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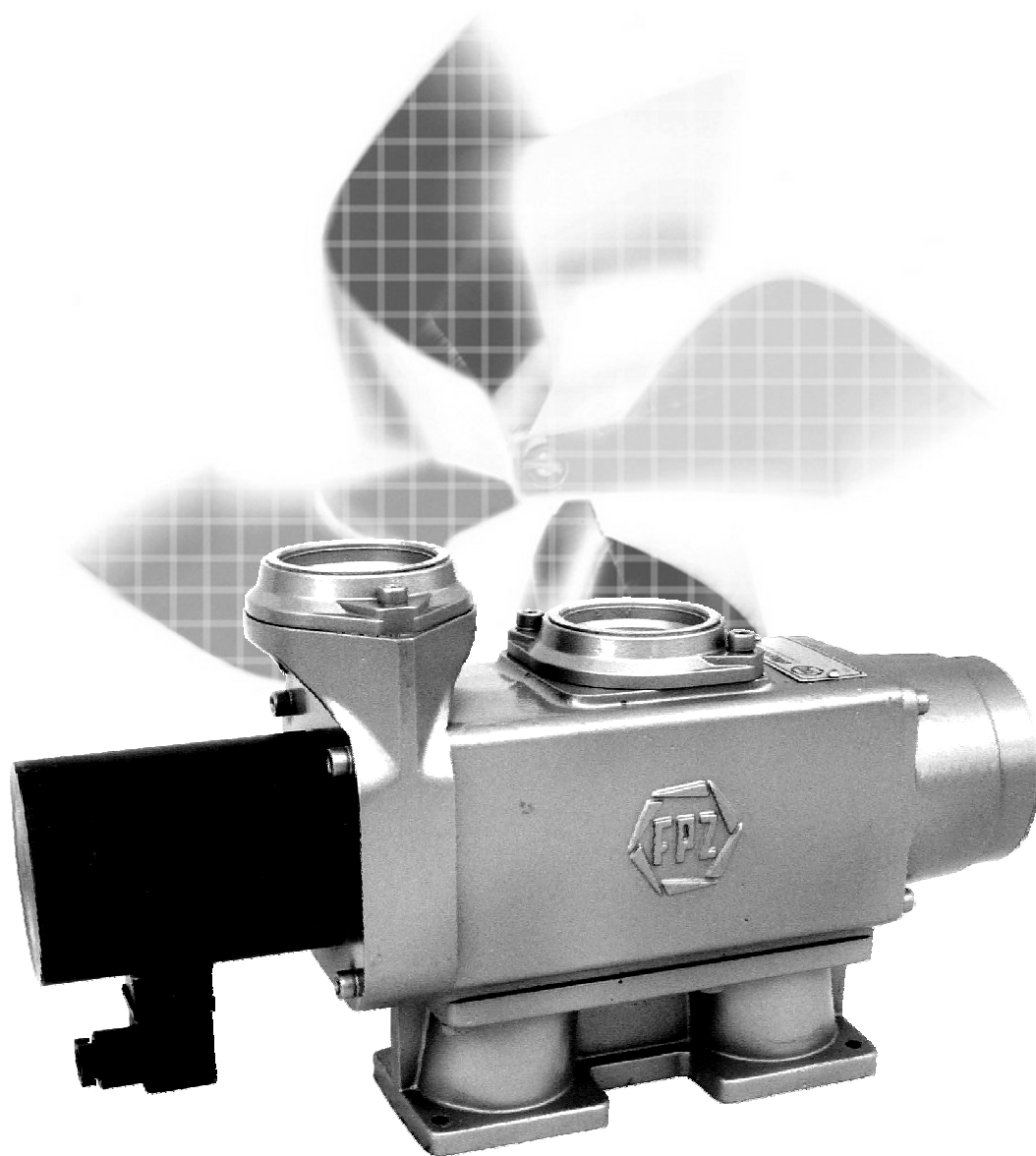
DISPOSITIVO DI INVERSIONE FLUSSO 'VS6 / VS8 ESECUZIONE O/P'
'VS6 / VS8 O/P ESECUTION' FLOW CONVERTING DEVICES

ISTRUZIONI D'USO I
USE INSTRUCTIONS GB



LEGGERE ATTENTAMENTE TUTTE LE ISTRUZIONI E CONSERVARLE I
PLEASE READ CAREFULLY ALL INSTRUCTIONS AND KEEP THEM FOR FUTURE REFERENCE GB

SN 2116-0



**DICHIARAZIONE DI CONFORMITÀ ALLA DIRETTIVA MACCHINE
DECLARATION OF CONFORMITY TO THE MACHINERY DIRECTIVE**

Dispositivo tipo - *Device type*

VS6 - VS8

1. Il dispositivo è in conformità con:
- DIRETTIVA MACCHINE CE 98/37;
 - DIRETTIVA EMC CE 89/336 come modificata dalle Direttive CE 92/31 e CE 93/68;
 - DIRETTIVA BASSA TENSIONE CE 73/23 come modificata dalla Direttiva CE 93/68.
- È tuttavia vietata la messa in servizio prima che la macchina in cui sarà incorporato sia dichiarata conforme con le citate Direttive.

2. Sottoposto a collaudo funzionale è risultato conforme alle caratteristiche richieste.

1. *Device conforms to:*

- *MACHINERY DIRECTIVE CE 98/37;*
- *EMC DIRECTIVE CE 89/336 as ammended by the CE Directives 92/31 and 93/68;*
- *LOW VOLTAGE DIRECTIVE CE 73/23 as ammended by the CE Directive 93/68.*

Nevertheless it is forbidden to put the device in service before the machine in which will be incorporated is declared in conformity with the above Directives.

2. *The device has been tested and meets its operating performances.*

02.06

Amministratore Delegato
Managing Director

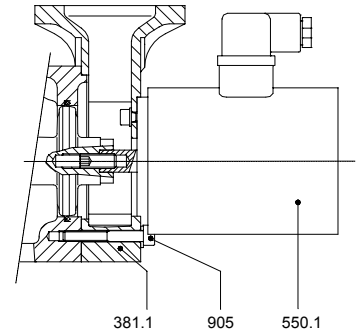
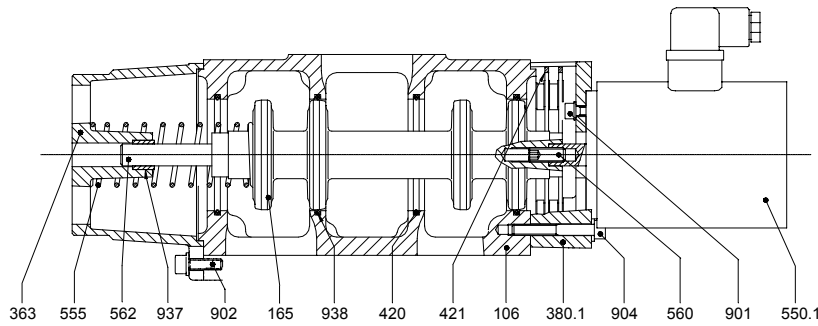


SEZIONE CON NOMENCLATURA
SECTIONAL DRAWING WITH PARTS DESCRIPTION

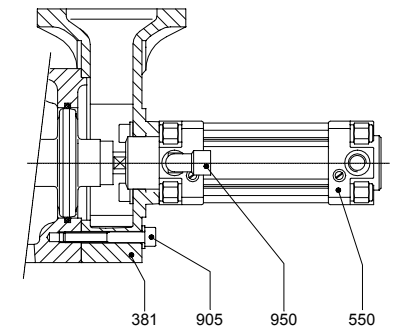
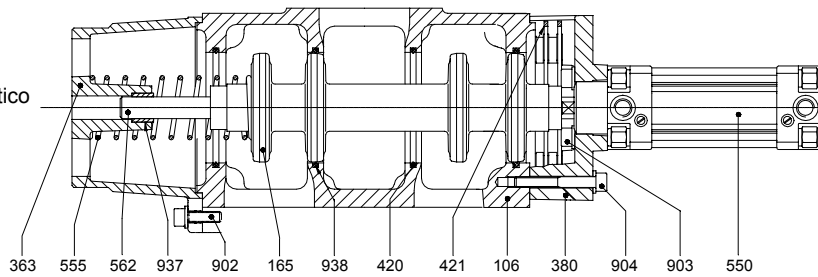
ESECUZIONE **O**
 EXECUTION

ESECUZIONE **P**
 EXECUTION

Comando elettrico
 Electrical control



Comando pneumatico
 Pneumatic control



ITEM	Denominazione	I	Description	GB
106	Corpo		Housing	
165	Otturatore		Shutter	
363	Supporto		Support	
380	Supporto		Support	
380.1	Supporto		Support	
381	Collettore		Manifold	
381.1	Collettore		Manifold	
420	Anello di tenuta		Seal ring	
421	Anello elastico		Flexible ring	
550	Attuatore pneumatico		Pneumatic actuator	
550.1	Attuatore elettrico		Electrical actuator	
555	Molla		Spring	
560	Grano		Grub screw	
562	Spina cilindrica		Dowel pin	
901	Vite		Screw	
902	Vite		Screw	
903	Vite		Screw	
904	Vite		Screw	
905	Vite		Screw	
937	Bronzina		Bushing	
938	Anello sostegno		Supporting ring	
950	Raccordo		Connector	

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1. DEVICE DESCRIPTION

1.1. OPERATING PRINCIPLE AND CONSTRUCTION

The device is actuated by means of a horizontal sliding selector which enables switching of the ports within approximately 0.10 sec. It is therefore possible to change flow direction or to switch the flow path, according to the type of installation.

The device is an all aluminum alloy construction. It is not subject to contacts and interferences between the selector and device body.

The selector acts on special flexible teflon segments which ensure efficient sealing between the flow chambers, and is returned and kept in the basic position by means of a coil spring.

The device can be operated either electrically or pneumatically.

2. GENERAL INSTRUCTIONS

2.1. SAFETY RULES

CAUTION!

The flow converting devices 'VS' have been designed and manufactured for use in an industrial environment, operated by qualified personnel and as a unit to be incorporated in a machine, which conforms to the CE Machinery Directive.

The flow converting devices 'VS', like all machinery and equipment with live and moving parts, can be a source of serious hazards unless properly used and protected.



The user must ensure that:

All handling, assembly, installation, connection, maintenance and repair operations are undertaken by qualified personnel. Such people who by their background, training and experience as well as through their knowledge of statutory regulations, legislation, safety measures and operating conditions are able to carry out any necessary steps avoiding all possible risks to health and damage.



Such personnel should have received all the instructions and information, including any local legislation, and will follow this information during the performance of any operation.

It shall be forbidden for unqualified personnel to carry out any operation, even indirectly, on the machines and equipment.

During the installation, all the prescribed working conditions, including any possible local requirements, shall be observed.

Additionally it is forbidden to put the unit in service before the machines of which they are a part are declared to conform to the CE Machinery Directive.

The user must be aware that in operation:

- there can be an increase in unit operating temperature;
- there is small loss of the fluid handled;
- the level of noise may be unacceptable in certain applications.

CAUTION!

Before undertaking any operation ensure that the unit is disconnected from power supply.

2.2. FIELD USE AND WORKING CONDITIONS

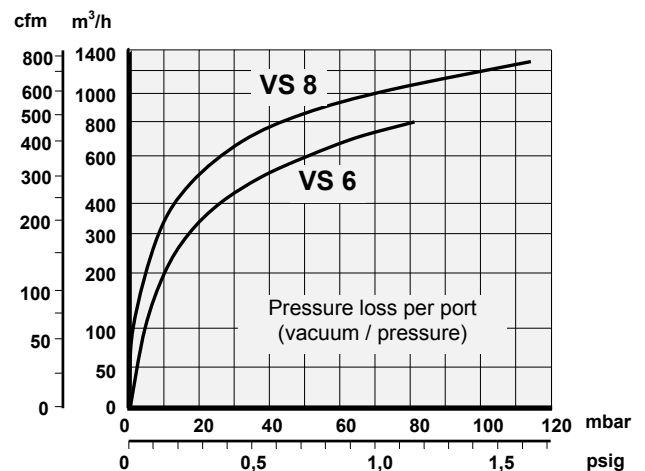
The flow converting devices 'VS' are designed for the continuous movement of air or non-explosive, non-hazardous and non-flammable gases and for service in non-explosive environments.

Devices are designed and manufactured to flow converting in low pressure / vacuum applications. They are for use specifically on low pressure blowers and vacuum pumps only.

Solid particles, however small, including dirt can cause serious damage; therefore it is essential that such substances should be removed from the gas by suitable filters upstream of the inlet.

There is small loss of the fluid handled.

Pressure loss through the converter, as a function of flow, is indicated on graph below:



2.3. STORAGE AND SHIPPING

Store the unit in a dry place, preferably in original packaging. Do not remove the protection plugs from the ports. Avoid stacking anything on top of the packaging.

Handle the devices with care and avoid sudden impacts.

When handling devices (lifting, moving, in transit, storing) appropriate procedures need to be used. This work should be organized in a safe / secure environment, minimizing the risk of any possible mishap. For example:

- ensure staff is adequately trained;
- use secure / stable mounting/support structures;
- wear suitable workclothes and individual protection devices;

3. INSTALLATION

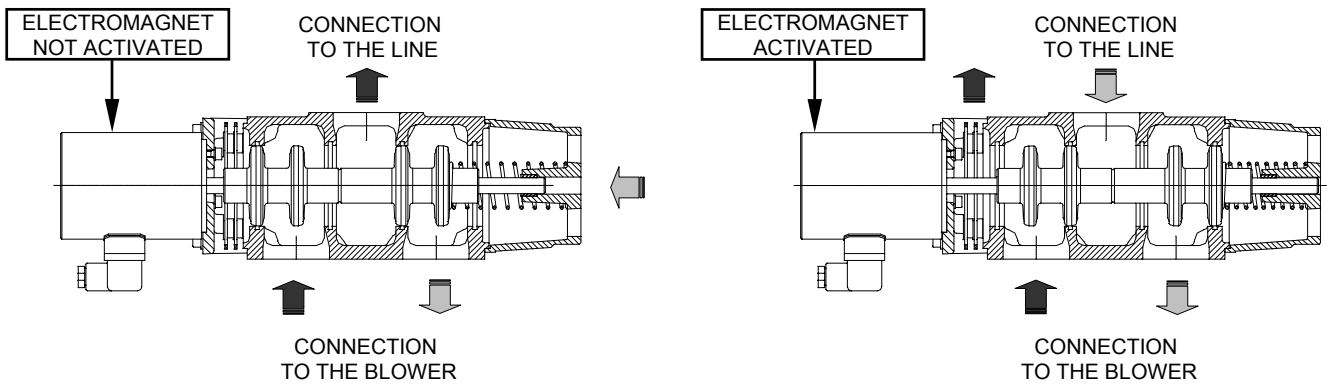
3.1. LAY-OUT

It is important that the unit is installed in a well-ventilated environment where the temperature does not exceed 40°C. If outside, protect the unit from direct sunlight and avoid the possibility of water collecting in the external crevices.

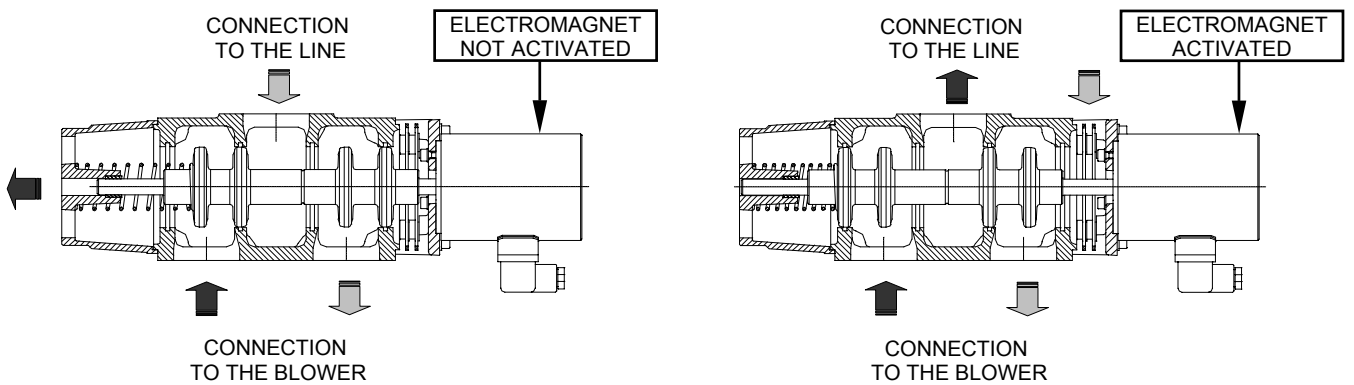
Please refer to attached SI1787 for unit dimensions

3.2. INSTALLATION SKETCHES

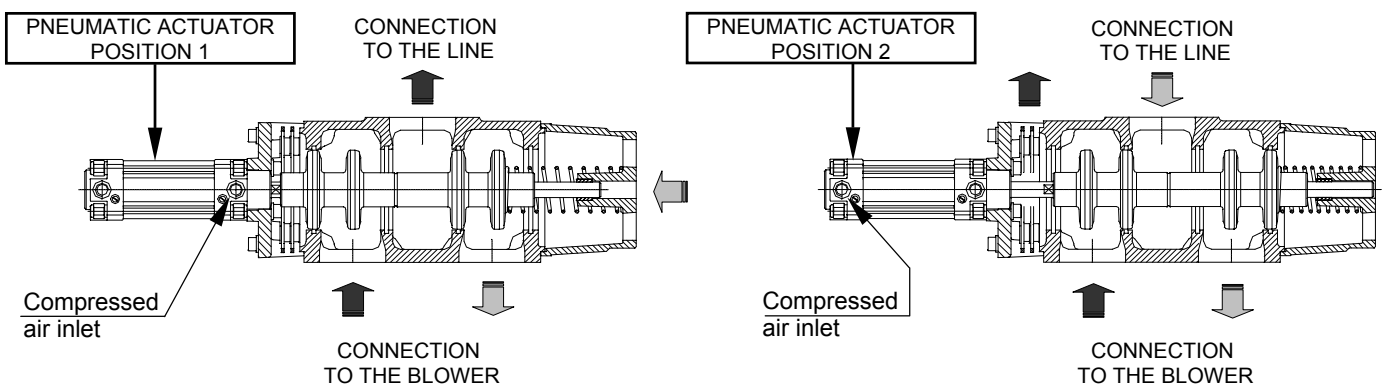
3.2.1. PRESSURE SYSTEM WITH ELECTRICAL CONTROL



3.2.2. VACUUM SYSTEM WITH ELECTRIC CONTROL



3.2.3. PRESSURE / VACUUM SYSTEM WITH PNEUMATIC CONTROL



3.3. SYSTEM CONNECTION

IMPORTANT !

Ingress of foreign matter, however small, will cause serious damage.

Such matter includes dust, sand, masonry debris, impurities in the tubes, cutting burrs or filings, welding or soldering slag and splatter, metal burrs and any residues from sealing and making the tube connections.

To ensure proper installation, please note the following:

- To connect the unit to the process lines, remove the flanges and connect via flexible tubes;
- Remember to protect the inlet with suitable filters;
- To avoid using rigid couplings, which could induce stress and cause harmful vibrations;
- Only remove the plugs on the ports when making the final connections;
- Select the tube size and the couplings to minimize the pressure drop, in particular:
 - Do not use tubing of a smaller diameter than the ports of the device;
 - Utilise large radius bends and avoid using elbows.

Available connection

- TF threaded flange GAS (G 1 1/2", G 2", G 3");
- TF threaded flange NPT (NPT 1 1/2", NPT 2", NPT 3");
- Sleeve MP5, MP6, MP8;
- Collector CT66, CT88, CT89;
- Adaptator for SCL V4, V5, V6 and K series

3.4. ACTUATOR CONNECTION

CAUTION!

BEFORE UNDERTAKING ANY OPERATION ENSURE THAT THE UNIT IS DISCONNECTED FROM POWER SUPPLY.

3.4.1. ELECTRICAL CONTROL

WARNING

BEFORE UNDERTAKING ANY OPERATION ENSURE THAT THE UNIT IS DISCONNECTED FROM THE POWER SUPPLY.

The electromagnet has been selected for service in an ambient temperature between 0°C and +35°C at an altitude no higher than 1000 m.

Verify the identification letter engraved on the back side of the electromagnet. Line voltage values should be consistent with following chart:

Identification word	Voltage (V)	Absorbed current (A)	Activation ratio ED (%)
A	24Vdc	2.26	60
B	110Vac	0.58	60
C	220Vac	0.29	60

The current drawn refers to normal operating conditions. Variations in the supply voltage up to ± 5% are acceptable.

IMPORTANT !

The magnet activation time ("ED") is calculated as the time the magnet is energized as a per cent of total cycle time and should be equal to a maximum of 60% as indicated in table. Exceeding this value could overheat the magnet and result in premature failure. The maximum activation time is 5 minutes.

The electromagnets come supplied with appropriate connections for quick installation.

The connections provided offer complete protection from water ingress according to the norm DIN 40050 (Class IP65 level of protection) when correctly installed using appropriate connecting screws and sealing gaskets. In addition, units conform to VDE0110-1/89, working voltage up to 300v, working level C regarding class of insulation.

In order to wire the electromagnets, please use the following instructions:

- Remove the screws located on the upper part of the connection and extract the last one from its support
- Remove the terminal contacts from the protective cap on the connector by use of a screwdriver.; these two components have a release joint
- Complete the wiring following the diagram on the terminal connections by the use of locking screws
- Reassemble in reverse order (do not forget the gaskets)

N.B. The terminal connectors and the external protection of the connectors are able to be put in 4 different orientations. Select the one most suitable for your installation.

IMPORTANT !

CHECK TO ENSURE PROPER GROUNDING THE ENTIRE GUARANTEE SHALL CEASE TO APPLY WHEN INADEQUATE PROTECTION IS PROVIDED.

3.4.2. PNEUMATIC CONTROL

ATTENTION !

Before commissioning in installation, make sure the air cylinders are not under pressure.

The operating characteristics for the pneumatic actuators are described in the following table:

Pneumatic control	
Thrust air cylindrer	Double effect
Max pressure	10 Bar
Air consumption	0,02 litres/cycle
Operating temperature	-5 °C ~ +70 °C
Fluid	Filtered Air and preferably oiled
Connexion	G 1/8"

Use a 1/8" nipple in the appropriate receptacle of the pneumatic solenoid.

4. OPERATION

4.1. PRELIMINARY CONTROLS

Before commissioning, please ensure the following:

- Should the unit need to be stored for a long period of time before installation, ensure it is kept in a dry environment and inspect prior to installation.
- Check that there are no impurities that could obstruct the seal between the shutter and body.
- Ensure that all safety protectors have been properly installed.

4.2. START-UP

The VS6 / VS8 flow converters do not require any additional controls. The 2 possible positions of the shutter are fixed by run length the shutter is not able to be put in an intermediate / half-way position.

A higher-than-allowed differential pressure on the actuator could cause a lack of charge in the cylinder due to misalignment of the shutter and seal rings.

4.3. PERIODIC CHECKS

CAUTION!
BEFORE UNDERTAKING ANY OPERATION ENSURE THAT THE UNIT IS DISCONNECTED FROM POWER SUPPLY.

Periodically check the condition of the seal rings.

In dusty / dirty environments increase frequency of inspection.

Departures from the normal operating conditions (unusual operating noises, vibrations, etc.) are a sign of abnormal operation, which can lead to failure.

Periodically remove any surface deposits which otherwise can cause the operating temperature to rise.

In the event of difficulties please contact F.P.Z. or the relevant sales agent.

5. MAINTENANCE

CAUTION!
BEFORE UNDERTAKING ANY OPERATION ENSURE THAT THE UNIT IS DISCONNECTED FROM POWER SUPPLY. MAINTENANCE OPERATIONS ARE UNDERTAKEN BY QUALIFIED PERSONNEL (see par. 2.1 Safety rules).

5.1. INTERNAL CLEANING INSTRUCTIONS

IMPORTANT!

Internal deposit build up can cause:

- performance variations;
- misalignment of the shutter with the sealing rings, resulting in pressure loss within the system.

Internal cleaning should be done routinely, particularly in dirty / dusty environments.

The flow converter does not necessarily have to be removed from the system for internal cleaning. Referring to page 3, use the following instructions:

- Disconnect the actuators;
 - Disconnect the ports;
 - Clean the converter body (106) and shutter (165), making sure the seal rings (420) are not misplaced
 - Reassemble in reverse order
-

Commitments, agreements or legal relationships are governed by the corresponding sales contract. The above items are in no way limited by the contents of this manual.

The quality of the materials and of the workmanship is guaranteed as set out by the standard conditions of sales. The guarantee is not valid for the following: damage incurred during transport; inadequate storage; faulty installation; incorrect use; exceeding performance limits; electrical or mechanical miss-use.

Store the packaging for possible future use.