



# WALFORM TUBES

## Literature



## Introduction:



**Figure 1 Walform Tube**

The function of Walform tubes is to provide sealing for metal-to-metal or elastomeric surfaces. Thus, the fluid can flow through the system installation owing to the connection that has been formed. Customized Walform tubes or reshaped tubes are offered for DIN fitting assembly installation. The tube is made up of four parts: a DIN-standard nut, a 24-degree cone seat with a DIN body, a cap seal, and a mechanically reshaped tube end. They are produced in a variety of sizes based on the type of system they will be used in. The outer diameter of the Walform tube ranges from 6mm to 42mm while the working pressure for the tubes ranges from 250 bars to 800 bars.

Walform tubes are made up of stainless steel and carbon steel in accordance with the DIN EN ISO 8434-1 standard. It is used to assure the quality and durability of Walform tubes. DIN 2353 fittings are metric tube fittings that connect to walform tubes. There are three types of tube fittings which are Walring Soft Seal Cutting Ring, Walpro Metallic Seal Cutting Ring, and Walform Reshaping System.

## Types of Walform Tubes:

There are three categories of Walform tubes:

### 1. Walring Soft Seal Cutting Ring

This kind of tube also features a ring with two cutting edges, as well as a captive seal and a machine assembly. The sealing is made of an elastomeric material and offers a metal-to-metal seal. When compared to manual assembling of a cutting ring, it is constructed as an assembly machine and has a 25% torque reduction. After machine assembly, the tightening travel for final in-service assembly is between 30 and 60 degrees. The Walring can be used with Benteler Zista Seal and Zistaplex tubes and is suitable for short bending lengths. In addition, the Walring uses the M-R7 machine for regulated final assembly. In general, it is ideal for manual assembly processes and minimising errors.

### 2. Walpro Metallic Seal Cutting Ring

The Walpro Metallic Seal Cutting Ring includes a two-edged cutting ring, also known as a profile ring, as well as a controlled final assembly. It offers metal-to-metal sealing and reduces tightening torque by 25% as compared to the conventional assembly. Due to the design of the entire assembly machine, the assembly fittings have a lower failure rate. The final in-service assembly's tightening travel is graded between 30 and 60 degrees. It is cost effective while yet allowing for a simple solution to leakage issues. The Walpro Metallic Cutting Ring also enables shorter bending lengths, making it a great option for a variety of applications. It is, however, mostly utilised for fluid retention, forced closure, and combination sealing. Walform tubes are suitable for short bending lengths and are approved for use with Benteler Zista Seal and Zistaplex tubes.

### 3. Walform Reshaping System

The Walform Reshaping system enables the cold reshaping of a tube end with a captive seal. The system is meant to be a reshaping machine that uses an elastomeric with metal-to-metal sealing. Tightening travel for final in-service assembly ends at the point of resistance, reducing the likelihood of assembly failure. The torque reduction value is 25% larger than the torque reduction value of manual assembly of a cutting ring.

#### Advantages of utilizing Walform Tubes:

The process of producing a Walform tube is to insert a tube into the configured Walform machine, resulting in the creation of a profile ring in the tube itself. A Walform tube guarantees that all connections have consistent performance and quality control. Moreover, a safer workplace environment is formed as the risks of steam from faulty tube assembly may be drastically minimized.



Figure 2 Walform Tube  
Assembly Set

Benefits of using Walform tubes:

- A simple and practical installation method
- Installation of tube and fittings in a short time
- Reduce the risk of system leakage issues
- Create reliable tube retention with high dynamic pressures
- Cost saving due to lesser maintenance work
- Consistently high system performance

#### Walterscheid Machines that is compatible with tube fittings:

To improve operating performance and minimize installation stress and time, the Walterscheid organization has developed equipment that are compatible with tube fittings. There are two Walterscheid machines which are M-R7 and M-WF385Xplus.

1. **M-R7 Machine:** The Walpro and Walring systems are compatible with this equipment. The Walpro and Walring systems are compatible with this equipment. They are used along with tube fittings with diameters ranging from 6 to 42 mm. The machine is equipped with RFID technology, which enables tool identification and process values setting. The machine also allows for automated tube assembly by simply inserting the tube in. Ultimately, the M-R7 machine operates at a high rate, which enhances efficiency and lowers costs.
2. **M-WF385Xplus:** This machine is tiny and lightweight, making them easy to transfer from one location to another. It is used for walform tube connections ranging in size from 6 to 42mm. Furthermore, the tools are easy to install and operate with minimal noise. The machine consumes less energy using color-coded tools, which makes tool detection much easier and helps to minimise errors.

### **Procedures of forming Walform tube:**

STEP 1: Start the walform machine by pushing the master switch.

STEP 2: To open the tool holder, press the change tool button.

STEP 3: After opening the tool holder, choose an appropriate clamping jaw and place it within the tool holder.

STEP 4: Insert the reshaper screw into the machine by hand until it is firm and tight.

STEP 5: Close the machine's tool holder.

STEP 6: Press and hold the start and function keys simultaneously for about 2 seconds, or until the white indicator bulb illuminates. This indicates that the tube is ready to be formed by the walform machine.

STEP 7: Put the nut into the tube and move it horizontally into the reshaper. Ensure the tube comes into contact with the reshaper.

STEP 8: When it comes to a halt, hold the tube firmly and double check that the tube axis and tool axis are aligned.

STEP 9: Set the pressure to 99 percent and start the machine. The tube is formed by the machine. It's important to note that once the machine starts working, it can't be stopped.

STEP 10: The walform machine comes to a halt once the forming operation is completed.

STEP 11: Pull the tube with some force and examine the produced shape for any flaws such as cracks or surface damage.

STEP 12: Take note of the diameter of the control.

**Walform Seal Dimension for Walform Tube:**

Bar	Tube OD	Type	Reference	Kg per piece	M	Type	Reference
500 (7252)	6	M 6L	WAL 039842	0,9	M 12 x 1,5	WF-WD 6L/S VI	WAL 610871
500 (7252)	8	M 8L	WAL 039843	1,4	M 14 x 1,5	WF-WD 8L/S VI	WAL 610872
500 (7252)	10	M 10L	WAL 039844	2,0	M 16 x 1,5	WF-WD 10L/S VI	WAL 610873
400 (5801)	12	M 12L	WAL 039845	2,5	M 18 x 1,5	WF-WD 12L/S VI	WAL 610874
400 (5801)	15	M 15L	WAL 039846	4,0	M 22 x 1,5	WF-WD 15L VI	WAL 610875
400 (5801)	18	M 18L	WAL 039847	6,0	M 26 x 1,5	WF-WD 18L VI	WAL 610877
250 (3626)	22	M 22L	WAL 039848	8,0	M 30 x 2	WF-WD 22L VI	WAL 610879
250 (3626)	28	M 28L	WAL 039849	8,5	M 36 x 2	WF-WD 28L VI	WAL 610881
250 (3626)	35	M 35L	WAL 039850	13,0	M 45 x 2	WF-WD 35L VI	WAL 610883
250 (3626)	42	M 42L	WAL 039851	21,5	M 52 x 2	WF-WD 42L VI	WAL 610885
800 (11603)	6	M 6S	WAL 039852	1,0	M 14 x 1,5	WF-WD 6L/S VI	WAL 610871
800 (11603)	8	M 8S	WAL 039853	1,7	M 16 x 1,5	WF-WD 8L/S VI	WAL 610872
800 (11603)	10	M 10S	WAL 039854	3,0	M 18 x 1,5	WF-WD 10L/S VI	WAL 610873
630 (9137)	12	M 12S	WAL 039855	3,5	M 20 x 1,5	WF-WD 12L/S VI	WAL 610874
630 (9137)	16	M 16S	WAL 039857	6,0	M 24 x 1,5	WF-WD 16S VI	WAL 610876

420 (6091)	20	M 20S	WAL 039858	9,5	M 30 x 1,5	WF-WD 20S VI	WAL 610878
420 (6091)	25	M 25S	WAL 039859	19,5	M 36 x 1,5	WF-WD 25S VI	WAL 610880
420 (6091)	30	M 30S	WAL 039860	21,5	M 42 x 1,5	WF-WD 30S VI	WAL 610882
420 (6091)	38	M 38S	WAL 039861	31,0	M 52 x 1,5	WF-WD 38S VI	WAL 610884

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