KLINGER Portugal

KLINGER KKD-82

High Performance Double Eccentrica Butterfly Valve DN 50 - DN 1200

COMPACT & LOW-TORQUE

Before and after, perfect operation

PRODUCT ADVANTAGES

- Double eccentric structure keeps the low torque requirement while the valve pursues tightness.
- Dynamic load seat design for better elasticity and higher reliability.
- Save space with a compact body design
- Bi-directional: KKD-82 (Soft-seated)
  Uni-directional: KKD-MS82 (Metal-seated)

SPECIAL TYPES

- Fire safe version
- VOC (Low fugitive emission) version
- Oil, grease and silicone-free
- Oxygen version
- Vacuum version

PRODUCT DETAILS

Pressure Rating	PN10/16/CLASS 150, PN40/CLASS300
Size	DN50 - DN 1200, 2" - 48"
Material	Carbon steel, stainless steel, further materials upon request
Temperature	Soft-seated: -20°C to 240°C Metal-seated: -20°C to 425°C
Structure Design	Double Eccentric Butterfly Valve
Type	Wafer type, lug type Double-flanged

Gland Flange

Adjustable two-piece gland flange ensures even packing load.

Gland Packing

Five gland packing systems to suit different applications.

Valve Seat

- Soft-seated:
  PTFE/RTFE seat
  Rubber seat
  Fire-safe seat

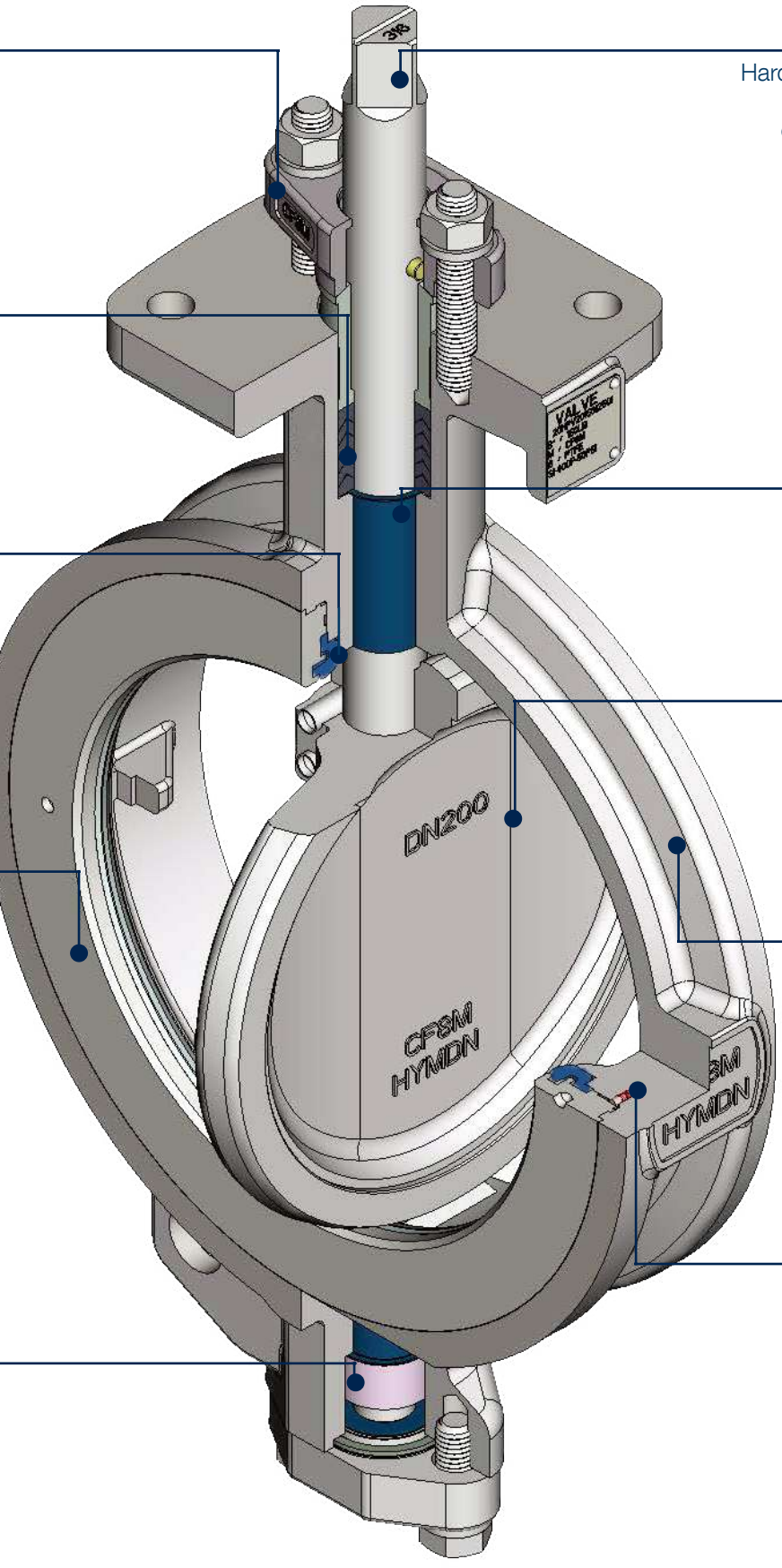
- Metal-seated:
  Solid metal seat
  Double metal seat

Floating Retainer Ring

No-screw floating design provides positive tight shut-off of seat. Fastening this ring into internal tooth of valve body, the spring and lock pin will pop up and fix retainer ring and valve body in correct position. Surface roughness is 125-200AARH.

Thrust Ring

Rigid SS316L ring keeps stem in accurate position.



Anti-Blow-Out Stem

Hard-chrome plated rigid one-piece-stem design offering overall strength. Stem components are ISO 5211 compliant. Stem material and disc position are marked on the top of stem.

Self-lubricant Bush

Bush in RPTFE+S.S.316L material reduces stem's friction factor.

Valve Disc

Hard-chrome plated disc with streamlined design which lowers noise and turbulence.

Valve Body

Compliance with API 609 & ASME B16.34.

Lock Pin and Spring

While Retainer Ring moves to locking position, the spring pops up and pushes pin locked in Retainer Ring.

ABOUT THE SEAT & DISC

Reliable in most tough applications

FIVE TYPES OF SEAT DESIGN

- **A** Soft Seat,
- **B** Fire-Safe Seat,
- **C** Rubber Seat,
- **D** Solid Metal Seat and
- **E** Metal Double Seat.

All Pressure Temperature Rating of above design is compliance with API 609.

These seats are applying reliable section design and corresponding dynamic feature to fulfill bi-directional, drop-tight zero leakage shut-off throughout all pressure ranges. This design reduces rubbing and friction between disc and seat, which significantly extends operation life cycle.

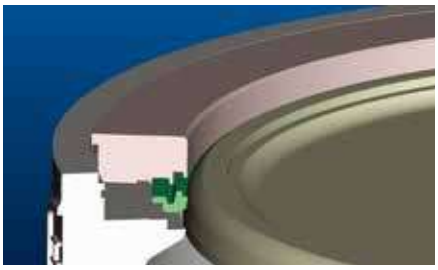
With variability of seat material, our 5 types of seat meet wide range of temperature and working condition.

SOFT SEAT

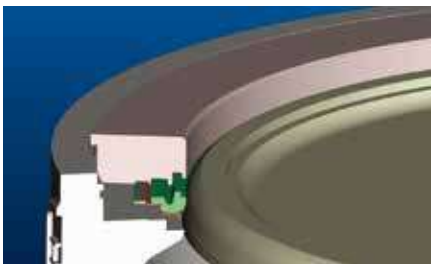
Soft Seat includes PTFE, Graphite or glass fiber based RTFE, MPTFE, UHMWPE, and Super RPTFE. Comparing to general PTFE, our MPTFE has 2.5 times higher in Load-Deformation-Rate, 1.5-4 times higher in Acid-Alkaline Permeability. MPTFE can keep 285PSI bi-direction zero leakage after 100,000 times operations. With our Super RTFE can even achieve million-times life cycle;Fire-safe Seat is designed and certified with API607, ISO10497. Provide high safety in hazard region.

METAL SEAT

Solid Metal seat is designed for good wearing resistant or high temperature working. Depending on nominal diameters, this Metal-to-Metal design is capable to reach tight shut-off of FCI 70-2 Class V-VI; Metal Double seat is designed with dual seat plate. With an additional buffer on back of metal seat to improve life cycle of solid metal seat.



A Soft Seat



B Fire-Safe Seat

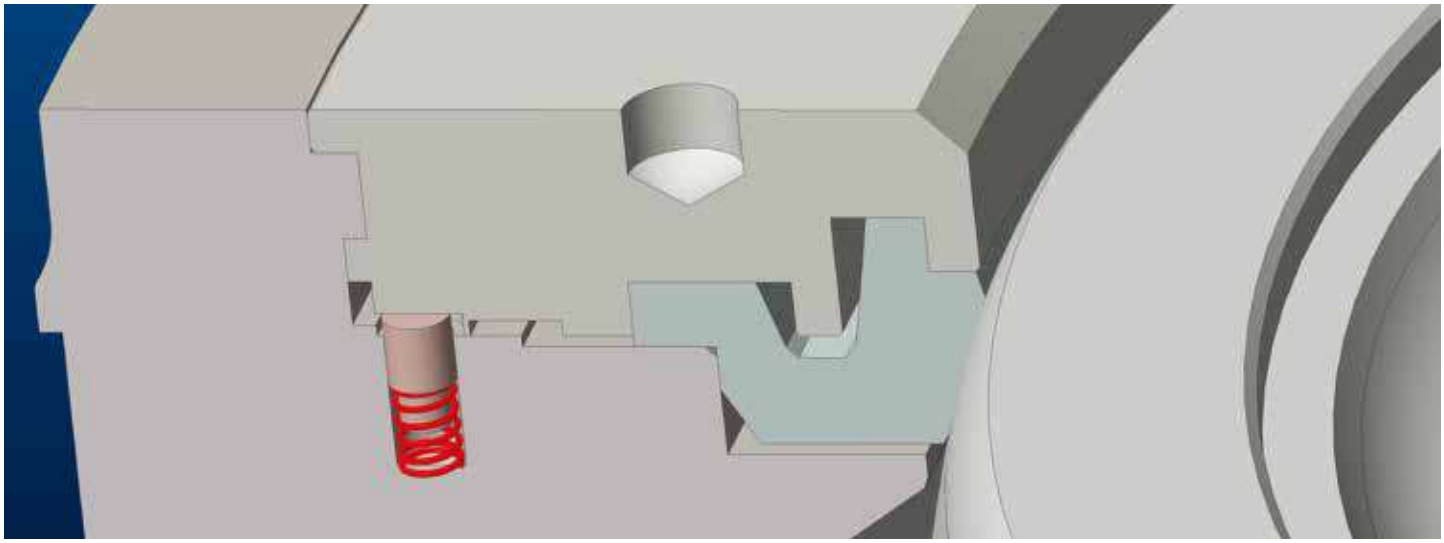
C Rubber Seat

D Solid Metal Seat

E DoubleSolid Metal Seat

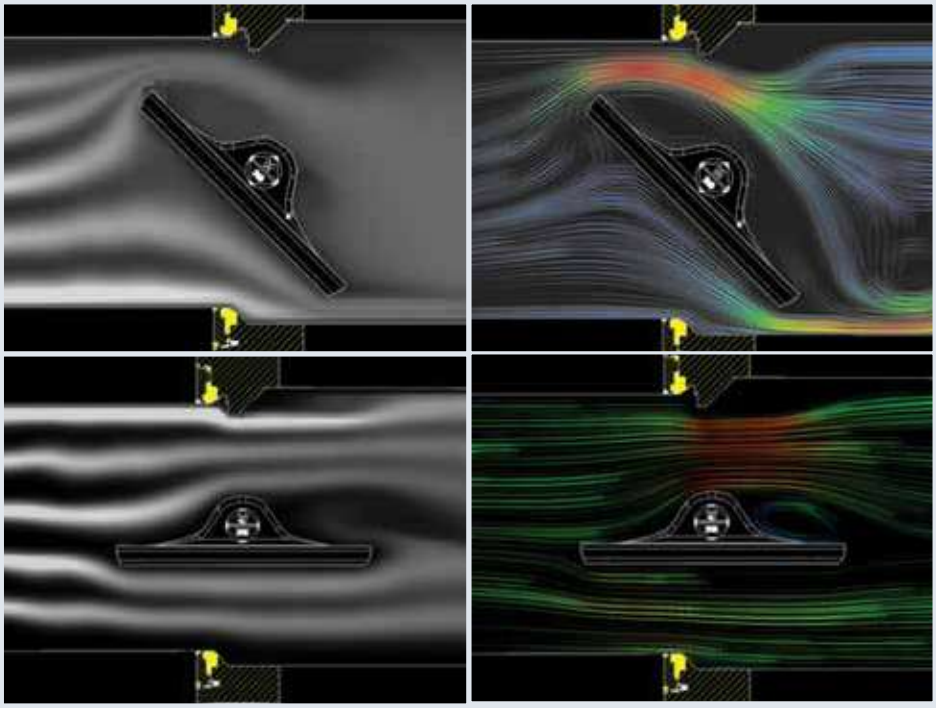
PATENTED SEAT RETAINER RING

When assembling the valve, insert the ring into the inner teeth of the valve body and a stainless steel snap lock and PTFE pin will pop out to hold the retaining ring and body in place. This design enlarges the contact surface of the flange gasket, providing better tolerance for installation errors.



VALVE DISC

The valve disc is made of stainless steel, and its geometric design is based on the analysis of its stress performance with PTC Creo Parametric software to meet the sealing requirements of API 598. Based on advanced fluid simulations, we have developed a streamlined valve disc with lower noise and turbulence. Also, all our discs and stems are hard chrome plated. This feature significantly improves the friction and impact resistance of the platter, resulting in a better life cycle.



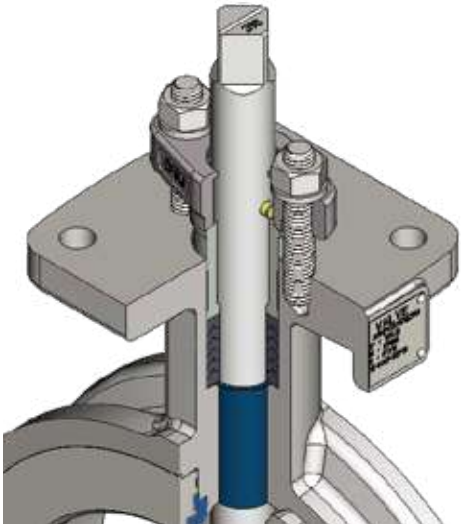
Gas Simulation and Analysis (50 M/SEC)

Fluid Simulation and Analysis (10 M/SEC)

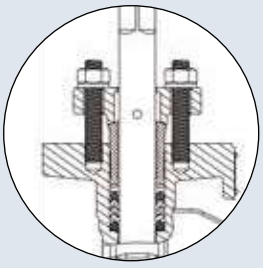
SEALING OF GLAND & PACKING

Low Fugitive Emission Gland Packing System

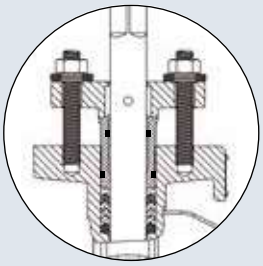
Gland Flange and Gland Bush
A fully adjustable two-piece gland with spherical mating surfaces ensures even packing load.



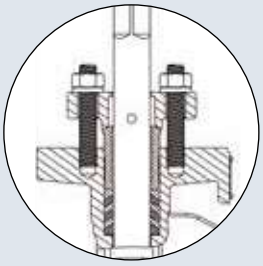
Long Gland Bush for Positioning
Long gland bush ensures gland flange is always centered while adjusting packing gland.
Prevents gland bush away from rubbing and jamming with the stem.



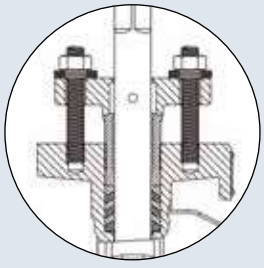
Standard v-ring PTFE or RPTFE



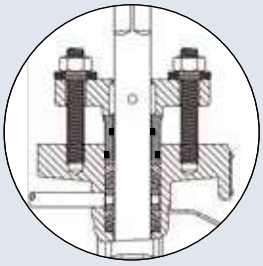
Live-Loaded Low Fugitive Emission V-ring PTFE or RPT-FE Packing System



Standard GRAPHITE (Fire Safe Only)



Live-Loaded Low Fugitive Emission GRAPHITE



Live-loaded Lantern Ring
A lantern ring with double packing, provides functionality of purge and leak-age-monitoring from bottom packing.

CERTIFIED QUALITY

Promised quality

Various tests and certifications by international standards has proven the many features of KKD-82 Double Eccentric Butterfly Valves. It means total safety in operation with guaranteed tightness.

» **Valve meets low emission standards (on request)**
With a standard value of 10-4 mbar l/s, the KKD-82 and KKD-MS82 butterfly valve significantly outperform the requirements of the German Technical Instruction on Air Quality Control, and ISO 15848-1 Fugitive Emission Tests.

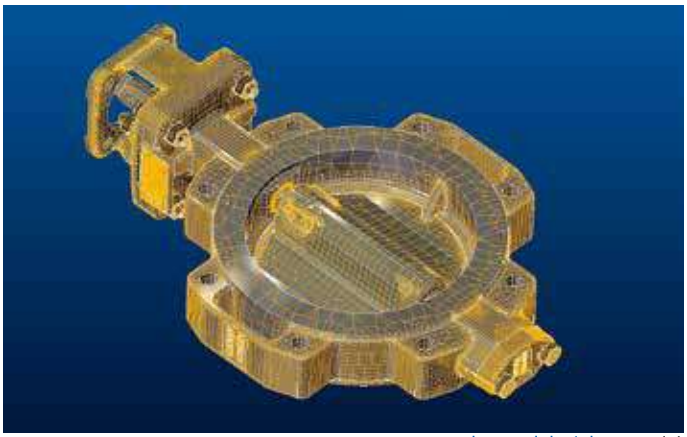
» **Fire safe (on request)**
The Fire safe tests in accordance with API 607 and EN ISO 10497 have been certified by international lab.

» **Standard anti-static**
The KKD-82 standardized anti-static equipment according to ISO 7121 and EN 1983 standards. An anti-static bushing ensures electrostatic discharge in all sizes of valve.

» **Operational safety**
The KKD-82 has a fitting for the installation of a locking device as a standard feature. This eliminates the possibility of unintended utilization and movement.

» **3.1 Final inspection certificate**
In order to ensure quality, application safety, and guaranteed tightness for the operator, the KKD-82 is standard issued with a final inspection certificate on the basis of EN 10204-3.1.

The Series KKD-82 High Performance Butterfly Valves are designed 100% compliance with API 609 and ASME B16.34. Utilizing PTC Creo Parametric (Pro/E) Computer-add-design in every component and result in best reliability.



DOUBLE ECC. BFV KKD-82

Overview of types

KKD-82W- PN10/PN16/CL150
Wafer type

KKD-82W- PN40/CL300
Wafer type

KKD-82L- PN10/PN16/CL150
Lug type

KKD-82L- PN40/CL300
Lug type

KKD-82F- CL150
Double flanged

KKD-82F- CL300
Double flanged

KKD-82W -PN16/PN10/CL150

PN10/PN16/CLASS 150
Wafer type connection, Bare shaft

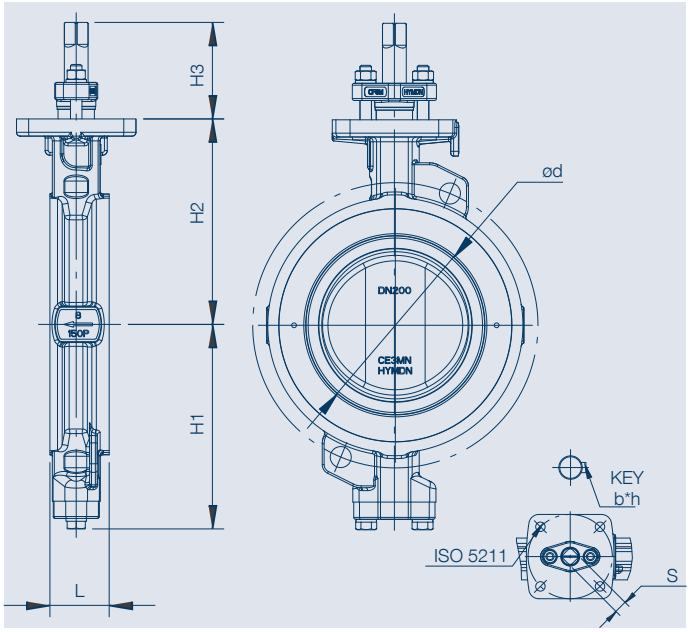
GENERAL FEATURES
- » Double eccentric structure keeps the low torque requirement while the valve pursues tightness.
- » Dynamic load seat design for better elasticity and higher reliability.
- » Save space with a compact body design
- » Bi-directional: KKD-82 (Soft-seated)
  Uni-directional: KKD-MS82 (Metal-seated)

CONNECTIONS
Wafer Type

DIMENSIONS
Face to Face Dimension in acc. with API 609 Cat. B

ACCEPTANCE TESTING
- » Shell strength: EN 12266-1 P10
- » Shell tightness: EN 12266-1 P11
- » Seat leak tightness: EN 12266-1 P12

AUTOMATION
Flange connection in accordance with ISO 5211, allows for mounting of an actuator by means of brackets. Pneumatic and electrical actuators utilizable.



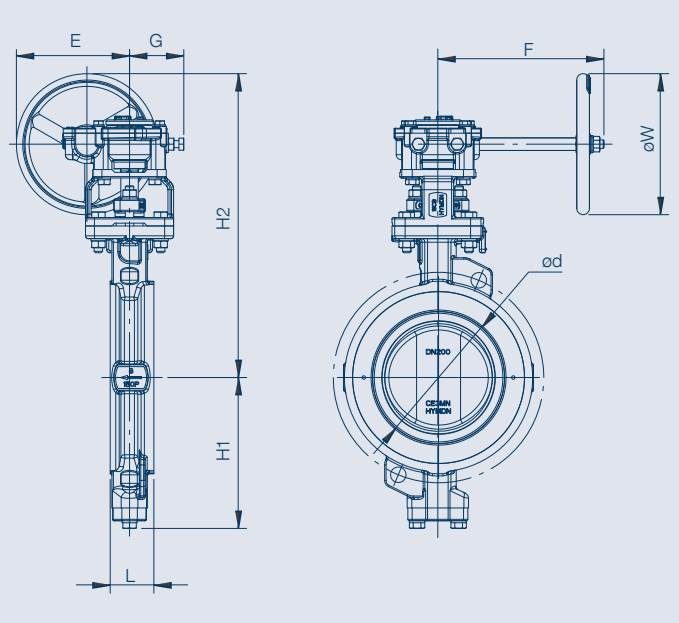
TEMPERATURE
» -20 °C to +180 °C with RPTFE / PTFE Seat » -20 °C to +425 °C with Metal Seat

Size		Dimensions						Mounting flange	Weight
DN	NPS	Ød	L	H1	H2	H3	S	ISO	kg
50	2	46	45	118	128	86	14	F10	6
65	2½	61	48	126	136	86	14	F10	7
80	3	76	48	134	140	86	14	F10	8
100	4	96	54	144	150	86	14	F10	9
125	5	118	57	178	170	89	17	F10	12
150	6	143	57	190	185	89	17	F10	14
200	8	188	62	214	215	101	19	F12	20
250	10	236	70	254	260	104	22	F12	32
300	12	281	81	298	290	129	27	F14	48
350	14	320	92	328	320	134	32	F14	65
400	16	371	102	377	370	158	36	F16	98
450	18	420	114	402	395	158	36	F16	131
500	20	469	127	437	430	168	46	F16	171
600	24	549	154	492	480	240	18*12	F25	275
700	28	655	165	570	555	245	20*12	F25	385
750	30	698	190	605	600	300	25*14	F30	510
800	32	755	190	630	625	310	25*14	F30	551
900	36	870	203	690	665	320	28*16	F30	667
1000	40	943	216	768	765	360	32*18	F35	936
1100	44	1045	254	818	815	360	32*18	F35	1173
1200	48	1145	254	884	880	360	36*20	F35	1399

KKD-82W -PN16/PN10/CL150

PN10/PN16/CLASS 150
Wafer type connection, Gear operator

GENERAL FEATURES
- » Double eccentric structure keeps the low torque requirement while the valve pursues tightness.
- » Dynamic load seat design for better elasticity and higher reliability.
- » Save space with a compact body design
- » Bi-directional: KKD-82 (Soft-seated)
  Uni-directional: KKD-MS82 (Metal-seated)



CONNECTIONS
Wafer Type

DIMENSIONS
Face to Face Dimension in acc. with API 609 Cat. B

ACCEPTANCE TESTING
- » Shell strength: EN 12266-1 P10
- » Shell tightness: EN 12266-1 P11
- » Seat leak tightness: EN 12266-1 P12

AUTOMATION
Flange connection in accordance with ISO 5211, allows for mounting of an actuator by means of brackets. Pneumatic and electrical actuators utilizable.

TEMPERATURE
» -20 °C to +180 °C with RPTFE / PTFE Seat » -20 °C to +425 °C with Metal Seat

Size		Dimensions								Weight
DN	NPS	Ød	L	H1	H2	W	G	E	F	kg
50	2	46	45	118	282	100	66	97	133	10
65	2½	61	48	126	290	100	66	97	133	11
80	3	76	48	134	319	150	66	122	133	12
100	4	96	54	144	329	150	66	122	133	13
125	5	118	57	178	349	150	66	122	133	16
150	6	143	57	190	364	150	66	122	133	18
200	8	188	62	214	431	200	77	161	236	28
250	10	236	70	254	476	200	77	161	236	40
300	12	281	81	298	529	200	94	183	236	60
350	14	320	92	328	559	200	94	183	236	77
400	16	371	102	377	690	300	120	257	324	121
450	18	420	114	402	715	300	120	257	324	154
500	20	469	127	437	750	300	120	257	324	194
600	24	549	154	492	888	400	153	352	374	327
700	28	655	165	570	963	400	153	352	374	437
750	30	698	190	605	1165	600	185	512	446	606
800	32	755	190	630	1190	600	185	512	446	647
900	36	870	203	690	1230	600	185	512	446	763
1000	40	943	216	768	1360	600	185	512	446	1050
1100	44	1045	254	818	1410	600	185	512	446	1287
1200	48	1145	254	884	1475	600	185	512	446	1513

KKD-82W -PN16/PN10/CL150

PN10/PN16/CLASS 150
Wafer type connection, Lever

GENERAL FEATURES
» Double eccentric structure keeps the low torque requirement while the valve pursues tightness.
» Dynamic load seat design for better elasticity and higher reliability.
» Save space with a compact body design
» Bi-directional: KKD-82 (Soft-seated)
Uni-directional: KKD-MS82 (Metal-seated)
»

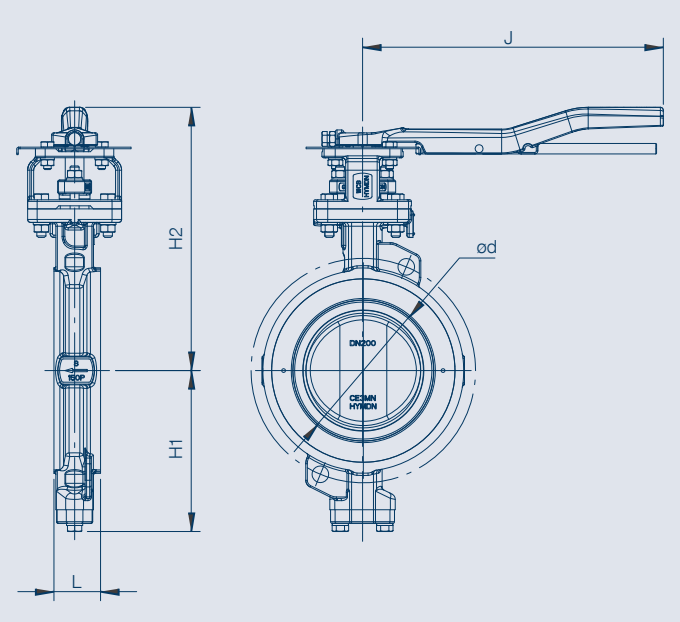
CONNECTIONS
Wafer Type

DIMENSIONS
Face to Face Dimension in acc. with API 609 Cat. B

ACCEPTANCE TESTING
» Shell strength: EN 12266-1 P10
» Shell tightness: EN 12266-1 P11
» Seat leak tightness: EN 12266-1 P12

AUTOMATION
Flange connection in accordance with ISO 5211, allows for mounting of an actuator by means of brackets. Pneumatic and electrical actuators utilizable.

TEMPERATURE
» -20 °C to +180 °C with RPTFE / PTFE Seat
» -20 °C to +425 °C with Metal Seat



Size		Dimensions					Weight
DN	NPS	Ød	L	H1	H2	J	kg
50	2	46	45	118	248	220	8
65	2½	61	48	126	256	220	9
80	3	76	48	134	260	220	10
100	4	96	54	144	270	220	11
125	5	118	57	178	290	300	15
150	6	143	57	190	305	300	17
200	8	188	62	214	350	400	25

KKD-82W -PN40/CL300

PN40/CLASS 300
Wafer type connection, Bare shaft

GENERAL FEATURES
- » Double eccentric structure keeps the low torque requirement while the valve pursues tightness.
- » Dynamic load seat design for better elasticity and higher reliability.
- » Save space with a compact body design
- » Bi-directional: KKD-82 (Soft-seated)
  Uni-directional: KKD-MS82 (Metal-seated)

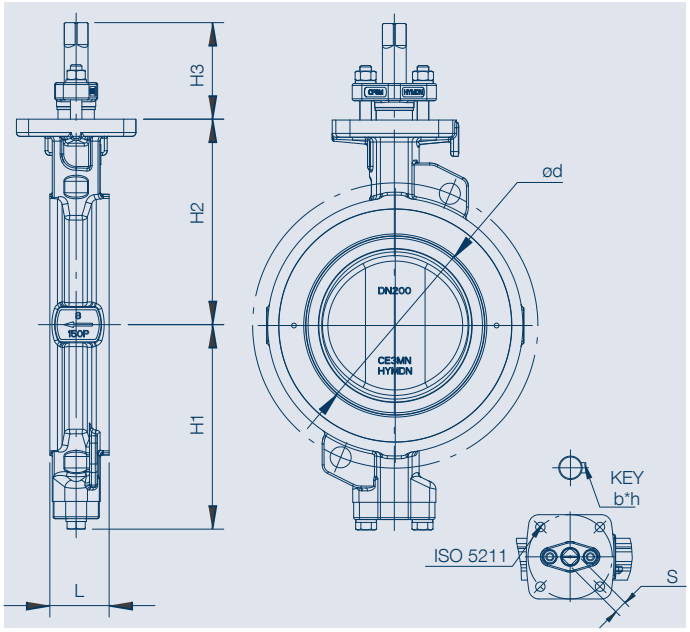
CONNECTIONS
Wafer Type

DIMENSIONS
Face to Face Dimension in acc. with API 609 Cat. B

ACCEPTANCE TESTING
- » Shell strength: EN 12266-1 P10
- » Shell tightness: EN 12266-1 P11
- » Seat leak tightness: EN 12266-1 P12

AUTOMATION
Flange connection in accordance with ISO 5211, allows for mounting of an actuator by means of brackets. Pneumatic and electrical actuators utilizable.

TEMPERATURE
- » -20 °C to +180 °C with RPTFE / PTFE Seat
- » -20 °C to +425 °C with Metal Seat



Size		Dimensions						Mounting flange	Weight
DN	NPS	Ød	L	H1	H2	H3	S	ISO	kg
50	2	46	45	118	128	86	14	F10	6
65	2½	61	48	126	136	86	14	F10	7
80	3	76	48	134	140	86	14	F10	8
100	4	96	54	144	150	86	14	F10	9
125	5	118	57	178	170	89	17	F10	12
150	6	143	59	199	200	101	19	F12	18
200	8	188	73	234	240	104	22	F12	28
250	10	236	83	278	270	129	27	F14	52
300	12	281	92	318	310	134	32	F14	72
350	14	320	117	367	360	158	36	F16	105
400	16	371	133	392	385	168	46	F16	148
450	18	420	149	437	425	240	18*12	F25	214
500	20	469	159	465	450	245	20*12	F25	271
600	24	549	181	535	530	310	25*14	F30	432

KKD-82W -PN40/CL300

PN40/CLASS 300
Wafer type connection, Gear operator

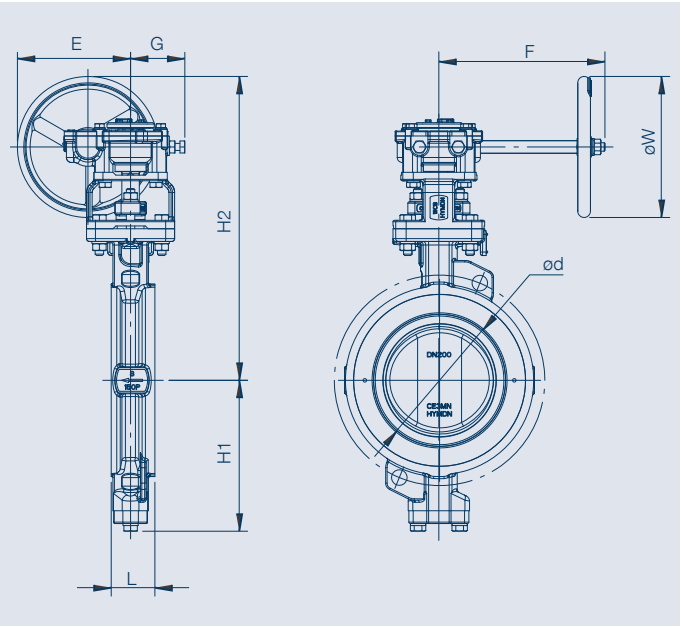
GENERAL FEATURES
- » Double eccentric structure keeps the low torque requirement while the valve pursues tightness.
- » Dynamic load seat design for better elasticity and higher reliability.
- » Save space with a compact body design
- » Bi-directional: KKD-82 (Soft-seated)
  Uni-directional: KKD-MS82 (Metal-seated)

CONNECTIONS
Wafer Type

DIMENSIONS
Face to Face Dimension in acc. with API 609 Cat. B

ACCEPTANCE TESTING
- » Shell strength: EN 12266-1 P10
- » Shell tightness: EN 12266-1 P11
- » Seat leak tightness: EN 12266-1 P12

AUTOMATION
Flange connection in accordance with ISO 5211, allows for mounting of an actuator by means of brackets. Pneumatic and electrical actuators utilizable.



TEMPERATURE
- » -20 °C to +180 °C with RPTFE / PTFE Seat
- » -20 °C to +425 °C with Metal Seat

Size		Dimensions								Weight
DN	NPS	Ød	L	H1	H2	W	G	E	F	kg
50	2	46	45	118	282	100	66	97	133	10
65	2½	61	48	126	290	100	66	97	133	11
80	3	76	48	134	319	150	66	122	133	12
100	4	96	54	144	329	150	66	122	133	13
125	5	118	57	178	349	150	66	122	133	16
150	6	143	59	199	416	200	77	161	236	26
200	8	188	73	234	456	200	77	161	236	36
250	10	236	83	278	509	200	94	183	236	64
300	12	281	92	318	549	200	94	183	236	84
350	14	320	117	367	680	300	120	257	324	128
400	16	371	133	392	705	300	120	257	324	171
450	18	420	149	437	833	400	153	352	374	266
500	20	469	159	465	858	400	153	352	374	323
600	24	549	181	535	1095	600	185	512	446	528

KKD-82W -PN40/CL300

PN40/CLASS 300
Wafer type connection, Lever

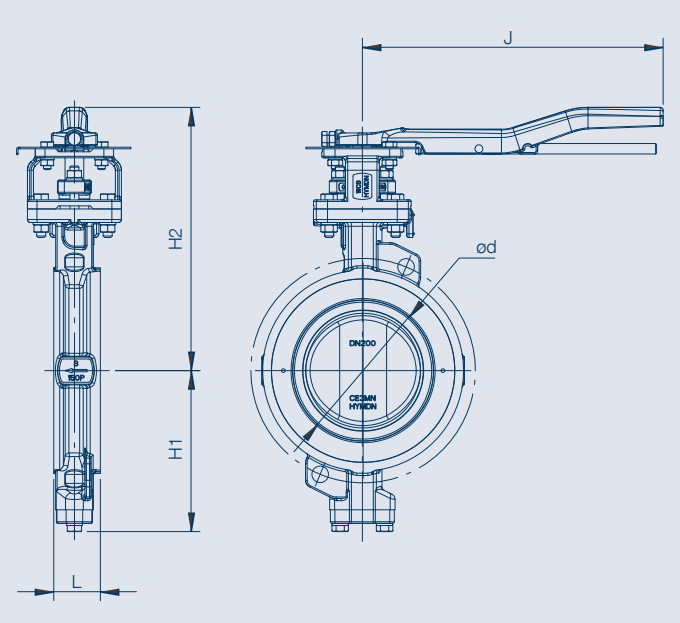
GENERAL FEATURES
- » Double eccentric structure keeps the low torque requirement while the valve pursues tightness.
- » Dynamic load seat design for better elasticity and higher reliability.
- » Save space with a compact body design
- » Bi-directional: KKD-82 (Soft-seated)
  Uni-directional: KKD-MS82 (Metal-seated)

CONNECTIONS
Wafer Type

DIMENSIONS
Face to Face Dimension in acc. with API 609 Cat. B

ACCEPTANCE TESTING
- » Shell strength: EN 12266-1 P10
- » Shell tightness: EN 12266-1 P11
- » Seat leak tightness: EN 12266-1 P12

AUTOMATION
Flange connection in accordance with ISO 5211, allows for mounting of an actuator by means of brackets. Pneumatic and electrical actuators utilizable.



TEMPERATURE
- » -20 °C to +180 °C with RPTFE / PTFE Seat
- » -20 °C to +425 °C with Metal Seat

Size		Dimensions					Weight
DN	NPS	Ød	L	H1	H2	J	kg
50	2	46	45	118	248	220	8
65	2½	61	48	126	252	220	9
80	3	76	48	134	260	220	10
100	4	96	54	144	270	220	11
125	5	118	57	178	290	300	15
150	6	143	59	199	335	400	23

KKD-82L -PN10/PN16/CL150

CLASS 150
Lug type connection, Bare shaft

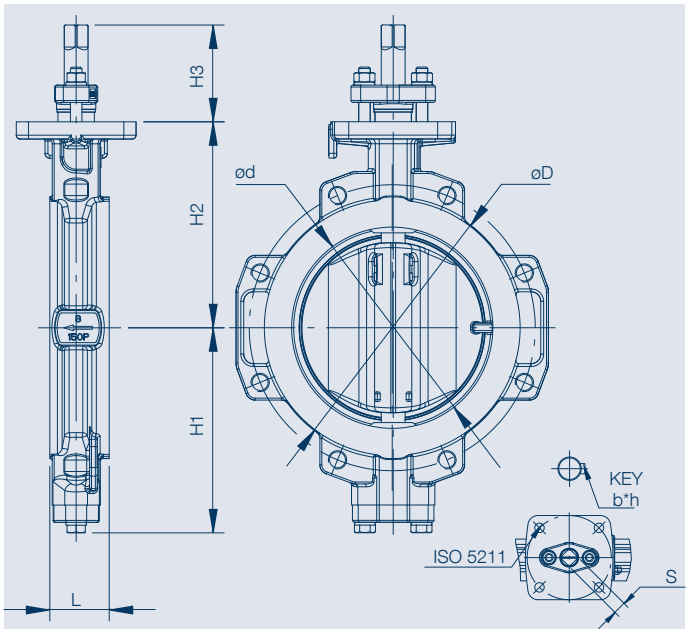
GENERAL FEATURES
- » Double eccentric structure keeps the low torque requirement while the valve pursues tightness.
- » Dynamic load seat design for better elasticity and higher reliability.
- » Save space with a compact body design
- » Bi-directional: KKD-82 (Soft-seated)
  Uni-directional: KKD-MS82 (Metal-seated)

CONNECTIONS
Lug Type

DIMENSIONS
Face to Face Dimension in acc. with API 609 Cat. B

ACCEPTANCE TESTING
- » Shell strength: EN 12266-1 P10
- » Shell tightness: EN 12266-1 P11
- » Seat leak tightness: EN 12266-1 P12

AUTOMATION
Flange connection in accordance with ISO 5211, allows for mounting of an actuator by means of brackets. Pneumatic and electrical actuators utilizable.



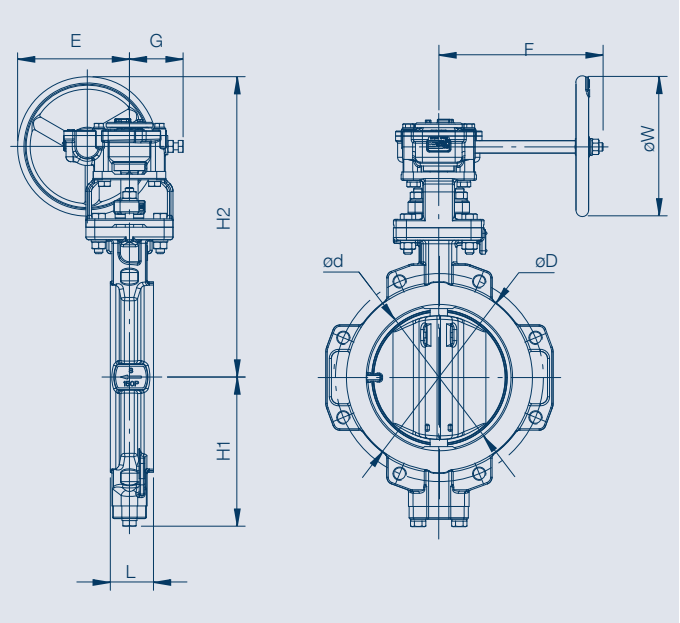
TEMPERATURE
» -20 °C to +180 °C with RPTFE / PTFE Seat » -20 °C to +425 °C with Metal Seat

Size		Dimensions							Mounting flange	Weight
DN	NPS	Ød	ØD	L	H1	H2	H3	S	ISO	kg
50	2	46	95	45	118	128	86	14	F10	7
65	2½	61	112	48	126	136	86	14	F10	8
80	3	76	126	48	134	140	86	14	F10	9
100	4	96	155	54	144	150	86	14	F10	13
125	5	118	184	57	178	170	89	17	F10	18
150	6	143	215	57	190	185	89	17	F10	20
200	8	188	267	62	214	215	101	19	F12	29
250	10	236	326	70	254	260	104	22	F12	47
300	12	281	375	81	298	290	129	27	F14	69
350	14	320	416	92	328	320	134	32	F14	92
400	16	371	480	102	377	370	158	36	F16	137
450	18	420	534	114	402	395	158	36	F16	173
500	20	469	588	127	437	430	168	46	F16	242
600	24	549	692	154	492	480	240	18*12	F25	378
700	28	655	800	165	570	555	245	20*12	F25	525
750	30	698	857	190	605	600	300	25*14	F30	620
800	32	755	910	190	630	625	310	25*14	F30	768
900	36	870	1000	203	690	665	320	28*16	F30	867
1000	40	943	1115	216	768	765	360	32*18	F35	1216
1100	44	1045	1220	254	818	815	360	32*18	F35	1525
1200	48	1145	1330	254	884	880	360	36*20	F35	1784

KKD-82L -PN10/PN16/CL150

CLASS 150
Lug type connection, Gear operator

GENERAL FEATURES
- » Double eccentric structure keeps the low torque requirement while the valve pursues tightness.
- » Dynamic load seat design for better elasticity and higher reliability.
- » Save space with a compact body design
- » Bi-directional: KKD-82 (Soft-seated)
  Uni-directional: KKD-MS82 (Metal-seated)



CONNECTIONS
Lug Type

DIMENSIONS
Face to Face Dimension in acc. with API 609 Cat. B

ACCEPTANCE TESTING
- » Shell strength: EN 12266-1 P10
- » Shell tightness: EN 12266-1 P11
- » Seat leak tightness: EN 12266-1 P12

AUTOMATION
Flange connection in accordance with ISO 5211, allows for mounting of an actuator by means of brackets. Pneumatic and electrical actuators utilizable.

TEMPERATURE
» -20 °C to +180 °C with RPTFE / PTFE Seat » -20 °C to +425 °C with Metal Seat

Size		Dimensions									Weight
DN	NPS	Ød	ØD	L	H1	H2	W	G	E	F	kg
50	2	46	95	45	118	282	100	66	97	133	11
65	2½	61	112	48	126	290	100	66	97	133	12
80	3	76	126	48	134	319	150	66	122	133	13
100	4	96	155	54	144	329	150	66	122	133	17
125	5	118	184	57	178	349	150	66	122	133	22
150	6	143	215	57	190	364	150	66	122	133	24
200	8	188	267	62	214	431	200	77	161	236	37
250	10	236	326	70	254	476	200	77	161	236	55
300	12	281	375	81	298	529	200	94	183	236	81
350	14	320	416	92	328	559	200	94	183	236	104
400	16	371	480	102	377	690	300	120	257	324	160
450	18	420	534	114	402	715	300	120	257	324	196
500	20	469	588	127	437	750	300	120	257	324	265
600	24	549	692	154	492	888	400	153	352	374	430
700	28	655	800	165	570	963	400	153	352	374	577
750	30	698	857	190	605	1165	600	185	512	446	716
800	32	755	910	190	630	1190	600	185	512	446	864
900	36	870	1000	203	690	1230	600	185	512	446	963
1000	40	943	1115	216	768	1360	600	185	512	446	1330
1100	44	1045	1220	254	818	1410	600	185	512	446	1639
1200	48	1145	1330	254	884	1475	600	185	512	446	1898

KKD-82L -PN10/PN16/CL150

CLASS 150
Lug type connection, Lever

GENERAL FEATURES
» Double eccentric structure keeps the low torque requirement while the valve pursues tightness.
» Dynamic load seat design for better elasticity and higher reliability.
» Save space with a compact body design
» Bi-directional: KKD-82 (Soft-seated)
Uni-directional: KKD-MS82 (Metal-seated)

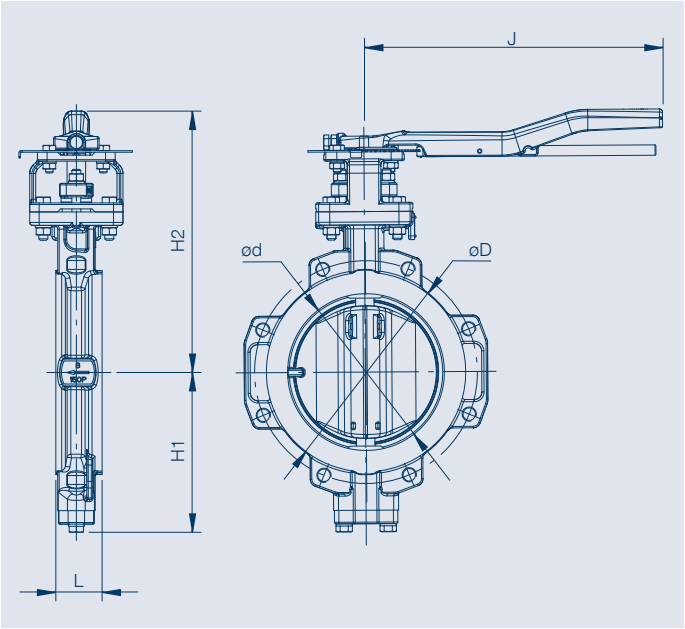
CONNECTIONS
Lug Type

DIMENSIONS
Face to Face Dimension in acc. with API 609 Cat. B

ACCEPTANCE TESTING
» Shell strength: EN 12266-1 P10
» Shell tightness: EN 12266-1 P11
» Seat leak tightness: EN 12266-1 P12

AUTOMATION
Flange connection in accordance with ISO 5211, allows for mounting of an actuator by means of brackets. Pneumatic and electrical actuators utilizable.

TEMPERATURE
» -20 °C to +180 °C with RPTFE / PTFE Seat
» -20 °C to +425 °C with Metal Seat



Size		Dimensions						Weight
DN	NPS	Ød	ØD	L	H1	H2	J	kg
50	2	46	95	45	118	248	220	9
65	2½	61	112	48	126	256	220	10
80	3	76	126	48	134	260	220	11
100	4	96	155	54	144	270	220	15
125	5	118	184	57	178	290	300	21
150	6	143	215	57	190	305	300	23
200	8	188	267	62	214	350	400	34

KKD-82L -PN40/CL300

CLASS 300
Lug type connection, Bare shaft

GENERAL FEATURES
- » Double eccentric structure keeps the low torque requirement while the valve pursues tightness.
- » Dynamic load seat design for better elasticity and higher reliability.
- » Save space with a compact body design
- » Bi-directional: KKD-82 (Soft-seated)
  Uni-directional: KKD-MS82 (Metal-seated)

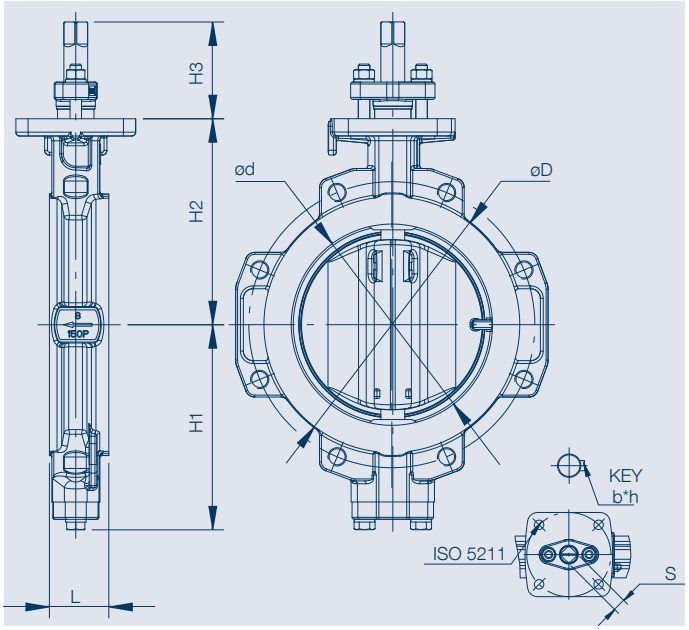
CONNECTIONS
Lug Type

DIMENSIONS
Face to Face Dimension in acc. with API 609 Cat. B

ACCEPTANCE TESTING
- » Shell strength: EN 12266-1 P10
- » Shell tightness: EN 12266-1 P11
- » Seat leak tightness: EN 12266-1 P12

AUTOMATION
Flange connection in accordance with ISO 5211, allows for mounting of an actuator by means of brackets. Pneumatic and electrical actuators utilizable.

TEMPERATURE
- » -20 °C to +180 °C with RPTFE / PTFE Seat
- » -20 °C to +425 °C with Metal Seat



Size		Dimensions							Mounting flange	Weight
DN	NPS	Ød	ØD	L	H1	H2	H3	S	ISO	kg
50	2	46	95	45	118	128	86	14	F10	8
65	2½	61	112	48	126	136	86	14	F10	9
80	3	76	126	48	134	140	86	14	F10	11
100	4	96	155	54	144	150	86	14	F10	13
125	5	118	184	57	178	170	89	17	F10	18
150	6	143	224	59	199	200	101	19	F12	26
200	8	188	280	73	234	240	104	22	F12	43
250	10	236	345	83	278	270	129	27	F14	71
300	12	281	395	92	318	310	134	32	F14	102
350	14	320	440	117	367	360	158	36	F16	161
400	16	371	495	133	392	385	168	46	F16	218
450	18	420	560	149	437	425	240	18*12	F25	316
500	20	469	622	159	465	450	245	20*12	F25	395
600	24	549	720	181	535	530	310	25*14	F30	643

KKD-82L -PN40/CL300

CLASS 300
Lug type connection, Gear operator

GENERAL FEATURES
- » Double eccentric structure keeps the low torque requirement while the valve pursues tightness.
- » Dynamic load seat design for better elasticity and higher reliability.
- » Save space with a compact body design
- » Bi-directional: KKD-82 (Soft-seated)
  Uni-directional: KKD-MS82 (Metal-seated)

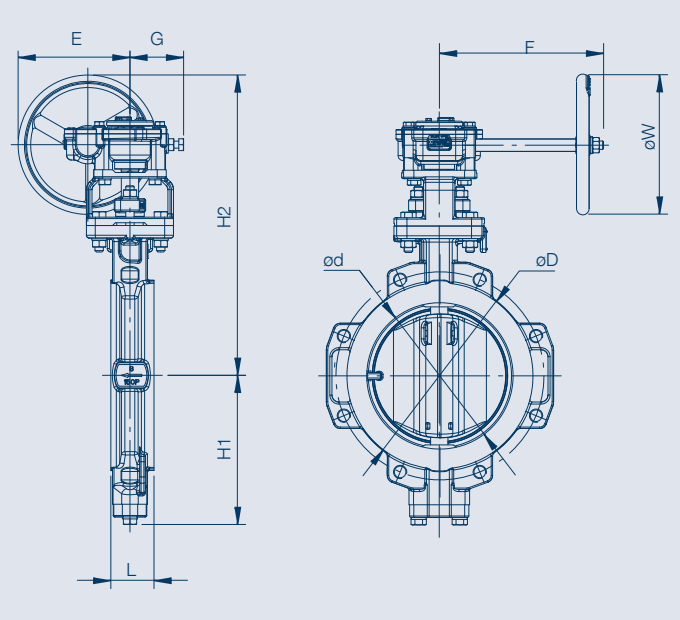
CONNECTIONS
Lug Type

DIMENSIONS
Face to Face Dimension in acc. with API 609 Cat. B

ACCEPTANCE TESTING
- » Shell strength: EN 12266-1 P10
- » Shell tightness: EN 12266-1 P11
- » Seat leak tightness: EN 12266-1 P12

AUTOMATION
Flange connection in accordance with ISO 5211, allows for mounting of an actuator by means of brackets. Pneumatic and electrical actuators utilizable.

TEMPERATURE
- » -20 °C to +180 °C with RPTFE / PTFE Seat
- » -20 °C to +425 °C with Metal Seat



Size		Dimensions									Weight
DN	NPS	Ød	ØD	L	H1	H2	W	G	E	F	kg
50	2	46	95	45	118	282	100	66	97	133	12
65	2½	61	112	48	126	290	100	66	97	133	13
80	3	76	126	48	134	319	150	66	122	133	15
100	4	96	155	54	144	329	150	66	122	133	17
125	5	118	184	57	178	349	150	66	122	133	22
150	6	143	224	59	199	416	200	77	161	236	34
200	8	188	280	73	234	456	200	77	161	236	51
250	10	236	345	83	278	509	200	94	183	236	83
300	12	281	395	92	318	549	200	94	183	236	114
350	14	320	440	117	367	680	300	120	257	324	184
400	16	371	495	133	392	705	300	120	257	324	241
450	18	420	560	149	437	833	400	153	352	374	368
500	20	469	622	159	465	858	400	153	352	374	447
600	24	549	720	181	535	1095	600	185	512	446	739

KKD-82L -PN40/CL300

CLASS 300
Lug type connection, Lever

GENERAL FEATURES
» Double eccentric structure keeps the low torque requirement while the valve pursues tightness.
» Dynamic load seat design for better elasticity and higher reliability.
» Save space with a compact body design
» Bi-directional: KKD-82 (Soft-seated)
Uni-directional: KKD-MS82 (Metal-seated)

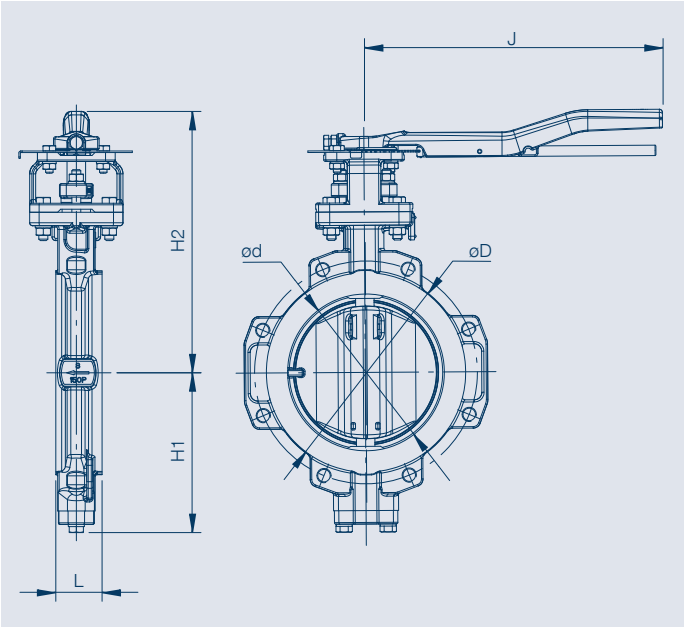
CONNECTIONS
Lug Type

DIMENSIONS
Face to Face Dimension in acc. with API 609 Cat. B

ACCEPTANCE TESTING
» Shell strength: EN 12266-1 P10
» Shell tightness: EN 12266-1 P11
» Seat leak tightness: EN 12266-1 P12

AUTOMATION
Flange connection in accordance with ISO 5211, allows for mounting of an actuator by means of brackets. Pneumatic and electrical actuators utilizable.

TEMPERATURE
» -20 °C to +180 °C with RPTFE / PTFE Seat
» -20 °C to +425 °C with Metal Seat



Size		Dimensions						Weight
DN	NPS	Ød	ØD	L	H1	H2	J	kg
50	2	46	95	45	118	248	220	10
65	2½	61	112	48	126	252	220	11
80	3	76	126	48	134	260	220	13
100	4	96	155	54	144	270	220	15
125	5	118	184	57	178	290	300	21
150	6	143	224	59	199	335	400	31

KKD-82F -CL150

CLASS 150
Double flanged connection, Bare shaft

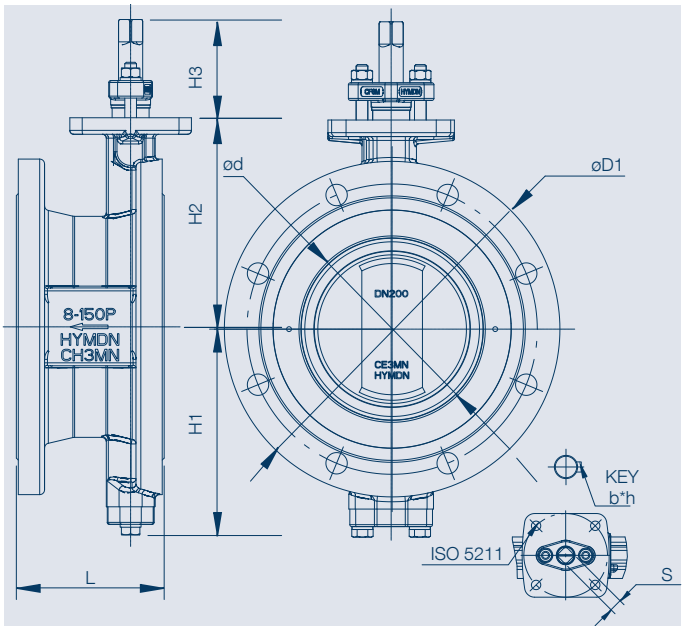
GENERAL FEATURES
- » Double eccentric structure keeps the low torque requirement while the valve pursues tightness.
- » Dynamic load seat design for better elasticity and higher reliability.
- » Save space with a compact body design
- » Bi-directional: KKD-82 (Soft-seated)
  Uni-directional: KKD-MS82 (Metal-seated)

CONNECTIONS
Double-flanged Type

DIMENSIONS
Face to Face Dimension in acc. with API 609 Cat. B

ACCEPTANCE TESTING
- » Shell strength: EN 12266-1 P10
- » Shell tightness: EN 12266-1 P11
- » Seat leak tightness: EN 12266-1 P12

AUTOMATION
Flange connection in accordance with ISO 5211, allows for mounting of an actuator by means of brackets. Pneumatic and electrical actuators utilizable.



TEMPERATURE
- » -20 °C to +180 °C with RPTFE / PTFE Seat
- » -20 °C to +425 °C with Metal Seat

Size		Dimensions							Mounting flange	Weight
DN	NPS	Ød	ØD1	L	H1	H2	H3	S	ISO	kg
80	3	76	190	114	134	140	86	14	F10	14
100	4	96	230	127	144	150	86	14	F10	19
150	6	143	280	140	190	185	89	17	F10	28
200	8	188	345	152	214	215	101	19	F12	45
250	10	236	405	165	254	260	104	22	F12	63
300	12	281	485	178	298	290	129	27	F14	99
350	14	320	535	190	328	320	134	32	F14	128
400	16	371	595	216	377	370	158	36	F16	173
450	18	420	635	222	402	395	158	36	F16	206
500	20	469	700	229	437	430	168	46	F16	263
600	24	549	815	267	492	480	240	18*12	F25	405
700	28	655	927	292	570	555	245	20*12	F25	634
750	30	698	984	318	605	600	300	25*14	F30	793
800	32	755	1060	318	630	625	310	25*14	F30	918
900	36	870	1168	330	690	665	320	28*16	F30	1186
1000	40	943	1289	410	768	765	360	32*18	F35	1537
1100	44	1045	1403	410	818	815	360	32*18	F35	2059
1200	48	1145	1510	470	884	880	360	36*20	F35	2537

KKD-82F -CL150

CLASS 150
Double flanged connection, Gear operator

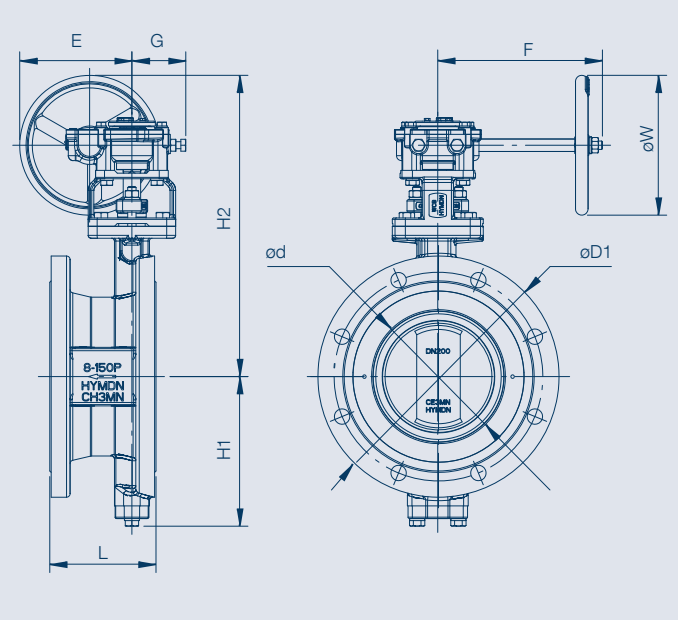
GENERAL FEATURES
- » Double eccentric structure keeps the low torque requirement while the valve pursues tightness.
- » Dynamic load seat design for better elasticity and higher reliability.
- » Save space with a compact body design
- » Bi-directional: KKD-82 (Soft-seated)
  Uni-directional: KKD-MS82 (Metal-seated)

CONNECTIONS
Double-flanged Type

DIMENSIONS
Face to Face Dimension in acc. with API 609 Cat. B

ACCEPTANCE TESTING
- » Shell strength: EN 12266-1 P10
- » Shell tightness: EN 12266-1 P11
- » Seat leak tightness: EN 12266-1 P12

AUTOMATION
Flange connection in accordance with ISO 5211, allows for mounting of an actuator by means of brackets. Pneumatic and electrical actuators utilizable.



TEMPERATURE
- » -20 °C to +180 °C with RPTFE / PTFE Seat
- » -20 °C to +425 °C with Metal Seat

Size		Dimensions									Weight
DN	NPS	Ød	ØD1	L	H1	H2	W	G	E	F	kg
80	3	76	190	114	134	319	150	66	122	133	18
100	4	96	230	127	144	329	150	66	122	133	23
150	6	143	280	140	190	364	150	66	122	133	32
200	8	188	345	152	214	431	200	77	161	236	53
250	10	236	405	165	254	476	200	77	161	236	71
300	12	281	485	178	298	529	200	94	183	236	111
350	14	320	535	190	328	559	200	94	183	236	140
400	16	371	595	216	377	690	300	120	257	324	196
450	18	420	635	222	402	715	300	120	257	324	229
500	20	469	700	229	437	750	300	120	257	324	286
600	24	549	815	267	492	888	400	153	352	374	457
700	28	655	927	292	570	963	400	153	352	374	686
750	30	698	984	318	605	1165	600	185	512	446	889
800	32	755	1060	318	630	1190	600	185	512	446	1014
900	36	870	1168	330	690	1230	600	185	512	446	1282
1000	40	943	1289	410	768	1360	600	185	512	446	1651
1100	44	1045	1403	410	818	1410	600	185	512	446	2173
1200	48	1145	1510	470	884	1475	600	185	512	446	2651

KKD-82F -CL150

CLASS 150
Double flanged connection, Lever

GENERAL FEATURES
- » Double eccentric structure keeps the low torque requirement while the valve pursues tightness.
- » Dynamic load seat design for better elasticity and higher reliability.
- » Save space with a compact body design
- » Bi-directional: KKD-82 (Soft-seated)
  Uni-directional: KKD-MS82 (Metal-seated)

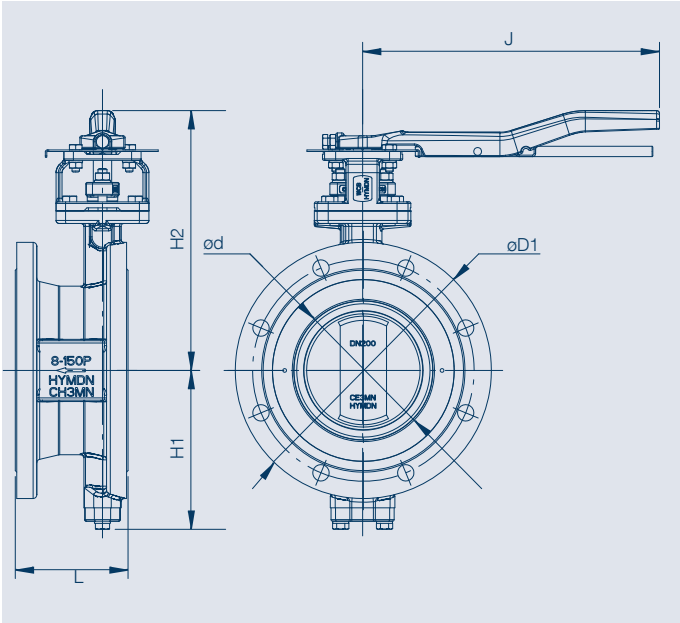
CONNECTIONS
Double-flanged Type

DIMENSIONS
Face to Face Dimension in acc. with API 609 Cat. B

ACCEPTANCE TESTING
- » Shell strength: EN 12266-1 P10
- » Shell tightness: EN 12266-1 P11
- » Seat leak tightness: EN 12266-1 P12

AUTOMATION
Flange connection in accordance with ISO 5211, allows for mounting of an actuator by means of brackets. Pneumatic and electrical actuators utilizable.

TEMPERATURE
- » -20 °C to +180 °C with RPTFE / PTFE Seat
- » -20 °C to +425 °C with Metal Seat



Size		Dimensions						Weight
DN	NPS	Ød	ØD1	L	H1	H2	J	kg
80	3	76	190	114	134	260	220	16
100	4	96	230	127	144	270	220	21
150	6	143	280	140	190	305	300	31
200	8	188	345	152	214	350	400	50

KKD-82F -CL300

CLASS 300
Double flanged connection, Bare shaft

GENERAL FEATURES
- » Double eccentric structure keeps the low torque requirement while the valve pursues tightness.
- » Dynamic load seat design for better elasticity and higher reliability.
- » Save space with a compact body design
- » Bi-directional: KKD-82 (Soft-seated)
  Uni-directional: KKD-MS82 (Metal-seated)

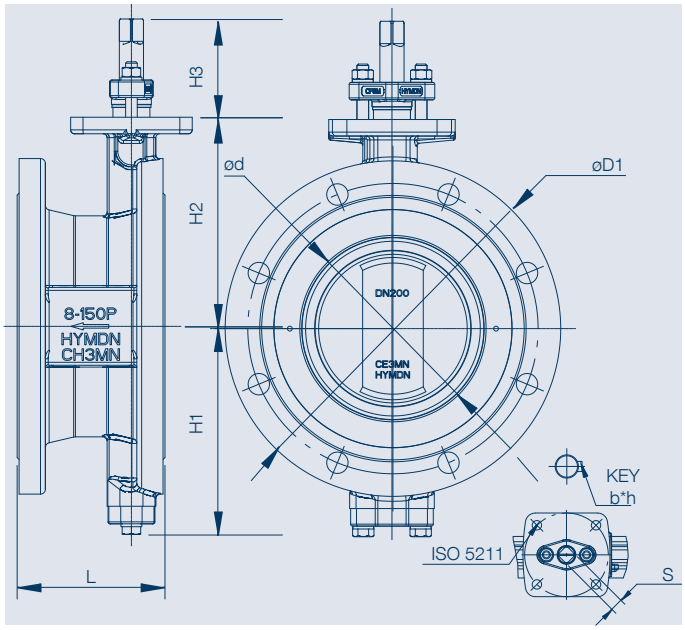
CONNECTIONS
Double-flanged Type

DIMENSIONS
Face to Face Dimension in acc. with API 609 Cat. B

ACCEPTANCE TESTING
- » Shell strength: EN 12266-1 P10
- » Shell tightness: EN 12266-1 P11
- » Seat leak tightness: EN 12266-1 P12

AUTOMATION
Flange connection in accordance with ISO 5211, allows for mounting of an actuator by means of brackets. Pneumatic and electrical actuators utilizable.

TEMPERATURE
- » -20 °C to +180 °C with RPTFE / PTFE Seat
- » -20 °C to +425 °C with Metal Seat



Size		Dimensions							Mounting flange	Weight
DN	NPS	Ød	ØD1	L	H1	H2	H3	S	ISO	kg
80	3	76	190	114	134	140	86	14	F10	14
100	4	96	230	127	144	150	86	14	F10	19
150	6	143	318	140	199	200	101	19	F12	42
200	8	188	381	152	234	240	104	22	F12	68
250	10	236	445	165	278	270	129	27	F14	95
300	12	281	521	178	318	310	134	32	F14	149
350	14	320	585	190	367	360	158	36	F16	192
400	16	371	648	216	392	385	168	46	F16	260
450	18	420	712	222	437	425	240	18*12	F25	412
500	20	469	775	229	465	450	245	20*12	F25	526
600	24	549	915	267	535	530	310	25*14	F30	810

KKD-82F -CL300

CLASS 300
Double flanged connection, Gear operator

GENERAL FEATURES
- » Double eccentric structure keeps the low torque requirement while the valve pursues tightness.
- » Dynamic load seat design for better elasticity and higher reliability.
- » Save space with a compact body design
- » Bi-directional: KKD-82 (Soft-seated)
  Uni-directional: KKD-MS82 (Metal-seated)

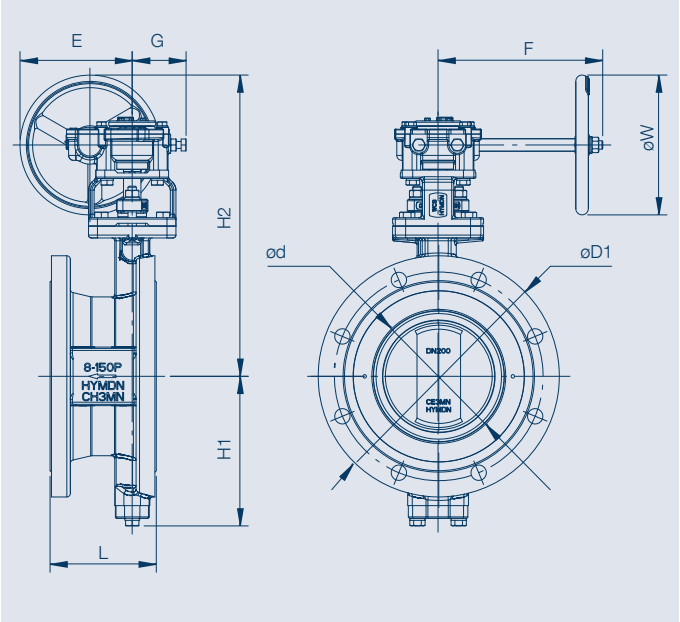
CONNECTIONS
Double-flanged Type

DIMENSIONS
Face to Face Dimension in acc. with API 609 Cat. B

ACCEPTANCE TESTING
- » Shell strength: EN 12266-1 P10
- » Shell tightness: EN 12266-1 P11
- » Seat leak tightness: EN 12266-1 P12

AUTOMATION
Flange connection in accordance with ISO 5211, allows for mounting of an actuator by means of brackets. Pneumatic and electrical actuators utilizable.

TEMPERATURE
- » -20 °C to +180 °C with RPTFE / PTFE Seat
- » -20 °C to +425 °C with Metal Seat



Size		Dimensions									Weight
DN	NPS	Ød	ØD1	L	H1	H2	W	G	E	F	kg
80	3	76	190	114	134	319	150	66	122	133	18
100	4	96	230	127	144	329	150	66	122	133	23
150	6	143	318	140	199	416	200	77	161	236	50
200	8	188	381	152	234	456	200	77	161	236	76
250	10	236	445	165	278	509	200	94	183	236	107
300	12	281	521	178	318	549	200	94	183	236	161
350	14	320	585	190	367	680	300	120	257	324	215
400	16	371	648	216	392	705	300	120	257	324	283
450	18	420	712	222	437	833	400	153	352	374	464
500	20	469	775	229	465	858	400	153	352	374	578
600	24	549	915	267	535	1095	600	185	512	446	906

KKD-82F -CL300

CLASS 300
Double flanged connection, Lever

GENERAL FEATURES
» Double eccentric structure keeps the low torque requirement while the valve pursues tightness.
» Dynamic load seat design for better elasticity and higher reliability.
» Save space with a compact body design
» Bi-directional: KKD-82 (Soft-seated)
Uni-directional: KKD-MS82 (Metal-seated)

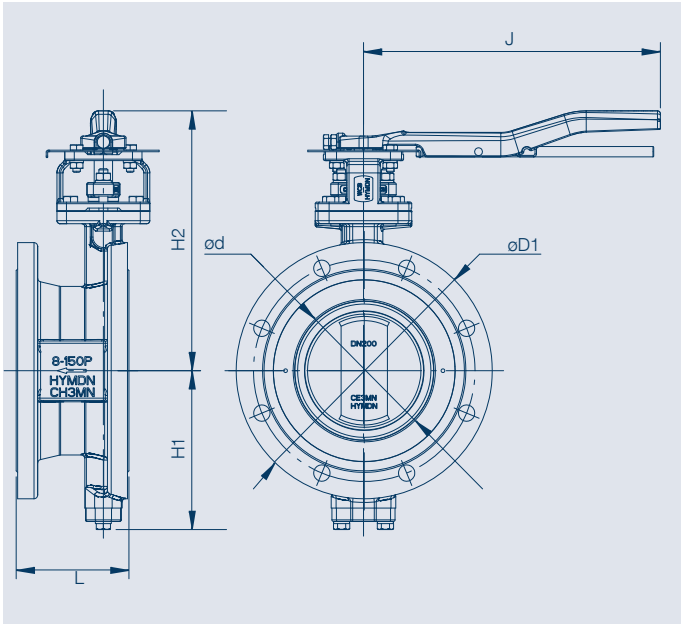
CONNECTIONS
Double-flanged Type

DIMENSIONS
Face to Face Dimension in acc. with API 609 Cat. B

ACCEPTANCE TESTING
» Shell strength: EN 12266-1 P10
» Shell tightness: EN 12266-1 P11
» Seat leak tightness: EN 12266-1 P12

AUTOMATION
Flange connection in accordance with ISO 5211, allows for mounting of an actuator by means of brackets. Pneumatic and electrical actuators utilizable.

TEMPERATURE
» -20 °C to +180 °C with RPTFE / PTFE Seat
» -20 °C to +425 °C with Metal Seat



Size		Dimensions						Weight
DN	NPS	Ød	ØD1	L	H1	H2	J	kg
80	3	76	190	114	134	260	220	16
100	4	96	230	127	144	270	220	21
150	6	143	318	140	199	335	400	47

VALVE SEAT SELECTION

Pressure & Temperature Table of SEAT/BODY

Temperature \ Body & Seat		PN10/PN16/CLASS 150: wafer type; CLASS 150: lug type and double flanged end										CLASS 300			
		General (a)				WCB		CF8/CF8M		CF3M		General (a)			
		PTFE		RPTFE		AMS 5596 Alloy Inconel (b)						PTFE		RPTFE	
°C	°F	bar	psig	bar	psig	bar	psig	bar	psig	bar	psig	bar	psig	bar	psig
-29 to 38	-20 to 100	19.7	285	19.7	285	19.7	285	18.9	275	15.9	230	51	740	51	740
66	150	18.8	273	18.8	273	18.8	273	17.6	255	14.7	213	48.8	708	48.8	708
93	200	17.9	260	17.9	260	17.9	260	16.2	235	13.4	195	37.9	550	46.5	675
121	250	16.9	245	16.9	245	16.9	245	15.5	225	12.8	185	29.3	425	36.5	530
149	300	15.9	230	15.9	230	15.9	230	14.8	215	12.1	175	20.7	300	26.9	390
177	350	9.7	140	14.8	215	14.8	215	13.4	195	11.6	168	12.1	175	17.2	250
204	400	3.4	50	6.9	100	13.8	200	12.6	183	11	160	3.4	50	6.9	100
260	500	-	-	(c)	(c)	11.7	170	11.7	170	10.3	150	-	-	(c)	(c)
316	600	-	-	-	-	9.7	140	9.7	140	9.7	140	-	-	-	-
343	650	-	-	-	-	8.6	125	8.6	125	8.6	125	-	-	-	-
371	700	-	-	-	-	7.6	110	7.6	110	7.6	110	-	-	-	-
399	750	-	-	-	-	6.6	95	6.6	95	7.6	110	-	-	-	-
427	800	-	-	-	-	5.5	80	5.5	80	5.5	80	-	-	-	-
454	850	-	-	-	-	(d)	(d)	4.5	65	(e)	(e)	-	-	-	-
482	900	-	-	-	-	(d)	(d)	3.4	50	-	-	-	-	-	-
510	950	-	-	-	-	(d)	(d)	2.4	35	-	-	-	-	-	-
538	1000	-	-	-	-	(d)	(d)	1.4 (f)	20 (f)	-	-	-	-	-	-

(a) General carbon steel and stainless steel.
(b) AMS 5596 Inconel represents Aerospace Material Specification level Inconel 718.
(c) RPTFE may covers instantaneous 500°F depends on working condition.
(d) Above 800°F the carbide phase of WCB might be transed to graphite. Workable but not suggested.
(e) Shall not to be userd over 800°F.
(f) From 1000°F, shall only use CF8/CF8M with carbon content equals/greater than 0.04%.

TECHNICAL DETAILS

Flow characteristics for the determination of the nominal diameter

The left table represents the Flow Coefficients (CV) for KKD-82 buttefly valves. This number represents the volume of water at 60°F that will flow in US gallon per minute through a valve with a 1 lb/in2 pressure drop across in the full open position. For Kv, it is the flow of water with temperature from 5°C - 30°C in cubic meters per hour (m3/h) with a pressure drop of 1 bar.
The Cv value is dependent on flow rate, pressure drop, specific gravity. The larger the Cv value is, the easier the fluid will flow within the valve. However, Cv value is easily affected by various factors, such as fluid type, fluid viscosity, saturated steam pressure.

$$Cv = F\sqrt{\frac{SG}{\Delta P}}$$

Flow Coefficients (Cv) of KKD-82-PN10/PN16/CL150

Size		Cv Value										
DN	NPS	10°	20°	30°	40°	45°	50°	60°	70°	80°	85°	90°
50	2	0	8	22	36	44	51	60	69	72	70	70
65	2½	2	16	38	61	71	83	109	135	146	152	150
80	3	6	33	62	94	108	118	143	176	208	230	227
100	4	16	58	106	155	178	213	274	349	433	465	473
125	5	20	94	167	230	263	310	391	488	561	604	605
150	6	40	147	242	335	382	422	560	729	925	975	1010
200	8	66	237	368	509	606	712	985	1296	1640	1715	2004
250	10	139	390	595	807	963	1168	1606	2134	2814	3180	3199
300	12	204	548	820	1138	1357	1591	2219	3067	4085	4484	4672
350	14	264	674	972	1386	1658	1994	2840	3925	5164	5828	5947
400	16	384	864	1196	1765	2155	2611	3755	5105	6975	7920	8182
450	18	508	1092	1551	2341	2881	3522	5125	7134	9511	10599	11548
500	20	626	1294	1792	2651	3304	4082	5919	8256	11429	13126	13813
600	24	1047	2251	3178	4563	5543	6568	9277	12932	17093	18328	19021

Flow Coefficients (Cv) of KKD-82-PN40/CL300

Size		Cv Value										
DN	NPS	10°	20°	30°	40°	45°	50°	60°	70°	80°	85°	90°
80	3	6	33	62	94	108	118	143	176	208	230	227
100	4	16	58	106	155	178	213	274	349	433	465	473
125	5	20	94	167	230	263	310	391	488	561	604	605
150	6	37	137	225	312	355	393	521	678	860	907	939
200	8	62	220	343	473	563	662	916	1206	1525	1595	1864
250	10	129	362	554	750	896	1087	1493	1985	2617	2957	2975
300	12	190	510	762	1059	1262	1480	2064	2852	3799	4170	4345
350	14	246	627	904	1289	1542	1854	2641	3650	4803	5420	5531
400	16	357	803	1112	1642	2004	2428	3492	4748	6487	7365	7609
450	18	473	1015	1442	2177	2679	3275	4766	6634	8845	9857	10739
500	20	583	1204	1667	2466	3073	3797	5504	7678	10629	12207	12846
600	24	974	2093	2956	4244	5155	6108	8627	12027	15897	17045	17689

TECHNICAL DETAILS

Torque chart under pressure load

Torque in N.m of KKD-82-PN10/PN16/CL150							
Size		Soft Seat			Fire-safe Seat		
DN	NPS	ΔP = 6 bar	ΔP = 10 bar	ΔP = 16 bar	ΔP = 6 bar	ΔP = 10 bar	ΔP = 16 bar
50	2	15	18	24	18	22	27
65	2.5	17	22	27	21	26	31
80	3	20	25	31	32	37	46
100	4	25	37	55	53	65	83
125	5	43	64	94	84	105	135
150	6	55	84	126	112	140	183
200	8	101	156	238	206	261	343
250	10	159	248	381	322	410	543
300	12	256	393	598	484	620	825
350	14	385	583	880	686	884	1180
400	16	565	853	1285	956	1245	1677
450	18	708	1091	1666	1229	1612	2187
500	20	1068	1607	2415	1717	2256	3065
600	24	1685	2510	3748	2578	3403	4640

Torque in N.m of KKD-82-PN40/CL300							
Size		Soft Seat			Fire-safe Seat		
DN	NPS	ΔP = 20 bar	ΔP = 30 bar	ΔP = 40 bar	ΔP = 20 bar	ΔP = 30 bar	ΔP = 40 bar
80	3	49	63	77	76	90	104
100	4	82	112	142	126	156	186
125	5	141	192	243	207	258	309
150	6	206	280	354	297	371	445
200	8	363	506	650	531	674	818
250	10	627	871	1115	886	1130	1375
300	12	985	1358	1731	1349	1721	2094
350	14	1458	1999	2541	1939	2481	3022
400	16	2273	3086	3899	2900	3712	4525
450	18	3089	4221	5353	3922	5054	6187
500	20	4246	5785	7324	5285	6823	8362
600	24	6606	8984	11362	8034	10412	12789

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