



## SAPAG

## Spring loaded, fixed blowdown, integral nozzle Safety Relief Valve.

### Features

- Thermal expansion, to API 520
- Certified to ASME VIII for air and steam
- Gas, Steam and Liquid service
- Integral nozzle
  - minimum number of components
  - flanges to any standard
  - rugged construction.
- Test gag supplied as standard

### Scope

The type 5700 is a spring loaded, fixed blowdown, integral nozzle safety relief valve designed to complement the 8100 range in the field of limited capacities, thermal expansion or where threaded connections are a requirement.

5700 series are available with threaded inlet, and outlet or with flanges. Both connecting threads and flanges can be machined to any standard. NPT and ASME-ANSI are standard versions.

### Performance

The performance of the type 5700 is certified by independent organizations :

- "UV" stamp (National Board certification according to the rules of the ASME Code, section VIII), with capacities certified on air and steam.
- Other approvals (ask the factory for details).



# Safety Relief Valve Series 5700

## Product description

### Conventional types 5780/5781, 5785/5786

- Series 5780/5781, 5785/5786 are used for thermal expansion, gas, steam and liquid relief when an adjustable blowdown is not required.
- Series 5781 and 5785 have a male inlet connection.
- Series 5780 and 5786 have a female or a flanged connection.

### Soft seated types 5790/5791, 5795/5796

Series 5790/5791, 5795/5796 are available with an 'O' Ring soft seated design.

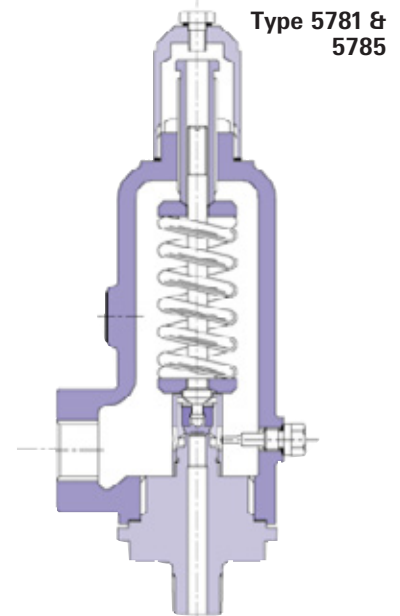
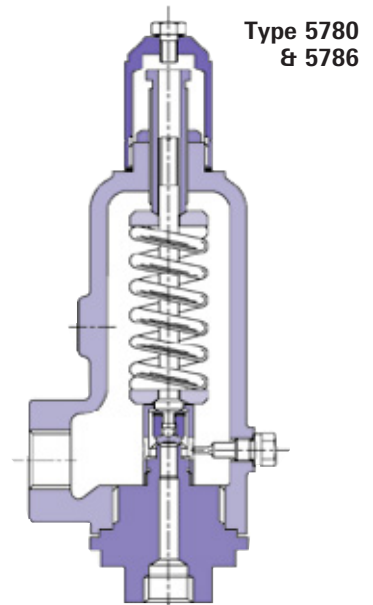
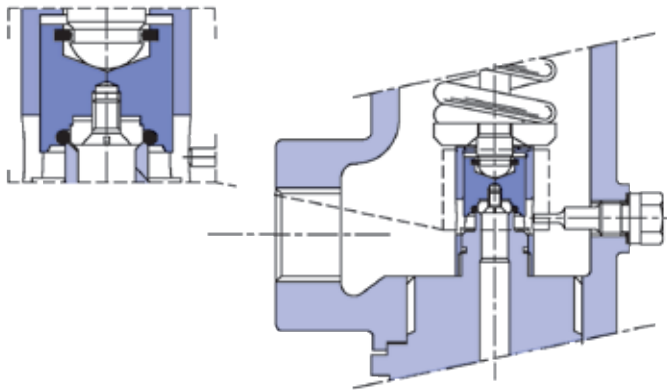
### Materials

#### Codes

P : Fluocarbon  
 V : Valrez  
 K : EPT  
 R : PTFE  
 T : Nitrile

#### Temperature range

P : -25° to 200°C  
 V : Max 280°C  
 K : Saturated steam  
 R : Cryogenic  
 T : -40 to 120°C



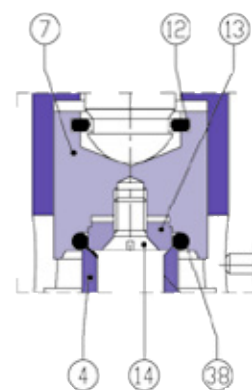
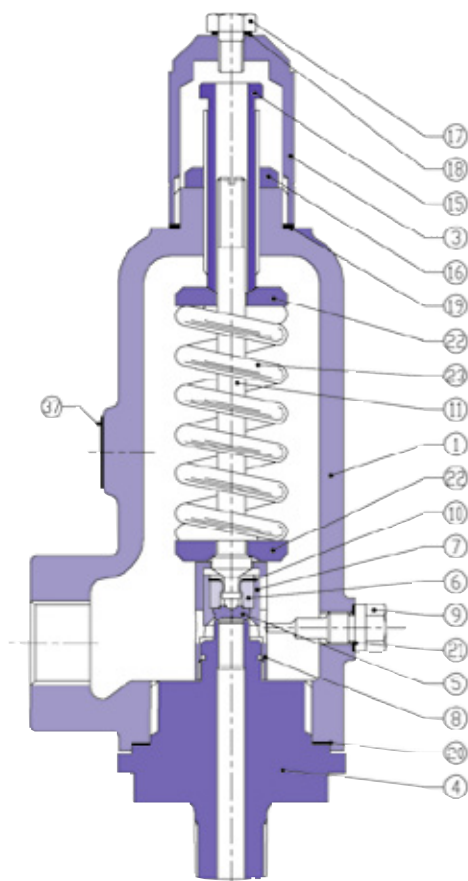
### Pressure limits

Type & Orifice	NPS		DN		Orifice Area		Maximum set pressure		Maximum back pressure	
	inlet	outlet	inlet	outlet	cm <sup>2</sup>	in <sup>2</sup>	bar	psi	bar	psi
5785-1	1/2"	1/2, 3/4, 1"	DN15	DN15, 20, 25	0,71 (D)	0,11	138	2000	28	400
5786-1	3/4"	3/4, 1"	DN20	DN20, 25						
	1"	1"	DN25	DN25						
5780-2	3/4"	1"	DN20	DN25	0,78 (D)	0,12	345	5000	28	400
5781-2	1"	1"	DN25	DN25						
5780-3	1"	1, 1 1/2"	DN25	DN25, 40	1,48 (E)	0,23	207	3000	28	400
5781-3										
5780-4	1 1/2"	2"	DN40	DN50	3,37 (G)	0,2	103	1500	28	400
	2"	2"	DN50	DN50						

### Technical data

Size 1/2" to 2"  
 Orifice 0.71 cm<sup>2</sup> to 3.37 cm<sup>2</sup>  
 Set pressure 1 to 345 bar  
 Metal to metal seat or soft seat  
 Carbon Steel or Stainless Steel  
 Threaded or flanged.





### Standard materials

Construction Rep. Part name	Standard		Low temperature		Corrosive service		
	WCB-1 -29 to +300°C -20 to +572°F	WCB-2 +301 to 427°C +573 to +800°F	LCB above -47°C above -53°F	L3 down to -270°C down to -460°F	S2M Sour gas service NACE MR0175	S3 All stainless except spring	S4 All stainless
1 Bonnet 5780/81/90/91	SA216 WCC	SA216 WCC	SA352 LCC	SA351 CF8	SA216 WCC	SA351 CF8	SA351 CF8
2 Bonnet 5785/86/95/96	SA105	SA105	SA350 LF2	SA182 F316L	SA105	SA182 F316L	SA182 F316L
3 Cap	Steel	Steel	Steel	316 SS	Steel	316 SS	316 SS
4 Nozzle	316L SS	316L SS	316L SS	316L SS	316L SS	316L SS	316L SS
5 Disc	316L SS	316L SS	316L SS	316L SS	316L SS	316L SS	316L SS
6 Disc retainer	316 SS	316 SS	316 SS	316 SS	316 SS	316 SS	316 SS
7 Disc holder	316 SS	316 SS	316 SS	316 SS	316 SS	316 SS	316 SS
8 Guide	AISI 431	AISI 431	AISI 431	AISI 431	316 SS	316 SS	316 SS
9 Stop screw	AISI 410	AISI 410	AISI 410	AISI 410	316 SS	316 SS	316 SS
10 Elastic ring	AISI 632	AISI 632	AISI 632	AISI 632	AISI 632	AISI 632	AISI 632
11 Spindle	AISI 410	AISI 410	AISI 410	AISI 410	AISI 660	AISI 660	AISI 660
12 Spindle retainer	Inconel	Inconel	Inconel	Inconel	Inconel	Inconel	Inconel
13 "O" ring retainer	316 SS	316 SS	316 SS	316 SS	316 SS	316 SS	316 SS
14 Retainer lock screw	316 SS	316 SS	316 SS	316 SS	316 SS	316 SS	316 SS
15 Adjusting screw	AISI 410	AISI 410	AISI 410	AISI 410	316 SS	316 SS	316 SS
16 Adjusting screw nut	Steel	Steel	Steel	Steel	Steel	316 SS	316 SS
17 Cap plug	Steel	Steel	Steel	Steel	Steel	316 SS	316 SS
18 Cap plug gasket	Armco iron	Armco iron	Armco iron	Armco iron	Armco iron	SS	SS
19 Gaskets	Armco iron	Armco iron	Armco iron	Armco iron	Armco iron	SS	SS
20 Bonnet gasket	SS Jackt'd Graphi.	SS Jackt'd Graphi.	SS Jackt'd Graphi.	SS Jackt'd Graphi.	SS Jackt'd Graphi.	SS Jackt'd Graphi.	SS Jackt'd Graphi.
21 Stop screw gasket	Armco iron	Armco iron	Armco iron	Armco iron	Armco iron	SS	SS
22 Spring washer	Steel	Steel	Steel	Steel	Steel	316 SS	316 SS
23 Spring	Alloy steel	Tungsten steel	Stainless steel	Tungsten steel	Inconel	Ni plated c.steel	Stainless steel
<b>Flanged version</b>							
Inlet flange	SA105	SA105	A352 LF2	SA182 F316L	SA105 N	SA182 F316L	SA182 F316L
Outlet flange	SA105	SA105	A352 LF2	SA182 F316L	SA105 N	SA182 F316L	SA182 F316L

# Safety Relief Valve Series 5700

## Weights and Dimensions 5700 Series, Threaded valves

### Orifice 1, Size 5785-1

Type	Inlet x Outlet		Inlet Connection	Dimension			Weight kg
	DN	NPS		A	B	E	
5785-1	20x25	3/4 x 1	NPTM	82	45	173	2,3
5785-1	25x25	1 x 1	NPTM	87	45	173	2,3
5786-1	20x25	3/4 x 1	NPTF	92	45	173	2,3
5786-1	25x25	1 x 1	NPTF	92	45	173	2,3
5785-1	15x20	1/2 x 3/4	NPTM	82	45	173	2,3
5785-1	15x25	1/2 x 1	NPTM	82	45	173	2,3
5785-1	20x20	3/4 x 3/4	NPTM	82	45	173	2,3
5786-1	15x20	1/2 x 3/4	NPTF	92	45	173	2,3
5786-1	15x25	1/2 x 1	NPTF	92	45	173	2,3
5786-1	20x20	3/4 x 3/4	NPTF	92	45	173	2,3

### Orifice 2, Size 5780-2

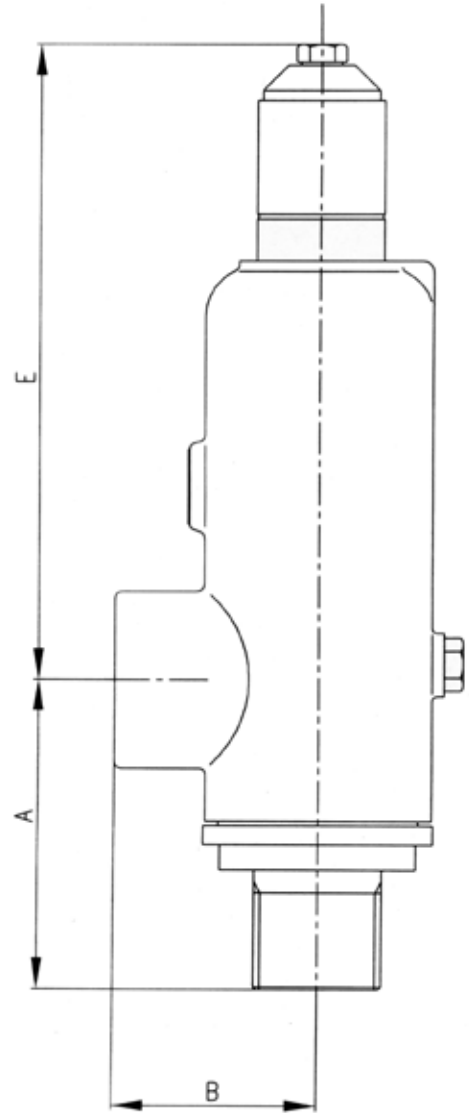
Type	Inlet x Outlet		Inlet Connection	Dimension			Weight kg
	DN	NPS		A	B	E	
5780-2	20x25	3/4 x1	NPTF	81	80	313	9
5780-2	25x25	1x1	NPTF	81	80	313	9
5781-2	20x25	3/4 x1	NPTM	81	80	313	9
5781-2	25x25	1x1	NPTM	81	80	313	9
5780-2	20x20	3/4 x3/4	NPTF	81	80	313	9
5780-2	25x32	1x1 1/4	NPTF	81	80	313	9
5780-2	25x40	1x1 1/2	NPTF	81	80	313	9
5781-2	20x20	3/4 x3/4	NPTM	81	80	313	9
5781-2	25x32	1x1 1/4	NPTM	81	80	313	9
5781-2	25x40	1x1 1/2	NPTM	81	80	313	9

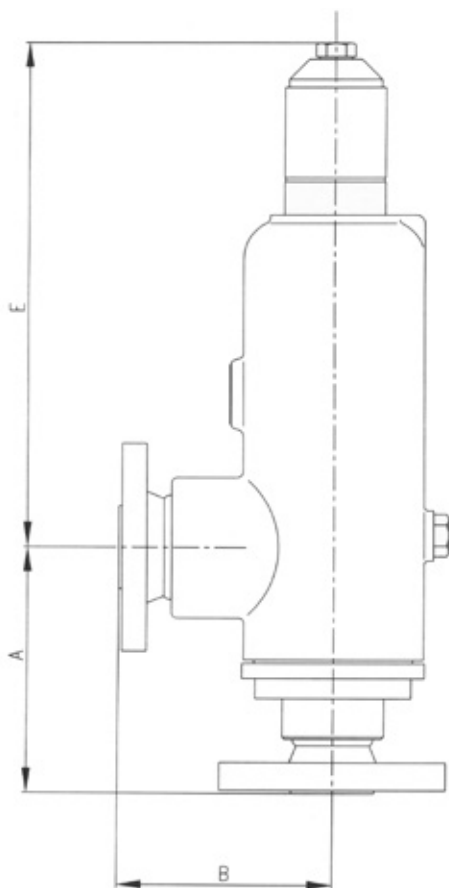
### Orifice 3, Size 5780-3

Type	Inlet x Outlet		Inlet Connection	Dimension			Weight kg
	DN	NPS		A	B	E	
5780-3	25x40	1x1 1/2	NPTF	81	80	313	9
5781-3	25x40	1x1 1/2	NPTM	81	80	313	9
5780-3	25x25	1x1	NPTF	81	80	313	9
5780-3	25x32	1x1 1/4	NPTF	81	80	313	9
5781-3	25x25	1x1	NPTM	81	80	313	9
5781-3	25x32	1x1 1/4	NPTM	81	80	313	9

### Orifice 4, Size 5780-4

Type	Inlet x Outlet		Inlet Connection	Dimension			Weight kg
	DN	NPS		A	B	E	
5780-4	40x50	1 1/2x2	NPTF	107	80	316	10
5780-4	50x50	2x2	NPTF	107	80	316	10
5781-4	40x50	1 1/2x1	NPTM	107	80	316	10
5781-4	50x50	2x2	NPTM	107	80	316	10
5780-4	40x40	1 1/2x1 1/2	NPTF	107	80	316	10
5781-4	40x40	1 1/2x1 1/2	NPTM	107	80	316	10





**Orifice 1, Size 5785-1**

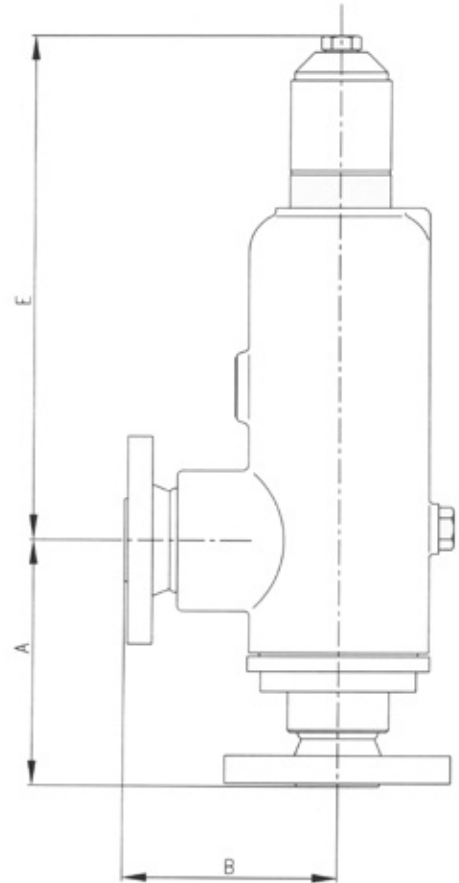
Type	Inlet x Outlet		Flange rating	Inlet		Outlet		E	Weight kg	
	DN	NPS		A	A (RJ)	B	B (RJ)			
5786-1	20x25	3/4 x1	150x150	120		84	89	173	4	
			300x150	125	129	84	89	173	4	
				600x150	131	131	84	89	173	5
				900x150	144	144	84	89	173	6
				1500x150	144	144	84	89	173	7
				2500x150	153	153	84	89	173	8
				1500x300	144	144	90	95	173	8
				2500x300	153	153	90	95	173	9
		25x25	1x1	150x150	126	131	84	89	173	4
	300x150			132	137	84	89	173	4	
			600x150	138	138	84	89	173	5	
			900x150	149	149	84	89	173	6	
			1500x150	149	149	84	89	173	7	
			2500x150	165	165	84	89	173	8	
			1500x300	149	149	90	95	173	8	
			2500x300	165	165	90	95	173	9	
	20x25		PN16xPN16		106	66		173	4	
			PN25xPN16	108		66		173	4	
			PN40xPN16	108		66		173	5	
	25x25		PN16xPN16	108		66		173	4	
			PN25xPN16	110		66		173	4	
			PN40xPN16	110		66		173	5	
	15x20	1/2 x3/4	150x150	116		83		173	4	
			300x150	120	123	83		173	4	
			600x150	126	125	83		173	5	
			900x150	134	134	83		173	6	
			1500x150	134	134	83		173	7	
			2500x150	147	147	83		173	8	
			1500x300	134	134	88	93	173	8	
		2500x300	147	147	88	93	173	9		
	15x25	1/2 x1	150x150	116		84	89	173	4	
			300x150	120	123	84	89	173	4	
			600x150	126	125	84	89	173	5	
			900x150	134	134	84	89	173	6	
			1500x150	134	134	84	89	173	7	
			2500x150	147	147	84	89	173	8	
			1500x300	134	134	90	95	173	8	
		2500x300	147	147	90	95	173	9		
	20x20	3/4 x3/4	150x150	120		83		173	4	
			300x150	125	129	83		173	4	
			600x150	131	131	83		173	5	
			900x150	144	144	83		173	6	
			1500x150	144	144	83		173	7	
			2500x150	153	153	83		173	8	
			1500x300	144	144	88	93	173	8	
		2500x300	153	153	88	93	173	9		
	15x20		PN16xPN16	103		69		173	4	
			PN25xPN16	106		69		173	4	
			PN40xPN16	106		69		173	5	
	15x25		PN16xPN16	103		66		173	4	
			PN25xPN16	106		66		173	4	
			PN40xPN16	106		66		173	5	
	20x20		PN16xPN16	106		69		173	4	
			PN25xPN16	108		69		173	4	
			PN40xPN16	108		69		173	5	

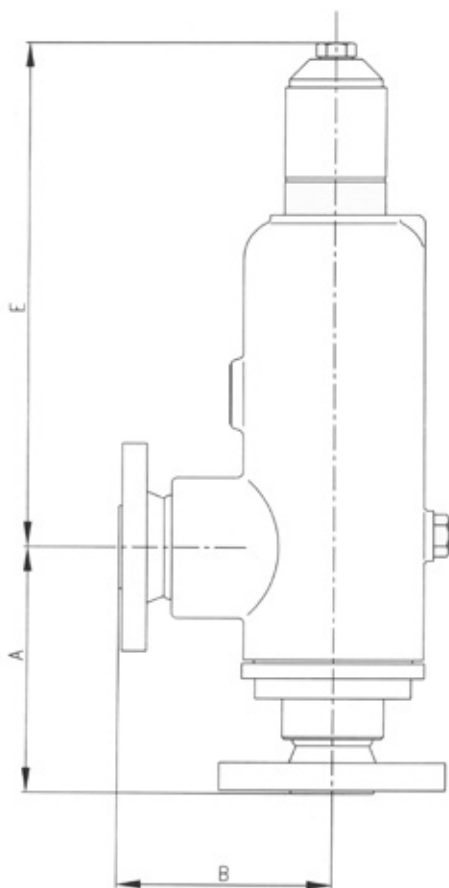
# Safety Relief Valve Series 5700

## Weights and Dimensions 5700 Series, Flanged valves

### Orifice 2, Size 5785-2

Type	Inlet x Outlet		Flange rating	Inlet		Outlet		E	Weight kg
	DN	NPS		A	A (RJ)	B	B (RJ)		
5780-2	20x25	3/4 x1	150x150	119		119		313	11
			300x150	124	129	119		313	11
			600x150	130	130	119		313	11
			900x150	143	143	119		313	13
			1500x150	143	143	119		313	13
			2500x150	152	152	119		313	14
			1500x300	143	143	125	128	313	14
			2500x300	152	152	125	128	313	15
			150x150	120	125	119	124	313	11
			300x150	126	131	119	124	313	11
	25x25	1 x1	600x150	126	126	119	124	313	11
			900x150	143	143	119	124	313	13
			1500x150	143	143	119	124	313	13
			2500x150	159	159	119	124	313	14
			1500x300	143	143	125	130	313	14
			2500x300	159	159	125	130	313	15
			PN16xPN16	102		101		313	11
			PN25xPN16	104		101		313	11
			PN40xPN16	104		101		313	11
				25x25		PN16xPN16	102		101
PN25xPN16	104					101		313	11
PN40xPN16	104					101		313	11
	20x20	3/4 x3/4	150x150	119		118		313	11
			300x150	124	129	118		313	11
			600x150	130	130	118		313	11
			900x150	143	143	118		313	13
			1500x150	143	143	118		313	13
			2500x150	152	152	118		313	14
			1500x300	143	143	123	128	313	14
			2500x300	152	152	123	128	313	15
			150x150	120	125	120	125	313	11
			300x150	126	131	120	125	313	11
	25x32	1 x1 1/4	600x150	126	126	120	125	313	11
			900x150	143	143	120	125	313	13
			1500x150	143	143	120	125	313	13
			2500x150	159	159	120	125	313	14
			1500x300	143	143	128	133	313	14
			2500x300	159	159	128	133	313	15
			150x150	120	125	125	130	313	11
			300x150	126	131	125	130	313	11
			600x150	126	126	125	130	313	11
			900x150	143	143	125	130	313	13
	25x40	1 x1 1/2	1500x150	143	143	125	130	313	13
			2500x150	159	159	125	130	313	14
			1500x300	143	143	131	136	313	14
			2500x300	159	159	131	136	313	15
			PN16xPN16	105		104		313	11
			PN25xPN16	107		104		313	11
			PN40xPN16	107		104		313	11
			PN16xPN16	102		103		313	11
			PN25xPN16	104		103		313	11
			PN40xPN16	104		103		313	11
	25x32		PN16xPN16	102		103		313	11
			PN25xPN16	104		103		313	11
			PN40xPN16	104		103		313	11
	25x40		PN16xPN16	102		105		313	11
			PN25xPN16	104		105		313	11
			PN40xPN16	104		105		313	11





**Orifice 3, Size 5785-3**

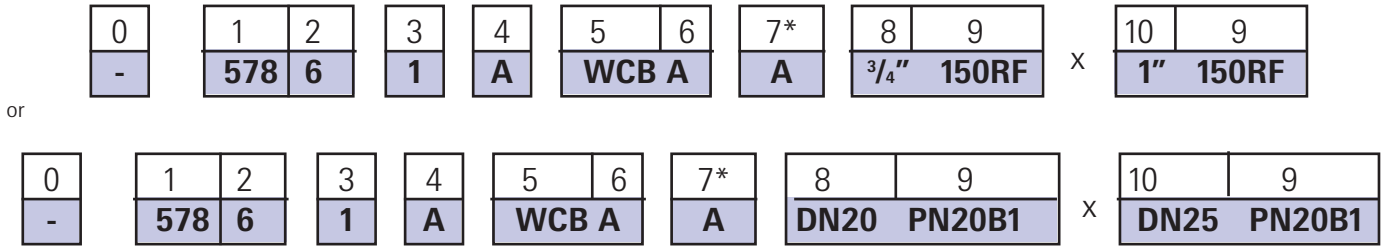
Type	Inlet x Outlet		Flange rating	Inlet		Outlet		E	Weight kg
	DN	NPS		A	A (RJ)	B	B (RJ)		
5780-3	25x40	1x1 1/2	150x150	120	125	125	130	313	12
			300x150	126	131	125	130	313	13
			600x150	132	132	125	130	313	13
			900x150	143	146	125	130	313	15
			1500x150	143	146	125	130	313	15
			2500x150	159	159	125	130	313	17
			1500x300	143	143	131	136	313	16
			2500x300	159	159	131	136	313	18
25x32			PN16xPN16	102		103		313	12
			PN25xPN16	104		103		313	13
			PN40xPN16	104		103		313	13
25x40			PN16xPN16	102		105		313	12
			PN25xPN16	104		105		313	13
			PN40xPN16	104		105		313	13
25x25	1 x1		150x150	120	125	119	124	313	12
			300x150	126	131	119	124	313	13
			600x150	132	132	119	124	313	13
			900x150	143	143	119	124	313	15
			1500x150	143	143	119	124	313	15
			2500x150	159	159	119	124	313	17
			1500x300	143	143	125	130	313	16
			2500x300	159	159	125	130	313	18
25x32	1x1 1/4		150x150	120	125	120	125	313	12
			300x150	126	131	120	125	313	13
			600x150	132	132	120	125	313	13
			900x150	143	143	120	125	313	15
			1500x150	143	143	120	125	313	15
			2500x150	159	159	120	125	313	17
25x25			1500x300	143	143	128	133	313	16
			2500x300	159	159	128	133	313	18
			PN16xPN16	102		101		313	12
			PN25xPN16	104		101		313	13
			PN40xPN16	104		101		313	13

**Orifice 4, Size 5785-4**

Type	Inlet x Outlet		Flange rating	Inlet		Outlet		E	Weight kg
	DN	NPS		A	A (RJ)	B	B (RJ)		
5780-4	40x50	1 1/2x2	150x150	152	157	125	130	316	15
			300x150	158	163	125	130	316	16
			600x150	160	160	125	130	316	17
50x50	2 x2		150x150	152	157	125	130	316	15
			300x150	159	165	125	130	316	16
			600x150	162	163	125	130	316	17
40x50			PN16xPN16	132		105		316	15
			PN25xPN16	135		105		316	16
			PN40xPN16	135		105		316	17
50x50			PN16xPN16	134		107		316	15
			PN25xPN16	137		107		316	16
			PN40xPN16	137		107		316	17
40x40	1 1/2x1 1/2		150x150	152	157	125	130	316	15
			300x150	158	163	125	130	316	16
			600x150	160	160	125	130	316	17
40x40			PN16xPN16	132		105		316	15
			PN25xPN16	135		105		316	16
			PN40xPN16	135		105		316	17



Valve designation



**0 Optional additional digit for special features**

X: Additional device  
Y: Special material  
Z: Special machining.

**1 Valve type**

5700 series:  
5780: Conventional, female x female or flanged, orifice -2, -3, -4  
5781: Conventional, male x female, orifice -2, -3, -4  
5785: Conventional, male x female, orifice -1  
5786: Conventional, female x female or flanged, orifice -1  
5790: Soft seated, female x female or flanged, orifice -2, -3, -4  
5791: Soft seated, male x female, orifice -2, -3, -4  
5795: Soft seated, male x female, orifice -1  
5796: Soft seated, female x female or flanged, orifice -1

**2 Pressure class**

1: 150lbs or PN20  
3: 300lbs or PN50  
4: 600lbs or PN100  
6: 900lbs or PN150  
7: 1500lbs or PN250  
8: 2500lbs or PN420

**3 Orifice size**

5700 series:            -1        -2        -3        -4

**4 Accessories**

A: Screwed cap  
C: Screwed cap and plain lever  
F: Screwed cap and packed lever

**5 Material**

WCB    S3  
LCB    S4  
L3  
S2M

**6 Seating**

A: metal/metal  
D: stellited nozzle  
E: stellited nozzle and disc  
F: stellited disc  
K: EPT soft seat  
P: Fluorocarbon soft seat  
R: PTFE solid disc  
T: Nitrile soft seat  
V: Kalrez R soft seat

**7 Spring material**

**Note:** based on material availability, the factory reserves the right to offer a material better than specified.

\* this digit is optional; when omitted, the spring material as per the standard bill of material and/or the specified service temperature will be offered.

C: Carbon steel  
A: High temperature alloy steel  
S: Stainless steel  
PH: Precipitation hardened stainless steel  
X: High Nickel alloy  
K: Copper Nickel alloy  
T2: Tungsten high temperature alloy steel  
T9: High Tungsten alloy steel

**8 Inlet NPS or DN**

**9 Inlet and outlet flange class and finish**

**10 Outlet NPS or DN**