SIERRA
Engineering & Manufacturing

7200 | WAFER/U-SECTION BUTTERFLY

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The 7200 is a concentric rubber lined valve, suitable for installation between flanges that are drilled in accordance with EN 1092-2

The 7200 butterfly valve is an excellent valve for isolation purposes. It might also be used for throttling purposes under certain conditions.

7200 | SCOPE OF SUPPLY & DESIGN STANDARDS

RANGE OF SIZES:	DN50 - DN800
PRESSURE RATINGS	PN10 - 16
TEMPERATURE RANGE:	-20°C TO +70°C
DESIGN AND TYPE TO:	EN593
FACE-TO-FACE DIMENSIONS:	EN 558-1/2 (SERIES 20)
FLANGE/COUNTER DIMENSIONS:	EN1092-2 (DIN2501)
ACTUATOR FLANGE DIMENSIONS:	ISO5210 - 5211
HYDROSTATIC TESTING:	EN12266 and ISO5208
ACTUATION:	Manually with gearbox or Electrically actuated
TYPE TESTING TO:	EN1074 -1&2

7200 | FIELDS OF APPLICATIONS

- Municipal Water and irrigation pipeline mains and distribution networks
- Pumping Stations and Intakes
- Ground reservoirs and elevated tanks
- Water treatment plants

7200 | DESIGN FEATURES

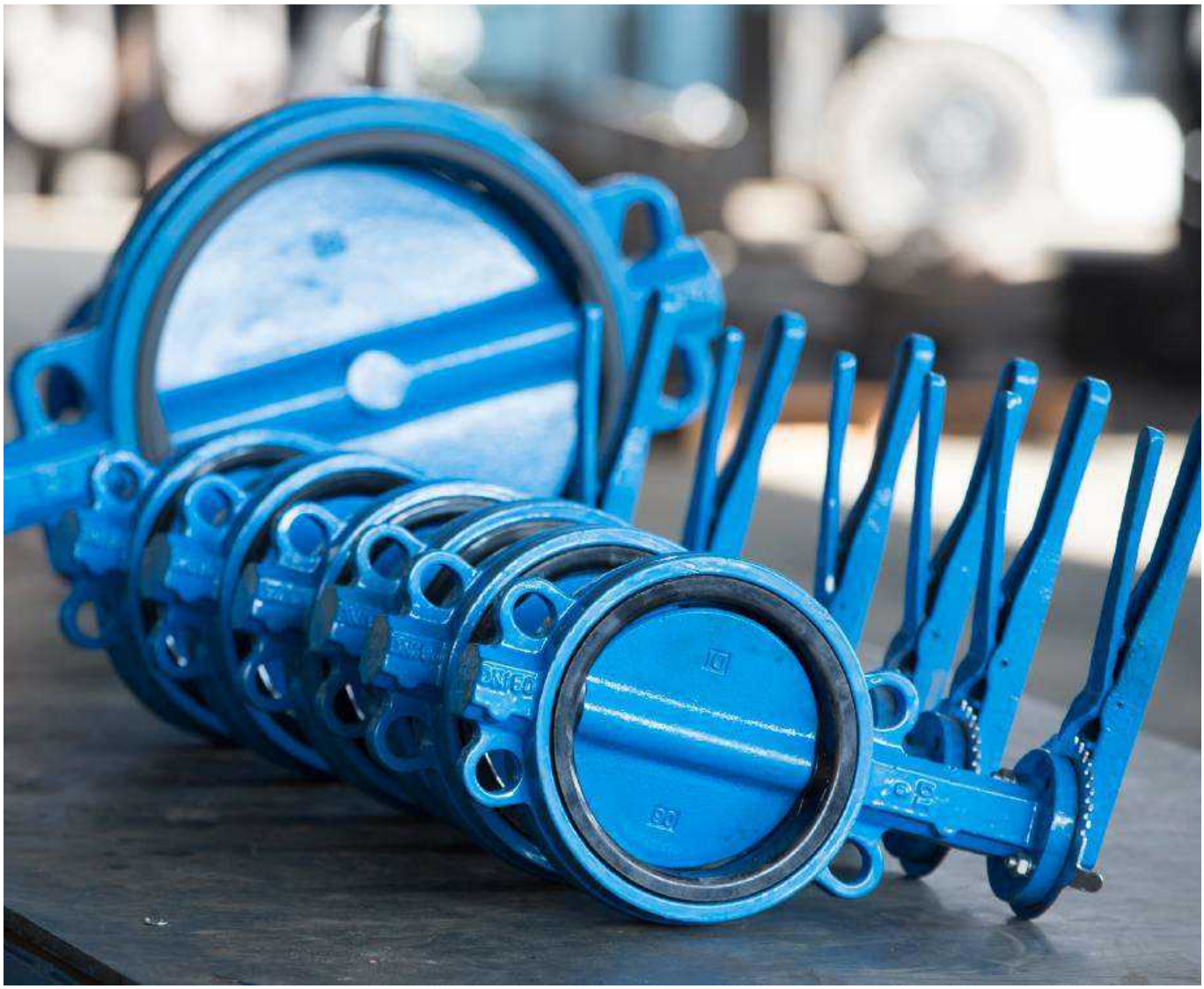
- Reduced maintenance and reduced down times
- Low weight thus easy handling while withstanding high pressures
- Less Storage / space required
- Excellent resistance to corrosion
- Low operating torques thus economic actuator selection

7200 | DISC DESIGN ADVANTAGES

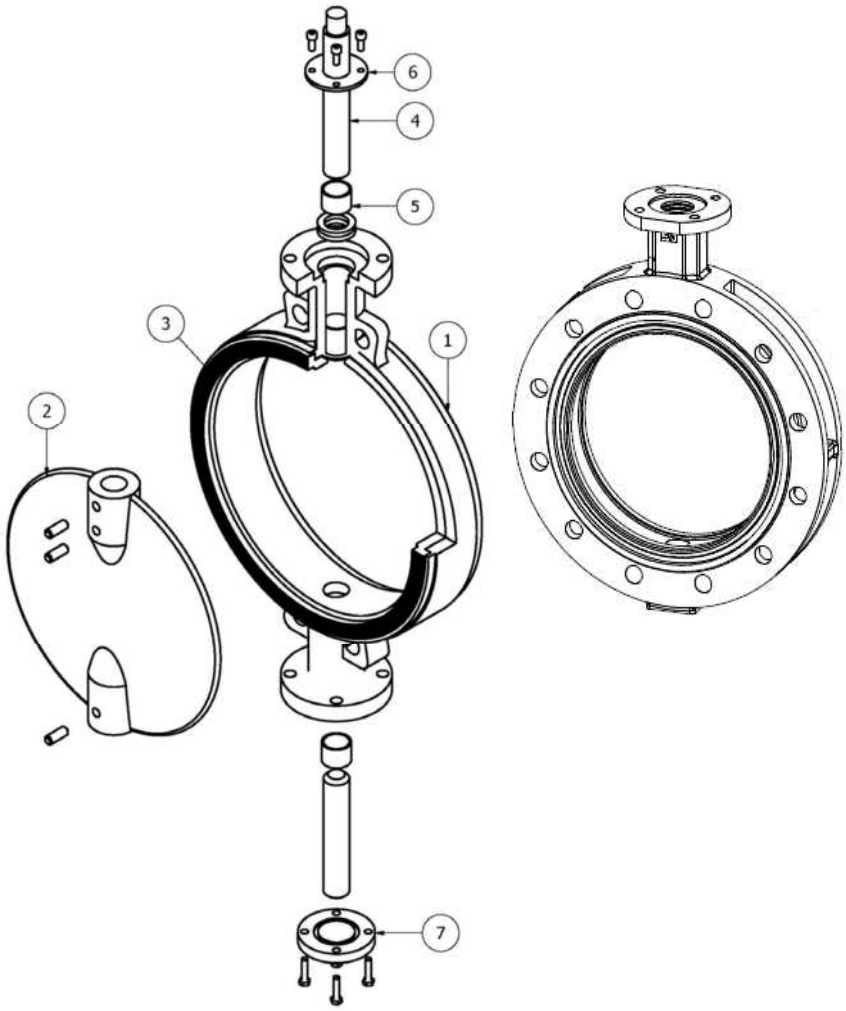
- When fully open, Symmetric and slim design of disc ensures favorable flow, low pressure loss and energy cost savings
- Accurate and smooth machining of disc to achieve low operating torque thus requiring smaller and less expensive actuators and gearboxes
- Smooth machining of disc edge also provides less deformation on the rubber sealing thus longer life of the valve

7200 | RUBBER LINING ADVANTAGES

- Rubber Lining gives corrosion protection and acts as a flange gasket
- Tight sealing offering zero leakage under specified pressures as per ISO 5208, Rate A
- Longer operational life cycle as a result of decreased / eliminated friction

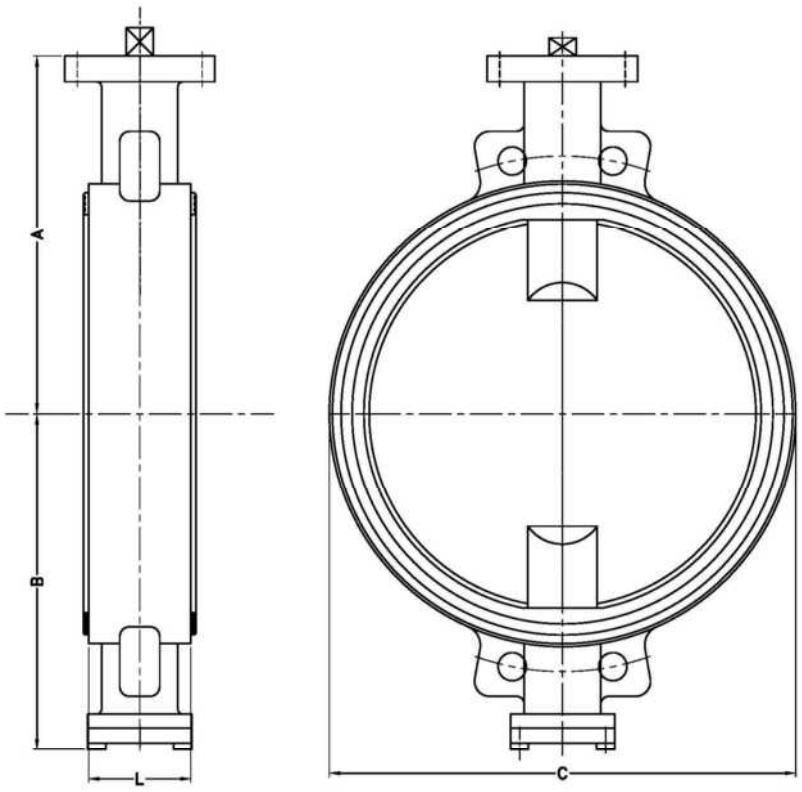


MATERIAL STANDARDS



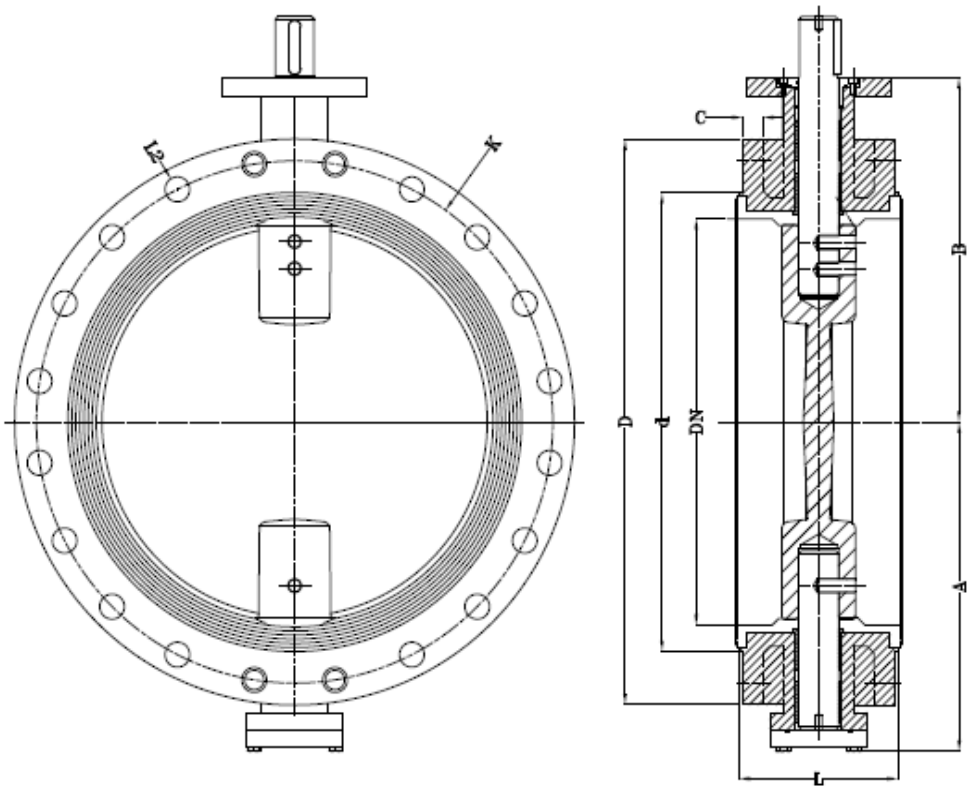
ITEM NO	ITEM DESCRIPTION	MATERIAL		STANDARDS
		STANDARD	OPTION	
1	Valve Body	Ductile Iron EN-GJS-500/7	Ductile Iron EN-GJS-400/12	EN1563
2	Valve Disc (A)	Ductile Iron EN-GJS-500/7	Ductile Iron EN-GJS-400/12	EN1563
	Valve Disc (B)	Stainless steel 316	Duplex, Aluminum bronze	
2	Seat	EPDM	NBR	
4	Shaft	X20Cr13 (AISI 420)	A4	EN10088
5	Bearing	Self-lubricating PTFE/Steel		
6	Gland	Ductile Iron EN-GJS-400/12	Ductile Iron EN-GJS-500/7	EN1563

VALVE DIMENSIONS PN10 (WAFER DESIGN)



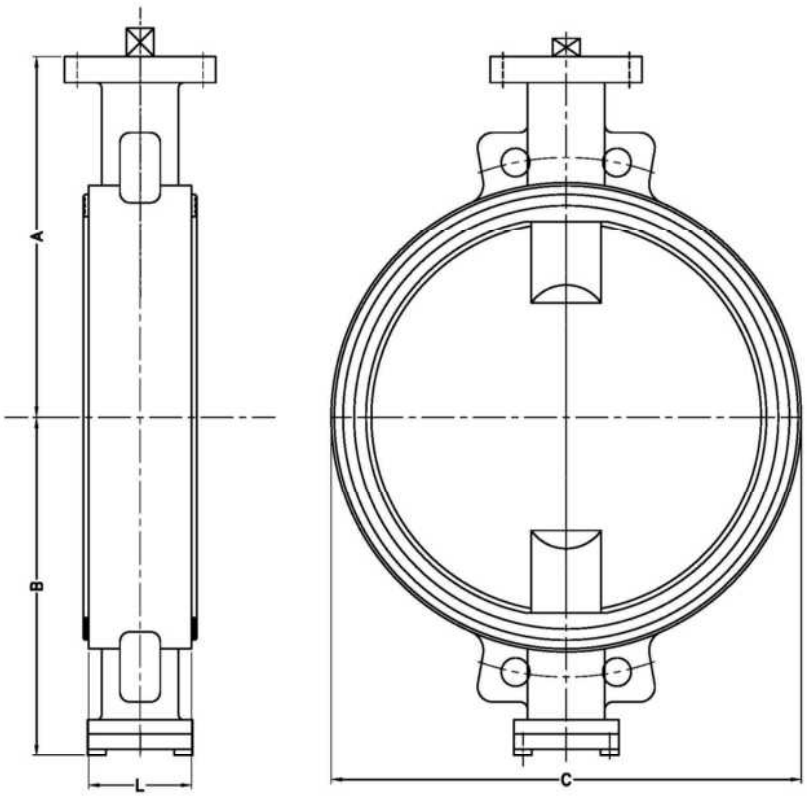
DN	L	A	B	C	PN10 BAR COUNTER FLANGES						
					D	d	C	K	N	L_2	BOLTS
50	43	125	62	100	165	99	19	125	4	19	M16
65	46	135	69	108	185	118	19	145	4	19	M16
80	46	141	94	124	200	132	19	160	8	19	M16
100	52	165	106	147	220	156	19	180	8	19	M16
125	56	180	126.5	180	250	184	19	210	8	19	M16
150	56	193	133	206	285	211	19	240	8	23	M20
200	60	225	170	257	340	266	20	295	8	23	M20
250	68	283	210	325	400	319	22	350	12	23	M20
300	78	308	240	375	455	370	24.5	400	12	23	M20
350	78	338	263	422	505	429	24.5	460	16	23	M20
400	102	380	308	480	565	480	24.5	515	16	28	M24
450	114	380	340	535	615	530	26.5	565	20	28	M24
500	127	433	380	590	670	582	26.5	620	20	28	M24
600	154	495	440	690	780	682	30	725	20	31	M27
700	165	590	490	830	895	794	32.5	840	24	31	M27
800	190	630	565	902	1015	901	35	950	24	34	M30

VALVE DIMENSIONS PN10 (U-SECTION DESIGN)



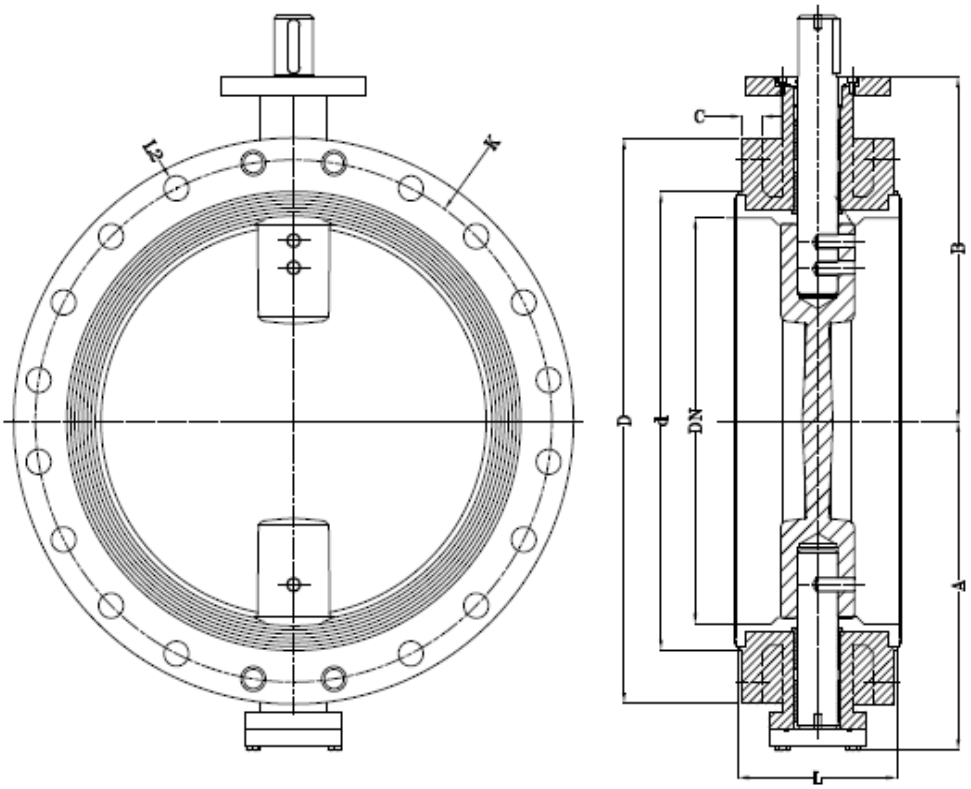
DN	L	A	B	PN10 BAR FLANGES						
				D	d	c	K	N	L_2	BOLTS
100	52	135	165	220	156	19	180	8	19	M16
150	56	143	193	285	211	19	240	8	23	M20
200	60	173	225	340	266	20	295	8	23	M20
250	68	210	283	400	319	22	350	12	23	M20
300	78	240	308	455	370	24.5	400	12	23	M20
350	80	268	338.5	505	429	24.5	460	16	23	M20
400	102	308	380	565	480	24.5	515	16	28	M24
450	114	340	380	615	530	26.5	565	20	28	M24
500	127	380	433	670	582	26.5	620	20	28	M24
600	154	440	494	780	682	30	725	20	31	M27
700	168	490	590	895	794	32.5	840	24	31	M27
800	190	630	565	1015	901	35	950	24	34	M30

VALVE DIMENSIONS PN16 (WAFER DESIGN)



DN	L	A	B	C	PN16 BAR COUNTER FLANGES						
					D	d	c	K	N	L_2	BOLTS
50	43	125	62	100	165	99	19	125	4	19	M16
65	46	135	69	108	185	118	19	145	4	19	M16
80	46	141	94	124	200	132	19	160	8	19	M16
100	52	165	106	140	220	156	19	180	8	19	M16
125	56	180	126.5	180	250	184	19	210	8	19	M16
150	56	193	133	195	285	211	19	240	8	23	M20
200	60	225	170	245	340	266	20	295	8	23	M20
250	68	283	210	300	400	319	22	355	12	28	M20
300	78	308	240	360	455	370	24.5	410	12	28	M24
350	78	360	260	400	520	429	26.5	470	16	28	M24
400	102	380	308	460	580	480	28	525	16	31	M27
450	114	380	340	520	640	548	30	585	20	31	M27
500	127	433	390	560	715	609	31.5	650	20	34	M30
600	154	495	450	660	840	720	36	770	20	37	M33
700	165	590	490	830	910	794	39.5	840	24	37	M33

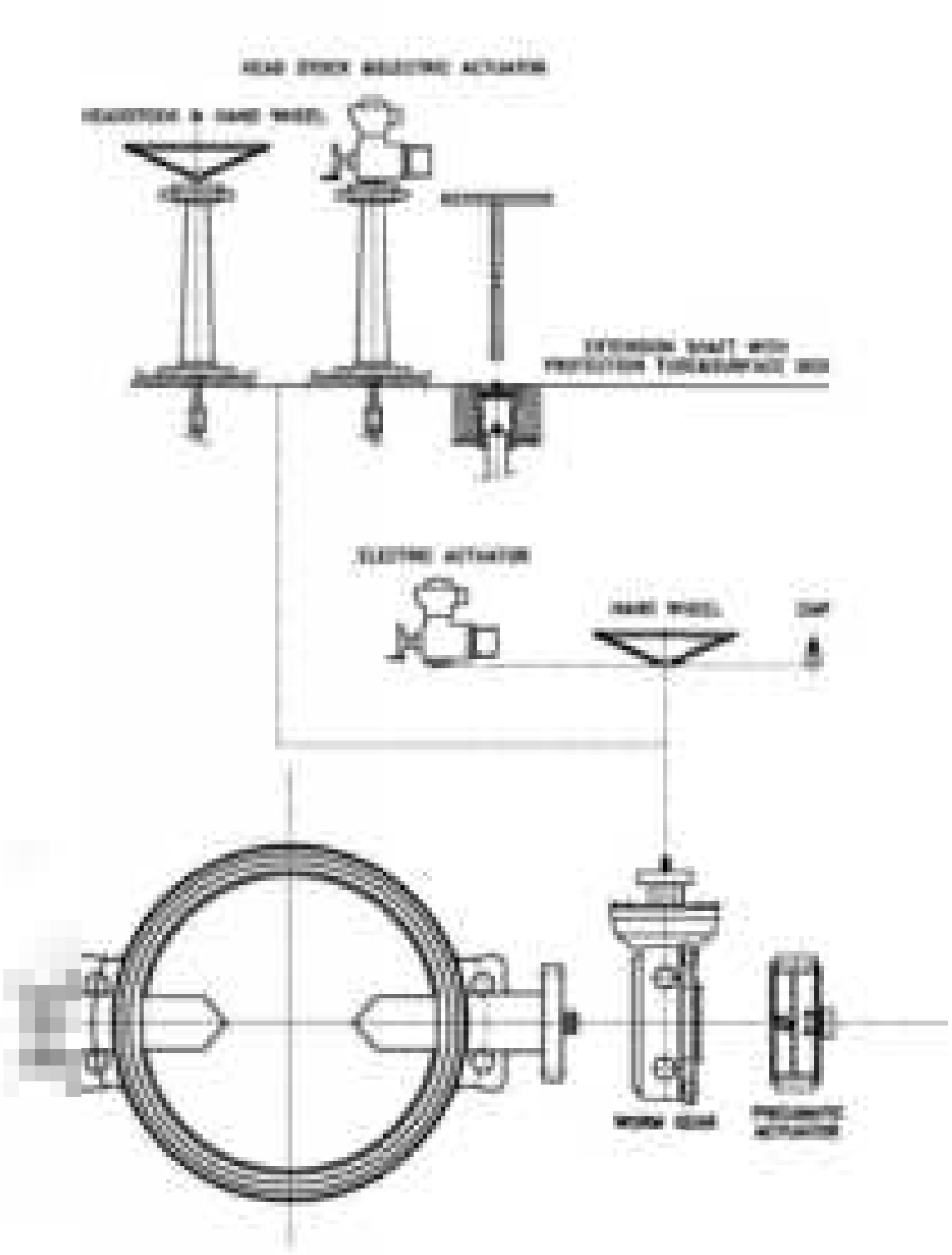
VALVE DIMENSIONS PN16 (U-SECTION DESIGN)



DN	L	A	B	PN16 BAR FLANGES						
				D	d	c	K	N	L_2	BOLTS
100	52	145	193	220	156	19	180	8	19	M16
150	56	145	193	285	211	19	240	8	23	M20
200	60	173	225	340	266	20	295	8	23	M20
250	68	210	283	400	319	22	355	12	28	M20
300	78	240	308	455	370	24.5	410	12	28	M24
350	80	270	340	520	429	26.5	470	16	28	M24
400	102	308	380	580	480	28	525	16	31	M27
450	114	340	380	640	548	30	585	20	31	M27
500	127	380	433	715	609	31.5	650	20	34	M30
600	154	440	494	840	720	36	770	20	37	M33
700	168	490	590	910	794	39.5	840	24	37	M33
800	190	630	565	1025	901	43	950	24	40	M36

ACTUATION

Sierra can supply butterfly valves for a wide range of actuation types. Due to the quarter-turn control, butterfly valves are easy to operate and suited for automated processes.
Upon customer's request the butterfly valves can be supplied manually, pneumatically, electrically, hydraulically actuated with OPEN/CLOSE or full position control.



VALVE OPERATION

1- MANUAL OPERATION

ALL GEARBOX MODELS ARE MADE OF DUCTILE CAST IRON WITH THE FOLLOWING FEATURES

- Stable Self-Locking Design.
- Superior Gear Contact Ratio.
- Changeable Bushing enables Gearbox installation in any position
- Visual position indicator

2- PNEUMATIC OPERATION

PNEUMATIC ACTUATORS ARE USED FOR FAST AND FREQUENT OPENING AND CLOSING, WHERE THE VALVE PRESSURE IS LESS THAN 6BAR AND THE VALVE SIZE IS NOT LARGER THAN DN800 WHICH IS TYPICAL USED FOR WATER TREATMENT SYSTEM VALVES

A- Function :
Double or Single acting pneumatic actuator
B- Fail-safe function in case of single acting
C- Actuating pressure 6bar (0.6MPa), other actuating pressure upon request
D- Suitable for high duty cycles
E- Fast opening and closing times
F- Few moving parts: increases operational safety
G- The following accessories are available for mounting on pneumatic actuators:

- Limit switches box for open/close
- NAMUR solenoid valves
- Valve positioners
- Position indicator
- Exhaust silencer with throttling function
- Declutch able gear for emergency operation (manual override)

VALVE OPERATION

3- ELECTRIC OPERATION

ELECTRIC ACTUATORS PROVIDED ON OUR VALVES COVERS A WIDE RANGE OF TORQUES. SOME OPTIONAL FEATURES FOR ELECTRIC ACTUATORS:

- Wide range of voltage options
- All actuators are provided with torque limiter and two switches for stroke limiter
- Mechanical position indicator showing the position of the disc
- ON/OFF and modulating duty
- Thermal protection
- Emergency hand wheel
- Positioner and feedback signal (4-20mA) for modulating duty
- Integrated control panel
- Extra limit switches
- Different protection classes (IP68 or IP67)

7200

BUTTERFLY VALVE

ENGINEERING DATA

FLOW COEFFICIENT (KV)

The Kv-value [m^3 per hour] is a measure of the valves ability to pass flow. It is defined as the flow of water at a temperature of 5°C to 30°C at ΔP of 1 bar through a fully open valve.

KV = Q / √ΔP (FOR WATER APP)
CV (FLOW COEFFICIENT IN US GALLON/MIN) = 1.16 KV

INHERENT FLOW CHARACTERISTICS TABLE (KV VALUES)

VALVE SIZE DN	OPENING ANGLE						
	30°	40°	50°	60°	70°	80°	90°
100	35	70	130	225	410	585	650
150	95	205	320	580	980	1410	1620
200	175	355	580	910	1600	2450	2800
250	340	590	940	1480	2550	3950	4480
300	505	890	1450	2100	3800	5960	6800
350	680	1200	2050	3150	5050	8100	9200
400	860	1500	2490	3980	6600	10200	11700
450	1080	1900	3150	5050	8700	13300	15200
500	1200	2300	3740	6150	11000	16800	18900
600	1600	2780	5200	8940	14500	23500	26800
700	2050	3450	6050	11050	18800	31500	37100
800	2550	4950	8750	14200	23500	39500	48500

VELOCITY LIMITS

THE MAXIMUM FLOW RATES FOR BUTTERFLY VALVES ARE PRESCRIBED IN EN593.

Butterfly Valves are designed to safely open and close at the highest differential pressure acting on the closed valve disc at the rated pressure. However in case of excessive flow velocities the dynamic torque acting on the valve components might damage the valve even if the rated pressure is not exceeded. Thus valve ratings should be selected according to both pressure and flow.

PRESSURE	MAXIMUM FLOW RATE (M/SEC)
Up to 6 bars	2.5
10	3

HEAD LOSS CHARACTERISTICS

The head loss characteristics show how much pressure (Head) is lost through a fully open valve.
Each valve has its own head loss factor which is used to calculate the total pressure drop at a given flow rate and using the following formula.

$\Delta H = K*(V^2/2G)$ ΔH = HEAD LOSS (M)

V = AVERAGE VELOCITY (M/SEC) K = RESISTANCE COEFFICIENT

DN	100	150	200	250	300	350	400	450	500	600	700	800
K	0.53	0.35	0.33	0.31	0.29	0.28	0.26	0.24	0.23	0.22	0.22	0.21

The GCF/Sierra 7200 concentric rubber lined valve, suitable for installation between/connected to flanges that are drilled in accordance with EN 1092-2.

The 7200 butterfly valve is an excellent valve for isolation purposes. It might also be used for throttling purposes under certain conditions.

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