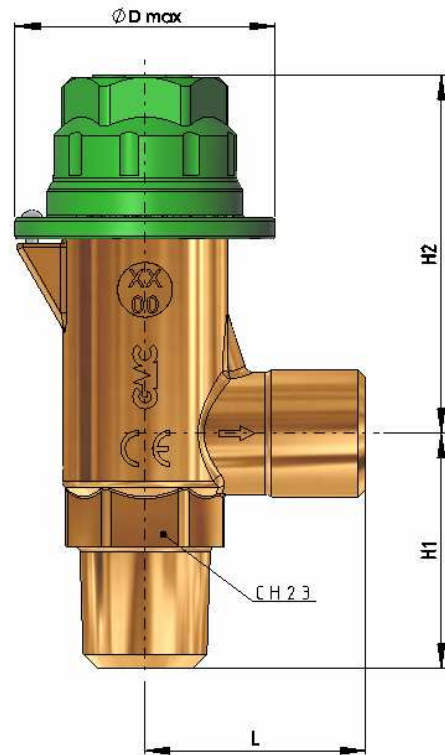


## SAFETY VALVES TYPE SV1 - SV2



Technical characteristics				
Type		SV1/24	SV1/34	SV2/44
Connections	Inlet male:	1/4"NPT	3/8"NPT	1/2"NPT
	Outlet male:	G1/2"	G1/2"	G1/2"
Flow diameter [mm]:		7,5	7,5	10
Maximum outlet diameter [mm]		14	14	14
Flow area "A" [mm <sup>2</sup> ):		44,2	44,2	78,5
Discharge coefficient Kd		0,950	0,950	0,605
Maximum lift [mm]		7	7	7
Maximum allowable pressure PS [bar]:		50		
Allowable temperature range TS [°C]:		-50 ÷ 150		
Set pressure range [bar]:		9 ÷ 45		
Overpressure		10% of Pset		
Dimensions	H1 [mm]	35,5	35,5	38,5
	H2 [mm]	60,5	60,5	60,5
	L [mm]	36	36	36
	ØD [mm]	42,5	42,5	42,5
	Weight [g]	295	305	320

### GENERAL DESCRIPTION

The SV1 and SV2 types are safety devices according to the definition given in Article 1, Point 2.1.3, 2nd dash of 97/23/EC Directive and are the subject of Article 3, point 1.4 of aforesaid Directive. Their function is to protect the equipments such as evaporators, condensers, liquid accumulators, liquid receivers, oil separators, positive displacement compressors, heat exchangers and simple unfired pressure vessels (ref. to Directive 87/404/CEE) to against possible overpressures with regard to the operating conditions for which they have been designed. These are unbalanced standard direct loaded, safety valves. Valve opening is produced by the under pressure fluid on the surface of the obturator, when the thrust, under setting condition, exceeds the opposing force of the spring acting on the obturator.

Valves are identified by an alphanumerical coding that includes:

- in the first part the family identification e.g. SV1
- in the second part the type identity, that depending on the inlet and outlet connections; for example: /24
- in the third part, the set pressure of the valve, in bar, e.g.: T21.0

A full alphanumerical code is, for example: SV1/24T21.0  
It is also possible to track down all valves by a progressive serial number.

### CONSTRUCTION

The under pressure main parts of safety valves are made with the following materials:

**BODY:** squared, hot forged brass EN 12420 - CW 617N and subsequent machining (standard of material armonized with directive 97/23/EC).

**OBTURATOR:** obtained through brass UNI EN 12164 - CW614N bar machining, (standard of material armonized with directive 97/23/EC); the obturator seat gasket is made in P.T.F.E. (Polytetrafluorethylene).

**SPRING:** Compression cylindrical helical spring made from round wire; the material is in accordance with UNI EN 10270 -1 and the design is in accordance with UNI EN 13906 -1. The spring always ensures valve re-closing after pressure relief. The obturator is equipped with a mechanic lock and when it attains it, the spring set does not exceed 85% of the total set.

### APPLICATIONS AND VALVES SELECTION

97/23/EC Directive requires that: "Where, under reasonably foreseeable conditions, the allowable limits could be exceeded, the pressure equipment must be fitted with, or provision made for the fitting of, suitable protective devices,...". For instance safety valves; their function is to prevent pressure from permanently exceeding the max allowable pressure PS of the equipment they protect. In any case, a short pressure peak limited to 10% of admissible maximum pressure is permitted.

Some protection devices to be adopted in refrigerating systems and their features are indicated in EN 378-2: 2000 Standard "Refrigerating systems and heat pumps – safety and environmental requirements – Part 2: Design, construction, testing, marking and documentation", harmonized with 97/23/EC.

EN 13136:2001 Standard "Refrigerating systems and heat pumps - Pressure relief devices and their associated piping - Methods for calculation", harmonized with 97/23/EC, highlights the possible causes of overpressure in a system; this Standard and EN ISO 4126-1:2004 Standard "Safety devices for the protection against excessive pressure - Part1: Safety valves, make available to users the instruments for pressure relief device sizing, among which the safety valves.

**Fluids:** The safety valves are suitable for this fluids: air, nitrogen and refrigerant fluids, in the physical state of vapour or gas, proper to the Group 2 as defined in Article 9, Section 2.2 of Directive 97/23/EC. The fluids, proper to Group 2 are all listed in Annex E of EN 378-1:2000 standard and classified as belonging to L1 Group, plus R30, R123, R141b fluids. Among the fluids listed in the standard, the well known and more used R12, R22, R134a, R404A, R407C, R410A, R502 and R507 fluids are present. The safety valve is not suitable for liquid; with equipments containing liquids plus vapour, it must be connected to vapour space as far as possible liquid surface.

### DOCUMENTATION

In conformity with the provisions of Annex I of 97/23/EC Directive, the valves are accompanied with:

- instructions for the user, containing all the necessary safety information relating to mounting, putting into service and use.
- declaration of conformity provided for in Annex VII as conforming to all the provisions of the Directive.

### INSTRUCTIONS FOR INSTALLATION

Safety valves will be installed near an area of the plant where vapours and gases are present and there is no fluid turbulence; the position will be as vertical as possible, with cap vertically facing up. The coupling, if any, between the valve and the equipment to be protected shall be as short as possible; furthermore, it shall not have a passage section inferior to valve inlet section. In any case the pressure drop, at certified discharge capacity, shall be less than 3% of the pressure Po, (Po = actual relieving pressure see par. 7.4 EN 13136:2001 Standard).

In selecting safety valve location, it shall be taken into account that valve operation involves the relief of refrigerant fluid under pressure, sometimes even at high temperatures. In case of installation in enclosed rooms, where the risk exists to cause direct damages to persons nearby, the following precautions shall be envisaged: a pipeline to convey fluid relief outside of the room; the dimensions and geometry of pipeline shall not be such as to compromise valve operation: it shall not generate, at certified discharge capacity, a back pressure exceeding by 10% the pressure Po, (Po = actual relieving pressure see par. 7.4 EN 13136:2001 Standard). It is advisable to check these conditions.

When installing a conveying pipeline is not possible, it's a good practice to provide for an adequate ventilation of the room and indicate, by means of special signals, the presence of the relief outlet. Furthermore, make sure that valve does not occur near electric panels or equipment.



SV DATA SHEET EN REV02 22/02/07  
COMPILED: RC APPROVED: RC

Refer to our web site [www.gmc-refrigerazione.com](http://www.gmc-refrigerazione.com) for last updated

GMC® refrigerazione



## Safety valves SV1 - SV2

