

# Waltech® Tube Fitting Series

## Designed to deliver

As an innovator in tube connectors, our Waltech series offers superior design-enabling exceptional performance in a wide range of applications. Our design features go well beyond simple metallic sealing cutting ring systems to deliver the best possible performance and leak-free operations.

### Walpro® design benefits

- Operators 'feel' when assembly is complete and overtightening is unmistakable, thanks to steadily rising tightening torque with a limit stop feature.
- Increased resistance to high dynamic loads through axial ribs, inner area clamping along the complete tube length, and cutting edges that equally share the holding force.
- Optimized sealing efficiency due to a complete connection between the cutting ring and tube surface. High sealing stress also results in a lower likelihood of leakage.
- Superior assembly characteristics due to cutting edge angles and two cutting edges.
- Safe connections even after repeated assembly. The metallic sealing cutting ring can be assembled and disassembled as often as necessary.
- Lower expenditure, thanks to a reduced need to replace nuts and bodies.

### WalringPlus® design benefits

- Some cutting rings with inner soft seals can be difficult and slower to assemble due to friction between the inner O-ring and the tube's outer surface. The unique inner design of WalringPlus means a significantly lower force is needed to pull the cutting ring over the tube – enabling easier assembly and a reduced risk of damage to the soft seal.
- Where many tube fitting systems require time-consuming and messy lubrication for all components, this is not necessary for Waltech components in carbon steel. This dry assembly process makes tube fitting assembly easier, faster, and cleaner.
- The O-ring groove design of WalringPlus enables an improved stress curve in the material, which increases its mechanical resistance compared to other soft seal cutting rings on the market. This eliminates the risk of the cutting ring cracking during assembly.
- With the bulk of material in front of the first cutting edge, WalringPlus allows for visible control over assembly to reduce the risk of leaks.
- By automating the process of cutting ring assembly and tube forming, Danfoss bespoke WALTRECH M-R7 machine reduces the assembly time and effort required for WalringPlus, as well as the risk of leaks.

### Walform® design benefits

- Patented nose design provides secondary metallic sealing to eliminate any risk of leakage in the only possible path.
- Positive locking between the stud and tube ensures absolute reliability under extreme dynamic loads.
- Locked-in retaining tube removes any risk of disconnection and enables Walform to be used in safety-critical applications.
- No turning of the tube during the assembly process eradicates the risk of assembly failure.



# Walpro components



**A** **Optimized center area** with an unmistakable assembly stop prevents overtightening, reducing leakage risk due to assembly failure

**B** **Axial strengthening ribs** enable a high degree of tightness and equal load distribution on the ring to **optimize resistance under dynamic loads**. Radial flexibility also allow positive clamping of the tube.

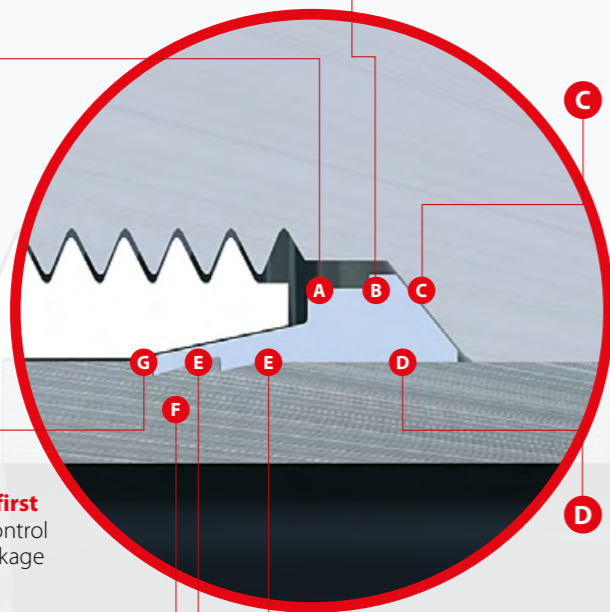
**C** **Optimized shoulder area:**  
Shaped to maximize contact between the shoulder and the nut for further strengthening.  
Large contact surface area with the nut reduces stress

**D** **Inner ring area** holds the tubes along their complete length and compensates for vibration from heavy dynamic loads. Rear radius eliminates grooving effects under dynamic stress.

**G** **Bulk of material in front of first cutting edge** allows visible control over assembly to eliminate leakage risk due to assembly failure

**F** **Optimized for repeated assembly and disassembly** to ensure secure connections every time and reduce replacement costs

**E** **Two cutting edges** share the holding force equally, enabling greater resistance against high dynamic loads.  
**Optimum metal-to-metal sealing** reduces leakage risk in both possible paths.  
Optimized **cutting edge** angle fill the cutting edge chambers with material, enabling the greatest contact area for improved vibration resistance



# Walform components

**B** **Block assembly design:**  
Eliminates component tolerances in the assembly process, preventing leakage due to assembly error.  
Ensures unmistakable increase in torque when completing assembly to stop leakage risk due to excessive tightening.  
Considerably reduces required torque and tightening turns for lower cycle times and operator comfort.  
Enables repeated assembly without sacrificing system performance.



**A** **Primary sealing ensured through Walform tube fitting soft-seal, eliminating leakage.**  
Symmetrical seal negates handling mistakes and eliminates the risk of assembly failure.  
Soft seal available in different materials (HNBR, NBR, or EPDM) for high variance in applications (e.g. high temperature, aggressive media).

Patented Walform tube fitting nose design provides secondary metallic sealing for the only possible leak path.

Positive locking between stud and tube, guarantees reliability under high dynamic loads.

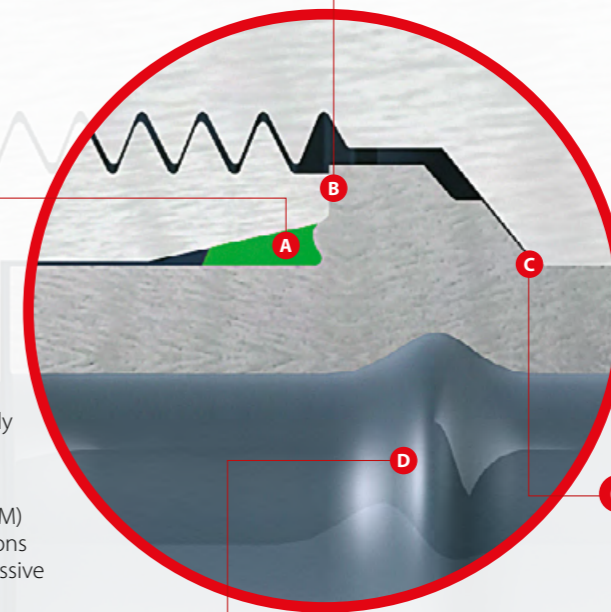
Locked retaining tube prevents broken connections, ideal for applications

**D** **Achieves double-sealed performance easily**, using less expensive components than any other forming system: Standard DIN-Nut, DIN-Fittings and specific Walform tube fitting seal. Standard sealing material is FKM (Viton).

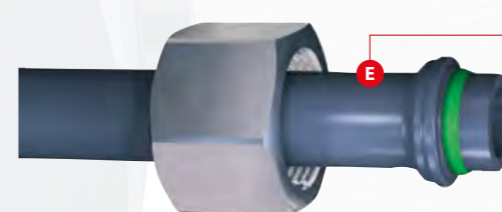
**C** **Optimized radius** for reduced groove effect in the area of maximum bending torque allows for the highest resistance against vibration and dynamic loads.

No sharp contact surface with the nut eliminates the risk of system failure due to groove effect.

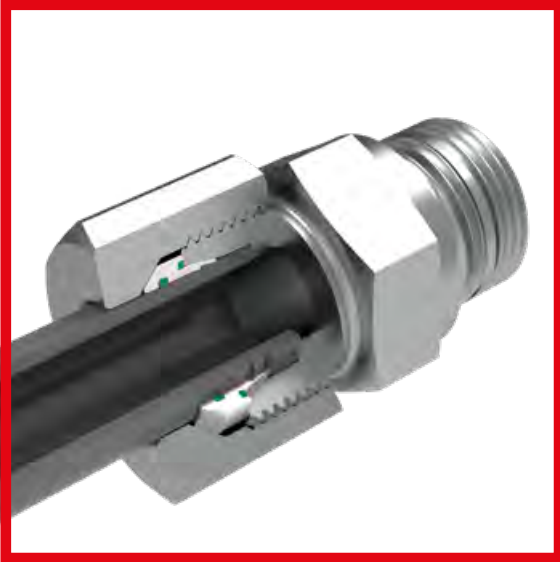
Optimized design enables double the required bending strength for the cutting ring.



**E** **Designed for flexibility: Short clamping area enables** forming system to create short bending lengths.  
No need to turn the tube during assembly eliminates failures.  
Smoothed transition of stress areas in clamping zone, because of optimized clamping grips, eliminates risk of failure under dynamic load.



# WalringPlus components



**B**

## Block assembly design:

Eliminates component tolerances in the assembly process, preventing leakage due to assembly error.

Ensures unmistakable increase in torque when completing assembly to stop leakage risk due to excessive tightening.

Considerably reduces required torque and tightening turns for lower cycle times and operator comfort.

Enables repeated assembly without sacrificing system performance.

**A**

## Soft seal on cutting ring cone

for primary sealing to eliminate leakage.  
Soft seal is FKM for high temperature resistance.

O-Ring position allows re-assembly without risk of damage.

**C**

## Soft seal on cutting ring inner area

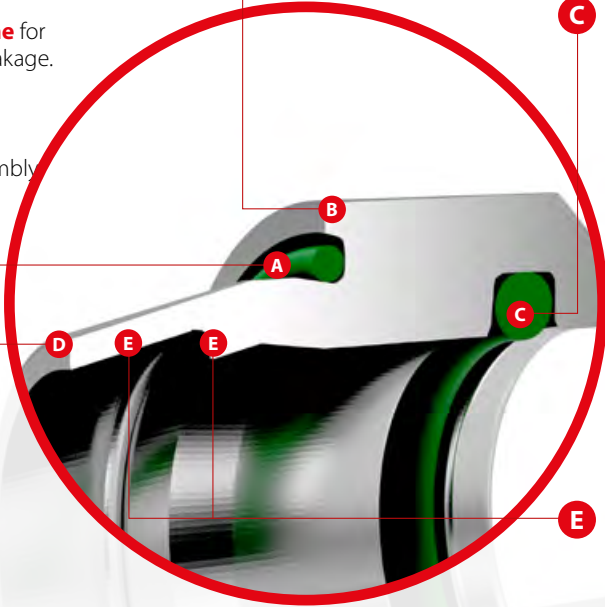
for primary sealing to eliminate leakage.  
Soft seal is FKM for high temperature resistance.

Optimized O-ring groove design allows easy assembly of cutting ring onto the tube.

**D**

## Bulk of material in front of first cutting edge

allows visible control over assembly to eliminate leakage risk due to assembly failure.



**E**

**Two cutting edges** share the holding force equally, enabling greater resistance against high dynamic loads and are optimized for thin wall tubing.

**Optimum metal-to-metal sealing** reduces leakage risk in both possible paths.

**Optimized cutting-edge angles** fill the cutting-edge chambers with material, enabling the greatest contact area for improved vibration resistance.

Go to [www.danfoss.com](http://www.danfoss.com) for further product information.

### Danfoss Power Solutions (US) Company

2800 East 13th Street  
Ames, IA 50010, USA  
Phone: +1 515 239 6000

### Danfoss Power Solutions ApS

Nordborgvej 81  
DK-6430 Nordborg, Denmark  
Phone: +45 7488 2222

### Danfoss Power Solutions II GmbH

Hauptstrasse 150  
53797 Lohmar, Germany  
Phone: +49 2246 1009101

### Danfoss Power Solutions Trading (Shanghai) Co. Ltd.

Building #22, No. 1000 Jin Hai Rd  
Jin Qiao, Pudong New District  
Shanghai, China 201206  
Phone: +86 21 3418 5200