

SAFETY VALVE INFORMATION

DESIGN

All Nabic safety valves are designed and tested in accordance with the requirements of BS 6759. Boilers and pressure vessels, designed to BS specifications, usually require the fitting of a safety valve which complies with BS 6759.

PERFORMANCE

Comprehensive performance tests have been carried out on each range of Nabic valves. Discharge capacities are certified by the Associated Offices Technical Committee (AOTC).

MATERIALS

Materials used in Nabic safety valves form no risk to health when used in their intended manner. Each range of valves has been tested and approved for use on potable water, by the Water Regulations Advisory Scheme (WRAS).

QUALITY

Nabic operate a Quality Assurance system to ISO 9001, which ensures that the quality of production is continuously monitored. All safety valves are set, tested, stamped and sealed, immediately prior to despatch.

CERTIFICATION

Pressure Test Certificate and Letters of Conformity for individual valves, can be supplied when requested.

VALVE SELECTION

Type To ensure satisfactory operation is in service, it is important that the correct type of safety valve is chosen for a particular application. The following table provides guidance to assist the correct selection of Nabic safety valves:

FLUID	APPLICATION	VALVE
HOT WATER	VENTED SYSTEM	FIG 542 FIG 500
	UNVENTED HEATING SYSTEM	FIG 500 FIG 542
	UNVENTED SUPPLY SYSTEM	FIG 500T
COLD WATER	PUMP RELIEF, PIPELINE & VESSEL PROTECTION	FIG 542L FIG 500L
STEAM	BOILER, PIPELINE & VESSEL PROTECTION	FIG 500 FIG 542
AIR	COMPRESSOR, PIPELINE & RECEIVER PROTECTION	FIG 500 FIG 542
ACIDS ETC	PROCESS SYSTEMS	FIG 500FN
CLEAN STEAM	STERILISERS	FIG 500AA

Size Having chosen a suitable valve from the above table, the size required can be selected from the tabulated capacities given in the individual product leaflet. Where more than one type of valve is suitable, size selection will indicate the most economical one to use.

SET PRESSURE

To prevent unnecessary operation of the valve, there must be an adequate margin between the set pressure of a safety valve and the normal working pressure of the system.

The set pressure should be at least 10% above the system working pressure, with a minimum margin of 0.7 bar for water and liquid applications, and 0.35 bar for steam, air and gas applications.

For open vented hot water heating systems the following table can be used:

STATIC HEAD m	9	18	27	36
SET PRESSURE bar	1.6	2.5	3.4	4.3

STATIC HEAD ft	30	60	90	120
SET PRESSURE psi	23	36	49	62

NB. The set pressure of a safety valve must **not** exceed the design pressure of the vessel or system being protected.

INSTALLATION

General Before installation, all inlet pipework should be thoroughly cleaned and blown through to remove any particles of foreign matter. Care should be taken to avoid excessive use of PTFE tape or sealing compound.

Inlet and outlet pipework should be of sufficient strength to withstand the reaction forces created when the safety valve discharges. It should be installed in such a way that no undue stress or vibration is transmitted to the valve.

Valve Protective caps should not be removed from the safety valve until immediately prior to installation. The valve should be mounted vertically with the test level uppermost.

Inlet The safety valve inlet connection, as indicated by the body arrow marking, should be attached to the vessel or pipeline using the shortest possible length of pipe, with **no** intervening stop valve. Inlet pipework must have a cross-sectional area at least equal to that of the safety valve inlet. Where the inlet pipework is flanged, it must be flat and fitted with a full face joint.

For temperature relief valves, special care should be taken to check that no fouling of the thermal element, or restriction of flow, occurs when the valve is installed. It is also important to ensure that the temperature sensing element is immersed within the top 150mm of the heater when installed.

Outlet Discharge pipework should be as short as possible, with a cross-sectional area at least equal to that of the safety valve outlet. It should be adequately supported and directed to a safe, visible point of discharge. There must be no flow restriction or isolating valve fitted to discharge pipework.

For liquid relief applications, discharge pipework should be installed with a continuous downward gradient to assist drainage. Where discharge pipework is directed upwards, an open drain must be provided at its lowest point. Some large size valves have a body tapping for the purpose.

TESTING

Manual The mechanical operation of Nabic safety valves should be checked at three monthly intervals by manually operating the test lever. To avoid unnecessary strain on the easing gear, the valve should be under a pressure of not less than 75% of its set pressure. Safety precautions should be taken to protect personnel whilst testing is being carried out. Where arduous conditions of service exist, more frequent testing may be required. *It is the responsibility of the user to establish the frequency of manual testing.*

Pressure The set pressure of Nabic safety valves should be checked every twelve months. This can be carried out with the valve in situ or by removal to a pressure test facility. Before removing the valve, steps should be taken to ensure that the system has been de-pressured.

Temperature The opening temperature of combined pressure & temperature relief valves should be checked every twelve months. This can be carried out in situ or by removal to a temperature test facility. The same safety precautions apply for pressure testing.

Accumulation In addition to the above tests, full functional pressure accumulation tests under emergency conditions, may be requested by the inspection authority certifying the safety of the plant. These tests should only be carried out under the supervision of qualified personnel.

General If a safety valve malfunctions during any of the above tests, it should be returned to ourselves for repair. The system should be maintained by the immediate fitting of an identical replacement valve, or by

rendering the plant inoperable.

MAINTENANCE

The internal condition of a safety valve should be periodically examined to ensure that there is no build-up of deposits likely to cause malfunctioning of the valve or restriction of the valve ports. This should be carried out every twelve months, when the set pressure of the valve is checked.

More frequent examination may be required where arduous service conditions exist. Most Nabic safety valves have been designed to permit internal examination and cleaning without alteration to set pressure or removal of the valve from the line. *It is the responsibility of the user to establish the frequency of internal inspection.*

Alteration to set pressure and replacement of component parts requires special purpose tools. Where this is necessary, the valve should be returned for repair and re-calibration.

ORDERING INFORMATION

To enable us to despatch a safety valve, the following information is required:

1. Valve size
2. Fig No
3. Set pressure

If further assistance is required, our technical staff will be pleased to help.

All Nabic safety valves are set, tested, stamped and sealed, immediately prior to despatch. We will not be responsible for the subsequent performance of the valve, if the lead seal is broken.

The above information is for guidance purposes only. We reserve the right to make amendments without prior notification.

NABIC®

DELTA FLUID PRODUCTS LTD
Delta Road, Parr, St. Helens WA9 2ED, UK
Tel: +44 (0) 1744 611 811 Fax: +44 (0) 1744 453 675
enquiry@deltafluidproducts.com
www.deltafluidproducts.com