

*Operating Instructions*

# **TSF 012**

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*Venting Valve*



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## 1. Safety Instructions

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- ☞ Read and follow all the instructions in this manual.
- ☞ Inform yourself regarding:
  - Hazards which can be caused by the venting valve;
  - Hazards which can arise in your system.
- ☞ Observe all safety and accident prevention regulations.
- ☞ Check regularly that all safety requirements are being complied with.
- ☞ Do not carry out any unauthorised conversions or modifications on the venting valve.
- ☞ When returning the venting valve to us please note the instructions in Section „Service“.

### 1.1. Pictogram Definitions



Danger of damage to the venting valve or system.

Modifications reserved

## 2. Understanding The Venting Valve

### 2.1. Main Features

The Venting Valve TSF 012 is used, as a delayed venting valve, in conjunction with the following PFEIFFER Electronic Drive Units:  
TCP 015, TCP 120, TCP 121, TCP 380 and TCP 600.

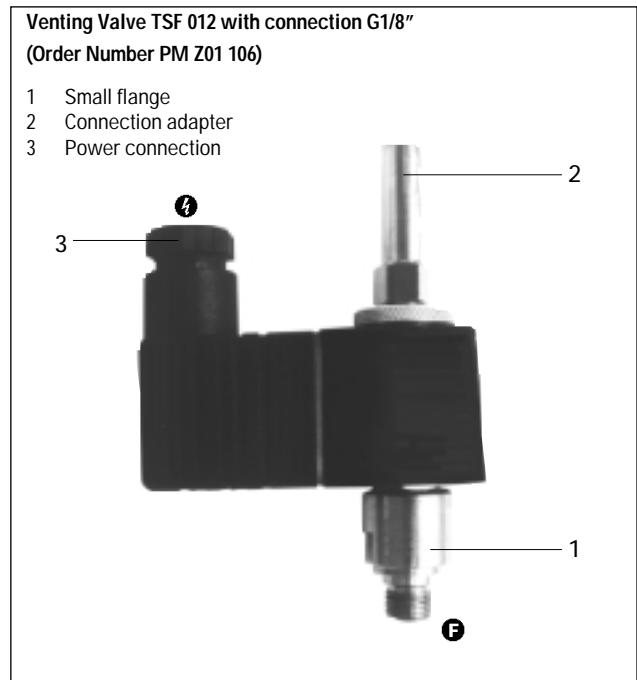
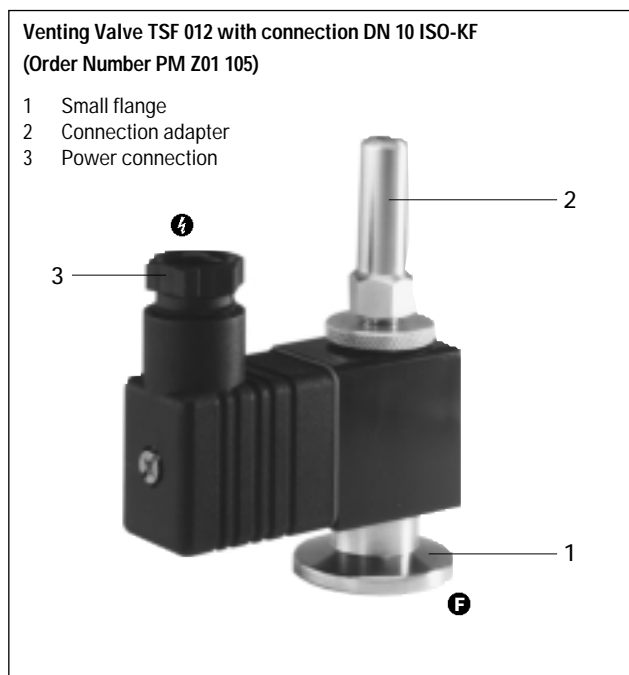
The TSF 012 is employed only in combination with the Electronic Drive Units TCP referred to above for the venting of PFEIFFER turbomolecular pumps.  
These pumps are fitted with a venting connection.  
Delayed venting is a combined function of the Electronic Drive Units TCP and the TSF 012.

When the Electronic Drive Unit TCP is started the Venting Valve TSF 012 closes immediately. After a stop (fault, mains failure or switch-off), the venting valve is supplied from the drive motor of the decelerating pump so that venting starts at deceleration speeds of between 50% and 20%, depending on the motor configuration.

The venting valve is open in the absence of electrical current and remains open until the next Electronic Drive Unit TCP start.

Two versions of the venting valve, depending on turbopump venting connection, are available.

- Small flange connection DN 10 ISO-KF for turbopumps with small flange connection DN 10 ISO-KF.
- Threaded connection G1/8" for turbopumps which are fitted with a venting screw as standard.



Venting valves with DN 10 ISO-KF connection can be fitted to turbopumps with the G1/8" threaded connection using the venting flange (adapter flange) PM 033 737 -T.

### 2.2. For Your Orientation

#### In the text

➔ Working instruction: Here, you have to do something.

#### Symbols used

The following symbols are used throughout in all illustrations:

**F** Venting connection

**⚡** Power connection

#### Position numbers

Identical units and accessory parts have the same position numbers in all illustrations.

## 3. Installation



Do not carry out any unauthorised conversions or modifications on the venting valve.

### 3.1. Turbopump With ISO-KF Venting Connection

- ➔ Clean DN 10 ISO-KF connections on the turbopump venting connection and also on the Venting Valve TSF 012.
- ➔ Connect venting valve to the turbopump venting connection.
- ➔ Using a PVC hose (see Accessories), connect the venting valve to Drying Unit TTV 001 (see Accessories).

### 3.2. Turbopump With Venting Screw

- ➔ Unscrew venting screw.
- ➔ Remove seal from the venting connection.
- ➔ Clean the turbomolecular pump venting connection and the Venting Valve TSF 012.

#### Venting Valve TSF 012 with threaded connection

- ➔ Insert QUAD ring (supplied with the venting valve) in the venting connection.
- ➔ Screw in venting valve.
- ➔ Using a PVC hose, connect the venting valve to Drying Unit TTV 001.

#### Venting Valve TSF 012 with connection ISO-KF

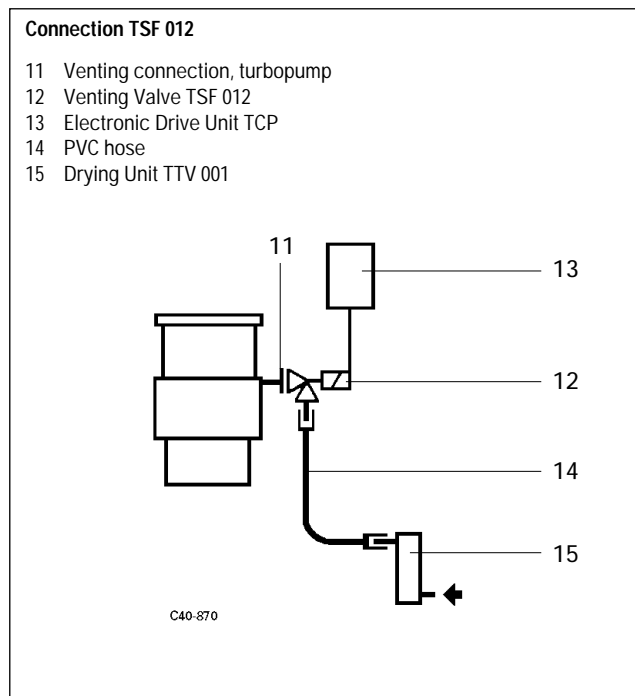
- ➔ Insert QUAD ring in the venting connection.
- ➔ Screw in Venting Flange PM 033 737-T (see Accessories) and tighten.
- ➔ Connect venting valve.
- ➔ Using a PVC hose, connect the venting valve to Drying Unit TTV 001.

### 3.3. Electrical Connection



Electrical connections must be carried out in accordance with local regulations.

- ➔ Venting valve electrical connections should be carried out in accordance with the wiring diagram of the relevant Electronic Drive Unit TCP (connection X1). The maximum cable length, with a cross section  $0.5 \text{ mm}^2$ , is 100 m (connection TCP-venting valve).



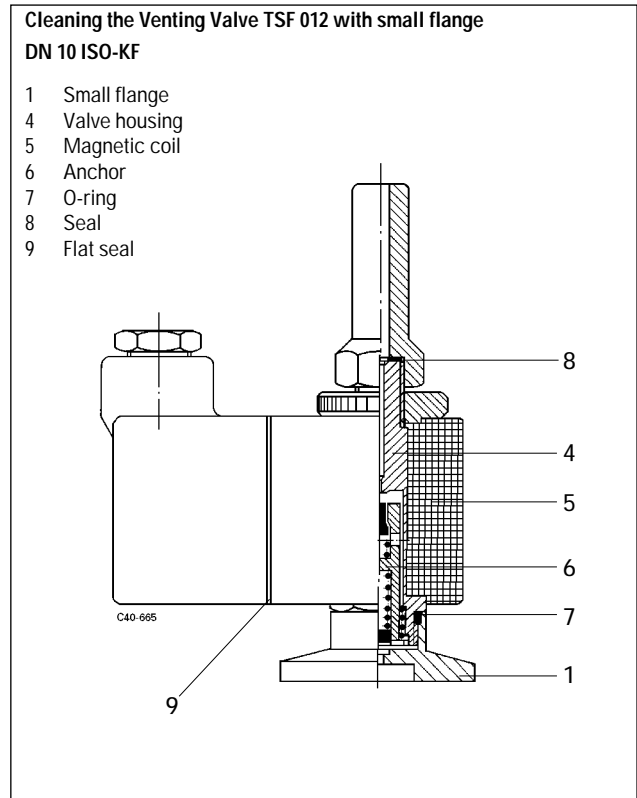
## 4. Maintenance

Under clean operating conditions, the venting valve needs no maintenance.

Dirt can cause the venting valve to become leaky in the closed position.

### 4.1. Cleaning

- ➔ Unscrew small flange DN 10 ISO-KF or threaded connection G1/8" from the valve housing.
- ➔ Remove anchor with opening spring.
- ➔ Using compressed air or a cleaning agent (pure alcohol), clean out housing and anchor. Take special care to the upper valve seat in the core.
- ➔ Once the parts have dried, fit the venting valve using new seals.



## 5. Service

### Do make use of our service facilities

In the event that repairs are necessary a number of options are available to you to ensure any system down time is kept to a minimum:

- Have the venting valve repaired on the spot by PFEIFFER Engineers;
- Return the unit to the manufacturer for repairs.

Local PFEIFFER representatives can provide full details.

### Please note:

Repair orders are carried out according to our general conditions of sale and supply. If repairs are necessary, please send the venting valve to your nearest PFEIFFER Service Center.

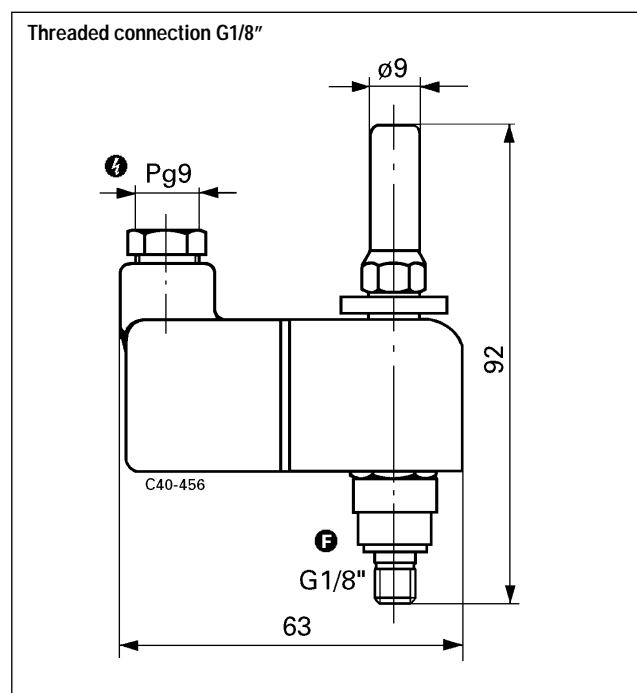
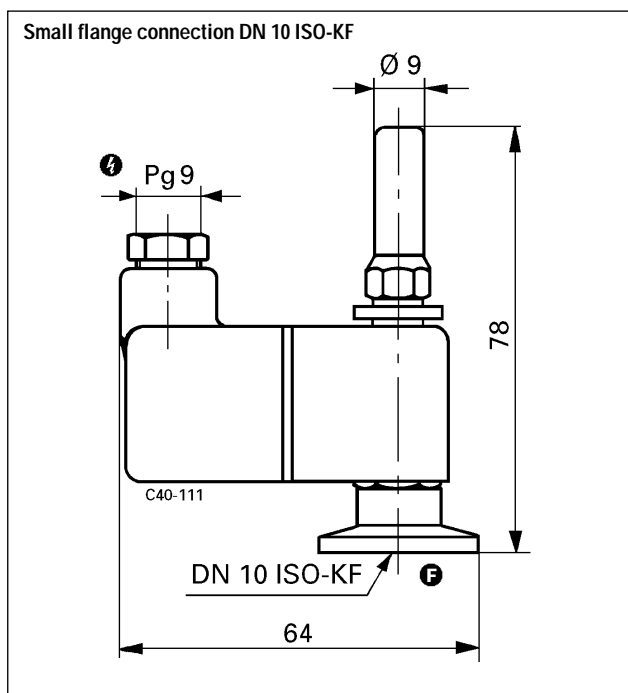
### Contact addresses and service hotline

Contact addresses and telephone numbers can be found on the back cover of these operating instructions.

## 6. Technical Data

Feature	Unit	TSF 012
Connection nominal diameter		DN 10 ISO-KF / G 1/8"
Leak rate (Viton sealed)	mbar l/s	$1 \cdot 10^{-8}$
Seating diameter	mm	2
Connection voltage	V DC	42
Gas flow at atmospheric pressure	mbar l/s	160
Venting gas over pressure, max.	bar	1,5 (absolute)
Diameter of valve seat	mm	2
Weight	g	140

### 6.1. Dimensions



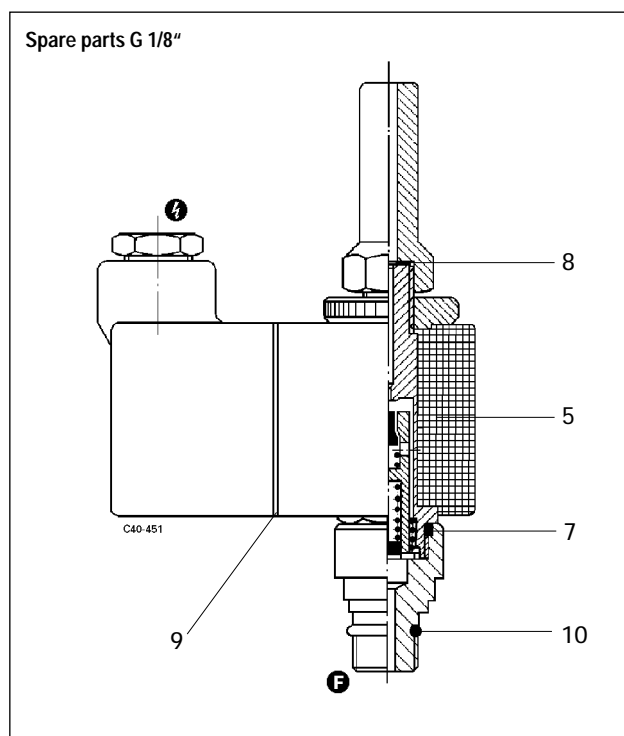
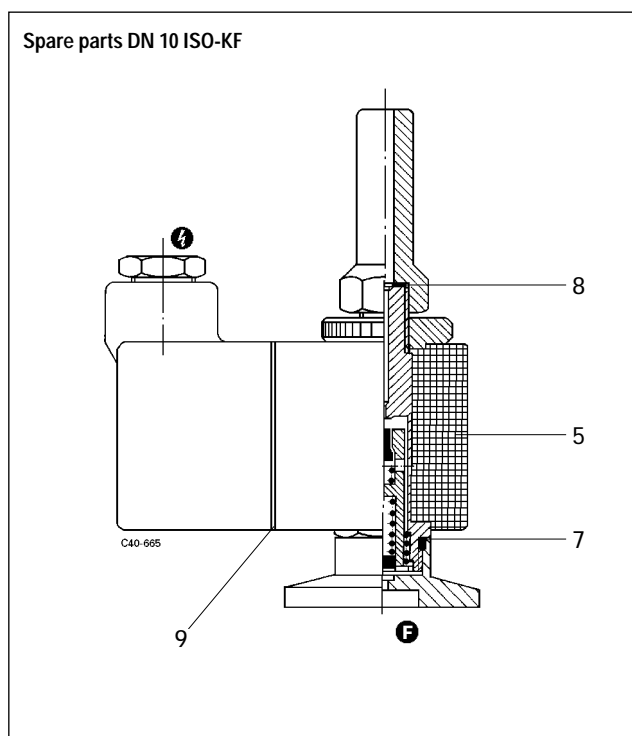
## 7. Accessories

Description	Size	Number	Order Quantity
PVC hose	8 x 14 (state length)	N 2358 170 JS	
Adapter flange	DN 10/G 1/8"	PM 033 737 - T	
Drier TTV 001		PM Z00 121	
Replacement filling for TTV 001		PM 006 786 - T	
<b>For connecting flange DN 10 ISO-KF</b>			
Centering ring with O-ring	Al/Viton; DN 10 ISO-KF	BP 213 326 - T	
O-ring, separate	15 x 5	P 4070 262 PV	
Circlip	DN 10-16 ISO-KF	BP 217 426 - T	

## 8. Spare Parts

Pos.	Description	Pieces	Size	Number	Comments	Order Quantity
5	<b>Spare parts TSF 012</b> Magnetic coil	1	42 V, DC	P 4150 433 AG		
7	O-ring	1	10 x 1	P 4070 160 PV		
8	Seal	1	Ø 4/7 x 1	P 4088 010 A1		
9	Flat seal	1	GM 207-3	P 4713 403 ZB		
10	QUAD ring	1	10,82 x 1,78	P 4081 630 C		

When ordering accessories and spare parts please be sure to state the full part number. Please use this list as an order form (by taking a copy).





**Konformitätserklärung**  
***Declaration of Conformity***



im Sinne folgender EU-Richtlinien:  
*pursuant to the following EU directives:*

- Maschinen/*Machinery* 98/37/EG
- Elektromagnetische Verträglichkeit/*Electromagnetic Compatibility* 89/336/EWG
- Niederspannung/*Low Voltage* 73/23/EWG

Hiermit erklären wir, daß das unten aufgeführte Produkt den Bestimmungen der EU-Maschinenrichtlinie 98/37/EG - Anhang IIA, der EU-Richtlinie über elektromagnetische Verträglichkeit 89/336/EWG und der EU-Niederspannungsrichtlinie 73/23/EWG entspricht.

*We hereby certify that the product specified below is in accordance with the provision of EU Machinery Directive 98/37/EEC - Annex II A, EU Electromagnetic Compatibility Directive 89/336/EEC and EU Low Voltage Directive 73/23/EEC.*

Produkt/*Product:*

TSF 012

Angewendete Richtlinien, harmonisierte Normen und angewendete, nationale Normen:

*Guidelines, harmonised standards, national standards which have been applied:*

EN 292-1                      EN 50 081-1  
EN 292-2                      EN 50 082-2  
EN 294  
EN 61 010  
EN 55 011

Unterschrift/*Signature:*



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Geschäftsführer  
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