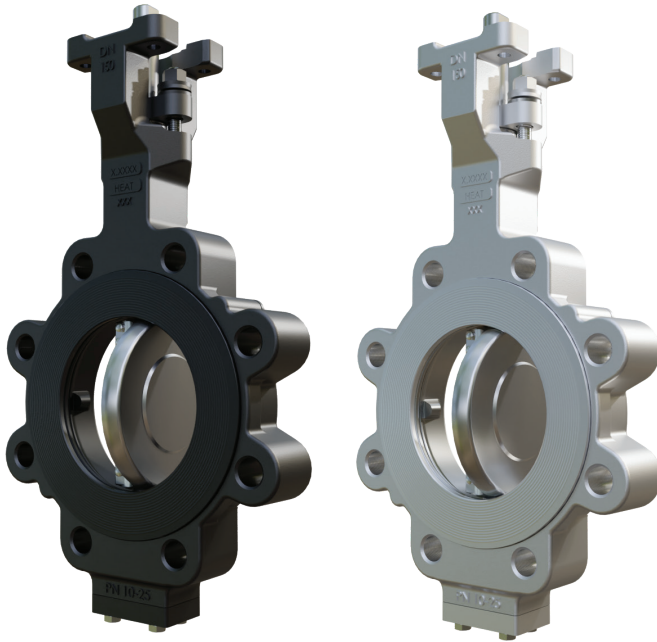




KEYSTONE K-LOK® SERIES 38
HIGH PERFORMANCE BUTTERFLY VALVE



FEATURES AND BENEFITS

- Interference polymer seat design provides bi-directional, drop-tight shut-off in vacuum as well as at full rated differential pressure. Its unique design does not rely on pressure to assist sealing therefore seals at high and low pressures, as well as media containing particulate.
- Integrally cast-in disc position stop perfectly locates the disc in the seat, achieving maximum seat and seal life, reducing total cost of ownership.
- Clamping sleeve enhances vertical alignment of the disc and shaft while in service including during thermal cycles, resulting in reduced wear of the seat and further extension of the seat and seal life.
- All valves have been certified for low emissions to the latest edition of ISO 15848-1 tightness class BH endurance class C03.
- Unique packing design allows for use in pressure as well as vacuum without modification or special assembly.
- Unique gland bridge design compensates for uneven adjustment of gland nuts, reducing packing leaks and maintenance costs.
- Blow-out resistant shaft is standard on all valves for increased operator safety.
- Disc taper pins are tangentially positioned placing them in compression rather than shear stress, which eliminates potential for failure and increases safety.
- Extended neck allows for up to 100 mm of pipeline insulation, allowing access to packing gland, for size DN 100 and above. For size less than DN 100, insulation height is equal to DN number in valve (e.g., 80 mm for DN 80).

GENERAL APPLICATIONS

- Chemical/petrochemical processing
- Purified gas
- Steam
- Vacuum
- Water and utilities

TECHNICAL DATA

Size range:	DN 50 to DN 400
Body style:	Wafer and Lug
Vacuum rating:	1.354 x 10 ⁻³ mbar (1.016 x 10 ⁻³ mm Hg)
Pressure rating:	PN 10, PN 16, PN 25
Temperature rating:	-29 °C to 200 °C

Lug style valves are full rated for bi-directional dead-end service as standard and incorporate an uninterrupted flange gasket sealing surface.

Series 38 valves are designed to the latest valve and chemical industry standards, including: EN 12569, EN 593, EN 16668, and Namur NE 167.

KEYSTONE K-LOK® SERIES 38

PRINCIPLES OF OPERATION

PRINCIPLES OF OPERATION

K-LOK's unique two-piece shaft and double-offset disc/shaft design allows for high cycling and creates a lower disc profile with increased capacity and a rangeability of 33:1.

In addition to increasing the flow area across the disc, this design minimizes wear points between seat and disc.

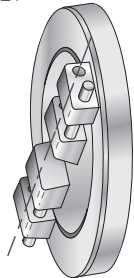
The first offset is achieved by locating the shafts downstream of the center-line of the seat. This allows for a totally unobstructed 360° sealing surface.

The second offset locates the shafts off-center of the vertical axis of the seat.

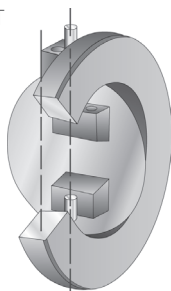
The combination of these two offsets creates a camming effect as the disc swings into and out of the seat. The disc lifts quickly out of the seat in the first few degrees of travel and does not contact the seat again until it is nearly closed.

There are no wear points between the seat and disc, while operating torques are reduced and seat life is extended.

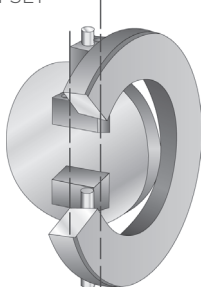
DOUBLE OFFSET



FIRST OFFSET



SECOND OFFSET



Adjustable shaft packaging

The K-LOK's unique shaft packaging is composed of 3 rings of braided PTFE rope between one PTFE V-ring at the top and bottom. The packing operates on an interference fit with the body and therefore will seal in pressure and vacuum. Many other manufacturers' designs will require special packing for vacuum services.

This packing is easily field adjustable without the need to remove actuation. However, additional protecting cups can be supplied on request to prevent gland bolt adjustment, if desired. Another important feature is the use of a packing gland bridge which has been designed with a spherical radius for 360 degree contact with the radius on the packing gland which allows for even compression on the packing even with uneven tightening of the adjustment bolts.

Blow-out resistant shaft (BOR)

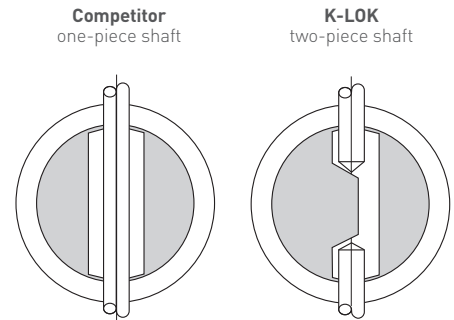
The Keystone K-LOK high performance butterfly valve contains a blow-out resistant shaft as a standard. This is achieved by machining a groove in the shaft that allows a snap ring to lock into the shaft groove. The packing gland follower is provided with an undercut on its lower surface which encapsulates the locked in snap ring. This design provides positive retention of the shaft in the unlikely event of a shaft breakage.

Fugitive emissions certified

All Series 38 valves are certified for low emissions to EN 15848-1 tightness class BH endurance class C03 and come standard with live loaded packing. This certification is also acceptable for TA LUFT-specified applications.

Two-piece shaft vs. one-piece shaft

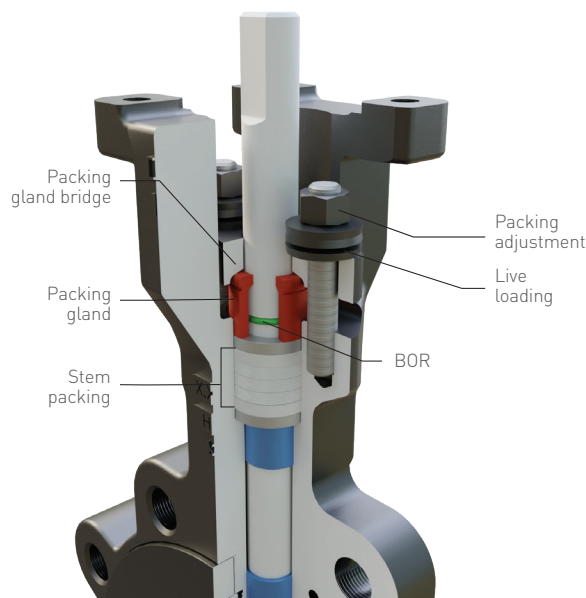
K-LOK's disc geometry maximizes flow capacity by increasing the available flow area through the valve. This increase in disc efficiency results in a higher valve C_v.



Aspect ratio = open area ÷ disc area

Standards and specifications applicable for K-LOK®

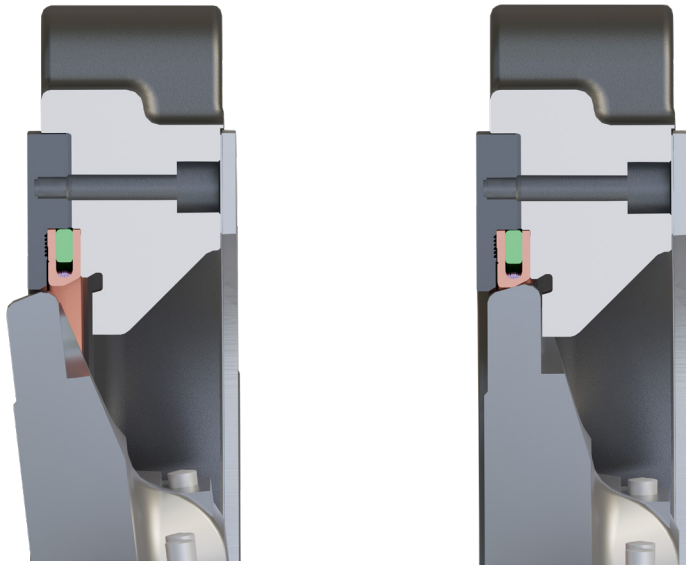
EN/ISO	12569	Valves for chemical and petrochemical process industry
	593	Metallic valves design
	558	Face-to-face dimension
	1092-1	Flange drillings
	16668	Testing of metallic valves
	15848-1	Fugitive emissions
	12266-1/2	Testing of metallic valves
Namur	NE 167	Chemical and petrochemical requirements
PED/CE		Pressure equipment directive



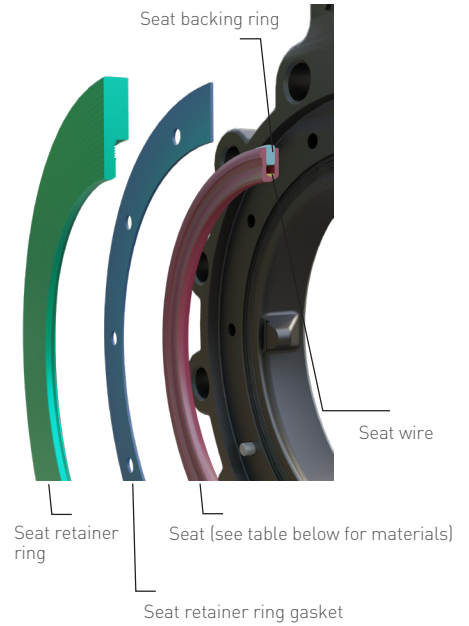
KEYSTONE K-LOK® SERIES 38

SEAT DESIGN

SEAT DESIGN



SEAT REPLACEMENT



SEAT DESIGN

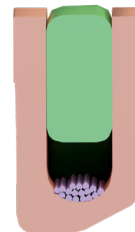
The K-LOK seat is a true interference seat design and unlike most other manufactures does not rely on line pressure to assist in sealing. All seats seal drop-tight and bubble-tight bi-directionally at low and high pressure as well as vacuum. Given the interference seat design, the K-LOK will also operate in dirty services where most pressure assist valves fail. Polymer (PTFE, RTFE) seats incorporate a unique design consisting of a stainless steel braided wire winding, enclosed in a U-shape envelope to provide seating energy and memory. This wire winding allows axial flexibility in both directions of flow. The winding also allows radial flexibility when the disc is not fully closed, reducing seat/disc interference, seat wear and shaft torque. When the disc closes, it provides circumferential stiffness and assures the required disc/seat seals tight in both vacuum and pressure.

SEAT REPLACEMENT

Seats for Keystone K-LOK Series 38 are replaceable. Refer to IOM. Disassembly of the disc and shaft is not required.

SEAT MATERIALS

Seat	Material	Typical applications
1. RTFE	Reinforced polytetrafluoroethylene	Steam, chlorine, ammonia, nitrogen, water, gasoline
2. PTFE	Polytetrafluoroethylene	Pharmaceuticals, air, potable water, dyes, white mediums
Wire wrap	Stainless steel braided wire	
Seat backing ring	Stainless steel	



KEYSTONE K-LOK® SERIES 38

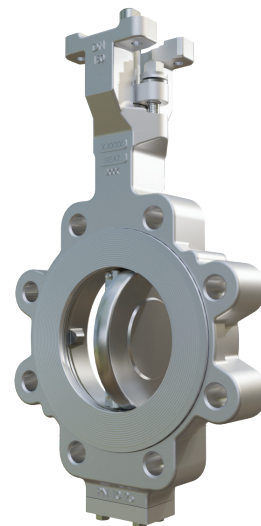
SEALING INTEGRITY

SEAT TIGHTNESS

All polymer seated valves are factory tested for bi-directional bubble-tight shut-off, in accordance with the requirements of EN 12266-1 Leakage Rate A.

BI-DIRECTIONAL DEAD END SERVICE (LUG STYLE VALVES)

The Keystone K-LOK Series 38 in a lug style body is designed to be used in dead end service applications and will hold full rated pressure with the pipe flange removed on either side of the valve. This is accomplished with an uninterrupted flange sealing surface on the seat retainer ring in accordance with EN 12569. This feature will prevent any leakage between the pipe flange and the valve due to exposed seat retainer ring bolting.



KEYSTONE K-LOK® SERIES 38

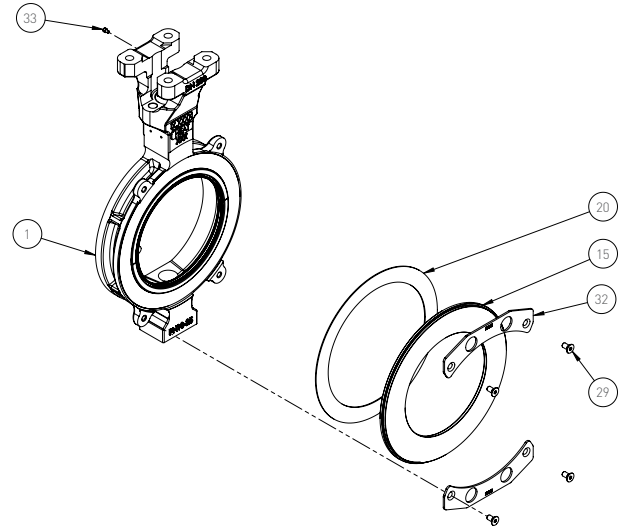
MATERIALS OF CONSTRUCTION

MATERIALS OF CONSTRUCTION

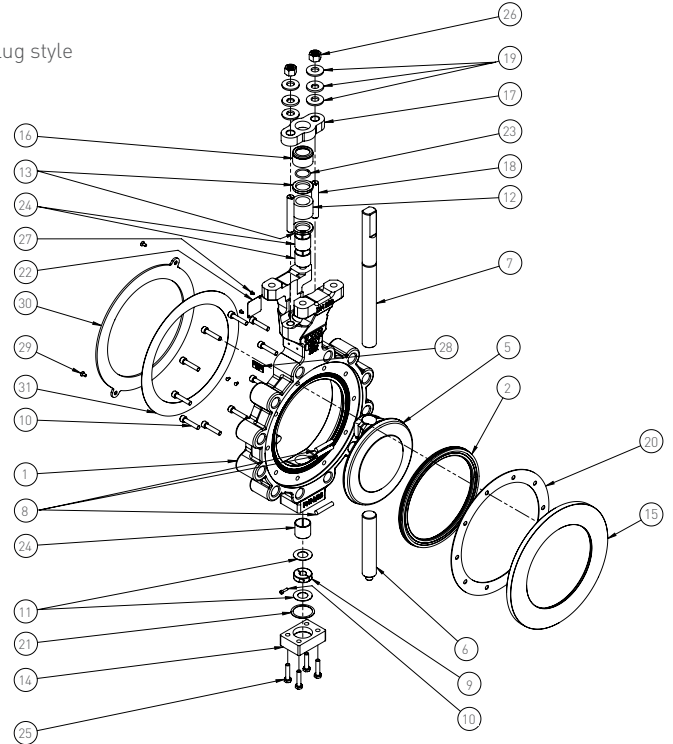
STANDARD MATERIALS OF CONSTRUCTION

No.	Description	Material	Material standard
1	Body	Carbon steel	EN10213 1.0619 / ASTM A216 WCB
		Stainless steel	EN10213 1.4408 / ASTM A351 CF8M
2	Seat assembly	Polymer	PTFE RTFE
3	Wire structure	Stainless steel	
4	Seat backing ring	Stainless steel	EN 10088-3 1.4301
5	Disc	316 Stainless steel	EN10213 1.4408 / ASTM A351 CF8M
		Super duplex	EN 10213 1.4469 / ASTM A995 5A CE3MN
6	Lower stem	17-4 PH	EN 10088-3 1.4542 P960 / ASTM A564 630 H1075
7	Upper stem	17-4 PH	EN 10088-3 1.4542 P960 / ASTM A564 630 H1075
8	Taper pin	17-4 PH	EN 10088-3 1.4542 P960 / ASTM A564 630 H1075
9	Clamping sleeve	316 Stainless steel	EN 10272 1.4401
10	Screw, Socket hex HD cap	316 Stainless steel	EN ISO 3506-2 A4-70
11	Thrust washer	316 SS/Nitride	EN 10088-2 1.4401 + Nitrided
12	Stem packing	PTFE	PTFE Braid and Solid PTFE
13	Anti-extrusion ring	316 Stainless steel	EN 10088-3 1.4401
14	Bottom cover	Carbon steel	EN 10028-2 1.0425
		Stainless steel	EN 10028-7 1.4404
15	Seat retaining ring	Carbon steel	EN 10028-2 1.0425
		Stainless steel	EN 10028-7 1.4404
16	Gland	316 Stainless steel	EN 10272 1.4401
17	Gland bridge	17-4 PH	EN 10088-3 1.4542 P930
18	Stud	316 Stainless steel	EN ISO 3506-1 A4-70
19	Belleville washer	Stainless steel	EN 10088-3 1.4301
20	Seat retaining ring gasket	PTFE	
21	Bottom cover gasket	PTFE	
22	Name plate	Stainless steel	EN 1.4301 / EN 1.4401
23	Ring, Stem retention	304 Stainless steel	EN 10088-2/3 1.4301
24	Stem bearing	316 SS/PTFE	EN 1.4401 + PTFE
25	Screw, Hex head cap	316 Stainless steel	EN ISO 3506-1 A4-70
26	Hex nut	316 Stainless steel	EN ISO 3506-2 A4-70
27	Rivet	Stainless steel	EN 1.4301 / EN 1.4401
28	Flow tag	Stainless steel	EN 1.4301 / EN 1.4401
29	Screw, Flat countersunk	316 Stainless steel	EN ISO 3506-1 A4-70
30	Cover plate (Lug only)	Carbon steel	EN 10028-2 1.0425
		Stainless steel	EN 10028-7 1.4404
31	Cover plate gasket (Lug only)	PTFE	
32	Retainer plate / Clip (Wafer only)	Stainless steel	EN10088-2 1.4401
		Carbon steel / Zinc plated	EN S275+ZINC PLT
33	Electrical continuity screw (Wafer only)	316 Stainless steel	EN ISO 3506-1 A4-70

Wafer style

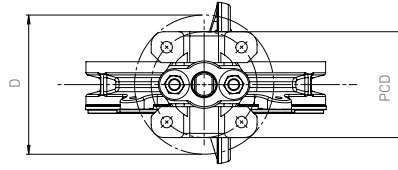
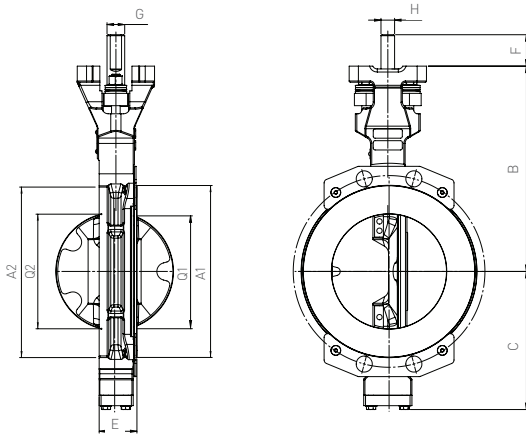


Lug style



KEYSTONE K-LOK® SERIES 38

DIMENSIONAL DATA - WAFER STYLE



NOTES

- All dimensions are in mm.
- E*: Face-to-face in accordance with EN 558-1, Series 20
- E***: Face-to-face in accordance with EN 558-1, Series 25

Q dimension is the minimum allowable inside pipe diameter considering 2 mm mating flange gasket for ≤ DN 300 and 3 mm gasket for >DN 300, on each end of the valve.

Q1*: For Series 20 FTF valve configuration
Q1***: For Series 25 FTF valve configuration

Weight*: For Series 20 FTF valve configuration

Weight***: For Series 25 FTF valve configuration

SERIES 38, WAFER STYLE, PN 10 DIMENSIONS (METRIC)

DN	NPS	A1	A2	B	C	D	E*	E**	F	Q1*	Q1**	Q2	Shaft dimensions		Tapped lug data			Top plate drilling				Weight* (kg)	Weight** (kg)
													G	H	Holes no.	Bolt circle	Tap	ISO Flange	PCD	Holes no.	Holes dia.		
50	2	102	102	181	108	96	43±2	-	32	11	-	37	14.27	11	-	-	-	F07	70	4	9	5	-
65	2½	122	124	205	121	96	46±2	-	32	50	-	59	14.27	11	-	-	-	F07	70	4	9	5	-
80	3	138	140	225	129	96	46±2	49±2	32	44	33	68	14.27	11	-	-	-	F07	70	4	9	7	7
100	4	162	164	265	155	96	52±2	56±2	32	80	72	91	19.05	14	-	-	-	F07	70	4	9	11	12
125	5	188	190	292	160	134	56±2	64±2	32	112	101	118	19.05	14	-	-	-	F10	102	4	11	15	16
150	6	218	220	307	187	134	56±2	70±2	32	131	111	140	22.23	17	-	-	-	F10	102	4	11	18	21
200	8	268	283	332	231	164	60±2	71±2	51	181	170	186	28.58	22	-	-	-	F12	125	4	13.5	29	32
250	10	320	320	355	264	179	68±2	76±2	51	231	224	238	34.93	22	-	-	-	F14	140	4	17.5	45	48
300	12	370	400	387	305	179	78±3	83±3	76	277	273	285	38.1	27	4	400	M20	F14	140	4	17.5	67	70
350	14	430	430	421	333	210	78±3	92±3	76	308	298	310	41.28	27	4	460	M20	F16	165	4	22	89	92
400	16	482	511	453	359	210	102±3	102±3	76	344	344	353	44.45	27	-	-	-	F16	165	4	22	118	118

SERIES 38, WAFER STYLE, PN 16 DIMENSIONS (METRIC)

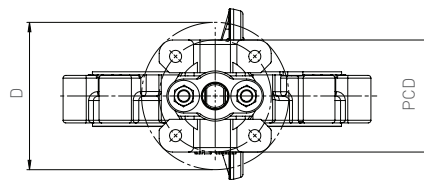
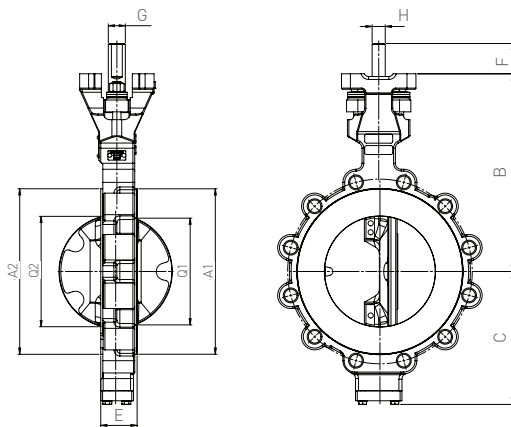
DN	NPS	A1	A2	B	C	D	E*	E**	F	Q1*	Q1**	Q2	Shaft dimensions		Tapped lug data			Top plate drilling				Weight* (kg)	Weight** (kg)
													G	H	Holes no.	Bolt circle	Tap	ISO Flange	PCD	Holes no.	Holes dia.		
50	2	102	102	181	108	96	43±2	-	32	11	-	37	14.27	11	-	-	-	F07	70	4	9	5	-
65	2½	122	124	205	121	96	46±2	-	32	50	-	59	14.27	11	-	-	-	F07	70	4	9	5	-
80	3	138	140	225	129	96	46±2	49±2	32	44	33	68	14.27	11	-	-	-	F07	70	4	9	7	7
100	4	162	164	265	155	96	52±2	56±2	32	80	72	91	19.05	14	-	-	-	F07	70	4	9	11	12
125	5	188	190	292	160	134	56±2	64±2	32	112	101	118	19.05	14	-	-	-	F10	102	4	11	15	16
150	6	218	220	307	187	134	56±2	70±2	32	131	111	140	22.23	17	-	-	-	F10	102	4	11	18	21
200	8	268	283	332	231	164	60±2	71±2	51	181	170	186	28.58	22	-	-	-	F12	125	4	13.5	29	32
250	10	320	320	355	264	179	68±2	76±2	51	231	224	238	34.93	22	-	-	-	F14	140	4	17.5	45	48
300	12	378	400	387	305	179	78±3	83±3	76	277	273	285	38.1	27	4	410	M24	F14	140	4	17.5	67	70
350	14	438	438	421	333	210	78±3	92±3	76	308	298	310	41.28	27	4	470	M24	F16	165	4	22	89	98
400	16	490	511	453	359	210	102±3	102±3	76	344	344	353	44.45	27	-	-	-	F16	165	4	22	119	119

SERIES 38, WAFER STYLE, PN 25 DIMENSIONS (METRIC)

DN	NPS	A1	A2	B	C	D	E*	E**	F	Q1*	Q1**	Q2	Shaft dimensions		Tapped lug data			Top plate drilling				Weight* (kg)	Weight** (kg)
													G	H	Holes no.	Bolt circle	Tap	ISO Flange	PCD	Holes no.	Holes dia.		
50	2	102	102	181	108	96	43±2	-	32	11	-	37	14.27	11	-	-	-	F07	70	4	9	5	-
65	2½	122	124	205	121	96	46±2	-	32	50	-	59	14.27	11	-	-	-	F07	70	4	9	5	-
80	3	138	140	225	129	96	46±2	49±2	32	44	33	68	14.27	11	-	-	-	F07	70	4	9	7	7
100	4	162	164	265	155	96	52±2	56±2	32	80	72	91	19.05	14	-	-	-	F07	70	4	9	11	12
125	5	188	190	292	160	134	56±2	64±2	32	112	101	118	19.05	14	-	-	-	F10	102	4	11	15	16
150	6	218	220	307	187	134	56±2	70±2	32	131	111	140	22.23	17	-	-	-	F10	102	4	11	18	21
200	8	278	283	332	231	164	60±2	71±2	51	181	170	186	28.58	22	-	-	-	F12	125	4	13.5	29	32
250	10	335	335	355	264	179	68±2	76±2	51	231	224	238	34.93	22	-	-	-	F14	140	4	17.5	45	48
300	12	395	400	387	305	179	78±3	83±3	76	277	273	285	38.1	27	4	430	M27	F14	140	4	17.5	68	71
350	14	450	450	421	333	210	78±3	92±3	76	308	298	310	41.28	27	4	490	M30	F16	165	4	22	89	98
400	16	505	511	453	359	210	102±3	102±3	76	344	344	353	44.45	27	-	-	-	F16	165	4	22	122	122

KEYSTONE K-LOK® SERIES 38

DIMENSIONAL DATA - LUG STYLE



NOTES

1. All dimensions are in mm.

E*: Face-to-face in accordance with EN 558-1, Series 20

E**: Face-to-face in accordance with EN 558-1, Series 25

Q dimension is the minimum allowable inside pipe diameter considering 2 mm mating flange gasket for ≤ DN 300 and 3 mm gasket for >DN 300, on each end of the valve.

Q1*: For Series 20 FTF valve configuration

Q1**: For Series 25 valve configuration

Weight*: For Series 20 FTF valve configuration

Weight**: For Series 25 valve configuration

SERIES 38, LUG STYLE, PN 10 DIMENSIONS (METRIC)

DN	NPS	A1	A2	B	C	D	E*	E**	F	Q1*	Q1**	Q2	Shaft dimensions		Tapped lug data			Top plate drilling				Weight* (kg)	Weight** (kg)
													G	H	Holes no.	Bolt circle	Tap	ISO Flange	PCD	Holes no.	Holes dia.		
50	2	102	102	181	108	96	43±2	-	32	14	-	34	14.27	11	4	125	M16	F07	70	4	9	6	-
65	2½	122	122	205	121	96	46±2	-	32	52	-	57	14.27	11	8	145	M16	F07	70	4	9	8	-
80	3	138	138	225	129	96	46±2	49±2	32	52	44	64	14.27	11	8	160	M16	F07	70	4	9	10	10
100	4	158	158	265	155	96	52±2	56±2	32	82	76	89	19.05	14	8	180	M16	F07	70	4	9	14	15
125	5	188	188	292	160	134	56±2	64±2	32	114	103	116	19.05	14	8	210	M16	F10	102	4	11	20	21
150	6	212	212	307	187	134	56±2	70±2	32	134	115	139	22.23	17	8	240	M20	F10	102	4	11	24	27
200	8	268	268	332	231	164	60±2	71±2	51	181	170	186	28.58	22	8	295	M20	F12	125	4	13.5	34	37
250	10	320	320	355	264	179	68±2	76±2	51	231	225	237	34.93	22	12	350	M20	F14	140	4	17.5	57	59
300	12	370	370	387	305	179	78±3	83±3	76	277	274	284	38.1	27	12	400	M20	F14	140	4	17.5	73	75
350	14	430	430	421	333	210	78±3	92±3	76	307	298	310	41.28	27	16	460	M20	F16	165	4	22	99	107
400	16	482	482	453	359	210	102±3	102±3	76	344	344	354	44.45	27	16	515	M24	F16	165	4	22	135	135

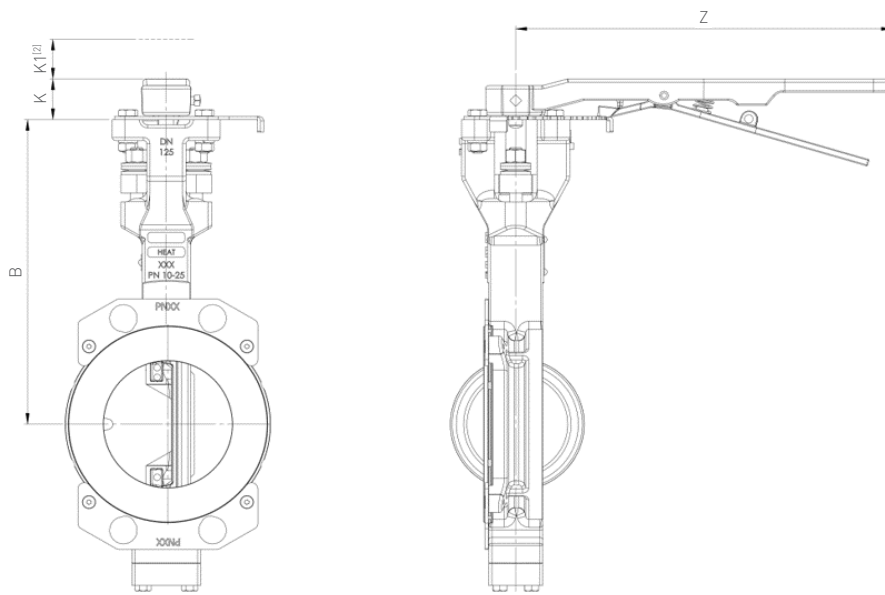
SERIES 38, LUG STYLE, PN 16 DIMENSIONS (METRIC)

DN	NPS	A1	A2	B	C	D	E*	E**	F	Q1*	Q1**	Q2	Shaft dimensions		Tapped lug data			Top plate drilling				Weight* (kg)	Weight** (kg)
													G	H	Holes no.	Bolt circle	Tap	ISO Flange	PCD	Holes no.	Holes dia.		
50	2	102	102	181	108	96	43±2	-	32	14	-	34	14.27	11	4	125	M16	F07	70	4	9	6	-
65	2½	122	122	205	121	96	46±2	-	32	52	-	57	14.27	11	8	145	M16	F07	70	4	9	8	-
80	3	138	138	225	129	96	46±2	49±2	32	52	44	64	14.27	11	8	160	M16	F07	70	4	9	10	10
100	4	158	158	265	155	96	52±2	56±2	32	82	76	89	19.05	14	8	180	M16	F07	70	4	9	14	15
125	5	188	188	292	160	134	56±2	64±2	32	114	103	116	19.05	14	8	210	M16	F10	102	4	11	20	21
150	6	212	212	307	187	134	56±2	70±2	32	134	115	139	22.23	17	8	240	M20	F10	102	4	11	24	27
200	8	268	268	332	231	164	60±2	71±2	51	181	170	186	28.58	22	12	295	M20	F12	125	4	13.5	36	39
250	10	320	320	355	264	179	68±2	76±2	51	231	225	237	34.93	22	12	355	M24	F14	140	4	17.5	57	59
300	12	378	378	387	305	179	78±3	83±3	76	277	274	284	38.1	27	12	410	M24	F14	140	4	17.5	73	75
350	14	438	438	421	333	210	78±3	92±3	76	307	298	310	41.28	27	16	470	M24	F16	165	4	22	98	106
400	16	490	490	453	359	210	102±3	102±3	76	344	344	354	44.45	27	16	525	M27	F16	165	4	22	136	136

SERIES 38, LUG STYLE, PN 25 DIMENSIONS (METRIC)

DN	NPS	A1	A2	B	C	D	E*	E**	F	Q1*	Q1**	Q2	Shaft dimensions		Tapped lug data			Top plate drilling				Weight* (kg)	Weight** (kg)
													G	H	Holes no.	Bolt circle	Tap	ISO Flange	PCD	Holes no.	Holes dia.		
50	2	102	102	181	108	96	43±2	-	32	14	-	34	14.27	11	4	125	M16	F07	70	4	9	6	-
65	2½	122	122	205	121	96	46±2	-	32	52	-	57	14.27	11	8	145	M16	F07	70	4	9	8	-
80	3	138	138	225	129	96	46±2	49±2	32	52	44	64	14.27	11	8	160	M16	F07	70	4	9	10	10
100	4	162	162	265	155	96	52±2	56±2	32	82	76	89	19.05	14	8	190	M20	F07	70	4	9	14	15
125	5	188	188	292	160	134	56±2	64±2	32	114	103	116	19.05	14	8	220	M24	F10	102	4	11	20	21
150	6	218	218	307	187	134	56±2	70±2	32	134	115	139	22.23	17	8	250	M24	F10	102	4	11	24	27
200	8	278	278	332	231	164	60±2	71±2	51	181	170	186	28.58	22	12	310	M24	F12	125	4	13.5	36	39
250	10	335	335	355	264	179	68±2	76±2	51	231	225	237	34.93	22	12	370	M27	F14	140	4	17.5	56	59
300	12	395	395	387	305	179	78±3	83±3	76	277	274	284	38.1	27	16	430	M27	F14	140	4	17.5	81	84
350	14	450	450	421	333	210	78±3	92±3	76	306	296	311	41.28	27	16	490	M30	F16	165	4	22	109	119
400	16	505	505	453	359	210	102±3	102±3	76	344	344	354	44.45	27	16	550	M33	F16	165	4	22	154	154

KEYSTONE K-LOK® SERIES 38
 DIMENSIONAL DATA - WAFER STYLE WITH HANDLE



DIMENSIONS (mm) - SERIES 38, PN 10 / PN 16 / PN 25, WAFER STYLE WITH HANDLE

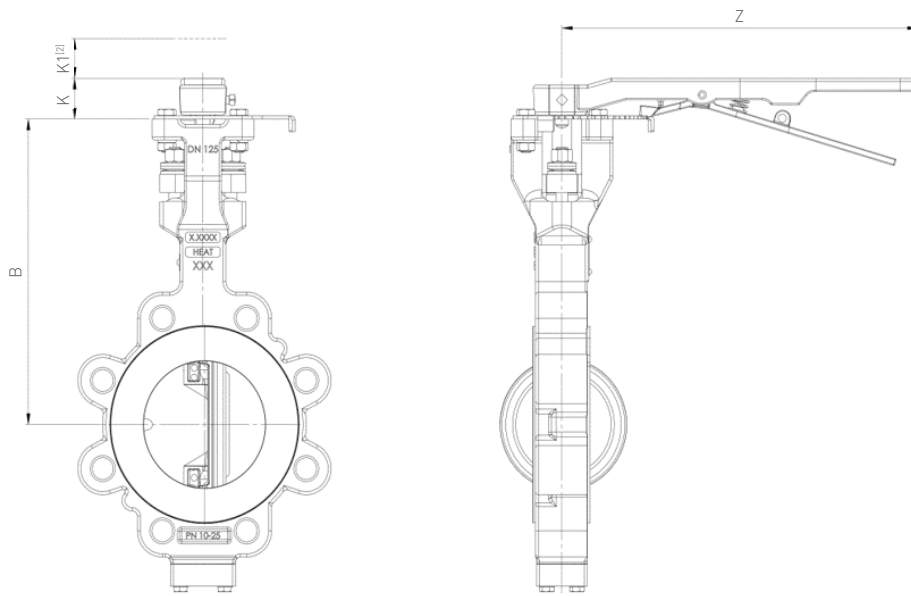
Size	ISO Flange	B	K	K1 ^[2]	Z	Mass (valve + handle)
DN	drilling					(kg)
50	F07	181	30	30	267	6.1
65	F07	205	30	30	267	6.1
80	F07	225	30	30	267	8.1
100	F07	265	30	30	267	12.1
125	F10	292	38	38	356	17

NOTES

1. Refer to individual drawing for further details of valve and handle.
2. Minimum clearance required for removal of handle.
3. Handles are not recommended on valve larger than DN 100. If used on valves larger than DN 100, pressure should be 10 bar or less.

KEYSTONE K-LOK® SERIES 38

DIMENSIONAL DATA - LUG STYLE WITH HANDLE



DIMENSIONS (mm) - SERIES 38, PN 10 / PN 16 / PN 25, LUG STYLE WITH HANDLE

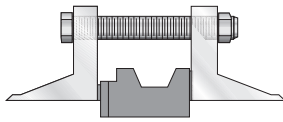
Size	ISO Flange					Mass (valve + handle)
DN	drilling	B	K	K1 [2]	Z	(kg)
50	F07	181	30	30	267	7.1
65	F07	205	30	30	267	9.1
80	F07	225	30	30	267	11.1
100	F07	265	30	30	267	15.1
125	F10	292	38	38	356	22

NOTES

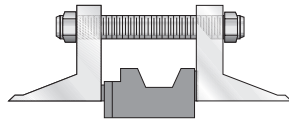
1. Refer to individual drawing for further details of valve and handle.
2. Minimum clearance required for removal of handle.
3. Handles are not recommended on valve larger than DN 100. If used on valves larger than DN 100, pressure should be 10 bar or less.

KEYSTONE K-LOK® SERIES 38

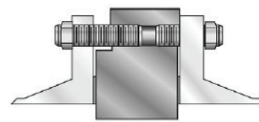
RECOMMENDED FLANGE BOLT LENGTHS



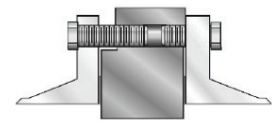
Type 1



Type 2



Type 3



Type 4

SERIES 38, PN 10, SERIES 20 FTF (mm)

WAFER STYLE

Size	Bolt type 1			Stud type 2		
	DN	NPS	Qty	Size	Qty	Size
50	2		4	M16x2 x 105	4	M16x2 x 125
65	2½		8	M16x2 x 110	8	M16x2 x 130
80	3		8	M16x2 x 115	8	M16x2 x 135
100	4		8	M16x2 x 120	8	M16x2 x 140
125	5		8	M16x2 x 125	8	M16x2 x 145
150	6		8	M20x2.5 x 135	8	M20x2.5 x 155
200	8		8	M20x2.5 x 140	8	M20x2.5 x 165
250	10		12	M20x2.5 x 150	12	M20x2.5 x 175
300	12		12	M20x2.5 x 160	12	M20x2.5 x 185
350	14		16	M20x2.5 x 165	16	M20x2.5 x 190
400	16		16	M24x3 x 190	16	M24x3 x 220

LUG STYLE

Size	Stud type 3			Bolt type 4		
	DN	NPS	Qty	Size	Qty	Size
50	2		8	M16x2 x 65	8	M16x2 x 40
65	2½		8	M16x2 x 65	8	M16x2 x 40
			8	M16x2 x 70	8	M16x2 x 45
80	3		16	M16x2 x 70	16	M16x2 x 45
100	4		16	M16x2 x 75	16	M16x2 x 45
125	5		16	M16x2 x 75	16	M16x2 x 45
150	6		16	M20x2.5 x 80	16	M20x2.5 x 50
200	8		16	M20x2.5 x 85	16	M20x2.5 x 55
250	10		16	M20x2.5 x 90	16	M20x2.5 x 55
			8	M20x2.5 x 95	8	M20x2.5 x 60
300	12		16	M20x2.5 x 95	16	M20x2.5 x 55
			8	M20x2.5 x 100	8	M20x2.5 x 60
350	14		32	M20x2.5 x 100	32	M20x2.5 x 60
400	16		20	M24x3 x 110	20	M24x3 x 75
			12	M24x3 x 120	12	M24x3 x 80

SERIES 38, PN 16, SERIES 20 FTF (mm)

WAFER STYLE

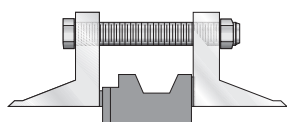
Size	Bolt type 1			Stud type 2		
	DN	NPS	Qty	Size	Qty	Size
50	2		4	M16x2 x 105	4	M16x2 x 125
65	2½		8	M16x2 x 110	8	M16x2 x 130
80	3		8	M16x2 x 115	8	M16x2 x 135
100	4		8	M16x2 x 120	8	M16x2 x 140
125	5		8	M16x2 x 125	8	M16x2 x 145
150	6		8	M20x2.5 x 135	8	M20x2.5 x 155
200	8		12	M20x2.5 x 140	12	M20x2.5 x 165
250	10		12	M24x3 x 155	12	M24x3 x 185
300	12		12	M24x3 x 170	12	M24x3 x 200
350	14		16	M24x3 x 175	16	M24x3 x 205
400	16		16	M27x3 x 205	16	M27x3 x 240

LUG STYLE

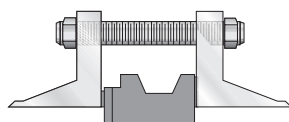
Size	Stud type 3			Bolt type 4		
	DN	NPS	Qty	Size	Qty	Size
50	2		8	M16x2 x 65	8	M16x2 x 40
65	2½		8	M16x2 x 65	8	M16x2 x 40
			8	M16x2 x 70	8	M16x2 x 45
80	3		16	M16x2 x 70	16	M16x2 x 45
100	4		16	M16x2 x 75	16	M16x2 x 45
125	5		16	M16x2 x 75	16	M16x2 x 45
150	6		16	M20x2.5 x 80	16	M20x2.5 x 50
200	8		24	M20x2.5 x 85	24	M20x2.5 x 55
250	10		12	M24x3 x 95	24	M24x3 x 60
			12	M24x3 x 100	-	-
300	12		24	M24x3 x 105	24	M24x3 x 65
350	14		16	M24x3 x 110	32	M24x3 x 65
			16	M24x3 x 105	-	-
400	16		16	M27x3 x 120	20	M27x3 x 80
			16	M27x3 x 130	12	M27x3 x 90

KEYSTONE K-LOK® SERIES 38

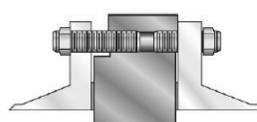
RECOMMENDED FLANGE BOLT LENGTHS



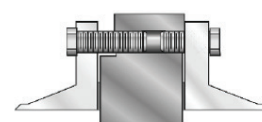
Type 1



Type 2



Type 3



Type 4

SERIES 38, PN 25, SERIES 20 FTF (mm)

WAFER STYLE

Size		Bolt type 1		Stud type 2	
DN	NPS	Qty	Size	Qty	Size
50	2	4	M16x2 x 110	4	M16x2 x 130
65	2½	8	M16x2 x 120	8	M16x2 x 140
80	3	8	M16x2 x 120	8	M16x2 x 140
100	4	8	M20x2.5 x 130	8	M20x2.5 x 155
125	5	8	M24x3 x 145	8	M24x3 x 175
150	6	8	M24x3 x 150	8	M24x3 x 180
200	8	12	M24x3 x 155	12	M24x3 x 185
250	10	12	M27x3 x 170	12	M27x3 x 205
300	12	16	M27x3 x 185	16	M27x3 x 220
350	14	16	M30x3.5 x 200	16	M30x3.5 x 235
400	16	16	M33x3.5 x 230	16	M33x3.5 x 270

LUG STYLE

Size		Stud type 3		Bolt type 4	
DN	NPS	Qty	Size	Qty	Size
50	2	4	M16x2 x 65	4	M16x2 x 40
		4	M16x2 x 70	4	M16x2 x 45
65	2½	8	M16x2 x 70	16	M16x2 x 45
		8	M16x2 x 75	-	-
80	3	16	M16x2 x 75	8	M16x2 x 45
		-	-	8	M16x2 x 50
100	4	16	M20x2.5 x 80	16	M20x2.5 x 50
125	5	16	M24x3 x 90	16	M24x3 x 55
150	6	16	M24x3 x 90	8	M24x3 x 55
		-	-	8	M24x3 x 60
200	8	12	M24x3 x 95	24	M24x3 x 60
		12	M24x3 x 100	-	-
250	10	12	M27x3 x 105	12	M27x3 x 65
		12	M27x3 x 110	12	M27x3 x 70
300	12	32	M27x3 x 115	20	M27x3 x 70
		-	-	12	M27x3 x 75
350	14	16	M30x3.5 x 125	32	M30x3.5 x 80
		16	M30x3.5 x 120	-	-
400	16	16	M33x3.5 x 140	16	M33x3.5 x 95
		16	M33x3.5 x 135	16	M33x3.5 x 90

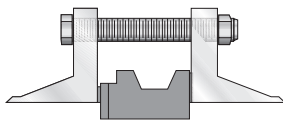
NOTES

Recommended bolt length assumes; Gasket thickness 2 mm for ≤ DN 300 and 3 mm for > DN 300.

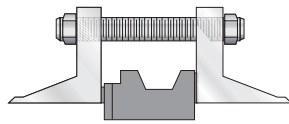
Recommended bolt lengths are based on EN558-1 Series 20 face-to-face.

KEYSTONE K-LOK® SERIES 38

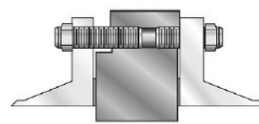
RECOMMENDED FLANGE BOLT LENGTHS



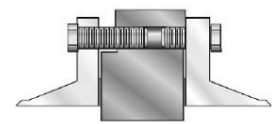
Type 1



Type 2



Type 3



Type 4

SERIES 38, PN 10, SERIES 25 FTF (mm)

WAFER STYLE

Size	Bolt type 1			Stud type 2		
	DN	NPS	Qty	Size	Qty	Size
80	3		8	M16x2 x 115	8	M16x2 x 140
100	4		8	M16x2 x 125	8	M16x2 x 145
125	5		8	M16x2 x 135	8	M16x2 x 155
150	6		8	M20x2.5 x 145	8	M20x2.5 x 170
200	8		8	M20x2.5 x 150	8	M20x2.5 x 175
250	10		12	M20x2.5 x 160	12	M20x2.5 x 185
300	12		12	M20x2.5 x 170	12	M20x2.5 x 190
350	14		16	M20x2.5 x 180	16	M20x2.5 x 205
400	16		16	M24x3 x 190	16	M24x3 x 220

LUG STYLE

Size	Stud type 3			Bolt type 4		
	DN	NPS	Qty	Size	Qty	Size
80	3		16	M16x2 x 70	16	M16x2 x 45
100	4		8	M16x2 x 80	8	M16x2 x 50
			8	M16x2 x 75	8	M16x2 x 45
125	5		8	M16x2 x 85	8	M16x2 x 55
			8	M16x2 x 75	8	M16x2 x 45
150	6		8	M20x2.5 x 95	8	M20x2.5 x 65
			8	M20x2.5 x 80	8	M20x2.5 x 50
200	8		8	M20x2.5 x 100	8	M20x2.5 x 65
			8	M20x2.5 x 85	8	M20x2.5 x 55
250	10		12	M20x2.5 x 100	12	M20x2.5 x 65
			12	M20x2.5 x 95	8	M20x2.5 x 60
			-	-	4	M20x2.5 x 55
300	12		24	M20x2.5 x 100	12	M20x2.5 x 65
			-	-	8	M20x2.5 x 60
			-	-	4	M20x2.5 x 55
350	14		16	M20x2.5 x 115	16	M20x2.5 x 75
			16	M20x2.5 x 100	16	M20x2.5 x 60
400	16		20	M24x3 x 110	20	M24x3 x 75
			12	M24x3 x 120	12	M24x3 x 80

SERIES 38, PN 16, SERIES 25 FTF (mm)

WAFER STYLE

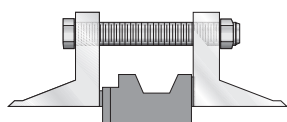
Size	Bolt type 1			Stud type 2		
	DN	NPS	Qty	Size	Qty	Size
80	3		8	M16x2 x 115	8	M16x2 x 140
100	4		8	M16x2 x 125	8	M16x2 x 145
125	5		8	M16x2 x 135	8	M16x2 x 155
150	6		8	M20x2.5 x 145	8	M20x2.5 x 170
200	8		12	M20x2.5 x 150	12	M20x2.5 x 175
250	10		12	M24x3 x 165	12	M24x3 x 195
300	12		12	M24x3 x 175	12	M24x3 x 205
350	14		16	M24x3 x 190	16	M24x3 x 220
400	16		16	M27x3 x 205	16	M27x3 x 240

LUG STYLE

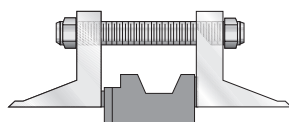
Size	Stud type 3			Bolt type 4		
	DN	NPS	Qty	Size	Qty	Size
80	3		16	M16x2 x 70	16	M16x2 x 45
100	4		8	M16x2 x 80	8	M16x2 x 50
			8	M16x2 x 75	8	M16x2 x 45
125	5		8	M16x2 x 85	8	M16x2 x 55
			8	M16x2 x 75	8	M16x2 x 45
150	6		8	M20x2.5 x 95	8	M20x2.5 x 65
			8	M20x2.5 x 80	8	M20x2.5 x 50
200	8		12	M20x2.5 x 100	12	M20x2.5 x 65
			12	M20x2.5 x 85	12	M20x2.5 x 55
250	10		12	M24x3 x 105	12	M24x3 x 70
			12	M24x3 x 100	12	M24x3 x 60
300	12		12	M24x3 x 110	12	M24x3 x 75
			12	M24x3 x 105	12	M24x3 x 65
350	14		16	M24x3 x 120	16	M24x3 x 85
			16	M24x3 x 105	16	M24x3 x 65
400	16		16	M27x3 x 120	20	M27x3 x 80
			16	M27x3 x 130	12	M27x3 x 90

KEYSTONE K-LOK® SERIES 38

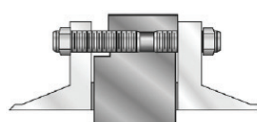
RECOMMENDED FLANGE BOLT LENGTHS



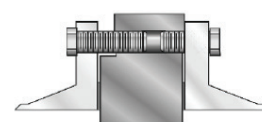
Type 1



Type 2



Type 3



Type 4

SERIES 38, PN 25, SERIES 25 FTF (mm)

WAFER STYLE

Size		Bolt type 1		Stud type 2	
DN	NPS	Qty	Size	Qty	Size
80	3	8	M16x2 x 125	8	M16x2 x 145
100	4	8	M20x2.5 x 135	8	M20x2.5 x 160
125	5	8	M24x3 x 155	8	M24x3 x 185
150	6	8	M24x3 x 165	8	M24x3 x 195
200	8	12	M24x3 x 170	12	M24x3 x 200
250	10	12	M27x3 x 180	12	M27x3 x 215
300	12	16	M27x3 x 190	16	M27x3 x 225
350	14	16	M30x3.5 x 215	16	M30x3.5 x 250
400	16	16	M33x3.5 x 230	16	M33x3.5 x 270

LUG STYLE

Size		Stud type 3		Bolt type 4	
DN	NPS	Qty	Size	Qty	Size
80	3	16	M16x2 x 75	16	M16x2 x 50
100	4	8	M20x2.5 x 85	8	M20x2.5 x 55
		8	M20x2.5 x 80	8	M20x2.5 x 50
125	5	8	M24x3 x 100	8	M24x3 x 65
		8	M24x3 x 90	8	M24x3 x 55
150	6	8	M24x3 x 105	8	M24x3 x 70
		8	M24x3 x 90	8	M24x3 x 60
200	8	12	M24x3 x 110	12	M24x3 x 75
		12	M24x3 x 100	12	M24x3 x 60
250	10	24	M27x3 x 110	24	M27x3 x 70
300	12	16	M27x3 x 120	16	M27x3 x 80
		16	M27x3 x 115	12	M27x3 x 75
		-	-	4	M27x3 x 70
350	14	16	M30x3.5 x 140	16	M30x3.5 x 90
		16	M30x3.5 x 120	16	M30x3.5 x 80
400	16	16	M33x3.5 x 140	16	M33x3.5 x 95
		16	M33x3.5 x 135	16	M33x3.5 x 90

NOTES

Recommended bolt length assumes; Gasket thickness 2 mm for ≤ DN 300 and 3 mm for > DN 300.

Recommended bolt lengths are based on EN558-1 Series 25 face-to-face.

KEYSTONE K-LOK® SERIES 38

VACUUM RATING AND FLOWRATES

VACUUM RATING

The combination of interference fit seats and bi-directional packing makes the K-LOK especially well suited for vacuum service.

Standard K-LOK high performance valves are rated to an absolute pressure of 1.354×10^{-3} mbar (1.016×10^{-3} mm Hg). Configurations may be available to satisfy higher vacuum applications.

FLOWRATE CO-EFFICIENTS

K_v VALUES VS. TRAVEL POSITION

Size DN	Angle of opening								
	10°	20°	30°	40°	50°	60°	70°	80°	90°
50	2	3	10	21	33	45	52	56	58
65	5	9	16	29	46	69	96	128	147
80	7	10	21	37	58	86	120	160	185
100	14	20	38	69	112	167	232	310	356
125	26	38	72	128	209	315	434	580	677
150	43	60	112	198	319	474	655	871	983
200	72	101	216	377	599	907	1290	1725	1983
250	124	174	391	650	1021	1570	2251	3052	3735
300	179	262	584	906	1401	2384	3308	4590	5689
350	222	310	644	1022	1646	2690	3807	5366	6940
400	265	372	692	1226	1973	3115	4526	6491	8403

NOTE

K_v is the volume of water in m³/h that will pass through a valve with a pressure drop of 1 bar at 20°C.

KEYSTONE K-LOK® SERIES 38

TORQUE VALUES

SEATING AND UN-SEATING TORQUE

Seating and un-seating torques are a function of the size of the valve and the shutoff pressure of the system.

Specific torque ratings can be found in the seating/un-seating chart at the intersection of the 'size' row and the 'shutoff pressure' column. Torques listed are for PTFE and RTFE seated valves. All torques listed are for normal service conditions (i.e. operating frequency is a minimum of once per month; disc corrosion is expected to be mild or minor, the media is a clean gas, liquid or steam, and is non-abrasive) and chemical effects upon the seat are minor.

PTFE AND RTFE BI-DIRECTIONAL SEATING AND UN-SEATING TORQUE VALUES

Valve size DN	Seating and un-seating torque (Nm)		
	System shutoff pressure (bar)		
	10	16	25
50	25	34	49
65	25	34	49
80	28	39	55
100	54	74	105
125	105	130	168
150	155	185	230
200	233	308	420
250	377	482	640
300	519	650	847
350	763	936	1197
400	1057	1272	1593

NOTES

1. Torques are applicable only to PTFE and RTFE seats in noncorrosive or non-abrasive services such as water.
2. For corrosive, abrasive or other services than water, multiply by the following factor:

High solids slurry:	x 1.5
Dry gas:	x 2.0
Dry powders:	x 2.7
Liquids other than water:	x 1.2
Lubricating fluids:	x 0.8

For services that combine unfriendly conditions such as extreme temperatures and high solids, or corrosive with high temperatures, contact your sales representative.

MAXIMUM ALLOWABLE STEM TORQUE

Valve size (DN)	Maximum Allowable Stem Torque (Nm)
50	191
65	191
80	355
100	643
125	643
150	940
200	2186
250	3762
300	4916
350	6138
400	7716

KEYSTONE K-LOK® SERIES 38

PRESSURE/TEMPERATURE

PRESSURE/TEMPERATURE RATINGS FOR BODIES, DISCS AND SEATS

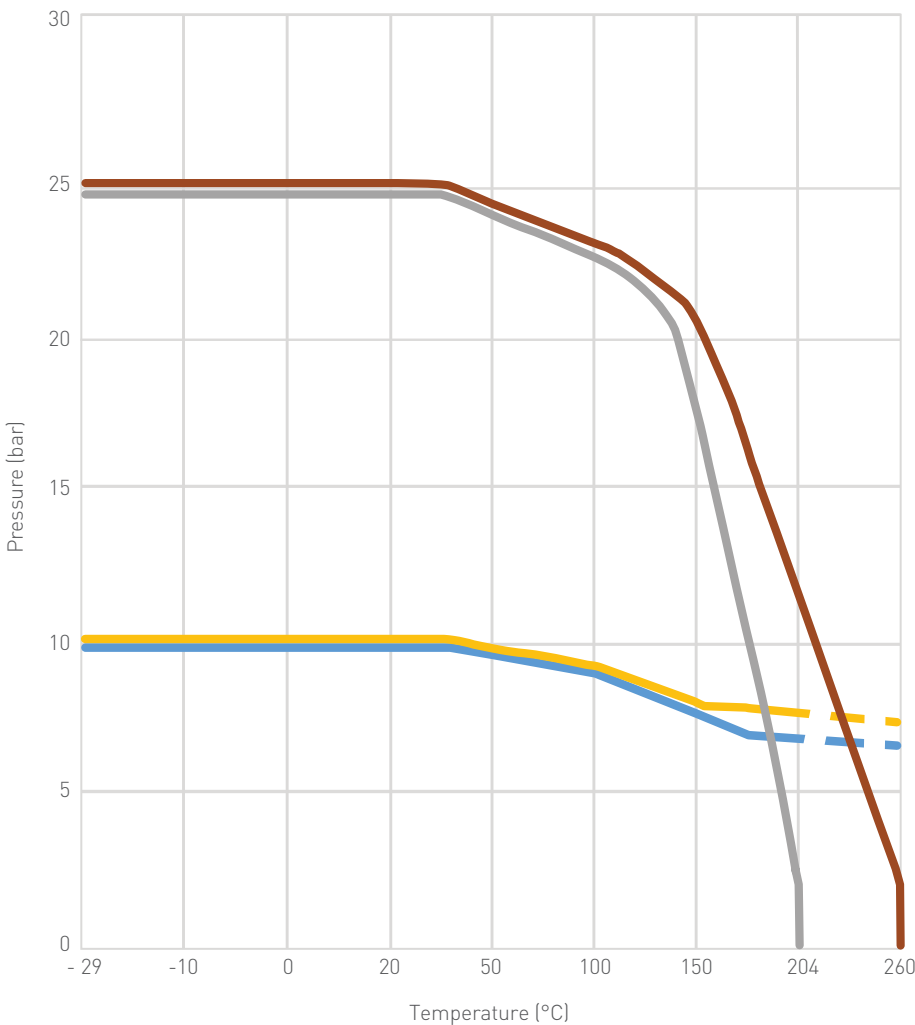
Pressure (bar)	Temperature [°C]								
	-29	-10	20	50	100	150	204	250	260
Carbon steel 1.0619 [2]									
PN 10 Body	10	10	10	10	9.4	8.9	8	7.7	7.6
PN 16 Body	16	16	16	16	15	14.2	12.8	12.3	12.1
PN 25 Body	25	25	25	25	23.4	22.2	20.1	19.2	18.8
Stainless steel 1.4408									
PN 10 Body/Disc	10	10	10	10	9.5	8.5	7.3	7	6.9
PN 16 Body/Disc	16	16	16	16	15.2	13.7	12	11.2	11
PN 25 Body/Disc	25	25	25	25	23.8	21.4	18.8	17.5	17.2
Super duplex 1.4469									
PN 10 Disc	10	10	10	10	10	10	10	10	-
PN 16 Disc	16	16	16	16	16	16	16	16	-
PN 25 Disc	25	25	25	25	25	25	25	25	-
K-LOK Seats									
	NOTE: Seats ratings are independent of body								
PTFE	25	25	25	25	23.4	22	3.4	-	-
Reinforced PTFE (RTFE)	25	25	25	25	23.8	22.2	15.5	5.6	3.4

NOTES

- 29 °C to 200 °C is the limit for ISO 15848-1 certification of the valve, higher temperatures are shown for informational purposes of material limitations.
- A manufacturer standard C4 painting system is applied as standard to Carbon steel valve bodies and satisfies the requirement of NE167, but may experience deterioration in applications where external conditions are above 120 °C.

PRESSURE/TEMPERATURE RATINGS FOR SEAT MATERIALS - PN 10

POLYMER SEAT



Legend:

- PTFE seat
- RTFE seat
- Carbon steel PN 10 body
- 316 Stainless steel PN 10 body

NOTE

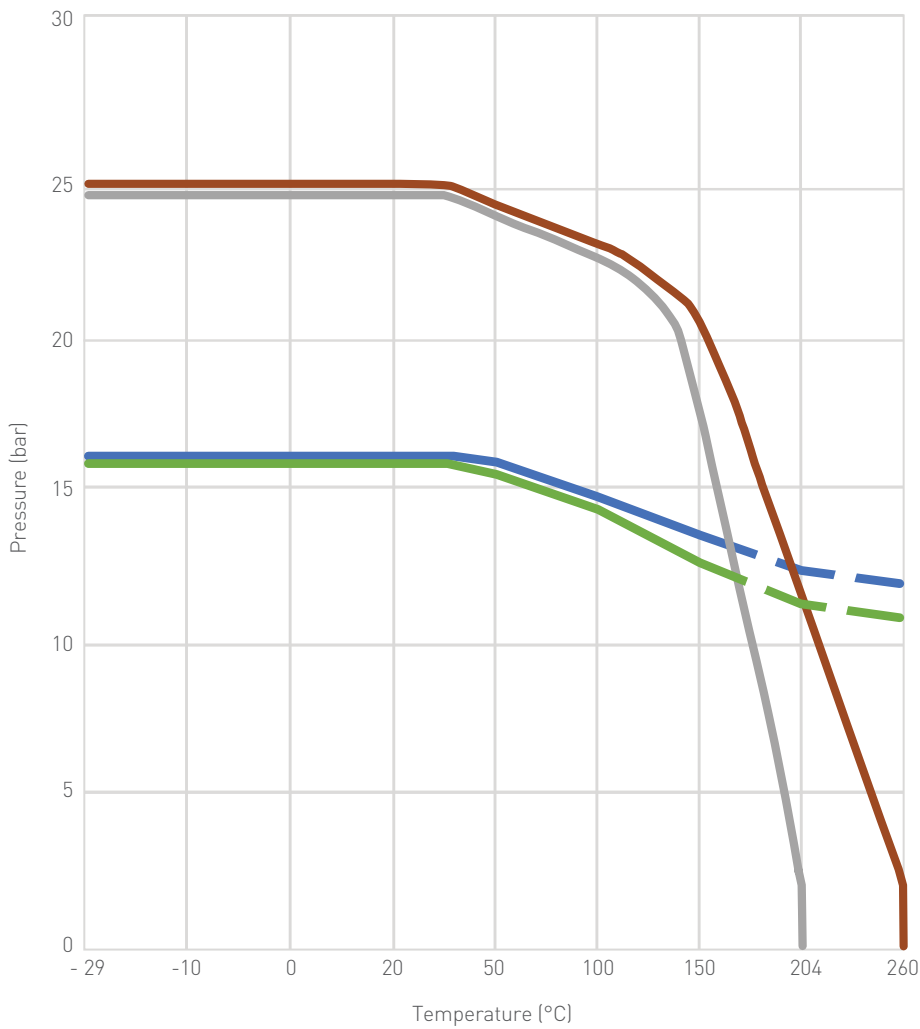
DN 50 valve with Super Duplex disc is rated for a maximum temperature of 250 °C.

KEYSTONE K-LOK® SERIES 38

PRESSURE/TEMPERATURE

PRESSURE/TEMPERATURE RATINGS FOR SEAT MATERIALS - PN 16

POLYMER SEAT



Legend:

- PTFE seat
- RTFE seat
- Carbon steel PN 16 body
- 316 Stainless steel PN 16 body

NOTE

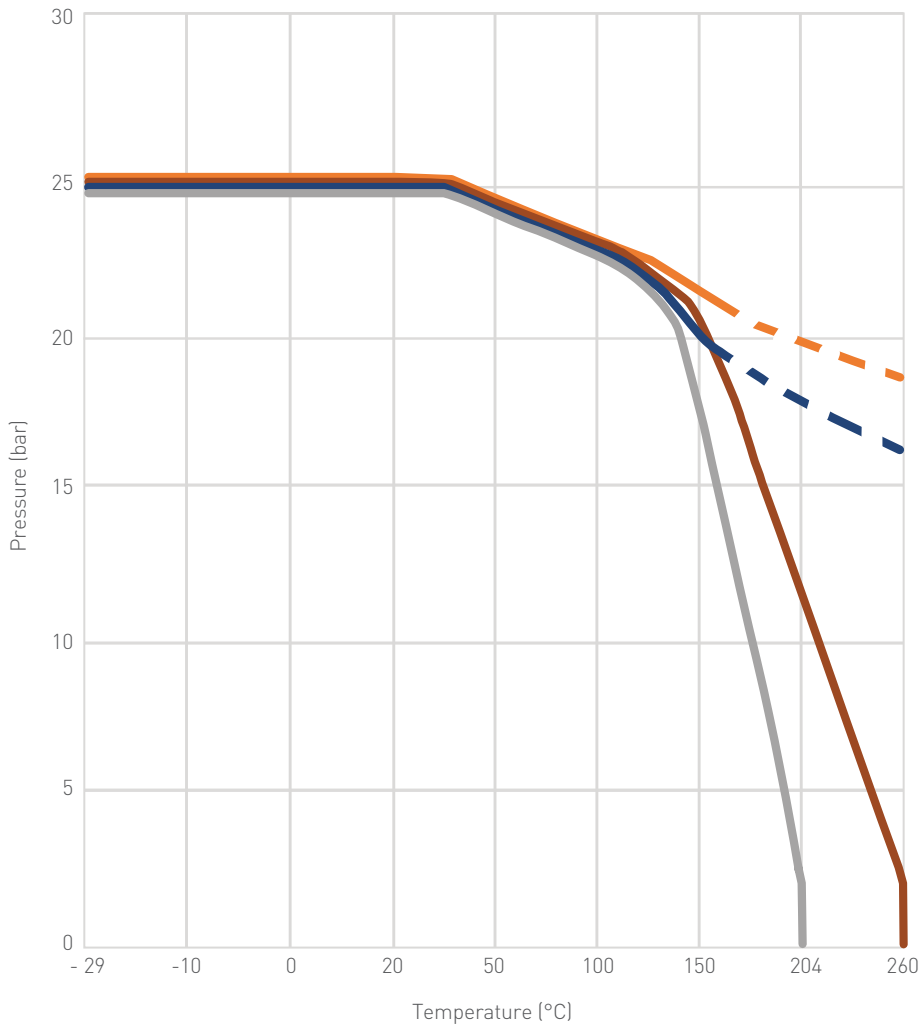
DN 50 valve with Super Duplex disc is rated for a maximum temperature of 250 °C.

KEYSTONE K-LOK® SERIES 38

PRESSURE/TEMPERATURE

PRESSURE/TEMPERATURE RATINGS FOR SEAT MATERIALS - PN 25

POLYMER SEAT



Legend:

- PTFE seat
- RTFE seat
- Carbon steel PN 25 body
- 316 Stainless steel PN 25 body

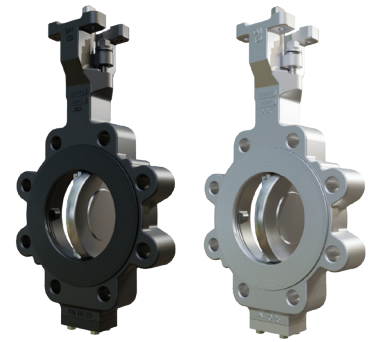
NOTE

DN 50 valve with Super Duplex disc is rated for a maximum temperature of 250 °C.

KEYSTONE K-LOK® SERIES 38

MODEL CODE OPTIONS

Model / Series	Valve Size	Body Style	Drilling / Schedule	Face to Face	Pressure Rating	Body Material	Disc Material	Stem Material	Seat Material	Packing / Gaskets	Bearing Material	Actuator Mounting	Actuation	Optional Feature 1	Optional Feature ...
38	0050	W0	P2	20	10	CQ	V81	KE	R1	PP	ST	I	B	VBP	C04



MODEL / SERIES

Code	Description
38	K-LOK, Series 38, PN 25

VALVE SIZE

Code	Description
0050	DN 50 / NPS 2
0065	DN 65 / NPS 2½
0080	DN 80 / NPS 3
0100	DN 100 / NPS 4
0125	DN 125 / NPS 5
0150	DN 150 / NPS 6
0200	DN 200 / NPS 8
0250	DN 250 / NPS 10
0300	DN 300 / NPS 12
0350	DN 350 / NPS 14
0400	DN 400 / NPS 16

BODY STYLE

Code	Description
W0	Wafer
L0	Lug

DRILLING / SCHEDULE

Code	Description
P2	PN 10
P3	PN 16
P5	PN 25
PB	PN 10 PN 16
PR	PN 10 PN 16 PN 25
ZZ	Special

FACE TO FACE

Code	Description
20	Series 20
25	Series 25

PRESSURE RATING

Code	Description
10	10 bar / 150 psi
16	16 bar / 230 psi
25	25 bar / 360 psi
ZZ	Special

BODY MATERIAL

Code	Description
CQ	Carbon steel A216 WCB / EN 1.0619
SQ	Stainless steel A351 CF8M / EN 1.4408
ZZ	Special

DISC MATERIAL

Code	Description
V81	Super Duplex A995 5A CE3MN / EN 1.4469 - ENP
SQ1	316SS ASTM A351 CF8M / EN 1.4408 - ENP/ENC
ZZZ	Special

STEM MATERIAL

Code	Description
KE	EN 10088-3 (1.4542) Cond. +P960 / A564 UNS S17400 Cond. H1075
ZZ	Special

SEAT MATERIAL

Code	Description
R1	RTFE / SS / Stainless steel
TB	PTFE / SS / Stainless steel
ZZ	Special

PACKING / GASKETS

Code	Description
PP	PTFE, Structure TFE
ZZ	Special

BEARING MATERIAL

Code	Description
ST	Stainless steel + PTFE
ZZ	Special

ACTUATOR MOUNTING

Code	Description
I	ISO 5211 Actuator mount

ACTUATION

Code	Description
B	Bare shaft

OPTIONAL FEATURES

Code	Description
VBP	Gland bolt retightening prevention
C04	C4 coating [Manufacturer standard]
PZZ	Special Painting / Coating

NOTE

Consult your regional Isolation Valves Center of Excellence for additional options.

KEYSTONE K-LOK® SERIES 38

DRILLING SCHEDULE

DRILLING SCHEDULE AVAILABILITY

Valve size	Style	Drilling schedule thread				
		PN 10	PN 16	PN 25	PN 10/16	PN 10/16/25
		P2	P3	P5	PB	PR
DN 50	W0	N	N	N	N	Y
	L0	N	N	N	N	Y
DN 65	W0	N	N	N	N	Y
	L0	N	N	N	N	Y
DN 80	W0	N	N	N	N	Y
	L0	N	N	N	N	Y
DN 100	W0	N	N	N	N	Y
	L0	N	N	Y	Y	N
DN 125	W0	N	N	N	N	Y
	L0	N	N	Y	Y	N
DN 150	W0	N	N	N	N	Y
	L0	N	N	Y	Y	N
DN 200	W0	N	N	Y	Y	N
	L0	Y	Y	Y	-	-
DN 250	W0	N	N	Y	Y	N
	L0	Y	Y	Y	-	-
DN 300	W0	Y	Y	Y	-	-
	L0	Y	Y	Y	-	-
DN 350	W0	Y	Y	Y	-	-
	L0	Y	Y	Y	-	-
DN 400	W0	Y	Y	Y	-	-
	L0	Y	Y	Y	-	-

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