



DIN/COMPRESSION FITTINGS

Literature





Figure 1 Compression Fittings

Introduction:

DIN Type Compression Fittings are made in accordance with DIN 2353/ISO 8434-1 standards. They are also known as DIN Compression Fittings, Bite Type Fittings or Single Ferrule Fittings, and commonly used to connect tubes and hydraulic lines. They are also often used for hydraulic and lubrication oil, fresh water and sanitary applications. A DIN fitting consists of three components, namely fitting body, nut, and sleeve.

Material:

Compression fittings are generally made with three materials: Brass, Steel and Stainless Steel. To protect fittings from corrosion, an additional process is carried out. The process is passivation for stainless steel, white zinc plating for steel, and acid cleaning for brass.

Pressure Rating & Size Range:

Compression fittings are available in three series, which are LL series, L series and S series. The available sizes depend on tube outer dimensions (OD) which range from 4MM OD to 42MM OD.

Pressure rating varies for each series. For LL series, the maximum working pressure is 100 Bars. For L series, the highest pressure rating is 315 Bars, and for S series, the highest pressure rating is up to 630 Bars. However, take note that the pressure rating of the fittings is also affected by the sizes. In general, larger sizes will have lower working pressure.



Figure 2 Compression Fittings Union

Compression Fittings Assembly Instruction:



Figure 3 Compression Fittings Union Tee

Before assembling DIN fittings with tubes, we need to put attention on some details. The material of fittings and tubes must be similar, except for copper tubes, which are used together with brass fittings. Saw machines are recommended for sawing off tubes. After sawing off the tube, do use deburring tools to lightly deburr the inner and outer diameter of the tube ends.

We also need to lubricate the threads of the nut and the body of the fittings, the cutting ring and the 24° cone using a suitable lubricant like anti-bloc fett. Please note that normal grease is not recommended for lubrication.

To assemble the fitting with the tube, first, place the pre-oiled nut and cutting ring over the tube in the right direction. Then, insert the tube into the fitting body, up to fitting stopper with nut and cutting ring. Then, hand-tighten the nut, and the wrench tightens 1 1/4 turns, by holding the fitting body with a second wrench, for final assembly. Please note that we should turn the nut instead of the fitting body. After that, check the penetration of the cutting ring.

Compression Fittings Pressure Ratings:

Nominal Pressure (PN)

The pressures specified are in accordance with DIN 2401 part 1 draft. The pressure has a safety factor of 4 times according to DIN 3859 standards.

Pressure Range

LL	Up to 100 BAR
L Series	Up to 500 BAR
S Series	Up to 800 BAR

Compression Fittings Temperature Ratings:

Compression Fittings temperature ratings vary in accordance to the body material as per below:

Body Material Temperature Rating

Stainless Steel	-60°C to 400°C (DIN 17440)
Steel	-40°C to 120°C (DIN 3859)
Brass	-60°C to 175°C

When combining seal material, the temperature rating of seal may become the limiting factor on the fitting's temperature rating. Kindly refer to the temperature rating below:

Elastomer's Temperature Rating

NBR	-35°C to 100°C (Default Option)
Viton	-25°C to 200°C
PTFE	-60°C to 240°C

Pressure Reduction in Temperature

There are reductions in the nominal pressure (PN) caused by the temperature of the fluid medium or surroundings. Please refer to the table below:

Fitting Material	Temperature Range	Pressure Reduction
Stainless Steel	-60°C to +20°C	-
Stainless Steel	+50°C	4%
Stainless Steel	+100°C	11%
Stainless Steel	+200°C	20%
Stainless Steel	+300°C	29%
Stainless Steel	+400°C	33%
Steel	-40°C to +120°C	-
Brass	-40°C to +175°C	35%

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