105   | 9    | 10   |
| 193           | PLMR01 90×105×10/11         | 90   | 105   | 10   | 11   |
| 194           | PLMR01 90×105×11.6/12.5     | 90   | 105   | 11.6 | 12.5 |
| 195           | PLMR01 90×110×10/11         | 90   | 110   | 10   | 11   |
| 196           | PLMR01 90×110×12/13         | 90   | 110   | 12   | 13   |
| 197           | PLMR01 90×110×13/14         | 90   | 110   | 13   | 14   |
| 198           | PLMR01 90×110×14.5/16       | 90   | 110   | 14.5 | 16   |
| 199           | PLMR01 92×105×9.5/10.6      | 92   | 105   | 9.5  | 10.6 |
| 200           | PLMR01 95×110×9/10          | 95   | 110   | 9    | 10   |
| 201           | PLMR01 95×110×10/11         | 95   | 110   | 10   | 11   |
| 202           | PLMR01 95×115×12/13         | 95   | 115   | 12   | 13   |

| Serial Number | Order Number            | d   | D   | H    | L    |
|---------------|-------------------------|-----|-----|------|------|
| 203           | PLMR01 98×112×8.5/9.5   | 98  | 112 | 8.5  | 9.5  |
| 204           | PLMR01 100×110×6/7      | 100 | 110 | 6    | 7    |
| 205           | PLMR01 100×112×14/15    | 100 | 112 | 14   | 15   |
| 206           | PLMR01 100×115×9/10     | 100 | 115 | 9    | 10   |
| 207           | PLMR01 100×115×10/11    | 100 | 115 | 10   | 11   |
| 208           | PLMR01 100×120×12/13    | 100 | 120 | 12   | 13   |
| 209           | PLMR01 100×120×15/16    | 100 | 120 | 15   | 16   |
| 210           | PLMR01 105×120×9/10     | 105 | 120 | 9    | 10   |
| 211           | PLMR01 105×120×10/11    | 105 | 120 | 10   | 11   |
| 212           | PLMR01 105×125×12/13    | 105 | 125 | 12   | 13   |
| 213           | PLMR01 105×125×15/16    | 105 | 125 | 15   | 16   |
| 214           | PLMR01 110×125×9/10     | 110 | 125 | 9    | 10   |
| 215           | PLMR01 110×125×9.6/10.6 | 110 | 125 | 9.6  | 10.6 |
| 216           | PLMR01 110×125×10/11    | 110 | 125 | 10   | 11   |
| 217           | PLMR01 110×130×10/11    | 110 | 130 | 10   | 11   |
| 218           | PLMR01 110×130×12/13    | 110 | 130 | 12   | 13   |
| 219           | PLMR01 110×130×14.5/16  | 110 | 130 | 14.5 | 16   |
| 220           | PLMR01 112×125×9/10     | 112 | 125 | 9    | 10   |
| 221           | PLMR01 115×130×9/10     | 115 | 130 | 9    | 10   |
| 222           | PLMR01 115×130×10/11    | 115 | 130 | 10   | 11   |
| 223           | PLMR01 115×135×12/13    | 115 | 135 | 12   | 13   |
| 224           | PLMR01 118×133×9/10     | 118 | 133 | 9    | 10   |
| 225           | PLMR01 120×135×9/10     | 120 | 135 | 9    | 10   |
| 226           | PLMR01 120×135×10/11    | 120 | 135 | 10   | 11   |
| 227           | PLMR01 120×135×14.5/16  | 120 | 135 | 14.5 | 16   |
| 228           | PLMR01 120×140×10/11    | 120 | 140 | 10   | 11   |
| 229           | PLMR01 120×140×12/13    | 120 | 140 | 12   | 13   |
| 230           | PLMR01 120×140×15/16    | 120 | 140 | 15   | 16   |
| 231           | PLMR01 125×140×9/10     | 125 | 140 | 9    | 10   |
| 232           | PLMR01 125×145×12/13    | 125 | 145 | 12   | 13   |
| 233           | PLMR01 125×145×14.5/16  | 125 | 145 | 14.5 | 16   |
| 234           | PLMR01 130×145×9/10     | 130 | 145 | 9    | 10   |
| 235           | PLMR01 130×145×10/11    | 130 | 145 | 10   | 11   |
| 236           | PLMR01 130×150×12/13    | 130 | 150 | 12   | 13   |
| 237           | PLMR01 130×150×15/16    | 130 | 150 | 15   | 16   |
| 238           | PLMR01 130×150×16/17    | 130 | 150 | 16   | 17   |
| 239           | PLMR01 132×142×6/7      | 132 | 142 | 6    | 7    |
| 240           | PLMR01 133×143×6/7      | 133 | 143 | 6    | 7    |
| 241           | PLMR01 134×148×8.5/9.5  | 134 | 148 | 8.5  | 9.5  |
| 242           | PLMR01 135×150×9/10     | 135 | 150 | 9    | 10   |
| 243           | PLMR01 140×150×6/7      | 140 | 150 | 6    | 7    |
| 244           | PLMR01 140×150×7/8      | 140 | 150 | 7    | 8    |
| 245           | PLMR01 140×155×9/10     | 140 | 155 | 9    | 10   |

| Serial Number | Order Number            | d   | D   | H    | L    |
|---------------|-------------------------|-----|-----|------|------|
| 246           | PLMR01 140×155×9.6/10.6 | 140 | 155 | 9.6  | 10.6 |
| 247           | PLMR01 140×160×12/13    | 140 | 160 | 12   | 13   |
| 248           | PLMR01 140×160×14.5/16  | 140 | 160 | 14.5 | 16   |
| 249           | PLMR01 140×165×12/13    | 140 | 165 | 12   | 13   |
| 250           | PLMR01 145×160×9/10     | 145 | 160 | 9    | 10   |
| 251           | PLMR01 145×165×14.5/16  | 145 | 165 | 14.5 | 16   |
| 252           | PLMR01 150×165×9/10     | 150 | 165 | 9    | 10   |
| 253           | PLMR01 150×170×12/13    | 150 | 170 | 12   | 13   |
| 254           | PLMR01 150×170×15/16    | 150 | 170 | 15   | 16   |
| 255           | PLMR01 155×165×6/7      | 155 | 165 | 6    | 7    |
| 256           | PLMR01 155×170×9/10     | 155 | 170 | 9    | 10   |
| 257           | PLMR01 160×175×9/10     | 160 | 175 | 9    | 10   |
| 258           | PLMR01 160×175×10/11    | 160 | 175 | 10   | 11   |
| 259           | PLMR01 160×180×12/13    | 160 | 180 | 12   | 13   |
| 260           | PLMR01 160×180×15/16    | 160 | 180 | 15   | 16   |
| 261           | PLMR01 160×185×16/17    | 160 | 185 | 16   | 17   |
| 262           | PLMR01 160×185×18.2/20  | 160 | 185 | 18.2 | 20   |
| 263           | PLMR01 165×180×9/10     | 165 | 180 | 9    | 10   |
| 264           | PLMR01 170×180×6/7      | 170 | 180 | 6    | 7    |
| 265           | PLMR01 170×185×9/10     | 170 | 185 | 9    | 10   |
| 266           | PLMR01 170×190×12/13    | 170 | 190 | 12   | 13   |
| 267           | PLMR01 175×190×9/10     | 175 | 190 | 9    | 10   |
| 268           | PLMR01 180×200×12/13    | 180 | 200 | 12   | 13   |
| 269           | PLMR01 180×200×15/16    | 180 | 200 | 15   | 16   |
| 270           | PLMR01 180×200×16/17    | 180 | 200 | 16   | 17   |
| 271           | PLMR01 180×205×14.5/16  | 180 | 205 | 14.5 | 16   |
| 272           | PLMR01 180×205×18.2/20  | 180 | 205 | 18.2 | 20   |
| 273           | PLMR01 185×205×12/13    | 185 | 205 | 12   | 13   |
| 274           | PLMR01 190×210×12/13    | 190 | 210 | 12   | 13   |
| 275           | PLMR01 195×215×12/13    | 195 | 215 | 12   | 13   |
| 276           | PLMR01 200×220×12/13    | 200 | 220 | 12   | 13   |
| 277           | PLMR01 200×225×16/17    | 200 | 225 | 16   | 17   |
| 278           | PLMR01 200×225×18.2/20  | 200 | 225 | 18.2 | 20   |
| 279           | PLMR01 210×230×12/13    | 210 | 230 | 12   | 13   |
| 280           | PLMR01 210×230×15/16    | 210 | 230 | 15   | 16   |
| 281           | PLMR01 210×235×16/17    | 210 | 235 | 16   | 17   |
| 282           | PLMR01 220×240×12/13    | 220 | 240 | 12   | 13   |
| 283           | PLMR01 220×250×22.7/25  | 220 | 250 | 22.7 | 25   |
| 284           | PLMR01 225×250×18/19    | 225 | 250 | 18   | 19   |
| 285           | PLMR01 230×250×12/13    | 230 | 250 | 12   | 13   |
| 286           | PLMR01 230×255×16/17    | 230 | 255 | 16   | 17   |
| 287           | PLMR01 240×260×12/13    | 240 | 260 | 12   | 13   |
| 288           | PLMR01 240×270×18/19    | 240 | 270 | 18   | 19   |

| Serial Number | Order Number           | d   | D   | H    | L  |
|---------------|------------------------|-----|-----|------|----|
| 289           | PLMR01 250×270×16/17   | 250 | 270 | 16   | 17 |
| 290           | PLMR01 250×280×22.7/25 | 250 | 280 | 22.7 | 25 |
| 291           | PLMR01 260×285×19/20   | 260 | 285 | 19   | 20 |
| 292           | PLMR01 270×295×16/17   | 270 | 295 | 16   | 17 |
| 293           | PLMR01 280×300×15/16   | 280 | 300 | 15   | 16 |
| 294           | PLMR01 280×310×22.7/25 | 280 | 310 | 22.7 | 25 |
| 295           | PLMR01 290×315×16/17   | 290 | 315 | 16   | 17 |
| 296           | PLMR01 300×330×19/20   | 300 | 330 | 19   | 20 |
| 297           | PLMR01 310×340×22/24   | 310 | 340 | 22   | 24 |
| 298           | PLMR01 320×350×18/20   | 320 | 350 | 18   | 20 |
| 299           | PLMR01 330×360×20/22   | 330 | 360 | 20   | 22 |
| 300           | PLMR01 340×370×22/24   | 340 | 370 | 22   | 24 |
| 301           | PLMR01 350×380×22/24   | 350 | 380 | 22   | 24 |
| 302           | PLMR01 360×390×22/24   | 360 | 390 | 22   | 24 |
| 303           | PLMR01 370×400×22/24   | 370 | 400 | 22   | 24 |
| 304           | PLMR01 380×410×22/24   | 380 | 410 | 22   | 24 |
| 305           | PLMR01 390×420×22/24   | 390 | 420 | 22   | 24 |
| 306           | PLMR01 400×430×22/24   | 400 | 430 | 22   | 24 |

In addition to the above specifications, Puli can provide customized product dimensions.

## PLMR17



### ●Product Description

PLMR17 is a polyurethane rod seal featuring an auxiliary lip at the root of the inner diameter. The cavity formed between the auxiliary and main sealing lips allows fluid retention for improved lubrication, reducing wear and minimizing stick-slip or vibration. The auxiliary lip also prevents contaminants from entering the sealing system from the outside. The extended main sealing lip compensates for piston rod deflection. Commonly used for piston rod sealing in construction machinery cylinders, it is insensitive to shock loads and pressure peaks. When used together with a back-up ring, its pressure resistance is further enhanced. The interference-fit outer diameter ensures secure installation in the groove, forming a reliable static seal.

### ●Applications

Used for seals of oil cylinders, plungers or piston rods of engineering machinery in harsh working conditions

### ●Application Parameters

Operating Temperature: -35°C ~ 100°C (PLMPUR-93A)  
 -40°C ~ 90°C (PLMPUR-LL92A)  
 -50°C ~ 100°C (PLMPUR-LT92A)  
 -25°C ~ 125°C (PLMPUR-HHT)

Working Pressure:  $\leq 40$ MPa

Surface Speed:  $\leq 0.5$ ms

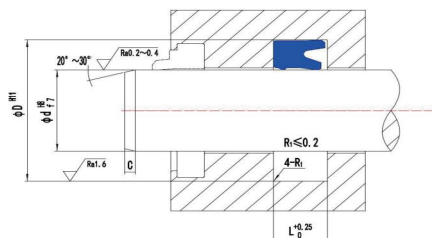
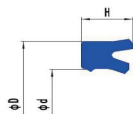
Media: Mineral hydraulic oil and grease

Standard Material: PLMPUR-93A, PLMPUR-LL92A, PLMPUR-LT92A, PLMPUR-HHT

Note: The maximum values listed above cannot be used simultaneously

### ●Installation Requirements

To avoid damage to the lip during installation, avoid sliding on sharp metal edges. Closed groove, manually bend to a heart-shaped installation. If installation is difficult, use a special tool to bend the seal for installation.



| Serial Number | Order Number         | d  | D  | H   | L   |
|---------------|----------------------|----|----|-----|-----|
| 1             | PLMR17 8×14×6/7      | 8  | 14 | 6   | 7   |
| 2             | PLMR17 8×16×5.7/6.3  | 8  | 16 | 5.7 | 6.3 |
| 3             | PLMR17 10×16×4.5/5.3 | 10 | 16 | 4.5 | 5.3 |
| 4             | PLMR17 10×17×5.7/6.3 | 10 | 17 | 5.7 | 6.3 |
| 5             | PLMR17 10×18×5.7/6.3 | 10 | 18 | 5.7 | 6.3 |
| 6             | PLMR17 14×22×5.7/6.3 | 14 | 22 | 5.7 | 6.3 |
| 7             | PLMR17 16×24×5.8/6.3 | 16 | 24 | 5.8 | 6.3 |
| 8             | PLMR17 16×26×7.3/8   | 16 | 26 | 7.3 | 8   |
| 9             | PLMR17 18×28×7.3/8   | 18 | 28 | 7.3 | 8   |
| 10            | PLMR17 20×30×7.3/8   | 20 | 30 | 7.3 | 8   |
| 11            | PLMR17 22×32×7.3/8   | 22 | 32 | 7.3 | 8   |
| 12            | PLMR17 25×32×4.5/5   | 25 | 32 | 4.5 | 5   |
| 13            | PLMR17 25×33×5.7/6.3 | 25 | 33 | 5.7 | 6.3 |
| 14            | PLMR17 25×33×6.5/7.3 | 25 | 33 | 6.5 | 7.3 |
| 15            | PLMR17 25×35×7.3/8   | 25 | 35 | 7.3 | 8   |
| 16            | PLMR17 28×36×7.3/8   | 28 | 36 | 7.3 | 8   |
| 17            | PLMR17 28×37×7.3/8   | 28 | 37 | 7.3 | 8   |
| 18            | PLMR17 30×38×6/7     | 30 | 38 | 6   | 7   |
| 19            | PLMR17 30×40×7.3/8   | 30 | 40 | 7.3 | 8   |
| 20            | PLMR17 30×41×7.3/8   | 30 | 41 | 7.3 | 8   |
| 21            | PLMR17 30×42×7.3/8   | 30 | 42 | 7.3 | 8   |
| 22            | PLMR17 32×42×7.3/8   | 32 | 42 | 7.3 | 8   |
| 23            | PLMR17 32×43×7.3/8   | 32 | 43 | 7.3 | 8   |
| 24            | PLMR17 35×44×7.3/8   | 35 | 44 | 7.3 | 8   |
| 25            | PLMR17 35×45×7.3/8   | 35 | 45 | 7.3 | 8   |
| 26            | PLMR17 35×50×10/11   | 35 | 50 | 10  | 11  |
| 27            | PLMR17 36×46×7.3/8   | 36 | 46 | 7.3 | 8   |
| 28            | PLMR17 37×47×10/11   | 37 | 47 | 10  | 11  |
| 29            | PLMR17 38×48×8/9     | 38 | 48 | 8   | 9   |
| 30            | PLMR17 40×49×7.3/8   | 40 | 49 | 7.3 | 8   |

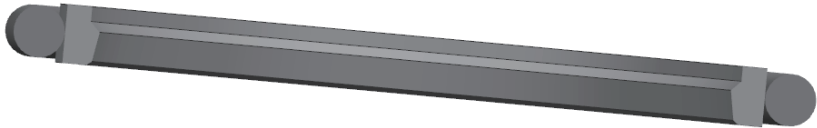
| Serial Number | Order Number             | d  | D     | H    | L    |
|---------------|--------------------------|----|-------|------|------|
| 31            | PLMR17 40×49.52×9.6/10.5 | 40 | 49.52 | 9.6  | 10.5 |
| 32            | PLMR17 40×50×7.3/8       | 40 | 50    | 7.3  | 8    |
| 33            | PLMR17 40×50×10/11       | 40 | 50    | 10   | 11   |
| 34            | PLMR17 40×52×8/9         | 40 | 52    | 8    | 9    |
| 35            | PLMR17 40×55×11.4/12.5   | 40 | 55    | 11.4 | 12.5 |
| 36            | PLMR17 42×52×8/9         | 42 | 52    | 8    | 9    |
| 37            | PLMR17 45×53×5.6/6.3     | 45 | 53    | 5.6  | 6.3  |
| 38            | PLMR17 45×55×7.3/8       | 45 | 55    | 7.3  | 8    |
| 39            | PLMR17 45×55×10/11       | 45 | 55    | 10   | 11   |
| 40            | PLMR17 45×60×10.5/11.5   | 45 | 60    | 10.5 | 11.5 |
| 41            | PLMR17 45×60×11.4/12.5   | 45 | 60    | 11.4 | 12.5 |
| 42            | PLMR17 46×56×10/11       | 46 | 56    | 10   | 11   |
| 43            | PLMR17 48×56×11.5/12.5   | 48 | 56    | 11.5 | 12.5 |
| 44            | PLMR17 50×60×7.3/8       | 50 | 60    | 7.3  | 8    |
| 45            | PLMR17 50×60×10/11       | 50 | 60    | 10   | 11   |
| 46            | PLMR17 50×65×10/11       | 50 | 65    | 10   | 11   |
| 47            | PLMR17 50×65×11.4/12.5   | 50 | 65    | 11.4 | 12.5 |
| 48            | PLMR17 52×62×10/11       | 52 | 62    | 10   | 11   |
| 49            | PLMR17 55×65×10/11       | 55 | 65    | 10   | 11   |
| 50            | PLMR17 55×67×10/11       | 55 | 67    | 10   | 11   |
| 51            | PLMR17 56×71×11.4/12.5   | 56 | 71    | 11.4 | 12.5 |
| 52            | PLMR17 60×70×7.5/8.5     | 60 | 70    | 7.5  | 8.5  |
| 53            | PLMR17 60×70×10/11       | 60 | 70    | 10   | 11   |
| 54            | PLMR17 60×75×10/11       | 60 | 75    | 10   | 11   |
| 55            | PLMR17 63×71×8/9         | 63 | 71    | 8    | 9    |
| 56            | PLMR17 63×78×10/11       | 63 | 78    | 10   | 11   |
| 57            | PLMR17 63×78×11.4/12.5   | 63 | 78    | 11.4 | 12.5 |
| 58            | PLMR17 65×75×12/13       | 65 | 75    | 12   | 13   |
| 59            | PLMR17 65×85×11.4/12.5   | 65 | 85    | 11.4 | 12.5 |
| 60            | PLMR17 68×78×12/13       | 68 | 78    | 12   | 13   |
| 61            | PLMR17 70×80×12/13       | 70 | 80    | 12   | 13   |
| 62            | PLMR17 70×85×10/11       | 70 | 85    | 10   | 11   |
| 63            | PLMR17 70×85×11.4/12.5   | 70 | 85    | 11.4 | 12.5 |
| 64            | PLMR17 75×85×11.5/12.5   | 75 | 85    | 11.5 | 12.5 |
| 65            | PLMR17 75×88×10/11       | 75 | 88    | 10   | 11   |
| 66            | PLMR17 75×90×10/11       | 75 | 90    | 10   | 11   |
| 67            | PLMR17 80×88×11.5/12.5   | 80 | 88    | 11.5 | 12.5 |
| 68            | PLMR17 80×90×12/13       | 80 | 90    | 12   | 13   |
| 69            | PLMR17 80×95×11.4/12.5   | 80 | 95    | 11.4 | 12.5 |
| 70            | PLMR17 80×100×12/13      | 80 | 100   | 12   | 13   |
| 71            | PLMR17 85×93×11.5/12.5   | 85 | 93    | 11.5 | 12.5 |
| 72            | PLMR17 85×100×12/13      | 85 | 100   | 12   | 13   |
| 73            | PLMR17 90×105×9/10       | 90 | 105   | 9    | 10   |

| Serial Number | Order Number                | d     | D     | H    | L    |
|---------------|-----------------------------|-------|-------|------|------|
| 74            | PLMR17 90×105×11.4/12.5     | 90    | 105   | 11.4 | 12.5 |
| 75            | PLMR17 92×107×11.4/12.5     | 92    | 107   | 11.4 | 12.5 |
| 76            | PLMR17 95×115×12/13         | 95    | 115   | 12   | 13   |
| 77            | PLMR17 97×105×13/14         | 97    | 105   | 13   | 14   |
| 78            | PLMR17 100×108×12/13        | 100   | 108   | 12   | 13   |
| 79            | PLMR17 100×110×11.4/12.5    | 100   | 110   | 11.4 | 12.5 |
| 80            | PLMR17 100×120×12/13        | 100   | 120   | 12   | 13   |
| 81            | PLMR17 100×120×14.5/16      | 100   | 120   | 14.5 | 16   |
| 82            | PLMR17 105×113×11.5/12.5    | 105   | 113   | 11.5 | 12.5 |
| 83            | PLMR17 109×119×10/11        | 109   | 119   | 10   | 11   |
| 84            | PLMR17 110×120×10/11        | 110   | 120   | 10   | 11   |
| 85            | PLMR17 110×120×11/12        | 110   | 120   | 11   | 12   |
| 86            | PLMR17 110×125×14.5/16      | 110   | 125   | 14.5 | 16   |
| 87            | PLMR17 110×130×14.5/16      | 110   | 130   | 14.5 | 16   |
| 88            | PLMR17 120×130×11.4/12.5    | 120   | 130   | 11.4 | 12.5 |
| 89            | PLMR17 120×130×14/15        | 120   | 130   | 14   | 15   |
| 90            | PLMR17 120×135×9/10         | 120   | 135   | 9    | 10   |
| 91            | PLMR17 125×133×11.5/12.5    | 125   | 133   | 11.5 | 12.5 |
| 92            | PLMR17 125×135×11.4/12.5    | 125   | 135   | 11.4 | 12.5 |
| 93            | PLMR17 129×139×10/11        | 129   | 139   | 10   | 11   |
| 94            | PLMR17 130×145×12/13        | 130   | 145   | 12   | 13   |
| 95            | PLMR17 135×145×11/12        | 135   | 145   | 11   | 12   |
| 96            | PLMR17 135.8×150.9×9.6/10.5 | 135.8 | 150.9 | 9.6  | 10.5 |
| 97            | PLMR17 136×146×6.7/7.5      | 136   | 146   | 6.7  | 7.5  |
| 98            | PLMR17 140×160×14.5/16      | 140   | 160   | 14.5 | 16   |
| 99            | PLMR17 145×153×11.5/12.5    | 145   | 153   | 11.5 | 12.5 |
| 100           | PLMR17 149×159×10/11        | 149   | 159   | 10   | 11   |
| 101           | PLMR17 150×160×11.4/12.5    | 150   | 160   | 11.4 | 12.5 |
| 102           | PLMR17 150×160×12.5/13.5    | 150   | 160   | 12.5 | 13.5 |
| 103           | PLMR17 150×170×15/16        | 150   | 170   | 15   | 16   |
| 104           | PLMR17 152×164×9.1/10       | 152   | 164   | 9.1  | 10   |
| 105           | PLMR17 156×166×6.7/7        | 156   | 166   | 6.7  | 7    |
| 106           | PLMR17 156×171.1×9.6/10.5   | 156   | 171.1 | 9.6  | 10.5 |
| 107           | PLMR17 160×170×11/12        | 160   | 170   | 11   | 12   |
| 108           | PLMR17 160×185×18.2/20      | 160   | 185   | 18.2 | 20   |
| 109           | PLMR17 167×175×11.5/12.5    | 167   | 175   | 11.5 | 12.5 |
| 110           | PLMR17 167×176×11.5/12.5    | 167   | 176   | 11.5 | 12.5 |
| 111           | PLMR17 168×183×9/10         | 168   | 183   | 9    | 10   |
| 112           | PLMR17 169×179×11/12        | 169   | 179   | 11   | 12   |
| 113           | PLMR17 170×200×18/19        | 170   | 200   | 18   | 19   |
| 114           | PLMR17 172×184×11/12        | 172   | 184   | 11   | 12   |
| 115           | PLMR17 177.7×195×9.73/11.3  | 177.7 | 195   | 9.73 | 11.3 |
| 116           | PLMR17 180×190×11.4/12.5    | 180   | 190   | 11.4 | 12.5 |

| Serial Number | Order Number                   | d      | D      | H    | L    |
|---------------|--------------------------------|--------|--------|------|------|
| 117           | PLMR17 180×192×9.1/10          | 180    | 192    | 9.1  | 10   |
| 118           | PLMR17 180×200×15/16           | 180    | 200    | 15   | 16   |
| 119           | PLMR17 185×195×11/12           | 185    | 195    | 11   | 12   |
| 120           | PLMR17 191×202×11/12           | 191    | 202    | 11   | 12   |
| 121           | PLMR17 200×225×18.2/20         | 200    | 225    | 18.2 | 20   |
| 122           | PLMR17 209.55×226.77×9.73/11.3 | 209.55 | 226.77 | 9.73 | 11.3 |
| 123           | PLMR17 210×222×12/13           | 210    | 222    | 12   | 13   |
| 124           | PLMR17 212×224×9.1/10          | 212    | 224    | 9.1  | 10   |
| 125           | PLMR17 220×250×22.7/25         | 220    | 250    | 22.7 | 25   |
| 126           | PLMR17 228.5×246×9/10          | 228.5  | 246    | 9    | 10   |
| 127           | PLMR17 230×260×22.7/25         | 230    | 260    | 22.7 | 25   |
| 128           | PLMR17 250×280×22.7/25         | 250    | 280    | 22.7 | 25   |
| 129           | PLMR17 266.7×284×9.73/11.3     | 266.7  | 284    | 9.73 | 11.3 |
| 130           | PLMR17 280×310×18/19           | 280    | 310    | 18   | 19   |

In addition to the above specifications, Puli can provide customized product dimensions.

PLMR09S



●Product Description

PLMR09S is commonly used as a buffer seal for hydraulic cylinder piston rods, installed in series with the main rod seal. Its design is based on the classic Step Seal concept, offering low friction, compact structure, excellent static sealing performance, and effective back-pressure relief. The O-ring functions as an energizing element, providing preloading to the sealing ring, and different O-ring materials can accommodate a wider temperature range. The specially angled lip design of the sealing ring creates a stronger “pump-back” effect, enhancing the overall sealing performance.

●Applications

For use in construction machinery cylinders, control cylinders, servo systems, machine tools, fast-response cylinders, construction machinery, etc.

●Application Parameters

Operating Temperature: -45°C to 200°C (depending on O-ring material)

Operating Pressure: ≤35MPa

Surface Speed: ≤1.5ms

Media: Mineral hydraulic oil and grease

Standard materials: PLMFLON-3 + PLMRUBBER-N70 PLMFLON-3-GP + PLMRUBBER-N70

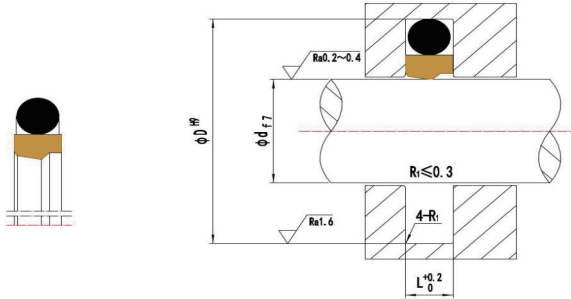
Note: The maximum values listed above cannot be used simultaneously

| Rod diameter $\phi d_{f7}$ |                   |                   | Groove Diameter | Groove Width | Corner Radius | Radial clearance S max. |        |          | O-ring Cross-Section Diameter |
|----------------------------|-------------------|-------------------|-----------------|--------------|---------------|-------------------------|--------|----------|-------------------------------|
| Standard Application       | Light Application | Heavy Application | $\phi D_{H9}$   | L +0.2       | R1            | 10 MPa                  | 20 MPa | 40 MPa * |                               |
| 3-7.9                      | 8-18.9            | -                 | dN+4.9          | 2.2          | 0.4           | 0.30                    | 0.20   | 0.15     | 1.78                          |
| 8-18.9                     | 19-37.9           | 3-7.9             | dN+7.3          | 3.2          | 0.6           | 0.40                    | 0.40   | 0.15     | 2.62                          |
| 19-37.9                    | 38-199.9          | 8-18.9            | dN+10.7         | 4.2          | 1.0           | 0.40                    | 0.40   | 0.20     | 3.53                          |
| 38-199.9                   | 200-255.9         | 19-37.9           | dN+15.1         | 6.3          | 1.3           | 0.50                    | 0.50   | 0.20     | 5.33                          |
| 200-255.9                  | 256-649.9         | 38-199.9          | dN+20.5         | 8.1          | 1.8           | 0.60                    | 0.60   | 0.25     | 6.99                          |
| 256-649.9                  | 650-999.9         | 200-255.9         | dN+24.0         | 8.1          | 1.8           | 0.60                    | 0.60   | 0.25     | 6.99                          |
| 650-999.9                  | ≥1000             | 256-649.9         | dN+27.3         | 9.5          | 2.5           | 0.70                    | 0.70   | 0.30     | 8.40                          |
| ≥1000                      | -                 | 650-999.9         | dN+38.0         | 13.8         | 3.0           | 1.00                    | 1.00   | 0.60     | 12.00                         |

\*When the pressure is greater than 40MPa, please use the fit tolerance of  $\phi D_{H8}$

●Installation Requirements

To avoid damage to the lip during installation, avoid sliding on sharp metal edges. Closed groove, manually install.



| Serial Number | Order Number        | d  | D    | L   | O-Ring     |
|---------------|---------------------|----|------|-----|------------|
| 1             | PLMR09S 15×19.9×2.2 | 15 | 19.9 | 2.2 | 17.17×1.78 |
| 2             | PLMR09S 16×20.9×2.2 | 16 | 20.9 | 2.2 | 17.17×1.78 |
| 3             | PLMR09S 17×21.9×2.2 | 17 | 21.9 | 2.2 | 18.77×1.78 |
| 4             | PLMR09S 18×22.9×2.2 | 18 | 22.9 | 2.2 | 18.77×1.78 |
| 5             | PLMR09S 15×22.3×3.2 | 15 | 22.3 | 3.2 | 17.12×2.62 |
| 6             | PLMR09S 16×23.3×3.2 | 16 | 23.3 | 3.2 | 18.72×2.62 |
| 7             | PLMR09S 18×25.3×3.2 | 18 | 25.3 | 3.2 | 20.29×2.62 |
| 8             | PLMR09S 20×27.3×3.2 | 20 | 27.3 | 3.2 | 21.89×2.62 |
| 9             | PLMR09S 22×29.3×3.2 | 22 | 29.3 | 3.2 | 25.07×2.62 |
| 10            | PLMR09S 24×31.3×3.2 | 24 | 31.3 | 3.2 | 26.64×2.62 |
| 11            | PLMR09S 25×32.3×3.2 | 25 | 32.3 | 3.2 | 28.24×2.62 |
| 12            | PLMR09S 26×33.3×3.2 | 26 | 33.3 | 3.2 | 28.24×2.62 |
| 13            | PLMR09S 28×35.3×3.2 | 28 | 35.3 | 3.2 | 29.82×2.62 |
| 14            | PLMR09S 30×37.3×3.2 | 30 | 37.3 | 3.2 | 32.99×2.62 |
| 15            | PLMR09S 32×39.3×3.2 | 32 | 39.3 | 3.2 | 34.59×2.62 |
| 16            | PLMR09S 35×42.3×3.2 | 35 | 42.3 | 3.2 | 37.77×2.62 |
| 17            | PLMR09S 36×43.3×3.2 | 36 | 43.3 | 3.2 | 39.34×2.62 |
| 18            | PLMR09S 37×44.3×3.2 | 37 | 44.3 | 3.2 | 39.34×2.62 |
| 19            | PLMR09S 19×29.7×4.2 | 19 | 29.7 | 4.2 | 23.39×3.53 |
| 20            | PLMR09S 20×30.7×4.2 | 20 | 30.7 | 4.2 | 23.39×3.53 |
| 21            | PLMR09S 22×32.7×4.2 | 22 | 32.7 | 4.2 | 26.57×3.53 |
| 22            | PLMR09S 25×35.7×4.2 | 25 | 35.7 | 4.2 | 29.74×3.53 |
| 23            | PLMR09S 26×36.7×4.2 | 26 | 36.7 | 4.2 | 29.74×3.53 |
| 24            | PLMR09S 28×38.7×4.2 | 28 | 38.7 | 4.2 | 32.92×3.53 |
| 25            | PLMR09S 30×40.7×4.2 | 30 | 40.7 | 4.2 | 34.52×3.53 |
| 26            | PLMR09S 32×42.7×4.2 | 32 | 42.7 | 4.2 | 36.09×3.53 |
| 27            | PLMR09S 35×45.7×4.2 | 35 | 45.7 | 4.2 | 37.69×3.53 |
| 28            | PLMR09S 36×46.7×4.2 | 36 | 46.7 | 4.2 | 40.87×3.53 |
| 29            | PLMR09S 37×47.7×4.2 | 37 | 47.7 | 4.2 | 40.87×3.53 |

| Serial Number | Order Number          | d   | D     | L   | O-Ring      |
|---------------|-----------------------|-----|-------|-----|-------------|
| 30            | PLMR09S 38×48.7×4.2   | 38  | 48.7  | 4.2 | 40.87×3.53  |
| 31            | PLMR09S 40×50.7×4.2   | 40  | 50.7  | 4.2 | 44.04×3.53  |
| 32            | PLMR09S 42×52.7×4.2   | 42  | 52.7  | 4.2 | 47.22×3.53  |
| 33            | PLMR09S 43×53.7×4.2   | 43  | 53.7  | 4.2 | 47.22×3.53  |
| 34            | PLMR09S 45×55.7×4.2   | 45  | 55.7  | 4.2 | 50.39×3.53  |
| 35            | PLMR09S 48×58.7×4.2   | 48  | 58.7  | 4.2 | 51.5×3.55   |
| 36            | PLMR09S 50×60.7×4.2   | 50  | 60.7  | 4.2 | 53.57×3.53  |
| 37            | PLMR09S 52×62.7×4.2   | 52  | 62.7  | 4.2 | 56.74×3.53  |
| 38            | PLMR09S 55×65.7×4.2   | 55  | 65.7  | 4.2 | 59.92×3.53  |
| 39            | PLMR09S 56×66.7×4.2   | 56  | 66.7  | 4.2 | 59.92×3.53  |
| 40            | PLMR09S 59×69.7×4.2   | 59  | 69.7  | 4.2 | 63.09×3.53  |
| 41            | PLMR09S 60×70.7×4.2   | 60  | 70.7  | 4.2 | 63.09×3.53  |
| 42            | PLMR09S 63×73.7×4.2   | 63  | 73.7  | 4.2 | 66.27×3.53  |
| 43            | PLMR09S 65×75.7×4.2   | 65  | 75.7  | 4.2 | 69.44×3.53  |
| 44            | PLMR09S 67×77.7×4.2   | 67  | 77.7  | 4.2 | 72.62×3.53  |
| 45            | PLMR09S 70×80.7×4.2   | 70  | 80.7  | 4.2 | 75.79×3.53  |
| 46            | PLMR09S 72×82.7×4.2   | 72  | 82.7  | 4.2 | 75.79×3.53  |
| 47            | PLMR09S 75×85.7×4.2   | 75  | 85.7  | 4.2 | 78.97×3.53  |
| 48            | PLMR09S 80×90.7×4.2   | 80  | 90.7  | 4.2 | 85.32×3.53  |
| 49            | PLMR09S 83×93.7×4.2   | 83  | 93.7  | 4.2 | 88.49×3.53  |
| 50            | PLMR09S 85×95.7×4.2   | 85  | 95.7  | 4.2 | 88.49×3.53  |
| 51            | PLMR09S 90×100.7×4.2  | 90  | 100.7 | 4.2 | 94.84×3.53  |
| 52            | PLMR09S 92×102.7×4.2  | 92  | 102.7 | 4.2 | 98.02×3.53  |
| 53            | PLMR09S 95×105.7×4.2  | 95  | 105.7 | 4.2 | 101.19×3.53 |
| 54            | PLMR09S 100×110.7×4.2 | 100 | 110.7 | 4.2 | 104.37×3.53 |
| 55            | PLMR09S 110×120.7×4.2 | 110 | 120.7 | 4.2 | 113.89×3.53 |
| 56            | PLMR09S 135×145.7×4.2 | 135 | 145.7 | 4.2 | 139.29×3.53 |
| 57            | PLMR09S 140×150.7×4.2 | 140 | 150.7 | 4.2 | 145.64×3.53 |
| 58            | PLMR09S 38×53.1×6.3   | 38  | 53.1  | 6.3 | 43.82×5.33  |
| 59            | PLMR09S 40×55.1×6.3   | 40  | 55.1  | 6.3 | 43.82×5.33  |
| 60            | PLMR09S 42×57.1×6.3   | 42  | 57.1  | 6.3 | 46.99×5.33  |
| 61            | PLMR09S 45×60.1×6.3   | 45  | 60.1  | 6.3 | 50.17×5.33  |
| 62            | PLMR09S 48×63.1×6.3   | 48  | 63.1  | 6.3 | 53.34×5.33  |
| 63            | PLMR09S 50×65.1×6.3   | 50  | 65.1  | 6.3 | 56.52×5.33  |
| 64            | PLMR09S 52×67.1×6.3   | 52  | 67.1  | 6.3 | 56.52×5.33  |
| 65            | PLMR09S 54×69.1×6.3   | 54  | 69.1  | 6.3 | 59.69×5.33  |
| 66            | PLMR09S 55×70.1×6.3   | 55  | 70.1  | 6.3 | 59.69×5.33  |
| 67            | PLMR09S 56×71.1×6.3   | 56  | 71.1  | 6.3 | 62.87×5.33  |
| 68            | PLMR09S 57×72.1×6.3   | 57  | 72.1  | 6.3 | 62.87×5.33  |
| 69            | PLMR09S 60×75.1×6.3   | 60  | 75.1  | 6.3 | 66.04×5.33  |
| 70            | PLMR09S 63×78.1×6.3   | 63  | 78.1  | 6.3 | 69.22×5.33  |
| 71            | PLMR09S 65×80.1×6.3   | 65  | 80.1  | 6.3 | 69.22×5.33  |
| 72            | PLMR09S 69×84.1×6.3   | 69  | 84.1  | 6.3 | 75.57×5.33  |

| Serial Number | Order Number          | d   | D     | L   | O-Ring      |
|---------------|-----------------------|-----|-------|-----|-------------|
| 73            | PLMR09S 70×85.1×6.3   | 70  | 85.1  | 6.3 | 75.57×5.33  |
| 74            | PLMR09S 73×88.1×6.3   | 73  | 88.1  | 6.3 | 78.74×5.33  |
| 75            | PLMR09S 75×90.1×6.3   | 75  | 90.1  | 6.3 | 81.92×5.33  |
| 76            | PLMR09S 78×93.1×6.3   | 78  | 93.1  | 6.3 | 85.09×5.33  |
| 77            | PLMR09S 80×95.1×6.3   | 80  | 95.1  | 6.3 | 85.09×5.33  |
| 78            | PLMR09S 85×100.1×6.3  | 85  | 100.1 | 6.3 | 91.44×5.33  |
| 79            | PLMR09S 89×104.1×6.3  | 89  | 104.1 | 6.3 | 94.62×5.33  |
| 80            | PLMR09S 90×105.1×6.3  | 90  | 105.1 | 6.3 | 94.62×5.33  |
| 81            | PLMR09S 92×107.1×6.3  | 92  | 107.1 | 6.3 | 97.79×5.33  |
| 82            | PLMR09S 95×110.1×6.3  | 95  | 110.1 | 6.3 | 100.97×5.33 |
| 83            | PLMR09S 100×115.1×6.3 | 100 | 115.1 | 6.3 | 107.32×5.33 |
| 84            | PLMR09S 105×120.1×6.3 | 105 | 120.1 | 6.3 | 110.49×5.33 |
| 85            | PLMR09S 110×125.1×6.3 | 110 | 125.1 | 6.3 | 116.84×5.33 |
| 86            | PLMR09S 115×130.1×6.3 | 115 | 130.1 | 6.3 | 120.02×5.33 |
| 87            | PLMR09S 120×135.1×6.3 | 120 | 135.1 | 6.3 | 126.37×5.33 |
| 88            | PLMR09S 125×140.1×6.3 | 125 | 140.1 | 6.3 | 129.54×5.33 |
| 89            | PLMR09S 127×142.1×6.3 | 127 | 142.1 | 6.3 | 132.72×5.33 |
| 90            | PLMR09S 130×145.1×6.3 | 130 | 145.1 | 6.3 | 135.89×5.33 |
| 91            | PLMR09S 132×147.1×6.3 | 132 | 147.1 | 6.3 | 139.07×5.33 |
| 92            | PLMR09S 135×150.1×6.3 | 135 | 150.1 | 6.3 | 142.24×5.33 |
| 93            | PLMR09S 137×152.1×6.3 | 137 | 152.1 | 6.3 | 142.24×5.33 |
| 94            | PLMR09S 138×153.1×6.3 | 138 | 153.1 | 6.3 | 142.24×5.33 |
| 95            | PLMR09S 140×155.1×6.3 | 140 | 155.1 | 6.3 | 145.42×5.33 |
| 96            | PLMR09S 145×160.1×6.3 | 145 | 160.1 | 6.3 | 151.77×5.33 |
| 97            | PLMR09S 150×165.1×6.3 | 150 | 165.1 | 6.3 | 158.12×5.33 |
| 98            | PLMR09S 153×168.1×6.3 | 153 | 168.1 | 6.3 | 158.12×5.33 |
| 99            | PLMR09S 155×170.1×6.3 | 155 | 170.1 | 6.3 | 158.12×5.33 |
| 100           | PLMR09S 160×175.1×6.3 | 160 | 175.1 | 6.3 | 164.47×5.33 |
| 101           | PLMR09S 165×180.1×6.3 | 165 | 180.1 | 6.3 | 170.82×5.33 |
| 102           | PLMR09S 170×185.1×6.3 | 170 | 185.1 | 6.3 | 177.17×5.33 |
| 103           | PLMR09S 173×188.1×6.3 | 173 | 188.1 | 6.3 | 177.17×5.33 |
| 104           | PLMR09S 175×190.1×6.3 | 175 | 190.1 | 6.3 | 183.52×5.33 |
| 105           | PLMR09S 180×195.1×6.3 | 180 | 195.1 | 6.3 | 183.52×5.33 |
| 106           | PLMR09S 185×200.1×6.3 | 185 | 200.1 | 6.3 | 189.87×5.33 |
| 107           | PLMR09S 190×205.1×6.3 | 190 | 205.1 | 6.3 | 196.22×5.33 |
| 108           | PLMR09S 195×210.1×6.3 | 195 | 210.1 | 6.3 | 202.57×5.33 |
| 109           | PLMR09S 200×215.1×6.3 | 200 | 215.1 | 6.3 | 208.92×5.33 |
| 110           | PLMR09S 230×245.1×6.3 | 230 | 245.1 | 6.3 | 234.32×5.33 |
| 111           | PLMR09S 56×76.5×8.1   | 56  | 76.5  | 8.1 | 63×7        |
| 112           | PLMR09S 70×90.5×8.1   | 70  | 90.5  | 8.1 | 78×7        |
| 113           | PLMR09S 80×100.5×8.1  | 80  | 100.5 | 8.1 | 88×7        |
| 114           | PLMR09S 85×105.5×8.1  | 85  | 105.5 | 8.1 | 93×7        |
| 115           | PLMR09S 90×110.5×8.1  | 90  | 110.5 | 8.1 | 98×7        |

| Serial Number | Order Number          | d   | D     | L   | O-Ring      |
|---------------|-----------------------|-----|-------|-----|-------------|
| 116           | PLMR09S 100×120.5×8.1 | 100 | 120.5 | 8.1 | 108×7       |
| 117           | PLMR09S 105×125.5×8.1 | 105 | 125.5 | 8.1 | 113.67×6.99 |
| 118           | PLMR09S 110×130.5×8.1 | 110 | 130.5 | 8.1 | 116.84×6.99 |
| 119           | PLMR09S 120×145.5×8.1 | 120 | 145.5 | 8.1 | 129.54×6.99 |
| 120           | PLMR09S 125×145.5×8.1 | 125 | 145.5 | 8.1 | 132.72×6.99 |
| 121           | PLMR09S 130×150.5×8.1 | 130 | 150.5 | 8.1 | 139.07×6.99 |
| 122           | PLMR09S 140×160.5×8.1 | 140 | 160.5 | 8.1 | 148.59×6.99 |
| 123           | PLMR09S 145×165.5×8.1 | 145 | 165.5 | 8.1 | 151.77×6.99 |
| 124           | PLMR09S 150×170.5×8.1 | 150 | 170.5 | 8.1 | 158.12×6.99 |
| 125           | PLMR09S 160×180.5×8.1 | 160 | 180.5 | 8.1 | 170.82×6.99 |
| 126           | PLMR09S 170×190.5×8.1 | 170 | 190.5 | 8.1 | 177.17×6.99 |
| 127           | PLMR09S 180×200.5×8.1 | 180 | 200.5 | 8.1 | 189.87×6.99 |
| 128           | PLMR09S 185×205.5×8.1 | 185 | 205.5 | 8.1 | 196.22×6.99 |
| 129           | PLMR09S 190×210.5×8.1 | 190 | 210.5 | 8.1 | 196.22×6.99 |
| 130           | PLMR09S 200×220.5×8.1 | 200 | 220.5 | 8.1 | 208.92×6.99 |
| 131           | PLMR09S 205×225.5×8.1 | 205 | 225.5 | 8.1 | 215.27×6.99 |
| 132           | PLMR09S 210×230.5×8.1 | 210 | 230.5 | 8.1 | 215.27×6.99 |
| 133           | PLMR09S 211×231.5×8.1 | 211 | 231.5 | 8.1 | 215.27×6.99 |
| 134           | PLMR09S 212×232.5×8.1 | 212 | 232.5 | 8.1 | 227.97×6.99 |
| 135           | PLMR09S 215×235.5×8.1 | 215 | 235.5 | 8.1 | 227.97×6.99 |
| 136           | PLMR09S 220×240.5×8.1 | 220 | 240.5 | 8.1 | 227.97×6.99 |
| 137           | PLMR09S 225×245.5×8.1 | 225 | 245.5 | 8.1 | 240.67×6.99 |
| 138           | PLMR09S 230×250.5×8.1 | 230 | 250.5 | 8.1 | 240.67×6.99 |
| 139           | PLMR09S 235×255.5×8.1 | 235 | 255.5 | 8.1 | 240.67×6.99 |
| 140           | PLMR09S 240×260.5×8.1 | 240 | 260.5 | 8.1 | 253.37×6.99 |
| 141           | PLMR09S 245×265.5×8.1 | 245 | 265.5 | 8.1 | 253.37×6.99 |
| 142           | PLMR09S 250×270.5×8.1 | 250 | 270.5 | 8.1 | 266.07×6.99 |
| 143           | PLMR09S 260×284×8.1   | 260 | 284   | 8.1 | 266.07×6.99 |
| 144           | PLMR09S 265×289×8.1   | 265 | 289   | 8.1 | 278.77×6.99 |
| 145           | PLMR09S 270×290.5×8.1 | 270 | 290.5 | 8.1 | 278.77×6.99 |
| 146           | PLMR09S 270×294×8.1   | 270 | 294   | 8.1 | 278.77×6.99 |
| 147           | PLMR09S 275×299×8.1   | 275 | 299   | 8.1 | 291.47×6.99 |
| 148           | PLMR09S 280×304×8.1   | 280 | 304   | 8.1 | 291.47×6.99 |
| 149           | PLMR09S 285×309×8.1   | 285 | 309   | 8.1 | 291.47×6.99 |
| 150           | PLMR09S 290×314×8.1   | 290 | 314   | 8.1 | 304.17×6.99 |
| 151           | PLMR09S 295×319×8.1   | 295 | 319   | 8.1 | 304.17×6.99 |
| 152           | PLMR09S 300×320.5×8.1 | 300 | 320.5 | 8.1 | 304.17×6.99 |
| 153           | PLMR09S 300×324×8.1   | 300 | 324   | 8.1 | 316.87×6.99 |
| 154           | PLMR09S 310×334×8.1   | 310 | 334   | 8.1 | 316.87×6.99 |
| 155           | PLMR09S 320×344×8.1   | 320 | 344   | 8.1 | 329.57×6.99 |
| 156           | PLMR09S 330×354×8.1   | 330 | 354   | 8.1 | 342.27×6.99 |
| 157           | PLMR09S 340×364×8.1   | 340 | 364   | 8.1 | 354.97×6.99 |
| 158           | PLMR09S 350×370.5×8.1 | 350 | 370.5 | 8.1 | 354.97×6.99 |

| Serial Number | Order Number        | d   | D   | L   | O-Ring      |
|---------------|---------------------|-----|-----|-----|-------------|
| 159           | PLMR09S 350×374×8.1 | 350 | 374 | 8.1 | 367.67×6.99 |
| 160           | PLMR09S 360×384×8.1 | 360 | 384 | 8.1 | 367.67×6.99 |
| 161           | PLMR09S 365×389×8.1 | 365 | 389 | 8.1 | 380.37×6.99 |
| 162           | PLMR09S 370×394×8.1 | 370 | 394 | 8.1 | 380.37×6.99 |
| 163           | PLMR09S 375×399×8.1 | 375 | 399 | 8.1 | 393.07×6.99 |
| 164           | PLMR09S 380×404×8.1 | 380 | 404 | 8.1 | 393.07×6.99 |
| 165           | PLMR09S 390×414×8.1 | 390 | 414 | 8.1 | 405.26×6.99 |
| 166           | PLMR09S 400×424×8.1 | 400 | 424 | 8.1 | 417.96×6.99 |
| 167           | PLMR09S 410×434×8.1 | 410 | 434 | 8.1 | 417.96×6.99 |
| 168           | PLMR09S 420×444×8.1 | 420 | 444 | 8.1 | 430.66×6.99 |
| 169           | PLMR09S 430×454×8.1 | 430 | 454 | 8.1 | 443.36×6.99 |
| 170           | PLMR09S 435×459×8.1 | 435 | 459 | 8.1 | 443.36×6.99 |
| 171           | PLMR09S 440×464×8.1 | 440 | 464 | 8.1 | 456.06×6.99 |
| 172           | PLMR09S 450×474×8.1 | 450 | 474 | 8.1 | 468.76×6.99 |
| 173           | PLMR09S 460×484×8.1 | 460 | 484 | 8.1 | 468.76×6.99 |
| 174           | PLMR09S 470×494×8.1 | 470 | 494 | 8.1 | 481.46×6.99 |
| 175           | PLMR09S 480×504×8.1 | 480 | 504 | 8.1 | 494.16×6.99 |
| 176           | PLMR09S 485×509×8.1 | 485 | 509 | 8.1 | 494.16×6.99 |
| 177           | PLMR09S 490×514×8.1 | 490 | 514 | 8.1 | 506.86×6.99 |
| 178           | PLMR09S 500×524×8.1 | 500 | 524 | 8.1 | 506.86×6.99 |
| 179           | PLMR09S 510×534×8.1 | 510 | 534 | 8.1 | 532.26×6.99 |
| 180           | PLMR09S 520×544×8.1 | 520 | 544 | 8.1 | 532.26×6.99 |
| 181           | PLMR09S 525×549×8.1 | 525 | 549 | 8.1 | 532.26×6.99 |
| 182           | PLMR09S 530×554×8.1 | 530 | 554 | 8.1 | 557.66×6.99 |
| 183           | PLMR09S 540×564×8.1 | 540 | 564 | 8.1 | 557.66×6.99 |
| 184           | PLMR09S 550×574×8.1 | 550 | 574 | 8.1 | 557.66×6.99 |
| 185           | PLMR09S 560×584×8.1 | 560 | 584 | 8.1 | 582.68×6.99 |
| 186           | PLMR09S 570×594×8.1 | 570 | 594 | 8.1 | 582.68×6.99 |

In addition to the above specifications, Puli can provide customized product dimensions.

PLMR09D



●Product Description

PLMR09D Glyd Ring is a low-friction, double-acting rod seal consisting of an elastomer O-ring and a modified PTFE sealing ring. The O-ring provides preloading force, and as hydraulic pressure increases, it generates additional squeezing force that presses the PTFE ring firmly against the sealing surface, ensuring excellent sealing performance. This design offers a compact structure with reliable sealing under both high and low pressures. To enable rapid response to pressure direction changes, an oil relief groove can be incorporated on the sealing ring's end face.

●Applications

For use in injection molding machines, machine tools, excavators, and valves in hydraulic and pneumatic circuits.

●Application Parameters

Operating Temperature: -45°C to 200°C (depending on O-ring material)

Operating Pressure: ≤35MPa

Surface Speed: ≤1.5ms

Media: Mineral hydraulic oil and grease

Standard materials: PLMFLOX-3 + PLMRUBBER-N70 PLMFLOX-3-GP + PLMRUBBER-N70

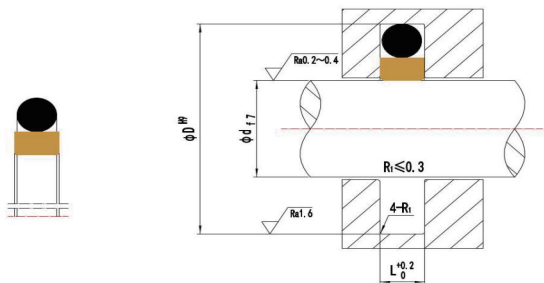
Note: The maximum values listed above cannot be used simultaneously

| Rod diameter ϕd f7   |                   |                   | Groove Diameter | Groove Width | Corner Radius | Radial clearance S max. |        |          | O-ring Cross-Section Diameter |
|----------------------|-------------------|-------------------|-----------------|--------------|---------------|-------------------------|--------|----------|-------------------------------|
| Standard Application | Light Application | Heavy Application | ϕD H9           | L +0.2       | R1            | 10 MPa                  | 20 MPa | 40 MPa * |                               |
| 3-7.9                | 8-18.9            | -                 | dN+4.9          | 2.2          | 0.4           | 0.30                    | 0.20   | 0.15     | 1.78                          |
| 8-18.9               | 19-37.9           | 3-7.9             | dN+7.3          | 3.2          | 0.6           | 0.40                    | 0.40   | 0.15     | 2.62                          |
| 19-37.9              | 38-199.9          | 8-18.9            | dN+10.7         | 4.2          | 1.0           | 0.40                    | 0.40   | 0.20     | 3.53                          |
| 38-199.9             | 200-255.9         | 19-37.9           | dN+15.1         | 6.3          | 1.3           | 0.50                    | 0.50   | 0.20     | 5.33                          |
| 200-255.9            | 256-649.9         | 38-199.9          | dN+20.5         | 8.1          | 1.8           | 0.60                    | 0.60   | 0.25     | 6.99                          |
| 256-649.9            | 650-999.9         | 200-255.9         | dN+24.0         | 8.1          | 1.8           | 0.60                    | 0.60   | 0.25     | 6.99                          |
| 650-999.9            | ≥1000             | 256-649.9         | dN+27.3         | 9.5          | 2.5           | 0.70                    | 0.70   | 0.30     | 8.40                          |
| ≥1000                | -                 | 650-999.9         | dN+38.0         | 13.8         | 3.0           | 1.00                    | 1.00   | 0.60     | 12.00                         |

\*When the pressure is greater than 40MPa, please use the fit tolerance of ϕD H8

●Installation Requirements

To avoid damage to the lip during installation, avoid sliding on sharp metal edges. Closed groove, manually install.



| Serial Number | Order Number        | d  | D    | L   | O-Ring     |
|---------------|---------------------|----|------|-----|------------|
| 1             | PLMR09D 15×19.9×2.2 | 15 | 19.9 | 2.2 | 17.17×1.78 |
| 2             | PLMR09D 16×20.9×2.2 | 16 | 20.9 | 2.2 | 17.17×1.78 |
| 3             | PLMR09D 17×21.9×2.2 | 17 | 21.9 | 2.2 | 18.77×1.78 |
| 4             | PLMR09D 18×22.9×2.2 | 18 | 22.9 | 2.2 | 18.77×1.78 |
| 5             | PLMR09D 15×22.3×3.2 | 15 | 22.3 | 3.2 | 17.12×2.62 |
| 6             | PLMR09D 16×23.3×3.2 | 16 | 23.3 | 3.2 | 18.72×2.62 |
| 7             | PLMR09D 18×25.3×3.2 | 18 | 25.3 | 3.2 | 20.29×2.62 |
| 8             | PLMR09D 20×27.3×3.2 | 20 | 27.3 | 3.2 | 21.89×2.62 |
| 9             | PLMR09D 22×29.3×3.2 | 22 | 29.3 | 3.2 | 25.07×2.62 |
| 10            | PLMR09D 24×31.3×3.2 | 24 | 31.3 | 3.2 | 26.64×2.62 |
| 11            | PLMR09D 25×32.3×3.2 | 25 | 32.3 | 3.2 | 28.24×2.62 |
| 12            | PLMR09D 26×33.3×3.2 | 26 | 33.3 | 3.2 | 28.24×2.62 |
| 13            | PLMR09D 28×35.3×3.2 | 28 | 35.3 | 3.2 | 29.82×2.62 |
| 14            | PLMR09D 30×37.3×3.2 | 30 | 37.3 | 3.2 | 32.99×2.62 |
| 15            | PLMR09D 32×39.3×3.2 | 32 | 39.3 | 3.2 | 34.59×2.62 |
| 16            | PLMR09D 35×42.3×3.2 | 35 | 42.3 | 3.2 | 37.77×2.62 |
| 17            | PLMR09D 36×43.3×3.2 | 36 | 43.3 | 3.2 | 39.34×2.62 |
| 18            | PLMR09D 37×44.3×3.2 | 37 | 44.3 | 3.2 | 39.34×2.62 |
| 19            | PLMR09D 19×29.7×4.2 | 19 | 29.7 | 4.2 | 23.39×3.53 |
| 20            | PLMR09D 20×30.7×4.2 | 20 | 30.7 | 4.2 | 23.39×3.53 |
| 21            | PLMR09D 22×32.7×4.2 | 22 | 32.7 | 4.2 | 26.57×3.53 |
| 22            | PLMR09D 25×35.7×4.2 | 25 | 35.7 | 4.2 | 29.74×3.53 |
| 23            | PLMR09D 26×36.7×4.2 | 26 | 36.7 | 4.2 | 29.74×3.53 |
| 24            | PLMR09D 28×38.7×4.2 | 28 | 38.7 | 4.2 | 32.92×3.53 |
| 25            | PLMR09D 30×40.7×4.2 | 30 | 40.7 | 4.2 | 34.52×3.53 |
| 26            | PLMR09D 32×42.7×4.2 | 32 | 42.7 | 4.2 | 36.09×3.53 |
| 27            | PLMR09D 35×45.7×4.2 | 35 | 45.7 | 4.2 | 37.69×3.53 |
| 28            | PLMR09D 36×46.7×4.2 | 36 | 46.7 | 4.2 | 40.87×3.53 |
| 29            | PLMR09D 37×47.7×4.2 | 37 | 47.7 | 4.2 | 40.87×3.53 |
| 30            | PLMR09D 38×48.7×4.2 | 38 | 48.7 | 4.2 | 40.87×3.53 |

| Serial Number | Order Number          | d   | D     | L   | O-Ring      |
|---------------|-----------------------|-----|-------|-----|-------------|
| 31            | PLMR09D 40×50.7×4.2   | 40  | 50.7  | 4.2 | 44.04×3.53  |
| 32            | PLMR09D 42×52.7×4.2   | 42  | 52.7  | 4.2 | 47.22×3.53  |
| 33            | PLMR09D 43×53.7×4.2   | 43  | 53.7  | 4.2 | 47.22×3.53  |
| 34            | PLMR09D 45×55.7×4.2   | 45  | 55.7  | 4.2 | 50.39×3.53  |
| 35            | PLMR09D 48×58.7×4.2   | 48  | 58.7  | 4.2 | 51.5×3.55   |
| 36            | PLMR09D 50×60.7×4.2   | 50  | 60.7  | 4.2 | 53.57×3.53  |
| 37            | PLMR09D 52×62.7×4.2   | 52  | 62.7  | 4.2 | 56.74×3.53  |
| 38            | PLMR09D 55×65.7×4.2   | 55  | 65.7  | 4.2 | 59.92×3.53  |
| 39            | PLMR09D 56×66.7×4.2   | 56  | 66.7  | 4.2 | 59.92×3.53  |
| 40            | PLMR09D 59×69.7×4.2   | 59  | 69.7  | 4.2 | 63.09×3.53  |
| 41            | PLMR09D 60×70.7×4.2   | 60  | 70.7  | 4.2 | 63.09×3.53  |
| 42            | PLMR09D 63×73.7×4.2   | 63  | 73.7  | 4.2 | 66.27×3.53  |
| 43            | PLMR09D 65×75.7×4.2   | 65  | 75.7  | 4.2 | 69.44×3.53  |
| 44            | PLMR09D 67×77.7×4.2   | 67  | 77.7  | 4.2 | 72.62×3.53  |
| 45            | PLMR09D 70×80.7×4.2   | 70  | 80.7  | 4.2 | 75.79×3.53  |
| 46            | PLMR09D 72×82.7×4.2   | 72  | 82.7  | 4.2 | 75.79×3.53  |
| 47            | PLMR09D 75×85.7×4.2   | 75  | 85.7  | 4.2 | 78.97×3.53  |
| 48            | PLMR09D 80×90.7×4.2   | 80  | 90.7  | 4.2 | 85.32×3.53  |
| 49            | PLMR09D 83×93.7×4.2   | 83  | 93.7  | 4.2 | 88.49×3.53  |
| 50            | PLMR09D 85×95.7×4.2   | 85  | 95.7  | 4.2 | 88.49×3.53  |
| 51            | PLMR09D 90×100.7×4.2  | 90  | 100.7 | 4.2 | 94.84×3.53  |
| 52            | PLMR09D 92×102.7×4.2  | 92  | 102.7 | 4.2 | 98.02×3.53  |
| 53            | PLMR09D 95×105.7×4.2  | 95  | 105.7 | 4.2 | 101.19×3.53 |
| 54            | PLMR09D 100×110.7×4.2 | 100 | 110.7 | 4.2 | 104.37×3.53 |
| 55            | PLMR09D 110×120.7×4.2 | 110 | 120.7 | 4.2 | 113.89×3.53 |
| 56            | PLMR09D 135×145.7×4.2 | 135 | 145.7 | 4.2 | 139.29×3.53 |
| 57            | PLMR09D 140×150.7×4.2 | 140 | 150.7 | 4.2 | 145.64×3.53 |
| 58            | PLMR09D 38×53.1×6.3   | 38  | 53.1  | 6.3 | 43.82×5.33  |
| 59            | PLMR09D 40×55.1×6.3   | 40  | 55.1  | 6.3 | 43.82×5.33  |
| 60            | PLMR09D 42×57.1×6.3   | 42  | 57.1  | 6.3 | 46.99×5.33  |
| 61            | PLMR09D 45×60.1×6.3   | 45  | 60.1  | 6.3 | 50.17×5.33  |
| 62            | PLMR09D 48×63.1×6.3   | 48  | 63.1  | 6.3 | 53.34×5.33  |
| 63            | PLMR09D 50×65.1×6.3   | 50  | 65.1  | 6.3 | 56.52×5.33  |
| 64            | PLMR09D 52×67.1×6.3   | 52  | 67.1  | 6.3 | 56.52×5.33  |
| 65            | PLMR09D 54×69.1×6.3   | 54  | 69.1  | 6.3 | 59.69×5.33  |
| 66            | PLMR09D 55×70.1×6.3   | 55  | 70.1  | 6.3 | 59.69×5.33  |
| 67            | PLMR09D 56×71.1×6.3   | 56  | 71.1  | 6.3 | 62.87×5.33  |
| 68            | PLMR09D 57×72.1×6.3   | 57  | 72.1  | 6.3 | 62.87×5.33  |
| 69            | PLMR09D 60×75.1×6.3   | 60  | 75.1  | 6.3 | 66.04×5.33  |
| 70            | PLMR09D 63×78.1×6.3   | 63  | 78.1  | 6.3 | 69.22×5.33  |
| 71            | PLMR09D 65×80.1×6.3   | 65  | 80.1  | 6.3 | 69.22×5.33  |
| 72            | PLMR09D 69×84.1×6.3   | 69  | 84.1  | 6.3 | 75.57×5.33  |
| 73            | PLMR09D 70×85.1×6.3   | 70  | 85.1  | 6.3 | 75.57×5.33  |



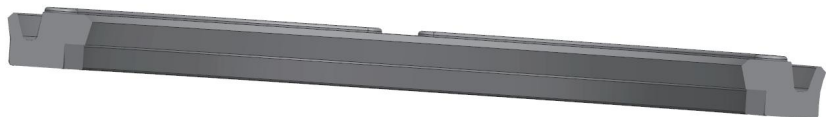
| Serial Number | Order Number          | d   | D     | L   | O-Ring      |
|---------------|-----------------------|-----|-------|-----|-------------|
| 74            | PLMR09D 73×88.1×6.3   | 73  | 88.1  | 6.3 | 78.74×5.33  |
| 75            | PLMR09D 75×90.1×6.3   | 75  | 90.1  | 6.3 | 81.92×5.33  |
| 76            | PLMR09D 78×93.1×6.3   | 78  | 93.1  | 6.3 | 85.09×5.33  |
| 77            | PLMR09D 80×95.1×6.3   | 80  | 95.1  | 6.3 | 85.09×5.33  |
| 78            | PLMR09D 85×100.1×6.3  | 85  | 100.1 | 6.3 | 91.44×5.33  |
| 79            | PLMR09D 89×104.1×6.3  | 89  | 104.1 | 6.3 | 94.62×5.33  |
| 80            | PLMR09D 90×105.1×6.3  | 90  | 105.1 | 6.3 | 94.62×5.33  |
| 81            | PLMR09D 92×107.1×6.3  | 92  | 107.1 | 6.3 | 97.79×5.33  |
| 82            | PLMR09D 95×110.1×6.3  | 95  | 110.1 | 6.3 | 100.97×5.33 |
| 83            | PLMR09D 100×115.1×6.3 | 100 | 115.1 | 6.3 | 107.32×5.33 |
| 84            | PLMR09D 105×120.1×6.3 | 105 | 120.1 | 6.3 | 110.49×5.33 |
| 85            | PLMR09D 110×125.1×6.3 | 110 | 125.1 | 6.3 | 116.84×5.33 |
| 86            | PLMR09D 115×130.1×6.3 | 115 | 130.1 | 6.3 | 120.02×5.33 |
| 87            | PLMR09D 120×135.1×6.3 | 120 | 135.1 | 6.3 | 126.37×5.33 |
| 88            | PLMR09D 125×140.1×6.3 | 125 | 140.1 | 6.3 | 129.54×5.33 |
| 89            | PLMR09D 127×142.1×6.3 | 127 | 142.1 | 6.3 | 132.72×5.33 |
| 90            | PLMR09D 130×145.1×6.3 | 130 | 145.1 | 6.3 | 135.89×5.33 |
| 91            | PLMR09D 132×147.1×6.3 | 132 | 147.1 | 6.3 | 139.07×5.33 |
| 92            | PLMR09D 135×150.1×6.3 | 135 | 150.1 | 6.3 | 142.24×5.33 |
| 93            | PLMR09D 137×152.1×6.3 | 137 | 152.1 | 6.3 | 142.24×5.33 |
| 94            | PLMR09D 138×153.1×6.3 | 138 | 153.1 | 6.3 | 142.24×5.33 |
| 95            | PLMR09D 140×155.1×6.3 | 140 | 155.1 | 6.3 | 145.42×5.33 |
| 96            | PLMR09D 145×160.1×6.3 | 145 | 160.1 | 6.3 | 151.77×5.33 |
| 97            | PLMR09D 150×165.1×6.3 | 150 | 165.1 | 6.3 | 158.12×5.33 |
| 98            | PLMR09D 153×168.1×6.3 | 153 | 168.1 | 6.3 | 158.12×5.33 |
| 99            | PLMR09D 155×170.1×6.3 | 155 | 170.1 | 6.3 | 158.12×5.33 |
| 100           | PLMR09D 160×175.1×6.3 | 160 | 175.1 | 6.3 | 164.47×5.33 |
| 101           | PLMR09D 165×180.1×6.3 | 165 | 180.1 | 6.3 | 170.82×5.33 |
| 102           | PLMR09D 170×185.1×6.3 | 170 | 185.1 | 6.3 | 177.17×5.33 |
| 103           | PLMR09D 173×188.1×6.3 | 173 | 188.1 | 6.3 | 177.17×5.33 |
| 104           | PLMR09D 175×190.1×6.3 | 175 | 190.1 | 6.3 | 183.52×5.33 |
| 105           | PLMR09D 180×195.1×6.3 | 180 | 195.1 | 6.3 | 183.52×5.33 |
| 106           | PLMR09D 185×200.1×6.3 | 185 | 200.1 | 6.3 | 189.87×5.33 |
| 107           | PLMR09D 190×205.1×6.3 | 190 | 205.1 | 6.3 | 196.22×5.33 |
| 108           | PLMR09D 195×210.1×6.3 | 195 | 210.1 | 6.3 | 202.57×5.33 |
| 109           | PLMR09D 200×215.1×6.3 | 200 | 215.1 | 6.3 | 208.92×5.33 |
| 110           | PLMR09D 230×245.1×6.3 | 230 | 245.1 | 6.3 | 234.32×5.33 |
| 111           | PLMR09D 56×76.5×8.1   | 56  | 76.5  | 8.1 | 63×7        |
| 112           | PLMR09D 70×90.5×8.1   | 70  | 90.5  | 8.1 | 78×7        |
| 113           | PLMR09D 80×100.5×8.1  | 80  | 100.5 | 8.1 | 88×7        |
| 114           | PLMR09D 85×105.5×8.1  | 85  | 105.5 | 8.1 | 93×7        |
| 115           | PLMR09D 90×110.5×8.1  | 90  | 110.5 | 8.1 | 98×7        |
| 116           | PLMR09D 100×120.5×8.1 | 100 | 120.5 | 8.1 | 108×7       |

| Serial Number | Order Number          | d   | D     | L   | O-Ring      |
|---------------|-----------------------|-----|-------|-----|-------------|
| 117           | PLMR09D 105×125.5×8.1 | 105 | 125.5 | 8.1 | 113.67×6.99 |
| 118           | PLMR09D 110×130.5×8.1 | 110 | 130.5 | 8.1 | 116.84×6.99 |
| 119           | PLMR09D 120×145.5×8.1 | 120 | 145.5 | 8.1 | 129.54×6.99 |
| 120           | PLMR09D 125×145.5×8.1 | 125 | 145.5 | 8.1 | 132.72×6.99 |
| 121           | PLMR09D 130×150.5×8.1 | 130 | 150.5 | 8.1 | 139.07×6.99 |
| 122           | PLMR09D 140×160.5×8.1 | 140 | 160.5 | 8.1 | 148.59×6.99 |
| 123           | PLMR09D 145×165.5×8.1 | 145 | 165.5 | 8.1 | 151.77×6.99 |
| 124           | PLMR09D 150×170.5×8.1 | 150 | 170.5 | 8.1 | 158.12×6.99 |
| 125           | PLMR09D 160×180.5×8.1 | 160 | 180.5 | 8.1 | 170.82×6.99 |
| 126           | PLMR09D 170×190.5×8.1 | 170 | 190.5 | 8.1 | 177.17×6.99 |
| 127           | PLMR09D 180×200.5×8.1 | 180 | 200.5 | 8.1 | 189.87×6.99 |
| 128           | PLMR09D 185×205.5×8.1 | 185 | 205.5 | 8.1 | 196.22×6.99 |
| 129           | PLMR09D 190×210.5×8.1 | 190 | 210.5 | 8.1 | 196.22×6.99 |
| 130           | PLMR09D 200×220.5×8.1 | 200 | 220.5 | 8.1 | 208.92×6.99 |
| 131           | PLMR09D 205×225.5×8.1 | 205 | 225.5 | 8.1 | 215.27×6.99 |
| 132           | PLMR09D 210×230.5×8.1 | 210 | 230.5 | 8.1 | 215.27×6.99 |
| 133           | PLMR09D 211×231.5×8.1 | 211 | 231.5 | 8.1 | 215.27×6.99 |
| 134           | PLMR09D 212×232.5×8.1 | 212 | 232.5 | 8.1 | 227.97×6.99 |
| 135           | PLMR09D 215×235.5×8.1 | 215 | 235.5 | 8.1 | 227.97×6.99 |
| 136           | PLMR09D 220×240.5×8.1 | 220 | 240.5 | 8.1 | 227.97×6.99 |
| 137           | PLMR09D 225×245.5×8.1 | 225 | 245.5 | 8.1 | 240.67×6.99 |
| 138           | PLMR09D 230×250.5×8.1 | 230 | 250.5 | 8.1 | 240.67×6.99 |
| 139           | PLMR09D 235×255.5×8.1 | 235 | 255.5 | 8.1 | 240.67×6.99 |
| 140           | PLMR09D 240×260.5×8.1 | 240 | 260.5 | 8.1 | 253.37×6.99 |
| 141           | PLMR09D 245×265.5×8.1 | 245 | 265.5 | 8.1 | 253.37×6.99 |
| 142           | PLMR09D 250×270.5×8.1 | 250 | 270.5 | 8.1 | 266.07×6.99 |
| 143           | PLMR09D 260×284×8.1   | 260 | 284   | 8.1 | 266.07×6.99 |
| 144           | PLMR09D 265×289×8.1   | 265 | 289   | 8.1 | 278.77×6.99 |
| 145           | PLMR09D 270×290.5×8.1 | 270 | 290.5 | 8.1 | 278.77×6.99 |
| 146           | PLMR09D 270×294×8.1   | 270 | 294   | 8.1 | 278.77×6.99 |
| 147           | PLMR09D 275×299×8.1   | 275 | 299   | 8.1 | 291.47×6.99 |
| 148           | PLMR09D 280×304×8.1   | 280 | 304   | 8.1 | 291.47×6.99 |
| 149           | PLMR09D 285×309×8.1   | 285 | 309   | 8.1 | 291.47×6.99 |
| 150           | PLMR09D 290×314×8.1   | 290 | 314   | 8.1 | 304.17×6.99 |
| 151           | PLMR09D 295×319×8.1   | 295 | 319   | 8.1 | 304.17×6.99 |
| 152           | PLMR09D 300×320.5×8.1 | 300 | 320.5 | 8.1 | 304.17×6.99 |
| 153           | PLMR09D 300×324×8.1   | 300 | 324   | 8.1 | 316.87×6.99 |
| 154           | PLMR09D 310×334×8.1   | 310 | 334   | 8.1 | 316.87×6.99 |
| 155           | PLMR09D 320×344×8.1   | 320 | 344   | 8.1 | 329.57×6.99 |
| 156           | PLMR09D 330×354×8.1   | 330 | 354   | 8.1 | 342.27×6.99 |
| 157           | PLMR09D 340×364×8.1   | 340 | 364   | 8.1 | 354.97×6.99 |
| 158           | PLMR09D 350×370.5×8.1 | 350 | 370.5 | 8.1 | 354.97×6.99 |
| 159           | PLMR09D 350×374×8.1   | 350 | 374   | 8.1 | 367.67×6.99 |

| Serial Number | Order Number        | d   | D   | L   | O-Ring      |
|---------------|---------------------|-----|-----|-----|-------------|
| 160           | PLMR09D 360×384×8.1 | 360 | 384 | 8.1 | 367.67×6.99 |
| 161           | PLMR09D 365×389×8.1 | 365 | 389 | 8.1 | 380.37×6.99 |
| 162           | PLMR09D 370×394×8.1 | 370 | 394 | 8.1 | 380.37×6.99 |
| 163           | PLMR09D 375×399×8.1 | 375 | 399 | 8.1 | 393.07×6.99 |
| 164           | PLMR09D 380×404×8.1 | 380 | 404 | 8.1 | 393.07×6.99 |
| 165           | PLMR09D 390×414×8.1 | 390 | 414 | 8.1 | 405.26×6.99 |
| 166           | PLMR09D 400×424×8.1 | 400 | 424 | 8.1 | 417.96×6.99 |
| 167           | PLMR09D 410×434×8.1 | 410 | 434 | 8.1 | 417.96×6.99 |
| 168           | PLMR09D 420×444×8.1 | 420 | 444 | 8.1 | 430.66×6.99 |
| 169           | PLMR09D 430×454×8.1 | 430 | 454 | 8.1 | 443.36×6.99 |
| 170           | PLMR09D 435×459×8.1 | 435 | 459 | 8.1 | 443.36×6.99 |
| 171           | PLMR09D 440×464×8.1 | 440 | 464 | 8.1 | 456.06×6.99 |
| 172           | PLMR09D 450×474×8.1 | 450 | 474 | 8.1 | 468.76×6.99 |
| 173           | PLMR09D 460×484×8.1 | 460 | 484 | 8.1 | 468.76×6.99 |
| 174           | PLMR09D 470×494×8.1 | 470 | 494 | 8.1 | 481.46×6.99 |
| 175           | PLMR09D 480×504×8.1 | 480 | 504 | 8.1 | 494.16×6.99 |
| 176           | PLMR09D 485×509×8.1 | 485 | 509 | 8.1 | 494.16×6.99 |
| 177           | PLMR09D 490×514×8.1 | 490 | 514 | 8.1 | 506.86×6.99 |
| 178           | PLMR09D 500×524×8.1 | 500 | 524 | 8.1 | 506.86×6.99 |
| 179           | PLMR09D 510×534×8.1 | 510 | 534 | 8.1 | 532.26×6.99 |
| 180           | PLMR09D 520×544×8.1 | 520 | 544 | 8.1 | 532.26×6.99 |
| 181           | PLMR09D 525×549×8.1 | 525 | 549 | 8.1 | 532.26×6.99 |
| 182           | PLMR09D 530×554×8.1 | 530 | 554 | 8.1 | 557.66×6.99 |
| 183           | PLMR09D 540×564×8.1 | 540 | 564 | 8.1 | 557.66×6.99 |
| 184           | PLMR09D 550×574×8.1 | 550 | 574 | 8.1 | 557.66×6.99 |
| 185           | PLMR09D 560×584×8.1 | 560 | 584 | 8.1 | 582.68×6.99 |
| 186           | PLMR09D 570×594×8.1 | 570 | 594 | 8.1 | 582.68×6.99 |

In addition to the above specifications, Puli can provide customized product dimensions.

## PLMR02BS



### ● Product Description

PLMR02BS is commonly used as a buffer seal for piston rods in construction machinery, installed in series with the main seal. It consists of a polyurethane sealing element combined with a nylon back-up ring. The design absorbs shock and fluctuating pressure under heavy loads, isolates high-temperature fluids, and extends the service life of the main seal. Its special structure effectively releases back pressure. Compared with the Step Seal, it has higher friction but greater pressure resistance, making it unsuitable for systems requiring fast dynamic response, such as servo cylinders. The product offers excellent pressure resistance, wear resistance, and aging resistance.

### ● Applications

For use in construction machinery cylinders, construction machinery, etc.

### ● Application Parameters

Operating Temperature:  $-35^{\circ}\text{C} \sim 110^{\circ}\text{C}$

Working Pressure:  $\leq 50\text{MPa}$

Surface Speed:  $\leq 1.5\text{ms}$

Media: Mineral hydraulic oil and grease

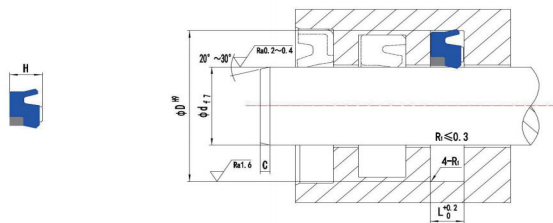
Standard Materials: PLMPUR + PLMPA-10 PLMPUR-HHT + PLMPA-40

Note: The maximum values listed above cannot be used simultaneously

### ● Installation Requirements

To avoid damage to the lip during installation, avoid sliding on sharp metal edges. Closed groove, manually install.





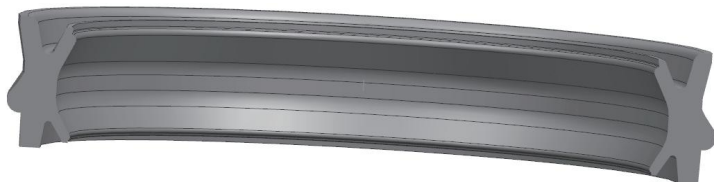
| Serial Number | Order Number              | d   | D     | H | L    |
|---------------|---------------------------|-----|-------|---|------|
| 1             | PLMR02BS 40×55.5×6/6.3    | 40  | 55.5  | 6 | 6.3  |
| 2             | PLMR02BS 45×60.5×6/7.3    | 45  | 60.5  | 6 | 7.3  |
| 3             | PLMR02BS 50×65.5×6/8.3    | 50  | 65.5  | 6 | 8.3  |
| 4             | PLMR02BS 55×70.5×6/9.3    | 55  | 70.5  | 6 | 9.3  |
| 5             | PLMR02BS 60×75.5×6/10.3   | 60  | 75.5  | 6 | 10.3 |
| 6             | PLMR02BS 63×78.5×6/11.3   | 63  | 78.5  | 6 | 11.3 |
| 7             | PLMR02BS 65×80.5×6/12.3   | 65  | 80.5  | 6 | 12.3 |
| 8             | PLMR02BS 70×85.5×6/13.3   | 70  | 85.5  | 6 | 13.3 |
| 9             | PLMR02BS 75×90.5×6/14.3   | 75  | 90.5  | 6 | 14.3 |
| 10            | PLMR02BS 80×95.5×6/15.3   | 80  | 95.5  | 6 | 15.3 |
| 11            | PLMR02BS 85×100.5×6/16.3  | 85  | 100.5 | 6 | 16.3 |
| 12            | PLMR02BS 90×105.5×6/17.3  | 90  | 105.5 | 6 | 17.3 |
| 13            | PLMR02BS 95×110.5×6/18.3  | 95  | 110.5 | 6 | 18.3 |
| 14            | PLMR02BS 100×115.5×6/19.3 | 100 | 115.5 | 6 | 19.3 |
| 15            | PLMR02BS 105×120.5×6/20.3 | 105 | 120.5 | 6 | 20.3 |
| 16            | PLMR02BS 110×125.5×6/21.3 | 110 | 125.5 | 6 | 21.3 |
| 17            | PLMR02BS 115×130.5×6/22.3 | 115 | 130.5 | 6 | 22.3 |
| 18            | PLMR02BS 120×135.5×6/23.3 | 120 | 135.5 | 6 | 23.3 |
| 19            | PLMR02BS 124×139.5×6/24.3 | 124 | 139.5 | 6 | 24.3 |
| 20            | PLMR02BS 125×140.5×6/25.3 | 125 | 140.5 | 6 | 25.3 |
| 21            | PLMR02BS 130×145.5×6/26.3 | 130 | 145.5 | 6 | 26.3 |
| 23            | PLMR02BS 135×150.5×6/27.3 | 135 | 150.5 | 6 | 27.3 |
| 24            | PLMR02BS 140×155.5×6/28.3 | 140 | 155.5 | 6 | 28.3 |
| 25            | PLMR02BS 150×165.5×6/29.3 | 150 | 165.5 | 6 | 29.3 |
| 26            | PLMR02BS 156×171.5×6/30.3 | 156 | 171.5 | 6 | 30.3 |
| 27            | PLMR02BS 160×175.5×6/31.3 | 160 | 175.5 | 6 | 31.3 |
| 28            | PLMR02BS 170×185.5×6/32.3 | 170 | 185.5 | 6 | 32.3 |
| 29            | PLMR02BS 175×190.5×6/33.3 | 175 | 190.5 | 6 | 33.3 |
| 30            | PLMR02BS 180×195.5×6/34.3 | 180 | 195.5 | 6 | 34.3 |
| 31            | PLMR02BS 185×200.5×6/35.3 | 185 | 200.5 | 6 | 35.3 |
| 32            | PLMR02BS 190×205.5×6/36.3 | 190 | 205.5 | 6 | 36.3 |
| 33            | PLMR02BS 195×210.5×6/37.3 | 195 | 210.5 | 6 | 37.3 |

| Serial Number | Order Number           | d   | D   | H   | L |
|---------------|------------------------|-----|-----|-----|---|
| 34            | PLMR02BS 200×221×7.7/8 | 200 | 221 | 7.7 | 8 |
| 35            | PLMR02BS 210×231×7.7/8 | 210 | 231 | 7.7 | 8 |
| 36            | PLMR02BS 220×241×7.7/8 | 220 | 241 | 7.7 | 8 |

In addition to the above specifications, Puli can provide customized product dimensions.



## PLMRA01



### ●Product Description

PLMRA01 pneumatic rod seal integrates sealing, dust protection, and fixation functions. It offers corrosion resistance, low friction, and long service life even in dry or oil-free air after initial lubrication during assembly.

### ●Applications

For standard cylinders, valve actuators, etc.

### ●Application Parameters

Operating temperature: -35°C to 100°C.

Working Pressure:  $\leq 1.6\text{MPa}$

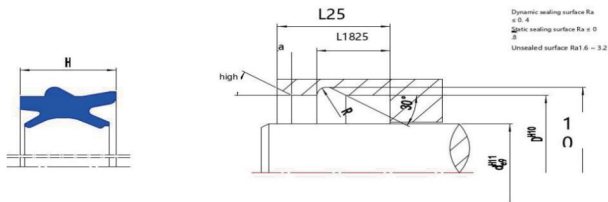
Surface Speed:  $\leq 1\text{ms}$

Media: Lubricated air, as well as dry and oil-free air

Standard Material: PLMPUR-93A

### ●Installation Requirements

Manually push the seal ring into the annular groove. During installation, avoid damaging the lip from sharp edges. Apply grease to the lip during assembly.

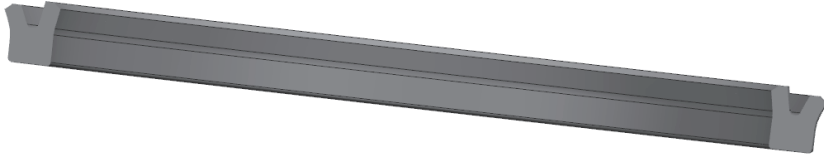


| Serial Number | Order Number          | d  | D  | H    | D1   | L1   | L2 | R   | a   |
|---------------|-----------------------|----|----|------|------|------|----|-----|-----|
| 1             | PLMRA01 10×18×10.7/13 | 10 | 18 | 10.7 | 20   | 8.8  | 13 | 1.1 | 1.5 |
| 2             | PLMRA01 12×19×10/12   | 12 | 19 | 10   | 21   | 7.7  | 12 | 1   | 1.5 |
| 3             | PLMRA01 12×20×10.7/13 | 12 | 20 | 10.7 | 22   | 8.8  | 13 | 1.1 | 1.5 |
| 4             | PLMRA01 12×22×10.7/13 | 12 | 22 | 10.7 | 24   | 8.8  | 13 | 1.1 | 1.5 |
| 5             | PLMRA01 14×24×10.7/13 | 14 | 24 | 10.7 | 26   | 8.8  | 13 | 1.1 | 1.5 |
| 6             | PLMRA01 16×26×10.7/13 | 16 | 26 | 10.7 | 28   | 8.8  | 13 | 1.1 | 1.5 |
| 7             | PLMRA01 18×26×10.7/13 | 18 | 26 | 10.7 | 28   | 8.8  | 13 | 1.1 | 1.5 |
| 8             | PLMRA01 18×28×10.7/13 | 18 | 28 | 10.7 | 30   | 8.8  | 13 | 1.1 | 1.5 |
| 9             | PLMRA01 20×30×10.7/13 | 20 | 30 | 10.7 | 32   | 8.8  | 13 | 1.1 | 1.5 |
| 10            | PLMRA01 22×32×11.2/14 | 22 | 32 | 11.2 | 34.5 | 9.4  | 14 | 1.4 | 2   |
| 11            | PLMRA01 25×35×11.2/14 | 25 | 35 | 11.2 | 37.5 | 9.4  | 14 | 1.4 | 2   |
| 12            | PLMRA01 30×40×11.2/14 | 30 | 40 | 11.2 | 42.5 | 9.4  | 14 | 1.4 | 2   |
| 13            | PLMRA01 32×42×11.2/14 | 32 | 42 | 11.2 | 44.5 | 9.4  | 14 | 1.4 | 2   |
| 14            | PLMRA01 40×50×11.2/14 | 40 | 50 | 11.2 | 52.5 | 9.4  | 14 | 1.4 | 2   |
| 15            | PLMRA01 45×55×12.2/15 | 45 | 55 | 12.2 | 58.2 | 10.4 | 15 | 1.8 | 2   |
| 16            | PLMRA01 50×60×12.2/15 | 50 | 60 | 12.2 | 63.2 | 10.4 | 15 | 1.8 | 2   |
| 17            | PLMRA01 63×75×13/16   | 63 | 75 | 13   | 78.2 | 11.4 | 16 | 1.8 | 2   |

In addition to the above specifications, Puli can provide customized product dimensions.

## Piston Seal

### PLMP01



#### ●Product Description

PLMP01 is a single-acting polyurethane lip seal featuring an asymmetrical design with different heights between the inner and outer lips, optimizing pressure transmission to the sealing lip. The shorter outer lip reduces the contact area, resulting in lower friction under low-pressure conditions compared to the inner lip. The longer sealing lip helps compensate for piston deformation to a certain extent. Commonly used as a piston seal in various reciprocating hydraulic cylinders, it is typically installed in a back-to-back arrangement to achieve bidirectional sealing. Compared with conventional rubber Y-type seals, it provides superior wear and pressure resistance and is insensitive to shock loads and pressure peaks. When used with a back-up ring, its pressure resistance can be further enhanced. The interference fit of the inner diameter ensures stable installation within the groove, forming a reliable static seal.

#### ●Applications

For piston seals in heavy-duty mobile machinery, presses, and lift platforms.

#### ●Application Parameters

Operating Temperature: -35°C ~ 100°C (PLMPUR-93A)

-40°C ~ 90°C (PLMPUR-LL92A)

-50°C ~ 100°C (PLMPUR-LT92A)

Working Pressure: ≤40MPa

Surface Speed: ≤0.5ms

Media: Mineral hydraulic oil and grease

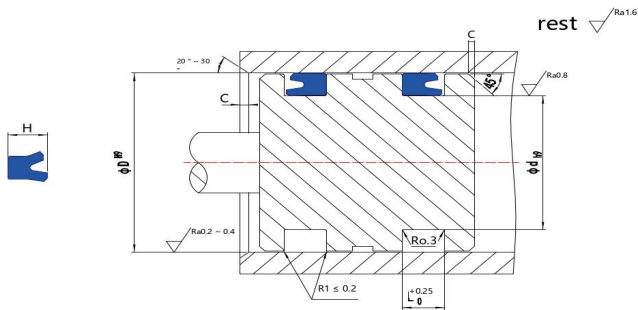
Standard Material: PLMPUR-93A, PLMPUR-LL92A, PLMPUR-LT92A

Note: The maximum values listed above cannot be used simultaneously

#### ●Installation Requirements

To avoid damaging the lip, avoid sliding it over sharp metal edges during installation. Due to its high elasticity, polyurethane can usually be easily installed in closed grooves. If access is restricted, special tools can be used to stretch the seal for installation.

# PISTON SEAL



| Serial Number | Order Number             | D    | d    | H   | L   |
|---------------|--------------------------|------|------|-----|-----|
| 1             | PLMP01 11×7.2×3.1/3.5    | 11   | 7.2  | 3.1 | 3.5 |
| 2             | PLMP01 16×10×5.7/6.3     | 16   | 10   | 5.7 | 6.3 |
| 3             | PLMP01 16×8×5.7/6.3      | 16   | 8    | 5.7 | 6.3 |
| 4             | PLMP01 20×12×5.7/6.3     | 20   | 12   | 5.7 | 6.3 |
| 5             | PLMP01 20×10×6/7         | 20   | 10   | 6   | 7   |
| 6             | PLMP01 24×16×5.7/6.3     | 24   | 16   | 5.7 | 6.3 |
| 7             | PLMP01 25×18×5/5.6       | 25   | 18   | 5   | 5.6 |
| 8             | PLMP01 25×17×5.7/6.3     | 25   | 17   | 5.7 | 6.3 |
| 9             | PLMP01 25×15×6/7         | 25   | 15   | 6   | 7   |
| 10            | PLMP01 25×15×7.3/8       | 25   | 15   | 7.3 | 8   |
| 11            | PLMP01 28×20×7/8         | 28   | 20   | 7   | 8   |
| 12            | PLMP01 30×20×5/5.7       | 30   | 20   | 5   | 5.7 |
| 13            | PLMP01 32×25×5/5.6       | 32   | 25   | 5   | 5.6 |
| 14            | PLMP01 32×24×5.7/6.3     | 32   | 24   | 5.7 | 6.3 |
| 15            | PLMP01 32×22×7.3/8       | 32   | 22   | 7.3 | 8   |
| 16            | PLMP01 35×25×6/7         | 35   | 25   | 6   | 7   |
| 17            | PLMP01 35×25×7.3/8       | 35   | 25   | 7.3 | 8   |
| 18            | PLMP01 38.1×30.1×5.7/6.3 | 38.1 | 30.1 | 5.7 | 6.3 |
| 19            | PLMP01 40×32×5.7/6.3     | 40   | 32   | 5.7 | 6.3 |
| 20            | PLMP01 40×32×6/7         | 40   | 32   | 6   | 7   |
| 20            | PLMP01 40×30×6/7         | 40   | 30   | 6   | 7   |
| 21            | PLMP01 40×30×7.3/8       | 40   | 30   | 7.3 | 8   |
| 22            | PLMP01 40×30×10/11       | 40   | 30   | 10  | 11  |
| 24            | PLMP01 43×33×7.3/8       | 43   | 33   | 7.3 | 8   |
| 25            | PLMP01 45×35×6/7         | 45   | 35   | 6   | 7   |
| 26            | PLMP01 45×35×7.3/8       | 45   | 35   | 7.3 | 8   |
| 27            | PLMP01 50×42×5.7/6.3     | 50   | 42   | 5.7 | 6.3 |
| 28            | PLMP01 50×42×10/11       | 50   | 42   | 10  | 11  |
| 29            | PLMP01 50×40×6/7         | 50   | 40   | 6   | 7   |
| 30            | PLMP01 50×40×7.3/8       | 50   | 40   | 7.3 | 8   |



| Serial Number | Order Number            | D    | d     | H    | L    |
|---------------|-------------------------|------|-------|------|------|
| 31            | PLMP01 50×40×10/11      | 50   | 40    | 10   | 11   |
| 32            | PLMP01 50×35×9/10       | 50   | 35    | 9    | 10   |
| 33            | PLMP01 50×35×10/11      | 50   | 35    | 10   | 11   |
| 34            | PLMP01 50.8×41.17×6.2/7 | 50.8 | 41.17 | 6.2  | 7    |
| 35            | PLMP01 52×42×7.3/8      | 52   | 42    | 7.3  | 8    |
| 36            | PLMP01 54×44×7.3/8      | 54   | 44    | 7.3  | 8    |
| 37            | PLMP01 55×45×6/7        | 55   | 45    | 6    | 7    |
| 38            | PLMP01 55×45×7.3/8      | 55   | 45    | 7.3  | 8    |
| 39            | PLMP01 56×45×7/8        | 56   | 45    | 7    | 8    |
| 40            | PLMP01 60×50×6/7        | 60   | 50    | 6    | 7    |
| 41            | PLMP01 60×50×7.3/8      | 60   | 50    | 7.3  | 8    |
| 42            | PLMP01 60×45×9/10       | 60   | 45    | 9    | 10   |
| 43            | PLMP01 60×45×10/11      | 60   | 45    | 10   | 11   |
| 44            | PLMP01 63×55×5.7/6.3    | 63   | 55    | 5.7  | 6.3  |
| 45            | PLMP01 63×53×6/7        | 63   | 53    | 6    | 7    |
| 46            | PLMP01 63×53×7.3/8      | 63   | 53    | 7.3  | 8    |
| 47            | PLMP01 63×53×8/9        | 63   | 53    | 8    | 9    |
| 48            | PLMP01 63×51×14/15      | 63   | 51    | 14   | 15   |
| 49            | PLMP01 63×48×8.6/9.5    | 63   | 48    | 8.6  | 9.5  |
| 50            | PLMP01 63×48×9/10       | 63   | 48    | 9    | 10   |
| 51            | PLMP01 63×48×10/11      | 63   | 48    | 10   | 11   |
| 52            | PLMP01 63×48×11.4/12.5  | 63   | 48    | 11.4 | 12.5 |
| 53            | PLMP01 63×45×14/15      | 63   | 45    | 14   | 15   |
| 54            | PLMP01 65×55×6/7        | 65   | 55    | 6    | 7    |
| 55            | PLMP01 65×55×7.3/8      | 65   | 55    | 7.3  | 8    |
| 56            | PLMP01 65×50×10/11      | 65   | 50    | 10   | 11   |
| 57            | PLMP01 68×58×9.5/10.5   | 68   | 58    | 9.5  | 10.5 |
| 58            | PLMP01 70×60×6/7        | 70   | 60    | 6    | 7    |
| 59            | PLMP01 70×60×8/9        | 70   | 60    | 8    | 9    |
| 60            | PLMP01 70×60×10/11      | 70   | 60    | 10   | 11   |
| 61            | PLMP01 70×60×12/13      | 70   | 60    | 12   | 13   |
| 62            | PLMP01 70×55×9/10       | 70   | 55    | 9    | 10   |
| 63            | PLMP01 70×50×12/13      | 70   | 50    | 12   | 13   |
| 64            | PLMP01 75×65×6/7        | 75   | 65    | 6    | 7    |
| 65            | PLMP01 75×63×8.7/9.5    | 75   | 63    | 8.7  | 9.5  |
| 66            | PLMP01 75×55×12/13      | 75   | 55    | 12   | 13   |
| 67            | PLMP01 80×70×6/7        | 80   | 70    | 6    | 7    |
| 68            | PLMP01 80×70×6.7/7.5    | 80   | 70    | 6.7  | 7.5  |
| 69            | PLMP01 80×70×8/9        | 80   | 70    | 8    | 9    |
| 70            | PLMP01 80×70×12/13      | 80   | 70    | 12   | 13   |
| 71            | PLMP01 80×68×14/15      | 80   | 68    | 14   | 15   |
| 72            | PLMP01 80×65×8.6/9.5    | 80   | 65    | 8.6  | 9.5  |
| 73            | PLMP01 80×65×9/10       | 80   | 65    | 9    | 10   |

| Serial Number | Order Number             | D   | d   | H    | L    |
|---------------|--------------------------|-----|-----|------|------|
| 74            | PLMP01 80×65×10/11       | 80  | 65  | 10   | 11   |
| 75            | PLMP01 80×65×11.4/12.5   | 80  | 65  | 11.4 | 12.5 |
| 76            | PLMP01 80×60×12/13       | 80  | 60  | 12   | 13   |
| 77            | PLMP01 85×75×6/7         | 85  | 75  | 6    | 7    |
| 78            | PLMP01 85×70×9/10        | 85  | 70  | 9    | 10   |
| 79            | PLMP01 85×70×10/11       | 85  | 70  | 10   | 11   |
| 80            | PLMP01 90×80×6/7         | 90  | 80  | 6    | 7    |
| 81            | PLMP01 90×78×14/15       | 90  | 78  | 14   | 15   |
| 82            | PLMP01 90×75×9/10        | 90  | 75  | 9    | 10   |
| 83            | PLMP01 90×75×10/11       | 90  | 75  | 10   | 11   |
| 84            | PLMP01 90×75×11.4/12.5   | 90  | 75  | 11.4 | 12.5 |
| 85            | PLMP01 95×80×10/11       | 95  | 80  | 10   | 11   |
| 86            | PLMP01 100×90×6.7/7.5    | 100 | 90  | 6.7  | 7.5  |
| 87            | PLMP01 100×88×14/15      | 100 | 88  | 14   | 15   |
| 88            | PLMP01 100×85×9/10       | 100 | 85  | 9    | 10   |
| 89            | PLMP01 100×85×10/11      | 100 | 85  | 10   | 11   |
| 90            | PLMP01 100×85×11.4/12.5  | 100 | 85  | 11.4 | 12.5 |
| 91            | PLMP01 100×80×12/13      | 100 | 80  | 12   | 13   |
| 92            | PLMP01 100×80×14.5/16    | 100 | 80  | 14.5 | 16   |
| 93            | PLMP01 105×90×9/10       | 105 | 90  | 9    | 10   |
| 94            | PLMP01 110×95×9/10       | 110 | 95  | 9    | 10   |
| 95            | PLMP01 110×90×8/9        | 110 | 90  | 8    | 9    |
| 96            | PLMP01 110×90×12/13      | 110 | 90  | 12   | 13   |
| 97            | PLMP01 110×90×15/16.5    | 110 | 90  | 15   | 16.5 |
| 98            | PLMP01 115×100×9/10      | 115 | 100 | 9    | 10   |
| 99            | PLMP01 120×105×9/10      | 120 | 105 | 9    | 10   |
| 100           | PLMP01 120×105×11.4/12.5 | 120 | 105 | 11.4 | 12.5 |
| 101           | PLMP01 120×100×12/13     | 120 | 100 | 12   | 13   |
| 102           | PLMP01 125×112×9/10      | 125 | 112 | 9    | 10   |
| 103           | PLMP01 125×110×9/10      | 125 | 110 | 9    | 10   |
| 104           | PLMP01 125×100×9.6/10.6  | 125 | 100 | 9.6  | 10.6 |
| 105           | PLMP01 125×105×12/13     | 125 | 105 | 12   | 13   |
| 106           | PLMP01 125×105×14.5/16   | 125 | 105 | 14.5 | 16   |
| 107           | PLMP01 125×105×15/16     | 125 | 105 | 15   | 16   |
| 108           | PLMP01 130×115×9/10      | 130 | 115 | 9    | 10   |
| 109           | PLMP01 130×110×12/13     | 130 | 110 | 12   | 13   |
| 110           | PLMP01 130×110×15/16     | 130 | 110 | 15   | 16   |
| 111           | PLMP01 135×115×12/13     | 135 | 115 | 12   | 13   |
| 112           | PLMP01 140×125×9/10      | 140 | 125 | 9    | 10   |
| 113           | PLMP01 140×125×12.5/14   | 140 | 125 | 12.5 | 14   |
| 114           | PLMP01 140×120×12/13     | 140 | 120 | 12   | 13   |
| 115           | PLMP01 140×120×15/16     | 140 | 120 | 15   | 16   |
| 116           | PLMP01 140×115×18/19     | 140 | 115 | 18   | 19   |



| Serial Number | Order Number            | D   | d   | H    | L    |
|---------------|-------------------------|-----|-----|------|------|
| 117           | PLMP01 145×125×12/13    | 145 | 125 | 12   | 13   |
| 118           | PLMP01 145×115×18/20    | 145 | 115 | 18   | 20   |
| 119           | PLMP01 150×136×8.5/9.5  | 150 | 136 | 8.5  | 9.5  |
| 120           | PLMP01 150×135×9/10     | 150 | 135 | 9    | 10   |
| 121           | PLMP01 150×130×12/13    | 150 | 130 | 12   | 13   |
| 122           | PLMP01 150×130×15/16    | 150 | 130 | 15   | 16   |
| 123           | PLMP01 150×125×19/20    | 150 | 125 | 19   | 20   |
| 124           | PLMP01 160×145×9/10     | 160 | 145 | 9    | 10   |
| 125           | PLMP01 160×140×12/13    | 160 | 140 | 12   | 13   |
| 126           | PLMP01 160×140×14.5/16  | 160 | 140 | 14.5 | 16   |
| 127           | PLMP01 160×135×19/20    | 160 | 135 | 19   | 20   |
| 128           | PLMP01 170×155×9/10     | 170 | 155 | 9    | 10   |
| 129           | PLMP01 170×150×12/13    | 170 | 150 | 12   | 13   |
| 130           | PLMP01 170×145×19/20    | 170 | 145 | 19   | 20   |
| 131           | PLMP01 175×160×9/10     | 175 | 160 | 9    | 10   |
| 132           | PLMP01 180×165×9/10     | 180 | 165 | 9    | 10   |
| 133           | PLMP01 180×160×12/13    | 180 | 160 | 12   | 13   |
| 134           | PLMP01 180×160×16/17    | 180 | 160 | 16   | 17   |
| 135           | PLMP01 180×155×12/13    | 180 | 155 | 12   | 13   |
| 136           | PLMP01 180×155×19/20    | 180 | 155 | 19   | 20   |
| 137           | PLMP01 180×150×18/20    | 180 | 150 | 18   | 20   |
| 138           | PLMP01 190×175×9/10     | 190 | 175 | 9    | 10   |
| 139           | PLMP01 190×170×12/13    | 190 | 170 | 12   | 13   |
| 140           | PLMP01 190×165×19/20    | 190 | 165 | 19   | 20   |
| 141           | PLMP01 190×165×20/21    | 190 | 165 | 20   | 21   |
| 142           | PLMP01 200×185×9.6/10.6 | 200 | 185 | 9.6  | 10.6 |
| 143           | PLMP01 200×180×12/13    | 200 | 180 | 12   | 13   |
| 144           | PLMP01 200×175×19/20    | 200 | 175 | 19   | 20   |
| 145           | PLMP01 210×190×12/13    | 210 | 190 | 12   | 13   |
| 146           | PLMP01 215×190×16/17    | 215 | 190 | 16   | 17   |
| 147           | PLMP01 220×200×12/13    | 220 | 200 | 12   | 13   |
| 148           | PLMP01 220×200×15/16.5  | 220 | 200 | 15   | 16.5 |
| 149           | PLMP01 225×205×12/13    | 225 | 205 | 12   | 13   |
| 150           | PLMP01 230×205×20/21    | 230 | 205 | 20   | 21   |
| 151           | PLMP01 235×210×19/20    | 235 | 210 | 19   | 20   |
| 152           | PLMP01 240×215×15/16.5  | 240 | 215 | 15   | 16.5 |
| 153           | PLMP01 240×220×12/13    | 240 | 220 | 12   | 13   |
| 154           | PLMP01 250×230×12/13    | 250 | 230 | 12   | 13   |
| 155           | PLMP01 250×230×15/16.5  | 250 | 230 | 15   | 16.5 |
| 156           | PLMP01 250×225×18.2/20  | 250 | 225 | 18.2 | 20   |
| 157           | PLMP01 260×240×12/14    | 260 | 240 | 12   | 14   |
| 158           | PLMP01 260×235×16/17    | 260 | 235 | 16   | 17   |
| 159           | PLMP01 270×250×12/13    | 270 | 250 | 12   | 13   |

| Serial Number | Order Number         | D   | d   | H  | L  |
|---------------|----------------------|-----|-----|----|----|
| 160           | PLMP01 270×245×16/17 | 270 | 245 | 16 | 17 |
| 161           | PLMP01 275×250×18/20 | 275 | 250 | 18 | 20 |
| 162           | PLMP01 280×255×19/20 | 280 | 255 | 19 | 20 |
| 163           | PLMP01 290×265×16/17 | 290 | 265 | 16 | 17 |
| 164           | PLMP01 300×270×19/20 | 300 | 270 | 19 | 20 |
| 165           | PLMP01 310×280×19/20 | 310 | 280 | 19 | 20 |
| 166           | PLMP01 320×290×20/22 | 320 | 290 | 20 | 22 |
| 167           | PLMP01 320×290×24/25 | 320 | 290 | 24 | 25 |
| 168           | PLMP01 360×330×22/24 | 360 | 330 | 22 | 24 |
| 169           | PLMP01 380×350×24/25 | 380 | 350 | 24 | 25 |

In addition to the above specifications, Puli can provide customized product dimensions.



## PLMP08D



### ●Product Description

PLMP08D Glyd Ring is a high-performance, low-friction, double-acting piston or rod seal composed of an elastomer O-ring and a modified PTFE sealing ring. The O-ring functions as an energizing element, providing initial preload to the sealing ring. As system pressure increases, the O-ring deforms to generate additional squeezing force, pressing the PTFE ring firmly against the sealing surface for superior sealing performance. This design offers compact installation dimensions and excellent sealing under both high and low pressures. To ensure rapid response to sudden changes in pressure or motion direction, an oil relief groove can be added to the sealing ring's end face. The seal operates smoothly with no stick-slip on start-up, features low dynamic and static friction, minimal heat generation, excellent wear resistance, and long service life.

### ●Applications

For valves in injection molding machines, machine tools, excavators, forklifts, logistics equipment, agricultural machinery, and hydraulic and pneumatic circuits.

### ●Application Parameters

Operating Temperature: -45°C to 200°C (depending on O-ring material)

Operating Pressure: ≤35MPa

Surface Speed: ≤1.5ms

Media: Mineral hydraulic oil and grease

Standard materials: PLMFLON-3 + PLMRUBBER-N70 PLMFLON-3-GP + PLMRUBBER-N70

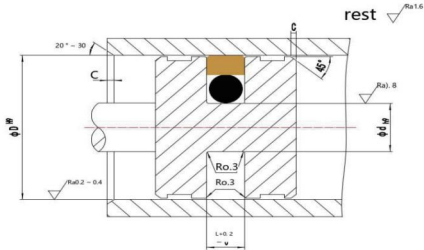
Note: The maximum values listed above cannot be used simultaneously

| Bore diameter $\phi D$ H9 |                   |                   | Groove Diameter | Groove Width | Corner Radius | Radial clearance S max. |        |          | O-ring Cross-Section Diameter |
|---------------------------|-------------------|-------------------|-----------------|--------------|---------------|-------------------------|--------|----------|-------------------------------|
| Standard Application      | Light Application | Heavy Application | $\phi d$ h9     | L +0.2       | R1            | 10 MPa                  | 20 MPa | 40 MPa * |                               |
| 8-14.9                    | 15-39.9           | -                 | DN-4.9          | 2.2          | 0.4           | 0.40                    | 0.30   | 0.20     | 1.78                          |
| 15-39.9                   | 40-79.9           | -                 | DN-7.5          | 3.2          | 0.6           | 0.60                    | 0.50   | 0.30     | 2.62                          |
| 40-79.9                   | 80-132.9          | 15-39.9           | DN-11           | 4.2          | 1.0           | 0.70                    | 0.50   | 0.30     | 3.53                          |
| 80-132.9                  | 133-329.9         | 40-79.9           | DN-15.5         | 6.3          | 1.3           | 0.80                    | 0.60   | 0.40     | 5.33                          |
| 133-329.9                 | 330-669.9         | 80-132.9          | DN-21.0         | 8.1          | 1.8           | 0.80                    | 0.60   | 0.40     | 6.99                          |
| 330-669.9                 | 670-999.9         | 133-329.9         | DN-24.5         | 8.1          | 1.8           | 0.90                    | 0.70   | 0.50     | 6.99                          |
| 670-999.9                 |                   | 330-669.9         | DN-28.0         | 9.5          | 2.5           | 1.00                    | 0.80   | 0.60     | 8.4                           |
| ≥1000                     | ≥1000             |                   | DN-38.0         | 13.8         | 3.0           | 1.20                    | 0.90   | 0.70     | 12                            |

\*When pressure exceeds 40MPa, use a fit tolerance of f8 H8.

### ●Installation Requirements

To avoid damaging the sealing surface during installation, avoid sliding on sharp metal edges. Closed groove, tension installation. If installation is difficult, use soft material fixtures without sharp edges. If necessary, use hot oil to heat the slip ring for installation.



| Serial Number | Order Number         | D   | d    | L   | O-Ring     |
|---------------|----------------------|-----|------|-----|------------|
| 1             | PLMP08D 8×3.1×2.2    | 8   | 3.1  | 2.2 | 2.57*1.78  |
| 2             | PLMP08D 10×5.1×2.2   | 10  | 5.1  | 2.2 | 4.80*1.80  |
| 3             | PLMP08D 12×7.1×2.2   | 12  | 7.1  | 2.2 | 6.7*1.80   |
| 4             | PLMP08D 15×7.5×3.2   | 15  | 7.5  | 3.2 | 7*2.62     |
| 5             | PLMP08D 16×8.5×3.2   | 16  | 8.5  | 3.2 | 7.59*2.62  |
| 6             | PLMP08D 18×10.5×3.2  | 18  | 10.5 | 3.2 | 9.19*2.62  |
| 7             | PLMP08D 20×12.5×3.2  | 20  | 12.5 | 3.2 | 12.37*2.62 |
| 8             | PLMP08D 22×14.5×3.2  | 22  | 14.5 | 3.2 | 13.94*2.62 |
| 9             | PLMP08D 25×17.5×3.2  | 25  | 17.5 | 3.2 | 17.12*2.62 |
| 10            | PLMP08D 28×20.5×3.2  | 28  | 20.5 | 3.2 | 20.29*2.62 |
| 11            | PLMP08D 30×22.5×3.2  | 30  | 22.5 | 3.2 | 21.89*2.62 |
| 12            | PLMP08D 32×24.5×3.2  | 32  | 24.5 | 3.2 | 23.47*2.62 |
| 13            | PLMP08D 35×27.5×3.2  | 35  | 27.5 | 3.2 | 26.64*2.62 |
| 14            | PLMP08D 38×30.5×3.2  | 38  | 30.5 | 3.2 | 29.82*2.62 |
| 15            | PLMP08D 40×29×4.2    | 40  | 29   | 4.2 | 28.17*3.53 |
| 16            | PLMP08D 42×31×4.2    | 42  | 31   | 4.2 | 29.75*3.53 |
| 17            | PLMP08D 45×34×4.2    | 45  | 34   | 4.2 | 32.92*3.53 |
| 18            | PLMP08D 48×37×4.2    | 48  | 37   | 4.2 | 36.09*3.53 |
| 19            | PLMP08D 50×39×4.2    | 50  | 39   | 4.2 | 37.69*3.53 |
| 20            | PLMP08D 52×41×4.2    | 52  | 41   | 4.2 | 40.87*3.53 |
| 21            | PLMP08D 55×44×4.2    | 55  | 44   | 4.2 | 44.04*3.53 |
| 22            | PLMP08D 60×49×4.2    | 60  | 49   | 4.2 | 47.22*3.53 |
| 23            | PLMP08D 63×52×4.2    | 63  | 52   | 4.2 | 50.39*3.53 |
| 24            | PLMP08D 65×54×4.2    | 65  | 54   | 4.2 | 53.57*3.53 |
| 25            | PLMP08D 70×59×4.2    | 70  | 59   | 4.2 | 56.74*3.53 |
| 26            | PLMP08D 75×64×4.2    | 75  | 64   | 4.2 | 63.09*3.53 |
| 27            | PLMP08D 80×64.5×6.3  | 80  | 64.5 | 6.3 | 62.87*5.33 |
| 28            | PLMP08D 85×69.5×6.3  | 85  | 69.5 | 6.3 | 69.22*5.33 |
| 29            | PLMP08D 90×74.5×6.3  | 90  | 74.5 | 6.3 | 72.39*5.33 |
| 30            | PLMP08D 95×79.5×6.3  | 95  | 79.5 | 6.3 | 78.74*5.33 |
| 31            | PLMP08D 100×84.5×6.3 | 100 | 84.5 | 6.3 | 81.92*5.33 |
| 32            | PLMP08D 105×89.5×6.3 | 105 | 89.5 | 6.3 | 88.27*5.33 |

| Serial Number | Order Number          | D   | d     | L   | O-Ring      |
|---------------|-----------------------|-----|-------|-----|-------------|
| 33            | PLMP08D 110×94.5×6.3  | 110 | 94.5  | 6.3 | 91.44*5.33  |
| 34            | PLMP08D 115×99.5×6.3  | 115 | 99.5  | 6.3 | 97.79*5.33  |
| 35            | PLMP08D 120×104.5×6.3 | 120 | 104.5 | 6.3 | 100.97*5.33 |
| 36            | PLMP08D 125×109.5×6.3 | 125 | 109.5 | 6.3 | 107.32*5.33 |
| 37            | PLMP08D 130×114.5×6.3 | 130 | 114.5 | 6.3 | 113.67*5.33 |
| 38            | PLMP08D 135×114×8.1   | 135 | 114   | 8.1 | 113.67*6.99 |
| 39            | PLMP08D 140×119×8.1   | 140 | 119   | 8.1 | 116.84*6.99 |
| 40            | PLMP08D 145×124×8.1   | 145 | 124   | 8.1 | 123.19*6.99 |
| 41            | PLMP08D 150×129×8.1   | 150 | 129   | 8.1 | 126.37*6.99 |
| 42            | PLMP08D 155×134×8.1   | 155 | 134   | 8.1 | 132.72*6.99 |
| 43            | PLMP08D 160×139×8.1   | 160 | 139   | 8.1 | 135.89*6.99 |
| 44            | PLMP08D 165×144×8.1   | 165 | 144   | 8.1 | 142.24*6.99 |
| 45            | PLMP08D 170×149×8.1   | 170 | 149   | 8.1 | 145.42*6.99 |
| 46            | PLMP08D 175×154×8.1   | 175 | 154   | 8.1 | 151.77*6.99 |
| 47            | PLMP08D 180×159×8.1   | 180 | 159   | 8.1 | 158.12*6.99 |
| 48            | PLMP08D 185×164×8.1   | 185 | 164   | 8.1 | 164.47*6.99 |
| 49            | PLMP08D 190×169×8.1   | 190 | 169   | 8.1 | 164.47*6.99 |
| 50            | PLMP08D 200×179×8.1   | 200 | 179   | 8.1 | 177.17*6.99 |
| 51            | PLMP08D 210×189×8.1   | 210 | 189   | 8.1 | 183.52*6.99 |
| 52            | PLMP08D 220×199×8.1   | 220 | 199   | 8.1 | 196.22*6.99 |
| 53            | PLMP08D 225×204×8.1   | 225 | 204   | 8.1 | 202.57*6.99 |
| 54            | PLMP08D 230×209×8.1   | 230 | 209   | 8.1 | 202.57*6.99 |
| 55            | PLMP08D 240×219×8.1   | 240 | 219   | 8.1 | 215.27*6.99 |
| 56            | PLMP08D 250×229×8.1   | 250 | 229   | 8.1 | 227.97*6.99 |
| 57            | PLMP08D 260×239×8.1   | 260 | 239   | 8.1 | 240.67*6.99 |
| 58            | PLMP08D 270×249×8.1   | 270 | 249   | 8.1 | 253.37*6.99 |
| 59            | PLMP08D 280×259×8.1   | 280 | 259   | 8.1 | 253.37*6.99 |
| 60            | PLMP08D 290×269×8.1   | 290 | 269   | 8.1 | 266.07*6.99 |
| 61            | PLMP08D 305×284×8.1   | 305 | 284   | 8.1 | 278.77*6.99 |
| 62            | PLMP08D 330×309×8.1   | 330 | 309   | 8.1 | 304.17*6.99 |

In addition to the above specifications, Puli can provide customized product dimensions.



## PLMP08DPS



### ● Product Description

Designed with the same groove dimensions as the Glyd Ring, this seal is suitable for standard hydraulic cylinders operating under various conditions while offering a more cost-effective solution. It consists of a polyurethane sealing ring energized by an elastomer O-ring. The O-ring provides initial preload to the sealing ring, and as hydraulic pressure increases, it deforms to generate additional squeezing force, pressing the sealing ring more tightly against the sealing surface for improved sealing performance. The design offers compact installation space and reliable sealing under both high and low pressures. To enable quick activation of the seal during sudden changes in pressure or motion direction, an oil relief groove is provided on the sealing ring's end face. The raised lips on both sides of the sealing surface concentrate the sealing contact stress, while the central land between the lips creates a pressure ratio, further enhancing the sealing efficiency.

### ● Applications

For machine tools, forklifts, logistics equipment, agricultural machinery, and light and medium-duty industrial hydraulic equipment.

### ● Application Parameters

Operating temperature:  $-40^{\circ}\text{C}$  to  $90^{\circ}\text{C}$

Working Pressure:  $\leq 25\text{MPa}$

Surface Speed:  $\leq 0.5\text{ms}$

Media: Mineral hydraulic oil and grease

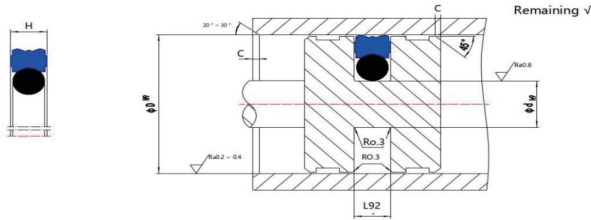
Standard Material: PLMPUR-LL92A + PLMRUBBER-N70

Note: The maximum values listed above cannot be used simultaneously

### ● Installation Requirements

To avoid damaging the sealing surface during installation, avoid sliding on sharp metal edges. Closed groove, tension installation. If installation is difficult..





| Serial Number | Order Number           | D   | d    | L   | O-Ring     |
|---------------|------------------------|-----|------|-----|------------|
| 1             | PLMP08DPS 8×3.1×2.2    | 8   | 3.1  | 2.2 | 2.57*1.78  |
| 2             | PLMP08DPS 10×5.1×2.2   | 10  | 5.1  | 2.2 | 4.80*1.80  |
| 3             | PLMP08DPS 12×7.1×2.2   | 12  | 7.1  | 2.2 | 6.7*1.80   |
| 4             | PLMP08DPS 15×7.5×3.2   | 15  | 7.5  | 3.2 | 7*2.62     |
| 5             | PLMP08DPS 16×8.5×3.2   | 16  | 8.5  | 3.2 | 7.59*2.62  |
| 6             | PLMP08DPS 18×10.5×3.2  | 18  | 10.5 | 3.2 | 9.19*2.62  |
| 7             | PLMP08DPS 20×12.5×3.2  | 20  | 12.5 | 3.2 | 12.37*2.62 |
| 8             | PLMP08DPS 22×14.5×3.2  | 22  | 14.5 | 3.2 | 13.94*2.62 |
| 9             | PLMP08DPS 25×17.5×3.2  | 25  | 17.5 | 3.2 | 17.12*2.62 |
| 10            | PLMP08DPS 28×20.5×3.2  | 28  | 20.5 | 3.2 | 20.29*2.62 |
| 11            | PLMP08DPS 30×22.5×3.2  | 30  | 22.5 | 3.2 | 21.89*2.62 |
| 12            | PLMP08DPS 32×24.5×3.2  | 32  | 24.5 | 3.2 | 23.47*2.62 |
| 13            | PLMP08DPS 35×27.5×3.2  | 35  | 27.5 | 3.2 | 26.64*2.62 |
| 14            | PLMP08DPS 38×30.5×3.2  | 38  | 30.5 | 3.2 | 29.82*2.62 |
| 15            | PLMP08DPS 40×29×4.2    | 40  | 29   | 4.2 | 28.17*3.53 |
| 16            | PLMP08DPS 42×31×4.2    | 42  | 31   | 4.2 | 29.75*3.53 |
| 17            | PLMP08DPS 45×34×4.2    | 45  | 34   | 4.2 | 32.92*3.53 |
| 18            | PLMP08DPS 48×37×4.2    | 48  | 37   | 4.2 | 36.09*3.53 |
| 19            | PLMP08DPS 50×39×4.2    | 50  | 39   | 4.2 | 37.69*3.53 |
| 20            | PLMP08DPS 52×41×4.2    | 52  | 41   | 4.2 | 40.87*3.53 |
| 21            | PLMP08DPS 55×44×4.2    | 55  | 44   | 4.2 | 44.04*3.53 |
| 22            | PLMP08DPS 60×49×4.2    | 60  | 49   | 4.2 | 47.22*3.53 |
| 23            | PLMP08DPS 63×52×4.2    | 63  | 52   | 4.2 | 50.39*3.53 |
| 24            | PLMP08DPS 65×54×4.2    | 65  | 54   | 4.2 | 53.57*3.53 |
| 25            | PLMP08DPS 70×59×4.2    | 70  | 59   | 4.2 | 56.74*3.53 |
| 26            | PLMP08DPS 75×64×4.2    | 75  | 64   | 4.2 | 63.09*3.53 |
| 27            | PLMP08DPS 80×64.5×6.3  | 80  | 64.5 | 6.3 | 62.87*5.33 |
| 28            | PLMP08DPS 85×69.5×6.3  | 85  | 69.5 | 6.3 | 69.22*5.33 |
| 29            | PLMP08DPS 90×74.5×6.3  | 90  | 74.5 | 6.3 | 72.39*5.33 |
| 30            | PLMP08DPS 95×79.5×6.3  | 95  | 79.5 | 6.3 | 78.74*5.33 |
| 31            | PLMP08DPS 100×84.5×6.3 | 100 | 84.5 | 6.3 | 81.92*5.33 |
| 32            | PLMP08DPS 105×89.5×6.3 | 105 | 89.5 | 6.3 | 88.27*5.33 |



| Serial Number | Order Number            | D   | d     | L   | O-Ring      |
|---------------|-------------------------|-----|-------|-----|-------------|
| 33            | PLMP08DPS 110×94.5×6.3  | 110 | 94.5  | 6.3 | 91.44*5.33  |
| 34            | PLMP08DPS 115×99.5×6.3  | 115 | 99.5  | 6.3 | 97.79*5.33  |
| 35            | PLMP08DPS 120×104.5×6.3 | 120 | 104.5 | 6.3 | 100.97*5.33 |
| 36            | PLMP08DPS 125×109.5×6.3 | 125 | 109.5 | 6.3 | 107.32*5.33 |
| 37            | PLMP08DPS 130×114.5×6.3 | 130 | 114.5 | 6.3 | 113.67*5.33 |
| 38            | PLMP08DPS 135×114×8.1   | 135 | 114   | 8.1 | 113.67*6.99 |
| 39            | PLMP08DPS 140×119×8.1   | 140 | 119   | 8.1 | 116.84*6.99 |
| 40            | PLMP08DPS 145×124×8.1   | 145 | 124   | 8.1 | 123.19*6.99 |
| 41            | PLMP08DPS 150×129×8.1   | 150 | 129   | 8.1 | 126.37*6.99 |
| 42            | PLMP08DPS 155×134×8.1   | 155 | 134   | 8.1 | 132.72*6.99 |
| 43            | PLMP08DPS 160×139×8.1   | 160 | 139   | 8.1 | 135.89*6.99 |
| 44            | PLMP08DPS 165×144×8.1   | 165 | 144   | 8.1 | 142.24*6.99 |
| 45            | PLMP08DPS 170×149×8.1   | 170 | 149   | 8.1 | 145.42*6.99 |
| 46            | PLMP08DPS 175×154×8.1   | 175 | 154   | 8.1 | 151.77*6.99 |
| 47            | PLMP08DPS 180×159×8.1   | 180 | 159   | 8.1 | 158.12*6.99 |
| 48            | PLMP08DPS 185×164×8.1   | 185 | 164   | 8.1 | 164.47*6.99 |
| 49            | PLMP08DPS 190×169×8.1   | 190 | 169   | 8.1 | 164.47*6.99 |
| 50            | PLMP08DPS 200×179×8.1   | 200 | 179   | 8.1 | 177.17*6.99 |
| 51            | PLMP08DPS 210×189×8.1   | 210 | 189   | 8.1 | 183.52*6.99 |
| 52            | PLMP08DPS 220×199×8.1   | 220 | 199   | 8.1 | 196.22*6.99 |
| 53            | PLMP08DPS 225×204×8.1   | 225 | 204   | 8.1 | 202.57*6.99 |
| 54            | PLMP08DPS 230×209×8.1   | 230 | 209   | 8.1 | 202.57*6.99 |
| 55            | PLMP08DPS 240×219×8.1   | 240 | 219   | 8.1 | 215.27*6.99 |
| 56            | PLMP08DPS 250×229×8.1   | 250 | 229   | 8.1 | 227.97*6.99 |
| 57            | PLMP08DPS 260×239×8.1   | 260 | 239   | 8.1 | 240.67*6.99 |
| 58            | PLMP08DPS 270×249×8.1   | 270 | 249   | 8.1 | 253.37*6.99 |
| 59            | PLMP08DPS 280×259×8.1   | 280 | 259   | 8.1 | 253.37*6.99 |
| 60            | PLMP08DPS 290×269×8.1   | 290 | 269   | 8.1 | 266.07*6.99 |
| 61            | PLMP08DPS 305×284×8.1   | 305 | 284   | 8.1 | 278.77*6.99 |
| 62            | PLMP08DPS 330×309×8.1   | 330 | 309   | 8.1 | 304.17*6.99 |

In addition to the above specifications, Puli can provide customized product dimensions.



## PLMP08S



### ● Product Description

PLMP08S is used as a piston seal, featuring a design based on the classic Step Seal structure. It offers low friction, compact installation dimensions, excellent static sealing performance, and effective back-pressure relief. The O-ring serves as an energizing element, providing preloading force to the sealing ring. By selecting different O-ring materials, the seal can accommodate a wider operating temperature range. The specially angled lip design of the sealing ring generates an enhanced “pump-back” effect, making it suitable for applications requiring precise positioning and oil-free operation.

### ● Applications

For injection molding machines, control cylinders, servo systems, machine tools, fast-response cylinders, construction machinery, etc.

### ● Application Parameters

Operating Temperature: -45°C to 200°C (depending on O-ring material)

Operating Pressure: ≤35MPa

Surface Speed: ≤1.5ms

Media: Mineral hydraulic oil and grease

Standard materials: PLMFLON-3 + PLMRUBBER-N70 PLMFLON-3-GP + PLMRUBBER-N70

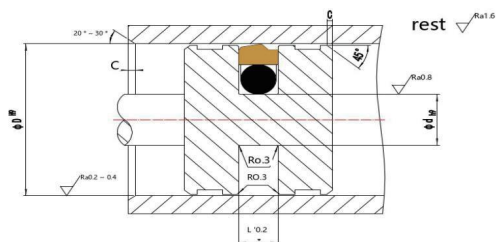
Note: The maximum values listed above cannot be used simultaneously

| Bore diameter $\phi D$ H9 |                   |                   | Groove Diameter | Groove Width | Corner Radius | Radial clearance S max. |        |          | O-ring Cross-Section Diameter |
|---------------------------|-------------------|-------------------|-----------------|--------------|---------------|-------------------------|--------|----------|-------------------------------|
| Standard Application      | Light Application | Heavy Application | $\phi d$ h9     | L +0.2       | R1            | 10 MPa                  | 20 MPa | 40 MPa * |                               |
| 8-14.9                    | 15-39.9           | -                 | DN-4.9          | 2.2          | 0.4           | 0.40                    | 0.30   | 0.20     | 1.78                          |
| 15-39.9                   | 40-79.9           | -                 | DN-7.5          | 3.2          | 0.6           | 0.60                    | 0.50   | 0.30     | 2.62                          |
| 40-79.9                   | 80-132.9          | 15-39.9           | DN-11           | 4.2          | 1.0           | 0.70                    | 0.50   | 0.30     | 3.53                          |
| 80-132.9                  | 133-329.9         | 40-79.9           | DN-15.5         | 6.3          | 1.3           | 0.80                    | 0.60   | 0.40     | 5.33                          |
| 133-329.9                 | 330-669.9         | 80-132.9          | DN-21.0         | 8.1          | 1.8           | 0.80                    | 0.60   | 0.40     | 6.99                          |
| 330-669.9                 | 670-999.9         | 133-329.9         | DN-24.5         | 8.1          | 1.8           | 0.90                    | 0.70   | 0.50     | 6.99                          |
| 670-999.9                 |                   | 330-669.9         | DN-28.0         | 9.5          | 2.5           | 1.00                    | 0.80   | 0.60     | 8.4                           |
| ≥1000                     | ≥1000             | ≥1000             | DN-38.0         | 13.8         | 3.0           | 1.20                    | 0.90   | 0.70     | 12                            |

\*When pressure exceeds 40MPa, use a fit tolerance of f8 H8.

### ● Installation Requirements

To avoid damaging the sealing surface during installation, avoid sliding on sharp metal edges. Closed groove, tension installation. If installation is difficult, use soft material fixtures without sharp edges. If necessary, use hot oil to heat the slip ring for installation.



| Serial Number | Order Number          | D   | d     | L   | O-Ring      |
|---------------|-----------------------|-----|-------|-----|-------------|
| 34            | PLMP08S 115×99.5×6.3  | 115 | 99.5  | 6.3 | 97.79*5.33  |
| 35            | PLMP08S 120×104.5×6.3 | 120 | 104.5 | 6.3 | 100.97*5.33 |
| 36            | PLMP08S 125×109.5×6.3 | 125 | 109.5 | 6.3 | 107.32*5.33 |
| 37            | PLMP08S 130×114.5×6.3 | 130 | 114.5 | 6.3 | 113.67*5.33 |
| 38            | PLMP08S 135×114×8.1   | 135 | 114   | 8.1 | 113.67*6.99 |
| 39            | PLMP08S 140×119×8.1   | 140 | 119   | 8.1 | 116.84*6.99 |
| 40            | PLMP08S 145×124×8.1   | 145 | 124   | 8.1 | 123.19*6.99 |
| 41            | PLMP08S 150×129×8.1   | 150 | 129   | 8.1 | 126.37*6.99 |
| 42            | PLMP08S 155×134×8.1   | 155 | 134   | 8.1 | 132.72*6.99 |
| 43            | PLMP08S 160×139×8.1   | 160 | 139   | 8.1 | 135.89*6.99 |
| 44            | PLMP08S 165×144×8.1   | 165 | 144   | 8.1 | 142.24*6.99 |
| 45            | PLMP08S 170×149×8.1   | 170 | 149   | 8.1 | 145.42*6.99 |
| 46            | PLMP08S 175×154×8.1   | 175 | 154   | 8.1 | 151.77*6.99 |
| 47            | PLMP08S 180×159×8.1   | 180 | 159   | 8.1 | 158.12*6.99 |
| 48            | PLMP08S 185×164×8.1   | 185 | 164   | 8.1 | 164.47*6.99 |
| 49            | PLMP08S 190×169×8.1   | 190 | 169   | 8.1 | 164.47*6.99 |
| 50            | PLMP08S 200×179×8.1   | 200 | 179   | 8.1 | 177.17*6.99 |
| 51            | PLMP08S 210×189×8.1   | 210 | 189   | 8.1 | 183.52*6.99 |
| 52            | PLMP08S 220×199×8.1   | 220 | 199   | 8.1 | 196.22*6.99 |
| 53            | PLMP08S 225×204×8.1   | 225 | 204   | 8.1 | 202.57*6.99 |
| 54            | PLMP08S 230×209×8.1   | 230 | 209   | 8.1 | 202.57*6.99 |
| 55            | PLMP08S 240×219×8.1   | 240 | 219   | 8.1 | 215.27*6.99 |
| 56            | PLMP08S 250×229×8.1   | 250 | 229   | 8.1 | 227.97*6.99 |
| 57            | PLMP08S 260×239×8.1   | 260 | 239   | 8.1 | 240.67*6.99 |
| 58            | PLMP08S 270×249×8.1   | 270 | 249   | 8.1 | 253.37*6.99 |
| 59            | PLMP08S 280×259×8.1   | 280 | 259   | 8.1 | 253.37*6.99 |
| 60            | PLMP08S 290×269×8.1   | 290 | 269   | 8.1 | 266.07*6.99 |
| 61            | PLMP08S 305×284×8.1   | 305 | 284   | 8.1 | 278.77*6.99 |
| 62            | PLMP08S 330×309×8.1   | 330 | 309   | 8.1 | 304.17*6.99 |

In addition to the above specifications, Puli can provide customized product dimensions.

## PLMP09B



### ● Product Description

PLMP09B is a double-acting sealing and guiding element. It uses wear-resistant POM as the bearing (wear) ring and TPE material as the back-up ring. The sealing element provides reliable sealing performance under both static and dynamic conditions, while the back-up ring prevents the rubber seal from being extruded into the groove. The wear ring guides the piston within the cylinder bore and supports radial loads, preventing cylinder scoring. This design is suitable for both open and closed groove installations.

### ● Applications

For machine tools, truck cranes, forklifts and handling machinery, agricultural machinery, etc.

### ● Application Parameters

Operating temperature: -35°C to 100°C.

Working Pressure:  $\leq 40\text{MPa}$

Surface Speed:  $\leq 0.5\text{ms}$

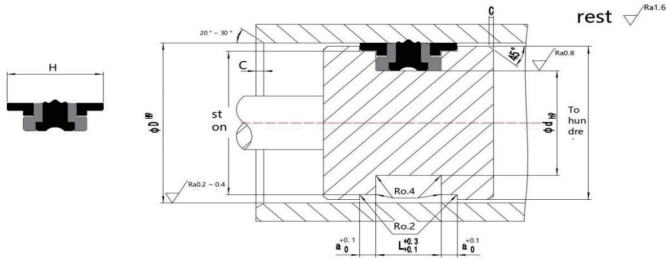
Media: Mineral hydraulic oil and grease

Standard material: PLMRUBBER-N80+PLMTPE-70+PLMPOM-2

Note: The maximum values listed above cannot be used simultaneously

### ● Installation Requirements

Remove sharp edges and burrs from the installation area. Install in the following order: rubber seal - retaining ring - wear ring. Note the staggered placement of the retaining ring and wear ring drain grooves..



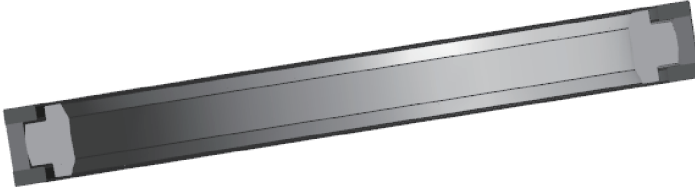
| Serial Number | Order Number             | D1  | d  | L    | d1    | a    |
|---------------|--------------------------|-----|----|------|-------|------|
| 1             | PLMP09B 30×21×13.5×2.1   | 30  | 21 | 13.5 | 27    | 2.1  |
| 2             | PLMP09B 32×22×15.5×2.6   | 32  | 22 | 15.5 | 28    | 2.6  |
| 3             | PLMP09B 40×30×16.4×6.35  | 40  | 30 | 16.4 | 35.4  | 6.35 |
| 4             | PLMP09B 40×26×15.5×2.6   | 40  | 26 | 15.5 | 36    | 2.6  |
| 5             | PLMP09B 40×24×18.4×6.35  | 40  | 24 | 18.4 | 35.4  | 6.35 |
| 6             | PLMP09B 45×35×16.4×6.35  | 45  | 35 | 16.4 | 40.4  | 6.35 |
| 7             | PLMP09B 50×38×20.5×4.2   | 50  | 38 | 20.5 | 46    | 4.2  |
| 8             | PLMP09B 50×34×18.4×6.35  | 50  | 34 | 18.4 | 45.4  | 6.35 |
| 9             | PLMP09B 50×34×20.5×3.1   | 50  | 34 | 20.5 | 46    | 3.1  |
| 10            | PLMP09B 55×39×18.4×6.35  | 55  | 39 | 18.4 | 50.8  | 6.35 |
| 11            | PLMP09B 60×48×20.5×4.2   | 60  | 48 | 20.5 | 56    | 4.2  |
| 12            | PLMP09B 60×44×18.4×6.35  | 60  | 44 | 18.4 | 55.4  | 6.35 |
| 13            | PLMP09B 60×44×20.5×3.1   | 60  | 44 | 20.5 | 56    | 3.1  |
| 14            | PLMP09B 63×51×20.5×4.2   | 63  | 51 | 20.5 | 59    | 4.2  |
| 15            | PLMP09B 63×47×18.4×6.35  | 63  | 47 | 18.4 | 58.4  | 6.35 |
| 16            | PLMP09B 63×47×19.4×6.35  | 63  | 47 | 19.4 | 58.4  | 6.35 |
| 17            | PLMP09B 63×47×20.5×3.1   | 63  | 47 | 20.5 | 59    | 3.1  |
| 18            | PLMP09B 65×49×20.5×3.1   | 65  | 49 | 20.5 | 61    | 3.1  |
| 19            | PLMP09B 70×58×20.5×4.2   | 70  | 58 | 20.5 | 66    | 4.2  |
| 20            | PLMP09B 70×54×20.5×3.1   | 70  | 54 | 20.5 | 66    | 3.1  |
| 21            | PLMP09B 70×50×22.4×6.35  | 70  | 50 | 22.4 | 64.2  | 6.35 |
| 22            | PLMP09B 75×55×22.4×6.35  | 75  | 55 | 22.4 | 69.2  | 6.35 |
| 23            | PLMP09B 80×66×22.5×5.2   | 80  | 66 | 22.5 | 76    | 5.2  |
| 24            | PLMP09B 80×62×22.5×3.6   | 80  | 62 | 22.5 | 76    | 3.6  |
| 25            | PLMP09B 80×60×22.4×6.35  | 80  | 60 | 22.4 | 74.15 | 6.35 |
| 26            | PLMP09B 90×72×22.5×3.6   | 90  | 72 | 22.5 | 86    | 3.6  |
| 27            | PLMP09B 90×70×22.4×6.35  | 90  | 70 | 22.4 | 84.15 | 6.35 |
| 28            | PLMP09B 100×86×22.5×5.2  | 100 | 86 | 22.5 | 96    | 5.2  |
| 29            | PLMP09B 100×82×22.5×3.6  | 100 | 82 | 22.5 | 96    | 3.6  |
| 30            | PLMP09B 100×75×22.4×6.35 | 100 | 75 | 22.4 | 93.15 | 6.35 |

| Serial Number | Order Number              | D1  | d   | L    | d1     | a    |
|---------------|---------------------------|-----|-----|------|--------|------|
| 31            | PLMP09B 110×96×22.5×5.2   | 110 | 96  | 22.5 | 106    | 5.2  |
| 32            | PLMP09B 110×85×22.4×6.35  | 110 | 85  | 22.4 | 103.1  | 6.35 |
| 33            | PLMP09B 115×90×22.4×6.35  | 115 | 90  | 22.4 | 108.1  | 6.35 |
| 34            | PLMP09B 120×95×22.4×6.35  | 120 | 95  | 22.4 | 113.1  | 6.35 |
| 35            | PLMP09B 125×108×25.5×7.2  | 125 | 108 | 25.5 | 121    | 7.2  |
| 36            | PLMP09B 125×100×25.4×6.35 | 125 | 100 | 25.4 | 118.1  | 6.35 |
| 37            | PLMP09B 140×115×25.4×9.5  | 140 | 115 | 25.4 | 132.6  | 9.5  |
| 38            | PLMP09B 140×115×25.4×6.35 | 140 | 115 | 25.4 | 133    | 6.35 |
| 39            | PLMP09B 150×125×25.4×9.5  | 150 | 125 | 25.4 | 142.6  | 9.5  |
| 40            | PLMP09B 160×135×25.4×9.5  | 160 | 135 | 25.4 | 152.6  | 9.5  |
| 41            | PLMP09B 160×130×25.4×6.35 | 160 | 130 | 25.4 | 152.7  | 6.35 |
| 42            | PLMP09B 170×145×25.4×12.7 | 170 | 145 | 25.4 | 161.7  | 12.7 |
| 43            | PLMP09B 180×155×25.4×12.7 | 180 | 155 | 25.4 | 171.7  | 12.7 |
| 44            | PLMP09B 180×150×35.4×6.35 | 180 | 150 | 35.4 | 172.95 | 6.35 |
| 45            | PLMP09B 200×175×25.4×12.7 | 200 | 175 | 25.4 | 191.6  | 12.7 |
| 46            | PLMP09B 220×190×35.4×6.35 | 220 | 190 | 35.4 | 212.7  | 6.35 |
| 47            | PLMP09B 250×225×25.4×12.7 | 250 | 225 | 25.4 | 241.6  | 12.7 |
| 48            | PLMP09B 250×220×35.4×6.35 | 250 | 220 | 35.4 | 242.9  | 6.35 |

In addition to the above specifications, Puli can provide customized product dimensions.



## PLMP23LF



### ●Product Description

PLMP23LF is a double-acting composite piston seal made of PTFE, polyamide (PA), and hydrogenated nitrile rubber (H-NBR). It provides excellent durability even under very short stroke conditions. Designed for high-pressure and heavy-duty piston applications, it ensures effective leakage control, outstanding wear resistance, and excellent extrusion resistance.

### ●Applications

For heavy-duty hydraulic cylinders, cranes, bulldozers, excavators, dump trucks, etc..

### ●Application Parameters

Operating temperature: -20°C to 120°C

Working Pressure: ≤50MPa

Surface Speed: ≤1.5ms

Media: Mineral hydraulic oil and grease

Standard material: PLMRUBBER-HN85+PLMPLO-3+PLMPA-40

Note: The maximum values listed above cannot be used simultaneously

### ●Installation Requirements

To avoid damaging the sealing surface during installation, avoid sliding on sharp metal edges. Closed groove, stretch installation. If installation is difficult, use soft material fixtures without sharp edges.

111

| Serial Number | Order Number             | D1  | d   | H    | L    |
|---------------|--------------------------|-----|-----|------|------|
| 32            | PLMP23LF 225×202×15.5/16 | 225 | 202 | 15.5 | 16   |
| 33            | PLMP23LF 230×207×15.5/16 | 230 | 207 | 15.5 | 16   |
| 34            | PLMP23LF 235×212×15.5/16 | 235 | 212 | 15.5 | 16   |
| 35            | PLMP23LF 240×217×15.5/16 | 240 | 217 | 15.5 | 16   |
| 36            | PLMP23LF 250×222×17/17.5 | 250 | 222 | 17   | 17.5 |
| 37            | PLMP23LF 260×232×17/17.5 | 260 | 232 | 17   | 17.5 |
| 38            | PLMP23LF 270×242×17/17.5 | 270 | 242 | 17   | 17.5 |
| 39            | PLMP23LF 280×252×17/17.5 | 280 | 252 | 17   | 17.5 |
| 40            | PLMP23LF 290×262×17/17.5 | 290 | 262 | 17   | 17.5 |
| 41            | PLMP23LF 300×272×17/17.5 | 300 | 272 | 17   | 17.5 |
| 42            | PLMP23LF 320×292×17/17.5 | 320 | 292 | 17   | 17.5 |

In addition to the above specifications, Puli can provide customized product dimensions.

## PLMAQ1



### ● Product Description

The PLMAQ1 is a double-acting, combined piston seal constructed from PTFE and rubber. The slide ring and star ring together provide a dynamic seal, while the O-ring serves as a force element and static seal. The standard-section PLMAQ1 features an oil drain groove on the slide ring end face to ensure the seal can quickly apply pressure to the cylinder under all operating conditions. It can be used in oil-gas separation applications, and its groove dimensions are interchangeable with those of Gladstone seals, offering excellent sliding performance and no slip..

### ● Applications

For machine tools, presses, accumulators, stabilizers, heavy-duty suspension cylinders, etc..

### ● Application Parameters

Operating Temperature:  $-45^{\circ}\text{C}$  to  $200^{\circ}\text{C}$  (depending on O-ring material)

Working Pressure:  $\leq 40\text{MPa}$

Surface Speed:  $\leq 2\text{ m/s}$

Media: Mineral hydraulic oil and grease, air, etc.

Standard material: PLMFLO-3+PLMRUBBER-N70 PLMFLO-3-GP+PLMRUBBER-N70

Note: The maximum values listed above cannot be used simultaneously

### ● Installation Requirements

To avoid damaging the sealing surface during installation, avoid sliding on sharp metal edges. Closed groove, stretch installation. If installation is difficult, use soft material fixtures without sharp edges..



## STATIC SEAL

| Serial Number | Order Number          | d   | D     | L    | O-Ring      | X-Ring      |
|---------------|-----------------------|-----|-------|------|-------------|-------------|
| 32            | PLMPAQ1 170×145.5×8.1 | 170 | 145.5 | 8.1  | 145.42*6.99 | 158.42*2.62 |
| 33            | PLMPAQ1 180×155.5×8.1 | 180 | 155.5 | 8.1  | 158.12*6.99 | 171.11*2.62 |
| 34            | PLMPAQ1 190×165.5×8.1 | 190 | 165.5 | 8.1  | 164.47*6.99 | 177.47*2.62 |
| 35            | PLMPAQ1 200×175.5×8.1 | 200 | 175.5 | 8.1  | 177.17*6.99 | 190.17*2.62 |
| 36            | PLMPAQ1 210×185.5×8.1 | 210 | 185.5 | 8.1  | 183.52*6.99 | 196.52*2.62 |
| 37            | PLMPAQ1 220×195.5×8.1 | 220 | 195.5 | 8.1  | 196.22*6.99 | 202.87*2.62 |
| 38            | PLMPAQ1 230×205.5×8.1 | 230 | 205.5 | 8.1  | 208.92*6.99 | 215.57*2.62 |
| 39            | PLMPAQ1 240×215.5×8.1 | 240 | 215.5 | 8.1  | 215.27*6.99 | 221.92*2.62 |
| 40            | PLMPAQ1 250×225.5×8.1 | 250 | 225.5 | 8.1  | 227.97*6.99 | 234.62*2.62 |
| 41            | PLMPAQ1 260×232×9.5   | 260 | 232   | 9.5  | 230*8.4     | 247.24*3.53 |
| 42            | PLMPAQ1 280×252×9.5   | 280 | 252   | 9.5  | 250*8.4     | 266.29*3.53 |
| 43            | PLMPAQ1 290×262×9.5   | 290 | 262   | 9.5  | 260*8.4     | 278.99*3.53 |
| 44            | PLMPAQ1 300×272×9.5   | 300 | 272   | 9.5  | 270*8.4     | 278.99*3.53 |
| 45            | PLMPAQ1 320×292×9.5   | 320 | 292   | 9.5  | 290*8.4     | 304.39*3.53 |
| 46            | PLMPAQ1 350×322×9.5   | 350 | 322   | 9.5  | 320*8.4     | 329.79*3.53 |
| 47            | PLMPAQ1 360×332×9.5   | 360 | 332   | 9.5  | 330*8.4     | 355.19*3.53 |
| 48            | PLMPAQ1 380×352×9.5   | 380 | 352   | 9.5  | 350*8.4     | 355.19*3.53 |
| 49            | PLMPAQ1 400×372×9.5   | 400 | 372   | 9.5  | 370*8.4     | 380.59*3.53 |
| 50            | PLMPAQ1 420×392×9.5   | 420 | 392   | 9.5  | 390*8.4     | 405.26*3.53 |
| 51            | PLMPAQ1 450×422×9.5   | 450 | 422   | 9.5  | 420*8.4     | 430.66*3.53 |
| 52            | PLMPAQ1 480×445×11.5  | 480 | 445   | 11.5 | 444*10      | 456.06*5.33 |
| 53            | PLMPAQ1 500×465×11.5  | 500 | 465   | 11.5 | 464*10      | 481.46*5.33 |
| 54            | PLMPAQ1 550×515×11.5  | 550 | 515   | 11.5 | 514*10      | 532.26*5.33 |
| 55            | PLMPAQ1 580×545×11.5  | 580 | 545   | 11.5 | 544*10      | 557.66*5.33 |
| 56            | PLMPAQ1 600×565×11.5  | 600 | 565   | 11.5 | 564*10      | 582.68*5.33 |
| 57            | PLMPAQ1 630×595×11.5  | 630 | 595   | 11.5 | 594*10      | 608.08*5.33 |
| 58            | PLMPAQ1 700×665×11.5  | 700 | 665   | 11.5 | 664*10      | 658.88*5.33 |

In addition to the above specifications, Puli can provide customized product dimensions.

## PLMAQ2



### ● Product Description

The PLMAQ2 is a double-acting, combined piston seal constructed from PTFE and rubber. The slide ring and star ring together provide a dynamic seal, while the two O-rings serve as a force element and static seal. Compared to the PLMAQ1, this seal optimizes pressure distribution, reduces gas damage to the seal, and offers higher pressure-bearing capacity, faster sliding speeds, and excellent sliding performance without slip.

### ● Applications

For machine tools, presses, piston accumulators, rolling mill equipment, offshore equipment, heavy-duty suspension cylinders, etc.

### ● Application Parameters

Operating Temperature: -30°C to 200°C (depending on O-ring material)

Operating Pressure: ≤60 MPa

Surface Speed: ≤3 m/s

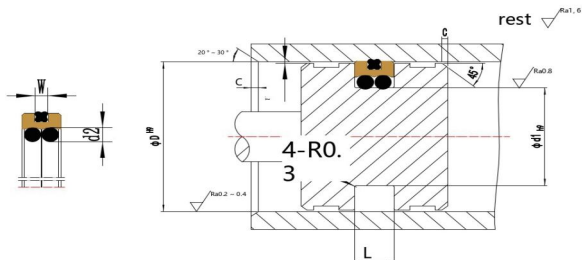
Media: Mineral hydraulic oil and grease, air, etc.

Standard material: PLMFLO-3+PLMRUBBER-N70 PLMFLO-3-GP+PLMRUBBER-N70

Note: The maximum values listed above cannot be used simultaneously

### ● Installation Requirements

To avoid damaging the sealing surface during installation, avoid sliding on sharp metal edges. Closed groove, stretch installation. If installation is difficult, use soft material fixtures without sharp edges.



| Serial Number | Order Number         | d   | D   | L    | O-Ring      | X-Ring      |
|---------------|----------------------|-----|-----|------|-------------|-------------|
| 1             | PLMPAQ2 40X30X6.3    | 40  | 30  | 6.3  | 29.82*2.62  | 34.65*1.78  |
| 2             | PLMPAQ2 45X35X6.3    | 45  | 35  | 6.3  | 34.59*2.62  | 37.82*1.78  |
| 3             | PLMPAQ2 50X40X6.3    | 50  | 40  | 6.3  | 39.34*2.62  | 44.17*1.78  |
| 4             | PLMPAQ2 55X45X6.3    | 55  | 45  | 6.3  | 44.12*2.62  | 50.52*1.78  |
| 5             | PLMPAQ2 60X50X6.3    | 60  | 50  | 6.3  | 48.9*2.62   | 53.7*1.78   |
| 6             | PLMPAQ2 63X53X6.3    | 63  | 53  | 6.3  | 52.07*2.62  | 56.87*1.78  |
| 7             | PLMPAQ2 65X55X6.3    | 65  | 55  | 6.3  | 53.64*2.62  | 60.05*1.78  |
| 8             | PLMPAQ2 70X60X6.3    | 70  | 60  | 6.3  | 58.42*2.62  | 63.22*1.78  |
| 9             | PLMPAQ2 75X65X6.3    | 75  | 65  | 6.3  | 63.17*2.62  | 69.57*1.78  |
| 10            | PLMPAQ2 80X67X8.3    | 80  | 67  | 8.3  | 66.27*3.53  | 71.12*2.62  |
| 11            | PLMPAQ2 85X72X8.3    | 85  | 72  | 8.3  | 69.44*3.53  | 75.87*2.62  |
| 12            | PLMPAQ2 90X77X8.3    | 90  | 77  | 8.3  | 75.79*3.53  | 82.22*2.62  |
| 13            | PLMPAQ2 95X82X8.3    | 95  | 82  | 8.3  | 78.97*3.53  | 82.22*2.62  |
| 14            | PLMPAQ2 100X87X8.3   | 100 | 87  | 8.3  | 85.32*3.53  | 88.57*2.62  |
| 15            | PLMPAQ2 110X97X8.3   | 110 | 97  | 8.3  | 94.84*3.53  | 101.27*2.62 |
| 16            | PLMPAQ2 120X107X8.3  | 120 | 107 | 8.3  | 104.37*3.53 | 107.62*2.62 |
| 17            | PLMPAQ2 125X112X8.3  | 125 | 112 | 8.3  | 110.72*3.53 | 113.97*2.62 |
| 18            | PLMPAQ2 130X117X8.3  | 130 | 117 | 8.3  | 113.89*3.53 | 120.32*2.62 |
| 19            | PLMPAQ2 135X117X12.3 | 135 | 117 | 12.3 | 113.67*5.33 | 123.42*3.53 |
| 20            | PLMPAQ2 140X122X12.3 | 140 | 122 | 12.3 | 120.02*5.33 | 126.6*3.53  |
| 21            | PLMPAQ2 150X132X12.3 | 150 | 132 | 12.3 | 129.54*5.33 | 136.12*3.53 |
| 22            | PLMPAQ2 160X142X12.3 | 160 | 142 | 12.3 | 139.07*5.33 | 145.65*3.53 |
| 23            | PLMPAQ2 170X152X12.3 | 170 | 152 | 12.3 | 148.49*5.33 | 158.35*3.53 |
| 24            | PLMPAQ2 180X162X12.3 | 180 | 162 | 12.3 | 158.12*5.33 | 164.7*3.53  |
| 25            | PLMPAQ2 190X172X12.3 | 190 | 172 | 12.3 | 170.82*5.33 | 177.4*3.53  |
| 26            | PLMPAQ2 200X182X12.3 | 200 | 182 | 12.3 | 177.17*5.33 | 183.75*3.53 |
| 27            | PLMPAQ2 210X192X12.3 | 210 | 192 | 12.3 | 189.87*5.33 | 196.45*3.53 |
| 28            | PLMPAQ2 220X202X12.3 | 220 | 202 | 12.3 | 196.22*5.33 | 202.8*3.53  |
| 29            | PLMPAQ2 230X212X12.3 | 230 | 212 | 12.3 | 208.92*5.33 | 215.5*3.53  |
| 30            | PLMPAQ2 240X222X12.3 | 240 | 222 | 12.3 | 221.62*5.33 | 221.85*3.53 |

| Serial Number | Order Number         | d   | D   | L    | O-Ring      | X-Ring      |
|---------------|----------------------|-----|-----|------|-------------|-------------|
| 31            | PLMPAQ2 250X232X12.3 | 250 | 232 | 12.3 | 227.97*5.33 | 234.54*3.53 |
| 32            | PLMPAQ2 260X242X12.3 | 260 | 242 | 12.3 | 240.67*5.33 | 247.24*3.53 |
| 33            | PLMPAQ2 270X252X12.3 | 270 | 252 | 12.3 | 247.02*5.33 | 253.59*3.53 |
| 34            | PLMPAQ2 280X262X12.3 | 280 | 262 | 12.3 | 253.37*5.33 | 266.29*3.53 |
| 35            | PLMPAQ2 290X272X12.3 | 290 | 272 | 12.3 | 266.07*5.33 | 278.99*3.53 |
| 36            | PLMPAQ2 300X282X12.3 | 300 | 282 | 12.3 | 278.77*5.33 | 291.69*3.53 |
| 37            | PLMPAQ2 320X302X12.3 | 320 | 302 | 12.3 | 291.47*5.33 | 304.39*3.53 |
| 38            | PLMPAQ2 330X312X12.3 | 330 | 312 | 12.3 | 304.17*5.33 | 304.39*3.53 |
| 39            | PLMPAQ2 340X322X12.3 | 340 | 322 | 12.3 | 304.17*5.33 | 329.79*3.53 |
| 40            | PLMPAQ2 350X332X12.3 | 350 | 332 | 12.3 | 329.57*5.33 | 329.79*3.53 |
| 41            | PLMPAQ2 360X342X12.3 | 360 | 342 | 12.3 | 329.57*5.33 | 329.79*3.53 |
| 42            | PLMPAQ2 380X362X12.3 | 380 | 362 | 12.3 | 354.97*5.33 | 355.19*3.53 |
| 43            | PLMPAQ2 400X382X12.3 | 400 | 382 | 12.3 | 380.37*5.33 | 380.59*3.53 |
| 44            | PLMPAQ2 420X402X12.3 | 420 | 402 | 12.3 | 405.26*5.33 | 380.59*3.53 |
| 45            | PLMPAQ2 450X432X12.3 | 450 | 432 | 12.3 | 430.66*5.33 | 430.66*3.53 |
| 46            | PLMPAQ2 480X449X16.3 | 480 | 449 | 16.3 | 443.36*6.99 | 456.06*5.33 |
| 47            | PLMPAQ2 500X469X16.3 | 500 | 469 | 16.3 | 468.76*6.99 | 456.06*5.33 |
| 48            | PLMPAQ2 550X519X16.3 | 550 | 519 | 16.3 | 506.86*6.99 | 532.26*5.33 |
| 49            | PLMPAQ2 580X549X16.3 | 580 | 549 | 16.3 | 532.26*6.99 | 557.66*5.33 |
| 50            | PLMPAQ2 600X569X16.3 | 600 | 569 | 16.3 | 557.66*6.99 | 557.66*5.33 |
| 51            | PLMPAQ2 630X599X16.3 | 630 | 599 | 16.3 | 582.68*6.99 | 608.08*5.33 |
| 52            | PLMPAQ2 700X669X16.3 | 700 | 669 | 16.3 | 658.88*6.99 | 658.88*5.33 |

In addition to the above specifications, Puli can provide customized product dimensions.

## Piston and Rod Seal

### PLMPR07



#### ●Product Description

PLMPR07 is a single-acting polyurethane and O-ring combination lip seal, suitable for both rod and piston applications. The highly elastic O-ring serves as an energizing element, providing the necessary preload, while the wear-resistant polyurethane sealing ring ensures reliable sealing even under low-pressure or vacuum conditions. The seal's contact stress is relatively insensitive to temperature changes, and the O-ring's elasticity provides compensation for lip wear, maintaining the required compression. Key advantages include excellent wear resistance, insensitivity to vibration and pressure peaks, high extrusion resistance, reliable sealing performance at low load and low temperature, and easy installation.

#### ●Applications

For sealing plungers or piston rods, multi-stage cylinders, forging presses, and hydraulic assemblies for mobile machinery.

#### ●Application Parameters

Operating temperature:  $-35^{\circ}\text{C}$  to  $100^{\circ}\text{C}$ .

Operating Pressure:  $\leq 35\text{MPa}$

Surface Speed:  $\leq 0.5\text{ms}$

Media: Mineral hydraulic oil and grease

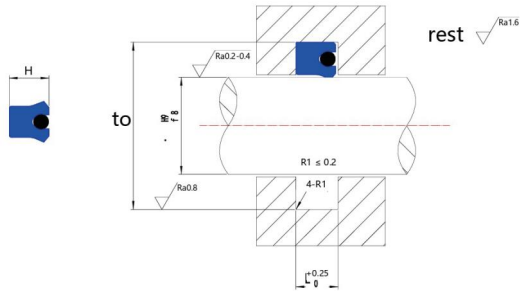
Standard Material: PLMPUR-93A + PLMRUBBER-N70

Note: The maximum values listed above cannot be used simultaneously

#### ●Installation Requirements

To avoid damage to the lip during installation, do not slide on sharp metal edges during installation. Closed groove, manually bend to a heart shape for installation. If installation is difficult, use special tools to bend the seal for installation.

# PISTON AND ROD SEAL



| Serial Number | Order Number                | d     | D     | H    | L   |
|---------------|-----------------------------|-------|-------|------|-----|
| 1             | PLMR07 3×8.5×4/4.4          | 3     | 8.5   | 4    | 4.4 |
| 2             | PLMR07 4.8×11.1×6.4/7       | 4.8   | 11.1  | 6.4  | 7   |
| 3             | PLMR07 6×14×5.7/6.3         | 6     | 14    | 5.7  | 6.3 |
| 4             | PLMR07 7.9×14.3×6.4/7       | 7.9   | 14.3  | 6.4  | 7   |
| 5             | PLMR07 8×16×5.7/6.3         | 8     | 16    | 5.7  | 6.3 |
| 6             | PLMR07 10×18×5.7/6.3        | 10    | 18    | 5.7  | 6.3 |
| 7             | PLMR07 11.1×17.5×6.4/7      | 11.1  | 17.5  | 6.4  | 7   |
| 8             | PLMR07 12×20×5.7/6.3        | 12    | 20    | 5.7  | 6.3 |
| 9             | PLMR07 12×22×7.3/8          | 12    | 22    | 7.3  | 8   |
| 10            | PLMR07 12.7×19.1×6.4/7      | 12.7  | 19.1  | 6.4  | 7   |
| 11            | PLMR07 13×20×5/5.5          | 13    | 20    | 5    | 5.5 |
| 12            | PLMR07 14×22×5.7/6.3        | 14    | 22    | 5.7  | 6.3 |
| 13            | PLMR07 14.27×20.62×3.17/3.5 | 14.27 | 20.62 | 3.17 | 3.5 |
| 14            | PLMR07 14.3×20.6×6.4/7      | 14.3  | 20.6  | 6.4  | 7   |
| 15            | PLMR07 15×23×5.7/6.3        | 15    | 23    | 5.7  | 6.3 |
| 16            | PLMR07 16×22.2×4.5/5        | 16    | 22.2  | 4.5  | 5   |
| 17            | PLMR07 16×24×5.7/6.3        | 16    | 24    | 5.7  | 6.3 |
| 18            | PLMR07 16×26×7.3/8          | 16    | 26    | 7.3  | 8   |
| 19            | PLMR07 18×24×5/5.5          | 18    | 24    | 5    | 5.5 |
| 20            | PLMR07 18×26×5.7/6.3        | 18    | 26    | 5.7  | 6.3 |
| 21            | PLMR07 19.1×25.4×6.4/7      | 19.1  | 25.4  | 6.4  | 7   |
| 22            | PLMR07 20×28×5.7/6.3        | 20    | 28    | 5.7  | 6.3 |
| 23            | PLMR07 20×30×7.3/8          | 20    | 30    | 7.3  | 8   |
| 24            | PLMR07 22×30×5.7/6.3        | 22    | 30    | 5.7  | 6.3 |
| 25            | PLMR07 24×32×7/7.7          | 24    | 32    | 7    | 7.7 |
| 26            | PLMR07 25×33×5.7/6.3        | 25    | 33    | 5.7  | 6.3 |
| 27            | PLMR07 25×35×7.3/8          | 25    | 35    | 7.3  | 8   |
| 28            | PLMR07 25×40×10/11          | 25    | 40    | 10   | 11  |
| 29            | PLMR07 25.4×31.8×4.5/5      | 25.4  | 31.8  | 4.5  | 5   |

# PISTON AND ROD SEAL

| Serial Number | Order Number              | d    | D    | H    | L    |
|---------------|---------------------------|------|------|------|------|
| 30            | PLMR07 25.4×31.8×6.4/7    | 25.4 | 31.8 | 6.4  | 7    |
| 31            | PLMR07 28×35×6.5/7.2      | 28   | 35   | 6.5  | 7.2  |
| 32            | PLMR07 28×36×5.7/6.3      | 28   | 36   | 5.7  | 6.3  |
| 33            | PLMR07 28×38×7.3/8        | 28   | 38   | 7.3  | 8    |
| 34            | PLMR07 30×38×5.7/6.3      | 30   | 38   | 5.7  | 6.3  |
| 35            | PLMR07 30×40×7.5/8.3      | 30   | 40   | 7.5  | 8.3  |
| 36            | PLMR07 31.8×38.1×6.4/7    | 31.8 | 38.1 | 6.4  | 7    |
| 37            | PLMR07 31.8×41.3×6.8/7.5  | 31.8 | 41.3 | 6.8  | 7.5  |
| 38            | PLMR07 31.8×44.5×9.5/10.5 | 31.8 | 44.5 | 9.5  | 10.5 |
| 39            | PLMR07 32×40×5.7/6.3      | 32   | 40   | 5.7  | 6.3  |
| 40            | PLMR07 32×40×6/6.6        | 32   | 40   | 6    | 6.6  |
| 41            | PLMR07 32×42×7.3/8        | 32   | 42   | 7.3  | 8    |
| 42            | PLMR07 34.9×44.5×7.9/8.7  | 34.9 | 44.5 | 7.9  | 8.7  |
| 43            | PLMR07 35×43×5.7/6.3      | 35   | 43   | 5.7  | 6.3  |
| 44            | PLMR07 35×43×6.5/7.2      | 35   | 43   | 6.5  | 7.2  |
| 45            | PLMR07 35×45×10/11        | 35   | 45   | 10   | 11   |
| 46            | PLMR07 35×47×10/11        | 35   | 47   | 10   | 11   |
| 47            | PLMR07 35×50×11.4/12.5    | 35   | 50   | 11.4 | 12.5 |
| 48            | PLMR07 36×44×5.7/6.3      | 36   | 44   | 5.7  | 6.3  |
| 49            | PLMR07 36×46×7.3/8        | 36   | 46   | 7.3  | 8    |
| 50            | PLMR07 38.1×47.6×6.4/7    | 38.1 | 47.6 | 6.4  | 7    |
| 51            | PLMR07 40×48×5.7/6.3      | 40   | 48   | 5.7  | 6.3  |
| 52            | PLMR07 40×48×8/8.8        | 40   | 48   | 8    | 8.8  |
| 53            | PLMR07 40×50×7.3/8        | 40   | 50   | 7.3  | 8    |
| 54            | PLMR07 40×50×10/11        | 40   | 50   | 10   | 11   |
| 55            | PLMR07 40×55×10/11        | 40   | 55   | 10   | 11   |
| 56            | PLMR07 41.3×50.8×7.9/8.7  | 41.3 | 50.8 | 7.9  | 8.7  |
| 57            | PLMR07 42×50×6.5/7.2      | 42   | 50   | 6.5  | 7.2  |
| 58            | PLMR07 44.5×54×6.8/7.5    | 44.5 | 54   | 6.8  | 7.5  |
| 59            | PLMR07 44.5×54×9.5/10.5   | 44.5 | 54   | 9.5  | 10.5 |
| 60            | PLMR07 45×53×7.3/8        | 45   | 53   | 7.3  | 8    |
| 61            | PLMR07 45×55×7.3/8        | 45   | 55   | 7.3  | 8    |
| 62            | PLMR07 45×55×8/8.8        | 45   | 55   | 8    | 8.8  |
| 63            | PLMR07 45×55×10/11        | 45   | 55   | 10   | 11   |
| 64            | PLMR07 45×60×11.4/12.5    | 45   | 60   | 11.4 | 12.5 |
| 65            | PLMR07 47.6×57.2×7.3/8    | 47.6 | 57.2 | 7.3  | 8    |
| 66            | PLMR07 47.6×57.2×9.5/10.5 | 47.6 | 57.2 | 9.5  | 10.5 |
| 67            | PLMR07 48×60×10/11        | 48   | 60   | 10   | 11   |
| 68            | PLMR07 50×58×7.3/8        | 50   | 58   | 7.3  | 8    |
| 69            | PLMR07 50×60×6/7          | 50   | 60   | 6    | 7    |
| 70            | PLMR07 50×60×7.3/8        | 50   | 60   | 7.3  | 8    |
| 71            | PLMR07 50×60×7.5/8.3      | 50   | 60   | 7.5  | 8.3  |
| 72            | PLMR07 50×60×8/9          | 50   | 60   | 8    | 9    |

# PISTON AND ROD SEAL

| Serial Number | Order Number              | d    | D    | H    | L    |
|---------------|---------------------------|------|------|------|------|
| 73            | PLMR07 50×60×11.4/12.5    | 50   | 60   | 11.4 | 12.5 |
| 74            | PLMR07 50×63×10/11        | 50   | 63   | 10   | 11   |
| 75            | PLMR07 50×65×9/10         | 50   | 65   | 9    | 10   |
| 76            | PLMR07 50×65×11.4/12.5    | 50   | 65   | 11.4 | 12.5 |
| 77            | PLMR07 50.8×63.5×9.5/10.5 | 50.8 | 63.5 | 9.5  | 10.5 |
| 78            | PLMR07 53×63×7.3/8        | 53   | 63   | 7.3  | 8    |
| 79            | PLMR07 55×65×6/7          | 55   | 65   | 6    | 7    |
| 80            | PLMR07 55×65×7.3/8        | 55   | 65   | 7.3  | 8    |
| 81            | PLMR07 55×65×8/9          | 55   | 65   | 8    | 9    |
| 82            | PLMR07 55×70×9/10         | 55   | 70   | 9    | 10   |
| 83            | PLMR07 55×71×12/13        | 55   | 71   | 12   | 13   |
| 84            | PLMR07 55×75×14.5/16      | 55   | 75   | 14.5 | 16   |
| 85            | PLMR07 56×66×10/11        | 56   | 66   | 10   | 11   |
| 86            | PLMR07 57.2×69.9×9.5/10.5 | 57.2 | 69.9 | 9.5  | 10.5 |
| 87            | PLMR07 60×68×7/7.7        | 60   | 68   | 7    | 7.7  |
| 88            | PLMR07 60×68×11.4/12.5    | 60   | 68   | 11.4 | 12.5 |
| 89            | PLMR07 60×70×6/7          | 60   | 70   | 6    | 7    |
| 90            | PLMR07 60×70×7.3/8        | 60   | 70   | 7.3  | 8    |
| 91            | PLMR07 60×70×8/9          | 60   | 70   | 8    | 9    |
| 92            | PLMR07 60×70×10.5/11.6    | 60   | 70   | 10.5 | 11.6 |
| 93            | PLMR07 60×73×10/11        | 60   | 73   | 10   | 11   |
| 94            | PLMR07 60×75×9/10         | 60   | 75   | 9    | 10   |
| 95            | PLMR07 60×76×10/11        | 60   | 76   | 10   | 11   |
| 96            | PLMR07 63×75×8.7/9.6      | 63   | 75   | 8.7  | 9.6  |
| 97            | PLMR07 63.5×73×9.5/10.5   | 63.5 | 73   | 9.5  | 10.5 |
| 98            | PLMR07 63.5×76.2×9.5/10.5 | 63.5 | 76.2 | 9.5  | 10.5 |
| 99            | PLMR07 65×75×6/7          | 65   | 75   | 6    | 7    |
| 100           | PLMR07 65×75×8/9          | 65   | 75   | 8    | 9    |
| 101           | PLMR07 65×75×10/11        | 65   | 75   | 10   | 11   |
| 102           | PLMR07 65×78×10/11        | 65   | 78   | 10   | 11   |
| 103           | PLMR07 65×80×9/10         | 65   | 80   | 9    | 10   |
| 104           | PLMR07 66.7×76.2×6.8/7.5  | 66.7 | 76.2 | 6.8  | 7.5  |
| 105           | PLMR07 69.9×82.6×9.5/10.5 | 69.9 | 82.6 | 9.5  | 10.5 |
| 106           | PLMR07 70×80×6/7          | 70   | 80   | 6    | 7    |
| 107           | PLMR07 70×80×8/9          | 70   | 80   | 8    | 9    |
| 108           | PLMR07 70×80×11.4/12.5    | 70   | 80   | 11.4 | 12.5 |
| 109           | PLMR07 70×82×9.5/10.5     | 70   | 82   | 9.5  | 10.5 |
| 110           | PLMR07 70×83×10/11        | 70   | 83   | 10   | 11   |
| 111           | PLMR07 70×85×11.4/12.5    | 70   | 85   | 11.4 | 12.5 |
| 112           | PLMR07 73×85.7×9.5/10.5   | 73   | 85.7 | 9.5  | 10.5 |
| 113           | PLMR07 75×85×6/7          | 75   | 85   | 6    | 7    |
| 114           | PLMR07 75×85×10.5/11.6    | 75   | 85   | 10.5 | 11.6 |
| 115           | PLMR07 75×88×10/11        | 75   | 88   | 10   | 11   |

# PISTON AND ROD SEAL

| Serial Number | Order Number                | d     | D     | H    | L    |
|---------------|-----------------------------|-------|-------|------|------|
| 116           | PLMR07 75×90×9/10           | 75    | 90    | 9    | 10   |
| 117           | PLMR07 75×90×11.4/12.5      | 75    | 90    | 11.4 | 12.5 |
| 118           | PLMR07 76.2×88.9×9.5/10.5   | 76.2  | 88.9  | 9.5  | 10.5 |
| 119           | PLMR07 79.4×92.1×9.5/10.5   | 79.4  | 92.1  | 9.5  | 10.5 |
| 120           | PLMR07 80×88×6.5/7.2        | 80    | 88    | 6.5  | 7.2  |
| 121           | PLMR07 80×90×6/7            | 80    | 90    | 6    | 7    |
| 122           | PLMR07 80×90×8/9            | 80    | 90    | 8    | 9    |
| 123           | PLMR07 80×90×11.4/12.5      | 80    | 90    | 11.4 | 12.5 |
| 124           | PLMR07 80×92×9/9.9          | 80    | 92    | 9    | 9.9  |
| 125           | PLMR07 80×93×10/11          | 80    | 93    | 10   | 11   |
| 126           | PLMR07 80×95×9/10           | 80    | 95    | 9    | 10   |
| 127           | PLMR07 80×95×10/11          | 80    | 95    | 10   | 11   |
| 128           | PLMR07 80×95×11.4/12.5      | 80    | 95    | 11.4 | 12.5 |
| 129           | PLMR07 80×100×12/13.2       | 80    | 100   | 12   | 13.2 |
| 130           | PLMR07 82.6×95.3×9.5/10.5   | 82.6  | 95.3  | 9.5  | 10.5 |
| 131           | PLMR07 85×95×9.5/10.5       | 85    | 95    | 9.5  | 10.5 |
| 132           | PLMR07 85×100×9/10          | 85    | 100   | 9    | 10   |
| 133           | PLMR07 85×100×9.5/10.5      | 85    | 100   | 9.5  | 10.5 |
| 134           | PLMR07 85×100×10/11         | 85    | 100   | 10   | 11   |
| 135           | PLMR07 85×100×12/13.2       | 85    | 100   | 12   | 13.2 |
| 136           | PLMR07 85×105×12/13         | 85    | 105   | 12   | 13   |
| 137           | PLMR07 85.7×101.6×12.7/14   | 85.7  | 101.6 | 12.7 | 14   |
| 138           | PLMR07 88.9×101.6×9.5/10.5  | 88.9  | 101.6 | 9.5  | 10.5 |
| 139           | PLMR07 90×100×6.5/7.2       | 90    | 100   | 6.5  | 7.2  |
| 140           | PLMR07 90×100.7×3.9/4.2     | 90    | 100.7 | 3.9  | 4.2  |
| 141           | PLMR07 90×105×9/10          | 90    | 105   | 9    | 10   |
| 142           | PLMR07 90×105×10/11         | 90    | 105   | 10   | 11   |
| 143           | PLMR07 90×105×11.4/12.5     | 90    | 105   | 11.4 | 12.5 |
| 144           | PLMR07 90×105.5×6/6.3       | 90    | 105.5 | 6    | 6.3  |
| 145           | PLMR07 90×110×12/13         | 90    | 110   | 12   | 13   |
| 146           | PLMR07 90×110×12/13.2       | 90    | 110   | 12   | 13.2 |
| 147           | PLMR07 90×110×14.5/16       | 90    | 110   | 14.5 | 16   |
| 148           | PLMR07 92.1×111.1×15.9/17.5 | 92.1  | 111.1 | 15.9 | 17.5 |
| 149           | PLMR07 95×110×9/10          | 95    | 110   | 9    | 10   |
| 150           | PLMR07 95×110×11.4/12.5     | 95    | 110   | 11.4 | 12.5 |
| 151           | PLMR07 95×115×12/13         | 95    | 115   | 12   | 13   |
| 152           | PLMR07 95.3×114.3×15.9/17.5 | 95.3  | 114.3 | 15.9 | 17.5 |
| 153           | PLMR07 100×108×6.5/7.2      | 100   | 108   | 6.5  | 7.2  |
| 154           | PLMR07 100×110×11.4/12.5    | 100   | 110   | 11.4 | 12.5 |
| 155           | PLMR07 100×115×9/10         | 100   | 115   | 9    | 10   |
| 156           | PLMR07 100×115×11/12.1      | 100   | 115   | 11   | 12.1 |
| 157           | PLMR07 100×120×12/13        | 100   | 120   | 12   | 13   |
| 158           | PLMR07 101.6×114.3×9.5/10.5 | 101.6 | 114.3 | 9.5  | 10.5 |

# PISTON AND ROD SEAL

| Serial Number | Order Number                 | d     | D     | H    | L    |
|---------------|------------------------------|-------|-------|------|------|
| 159           | PLMR07 101.6×120.7×15.9/17.5 | 101.6 | 120.7 | 15.9 | 17.5 |
| 160           | PLMR07 105×115×10/11         | 105   | 115   | 10   | 11   |
| 161           | PLMR07 105×120×9/10          | 105   | 120   | 9    | 10   |
| 162           | PLMR07 105×120×10/11         | 105   | 120   | 10   | 11   |
| 163           | PLMR07 105×125×12/13         | 105   | 125   | 12   | 13   |
| 164           | PLMR07 105×125×15/16         | 105   | 125   | 15   | 16   |
| 165           | PLMR07 108×120.7×9.5/10.5    | 108   | 120.7 | 9.5  | 10.5 |
| 166           | PLMR07 110×120×10.5/11.6     | 110   | 120   | 10.5 | 11.6 |
| 167           | PLMR07 110×125×9/10          | 110   | 125   | 9    | 10   |
| 168           | PLMR07 110×125×10/11         | 110   | 125   | 10   | 11   |
| 169           | PLMR07 110×125×11.4/12.5     | 110   | 125   | 11.4 | 12.5 |
| 170           | PLMR07 110×130×10/11         | 110   | 130   | 10   | 11   |
| 171           | PLMR07 114.3×127×9.5/10.5    | 114.3 | 127   | 9.5  | 10.5 |
| 172           | PLMR07 115×130×9/10          | 115   | 130   | 9    | 10   |
| 173           | PLMR07 115×130×10/11         | 115   | 130   | 10   | 11   |
| 174           | PLMR07 115×135×12/13         | 115   | 135   | 12   | 13   |
| 175           | PLMR07 115×135×16/17         | 115   | 135   | 16   | 17   |
| 176           | PLMR07 120×130×11.4/12.5     | 120   | 130   | 11.4 | 12.5 |
| 177           | PLMR07 120×135×9/10          | 120   | 135   | 9    | 10   |
| 178           | PLMR07 120×135×11.4/12.5     | 120   | 135   | 11.4 | 12.5 |
| 179           | PLMR07 120×135.1×6/6.3       | 120   | 135.1 | 6    | 6.3  |
| 180           | PLMR07 120×140×10/11         | 120   | 140   | 10   | 11   |
| 181           | PLMR07 120×140×12/13         | 120   | 140   | 12   | 13   |
| 182           | PLMR07 120×140×14/16         | 120   | 140   | 14   | 16   |
| 183           | PLMR07 120×140×15/16.5       | 120   | 140   | 15   | 16.5 |
| 184           | PLMR07 120.7×139.7×15.9/17.5 | 120.7 | 139.7 | 15.9 | 17.5 |
| 185           | PLMR07 125×135×11.4/12.5     | 125   | 135   | 11.4 | 12.5 |
| 186           | PLMR07 125×140×11.4/12.5     | 125   | 140   | 11.4 | 12.5 |
| 187           | PLMR07 125×145×14.5/16       | 125   | 145   | 14.5 | 16   |
| 188           | PLMR07 127×139.7×9.5/10.5    | 127   | 139.7 | 9.5  | 10.5 |
| 189           | PLMR07 127×146.1×15.9/17.5   | 127   | 146.1 | 15.9 | 17.5 |
| 190           | PLMR07 130×145×9/10          | 130   | 145   | 9    | 10   |
| 191           | PLMR07 130×145×10/11         | 130   | 145   | 10   | 11   |
| 192           | PLMR07 130×145×14.5/16       | 130   | 145   | 14.5 | 16   |
| 193           | PLMR07 130×150×9.5/13        | 130   | 150   | 9.5  | 13   |
| 194           | PLMR07 130×150×15.9/17       | 130   | 150   | 15.9 | 17   |
| 195           | PLMR07 133.4×152.4×9/17.5    | 133.4 | 152.4 | 9    | 17.5 |
| 196           | PLMR07 139.7×152.4×10/15.7   | 139.7 | 152.4 | 10   | 15.7 |
| 197           | PLMR07 140×150×14.5/12.5     | 140   | 150   | 14.5 | 12.5 |
| 198           | PLMR07 146.1×165.1×12/17.5   | 146.1 | 165.1 | 12   | 17.5 |
| 199           | PLMR07 150×160×16/12.5       | 150   | 160   | 16   | 12.5 |
| 200           | PLMR07 152.4×171.5×15.9/17.5 | 152.4 | 171.5 | 15.9 | 17.5 |
| 201           | PLMR07 160×180×15/16.5       | 160   | 180   | 15   | 16.5 |

# PISTON AND ROD SEAL

| Serial Number | Order Number                 | d     | D     | H    | L    |
|---------------|------------------------------|-------|-------|------|------|
| 202           | PLMR07 160×185×18.2/20       | 160   | 185   | 18.2 | 20   |
| 203           | PLMR07 165.1×177.8×14.3/15.7 | 165.1 | 177.8 | 14.3 | 15.7 |
| 204           | PLMR07 165.1×190.5×19.1/21   | 165.1 | 190.5 | 19.1 | 21   |
| 205           | PLMR07 170×180×11.4/12.5     | 170   | 180   | 11.4 | 12.5 |
| 206           | PLMR07 170×190×15/16.5       | 170   | 190   | 15   | 16.5 |
| 207           | PLMR07 177.8×196.9×15.9/17.5 | 177.8 | 196.9 | 15.9 | 17.5 |
| 208           | PLMR07 180×190×11.4/12.5     | 180   | 190   | 11.4 | 12.5 |
| 209           | PLMR07 180×200×15/16.5       | 180   | 200   | 15   | 16.5 |
| 210           | PLMR07 184.2×203.2×15.9/17.5 | 184.2 | 203.2 | 15.9 | 17.5 |
| 211           | PLMR07 190.5×203.2×14.3/15.7 | 190.5 | 203.2 | 14.3 | 15.7 |
| 212           | PLMR07 196.9×215.9×12.7/14   | 196.9 | 215.9 | 12.7 | 14   |
| 213           | PLMR07 200×210×11.4/12.5     | 200   | 210   | 11.4 | 12.5 |
| 214           | PLMR07 203.2×215.9×14.3/15.7 | 203.2 | 215.9 | 14.3 | 15.7 |
| 215           | PLMR07 203.2×228.6×19.1/21   | 203.2 | 228.6 | 19.1 | 21   |
| 216           | PLMR07 210×230×14.5/16       | 210   | 230   | 14.5 | 16   |
| 217           | PLMR07 215.9×241.3×19.1/21   | 215.9 | 241.3 | 19.1 | 21   |
| 218           | PLMR07 220×240×15/16.5       | 220   | 240   | 15   | 16.5 |
| 219           | PLMR07 222.3×241.4×19.1/21   | 222.3 | 241.4 | 19.1 | 21   |
| 220           | PLMR07 235×260.4×19.1/21     | 235   | 260.4 | 19.1 | 21   |
| 221           | PLMR07 240×260×14.5/16       | 240   | 260   | 14.5 | 16   |
| 222           | PLMR07 254×279.4×19.1/21     | 254   | 279.4 | 19.1 | 21   |
| 223           | PLMR07 260.4×279.4×12.7/14   | 260.4 | 279.4 | 12.7 | 14   |
| 224           | PLMR07 270×300×22.7/25       | 270   | 300   | 22.7 | 25   |
| 225           | PLMR07 275×305×22.7/25       | 275   | 305   | 22.7 | 25   |
| 226           | PLMR07 280×310×22.7/25       | 280   | 310   | 22.7 | 25   |
| 227           | PLMR07 290×320×22.5/25       | 290   | 320   | 22.5 | 25   |
| 228           | PLMR07 300×325×15/16.5       | 300   | 325   | 15   | 16.5 |
| 229           | PLMR07 305×330.4×19.1/21     | 305   | 330.4 | 19.1 | 21   |
| 230           | PLMR07 317.5×342.9×19.1/21   | 317.5 | 342.9 | 19.1 | 21   |
| 231           | PLMR07 330×355×20/22         | 330   | 355   | 20   | 22   |
| 232           | PLMR07 343×368.4×19.1/21     | 343   | 368.4 | 19.1 | 21   |
| 233           | PLMR07 355.6×381×19.1/21     | 355.6 | 381   | 19.1 | 21   |
| 234           | PLMR07 360×385×20/22         | 360   | 385   | 20   | 22   |
| 235           | PLMR07 381×406.4×19.1/21     | 381   | 406.4 | 19.1 | 21   |
| 236           | PLMR07 419.1×444.5×19.1/21   | 419.1 | 444.5 | 19.1 | 21   |
| 237           | PLMR07 450.9×482.6×25.4/28   | 450.9 | 482.6 | 25.4 | 28   |
| 238           | PLMR07 476.3×508×25.4/28     | 476.3 | 508   | 25.4 | 28   |
| 239           | PLMR07 501.7×533.4×25.4/28   | 501.7 | 533.4 | 25.4 | 28   |
| 240           | PLMR07 508×546.1×25.4/28     | 508   | 546.1 | 25.4 | 28   |

In addition to the above specifications, Puli can provide customized product dimensions.



## PLMR06/PLMPR06S



### ●Product Description

PLMR06S is a polyurethane lip seal suitable for both rod and piston applications. To prevent seal damage caused by back pressure, an oil relief groove is designed on the lip end face, allowing fluid pressure to quickly open the sealing lip and transfer pressure to the sealing surface, ensuring excellent pressure retention. Compared with the PLMR06 structure, the PLMR06S includes this groove, while the PLMR06 version omits it for easier machining and faster production of single or small-batch parts.

### ●Applications

Main seal for cylinders in excavators, loaders, bulldozers, cranes, and dump trucks.

### ●Application Parameters

Operating Temperature:  $-35^{\circ}\text{C} \sim 100^{\circ}\text{C}$  (PLMPUR-93A)

$-40^{\circ}\text{C} \sim 90^{\circ}\text{C}$  (PLMPUR-LL92A)

$-50^{\circ}\text{C} \sim 100^{\circ}\text{C}$  (PLMPUR-LT92A)

$-20^{\circ}\text{C} \sim 150^{\circ}\text{C}$  (PLMPUR-HN85)

Operating Pressure:  $\leq 14 \text{ MPa}$  (up to  $21 \text{ MPa}$  with retaining ring)

Surface Speed:  $\leq 1 \text{ m/s}$

Media: Mineral hydraulic oil and grease

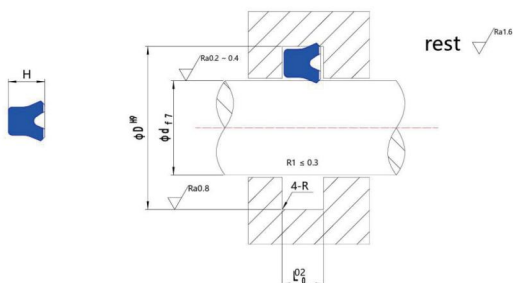
Standard Material: PLMPUR-93A, PLMPUR-LL92A, PLMPUR-LT92A, PLMPUR-HN85

Note: The maximum values listed above cannot be used simultaneously

### ●Installation Requirements

To avoid damage to the lip during installation, do not slide on sharp metal edges during installation. Closed groove, manually bend to a heart shape for installation. If installation is difficult, use special tools to bend the seal for installation.

# PISTON AND ROD SEAL



| Serial Number | Order Number            | d    | D    | H   | L   |
|---------------|-------------------------|------|------|-----|-----|
| 31            | PLMR06S 4.5×12.5×4.4/5  | 4.5  | 12.5 | 4.4 | 5   |
| 32            | PLMR06S 5×12×5.5/6.5    | 5    | 12   | 5.5 | 6.5 |
| 33            | PLMR06S 6×13×8/9        | 6    | 13   | 8   | 9   |
| 34            | PLMR06S 10×18×6/6.6     | 10   | 18   | 6   | 6.6 |
| 35            | PLMR06S 10×20×8/9       | 10   | 20   | 8   | 9   |
| 36            | PLMR06S 12×18×6/7       | 12   | 18   | 6   | 7   |
| 37            | PLMR06S 12×20×4.4/5     | 12   | 20   | 4.4 | 5   |
| 38            | PLMR06S 12×25×8/9       | 12   | 25   | 8   | 9   |
| 39            | PLMR06S 14×22×4.4/5     | 14   | 22   | 4.4 | 5   |
| 40            | PLMR06S 14×22×5/5.7     | 14   | 22   | 5   | 5.7 |
| 41            | PLMR06S 14×24×8/9       | 14   | 24   | 8   | 9   |
| 42            | PLMR06S 15×25×8/9       | 15   | 25   | 8   | 9   |
| 43            | PLMR06S 16×24×4.4/5     | 16   | 24   | 4.4 | 5   |
| 44            | PLMR06S 16×24×5/5.7     | 16   | 24   | 5   | 5.7 |
| 45            | PLMR06S 16×26×8/9       | 16   | 26   | 8   | 9   |
| 46            | PLMR06S 18×26×4.4/5     | 18   | 26   | 4.4 | 5   |
| 47            | PLMR06S 18×26×5/5.7     | 18   | 26   | 5   | 5.7 |
| 48            | PLMR06S 18×28×7.3/8     | 18   | 28   | 7.3 | 8   |
| 49            | PLMR06S 18×28×8/9       | 18   | 28   | 8   | 9   |
| 50            | PLMR06S 20×28×4.4/5     | 20   | 28   | 4.4 | 5   |
| 51            | PLMR06S 20×28×5/5.7     | 20   | 28   | 5   | 5.7 |
| 52            | PLMR06S 20×30×8/9       | 20   | 30   | 8   | 9   |
| 53            | PLMR06S 20×40×12/13     | 20   | 40   | 12  | 13  |
| 54            | PLMR06S 22×30×4.4/5     | 22   | 30   | 4.4 | 5   |
| 55            | PLMR06S 22×35×10/11     | 22   | 35   | 10  | 11  |
| 56            | PLMR06S 22×40×10/11     | 22   | 40   | 10  | 11  |
| 57            | PLMR06S 22.4×30×5/5.7   | 22.4 | 30   | 5   | 5.7 |
| 58            | PLMR06S 22.4×32.4×8/9   | 22.4 | 32.4 | 8   | 9   |
| 59            | PLMR06S 23.5×31.5×5/5.7 | 23.5 | 31.5 | 5   | 5.7 |

# PISTON AND ROD SEAL

| Serial Number | Order Number           | d    | D    | H   | L   |
|---------------|------------------------|------|------|-----|-----|
| 60            | PLMR06 25×33×4.4/5     | 25   | 33   | 4.4 | 5   |
| 61            | PLMR06 25×33×5.5/7     | 25   | 33   | 5   | 5.7 |
| 62            | PLMR06 25×35×8/9       | 25   | 35   | 8   | 9   |
| 63            | PLMR06 25×35×10/11     | 25   | 35   | 10  | 11  |
| 64            | PLMR06 25×38×8/9       | 25   | 38   | 8   | 9   |
| 65            | PLMR06 25×38×10/11     | 25   | 38   | 10  | 11  |
| 66            | PLMR06 25×40×10/11     | 25   | 40   | 10  | 11  |
| 67            | PLMR06 26×40×9/10      | 26   | 40   | 9   | 10  |
| 68            | PLMR06 28×35.5×5.5/7   | 28   | 35.5 | 5   | 5.7 |
| 69            | PLMR06 28×36×6.5/7.1   | 28   | 36   | 6.5 | 7.1 |
| 70            | PLMR06 28×38×5.6/6.3   | 28   | 38   | 5.6 | 6.3 |
| 71            | PLMR06 28×38×8/9       | 28   | 38   | 8   | 9   |
| 72            | PLMR06 28×40×10/11     | 28   | 40   | 10  | 11  |
| 73            | PLMR06 28×43×10/11     | 28   | 43   | 10  | 11  |
| 74            | PLMR06 30×37×6/7       | 30   | 37   | 6   | 7   |
| 75            | PLMR06 30×40×5.6/6.3   | 30   | 40   | 5.6 | 6.3 |
| 76            | PLMR06 30×40×6/7       | 30   | 40   | 6   | 7   |
| 77            | PLMR06 30×40×8/9       | 30   | 40   | 8   | 9   |
| 78            | PLMR06 30×40×10/11     | 30   | 40   | 10  | 11  |
| 79            | PLMR06 30×45×10/11     | 30   | 45   | 10  | 11  |
| 80            | PLMR06 31.5×41.5×6/7   | 31.5 | 41.5 | 6   | 7   |
| 81            | PLMR06 32×40×8/9       | 32   | 40   | 8   | 9   |
| 82            | PLMR06 32×42×5.6/6.3   | 32   | 42   | 5.6 | 6.3 |
| 83            | PLMR06 32×42×6/7       | 32   | 42   | 6   | 7   |
| 84            | PLMR06 32×42×10/11     | 32   | 42   | 10  | 11  |
| 85            | PLMR06 32×47×10/11     | 32   | 47   | 10  | 11  |
| 86            | PLMR06 35×45×6/7       | 35   | 45   | 6   | 7   |
| 87            | PLMR06 35×45×7/8       | 35   | 45   | 7   | 8   |
| 88            | PLMR06 35×48×10/11     | 35   | 48   | 10  | 11  |
| 89            | PLMR06 35×50×10/11     | 35   | 50   | 10  | 11  |
| 90            | PLMR06 35.5×45×6/7     | 35.5 | 45   | 6   | 7   |
| 91            | PLMR06 35.5×50.5×10/11 | 35.5 | 50.5 | 10  | 11  |
| 92            | PLMR06 36×46×5.6/6.3   | 36   | 46   | 5.6 | 6.3 |
| 93            | PLMR06 38×48×6/7       | 38   | 48   | 6   | 7   |
| 94            | PLMR06 38×50×9/10      | 38   | 50   | 9   | 10  |
| 95            | PLMR06 38×55×9.7/11    | 38   | 55   | 9.7 | 11  |
| 96            | PLMR06 38×58×9.7/11    | 38   | 58   | 9.7 | 11  |
| 97            | PLMR06 40×50×5.6/6.3   | 40   | 50   | 5.6 | 6.3 |
| 98            | PLMR06 40×50×6/7       | 40   | 50   | 6   | 7   |
| 99            | PLMR06 40×50×10/11     | 40   | 50   | 10  | 11  |
| 100           | PLMR06 40×55×9.9/11    | 40   | 55   | 9.9 | 11  |
| 101           | PLMR06 40×55×10/11     | 40   | 55   | 10  | 11  |
| 102           | PLMR06 40×60×12/13     | 40   | 60   | 12  | 13  |

# PISTON AND ROD SEAL

| Serial Number | Order Number         | d  | D  | H    | L   |
|---------------|----------------------|----|----|------|-----|
| 103           | PLMR06 45×53×10/11   | 45 | 53 | 10   | 11  |
| 104           | PLMR06 45×55×5.6/6.3 | 45 | 55 | 5.6  | 6.3 |
| 105           | PLMR06 45×55×6/7     | 45 | 55 | 6    | 7   |
| 106           | PLMR06 45×55×10/11   | 45 | 55 | 10   | 11  |
| 107           | PLMR06 45×56×7/8     | 45 | 56 | 7    | 8   |
| 108           | PLMR06 45×60×10/11   | 45 | 60 | 10   | 11  |
| 109           | PLMR06 45×65×10/11   | 45 | 65 | 10   | 11  |
| 110           | PLMR06 46×56×6/7     | 46 | 56 | 6    | 7   |
| 111           | PLMR06 48×63×10/11   | 48 | 63 | 10   | 11  |
| 112           | PLMR06 50×58×10/11   | 50 | 58 | 10   | 11  |
| 113           | PLMR06 50×60×5.6/6.3 | 50 | 60 | 5.6  | 6.3 |
| 114           | PLMR06 50×60×6/7     | 50 | 60 | 6    | 7   |
| 115           | PLMR06 50×60×10/11   | 50 | 60 | 10   | 11  |
| 116           | PLMR06 50×65×10/11   | 50 | 65 | 10   | 11  |
| 117           | PLMR06 50×70×12/13   | 50 | 70 | 12   | 13  |
| 118           | PLMR06 52×62×10/11   | 52 | 62 | 10   | 11  |
| 119           | PLMR06 53×63×6/7     | 53 | 63 | 6    | 7   |
| 120           | PLMR06 53×63×8/9     | 53 | 63 | 8    | 9   |
| 121           | PLMR06 55×65×6/7     | 55 | 65 | 6    | 7   |
| 122           | PLMR06 55×75×12/13   | 55 | 75 | 12   | 13  |
| 123           | PLMR06 56×66×6/7     | 56 | 66 | 6    | 7   |
| 124           | PLMR06 56×71×8.4/9.5 | 56 | 71 | 8.4  | 9.5 |
| 125           | PLMR06 56×76×12/13   | 56 | 76 | 12   | 13  |
| 126           | PLMR06 60×70×6/7     | 60 | 70 | 6    | 7   |
| 127           | PLMR06 60×70×10/11   | 60 | 70 | 10   | 11  |
| 128           | PLMR06 60×71×7/8     | 60 | 71 | 7    | 8   |
| 129           | PLMR06 60×76×12/13   | 60 | 76 | 12   | 13  |
| 130           | PLMR06 60×80×12/13   | 60 | 80 | 12   | 13  |
| 131           | PLMR06 63×73×6/7     | 63 | 73 | 6    | 7   |
| 132           | PLMR06 63×73×8/9     | 63 | 73 | 8    | 9   |
| 133           | PLMR06 63×73×12/13   | 63 | 73 | 12   | 13  |
| 134           | PLMR06 63×78×8.4/9.5 | 63 | 78 | 8.4  | 9.5 |
| 135           | PLMR06 65×75×6/7     | 65 | 75 | 6    | 7   |
| 136           | PLMR06 65×80×8.4/9.5 | 65 | 80 | 8.4  | 9.5 |
| 137           | PLMR06 65×80×12/13   | 65 | 80 | 12   | 13  |
| 138           | PLMR06 65×85×12/13   | 65 | 85 | 12   | 13  |
| 139           | PLMR06 70×80×6/7     | 70 | 80 | 6    | 7   |
| 140           | PLMR06 70×80×8/9     | 70 | 80 | 8    | 9   |
| 141           | PLMR06 70×80×11.8/13 | 70 | 80 | 11.8 | 13  |
| 142           | PLMR06 70×85×8.4/9.5 | 70 | 85 | 8.4  | 9.5 |
| 143           | PLMR06 70×85×9/10    | 70 | 85 | 9    | 10  |
| 144           | PLMR06 70×85×12/13   | 70 | 85 | 12   | 13  |
| 145           | PLMR06 70×90×12/13   | 70 | 90 | 12   | 13  |

# PISTON AND ROD SEAL

| Serial Number | Order Number             | d   | D   | H    | L    |
|---------------|--------------------------|-----|-----|------|------|
| 146           | PLMR06 70×92×12/13       | 70  | 92  | 12   | 13   |
| 147           | PLMR06 71×80×6/7         | 71  | 80  | 6    | 7    |
| 148           | PLMR06 75×85×6/7         | 75  | 85  | 6    | 7    |
| 149           | PLMR06 75×85×9/10        | 75  | 85  | 9    | 10   |
| 150           | PLMR06 75×85×12/13       | 75  | 85  | 12   | 13   |
| 151           | PLMR06 75×90×9/10        | 75  | 90  | 9    | 10   |
| 152           | PLMR06 75×90×12/13       | 75  | 90  | 12   | 13   |
| 153           | PLMR06 75×95×12/13       | 75  | 95  | 12   | 13   |
| 154           | PLMR06 75×100×22/24      | 75  | 100 | 22   | 24   |
| 155           | PLMR06 80×90×6/7         | 80  | 90  | 6    | 7    |
| 156           | PLMR06 80×90×8/8.8       | 80  | 90  | 8    | 8.8  |
| 157           | PLMR06 80×90×12/13       | 80  | 90  | 12   | 13   |
| 158           | PLMR06 80×95×8.4/9.5     | 80  | 95  | 8.4  | 9.5  |
| 159           | PLMR06 80×95×9/10        | 80  | 95  | 9    | 10   |
| 160           | PLMR06 80×100×12/13      | 80  | 100 | 12   | 13   |
| 161           | PLMR06 80×100×13.2/14.5  | 80  | 100 | 13.2 | 14.5 |
| 162           | PLMR06 85×100×8.4/9.5    | 85  | 100 | 8.4  | 9.5  |
| 163           | PLMR06 85×100×9/10       | 85  | 100 | 9    | 10   |
| 164           | PLMR06 85×100×12/13      | 85  | 100 | 12   | 13   |
| 165           | PLMR06 85×105×12/13      | 85  | 105 | 12   | 13   |
| 166           | PLMR06 90×100×12/13      | 90  | 100 | 12   | 13   |
| 167           | PLMR06 90×105×8.4/9.5    | 90  | 105 | 8.4  | 9.5  |
| 168           | PLMR06 90×105×9/10       | 90  | 105 | 9    | 10   |
| 169           | PLMR06 90×110×12/13      | 90  | 110 | 12   | 13   |
| 170           | PLMR06 95×110×9/10       | 95  | 110 | 9    | 10   |
| 171           | PLMR06 95×110×12/13      | 95  | 110 | 12   | 13   |
| 172           | PLMR06 95×115×12/13      | 95  | 115 | 12   | 13   |
| 173           | PLMR06 100×110×6.4/7     | 100 | 110 | 6.4  | 7    |
| 174           | PLMR06 100×115×9/10      | 100 | 115 | 9    | 10   |
| 175           | PLMR06 100×115×12/13     | 100 | 115 | 12   | 13   |
| 176           | PLMR06 100×120×11/12.5   | 100 | 120 | 11   | 12.5 |
| 177           | PLMR06 100×120×12/13     | 100 | 120 | 12   | 13   |
| 178           | PLMR06 105×120×9/10      | 105 | 120 | 9    | 10   |
| 179           | PLMR06 105×125×11.4/12.5 | 105 | 125 | 11.4 | 12.5 |
| 180           | PLMR06 105×125×12/13     | 105 | 125 | 12   | 13   |
| 181           | PLMR06 105×125×15/16     | 105 | 125 | 15   | 16   |
| 182           | PLMR06 110×125×9/10      | 110 | 125 | 9    | 10   |
| 183           | PLMR06 110×130×11/12.5   | 110 | 130 | 11   | 12.5 |
| 184           | PLMR06 110×130×15/16     | 110 | 130 | 15   | 16   |
| 185           | PLMR06 112×125×9/10      | 112 | 125 | 9    | 10   |
| 186           | PLMR06 115×130×9/10      | 115 | 130 | 9    | 10   |
| 187           | PLMR06 115×135×15/16     | 115 | 135 | 15   | 16   |
| 188           | PLMR06 115×135×16/17     | 115 | 135 | 16   | 17   |

# PISTON AND ROD SEAL

| Serial Number | Order Number             | d   | D   | H    | L    |
|---------------|--------------------------|-----|-----|------|------|
| 189           | PLMR06 118×130×7.3/8     | 118 | 130 | 7.3  | 8    |
| 190           | PLMR06 120×135×9/10      | 120 | 135 | 9    | 10   |
| 191           | PLMR06 120×140×15/16     | 120 | 140 | 15   | 16   |
| 192           | PLMR06 125×140×9/10      | 125 | 140 | 9    | 10   |
| 193           | PLMR06 125×145×11.4/12.5 | 125 | 145 | 11.4 | 12.5 |
| 194           | PLMR06 125×145×15/16     | 125 | 145 | 15   | 16   |
| 195           | PLMR06 130×145×9/10      | 130 | 145 | 9    | 10   |
| 196           | PLMR06 130×150×15/16     | 130 | 150 | 15   | 16   |
| 197           | PLMR06 136×150×8.5/9.5   | 136 | 150 | 8.5  | 9.5  |
| 198           | PLMR06 140×154×9/10      | 140 | 154 | 9    | 10   |
| 199           | PLMR06 140×155×9/10      | 140 | 155 | 9    | 10   |
| 200           | PLMR06 140×160×15/16     | 140 | 160 | 15   | 16   |
| 201           | PLMR06 145×160×9/10      | 145 | 160 | 9    | 10   |
| 202           | PLMR06 145×165×15/16     | 145 | 165 | 15   | 16   |
| 203           | PLMR06 150×165×9/10      | 150 | 165 | 9    | 10   |
| 204           | PLMR06 150×170×15/16     | 150 | 170 | 15   | 16   |
| 205           | PLMR06 153×165×7.3/8     | 153 | 165 | 7.3  | 8    |
| 206           | PLMR06 155×170×9/10      | 155 | 170 | 9    | 10   |
| 207           | PLMR06 155×180×15/16     | 155 | 180 | 15   | 16   |
| 208           | PLMR06 160×175×9/10      | 160 | 175 | 9    | 10   |
| 209           | PLMR06 160×180×15/16     | 160 | 180 | 15   | 16   |
| 210           | PLMR06 160×185×16/17     | 160 | 185 | 16   | 17   |
| 211           | PLMR06 165×180×9/10      | 165 | 180 | 9    | 10   |
| 212           | PLMR06 165×183×10/11     | 165 | 183 | 10   | 11   |
| 213           | PLMR06 165×190×16/17     | 165 | 190 | 16   | 17   |
| 214           | PLMR06 170×190×12/13     | 170 | 190 | 12   | 13   |
| 215           | PLMR06 170×195×16/17     | 170 | 195 | 16   | 17   |
| 216           | PLMR06 175×190×9/10      | 175 | 190 | 9    | 10   |
| 217           | PLMR06 175×200×16/17     | 175 | 200 | 16   | 17   |
| 218           | PLMR06 180×200×12/13     | 180 | 200 | 12   | 13   |
| 219           | PLMR06 180×205×16/17     | 180 | 205 | 16   | 17   |
| 220           | PLMR06 190×210×12/13     | 190 | 210 | 12   | 13   |
| 221           | PLMR06 190×215×16/17     | 190 | 215 | 16   | 17   |
| 222           | PLMR06 200×220×12/13     | 200 | 220 | 12   | 13   |
| 223           | PLMR06 200×220×15/16     | 200 | 220 | 15   | 16   |
| 224           | PLMR06 200×225×15/16     | 200 | 225 | 15   | 16   |
| 225           | PLMR06 200×225×16/17     | 200 | 225 | 16   | 17   |
| 226           | PLMR06 210×230×15/16     | 210 | 230 | 15   | 16   |
| 227           | PLMR06 210×230×16/17     | 210 | 230 | 16   | 17   |
| 228           | PLMR06 210×235×18/20     | 210 | 235 | 18   | 20   |
| 229           | PLMR06 220×240×12/13     | 220 | 240 | 12   | 13   |
| 230           | PLMR06 220×240×15/16     | 220 | 240 | 15   | 16   |
| 231           | PLMR06 220×245×16/17     | 220 | 245 | 16   | 17   |

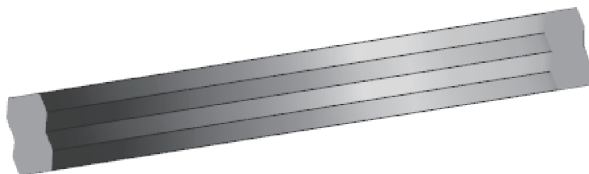
# PISTON AND ROD SEAL

| Serial Number | Order Number           | d   | D   | H  | L    |
|---------------|------------------------|-----|-----|----|------|
| 232           | PLMR06 220×250×17/19.2 | 220 | 250 | 17 | 19.2 |
| 233           | PLMR06 230×250×12/13   | 230 | 250 | 12 | 13   |
| 234           | PLMR06 230×250×15/16   | 230 | 250 | 15 | 16   |
| 235           | PLMR06 240×260×12/13   | 240 | 260 | 12 | 13   |
| 236           | PLMR06 240×260×15/16   | 240 | 260 | 15 | 16   |
| 237           | PLMR06 240×265×18/20   | 240 | 265 | 18 | 20   |
| 238           | PLMR06 240×265×19/20   | 240 | 265 | 19 | 20   |
| 239           | PLMR06 250×275×18/20   | 250 | 275 | 18 | 20   |
| 240           | PLMR06 260×280×15/16   | 260 | 280 | 15 | 16   |
| 241           | PLMR06 260×290×18/20   | 260 | 290 | 18 | 20   |
| 242           | PLMR06 265×295×18/20   | 265 | 295 | 18 | 20   |
| 243           | PLMR06 270×290×11/12   | 270 | 290 | 11 | 12   |
| 244           | PLMR06 270×300×18/20   | 270 | 300 | 18 | 20   |
| 245           | PLMR06 280×300×11/12   | 280 | 300 | 11 | 12   |

In addition to the above specifications, Puli can provide customized product dimensions.

## Static Seal

### PLMRT15



#### ●Product Description

PLMRT15 is a dumbbell-shaped polyurethane seal with excellent wear and extrusion resistance. It is commonly used as a static head seal to replace the traditional O-ring and back-up ring combination. The dual sealing lips enhance sealing performance by concentrating the sealing stress, ensuring reliable sealing effectiveness. The design also prevents twisting of the seal within the groove, thereby extending overall service life.

#### ●Applications

For use in hydraulic valves, cylinders, machine tools, injection molding machines, construction machinery, and other applications.

#### ●Application Parameters

Operating Temperature:  $-35^{\circ}\text{C} \sim 100^{\circ}\text{C}$  (PLMPUR-93A)

$-40^{\circ}\text{C} \sim 90^{\circ}\text{C}$  (PLMPUR-LL92A)

$-50^{\circ}\text{C} \sim 100^{\circ}\text{C}$  (PLMPUR-LT92A)

Operating Pressure:  $\leq 60 \text{ MPa}$

Surface Speed:  $\leq 1 \text{ ms}$

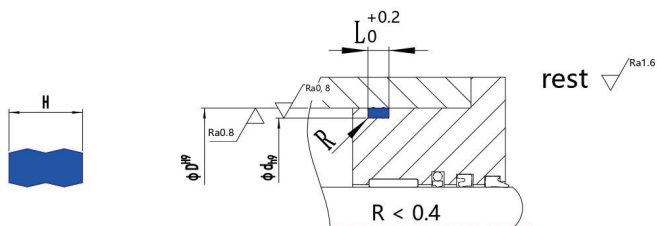
Media: Mineral hydraulic oil and grease

Standard Material: PLMPUR-93A, PLMPUR-LL92A, PLMPUR-LT92A

Note: The maximum values listed above cannot be used simultaneously

#### ●Installation Requirements

To avoid lip damage, avoid sliding on sharp metal edges during installation. Closed groove, stretch installation. Special tools can be used to stretch the seal if installation is difficult.



| Serial Number | Order Number           | Outer Diameter | Inner Diameter | Width |
|---------------|------------------------|----------------|----------------|-------|
| 1             | PLMRT15 7×4.5×2.8      | 7              | 4.50           | 2.80  |
| 2             | PLMRT15 31.75×27.6×5.8 | 31.75          | 27.60          | 5.80  |
| 3             | PLMRT15 32×27.8×4.7    | 32             | 27.80          | 4.70  |
| 4             | PLMRT15 36.5×32.4×3.2  | 36.5           | 32.40          | 3.20  |
| 5             | PLMRT15 39.67×35.3×4.7 | 39.67          | 35.30          | 4.70  |
| 6             | PLMRT15 40×34.4×5      | 40             | 34.40          | 5.00  |
| 7             | PLMRT15 40×34.52×5.5   | 40             | 34.52          | 5.50  |
| 8             | PLMRT15 42×37.86×4.2   | 42             | 37.86          | 4.20  |
| 9             | PLMRT15 42×36.4×5      | 42             | 36.40          | 5.00  |
| 10            | PLMRT15 45×40×5.4      | 45             | 40.00          | 5.40  |
| 11            | PLMRT15 47×41.5×5      | 47             | 41.50          | 5.00  |
| 12            | PLMRT15 48×42.3×5.3    | 48             | 42.30          | 5.30  |
| 13            | PLMRT15 48×43×4        | 48             | 43.00          | 4.00  |
| 14            | PLMRT15 50×44.4×5.6    | 50             | 44.40          | 5.60  |
| 15            | PLMRT15 50×45.8×4.4    | 50             | 45.80          | 4.40  |
| 16            | PLMRT15 52×32.3×4.7    | 52             | 32.30          | 4.70  |
| 17            | PLMRT15 52×47.9×4.4    | 52             | 47.90          | 4.40  |
| 18            | PLMRT15 52×46.5×5      | 52             | 46.50          | 5.00  |
| 19            | PLMRT15 55×50×5.3      | 55             | 50.00          | 5.30  |
| 20            | PLMRT15 57×52.2×4.1    | 57             | 52.20          | 4.10  |
| 21            | PLMRT15 60×54.3×5.6    | 60             | 54.30          | 5.60  |
| 22            | PLMRT15 63×57.4×5.2    | 63             | 57.40          | 5.20  |
| 23            | PLMRT15 65×59.4×5      | 65             | 59.40          | 5.00  |
| 24            | PLMRT15 68×62.7×5      | 68             | 62.70          | 5.00  |
| 25            | PLMRT15 70×64.4×5.3    | 70             | 64.40          | 5.30  |
| 26            | PLMRT15 70×65×5        | 70             | 65.00          | 5.00  |
| 27            | PLMRT15 72×66.4×5      | 72             | 66.40          | 5.00  |
| 28            | PLMRT15 75×69.4×5.6    | 75             | 69.40          | 5.60  |
| 29            | PLMRT15 76.2×70.2×5.8  | 76.2           | 70.20          | 5.80  |
| 30            | PLMRT15 80×73.6×7      | 80             | 73.60          | 7.00  |
| 31            | PLMRT15 80×74.4×5.8    | 80             | 74.40          | 5.80  |
| 32            | PLMRT15 84.7×78.58×5   | 84.7           | 78.58          | 5.00  |

| Serial Number | Order Number          | Outer Diameter | Inner Diameter | Width |
|---------------|-----------------------|----------------|----------------|-------|
| 33            | PLMRT15 85×79.4×5.5   | 85             | 79.40          | 5.50  |
| 34            | PLMRT15 90×83×6.5     | 90             | 83.00          | 6.50  |
| 35            | PLMRT15 100×94.5×5.7  | 100            | 94.50          | 5.70  |
| 36            | PLMRT15 101.6×93×7.9  | 101.6          | 93.00          | 7.90  |
| 37            | PLMRT15 110×101.4×9   | 110            | 101.40         | 9.00  |
| 38            | PLMRT15 115×109.4×5.3 | 115            | 109.40         | 5.30  |
| 39            | PLMRT15 127×121.4×5.3 | 127            | 121.40         | 5.30  |
| 40            | PLMRT15 140×134.4×5.3 | 140            | 134.40         | 5.30  |
| 41            | PLMRT15 178×169.6×8   | 178            | 169.60         | 8.00  |
| 42            | PLMRT15 340×331.4×7.9 | 340            | 331.40         | 7.90  |

In addition to the above specifications, Puli can provide customized product dimensions.

## PLMRT13



### ●Product Description

PLMRT13 is one of the most common sealing solutions, suitable for a wide range of operating conditions and applications. It is easy to install and enables a simple, cost-effective sealing design. PLMRT13 maintains sealing contact force through radial or axial deformation within the housing between two machine components. By selecting different materials, it can be used to seal various types of media.

### ●Applications

Used in nearly all sealing applications, serving as both a sealing element and a force-applying elastic member.

### ●Application Parameters

Operating temperature: -35°C~100°C (NBR)

-20°C~200°C(FKM)

Operating Pressure: ≤10 MPa (when used without a back-up ring)

Surface Speed: ≤1ms

Media: Mineral hydraulic oil and grease

Standard material: NBR, FKM, EPDM, VMQ, TPU

Note: The maximum values listed above cannot be used simultaneously

### ●Installation Requirements

When installing through threads, be careful to prevent damage to the O-ring when using sharp edges; be careful not to twist when installing into the groove; apply sealing medium after installation; reuse is not recommended in principle; avoid contact with incompatible media to avoid swelling.

### ●Installation groove



| O-ring wire diameter | Axial installation |        |              | Face Mounting |              | Corner Radius |
|----------------------|--------------------|--------|--------------|---------------|--------------|---------------|
|                      | Groove Depth       |        | Groove Width | Groove Depth  | Groove Width |               |
| $\phi$               | Dynamic            | Static | 0<br>+0.25   | 0<br>+0.1     | 0<br>+0.2    | -0.2<br>+0.2  |
| 0.50                 | -                  | 0.35   | 0.80         | 0.35          | 0.80         | 0.20          |
| 0.74                 | -                  | 0.50   | 1.00         | 0.50          | 1.00         | 0.20          |
| 1.00                 | -                  | 0.70   | 1.40         | 0.70          | 1.40         | 0.20          |
| 1.02                 | -                  | 0.70   | 1.40         | 0.70          | 1.40         | 0.20          |
| 1.20                 | -                  | 0.85   | 1.70         | 0.85          | 1.70         | 0.20          |
| 1.25                 | -                  | 0.90   | 1.70         | 0.90          | 1.80         | 0.20          |
| 1.27                 | -                  | 0.90   | 1.70         | 0.90          | 1.80         | 0.20          |
| 1.30                 | -                  | 0.95   | 1.80         | 0.95          | 1.80         | 0.20          |
| 1.42                 | -                  | 1.05   | 1.90         | 1.05          | 2.00         | 0.30          |
| 1.50                 | 1.25               | 1.10   | 2.00         | 1.10          | 2.10         | 0.30          |
| 1.52                 | 1.25               | 1.10   | 2.00         | 1.10          | 2.10         | 0.30          |
| 1.60                 | 1.30               | 1.20   | 2.10         | 1.20          | 2.20         | 0.30          |
| 1.63                 | 1.30               | 1.20   | 2.10         | 1.20          | 2.20         | 0.30          |
| 1.78                 | 1.45               | 1.30   | 2.40         | 1.30          | 2.60         | 0.30          |
| 1.80                 | 1.45               | 1.30   | 2.40         | 1.30          | 2.60         | 0.30          |
| 1.83                 | 1.50               | 1.35   | 2.50         | 1.35          | 2.60         | 0.30          |
| 1.90                 | 1.55               | 1.40   | 2.60         | 1.40          | 2.70         | 0.30          |
| 1.98                 | 1.65               | 1.50   | 2.70         | 1.50          | 2.80         | 0.30          |
| 2.00                 | 1.65               | 1.50   | 2.70         | 1.50          | 2.80         | 0.30          |
| 2.08                 | 1.75               | 1.55   | 2.80         | 1.55          | 2.90         | 0.30          |
| 2.10                 | 1.75               | 1.55   | 2.80         | 1.55          | 2.90         | 0.30          |
| 2.20                 | 1.85               | 1.60   | 3.00         | 1.60          | 3.00         | 0.30          |
| 2.26                 | 1.90               | 1.70   | 3.00         | 1.70          | 3.10         | 0.30          |
| 2.30                 | 1.95               | 1.75   | 3.10         | 1.75          | 3.10         | 0.30          |
| 2.34                 | 1.95               | 1.75   | 3.10         | 1.75          | 3.10         | 0.30          |
| 2.40                 | 2.05               | 1.80   | 3.20         | 1.80          | 3.30         | 0.30          |
| 2.46                 | 2.10               | 1.85   | 3.30         | 1.85          | 3.40         | 0.30          |
| 2.50                 | 2.15               | 1.90   | 3.30         | 1.90          | 3.40         | 0.30          |
| 2.62                 | 2.25               | 2.00   | 3.60         | 2.00          | 3.80         | 0.30          |
| 2.65                 | 2.25               | 2.00   | 3.60         | 2.00          | 3.80         | 0.30          |
| 2.70                 | 2.30               | 2.05   | 3.60         | 2.05          | 3.80         | 0.30          |
| 2.80                 | 2.40               | 2.10   | 3.70         | 2.10          | 3.90         | 0.60          |
| 2.92                 | 2.50               | 2.20   | 3.90         | 2.20          | 4.00         | 0.60          |
| 2.95                 | 2.50               | 2.20   | 3.90         | 2.20          | 4.00         | 0.60          |
| 3.00                 | 2.60               | 2.30   | 4.00         | 2.30          | 4.00         | 0.60          |
| 3.10                 | 2.70               | 2.40   | 4.10         | 2.40          | 4.10         | 0.60          |
| 3.50                 | 3.05               | 2.65   | 4.60         | 2.65          | 4.70         | 0.60          |
| 3.53                 | 3.10               | 2.70   | 4.80         | 2.70          | 5.00         | 0.60          |
| 3.55                 | 3.10               | 2.70   | 4.80         | 2.70          | 5.00         | 0.60          |
| 3.60                 | 3.15               | 2.80   | 4.80         | 2.80          | 5.10         | 0.60          |

| O-ring wire diameter | Axial Installation |             |             | Face Mounting |             | Corner Radius |
|----------------------|--------------------|-------------|-------------|---------------|-------------|---------------|
| 4.00                 | 3.50               | 3.10        | 5.20        | 3.10          | 5.30        | 0.60          |
| 4.50                 | 4.00               | 3.50        | 5.80        | 3.50          | 5.90        | 0.60          |
| 5.00                 | 4.40               | 4.00        | 6.60        | 4.00          | 6.70        | 0.60          |
| 5.30                 | 4.70               | 4.30        | 7.10        | 4.30          | 7.30        | 0.60          |
| <b>5.33</b>          | <b>4.70</b>        | <b>4.30</b> | <b>7.10</b> | <b>4.30</b>   | <b>7.30</b> | <b>0.60</b>   |
| 5.50                 | 4.80               | 4.50        | 7.10        | 4.50          | 7.30        | 0.60          |
| 5.70                 | 5.00               | 4.60        | 7.20        | 4.60          | 7.40        | 0.60          |
| 6.00                 | 5.30               | 4.90        | 7.40        | 4.90          | 7.60        | 0.60          |
| 6.50                 | 5.70               | 5.40        | 8.00        | 5.40          | 8.20        | 1.00          |
| <b>6.99</b>          | <b>6.10</b>        | <b>5.80</b> | <b>9.50</b> | <b>5.80</b>   | <b>9.70</b> | <b>1.00</b>   |
| 7.00                 | 6.10               | 5.80        | 9.50        | 5.80          | 9.70        | 1.00          |
| 7.50                 | 6.60               | 6.30        | 9.70        | 6.30          | 9.90        | 1.00          |
| 8.00                 | 7.10               | 6.70        | 9.80        | 6.70          | 10.00       | 1.00          |
| 8.40                 | 7.50               | 7.10        | 10.00       | 7.10          | 10.30       | 1.00          |
| 9.00                 | 8.10               | 7.70        | 10.60       | 7.70          | 10.90       | 1.50          |
| 9.50                 | 8.60               | 8.20        | 11.00       | 8.20          | 11.40       | 1.50          |
| 10.00                | 9.10               | 8.60        | 11.60       | 8.60          | 12.00       | 2.00          |
| 12.00                | 11.00              | 10.60       | 13.50       | 10.60         | 14.00       | 2.00          |



REFERENCE GB T 3452.1-2005

| Serial Number | Order Number     | Inner Diameter d | Tolerance ± | Wire Diameter s | Tolerance ± |
|---------------|------------------|------------------|-------------|-----------------|-------------|
| 1             | PLMRT13 1.8×1.8  | 1.80             | 0.13        | 1.80            | 0.08        |
| 2             | PLMRT13 2×1.8    | 2.00             | 0.13        | 1.80            |             |
| 3             | PLMRT13 2.24×1.8 | 2.24             | 0.13        | 1.80            |             |
| 4             | PLMRT13 2.5×1.8  | 2.50             | 0.13        | 1.80            |             |
| 5             | PLMRT13 2.8×1.8  | 2.80             | 0.13        | 1.80            |             |
| 6             | PLMRT13 3.15×1.8 | 3.15             | 0.14        | 1.80            |             |
| 7             | PLMRT13 3.55×1.8 | 3.55             | 0.14        | 1.80            |             |
| 8             | PLMRT13 3.75×1.8 | 3.75             | 0.14        | 1.80            |             |
| 9             | PLMRT13 4×1.8    | 4.00             | 0.14        | 1.80            |             |
| 10            | PLMRT13 4.5×1.8  | 4.50             | 0.15        | 1.80            |             |
| 11            | PLMRT13 4.75×1.8 | 4.75             | 0.15        | 1.80            |             |
| 12            | PLMRT13 4.87×1.8 | 4.87             | 0.15        | 1.80            |             |
| 13            | PLMRT13 5×1.8    | 5.00             | 0.15        | 1.80            |             |
| 14            | PLMRT13 5.15×1.8 | 5.15             | 0.15        | 1.80            |             |
| 15            | PLMRT13 5.3×1.8  | 5.30             | 0.15        | 1.80            |             |
| 16            | PLMRT13 5.6×1.8  | 5.60             | 0.16        | 1.80            |             |
| 17            | PLMRT13 6×1.8    | 6.00             | 0.16        | 1.80            |             |
| 18            | PLMRT13 6.3×1.8  | 6.30             | 0.16        | 1.80            |             |
| 19            | PLMRT13 6.7×1.8  | 6.70             | 0.16        | 1.80            |             |
| 20            | PLMRT13 6.9×1.8  | 6.90             | 0.17        | 1.80            |             |
| 21            | PLMRT13 7.1×1.8  | 7.10             | 0.17        | 1.80            |             |
| 22            | PLMRT13 7.5×1.8  | 7.50             | 0.17        | 1.80            |             |
| 23            | PLMRT13 8×1.8    | 8.00             | 0.17        | 1.80            |             |
| 24            | PLMRT13 8.5×1.8  | 8.50             | 0.18        | 1.80            |             |
| 25            | PLMRT13 8.75×1.8 | 8.75             | 0.18        | 1.80            |             |
| 26            | PLMRT13 9×1.8    | 9.00             | 0.18        | 1.80            |             |
| 27            | PLMRT13 9.5×1.8  | 9.50             | 0.19        | 1.80            |             |
| 28            | PLMRT13 9.75×1.8 | 9.75             | 0.19        | 1.80            |             |
| 29            | PLMRT13 10×1.8   | 10.00            | 0.19        | 1.80            |             |
| 30            | PLMRT13 10.6×1.8 | 10.60            | 0.19        | 1.80            |             |
| 31            | PLMRT13 11.2×1.8 | 11.20            | 0.20        | 1.80            |             |
| 32            | PLMRT13 11.8×1.8 | 11.80            | 0.20        | 1.80            |             |
| 33            | PLMRT13 12.1×1.8 | 12.10            | 0.21        | 1.80            |             |

| Serial Number | Order Number      | Inner Diameter d | Tolerance $\pm$ | Wire Diameter s | Tolerance $\pm$ |
|---------------|-------------------|------------------|-----------------|-----------------|-----------------|
| 34            | PLMRT13 12.5×1.8  | 12.50            | 0.21            | 1.80            | 0.08            |
| 35            | PLMRT13 12.8×1.8  | 12.80            | 0.21            | 1.80            |                 |
| 36            | PLMRT13 13.2×1.8  | 13.20            | 0.21            | 1.80            |                 |
| 37            | PLMRT13 14×1.8    | 14.00            | 0.22            | 1.80            |                 |
| 38            | PLMRT13 14.5×1.8  | 14.50            | 0.22            | 1.80            |                 |
| 39            | PLMRT13 15×1.8    | 15.00            | 0.23            | 1.80            |                 |
| 40            | PLMRT13 15.5×1.8  | 15.50            | 0.23            | 1.80            |                 |
| 41            | PLMRT13 16×1.8    | 16.00            | 0.24            | 1.80            |                 |
| 42            | PLMRT13 17×1.8    | 17.00            | 0.24            | 1.80            |                 |
| 43            | PLMRT13 18×1.8    | 18.00            | 0.25            | 1.80            |                 |
| 44            | PLMRT13 19×1.8    | 19.00            | 0.26            | 1.80            |                 |
| 45            | PLMRT13 20×1.8    | 20.00            | 0.26            | 1.80            |                 |
| 46            | PLMRT13 20.6×1.8  | 20.60            | 0.27            | 1.80            |                 |
| 47            | PLMRT13 21.2×1.8  | 21.20            | 0.27            | 1.80            |                 |
| 48            | PLMRT13 22.4×1.8  | 22.40            | 0.28            | 1.80            |                 |
| 49            | PLMRT13 23×1.8    | 23.00            | 0.29            | 1.80            |                 |
| 50            | PLMRT13 23.6×1.8  | 23.60            | 0.29            | 1.80            |                 |
| 51            | PLMRT13 24.3×1.8  | 24.30            | 0.30            | 1.80            |                 |
| 52            | PLMRT13 25×1.8    | 25.00            | 0.30            | 1.80            |                 |
| 53            | PLMRT13 25.8×1.8  | 25.80            | 0.31            | 1.80            |                 |
| 54            | PLMRT13 26.5×1.8  | 26.50            | 0.31            | 1.80            |                 |
| 55            | PLMRT13 27.3×1.8  | 27.30            | 0.32            | 1.80            |                 |
| 56            | PLMRT13 28×1.8    | 28.00            | 0.32            | 1.80            |                 |
| 57            | PLMRT13 29×1.8    | 29.00            | 0.33            | 1.80            |                 |
| 58            | PLMRT13 30×1.8    | 30.00            | 0.34            | 1.80            |                 |
| 59            | PLMRT13 31.5×1.8  | 31.50            | 0.35            | 1.80            |                 |
| 60            | PLMRT13 32.5×1.8  | 32.50            | 0.36            | 1.80            |                 |
| 61            | PLMRT13 33.5×1.8  | 33.50            | 0.36            | 1.80            |                 |
| 62            | PLMRT13 34.5×1.8  | 34.50            | 0.37            | 1.80            |                 |
| 63            | PLMRT13 35.5×1.8  | 35.50            | 0.38            | 1.80            |                 |
| 64            | PLMRT13 36.5×1.8  | 36.50            | 0.38            | 1.80            |                 |
| 65            | PLMRT13 37.5×1.8  | 37.50            | 0.39            | 1.80            |                 |
| 66            | PLMRT13 38.7×1.8  | 38.70            | 0.40            | 1.80            |                 |
| 67            | PLMRT13 40×1.8    | 40.00            | 0.41            | 1.80            |                 |
| 68            | PLMRT13 41.2×1.8  | 41.20            | 0.42            | 1.80            |                 |
| 69            | PLMRT13 42.5×1.8  | 42.50            | 0.43            | 1.80            |                 |
| 70            | PLMRT13 43.7×1.8  | 43.70            | 0.44            | 1.80            |                 |
| 71            | PLMRT13 45×1.8    | 45.00            | 0.44            | 1.80            |                 |
| 72            | PLMRT13 46.2×1.8  | 46.20            | 0.45            | 1.80            |                 |
| 73            | PLMRT13 47.5×1.8  | 47.50            | 0.46            | 1.80            |                 |
| 74            | PLMRT13 48.7×1.8  | 48.70            | 0.47            | 1.80            |                 |
| 75            | PLMRT13 50×1.8    | 50.00            | 0.48            | 1.80            |                 |
| 76            | PLMRT13 10.6×2.65 | 10.60            | 0.19            | 2.65            | 0.09            |

| Serial Number | Order Number      | Inner Diameter d | Tolerance ± | Wire Diameter s | Tolerance ± |
|---------------|-------------------|------------------|-------------|-----------------|-------------|
| 77            | PLMRT13 11.2×2.65 | 11.20            | 0.20        | 2.65            | 0.09        |
| 78            | PLMRT13 11.8×2.65 | 11.80            | 0.20        | 2.65            |             |
| 79            | PLMRT13 12.1×2.65 | 12.10            | 0.21        | 2.65            |             |
| 80            | PLMRT13 12.5×2.65 | 12.50            | 0.21        | 2.65            |             |
| 81            | PLMRT13 12.8×2.65 | 12.80            | 0.21        | 2.65            |             |
| 82            | PLMRT13 13.2×2.65 | 13.20            | 0.21        | 2.65            |             |
| 83            | PLMRT13 14×2.65   | 14.00            | 0.22        | 2.65            |             |
| 84            | PLMRT13 14.5×2.65 | 14.50            | 0.22        | 2.65            |             |
| 85            | PLMRT13 15×2.65   | 15.00            | 0.23        | 2.65            |             |
| 86            | PLMRT13 15.5×2.65 | 15.50            | 0.23        | 2.65            |             |
| 87            | PLMRT13 16×2.65   | 16.00            | 0.24        | 2.65            |             |
| 88            | PLMRT13 17×2.65   | 17.00            | 0.24        | 2.65            |             |
| 89            | PLMRT13 18×2.65   | 18.00            | 0.25        | 2.65            |             |
| 90            | PLMRT13 19×2.65   | 19.00            | 0.26        | 2.65            |             |
| 91            | PLMRT13 20×2.65   | 20.00            | 0.26        | 2.65            |             |
| 92            | PLMRT13 20.6×2.65 | 20.60            | 0.27        | 2.65            |             |
| 93            | PLMRT13 21.2×2.65 | 21.20            | 0.27        | 2.65            |             |
| 94            | PLMRT13 22.4×2.65 | 22.40            | 0.28        | 2.65            |             |
| 95            | PLMRT13 23×2.65   | 23.00            | 0.29        | 2.65            |             |
| 96            | PLMRT13 23.6×2.65 | 23.60            | 0.29        | 2.65            |             |
| 97            | PLMRT13 24.3×2.65 | 24.30            | 0.30        | 2.65            |             |
| 98            | PLMRT13 25×2.65   | 25.00            | 0.30        | 2.65            |             |
| 99            | PLMRT13 25.8×2.65 | 25.80            | 0.31        | 2.65            |             |
| 100           | PLMRT13 26.5×2.65 | 26.50            | 0.31        | 2.65            |             |
| 101           | PLMRT13 27.3×2.65 | 27.30            | 0.32        | 2.65            |             |
| 102           | PLMRT13 28×2.65   | 28.00            | 0.32        | 2.65            |             |
| 103           | PLMRT13 29×2.65   | 29.00            | 0.33        | 2.65            |             |
| 104           | PLMRT13 30×2.65   | 30.00            | 0.34        | 2.65            |             |
| 105           | PLMRT13 31.5×2.65 | 31.50            | 0.35        | 2.65            |             |
| 106           | PLMRT13 32.5×2.65 | 32.50            | 0.36        | 2.65            |             |
| 107           | PLMRT13 33.5×2.65 | 33.50            | 0.36        | 2.65            |             |
| 108           | PLMRT13 34.5×2.65 | 34.50            | 0.37        | 2.65            |             |
| 109           | PLMRT13 35.5×2.65 | 35.50            | 0.38        | 2.65            |             |
| 110           | PLMRT13 36.5×2.65 | 36.50            | 0.38        | 2.65            |             |
| 111           | PLMRT13 37.5×2.65 | 37.50            | 0.39        | 2.65            |             |
| 112           | PLMRT13 38.7×2.65 | 38.70            | 0.40        | 2.65            |             |
| 113           | PLMRT13 40×2.65   | 40.00            | 0.41        | 2.65            |             |
| 114           | PLMRT13 41.2×2.65 | 41.20            | 0.42        | 2.65            |             |
| 115           | PLMRT13 42.5×2.65 | 42.50            | 0.43        | 2.65            |             |
| 116           | PLMRT13 43.7×2.65 | 43.70            | 0.44        | 2.65            |             |
| 117           | PLMRT13 45×2.65   | 45.00            | 0.44        | 2.65            |             |
| 118           | PLMRT13 46.2×2.65 | 46.20            | 0.45        | 2.65            |             |
| 119           | PLMRT13 47.5×2.65 | 47.50            | 0.46        | 2.65            |             |

| Serial Number | Order Number       | Inner Diameter d | Tolerance ± | Wire Diameter s | Tolerance ± |
|---------------|--------------------|------------------|-------------|-----------------|-------------|
| 120           | PLMRT13 48.7×2.65  | 48.70            | 0.47        | 2.65            | 0.09        |
| 121           | PLMRT13 50×2.65    | 50.00            | 0.48        | 2.65            |             |
| 122           | PLMRT13 51.5×2.65  | 51.50            | 0.49        | 2.65            |             |
| 123           | PLMRT13 53×2.65    | 53.00            | 0.50        | 2.65            |             |
| 124           | PLMRT13 54.5×2.65  | 54.50            | 0.51        | 2.65            |             |
| 125           | PLMRT13 56×2.65    | 56.00            | 0.52        | 2.65            |             |
| 126           | PLMRT13 58×2.65    | 58.00            | 0.54        | 2.65            |             |
| 127           | PLMRT13 60×2.65    | 60.00            | 0.55        | 2.65            |             |
| 128           | PLMRT13 61.5×2.65  | 61.50            | 0.56        | 2.65            |             |
| 129           | PLMRT13 63×2.65    | 63.00            | 0.57        | 2.65            |             |
| 130           | PLMRT13 65×2.65    | 65.00            | 0.58        | 2.65            |             |
| 131           | PLMRT13 67×2.65    | 67.00            | 0.60        | 2.65            |             |
| 132           | PLMRT13 69×2.65    | 69.00            | 0.61        | 2.65            |             |
| 133           | PLMRT13 71×2.65    | 71.00            | 0.63        | 2.65            |             |
| 134           | PLMRT13 73×2.65    | 73.00            | 0.64        | 2.65            |             |
| 135           | PLMRT13 75×2.65    | 75.00            | 0.65        | 2.65            |             |
| 136           | PLMRT13 77.5×2.65  | 77.50            | 0.67        | 2.65            |             |
| 137           | PLMRT13 80×2.65    | 80.00            | 0.69        | 2.65            |             |
| 138           | PLMRT13 82.5×2.65  | 82.50            | 0.71        | 2.65            |             |
| 139           | PLMRT13 85×2.65    | 85.00            | 0.72        | 2.65            |             |
| 140           | PLMRT13 87.5×2.65  | 87.50            | 0.74        | 2.65            |             |
| 141           | PLMRT13 90×2.65    | 90.00            | 0.76        | 2.65            |             |
| 142           | PLMRT13 92.5×2.65  | 92.50            | 0.77        | 2.65            |             |
| 143           | PLMRT13 95×2.65    | 95.00            | 0.79        | 2.65            |             |
| 144           | PLMRT13 97.5×2.65  | 97.50            | 0.81        | 2.65            |             |
| 145           | PLMRT13 100×2.65   | 100.00           | 0.82        | 2.65            |             |
| 146           | PLMRT13 103×2.65   | 103.00           | 0.85        | 2.65            |             |
| 147           | PLMRT13 106×2.65   | 106.00           | 0.87        | 2.65            |             |
| 148           | PLMRT13 109×2.65   | 109.00           | 0.89        | 2.65            |             |
| 149           | PLMRT13 112×2.65   | 112.00           | 0.91        | 2.65            |             |
| 150           | PLMRT13 115×2.65   | 115.00           | 0.93        | 2.65            |             |
| 151           | PLMRT13 118×2.65   | 118.00           | 0.95        | 2.65            |             |
| 152           | PLMRT13 122×2.65   | 122.00           | 0.97        | 2.65            |             |
| 153           | PLMRT13 125×2.65   | 125.00           | 0.99        | 2.65            |             |
| 154           | PLMRT13 128×2.65   | 128.00           | 1.01        | 2.65            |             |
| 155           | PLMRT13 132×2.65   | 132.00           | 1.04        | 2.65            |             |
| 156           | PLMRT13 136×2.65   | 136.00           | 1.07        | 2.65            |             |
| 157           | PLMRT13 140×2.65   | 140.00           | 1.09        | 2.65            |             |
| 158           | PLMRT13 142.5×2.65 | 142.50           | 1.11        | 2.65            |             |
| 159           | PLMRT13 145×2.65   | 145.00           | 1.13        | 2.65            |             |
| 160           | PLMRT13 147.5×2.65 | 147.50           | 1.14        | 2.65            |             |
| 161           | PLMRT13 150×2.65   | 150.00           | 1.16        | 2.65            |             |
| 162           | PLMRT13 18×3.55    | 18.00            | 0.25        | 3.55            | 0.10        |

| Serial Number | Order Number      | Inner Diameter d | Tolerance ± | Wire Diameter s | Tolerance ± |
|---------------|-------------------|------------------|-------------|-----------------|-------------|
| 163           | PLMRT13 19×3.55   | 19.00            | 0.26        | 3.55            | 0.10        |
| 164           | PLMRT13 20×3.55   | 20.00            | 0.26        | 3.55            |             |
| 165           | PLMRT13 20.6×3.55 | 20.60            | 0.27        | 3.55            |             |
| 166           | PLMRT13 21.2×3.55 | 21.20            | 0.27        | 3.55            |             |
| 167           | PLMRT13 22.4×3.55 | 22.40            | 0.28        | 3.55            |             |
| 168           | PLMRT13 23×3.55   | 23.00            | 0.29        | 3.55            |             |
| 169           | PLMRT13 23.6×3.55 | 23.60            | 0.29        | 3.55            |             |
| 170           | PLMRT13 24.3×3.55 | 24.30            | 0.30        | 3.55            |             |
| 171           | PLMRT13 25×3.55   | 25.00            | 0.30        | 3.55            |             |
| 172           | PLMRT13 25.8×3.55 | 25.80            | 0.31        | 3.55            |             |
| 173           | PLMRT13 26.5×3.55 | 26.50            | 0.31        | 3.55            |             |
| 174           | PLMRT13 27.3×3.55 | 27.30            | 0.32        | 3.55            |             |
| 175           | PLMRT13 28×3.55   | 28.00            | 0.32        | 3.55            |             |
| 176           | PLMRT13 29×3.55   | 29.00            | 0.33        | 3.55            |             |
| 177           | PLMRT13 30×3.55   | 30.00            | 0.34        | 3.55            |             |
| 178           | PLMRT13 31.5×3.55 | 31.50            | 0.35        | 3.55            |             |
| 179           | PLMRT13 32.5×3.55 | 32.50            | 0.36        | 3.55            |             |
| 180           | PLMRT13 33.5×3.55 | 33.50            | 0.36        | 3.55            |             |
| 181           | PLMRT13 34.5×3.55 | 34.50            | 0.37        | 3.55            |             |
| 182           | PLMRT13 35.5×3.55 | 35.50            | 0.38        | 3.55            |             |
| 183           | PLMRT13 36.5×3.55 | 36.50            | 0.38        | 3.55            |             |
| 184           | PLMRT13 37.5×3.55 | 37.50            | 0.39        | 3.55            |             |
| 185           | PLMRT13 38.7×3.55 | 38.70            | 0.40        | 3.55            |             |
| 186           | PLMRT13 40×3.55   | 40.00            | 0.41        | 3.55            |             |
| 187           | PLMRT13 41.2×3.55 | 41.20            | 0.42        | 3.55            |             |
| 188           | PLMRT13 42.5×3.55 | 42.50            | 0.43        | 3.55            |             |
| 189           | PLMRT13 43.7×3.55 | 43.70            | 0.44        | 3.55            |             |
| 190           | PLMRT13 45×3.55   | 45.00            | 0.44        | 3.55            |             |
| 191           | PLMRT13 46.2×3.55 | 46.20            | 0.45        | 3.55            |             |
| 192           | PLMRT13 47.5×3.55 | 47.50            | 0.46        | 3.55            |             |
| 193           | PLMRT13 48.7×3.55 | 48.70            | 0.47        | 3.55            |             |
| 194           | PLMRT13 50×3.55   | 50.00            | 0.48        | 3.55            |             |
| 195           | PLMRT13 51.5×3.55 | 51.50            | 0.49        | 3.55            |             |
| 196           | PLMRT13 53×3.55   | 53.00            | 0.50        | 3.55            |             |
| 197           | PLMRT13 54.5×3.55 | 54.50            | 0.51        | 3.55            |             |
| 198           | PLMRT13 56×3.55   | 56.00            | 0.52        | 3.55            |             |
| 199           | PLMRT13 58×3.55   | 58.00            | 0.54        | 3.55            |             |
| 200           | PLMRT13 60×3.55   | 60.00            | 0.55        | 3.55            |             |
| 201           | PLMRT13 61.5×3.55 | 61.50            | 0.56        | 3.55            |             |
| 202           | PLMRT13 63×3.55   | 63.00            | 0.57        | 3.55            |             |
| 203           | PLMRT13 65×3.55   | 65.00            | 0.58        | 3.55            |             |
| 204           | PLMRT13 67×3.55   | 67.00            | 0.60        | 3.55            |             |
| 205           | PLMRT13 69×3.55   | 69.00            | 0.61        | 3.55            |             |

| Serial Number | Order Number       | Inner Diameter d | Tolerance $\pm$ | Wire Diameter s | Tolerance $\pm$ |
|---------------|--------------------|------------------|-----------------|-----------------|-----------------|
| 206           | PLMRT13 71×3.55    | 71.00            | 0.63            | 3.55            | 0.10            |
| 207           | PLMRT13 73×3.55    | 73.00            | 0.64            | 3.55            |                 |
| 208           | PLMRT13 75×3.55    | 75.00            | 0.65            | 3.55            |                 |
| 209           | PLMRT13 77.5×3.55  | 77.50            | 0.67            | 3.55            |                 |
| 210           | PLMRT13 80×3.55    | 80.00            | 0.69            | 3.55            |                 |
| 211           | PLMRT13 82.5×3.55  | 82.50            | 0.71            | 3.55            |                 |
| 212           | PLMRT13 85×3.55    | 85.00            | 0.72            | 3.55            |                 |
| 213           | PLMRT13 87.5×3.55  | 87.50            | 0.74            | 3.55            |                 |
| 214           | PLMRT13 90×3.55    | 90.00            | 0.76            | 3.55            |                 |
| 215           | PLMRT13 92.5×3.55  | 92.50            | 0.77            | 3.55            |                 |
| 216           | PLMRT13 95×3.55    | 95.00            | 0.79            | 3.55            |                 |
| 217           | PLMRT13 97.5×3.55  | 97.50            | 0.81            | 3.55            |                 |
| 218           | PLMRT13 100×3.55   | 100.00           | 0.82            | 3.55            |                 |
| 219           | PLMRT13 103×3.55   | 103.00           | 0.85            | 3.55            |                 |
| 220           | PLMRT13 106×3.55   | 106.00           | 0.87            | 3.55            |                 |
| 221           | PLMRT13 109×3.55   | 109.00           | 0.89            | 3.55            |                 |
| 222           | PLMRT13 112×3.55   | 112.00           | 0.91            | 3.55            |                 |
| 223           | PLMRT13 115×3.55   | 115.00           | 0.93            | 3.55            |                 |
| 224           | PLMRT13 118×3.55   | 118.00           | 0.95            | 3.55            |                 |
| 225           | PLMRT13 122×3.55   | 122.00           | 0.97            | 3.55            |                 |
| 226           | PLMRT13 125×3.55   | 125.00           | 0.99            | 3.55            |                 |
| 227           | PLMRT13 128×3.55   | 128.00           | 1.01            | 3.55            |                 |
| 228           | PLMRT13 132×3.55   | 132.00           | 1.04            | 3.55            |                 |
| 229           | PLMRT13 136×3.55   | 136.00           | 1.07            | 3.55            |                 |
| 230           | PLMRT13 140×3.55   | 140.00           | 1.09            | 3.55            |                 |
| 231           | PLMRT13 142.5×3.55 | 142.50           | 1.11            | 3.55            |                 |
| 232           | PLMRT13 145×3.55   | 145.00           | 1.13            | 3.55            |                 |
| 233           | PLMRT13 147.5×3.55 | 147.50           | 1.14            | 3.55            |                 |
| 234           | PLMRT13 150×3.55   | 150.00           | 1.16            | 3.55            |                 |
| 235           | PLMRT13 152.5×3.55 | 152.50           | 1.18            | 3.55            |                 |
| 236           | PLMRT13 155×3.55   | 155.00           | 1.19            | 3.55            |                 |
| 237           | PLMRT13 157.5×3.55 | 157.50           | 1.21            | 3.55            |                 |
| 238           | PLMRT13 160×3.55   | 160.00           | 1.23            | 3.55            |                 |
| 239           | PLMRT13 162.5×3.55 | 162.50           | 1.24            | 3.55            |                 |
| 240           | PLMRT13 165×3.55   | 165.00           | 1.26            | 3.55            |                 |
| 241           | PLMRT13 167.5×3.55 | 167.50           | 1.28            | 3.55            |                 |
| 242           | PLMRT13 170×3.55   | 170.00           | 1.29            | 3.55            |                 |
| 243           | PLMRT13 172.5×3.55 | 172.50           | 1.31            | 3.55            |                 |
| 244           | PLMRT13 175×3.55   | 175.00           | 1.33            | 3.55            |                 |
| 245           | PLMRT13 177.5×3.55 | 177.50           | 1.34            | 3.55            |                 |
| 246           | PLMRT13 180×3.55   | 180.00           | 1.36            | 3.55            |                 |
| 247           | PLMRT13 182.5×3.55 | 182.50           | 1.38            | 3.55            |                 |
| 248           | PLMRT13 185×3.55   | 185.00           | 1.39            | 3.55            |                 |

| Serial Number | Order Number       | Inner Diameter d | Tolerance $\pm$ | Wire Diameter s | Tolerance $\pm$ |
|---------------|--------------------|------------------|-----------------|-----------------|-----------------|
| 249           | PLMRT13 187.5×3.55 | 187.50           | 1.41            | 3.55            | 0.10            |
| 250           | PLMRT13 190×3.55   | 190.00           | 1.43            | 3.55            |                 |
| 251           | PLMRT13 195×3.55   | 195.00           | 1.46            | 3.55            |                 |
| 252           | PLMRT13 200×3.55   | 200.00           | 1.49            | 3.55            |                 |
| 253           | PLMRT13 40×5.3     | 40.00            | 0.41            | 5.30            | 0.13            |
| 254           | PLMRT13 41.2×5.3   | 41.20            | 0.42            | 5.30            |                 |
| 255           | PLMRT13 42.5×5.3   | 42.50            | 0.43            | 5.30            |                 |
| 256           | PLMRT13 43.7×5.3   | 43.70            | 0.44            | 5.30            |                 |
| 257           | PLMRT13 45×5.3     | 45.00            | 0.44            | 5.30            |                 |
| 258           | PLMRT13 46.2×5.3   | 46.20            | 0.45            | 5.30            |                 |
| 259           | PLMRT13 47.5×5.3   | 47.50            | 0.46            | 5.30            |                 |
| 260           | PLMRT13 48.7×5.3   | 48.70            | 0.47            | 5.30            |                 |
| 261           | PLMRT13 50×5.3     | 50.00            | 0.48            | 5.30            |                 |
| 262           | PLMRT13 51.5×5.3   | 51.50            | 0.49            | 5.30            |                 |
| 263           | PLMRT13 53×5.3     | 53.00            | 0.50            | 5.30            |                 |
| 264           | PLMRT13 54.5×5.3   | 54.50            | 0.51            | 5.30            |                 |
| 265           | PLMRT13 56×5.3     | 56.00            | 0.52            | 5.30            |                 |
| 266           | PLMRT13 58×5.3     | 58.00            | 0.54            | 5.30            |                 |
| 267           | PLMRT13 60×5.3     | 60.00            | 0.55            | 5.30            |                 |
| 268           | PLMRT13 61.5×5.3   | 61.50            | 0.56            | 5.30            |                 |
| 269           | PLMRT13 63×5.3     | 63.00            | 0.57            | 5.30            |                 |
| 270           | PLMRT13 65×5.3     | 65.00            | 0.58            | 5.30            |                 |
| 271           | PLMRT13 67×5.3     | 67.00            | 0.60            | 5.30            |                 |
| 272           | PLMRT13 69×5.3     | 69.00            | 0.61            | 5.30            |                 |
| 273           | PLMRT13 71×5.3     | 71.00            | 0.63            | 5.30            |                 |
| 274           | PLMRT13 73×5.3     | 73.00            | 0.64            | 5.30            |                 |
| 275           | PLMRT13 75×5.3     | 75.00            | 0.65            | 5.30            |                 |
| 276           | PLMRT13 77.5×5.3   | 77.50            | 0.67            | 5.30            |                 |
| 277           | PLMRT13 80×5.3     | 80.00            | 0.69            | 5.30            |                 |
| 278           | PLMRT13 82.5×5.3   | 82.50            | 0.71            | 5.30            |                 |
| 279           | PLMRT13 85×5.3     | 85.00            | 0.72            | 5.30            |                 |
| 280           | PLMRT13 87.5×5.3   | 87.50            | 0.74            | 5.30            |                 |
| 281           | PLMRT13 90×5.3     | 90.00            | 0.76            | 5.30            |                 |
| 282           | PLMRT13 92.5×5.3   | 92.50            | 0.77            | 5.30            |                 |
| 283           | PLMRT13 95×5.3     | 95.00            | 0.79            | 5.30            |                 |
| 284           | PLMRT13 97.5×5.3   | 97.50            | 0.81            | 5.30            |                 |
| 285           | PLMRT13 100×5.3    | 100.00           | 0.82            | 5.30            |                 |
| 286           | PLMRT13 103×5.3    | 103.00           | 0.85            | 5.30            |                 |
| 287           | PLMRT13 106×5.3    | 106.00           | 0.87            | 5.30            |                 |
| 288           | PLMRT13 109×5.3    | 109.00           | 0.89            | 5.30            |                 |
| 289           | PLMRT13 112×5.3    | 112.00           | 0.91            | 5.30            |                 |
| 290           | PLMRT13 115×5.3    | 115.00           | 0.93            | 5.30            |                 |
| 291           | PLMRT13 118×5.3    | 118.00           | 0.95            | 5.30            |                 |

| Serial Number | Order Number      | Inner Diameter d | Tolerance ± | Wire Diameter s | Tolerance ± |
|---------------|-------------------|------------------|-------------|-----------------|-------------|
| 292           | PLMRT13 122×5.3   | 122.00           | 0.97        | 5.30            | 0.13        |
| 293           | PLMRT13 125×5.3   | 125.00           | 0.99        | 5.30            |             |
| 294           | PLMRT13 128×5.3   | 128.00           | 1.01        | 5.30            |             |
| 295           | PLMRT13 132×5.3   | 132.00           | 1.04        | 5.30            |             |
| 296           | PLMRT13 136×5.3   | 136.00           | 1.07        | 5.30            |             |
| 297           | PLMRT13 140×5.3   | 140.00           | 1.09        | 5.30            |             |
| 298           | PLMRT13 142.5×5.3 | 142.50           | 1.11        | 5.30            |             |
| 299           | PLMRT13 145×5.3   | 145.00           | 1.13        | 5.30            |             |
| 300           | PLMRT13 147.5×5.3 | 147.50           | 1.14        | 5.30            |             |
| 301           | PLMRT13 150×5.3   | 150.00           | 1.16        | 5.30            |             |
| 302           | PLMRT13 152.5×5.3 | 152.50           | 1.18        | 5.30            |             |
| 303           | PLMRT13 155×5.3   | 155.00           | 1.19        | 5.30            |             |
| 304           | PLMRT13 157.5×5.3 | 157.50           | 1.21        | 5.30            |             |
| 305           | PLMRT13 160×5.3   | 160.00           | 1.23        | 5.30            |             |
| 306           | PLMRT13 162.5×5.3 | 162.50           | 1.24        | 5.30            |             |
| 307           | PLMRT13 165×5.3   | 165.00           | 1.26        | 5.30            |             |
| 308           | PLMRT13 167.5×5.3 | 167.50           | 1.28        | 5.30            |             |
| 309           | PLMRT13 170×5.3   | 170.00           | 1.29        | 5.30            |             |
| 310           | PLMRT13 172.5×5.3 | 172.50           | 1.31        | 5.30            |             |
| 311           | PLMRT13 175×5.3   | 175.00           | 1.33        | 5.30            |             |
| 312           | PLMRT13 177.5×5.3 | 177.50           | 1.34        | 5.30            |             |
| 313           | PLMRT13 180×5.3   | 180.00           | 1.36        | 5.30            |             |
| 314           | PLMRT13 182.5×5.3 | 182.50           | 1.38        | 5.30            |             |
| 315           | PLMRT13 185×5.3   | 185.00           | 1.39        | 5.30            |             |
| 316           | PLMRT13 187.5×5.3 | 187.50           | 1.41        | 5.30            |             |
| 317           | PLMRT13 190×5.3   | 190.00           | 1.43        | 5.30            |             |
| 318           | PLMRT13 195×5.3   | 195.00           | 1.46        | 5.30            |             |
| 319           | PLMRT13 200×5.3   | 200.00           | 1.49        | 5.30            |             |
| 320           | PLMRT13 203×5.3   | 203.00           | 1.51        | 5.30            |             |
| 321           | PLMRT13 206×5.3   | 206.00           | 1.53        | 5.30            |             |
| 322           | PLMRT13 212×5.3   | 212.00           | 1.57        | 5.30            |             |
| 323           | PLMRT13 218×5.3   | 218.00           | 1.61        | 5.30            |             |
| 324           | PLMRT13 224×5.3   | 224.00           | 1.65        | 5.30            |             |
| 325           | PLMRT13 227×5.3   | 227.00           | 1.67        | 5.30            |             |
| 326           | PLMRT13 230×5.3   | 230.00           | 1.69        | 5.30            |             |
| 327           | PLMRT13 236×5.3   | 236.00           | 1.73        | 5.30            |             |
| 328           | PLMRT13 239×5.3   | 239.00           | 1.75        | 5.30            |             |
| 329           | PLMRT13 243×5.3   | 243.00           | 1.77        | 5.30            |             |
| 330           | PLMRT13 250×5.3   | 250.00           | 1.82        | 5.30            |             |
| 331           | PLMRT13 254×5.3   | 254.00           | 1.84        | 5.30            |             |
| 332           | PLMRT13 258×5.3   | 258.00           | 1.87        | 5.30            |             |
| 333           | PLMRT13 261×5.3   | 261.00           | 1.89        | 5.30            |             |
| 334           | PLMRT13 265×5.3   | 265.00           | 1.91        | 5.30            |             |

| Serial Number | Order Number    | Inner Diameter d | Tolerance ± | Wire Diameter s | Tolerance ± |
|---------------|-----------------|------------------|-------------|-----------------|-------------|
| 335           | PLMRT13 268×5.3 | 268.00           | 1.93        | 5.30            | 0.13        |
| 336           | PLMRT13 272×5.3 | 272.00           | 1.96        | 5.30            |             |
| 337           | PLMRT13 276×5.3 | 276.00           | 1.99        | 5.30            |             |
| 338           | PLMRT13 280×5.3 | 280.00           | 2.01        | 5.30            |             |
| 339           | PLMRT13 283×5.3 | 283.00           | 2.03        | 5.30            |             |
| 340           | PLMRT13 286×5.3 | 286.00           | 2.05        | 5.30            |             |
| 341           | PLMRT13 290×5.3 | 290.00           | 2.08        | 5.30            |             |
| 342           | PLMRT13 295×5.3 | 295.00           | 2.11        | 5.30            |             |
| 343           | PLMRT13 300×5.3 | 300.00           | 2.14        | 5.30            |             |
| 344           | PLMRT13 303×5.3 | 303.00           | 2.16        | 5.30            |             |
| 345           | PLMRT13 307×5.3 | 307.00           | 2.19        | 5.30            |             |
| 346           | PLMRT13 311×5.3 | 311.00           | 2.21        | 5.30            |             |
| 347           | PLMRT13 315×5.3 | 315.00           | 2.24        | 5.30            |             |
| 348           | PLMRT13 320×5.3 | 320.00           | 2.27        | 5.30            |             |
| 349           | PLMRT13 325×5.3 | 325.00           | 2.30        | 5.30            |             |
| 350           | PLMRT13 330×5.3 | 330.00           | 2.33        | 5.30            |             |
| 351           | PLMRT13 335×5.3 | 335.00           | 2.36        | 5.30            |             |
| 352           | PLMRT13 340×5.3 | 340.00           | 2.40        | 5.30            |             |
| 353           | PLMRT13 345×5.3 | 345.00           | 2.43        | 5.30            |             |
| 354           | PLMRT13 350×5.3 | 350.00           | 2.46        | 5.30            |             |
| 355           | PLMRT13 355×5.3 | 355.00           | 2.49        | 5.30            |             |
| 356           | PLMRT13 360×5.3 | 360.00           | 2.52        | 5.30            |             |
| 357           | PLMRT13 365×5.3 | 365.00           | 2.56        | 5.30            |             |
| 358           | PLMRT13 370×5.3 | 370.00           | 2.59        | 5.30            |             |
| 359           | PLMRT13 379×5.3 | 379.00           | 2.64        | 5.30            |             |
| 360           | PLMRT13 383×5.3 | 383.00           | 2.67        | 5.30            |             |
| 361           | PLMRT13 387×5.3 | 387.00           | 2.70        | 5.30            |             |
| 362           | PLMRT13 391×5.3 | 391.00           | 2.72        | 5.30            |             |
| 363           | PLMRT13 395×5.3 | 395.00           | 2.75        | 5.30            |             |
| 364           | PLMRT13 400×5.3 | 400.00           | 2.78        | 5.30            |             |
| 365           | PLMRT13 109×7   | 109.00           | 0.89        | 7.00            | 0.15        |
| 366           | PLMRT13 112×7   | 112.00           | 0.91        | 7.00            |             |
| 367           | PLMRT13 115×7   | 115.00           | 0.93        | 7.00            |             |
| 368           | PLMRT13 118×7   | 118.00           | 0.95        | 7.00            |             |
| 369           | PLMRT13 122×7   | 122.00           | 0.97        | 7.00            |             |
| 370           | PLMRT13 125×7   | 125.00           | 0.99        | 7.00            |             |
| 371           | PLMRT13 128×7   | 128.00           | 1.01        | 7.00            |             |
| 372           | PLMRT13 132×7   | 132.00           | 1.04        | 7.00            |             |
| 373           | PLMRT13 136×7   | 136.00           | 1.07        | 7.00            |             |
| 374           | PLMRT13 140×7   | 140.00           | 1.09        | 7.00            |             |
| 375           | PLMRT13 142.5×7 | 142.50           | 1.11        | 7.00            |             |
| 376           | PLMRT13 145×7   | 145.00           | 1.13        | 7.00            |             |
| 377           | PLMRT13 147.5×7 | 147.50           | 1.14        | 7.00            |             |

| Serial Number | Order Number    | Inner Diameter d | Tolerance ± | Wire Diameter s | Tolerance ± |
|---------------|-----------------|------------------|-------------|-----------------|-------------|
| 378           | PLMRT13 150×7   | 150.00           | 1.16        | 7.00            | 0.15        |
| 379           | PLMRT13 152.5×7 | 152.50           | 1.18        | 7.00            |             |
| 380           | PLMRT13 155×7   | 155.00           | 1.19        | 7.00            |             |
| 381           | PLMRT13 157.5×7 | 157.50           | 1.21        | 7.00            |             |
| 382           | PLMRT13 160×7   | 160.00           | 1.23        | 7.00            |             |
| 383           | PLMRT13 162.5×7 | 162.50           | 1.24        | 7.00            |             |
| 384           | PLMRT13 165×7   | 165.00           | 1.26        | 7.00            |             |
| 385           | PLMRT13 167.5×7 | 167.50           | 1.28        | 7.00            |             |
| 386           | PLMRT13 170×7   | 170.00           | 1.29        | 7.00            |             |
| 387           | PLMRT13 172.5×7 | 172.50           | 1.31        | 7.00            |             |
| 388           | PLMRT13 175×7   | 175.00           | 1.33        | 7.00            |             |
| 389           | PLMRT13 177.5×7 | 177.50           | 1.34        | 7.00            |             |
| 390           | PLMRT13 180×7   | 180.00           | 1.36        | 7.00            |             |
| 391           | PLMRT13 182.5×7 | 182.50           | 1.38        | 7.00            |             |
| 392           | PLMRT13 185×7   | 185.00           | 1.39        | 7.00            |             |
| 393           | PLMRT13 187.5×7 | 187.50           | 1.41        | 7.00            |             |
| 394           | PLMRT13 190×7   | 190.00           | 1.43        | 7.00            |             |
| 395           | PLMRT13 195×7   | 195.00           | 1.46        | 7.00            |             |
| 396           | PLMRT13 200×7   | 200.00           | 1.49        | 7.00            |             |
| 397           | PLMRT13 40×7    | 40.00            | 0.41        | 7.00            |             |
| 398           | PLMRT13 41.2×7  | 41.20            | 0.42        | 7.00            |             |
| 399           | PLMRT13 42.5×7  | 42.50            | 0.43        | 7.00            |             |
| 400           | PLMRT13 43.7×7  | 43.70            | 0.44        | 7.00            |             |
| 401           | PLMRT13 45×7    | 45.00            | 0.44        | 7.00            |             |
| 402           | PLMRT13 46.2×7  | 46.20            | 0.45        | 7.00            |             |
| 403           | PLMRT13 47.5×7  | 47.50            | 0.46        | 7.00            |             |
| 404           | PLMRT13 48.7×7  | 48.70            | 0.47        | 7.00            |             |
| 405           | PLMRT13 50×7    | 50.00            | 0.48        | 7.00            |             |
| 406           | PLMRT13 51.5×7  | 51.50            | 0.49        | 7.00            |             |
| 407           | PLMRT13 53×7    | 53.00            | 0.50        | 7.00            |             |
| 408           | PLMRT13 54.5×7  | 54.50            | 0.51        | 7.00            |             |
| 409           | PLMRT13 56×7    | 56.00            | 0.52        | 7.00            |             |
| 410           | PLMRT13 58×7    | 58.00            | 0.54        | 7.00            |             |
| 411           | PLMRT13 60×7    | 60.00            | 0.55        | 7.00            |             |
| 412           | PLMRT13 61.5×7  | 61.50            | 0.56        | 7.00            |             |
| 413           | PLMRT13 63×7    | 63.00            | 0.57        | 7.00            |             |
| 414           | PLMRT13 65×7    | 65.00            | 0.58        | 7.00            |             |
| 415           | PLMRT13 67×7    | 67.00            | 0.60        | 7.00            |             |
| 416           | PLMRT13 69×7    | 69.00            | 0.61        | 7.00            |             |
| 417           | PLMRT13 71×7    | 71.00            | 0.63        | 7.00            |             |
| 418           | PLMRT13 73×7    | 73.00            | 0.64        | 7.00            |             |
| 419           | PLMRT13 75×7    | 75.00            | 0.65        | 7.00            |             |
| 420           | PLMRT13 77.5×7  | 77.50            | 0.67        | 7.00            |             |

| Serial Number | Order Number    | Inner Diameter d | Tolerance ± | Wire Diameter s | Tolerance ± |
|---------------|-----------------|------------------|-------------|-----------------|-------------|
| 421           | PLMRT13 80×7    | 80.00            | 0.69        | 7.00            | 0.15        |
| 422           | PLMRT13 82.5×7  | 82.50            | 0.71        | 7.00            |             |
| 423           | PLMRT13 85×7    | 85.00            | 0.72        | 7.00            |             |
| 424           | PLMRT13 87.5×7  | 87.50            | 0.74        | 7.00            |             |
| 425           | PLMRT13 90×7    | 90.00            | 0.76        | 7.00            |             |
| 426           | PLMRT13 92.5×7  | 92.50            | 0.77        | 7.00            |             |
| 427           | PLMRT13 95×7    | 95.00            | 0.79        | 7.00            |             |
| 428           | PLMRT13 97.5×7  | 97.50            | 0.81        | 7.00            |             |
| 429           | PLMRT13 100×7   | 100.00           | 0.82        | 7.00            |             |
| 430           | PLMRT13 103×7   | 103.00           | 0.85        | 7.00            |             |
| 431           | PLMRT13 106×7   | 106.00           | 0.87        | 7.00            |             |
| 432           | PLMRT13 109×7   | 109.00           | 0.89        | 7.00            |             |
| 433           | PLMRT13 112×7   | 112.00           | 0.91        | 7.00            |             |
| 434           | PLMRT13 115×7   | 115.00           | 0.93        | 7.00            |             |
| 435           | PLMRT13 118×7   | 118.00           | 0.95        | 7.00            |             |
| 436           | PLMRT13 122×7   | 122.00           | 0.97        | 7.00            |             |
| 437           | PLMRT13 125×7   | 125.00           | 0.99        | 7.00            |             |
| 438           | PLMRT13 128×7   | 128.00           | 1.01        | 7.00            |             |
| 439           | PLMRT13 132×7   | 132.00           | 1.04        | 7.00            |             |
| 440           | PLMRT13 136×7   | 136.00           | 1.07        | 7.00            |             |
| 441           | PLMRT13 140×7   | 140.00           | 1.09        | 7.00            |             |
| 442           | PLMRT13 142.5×7 | 142.50           | 1.11        | 7.00            |             |
| 443           | PLMRT13 145×7   | 145.00           | 1.13        | 7.00            |             |
| 444           | PLMRT13 147.5×7 | 147.50           | 1.14        | 7.00            |             |
| 445           | PLMRT13 150×7   | 150.00           | 1.16        | 7.00            |             |
| 446           | PLMRT13 152.5×7 | 152.50           | 1.18        | 7.00            |             |
| 447           | PLMRT13 155×7   | 155.00           | 1.19        | 7.00            |             |
| 448           | PLMRT13 157.5×7 | 157.50           | 1.21        | 7.00            |             |
| 449           | PLMRT13 160×7   | 160.00           | 1.23        | 7.00            |             |
| 450           | PLMRT13 162.5×7 | 162.50           | 1.24        | 7.00            |             |
| 451           | PLMRT13 165×7   | 165.00           | 1.26        | 7.00            |             |
| 452           | PLMRT13 167.5×7 | 167.50           | 1.28        | 7.00            |             |
| 453           | PLMRT13 170×7   | 170.00           | 1.29        | 7.00            |             |
| 454           | PLMRT13 172.5×7 | 172.50           | 1.31        | 7.00            |             |
| 455           | PLMRT13 175×7   | 175.00           | 1.33        | 7.00            |             |
| 456           | PLMRT13 177.5×7 | 177.50           | 1.34        | 7.00            |             |
| 457           | PLMRT13 180×7   | 180.00           | 1.36        | 7.00            |             |
| 458           | PLMRT13 182.5×7 | 182.50           | 1.38        | 7.00            |             |
| 459           | PLMRT13 185×7   | 185.00           | 1.39        | 7.00            |             |
| 460           | PLMRT13 187.5×7 | 187.50           | 1.41        | 7.00            |             |
| 461           | PLMRT13 190×7   | 190.00           | 1.43        | 7.00            |             |
| 462           | PLMRT13 195×7   | 195.00           | 1.46        | 7.00            |             |
| 463           | PLMRT13 200×7   | 200.00           | 1.49        | 7.00            |             |

| Serial Number | Order Number  | Inner Diameter d | Tolerance $\pm$ | Wire Diameter s | Tolerance $\pm$ |
|---------------|---------------|------------------|-----------------|-----------------|-----------------|
| 464           | PLMRT13 203×7 | 203.00           | 1.51            | 7.00            | 0.15            |
| 465           | PLMRT13 206×7 | 206.00           | 1.53            | 7.00            |                 |
| 466           | PLMRT13 212×7 | 212.00           | 1.57            | 7.00            |                 |
| 467           | PLMRT13 218×7 | 218.00           | 1.61            | 7.00            |                 |
| 468           | PLMRT13 224×7 | 224.00           | 1.65            | 7.00            |                 |
| 469           | PLMRT13 227×7 | 227.00           | 1.67            | 7.00            |                 |
| 470           | PLMRT13 230×7 | 230.00           | 1.69            | 7.00            |                 |
| 471           | PLMRT13 236×7 | 236.00           | 1.73            | 7.00            |                 |
| 472           | PLMRT13 239×7 | 239.00           | 1.75            | 7.00            |                 |
| 473           | PLMRT13 243×7 | 243.00           | 1.77            | 7.00            |                 |
| 474           | PLMRT13 250×7 | 250.00           | 1.82            | 7.00            |                 |
| 475           | PLMRT13 254×7 | 254.00           | 1.84            | 7.00            |                 |
| 476           | PLMRT13 258×7 | 258.00           | 1.87            | 7.00            |                 |
| 477           | PLMRT13 261×7 | 261.00           | 1.89            | 7.00            |                 |
| 478           | PLMRT13 265×7 | 265.00           | 1.91            | 7.00            |                 |
| 479           | PLMRT13 268×7 | 268.00           | 1.93            | 7.00            |                 |
| 480           | PLMRT13 272×7 | 272.00           | 1.96            | 7.00            |                 |
| 481           | PLMRT13 276×7 | 276.00           | 1.99            | 7.00            |                 |
| 482           | PLMRT13 280×7 | 280.00           | 2.01            | 7.00            |                 |
| 483           | PLMRT13 283×7 | 283.00           | 2.03            | 7.00            |                 |
| 484           | PLMRT13 286×7 | 286.00           | 2.05            | 7.00            |                 |
| 485           | PLMRT13 290×7 | 290.00           | 2.08            | 7.00            |                 |
| 486           | PLMRT13 295×7 | 295.00           | 2.11            | 7.00            |                 |
| 487           | PLMRT13 300×7 | 300.00           | 2.14            | 7.00            |                 |
| 488           | PLMRT13 303×7 | 303.00           | 2.16            | 7.00            |                 |
| 489           | PLMRT13 307×7 | 307.00           | 2.19            | 7.00            |                 |
| 490           | PLMRT13 311×7 | 311.00           | 2.21            | 7.00            |                 |
| 491           | PLMRT13 315×7 | 315.00           | 2.24            | 7.00            |                 |
| 492           | PLMRT13 320×7 | 320.00           | 2.27            | 7.00            |                 |
| 493           | PLMRT13 325×7 | 325.00           | 2.30            | 7.00            |                 |
| 494           | PLMRT13 330×7 | 330.00           | 2.33            | 7.00            |                 |
| 495           | PLMRT13 335×7 | 335.00           | 2.36            | 7.00            |                 |
| 496           | PLMRT13 340×7 | 340.00           | 2.40            | 7.00            |                 |
| 497           | PLMRT13 345×7 | 345.00           | 2.43            | 7.00            |                 |
| 498           | PLMRT13 350×7 | 350.00           | 2.46            | 7.00            |                 |
| 499           | PLMRT13 355×7 | 355.00           | 2.49            | 7.00            |                 |
| 500           | PLMRT13 360×7 | 360.00           | 2.52            | 7.00            |                 |
| 501           | PLMRT13 365×7 | 365.00           | 2.56            | 7.00            |                 |
| 502           | PLMRT13 370×7 | 370.00           | 2.59            | 7.00            |                 |
| 503           | PLMRT13 379×7 | 379.00           | 2.64            | 7.00            |                 |
| 504           | PLMRT13 383×7 | 383.00           | 2.67            | 7.00            |                 |
| 505           | PLMRT13 387×7 | 387.00           | 2.70            | 7.00            |                 |
| 506           | PLMRT13 391×7 | 391.00           | 2.72            | 7.00            |                 |

| Serial Number | Order Number  | Inner Diameter d | Tolerance $\pm$ | Wire Diameter s | Tolerance $\pm$ |
|---------------|---------------|------------------|-----------------|-----------------|-----------------|
| 507           | PLMRT13 395×7 | 395.00           | 2.75            | 7.00            | 0.15            |
| 508           | PLMRT13 400×7 | 400.00           | 2.78            | 7.00            |                 |
| 509           | PLMRT13 406×7 | 406.00           | 2.82            | 7.00            |                 |
| 510           | PLMRT13 412×7 | 412.00           | 2.85            | 7.00            |                 |
| 511           | PLMRT13 418×7 | 418.00           | 2.89            | 7.00            |                 |
| 512           | PLMRT13 425×7 | 425.00           | 2.94            | 7.00            |                 |
| 513           | PLMRT13 429×7 | 429.00           | 2.96            | 7.00            |                 |
| 514           | PLMRT13 433×7 | 433.00           | 2.99            | 7.00            |                 |
| 515           | PLMRT13 437×7 | 437.00           | 3.01            | 7.00            |                 |
| 516           | PLMRT13 443×7 | 443.00           | 3.05            | 7.00            |                 |
| 517           | PLMRT13 450×7 | 450.00           | 3.09            | 7.00            |                 |
| 518           | PLMRT13 456×7 | 456.00           | 3.13            | 7.00            |                 |
| 519           | PLMRT13 462×7 | 462.00           | 3.17            | 7.00            |                 |
| 520           | PLMRT13 466×7 | 466.00           | 3.19            | 7.00            |                 |
| 521           | PLMRT13 470×7 | 470.00           | 3.22            | 7.00            |                 |
| 522           | PLMRT13 479×7 | 479.00           | 3.28            | 7.00            |                 |
| 523           | PLMRT13 483×7 | 483.00           | 3.30            | 7.00            |                 |
| 524           | PLMRT13 487×7 | 487.00           | 3.33            | 7.00            |                 |
| 525           | PLMRT13 493×7 | 493.00           | 3.36            | 7.00            |                 |
| 526           | PLMRT13 500×7 | 500.00           | 3.41            | 7.00            |                 |
| 527           | PLMRT13 508×7 | 508.00           | 3.46            | 7.00            |                 |
| 528           | PLMRT13 515×7 | 515.00           | 3.50            | 7.00            |                 |
| 529           | PLMRT13 523×7 | 523.00           | 3.55            | 7.00            |                 |
| 530           | PLMRT13 530×7 | 530.00           | 3.60            | 7.00            |                 |
| 531           | PLMRT13 538×7 | 538.00           | 3.65            | 7.00            |                 |
| 532           | PLMRT13 545×7 | 545.00           | 3.69            | 7.00            |                 |
| 533           | PLMRT13 553×7 | 553.00           | 3.74            | 7.00            |                 |
| 534           | PLMRT13 560×7 | 560.00           | 3.78            | 7.00            |                 |
| 535           | PLMRT13 570×7 | 570.00           | 3.85            | 7.00            |                 |
| 536           | PLMRT13 580×7 | 580.00           | 3.91            | 7.00            |                 |
| 537           | PLMRT13 590×7 | 590.00           | 3.97            | 7.00            |                 |
| 538           | PLMRT13 600×7 | 600.00           | 4.03            | 7.00            |                 |
| 539           | PLMRT13 608×7 | 608.00           | 4.08            | 7.00            |                 |
| 540           | PLMRT13 615×7 | 615.00           | 4.12            | 7.00            |                 |
| 541           | PLMRT13 623×7 | 623.00           | 4.17            | 7.00            |                 |
| 542           | PLMRT13 630×7 | 630.00           | 4.22            | 7.00            |                 |
| 543           | PLMRT13 640×7 | 640.00           | 4.28            | 7.00            |                 |
| 544           | PLMRT13 650×7 | 650.00           | 4.34            | 7.00            |                 |
| 545           | PLMRT13 660×7 | 660.00           | 4.40            | 7.00            |                 |
| 546           | PLMRT13 670×7 | 670.00           | 4.47            | 7.00            |                 |

## REFERENCE AS568/ISO 3601-1

| Serial Number | Order Number       | Inner Diameter d | Tolerance $\pm$ | Wire Diameter s | Tolerance $\pm$ |
|---------------|--------------------|------------------|-----------------|-----------------|-----------------|
| 1             | PLMRT13 0.74×1.02  | 0.74             | 0.10            | 1.02            | 0.08            |
| 2             | PLMRT13 1.07×1.27  | 1.07             |                 | 1.27            |                 |
| 3             | PLMRT13 1.42×1.52  | 1.42             |                 | 1.52            |                 |
| 4             | PLMRT13 1.78×1.78  | 1.78             | 0.13            | 1.78            |                 |
| 5             | PLMRT13 2.57×1.78  | 2.57             |                 | 1.78            |                 |
| 6             | PLMRT13 2.9×1.78   | 2.90             |                 | 1.78            |                 |
| 7             | PLMRT13 3.68×1.78  | 3.68             |                 | 1.78            |                 |
| 8             | PLMRT13 4.47×1.78  | 4.47             |                 | 1.78            |                 |
| 9             | PLMRT13 5.28×1.78  | 5.28             |                 | 1.78            |                 |
| 10            | PLMRT13 6.07×1.78  | 6.07             |                 | 1.78            |                 |
| 11            | PLMRT13 7.65×1.78  | 7.65             |                 | 1.78            |                 |
| 12            | PLMRT13 9.25×1.78  | 9.25             |                 | 1.78            |                 |
| 13            | PLMRT13 10.82×1.78 | 10.82            |                 | 1.78            |                 |
| 14            | PLMRT13 12.42×1.78 | 12.42            | 0.18            | 1.78            |                 |
| 15            | PLMRT13 14×1.78    | 14.00            |                 | 1.78            |                 |
| 16            | PLMRT13 15.6×1.78  | 15.60            | 0.23            | 1.78            |                 |
| 17            | PLMRT13 17.17×1.78 | 17.17            |                 | 1.78            |                 |
| 18            | PLMRT13 18.77×1.78 | 18.77            |                 | 1.78            |                 |
| 19            | PLMRT13 20.35×1.78 | 20.35            |                 | 1.78            |                 |
| 20            | PLMRT13 21.95×1.78 | 21.95            | 0.25            | 1.78            |                 |
| 21            | PLMRT13 23.52×1.78 | 23.52            |                 | 1.78            |                 |
| 22            | PLMRT13 25.12×1.78 | 25.12            |                 | 1.78            |                 |
| 23            | PLMRT13 26.7×1.78  | 26.70            | 0.28            | 1.78            |                 |
| 24            | PLMRT13 28.3×1.78  | 28.30            |                 | 1.78            |                 |
| 25            | PLMRT13 29.87×1.78 | 29.87            |                 | 1.78            |                 |
| 26            | PLMRT13 31.47×1.78 | 31.47            | 0.33            | 1.78            |                 |
| 27            | PLMRT13 33.05×1.78 | 33.05            |                 | 1.78            |                 |
| 28            | PLMRT13 34.65×1.78 | 34.65            |                 | 1.78            |                 |
| 29            | PLMRT13 37.82×1.78 | 37.82            | 0.38            | 1.78            |                 |
| 30            | PLMRT13 41×1.78    | 41.00            |                 | 1.78            |                 |
| 31            | PLMRT13 44.17×1.78 | 44.17            |                 | 1.78            |                 |
| 32            | PLMRT13 47.35×1.78 | 47.35            | 0.46            | 1.78            |                 |
| 33            | PLMRT13 50.52×1.78 | 50.52            |                 | 1.78            |                 |
| 34            | PLMRT13 53.7×1.78  | 53.70            |                 | 1.78            |                 |
| 35            | PLMRT13 56.87×1.78 | 56.87            |                 | 1.78            |                 |
| 36            | PLMRT13 60.05×1.78 | 60.05            |                 | 1.78            |                 |
| 37            | PLMRT13 63.22×1.78 | 63.22            | 0.51            | 1.78            |                 |
| 38            | PLMRT13 66.4×1.78  | 66.40            |                 | 1.78            |                 |
| 39            | PLMRT13 69.57×1.78 | 69.57            |                 | 1.78            |                 |
| 40            | PLMRT13 72.75×1.78 | 72.75            | 0.61            | 1.78            |                 |
| 41            | PLMRT13 75.92×1.78 | 75.92            |                 | 1.78            |                 |
| 42            | PLMRT13 82.27×1.78 | 82.27            |                 | 1.78            |                 |

| Serial Number | Order Number        | Inner Diameter d | Tolerance ± | Wire Diameter s | Tolerance ± |
|---------------|---------------------|------------------|-------------|-----------------|-------------|
| 43            | PLMRT13 88.62×1.78  | 88.62            | 0.61        | 1.78            | 0.08        |
| 44            | PLMRT13 94.97×1.78  | 94.97            | 0.69        | 1.78            |             |
| 45            | PLMRT13 101.32×1.78 | 101.32           |             | 1.78            |             |
| 46            | PLMRT13 107.67×1.78 | 107.67           | 0.76        | 1.78            |             |
| 47            | PLMRT13 114.02×1.78 | 114.02           |             | 1.78            |             |
| 48            | PLMRT13 120.37×1.78 | 120.37           |             | 1.78            |             |
| 49            | PLMRT13 126.72×1.78 | 126.72           | 0.94        | 1.78            |             |
| 50            | PLMRT13 133.07×1.78 | 133.07           |             | 1.78            |             |
| 51            | PLMRT13 1.24×2.62   | 1.24             | 0.13        | 2.62            | 0.08        |
| 52            | PLMRT13 2.06×2.62   | 2.06             |             | 2.62            |             |
| 53            | PLMRT13 2.84×2.62   | 2.84             |             | 2.62            |             |
| 54            | PLMRT13 3.63×2.62   | 3.63             |             | 2.62            |             |
| 55            | PLMRT13 4.42×2.62   | 4.42             |             | 2.62            |             |
| 56            | PLMRT13 5.23×2.62   | 5.23             |             | 2.62            |             |
| 57            | PLMRT13 6.02×2.62   | 6.02             |             | 2.62            |             |
| 58            | PLMRT13 7.59×2.62   | 7.59             |             | 2.62            |             |
| 59            | PLMRT13 9.19×2.62   | 9.19             |             | 2.62            |             |
| 60            | PLMRT13 10.77×2.62  | 10.77            |             | 2.62            |             |
| 61            | PLMRT13 12.37×2.62  | 12.37            |             | 2.62            |             |
| 62            | PLMRT13 13.94×2.62  | 13.94            | 0.18        | 2.62            |             |
| 63            | PLMRT13 15.54×2.62  | 15.54            | 0.23        | 2.62            |             |
| 64            | PLMRT13 17.12×2.62  | 17.12            |             | 2.62            |             |
| 65            | PLMRT13 18.72×2.62  | 18.72            |             | 2.62            |             |
| 66            | PLMRT13 20.29×2.62  | 20.29            | 0.25        | 2.62            |             |
| 67            | PLMRT13 21.89×2.62  | 21.89            |             | 2.62            |             |
| 68            | PLMRT13 23.47×2.62  | 23.47            |             | 2.62            |             |
| 69            | PLMRT13 25.07×2.62  | 25.07            |             | 2.62            |             |
| 70            | PLMRT13 26.64×2.62  | 26.64            |             | 2.62            |             |
| 71            | PLMRT13 28.24×2.62  | 28.24            | 0.30        | 2.62            |             |
| 72            | PLMRT13 29.82×2.62  | 29.82            |             | 2.62            |             |
| 73            | PLMRT13 31.42×2.62  | 31.42            |             | 2.62            |             |
| 74            | PLMRT13 32.99×2.62  | 32.99            |             | 2.62            |             |
| 75            | PLMRT13 34.59×2.62  | 34.59            |             | 2.62            |             |
| 76            | PLMRT13 36.17×2.62  | 36.17            |             | 2.62            |             |
| 77            | PLMRT13 37.77×2.62  | 37.77            | 0.38        | 2.62            |             |
| 78            | PLMRT13 39.34×2.62  | 39.34            |             | 2.62            |             |
| 79            | PLMRT13 40.94×2.62  | 40.94            |             | 2.62            |             |
| 80            | PLMRT13 42.52×2.62  | 42.52            |             | 2.62            |             |
| 81            | PLMRT13 44.12×2.62  | 44.12            |             | 2.62            |             |
| 82            | PLMRT13 45.69×2.62  | 45.69            |             | 2.62            |             |
| 83            | PLMRT13 47.29×2.62  | 47.29            | 0.43        | 2.62            |             |
| 84            | PLMRT13 48.9×2.62   | 48.90            |             | 2.62            |             |
| 85            | PLMRT13 50.47×2.62  | 50.47            |             | 2.62            |             |

| Serial Number | Order Number        | Inner Diameter d | Tolerance $\pm$ | Wire Diameter s | Tolerance $\pm$ |
|---------------|---------------------|------------------|-----------------|-----------------|-----------------|
| 86            | PLMRT13 52.07×2.62  | 52.07            | 0.43            | 2.62            | 0.08            |
| 87            | PLMRT13 53.64×2.62  | 53.64            |                 | 2.62            |                 |
| 88            | PLMRT13 55.25×2.62  | 55.25            |                 | 2.62            |                 |
| 89            | PLMRT13 56.82×2.62  | 56.82            | 0.51            | 2.62            |                 |
| 90            | PLMRT13 58.42×2.62  | 58.42            |                 | 2.62            |                 |
| 91            | PLMRT13 59.99×2.62  | 59.99            |                 | 2.62            |                 |
| 92            | PLMRT13 61.6×2.62   | 61.60            |                 | 2.62            |                 |
| 93            | PLMRT13 63.17×2.62  | 63.17            |                 | 2.62            |                 |
| 94            | PLMRT13 64.77×2.62  | 64.77            |                 | 2.62            |                 |
| 95            | PLMRT13 66.34×2.62  | 66.34            | 0.56            | 2.62            |                 |
| 96            | PLMRT13 67.95×2.62  | 67.95            |                 | 2.62            |                 |
| 97            | PLMRT13 69.52×2.62  | 69.52            |                 | 2.62            |                 |
| 98            | PLMRT13 71.12×2.62  | 71.12            |                 | 2.62            |                 |
| 99            | PLMRT13 72.69×2.62  | 72.69            | 0.61            | 2.62            |                 |
| 100           | PLMRT13 75.87×2.62  | 75.87            |                 | 2.62            |                 |
| 101           | PLMRT13 82.22×2.62  | 82.22            |                 | 2.62            |                 |
| 102           | PLMRT13 88.57×2.62  | 88.57            | 0.71            | 2.62            |                 |
| 103           | PLMRT13 94.92×2.62  | 94.92            |                 | 2.62            |                 |
| 104           | PLMRT13 101.27×2.62 | 101.27           | 0.76            | 2.62            |                 |
| 105           | PLMRT13 107.62×2.62 | 107.62           |                 | 2.62            |                 |
| 106           | PLMRT13 113.97×2.62 | 113.97           |                 | 2.62            |                 |
| 107           | PLMRT13 120.32×2.62 | 120.32           |                 | 2.62            |                 |
| 108           | PLMRT13 126.67×2.62 | 126.67           | 0.89            | 2.62            |                 |
| 109           | PLMRT13 133.02×2.62 | 133.02           |                 | 2.62            |                 |
| 110           | PLMRT13 139.37×2.62 | 139.37           |                 | 2.62            |                 |
| 111           | PLMRT13 145.72×2.62 | 145.72           |                 | 2.62            |                 |
| 112           | PLMRT13 152.07×2.62 | 152.07           | 1.02            | 2.62            |                 |
| 113           | PLMRT13 158.42×2.62 | 158.42           |                 | 2.62            |                 |
| 114           | PLMRT13 164.77×2.62 | 164.77           |                 | 2.62            |                 |
| 115           | PLMRT13 171.12×2.62 | 171.12           |                 | 2.62            |                 |
| 116           | PLMRT13 177.47×2.62 | 177.47           | 1.14            | 2.62            |                 |
| 117           | PLMRT13 183.82×2.62 | 183.82           |                 | 2.62            |                 |
| 118           | PLMRT13 190.17×2.62 | 190.17           |                 | 2.62            |                 |
| 119           | PLMRT13 196.52×2.62 | 196.52           |                 | 2.62            |                 |
| 120           | PLMRT13 202.87×2.62 | 202.87           | 1.27            | 2.62            |                 |
| 121           | PLMRT13 209.22×2.62 | 209.22           |                 | 2.62            |                 |
| 122           | PLMRT13 215.57×2.62 | 215.57           |                 | 2.62            |                 |
| 123           | PLMRT13 221.92×2.62 | 221.92           |                 | 2.62            |                 |
| 124           | PLMRT13 228.27×2.62 | 228.27           | 1.40            | 2.62            |                 |
| 125           | PLMRT13 234.62×2.62 | 234.62           |                 | 2.62            |                 |
| 126           | PLMRT13 240.97×2.62 | 240.97           |                 | 2.62            |                 |
| 127           | PLMRT13 247.32×2.62 | 247.32           |                 | 2.62            |                 |
| 128           | PLMRT13 4.34×3.53   | 4.34             | 0.13            | 3.53            | 0.10            |

| Serial Number | Order Number        | Inner Diameter d | Tolerance $\pm$ | Wire Diameter s | Tolerance $\pm$ |
|---------------|---------------------|------------------|-----------------|-----------------|-----------------|
| 129           | PLMRT13 5.94×3.53   | 5.94             | 0.13            | 3.53            | 0.10            |
| 130           | PLMRT13 7.52×3.53   | 7.52             |                 | 3.53            |                 |
| 131           | PLMRT13 9.12×3.53   | 9.12             |                 | 3.53            |                 |
| 132           | PLMRT13 10.69×3.53  | 10.69            |                 | 3.53            |                 |
| 133           | PLMRT13 12.29×3.53  | 12.29            |                 | 3.53            |                 |
| 134           | PLMRT13 13.87×3.53  | 13.87            | 0.18            | 3.53            |                 |
| 135           | PLMRT13 15.47×3.53  | 15.47            | 0.23            | 3.53            |                 |
| 136           | PLMRT13 17.04×3.53  | 17.04            |                 | 3.53            |                 |
| 137           | PLMRT13 18.64×3.53  | 18.64            | 0.25            | 3.53            |                 |
| 138           | PLMRT13 20.22×3.53  | 20.22            |                 | 3.53            |                 |
| 139           | PLMRT13 21.82×3.53  | 21.82            |                 | 3.53            |                 |
| 140           | PLMRT13 23.39×3.53  | 23.39            |                 | 3.53            |                 |
| 141           | PLMRT13 24.99×3.53  | 24.99            |                 | 3.53            |                 |
| 142           | PLMRT13 26.57×3.53  | 26.57            | 0.30            | 3.53            |                 |
| 143           | PLMRT13 28.17×3.53  | 28.17            |                 | 3.53            |                 |
| 144           | PLMRT13 29.74×3.53  | 29.74            |                 | 3.53            |                 |
| 145           | PLMRT13 31.34×3.53  | 31.34            |                 | 3.53            |                 |
| 146           | PLMRT13 32.92×3.53  | 32.92            |                 | 3.53            |                 |
| 147           | PLMRT13 34.52×3.53  | 34.52            | 0.38            | 3.53            |                 |
| 148           | PLMRT13 36.09×3.53  | 36.09            |                 | 3.53            |                 |
| 149           | PLMRT13 37.69×3.53  | 37.69            |                 | 3.53            |                 |
| 150           | PLMRT13 40.87×3.53  | 40.87            |                 | 3.53            |                 |
| 151           | PLMRT13 44.04×3.53  | 44.04            |                 | 3.53            |                 |
| 152           | PLMRT13 47.22×3.53  | 47.22            | 0.46            | 3.53            |                 |
| 153           | PLMRT13 50.39×3.53  | 50.39            |                 | 3.53            |                 |
| 154           | PLMRT13 53.57×3.53  | 53.57            |                 | 3.53            |                 |
| 155           | PLMRT13 56.74×3.53  | 56.74            | 0.51            | 3.53            |                 |
| 156           | PLMRT13 59.92×3.53  | 59.92            |                 | 3.53            |                 |
| 157           | PLMRT13 63.09×3.53  | 63.09            |                 | 3.53            |                 |
| 158           | PLMRT13 66.27×3.53  | 66.27            |                 | 3.53            |                 |
| 159           | PLMRT13 69.44×3.53  | 69.44            | 0.61            | 3.53            |                 |
| 160           | PLMRT13 72.62×3.53  | 72.62            |                 | 3.53            |                 |
| 161           | PLMRT13 75.79×3.53  | 75.79            |                 | 3.53            |                 |
| 162           | PLMRT13 78.97×3.53  | 78.97            |                 | 3.53            |                 |
| 163           | PLMRT13 82.14×3.53  | 82.14            |                 | 3.53            |                 |
| 164           | PLMRT13 85.32×3.53  | 85.32            | 0.71            | 3.53            |                 |
| 165           | PLMRT13 88.49×3.53  | 88.49            |                 | 3.53            |                 |
| 166           | PLMRT13 91.67×3.53  | 91.67            |                 | 3.53            |                 |
| 167           | PLMRT13 94.84×3.53  | 94.84            |                 | 3.53            |                 |
| 168           | PLMRT13 98.02×3.53  | 98.02            | 0.76            | 3.53            |                 |
| 169           | PLMRT13 101.19×3.53 | 101.19           |                 | 3.53            |                 |
| 170           | PLMRT13 104.37×3.53 | 104.37           |                 | 3.53            |                 |
| 171           | PLMRT13 107.54×3.53 | 107.54           | 0.76            | 3.53            |                 |

| Serial Number | Order Number        | Inner Diameter d | Tolerance $\pm$ | Wire Diameter s | Tolerance $\pm$ |
|---------------|---------------------|------------------|-----------------|-----------------|-----------------|
| 172           | PLMRT13 110.72×3.53 | 110.72           | 0.76            | 3.53            | 0.10            |
| 173           | PLMRT13 113.89×3.53 | 113.89           |                 | 3.53            |                 |
| 174           | PLMRT13 117.07×3.53 | 117.07           |                 | 3.53            |                 |
| 175           | PLMRT13 120.24×3.53 | 120.24           |                 | 3.53            |                 |
| 176           | PLMRT13 123.42×3.53 | 123.42           |                 | 3.53            |                 |
| 177           | PLMRT13 126.59×3.53 | 126.59           | 0.89            | 3.53            |                 |
| 178           | PLMRT13 129.77×3.53 | 129.77           |                 | 3.53            |                 |
| 179           | PLMRT13 132.94×3.53 | 132.94           |                 | 3.53            |                 |
| 180           | PLMRT13 136.12×3.53 | 136.12           |                 | 3.53            |                 |
| 181           | PLMRT13 139.29×3.53 | 139.29           |                 | 3.53            |                 |
| 182           | PLMRT13 142.47×3.53 | 142.47           |                 | 3.53            |                 |
| 183           | PLMRT13 145.64×3.53 | 145.64           |                 | 3.53            |                 |
| 184           | PLMRT13 148.82×3.53 | 148.82           |                 | 3.53            |                 |
| 185           | PLMRT13 151.99×3.53 | 151.99           |                 | 3.53            |                 |
| 186           | PLMRT13 158.34×3.53 | 158.34           | 1.02            | 3.53            |                 |
| 187           | PLMRT13 164.69×3.53 | 164.69           |                 | 3.53            |                 |
| 188           | PLMRT13 171.04×3.53 | 171.04           |                 | 3.53            |                 |
| 189           | PLMRT13 177.39×3.53 | 177.39           |                 | 3.53            |                 |
| 190           | PLMRT13 183.74×3.53 | 183.74           | 1.14            | 3.53            |                 |
| 191           | PLMRT13 190.09×3.53 | 190.09           |                 | 3.53            |                 |
| 192           | PLMRT13 196.44×3.53 | 196.44           |                 | 3.53            |                 |
| 193           | PLMRT13 202.79×3.53 | 202.79           |                 | 3.53            |                 |
| 194           | PLMRT13 209.14×3.53 | 209.14           | 1.27            | 3.53            |                 |
| 195           | PLMRT13 215.49×3.53 | 215.49           |                 | 3.53            |                 |
| 196           | PLMRT13 221.84×3.53 | 221.84           |                 | 3.53            |                 |
| 197           | PLMRT13 228.19×3.53 | 228.19           |                 | 3.53            |                 |
| 198           | PLMRT13 234.54×3.53 | 234.54           | 1.40            | 3.53            |                 |
| 199           | PLMRT13 240.89×3.53 | 240.89           |                 | 3.53            |                 |
| 200           | PLMRT13 247.24×3.53 | 247.24           |                 | 3.53            |                 |
| 201           | PLMRT13 253.59×3.53 | 253.59           |                 | 3.53            |                 |
| 202           | PLMRT13 266.29×3.53 | 266.29           | 1.65            | 3.53            |                 |
| 203           | PLMRT13 278.99×3.53 | 278.99           |                 | 3.53            |                 |
| 204           | PLMRT13 291.69×3.53 | 291.69           |                 | 3.53            |                 |
| 205           | PLMRT13 304.39×3.53 | 304.39           |                 | 3.53            |                 |
| 206           | PLMRT13 329.79×3.53 | 329.79           |                 | 3.53            |                 |
| 207           | PLMRT13 355.19×3.53 | 355.19           |                 | 3.53            |                 |
| 208           | PLMRT13 380.59×3.53 | 380.59           |                 | 3.53            |                 |
| 209           | PLMRT13 405.26×3.53 | 405.26           | 1.91            | 3.53            | 0.13            |
| 210           | PLMRT13 430.66×3.53 | 430.66           | 2.03            | 3.53            |                 |
| 211           | PLMRT13 456.06×3.53 | 456.06           | 2.16            | 3.53            |                 |
| 212           | PLMRT13 10.46×5.33  | 10.46            | 0.13            | 5.33            |                 |
| 213           | PLMRT13 12.07×5.33  | 12.07            |                 | 5.33            |                 |
| 214           | PLMRT13 13.64×5.33  | 13.64            | 0.18            | 5.33            |                 |

| Serial Number | Order Number        | Inner Diameter d | Tolerance ± | Wire Diameter s | Tolerance ± |
|---------------|---------------------|------------------|-------------|-----------------|-------------|
| 215           | PLMRT13 15.24×5.33  | 15.24            | 0.23        | 5.33            | 0.13        |
| 216           | PLMRT13 16.81×5.33  | 16.81            |             | 5.33            |             |
| 217           | PLMRT13 18.42×5.33  | 18.42            |             | 5.33            |             |
| 218           | PLMRT13 19.99×5.33  | 19.99            | 0.25        | 5.33            |             |
| 219           | PLMRT13 21.59×5.33  | 21.59            |             | 5.33            |             |
| 220           | PLMRT13 23.16×5.33  | 23.16            |             | 5.33            |             |
| 221           | PLMRT13 24.77×5.33  | 24.77            |             | 5.33            |             |
| 222           | PLMRT13 26.34×5.33  | 26.34            |             | 5.33            |             |
| 223           | PLMRT13 27.94×5.33  | 27.94            | 0.30        | 5.33            |             |
| 224           | PLMRT13 29.51×5.33  | 29.51            |             | 5.33            |             |
| 225           | PLMRT13 31.12×5.33  | 31.12            |             | 5.33            |             |
| 226           | PLMRT13 32.69×5.33  | 32.69            |             | 5.33            |             |
| 227           | PLMRT13 34.29×5.33  | 34.29            | 0.38        | 5.33            |             |
| 228           | PLMRT13 37.47×5.33  | 37.47            |             | 5.33            |             |
| 229           | PLMRT13 40.64×5.33  | 40.64            |             | 5.33            |             |
| 230           | PLMRT13 43.82×5.33  | 43.82            |             | 5.33            |             |
| 231           | PLMRT13 46.99×5.33  | 46.99            |             | 5.33            |             |
| 232           | PLMRT13 50.17×5.33  | 50.17            | 0.46        | 5.33            |             |
| 233           | PLMRT13 53.34×5.33  | 53.34            |             | 5.33            |             |
| 234           | PLMRT13 56.52×5.33  | 56.52            |             | 5.33            |             |
| 235           | PLMRT13 59.69×5.33  | 59.69            |             | 5.33            |             |
| 236           | PLMRT13 62.87×5.33  | 62.87            | 0.51        | 5.33            |             |
| 237           | PLMRT13 66.04×5.33  | 66.04            |             | 5.33            |             |
| 238           | PLMRT13 69.22×5.33  | 69.22            |             | 5.33            |             |
| 239           | PLMRT13 72.39×5.33  | 72.39            |             | 5.33            |             |
| 240           | PLMRT13 75.57×5.33  | 75.57            | 0.61        | 5.33            |             |
| 241           | PLMRT13 78.74×5.33  | 78.74            |             | 5.33            |             |
| 242           | PLMRT13 81.92×5.33  | 81.92            |             | 5.33            |             |
| 243           | PLMRT13 85.09×5.33  | 85.09            |             | 5.33            |             |
| 244           | PLMRT13 88.27×5.33  | 88.27            |             | 5.33            |             |
| 245           | PLMRT13 91.44×5.33  | 91.44            | 0.71        | 5.33            |             |
| 246           | PLMRT13 94.62×5.33  | 94.62            |             | 5.33            |             |
| 247           | PLMRT13 97.79×5.33  | 97.79            |             | 5.33            |             |
| 248           | PLMRT13 100.97×5.33 | 100.97           |             | 5.33            |             |
| 249           | PLMRT13 104.14×5.33 | 104.14           | 0.76        | 5.33            |             |
| 250           | PLMRT13 107.32×5.33 | 107.32           |             | 5.33            |             |
| 251           | PLMRT13 110.49×5.33 | 110.49           |             | 5.33            |             |
| 252           | PLMRT13 113.67×5.33 | 113.67           |             | 5.33            |             |
| 253           | PLMRT13 116.84×5.33 | 116.84           |             | 5.33            |             |
| 254           | PLMRT13 120.02×5.33 | 120.02           |             | 5.33            |             |
| 255           | PLMRT13 123.19×5.33 | 123.19           | 0.94        | 5.33            |             |
| 256           | PLMRT13 126.37×5.33 | 126.37           |             | 5.33            |             |
| 257           | PLMRT13 129.54×5.33 | 129.54           |             | 5.33            |             |

| Serial Number | Order Number        | Inner Diameter d | Tolerance $\pm$ | Wire Diameter s | Tolerance $\pm$ |
|---------------|---------------------|------------------|-----------------|-----------------|-----------------|
| 258           | PLMRT13 132.72×5.33 | 132.72           | 0.94            | 5.33            | 0.13            |
| 259           | PLMRT13 135.89×5.33 | 135.89           |                 | 5.33            |                 |
| 260           | PLMRT13 139.07×5.33 | 139.07           |                 | 5.33            |                 |
| 261           | PLMRT13 142.24×5.33 | 142.24           |                 | 5.33            |                 |
| 262           | PLMRT13 145.42×5.33 | 145.42           |                 | 5.33            |                 |
| 263           | PLMRT13 148.59×5.33 | 148.59           |                 | 5.33            |                 |
| 264           | PLMRT13 151.77×5.33 | 151.77           | 1.02            | 5.33            |                 |
| 265           | PLMRT13 158.12×5.33 | 158.12           |                 | 5.33            |                 |
| 266           | PLMRT13 164.47×5.33 | 164.47           |                 | 5.33            |                 |
| 267           | PLMRT13 170.82×5.33 | 170.82           |                 | 5.33            |                 |
| 268           | PLMRT13 177.17×5.33 | 177.17           | 1.14            | 5.33            |                 |
| 269           | PLMRT13 183.52×5.33 | 183.52           |                 | 5.33            |                 |
| 270           | PLMRT13 189.87×5.33 | 189.87           |                 | 5.33            |                 |
| 271           | PLMRT13 196.22×5.33 | 196.22           |                 | 5.33            |                 |
| 272           | PLMRT13 202.57×5.33 | 202.57           | 1.27            | 5.33            |                 |
| 273           | PLMRT13 208.92×5.33 | 208.92           |                 | 5.33            |                 |
| 274           | PLMRT13 215.27×5.33 | 215.27           |                 | 5.33            |                 |
| 275           | PLMRT13 221.62×5.33 | 221.62           |                 | 5.33            |                 |
| 276           | PLMRT13 227.97×5.33 | 227.97           | 1.40            | 5.33            |                 |
| 277           | PLMRT13 234.32×5.33 | 234.32           |                 | 5.33            |                 |
| 278           | PLMRT13 240.67×5.33 | 240.67           |                 | 5.33            |                 |
| 279           | PLMRT13 247.02×5.33 | 247.02           |                 | 5.33            |                 |
| 280           | PLMRT13 253.37×5.33 | 253.37           | 1.52            | 5.33            |                 |
| 281           | PLMRT13 266.07×5.33 | 266.07           |                 | 5.33            |                 |
| 282           | PLMRT13 278.77×5.33 | 278.77           | 1.65            | 5.33            |                 |
| 283           | PLMRT13 291.47×5.33 | 291.47           |                 | 5.33            |                 |
| 284           | PLMRT13 304.17×5.33 | 304.17           |                 | 5.33            |                 |
| 285           | PLMRT13 329.57×5.33 | 329.57           | 1.78            | 5.33            |                 |
| 286           | PLMRT13 354.97×5.33 | 354.97           |                 | 5.33            |                 |
| 287           | PLMRT13 380.37×5.33 | 380.37           | 1.91            | 5.33            |                 |
| 288           | PLMRT13 405.26×5.33 | 405.26           | 2.03            | 5.33            |                 |
| 289           | PLMRT13 430.66×5.33 | 430.66           | 2.16            | 5.33            |                 |
| 290           | PLMRT13 456.06×5.33 | 456.06           | 2.29            | 5.33            |                 |
| 291           | PLMRT13 481.46×5.33 | 481.46           | 2.41            | 5.33            |                 |
| 292           | PLMRT13 506.86×5.33 | 506.86           |                 | 5.33            |                 |
| 293           | PLMRT13 532.26×5.33 | 532.26           | 2.54            | 5.33            |                 |
| 294           | PLMRT13 557.66×5.33 | 557.66           | 2.67            | 5.33            |                 |
| 295           | PLMRT13 582.68×5.33 | 582.68           | 2.79            | 5.33            |                 |
| 296           | PLMRT13 608.08×5.33 | 608.08           | 2.92            | 5.33            |                 |
| 297           | PLMRT13 633.48×5.33 | 633.48           | 3.05            | 5.33            |                 |
| 298           | PLMRT13 658.88×5.33 | 658.88           | 0.84            | 6.99            | 0.15            |
| 299           | PLMRT13 113.67×6.99 | 113.67           |                 | 6.99            |                 |
| 300           | PLMRT13 116.84×6.99 | 116.84           |                 |                 |                 |

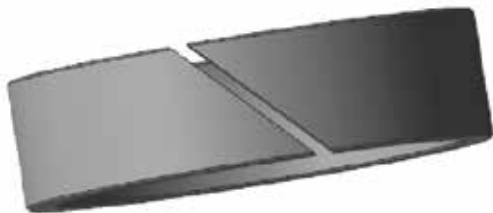
| Serial Number | Order Number        | Inner Diameter d | Tolerance $\pm$ | Wire Diameter S | Tolerance $\pm$ |
|---------------|---------------------|------------------|-----------------|-----------------|-----------------|
| 301           | PLMRT13 120.02×6.99 | 120.02           | 0.84            | 6.99            | 0.15            |
| 302           | PLMRT13 123.19×6.99 | 123.19           |                 | 6.99            |                 |
| 303           | PLMRT13 126.37×6.99 | 126.37           | 0.94            | 6.99            |                 |
| 304           | PLMRT13 129.54×6.99 | 129.54           |                 | 6.99            |                 |
| 305           | PLMRT13 132.72×6.99 | 132.72           |                 | 6.99            |                 |
| 306           | PLMRT13 135.89×6.99 | 135.89           |                 | 6.99            |                 |
| 307           | PLMRT13 139.07×6.99 | 139.07           |                 | 6.99            |                 |
| 308           | PLMRT13 142.24×6.99 | 142.24           |                 | 6.99            |                 |
| 309           | PLMRT13 145.42×6.99 | 145.42           |                 | 6.99            |                 |
| 310           | PLMRT13 148.59×6.99 | 148.59           |                 | 6.99            |                 |
| 311           | PLMRT13 151.77×6.99 | 151.77           |                 | 6.99            |                 |
| 312           | PLMRT13 158.12×6.99 | 158.12           | 1.02            | 6.99            |                 |
| 313           | PLMRT13 164.47×6.99 | 164.47           |                 | 6.99            |                 |
| 314           | PLMRT13 170.82×6.99 | 170.82           |                 | 6.99            |                 |
| 315           | PLMRT13 177.17×6.99 | 177.17           |                 | 6.99            |                 |
| 316           | PLMRT13 183.52×6.99 | 183.52           | 1.14            | 6.99            |                 |
| 317           | PLMRT13 189.87×6.99 | 189.87           |                 | 6.99            |                 |
| 318           | PLMRT13 196.22×6.99 | 196.22           |                 | 6.99            |                 |
| 319           | PLMRT13 202.57×6.99 | 202.57           |                 | 6.99            |                 |
| 320           | PLMRT13 215.27×6.99 | 215.27           | 1.40            | 6.99            |                 |
| 321           | PLMRT13 227.97×6.99 | 227.97           |                 | 6.99            |                 |
| 322           | PLMRT13 240.67×6.99 | 240.67           |                 | 6.99            |                 |
| 323           | PLMRT13 253.37×6.99 | 253.37           |                 | 6.99            |                 |
| 324           | PLMRT13 266.07×6.99 | 266.07           | 1.52            | 6.99            |                 |
| 325           | PLMRT13 278.77×6.99 | 278.77           |                 | 6.99            |                 |
| 326           | PLMRT13 291.47×6.99 | 291.47           |                 | 6.99            |                 |
| 327           | PLMRT13 304.17×6.99 | 304.17           |                 | 6.99            |                 |
| 328           | PLMRT13 316.87×6.99 | 316.87           |                 | 6.99            |                 |
| 329           | PLMRT13 329.57×6.99 | 329.57           |                 | 6.99            |                 |
| 330           | PLMRT13 342.27×6.99 | 342.27           | 1.78            | 6.99            |                 |
| 331           | PLMRT13 354.97×6.99 | 354.97           |                 | 6.99            |                 |
| 332           | PLMRT13 367.67×6.99 | 367.67           |                 | 6.99            |                 |
| 333           | PLMRT13 380.37×6.99 | 380.37           |                 | 6.99            |                 |
| 334           | PLMRT13 393.07×6.99 | 393.07           | 1.91            | 6.99            |                 |
| 335           | PLMRT13 405.26×6.99 | 405.26           |                 | 6.99            |                 |
| 336           | PLMRT13 417.96×6.99 | 417.96           | 2.03            | 6.99            |                 |
| 337           | PLMRT13 430.66×6.99 | 430.66           |                 | 6.99            |                 |
| 338           | PLMRT13 443.36×6.99 | 443.36           | 2.16            | 6.99            |                 |
| 339           | PLMRT13 456.06×6.99 | 456.06           |                 | 6.99            |                 |
| 340           | PLMRT13 468.76×6.99 | 468.76           |                 | 6.99            |                 |
| 341           | PLMRT13 481.46×6.99 | 481.46           | 2.29            | 6.99            |                 |
| 342           | PLMRT13 494.16×6.99 | 494.16           |                 | 6.99            |                 |
| 343           | PLMRT13 506.86×6.99 | 506.86           | 2.41            | 6.99            |                 |

| Serial Number | Order Number        | Inner Diamete | Tolerance $\pm$ | Wire Diameter S | Tolerance $\pm$ |
|---------------|---------------------|---------------|-----------------|-----------------|-----------------|
| 344           | PLMRT13 532.26×6.99 | 532.26        | 2.41            | 6.99            | 0.15            |
| 345           | PLMRT13 557.66×6.99 | 557.66        | 2.54            | 6.99            |                 |
| 346           | PLMRT13 582.68×6.99 | 582.68        | 2.67            | 6.99            |                 |
| 347           | PLMRT13 608.08×6.99 | 608.08        | 2.79            | 6.99            |                 |
| 348           | PLMRT13 633.48×6.99 | 633.48        | 2.92            | 6.99            |                 |
| 349           | PLMRT13 658.88×6.99 | 658.88        | 3.05            | 6.99            |                 |
| 350           | PLMRT13 4.7×1.42    | 4.70          | 0.13            | 1.42            | 0.08            |
| 351           | PLMRT13 6.07×1.63   | 6.07          |                 | 1.63            |                 |
| 352           | PLMRT13 7.65×1.63   | 7.65          |                 | 1.63            |                 |
| 353           | PLMRT13 8.92×1.83   | 8.92          |                 | 1.83            |                 |
| 354           | PLMRT13 10.52×1.83  | 10.52         |                 | 1.83            |                 |
| 355           | PLMRT13 11.89×1.98  | 11.89         |                 | 1.98            |                 |
| 356           | PLMRT13 13.46×2.08  | 13.46         | 0.18            | 2.08            | 0.10            |
| 357           | PLMRT13 16.34×2.21  | 16.34         | 0.23            | 2.21            |                 |
| 358           | PLMRT13 17.93×2.46  | 17.93         |                 | 2.46            |                 |
| 359           | PLMRT13 19.18×2.46  | 19.18         |                 | 2.46            |                 |
| 360           | PLMRT13 21.92×2.95  | 21.92         |                 | 2.95            |                 |
| 361           | PLMRT13 23.47×2.95  | 23.47         |                 | 2.95            |                 |
| 362           | PLMRT13 25.04×2.95  | 25.04         | 0.25            | 2.95            | 0.10            |
| 363           | PLMRT13 26.59×2.95  | 26.59         |                 | 2.95            |                 |
| 364           | PLMRT13 29.74×2.95  | 29.74         |                 | 2.95            |                 |
| 365           | PLMRT13 34.42×2.95  | 34.42         | 0.30            | 2.95            |                 |
| 366           | PLMRT13 37.47×3     | 37.47         | 0.36            | 3.00            |                 |
| 367           | PLMRT13 43.69×3     | 43.69         |                 | 3.00            |                 |
| 368           | PLMRT13 53.09×3     | 53.09         | 0.46            | 3.00            |                 |
| 369           | PLMRT13 59.36×3     | 59.36         |                 | 3.00            |                 |

In addition to the above specifications, Puli can provide customized product dimensions

Guide Ring

PLMG01



●Product Description

Guide rings and guide strips are among the most commonly used components. They are designed to withstand the radial loads acting on the hydraulic cylinder assembly and to provide guidance for the piston rod and piston. Made from high-performance polymer materials, guide rings and strips prevent metal-to-metal contact between moving parts inside the hydraulic cylinder, thereby extending service life. They also help ensure smoother relative motion between sealing and metal components while minimizing damage caused by contaminant particles within the system.

●Applications

Used for guiding, supporting, and protecting all linear motion components.

●Application parameters

Operating temperature: -35℃ to 100℃

Working pressure: ≤40MPa

Surface velocity: ≤0.5m/s

Medium: Mineral hydraulic oil and grease

Standard materials: PLMRUBBER-N80+PLMTPE-70+PLMPOM-2

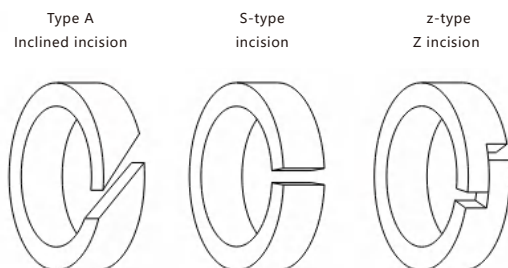
Note: The maximum values of the above data cannot be used simultaneously

| Material                     | Operating Temperature | Maximum Operating Speed ms | Ultimate radial load strength in MPa |
|------------------------------|-----------------------|----------------------------|--------------------------------------|
| Phenolic cloth               | -40~120               | 1                          | 300                                  |
| Polyester Fabric             | -40~120               | 5                          | 350                                  |
| PTFE Filled                  | -100~200              | 15                         | 25                                   |
| Glass Fiber Reinforced Nylon | -40~120               | 5                          | 262                                  |
| Polyoxymethylene             | -40~100               | 5                          | 120                                  |
| polyimide                    | -200~230              | 5                          | 300                                  |

## ● Installation Requirements

The guide ring/guide strip should have an opening gap  $K$ , with the recommended value calculated as  $K = 0.015 \times d + 2$ .

The available opening types are shown in the following illustration. Unless otherwise specified, a 45° diagonal cut is used as the standard.



The A-type and S-type guide rings are open-type supports that only serve to provide support. The system pressure is entirely exerted on the sealing elements.

The Z-type guide ring is a closed-type support and, in special applications, it performs both sealing and guiding functions.

## ● Calculation of Guide Width L

$$L \geq \frac{F \times f}{P \times D} + 2$$

$L$  = Required Guide Strip Groove Width (Final value is recommended to be rounded up to align with ISO 10766) [mm]

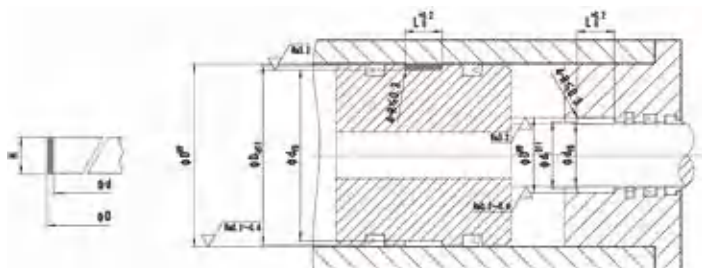
$F$  = Radial load [N]

$f$  = Safety factor

$P$  = Maximum Recommended Pressure [N mm<sup>2</sup>]

$D$  = Diameter of the dynamic side (cylinder diameter for holes, shaft diameter for rods) [mm]

# GUIDE RING



| Serial Number | Order Number     | d    | D    | L    |
|---------------|------------------|------|------|------|
| 1             | PLMG01 11×16×5.6 | 11.0 | 16.0 | 5.6  |
| 2             | PLMG01 12×15.1×4 | 12.0 | 15.1 | 4.0  |
| 3             | PLMG01 12.9×16×4 | 12.9 | 16.0 | 4.0  |
| 4             | PLMG01 14×17.1×4 | 14.0 | 17.1 | 4.0  |
| 5             | PLMG01 15×20×5.6 | 15.0 | 20.0 | 5.6  |
| 6             | PLMG01 16×19.1×4 | 16.0 | 19.1 | 4.0  |
| 7             | PLMG01 16.9×20×4 | 16.9 | 20.0 | 4.0  |
| 8             | PLMG01 18×21.1×4 | 18.0 | 21.1 | 4.0  |
| 9             | PLMG01 20×25×5.6 | 20.0 | 25.0 | 5.6  |
| 10            | PLMG01 20×23.1×4 | 20.0 | 23.1 | 4.0  |
| 11            | PLMG01 21.9×25×4 | 21.9 | 25.0 | 4.0  |
| 12            | PLMG01 22×25.1×4 | 22.0 | 25.1 | 4.0  |
| 13            | PLMG01 25×28.1×4 | 25.0 | 28.1 | 4.0  |
| 14            | PLMG01 25×30×5.6 | 25.0 | 30.0 | 5.6  |
| 15            | PLMG01 25×30×9.7 | 25.0 | 30.0 | 9.7  |
| 16            | PLMG01 27×32×5.6 | 27.0 | 32.0 | 5.6  |
| 17            | PLMG01 27×32×9.7 | 27.0 | 32.0 | 9.7  |
| 18            | PLMG01 28×31.1×4 | 28.0 | 31.1 | 4.0  |
| 19            | PLMG01 28×33×5.6 | 28.0 | 33.0 | 5.6  |
| 20            | PLMG01 28×33×9.7 | 28.0 | 33.0 | 9.7  |
| 21            | PLMG01 28.9×32×4 | 28.9 | 32.0 | 4.0  |
| 22            | PLMG01 32×37×5.6 | 32.0 | 37.0 | 5.6  |
| 23            | PLMG01 32×37×9.7 | 32.0 | 37.0 | 9.7  |
| 24            | PLMG01 32×37×15  | 32.0 | 37.0 | 15.0 |
| 25            | PLMG01 35×40×5.6 | 35.0 | 40.0 | 5.6  |
| 26            | PLMG01 35×40×9.7 | 35.0 | 40.0 | 9.7  |
| 27            | PLMG01 36×41×5.6 | 36.0 | 41.0 | 5.6  |
| 28            | PLMG01 36×41×9.7 | 36.0 | 41.0 | 9.7  |
| 29            | PLMG01 36×41×15  | 36.0 | 41.0 | 15.0 |
| 30            | PLMG01 36.9×40×4 | 36.9 | 40.0 | 4.0  |
| 31            | PLMG01 40×45×5.6 | 40.0 | 45.0 | 5.6  |

| Serial Number | Order Number       | d     | D     | L    |
|---------------|--------------------|-------|-------|------|
| 32            | PLMG01 40×45×9.7   | 40.0  | 45.0  | 9.7  |
| 33            | PLMG01 40×45×15    | 40.0  | 45.0  | 15.0 |
| 34            | PLMG01 45×50×5.6   | 45.0  | 50.0  | 5.6  |
| 35            | PLMG01 45×50×9.7   | 45.0  | 50.0  | 9.7  |
| 36            | PLMG01 45×50×15    | 45.0  | 50.0  | 15.0 |
| 37            | PLMG01 46.9×50×4   | 46.9  | 50.0  | 4.0  |
| 38            | PLMG01 50×55×5.6   | 50.0  | 55.0  | 5.6  |
| 39            | PLMG01 50×55×9.7   | 50.0  | 55.0  | 9.7  |
| 40            | PLMG01 50×55×15    | 50.0  | 55.0  | 15.0 |
| 41            | PLMG01 55×60×5.6   | 55.0  | 60.0  | 5.6  |
| 42            | PLMG01 55×60×9.7   | 55.0  | 60.0  | 9.7  |
| 43            | PLMG01 55×60×15    | 55.0  | 60.0  | 15.0 |
| 44            | PLMG01 56×61×5.6   | 56.0  | 61.0  | 5.6  |
| 45            | PLMG01 56×61×9.7   | 56.0  | 61.0  | 9.7  |
| 46            | PLMG01 56×61×15    | 56.0  | 61.0  | 15.0 |
| 47            | PLMG01 58×63×5.6   | 58.0  | 63.0  | 5.6  |
| 48            | PLMG01 58×63×9.7   | 58.0  | 63.0  | 9.7  |
| 49            | PLMG01 58×63×15    | 58.0  | 63.0  | 15.0 |
| 50            | PLMG01 63×68×5.6   | 63.0  | 68.0  | 5.6  |
| 51            | PLMG01 63×68×9.7   | 63.0  | 68.0  | 9.7  |
| 52            | PLMG01 63×68×15    | 63.0  | 68.0  | 15.0 |
| 53            | PLMG01 70×75×5.6   | 70.0  | 75.0  | 5.6  |
| 54            | PLMG01 70×75×9.7   | 70.0  | 75.0  | 9.7  |
| 55            | PLMG01 70×75×15    | 70.0  | 75.0  | 15.0 |
| 56            | PLMG01 75×80×5.6   | 75.0  | 80.0  | 5.6  |
| 57            | PLMG01 75×80×9.7   | 75.0  | 80.0  | 9.7  |
| 58            | PLMG01 75×80×15    | 75.0  | 80.0  | 15.0 |
| 59            | PLMG01 80×85×5.6   | 80.0  | 85.0  | 5.6  |
| 60            | PLMG01 80×85×9.7   | 80.0  | 85.0  | 9.7  |
| 61            | PLMG01 80×85×15    | 80.0  | 85.0  | 15.0 |
| 62            | PLMG01 90×95×9.7   | 90.0  | 95.0  | 9.7  |
| 63            | PLMG01 90×95×15    | 90.0  | 95.0  | 15.0 |
| 64            | PLMG01 90×95×25    | 90.0  | 95.0  | 25.0 |
| 65            | PLMG01 95×100×5.6  | 95.0  | 100.0 | 5.6  |
| 66            | PLMG01 95×100×9.7  | 95.0  | 100.0 | 9.7  |
| 67            | PLMG01 95×100×15   | 95.0  | 100.0 | 15.0 |
| 68            | PLMG01 100×105×9.7 | 100.0 | 105.0 | 9.7  |
| 69            | PLMG01 100×105×15  | 100.0 | 105.0 | 15.0 |
| 70            | PLMG01 100×105×25  | 100.0 | 105.0 | 25.0 |
| 71            | PLMG01 110×115×9.7 | 110.0 | 115.0 | 9.7  |
| 72            | PLMG01 110×115×15  | 110.0 | 115.0 | 15.0 |
| 73            | PLMG01 110×115×25  | 110.0 | 115.0 | 25.0 |
| 74            | PLMG01 120×125×9.7 | 120.0 | 125.0 | 9.7  |

| Serial Number | Order Number       | d     | D     | L    |
|---------------|--------------------|-------|-------|------|
| 75            | PLMG01 120×125×15  | 120.0 | 125.0 | 15.0 |
| 76            | PLMG01 120×125×25  | 120.0 | 125.0 | 25.0 |
| 77            | PLMG01 125×130×9.7 | 125.0 | 130.0 | 9.7  |
| 78            | PLMG01 125×130×15  | 125.0 | 130.0 | 15.0 |
| 79            | PLMG01 125×130×25  | 125.0 | 130.0 | 25.0 |
| 80            | PLMG01 135×140×9.7 | 135.0 | 140.0 | 9.7  |
| 81            | PLMG01 135×140×15  | 135.0 | 140.0 | 15.0 |
| 82            | PLMG01 135×140×25  | 135.0 | 140.0 | 25.0 |
| 83            | PLMG01 140×145×9.7 | 140.0 | 145.0 | 9.7  |
| 84            | PLMG01 140×145×15  | 140.0 | 145.0 | 15.0 |
| 85            | PLMG01 140×145×25  | 140.0 | 145.0 | 25.0 |
| 86            | PLMG01 155×160×9.7 | 155.0 | 160.0 | 9.7  |
| 87            | PLMG01 155×160×15  | 155.0 | 160.0 | 15.0 |
| 88            | PLMG01 155×160×25  | 155.0 | 160.0 | 25.0 |
| 89            | PLMG01 160×165×9.7 | 160.0 | 165.0 | 9.7  |
| 90            | PLMG01 160×165×15  | 160.0 | 165.0 | 15.0 |
| 91            | PLMG01 160×165×25  | 160.0 | 165.0 | 25.0 |
| 92            | PLMG01 175×180×9.7 | 175.0 | 180.0 | 9.7  |
| 93            | PLMG01 175×180×15  | 175.0 | 180.0 | 15.0 |
| 94            | PLMG01 175×180×25  | 175.0 | 180.0 | 25.0 |
| 95            | PLMG01 180×185×9.7 | 180.0 | 185.0 | 9.7  |
| 96            | PLMG01 180×185×15  | 180.0 | 185.0 | 15.0 |
| 97            | PLMG01 180×185×25  | 180.0 | 185.0 | 25.0 |
| 98            | PLMG01 195×200×9.7 | 195.0 | 200.0 | 9.7  |
| 99            | PLMG01 195×200×15  | 195.0 | 200.0 | 15.0 |
| 100           | PLMG01 195×200×25  | 195.0 | 200.0 | 25.0 |
| 101           | PLMG01 200×205×15  | 200.0 | 205.0 | 15.0 |
| 102           | PLMG01 200×205×25  | 200.0 | 205.0 | 25.0 |
| 103           | PLMG01 215×220×9.7 | 215.0 | 220.0 | 9.7  |
| 104           | PLMG01 215×220×15  | 215.0 | 220.0 | 15.0 |
| 105           | PLMG01 215×220×25  | 215.0 | 220.0 | 25.0 |
| 106           | PLMG01 220×225×15  | 220.0 | 225.0 | 15.0 |
| 107           | PLMG01 220×225×25  | 220.0 | 225.0 | 25.0 |
| 108           | PLMG01 245×250×9.7 | 245.0 | 250.0 | 9.7  |
| 109           | PLMG01 245×250×15  | 245.0 | 250.0 | 15.0 |
| 110           | PLMG01 245×250×25  | 245.0 | 250.0 | 25.0 |
| 111           | PLMG01 250×255×15  | 250.0 | 255.0 | 15.0 |
| 112           | PLMG01 250×255×25  | 250.0 | 255.0 | 25.0 |
| 113           | PLMG01 272×280×25  | 272.0 | 280.0 | 25.0 |
| 114           | PLMG01 275×280×15  | 275.0 | 280.0 | 15.0 |
| 115           | PLMG01 275×280×25  | 275.0 | 280.0 | 25.0 |
| 116           | PLMG01 280×285×15  | 280.0 | 285.0 | 15.0 |
| 117           | PLMG01 280×285×25  | 280.0 | 285.0 | 25.0 |

| Serial Number | Order Number      | d     | D     | L    |
|---------------|-------------------|-------|-------|------|
| 118           | PLMG01 280×288×25 | 280.0 | 288.0 | 25.0 |
| 119           | PLMG01 312×320×25 | 312.0 | 320.0 | 25.0 |
| 120           | PLMG01 315×320×15 | 315.0 | 320.0 | 15.0 |
| 121           | PLMG01 315×320×25 | 315.0 | 320.0 | 25.0 |
| 122           | PLMG01 320×325×15 | 320.0 | 325.0 | 15.0 |
| 123           | PLMG01 320×325×25 | 320.0 | 325.0 | 25.0 |
| 124           | PLMG01 320×328×25 | 320.0 | 328.0 | 25.0 |
| 125           | PLMG01 352×360×25 | 352.0 | 360.0 | 25.0 |
| 126           | PLMG01 355×360×15 | 355.0 | 360.0 | 15.0 |
| 127           | PLMG01 355×360×25 | 355.0 | 360.0 | 25.0 |
| 128           | PLMG01 360×365×15 | 360.0 | 365.0 | 15.0 |
| 129           | PLMG01 360×365×25 | 360.0 | 365.0 | 25.0 |
| 130           | PLMG01 360×368×25 | 360.0 | 368.0 | 25.0 |
| 131           | PLMG01 392×400×25 | 392.0 | 400.0 | 25.0 |
| 132           | PLMG01 395×400×15 | 395.0 | 400.0 | 15.0 |
| 133           | PLMG01 395×400×25 | 395.0 | 400.0 | 25.0 |
| 134           | PLMG01 400×405×25 | 400.0 | 405.0 | 25.0 |
| 135           | PLMG01 400×408×25 | 400.0 | 408.0 | 25.0 |
| 136           | PLMG01 442×450×25 | 442.0 | 450.0 | 25.0 |
| 137           | PLMG01 445×450×15 | 445.0 | 450.0 | 15.0 |
| 138           | PLMG01 445×450×25 | 445.0 | 450.0 | 25.0 |
| 139           | PLMG01 450×455×25 | 450.0 | 455.0 | 25.0 |
| 140           | PLMG01 450×458×25 | 450.0 | 458.0 | 25.0 |
| 141           | PLMG01 492×500×25 | 492.0 | 500.0 | 25.0 |
| 142           | PLMG01 495×500×15 | 495.0 | 500.0 | 15.0 |
| 143           | PLMG01 495×500×25 | 495.0 | 500.0 | 25.0 |

In addition to the above specifications, Puli can provide customized product dimensions

## Contamination Retaining Ring

**PLMG01SK**



### ● Product Description

The contamination retaining ring is made of special PTFE material and is used on the piston in combination with the bore seal and guide ring. Although it does not bear pressure, it absorbs and removes contaminants from the hydraulic fluid, thereby extending the overall service life of the sealing system. The open design allows easy installation, while the integrated oil relief groove prevents deformation of the ring from affecting the proper function of other sealing elements.

### ● Applications

Suitable for use when protecting guide rings, guide belts, and hole seals, and extending the life of the sealing system.

### ● Application Parameters

Operating Temperature:  $-100^{\circ}\text{C}$  to  $200^{\circ}\text{C}$

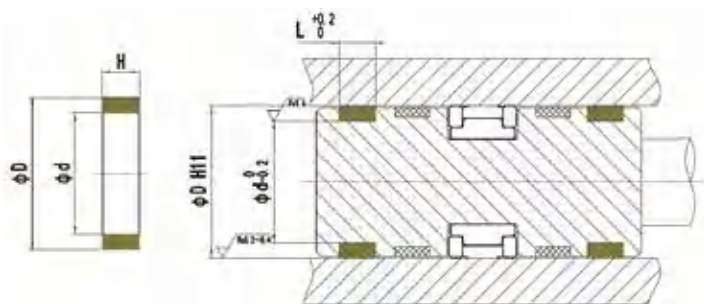
Operating Pressure:  $\leq 40\text{ MPa}$

Surface Speed:  $\leq 5\text{ m/s}$

Media: Mineral hydraulic oil and grease

Note: The maximum values listed above cannot be used simultaneously

# CONTAMINATION RETAINING RING



| Serial Number | Order Number         | d     | D     | H   | L    |
|---------------|----------------------|-------|-------|-----|------|
| 1             | PLMG01SK 14×20×5     | 14.0  | 20.0  | 5.0 | 5.20 |
| 2             | PLMG01SK 19×25×5     | 19.0  | 25.0  | 5.0 | 5.20 |
| 3             | PLMG01SK 24×30×5     | 24.0  | 30.0  | 5.0 | 5.20 |
| 4             | PLMG01SK 25.5×31.5×5 | 25.5  | 31.5  | 5.0 | 5.20 |
| 5             | PLMG01SK 26×32×5     | 26.0  | 32.0  | 5.0 | 5.20 |
| 6             | PLMG01SK 29×35×5     | 29.0  | 35.0  | 5.0 | 5.20 |
| 7             | PLMG01SK 29.5×35.5×5 | 29.5  | 35.5  | 5.0 | 5.20 |
| 8             | PLMG01SK 34×40×5     | 34.0  | 40.0  | 5.0 | 5.20 |
| 9             | PLMG01SK 39×45×5     | 39.0  | 45.0  | 5.0 | 5.20 |
| 10            | PLMG01SK 44×50×5     | 44.0  | 50.0  | 5.0 | 5.20 |
| 11            | PLMG01SK 47×53×5     | 47.0  | 53.0  | 5.0 | 5.20 |
| 12            | PLMG01SK 49×55×5     | 49.0  | 55.0  | 5.0 | 5.20 |
| 13            | PLMG01SK 50×56×5     | 50.0  | 56.0  | 5.0 | 5.20 |
| 14            | PLMG01SK 54×60×5     | 54.0  | 60.0  | 5.0 | 5.20 |
| 15            | PLMG01SK 55×63×6     | 55.0  | 63.0  | 6.0 | 6.20 |
| 16            | PLMG01SK 57×65×6     | 57.0  | 65.0  | 6.0 | 6.20 |
| 17            | PLMG01SK 62×70×6     | 62.0  | 70.0  | 6.0 | 6.20 |
| 18            | PLMG01SK 63×71×6     | 63.0  | 71.0  | 6.0 | 6.20 |
| 19            | PLMG01SK 67×75×6     | 67.0  | 75.0  | 6.0 | 6.20 |
| 20            | PLMG01SK 72×80×6     | 72.0  | 80.0  | 6.0 | 6.20 |
| 21            | PLMG01SK 77×85×6     | 77.0  | 85.0  | 6.0 | 6.20 |
| 22            | PLMG01SK 82×90×6     | 82.0  | 90.0  | 6.0 | 6.20 |
| 23            | PLMG01SK 87×95×6     | 87.0  | 95.0  | 6.0 | 6.20 |
| 24            | PLMG01SK 92×100×6    | 92.0  | 100.0 | 6.0 | 6.20 |
| 25            | PLMG01SK 97×105×6    | 97.0  | 105.0 | 6.0 | 6.20 |
| 26            | PLMG01SK 102×110×6   | 102.0 | 110.0 | 6.0 | 6.20 |
| 27            | PLMG01SK 104×112×6   | 104.0 | 112.0 | 6.0 | 6.20 |
| 28            | PLMG01SK 107×115×6   | 107.0 | 115.0 | 6.0 | 6.20 |
| 29            | PLMG01SK 112×120×6   | 112.0 | 120.0 | 6.0 | 6.20 |
| 30            | PLMG01SK 117×125×6   | 117.0 | 125.0 | 6.0 | 6.20 |

# CONTAMINATION RETAINING RING

| Serial Number | Order Number       | d     | D     | H   | L    |
|---------------|--------------------|-------|-------|-----|------|
| 31            | PLMG01SK 122×130×6 | 122.0 | 130.0 | 6.0 | 6.20 |
| 32            | PLMG01SK 127×135×6 | 127.0 | 135.0 | 6.0 | 6.20 |
| 33            | PLMG01SK 132×140×6 | 132.0 | 140.0 | 6.0 | 6.20 |
| 34            | PLMG01SK 142×150×6 | 142.0 | 150.0 | 6.0 | 6.20 |
| 35            | PLMG01SK 152×160×6 | 152.0 | 160.0 | 6.0 | 6.20 |
| 36            | PLMG01SK 162×170×8 | 162.0 | 170.0 | 8.0 | 8.20 |
| 37            | PLMG01SK 172×180×8 | 172.0 | 180.0 | 8.0 | 8.20 |
| 38            | PLMG01SK 182×190×8 | 182.0 | 190.0 | 8.0 | 8.20 |
| 39            | PLMG01SK 192×200×8 | 192.0 | 200.0 | 8.0 | 8.20 |
| 40            | PLMG01SK 202×210×8 | 202.0 | 210.0 | 8.0 | 8.20 |
| 41            | PLMG01SK 212×220×8 | 212.0 | 220.0 | 8.0 | 8.20 |
| 42            | PLMG01SK 216×224×8 | 216.0 | 224.0 | 8.0 | 8.20 |
| 43            | PLMG01SK 222×230×8 | 222.0 | 230.0 | 8.0 | 8.20 |
| 44            | PLMG01SK 232×240×8 | 232.0 | 240.0 | 8.0 | 8.20 |
| 45            | PLMG01SK 242×250×8 | 242.0 | 250.0 | 8.0 | 8.20 |
| 46            | PLMG01SK 252×260×8 | 252.0 | 260.0 | 8.0 | 8.20 |
| 47            | PLMG01SK 262×270×8 | 262.0 | 270.0 | 8.0 | 8.20 |
| 48            | PLMG01SK 272×280×8 | 272.0 | 280.0 | 8.0 | 8.20 |
| 49            | PLMG01SK 282×290×8 | 282.0 | 290.0 | 8.0 | 8.20 |
| 50            | PLMG01SK 292×300×8 | 292.0 | 300.0 | 8.0 | 8.20 |
| 51            | PLMG01SK 302×310×8 | 302.0 | 310.0 | 8.0 | 8.20 |
| 52            | PLMG01SK 312×320×8 | 312.0 | 320.0 | 8.0 | 8.20 |
| 53            | PLMG01SK 332×340×8 | 332.0 | 340.0 | 8.0 | 8.20 |
| 54            | PLMG01SK 342×350×8 | 342.0 | 350.0 | 8.0 | 8.20 |
| 55            | PLMG01SK 352×360×8 | 352.0 | 360.0 | 8.0 | 8.20 |

In addition to the above specifications, Puli can provide customized product dimensions

## Track Pin Seal

PLMPLD



### ●Product Description

The track is a critical component of mobile construction machinery, widely used in construction, port operations, agriculture, forestry, mining, and waste management, where it is exposed to harsh environments such as sand, mud, and wastewater. Under such demanding conditions, the service life of the track pins largely determines the overall lifespan of the track. The grease-filled track pin seal offers excellent sealing performance with reliable water and dust protection. Its simple structure allows easy installation, and during track operation on uneven terrain or while turning, the seal compensates for gaps caused by misalignment through elastic deformation, maintaining an effective sealing function.

### ●Applications

Grease-injected track products of various pitches, various tracked vehicles for construction projects, ports, agriculture and forestry, mining, garbage disposal, etc.

### ●Application Parameters

Working temperature: -30°C~110°C

Operating Pressure: ≤45 MPa

Surface Speed: ≤5 m/s

Medium: Grease

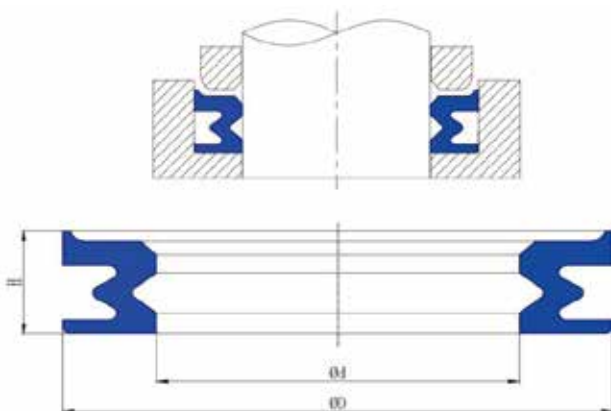
Standard material: PLMPUR-X

Note: The maximum values listed above cannot be used simultaneously

### ●Installation Requirements

Before installation, a sufficient amount of specified grease must be applied to the sealing lip, groove and mating surface to ensure that the seal is pressed vertically, smoothly and evenly into the seat hole. After installation, inject a sufficient amount of grease into the sealing cavity through the grease nipple until the grease overflows slightly.

# TRACK PIN SEAL $\Sigma$



| Serial Number | Order Number           | d     | D    | H    |
|---------------|------------------------|-------|------|------|
| 1             | PLMPLD 23×34.8×9       | 23    | 34.8 | 9    |
| 2             | PLMPLD 24.5×41.4×10.3  | 24.5  | 41.4 | 10.3 |
| 3             | PLMPLD 28.5×46.5×11.9  | 28.5  | 46.5 | 11.9 |
| 4             | PLMPLD 29×47×10.3      | 29    | 47   | 10.3 |
| 5             | PLMPLD 30.6×46.5×10.5  | 30.6  | 46.5 | 10.5 |
| 6             | PLMPLD 31.6×47.9×12.1  | 31.6  | 47.9 | 12.1 |
| 7             | PLMPLD 32.5×48.4×12.1  | 32.5  | 48.4 | 12.1 |
| 8             | PLMPLD 32.5×50.6×11.7  | 32.5  | 50.6 | 11.7 |
| 9             | PLMPLD 37×59×14.5      | 37    | 59   | 14.5 |
| 10            | PLMPLD 37.3×58.8×14.3  | 37.3  | 58.8 | 14.3 |
| 11            | PLMPLD 37.3×59.6×13.2  | 37.3  | 59.6 | 13.2 |
| 12            | PLMPLD 37.5×59×13      | 37.5  | 59   | 13   |
| 13            | PLMPLD 38.8×58.5×14.5  | 38.8  | 58.5 | 14.5 |
| 14            | PLMPLD 38.85×59.6×14.3 | 38.85 | 59.6 | 14.3 |
| 15            | PLMPLD 39.5×59×13      | 39.5  | 59   | 13   |
| 16            | PLMPLD 45.2×67.3×13.6  | 45.2  | 67.3 | 13.6 |
| 17            | PLMPLD 45.4×67.2×13.5  | 45.4  | 67.2 | 13.5 |
| 18            | PLMPLD 47.6×71.5×13.6  | 47.6  | 71.5 | 13.6 |
| 19            | PLMPLD 48×72×12        | 48    | 72   | 12   |
| 20            | PLMPLD 49.3×71.5×13.6  | 49.3  | 71.5 | 13.6 |
| 21            | PLMPLD 49.5×77.3×15    | 49.5  | 77.3 | 15   |
| 22            | PLMPLD 50×79×12.5      | 50    | 79   | 12.5 |

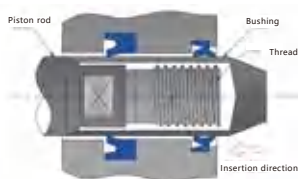
In addition to the above specifications, Puli can provide customized product dimensions.



## 2.rod seal

### ● GENERAL INSTALLATION INSTRUCTIONS

- ★ Ensure that the piston rod has a lead-in chamfer; if not, use an installation sleeve
  - ★ Remove all burrs and round off or chamfer sharp edges. Cover the threaded ends of bolts to prevent scratches, and use a rubber plug to protect threaded holes.
  - ★ Remove machining residues such as dust, chips, and other foreign particles, and thoroughly clean all components.
  - ★ Applying grease or oil to the piston rod and the seal will make installation easier.
- Ensure that the seal material is compatible with the chosen lubricant.  
Use lubricants free from solid additives (e.g., molybdenum disulfide or zinc sulfide).
- ★ Use installation tools with non-sharp edges.



### ● Installation in Split Grooves

- ★ Installation in open grooves is straightforward, following the same sequence as the seal configuration.
- ★ Each seal must be installed flat in the groove without any twisting.
- ★ Before inserting the piston rod through the seal, seals energized by an elastomer or spring must be reshaped and restored to their original round form.
- ★ Using a piston rod with an extended lead-in or an installation sleeve can also help in aligning and sizing the seal.

### ● Installation in Closed Grooves

Follow the general installation instructions.

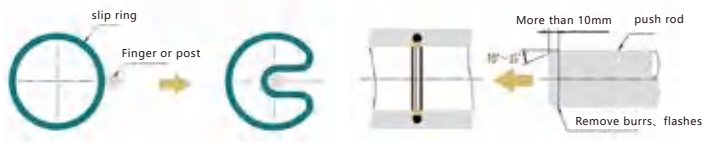
For PTFE and polyurethane seals, it is recommended to use dedicated installation tools. If such tools are not available, please follow these steps:

- ★ First, place the O-ring into the groove (not required for U-cup seals).
- ★ Bend the PTFE or polyurethane seal into a kidney shape (avoid any folding or creasing)
- ★ Insert the bent seal into the groove and push it against the O-ring.
- ★ After placement, flatten the seal gently by hand so that it forms a complete ring seated firmly in the groove.
- ★ Finally, use a calibration mandrel with a 30 mm long lead-in and a chamfer angle of 10°–15° to reshape and size the seal.

To prevent seal damage, the mandrel should be made of a polymer material with good sliding properties and a smooth surface (e.g., nylon).

A piston rod with an extended lead-in can also serve as a sizing aid during installation. Sliding properties and surface quality (e.g., nylon).

When using a piston rod with a longer guide pin, a leveling function is also provided.



# SEAL STORAGE GUIDELINES

## SEAL STORAGE REQUIREMENTS

### ● Storage Considerations for Seals

Seals and support elements are often stored as spare parts for extended periods. Most polymer products, including vulcanized rubber and other elastomeric materials, may undergo changes in their physical properties during storage and may eventually become unusable. Such deterioration may appear as surface hardening, cracking, softening, or other forms of degradation. These changes can result from individual or combined factors such as deformation, oxygen, ozone, light, heat, humidity, or exposure to oils and solvents.

By following a few simple precautions, the service life of these products can be significantly extended. International standards such as DIN 7716, BS 3F68:1977, ISO 2230, and DIN 9088 provide general guidance for the storage, cleaning, and maintenance of elastomeric sealing elements.

The following recommendations describe the most suitable storage conditions for rubber materials to preserve their optimal physical and chemical properties:

- ★ **Temperature:** The preferred storage temperature is between +5 °C and +25 °C. Avoid direct exposure to heat sources such as boilers, radiators, or sunlight. If the temperature drops below +5 °C, take care not to deform seals during handling, as they may have hardened. Before installation, allow them to warm up to approximately +30 °C.
- ★ **Humidity:** The ideal relative humidity is around 65%, with adequate ventilation. Avoid excessively damp or dry conditions and prevent condensation.
- ★ **Light Exposure:** Elastomer seals should be protected from light, especially direct sunlight or artificial light sources containing ultraviolet radiation. UV-resistant packaging or opaque containers provide good protection. Covering windows with red or orange curtains is also effective.
- ★ **Radiation:** Protect stored materials from ionizing radiation sources that could cause degradation.
- ★ **Oxygen and Ozone:** Whenever possible, store elastomeric materials in sealed packaging to minimize exposure to circulating air. Ozone is particularly harmful; therefore, the storage area must not contain any ozone-generating equipment, such as mercury vapor lamps, high-voltage electrical devices, motors, or sources of sparks or static discharge. Combustible and organic gases should also be kept away, as they can form ozone through photochemical reactions.
- ★ **Deformation:** Store elastomeric parts in an unstressed condition without tension, compression, or deformation. Products packaged without stress should ideally remain in their original packaging.
- ★ **Contact with Liquids and Semi-Solids:** Seals must not come into contact with solvents, oils, greases, or other semi-solid materials during storage unless they have been pre-packaged by the manufacturer for such conditions.
- ★ **Contact with Metals and Other Materials:** Avoid direct contact with metals such as manganese, iron, copper, or copper alloys, which can harm certain rubber types. Plasticizers or other additives may migrate, so seals should not be stored in contact with PVC or incompatible rubbers. Different rubber types should be stored separately.
- ★ **Cleaning:** When necessary, clean seals using soap and water or methyl alcohol. Do not allow water to enter fiber-reinforced parts, bonded seals (to avoid corrosion), or polyurethane materials. Do not use disinfectants, organic solvents, or sharp tools. Allow products to dry at room temperature away from heat sources.
- ★ **Shelf Life:** The effective service life of elastomeric seals depends primarily on the rubber type. Under the recommended storage conditions described above, the expected shelf life varies by material. Poorer storage conditions will shorten the usable life accordingly.

| Product Material Name and Code                                                                                               | Theoretical Storage Life (Years) |
|------------------------------------------------------------------------------------------------------------------------------|----------------------------------|
| Polyurethane, Thermoplastic Material                                                                                         | 5                                |
| NBR (nitrile rubber), HNBR (hydrogenated nitrile rubber), CR (chloroprene rubber)                                            | 6                                |
| EDPM (ethylene propylene diene monomer), FKM (fluororubber)                                                                  | 8                                |
| POM (polyoxymethylene), PA (polyamide resin), PTFE (polytetrafluoroethylene),<br>PI (polyimide), PEEK (polyetheretherketone) | Indefinitely                     |

Finally, elastomeric seals should be inspected after a certain storage period. Based on the inspection results, the storage period may be extended as appropriate.

Thin components with a thickness of less than 1.5 mm are more susceptible to oxidative degradation. Even when stored under the recommended conditions, they should be inspected and tested more frequently than the general intervals specified above.



# Hydraulic and Pneumatic Seal Product Selection Table

| Selection Table of Hydraulic and Pneumatic Sealing Products (202510)                |                                                                                     |                                                                                     |                                                                                     |                                                        |                                          |                                     |                                        |                           |                                             |                                                        |                                            |                       |                                             |         |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------|------------------------------------------|-------------------------------------|----------------------------------------|---------------------------|---------------------------------------------|--------------------------------------------------------|--------------------------------------------|-----------------------|---------------------------------------------|---------|
| Cylinder parts                                                                      | Name                                                                                | Profile                                                                             | Standard Material                                                                   | Standard Product series comparison table               |                                          |                                     |                                        |                           |                                             |                                                        |                                            |                       |                                             |         |
|                                                                                     |                                                                                     |                                                                                     |                                                                                     | PULIM                                                  | NOK                                      | FRUEHNBERG<br>Merlat                | Parter                                 | Tiefelberg                | S&F                                         | HALLITE                                                | KATAS                                      | GAR                   | GUARITEC                                    |         |
| Rod                                                                                 | Wiper                                                                               |    | PUMPUR<br>PULMUR-L32A<br>PULMTE-18                                                  | PLM001A                                                | -                                        | DA 101<br>(AUS0)-88 NBR 101         | A1-P5008                               | A09-Z201                  | A01-ECOPUR                                  | 814-Hythane® 181                                       | K09-PUR201                                 | BWS-CO                | GHP-PP                                      |         |
|                                                                                     |                                                                                     |    | PUMPUR<br>PULMUR-L32A<br>PULMTE-18                                                  | PLM002<br>PLM0038                                      | DS-UB01                                  | DA 102<br>(AUS08)-94 AU 125         | A5-P5004                               | WNM-Z201                  | A03-8-ECOPUR                                | 38-TPE 061                                             | E06-PUR501                                 | WIP-BO                | GHM-NBR                                     |         |
|                                                                                     |                                                                                     |    | PUMPUR<br>PULMUR-L32A                                                               | PLM011-GO                                              | LB-US03                                  | DA 211<br>(PU11)-95 AU V142         | AY                                     | DA22-Z201                 | HW-U003                                     | E39-Hythane® 181                                       | E27-PUR201                                 | WED-CO                | GHW-PP                                      |         |
|                                                                                     |                                                                                     |    | PUMPUR<br>PULMUR-L32A                                                               | PLM011-AS                                              | -                                        | DA 212<br>(P0)-85 NBR 8247          | -                                      | DA17-N0760                | -                                           | E39H-Hythane® 181                                      | K10-NB9001                                 | BWS-BO                | GPW-PP                                      |         |
|                                                                                     |                                                                                     |    | PUMPUR<br>PULMUR-L32A                                                               | PLM011A                                                | -                                        | DA 109-94 AU 925                    | A6-N1764                               | -                         | A12-A-ECOPUR                                | 842-Hythane® 181                                       | E04-PUR401                                 | -                     | -                                           |         |
|                                                                                     |                                                                                     |    | PUMPUR                                                                              | PLM038                                                 | DW-<br>SPCC+UB01                         | ALPS-94 AU 925                      | A1/AG-P5008                            | SWP-Z20                   | MCW-U1029                                   | 862-Hythane® 321-<br>Seal                              | K13-PUR501+<br>FE901                       | IWP-CA                | -                                           |         |
|                                                                                     |                                                                                     |    | PUMPUR<br>PULMUR-HHT                                                                | PLM038C<br>PLM038C                                     | DHB-<br>SPCC+UB01<br>DHB3-<br>SPCC+UB01  | -                                   | AH-P5008                               | -                         | PAD-W93                                     | 864-Hythane® 361-<br>Seal                              | K12-PUR501+<br>FE901                       | DWP-CA                | -                                           |         |
|                                                                                     |                                                                                     |    | PUMPUR-HHT                                                                          | PLM038C/N<br>PLM038C/N                                 | DHB2<br>SPCC+UB01<br>DHB23-<br>SPCC+UB01 | -                                   | -                                      | -                         | -                                           | -                                                      | -                                          | -                     | -                                           |         |
|                                                                                     |                                                                                     |    | PUMPUR-63A<br>PULMUR-L32A<br>PULMUR-L32A<br>PULMUR-HHT                              | PLM001                                                 | IO/US-UB01                               | DS 101<br>(T20)-95 AU V142          | B3-P5008                               | RUB-Z20                   | S15-ECOPUR                                  | 663-Hythane® 181<br>673-Hythane® 591                   | K22-PUR201                                 | RS4-CO                | TTI-PP                                      |         |
|                                                                                     |                                                                                     | Rod seal                                                                            |    | PUMPUR-63A<br>PULMUR-L32A<br>PULMUR-L32A<br>PULMUR-HHT | PLM017                                   | -                                   | T22/T24-95 AU V142                     | B5-P5008                  | RUB-Z20                                     | Z88-U1029                                              | 605-Hythane® 181                           | K33-PUR401            | RSB-CO                                      | TTUL-PP |
|                                                                                     |    |                                                                                     | PUMPURON-3-<br>PULMURBER-N70<br>PULMURON-3-GP+<br>PULMUR-4-<br>PULMURBER-N70        | PLM005                                                 | SPMS-<br>A301+FE201                      | DS 129<br>(DMS-MR)-PTFE/NBR         | ON-P5052-N1499                         | 2K Tecmaster-T46N         | S98-741-N70                                 | R16- ARMORLENE®<br>HLK-N70<br>16-ARMORLENE®<br>HLK-N70 | K33-PT6003+<br>N87001                      | TSU-EN                | GUA-RING GR-<br>PTFE-NBR                    |         |
|                                                                                     |    |                                                                                     | PUMPURON-3-<br>PULMURBER-N70<br>PULMURON-3-GP+<br>PULMURBER-N70                     | PLM000                                                 | SPNO-<br>A301+FE201                      | DS 124<br>(DMS-MR)-DMS-<br>PTFE/NBR | ON-P5052-N1499                         | Turcon Glyd Ring-<br>T46N | S98-741-N70                                 | RDA-ARMORLENE®<br>HLK-N70                              | -                                          | -                     | -                                           |         |
|                                                                                     |    |                                                                                     | PUMPUR<br>+PULMUR-10<br>PULMUR-HHT<br>+PULMUR-40                                    | PLM0285                                                | HEV-<br>US41+G0NP                        | 3M NBR POM/PA                       | B6/BU-<br>Zurcon<br>Buffer Seal LM-Z20 | R8B-<br>U1029+P5118       | 660-Hythane® 181-<br>POM                    | K29-PUR201<br>+PM9901                                  | NBR-TPU 93<br>show A-<br>TPE 72<br>Shore D | BUFER-P+POM           | -                                           |         |
|                                                                                     |    |                                                                                     | PUMPUR-63A                                                                          | PLM0401                                                | -                                        | -                                   | EU-P5008                               | ARAN-W0801                | -                                           | E51-Hythane® 181                                       | K31-PUR201                                 | BWH-CO                | -                                           |         |
|                                                                                     |    |                                                                                     | PUMPUR-63A<br>PULMUR-L32A<br>PULMUR-L32A                                            | PLM001                                                 | DO/US-UB01                               | TM21-95 AU V142                     | B7-P5008                               | PJA-Z20                   | UNP-U1029                                   | 606-Hythane® 181                                       | K23-PUR201                                 | PSA-CO                | TTI-PP                                      |         |
|                                                                                     |   |                                                                                     | PUMPURON-3-<br>PULMURBER-N70<br>PULMURON-3-GP+<br>PULMURBER-N70                     | PLM000                                                 | SPGO-<br>A305+FE201                      | DK 108<br>(DMS-MR)-PTFE/NBR         | OE-P5052-N1499                         | Turcon Glyd Ring-<br>T46N | GH-292-N70                                  | P54-ARMORLENE®<br>HLK-N70                              | K17-PT6003+<br>N87001                      | TPD-TN                | GUA-RING GR-<br>PTFE-NBR                    |         |
|                                                                                     |  |                                                                                     | PUMPUR-L32A+<br>PULMURBER-N70                                                       | PLM008DPS                                              | -                                        | DK 140<br>(DMS-PJ)-95AU<br>V142/NBR | OU-P4622-N1499                         | Wymetal-Z20N              | K08-P-<br>ECOPUR+N70                        | 754-TPE 061-NBR                                        | K15-PUR501<br>+N87001                      | PSO-<br>CO-NO         | TTO-P+NBR                                   |         |
|                                                                                     |  |                                                                                     | PUMPURON-3-<br>PULMURBER-N70<br>PULMURON-3-GP+<br>PULMURBER-N70                     | PLM005                                                 | -                                        | DK 125<br>(DMS-E)-PTFE/NBR          | OG-P5052-N1499                         | 2K Tecmaster-T46N         | K08-E-<br>G-ECOPUR+N70                      | P16-ARMORLENE®<br>HLK-N70                              | K41-PT6003<br>+N87001                      | -                     | -                                           |         |
|                                                                                     |  |                                                                                     | PULMURBER-N<br>+PULMTE-70<br>+PULMOM-2                                              | PLM008                                                 | -                                        | L43-NBR/TPU/PA                      | ZW-<br>N8078-W0505+WS3<br>01           | DAS-P                     | M0-L-<br>N80747+POM-0<br>76-TPC<br>ET72/075 | 780-Nitrile 1411-<br>Polyester-POM                     | K18-NB8001<br>+TP7001<br>+PM9901           | KDS-CX                | TPM<br>TPM-P<br>TPS<br>TPS-G<br>388-TPS-POM |         |
|                                                                                     |  |                                                                                     | PULMURBER-HN85<br>+PULMUR-3<br>+PULMUR-40                                           | PLM023F                                                | SPOM-<br>AB80-F201+G9<br>28              | L27-PTFE/NBR/POM                    | CT013-<br>PTFE52+HN674+WS<br>019       | PHD-PTN04                 | K23-F-X-<br>ECOPUR+ECOPUR-<br>BER-1+ECOPUR  | CT<br>735-ARMORLENE®<br>HLK-NBR-SSA-M62<br>Filled PA   | K19-PT6003<br>+N88001<br>+PM9901           | -                     | POM-<br>NBR-PTFE-POM                        |         |
|                                                                                     | Piston                                                                              |                                                                                     |  | PUMPURON-3-<br>PULMURON-3-GP+<br>PULMURBER-N70         | PLMA01                                   | -                                   | -                                      | CO-PTFE 052+70A           | AQ Seal®-2-746N                             | AP6-741+AB001                                          | GFS-ARMORLENE®<br>HLK-N70                  | K23-PT6003<br>+N87001 | -                                           | -       |
|                                                                                     |                                                                                     |                                                                                     |  | PUMPURON-3-<br>PULMURON-3-GP+<br>PULMURBER-N70         | PLMA02                                   | -                                   | -                                      | CO-PTFE 052+70A           | AQ Seal®-5-746N                             | -                                                      | G2-ARMORLENE®<br>HLK-N70                   | K17-PT6003<br>+N87001 | -                                           | -       |
|                                                                                     |                                                                                     |  | PUMPUR-63A+<br>PULMURBER-N70                                                        | PLM007                                                 | -                                        | -                                   | BA-P5004+N0674                         | RUB-Z20N                  | -                                           | -                                                      | E06-PUR201<br>+N87001                      | RPO-CN                | -                                           |         |
|  |                                                                                     | PUMPUR-63A<br>PULMUR-L32A<br>PULMUR-L32A<br>PULMUR-HN85                             | PLM006<br>PLM006C                                                                   | UPVUSU/<br>UPVUSU-UB01                                 | N10A/USU/<br>N100A/USU-94 AU<br>925      | -                                   | PUB-Z20                                | -                         | 601-Hythane® 181                            | K21-PUR201                                             | RPS-CO                                     | TTU-PP                |                                             |         |
| Static seal                                                                         | Static seal                                                                         |  | PUMPUR-63A<br>PULMUR-L32A<br>PULMUR-L32A                                            | PLM015                                                 | -                                        | -                                   | HS-P5009                               | Zurcon Dualseal-Z20       | R15-ECOPUR                                  | 668-Hythane® 181                                       | K85-PUR401                                 | SSA-CO                | GDS-PP                                      |         |

special Notes:  
Red in red indicates that the brand's standard material differs from those of PULIM,PULM and shall not be liable for any joint liability arising from improper material selection by the customer

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# Working Condition Questionnaire

| Company Information                           |                                                                                                           |                                                                                                                                                                                                                                                                                                     |     |
|-----------------------------------------------|-----------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| Company Name                                  |                                                                                                           |                                                                                                                                                                                                                                                                                                     |     |
| Contact                                       |                                                                                                           | telephone                                                                                                                                                                                                                                                                                           | fax |
| email                                         |                                                                                                           |                                                                                                                                                                                                                                                                                                     |     |
| Sealing working conditions                    |                                                                                                           |                                                                                                                                                                                                                                                                                                     |     |
| Medium/Fluid                                  | Specific components of working medium                                                                     |                                                                                                                                                                                                                                                                                                     |     |
| Type of exercise                              | The motion state of the seal                                                                              | <input type="checkbox"/> Static<br><input type="checkbox"/> Rotation _____ Speed _____ RPM<br><input type="checkbox"/> Clockwise <input type="checkbox"/> Counterclockwise<br><input type="checkbox"/> Linear/reciprocating motion speed _____ stroke _____<br><input type="checkbox"/> Other _____ |     |
| friction                                      | Types of Friction                                                                                         | <input type="checkbox"/> Instantaneous friction <input type="checkbox"/> Continuous friction                                                                                                                                                                                                        |     |
| Pressure                                      | System pressure condition                                                                                 | Work pressure _____ Minimum pressure _____<br>Impact pressure _____                                                                                                                                                                                                                                 |     |
| Temperature                                   | System temperature condition                                                                              | Working temperature _____ Maximum temperature _____<br>Minimum temperature _____                                                                                                                                                                                                                    |     |
| Hole/axis misalignment                        | The degree of misalignment between the hole for installing the seal and the shaft                         | Axis runout _____ coaxiality _____                                                                                                                                                                                                                                                                  |     |
| Life expectancy requirements                  | Expected service life of seals                                                                            | Allowable leakage amount _____ Warranty period _____                                                                                                                                                                                                                                                |     |
| Sample provided                               | Can you provide samples of existing seals                                                                 | <input type="checkbox"/> Yes <input type="checkbox"/> No                                                                                                                                                                                                                                            |     |
| Sealing groove information                    |                                                                                                           |                                                                                                                                                                                                                                                                                                     |     |
| Sealing groove type                           | The structural form of the groove                                                                         | <input type="checkbox"/> Open groove <input type="checkbox"/> Closed groove                                                                                                                                                                                                                         |     |
| Material                                      | Groove base material that matches with the seal (such as cylinder body, piston rod material)              |                                                                                                                                                                                                                                                                                                     |     |
| Hardness                                      | Hardness of groove material (such as HRC, HB, etc.)                                                       |                                                                                                                                                                                                                                                                                                     |     |
| surface treatment                             | The treatment process used for the surface of the groove (such as chrome plating, etc.)                   |                                                                                                                                                                                                                                                                                                     |     |
| Surface processing accuracy                   | Groove surface finish (such as Ra value)                                                                  |                                                                                                                                                                                                                                                                                                     |     |
| Provide sketch of groove dimensions           | Can you provide a size sketch of the sealed installation groove                                           | <input type="checkbox"/> Can <input type="checkbox"/> No                                                                                                                                                                                                                                            |     |
| Allow changing the size of the sealing groove | Is it allowed to adjust the groove size according to the sealing requirements in the design               | <input type="checkbox"/> Can <input type="checkbox"/> No (if allowed, reference can be made to standard trench design specifications)                                                                                                                                                               |     |
| Past Failure Modes                            | Is there any known sealing failure (such as wear, extrusion, aging, etc.)? If so, please briefly describe | <input type="checkbox"/> None <input type="checkbox"/> Yes, please explain: _____                                                                                                                                                                                                                   |     |
| Sketch drawing area                           |                                                                                                           |                                                                                                                                                                                                                                                                                                     |     |
|                                               |                                                                                                           |                                                                                                                                                                                                                                                                                                     |     |