



quadax[®]

four offset butterfly valves

quadax[®] valves inc.
ZERO LEAKAGE
FOUR OFFSET BUTTERFLY VALVES



quadax® valves inc. Leading Valve Technology

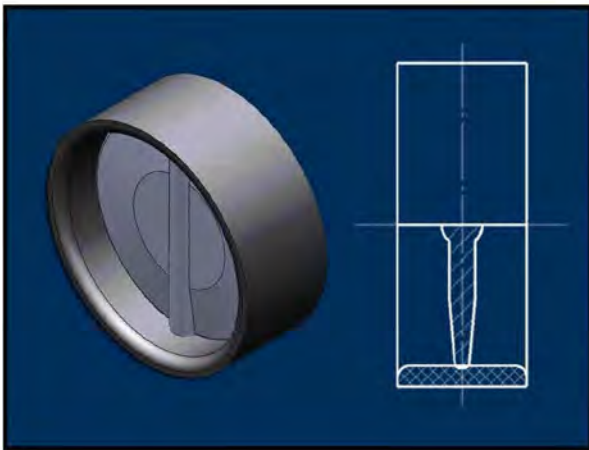
quadax valves inc., based in Bristol, Pennsylvania, is a subsidiary of co-ax valves inc., and is part of the müller co-ax ag group, a world renowned valve manufacturer since 1960.

For over 50 years, müller co-ax ag has been an innovative leader in the unique design and manufacture of valve technology for businesses worldwide.

When dealing with the control, regulation and monitoring of a variety of media, a reliable partner is required. Our innovations and know-how have demonstrated that we are this reliable partner, as after all, we developed the original coaxial valves. Since 1960, coaxial valves made by müller co-ax ag are used everywhere media has to be guided in a controlled manner, where quality without compromise is required and where the highest demands are placed on systems.

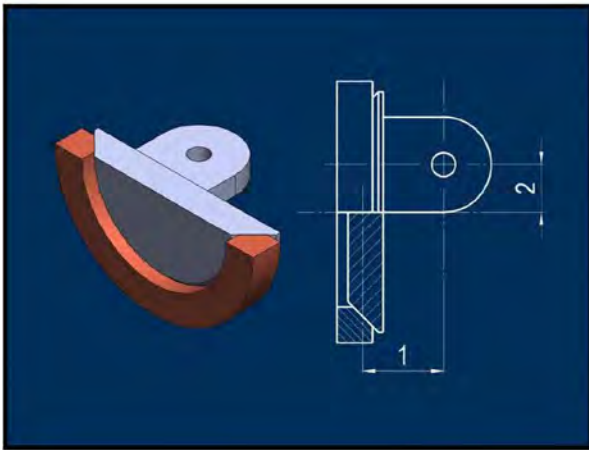
In 2009, the müller co-ax group extended their product range with the quadax® butterfly valve series. With this unique four-offset design, new manufacturing technology, extended size range, and extensive U.S. inventory, quadax valves inc., meets the most stringent requirements even under the most extreme temperature conditions.





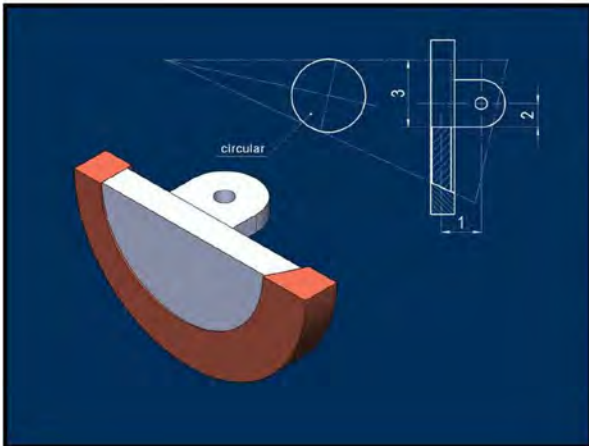
Standard Rubber Lined Valve:

- No offsets / concentric
- Shaft in centerline of seat
- Shaft in centerline of pipe
- Only for low temperature applications



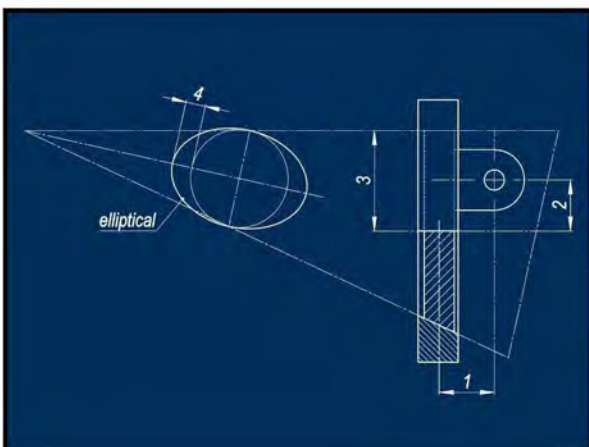
Double Offset Valve:

- Shaft offset from centerline of seat
- Shaft offset from centerline of pipe
- PTFE / RTFE SEAT – soft, not durable
- Suitable for temperatures up to 400°F
- Metal seated versions are Class IV or Class V leakage
- Rubs approximately 30% of travel



Triple Offset Valve:

- Shaft offset from centerline of seat
- Shaft offset from centerline of pipe
- Sealing surface is tilted conical design
- Seating cone has ROUND cross section resulting in an ELLIPTICAL seat
- Significant contact at 6 and 12 o'clock positions
- Rubs approximately 10% of travel



Four Offset Valve:

- Shaft offset from centerline of seat
- Shaft offset from centerline of pipe
- Sealing surface is tilted conical design
- Cone shape is stretched to give ROUND seal
- Higher Cv than triple offset valve
- Disc cams into seat; contact is simultaneous with closure
- Low torque
- Suitable for temperatures ranging from -454°F to +1472°F
- Elimination of wear / Rubs 0% of valve travel

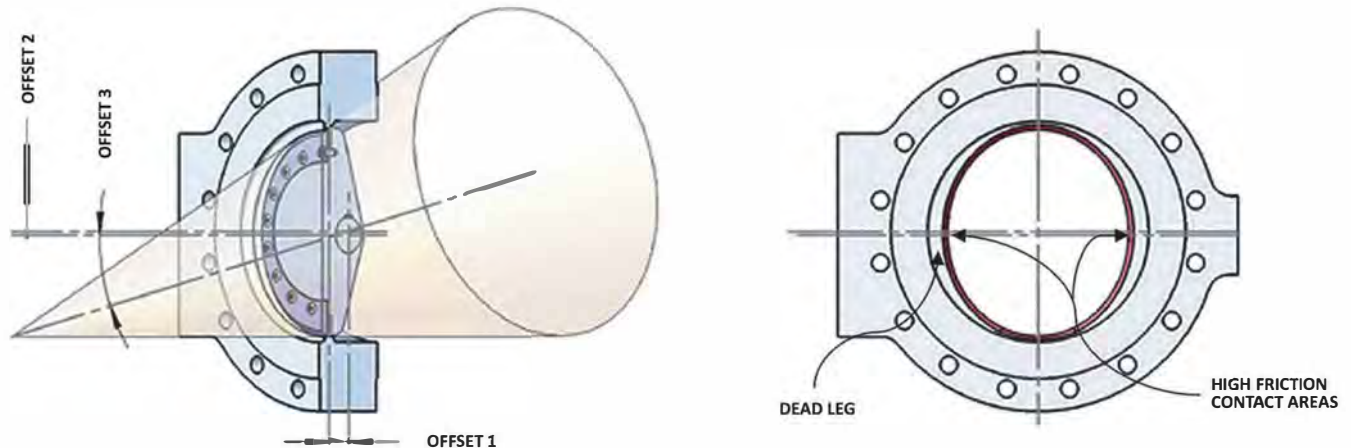
Design Principle - Four Offset Design

Offset 1: The valve shaft is offset from the centerline of the valve seat.

Offset 2: The valve shaft is offset from the centerline of the pipe.

Offset 3: The disc seal shape is manufactured to the shape of a “slice” from a round cone whose axis is offset from the centerline of the pipe. The shape of the “slice” is an ellipse.

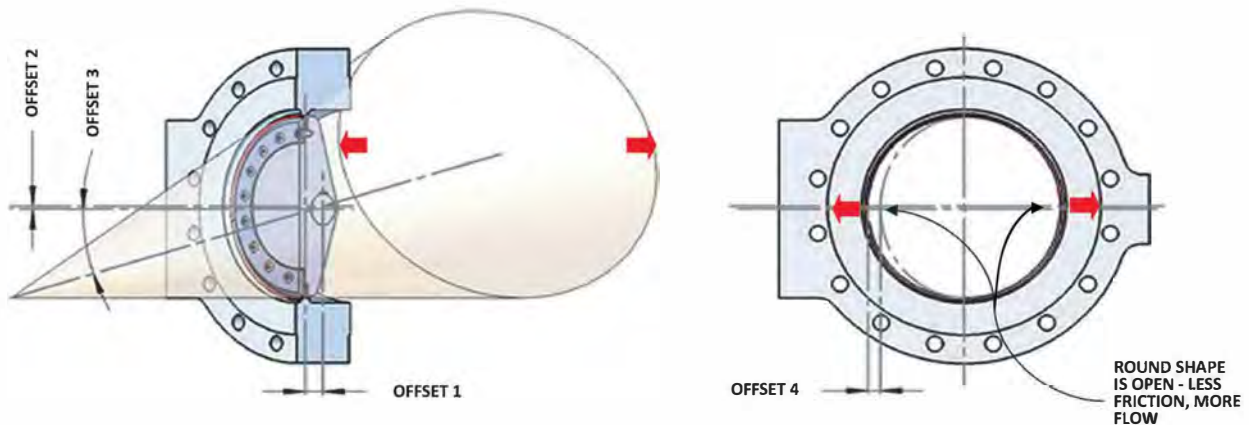
Triple Offset Design



THE FOURTH OFFSET: quadax utilizes a patented seal design that results in sealing surface that is **ROUND**. The benefits of a round seat and disc are many, giving them significant advantages over triple offset valves.

Offset 4: The cone shape is stretched to an ellipse. The disc seal made to the shape of a “slice” from this elliptical cone results in a seal that is perfectly round.

Quadruple Offset Design



FOUR REASONS WHY FOUR OFFSETS ARE BETTER

LESS WEAR

Both the disc and the body seat are perfectly round; the disc doesn't touch the body-sealing surface until the valve is completely closed. The disc doesn't drag across the seal, so wearing of the two surfaces is eliminated. Your valve will last longer.

LOW TORQUE

With the elimination of the wear, torque is significantly reduced. Lower torque means a smaller actuator, and that saves money.

HIGH Cv VALUES

Because the pipeline is round, and the seat area flow path is round, there is no dead leg as is seen in triple offset valves. More open area results in higher Cv values.

MORE SEAL OPTIONS

The round disc and body sealing surfaces of the quadax® valve allow us to offer more sealing options. These replaceable O-ring seals are unique to the four offset design.

Applications

LNG and LPG systems
 Refining/Petrochemical
 Power Generation
 Technical Gases
 Mining
 Cryogenic
 Pulp & Paper
 Tank Farms
 District Heating
 Sea Water Applications
 Others

Standards

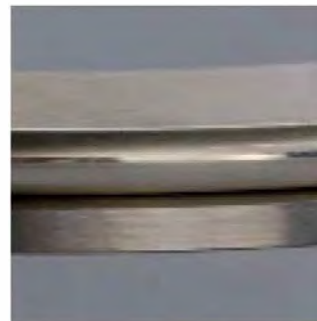
ISO 9001:2008
 SIL3, DIN EN61508
 97/23 EG Pressure directive
 DIN EN 12516 (DIN 3840)
 ANSI B 16.34
 AD 2000
 AD W 10
 BAM Oxygen approval
 TA Luft II
 NACE MR 0175 , NACE MR 0103
 94/9 EG ATEX
 Leak rate 1 in acc. DIN 3230 BA / BO / BN
 ZERO LEAKAGE per API-598 Resilient
 Leak rate way below BS 6364
 Fire Safe in both directions
 in acc. ISO10497, API 607, BS 6755



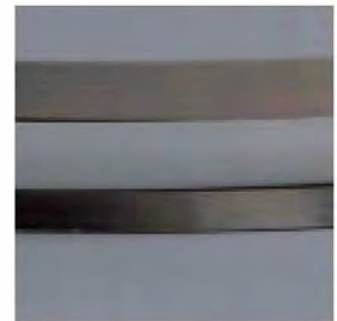
Graphite Laminated



Stainless Steel Laminated



Inconel O-Ring



PTFE O-Ring

Available up to size 60" and above

Stellite seat available as option

Very low torques

ISO top flange for actuation

Available up to 2320 PSI and above

No wear, friction free

Zero leakage, also in cryogenic applications

Temperature range -454°F up to +1472°F

Brand new disc design; lowest shaft deflection even at highest pressures

Perfect support of the seal; no additional stress applied

Tight in both directions up to full pressure

Sealed bearing design available

No movement between disc and seal; absolutely tight between lamination and disc

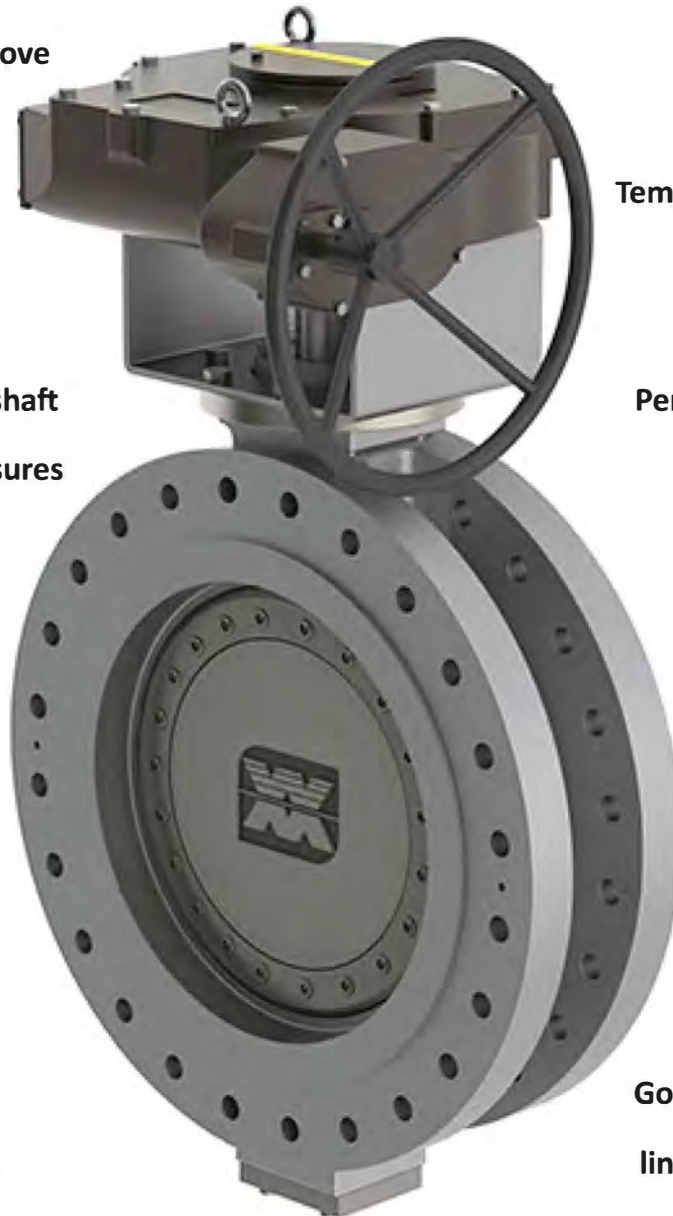
Floating disc design; highest temperature difference no problem

Highest quality of the seat and sealing surface due to patented quadruple (four offset) design

Good regulation performance; linear characteristics between 20° and 80° of opening

Dead leg area minimized due to quadruple (four offset) design; higher cv-value possible; less dirt collection

All metal design available, with no graphite oxygen approved up to 4351 PSI and 1022°F

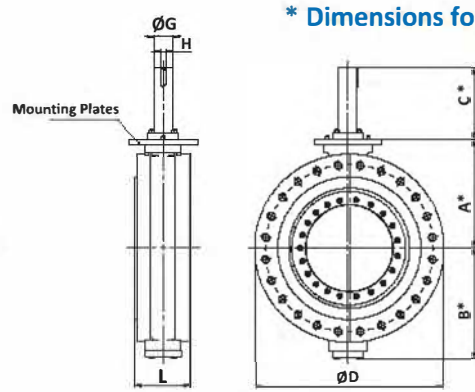


Butterfly Valve

Bare Shaft

Size 2" - 60" (>60" on request)

Connection Flange



* Dimensions for Trim X only



SPECIFICATION

Body materials	Carbon steel, Stainless steel, Special material (Duplex, Inconel, Bronze)
Function	NC, NO, DA
Pressure range	Body pressure up to ANSI class 900
	Δp Standard shaft 754 psi in both directions Δp Optional shaft 1450 psi in both directions
Leak rate	1 DIN 3230, A DIN EN 12266, BS 6364, Fire safe, API 598, ANSI FCI 70-2 Class VI
Preferred flow direction	Bi-directional with preferred direction indicated on valve
Process and outside temperature	Standard -4°F - +752°F
	with special materials -454°F - +1472°F
Approvals	PED, Fire safe, BAM, TA Luft, ATEX etc.

TECHNICAL DATA

Size	[mm]		50	65	80	100	125	150	200	250	300	350	400	450	500	600	700	750	800	900	1000
	[inch]		2	2 ½	3	4	5	6	8	10	12	14	16	18	20	24	28	30	32	36	40
Pipe cl to mounting plate	A		4,13	5,04	5,04	6,38	7,48	7,99	9,45	10,98	12,01	12,80	15,16	15,94	17,32	20,87	24,80	24,80	27,56	32,68	36,22
Pipe cl to cover screws	B		4,17	5,08	5,08	6,22	7,32	8,03	9,49	11,06	12,09	13,11	15,08	15,87	17,36	21,30	25,31	25,31	28,07	32,91	36,46
Bare shaft length for direct mounting	C		3,74	3,74	3,74	4,92	5,31	5,71	7,09	7,09	7,09	11,02	11,38	11,81	12,60	12,60	14,45	14,45	14,45	15,67	15,67
Bare shaft length for adapter	C		2,01	2,01	2,01	2,68	2,68	2,68	3,35	3,35	3,35	6,81	6,69	6,69	6,69	6,69	8,27	-	-	-	-
Flange diameter	PN 10	D	6,5	7,87	7,87	9,06	9,84	11,61	13,86	15,94	17,91	20,28	22,24	24,21	26,38	30,71	35,24	38,19	42,72	43,9	48,43
	PN 16	D	6,5	7,87	7,87	9,06	9,84	11,61	13,86	15,94	17,91	20,28	23,23	25,2	28,54	33,27	35,83	38,19	42,72	44,29	49,41
	PN 25	D	6,5	7,87	7,87	9,06	10,63	11,61	13,86	16,73	19,09	21,65	24,41	26,77	28,54	33,27	37,8	40,16	42,72	46,65	51,97
	PN 40	D	6,5	7,87	7,87	9,06	10,63	11,61	14,76	17,72	20,28	23,03	25,98	26,77	30,31	35,75	-	-	-	-	-
	PN 63	D	7,09	8,46	8,46	9,84	11,61	13,58	16,34	18,5	20,87	23,62	26,38	-	-	-	-	-	-	-	-
	PN 100	D	-	9,06	9,06	10,43	12,4	13,98	16,93	19,88	23,03	25,79	-	-	-	-	-	-	-	-	-
	PN 160	D	-	9,06	9,06	10,43	12,4	13,98	16,93	20,28	23,03	-	-	-	-	-	-	-	-	-	-
	ANSI 150	D	6,5	7,48	7,48	9,06	-	11,02	13,86	15,94	19,09	21,65	23,23	25,2	27,56	32,09	36,5	38,74	42,72	45,98	50,79
	ANSI 300	D	6,5	8,27	8,27	10	-	12,6	14,96	17,52	20,28	23,03	25,98	27,95	30,31	35,75	40,75	42,99	45,24	50	48,74
	ANSI 600	D	6,5	8,27	8,27	10,83	-	13,98	16,54	20	22,05	23,82	26,97	29,33	32,09	37,01	42,24	44,49	47,01	51,77	51,97
ANSI 900	D	-	9,45	9,45	11,5	-	14,96	18,5	21,46	24,02	25,2	27,76	31,1	33,86	40,94	46,06	48,43	51,77	57,48	59,45	
Mounting plate (Trim X)	(others on request)	F	F07	F07	F07	F10	F12	F14	F16	F16	F16	F25	F30	F30	F35	F35	F40	F40	F40	F48	F48
Trim A	20 bar max.	G	-	-	-	-	-	-	-	-	1,57	1,77	1,97	2,17	2,17	2,76	3,54	3,54	3,94	4,33	4,72
	290 psi max.	H	-	-	-	-	-	-	-	-	0,47	0,55	0,55	0,63	0,63	0,79	0,98	0,98	1,10	1,26	1,26
Trim X (Standard)	52 bar max.	G	0,55	0,71	0,71	0,79	0,87	1,26	1,26	1,57	1,77	2,17	2,56	2,76	2,95	3,54	4,33	4,33	5,12	5,91	6,30
	754 psi max.	H	0,20	0,24	0,24	0,24	0,24	0,39	0,39	0,47	0,55	0,63	0,71	0,79	0,79	0,98	1,26	1,26	1,26	1,42	1,57
Trim B	104 bar max.	G	-	-	-	-	-	1,77	2,17	2,56	2,95	3,54	3,74	4,33	5,12	5,91	5,91	7,09	7,48	8,66	
	1500 psi max.	H	-	-	-	-	-	0,55	0,63	0,71	0,79	0,98	0,98	1,26	1,26	1,42	1,42	1,77	1,77	1,97	
Trim C	155 bar max.	G	-	0,87	0,87	1,10	1,26	1,57	1,97	2,56	2,95	3,54	4,33	4,33	5,12	5,91	6,69	6,69	7,87	9,06	9,84
	2250 psi max.	H	-	0,24	0,24	0,31	0,39	0,47	0,55	0,71	0,79	0,98	1,26	1,26	1,26	1,42	1,57	1,57	1,77	1,97	2,20
ISO 5752 R13 / DIN 3202 F16	PN 10/16/25/40	L	4,25	4,49	4,49	5,00	-	5,51	5,98	6,50	7,01	7,48	8,50	8,74	9,02	10,51	11,50	12,52	12,52	12,99	16,14
ISO 5752 R13 / DIN 3202 F16	ANSI 150/300	L	4,25	4,49	4,49	5,00	-	5,51	5,98	6,50	7,01	7,48	8,50	8,74	9,02	10,51	11,50	12,52	12,52	12,99	16,14
ISO 5752 R14 / DIN 3202 F4	PN 63/100/160	L	5,91	7,09	7,09	7,48	7,87	8,27	9,06	9,84	10,63	11,42	12,20	12,99	13,78	15,35	16,93	18,50	18,50	20,08	21,65
ISO 5752 R14 / DIN 3202 F4	ANSI 600/900	L	5,91	7,09	7,09	7,48	7,87	8,27	9,06	9,84	10,63	11,42	12,20	12,99	13,78	15,35	16,93	18,50	18,50	20,08	21,65
Weight (Standard)	[ca. kg]		11	18	18	27	38	44	78	111	160	235	334	349	476	736	862	1017	1138	1475	2162
	[lb]		24	39	39	59	83	96	171	243	351	515	732	1689	1044	1614	1890	2230	2496	3235	4741

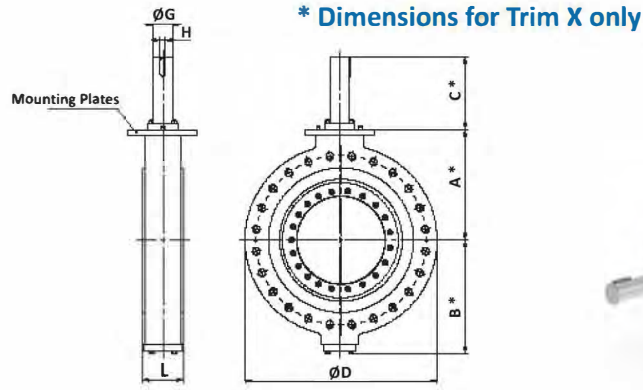
The valve's technical design is based on media and application requirements. This can lead to deviations from the general specifications shown on the data sheet with regards to the design, sealing materials and characteristics.

Butterfly Valve

Bare Shaft

Size 2" - 60" (>60" on request)

Connection Flange



SPECIFICATION

Body materials	Carbon steel, Stainless steel, Special material (Duplex, Inconel, Bronze)
Function	NC, NO, DA
Pressure range	Body pressure up to ANSI class 600 Δp standard shaft 754 psi in both directions
Leak rate	1 DIN 3230, A DIN EN 12266, BS 6364, Fire safe, API 598, ANSI FCI 70-2 Class VI
Preferred flow direction	Bi-directional with preferred direction indicated on valve
Process and outside temperature	Standard -4°F - +752°F with special materials -454°F - +1472°F
Approvals	PED, Fire safe, BAM, TA Luft, ATEX etc.

TECHNICAL DATA

Size	[mm]	50	65	80	100	125	150	200	250	300	350	400	450	500	600	700	750	800	900	1000	
	[inch]	2	2½	3	4	5	6	8	10	12	14	16	18	20	24	28	30	32	36	40	
Pipe cl to mounting plate	A	4,13	5,04	5,04	6,38	7,48	7,99	9,45	10,98	12,01	12,80	15,16	15,94	17,32	20,87	24,80	24,80	27,56	32,68	36,22	
Pipe cl to cover screws	B	4,17	5,08	5,08	6,22	7,32	8,03	9,49	11,06	12,09	13,11	15,08	15,87	17,36	21,30	25,31	25,31	28,07	32,91	36,46	
Bare shaft length for direct mounting	C	3,74	3,74	3,74	4,92	5,31	5,71	7,09	7,09	7,09	11,02	11,38	11,81	12,60	12,60	14,45	14,45	14,45	15,67	15,67	
Bare shaft length for adapter	C	2,01	2,01	2,01	2,68	2,68	2,68	3,35	3,35	3,35	6,81	6,69	6,69	6,69	6,69	8,27	-	-	-	-	
Flange diameter	PN 10	D	6,5	7,87	7,87	9,06	9,84	11,61	13,86	15,94	17,91	20,28	22,24	24,12	26,38	30,71	35,24	38,19	42,72	43,9	48,43
	PN 16	D	6,5	7,87	7,87	9,06	9,84	11,61	13,86	15,94	17,91	20,28	23,23	25,2	28,54	33,27	35,83	38,19	42,72	44,29	49,41
	PN 25	D	6,5	7,87	7,87	9,06	10,63	11,61	13,86	16,73	19,09	21,65	24,41	26,77	28,54	33,27	37,8	40,16	42,72	46,65	51,97
	PN 40	D	6,5	7,87	7,87	9,06	10,63	11,61	14,76	17,72	20,28	23,03	25,98	26,77	30,31	35,75	-	-	-	-	-
	PN 63	D	7,09	8,46	8,46	9,84	11,61	13,58	16,34	18,5	20,87	23,62	26,38	-	-	-	-	-	-	-	-
	ANSI 150	D	6,5	7,48	7,48	9,06	-	11,02	13,86	15,94	19,09	21,65	23,23	25,2	27,56	32,09	36,5	38,74	42,72	45,98	50,79
	ANSI 300	D	6,5	8,27	8,27	10	-	12,6	14,96	17,52	20,28	23,03	25,98	27,95	30,31	35,75	40,75	42,99	45,24	50	48,74
ANSI 600	D	6,5	8,27	8,27	10,83	-	13,98	16,54	20	22,05	23,82	26,97	29,33	32,09	37,01	42,24	44,49	47,01	51,77	51,97	
Mounting plate (Trim X)	(others on request)	F	F07	F07	F07	F10	F12	F14	F16	F16	F16	F25	F30	F30	F35	F35	F40	F40	F40	F48	F48
Trim A	20 bar max.	G	-	-	-	-	-	-	-	-	1,57	1,77	1,97	2,17	2,17	2,76	3,54	3,54	3,94	4,33	4,72
	290 psi max.	H	-	-	-	-	-	-	-	-	0,47	0,55	0,55	0,63	0,63	0,79	0,98	0,98	1,10	1,26	1,26
Trim X (Standard)	52 bar max.	G	0,55	0,71	0,71	0,79	0,87	1,26	1,26	1,57	1,77	2,17	2,56	2,76	2,95	3,54	4,33	4,33	5,12	5,91	6,30
	754 psi max.	H	0,20	0,24	0,24	0,24	0,24	0,39	0,39	0,47	0,55	0,63	0,71	0,79	0,79	0,98	1,26	1,26	1,26	1,42	1,57
DIN 3202 K3	PN 10/16/25/40/63	L	1,69	2,52	2,52	2,52	2,76	2,99	3,5	4,49	4,49	5	5,51	5,98	5,98	7,01	9,02	9,49	9,49	11,81	
API 609 (according to tolerance)	ANSI 150	L	1,69	1,89	1,89	2,13	-	2,24	2,52	2,91	3,91	3,62	4,02	4,49	5,00	6,06	-	-	-	-	-
	ANSI 300	L	1,69	1,89	1,89	2,13	-	2,32	2,87	3,27	3,62	4,61	5,24	5,87	6,26	7,13	-	-	-	-	-
	ANSI 600	L	1,69	2,13	2,13	2,52	-	3,07	4,02	4,61	5,51	6,10	7,01	7,87	8,50	9,13	-	-	-	-	-
Weight (Standard)	[ca. kg]		8	8	16	22	32	39	68	128	150	221	319	349	457	715	1017	1203	1336	1744	2467
	[lb]		18	18	35	48	70	86	150	282	331	487	703	769	1007	1576	2242	2652	2945	3845	5439

The valve's technical design is based on media and application requirements. This can lead to deviations from the general specifications shown on the data sheet with regards to the design, sealing materials and characteristics.

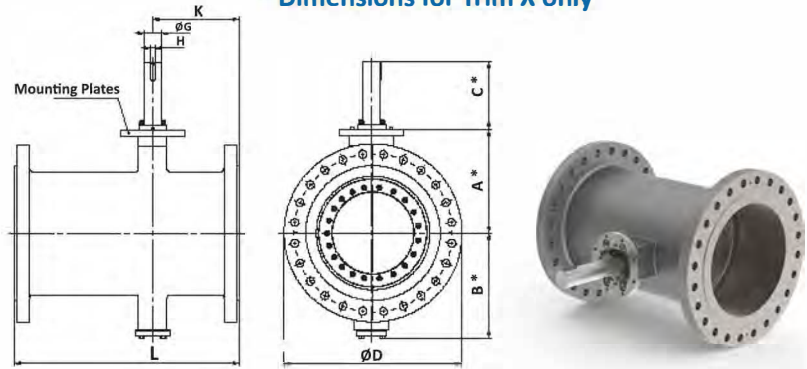
Butterfly Valve

Bare Shaft

Size 2" - 60" (>60" on request)

Connection Flange

* Dimensions for Trim X only



SPECIFICATION

Body materials	Carbon steel, Stainless steel, Special material (Duplex, Inconel, Bronze)
Function	NC, NO, DA
Pressure range	Body pressure up to ANSI class 600 (on request)
	Δp standard shaft 754 psi in both directions Δp optional shaft 1450 psi in both directions
Leak rate	1 DIN 3230, A DIN EN 12266, BS 6364, Fire safe, API 598, ANSI FCI 70-2 Class VI
Preferred flow direction	Bi-directional with preferred direction indicated on valve
Process and outside temperature	Standard -4°F - +752°F
	with special materials -454°F ... +1472°F
Approvals	PED, Fire safe, BAM, TA Luft, ATEX etc.

TECHNICAL DATA

Size	[mm]	80	100	125	150	200	250	300	350	400	450	500	600	700	750	800	900	1000	
	[inch]	3	4	5	6	8	10	12	14	16	18	20	24	28	30	32	36	40	
Pipe cl to mounting plate	A	5,04	6,38	7,48	7,99	9,45	10,98	12,01	12,80	15,16	15,94	17,32	20,87	24,80	24,80	27,56	32,68	36,22	
Pipe cl to cover screws	B	5,08	6,22	7,32	8,03	9,49	11,06	12,09	13,11	15,08	15,87	17,36	21,30	25,31	25,31	28,07	32,91	36,46	
Bare shaft length for direct mounting	C	3,74	4,92	5,31	5,71	7,09	7,09	7,09	11,02	11,38	11,81	12,60	12,60	14,45	14,45	14,45	15,67	15,67	
Bare shaft length for adapter	C	2,01	2,68	2,68	2,68	3,35	3,35	3,35	6,81	6,69	6,69	6,69	6,69	8,27	-	-	-	-	
Flange diameter	PN 10	D	7,87	9,06	9,84	11,61	13,86	15,94	17,91	20,28	22,24	24,21	26,38	30,71	35,24	38,19	42,72	43,9	48,43
	PN 16	D	7,87	9,06	9,84	11,61	13,86	15,94	17,91	20,28	23,23	25,2	28,54	33,27	35,83	38,19	42,72	44,29	49,41
	PN 25	D	7,87	9,06	10,63	11,61	13,86	16,73	19,09	21,65	24,41	26,77	28,54	33,27	37,8	40,16	42,72	46,65	51,97
	PN 40	D	7,87	9,06	10,63	11,61	14,76	17,72	20,28	23,03	25,98	26,77	30,31	35,75	-	-	-	-	-
	PN 63	D	8,46	9,84	11,61	13,58	16,34	18,5	20,87	23,62	26,38	-	-	-	-	-	-	-	-
	PN 100	D	9,06	10,43	10,4	13,98	16,93	19,88	23,03	25,79	-	-	-	-	-	-	-	-	-
	PN 160	D	9,06	10,43	12,4	13,98	16,93	20,28	23,03	-	-	-	-	-	-	-	-	-	-
	ANSI 150	D	7,48	9,06	-	11,02	13,86	15,94	19,09	21,65	23,23	25,2	27,56	32,09	36,5	38,74	42,72	45,98	50,79
	ANSI 300	D	8,27	10	-	12,6	14,96	17,52	20,28	23,03	25,98	27,95	30,31	35,75	40,75	42,99	45,24	50	48,74
ANSI 600	D	8,27	10,83	-	13,98	16,54	20	22,05	23,82	26,97	29,33	32,09	37,01	42,24	44,49	47,01	51,77	51,97	
Mounting plate (Trim X)	(others on request)	F	F07	F10	F12	F14	F16	F16	F16	F25	F30	F30	F35	F35	F40	F40	F40	F48	F48
Trim A	20 bar max.	G	-	-	-	-	-	-	1,57	1,77	1,97	2,17	2,17	2,76	3,54	3,54	3,94	4,33	4,72
	290 psi max.	H	-	-	-	-	-	-	0,47	0,55	0,55	0,63	0,63	0,79	0,98	0,98	1,10	1,26	1,26
Trim X (Standard)	52 bar max.	G	0,71	0,79	0,87	1,26	1,26	1,57	1,77	2,17	2,56	2,76	2,95	3,54	4,33	4,33	5,12	5,91	6,30
	754 psi max.	H	0,24	0,24	0,24	0,39	0,39	0,47	0,55	0,63	0,71	0,79	0,79	0,98	1,26	1,26	1,26	1,42	1,57
Trim B	104 bar max.	G	-	-	-	-	1,77	2,17	2,56	2,95	3,54	3,74	4,33	5,12	5,91	5,91	7,09	7,48	8,66
	1500 psi max.	H	-	-	-	-	0,55	0,63	0,71	0,79	0,98	0,98	1,26	1,26	1,42	1,42	1,77	1,77	1,97
Trim C	155 bar max.	G	0,87	1,10	1,26	1,57	1,97	2,56	2,95	3,54	4,33	4,33	5,12	5,91	6,69	6,69	7,87	9,06	9,84
	2250 psi max.	H	0,24	0,31	0,39	0,47	0,55	0,71	0,79	0,98	1,26	1,26	1,26	1,42	1,57	1,57	1,77	1,97	2,20
ANSI B 16.10	class 150	K	3,98	4,49	-	4,92	5,28	5,94	6,61	6,93	7,48	8,50	8,98	10,00	12,01	12,01	12,99	13,98	-
		L	7,99	9,02	-	10,51	11,50	12,99	14,02	15,00	15,98	17,01	17,99	20,00	24,02	24,02	25,98	27,99	-
		K	4,02	4,33	-	4,92	5,28	5,94	6,61	6,93	7,48	8,54	9,45	11,42	13,58	14,76	15,55	17,52	-
class 300	class 600	L	11,10	12,01	-	15,87	16,50	17,99	19,76	30,00	32,99	35,98	39,02	45,00	52,99	55,00	60,00	67,99	-
		K	4,41	4,96	-	6,02	6,50	7,13	7,64	8,15	8,58	9,45	9,88	11,77	13,58	14,76	15,55	17,52	-
		L	14,02	17,01	-	22,01	25,98	30,98	32,99	35,00	39,02	42,99	47,01	55,00	60,98	65,00	70,00	82,01	-
Weight (Standard)	[ca. kg]	22	30	42	52	92	118	196	287	378	494	602	823	944	1082	1240	1480	1610	-
	[lb]	48	66	92	114	202	259	430	629	829	1083	1320	1805	2070	2373	2719	3246	3531	-

The valve's technical design is based on media and application requirements. This can lead to deviations from the general specifications shown on the data sheet with regards to the design, sealing materials and characteristics.

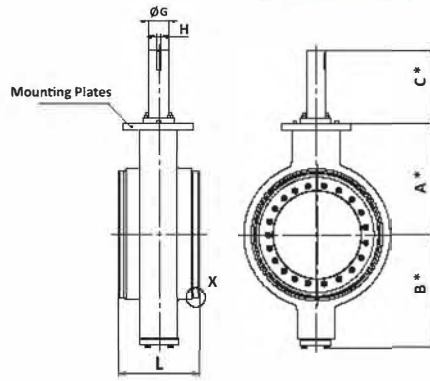
Butterfly Valve

Bare Shaft

Size 2" - 60" (>60" on request)

Connection Butt weld ends

* Dimensions for Trim X only



Butt weld ends customer specified



SPECIFICATION

Body materials	Carbon steel, Stainless steel, Special material (Duplex, Inconel)
Function	NC, NO, DA
Pressure range	Body pressure up to ANSI class 900 Δp standard shaft 754 psi in both directions Δp optional shaft 1450 psi in both directions
Leak rate	1 DIN 3230, A DIN EN 12266, BS 6364, Fire safe, API 598, ANSI FCI 70-2 Class VI
Preferred flow direction	Bi-directional with preferred direction indicated on valve
Process and outside temperature	Standard -4°F - +752°F with special materials -454°F... +1472°F
Approvals	PED, Fire safe, BAM, TA Luft, ATEX etc.

TECHNICAL DATA

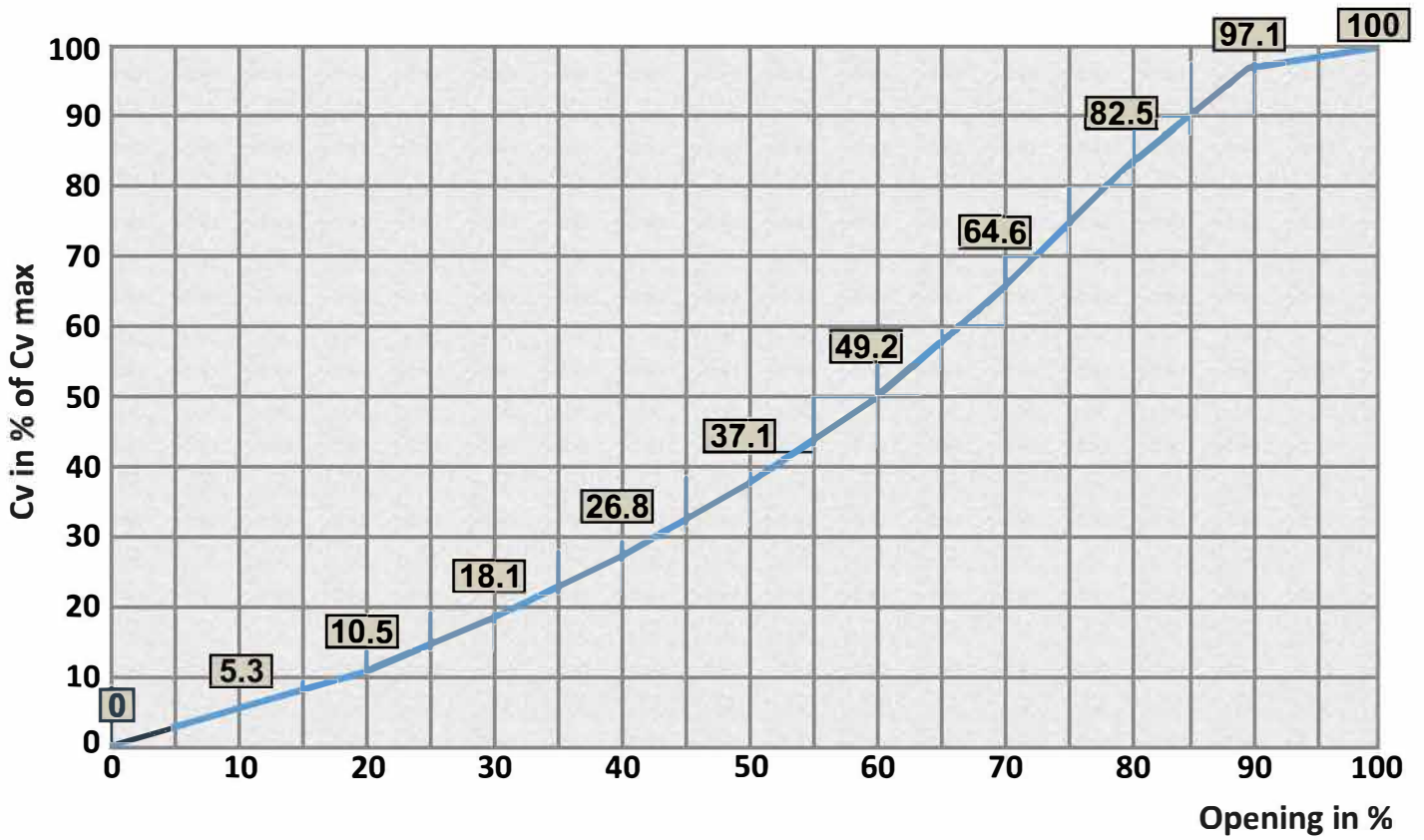
Size	[mm]	80	100	125	150	200	250	300	350	400	450	500	600	700	750	800	900	1000	
	[inch]	3	4	5	6	8	10	12	14	16	18	20	24	28	30	32	36	40	
Pipe cl to mounting plate	A	5,04	6,38	7,48	7,99	9,45	10,98	12,01	12,80	15,16	15,94	17,32	20,87	24,80	24,80	27,56	32,68	36,22	
Pipe cl to cover screws	B	5,08	6,22	7,32	8,03	9,49	11,06	12,09	13,11	15,08	15,87	17,36	21,30	25,31	25,31	28,07	32,91	36,46	
Bare shaft length for direct mounting	C	3,74	4,92	5,31	5,71	7,09	7,09	7,09	11,02	11,38	11,81	12,60	12,60	14,45	14,45	14,45	15,67	15,67	
Bare shaft length for adapter	C	2,01	2,68	2,68	2,68	3,35	3,35	3,35	6,81	6,69	6,69	6,69	6,69	8,27	-	-	-	-	
Mounting plate (Trim X)	(others on request)	F	F07	F10	F12	F14	F16	F16	F25	F30	F30	F35	F35	F40	F40	F40	F48	F48	
Trim A	20 bar max. 290 psi max.	G	-	-	-	-	-	1,57	1,77	1,97	2,17	2,17	2,76	3,54	3,54	3,94	4,33	4,72	
		H	-	-	-	-	-	0,47	0,55	0,55	0,63	0,63	0,79	0,98	0,98	1,10	1,26	1,26	
Trim X (Standard)	52 bar max. 754 psi max.	G	0,71	0,79	0,87	1,26	1,26	1,57	1,77	2,17	2,56	2,76	2,95	3,54	4,33	4,33	5,12	5,91	6,30
		H	0,24	0,24	0,24	0,39	0,39	0,47	0,55	0,63	0,71	0,79	0,98	1,26	1,26	1,26	1,42	1,42	1,57
Trim B	104 bar max. 1500 psi max.	G	-	-	-	-	1,77	2,17	2,56	2,95	3,54	3,74	4,33	5,12	5,91	5,91	7,09	7,48	8,66
		H	-	-	-	-	0,55	0,63	0,71	0,79	0,98	0,98	1,26	1,26	1,42	1,42	1,77	1,77	1,97
Trim C	155 bar max. 2250 psi max.	G	0,87	1,10	1,26	1,57	1,97	2,56	2,95	3,54	4,33	4,33	5,12	5,91	6,69	6,69	7,87	9,06	9,84
		H	0,24	0,31	0,39	0,47	0,55	0,71	0,79	0,98	1,26	1,26	1,42	1,57	1,57	1,77	1,77	1,97	2,20
DIN 3202 F4	L	7,09	7,48	7,87	8,27	9,06	9,84	10,63	11,42	12,2	12,99	13,78	15,35	16,93	18,5	18,5	20,08	21,65	
Weight (Standard)	[ca. kg]	14	15	21	27	59	71	112	144	212	265	322	452	562	722	810	912	1010	
	[lb]	31	33	46	59	129	156	246	316	465	581	706	991	1232	1583	1776	2000	2215	

quadax® valves inc. - Butterfly Valve / Butt weld Top Entry

Butterfly valve quadax top entry - available upon request



The valve's technical design is based on media and application requirements. This can lead to deviations from the general specifications shown on the data sheet with regards to the design, sealing materials and characteristics.



Size	[inch]		80	100	125	150	200	250	300	350	400	450	500	600	700	750	800	900	1000
cv value	[gal/min]	Trim A Δp max. 290 psi	-	-	-	-	-	-	4462	6370	9237	12483	15024	24013	29620	37978	42003	55308	65269
		Trim X Δp max. 754 psi	137	300	486	760	1680	2850	4314	5953	8513	11612	14091	22387	26838	31702	38771	50250	59765
		Trim B Δp max. 1500 psi	-	-	-	-	1458	2469	3698	5185	7305	10160	11913	19137	23053	25914	33293	45295	51679
		Trim C Δp max. 2250 psi	117	242	400	670	1353	2228	3402	4607	6580	9290	10979	17444	21199	24658	31138	40341	47523

ZERO LEAKAGE IN CRYOGENIC APPLICATIONS HERE IS HOW WE DO IT...



LNG, liquid nitrogen, and other cryogenic media are used in temperatures below -320°F . The critical factor relates to the tightness of valve at cryogenic temperatures. This problem increases proportionally to the nominal diameter. One reason for that is, at about -40°F , the metallic materials start to shrink in a non-linear way that varies depending on the wall thickness.

Because of their construction, the wall sections of triple offset butterfly valves can never be consistent. As a result, the seal wall is thickest at the point where the wall of the valve is the thinnest, or vice versa. The challenge is even greater if a triple offset butterfly valve has to be used at cryogenic temperatures.

The body of the quadax® four offset butterfly valve was designed such that the wall sections all around it are identical. As a result, the shrinkage behavior both in the seat and in the seal are the same, symmetrically all around the valve.



The valve must be of quadruple (4) offset design; incorporating 90-degree (clockwise-to-close), 100% non-rubbing, metal-to-metal-seating, operation to achieve bi-directional, zero-leakage performance. The valve shall be designed to require torque seating; position seated valves are not allowed. The valve must be designed in accordance with ANSI B16.34, B31.1 and B31.3 standards. The body, disc and shaft must be designed to comply with stress levels defined by ASME Sections III and VII for the material used. The end connections shall be per ANSI B16.5 for sizes less than 28" and ASME B16.47 for sizes 28" and above.

The face-to-face dimensions shall conform to:

- ISO 5752 Standard Double Flanged
- ANSI B16.10 Double Flanged (Gate Valve Replacement)
- API 609/MSS SP-68

The valve design shall be of all-metal construction, inherently fire-safe, and be fire tested by a recognized independent agency. Valve body styles shall include, but not be limited to:

- ISO 5752 Double Flanged
- ANSI B16.10 Double Flanged (Gate Valve Replacement)
- API 609/MSS SP-68
- Butt weld

Valve Body and Seat:

Valve bodies must be one-piece cast or fabricated. The valve seat shall be integral with the valve body. Carbon steel bodied valves shall have an Inconel 625 welded overlay body seat. Plated carbon steel seating surfaces are not allowed. Stainless steel bodied valves shall have, at a minimum, a seat material equal to that of the body. The valve seat shall be machined together with the valve body. The valve seat shall have a 27-degree, elliptical, inclined, conical geometry resulting in a truly round seat shape for friction-free, non-jamming, bi-directional, zero-leakage, shut-off capability. Elliptical body seats are not allowed.

Valve Disc and Seal Ring

The valve disc shall be of the same material specified for the valve body. The disc shall be driven by dual, fitted drive keys. No pinning of the disc or rigid connections to the shaft is allowed. Shaft bushings shall be located as close to the centerline of the valve as possible in order to provide maximum support of the shaft eliminating all possible shaft deflection or bending. Additionally, the valve disc shall offer full support of the shaft across the entire body diameter. Disc designs that use a single or double hub are not allowed. The seal ring shall consist of stainless steel and graphite lamination with a METALLIC REINFORCEMENT to avoid washing out / erosion of the graphite. The seal ring shall be machined in a method parallel to the laminates with the outside diameter machined to a conical 27-degree inclined plane. The seal ring cone angle shall match the cone angle of the body seat. NO ELLIPTICAL SEAL RINGS SHALL BE ALLOWED. The seal ring shall be sealed to the disc and clamp ring by means of a flat, graphite gasket. NO SPIRAL-WOUND GASKETS ARE ALLOWED.

Bearings

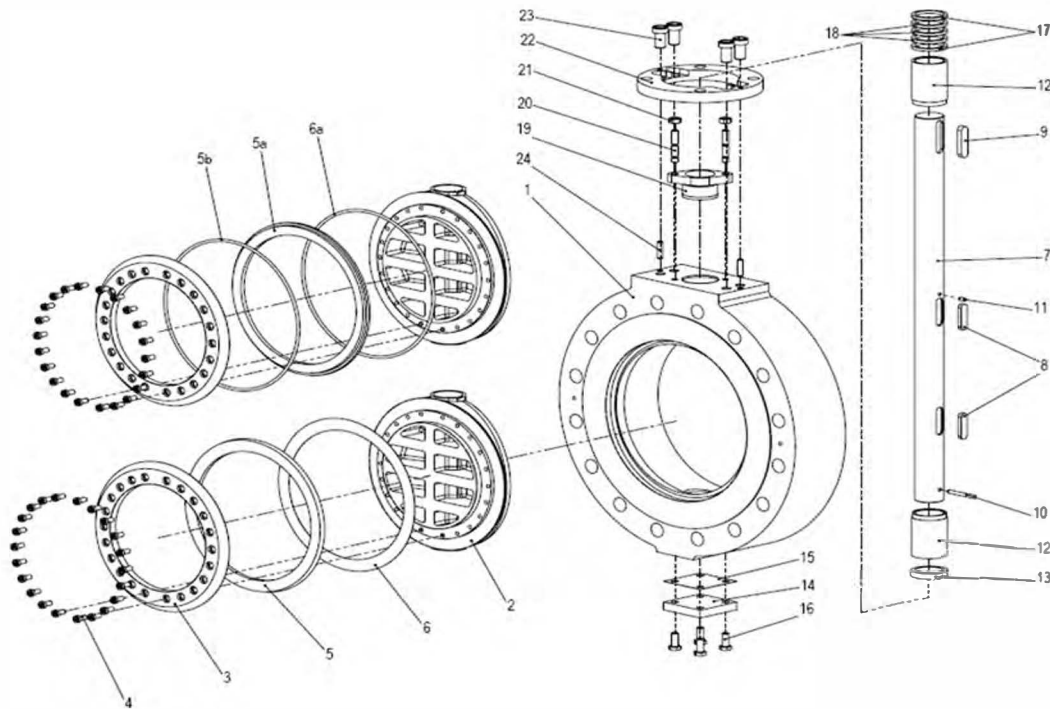
As a minimum, bearings shall be manufactured of stainless steel and be hard chromed. Valve designs with the bushings located back into the valve body are not allowed. For full protection from the media, our patented Sealed Bearing Design should be utilized. With this patented design, the bearing is no longer a wetted component and is isolated from the media and particulate matter. This quadax Sealed Bearing Design allows also for a live-loaded, fully adjustable, packing on both the top and the bottom bearings to ensure a consistent and constant load on the bearing seals.

Valve Shaft

The valve shaft shall be a one piece, stainless steel, design; TWO-PIECE SHAFTS ARE NOT ALLOWED. The shaft to disc connection will be fully keyed. No pinning of the shaft to the disc shall be allowed. Torque is delivered to the disc by means of machined keys. NO ADJUSTABLE THRUST BEARINGS ARE ALLOWED. The valve shaft shall be designed with an internal method to prevent the shaft from blowout in the unlikely event that the internal connections between the shaft and disc are broken. This design must be in compliance with API 609 Category B requirements. External disc position indication on the shaft is mandatory.

Packing

An adjustable packing gland shall be supplied. The packing shall be a five piece design and consist of a minimum of two braided graphite anti-extrusion rings top and bottom and a minimum of three die-formed graphite rings in the middle. Various packing materials and live-loading is available as an option.



pos	part	carbon steel design	stainless steel design
1	body	A 216 WCB	AISI 316
2	disc	A 216 WCB	AISI 316
3	clamp ring	A 285 Gr C nickel plated	AISI 316Ti
4	cylinder heat screw	A2-70	A2-70
5	disc seal	pure graphite	pure graphite
6	seal	AISI 316Ti/pure graphite	AISI 316Ti/pure graphite
7	shaft	AISI 431	AISI 431
8	key	AISI 316Ti	AISI 316Ti
9	key	AISI 316Ti	AISI 316Ti
10	dowel pin	AISI 316Ti	AISI 316Ti
11	dowel pin	AISI 316Ti	AISI 316Ti
12	bearing	AISI 304L chrome plated	AISI 304L chrome plated
13	retaining ring	AISI 304L	AISI 304L
14	cover plate	A 285 Gr C	A 316Ti
15	cover seal	pure graphite	pure graphite
16	hexagonal head screw	A2-70	A2-70
17	stuffing box	graphite plaiting	graphite plaiting
18	stuffing box	pure graphite	pure graphite
19	gland follower	AISI 316 (until DN300); A 216 WCB	AISI 316
20	tie rod	A2-70	A2-70
21	hexagonal nut	A2-70	A2-70
22	mounting flange	S355J0 galvanized	S355J0 galvanized
23	cylinder head screw	8.8	8.8
24	pin	V2A	V2A
25	plate	AISI 304L	AISI 304L
26	grooved drive stud	V2A	V2A

Q	Type	Body Style, Face to Face Std.	Version (Series)	Size	Pressure Class	Flange Face	Body	Cover	Packing Gland	Shaft	Shaft Trim Version	Clamp Ring	Disc	Body Seat	Disc Seal	Cover and Packing Gland Screws	Clamp Ring Screws	Bearings	Packing and Bearings	ISO 5211 Mounting Flange	Special Feature 1	Special Feature 2	Special Feature 3	Special Feature 4	Repair
EXTREME QUADAX	A		1	0200	A	X	X	X	X	X	X	X	X	X	X	X	X	X	X	C	X	X	X	X	X
				0090 = 3"	A = Class 150	X = RFRa 3.2-12.5	X = GP240GH/WCB	X = 1.4057 SS	X = Class 300 Long	1	X = Standard	X = A270 SS	X = 1.4301 Chromed	X = Graphite	1 = F10										
				0100 = 4"	B = Class 300	B = Groove 2512	B = P265GH/WCB	B = 1.4571 316Ti SS	A = Class 150Long	2	B = Stellite	B = A4-70 SS	B = Ceramic	B = PTFE	3 = F03										
				0125 = 5"	C = Class 600	C = Groove RTJ	C = 1.7357/WC6	C = 1.4980 Steel	B = Class 600 Long	3	C = Inconel 625	C = 1.4980	C = Cyogenic	C = Kalrez	5 = F05										
				0150 = 6"	D = Class 900	D = Vorspr. V13 (2513)	D = 1.7379/WC9	D = 1.4923 Steel	C = Class 900 Long	4	D = Monel	D = 1.4923 Steel		D = Graphite/Graphite Inlay	7 = F07										
				0200 = 8"	E = Class 1500	E = Ruckspr R13 (2513)	E = 1.4552/CF8C	E = 1.4462 F51 Duplex SS	H = Class 150 Std		E = Hastelloy	E = 1.7258 24CrMo5		E = PTFE/PTFE Inlay	9 = F09										
				0250 = 10"	0 = 6bar		F = 1.4408/CF8M	F = 1.4404 316L SS	J = Class 300 Std			F = 1.7709 21CrMoV5-7		F = Kalrez/PTFE Inlay	A = F12										
				0300 = 12"	1 = 10bar		G = 1.4988/X8CrNiMoVNb16-13	G = 1.4401 316 SS	K = Class 600 Std			G = 1.7225 42CrMo4		G = Graphite Cavity Free	B = F14										
				0350 = 14"	2 = 16bar		H = 1.4571/316Ti	H = 1.4541 SS	L = Class 900 Std					H = PTFE Cavity Free	C = F16										
				0400 = 16"	3 = 25bar		I = 1.4404/1.4435/AISI 316L	I = 2.4856 Inc 625						I = Kalrez Cavity Free	D = F25										
				0450 = 18"	4 = 40bar		J = 1.6220/LCB/LCC	J = Nitronic						J = Graphite/PTFE Inlay	E = F30										
				0500 = 20"	5 = 63bar		K = 1.5415 / 16 Mo 3	K = 1.4542 17.4PH						K = Seal bearing/PTFE Inlay	F = F35										
				0600 = 24"	6 = 100 bar		L = 1.4470 / A890 Gr 4A	L = 2.4375 Monel						L = Seal bearing/graphit Inlay	G = F40										
				0700 = 28"	7 = 160bar		M = 2.4858 / Inc625								H = F48										
				0750 = 30"			N = G-CuZn34Al2/2.0596 01																		
			0800 = 32"			O = 1.4489 / A890 Gr 5A																			
			0900 = 36"			P = 2.4858 / Inc 825																			
			1000 = 40"			S = Special Construction																			
			<p>Below options for Clamp Ring Material Only</p> <p>1 = GP240GH/WCB Clamp Ring + ENP</p> <p>1 = P265GH/WCB Clamp Ring + ENP</p> <p>1 = 1.7357/WC6 Clamp Ring + ENP</p> <p>1 = 1.7379/WC9 Clamp Ring + ENP</p>																						
			<p>A = Lug Style, API 609 Short</p> <p>E = Welded End wit side port</p> <p>F = Short Pattern Flanged, 600#/900#, DIN 3202.F4</p> <p>G = Long Pattern Flanged, ANSI B16.10</p> <p>I = Short Pattern Flanged, 150#/300#, ISO 5752</p> <p>K = DIN 3202-K3</p> <p>S = Butt weld Ends, DIN3202 F4/S4</p> <p>W = Wafer, API/K3</p>																						
			<p>X = Standard</p> <p>A = Steam Jacket</p> <p>B = Steam Jacket 1.4571</p> <p>C = Extension 6"</p> <p>D = Extension 8"</p> <p>E = Extension 12"</p> <p>F = Cover Spiral</p> <p>G = Fixed Clamp Screw</p> <p>H = Restricted Air</p> <p>I = Extension 20"</p> <p>J = Seat Something</p> <p>K = Coating 0.15mm</p> <p>L = Coating 0.35mm</p> <p>S = Special Construction</p> <p>M = Replacable Seat</p> <p>N = Material Cert</p> <p>O = Oxygen Cleaned</p>																						

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quadax valves inc.

**1518 Grundy's Lane
Fax: 855-678-2329**

**Bristol, PA 19007, USA
sales@quadaxvalves.com**

**Phone: 215-788-7095
www.quadaxvalves.com**