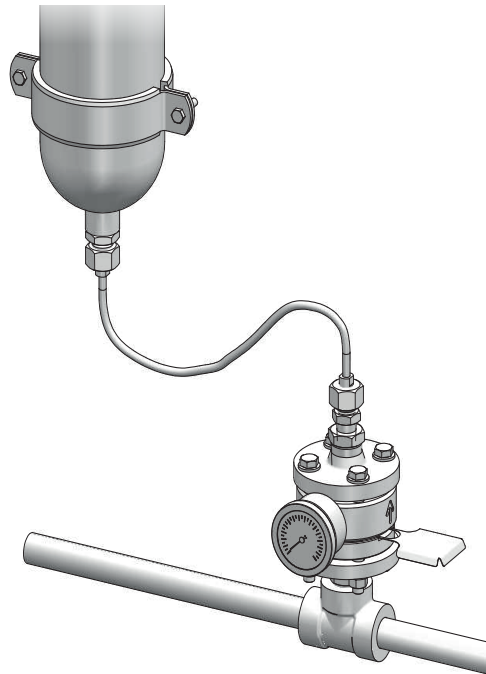


Pressure Relief for Liquid Chlorine Systems

Expansion systems for chlorine gas systems



Use

Under the influence of heat, liquid chlorine expands considerably, creating extremely high pressure. Therefore, all pipeline systems for liquid chlorine must be fitted with a relief system. Typically, relief systems are installed in the following places:

- at any pipe for liquid chlorine, which can be shut off on both sides, and
- at the chlorine evaporator.

Design

Expansion systems consist of a rupture disc, contact pressure gauge and expansion tank.

The rupture disk is a domed metal disk that is installed between flanges. When the rupture pressure has been reached, the metal fractures in the notched places, thereby relieving the pressure system. Rupture disks provide highly reliable protection against overpressure because they don't have any moving parts, which may jam due to contamination.

The built-in contact manometer provides the display and remote signalling of a failure

Any chlorine that is released is collected in an expansion tank (chlorine gas cylinder). In order to protect the pipes against overpressure, the expansion tank must be able to receive at least 20% of the pipeline volume. This means that a 10-litre tank is sufficient for a pipeline volume of 50 litres, which corresponds to a 100 metre pipe with a 1" nominal width.

The simple and robust design of the expansion systems guarantees a long service life with minimum maintenance.

Functions

- Rupture disc with a 22.5 bar rupture pressure
- Contact pressure gauge 0 – 40 bar as an indicator and for remote indication
- Expansion tank to protect against any chlorine release
- Highly durable materials

Technical data

Expansion system consisting of:

Rupture disk		
Material of the rupture disk		MONEL
Material of the rupture disk bracket		Galvanic coated brass
Opening pressure	bar	22.5 (at 20 °C) 21.8 (at 50 °C) 20.9 (at 100 °C)
Tolerance	%	± 10
Vacuum-resistant		Yes
Nominal width		DN25
Weight rupture disc with bracket, flanges and threaded connections	kg	approx. 8

Contact pressure gauge		
Material in contact with the media		Steel, galvanic coated / silver
Housing		Plastic
Nominal size	mm	Ø 63
Measuring range	bar	0 to 40
Accuracy	%	± 2.5
Contact load rating		50 V / 0.5 A, 10 W
Switch direction		NC (unpressurised contact connection).
Weight	kg	approx. 0.3

Flexible connection line		
Nominal width		DN6
Material		Copper, galvanic coated
Pressure stage		PN40
Weight (incl. union nuts)	kg	L = 2 m: approx. 0,6 L = 6 m: approx. 1

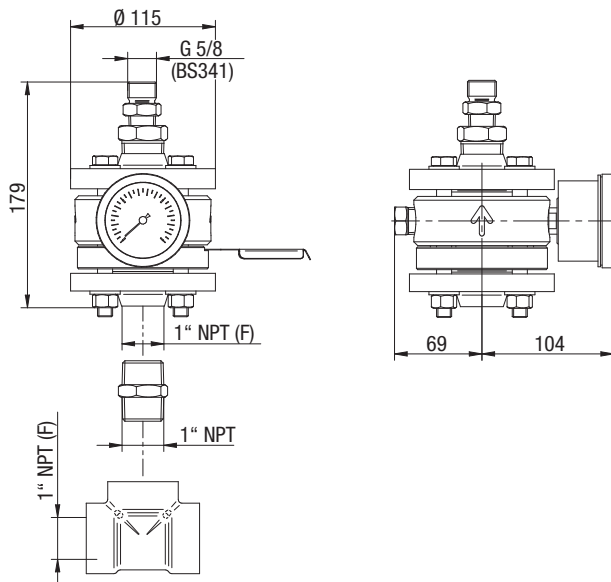
Expansion tank		
Material		Steel, exterior painted
Test pressure	bar	300
Weight (incl. wall brackets)	kg	10 dm ³ : approx. 15 20 dm ³ : approx. 30

The permissible ambient temperature for the entire expansion system is 0 – 60 °C.

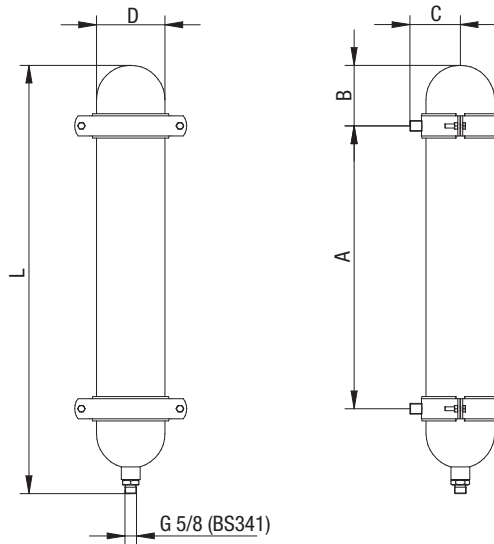
Dimensions

Rupture disc

All dimensions in mm

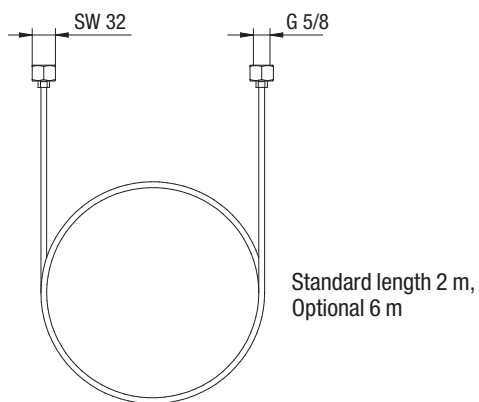


Expansion tank

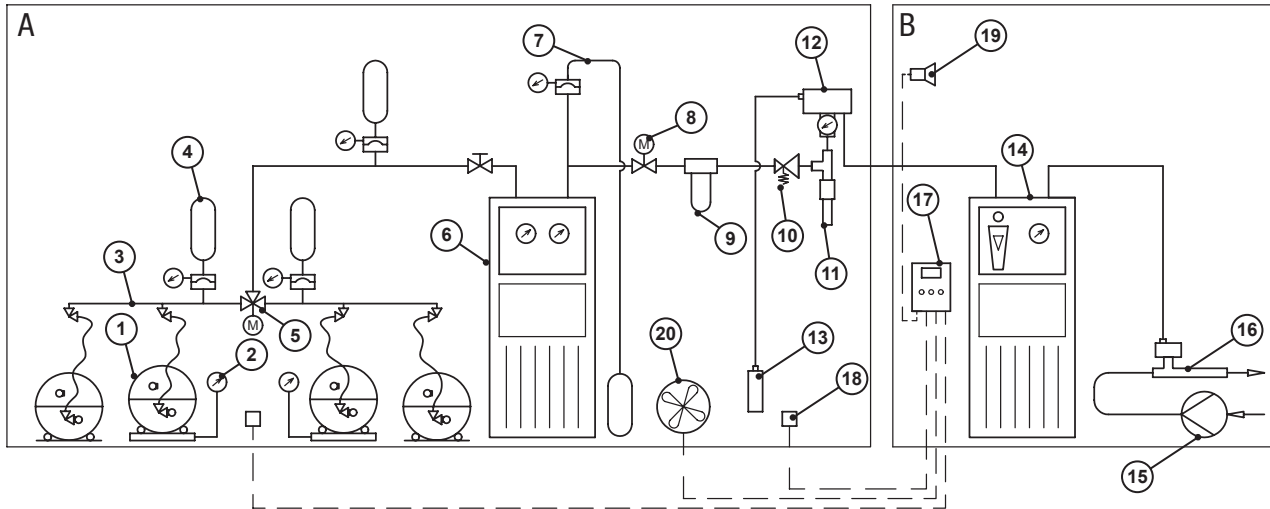


Scale	10 dm ³	20 dm ³
L	850 approx.	815 approx.
D	135	204
A	560 approx.	520 approx.
B	120 approx.	150 approx.
C	100 approx.	135 approx.

Flexible connection line



Installation example



Item	Description
A	Room for the chlorine supply
B	Dosing device room
1	Chlorine barrel
2	Chlorine barrel scale
3	Pressurized manifold
4	Expansion system for piping
5	Changeover switch
6	Chlorine evaporator
7	Expansion system for chlorine evaporator
8	Automatic chlorine ball-valve
9	Chlorine gas filter

Item	Description
10	Pressure reducing valve
11	Moisture eliminator with heating collar
12	Vacuum regulator
13	Activated carbon cartridge
14	Dosing device
15	Motive water pump
16	Injector with non-return valve
17	Gas warning device
18	Gas sensor
19	Horn
20	Entrance port of the chlorine eliminator