PFEIFFER VACUUM

Operating Instructions

TPD 022

Turbomolecular Drag Pump

PM 800 412 BE/C (9704) *N 3727*

INDEX

1. Safety Precautions

- ☞ Read and follow all the instructions in this manual.
- ☞ Inform yourself regarding:
  - – Hazards which can be caused by the pump;
  - – Hazards which can arise in your system;
  - – Hazards which can be caused by the medium being pumped.
- ☞ Avoid exposing any part of the body to vacuum.
- ☞ Comply with all safety and accident prevention regulations.
- ☞ Check regularly that all safety requirements are being complied with.
- ☞ Do not operate the pump with open HV flange.
- ☞ Do not carry out any unauthorised conversions or modifications on the pump.
- ☞ When returning the pump to us please note the shipping instructions.
- ☞ Use at least 4 clamping screws when connecting the HV flange.
- ☞ The pump must be fixed down in accordance with the installation instructions.
- ☞ Do not disconnect the pump cable during operations.
- ☞ If the pump is open, disconnect electronic drive unit from the mains.
- ☞ After switching off the pump, disconnect electronic drive unit from the mains only once the rotor is at rest.
- ☞ When working on the pump only open HV flange once the rotor is at rest.
- ☞ When using sealing gas, limit pressure in the hose connection to 2 bar via the over-pressure valve.

Danger of burns from touching hot parts.

Danger of an electric shock.

Danger of personal injury.

Danger of damage to the pump or system.

Danger of injury from moving parts.

Modifications reserved.

2. Understanding The TPD 022

2.1. Main Features

Turbomolecular Drag Pump TPD 022

1 High vacuum flange
2 Fore-vacuum flange
5 Power connection
6 Rubber feet
8 Screw stopper (cooling water connection)
9 Locking screw (sealing gas valve)

Cooling

Standard: Convection cooling.
Alternative: Air or water cooling as an accessory.
Integrated excess temperature safety feature: Electronic drive unit reduces rotor rotation speed to zero.

Bearings

High vacuum side: Wear free permanent magnetic bearing.
Fore-vacuum side: Oil circulatory lubricated bearings with ceramic balls.

Proper Use

– The Turbomolecular Drag Pump TPD 022 may only be used for the purpose of generating vacuum.
– The turbomolecular pump may only be operated with a PFEIFFER Electronic Drive Unit and relevant cables.
– The turbomolecular pump must be connected to a backing pump as per Section 3.3.

Improper Use

Certain types of use are regarded as improper, e.g.
– Pumping corrosive or explosive gases.
– Operating the pump where explosive processes are involved.
– Using accessories not named in this manual and/or not authorised by PFEIFFER.

Improper use will cause any rights regarding liability and guarantees to be forfeited.

2.2. For Your Orientation

In The Text

➡ Operating instruction: Here, you have to do something.

Symbols Used

The following symbols are used throughout in the illustrations:

Ⓗ High vacuum flange
Ⓥ Fore-vacuum flange
Cooling water connection
Ⓖ Sealing gas connection
Power connection

Position Numbers

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

3. Installation

3.1. Preparations For Installation

BEWARE

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

- Only remove blank flanges on the high and fore-vacuum side just before connecting.
- TPD 022 Turbopumps are supplied with lubricant reservoirs fitted and filled.
- Appropriate shielding must be provided (available on request) if magnetic fields >7 mT are involved.
- If the pump is baked out, the heating sleeve and the body of the pump must be insulated to prevent burning.

3.2. Assembling The Pump, Connecting The High Vacuum Side

Important:
Maintain the utmost cleanliness when fitting all high vacuum parts. Unclean components prolong the pumping time.

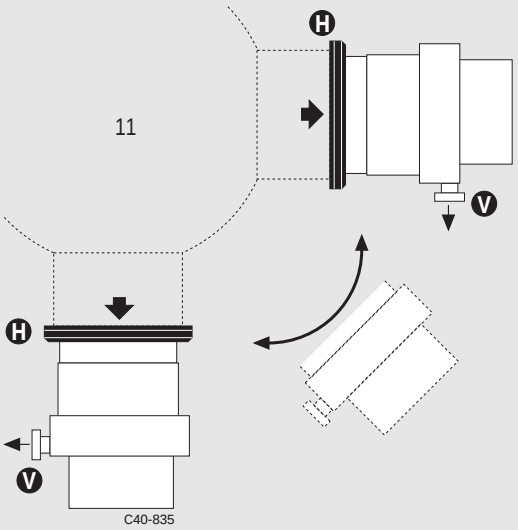
Use Of The Splinter Shield
A splinter shield in the high vacuum flange protects the pump against foreign particles emanating from the vacuum chamber but it does reduce the volume flow rate of the pump by approx. 15 %.
For fitting please refer to "Fitting The Splinter Shield".

The high vacuum side can be flanged directly to the vacuum chamber or via a bellows.

Direct Flanging

Permissible Turbopump Installation Positioning

11 Vacuum chamber

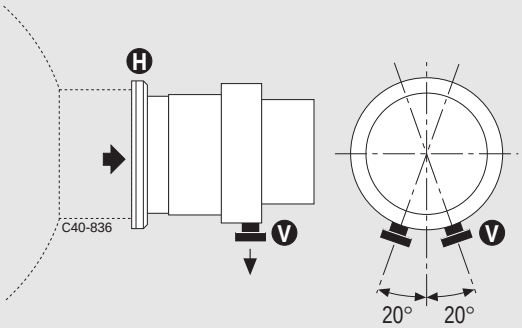


CAUTION

Maximum high vacuum flange axial loading capacity is 200 N (corresponds to 20 Kg).
No asymmetrical loading on the high vacuum flange.

Where the turbopump is installed horizontally:
The fore-vacuum flange of the turbopump must point vertically downwards (deviation max. ± 20°), otherwise the turbopump can become contaminated.

Horizontal installation ; Turbopump



Flanging The Pump Via The Bellows

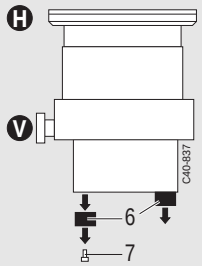
Advantage: Reduced vibration transmission.

The pump must be mechanically bolted onto a holder.

➡ Unscrew the rubber feet from the underside (of the base). Bolt the pump onto a holder with M5 screws.

Anchoring Points On The Underside Of The Turbopump

6 Rubber feet (4x)
7 M5 screws (4x)



CAUTION

No forces must be transmitted from the pipe system to a pump which is anchored.
Suspend or support all piping leading to the pump.

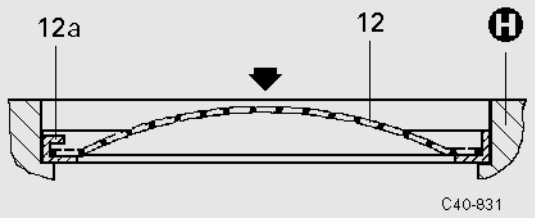
Fitting The Splinter Shield

Insert the splinter shield in the high vacuum flange so that the curvature of the grill faces outwards.

➡ Press splinter shield outer ring up to the stop point in the high vacuum flange.

Inserting The Splinter Shield

12 Splinter shield
12a Clamping lug



3.3. Connecting The Fore-Vacuum Side

Backing pump: Vacuumpressure ≤5 mbar
Recommendation: Oil free Diaphragm Pump MZ 2T or a PFEIFFER rotary vane vacuum pump (note the comments in Section 3.2. regar ding the installation position of the turbo-pump).

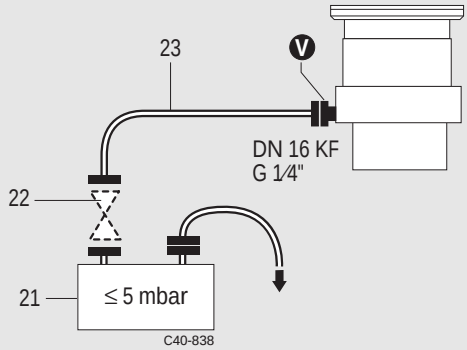
Connecting The Backing Pump

All fore-vacuum line connections: With normal small flange components.

Exhaust gases from the backing pump must be conducted away safely. Ensure the full width of the fore-vacuum flange remains unhindered by other components. Exhausted process gases and vapours can be hazardous to health and harmful to the environment.

Connecting The Backing Pump

21 Backing pump
22 Vacuum safety valve
23 Suction line



➡ Fit the vacuum safety valve in the fore-vacuum line (in PFEIFFER rotary vane vacuum pumps already integrated). This prevents vacuum chamber venting via the backing pump.

➡ With rigid pipe connections: Fit bellows in the connecting line to reduce vibration.

➡ Backing pump power connection: See operating instructions for the electronic drive unit.

3.4. Connecting The Cooling Unit

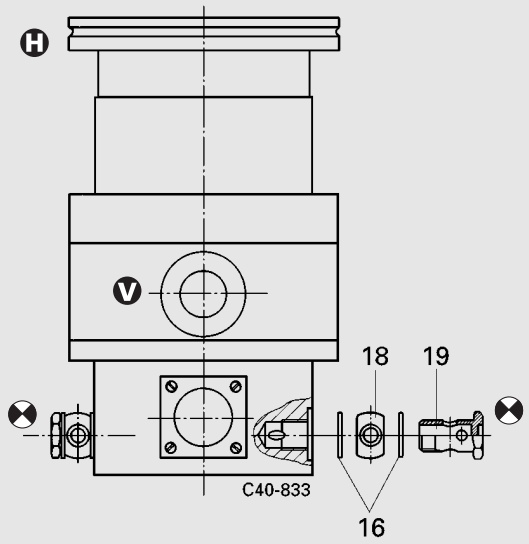
The Turbomolecular Pump TPD 022 is convection-cooled as standard. Where ambient temperatures exceed 30 °C or with heated systems, the pump should be operated with air or water cooling. Water cooling is mandatory where temperatures exceed 35 °C.

3.4.1. Water Cooling

See “Accessories” for the cooling water parts set.

Connecting parts set for cooling water

16 USIT ring
18 Hose nozzle
19 Hollow screw



Cooling water either
– From the mains
– or from Recycled Water Cooling Unit TZK with closed circuit.

Cooling Water From The Mains

Cooling water must be filtered to prevent deposits forming in the pump.

Minimum cooling water requirements

Mechanically clean, optically clear, no turbidity, no sediment, chemically neutral.

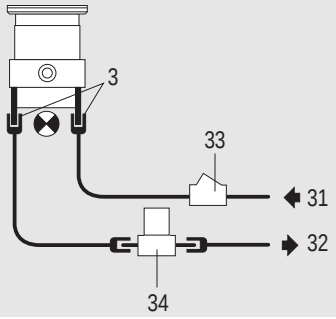
Oxygen content:	max 4 mg/kg
Chloride content:	max. 100 mg/kg
Carbonate hardness:	max. 10 °dH
Potassium permanganate consumption:	max. 10 mg/kg
Carbon dioxide:	Absent
Ammonia:	Absent
pH-value:	7 – 9
Fore-line over pressure:	max. 6 bar
Minimum flow rate:	15 l/h bei 15 °C

Connecting To The Water Mains

- ➡ Fit dirt trap (accessory) in the fore-line.
- ➡ Using circlips, connect fore-line to one of the two cooling water connections.
- ➡ Fit Cooling Water Monitor TCW 002 (accessory) in the return line.
- ➡ Connect return line to the other turbopump cooling water connection.
- ➡ Tighten all circlips and ensure hose lines are seated firmly.

Cooling From The Water Mains

3 Cooling water connection
31 Fore-line
32 Return line
33 Dirt trap
34 Cooling Water Monitor TCW 002



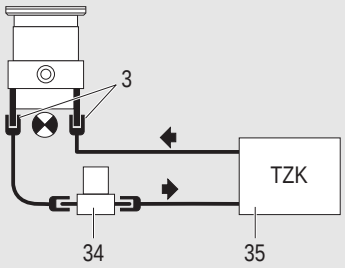
Cooling With The Recycled Water Cooling Unit TZK (Accessory)

Connecting To The TZK

A dirt trap in the pipeline is not permissible.
All other steps as for connection to the water mains.

Cooling With The Recycled Water Cooling Unit TZK

3 Cooling water connections
34 Cooling Water Monitor TCW 002 in the return line
35 Recycled Water Cooling Unit TZK



3.4.2. Air Cooling

See “Accessories” for air cooling parts set.

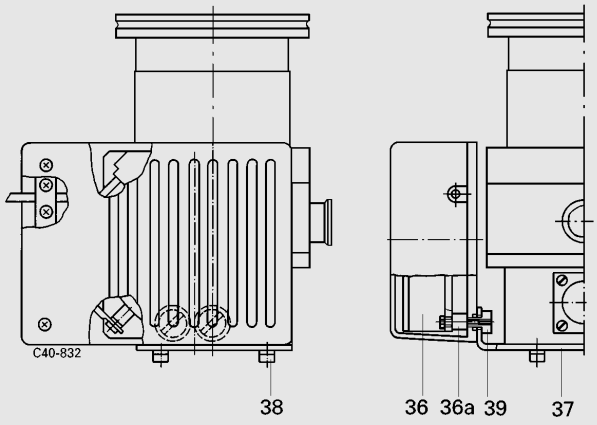
Air cooling permissible only if ambient temperature < 35 °C.
Ensure adequate air circulation and ventilation.

Fitting The Air Cooling

- ➡ Place turbopump on its high vacuum flange (blank flanged so that the sealed surface is not damaged).
- ➡ Unscrew rubber feet from the base of the pump. The fan must be parallel to the axis fore-vacuum connection - locking screw (sealing gas connection). See illustration below.
- ➡ Screw air cooling onto the holder with 4 M5 screws and spring washers onto the turbopump.

Fitting The Air Cooling

36 Fan
36a Buffer
37 Holder
38 M5 screw with spring washers (4x)
39 Screw



Power Connection, Air Cooling

Please see the operating instructions, Electronic Drive Unit TCP 015.

3.5. Connecting The Venting Valve

The Turbopump TPD 022 has no venting connection. It must therefore be vented via the high vacuum flange. Venting time must not exceed 30 seconds.

Venting Valve TSF 012 can be used in conjunction with Electronic Drive Unit TCP 015 to vent the turbopump. Delayed venting is a common function of the TCP 015 and the TSF 012. When the TCP 015 is switched on, the TSF 012 closes immediately.

After switching off or a power failure, Venting Valve TSF 012 is supplied with power by the running down turbopump. Venting begins at approx. 30 % of the rated rotation speed. The valve remains open after the turbopump is at rest.

See “Accessories” for Venting Valve TSF 012.

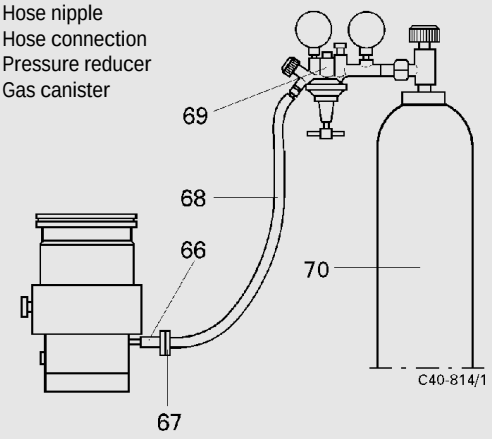
3.6. Connecting The Sealing Gas

When operations involve corrosive or oxidising gases, inert gas can be connected to the turbopump to protect bearings, lubrication and drive. For this, a sealing gas valve is required (see “Accessories”).

- ➡ Unscrew locking screw from sealing gas connection 9 (see illustration under 2.1.).
- ➡ Screw in sealing gas valve with seal.
- ➡ Remove blank flange on sealing gas valve.
- ➡ Flange on hose nipple (DN 16 ISO-KF-10; Accessories).
- ➡ Make hose connection from pressure reducer to sealing gas valve.

Connecting the sealing gas

66 Sealing gas valve
67 Hose nipple
68 Hose connection
69 Pressure reducer
70 Gas canister



See operating instructions for the sealing gas for setting sealing gas levels.

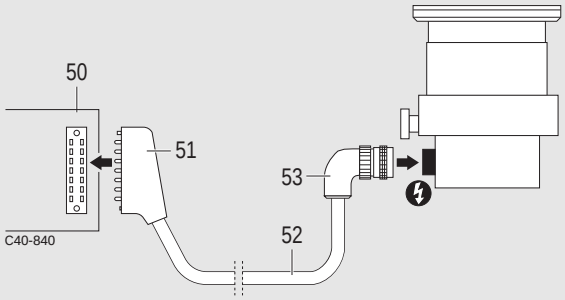
3.7. Connecting The Electronic Drive Unit

Voltages of >100 V can be present on the open electrical contacts on a slowing down pump. There is danger of an electrical shock if the contacts are touched.
Disconnect the plug to the electronic drive unit only once the pump is completely at rest and the electronic drive unit has been disconnected from the mains.

- ➡ Plug in connecting cable between the electronic drive unit and the turbopump. For details please see the operating instructions for the electronic drive unit.

Connecting Electronic Drive Unit To The Turbopump

50 Electronic Drive Unit TCP
51 Male multipoint connector
52 Connecting cable
53 Bayonet plug --> turbopump



4. Operations

4.1. Switching ON

Turbopump rotors rotate at high speed. When the high vacuum flange is open there is a danger of injury. In addition, objects can fall into the pump and cause serious damage.
Therefore never operate the pump with open high vacuum flange.

Before Switching ON:

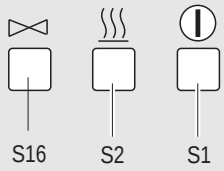
➡ With water cooling: Open cooling water supply and check flow.

Switching ON

➡ Switch on turbopump with mains switch S1 on the electronic drive unit.

Electronic drive unit switches (schematically)

S1 Turbopump ON/OFF
S2 Heating ON/OFF
S16 Venting valve switch



– When connected in accordance with the circuit diagram, the cooling fan is also switched on by the electronic drive unit.
– Switch on Recycled Water Cooling Unit TZK if fitted.
– Switch S1 on the electronic drive unit switches on turbopump, backing pump and accessories simultaneously.

Take care when pumping hazardous gases. Comply with all the gas manufacturer's safety instructions.

4.2. Heating (Only Pumps With Heating Sleeves)

Heating turbopumps and vacuum chambers accelerates the attainment of final pressures (heating jacket see “Accessories”.
The heating period is dependent on the level of contamination and the required final pressure. Heat for at least four hours.

➡ Switch on turbopump heating via switch S2 on the electronic drive unit.

High temperatures are generated when turbopump or vacuum chamber are baked out. Contact with hot parts can cause burns, even when the heating has been switched off.

Heating sleeves, pump casing and vacuum chamber should all be insulated when fitting.
Do not touch heating sleeves, pump casing and vacuum chambers during baking out.

If the vacuum chamber itself is heated, the temperature of the high vacuum flange must not exceed 120 °C.
If the vacuum chamber is heated to 200 °C plus, heat radiation shielding must be fitted to the pump rotor.

4.3. Switching Off And Venting

To avoid the turbopump beecoming contaminated when switching off, the pump should be vented with dry venting gas before shut-down.

➡ Close vacuum safety valve in the fore-vacuum line.
➡ Switch off both turbopump and backing pump at the same time with switch S1 on the electronic drive unit.
➡ Venting Valve TSF 012 opens if fitted.
➡ With water cooling: Shut off water supply.

4.4. Shutting Down For Longer Periods

Vacuum pumps are sometimes used to pump aggressive or hazardous gases. There is a danger of personal injury resulting from coming into contact with process gases. Before removing a turbopump from the system, first:
– Vent the turbopump with a neutral gas or dry air;
– Ensure that there is no residual process gas in the system nor in the supply lines.

If the turbopump is to be shut down for more than a year:

➡ Remove turbopump from the system.
➡ Replace lubricant reservoir (see Section 6.1).
Please note: Lubricant TL 011 is only usable for a period of **two years** in non-operation situations.
➡ Close high vacuum flange and evacuate pump via the fore-vacuum flange.
➡ Vent turbopump via the venting connection with nitrogen or dry air.
➡ Close fore-vacuum and venting connections by blank flanging.
➡ Place the pump vertically on its rubber feet.
➡ In rooms with moist or aggressive atmospheres, the turbopump must be air-sealed in a plastic bag together with a bag of dessicant, e.g. silicagel.

Important:
If the pump has been shut down for a period of **three years** the bearing must be changed (Please get in touch with PFEIFFER Service).

5. What To Do In Case Of Breakdowns?

Problem	Possible Cause	Remedy
Pump doesn't start	• Power supply interrupted	• Check fuse in the electronic drive unit • Check plug contacts on the pump and the electronic drive unit • Check supply lines
Pump doesn't attain rated rotation speed	• Fore-vacuum pressure too high • Leak or too much gas • Rotor stiff because bearing defective	• Check backing pump function • Check seals • Seek leak and repair • Check bearings (noisy ?): Request PFEIFFER Service to replace
Pump doesn't attain final pressure	• Pump dirty • Leak in vacuum chamber, lines or pump	• Bake out pump • If seriously contaminated: Request PFEIFFER Service to clean • Seek leak, starting with vacuum chamber • Repair leak
Unusual operating noises	• Bearings damaged • Rotor damaged • Splinter shield (if fitted) not seated firmly	• Inform PFEIFFER Service of need for repair • Inform PFEIFFER Service of need for repair • Check splinter shield seat (see Section 3.2.)
Pump cuts out during operations	• Run-up phase in the Electronic Drive Unit TCP too short • Thermal overloading caused by: – Water cooling: not flowing properly – Air cooling: air supply hindered – Too high fore-vacuum pressure – Too high ambient temperature • Leak or too much gas	• Extend run-up phase setting time • Ensure free flow • Ensure adequate air supply • Reduce fore-vacuum pressure • Reduce ambient temperature • Seek leak in the system and repair • Process gas feed too high; reduce

6. Maintenance

Important:
PFEIFFER will not accept any liability for damages or operational interruptions or personal injuries which arise from improper maintenance; in addition, all guarantees lapse.

You can replace the lubricant reservoir yourself.
Your pump can be cleaned on the spot if it is not very dirty.
Your local PFEIFFER Service Center can advise you regarding cleaning procedures and any other maintenance and service work which might be necessary.

6.1. Replacing The Lubricant Reservoir

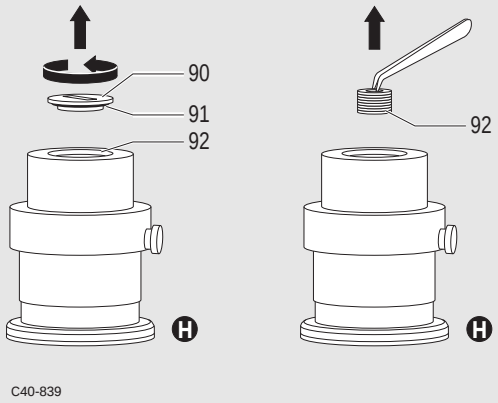
Replace the lubricant reservoir at least once every year.
Where extreme operating or unclean processes are involved please get in touch with your PFEIFFER Service Center for advice.

- ➡ Switch off turbopump, vent to atmospheric pressure (see Section 4.3.) and allow to cool as necessary.
- ➡ If necessary remove the turbopump from the system.
- ➡ Using a broad screwdriver unscrew the locking cap from the underside of the pump; be careful with the O-ring.
- ➡ Using tweezers, remove lubricant reservoir.

Lubricant reservoirs can contain toxic substances from the media pumped.
Dispose of lubricant reservoirs in accordance with local regulations.

Remove locking cap and take out lubricant reservoir

90 Locking cap
91 O-ring
92 Lubricant reservoir



C40-839

- ➡ Remove dirt from the pump and locking cap with a clean, fluff-free cloth.
- ➡ Using tweezers, insert new lubricant reservoir, which comes filled with Lubricant TL 011.
- ➡ Screw in locking cap with O-ring.

7. 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 pump repaired on the spot by our Service Engineers;
– Return the pump to the manufacturer for repairs;
– Replace with a new value pump.

Local PFEIFFER representatives can provide full details.

Before returning:
➡ Please attach a clearly visible notice "Free of harmful substances" (both on the unit and also on the delivery note and any accompanying letters).

"Harmful substances" are substances and preparations as defined in the current, local, dangerous substances regulations; in the U.S.A. as "materials in accordance with the Code of Federal Regulations (CFR) 49 Part 173.240 Definition and Preparation".
We will carry out the decontamination and invoice this work to you if you have not attached this note. This also applies where the operator does not have the facilities to carry out the decontamination work. Units which are contaminated microbiologically, explosively or radioactively cannot be accepted as a matter of principle.

Fill Out The Contamination Declaration
➡ In every case the "Contamination Declaration" must be completed diligently and truthfully.
➡ A copy of the completed declaration must accompany the unit: any additional copies must be sent to your local PFEIFFER Service Center.

Please get in touch with your local PFEIFFER representatives if there are any questions regarding contamination.

Decontaminate units before returning or possible disposal. Do not return any units which are microbiologically, explosively or radioactively contaminated.

Returning Contaminated Units
If contaminated have to be returned for maintenance/repair, the following instructions concerning shipping must be followed:
➡ Neutralise the pump by flushing with nitrogen or dry air.
➡ Seal all openings to the air.
➡ Seal pump or unit in suitable protective foil.
➡ Ship units only in appropriate transport containers.

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

Contact Addresses And Service Hotline
Contact addresses and service hotlines can be found on the back cover of these operating instructions.

8. Technical Data

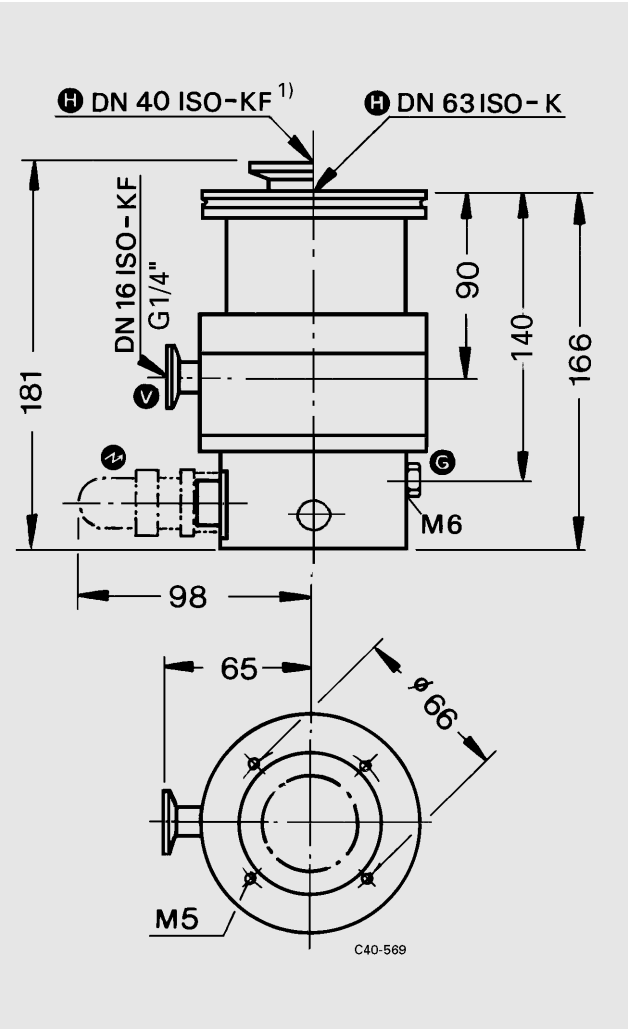
Feature	Unit	TPD 022
Connection nominal diameter		
Inlet		DN 63 ISO-K [1]
Austritt		DN 16 ISO-KF [2]
Electronic Drive Unit		TCP 015
Volume flow rate for		
Nitrogen N_2	l/s	18 (15) [1]
Helium He	l/s	12 (10)
Hydrogen H_2	l/s	9 (7)
Compression ratio for		
N_2		$5 \cdot 10^7$
He		$5 \cdot 10^3$
H_2		$6{,}5 \cdot 10^2$
Recommended backing pump		
Diaphragm pump, min.	m^3/h	0,5
Nominal rotation speed	1/min	90 000
Standby rotation speed	1/min	60 000
Run-up time (up 90 % of the rated rotation speed with TCP 015)	min	2
Final pressure	mbar	$2 \cdot 10^{-6}$
Final pressure after baking out	mbar	$2 \cdot 10^{-7}$
Max. gas throughput N_2	mbar l/s	0,4 / 0,3 [3]
Gas throughput standby	mbar l/s	2
Sealing gas volume	mbar l/s	0,1 - 0,25
Cooling type, standard		Convection
Air cooling		Optional
Permissible ambient temperature with air cooling	°C	0 - 35
Water cooling		Optional
Cooling water consumption with water at 15 °C	l/h	15
Cooling water temperature	°C	5 - 25
Noise level	dB (A)	≤ 50
Lubricant		TL 011
Permissible magnetic field	mT	7
Weight	kg	3,2

[1] Adapter set DN 40 ISO-KF optional (accessory); values in brackets refer to input DN 40 ISO-KF.

[2] If flange DN 16 ISO-KF is screwed off, a G1/4" is available for hose connection.

[3] Measured with Diaphragm Pump MVP 015.

8.1. Dimensions



[1] Adapter set DN 40 ISO-KF optional (accessory)

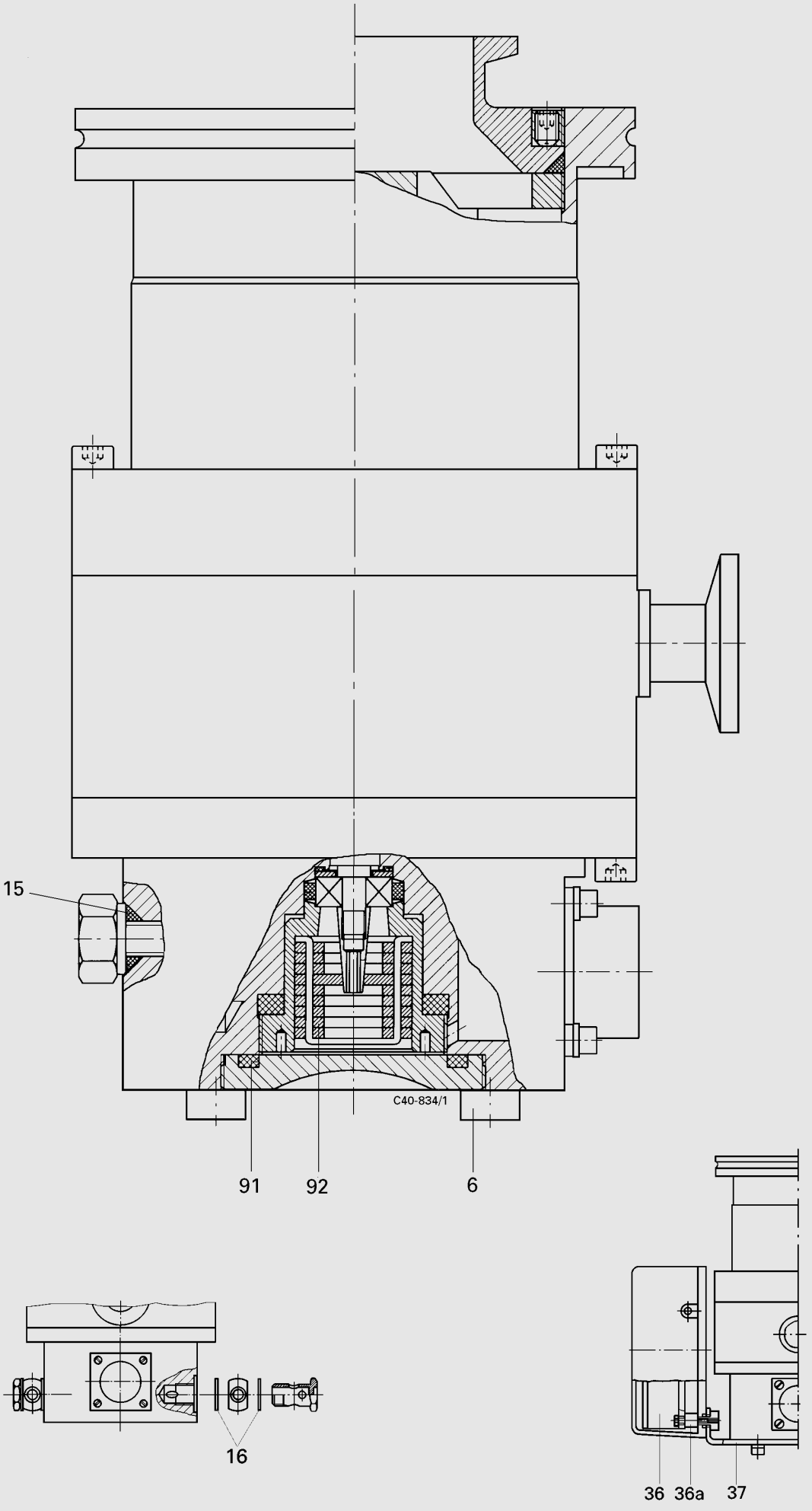
9. Accessories

Description	Size	Number	Comments/ Operating Instructions	Order Quantity
Electronic Drive Unit TCP 015	100 - 240 V; 50/60 Hz	PM C01 598	PM 800 230 BN	
Connecting cable turbopump – TCP	3 m	PM 031 178-X	(Other lengths available on request)	
Pumping Station Controller TCS 015	110/220 V; 50/60 Hz	PM C01 586		
Connecting cable TCP 015 - pump - TCS 015		PM 041 526-X		
Heating jacket	115 V/230 V	PM 043 443 -T		
Silencer	DN 63 ISO-K	PM 006 800-X		
	DN 40 ISO-KF	PM 006 799-X		
Adapter set	DN 40 ISO-KF	PM 053 127-T		
Splinter shield	DN 40 ISO-KF	PM 006 375-X		
	DN 63 ISO-K	PM 006 376-X		
Protective mesh	DN 63 ISO-K	PM 006 597 -R		
Sealing gas valve	DN 10 ISO-KF	PM Z01 142		
Hose nipple	DN 16 ISO-KF-10	BP 217 453		
Fore-Vacuum Safety Valve	230 V; 50/60 Hz	P 0989 435		
	115 V; 50/60 Hz	P 0989 436		
	240 V; 50/60 Hz	P 0989 437		
Power plug for safety valvel	90-265 V; 50/60 Hz	P 0989 438		
Mains cable:				
–Schuko plug		P 4564 309 ZA		
–UL-plug	115 V	P 4564 309 ZE		
–UL-plug	208 V	P 4564 309 ZF		
Components For Cooling				
Set of connecting parts for cooling water		PM 006 802-T		
Cooling Water Monitor TCW 002	110 ; 50/60 Hz	PM C00 131	PM 800 133 BN	
	220 V; 50/60 Hz	PM C00 130		
	240 V; 50/60 Hz	PM C00 132		
Set of connecting parts for TCW 002		PM 006 802 -T		
Recycled Water Cooling Uni TZK 400	230 V; 50 Hz	PM Z01 245	PM 800 369 BN	
	110 V; 50/60 Hz	PM Z01 246		
Dirt trap	R 3/8“	P 4161 300 2R		
Parts set for air cooling	115 V; 50/60 Hz	PM Z01 120		
	230 V; 50/60 Hz	PM Z01 121		
Components For Venting				
Venting Valve TVF 012	DN 10 ISO-KF	PM Z01 105	Fitted on the HV-side PM 800 126 BN	
Drier TTV 001		PM Z00 121	Filled with zeolite PM 800 263 BN	

10. Spare Parts

Pos.	Description	Pieces	Size	Number	Comments	Order Quantity
	Spare Parts TPD 022					
	Set of seals	1		PM 053 037-T		
6	Rubber foot	4		P 3695 700 ZD		
15	O-ring	1	6x2,2	P 4070 088 PV		
16	USIT-ring	4	MS-NBR U 12,7/18x1,5	P 3529 142		
91	O-ring	1	32x3	P 4070 542 PP		
92	Lubricant reservoir	1		PM 033 759-T		
	Spare parts pack 1 (bearing change)	1		PM 648 010-T		
	Spare Parts, Air Cooling					
	Air cooling set	1	115 V; 50/60 Hz	PM Z01 120		
		1	230 V; 50/60 Hz	PM Z01 121		
36	Fan					
		1	115 V; 50/60 Hz	PM 006 209-R		
		1	230 V; 50/60 Hz	PM 006 229-R		
36a	Buffer	4	8x8 / M3	P 3695 702 QE		
37	Holder	1		PM 006 766		

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


15
C40-834/1
91
92
6
16
36
36a
37

Declaration of Contamination of Vacuum Equipment and Components

The repair and/or service of vacuum components will only be carried out if a correctly completed declaration has been submitted. Non-completion will result in delay.

The manufacturer could refuse to accept any equipment without a declaration.

This declaration can only be completed and signed by authorised and qualified staff:

1. Description of component:

- Equipment type/model: _____
- Code No.: _____
- Serial No.: _____
- Invoice No.: _____
- Delivery Date: _____

2. Reason for return:

_____

_____

_____

_____

_____

3. Equipment condition

- Has the equipment been used?

  yes ❒ no ❒

- What type of pump oil was used?

  _____

- Is the eqipment free from potentially harmful substances?

  yes ❒ (go to section 5)
  no ❒ (go to section 4)

4. Process related contamination of equipment

- toxic yes ❒ no ❒
- corrosive yes ❒ no ❒
- microbiological hazard*) yes ❒ no ❒
- explosive*) yes ❒ no ❒
- radioactive*) yes ❒ no ❒
- other harmful substances yes ❒ no ❒

*) We will not accept delivery of any equipment that has been radioactively or microbiologically contaminated without written evidence of decontamination!

Please list all substances, gases and by-products which may have come into contact with the equipment:

Tradename Product name Manufacturer	Chemical name (or Symbol)	Danger class	Precautions associated with substance	Action if spillage or human contact
1.				
2.				
3.				
4.				
5.				

5. Legally Binding Declaration

I hereby declare that the information supplied on this form is complete and accurate. The despatch of equipment will be in accordance with the appropriate regulations covering Packaging, Transportation and Labelling of Dangerous Substances.

Name of Organisation: _____

Address: _____ Post code: _____

Tel.: _____

Fax: _____ Telex: _____

Name: _____

Job title: _____

Date: _____ Company stamp: _____

Legally binding signature: _____

PFEIFFER VACUUM

Pfeiffer Vacuum GmbH

Emmeliusstr. 33
D-35614 Asslar

➪ DE, AT

Herstellererklärung im Sinne folgender EU-Richtlinien:
- Maschinen 89/392/EWG
- Elektromagnetische Verträglichkeit 89/336/EWG
- Niederspannung 73/23/EWG

Hiermit erklären wir, daß das unten aufgeführte Produkt zum Einbau in eine Maschine bestimmt ist und daß deren Inbetriebnahme so lange untersagt ist, bis festgestellt wurde, daß das Endprodukt den Bestimmungen der EU-Richtlinie 89/392/EWG, Anhang II B entspricht.
Wir bestätigen Konformität mit der EU-Richtlinie über elektromagnetische Verträglichkeit 89/336/EWG und der EU-Niederspannungsrichtlinie 73/23/EWG.
Die angewandten Richtlinien, harmonisierten Normen, nationalen Normen und Spezifikationen sind unten aufgeführt.

➪ GB, IE

Manufacturer´s declaration pursuant to the following EU directives:
- Machinery Directive 89/392/EEC
- Electromagnetic Compatibility Directive 89/336/EEC
- Low Voltage Directive 73/23/EEC

We hereby certify that the product specified below is intended for installation in a machine which is forbidden to be put into operation until such time as it has been determined that the end product is in accordance with the provision of EU Directive 89/392/EEC, Annex II B.
We certify conformity with EU Electromagnetic Compatibility Directive 89/336/EEC and EU Low Voltage Directive 73/23/EEC.
The guidelines, harmonized standards, national standards and specifications which have been applied are listed below.

➪ BE, FR

Déclaration du constructeur conformément aux directives CE suivantes:
- directive machine CE 89/392/CEE
- directive CE 89/336/CEE concernant la compatibilité électromagnétique
- directive CE 73/23/CEE concernant la basse tension

Nous déclarons par la présente que le produit mentionné ci-dessous est prévu pour le montage sur une machine et que sa mise en service est interdite tant qu'il n'a pas été déterminé que le produit final répond bien aux dispositions de la directive CE 89/392/CEE, appendice II B.
Nous confirmons la conformité du produit avec la directive CE 89/336/CEE concernant la compatibilité électromagnétique et la directive CE 73/23/CEE concernant la basse tension. Les directives appliquées, normes harmonisées et les normes et spécifications nationales appliquées figurent ci-dessous.

➪ IT

Dichiarazione del costruttore ai sensi delle seguenti direttive UE:
- Macchinari 89/392/CEE
- Compatibilità elettromagnetica 89/336/CEE
- Bassa tensione 73/23/CEE

Si dichiara che il prodotto qui menzionato è destinato al montaggio in una macchina e che la sua messa in funzione è vietata sin quando non è stato accertato che il prodotto finale non rispetta le disposizioni della direttiva UE 89/392/CEE, Appendice II B.
Attestiamo la conformità con la direttiva UE sulla compatibilità elettromagnetica 89/336/CEE e la direttiva UE sulla bassa tensione 73/23/CEE.
Sono riportate in basso le direttive aplicate, le norme standardizzate nonché le norme e le specifiche nazionali utilizatte.

➪ ES

Declaración del fabricante al tenor de las siguientes Directivas de la UE:
- Maquinarias 89/392/MCE
- Compatibilidad Electromagnética 89/336/MCE
- Baja Tensión 73/23/MCE

Por la presente declaramos que el producto mencionado más abajo está previsto para ser incorporado en una máquina y que la puesta en servicio de la misma queda prohibida en tanto que no se haya verificado que el producto final concuerda con las disposiciones resultantes de la Directiva 89/392/MCE de la UE, Apéndice II B.
De nuestra parte certificamos la conformidad con la Directiva 89/336/MCE de la UE sobre Compatibilidad Electromagnética y la Directiva 73/23/MCE de la UE sobre Baja Tensión.
Las directivas aplicadas, normas armonizadas y las normas y especificaciones nacionales aplicadas se mencionan abajo.

➪ NL

Verklaring van de fabrikant in de zin van de volgende EU-richtlijnen:
- machinerichtlijn 89/392/EEG
- richtlijn over elektromagnetische compatibiliteit 89/336/EEG
- richtlijn over laagspanning 73/23/EEG

Hiermee verklaren wij dat het hieronder genoemde produkt is bedoeld om te worden ingebouwd in een machine en dat de ingebruikneming hiervan zolang verboden is, totdat is vastgesteld dat het eindprodukt voldoet aan de bepalingen van EU-richtlijn 89/392/EEG, appendix II B.
Wij bevestigen de conformiteit met de EU-richtlijn over elektromagnetische compatibiliteit 89/336/EEG en de EEG-richtlijn over laagspanning 73/23/EEG
De toegepaste richtlijnen, geharmoniseerde normen en de toegepaste nationale normen en specificaties zijn hierna aangegeven.

➪ DK

Producenterklæring i henhold til følgende EU-direktiver:
- Maskiner 89/392/EWG
- Elektromagnetisk kompatibilitet 89/336/EWG
- Lavspænding 73/23/EWG

Hermed erklærer vi, at det nedenstående produkt er beregnet til indbygning i en maskine og at dennes idriftsættelse er forbudt, indtil det er fastslået, at slutproduktet er i overensstemmelse med EU-direktiv 89/392/EWG tillæg II B.
Vi attesterer konformitet med EU-direktiv vedrørende elektromagnetisk kompatibilitet 89/336/EWG og med EU-lavspændingsdirektiv 73/23/EWG.
De anvendte direktiver, harmoniserede standarder og de anvendte nationale standarder og specifikationer er angivet nedenfor.

Herst.I/9604

➪ SE

Tillverkarens förklaring enligt följande EG-direktiv:

- Maskindirektiv 89/392/EEC
- Elektromagnetisk tolerans 89/336/EEC
- Lågspänning 73/23/EEC

Härmed förklarar vi, att den nedan nämnda produkten är avsedd för inmontering i en maskin och att denna maskin inte får tas i drift förrän det har konstaterats, att slutprodukten stämmer överens med EG's direktiv 89/392/EEC, annex II B.
Vi bekräftar konformitet med EG's-direktiv om elektromagnetisk tolerans 89/336/EEC och EG's lågspänningsdirektiv 73/23/EEC.
De riktlinjer, anpassade standarder, nationella standarder och specifikationer som har blivit accepterade, anges här nedan.

➪ FI

Valmistajan vakuutus seuraavien EU-direktiivien mukaisesti:

- konedirektiivi 89/392/ETY
- sähkömagneettinen siedettävyys 89/336/ETY
- pienjännite 73/23/ETY

Vakuutamme täten, että allamainittu tuote on tarkoitettu asennettavaksi koneeseen ja sen käyttöönotto on kielletty kunnes on todettu, että lopullinen tuote vastaa EU-direktiivin 89/392/EtY vaatimuksia.
Vahvistamme vaatimustenmukaisuuden EU-direktiivin sähkömagneettinen siedettävyys 89/336/ETY ja EU-pienjännitedirektiivin 73/23/ETY kanssa.
Soveltamamme suuntaviitat, harmonisoidut standardit, kansalliset standardit ja rakennemääräykset on luteltu alempana.

➪ PT

Declaração do fabricante, de acordo com as seguintes Directivas CE:

- Máquinas, na redacção 89/392/CEE
- Compatibilidade electromagnética, na redacção 89/336/CEE
- Baixa tensão, na redacção 73/23/CEE

Com a presente, declaramos que o produto abaixo indicado se destina à montagem numa máquina e que é proibida a colocação em serviço da mesma antes de se ter declarado, que o produto final está em conformidade com o disposto na Directiva CE, na redacção 89/392/CEE, Apêndice II B.
Certificamos haver conformidade com o disposto na Directiva CE sobre compatibilidade electromagnética, na redacção 89/336/CEE, e o disposto na Directiva CE sobre baixa tensão, na redacção 73/23/CEE.
Abaixo, dá-se indicação das directivas aplicadas, das normas harmonizadas e das normas e especificações aplicades no respectivo país.

➪ GR

Δήλωση κατασκευαστή κατά το νόημα των εξής οδηγιών της Ε.Ε.:

- περί μηχανών 89/392/Ε.Ο.Κ.
- περί ηλεκτρομαγνητικής συμβατότητας 89/336/Ε.Ο.Κ.
- περί χαμηλής τάσης 73/23/Ε.Ο.Κ.

Με την παρούσα δήλωση βεβαιώνουμε ότι το κατωτέρω αναφερόμενο προϊόν προορίζεται για την προσαρμογή σε μία άλλη μηχανή, και ότι η έναρξη λειτουργίας της απαγορεύεται, μέχρις ότου διαπιστωθεί, ότι το συνολικό συγκρότημα ανταποκρίνεται στους ισχύοντες κανονισμούς της οδηγίας της Ε.Ε. 89/392/Ε.Ο.Κ., παράρτημα ΙΙ Β.
Οι εφαρμοσθέντες κανονισμοί, οι εναρμονισμένες προδιαγραφές και οι εφαρμοσθείσες εθνικές προδιαγραφές και τεχνικές προδιαγραφες αναφέρονται κατωτέρω

Produkt/Product/Produit/Prodotto/Producto/Produkt/Produkt/Produto/ Προϊον:

TPD 022

Angewendete Richtlinien, harmonisierte Normen und angewendete, nationale Normen in Sprachen und Spezifikationen:
Guidelines, harmonised standards, national standards in languages and specifications which have been applied:
Les directives appliquées, normes harmonisées et les normes nationales appliquées en langues et spécifications:
Direttive aplicate, norme standardizzate e norme nazionali utilizzate in lingue e specifiche:
Directivas aplicadas, normas armonizadas y normas nacionales aplicadas en idiomas y especificaciones:
Toegepaste richtlijnen, geharmoniseerde normen en toegepaste nationale normen met betrekking tot talen en specificaties:
Anvendte direktiver, harmoniserede standarder og de anvendte nationale standarder med sprog og specifikationer:
Directivas aplicadas, normas harmonizadas e normas aplicadas na linguagem e nas especificações do respectivo país:
Εφαρμοσθέντες κανονισμοί, εναρμονισμένες προδιαγραφές και εφαρμοσθείσες εθνικές προδιαγραφές σε γλώσσες και τεχνικές προδιαγραφές:

EN 292-1 **EN 294** **EN 1012-2**
EN 292-2 **EN 61 010**

Unterschriften/Signatures/Signature/Firme/Firmas/Handtekeningen/Underskrifter/Underskrift/ Allekirjoitukset/Assinaturas/ Υπογραφές:

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Managing Director
Gérant d'affairs
Gerente
Διευθύνων Σύμβουλος

Administrerende Direktør
Verkställande Direktör
Directeur

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