



Shut Off Valves

Type CSVA-2 DN15 to DN 40
Type CSVA-4 DN15 to DN 200

Technical Data

Introduction

Refrigerants

Applicable to all common non flammable refrigerants including R717 and non corrosive gases/liquids dependent on sealing material compatability. For further information please see installation instruction for **CSVA**

Temperature range

Standard version : - 46/+150°C

Pressure range

The valves are designed for max. working pressure
CSVA-2 DN-15 to DN-40 : 25 bar (362 psig)
CSVA-4 DN 15 to DN 200 : 40 bar (580 psig)

Features

Housing

Made of special, cold resistant steel.

Valve cone

The valve cone can be turned on the spindle, thus there will be no friction between the cone and the seat, when the valve is opened and closed.

Spindle

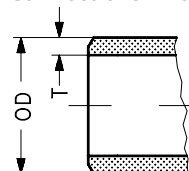
Made of polished stainless steel so that PTFE and Graphite gaskets are not damaged.

Sealing

Spindle sealing is done with PTFE and Graphite gaskets assuring 100% sealing.



Connections ANSI

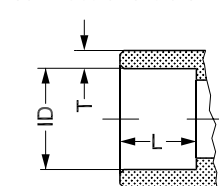


Size mm	Size in	OD mm	T mm	OD in.	T in.			K _V -angle m³/h	K _V -straight m³/h	C _V -angle USgal/min	C _V -straight USgal/min
Butt-weld ANSI (B 36.10 Schedule 80)											
15	½	21.3	3.7	0.839	0.146			7.0	4.9	8.1	5.7
20	¾	26.9	4.0	1.059	0.158			14.6	10.2	16.9	11.8
25	1	33.7	4.6	1.327	0.181			24.8	17.4	28.8	20.2
32	1¼	42.4	4.9	1.669	0.193			42.6	29.8	49.4	34.6
40	1½	48.3	5.1	1.902	0.201			45.2	31.6	52.4	36.7

Butt-weld ANSI (B 36.10 Schedule 40)

Size mm	Size in	OD mm	T mm	OD in.	T in.			K _V -angle m³/h	K _V -straight m³/h	C _V -angle USgal/min	C _V -straight USgal/min
50	2	60.3	3.9	2.37	0.15			80	65	93	76
65	2½	73.0	5.2	2.87	0.20			120	97	140	113
80	3	88.9	5.5	3.50	0.22			182	152	211	176
100	4	114.3	6.0	4.50	0.24			313	278	363	323
125	5	141.3	6.6	5.56	0.26			514	470	596	545
150	6	168.3	7.1	6.63	0.28			785	597	911	693
200	8	219.1	8.2	8.63	0.32			1168	1024	1355	1188

Connections SOC



Size mm	Size in	ID mm	T mm	ID in.	T in.	L mm	L in.	K _V -angle m³/h	K _V -straight m³/h	C _V -angle USgal/min	C _V -straight USgal/min
Socket-weld ANSI (B 16.11)											
15	½	21.8	6.0	0.858	0.235	10	0.39	7.0	4.9	8.1	5.7
20	¾	27.2	4.6	1.071	0.181	13	0.51	10.0	7.0	11.9	8.1
25	1	33.9	7.2	1.335	0.284	13	0.51	24.8	17.4	28.8	20.2
32	1¼	42.7	6.1	1.743	0.240	13	0.51	42.6	29.8	49.4	34.6
40	1½	48.8	6.6	1.921	0.260	13	0.51	45.2	31.6	52.4	36.7



Regulating Valves

Type CREG DN-15 to DN-50

Technical Data

Introduction



CREG are angle-way and straight-way regulating valves, which act as normal stop valves in closed position. The valves are designed to meet the strict quality requirements on refrigerating installations and are carefully designed to present favourable flow conditions and accurate linear characteristics.

CREG are equipped with internal backseating enabling the spindle seal to be replaced with the valve still under pressure.

Features

- Applicable to all common non flammable refrigerants including R 717 and non corrosive gases/liquids dependent to sealing material compatibility
- Designed to ensure perfect regulation
- Internal backseating enables replacement of the spindle seal whilst the valve is active, i.e. under pressure
- Easy to disassemble for inspection and possible repair
- Max. operating pressure: CREG: 25 bar g (362 psig) Full temperature range packing gland -46 / +150°C

Housing

Made of special, cold resistant steel.

Valve cone

The valve cone can be turned on the spindle, thus there will be no friction between the cone and the seat, when the valve is opened and closed.

Spindle

Made of polished stainless steel so that PTFE and Graphite gaskets are not damaged.

Sealing

Spindle sealing is done with PTFE and Graphite gaskets assuring 100% sealing.

Design

Housing

Made of special, cold resistant steel.

Connections

Available with the following connections:

- Butt-weld ANSI

DN15-40(B 36.10 Schedule 80)

Butt-weld ANSI

DN 50(B 36.10 Schedule 40)

Butt-weld ANSI

Socket weld (ANSI B 16.11)

– DN 15 - 40 (½ - 1½ in.)

Valve cone

The valve cone is designed to ensure perfect regulation.

A cone seal ring provides perfect sealing at a minimum closing momentum.

The valve cone can be turned on the spindle, thus there will be no friction between the cone and the seat when the valve is opened and closed.

Spindle

Made of polished stainless steel so that PTFE and Graphite gaskets are not damaged.

Packing gland - CREG

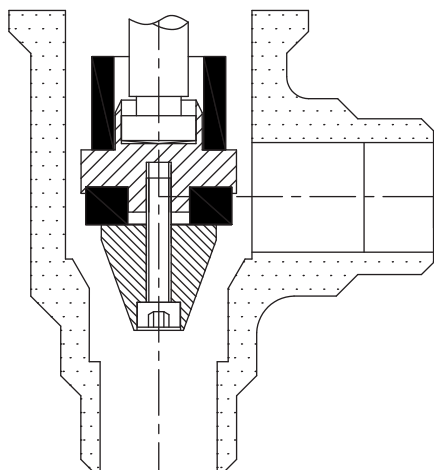
The "full temperature range" packing gland ensures perfect tightness in the whole range: –46/+150°C

Installation

Install the valve with the spindle up or in horizontal position. The flow must be directed towards the cone.

The valve is designed to withstand high internal pressure. However, the piping system in general should be designed to avoid liquid traps and reduce the risk of hydraulic pressure caused by thermal expansion.

For further information refer to installation instruction for CREG.



Technical data

Refrigerants

Applicable to all common non flammable refrigerants including R 717 and non corrosive gases/liquids dependent on sealing material compability.

Flammable hydrocarbons are not recommended. For further information please contact your local Castle Sales Distributor.

Temperature range

CREG: –46/+150°C

For further information please see installation instruction for CREG

Pressure range

Max. operating pressure:

CREG: 25 bar g (362 psig).



Strainers

Type CFIA DN-15 to DN-200

Introduction

CFIA filters are a range of angle-way and straight-way filters which are carefully designed to give favourable flow conditions. The design makes the filter easy to install, and ensures quick filter inspection and cleaning.

CFIA filters are used ahead of automatic controls, pumps, compressors etc. for initial plant start-up and where permanent filtration of the refrigerant is required. The filter reduces the risk of undesirable system breakdowns and reduces wear and tear on plant components.

CFIA filters are equipped with a screen mesh of stainless steel, available in sizes 100, 150, 250 and 500 μ (microns*), (US 150, 100, 72, 38 mesh*).

Features

- ◆ Applicable to all common refrigerants and all noncorrosiv gases/liquids.
- ◆ Filter net of stainless steel mounted direct without extra gaskets means easy servicing.
- ◆ CFIA filter housing compatible with housings belonging to other Castle products. A compatibility overview can be obtained from local Castle Sales Distributor.
- ◆ Mesh is the number of threads per inch.
 μ (microns) is the distance between two threads
(1 μ = 1 /1000 mm).
- ◆ CFIA 50-200 (2 - 8 in.) can be equipped with a magnetic insert for detention of iron particles and other magnetic particles.
- ◆ Each filter clearly marked with type, size and performance range
- ◆ Housing and bonnet of low temperature steel.
- ◆ Temperature range –46 °C /+150°C
- ◆ Pressure range: CFIA: 40 bar g (580 psi g)



Technical data

Refrigerants Applicable to all common refrigerants including flammable refrigerants and all non-corrosive gases/liquids. For further information please see installation instruction for CFIA.

Temperature range - 46°C/+150°C

Pressure range

Max. working pressure:

CFIA: 40 bar g (580 psi g).

Design Connections

Available with the following connections:

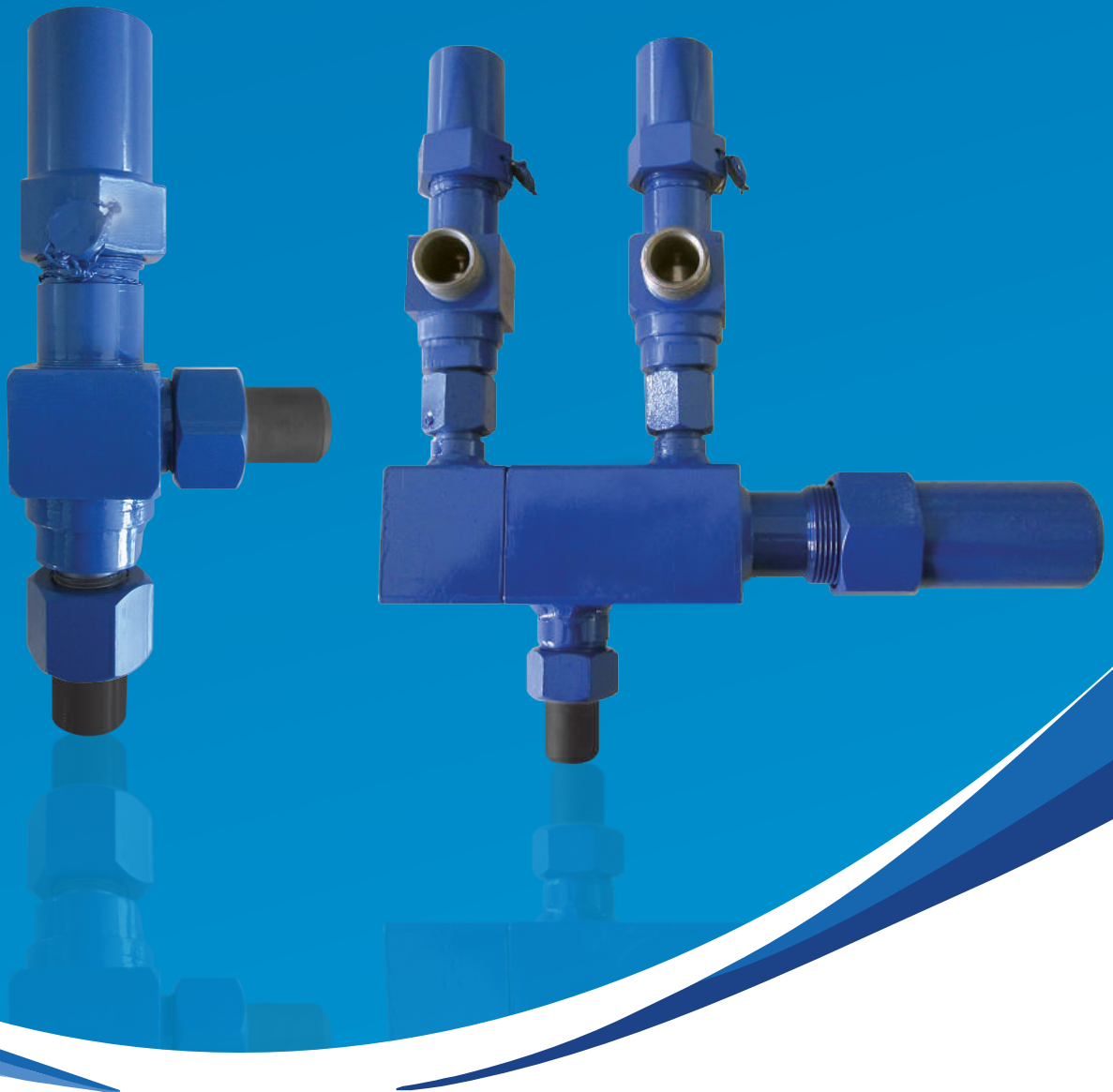
- ◆ Butt-weld ANSI (B 36.10 Schedule 80),
DN 15 - 40 (1/2 - 1 1/2 in.)
- ◆ Butt-weld ANSI (B 36.10 Schedule 40),
DN 50 - 200 (2 - 8 in.)

Filter Insert

A filter grid and filter net of stainless steel ensure long element life. The filter net offers a very high degree of cleanliness.

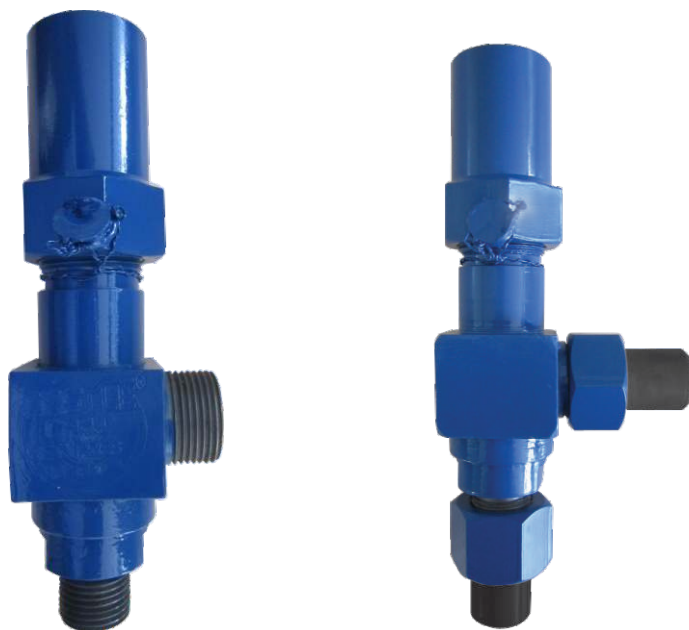
Housing

Made of special, cold resistant steel.



Safety relief Valves Double Stop Valves

DN 15 To DN25



CSRVA 15 - 25 are standard, back pressure dependent safety relief valves in angle-way execution, specially designed for protection of vessels and other components against excessive pressure.

The valve is designed to meet the strict quality demands and safety requirements for refrigeration installations, specified by the international classification societies.

The valve is recommended as an external and internal safety relief valve in refrigeration plants. The spring housing is closed tightly to avoid refrigerant leakage.

The inlet flow diameters of the valves are:

13 mm (½ in.) for CSRVA 15

18 mm (¾ in.) for CSRVA 20

23 mm (1 in.) for CSRVA 25

The valves can be delivered with set pressures between 10 and 25 bar g (145 and 363 psig).

valves can also be supplied with non-standard set pressures between 10 to 25 bar g (145 to 363 psig) to suit the customer's specific requirement.

Technical data

Applicable for the refrigerants R717 (ammonia, NH_3), HFC, HCFC (e.g. R22, R134a, R404a) and other refrigerants dependent on sealing materials compatibility within a temperature range of $-30^\circ\text{C} / +100^\circ\text{C}$

Flammable hydrocarbons are not recommended.

Pressure

Pressure setting range: 10 - 25 bar (145 - 363 psig). the valve is designed for strength test : 40 bar (580psig). Leakage safety: Same as set pressure.

For further information please contact your local Castle Sales Distributor.

Important:

The CSRVA safety relief valve is dependent on the back pressure (if the back pressure is higher than the atmospheric

pressure, the opening pressure will be higher than stated set pressure).

Special circumstances such as vibrations (which should be avoided) and oscillating pressure may require an increased difference between the operational pressure and the closing pressure.

Pressure Setting:

The operating pressure of the plant should be at least 15% below the set pressure. This allows a perfect re-seating of the safety relief valve after having been activated.

Temperature Range: $-30/+100^\circ\text{C}$



Double stop valve are 3-way valve, which are designed to meet all industrial refrigeration application requirements.

CDSVA valves are designed specifically for use with double safety valve systems.

The valves are designed to give favourable flow characteristics and are easy to dismantle for servicing. The valve cone is designed to ensure perfect closing, even with minimum torque the valve will close effectively. which permit easy inspection or replacement of safety valves.

Features

Applicable for the refrigerants R717 (ammonia, NH_3), HFC, HCFC (e.g. R22, R134a, R404a) and other refrigerants dependent on sealing materials compatibility within a temperature range of $-40^\circ/\text{ }+100^\circ\text{C}$ Flammable hydrocarbons are not recommended.

Each valve type is clearly marked with type, size and performance range.

The valves and caps are prepared for sealing, to prevent operation by unauthorised persons, using a seal wire.

Can accept flow in both directions.

Housing and seat housing are made from low temperature steel according to requirements of the Pressure Equipment Directive and other international classification authorities.

Design

Housing and Seat housing

Made from special, cold resistant steel approved for low temperature operation.

Valve cone

A Teflon tightening ring provides perfect sealing with a minimum closing torque.

Spindle

Made of polished stainless steel so that PTFE and Graphite gaskets are not damaged.

Packing gland

The full temperature range packing gland ensures perfect tightness in the whole temperature range: $-40/\text{ }+100^\circ\text{C}$ The packing gland is equipped with a scraper ring to prevent penetration of dirt and other foreign bodies.

Temperature range : $-40/\text{ }+100^\circ\text{C}$.

Pressure range : Max. operating pressure: 40 bar g (580 psig)



Technical Data

Introduction Refrigerants

Applicable to HCFC, HFC, R717(Ammonia) and R744 (CO₂).
For further information please see installation information for COFV

Temperature range

Standard version : -46 / +150°C

Pressure Range

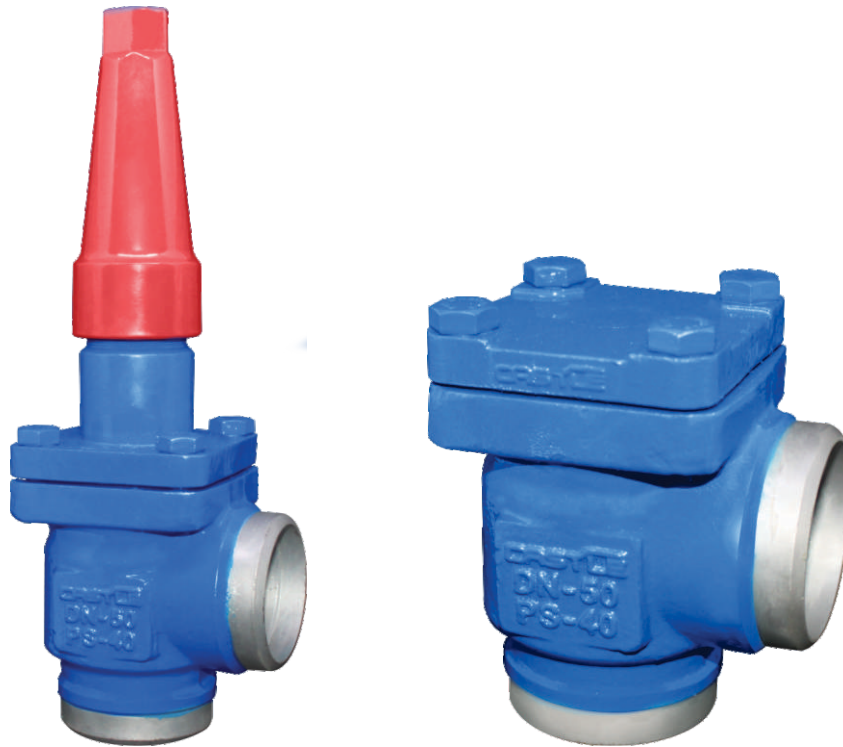
The valve are designed for max. working pressure
40 bar g (580 psig)

Features

Three functions in one valve. The OFV valve combines the functions of an overflow valve, a check valve and a stop valve
COFV are angle-way over flow valves, which have ajustable opening pressure and cover the differential pressure range 2 - 8 bar (29 -116 psi).
The valve can be closed manually, during plant service and have back seating, enabling the spindle seal to be replaced with the valve still under pressure.
The valves are especially designed to prevent fluttering due to low velocity.
In consequence it is possible to apply the valves with wide fluctuations in capacity demands and maximum performance to part load. A flexible O-ring provides perfect sealing over the seat.

Installation

The valve is designed to resist very high internal pressure, but as to the pipe system in general, hydraulic pressure caused by thermal expansions in entrapped refrigerants should be avoided.



Technical Data

Introduction Refrigerants

Applicable to all common non flammable refrigerants including R717 and non corrosive gases/liquids dependent on sealing material compatibility.

Temperature range

Standard version : -46 / +150°C

Pressure Range

The valve are designed for max. working pressure
40 bar g (580 psig)

Features

The valve Designed to open at a very low differential pressure of 0.04 bar (0.58 psig)
Designed with a built-in damping chamber preventing valve flutter, due to low refrigerant velocity and low density.

Easy to disassemble for inspection and service

Internal back seating enables replacement of
the spindle seal whilst the valve is active in under pressure

Optimal flow characteristics ensuring quick opening to the fully open position.

Housing

Made of special, cold resistant steel.

Valve cone

The valve cone can be turned on the spindle, thus
there will be no friction between the cone and the
seat, when the valve is opened and closed.

Spindle

Made of polished stainless steel so that PTFE and
Graphite gaskets are not damaged.

Sealing

Spindle sealing is done with PTFE and Graphite
gaskets assuring 100% sealing.



Check Valves for Ammonia & Fluorinated Refrigerants-CNRVA

Type CNRVA 15 TO 65



Introduction

Check valve type CNRVA can be used in liquid, suction, and hot gas lines in refrigeration and air conditioning plant with ammonia. CNRVA can also be used in refrigerating systems with fluorinated refrigerants.

When the CNRVA is used in liquid lines where cold thick oil or impurities may be present, it is recommended that the standard spring be replaced by a special spring.

Features

Valve housing made of special, cold resistant steel. Ensures correct direction of flow. Available for 40 bar (580 psig) working pressure.

Large range of flanges with connections

Dimensions in accordance with standards

DIN, ANSI, SOC, SA and FPT.

Fitted with damping piston that makes the valves suitable for installation in lines where pulsation can occur, e.g. in the discharge line from the compressor.

Gaskets

Do not contain asbestos.

Valve Cone

The valve cone has a teflon tightening ring. Teflon tightening ring renders perfect sealing at a minimum closing force.

Technical data

Refrigerants

Can be used for all normal, non-flammable refrigerants, including R 717, and noncorrosive gases / liquids - assuming seals of the correct material are used. For further information please see installation instruction for CNRVA.

Temperature range

−46°C / +150°C

Pressure range

The valve is designed for **Max. working pressure** : 40 bar g (580 psig).

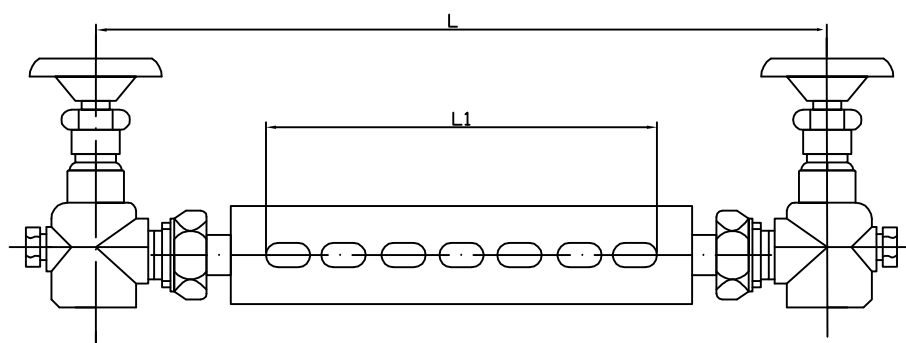
Liquid Level Indicator

Application : These level indicators are used to display the level of ammonia gas in the system.

Material of construction : Valves are made of steel with a ball for protection incase of failure. The glass is fused to the metal at high temperatures.

Temperature : -40 / +125°C

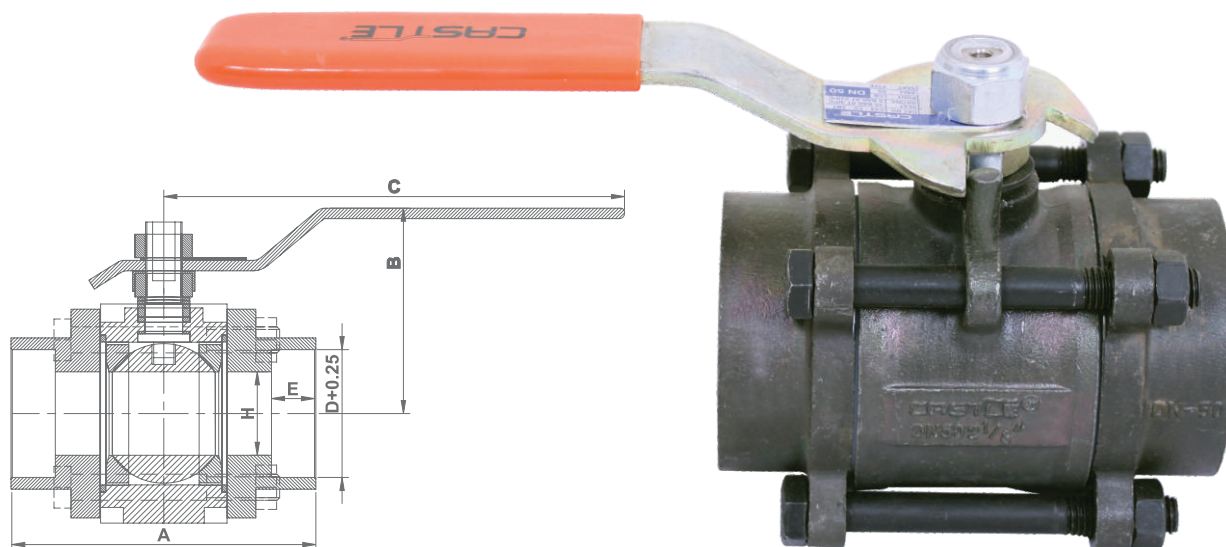
Pressure : Level indicators will work for a max working pressure of 40 Bar.



L(mm)	L1(mm)
300	120
450	270
600	420
800	620
1000	820
1100	920
1200	1020

Ball Valves

DN-15 To DN-125



Application

Petroleum, Petrochemical, Chemical, Refrigeration, air-conditioning and engineering industries. Valves are compatible with Ammonia, CFC, HCFC, Oil, Air, Chemicals, Gas, Acids, Alkalies etc. amongst many other media.

Installation

The three piece design makes the Series C-44 valve the most easily maintainable valve in its type. By removing three body connector bolts and loosening the fourth, the body can be swung away using the fourth bolt as a fulcrum, to carry out any maintenance on the valve. This feature allows the valve to be online and considerably reduces down time.

Safe Working Pressure : 40 Bar

Temp: -46/+125°C

MATERIAL SPECIFICATIONS	
Name of Part	Carbon Steel valve
Body	ASTM-A352 L.C.C.
Body Connector	
Ball	AISI 304 Gr. CF 8
Seat	Virgin PTFE
Stem	Stainless Steel AISI 304
Body Seal	Virgin PTFE
Gland Packing	35% Carbon filled PTFE
Stem Seal	

Model	SCREWED / SOCKET-WELD END (IN MM, UNLESS SPECIFIED)							Weight
DN	INCH	A	B	C	D+0.25	E	H	Kg
DN15 (1/2")	1/2" - 5/8"	64	45	122	21.8	9.7	11.2	0.6
DN20 (3/4")	7/8"	75	54	122	27.4	12.7	14.2	1
DN25 (1")	1.1/8"	94	75	148	34.1	12.7	22	1.7
DN32 (1.1/4")	1.3/8"	109	73	182	42.7	12.7	25	2.5
DN40 (1.5")	1.5/8"	118	73	182	49	12.7	32	3.7
DN50 (2")	2.1/8"	127	83	182	61	12.7	38	5
DN65 (2.5")	2.5/8"	145	260	230	77.5	15.9	50	8.5
DN80 (3")	3.1/8"	172	280	230	91	20	63	11.5
DN100 (4")	4.1/8"	185	295	230	117.5	25	72	18
DN125 (5")	5.1/8"	230	295	230	142	25	96	25

Liquid Level Controller



Application

While primarily designed for Ammonia, this control is also suitable for R-22 and other non-corrosive liquids that have a specific gravity of 0.5 or more.

The controller is ideal for the control of the operating level of liquid in liquid refrigerant accumulators and separators. Although this is normally done with a solenoid valve, the controller can activate an alarm or a pump or similar device.

Construction

Mechanical Float:

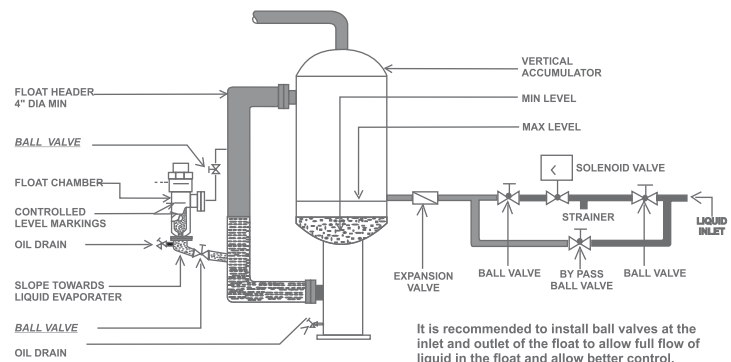
Light deep drawn body, drawn in one piece. Ball & Stem are made from SS. Electronic control box made from ABS in an international size 96X96 housing.

This device consists of two separate units, the float chamber and the electronic controller. The float chamber consists of a housing, float ball, float coil and coil enclosure. The float ball is located inside the housing and moves an attached magnetic stem up or down in an enclosing tube from the top and is protected by the coil enclosure. The construction permits all high voltage connections and wiring to be made at a remote or non-hazardous location.

Gravity equalisation of the liquid level in the float chamber is a function of the liquid. For fluids having a high viscosity the response time will be slower. The level controller should not be used on water applications.

Safe Working Pressure: 300 psi

Suggested installation for Liquid Level Controller



Liquid Level Switch



Application

While primarily designed for Ammonia, this control is also suitable for R-22 and other non-corrosive liquids that have a specific gravity of 0.5 or more.

The controller is ideal for the control of the operating level of liquid in liquid refrigerant accumulators and separators. Although this is normally done with a solenoid valve, the controller can activate an alarm or a pump or similar device.

Construction

Mechanical Float:

Light deep drawn body, drawn in one piece. Ball & Stem are made from SS.

This device consists of one float chamber with a magnetic operated switch in the top housing. The float chamber consists of a housing, float ball and magnet. The float ball is located inside the housing and moves an attached magnetic stem up or down in an enclosing tube from the top and is protected by the enclosure.

Gravity equalisation of the liquid level in the float chamber is a function of the liquid. For fluids having a high viscosity the response time will be slower. The level controller should not be used on water applications.

Safe Working Pressure: 300 psi

Solenoid Valves



Application

These valves are for Ammonia duty. The MSVA are pilot operated valves whilst the MDSVA are direct operated solenoid valves.

They are used in many applications such as cold stores, freezers, chilling applications etc.

Installation

These valves must be installed in horizontal positions with the coil housing no more than 45 degrees from the vertical position.

Construction

The valve is made up from various metals. Whilst stainless steel is used for components like stems, plungers, the main body is made from LCC

Safe Working Pressure: 300 psi

Type	Flanged Connection	Port Size inches	MOPD PSI	Nominal Liquid Capacity T.R.- Ammonia Pressure Drop P.S.I.					Coil Rating		
			AC	1	2	3	4	5	Type	Volt-Hz	Watts
MDSVA 12	1/2"	0.140	250	8.0	11.2	13.5	16	17.5	SVC-1	230AC 50/60	18
MSVA 12	1/2"	0.450	275	68	91	110	131	143			
MSVA 20	3/4"	0.600	275	75	97	122	145	167			
MSVA 25	1"	0.950	300	119	169	221	241	266	SVC-2	230AC 50/60	18
MSVA 32	1.1/4"	1.075	300	125	174	225	249	277			
MSVA 40	1.1/2"	1.260	300	275	390	500	550	625			

Strainers



Application

These strainers are specially designed to be installed in conjunction with solenoid valves.

Their mesh is selected so that no particles enter and disrupt the operation of the solenoid valve. For smooth operation of solenoid valves these strainers are mandatory.

Installation

For best results, the strainer is installed right at the inlet of the solenoid valve or as close to it as possible for larger sizes.

Features

retains contaminants eg. Slag, weld beads, pipe fittings.
pressure drop insignificant

Construction

The material of construction for the body is CI whilst for the mesh it is stainless steel.

Safe Working Pressure: 300 psi

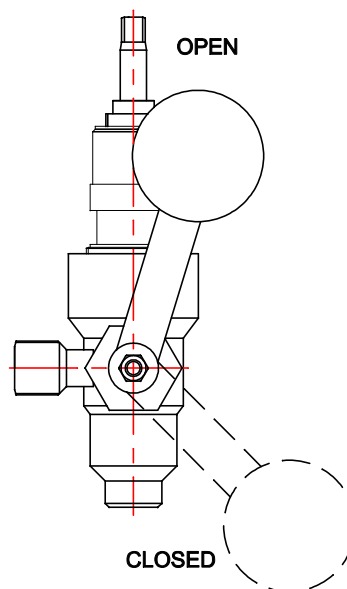
Model	DIMENSIONS (MM)		Weight Kg
	A	B	
CAS12	68	122	1.3
CAS20	85	140	2.3

Model	DIMENSIONS (MM)										Weight Kg
	A	B	C	D	E	F	G	H	PCD	BOLT SIZE	
CAS25	190	136	42	150	-	47	58.8	4	80	M12X40	7
CAS32	190	154	42	150	-	47	58.8	4	80	M12X40	7



Purge valves with counterweights

DN 15-20



Design characteristics

Purge valves with counterweights are valves with a normal primary closing system and a secondary closing system operated by the counterweight falling. The normal closing system is designed to provide a seal for a long period. The secondary closing system is a quick but provisional closing, see below the design working pressures.

Secondary closing

	pressure against which the counterweight falling will seal the valve	increase in pressure resistance after closing
DN 15	Max 7.5 BAR	25 BAR
DN 20	Max 7.5 BAR	25 BAR

Adjusting the counterweight

Full opening of the secondary closing system should occur when the counterweight is positioned near "1 o'clock when facing the counterweight side of the valve.

The counterweight position (conical fixing) must be oriented depending on the purge valve fitting position.

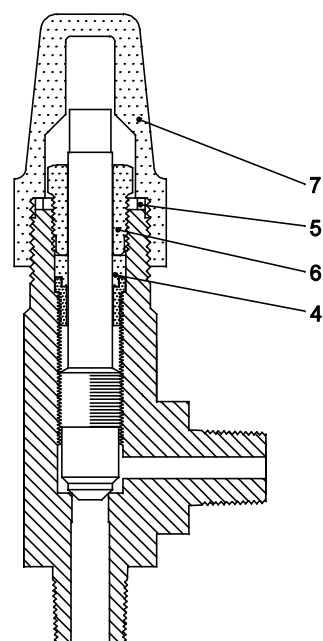
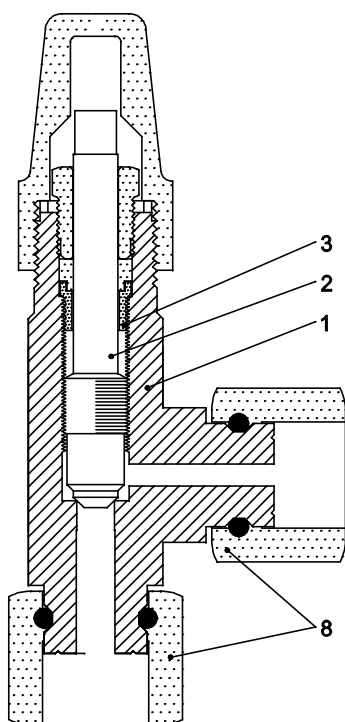
The counterweight should fall down by itself.

Operation

If the primary valve is open, the counterweight is in the high position, the purge valve is open. To close the purge valve, let the counterweight fall. The primary closing system can then be operated manually. The cap should be replaced after closing the primary valve.

Stop Needle Valve

1/4" To 1/2"

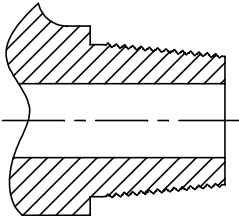


Material Specification

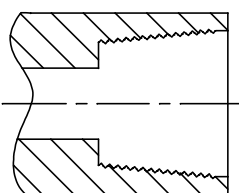
NO.	PART	MATERIAL	GRADE	QTY.
1	HOUSING	STEEL	ASTM A350 LF2, LCC	1
2	SPINDLE	STAINLESS STEEL	S.S.303	1
3	LOCKING RING	STEEL	AISI 1213	1
4	SEALING RING	PTFE	PTFE	1
5	SEALING CAP GASKET	NYLON		1
6	GLAND NUT	STEEL	AISI 1213	1
7	SEAL CAP	STEEL		1
8	FEMALE NUT	STEEL	AISI 1213	2

Stop Needle Valve Connections

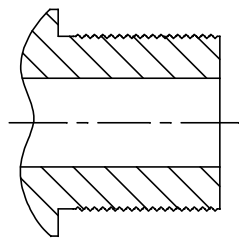
MPT CONNECTION



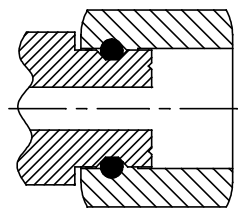
FPT CONNECTION



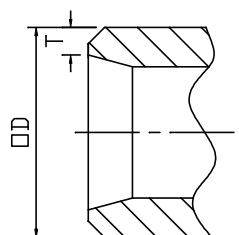
G 1/2" EXTERNAL CONNECTION



G 1/2" INTERNAL CONNECTION

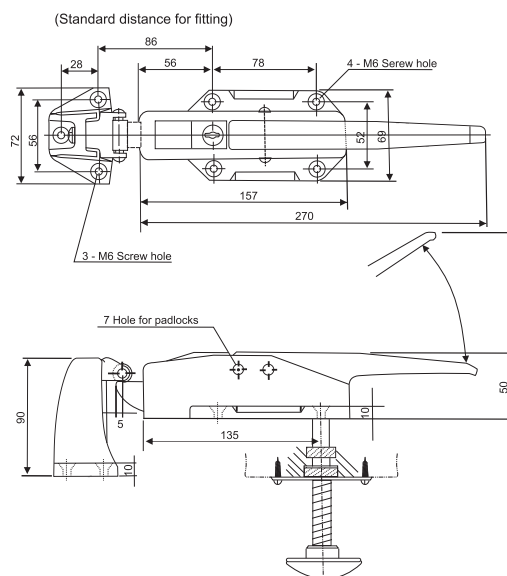
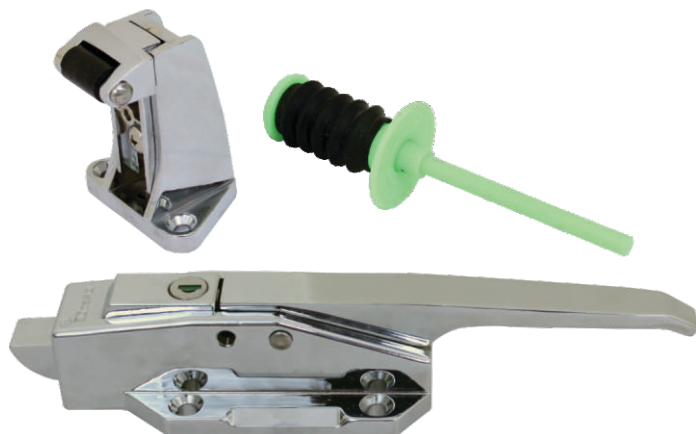


1/2" WELDING CONNECTION

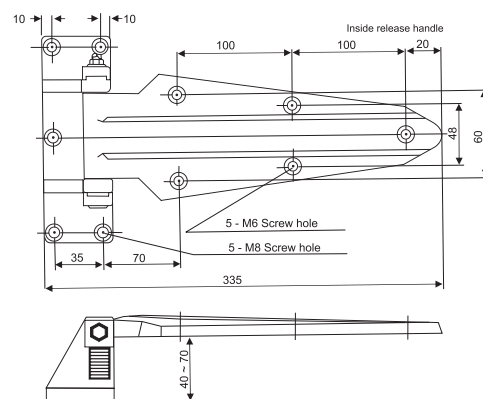


- 1/2" MPT X 1/2" MPT
- 1/2" MPT X 3/8" FPT
- 1/4" FPT X 1/4" FPT
- 3/8" FPT X 3/8" FPT
- 1/4" FPT X 1/4" MPT
- 3/8" FPT X 3/8" MPT
- 3/8" FPT X 1/2" MPT
- 7/16 UNF X 1/4" MPT
- 1/2" EXTERNAL X 1/2" EXTERNAL
- G-1/2" X G-1/2" MANOMETER CONNECTION
- G1/2" EXTERNAL X W1/2" L50 EXTERNAL
- G1/2" EXTERNAL X W1/2" L100 EXTERNAL
- G1/2" EXTERNAL X W1/2" L125 EXTERNAL
- G1/2" EXTERNAL X W1/2" L150 EXTERNAL
- 1/4" FPT X 1/4" MPT L100

Door Latch CS-1178L



Door hinges CS-1470



Door hinges CS-1450

