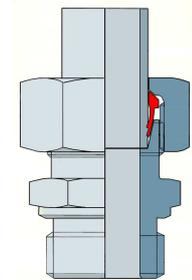
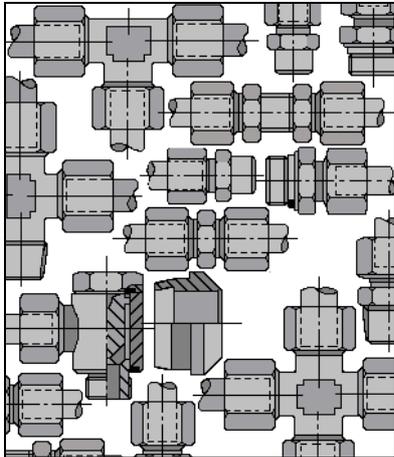




# Balfit<sup>®</sup> Compression Ring Pipe Fittings

The range of **Balfit<sup>®</sup>** 24° compression ring hydraulic pipe fittings is produced according to **ISO 8434-1** and **DIN 2353** standards. It covers a very wide variety of applications typical of hydraulic pipe pressure lines.

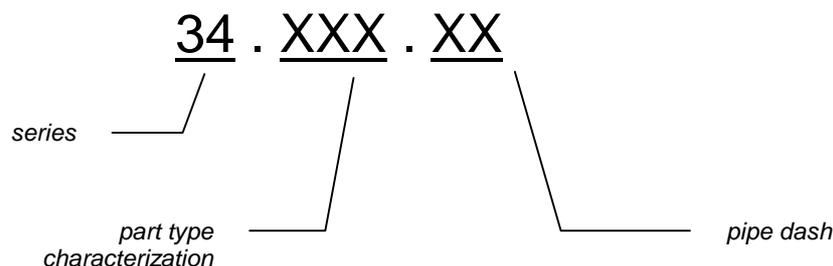


## Balfit 24° Compression Ring Hydraulic Pipe Fittings (Series 34)

**Balflex<sup>®</sup>** optimized the production of these fittings and their compatibility with a wide range of other types of hydraulic fittings, in order to assure the highest performance and the most extensive range of applications, including BSP and taper threads included in DIN 2353 and not included in ISO 8434-1, as well NPTF threads and banjos not foreseen in both standards, but common in industrial standards. The **Balfit<sup>®</sup>** hydraulic fittings program in this catalogue includes thus complete fittings (body, cutting ring and nut) with

- metric parallel
- BSP parallel and taper threads
- NPTF threads

The **Balfit<sup>®</sup>** compression ring fittings part code is composed of three groups of digits:



**Construction characteristics and dimensions may be changed at any time without prior notice.**

The data contained herein is information purposes only and does not enlarge, amend or imply any warranty other than provided by the manufacturer with the product. Any use of the product not in conformance with the manufacturer's instructions may be dangerous.

Only items in this catalogue are carried in stock. Some items are subjected to minimum quantities or sold only in multiples of standard quantities. Please refer to the price list or contact our commercial department.

**Balflex<sup>®</sup> – The European Technology**

# Balfit® Compression Ring Pipe Fittings

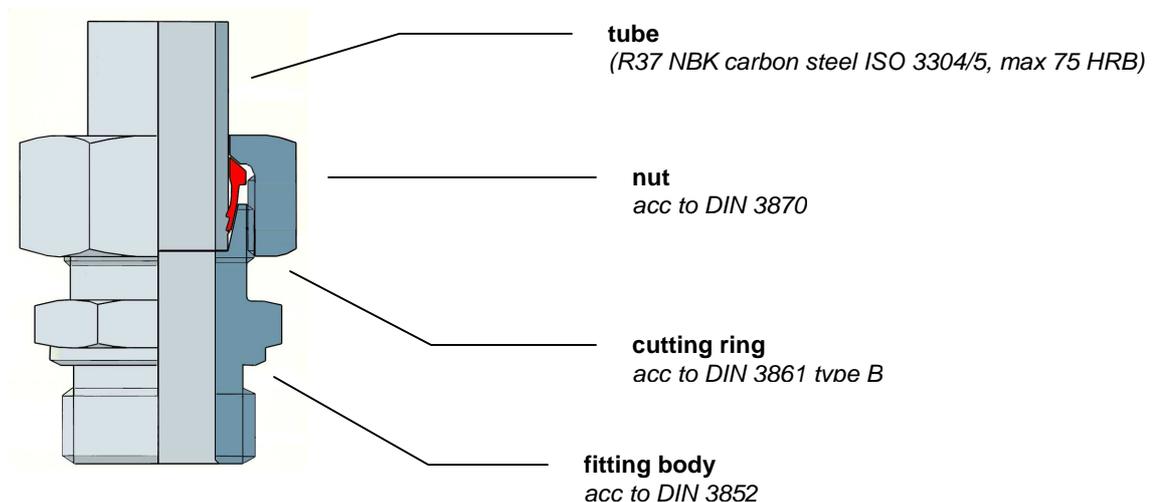


## Compression ring operation principle

The compression ring (also called cutting ring) mechanical fittings assure assembly of threaded fittings to removable hydraulic tubes without any need of tapping, welding or flaring. It provides maximum assembly simplicity with perfect sealing characteristics.

Sealing is achieved through permanent deformation of the tube. The compression ring is designed to fit on the tube and into the 24° cone of the fitting body. When the nut is tightened the ring is compressed into the cone and its cutting edge bites into the tube, assuring through deformation of the tube outer wall both securement and sealing.

**Balfit** compression ring fittings use DIN 3861 type B compression rings, with 2 cutting edges. This design has the advantage of providing a better balance of forces, superior sealing and added resistance to vibrations.



## Assembly Instructions

The preparation sequence comprises the following 3 steps:

- The tube is cut square with a hack-saw (roller type saws should be avoided), leaving a straight section for assembly of the fitting with at least twice the length of the nut; the tube edges must be de-burred.
- All contact parts (e.g. the 24° cone, the threads and the ring) must be lubricated with an adequate product.
- The nut and the compression ring are inserted up the tube as in the picture above; the larger diameter of the ring must face the nut in order that the cutting edges will face the 24° cone of the fitting body.

Tubes shall conform to ISO 3304/5 R37 NBK or DIN 1630 St 37.4, with maximum hardness of HRB 75. Light wall tubes may require an insert.

Construction characteristics and dimensions may be changed at any time without prior notice.

The data contained herein is information purposes only and does not enlarge, amend or imply any warranty other than provided by the manufacturer with the product. Any use of the product not in conformance with the manufacturer's instructions may be dangerous.

Only items in this catalogue are carried in stock. Some items are subjected to minimum quantities or sold only in multiples of standard quantities. Please refer to the price list or contact our commercial department.

**Balflex® – The European Technology**



# Balfit<sup>®</sup> Compression Ring Pipe Fittings

Assembly should follow the instructions of DIN 3859 part 2 and is also a 3-step procedure:

- the cutting ring is made to bite the tube;
- the correct seating of the cutting ring is verified;
- the assembly is tightened.

The first step can be made either on the final application placement, using standard fitting body, or as a pre-assembly on a workbench using a specific hardened tool with the 24° cone form. The wear of pre-assembly tools has to be verified every 40 to 50 assemblies. Large diameter tubes (Ø 10 mm) should always be pre-assembled using hardened blocks. If standard fitting bodies are used, they should be replaced with each tightening.

Assembly using hardened tools comprises:

- To make the compression ring bite into the tube (step 1), hold the tube firmly against the 24° cone and tighten the nut 3/4 of a turn.
- Loosen the nut to verify (step 2) that the compression ring edges have cut into the tube (a raised edge of tube material must be clearly visible all around the tube in front of the compression ring).
- Tighten the tube on the pressure line (step 3) until resistance is met (which means that the previous tightening position is found); turn the nut another 1/4 of a turn for optimal pressure resistance.

Note: In step one make sure that the tube is hold firmly against the cone; otherwise it will advance with the nut and the ring will not cut into its surface. Make sure also that the tube does not rotate with the nut. In a successful pre-assembly the ring may still be turned around the tube, although not moving from its placement. If the ring is not correctly secured the process has to be restarted.

Assembly on the final placement with standard fittings comprises:

- To make the compression ring bite into the tube (step 1), hold the tube firmly against the 24° cone tighten the nut by hand against the ring and then tighten the nut 1<sup>1</sup>/<sub>2</sub> turns with two wrenches.
- Loosen the nut to verify (step 2) that the compression ring edges have cut into the tube (a raised edge of tube material must be clearly visible all around the tube in front of the compression ring).
- Tighten the nut again (step 3) with the same force as in step 1.

## Technical Characteristics

The **Balfit** compression ring fittings in carbon steel are designed for petroleum based hydraulic fluids applications with a **temperature range of -20°C to +100°C**. These limits may be exceeded using other construction materials for the fittings bodies and sealing rings. Stainless steel variants of the fittings with viton seals, achieving maximum temperatures of 200°C, are listed in the catalogue pages. If other fluids are used, corrosion resistance of the fittings should be verified before application.

Construction characteristics and dimensions may be changed at any time without prior notice.

The data contained herein is information purposes only and does not enlarge, amend or imply any warranty other than provided by the manufacturer with the product. Any use of the product not in conformance with the manufacturer's instructions may be dangerous.

Only items in this catalogue are carried in stock. Some items are subjected to minimum quantities or sold only in multiples of standard quantities. Please refer to the price list or contact our commercial department.

**Balflex<sup>®</sup> – The European Technology**

# Balfit® Compression Ring Pipe Fittings



Pressure classes for **Balfit** compression ring fittings follow ISO and DIN standards classification in

- **LL** for very light duty fittings, with a maximum working pressure of 10 MPa (1450 PSI);
- **L** for light duty fittings, with a maximum working pressure of 31,5 MPa (4500 PSI); and
- **S** for heavy duty fittings, with a maximum working pressure of 63 MPa (9000 PSI).

The **safety factor of 4:1** relating minimum burst pressure to recommended working pressure applies. The working pressure for each fitting and size is listed in the catalogue pages for working temperature of 20° C. A linear de-rating factor of 12%/100°C should be used for higher working temperatures.

Compression ring fittings have good resistance to vibration. However, in presence of fluid hammering, the heavy duty fittings should be used.

Cylindrical and taper threads should be used always matched. In case of cylindrical threads used against softer materials, gasket type should always be preferred, to guarantee sealing even at low torque values.

**Table 1: Pressure Conversion**

<b>bar</b>	0,00134	0,0025	0,0339	0,069	0,098	<b>1,00</b>	1,01	10,0	100
<b>PSI</b>	0,0194	0,036	0,492	<b>1,001</b>	1,421	14,504	14,69	145,04	1450,38
<b>MPa</b>	-	-	0,003	0,007	0,0098	0,10	0,101	<b>1,00</b>	10,00
<b>1 atm</b>	0,001	0,0025	0,0335	0,068	0,097	0,987	<b>1,00</b>	9,87	98,69
<b>m H<sub>2</sub>O (20°C)</b>	0,014	0,026	0,346	0,704	<b>1,000</b>	10,207	10,34	102,074	1020,736
<b>in Hg (20°C)</b>	0,0396	0,074	<b>1,001</b>	2,04	2,89	29,53	29,91	295,30	2953
<b>in H<sub>2</sub>O (20°C)</b>	0,538	<b>1,005</b>	13,623	27,73	39,38	401,86	407,09	4018,65	40186,47
<b>mm Hg (20°C)</b>	<b>1,005</b>	1,88	25,43	51,75	73,51	750,06	759,81	7500,62	75006,17

Example: 1 MPa = 14,51 PSI ; 1Mpa = 10,0bar

**Construction characteristics and dimensions may be changed at any time without prior notice.**

The data contained herein is information purposes only and does not enlarge, amend or imply any warranty other than provided by the manufacturer with the product. Any use of the product not in conformance with the manufacturer's instructions may be dangerous.

Only items in this catalogue are carried in stock. Some items are subjected to minimum quantities or sold only in multiples of standard quantities. Please refer to the price list or contact our commercial department.

**Balflex® – The European Technology**