Gaskets & seals solutions
Rubber fabric products TENAX®

Vee packings • Chevron sets • Collars for rods & pistons
Gaskets and Seals in Tenax® rubber fabric

Our gaskets in cotton-fabric Tenax® do consist of fabric impregnated with elastomeric compounds through special manufacturing processes.

Our pre-shaped rings with a rolled and wound structure are prepared, moulded and vulcanised in order to obtain the definitive profile.

This special structure, combined with the design of profiles used for years in hydraulic systems, allows to produce gaskets with:

- High elasticity;
- Good mechanical resistance;
- Good resistance to wear;
- High resistance to pressure;
- Resistance to mineral and synthetic oils;
- Resistance to high temperatures.

Our gaskets in Tenax®, regardless of the profile, exert their function on the base of the elastic deformation they undergo during assembly in a housing having a radial section inferior to the actual width of the gasket.

With this method, even in applications with no pressure, the sealing performance is ensured by the elastic deformation effect.

When the pressure of the fluid on the gasket increases, the perfect balance among the forces acting on the gasket is created. Therefore a good sealing performance is ensured even at the highest operating temperatures.

Our gaskets in Tenax®, if compared with other gaskets in compact rubber, offer many advantages in terms of resistance to wear and low friction coefficient. This is due to the structure of the fabric, which is able to retain particles of the retained fluid in its stitch structure. This allows to improve the lubrication and the resistance of the gasket.

Our gaskets in Tenax® are also able to prevent sticking phenomena of metal parts, even after long standstill periods.

Vee packings or Chevron “Automatic” sets

Our vee-packing sets, also known as “automatic”, do consist of different elements, such as:

- Head ring section TR
  Also named thrust ring; it has no sealing function, but it is aimed at protecting the upper V-ring from possible collision against the sharp edges of the metal housing. It is normally produced in hard material; according to the specific construction requirements, it is produced in cotton-fabric NBR, in high hardness rubber or in plastic material. From the geometric point of view, it has a groove and some axial notches aiming at improving the sealing performance even in case of pressure peaks. The head ring is available in split form and/or glued.

- Intermediate rings section V
  They are the basic elements in all chevron sets; their particular “V”-shape has been designed for enhancing the sealing performance in high pressure applications. This is the reason why they are also called “automatic”. This profile, available in many different materials, allows a good resistance to pressure with low friction. In specific cases one or more “V” rings composing the Chevron set are produced in nitrile rubber; the performance of the set at low pressures is therefore highly improved.

- Base ring section BP
  Also named “U”-ring. This ring is assembled opposite to the pressure flow and therefore, besides supporting the “V”-rings, it has to be highly resistant to extrusion. As the BP ring is particularly subject to wear, it is supplied with an anti-extrusion ring in special heavy-duty applications.
## VEE PACKINGS & CHEVRON “AUTOMATIC” SETS

<table>
<thead>
<tr>
<th>PROFILE</th>
<th>DIMENSIONAL RANGE [MM]</th>
<th>MATERIALS</th>
<th>P [BAR]</th>
<th>T [°C]</th>
<th>S [m/s]</th>
<th>APPLICATIONS</th>
</tr>
</thead>
</table>
| TO Series | 15÷300 | NBR + fabric  
FKM + fabric  
HNBR + fabric  
V-rings NBR 70 Shore A  
V-rings FKM 70 Shore A  
V-rings HNBR 70 Shore A | 400 | -30 ÷ 120  
-10 ÷ 200  
-30 ÷ 150 | 0,5 | - Hydraulic cylinders  
- Injection moulding presses  
- Forging presses  
- Extruding presses |
| TG Series | 8÷2000 ENDLESS OR SPLIT | NBR + fabric  
FKM + fabric  
HNBR + fabric | 400 | -30 ÷ 120  
-10 ÷ 200  
-30 ÷ 150 | 0,5 | - Hydraulic cylinders  
- Injection moulding presses  
- Forging presses  
- Extruding presses |
| JW Series | 8÷1200 | NBR + fabric  
FKM + fabric  
V-rings in NBR 70 Shore A  
V-rings in FKM 70 Shore A | 600 | -30 ÷ 120  
-10 ÷ 200 | 0,5 | - Hydraulic cylinders  
- Hydraulic presses  
- Hydraulic valves  
- Reciprocating pumps  
- Machine tools |
| TG40 TG60 | 8÷1200  
10÷300 | NBR + fabric  
FKM + fabric | 300/500 | -30 ÷ 120  
-10 ÷ 200 | 0,5 | - Hydraulic cylinders presses  
- Machine tools  
- Heavy duty applications |
| BL Series W Series | 100÷2000 ENDLESS OR SPLIT | NBR + fabric | 600 | -30 ÷ 120 | 0,5 | - Hydraulic cylinders presses  
- Machine tools  
- Heavy duty applications |
# Collars for Rods and Pistons

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>TeOL/1</td>
<td>20÷600</td>
<td>Vulc. Head ring • NBR + fabric • FKM + fabric</td>
<td>200</td>
<td>-30 ÷ 120 -10 ÷ 200</td>
<td>0,5</td>
<td>- Hydraulic cylinders - presses - Machine tools</td>
</tr>
<tr>
<td>TeOL/1A</td>
<td>20÷600</td>
<td>Supporting ring • NBR 70 Shore A • FKM 70 Shore A</td>
<td>250</td>
<td>-30 ÷ 120 -10 ÷ 200</td>
<td>0,5</td>
<td>- Hydraulic cylinders - presses - Machine tools</td>
</tr>
<tr>
<td>TeOL/1B</td>
<td>20÷600</td>
<td>Anti-extrusion ring • PA6 Nylon • PTFE</td>
<td>300</td>
<td>-30 ÷ 120 -10 ÷ 200</td>
<td>0,5</td>
<td>- Hydraulic cylinders - presses - Machine tools</td>
</tr>
<tr>
<td>TeOL/2</td>
<td>200÷300</td>
<td>Seal ring Energising ring • NBR + fabric • FKM + fabric</td>
<td>250</td>
<td>-30 ÷ 120 -10 ÷ 200</td>
<td>0,5</td>
<td>- Hydraulic cylinders - presses - Machine tools</td>
</tr>
<tr>
<td>TeOL/8</td>
<td>200÷300</td>
<td>NBR + fabric NBR HD + fabric</td>
<td>400</td>
<td>-30 ÷ 120 -10 ÷ 200</td>
<td>0,5</td>
<td>- Hydraulic cylinders - presses - Heavy-duty applications</td>
</tr>
<tr>
<td>TeOL/5</td>
<td>10÷200</td>
<td>NBR + fabric</td>
<td>250</td>
<td>-30 ÷ 120 -10 ÷ 200</td>
<td>0,5</td>
<td>- Hydraulic cylinders - presses - Machine tools</td>
</tr>
<tr>
<td>UBP</td>
<td>10÷200</td>
<td>NBR + fabric</td>
<td>200</td>
<td>-30 ÷ 120 -10 ÷ 200</td>
<td>0,5</td>
<td>- Hydraulic cylinders - presses - Machine tools</td>
</tr>
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## Collars for Pistons in Double-Acting Cylinders

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<tr>
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<tbody>
<tr>
<td>SM</td>
<td>20÷350</td>
<td>Seal ring NBR Back-up ring NBR + fabric Back-up ring POM</td>
<td>500</td>
<td>-30 ÷ 120</td>
<td>0,5</td>
<td>- Hydraulic cylinders - presses - Heavy-duty applications</td>
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<tr>
<td>DSM</td>
<td>20÷350</td>
<td>Seal ring NBR Supporting ring NBR + fabric Back-up ring POM</td>
<td>700</td>
<td>-30 ÷ 120</td>
<td>0,5</td>
<td>- Hydraulic cylinders - presses - Heavy-duty applications</td>
</tr>
<tr>
<td>G26</td>
<td>20÷350</td>
<td>Seal ring NBR Supporting ring NBR + fabric Back-up ring POM</td>
<td>700</td>
<td>-30 ÷ 120</td>
<td>0,5</td>
<td>- Hydraulic cylinders - presses - Heavy-duty applications</td>
</tr>
<tr>
<td>TEOL1/E</td>
<td>20÷350</td>
<td>Seal ring NBR Supporting ring NBR + fabric Back-up ring POM</td>
<td>400</td>
<td>-30 ÷ 120</td>
<td>0,5</td>
<td>- Hydraulic cylinders - presses - Heavy-duty applications</td>
</tr>
<tr>
<td>D11</td>
<td>20÷350</td>
<td>Seal ring NBR Supporting ring NBR + fabric Back-up ring POM</td>
<td>400</td>
<td>-30 ÷ 120</td>
<td>0,5</td>
<td>- Hydraulic cylinders - presses - Heavy-duty applications</td>
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## Collars for Rotating Movements

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<tbody>
<tr>
<td>G17</td>
<td>10÷300</td>
<td>Seal ring NBR Supporting ring NBR + fabric NBR</td>
<td>200</td>
<td>-30 ÷ 120</td>
<td>0,2</td>
<td>- Hydraulic systems - Machine tools</td>
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<tr>
<td>G19</td>
<td>50÷300</td>
<td>Seal ring NBR Supporting ring NBR + fabric NBR Back-up ring POM</td>
<td>400</td>
<td>-30 ÷ 120</td>
<td>0,2</td>
<td>- Hydraulic systems - Machine tools</td>
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## COLLARS FOR HIGH PRESSURE PUMPS

<table>
<thead>
<tr>
<th>PROFILE</th>
<th>DIMENSIONAL RANGE [MM]</th>
<th>MATERIALS</th>
<th>P [BAR]</th>
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<th>S [m/s]</th>
<th>APPLICATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>VM</td>
<td>10÷100</td>
<td>NBR + fabric NBR + Hard fabric FKM + fabric HNBR + fabric</td>
<td>400</td>
<td>-30 ÷ 120 -30 ÷ 120 -10 ÷ 200 -30 ÷ 150</td>
<td>2,0</td>
<td>- Plunger pumps - Piston pumps - Metering pumps - Pumps for high pressure cleaners - Pumps for homogenisers</td>
</tr>
<tr>
<td>PW1</td>
<td>20÷50</td>
<td>Back-up ring U-ring Head ring PTFE + bronze NBR + hard fabric Polycetal or NBR</td>
<td>250</td>
<td>Max 80</td>
<td>2,0</td>
<td>- Plunger pumps - Piston pumps - Metering pumps - Pumps for high pressure cleaners - Pumps for homogenisers</td>
</tr>
<tr>
<td>PW2</td>
<td>20÷35</td>
<td>U-ring Head ring NBR + hard fabric Polycetal or NBR 90 Shore A</td>
<td>80</td>
<td>Max 80</td>
<td>2,0</td>
<td>- Plunger pumps - Piston pumps - Metering pumps - Pumps for high pressure cleaners - Pumps for homogenisers</td>
</tr>
<tr>
<td>PW</td>
<td>20÷50</td>
<td>NBR + hard fabric</td>
<td>80</td>
<td>Max 80</td>
<td>2,0</td>
<td>- Plunger pumps - Piston pumps - Metering pumps - Pumps for high pressure cleaners - Pumps for homogenisers</td>
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</tbody>
</table>

## COLLARS FOR SPECIAL APPLICATIONS

<table>
<thead>
<tr>
<th>PROFILE</th>
<th>DIMENSIONAL RANGE [MM]</th>
<th>MATERIALS</th>
<th>P [BAR]</th>
<th>T [°C]</th>
<th>S [m/s]</th>
<th>APPLICATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>JWG</td>
<td>100÷1500</td>
<td>NBR + fabric</td>
<td>400</td>
<td>-30 ÷ 120</td>
<td>0,5</td>
<td>- Hydraulic cylinders presses - Machine tools</td>
</tr>
<tr>
<td>D-SEAL</td>
<td>100÷1800</td>
<td>Seal ring Supporting ring NBR</td>
<td>200</td>
<td>-30 ÷ 120</td>
<td>0,5</td>
<td>- Hydraulic cylinders presses - Machine tools</td>
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</tbody>
</table>
## MATERIALS

### RUBBER

<table>
<thead>
<tr>
<th>MATERIAL</th>
<th>PROPERTIES</th>
<th>APPLICATION</th>
</tr>
</thead>
</table>
| OLEOLITE® NBR | - optimal mechanical resistance  
- resistance to wear  
- bad performance with heat  
- low resistance to fuels  
- low resistance to ageing | Resistance to temp. -30 + 120 °C  
- Hydraulic oil, grease, emulsions, water  
- Mineral base fluids: HH, HL, HM, HV  
- Fire-resistant fluids HFA, HFB, HFC |
| FKM | - optimal resistance to high and low temperatures  
- good chemical resistance  
- bad performance with steam | Resistance to temp. -10 + 200 °C  
- Hydraulic oil, grease, emulsions, water  
- Mineral base fluids HH, HL, HM, HV  
- Fire-resistant fluids HFA, HFB, HFC, HFD |

### PTFE

<table>
<thead>
<tr>
<th>MATERIAL</th>
<th>PROPERTIES</th>
<th>APPLICATION</th>
</tr>
</thead>
</table>
| VIRGIN PTFE | - low friction coefficient  
- optimal resistance to chemical agents and solvents  
- optimal dielectric properties  
- optimal resistance to temperature  
- FDA approval  
- low wear resistance  
- low recovery | - Hydraulic oil, emulsions, water  
- Mineral base fluids: HH, HL, HM, HV  
- Fire-resistant fluids HFA, HFB, HFC, HFD |

### SPECIAL PTFE MATERIALS

<table>
<thead>
<tr>
<th>MATERIAL</th>
<th>PROPERTIES</th>
<th>APPLICATION</th>
</tr>
</thead>
</table>
| PTFE FILLED WITH GLASS | - optimal resistance to wear and optimal anti-extrusion properties  
- FDA approval | - Hydraulic oil, grease, emulsions, water  
- Mineral base fluids: HH, HL, HM, HV  
- Fire-resistant fluids HFA, HFB, HFC, HFD |
| PTFE FILLED WITH CARBON | - optimal resistance to wear and distortion  
- bad dielectric properties | - hydraulic oil, grease, emulsions, water  
- Mineral base fluids: HH, HL, HM, HV  
- Fire-resistant fluids HFA, HFB, HFC, HFD |
| PTFE FILLED WITH GRAPHITE | - low friction coefficient  
- optimal heat dispersion properties  
- good performances in applications with steam | - hydraulic oil, grease, emulsions, water  
- Mineral base fluids: HH, HL, HM, HV  
- Fire-resistant fluids HFA, HFB, HFC, HFD |
| PTFE FILLED WITH BRONZE | - optimal resistance to wear and distortion  
- good thermal conductivity  
- bad dielectric properties  
- good resistance to chemical agents | - hydraulic oil, grease, emulsions, water  
- Mineral base fluids: HH, HL, HM, HV  
- Fire-resistant fluids HFA, HFB, HFC, HFD |
| PTFE FILLED WITH BRONZE/MoS2 | - optimal resistance to wear and optimal anti-extrusion properties  
- resistance to high pressure | - hydraulic oil, grease, emulsions, water  
- Mineral base fluids: HH, HL, HM, HV  
- Fire-resistant fluids HFA, HFB, HFC, HFD |

### RUBBER FABRIC

<table>
<thead>
<tr>
<th>MATERIAL</th>
<th>BASE COMPOSITION</th>
<th>APPLICATIONS</th>
</tr>
</thead>
</table>
| TENAX | Cotton fabric / NBR sh 75 colour black | Max Temperature 120 °C  
For hydraulic oil, water emulsions fluids HFA, HFB, HFC |
| TENAX - HD | Cotton fabric / NBR shore 90  
- Colour black, brown, blue  
- FDA approval available  
- Special version for heavy-duty applications | Max Temperature 120 °C  
For hydraulic oil, water emulsions fluids HFA, HFB, HFC |
| TENAX FKM | Cotton fabric / FKM shore 75  
Colour black | Max Temperature 180 °C  
Hot oil, low pressure steam, acids, alkali, solvents, phosphoric esters, fluids HFA, HFB, HFC, HFD |
| TENAX FKM/KEVLAR® | Kevlar® Aramidic fabric / FKM shore 75  
Colour black | Max Temperature 200 °C  
Special version for heavy-duty applications |
| TENAX HNBR | Cotton fabric / HNBR sh 75  
Colour black | Max Temperature 150 °C  
Special version for heavy-duty applications |
| TENAX VMQ | Cotton fabric / silicone VMQ shore 75  
Colour red | Temperature max 180 °C |
| TENAX PTFE | Cotton fabric / NBR sh 75  
Colour white (NBR with PTFE content) | Temperature max 120 °C |