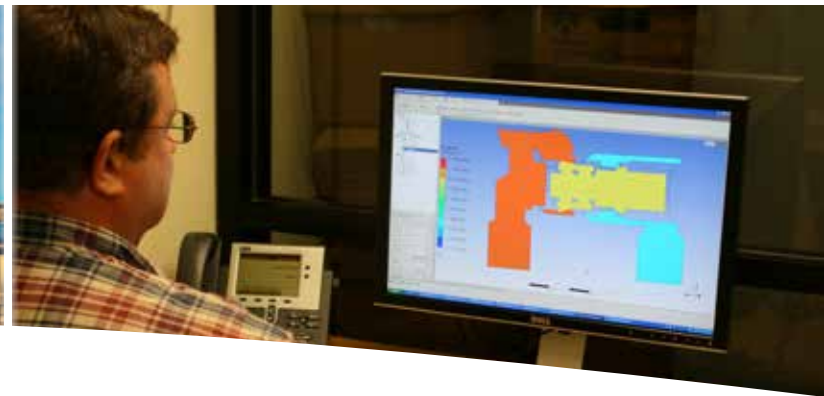




Edward Valves
Equiwedge Forged Gate Valve



Experience In Motion



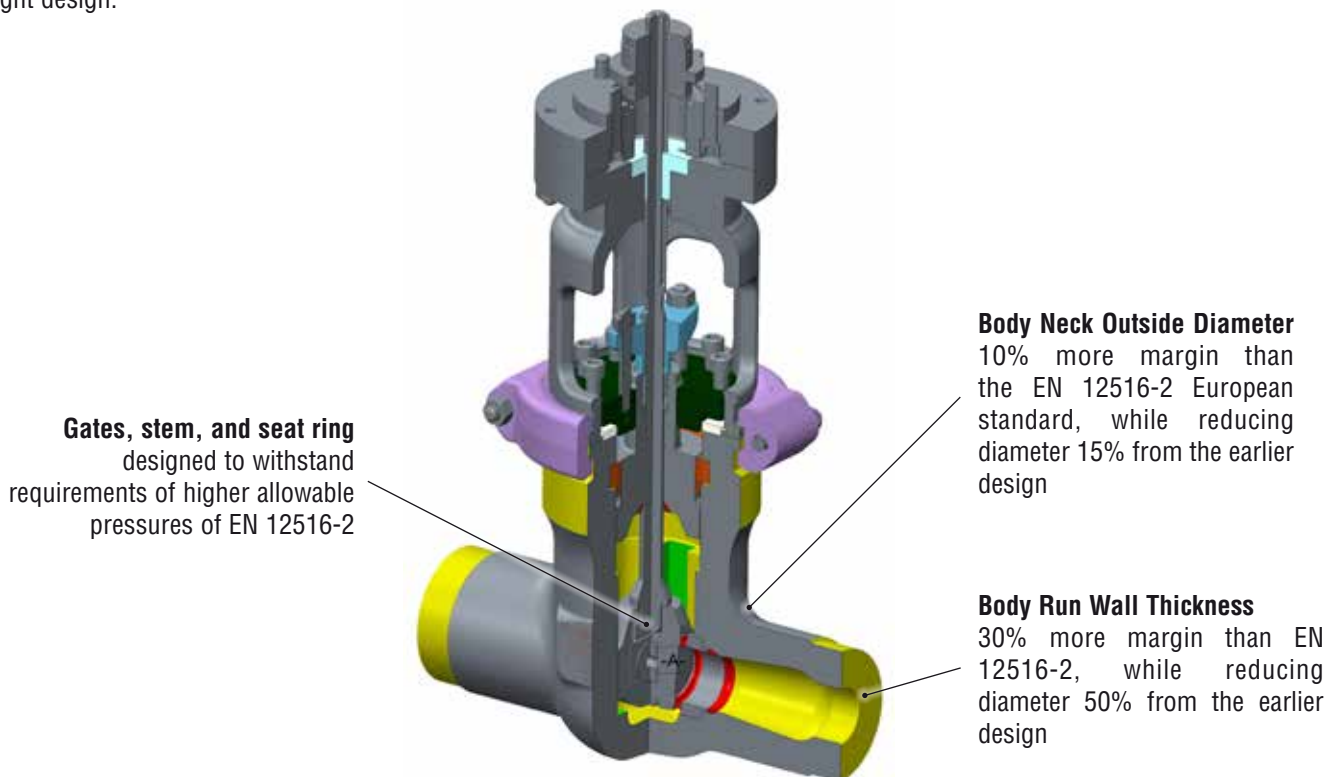
New Hybrid Design resets Standards

The new forged Equiwedge gate valve from Flowserve Edward valves is the ideal engineering solution for handling difficult operating conditions with increased temperatures and pressures that are found in modern supercritical and ultra-supercritical coal and Combined Cycle Power plants, as well as other critical service applications.

The Equiwedge is the culmination of 100 years of Edward valve design experience. It delivers superior sealing performance by utilizing the best design elements of the parallel slide gate valve and the flexible wedge gate valve, ensuring minimized leakage across the seats. This not only increases process integrity but also improves plant efficiency by reducing loss of steam that can affect productivity and profit. The design provides greater flexibility of the valve internals, reduces thermal binding and wear / stress on valve components for lower maintenance costs and improved equipment life span

In addition, the new Equiwedge combines the inherent strength of forged material with a single-piece body design that eliminates fabrication welds. This reduces the risk of body failure due to poor welding practices and improves equipment reliability for preventing accidents and protecting the safety and health of employees, customers, the public and the environment. Crucially, it marries the design criteria and allowable stress levels of EN 12516-2 with the ASME B16.34 design standard to selectively increase valve wall thicknesses in critical areas. This results in a valve that provides strength where it is needed most, while optimizing weight. Weight reduction is important as it reduces the level – and therefore cost – of pipe supports.

The result is a uniquely effective solution for the user who requires maximum performance, reliability and safety with a highly optimized weight design.

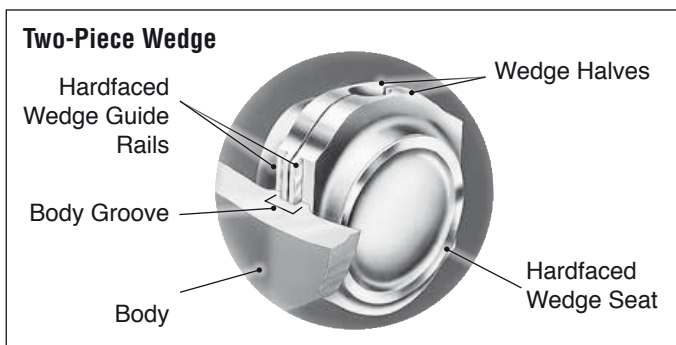




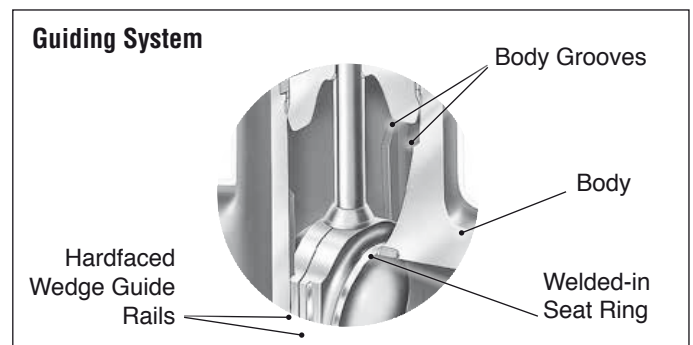
Unique Two-Piece Flexible Wedge

Wedging action provides tight seat sealing, even at low differential pressures. Wedge guiding by grooves in body minimizes seat wear and damage, since seating surfaces of wedge and body are in contact over less than 5% of total travel. Two separate flexible wedge halves are free to align with seats even when they are tilted or rotated due to thermal effects or piping loads. Resistance to thermal binding assures opening with a torque or load less than design closing load.

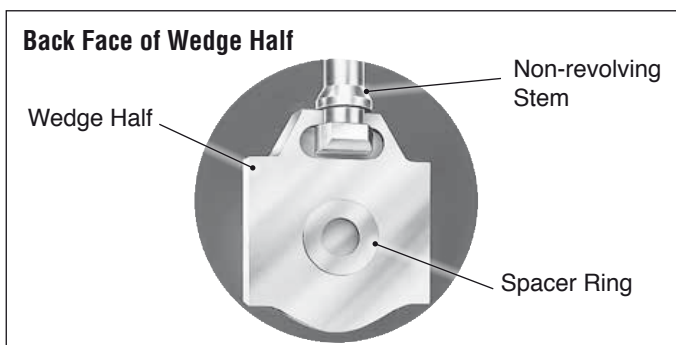
Wedge guide area and strength provide capability to support high differential pressures with valve partially open, so Equiwedge gate valves can be opened or closed under “blowdown” conditions. Bypasses are not required if full differential is specified for actuator sizing.



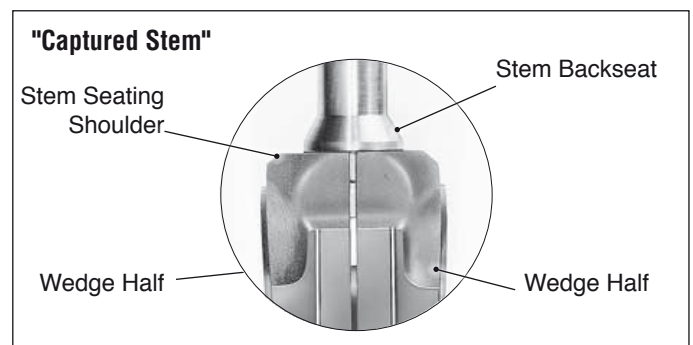
The outstanding design feature of the Equiwedge gate valve is unique two-piece wedge that permits maximum independence and flexibility for good sealability and freedom from sticking.



The body groove extends high in the body neck region, so that in the open position the wedge assembly is both trapped and fully guided. Body grooves are hardfaced for critical service valves.

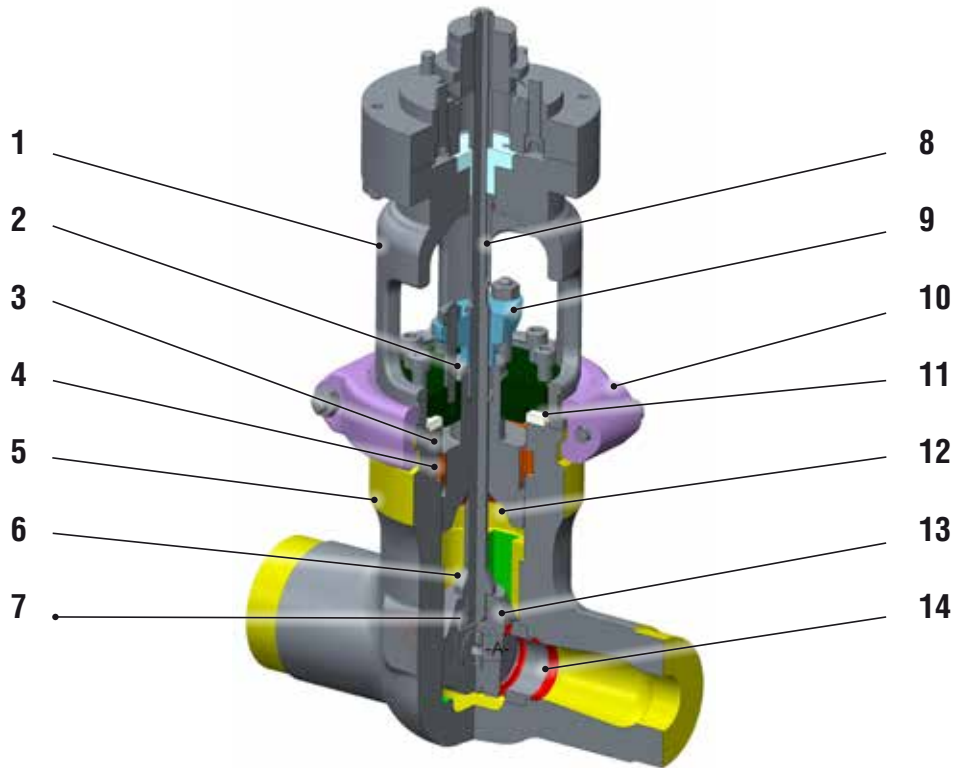


Wedge halves are separated the proper amount by a spacer ring that provides controlled deflection from stem loading. Use of a space and weight-saving “captured stem” (shown here and in Figure 4) is possible because of the two-piece wedge design.



The Equiwedge two-piece wedge design allows the use of a space and weight-saving “captured stem.”

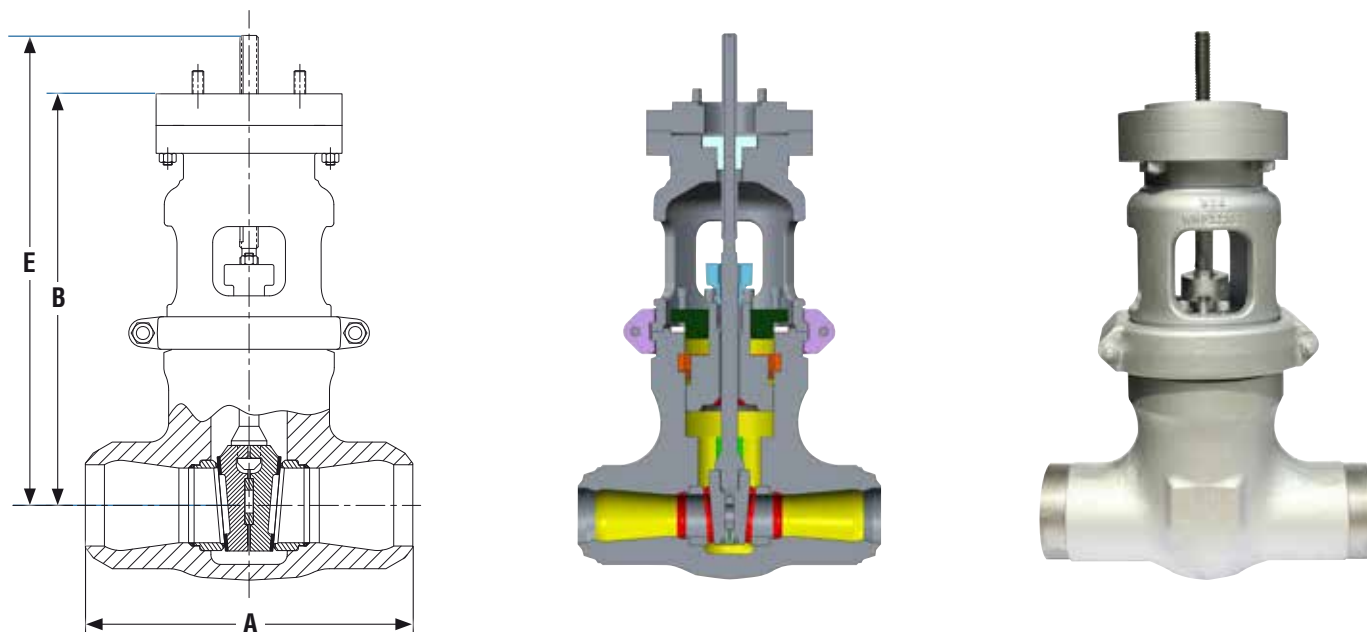
Forged Equiwedge Gate Valve - Features



- | | |
|---|--|
| <p>1 Yoke – the yoke is designed for ready access to the packing chamber.</p> <p>2 Packing and junk ring – utilizes flexible graphite packing material with anti-extrusion rings for optimum sealability and life.</p> <p>3 Extended bonnet design – further separates the packing chamber from fluid flow area for longer packing life.</p> <p>4 Composite pressure seal gasket – preloaded, pressure energized design, for long reliable service.</p> <p>5 Body – rugged single-piece forged steel body provides maximum flow efficiency. Information on alternate materials can be obtained through your Flowserve representative.</p> <p>6 Conical stem backseat – Cone-on-cone design provides a reliable sealing geometry that operates over many valve cycles without leakage</p> <p>7 Body guiding system – holds the wedge halves together and absorbs thrust loads due to line flow. Integral hardfaced guide system components reduce friction and prevent galling for longer valve life.</p> | <p>8 Stem – has ACME threads, is machined to a fine finish and is heat treated for improved strength and hardness to resist wear.</p> <p>9 Packing gland – made of alloy steel and retained against the stuffing box pressure by an easy-to-maintain stud and heavy-hex nut assembly.</p> <p>10 Yoke lock ring – permits easier field maintenance of upper structure without disturbing pressure containing parts.</p> <p>11 Bonnet retaining ring – assures an effective, tight seal by pulling the bonnet and gasket together at the pressure seal.</p> <p>12 Bonnet backseat – especially hard faced to assure long-term sealability.</p> <p>13 Two-piece wedge assembly – allows each wedge half to flex and adjust independently to compensate for body distortions caused by thermal changes or pipe bending stresses.</p> <p>14 Welded-in seat ring with hardfaced seat – assures better wear and longer valve life. Seat ring is welded into the valve body to prevent leakage.</p> |
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Technical Data

Dimensions



Normal numerals are in inches / pounds

Numerals shown in () are in millimeters and kilograms

Pressure Class 1500 (B16.34), Series 2200 (EN 12516-2)

Fig No. 21511Y/32211Y	NPS (DN)	4 (100)	6 (150)	8 (200)	10 (250)	12 (300)	14 (350)	16 (400)	18 (450)	20 (500)	22 (550)
A - End to End (Welding)		*	*	*	*	*	*	47 (1,194)	*	*	*
B - Center to Actuator Mounting		*	*	*	*	*	*	55.9 (1,419)	*	*	*
E - Center to Top of Stem (Open)		*	*	*	*	*	*	77.1 (1,959)	*	*	*
Weight less Actuator		*	*	*	*	*	*	7,685 (3,500)	*	*	*

Pressure Class 2500 (B16.34), Series 3600 (EN 12516-2)

Fig No. 22511Y/33611Y	NPS (DN)	4 (100)	6 (150)	8 (200)	10 (250)	12 (300)	14 (350)	16 (400)	18 (450)	20 (500)	22 (550)
A - End to End (Welding)		18 (457)	24 (610)	30 (762)	36 (914)	41 (1,041)	44 (1,118)	49 (1,245)	49 (1,250)	62 (1,575)	64 (1,626)
B - Center to Actuator Mounting		24.8 (629)	33.2 (843)	38.4 (974)	46.1 (1,170)	50.5 (1,283)	55.0 (1,396)	63.3 (1,608)	68.7 (1,746)	0 (0)	80.5 (2,045)
E - Center to Top of Stem (Open)		32.1 (815)	43.8 (1,113)	51.2 (1,300)	62.9 (1,598)	71.5 (1,815)	73.7 (1,872)	84.0 (2,134)	92.1 (2,340)	0 (0)	108.9 (2,765)
Weight less Actuator		450 (225)	1,245 (575)	2,225 (1,025)	3,880 (1,775)	5,620 (2,550)	7,398 (3,375)	11,560 (5,244)	15,285 (6,950)	0 (0)	27,615 (12,550)

* Consult Flowserve representative for figure numbers and applicable dimensions

Weights and dimensions for the Venturi pattern Equiwedge are as above,



Class 2500
6170 PSI at 100°F (425.5 BAR @ 38°C)

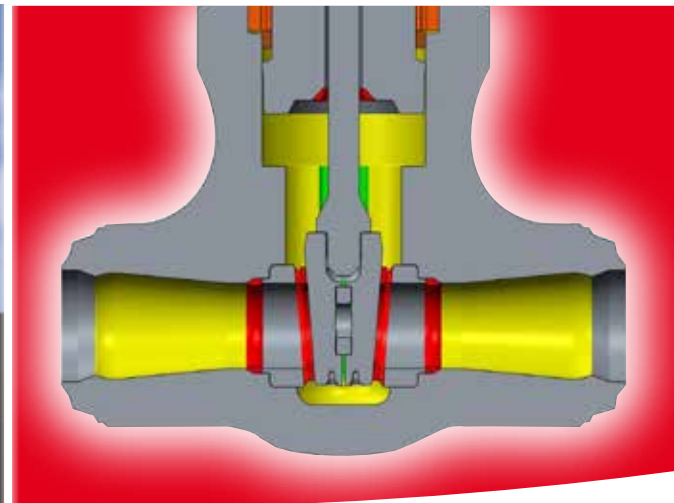
Pressure Class 2500 (PN 420)

Fig. No.		Type	Ends	NPS (DN)
STD CL	SPL CL			
22511Y	24411Y	Equiwedge Gate	Buttwelding	4 (100) thru 22 (550)
22511BY	24411BY	Venturi Pattern Equiwedge Gate	Buttwelding	5 (125) thru 26 (650)

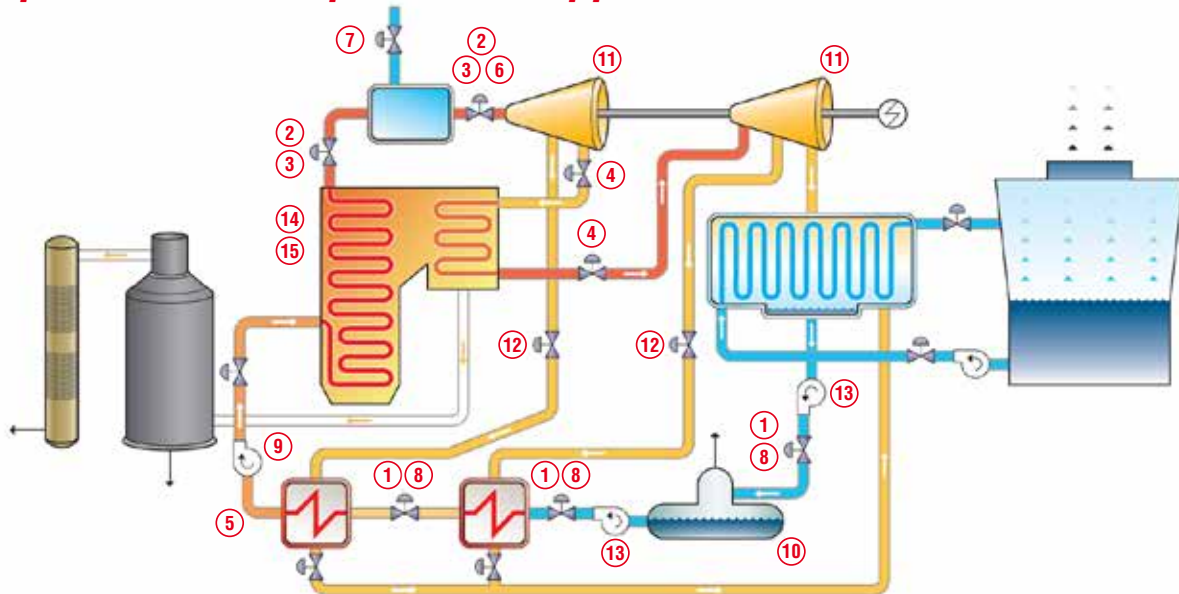
Flow Coefficients

Regular Port Gate Valves							
SIZE		Cv	FL	XT	KI	d	
NPS	DN						
Class 2500 (PN420) Fig. No. 22511Y, 24411Y Stop Valves							
4	100	340	0.59	0.19	0.04	2.87	72.9
6	150	910	0.61	0.19	0.05	4.37	111
8	200	1850	0.51	0.14	0.04	5.75	146
10	250	2950	0.48	0.12	0.03	7.25	184
12	300	4350	0.46	0.11	0.03	8.82	219
14	350	5150	0.47	0.12	0.03	9.5	241
16	400	7050	0.46	0.11	0.03	10.87	276
18	450	8950	0.46	0.11	0.03	12.25	311
20	500	11500	0.45	0.11	0.03	13.5	343
22	550	14000	0.45	0.11	0.03	14.87	378

Venturi Port Gate Valves							
SIZE		Cv	FL	XT	KI	d	
NPS	DN						
Class 2500 (PN420) Fig. No. 22511BY, 24411BY Stop Valves							
8x6x8	200x150x200	1000	0.44	0.12	0.04	5.75	146
10x8x10	250x200x250	1650	0.46	0.14	0.04	7.25	184
12x10x12	300x250x300	2750	0.43	0.11	0.03	8.62	219
14x12x14	350x300x350	3900	0.46	0.13	0.03	9.5	241
16x14x16	400x350x400	4850	0.44	0.12	0.03	10.87	276
18x16x18	450x400x450	6450	0.43	0.11	0.03	12.25	311
20x18x20	500x450x500	8200	0.44	0.12	0.03	13.5	343
22x20x22	550x500x550	11500	0.39	0.1	0.03	14.87	378
24x20x24	600x500x600	10500	0.39	0.1	0.03	16.25	413
26x22x26	650x550x650	13000	0.39	0.09	0.02	17.62	448



Ultra-Supercritical & Supercritical Applications



Pos.	Application	Recommended Products
1	Feedwater Stop and Check Valves	Edward Equiwedge, Edward Flite-Flow
2	Main Steam Stop Valve	Edward Equiwedge
3	Main Steam Check Valve	Edward Flite-Flow
4	Reheat Stop Valve	Edward Equiwedge
5	Economizer Stop Valve	Edward Equiwedge
6	Startup/Steam Bypass Valve	Edward Equiwedge, Gestra ZK
7	Boiler, Turbine, Steam Line Drain Valve	Edward Univalve
8	Control Valves	Valtek Series
9	Feed Pump Recirculation Valve	Gestra ZK Series
10	Pressurized Deaerator	Gestra
11	Turbine Emergency Drain System	Gestra NRG & ZK Series
12	Steam Traps	Gestra BK, Vogt
13	Low Pressure Feed Pump Recirculation Valve	Gestra BA Series
14	Emergency Shutdown Valves	McCANNA
15	Boiler Control Systems & Ancillaries	Gestra Series



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