

## HTR/OR Series

HIPEX®

The HTR/OR Series is your material solution for applications requiring high temperature and oil resistance.

### Typical applications

- Closures
- Fastenings
- Flexible Connections
- Seals

### Material advantages

- Excellent heat resistance up to 150 °C
- Excellent resistance against motor and gearbox oil
- For injection molding
- Recyclable

**Processing Method:** Injection Molding

|        | Color / RAL DESIGN | Hardness<br>DIN ISO 7619-1<br>ShoreA | Density<br>DIN EN ISO 1183-1<br>g/cm <sup>3</sup> | Tensile Strength <sup>1</sup><br>DIN 53504/ISO 37<br>MPa | Elongation at Break <sup>1</sup><br>DIN 53504/ISO 37<br>% | Tear Resistance<br>ISO 34-1 Methode B (b)(Graves)<br>N/mm | CS 72 h/23 °C<br>DIN ISO 815-1 Method A<br>% | CS 24 h/70 °C<br>DIN ISO 815-1 Method A<br>% | CS 24 h/120 °C<br>DIN ISO 815-1 Method A<br>% |
|--------|--------------------|--------------------------------------|---------------------------------------------------|----------------------------------------------------------|-----------------------------------------------------------|-----------------------------------------------------------|----------------------------------------------|----------------------------------------------|-----------------------------------------------|
| HX6IDN | natural            | 60                                   | 1.100                                             | 4.5                                                      | 240                                                       | 15.0                                                      | 35                                           | 50                                           | 60                                            |
| HX6IDZ | black              | 60                                   | 1.100                                             | 4.5                                                      | 240                                                       | 15.0                                                      | 35                                           | 50                                           | 60                                            |
| HX7IDN | natural            | 70                                   | 1.110                                             | 6.0                                                      | 240                                                       | 17.0                                                      | 40                                           | 45                                           | 60                                            |
| HX7IDZ | black              | 70                                   | 1.120                                             | 6.0                                                      | 240                                                       | 17.0                                                      | 40                                           | 45                                           | 60                                            |
| HX8IDN | natural            | 80                                   | 1.130                                             | 7.5                                                      | 240                                                       | 22.0                                                      | 50                                           | 55                                           | 60                                            |
| HX8IDZ | black              | 80                                   | 1.130                                             | 7.5                                                      | 240                                                       | 22.0                                                      | 50                                           | 55                                           | 60                                            |

<sup>1</sup> Deviating from ISO 37 standard test piece S2 is tested with a traverse speed of 200 mm/min.

All values published in this data sheet are rounded average values.



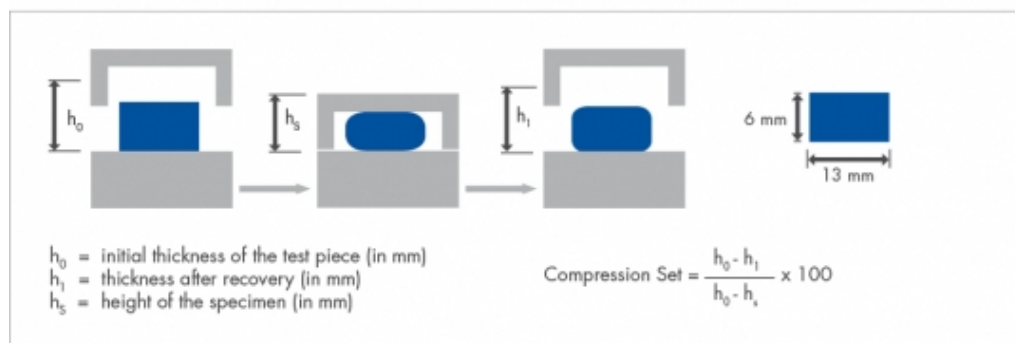
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Compression Set

## Compression Set (acc. DIN ISO 815)

For the compression set testing the following specimen is used:  
The specimen is a cylindrical disk shaped 6 mm thick and 13 mm in diameter.



The specimen is compressed by 25%. The compressed specimen is heated to the test temperature. DIN ISO 815 describes two methods.

**Method A:** The specimen is allowed to recover immediately after its aging in the oven and then cooled down to room temperature. After 30 minutes the thickness of the specimen is measured and the compression set calculated.

**Method B:** The specimen is cooled down to room temperature after its aging in the oven and then allowed to recover.

Test results gained from method B are in general higher than from method A.



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**Processing Guideline Injection Molding**

|                         |                                                                                                                                                                                                                                                      |
|-------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Cylinder temperature    | 210 - 220 - 230 °C, max. 240 °C (410 - 430 - 450 °F, max. 460 °F)                                                                                                                                                                                    |
| Hotrunner               | Hot runner temperatures: 180 - 220 °C (356 - 428 °F). The runner should be empty after a maximum of 2 - 3 shots.                                                                                                                                     |
| Injection pressure      | 1200 - 2000 bar (18855 - 29010 psi); depending on size and weight of the part.                                                                                                                                                                       |
| Injection rate          | In general, the fill time should not be more than 1–2 seconds.                                                                                                                                                                                       |
| Hold pressure           | We recommend to derive the optimum hold pressure from determining the solidification point, starting with 40 % - 60 % of the required injection pressure.                                                                                            |
| Back pressure           | 20 - 100 bar; if color batches are used, higher back pressure is necessary.                                                                                                                                                                          |
| Screw retraction        | If an open nozzle is used processing with screw retraction is advisable.                                                                                                                                                                             |
| Mold temperature        | The mold temperature depends on the hard component. A temperature exceeding 80 °C (175 °F) should be avoided. The common temperature is 40 - 60 °C (105 - 140° F).                                                                                   |
| Predrying               | Pre drying of the material of at least 2 h at 105 °C is recommended. Processing with residual moisture of 0,1 % is recommended.                                                                                                                      |
| Needle valve            | With materials < 50 Shore A the use of a needle valve is advisable.                                                                                                                                                                                  |
| Screw geometry          | Standard 3-zone polyolefine screw.                                                                                                                                                                                                                   |
| Residence time          | The residence time should be set as short as possible. If the residence time is too long, a distinctive smell will appear and the TPE shows "frothing". Please ensure the forced ventilation instruction mentioned in the material safety datasheet. |
| Cleaning recommendation | For cleaning and purging of the machine it is appropriate to use polypropylene or polyethylene. Machine must be PVC-free.                                                                                                                            |
| Other information       | Provide sufficient ventilation and punctiform suction at critical points.                                                                                                                                                                            |

