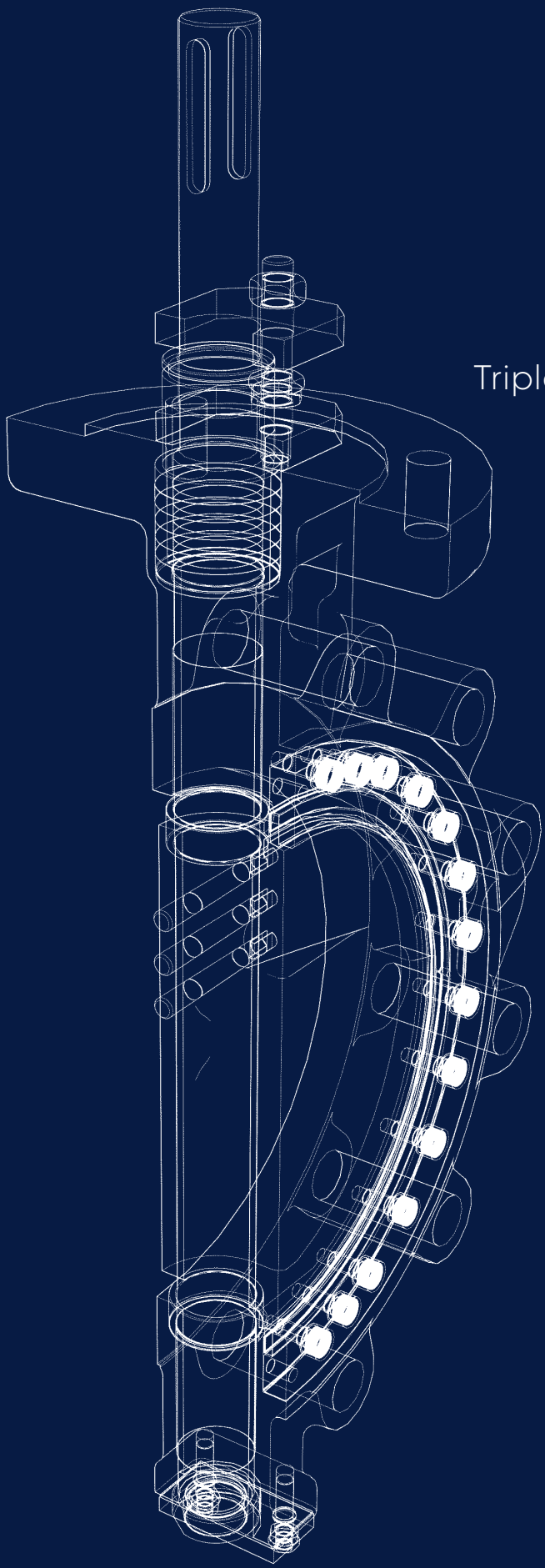
SEVERN
Superior Valve Engineering



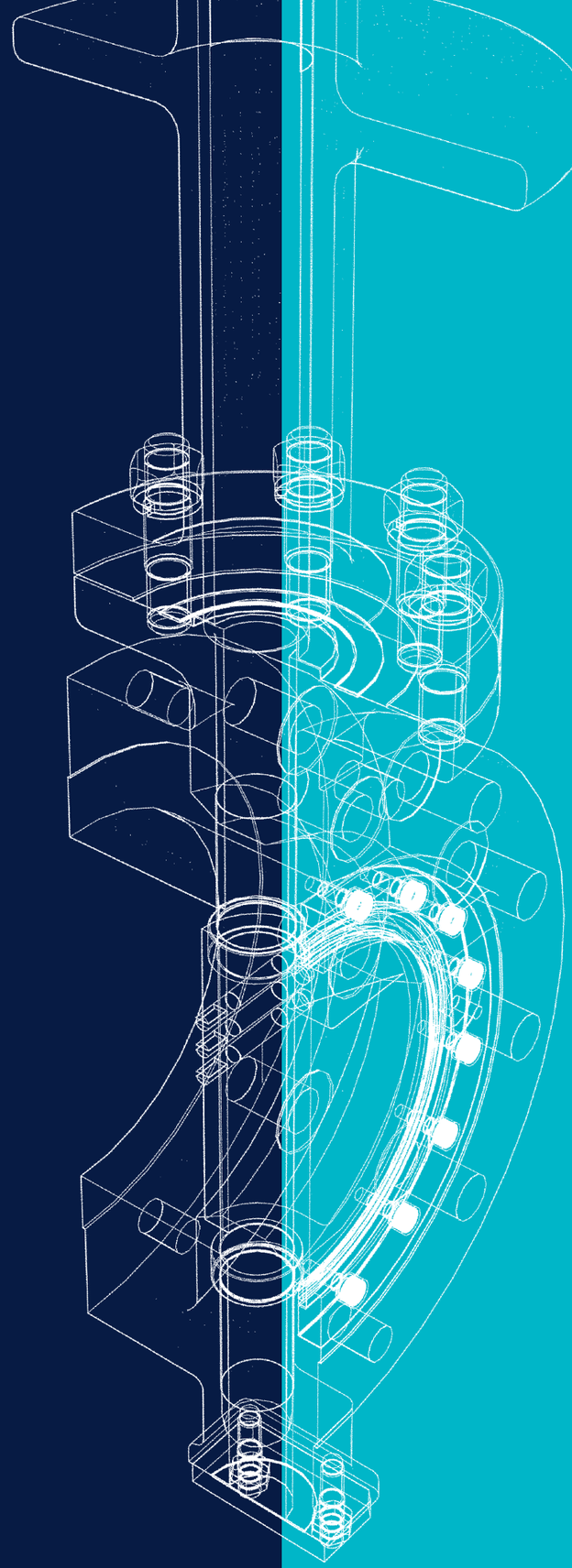
8500 OCT Series

Triple Offset Butterfly Control Valves

60 YEARS
Engineering Excellence

It all flows from expertise.

Contents



8500
OCT SERIES

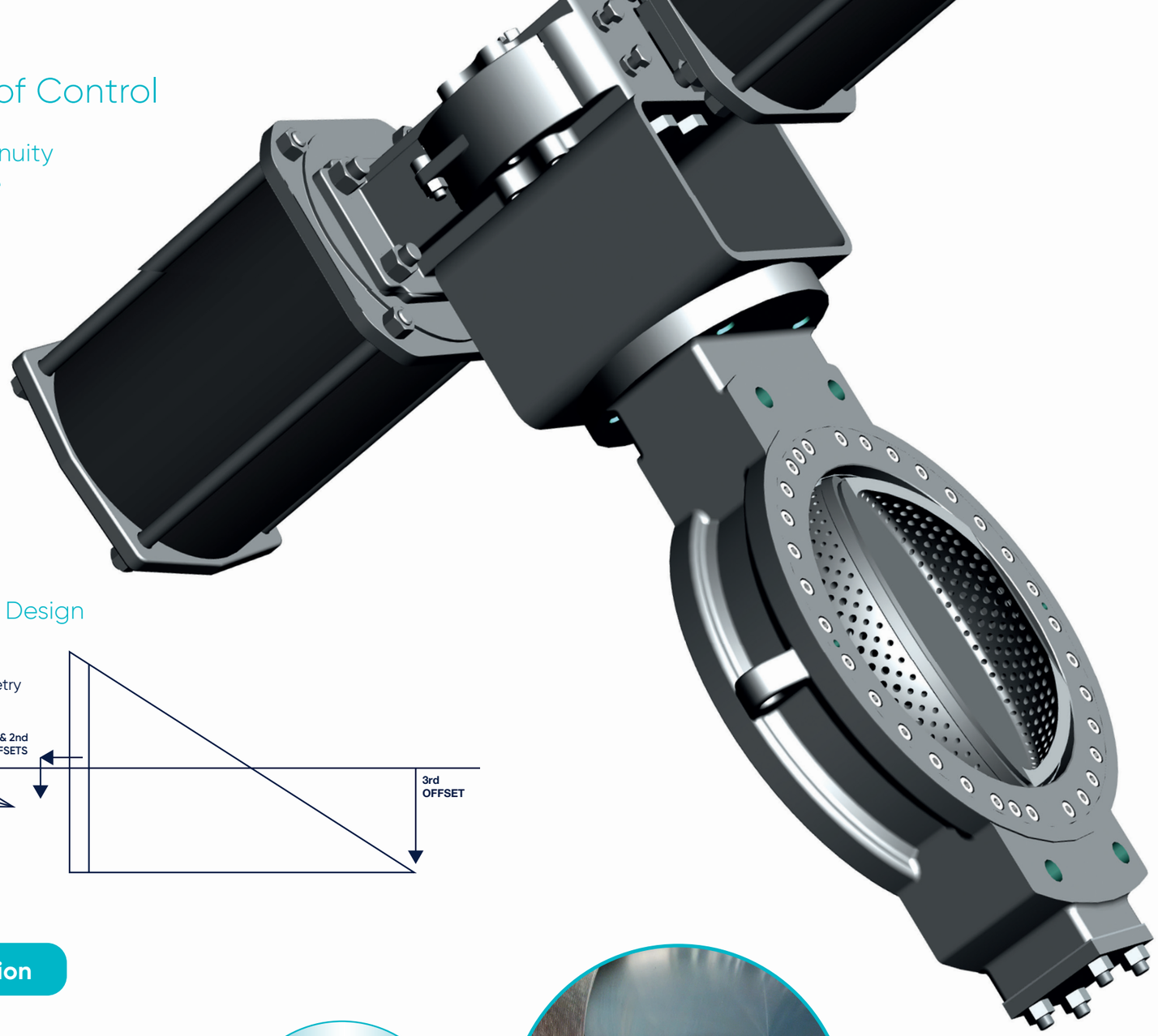
The Severn OCT® may be the first triple offset butterfly valve designed from the outset to provide the ultimate in cutting edge butterfly control valve technology.

Incorporating over 60 years of Engineering Excellence and experience in butterfly control engineering and application, Severn can offer an industry leading and patented engineering technology solution for your butterfly valve requirements.

Incorporating Severn's 'Repair Intelligence' capabilities which involves providing real market feedback from extensive in-depth analysis from failed valves, Severn have designed each facet of this valve to provide the most accurate, reliable, and robust service capability possible to help you achieve your core remit of safe operations and minimum downtime.

OCT® – The Art of Control

The simplicity and ingenuity of OCT® represents the next generation of our pursuit of providing the ultimate in butterfly control valve technology.

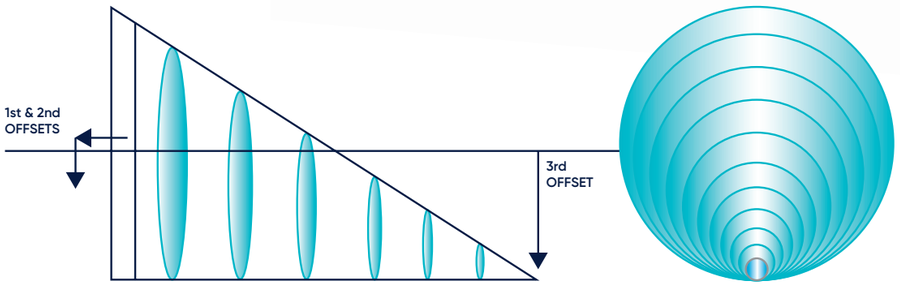


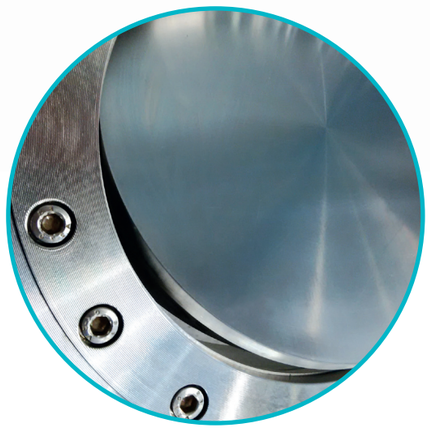
Severn OCT® Technology

Traditional Triple Offset Design

With traditional triple offset valve geometry, an elliptical disc seal is effectively cut from a rotated cone

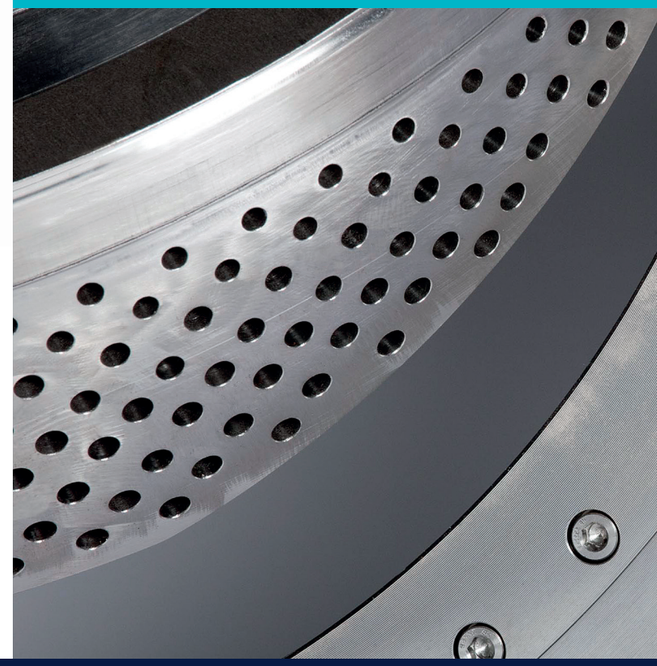
OCT® – Breaking Tradition





Process Benefits

- Internal bolting removed or minimised to avoid risk of vibration loosening
- Disc shaped and optimised for smooth fluid flow control
- Direct anti-cavitation trim capability for increased pressure recovery, lower noise and reduced dynamic torques
- Circle geometry maximises Cv without compromising sealing capability
- Floating disc ensures excellent operational temperature capability
- Low emission gland to ISO15848 Part 2, class B
- Hard facing options for maximum wear resistance on abrasive service



Engineering data

OCT®–Design Features

- Patented "OCT®" sealing technology designed from the outset to provide the ultimate in cutting edge butterfly control valve technology
- Interchange seals as standard
- Torque seated design ensures consistent sealing performance
- The quarter turn design ensures ease of actuation for both control and on/off duties
- Low emission certified gland arrangement to ISO 15848 and Shell 77/312 available
- Standard face to face dimensions to API 609/ISO 5752 and B16.10 with non-standard dimensions available on request
- Valve size range – 80mm (3") – 600mm (24") with larger sizes up to 72" on request
- Body pressure ratings up to 2500lb
- Temperature ratings from -196°C to + 600°C
- Can be manufactured in all commercially available metals in Cast, Forged or Plate form

Performance Benefits

- Torque energised seal for low and high pressures
- Self-compensating design for wear and temperature
- No internal bolting to come loose due to vibration
- Disc supplied hard faced as standard for improved abrasion resistance
- Available with a range of low noise and anti-cavitation trims
- Fully in-field serviceable
- Reliable performance. Bubble tight shutoff available

OCT – Laminated Seal – The traditional triple offset seal, utilising the industry proven graphite metallic laminate with the benefits of Severn's OCT infinite circle geometry

- A body mounted seal reduces wear and graphite "washout" that can affect other valves with a disc mounted seal

OCT – Solid Seal – Used when the line media is particularly arduous

- Eliminating the use of graphite / Polymer in the flow path whilst achieving leakage up to class IV

OCT – HS – The OCT® HS, is a triple offset butterfly valve that is designed to meet the precise demands of the Oil & Gas industry. The valve is particularly suitable for gas service by offering the advantages of a hybrid polymeric seal, allied with triple offset geometry and a fully anti-static design.

- Our hybrid Polymeric seal provides consistent leak tight sealing, particularly suited for gas service
- The HS seal is fully interchangeable with the laminated and solid seals
- The polymer seal is fully compliant with EN ISO 80079-36 (ATEX) requirements
- Firesafe certification available

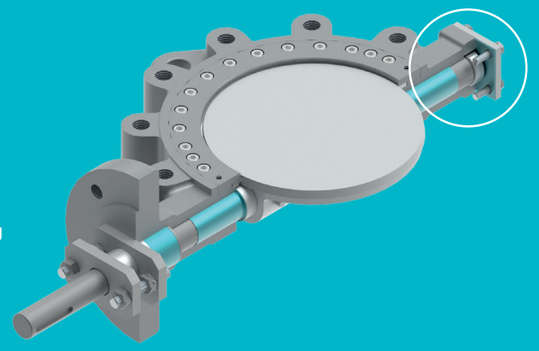
OCT – SW – The OCT® SW is a triple offset, firesafe certified valve that by design, prevents the risk of galvanic corrosion by removing all graphite from contact with the line media

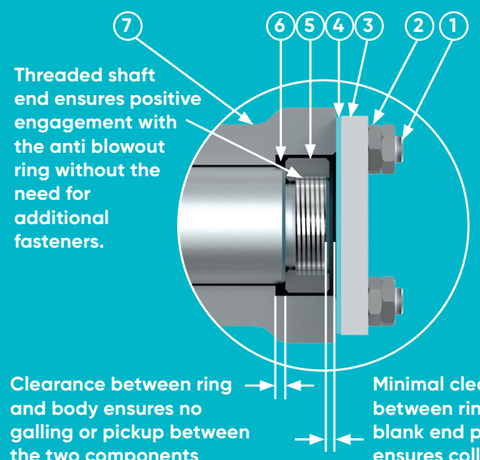
- No graphite in contact with the line media to remove the risk of galvanic effects
- Hybrid polymer metallic seal works without the need for additional graphite gaskets
- Both gland and blank end graphite seals are fully isolated from contact with line media

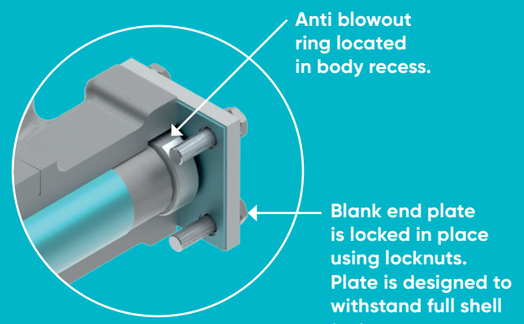
Dual Anti Blowout Design

No.	Component	Quantity
1	Blank end stud	4
2	Blank end lock nuts	8
3	Blank end plate	1
4	Blank end gasket	1
5	Anti blowout ring	1
6	Shaft	1
7	Valve body	1

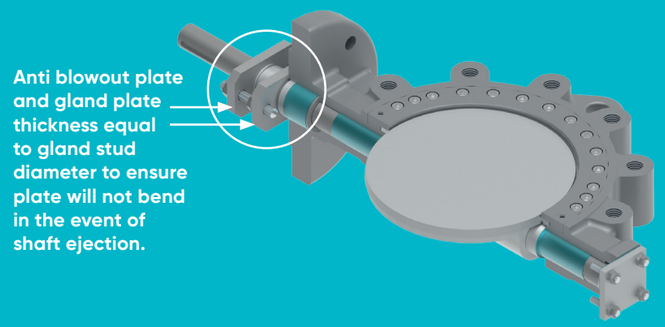
Internal anti blowout ring

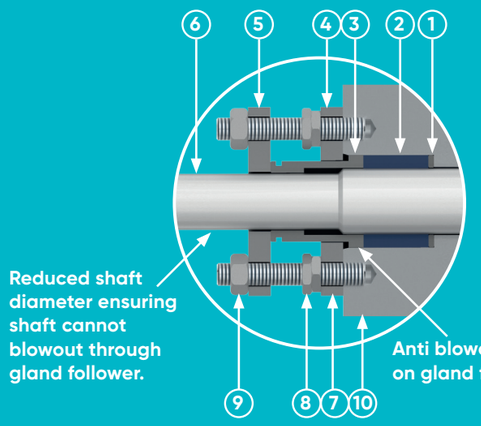


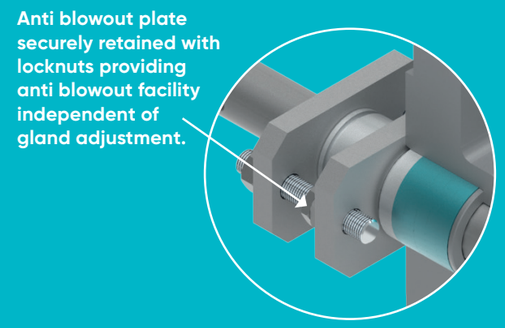




No.	Component	Quantity
1	Gland ring	1
2	Packing rings	5
3	Gland follower	1
4	Anti blowout plate	1
5	Gland plate	1
6	Shaft	1
7	Gland stud	2
8	Anti blowout lock nuts	4
9	Gland nuts	2
10	Valve body	1







Engineering data (continued)

End connection sizes/types
3in (80mm) – 24in (600mm). Larger sizes up to 72in available on request. Wafer, Lugged, Double Flanged or Butt Weld Ends. For other styles please contact us.

Valve body ratings
ASME 150 – ASME 2500
EN 1092 PN 10 to PN 400

Body configurations
Wafer, Lugged, Double Flanged and Butt Weld End.

Body face to face dimensions
API 609/ISO 5752 & B16.10 with non-standard dimensions available on request.

Bonnet styles
Standard, high temperature and cryogenic.

Standard valve packing
Teflon and Graphite.

Trim options
Anti Cavitation, Baffles, Half Baffles and Hard Faced.

Seat leakage class
Up to ANSI/FCI 70.2. Class IV to VI, API 598 Zero available on request.

Construction materials
A wide range of standard materials are available for both the valve pressure containing parts and trim, including carbon and stainless steel, duplex/super duplex, aluminum bronze, titanium and high nickel alloys. Stellite, and other hard facings/coatings are available. For further details on materials please contact us.

Paint
A wide range of paint finishes are available including enamel, alkyd gloss and various epoxy finishes.

Clean build
Severn maintains high clean build standards-utilising clean build areas including Oxygen clean and a Ultra High Purity clean room.

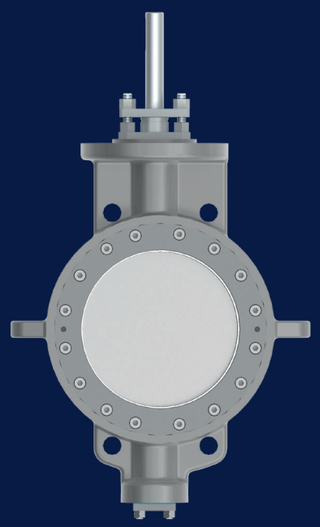
Actuation
We offer a wide range of actuators including –pneumatic scotch yoke and rack and pinion, electric, hydraulic, electro hydraulic and manually operated.

Instruments
A wide range of control instruments are available from Severn including positioners, air-filter regulators, volume boosters, solenoid valves, and lock-up valves.

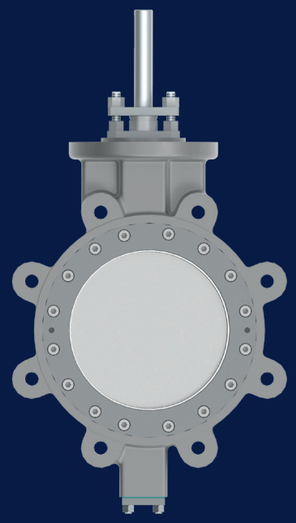
Bespoke Solutions
We can offer bespoke tailored solutions to suit specific customer needs, these include reduced diameter internals, steam jackets and 3 way valves etc.

Valve body style options

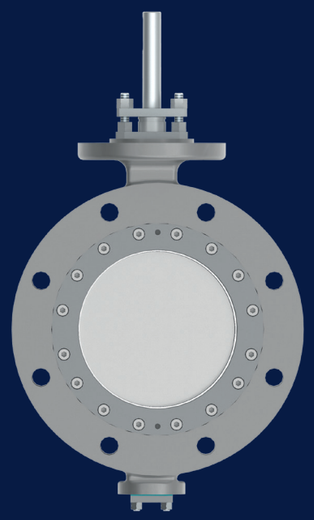
The 8500 OCT series valve is available in 3 basic body styles, Wafer, Lugged and Double Flanged (long and short pattern) special face to face and BWE options are available on request.



Wafer



Lugged



Double Flanged

Applications

The Severn OCT® may be the first triple offset butterfly valve designed from the outset to provide the ultimate in cutting edge butterfly control valve technology.

Examples Include

Offshore Platform and FPSO
- Seawater lift pump back pressure control
- Ballast water flow control
- Hydrocarbon gas flow control
- Fire main bypass control

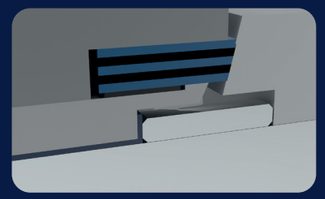
Refinery
- Flare gas control
- Flow Balancing for Fiscal Metering

Power Generation
- LP and MP Steam control
- Cooling water flow and back pressure control
- Cooling Tower de-icing

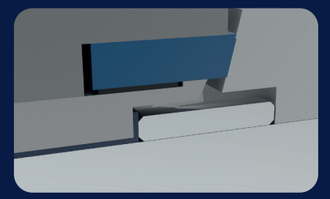
LNG Storage and Transportation
- Loading & unloading flow control
- LNG Recirculation control
- LNG Tank flow control

Urea, Ammonia and Fertilizer Production
- Synthesis gas flow control
- Urea flow control
- HP steam pressure reduction

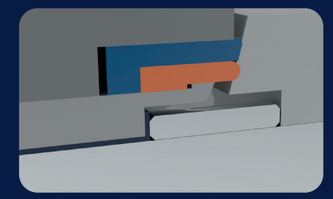
Seat options available



Laminated Seat

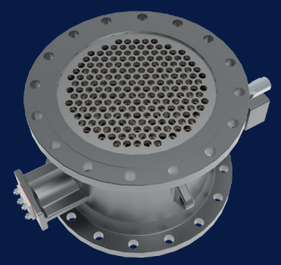


Solid Seat

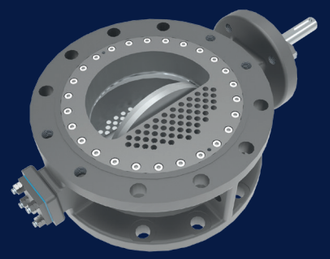


HS / SW Seat

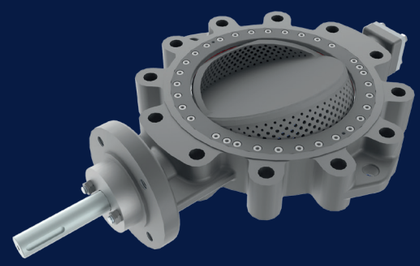
Trim options available



Full Baffle



Half Baffle



Anti-Cavitation

Flow Coefficients Cv

SIZE	TOV 150#, STANDARD TRIM	DEGREES OPEN								
		10	20	30	40	50	60	70	80	90
	80mm (3")	8	14	22	36	59	95	142	199	203
	100mm (4")	16	28	44	72	116	189	281	394	401
	150mm (6")	39	69	108	177	285	462	688	964	983
	200mm (8")	74	129	202	331	533	864	1287	1803	1839
	250mm (10")	125	219	345	564	909	1473	2194	3072	3134
	300mm (12")	172	302	474	776	1250	2026	3017	4226	4310
	350mm (14")	244	428	672	1100	1772	2871	4276	5989	6109
	400mm (16")	331	579	910	1489	2400	3889	5792	8112	8275
	450mm (18")	406	711	1117	1828	2946	4774	7110	9958	10157
	500mm (20")	514	899	1413	2313	3726	6038	8993	12596	12848
	600mm (24")	786	1375	2161	3536	5698	9234	13753	19262	19647

SIZE	TOV 150# ANTI-CAV TRIM	DEGREES OPEN								
		10	20	30	40	50	60	70	80	90
	80mm (3")	5	9	14	24	38	62	92	129	132
	100mm (4")	10	18	29	47	76	123	183	256	261
	150mm (6")	26	45	70	115	185	300	447	626	639
	200mm (8")	48	84	131	215	347	562	837	1172	1195
	250mm (10")	81	143	224	367	591	957	1426	1997	2037
	300mm (12")	112	196	308	504	812	1317	1961	2747	2802
	350mm (14")	159	278	437	715	1152	1866	2780	3893	3971
	400mm (16")	215	376	592	968	1560	2528	3765	5273	5378
	450mm (18")	264	462	726	1188	1915	3103	4622	6473	6602
	500mm (20")	334	585	919	1503	2422	3925	5846	8187	8351
	600mm (24")	511	894	1405	2299	3703	6002	8939	12520	12771

SIZE	TOV 300#, STANDARD TRIM	DEGREES OPEN								
		10	20	30	40	50	60	70	80	90
	80mm (3")	8	14	22	36	58	93	139	195	199
	100mm (4")	15	27	43	70	112	182	271	379	387
	150mm (6")	37	65	102	167	269	436	650	910	928
	200mm (8")	68	119	187	306	494	800	1191	1669	1702
	250mm (10")	114	199	313	512	825	1338	1992	2790	2846
	300mm (12")	158	276	434	710	1144	1854	2762	3868	3946
	350mm (14")	203	356	559	914	1473	2387	3556	4980	5080
	400mm (16")	294	514	808	1322	2130	3452	5141	7200	7344
	450mm (18")	346	606	952	1558	2510	4067	6057	8484	8654
	500mm (20")	431	755	1186	1941	3127	5067	7547	10570	10781
	600mm (24")	606	1061	1667	2727	4394	7122	10607	14855	15152

Dimensions

SIZE	TOV 150#				
		A	B	C1	C2
	80mm (3")	142	125	46	114
	100mm (4")	162	145	54	127
	150mm (6")	186	185	56	140
	200mm (8")	217	265	64	152
	250mm (10")	265	270	71	165
	300mm (12")	320	315	80	178
	350mm (14")	335	340	92	190
	400mm (16")	372	350	102	216
	450mm (18")	405	385	114	222
	500mm (20")	420	445	127	229
	600mm (24")	505	495	154	267

SIZE	TOV 300#				
		A	B	C1	C2
	80mm (3")	159	145	48	114
	100mm (4")	198	190	57	127
	150mm (6")	215	215	62	140
	200mm (8")	315	245	73	152
	250mm (10")	344	285	83	165
	300mm (12")	402	340	92	178
	350mm (14")	415	365	117	190
	400mm (16")	466	395	133	216
	450mm (18")	544	435	149	222
	500mm (20")	580	480	159	229
	600mm (24")	644	535	181	267

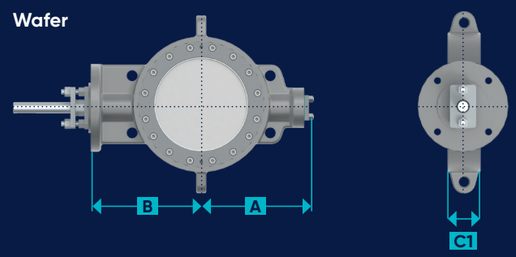
Flow Coefficients Cv

SIZE	TOV 300# ANTI-CAV TRIM	DEGREES OPEN								
		10	20	30	40	50	60	70	80	90
	80mm (3")	5	9	14	23	37	61	90	127	129
	100mm (4")	10	18	28	45	73	118	176	247	252
	150mm (6")	24	42	66	109	175	283	422	591	603
	200mm (8")	44	77	122	199	321	520	774	1085	1106
	250mm (10")	74	129	203	333	536	869	1295	1814	1850
	300mm (12")	103	180	282	462	744	1205	1795	2514	2565
	350mm (14")	132	231	363	594	958	1552	2311	3237	3302
	400mm (16")	191	334	525	859	1384	2244	3342	4680	4774
	450mm (18")	225	394	619	1012	1631	2644	3937	5514	5625
	500mm (20")	280	491	771	1261	2032	3294	4905	6870	7008
	600mm (24")	394	689	1083	1773	2856	4629	6894	9656	9849

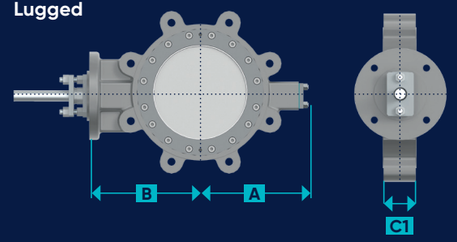
SIZE	TOV 600#, STANDARD TRIM	DEGREES OPEN								
		10	20	30	40	50	60	70	80	90
	80mm (3")	8	17	30	48	74	104	135	162	165
	100mm (4")	12	24	42	67	104	148	193	230	235
	150mm (6")	33	65	118	190	294	412	536	641	654
	200mm (8")	58	118	211	340	527	738	960	1169	1192
	250mm (10")	78	156	280	452	701	982	1278	1527	1558
	300mm (12")	113	225	405	653	1013	1418	1846	2206	2251
	350mm (14")	156	312	561	905	1404	1965	2558	3057	3119
	400mm (16")	217	435	782	1260	1955	2737	3563	4258	4345
	450mm (18")	281	563	1013	1632	2532	3545	4614	5514	5627
	500mm (20")	369	739	1330	2143	3325	4654	6058	7240	7388
	600mm (24")	507	1098	1796	2894	4491	6287	8184	9980	10180

SIZE	TOV 600# ANTI-CAV TRIM	DEGREES OPEN								
		10	20	30	40	50	60	70	80	90
	80mm (3")	5	11	19	31	48	68	88	105	107
	100mm (4")	8	16	27	44	68	96	125	150	153
	150mm (6")	21	43	77	123	191	268	349	417	425
	200mm (8")	38	77	137	221	343	480	624	760	775
	250mm (10")	51	101	182	294	456	638	830	992	1013
	300mm (12")	73	146	263	424	658	922	1200	1434	1463
	350mm (14")	101	203	365	588	912	1277	1662	1987	2027
	400mm (16")	141	282	508	819	1271	1779	2316	2768	2824
	450mm (18")	183	366	658	1061	1646	2304	2999	3584	3658
	500mm (20")	240	480	864	1393	2161	3025	3938	4706	4802
	600mm (24")	330	714	1168	1881	2919	4087	5319	6487	6617

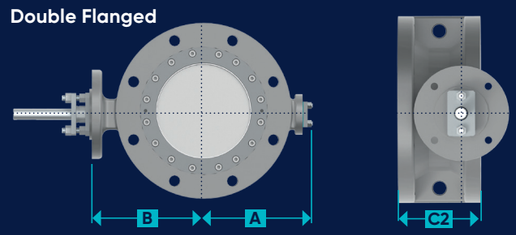
Wafer



Lugged



Double Flanged



60 YEARS
Engineering Excellence

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Our policy is one of continuous improvement and we reserve the right to modify these specification details without notice.