

Socla Non-return Valves

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1. About this Publication

These instructions have been prepared according to the following standards:

- BS EN ISO 11442: Technical product documentation. Document management;
- BS EN ISO 12100: Safety of machinery - General principles for design - Risk assessment and risk reduction;
- BS EN 62023: Structuring of technical information and documentation;
- BS EN 82079-1: Preparation of instructions for use. Structuring, content and presentation. General principles and detailed requirements.

1.1. Safety Warnings and Symbols

The system of safety warnings and symbols is based on:

- BS EN ISO 7010: Graphical symbols. Safety colours and safety signs. Registered safety signs;
- BS EN 82079-1: Preparation of instructions for use. Structuring, content and presentation. General principles and detailed requirements.



This indicates a hazard with a high level of risk, which if not avoided, will result in death or serious injury if instructions, including recommended precautions, are not followed.



This indicates a hazard with a medium level of risk, which if not avoided, will result in death or serious injury if instructions, including recommended precautions, are not followed. In addition, there is a high risk of damage to the component, product or process.



This indicates a hazard with a low level of risk, which if not avoided, will result in minor or moderate injury if instructions, including recommended precautions, are not followed. In addition, there is a potential risk of damage to the component, product or process.

NOTE: Draws attention to important additional information.

1.2. Units of Measurement

Quantities are expressed in SI units or SI derived units; refer to J & E Hall International Standard JEH-ES-02 Guide to the International System of Units (SI).

1.3. Terminology

Terminology, abbreviations and acronyms are those currently in use throughout the refrigeration and air conditioning industry; refer to J & E Hall International Standard JEH-ES-01 Definition of Terms and Acronyms Used in the Refrigeration Industry.

1.4. Additional Copies

Obtain additional copies of these instructions from J & E Hall International; go to www.jehall.com.

2. Application

The non-return valve permits flow in one direction only. Another name for this type of valve is 'check valve'. Non-return valve will be referred to in this publication.

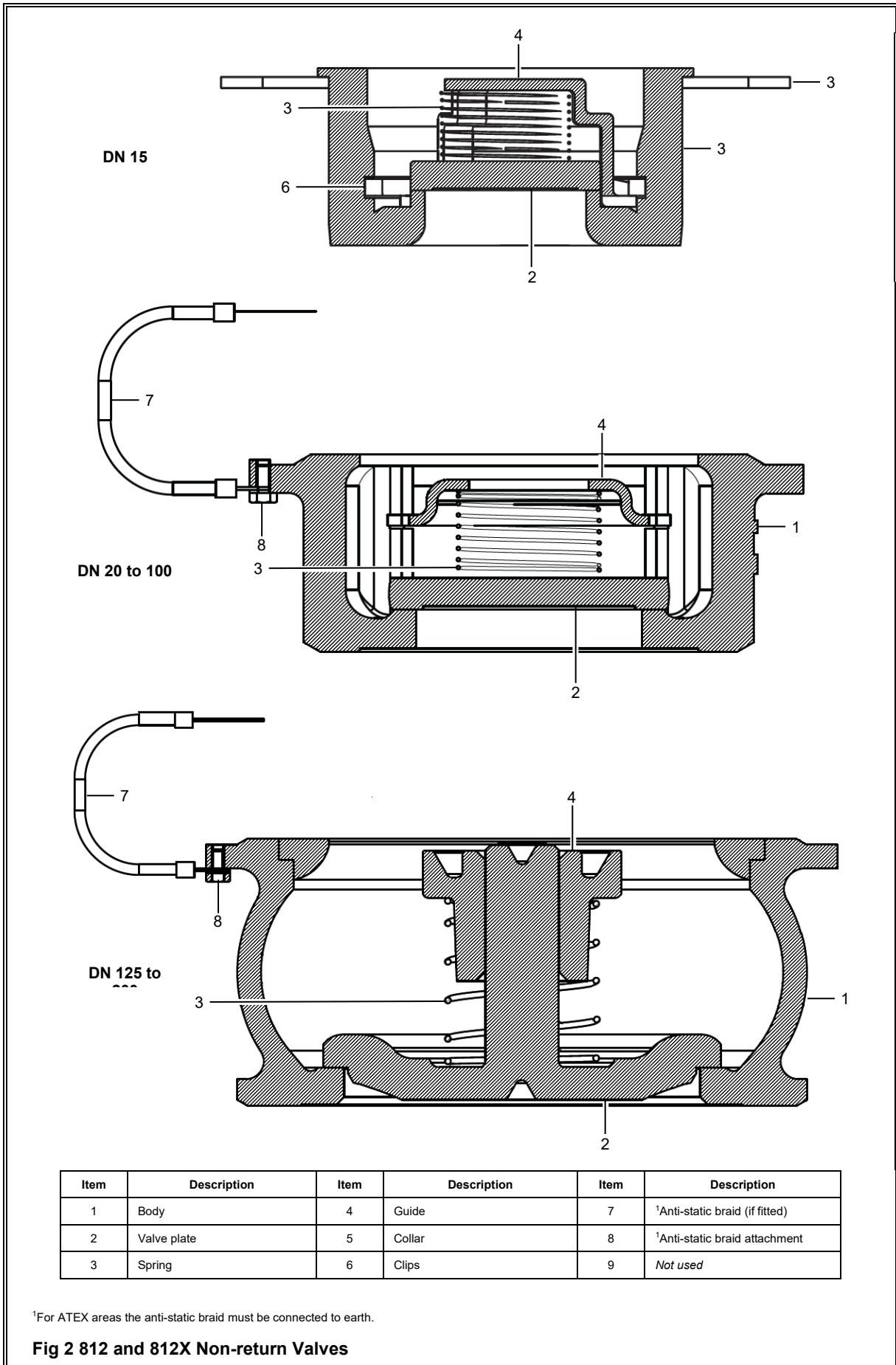
The location of the non-return valve can be found from the system schematic flow diagram, valve schedule and in the plant instruction manual; refer to Part A : Specification.

This publication covers Socla 812X Non-return Disc Valve - W System.

3. Technical Data

Item	Description	Item	Description	Item	Description
1	Month/year of manufacture	6	Reference (valve model)	11	Connecting flanges
2	Maximum pressure PS (water at 20.0 °C)	7	Body material	12	ATEX 2014/34/UE marking
3	Body number (compliance with Pressure Equipment Directive 2014/68/UE)	8	Maximum pressure PS L1/L2 (liquids)	13	CE mark
4	Valve name (Figure)	9	Maximum pressure PS G1/G2 (gases)	14	Minimum/maximum working temperature TS
5	Nominal diameter	10	Manufacturing order	15	Label + manufacturing standard +CPD

Fig 1 Data Plate Identification (Typical)



4. Installation

Large sizes of valve are supplied with an eyebolt to facilitate handling and installation. It is suggested to leave the eyebolt in place for future use.

- The arrow on the valve casing is in the correct direction of flow;
- If the non-return valve has a drain plug, this should be positioned in the lower part of the valve;
- If the non-return valve has an inspection plate, this should be easily accessible.

Never weld the flanges with the valve in place there is a risk of overheating the internal components. Bolt the non-return valve between flanges, using new gaskets, with the flow arrow on the valve body pointing in the direction of flow.

Tighten the flange nuts evenly to ensure the flanges and gaskets seat square. Do not attempt to align the pipework by tightening the nuts and bolts excessively. If the bolts bind in their holes or the flanges spring out of line when the bolts are removed, obviously there is a misalignment, which must be corrected.

For ATEX areas the anti-static braid must be connected to earth.

5. Maintenance

No routine maintenance is required.

6. Servicing

If the non-return valve is suspected of not working properly, it must be dismantled for examination.

WARNING

The non-return valve is in direct contact with the system environment. DO NOT attempt to dismantle the non-return valve or remove it from the line until it has been isolated and that part of the system cleared of glycol/oil/refrigerant. Suitable clothing must be worn; this should include goggles, gloves etc., and, on a system using ammonia refrigerant, a suitable respirator.

6.1. Prior to Dismantling

The method of clearing the non-return valve of glycol/oil/refrigerant, oil or glycol depends on the application.

Suction Line Application

If there is an oil return line connection to the suction line, close the stop valve in the return line.

Select manual capacity control and unload the compressor to minimum. Very slowly close the suction stop valve, usually positioned immediately before the suction strainer, while keeping the compressor running. When the suction pressure falls to the low pressure trip setting the compressor will stop. If the trip setting is below 0.2 bar g, stop the compressor manually when the pressure falls to this value. Shut the suction stop valve as the compressor comes to reset. Close the discharge stop valve after the compressor has stopped.

Use a pump-out unit to remove the remaining refrigerant; connect to a suitable valved connection on the isolated portion of the system.

Discharge Line Application

Stop the plant. Close stop valves as required to isolate the non-return valve.

Remove the refrigerant from the isolated portion of the system.

- For systems charged with hydrochlorofluorocarbon or hydrofluorocarbon refrigerant, use a pump-out unit to remove the rest of the refrigerant.
- For systems charged with R717 (ammonia) refrigerant, purge off the remaining refrigerant using the apparatus and method illustrated and described under Apparatus for Purging Ammonia Vapour and Draining Oil in publication 5-20 in Section 5 of the plant instruction manual.

After the non-return valve has been satisfactorily isolated from the rest of the system and cleared of refrigerant, make a mark across the pipe/valve flanges. Unscrew and remove the flange nuts and bolts either side of the valve. Carefully ease the valve assembly away from its joint faces and remove it from the line.

It is a good idea to blank the open ends of the line to prevent dirt or moisture entering, especially if the line remains open for a long period.



Eye protection must be used during dismantling and reassembly.

6.2. Dismantling

- (a) After the non-return valve has been satisfactorily isolated from the rest of the system and cleared of fluid, make a mark across the pipe/valve flanges.
- (b) Unscrew and remove the flange nuts and bolts either side of the valve.
- (c) Carefully ease the valve assembly away from its joint faces and remove it from the line.

6.2.1. Examining Parts for Damage or Wear

Thoroughly clean all parts. Remove all traces of the old gaskets from the body joint faces.

Check for corrosion, damage and wear: hinge pin and bearings, torsion spring(s), valve plate(s) and valve seat. Look for scoring and chatter marks. Check for missing valve seat inserts (if fitted). If there is evidence of corrosion or the valve seat in the body is badly damaged it is recommended to fit a new valve. Worn or damaged bearings, torsion springs and valve plates can be replaced.

6.2.2. Reassembly

- (a) Remove the blanking from the ends of the pipeline.
- (b) Check the pipe flange and valve body gasket faces are perfectly clean. Immediately before reassembly, paint internal metal parts with fresh refrigeration oil.
- (c) Using new gaskets, fit the valve assembly into line with the flow arrow on the valve body pointing in the direction of flow, aligning the valve with the marks made before dismantling. Insert the bolts and nuts and tighten evenly.

6.3. Returning the Valve to Service

- (a) Evacuate that part of the system opened up to atmosphere. The procedure to adopt is described in Part E : Evacuation and Dehydration in Section 1 of the plant instruction manual.
- (b) Open stop valves to reunite the system. Check for leaks.

7. Faults and Remedies

If the valve fails to prevent reverse flow or is noisy in operation, the following points should be checked:

1. FAULT: Valve fails to close	
Probable Cause	Remedy
Body wear around hinge pin, corrosion.	Replace valve.
Torsion spring(s) ¹ broken or worn, worn bearings.	Dismantle and replace worn/broken parts or replace valve.
2. FAULT: Valve noisy during operation, may slam violently closed when flow reverses	
Torsion spring(s) ¹ broken.	Dismantle and replace broken springs or replace valve.
3. FAULT: Valve closes but there is leakage across the seat	
Worn valve seat. Valve plate seat inserts (if fitted) worn or ¹ missing.	Replace valve if seat badly damaged. Fit new valve plates if inserts are worn or missing.
4. FAULT: No flow	
Valve installed backwards, against flow direction.	Check valve orientation.
¹ Check strainer downstream from valve for debris.	
Table 1 Faults and Remedies	

8. Spares

Obtain spare parts from the address below:

J & E Hall International	Telephone: +44 (0) 1332-253400
Hansard Gate,	Fax: +44 (0) 1332-371061
West Meadows,	Email: spares@jehall.co.uk
Derby,	Website: www.jehall.com
DE21 6JN	
England	

When ordering always quote the J & E Hall International contract number and the component serial number (if available).

9. Safe Disposal, End-of-life (EOL)

At the end of the valve's working life, it should not be classed as domestic waste but be disposed of separately by a registered recycling company according to local and currently valid legislation.

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