Technical Specifications
Rev. A - 11/2026

Consolidated™ 5500 SafeSwitch™ changeover valve



Baker Hughes Data Classification: Public

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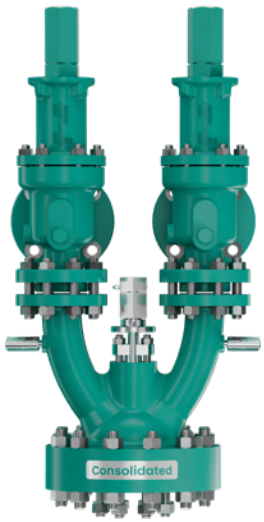
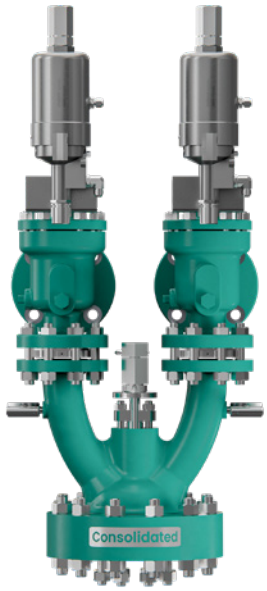
Scope of design



5500 Series with two 1900 Series Spring-loaded SRVs



5500 Series with two 2900 Series POSRVs



5500 Series with two 3900 Series POSRVs

In any pressure relief system, maintaining uninterrupted overpressure protection is essential for safe and reliable plant operation. Changeover valves (COVs) serve as a critical safeguard by enabling continuous protection while allowing inspection, testing, or replacement of a safety relief valve (SRV) without requiring a shutdown. Installed before two parallel SRVs, a COV provides a controlled, positive transfer from an active valve to a standby SRV with a single, smooth actuation. This ensures that the protected system never operates without a functioning relief path, even during maintenance activities.

A well designed COV minimizes flow restrictions and avoids creating excessive inlet pressure loss that could affect the performance of the connected SRVs. Its internal geometry, switching mechanism, and sealing surfaces must maintain the certified lift characteristics, set pressure stability, and rated relieving capacity of the associated SRVs. For operators, this means safer operation, fewer process interruptions, and full compliance with industry codes and standards governing pressure relief installations.

The **Consolidated™ 5500 SafeSwitch™** changeover valve is engineered specifically to meet these demanding requirements. Built for use in refinery, petrochemical, power generation, industrial gas, and general processing environments, the 5500 Series provides a robust, high integrity solution for continuous overpressure protection. Its streamlined internal passage minimizes inlet pressure drop, ensuring that connected SRVs perform to their ASME certified capacities. A precision machined switching mechanism allows rapid transfer between valves with minimal torque, while maintaining tight isolation of the non-active SRV for safe inspection and service.

With a robust body, optimized flow path, and industry proven sealing design, the Consolidated 5500 Series delivers long term reliability, reduced maintenance downtime, and best in class operational availability. By integrating the 5500 Series with two SRVs, facilities gain the confidence that their pressure relief system remains fully protected at all times, without sacrificing productivity.

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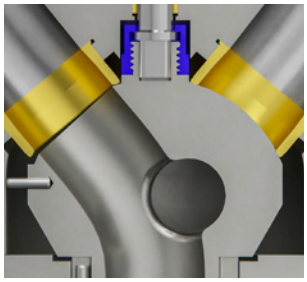
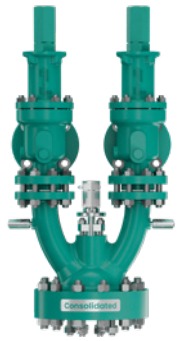
5500 SafeSwitch benefits



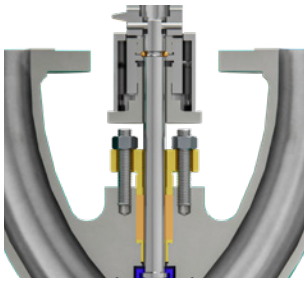
Continuous overpressure protection

The 5500's ball plug maintains an uninterrupted relief path at all times, allowing SRV inspection, testing, or replacement without process shutdown; reducing downtime.



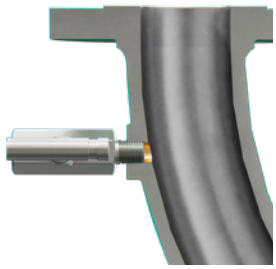
Complete valve isolation

The 5500 Series enables one SRV to be fully isolated from the process while the alternate SRV remains in service.



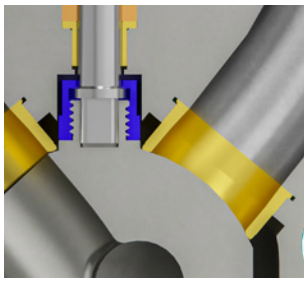
Improved maintenance access

Simplify maintenance procedures with the 5500's indicator by clearly establishing the active and standby relief devices.



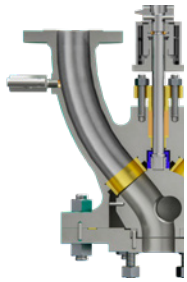
Enhanced personnel safety

Bleed valves minimizes exposure to process media during SRV removal and installation.



Reliable seal. Reduced emissions

5500's seat design provides reliable shutoff by minimizing leakage across the seat interface, helping maintain isolation integrity and reducing fugitive emissions during maintenance.



Minimal pressure loss

Optimized flow paths minimize pressure loss through the changeover valve, helping installations meet the API 520 Part II 3% inlet pressure-loss criterion while supporting reliable PRV performance.

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Standard size and pressure classes

Size (in.)	Pressure class					
	150#	300#	600#	900#	1500#	2500#
3/4	●	●	●	●	*	*
1	●	●	●	●	●	●
1 1/2	●	●	●	●	●	●
2	●	●	●	●	●	●
3	●	●	●	●	-	-
4	●	●	●	●	-	-
6	●	●	●	-	-	-
8	●	●	●	-	-	-
10	●	●	-	-	-	-

Note: Consult Baker Hughes for more information on this size/configuration.

Pressure and temperature/Cv table

Size (in.)	Maximum pressure rating		Maximum temperature rating		Flow efficiency [Cv]
	CC psig [barg]	S4 psig [barg]	DA-Teflon °F [°C]	DA-PEEK °F [°C]	
¾	6250 [430.9]	6000 [413.6]	400 [204.4]	600 [315.5]	*
1	6250 [430.9]	6000 [413.6]	400 [204.4]	600 [315.5]	52
1.5	6250 [430.9]	6000 [413.6]	400 [204.4]	600 [315.5]	123
2	6250 [430.9]	6000 [413.6]	400 [204.4]	600 [315.5]	234
3	6250 [430.9]	6000 [413.6]	400 [204.4]	600 [315.5]	468
4	3750 [258.5]	3600 [248.2]	400 [204.4]	600 [315.5]	858
6	1500 [103.4]	1440 [99.28]	400 [204.4]	600 [315.5]	2149
8	1500 [103.4]	1440 [99.28]	400 [204.4]	600 [315.5]	4502
10	750 [51.71]	720 [49.64]	400 [204.4]	600 [315.5]	7461

Note: Consult Baker Hughes for more information on this size/configuration.

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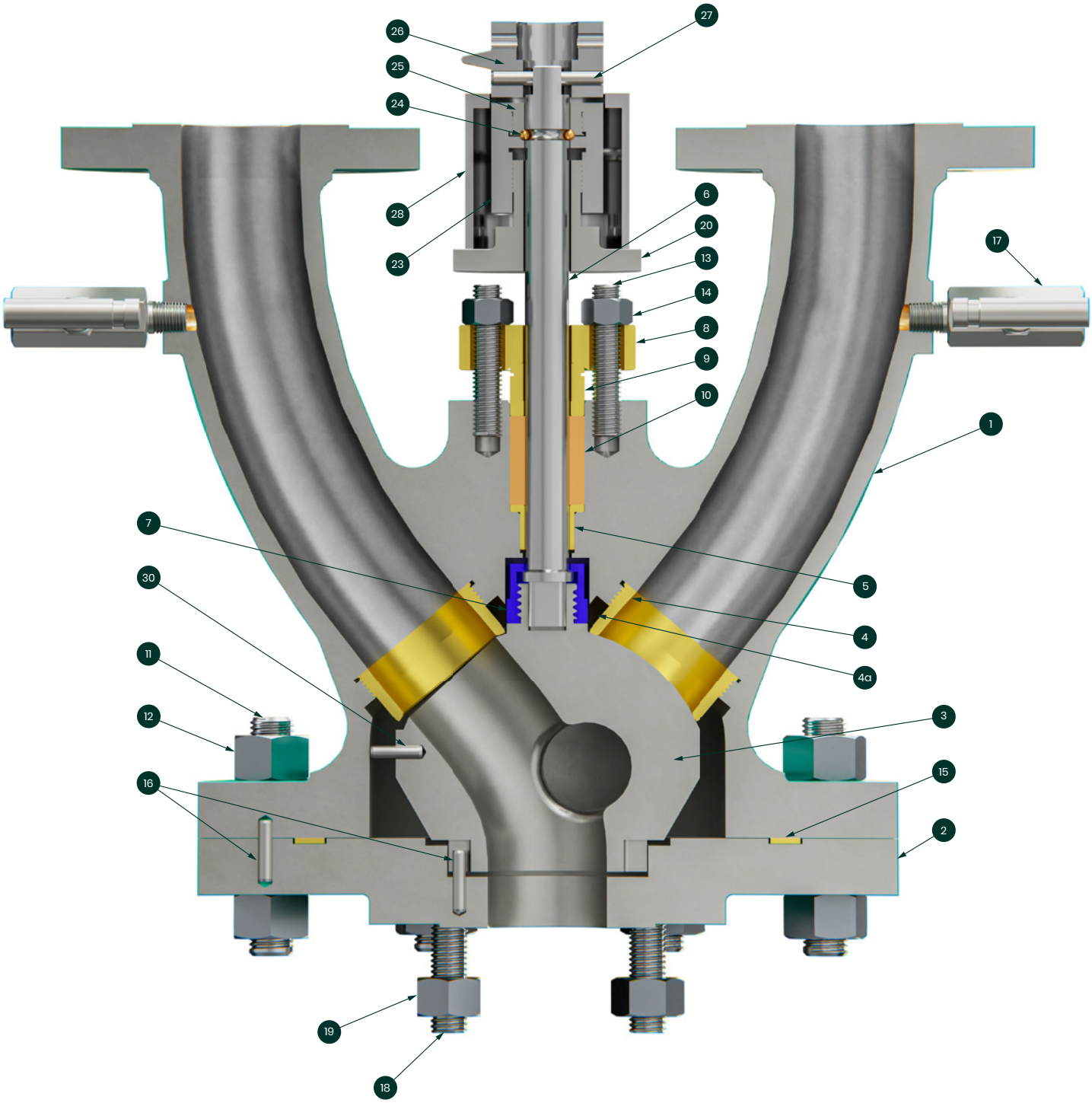
Bill of materials



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Standard material for 5500 Series COV			
Ref. no.	Nomenclature	Carbon steel (-CC)	Stainless steel (-S4)
1	Base	SA216 WCC Carbon steel	ASME SA351 grade CF8M St. St.
2	Inlet base	SA216 WCC Carbon steel	ASME SA351 grade CF8M St. St.
3	Plug	316/316L St St + Chrome plating	316/316L St St + Chrome plating
4	Seat bushing (DA)	316/316L St St + PTFE	316/316L St St + PTFE
4a	O-ring	Virgin teflon	Virgin teflon
4	Seat bushing (MS)	316/316L St St + Stellite	316/316L St St + Stellite
5	Guide	Stellite #6	Stellite #6
6	Stem	17-4 Stainless steel	17-4 Stainless steel
7	Stem ring	316/316L Stainless steel	316/316L Stainless steel
8	Packing flange	316/316L Stainless steel	316/316L Stainless steel
9	Packing follower	316/316L Stainless steel	316/316L Stainless steel
10	Packing split ring	Carbon core braided PTFE	Carbon core braided ptfe
11	Base stud	B7 Alloy steel	B7 Alloy steel
12	Base nut	2H Carbon steel	2H Carbon steel
13	Packing stud	B7 Alloy steel	B7 Alloy steel
14	Packing nut	2H Carbon steel	2H Carbon steel
15	Gasket	316L St St + Graphite filler	316L St St + Graphite filler
16	Pin	416 Stainless steel	416 Stainless steel
17	Bleed port	316/316L Stainless steel	316/316L Stainless steel
18	Inlet base stud	B7 Alloy steel	B7 Alloy steel
19	Inlet base nut	2H Carbon steel	2H Carbon steel
20	Yoke	316/316L Stainless steel	316/316L Stainless steel
21	Actuation stud (not shown)	316/316L Stainless steel	316/316L Stainless steel
22	Actuation nut (not shown)	A194 grade 8	A194 grade 8
23	Driving nut	17-4 Stainless steel	17-4 Stainless steel
24	Ball bearing	440C stainless steel	440C Stainless steel
25	Cap	17-4 Stainless steel	17-4 Stainless steel
26	Indicator hex	316/316L Stainless steel	316/316L Stainless steel
27	Indicator pin	18-8 Stainless steel	18-8 Stainless steel
28	Locking nut	316/316L Stainless steel	316/316L Stainless steel
29	Set screw (not shown)	316/316L Stainless steel	316/316L Stainless steel
30	Ball plug pin	316/316L Stainless steel	316/316L Stainless steel

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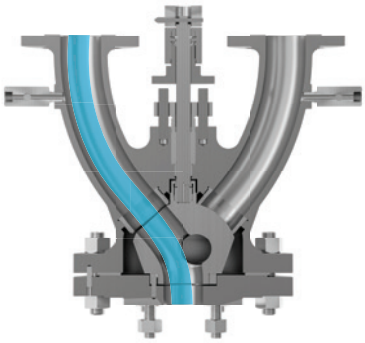
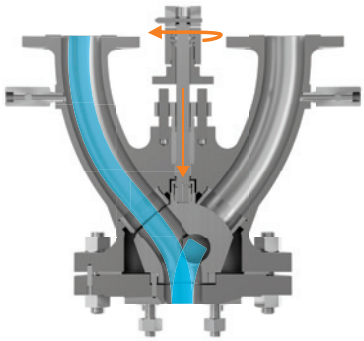
Operation



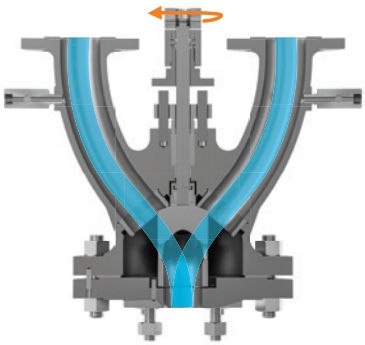
1. Normal operating position

In the normal operating position, the ball plug is positioned to allow the process flow to pass through to the active SRV. The standby SRV remains fully isolated. A visual indicator confirms the active flow path.



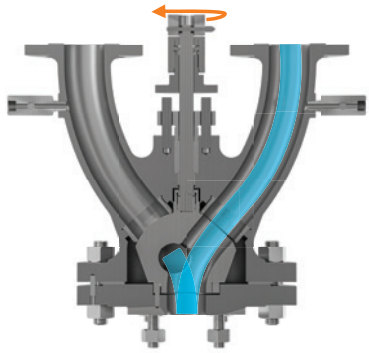
2. Ball plug retraction

To begin changeover, remove any locking devices. The drive nut is rotated clockwise, retracting the ball plug downward. This action disengages the seat and ball plug, preparing the assembly for flow path change.



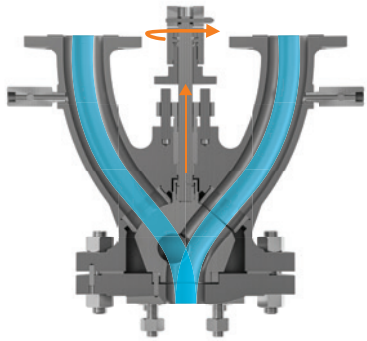
3. Ball plug seated – partial rotation 90˚

With the ball plug seated, the stem is rotated (90˚ shown). Process pressure is equalized on each flow path of the changeover valve; both SRVs are now actively protecting the system.



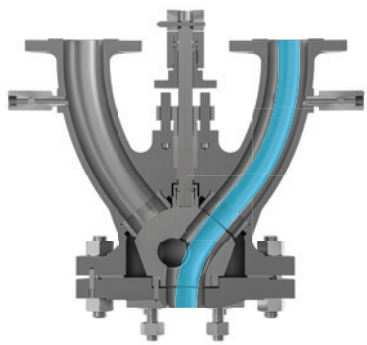
4. Ball plug 180˚ rotation

The stem is fully rotated 180˚, aligning the plug with the alternate seat. This rotation precisely positions the internal flow path toward the standby valve.



5. Ball plug engagement

The drive nut is rotated counterclockwise, moving the ball plug upward into the alternate seat. The ball plug is securely seated beneath the valve taken out of service, ensuring a positive seal and pressure isolation.



6. Changeover complete

The changeover process is complete and flow is directed to the alternate SRV. The position indicator confirms which valve is active. Any locking devices can be reinstalled, ensuring secure operation and preventing unintended movement.

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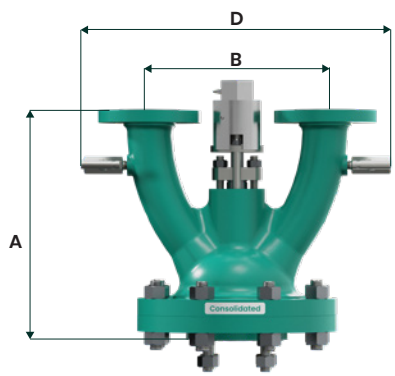
COV dimensions and weights

Single 5500 Series COV dimensions										
ANSI Class	Dimensions and weights	0.75 in.	1 in.	1.5 in.	2 in.	3 in.	4 in.	6 in.	8 in.	10 in.
150#	A	9.741	9.742	12	13.689	14.356	15.923	18.978	25.085	31.323
	B	7.48	7.48	8.661	10.315	12.008	14.488	17.008	19.488	24.409
	D	14.283	14.283	16.054	17.944	20.779	24.322	30.085	34.415	41.896
	Weight (lbs)	33.1	34.5	57.7	99	159.5	253.7	486.1	936.4	1686.4
300#	A	10.616	10.620	13.384	14.179	15.281	16.785	20.171	26.136	32.484
	B	7.48	7.48	8.661	10.315	12.008	14.488	17.008	19.488	24.409
	D	14.283	14.283	16.054	18.102	21.055	24.716	30.478	35.124	42.604
	Weight (lbs)	56.7	58.3	178.5	155.3	255.9	417.4	828.3	1473.3	2195.4
600#	A	10.616	10.620	13.384	16.057	17.164	19.415	22.829	*	-
	B	7.48	7.48	8.661	10.315	12.008	14.488	17.717	*	-
	D	14.283	14.283	16.054	18.417	21.409	25.267	32.132	*	-
	Weight (lbs)	56.7	58.3	178.5	274.6	436.9	728.8	1209	*	-
900#	A	12.648	13.151	15.215	17.651	18.474	*	-	-	-
	B	7.48	10.315	9.646	12.008	13.189	*	-	-	-
	D	15.07	17.346	18.219	20.267	23.299	*	-	-	-
	Weight (lbs)	157.6	162.2	252.1	462.7	631.5	*	-	-	-
1500#	A	12.648	13.151	15.215	17.651	-	-	-	-	-
	B	7.48	10.315	9.646	12.008	-	-	-	-	-
	D	15.07	17.346	18.219	20.267	-	-	-	-	-
	Weight (lbs)	157.6	162.2	252.1	462.7	-	-	-	-	-
2500#	A	*	*	*	*	-	-	-	-	-
	B	*	*	*	*	-	-	-	-	-
	D	*	*	*	*	-	-	-	-	-
	Weight (lbs)	*	*	*	*	-	-	-	-	-

Note: Consult Baker Hughes for dimensional data.



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Tandem configuration

Enhanced flexibility. Continuous protection.

For critical pressure-relief applications where uninterrupted protection is non-negotiable, a tandem COV configuration provides the highest level of operational flexibility while maintaining continuous compliance with pressure-relief requirements.

A tandem arrangement incorporates two Consolidated 5500 Series COVs operating with two SRVs to allow positive isolation and transfer on both the inlet and outlet sides of the relief devices. This configuration enables complete removal, testing, or maintenance of one SRV while the standby valve remains fully connected to the protected system and discharge header.

Why choose a tandem arrangement?

Unlike a single inlet COV installation, a tandem configuration provides positive isolation on both sides of the SRV, allowing maintenance personnel to safely service a relief valve without disturbing system operation.

1. Complete valve isolation

- Enables one SRV to be fully isolated from both the process and discharge system while the alternate SRV remains in service.

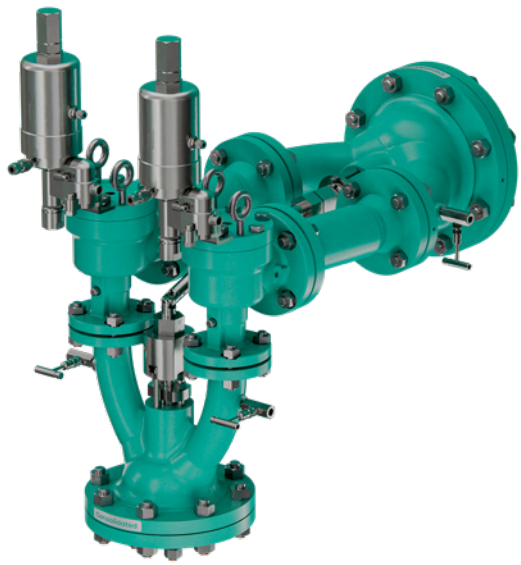
2. Simplified valve transfer

- The tandem linkage mechanically coordinates inlet and outlet valve movement, reducing operator intervention, minimizing switching errors, and helping maintain continuous pressure-relief protection during SRV changeover operations.

3. Enhanced personnel safety

- Minimizes exposure to process media and residual header pressure during SRV removal and installation.





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Tandem COVs dimensions and weights

Orifice	Size (in.)	Valve	Inlet flange rating	Outlet flange rating	Tandem assembly envelope dimensions (inches)	
					A	B
D/E	1X2	1905	150	150	13.94	31.75
		1906, 1910	300	150	14.69	31.75
		1912	600	150	14.69	31.75
	1.5X2	1914	900	300	18.63	28.75
		1916	1500	300	18.63	28.75
F	1.5X2	1905	150	150	16.88	28.50
		1906, 1910	300	150	18.31	28.50
		1912	600	150	18.31	29.75
	1.5X3	1914	900	300	19.38	35.44
		1916	1500	300	19.38	35.44
G	1.5X3	1905	150	150	16.88	34.88
		1906, 1910	300	150	18.31	34.88
		1912	600	150	18.31	36.13
		1914	900	300	19.38	35.44
	2X3	1916	1500	300	23.25	21.56
H	1.5X3	1905	150	150	17.13	35.00
		1906	300	150	18.56	35.00
	2X3	1910	300	150	19.25	31.00
		1912	600	150	20.94	32.50
		1914	900	150	23.19	21.19
		1916	1500	300	23.19	21.19
J	2X3	1905	150	150	19.00	31.00
		1906	300	150	19.50	31.00
	3X4	1910	300	150	22.06	39.19
		1912	600	150	23.31	39.19
		1914	900	150	24.06	34.56
K	3X4	1905	150	150	20.63	38.44
		1906, 1910	300	150	20.94	38.44
		1912	600	150	23.31	39.19
	3X6	1914	900	150	24.63	46.81
L	3X4	1905	150	150	20.63	38.56
		1906	300	150	20.94	38.56
	4X6	1910	300	150	23.44	42.44
		1912	600	150	25.06	43.31
M	4X6	1905	150	150	22.94	42.56
		1906, 1910	300	150	23.38	42.56
		1912	600	150	25.00	43.31
N	4X6	1905	150	150	23.69	43.56
		1906, 1910	300	150	24.13	43.56
		1912	600	150	25.75	44.06

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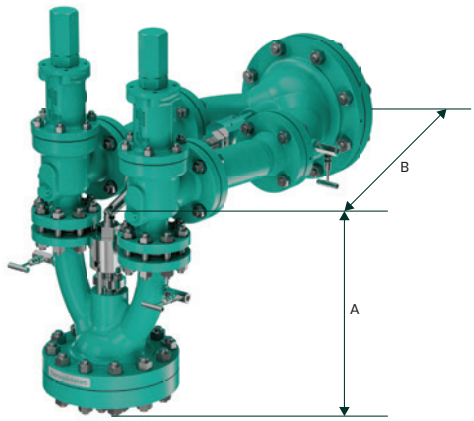
Orifice	Size (in.)	Valve	Inlet flange rating	Outlet flange rating	Tandem assembly envelope dimensions (inches)	
					A	B
P	4X6	1905	150	150	23.06	44.31
		1906	300	150	23.50	44.31
		1910	300	150	25.25	45.31
		1912	600	150	26.88	45.31
Q	6X8	1905	150	150	28.63	52.75
		1906, 1910	300	150	28.81	52.75
		1912	600	150	30.69	52.75
R	6X8	1905	150	150	28.63	52.75
	6X10	1906, 1910	300	150	28.81	52.75
		1912	600	150	30.69	52.75
T	8X10	1905	150	150	36.00	66.19
		1906, 1910	300	150	36.00	66.19
U	8X10	1905	150	150	36.00	66.19
		1906, 1910	300	150	36.00	66.19



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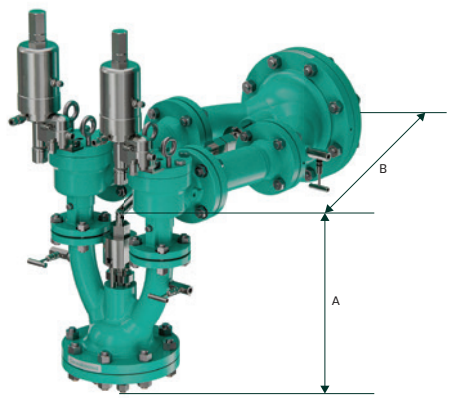
Orifice	Size (in.)	Valve	Inlet flange rating	Outlet flange rating	Tandem assembly	
					A	B
D/E/F	1X2	3905	150	150	13.94	31.75
		3910	300	150	14.94	31.75
		3912	600	150	14.94	31.75
		3914	900	300	18.19	19.00
		3916	1500	300	18.19	19.00
	1.5X2	3905	150	150	16.88	26.88
		3910	300	150	18.31	26.88
		3912	600	150	18.31	26.88
		3914	900	300	20.38	28.06
		3916	1500	300	20.38	28.06
G/H	1.5X3	3905	150	150	17.13	34.13
		3910	300	150	18.56	34.13
		3912	600	150	18.56	34.13
		3914	900	300	20.88	35.00
		3916	1500	300	20.88	35.00
G/H/J	2X3	3905	150	150	19.000	31.000
		3910	300	150	19.500	31.000
		3912	600	150	20.250	31.000
		3914	900	300	23.688	21.688
		3916	1500	300	23.688	21.688
J/K/L	3X4	3905	150	150	20.63	38.44
		3910	300	150	20.94	38.44
		3912	600	150	22.44	38.44
		3914	900	300	24.31	35.63
L/M/N/P	4X6	3905	150	150	23.688	43.563
		3910	300	150	24.125	43.563
		3912	600	150	25.750	43.563
Q/R	6X8	3905	150	150	28.63	52.75
		3910	300	150	28.81	52.75
		3912	600	150	30.94	52.75
T	8X10	3905	150	150	36.00	66.19
		3910	300	150	36.00	66.19



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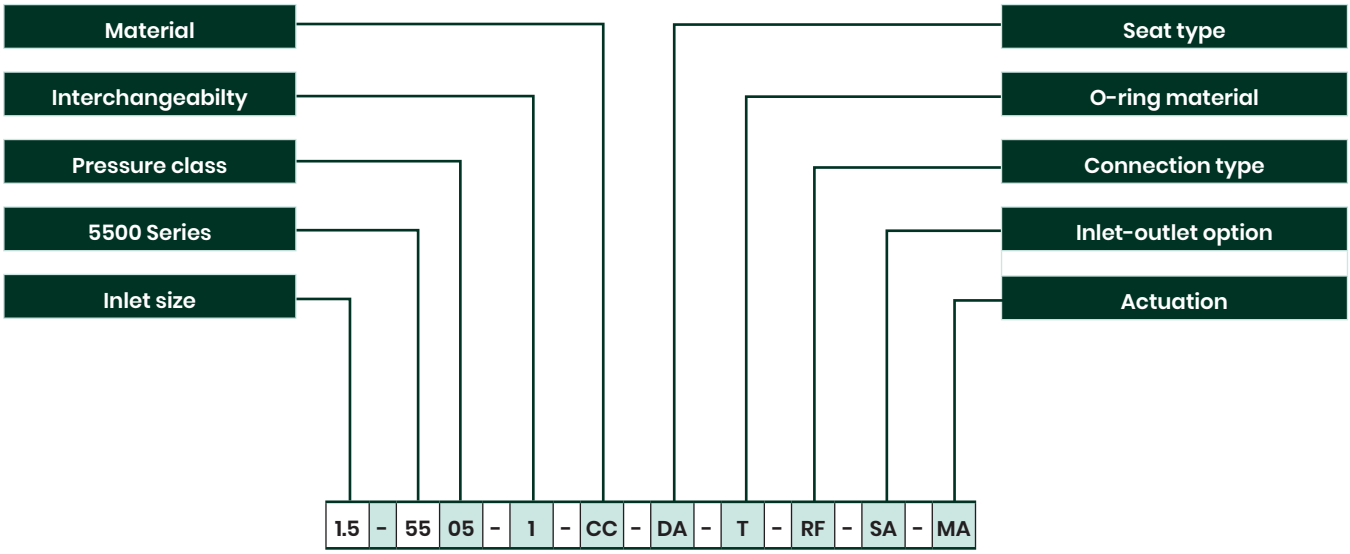
Model coding diagram



5500 series valve configuration codes

Material	
Carbon Steel	CC
Stainless Steel	S4
Ambient temp to -51°F	C1
Low Temperature (-21 to -100)	L1
Low Temperature (-101 to -450)	L3
Duplex	D4
Monel	M4
Alloy 20	A4
Hastelloy	H4
CC+NACE	N1
S4+NACE	N2
D4+NACE	N3
H4+NACE	N4
M4+NACE	N5
C1+NACE	N6

Pressure class	
150#	05
300#	10
600#	12
900#	14
1500#	16
2500#	18

Inlet size	
0.75 in.	3/4
1 in.	1
1.5 in.	1.5
2 in.	2
3 in.	3
4 in.	4
6 in.	6
8 in.	8
10 in.	10

Actuation	
Manual	MA
Automated	*

Seat type	
Soft Seat	DA

O-ring material	
PTFE	T
PEEK	P

Connection type	
Raised Face	RF
Ring Type Joint	RJ

Inlet/Outlet COV option	
Single	SA
Tandem	TA

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Notes:

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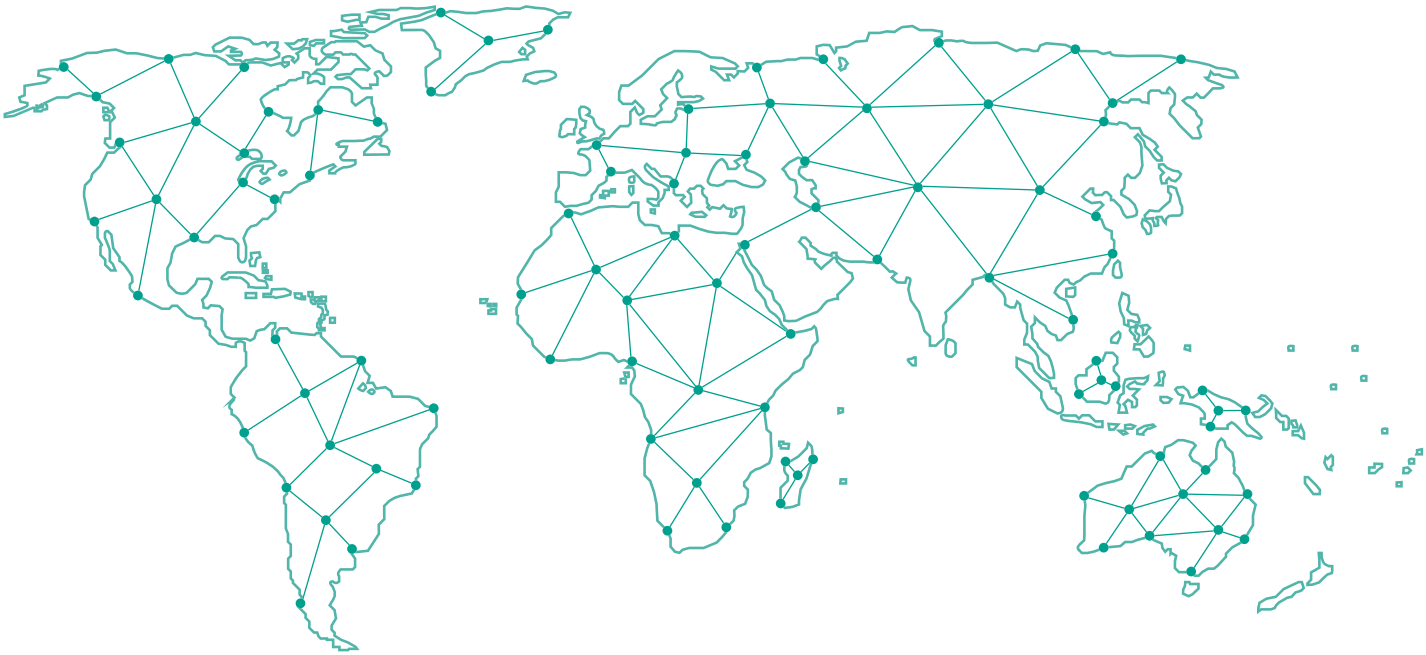

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