

General Description: The EO progressive ring fitting produces a low to high pressure, leak free connection of tubes and components in fluid systems.

The EO Body. EO fitting bodies are available in over thirty configurations. The shaped products (i.e., elbows, tees, crosses) are hot forged, then machined to the stringent EO fitting specifications. Straight products are made from cold drawn bar stock.

The EO Progressive Ring (Cutting Ring). EO progressive rings are precision machined with all dimensions and surfaces, particularly the critical bite edges. PSR features a “positive stop” to eliminate over-tightening.

The EO Nut. EO fitting nuts are either cold formed, hot formed or machined from cold drawn material.

Features:

- Visible Bite
- Sealing Capability
 - EO fittings have demonstrated a remarkable ability to remain leak free under various service conditions ranging from sealing high vacuum and small molecules gases to high pressure hydraulic fluids.
- Distributed Stresses
- Vibration Control
- Progressive Ring Design
- Envelope Size
- Temperature Rating
- Compatibility
- Tube Wall
 - EO fittings are suitable for use with light wall, medium wall, heavy wall, and extra heavy wall tubing.
- Re-Usability/Remakeability
 - Joints can be disassembled and reassembled many times.
- Assembly
 - No expensive, complicated tooling is necessary to assemble EO fittings.
- Materials
 - EO fittings can be manufactured from almost any metallic material.
- Finish
 - Steel EO fittings have a zinc gold chromate finish. This finish provides good corrosion protection.
- Silver Plated Nuts
 - Stainless steel tube nuts are pre-lubricated with silver plated threads

EO Specifications

Steel fittings: EO tube fittings
 – Materials according to DIN 3859-1

Stainless steel fittings: EO tube fittings
 – X6CrNiMoTi 17122 in accordance with DIN 17440 / EN 10088, material no. 1.4571.

Brass fittings: EO tube fittings
 – CUZN35Ni2 in accordance with DIN 17660, material no. 2.0540.

Elastomer seals: NBR (BUNA-N), FPM (Fluorocarbon)

Surface Finish -

- Steel fittings:** Standard
- LL Series
 - Body, Nuts, and Rings
 - Zinc yellow chromate
 - L+S Series
 - Body and Nuts
 - Zinc yellow chromate
 - Progressive Rings (DPR)
 - Zinc olive chromate
 - Progressive Rings (PSR)
 - Zinc clear chromate

EO Tube Recommendations

For steel fittings:

Seamless cold drawn steel tubes made from material St. 35.4 or from conditioned base material St. 37.4 in accordance with DIN 1630, state of delivery NBK (normal annealed) with tube outer and inner diameter tolerances in accordance with DIN 2391/ISO 3304. Max. hardness: HRB 75.

For stainless steel fittings:

Material no. 1.4571 and 1.4541

Seamless drawn tubes made from austenitic, stainless steel materials no. 1.4571 and 1.4541, in accordance with DIN/EN/ ISO 1127. Max. hardness: HRB 90.

These tubes are particularly recommended for tube fittings, since the tube outer diameter and wall thickness, tolerances correspond to those of steel tubes in accordance with DIN 2391/ISO 3304.

For brass fittings:

Seamless drawn copper tube made from material with short code SF-Cu F37 in accordance with DIN 1786.

Tube wall thicknesses:

In order to determine the necessary tube wall thicknesses for applications, refer to the calculated pressures provided in the tables for EO metric tubing. The calculated pressures DIN 2413-I are for static and DIN 2413-III for dynamic loads.

The maximum wall thickness is based on the pressure holding capacity of the fitting. In some cases, the wall thickness of the tube might be too thin for reliable service and an insert must be used to prevent excessive tube collapse. See assembly section for recommended tube wall thicknesses.

Plastic tube:

EO fittings are suitable for use with various types of plastic tubes such as nylon, polyethylene, etc. When used with plastic tube, an insert must be used to prevent tube pull out due to tensile loading.

General Description: EO-2 Fittings

Before assembly there is a gap in between the flat surfaces of the retaining ring and the metallic support ring of the seal. As soon as the retaining ring has reached the proper incision depth, the gap closes, resulting in a sharp increase of assembly torque. This results in uniform and reliable fitting assemblies.

The Functional Nut

The unique Functional Nut simplifies handling of fitting components and helps to minimize storage and procurement costs. The sealing and retaining rings are combined as a pair and are inserted into the internal thread of the nut in such a manner that they cannot fall out, so that these three parts form one functional element.

Individual components such as seal or retaining ring cannot be forgotten, confused or assembled in the wrong orientation. Time and cost are saved by eliminating searching and arranging the components to make up individual joints.

Functional Nuts are completely interchangeable with the full range of EO tube fitting ends.

Features:

- Sealing Capability
 - An elastomeric seal forms the primary sealing element, thus assuring leak-free sealing. Even low-viscosity media such as water or gas are hermetically sealed.
- High Pressure Resistance
 - EO-2 fittings are rated up to Pmax 900 bar.
- Durability
 - The elastomeric seal does not require any retightening.
- Bite Control
- Functional Nut
 - Individual components such as the retaining ring or seal cannot be lost, forgotten, confused or assembled in the wrong orientation.
- Assembly Cost
 - With less than 10 seconds cycle time on the EOMAT III/A (actual presetting process: 1.4 seconds), the cost of presetting EO-2 is extremely low.
- Integrated Preassembly Tool
 - Each EO-2 Functional Nut comes assembled with an integrated assembly tool that makes sure that the retaining ring securely cuts into the tube surface without damaging the sensitive inner cone of the fitting body.
- Unlimited Presetting Tool Lifetime

EO-2 Specifications

Steel fittings:	EO-2 tube fittings – Materials according to DIN 3859-1	Surface Finish - Steel fittings:	Standard – LL Series Body, Nuts, and Rings – Zinc yellow chromate – L+S Series Body and Nuts – Zinc yellow chromate Rings (Progressive) – Zinc olive chromate
Stainless steel fittings:	EO-2 tube fittings – X6CrNiMoTi 17122 in accordance with DIN 17440 / EN 10088, material no. 1.4571.		
Brass fittings:	EO-2 tube fittings – CUZN35Ni2 in accordance with DIN 17660, material no. 2.0540.		
Elastomer seals:	NBR (BUNA-N), FPM (Fluorocarbon)		

Short codes for surface protection procedure in accordance with DIN 267 part 9 or DIN 50942.

EO-2 Tube Recommendations

For steel fittings:

Seamless cold drawn steel tubes made from material St. 35.4 or from conditioned base material St. 37.4 in accordance with DIN 1630, state of delivery NBK (normal annealed) with tube outer and inner diameter tolerances in accordance with DIN 2391/ISO 3304. Max. hardness: HRB 75.

For stainless steel fittings:

Material no. 1.4571 and 1.4541

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The maximum wall thickness is based on the pressure holding capacity of the fitting. In some cases, the wall thickness of the tube might be too thin for reliable service and an insert must be used to prevent excessive tube collapse. See assembly section for recommended tube wall thicknesses.

Plastic tube:

EO-2 fittings are suitable for use with various types of plastic tubes such as nylon, polyethylene, etc. When used with plastic tube, an insert must be used to prevent tube pull out due to tensile loading.