This programme comprises smooth and corrugated tubes as well as partially corrugated tubes in mono or co-extruded wall thicknesses which, when used with our NORMAQUICK® quick connectors and NORMACLAMP® hose clamps, will provide a complete transfer system for fluids and air.
NORMAFLEX® – Fluid Systems

NORMAFLEX® Fluid Systems

NORMAFLEX® fluid systems consist of plastic tubes that are suitable for being combined with NORMAQUICK® quick connectors and/or NORMACLAMP® hose clamps in order to create perfectly matching systems. Depending on the type of material used and the layer construction, NORMAFLEX® fluid systems are suitable for transporting a wide range of different media such as water, air, oil or fuel.

Short description of technical features

Materials

The components are combined in a way to match the specific requirements of each application and to provide the best possible physical and chemical properties.
NORMAFLEX® – Fluid Systems

Technical features

Example: smooth pipe 8 x 1

<table>
<thead>
<tr>
<th>Test</th>
<th>Unit</th>
<th>Single-layer</th>
<th>Multi-layer</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>PA 6 R 50 HNZ</td>
<td>PA 12 soft L 25 W 40 X</td>
<td>PA 12 hard L 25 H</td>
</tr>
<tr>
<td>Tensile strength, standard value</td>
<td>MPa</td>
<td>31–35</td>
<td>22–24</td>
</tr>
<tr>
<td>Elongation at tear, standard value</td>
<td>%</td>
<td>100–150</td>
<td>150–220</td>
</tr>
<tr>
<td>Burst pressure 23 °C, standard value</td>
<td>MPa</td>
<td>9.8</td>
<td>6.5</td>
</tr>
<tr>
<td>Burst pressure 115 °C, standard value</td>
<td>MPa</td>
<td>1.7</td>
<td>1.5</td>
</tr>
<tr>
<td>Min. bending radius (without internal reinforcement)</td>
<td>mm</td>
<td>40</td>
<td>25</td>
</tr>
<tr>
<td>Min. bending radius (with internal reinforcement)</td>
<td>mm</td>
<td>20</td>
<td>20</td>
</tr>
<tr>
<td>Pull-off forces (pipe/firtree) NW 6, standard value</td>
<td>N</td>
<td>750</td>
<td>600</td>
</tr>
<tr>
<td>Area of Application</td>
<td></td>
<td>Air, Oil</td>
<td>Fuel, Air, Oil</td>
</tr>
</tbody>
</table>

Note: Conversion of tensile strength: 1 MPa = 1 N/mm²; conversion of burst pressure: 1 MPa = 10 bar

Survey of sizes

NORMAFLEX® fluid systems are exclusively made to customers’ requirements.

The advantages at a glance

- Ready-to-fit systems = fast, simple assembly
- Light construction units = weight reduction compared with conventional rubber/metal systems
- Different materials
- Available as mono or co-extruded tube
- Adaptable geometries
- Lines depending upon need; smooth, corrugated or partially corrugated
NORMA FLEX® – Fluid Systems

Variants

Presently we offer fluid systems to be used in the following areas of application:

**NORMA FLEX® SAS**
to be used in Secondary Air Tube Systems

**NORMA FLEX® HCS**
to be used in Hydraulic Clutch Tube Systems

**NORMA FLEX® CVS**
to be used in Crankcase Ventilation Tube Systems either with or without heating

**NORMA FLEX® CWS**
to be used in Cooling Water Tube Systems
NORMA FLEX® – Fluid Systems

NORMA FLEX® FTS
to be used in
Fuel Transport Tube Systems

NORMA FLEX® TVS
to be used in
Tank Ventilation Tube Systems

NORMA FLEX® OTS
to be used in
Oil Transport Tube Systems

NORMA FLEX® TOC
to be used in
Transmission Oil Cooler Tube Systems
NORMAFLEX® LET Low Emission Tube

The NORMAFLEX® LET Low Emission Tubes have been developed with the aim to produce a system component achieving significantly reduced permeation rates. As a result of our endeavours we can now offer perfectly matching tank line systems (tube – spigot – quick connector) that enable us to pave the way for the future of efficient low-emission applications.

The advantages at a glance

NORMAFLEX® LET “low emission” tubes are made without fluorthermoplastic resin
- Outstanding mechanical, physical and chemical properties
- Significant reduction in permeation
- High temperature resistance
- High compressive strength