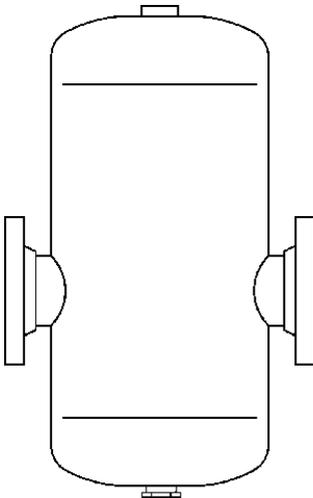


5800 and 9800 Series Separators

Installation and Maintenance Instructions

The PED Directive 97/23/EC is repealed and replaced by the new
PED Directive 2014/68/EU with effect from 19 July 2016.



1. General safety information
2. General product information
3. Installation
4. Commissioning
5. Operation
6. Maintenance
7. Inspections
8. Spare parts

ATTENZIONE

Lavorare in sicurezza con apparecchiature in ghisa e vapore *Working safely with cast iron products on steam*

Informazioni di sicurezza supplementari - *Additional Informations for safety*

Lavorare in sicurezza con prodotti in ghisa per linee vapore

I prodotti di ghisa sono comunemente presenti in molti sistemi a vapore.

Se installati correttamente, in accordo alle migliori pratiche ingegneristiche, sono dispositivi totalmente sicuri.

Tuttavia la ghisa, a causa delle sue proprietà meccaniche, è meno malleabile di altri materiali come la ghisa sferoidale o l'acciaio al carbonio.

Di seguito sono indicate le migliori pratiche ingegneristiche necessarie per evitare i colpi d'ariete e garantire condizioni di lavoro sicure sui sistemi a vapore.

Movimentazione in sicurezza

La ghisa è un materiale fragile: in caso di caduta accidentale il prodotto in ghisa non è più utilizzabile. Per informazioni più dettagliate consultare il manuale d'istruzioni del prodotto.

Rimuovere la targhetta prima di effettuare la messa in servizio.

Working safely with cast iron products on steam

Cast iron products are commonly found on steam and condensate systems.

If installed correctly using good steam engineering practices, it is perfectly safe.

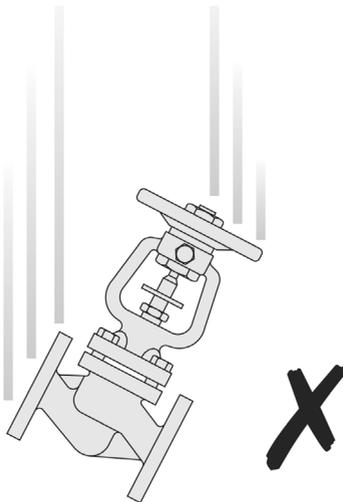
However, because of its mechanical properties, it is less forgiving compared to other materials such as SG iron or carbon steel.

The following are the good engineering practices required to prevent waterhammer and ensure safe working conditions on a steam system.

Safe Handling

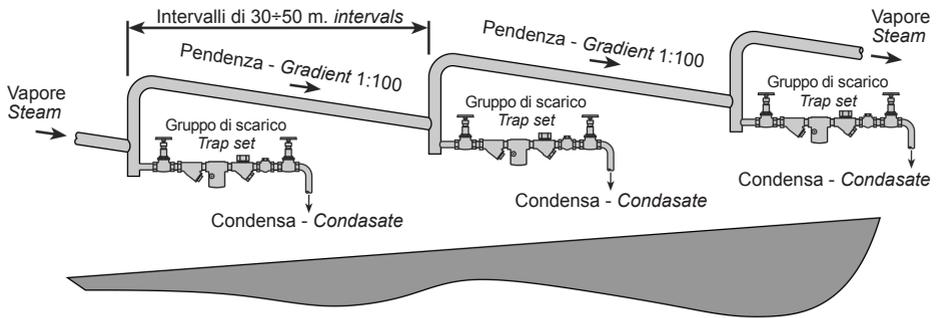
Cast iron is a brittle material. If the product is dropped during installation and there is any risk of damage the product should not be used unless it is fully inspected and pressure tested by the manufacturer.

Please remove label before commissioning

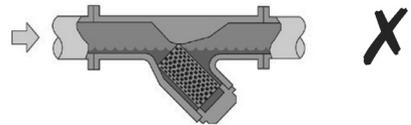
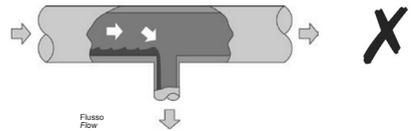
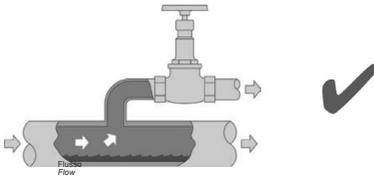
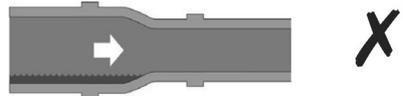
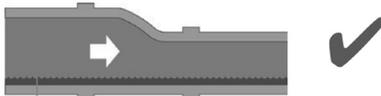
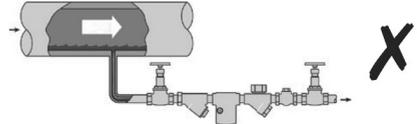
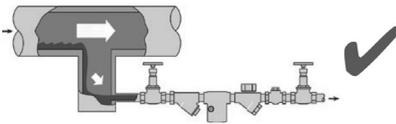


Prevenzione dai colpi d'ariete - *Prevention of water hammer*

Scarico condensa nelle linee vapore - *Steam trapping on steam mains:*



Esempi di esecuzioni corrette (✓) ed errate (✗) sulle linee vapore: *Steam Mains - Do's and Don't's:*



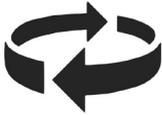
Prevenzione delle sollecitazioni di trazione

Prevention of tensile stressing

Evitare il disallineamento delle tubazioni - *Pipe misalignment*:

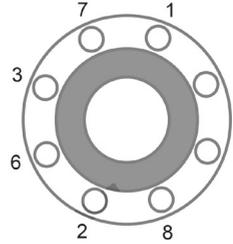
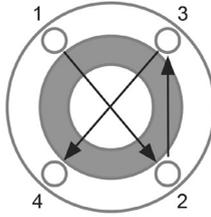
Installazione dei prodotti o loro rimontaggio post-manutenzione:

Installing products or re-assembling after maintenance:



Evitare l'eccessivo serraggio.
Utilizzare le coppie di serraggio raccomandate.

*Do not over tighten.
Use correct torque figures.*



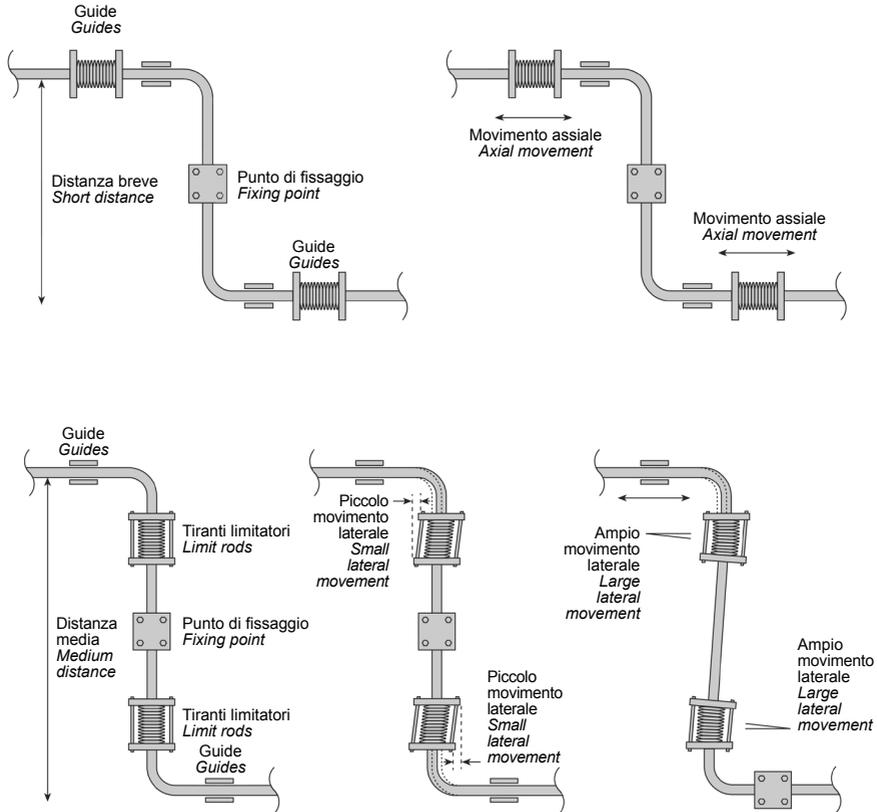
Per garantire l'uniformità del carico e dell'allineamento, i bulloni delle flange devono essere serrati in modo graduale e in sequenza, come indicato in figura.

Flange bolts should be gradually tightened across diameters to ensure even load and alignment.

Dilatazioni termiche - *Thermal expansion:*

Gli esempi mostrano l'uso corretto dei compensatori di dilatazione. Si consiglia di richiedere una consulenza specialistica ai tecnici dell'azienda che produce i compensatori di dilatazione.

Examples showing the use of expansion bellows. It is highly recommended that expert advise is sought from the bellows manufacturer.



1. General safety information

Safe operation of these products can only be guaranteed if they are properly installed, commissioned, used and maintained by qualified personnel (see Section 1.11 on this document) in compliance with the operating instructions. General installation and safety instructions for pipeline and plant construction, as well as the proper use of tools and safety equipment must also be complied with.

1.1 Intended use

Referring to the Installation and Maintenance Instructions, name-plate and Technical Information Sheet, check that the product is suitable for the intended use/application. The products listed below comply with the requirements of the European Pressure Equipment Directive 97/23/EC and carry the **CE** mark when so required. The products fall within the following Pressure Equipment Directive categories:

Product		Group 1 Gases	Group 2 Gases	Group 1 Liquids	Group 2 Liquids	
5800 9800	25 bar g	DN15 - 32	-	1	-	SEP
		DN40 - 65	-	2	-	SEP
		DN80 - 125	-	3	-	SEP
		DN125 - 250	-	4	-	SEP
5800/Z 9800/Z	13 bar g	DN65 - 80	-	2	-	SEP
		DN100 - 150	-	3	-	SEP
		DN200 - 250	-	4	-	SEP

- i) The products have been specifically designed for use on propane or methane gases which are in Group 1 of the above mentioned Pressure Equipment Directive. They can also be used on steam, air or condensate which are in Group 2 of the Pressure Equipment Directive. The products' use on other fluids may be possible but, if this is contemplated, Spirax Sarco should be contacted to confirm the suitability of the product for the application being considered.
- ii) Check material suitability, pressure and temperature and their maximum and minimum values. If the maximum operating limits of the product are lower than those of the system in which it is being fitted, or if malfunction of the product could result in a dangerous overpressure or overtemperature occurrence, ensure a safety device is included in the system to prevent such over-limit situations.
- iii) Determine the correct installation situation and direction of fluid flow.
- iv) Spirax Sarco products are not intended to withstand external stresses that may be induced by any system to which they are fitted. It is the responsibility of the installer to consider these stresses and take adequate precautions to minimise them.
- v) Remove protection covers from all connections before installation.

1.2 Access

Ensure safe access and if necessary a safe working platform (suitably guarded) before attempting to work on the product. Arrange suitable lifting gear if required.

1.3 Lighting

Ensure adequate lighting, particularly where detailed or intricate work is required.

1.4 Hazardous liquids or gases in the pipeline

Consider what is in the pipeline or what may have been in the pipeline at some previous time. Consider: flammable materials, substances hazardous to health, extremes of temperature.

1.5 Hazardous environment around the product

Consider: explosion risk areas, lack of oxygen (e.g. tanks, pits), dangerous gases, extremes of temperature, hot surfaces, fire hazard (e.g. during welding), excessive noise, moving machinery.

1.6 The system

Consider the effect on the complete system of the work proposed. Will any proposed action (e.g. closing isolation valves, electrical isolation) put any other part of the system or any personnel at risk? Dangers might include isolation of vents or protective devices or the rendering ineffective of controls or alarms. Ensure isolation valves are turned on and off in a gradual way to avoid system shocks.

1.7 Pressure systems

Ensure that any pressure is isolated and safely vented to atmospheric pressure. Consider double isolation (double block and bleed) and the locking or labelling of closed valves. Do not assume that the system has depressurised even when the pressure gauge indicates zero.

1.8 Temperature

Allow time for temperature to normalise after isolation to avoid danger of burns.

1.9 Tools and consumables

Before starting work ensure that you have suitable tools and/or consumables available. Use only genuine Spirax Sarco replacement parts.

1.10 Protective clothing

Consider whether you and/or others in the vicinity require any protective clothing to protect against the hazards of, for example, chemicals, high /low temperature, radiation, noise, falling objects, and dangers to eyes and face.

1.11 Permits to work

All work must be carried out or be supervised by a suitably competent person. Installation and operating personnel should be trained in the correct use of the product according to the Installation and Maintenance Instructions. Where a formal 'permit to work' system is in force it must be complied with. Where there is no such system, it is recommended that a responsible person should know what work is going on and, where necessary, arrange to have an assistant whose primary responsibility is safety. Post 'warning notices' if necessary.

1.12 Handling

Manual handling of large and/or heavy products may present a risk of injury. Lifting, pushing, pulling, carrying or supporting a load by bodily force can cause injury particularly to the back. You are advised to assess the risks taking into account the task, the individual, the load and the working environment and use the appropriate handling method depending on the circumstances of the work being done.

1.13 Residual hazards

In normal use the external surface of the product may be very hot. If used at the maximum permitted operating conditions the surface temperature of some products may reach temperatures of 300°C (572°F). Many products are not self-draining. Take due care when dismantling or removing the product from an installation (refer to section 6 'Maintenance instructions').

1.14 Freezing

Provision must be made to protect products which are not self-draining against frost damage in environments where they may be exposed to temperatures below freezing point.

1.15 Safety information - Product specific

See the relevant Section in the attached Installation and Maintenance Instructions for specific details relating to this product.

1.16 Disposal

Unless otherwise stated in the Installation and Maintenance Instructions, this product is recyclable and no ecological hazard is anticipated with its disposal providing due care is taken.

1.17 Returning products

Customers and stockists are reminded that under EC Health, Safety and Environment Law, when returning products to Spirax Sarco they must provide information on any hazards and the precautions to be taken due to contamination residues or mechanical damage which may present a health, safety or environmental risk. This information must be provided in writing including Health and Safety data sheets relating to any substances identified as hazardous or potentially hazardous.

2. General product information

2.1 General description

The products detailed are all baffle type separators used for the removal of entrained liquids in steam, compressed air and gas systems. We recommend the fitting of insulating jackets to improve the performance of the separator.

Note: For additional information see the following Technical Information Sheets.

Type	Material	Pressure rating	Sizes	Connections	TI reference
5800	Carbon Steel	PN16 and PN40	DN15-DN350	Flanged	3C.400-E
9800	Carbon Steel Zinc Plated	PN16 and PN40	DN15-DN250	Flanged	3D.200-E

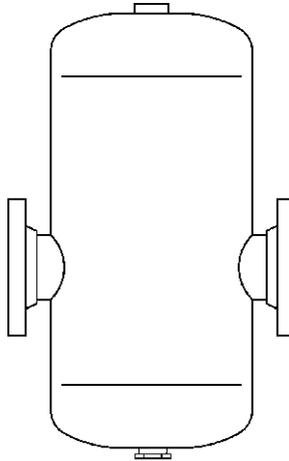


Fig. 1

5800 and 5800Z pressure / temperature limits

Type	Size DN	Flange standard	Design pressure bar g	Design temperature °C	Designed for a maximum cold hydraulic test pressure of bar g
5800	15-250	EN 1092 PN40*	25	300	37,5
	>250	to be specified	to be specified on design		
5800Z	65-250	EN 1092 PN16*	13	250	19,5
	>250	to be specified	to be specified on design		

* ANSI flanges are also available on request

9800 and 9800Z pressure / temperature limits

Type	Size DN	Flange standard	Design pressure bar g	Design temperature °C	Designed for a maximum cold hydraulic test pressure of bar g
9800	15-250	EN 1092 PN40*	25	300	37,5
	>250	to be specified	to be specified on design		
9800Z	65-250	EN 1092 PN16*	13	150	19,5
	>250	to be specified	to be specified on design		

* ANSI flanges are also available on request

3. Installation

Note: Before actioning any installation observe the 'Safety Information' in Section 1.

Referring to the Installation and Maintenance Instructions, body name-plate and Technical Information Sheet, check that the product is suitable for the intended installation.

- 3.1** Check materials, pressure and temperature and their maximum values. If the maximum operating limit of the product is lower than that of the system in which it is being fitted, ensure a safety device is included in the system to prevent overpressurisation.
- 3.2** Determine the correct installation situation and the direction of fluid flow.
- 3.3** Remove protective covers from all connections, before installation.
- 3.4** The separators may be lagged if required.

3.5 Important installation note

Install in a horizontal pipeline with the drain directly below.

Provide suitable support to the system to minimise piping loads.

To ensure that any separated liquid is drained quickly, a suitable liquid drainer or steam trap must be connected to the drain connection.

For those steam systems where air can be present, air can collect in the upper portion of the separator. In this situation a suitable air vent should be connected to the air vent connection.

If an air vent is not being fitted then the connection must have the plastic transit protection plug removed and must have a carbon steel class 3000 lb plug fitted.

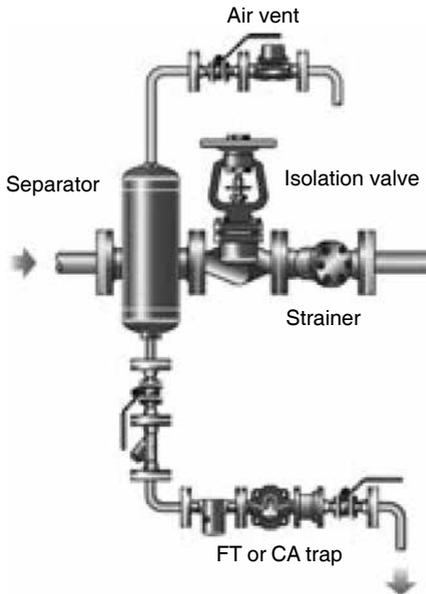


Fig. 2 Separator on a stem or compressed air line feeding a machine

4. Commissioning

After installation or maintenance, ensure that the system is fully functioning. Carry out tests on any alarms or protective devices.

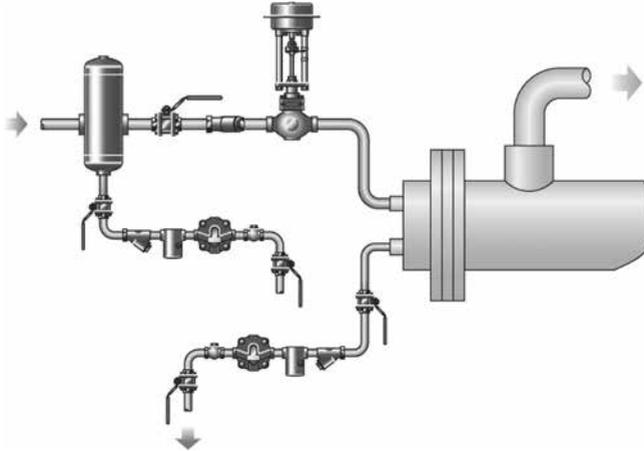


Fig. 3 Heat transfer processes and valve protection

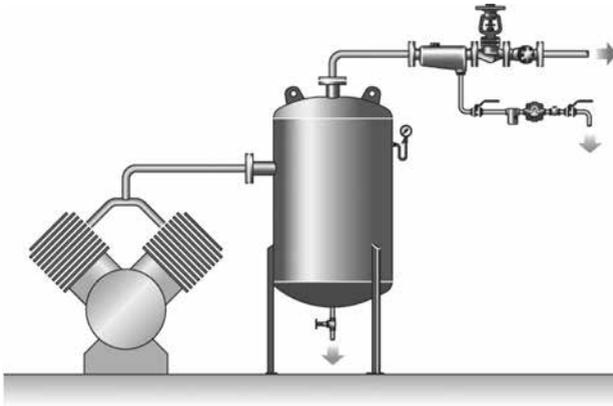


Fig. 4 Compressed air distribution

5. Operation

Separators are designed to gather together small droplets of entrained liquids and then separate them from the gas /vapour flow. The relatively heavy droplets impinge on the internal baffles and are then directed to the separator drain connection and removed from the system using a steam trap, or when used on air or gas distribution system, a liquid drainer.

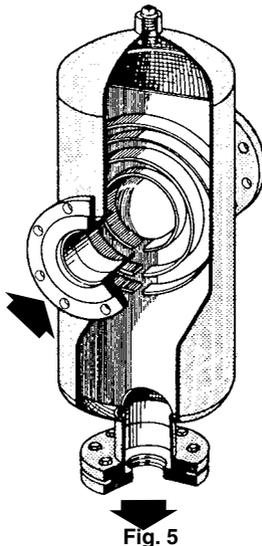
6. Maintenance

Note: Before actioning any maintenance programme observe the 'Safety information' in Section 1.

Warning

There are no internal components that require maintenance.

Periodically blow-off the discharge line to clean the system and control the regular working of the automatic draining group.



7. Inspections

If used at the best operating conditions, these separators are designed to last for more than 10 years, provided that:

- 1) all the recommendations and requirements of this document are observed
- 2) the maximum design conditions on the separator's nameplate are never exceeded
- 3) scheduled maintenance is carried out in accordance with the table below
- 4) Spirax Sarco Service Department is contacted whenever an excess scale is detected during the 2 yearly inspection as this could cause functional problems with the product

Recommended inspection schedule

Description	1 month	2 years	10 years
Remove any scale	√		
Check for leaks on all connections	√		
Internal/external tank control		√	
Integrity Testing			√

8. Spare parts

There are no spare parts required or available for these components.

Spirax-Sarco s.r.l.

"Soggetta alla direzione e coordinamento di
Spirax-Sarco Engineering Plc."

Capitale Sociale Euro 2.582.300 i.v.

Sede e Stabilimento

Via per Cinisello, 18 – 20054 NOVA MILANESE - MI

Tel: 0362 – 49 17. 1 – Fax: 0362 - 49 17.310

DECLARATION OF CONFORMITY

We, Spirax-Sarco S.r.l. via per Cinisello 18-20054 Nova Milanese (Italy) ,
declare under our sole responsibility that the products:

**5800 and 5800Z
Condensate Separators for Steam**

The equipment could be employed only fluids of "group 2"

have been designed, manufactured and inspected according to the followings standards

Raccolta VSR Revisione 1995 Edizione 99

Following the provisions of Directives

97/23/CE (Pressure Equipment Directive)

Type/ Dimension	Module	Conformity Assessment Procedure	Notified Body	Certificate No.
5800 DN 15-32 5800/Z DN 32-40	A	Internal production control	N/A	N/A
5800 DN 40-125 5800/Z DN 50-150	H	Full quality assurance	Lloyd's Register Verification Ltd. 71 Fenchurch Street London, EC3M 4 BS N°: 0038	COV 0212072/01

Nova Milanese, 01.12.2008

Plant Manager
Ing. A. Cayadini

**spirax
/sarco**

Sede legale: Via per Cinisello, 18 – 20054 Nova Milanese – MI
Iscrizione Reg.Imprese e Codice Fiscale 06527950585 – Iscrizione R.E.A. Milano 1172330 - Partita IVA 11339630151

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Sede e Stabilimento

Via per Cinisello, 18 - 20054 NOVA MILANESE - MI

Tel: 0362 - 49 17. 1 - Fax: 0362 - 49 17.310

DECLARATION OF CONFORMITY

We, Spirax-Sarco S.r.l. via per Cinisello 18-20054 Nova Milanese (Italy) , declare under our sole responsibility that the products:
9800 and 9800Z Condensate Separators for Compressed Air and Gas <i>The equipment could be employed only fluids of "group 2"</i>
have been designed, manufactured and inspected according to the followings standards
Raccolta VSR Revisione 1995 Edizione 99
Following the provisions of Directives
97/23/CE (Pressure Equipment Directive)

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Nova Milanese, 01.12.2008

Plant Manager
Ing. A. Cavadini

spirax
/sarco

Sede legale: Via per Cinisello, 18 - 20054 Nova Milanese - MI
Iscrizione Reg Imprese e Codice Fiscale 06527950585 - Iscrizione R.E.A. Milano 1172330 - Partita IVA 11339630151

REPAIRS

Please contact our nearest Branch Office or Agent, or directly Spirax Sarco S.r.l.
Via per Cinisello 18 - 20834 Nova Milanese (MB) - Tel. +39 0362 49 17.1 - Fax. +39 0362.49 17 307

LOSS OF WARRANTY

Total or partial disregard of above instructions involves loss of any right to guarantee.