

## WEAR / GUIDE RING

## WRPT



### Features:

Guide ring WRPT is a PTFE+ Bronze strip available in long length and cut to the size.

### Composition:

| SEAL COMBINATION | WEAR RING COMPOUND | COLOUR     | TEMP. RANGE  | SURFACE SPEED (Max.) |
|------------------|--------------------|------------|--------------|----------------------|
| WRPT-01          | PT07               | GREEN      | -55 to 200°C | 4 m/s                |
| WRPT-02          | PT02               | GREY BROWN | -55 to 200°C | 4 m/s                |
| WRPT-03          | PT21               | BROWN      | -55 to 200°C | 4 m/s                |

For compound detail please refer Royal seal compounds (section - III)

### Properties:

- Low friction, free of stick slip
- High abrasion resistance
- Wide temperature Range
- Good thermal conductivity
- Low wear and high extrusion resistance
- Wide fluid application range
- Resistance against cold flow
- chamfered profile edges prevent pressing of edge in the corner radii of the housing groove

### Application:

- Mobile Hydraulics
- Injection molding machines
- Machine tools
- Material Handling Equipments
- Control and regulating apparatus

### General Technical Data:

|                       |  |
|-----------------------|--|
| Maximum speed         | 5 m/s                                  |
| Load bearing capacity | 15 N/mm <sup>2</sup> at 20 °C          |
|                       | 10 N/mm <sup>2</sup> at 60 °C          |
|                       | 5 N/mm <sup>2</sup> at 120 °C          |
|                       | (permitted specific surface pressing*) |

\* The permissible load of the guide strip is calculated from the projected area multiplied by the permissible specific surface pressing. The non linear contact pressure distribution, produces by the load with relation to temperature and tolerances, is taken into account in the value of the permissible load.



**Surface finish:**

| Roughness depth  | R(max)   | Ra          |
|------------------|----------|-------------|
| Sliding surface  | ≤ 2.5 µm | 0.05-0.3 µm |
| Bottom of groove | ≤ 6.3 µm | ≤ 1.6 µm    |
| Side of groove   | ≤ 15 µm  | ≤ 3µm       |

**Gap dimension:**

The radial clearance S min controls the minimum metal to metal clearance between the gland and rod or bore and piston. S max control the maximum extrusion gap seen by a seal associated with the guide ring.

The radial clearance S and the given tolerances are guidelines. Use of the guide and tolerances are to be designed in accordance with the used seal. The radial clearance S given in the table of dimensions is to be seen exclusively as reference to the guide ring. The corresponding diameter of the seal housing is to be adjusted to the sealing component. The cut gap 'Z' arising after fitting of guide ring is necessary to compensate the thermal expansion of polymer

**Determination of the stretched length L2 of guide strip:**

The stretched length is the circumferential length of the centre line of the strip when installed.

Calculation of stretched length  $L2 = \pi \times (\text{ØDN}-T) -Z$

**Guide strip tolerances:**

| Width L (mm)   | Thickness T (mm) |
|----------------|------------------|
| - 0.1 to - 0.6 | - 0.03 to – 0.06 |

**Installation:**

Fitting is prerequisite for perfect functioning of the guide ring.

**Order format:**

To order long length strip having cross section 5.60mm wide and 2.50mm thick order code is: **WRPT-M-01-L-05.60 X 02.50**

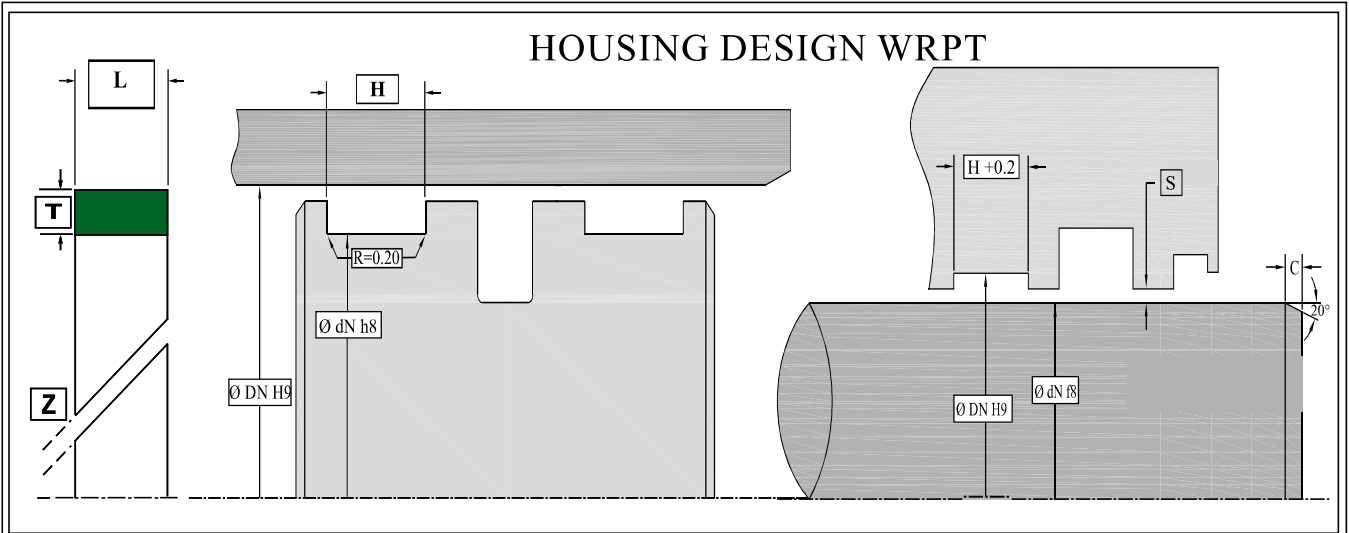
To order specific cut size wear ring for ØDN=090mm and cross section 05.60 X 2.50

Order code is **WRPT-M-01-090.00 X 085.00 X 5.60**



**ROYAL**

SEALS FOR HYDRAULICS & PNEUMATICS



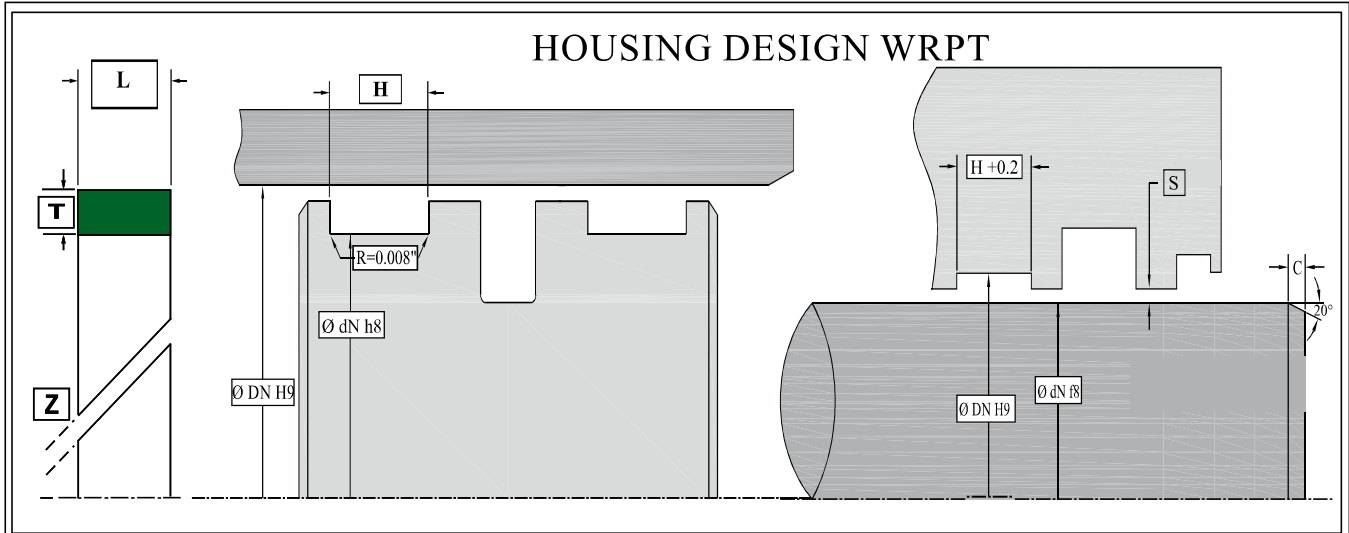
**ROYAL STANDARD SIZE LIST**

| CROSS SECTION (H X T) (MM) | USE UP TO DIA RANGE(MM) ØDN H9 | GROOVE DIA(MM) ØdN h8 | GROOVE WIDTH (MM) H +0.2 | S (Max.) | CUT GAP Z(min) | STD.ROLL LENGTH (MTR.) | ORDER CODE              |
|----------------------------|--------------------------------|-----------------------|--------------------------|----------|----------------|------------------------|-------------------------|
| 5.00 X 1.60                | 10-40                          | ØDN-3.20              | 5.00                     | 0.25     | 0.8-2.0        | 15                     | WRPT-M-01-05.00 X 01.60 |
| 5.60 X 2.50                | 20-140                         | ØDN-5.00              | 5.60                     | 0.40     | 1.0-3.0        | 10                     | WRPT-M-01-05.60 X 02.50 |
| 6.00 X 2.00                | 20-60                          | ØDN-4.00              | 6.00                     | 0.30     | 1.0-2.0        | 12                     | WRPT-M-01-06.00 X 02.00 |
| 6.00 X 2.50                | 25-140                         | ØDN-5.00              | 6.00                     | 0.40     | 1.0-3.0        | 10                     | WRPT-M-01-06.00 X 02.50 |
| 6.00 X 4.00                | 70-200                         | ØDN-8.00              | 6.00                     | 0.50     | 2.0-3.5        | 6                      | WRPT-M-01-06.00 X 04.00 |
| 6.00 X 4.50                | 100-200                        | ØDN-9.00              | 6.00                     | 0.50     | 2.5-4.0        | 5                      | WRPT-M-01-06.00 X 04.50 |
| 8.00 X 2.00                | 25-80                          | ØDN-4.00              | 8.00                     | 0.30     | 1.0-3.0        | 12                     | WRPT-M-01-08.00 X 02.00 |
| 8.00 X 2.50                | 30-160                         | ØDN-5.00              | 8.00                     | 0.40     | 1.0-3.0        | 10                     | WRPT-M-01-08.00 X 02.50 |
| 8.00 X 4.00                | 100-400                        | ØDN-8.00              | 8.00                     | 0.50     | 2.0-4.0        | 6                      | WRPT-M-01-08.00 X 04.00 |
| 9.50 X 4.00                | 120-500                        | ØDN-8.00              | 9.50                     | 0.50     | 2.0-4.0        | 6                      | WRPT-M-01-09.50 X 04.00 |
| 9.70 X 2.50                | 40-160                         | ØDN-5.00              | 9.70                     | 0.40     | 2.0-3.5        | 10                     | WRPT-M-01-09.70 X 02.50 |
| 10.00 X 2.00               | 40-100                         | ØDN-4.00              | 10.00                    | 0.30     | 2.0-3.5        | 12                     | WRPT-M-01-10.00 X 02.00 |
| 12.50 X 2.50               | 50-180                         | ØDN-5.00              | 12.50                    | 0.40     | 2.0-3.5        | 10                     | WRPT-M-01-12.50 X 02.50 |
| 14.80 X 2.50               | 60-200                         | ØDN-5.00              | 14.80                    | 0.40     | 2.0-3.5        | 10                     | WRPT-M-01-14.80 X 02.50 |
| 15.00 X 2.50               | 60-200                         | ØDN-5.00              | 15.00                    | 0.40     | 2.0-3.5        | 10                     | WRPT-M-01-15.00 X 02.50 |
| 15.00 X 4.00               | 160-900                        | ØDN-8.00              | 15.00                    | 0.50     | 3.0-5.0        | 6                      | WRPT-M-01-15.00 X 04.00 |
| 20.00 X 2.00               | 50-180                         | ØDN-4.00              | 20.00                    | 0.30     | 2.0-3.5        | 12                     | WRPT-M-01-20.00 X 02.00 |
| 20.00 X 2.50               | 80-300                         | ØDN-5.00              | 20.00                    | 0.40     | 2.0-3.5        | 10                     | WRPT-M-01-20.00 X 02.50 |
| 20.00 X 3.00               | 100-300                        | ØDN-6.00              | 20.00                    | 0.40     | 2.0-3.6        | 10                     | WRPT-M-01-20.00 X 03.00 |
| 20.00 X 3.20               | 100-400                        | ØDN-6.40              | 20.00                    | 0.50     | 2.0-4.0        | 8                      | WRPT-M-01-20.00 X 03.20 |
| 25.00 X 2.50               | 100-400                        | ØDN-5.00              | 25.00                    | 0.40     | 3.0-5.0        | 10                     | WRPT-M-01-25.00 X 02.50 |
| 30.00 X 2.00               | 100-225                        | ØDN-4.00              | 30.00                    | 0.30     | 3.0-5.0        | 12                     | WRPT-M-01-30.00 X 02.00 |
| 30.00 X 2.50               | 100-400                        | ØDN-5.00              | 30.00                    | 0.40     | 3.0-6.0        | 10                     | WRPT-M-01-30.00 X 02.50 |
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**ROYAL**

**SEALS FOR HYDRAULICS & PNEUMATICS**



**ROYAL STANDARD SIZE LIST**

**IMPERIAL SIZES**

| CROSS SECTION (H X T) (inch) | USE UP TO Ø RANGE(inch) ØDN H9 | GROOVE DIA(inch) ØdN h8 | GROOVE WIDTH (inch) H (+0.008") | S (Max.) | CUT GAP Z(min) | STD.ROLL LENGTH-FT. (Approx.) | ORDER CODE               |
|------------------------------|--------------------------------|-------------------------|---------------------------------|----------|----------------|-------------------------------|--------------------------|
| 0.250" X 0.0625"             | 1.0" - 3.0"                    | ØDN-0.125"              | 0.250"                          | 0.010"   | 0.06" - 0.12"  | 50.00                         | WRPT-I-01-0.250 X 0.0625 |
| 0.250" X 0.0930"             | 1.0" - 4.0"                    | ØDN-0.186"              | 0.250"                          | 0.016"   | 0.06" - 0.12"  | 40.00                         | WRPT-I-01-0.250 X 0.0930 |
| 0.250" X 0.1250"             | 2.0" - 6.0"                    | ØDN-0.250"              | 0.250"                          | 0.020"   | 0.06" - 0.12"  | 32.00                         | WRPT-I-01-0.250 X 0.1250 |
| 0.375" X 0.0625"             | 1.0" - 3.0"                    | ØDN-0.125"              | 0.375"                          | 0.010"   | 0.08" - 0.14"  | 50.00                         | WRPT-I-01-0.375 X 0.0625 |
| 0.375" X 0.0930"             | 1.5" - 5.0"                    | ØDN-0.186"              | 0.375"                          | 0.016"   | 0.08" - 0.14"  | 40.00                         | WRPT-I-01-0.375 X 0.0930 |
| 0.375" X 0.1250"             | 2.0" - 6.0"                    | ØDN-0.250"              | 0.375"                          | 0.020"   | 0.08" - 0.14"  | 32.00                         | WRPT-I-01-0.375 X 0.1250 |
| 0.500" X 0.0625"             | 1.0" - 3.0"                    | ØDN-0.125"              | 0.500"                          | 0.010"   | 0.08" - 0.14"  | 50.00                         | WRPT-I-01-0.500 X 0.0625 |
| 0.500" X 0.0930"             | 1.5" - 5.0"                    | ØDN-0.186"              | 0.500"                          | 0.016"   | 0.08" - 0.14"  | 40.00                         | WRPT-I-01-0.500 X 0.0930 |
| 0.500" X 0.1250"             | 2.0" - 6.0"                    | ØDN-0.250"              | 0.500"                          | 0.020"   | 0.08" - 0.14"  | 32.00                         | WRPT-I-01-0.500 X 0.1250 |
| 0.625" X 0.0930"             | 3.0" - 7.0"                    | ØDN-0.186"              | 0.625"                          | 0.016"   | 0.08" - 0.14"  | 40.00                         | WRPT-I-01-0.625 X 0.0930 |
| 0.625" X 0.1250"             | 3.0" - 9.0"                    | ØDN-0.250"              | 0.625"                          | 0.020"   | 0.08" - 0.14"  | 32.00                         | WRPT-I-01-0.625 X 0.1250 |
| 0.750" X 0.0625"             | 2.0" - 8.0"                    | ØDN-0.125"              | 0.750"                          | 0.010"   | 0.10" - 0.16"  | 50.00                         | WRPT-I-01-0.750 X 0.0625 |
| 0.750" X 0.1250"             | 2.0" - 6.0"                    | ØDN-0.250"              | 0.750"                          | 0.020"   | 0.10" - 0.16"  | 32.00                         | WRPT-I-01-0.750 X 0.1250 |
| 1.000" X 0.0930"             | 4.0" - 8.0"                    | ØDN-0.186"              | 1.000"                          | 0.016"   | 0.12" - 0.18"  | 40.00                         | WRPT-I-01-1.000 X 0.0930 |
| 1.000" X 0.1250"             | 4.0" - 12.0"                   | ØDN-0.250"              | 1.000"                          | 0.020"   | 0.12" - 0.20"  | 32.00                         | WRPT-I-01-1.000 X 0.1250 |
| 1.250" X 0.1250"             | 4.0" - 12.0"                   | ØDN-0.250"              | 1.250"                          | 0.020"   | 0.10" - 0.20"  | 32.00                         | WRPT-I-01-1.250 X 0.1250 |
|                              |                                |                         |                                 |          |                |                               |                          |
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