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Параллельные задвижки KSB. Техническое описание

Knife Gate Valve

HERA-BD

PN 10
DN 50-1200

Type Series Booklet



Legal information/Copyright

Type Series Booklet HERA-BD

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Knife Gate Valves

Bi-directional Knife Gate Valve

HERA-BD



Main applications

- Waste water treatment plants
- Biogas plants
- Solids transport
- Water treatment
- Pulp and paper industry
- Drainage systems
- Drainage
- Washing plants
- Sludge disposal
- Sludge processing
- Food industry and beverages industry

Fluids handled

- Waste water with/without faeces
- Activated sludge
- Service water
- Digested sludge
- Solids-laden fluids
- River water, lake water and groundwater
- Raw sludge
- Grey water
- Other fluids on request.

Operating data

Operating properties

Characteristic	Value
Nominal pressure	PN 10
Nominal size	DN 50 - 1200
Max. permissible pressure [bar]	10
Min. permissible temperature [°C]	-10
Max. permissible temperature [°C]	+120

Body materials

Overview of available materials

Material	Material number	Temperature limit
EN-GJL-250	5.1301	≤ 120 °C

Design details

Design

- Wafer-type design: suitable for clamping between pipe flanges or dead-end service at full operating pressure
- Single-piece (≤ DN 500) or two-piece (> DN 500) body with integrated flange seal
- Short face-to-face length to EN 558-1/20
- Non-rising stem
- Non-rising handwheel
- Blade made of 1.4571 as standard (≤ DN 400)
- Confined U-shaped seal made of EPDM
- Transverse seal with gland packing
- Robust yoke for actuator mounting as standard
- All steel parts and grey cast iron parts epoxy-coated (200 µm) to protect against corrosion, colour: RAL 5015, blue
- The valves satisfy the safety requirements of Annex I of the European Pressure Equipment Directive 2014/68/EU (PED) for fluids in Groups 1 and 2.
- The valves can be used in potentially explosive atmospheres, Group II, category 2 (zones 1+21) and category 3 (zones 2+22) to ATEX 2014/34/EU.

Variants

- Blade made of 1.4571 / AISI 316 Ti (≥ DN 450)
- Stem made of 1.4571 / AISI 316 Ti
- Nuts and bolts made of A4
- Sealing material made of NBR or Viton (U-shaped seal and O-rings)
- Gland packing made of stainless steel braiding, with scraper effect
- Chain wheel ≤ DN 600
- Quick-action lever ≤ DN 150
- Gearbox ≥ DN 400
- Double-acting pneumatic actuators ≤ DN 800
- Electric actuators ≤ DN 1200 (with rising stem)
- Limit switch(es)
- Solenoid valves to Namur
- 3.1 certificate
- Larger nominal sizes and other variants on request

Product benefits

- All grey cast iron and steel components are protected against corrosion by high-quality epoxy coating.
- Robust and compact steel mounting yoke for straightforward mounting of pneumatic and electric actuators and limit switches. A hard anodised aluminium NAMUR adapter plate attached to the actuator allows proximity switches or solenoid valves to be quickly installed (plug & run).
- Reliable and service-friendly stem seal: The gland packing is made of PTFE impregnated fibre and can be re-adjusted during operation. There is no need to remove the valve from the piping to replace the packing.
- High functional reliability and tight shut-off in both flow directions.
 - The stainless steel blade is polished on both sides and guided by a confined U-shaped seal during the entire valve travel. This prevents "chattering" of the blade and minimises the risk of deposits.
 - Flushing corners in the body ensure the seat is flushed clean when the valve closes.
- Suitable for universal use. Flange connection via tapped blind holes and throughbolts enables the wafer-type gate valve to be clamped between pipe flanges or used as dead-end valve at full operating pressure.
- Economical
 - The valve is available in a single-piece (up to DN 500) or two-piece body design with full bore providing unrestricted flow passage. The body is fully machined inside, resulting in a tight fit of all components, very low pressure losses and high flow coefficients.

- As a standard feature, O-rings are integrated into the body and serve as flange seals. This helps to save extra costs for providing and fitting external flange seals.

Related documents

Other applicable documentation

Document	Reference number
Technical data sheet	7328.22
Operating manual	7328.8

Purchase order specifications

Please specify the following information in all enquiries or purchase orders:

1. Type
2. Nominal pressure
3. Nominal size
4. Operating pressure
5. Operating temperature
6. Fluid handled
7. Variants
8. Reference number

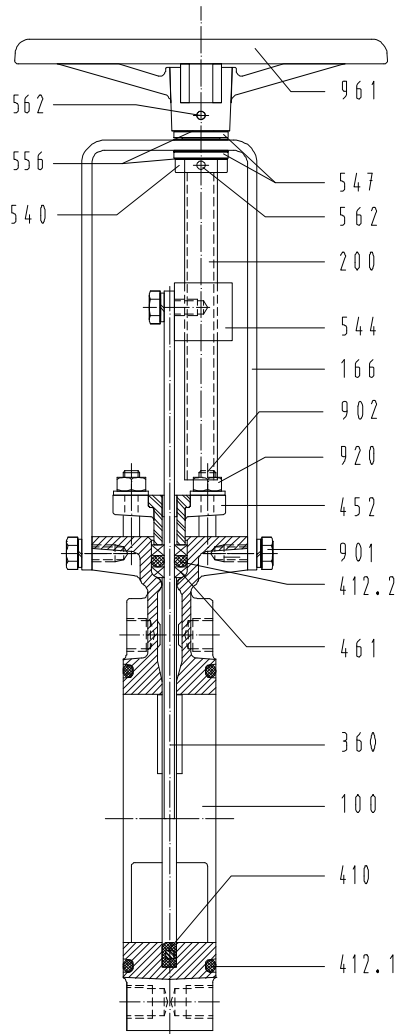
Pressure/temperature ratings

Test pressure and operating pressure

PN	DN	Shell test	Leak test (seat)	Permissible operating pressure
		With water		-10 to +120 °C
		Tests P10 and P11 to DIN EN 12266-1	Test P12 to DIN EN 12266-1 ¹⁾	
		[bar]	[bar]	[bar]
10	50-250	15	11	10
6	300-400	9	6,6	6
5	450	7,5	5,5	5
4	500-600	6	4,4	4
2	700-1200	3	2,2	2

1) DN 50-600: leakage rate A, DN 700-1200: leakage rate B

Materials

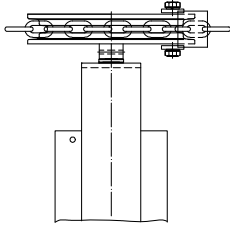


HERA-BD

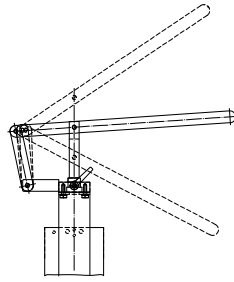
Parts list

Part No.	Description	Material	Material number	Note
100	Body	EN-GJL-250	5.1301	DN 50 - 500: epoxy-coated, single-piece
		EN-GJS-400-15	5.3106	DN 600: epoxy-coated, two-piece
166	Yoke	Steel	1.0044 / S275JR	Epoxy-coated
200	Stem	Stainless steel	1.4016 / AISI 430	Non-rising
360	Blade	Stainless steel	1.4571 / AISI 316 Ti	DN 50-400
		Stainless steel	1.4301 / AISI 304	≥ DN 450
410	U-shaped seal	EPDM with steel core	-	-
412.1	O-ring	EPDM	-	Integrated flange seal
412.2	O-ring	EPDM	-	-
452	Gland follower	EN-GJS-400-15	5.3106	Epoxy-coated
461	Gland packing	PTFE-impregnated synthetic fibres	-	-
540	Bush	Stainless steel	1.4301 / AISI 304	-
544	Threaded bush	Brass	-	-
547	Guide bush	Manganese bronze	C86300 / CB762S	-
556	Anti-friction disc	PET + solid lubricant	-	-
562	Spring-type straight pin	Steel	DIN 7346	-
901	Hexagon head bolt	A2	-	-
902	Stud	A2	-	-
920	Hexagon nut	A2	-	-
961	Handwheel	Steel	-	DN 50-300: epoxy-coated
		EN-GJL-250	5.1301	≥ DN 350: epoxy-coated

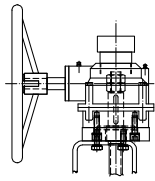
Variants



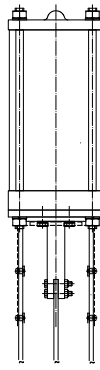
Chain wheel (non-rising stem)



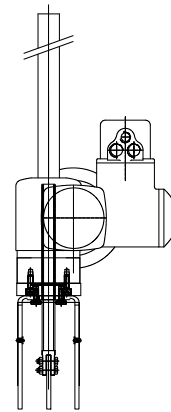
Quick-action lever



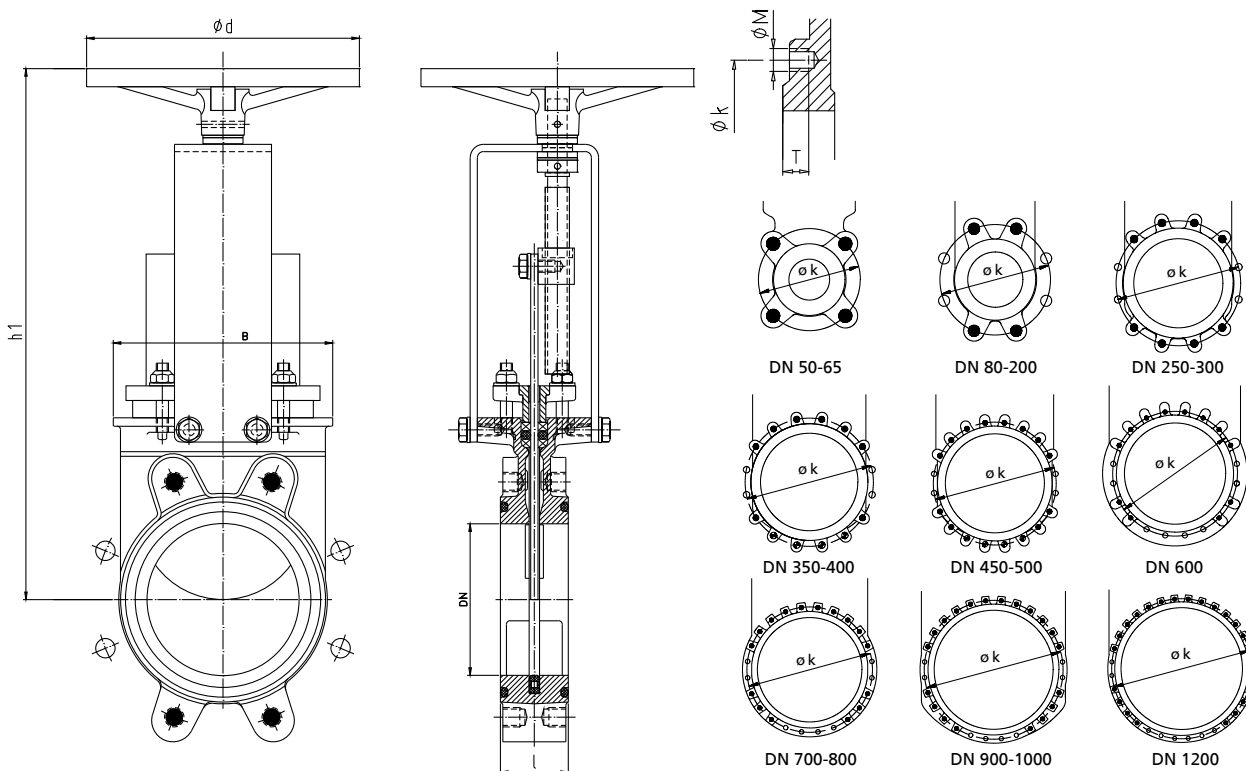
Gearbox (non-rising stem)



Pneumatic actuators
(double-acting)



Electric actuators
(rising stem)

Dimensions and weights

Fig. 1: HERA-BD
Dimensions [mm] and weights [kg]

PN	DN	l	h_1	B	ϕd	[kg]
10	50	43	311	113	225	8
	65	46	338	128	225	9
	80	46	363	143	225	10
	100	52	404	162	225	12
	125	56	438	181	225	15
	150	56	489	209	225	17
	200	60	594	263	310	30
6	250	68	694	315	310	42
	300	78	784	370	310	60
	350	78	932	420	410	90
5	400	102	1017	478	410	150
	450	114	1119	532	550	185
4	500	127	1219	584	550	224
	600	110	1379	762	550	230
2	700	110	1736	890	800	380
	800	110	1923	1012	800	550
	900	110	2047	1112	800	680
	1000	110	2487	1240	800	800

Dimensions [mm]

PN	DN	ϕk	Number of bolt holes z	Bolt size ϕM	Blind hole depth T	Number of tapped blind holes n_1	Number of clearance holes ²⁾ n_2	Number of tapped holes ³⁾ n_3
10	50	125	4	M16	10	4	0	0
	65	145	4	M16	10	4	0	0
	80	160	8	M16	12	4	4	0
	100	180	8	M16	12	4	4	0
	125	210	8	M16	14	4	4	0
	150	240	8	M20	14	4	4	0
	200	295	8	M20	14	4	4	0
6	250	350	12	M20	18	8	4	0
	300	400	12	M20	21	8	4	0
	350	460	16	M20	21	8	4	4

- 2) Bolts passing along the side of the body
3) Tapped from both ends, not through-tapped

PN	DN	ø k	Number of bolt holes z	Bolt size ø M	Blind hole depth T	Number of tapped blind holes n ₁ ^①	Number of clearance holes ²⁾ n ₂ ^②	Number of tapped holes ³⁾ n ₃ ^③
6	400	515	16	M24	28	8	4	4
5	450	565	20	M24	30	12	4	4
4	500	620	20	M24	40	12	4	4
	600	725	20	M27	26	12	8	0
2	700	840	24	M27	20	16	8	0
	800	950	24	M30	20	16	8	0
	900	1050	28	M30	20	20	8	0
	1000	1160	28	M33	20	20	10	0

Mating dimensions as per standard

Face-to-face lengths: EN 558-1/20 up to DN 500
≥ DN 600: see table

Flanges: DIN EN 1092-2

Other flange designs

- Other flange designs on request

Installation instructions

HERA BD is bi-directional, i.e. flow may pass the valve in either direction. Installation as dead-end valve at full operating pressure without counterflange is permissible. Observe the maximum operating pressures for the respective nominal sizes. Due to the O-rings integrated into the flange faces no further flange seals are required.

Knife Gate Valve

HERA-SH

PN 10/16, Class 150
DN 50-1000
Uni-directional
Full-lug Body

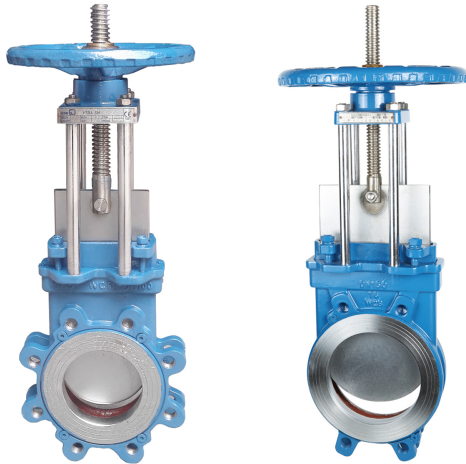
Type Series Booklet



Knife Gate Valves

Knife Gate Valve with Uni-directional Seal

HERA-SH



Main applications

- Paper and cellulose industry
- Sewage treatment plants
- Chemical industry
- Water treatment
- Food and beverages industry

Fluids handled

- Pulp
- Waste water
- Corrosive fluids
- Syrup
- Service water
- Other fluids on request.

Operating data

Operating properties

Characteristic	Value
Nominal pressure	PN 10/16, Class 150
Nominal size	DN 50-1000
Max. permissible pressure	10,3 bar
Max. permissible temperature	180 °C

Body materials

Overview of available materials

Material	Temperature limit
ASTM A 216 WCB	Up to 425 °C
ASTM A 351 CF8	Up to 538 °C
ASTM A 351 CF8M	Up to 538 °C

Other materials on request.

Design details

Design

- Designed and tested to MSS SP-81
- Pressure/temperature ratings to MSS SP-81
- Single-piece body
- Full-lug body
- Stem sealed by gland packing
- Rising stem
- Outside screw
- Non-rising handwheel
- Uni-directional
- Pillar yoke
- Suitable for mounting electric actuators and gearboxes to DIN ISO 5210
- The valves satisfy the safety requirements of Annex I of the European Pressure Equipment Directive 97/23/EC (PED) for fluids in Group 2.
- The valves can be used in potentially explosive atmospheres, Group II, category 2 (zones 1+21) and category 3 (zones 2+22) to ATEX 94/9/EC.

Variants

- Body made of nodular cast iron (wafer-type body only)
- Wafer-type body
- Non-rising stem
- Graphite gland packing for high temperatures
- Mounting of electric and pneumatic actuators
- Mounting of gearboxes
- Other material variants
- Larger nominal sizes and other variants on request

Product benefits

- In-situ valve maintenance
 - Externally accessible gland packing, so packing rings can be replaced without removing the valve from the piping.
- Long service life
 - Blade bottom edge curved for high cutting force. Smooth blade surface due to precision grinding and hard chromium plating, for increased abrasion resistance and long service life
 - O-ring-supported self-adjusting flexible seat with high abrasion resistance and long service life.
- Reliable sealing
 - Retaining ring can be adjusted during maintenance work to restore tightness

- Easy actuation
 - Stem nut supported by needle bearing for lower actuating torque and ease of actuation

Related documents

- Knife gate valve, type HERA-BD, see type series booklet 7328.1
- Knife gate valve, type HERA-BDS, see type series booklet 7332.1
- Knife gate valve, type HERA-BHT, see type series booklet 7330.1
- Operating manual 7329.8

On all enquiries/orders please specify

1. Type
2. Nominal pressure
3. Nominal size
4. Operating pressure
5. Operating temperature
6. Fluid handled
7. Variants
8. Number of type series booklet

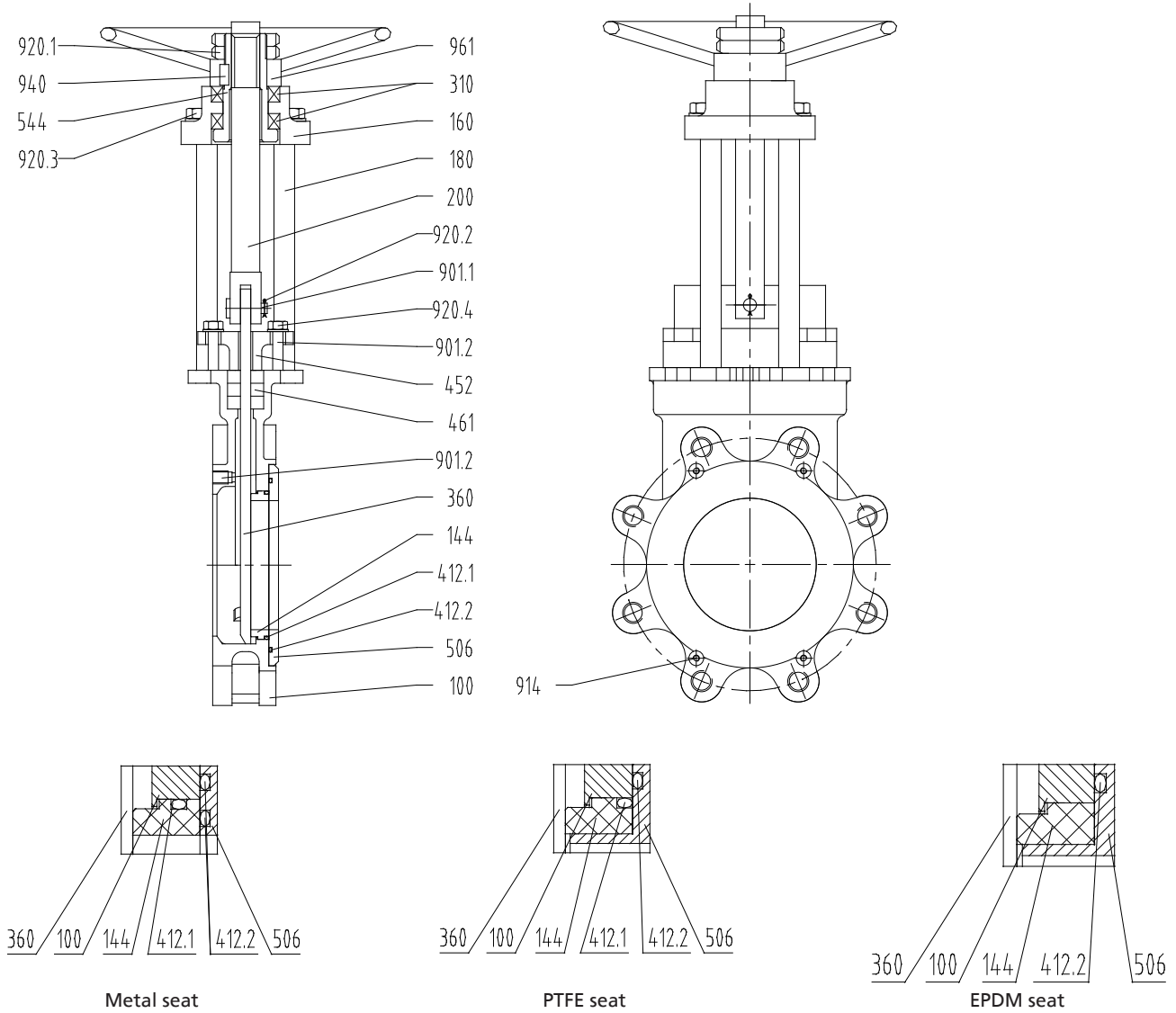
Pressure/temperature ratings

Test and operating pressures

Nominal pressure	Nominal size	Shell test ¹⁾	Leak test (seat) ¹⁾	Permissible operating pressures
		with water		
PN	DN	[bar]	[bar]	[bar]
10	50-600	15	2,8	10,3
	700-1000	15	2,8	6,9
16	50-600	24	2,8	10,3
	700-1000	24	2,8	6,9
Class 150	50-600	30	2,8	10,3
	700-1000	30	2,8	6,9

¹⁾ Test procedure to MSS SP-81

Materials

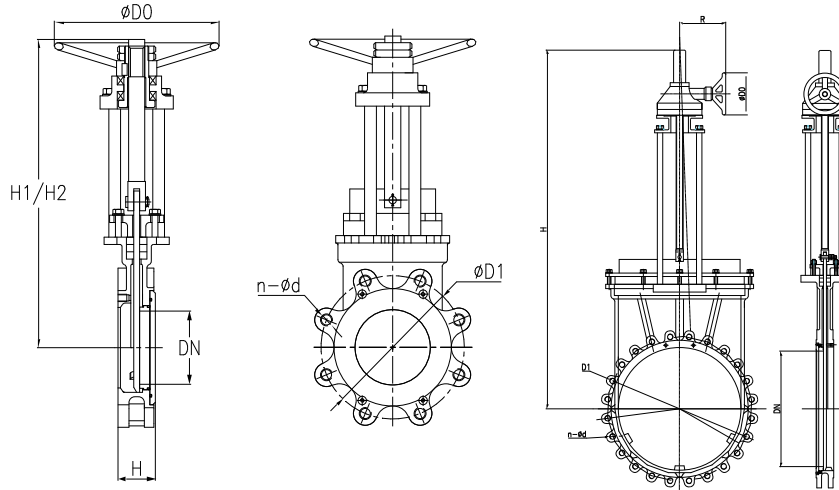


Overview of available materials

Part No.	Description	Material	Note
100	Body	ASTM A 216 WCB	
		ASTM A 351 CF8	
		ASTM A 351 CF8M	
144	Seat	ASTM A 182 F304	Hard chromium plated for metal-seated design
		ASTM A 182 F316	Hard chromium plated for metal-seated design
		EPDM	-20 °C to +120 °C
		PTFE	-20 °C to +150 °C
160	Cover	Aluminium alloy	
180	Pillar	ASTM A 182 F304	Body made of A 351 CF8(M)
		C45 + Cr	Body made of A 216 WCB
200	Stem	ASTM A 182 F304	
310	Plain bearing	GCr6	
360	Blade	ASTM A 182 F304	Hard chromium plated for metal-seated design
		ASTM A 182 F316	Hard chromium plated for metal-seated design
		ASTM A 276 410	Hard chromium plated

Part No.	Description	Material	Note
412.1	O-ring	NBR	Standard: -20 °C to +100 °C
		Viton	Variant: -20 °C to +180 °C
412.2	O-ring	NBR	Standard: -20 °C to +100 °C
		Viton	Variant: -20 °C to +180 °C
452	Gland follower	ASTM A 216 WCB	
		ASTM A 351 CF8	
		ASTM A 351 CF8M	
461	Gland packing	PTFE	
		Graphite	Variant, for temp. from 150 °C
506	Retaining ring	ASTM A 216 WCB	
		ASTM A 182 F304	
		ASTM A 182 F316	
544	Threaded bush	H59	
901.1	Bolt	ASTM A 276 304	
901.2	Bolt	ASTM A 182 F304	
914	Hexagon socket head cap screw	ASTM A 182 F304	
920.1	Nut	ASTM A 182 F304	
920.2	Split pin	ASTM A 182 F304	
920.3	Nut	ASTM A 182 F304	
920.4	Nut	ASTM A 182 F304	
940	Key	C45	
961	Handwheel	D-2	

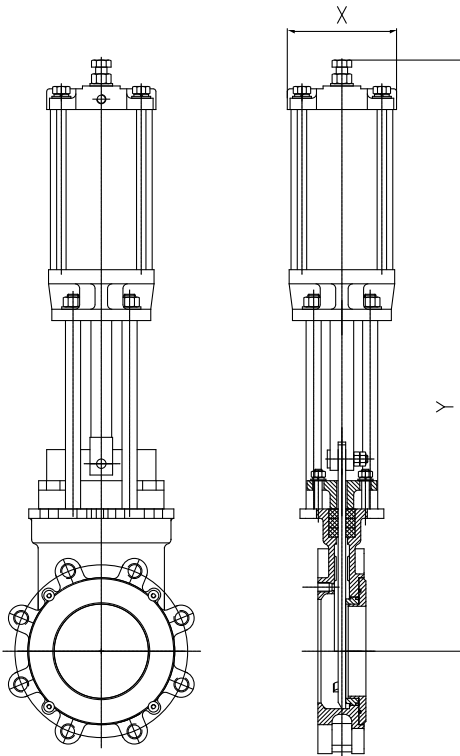
Dimensions



Dimensions in mm

PN	DN	L	H1	H2	H	D0	R	D1	Inside bolt hole diameter d	Number of through-holes n	Bolt size	[kg]
10	50	48	330	390	-	200	-	125	18	4	M16	10
	65	48	360	435	-	200	-	145	18	4	M16	11
	80	51	390	485	-	220	-	160	18	8	M16	13,5
	100	51	430	545	-	220	-	180	18	8	M16	15,5
	125	57	475	615	-	250	-	210	18	8	M16	23,5
	150	57	510	675	-	280	-	240	22	8	M20	29
	200	70	620	835	-	315	-	295	22	8	M20	43
	250	70	765	1015	-	355	-	350	22	12	M20	67,5
	300	76	850	1170	-	400	-	400	22	12	M20	100,5
	350	76	970	1320	-	450	-	460	22	16	M20	126
	400	89	1060	1469	-	500	-	515	26	16	M24	176,2
	450	89	-	-	1780	460	340	565	26	20	M24	195
	500	114	-	-	1920	460	340	620	26	20	M24	236
	600	114	-	-	2175	460	340	725	30	20	M27	380
700	117	-	-	2535	460	340	840	30	24	M27	540	
800	117	-	-	2845	530	420	950	33	24	M30	685	
900	130	-	-	3270	530	420	1050	33	28	M30	967	
1000	156	-	-	3600	530	420	1160	33	28	M30	1200	
16	50	48	330	390	-	200	-	125	18	4	M16	10
	65	48	360	435	-	200	-	145	18	4	M16	11
	80	51	390	485	-	220	-	160	18	8	M16	13,5
	100	51	430	545	-	220	-	180	18	8	M16	15,5
	125	57	475	615	-	250	-	210	18	8	M16	23,5
	150	57	510	675	-	280	-	240	22	8	M20	29
	200	70	620	835	-	315	-	295	22	12	M20	43,5
	250	70	765	1015	-	355	-	355	26	12	M24	68
	300	76	850	1170	-	400	-	410	26	12	M24	101
	350	76	970	1320	-	450	-	470	26	16	M24	127
	400	89	1060	1469	-	500	-	525	30	16	M27	177
	450	89	-	-	1780	460	340	585	30	20	M27	195
	500	114	-	-	1920	460	340	650	33	20	M30	236
	600	114	-	-	2175	460	340	770	36	20	M33	380
700	117	-	-	2535	460	340	840	36	24	M33	540	
800	117	-	-	2845	530	420	950	39	24	M36	685	
900	130	-	-	3270	530	420	1050	39	28	M36	967	
1000	156	-	-	3600	530	420	1170	42	28	M39	1200	
Class 150	2"	48	330	390	-	200	-	120,5	19	4	5/8"-11UNC	10
	2,5"	48	360	435	-	200	-	139,5	19	4	5/8"-11UNC	11
	3"	51	390	485	-	220	-	152,5	19	4	5/8"-11UNC	13,5
	4"	51	430	545	-	220	-	190,5	19	8	5/8"-11UNC	15,5
	5"	57	475	615	-	250	-	216	22,4	8	3/4"-10UNC	23,5
	6"	57	510	675	-	280	-	241,5	22,4	8	3/4"-10UNC	29
	8"	70	620	835	-	315	-	298,5	22,4	8	3/4"-10UNC	43,5
	10"	70	765	1015	-	355	-	362	25,4	12	7/8"-9UNC	68
	12"	76	850	1170	-	400	-	432	25,4	12	7/8"-9UNC	101
	14"	76	970	1320	-	450	-	476	28,4	12	1"-8UNC	127
	16"	89	1060	1460	-	500	-	540	28,4	16	1"-8UNC	177
18"	89	-	-	1780	460	340	578	31,8	16	1 1/8"-7UNC	195	

PN	DN	L	H1	H2	H	D0	R	D1	Inside bolt hole diameter d	Number of through-holes n	Bolt size	[kg]
	20"	114	-	-	1920	460	340	635	31,8	20	1 1/8"-7UNC	236
	24"	114	-	-	2175	460	340	749	35	20	1 1/4"-7UNC	380
	28"	117	-	-	2535	460	340	864	35	28	1 1/4"-7UNC	540
	32"	117	-	-	2845	530	420	978	41,2	28	1 1/2"-6UNC	685
	36"	130	-	-	3270	530	420	1086	41,2	32	1 1/2"-6UNC	967
	40"	156	-	-	3600	530	420	1200	41,2	36	1 1/2"-6UNC	1200



Dimensions in mm

PN	DN	Pneumatic actuator type (double-acting)	X	Y	[kg]
10	50	KZSL-100	120	490	14
16	65	KZSL-100	120	520	16,5
Class 150	80	KZSL-100	120	590	19,5
	100	KZSL-100	120	650	22
	125	KZSL-125	145	715	32
	150	KZSL-125	145	790	38,5
	200	KZSL-160	180	1040	65
	250	KZSL-200	240	1225	95,5
	300	KZSL-250	290	1390	152
	350	KZSL-300	350	1650	240
	400	KZSL-300	350	1820	282
	450	KZSL-350	400	2015	398
	500	KZSL-350	400	2185	470
	600	KZSL-400	450	2380	698
	700	KZSL-500	550	2770	884
	800	KZSL-600	650	3040	1180
	900	KZSL-600	680	3500	1500
	1000	KZSL-600	680	3900	1750

Face-to-face MSS SP-81
lengths:
Flanges: DIN 2501 (PN 10/16)
 ASME B16.5 (Class 150)

Knife Gate Valve

HERA-BHT

PN 10/16, Class 150
DN 80-600

Type Series Booklet



Legal information/Copyright

Type Series Booklet HERA-BHT

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Knife Gate Valves

Bi-directional Knife Gate Valve

HERA-BHT



Main applications

- Pulp and paper industry
- Solids separation
- Hydraulic repulping
- Transport of mining slurry
- Drainage systems
- Sludge disposal
- Sludge processing
- Transport of residues
- Waste water treatment plants

Fluids handled

- Slurry
- High-density fluids
- Solids-laden fertiliser fluids
- Pulp
- Digested sludge
- Raw sludge
- Activated sludge
- Waste water
- Service water
- Other fluids on request.

Operating data

Operating properties

Characteristic	Value
Nominal pressure	PN 10/16,
Nominal pressure	Class 150
Nominal size	DN 80 - 600
Max. permissible pressure [bar]	10,3
Min. permissible temperature [°C]	-10
Max. permissible temperature [°C]	+100

Body materials

Overview of available materials

Material	Temperature limit
ASTM A 216 WCB	≤ 425 °C
ASTM A 351 CF8	≤ 538 °C
ASTM A 351 CF8M	≤ 538 °C

Other materials on request.

Design details

Design

- Design to ASME B16.34 and MSS SP-81
- Semi-lug body
- Two-piece body with integrated flange seal
- Rising stem
- Non-rising handwheel
- Welded steel plate construction (DN 450-600)
- Bi-directional and soft-seated
- Through-going blade with excellent flow characteristic
- Robust yoke for actuator mounting as standard
- The valves satisfy the safety requirements of Annex I of the European Pressure Equipment Directive 2014/68/EU (PED) for fluids in Group 2.
- The valves can be used in potentially explosive atmospheres, Group II, category 2 (zones 1+21) and category 3 (zones 2+22) to ATEX 2014/34/EU.

Variants

- Double-acting pneumatic actuators
- Electric actuators
- Locking device
- Stem extension
- Stem protecting tube
- Position indicator
- Chain wheel
- Mechanical limit switch
- Larger nominal sizes and other variants on request

Product benefits

- Cast steel body withstands elevated fluid pressures.
- Yoke replaceable to accommodate different actuators quickly and easily.
- Gate valve bore is identical with nominal pipe diameter, resulting in a low flow resistance and process cost savings.

- Two-piece body without dead volumes: no downtime and maintenance costs caused by the removal of solids deposits.
- Reliable sealing: O-ring-supported self-adjusting flexible seat with high abrasion resistance and long service life.
- Suitable for universal use. Metal-seated and soft-seated (PTFE and EPDM) designs available to suit a variety of processes.

Related documents

Information/documents

Document	Reference number
Type series booklet HERA-BD (knife gate valve, bi-directional)	7328.1
Type series booklet HERA-BDS (knife gate valve, bi-directional)	7332.1
Type series booklet HERA-SH (knife gate valve, uni-directional)	7329.1
Operating manual	7330.8

Purchase order specifications

Please specify the following information in all enquiries or purchase orders:

1. Type
2. Nominal pressure
3. Nominal size
4. Operating pressure
5. Operating temperature
6. Fluid handled
7. Variants
8. Reference number

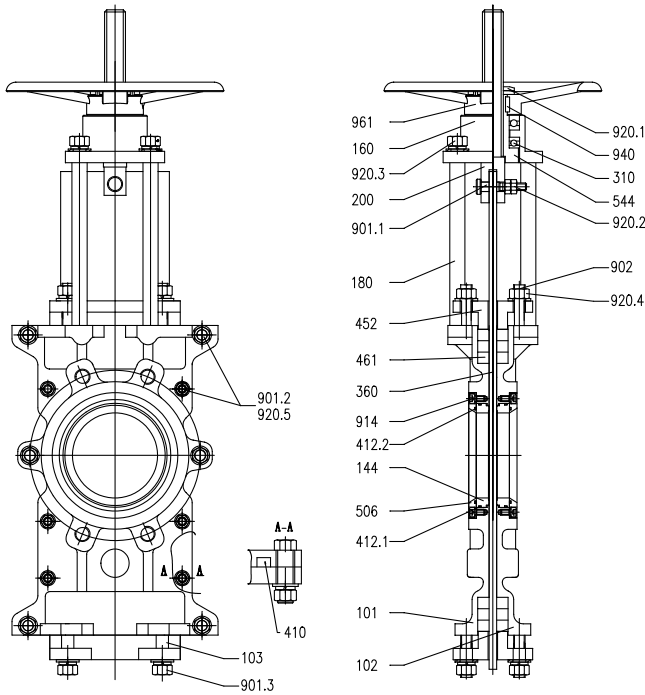
Pressure/temperature ratings

Test pressure and operating pressure

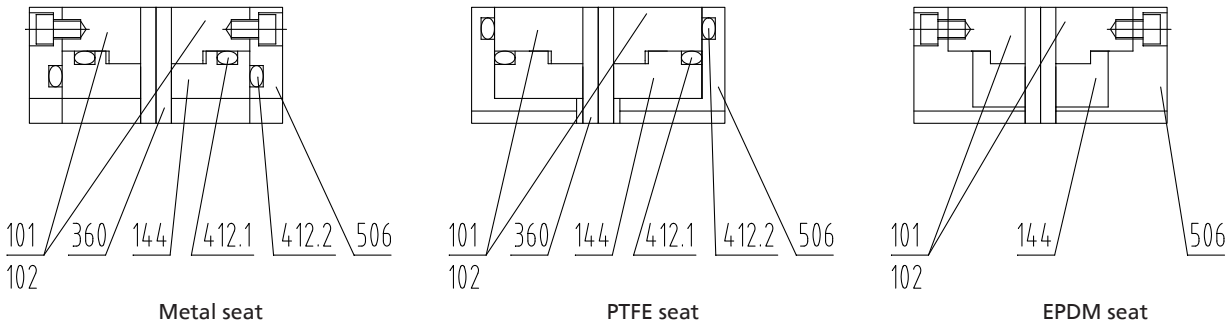
PN	DN	Shell test ¹⁾	Leak test (seat) ¹⁾	Permissible operating pressure
		With water		
		[bar]	[bar]	[bar]
10	80-600	15	2,8	10,3
16	80-600	24	2,8	10,3
Class 150	80-600	30	2,8	10,3

1) Test procedure to MSS SP-81

Materials



HERA-BHT

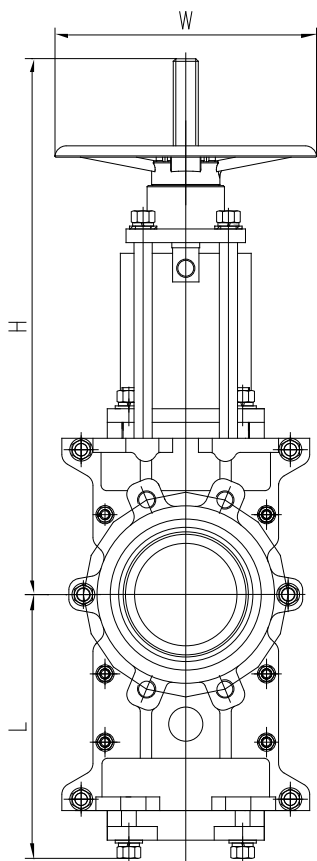


Parts list

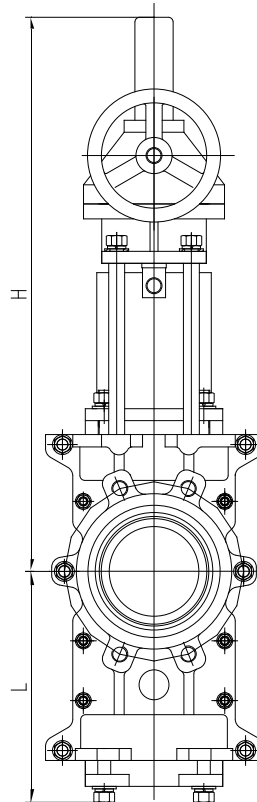
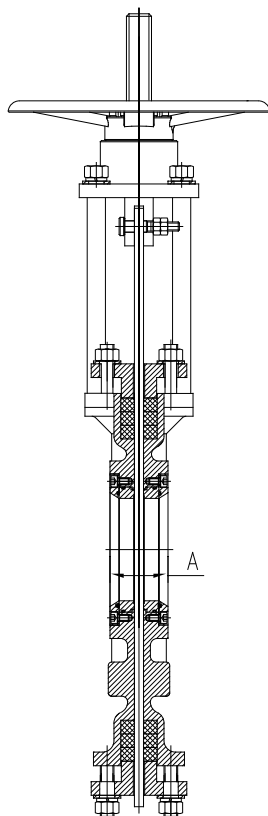
Part No.	Description	Material	Note
101	Lower body section	ASTM A 216 WCB	-
		ASTM A 351 CF8	-
		ASTM A 351 CF8M	-
102	Upper body section	ASTM A 216 WCB	-
		ASTM A 351 CF8	-
		ASTM A 351 CF8M	-
103	Bottom plate	ASTM A 216 WCB	-
		ASTM A 351 CF8	-
		ASTM A 351 CF8M	-
144	Seat	ASTM A 182 F304 + HCr	For metal-seated design
		ASTM A 182 F316 + HCr	For metal-seated design
		EPDM	-20 °C to +120 °C
		PTFE	-20 °C to +150 °C
160	Cover	Aluminium alloy	-
180	Pillar	ASTM A 182 F304	For body made of A 351 CF8(M)
		C45 + Cr	For body made of A 216 WCB
200	Stem	ASTM A 182 F304	-
310	Plain bearing	GCr6	-
360	Blade	ASTM A 182 F304	For soft-seated design
		ASTM A 182 F304 + HCr	For metal-seated design
		ASTM A 182 F316	For soft-seated design
		ASTM A 182 F316 + HCr	For metal-seated design
		ASTM A 276 410 + HCr	For soft-seated and metal-seated designs

Part No.	Description	Material	Note
410	Sealing element	NBR	-20 °C to +100 °C
412.1	O-ring	NBR	-20 °C to +100 °C
		Viton	-20 °C to +180 °C
412.2	O-ring	NBR	-20 °C to +100 °C
		Viton	-20 °C to +180 °C
452	Gland follower	ASTM A 216 WCB	-
		ASTM A 351 CF8	-
		ASTM A 351 CF8M	-
461	Gland packing	NBR or Viton	-
506	Retaining ring	ASTM A 216 WCB	-
		ASTM A 351 CF8	-
		ASTM A 351 CF8M	-
544	Threaded bush	H59	-
901.1	Bolt	ASTM A 182 F304	-
901.2	Bolt	ASTM A 182 F304	-
901.3	Bolt	ASTM A 182 F304	-
914	Hexagon socket head cap screw	ASTM A 182 F304	-
920.1	Nut	ASTM A 182 F304	-
920.2	Nut	ASTM A 182 F304	-
920.3	Nut	ASTM A 182 F304	-
940	Key	C45	-
961	Handwheel	D-2	-

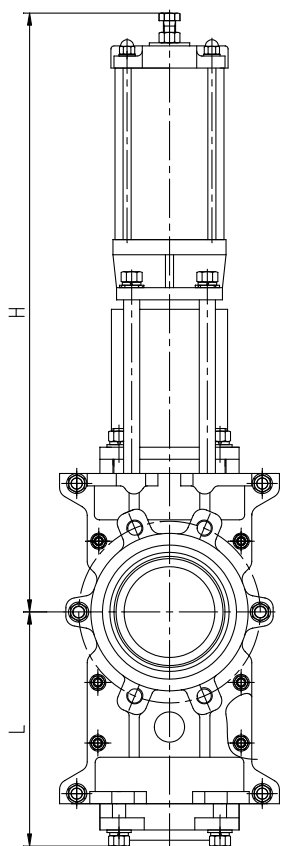
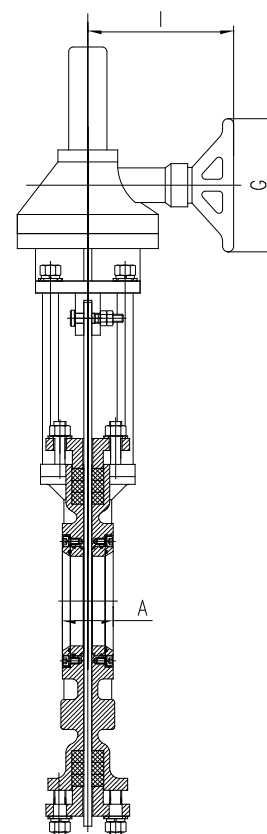
Dimensions and weights



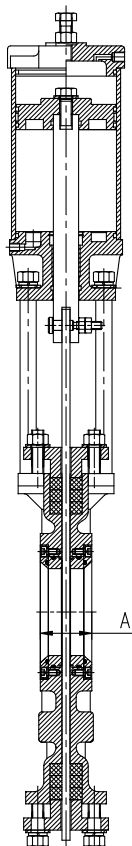
HERA-BHT with handwheel



HERA-BHT with gearbox



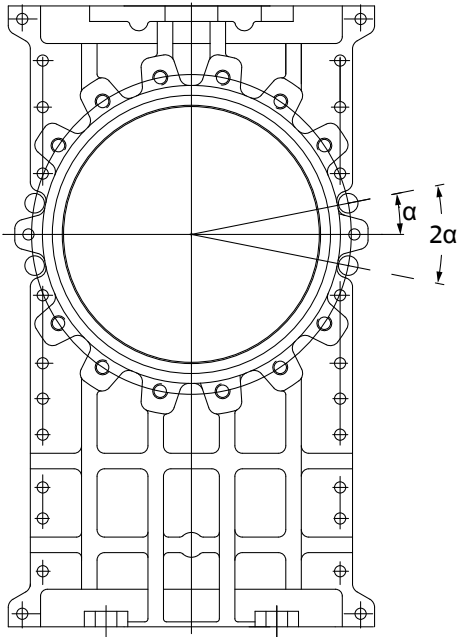
HERA-BHT with pneumatic actuator



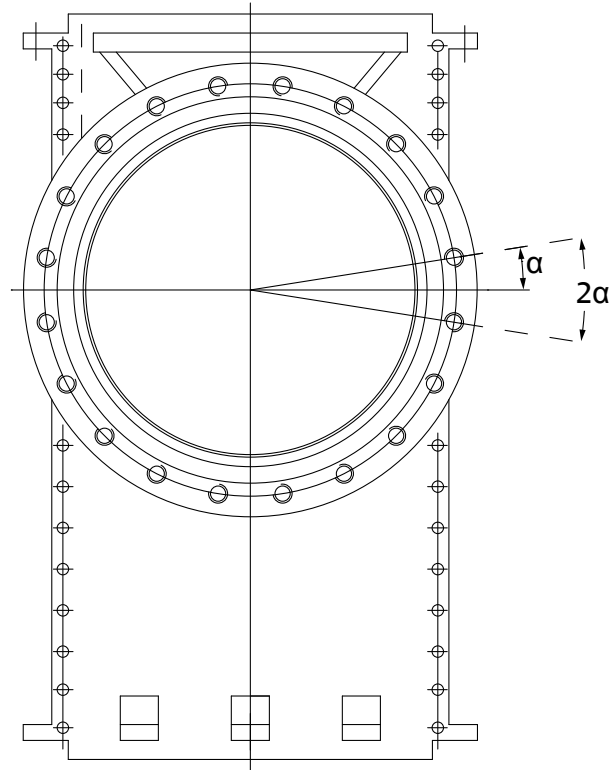
- 2) Fully open
- 3) Welded design

Dimensions [mm] and weights [kg]

PN	DN	A	L	H ²⁾	W	G	I	H1	With handwheel	With gearbox	With pneumatic actuator
									[kg]	[kg]	[kg]
10/16 Class 150	80	51	250	480	220	-	-	610	15,0	-	22,0
	100	51	350	530	220	-	-	620	17,0	-	24,5
	125	57	410	615	250	-	-	755	24,5	-	36,0
	150	57	450	695	280	-	-	800	31,0	-	44,3
	200	70	570	820	315	-	-	1000	53,5	-	72,4
	250	70	630	990	355	-	-	1170	74,0	-	107,8
	300	76	710	1140	400	-	-	1350	120,0	-	173,8
	350	76	810	1300	450	-	-	1570	185,0	-	315,0
	400	89	910	1570	-	310	260	1700	291,0	-	406,0
	450 ³⁾	110	1000	1810	-	460	340	1940	-	422,0	625,0
500 ³⁾	114	1110	1910	-	460	340	2050	-	480,0	714,0	
600 ³⁾	134	1280	2190	-	460	340	2350	-	915,0	1195,0	



DN 80-400 (semi-lug type)



DN 450-600 (full-lug type)

Dimensions [mm]

PN	DN	Flange OD	Bolt circle diameter	Number of clearance holes	Number of tapped holes
10	80	200	160	4	4
	100	220	180	4	4
	125	250	210	4	4
	150	285	240	4	4
	200	340	295	4	4
	250	395	350	4	8
	300	445	400	4	8
	350	505	460	4	12
	400	565	515	4	12
	450	615	565	0	20
16	80	200	160	4	4
	100	220	180	4	4
	125	250	210	4	4
	150	285	240	4	4
	200	340	295	4	8
	250	405	355	4	8

PN	DN	Flange OD	Bolt circle diameter	Number of clearance holes	Number of tapped holes
16	300	460	410	4	8
	350	520	470	4	12
	400	580	525	4	12
	450	640	585	0	20
	500	715	650	0	20
	600	840	770	0	20

Dimensions [mm]

PN	DN	Depth of tapped holes	Bolt size	Bolt hole ID	Angle α
10	80	14	M16	18	22,50°
	100	14	M16	18	22,50°
	125	16	M16	18	22,50°
	150	16	M20	22	22,50°
	200	16	M20	22	22,50°
	250	16	M20	22	15,00°
	300	18	M20	22	15,00°
	350	20	M20	22	11,25°
	400	20	M24	26	11,25°
	450	24	M24	26	9,00°
	500	24	M24	26	9,00°
16	80	14	M16	18	22,50°
	100	14	M16	18	22,50°
	125	16	M16	18	22,50°
	150	16	M20	22	22,50°
	200	16	M20	22	15,00°
	250	16	M24	26	15,00°
	300	18	M24	26	15,00°
	350	20	M24	26	11,25°
	400	20	M27	30	11,25°
	450	24	M27	30	9,00°
	500	24	M30	33	9,00°
600	30	M33	36	9,00°	

Dimensions [mm]

Class	DN	Flange OD	Bolt circle diameter	Number of clearance holes	Number of tapped holes
150	3"	190	152,5	0	4
	4"	230	190,5	4	4
	5"	255	216,0	4	4
	6"	280	241,5	4	4
	8"	345	298,5	4	4
	10"	405	362,0	4	8
	12"	485	432,0	4	8
	14"	535	476,0	4	8
	16"	600	540,0	4	12
	18"	635	578,0	0	16
	20"	700	635,0	0	20
	24"	815	749,5	0	20

Dimensions [mm]

Class	DN	Depth of tapped holes	Bolt size	Bolt hole ID	Angle α
150	3"	14	$\frac{5}{8}$ " - 11 UNC	18,0	45,00°
	4"	14	$\frac{5}{8}$ " - 11 UNC	18,0	22,50°
	5"	16	$\frac{3}{4}$ " - 10 UNC	22,0	22,50°
	6"	16	$\frac{3}{4}$ " - 10 UNC	22,0	22,50°
	8"	16	$\frac{3}{4}$ " - 10 UNC	22,0	22,50°
	10"	16	$\frac{7}{8}$ " - 9 UNC	26,0	15,00°
	12"	18	$\frac{7}{8}$ " - 9 UNC	26,0	15,00°
	14"	20	1" - 8 UNC	29,5	15,00°
	16"	20	1" - 8 UNC	29,5	11,25°
	18"	24	1 $\frac{1}{8}$ " - 7 UNC	32,5	11,25°
	20"	24	1 $\frac{1}{8}$ " - 7 UNC	32,5	9,00°

Class	DN	Depth of tapped holes	Bolt size	Bolt hole ID	Angle α
150	24"	30	1 1/4" - 7 UNC	35,5	9,00°

Mating dimensions as per standard

Face-to-face lengths: MSS SP-81
 Flanges: Mating dimensions to
 EN 1092-1 (PN 10/16)
 ASME B16.5 (Class 150)

Knife Gate Valve

HERA-BDS

PN 10/16, Class 150
DN 50-600
Bi-directional
Full-lug Body

Type Series Booklet



Knife Gate Valves

Bi-directional knife gate valve

HERA-BDS



Main applications

- Mining
- Sewage treatment plants
- Paper and cellulose industry
- Cement plants
- Chemical industry

Fluids handled

- Slurry
- Abrasive fluids
- Pulp
- Waste water
- Service water
- Other fluids on request.

Operating data

Operating properties

Characteristic	Value
Nominal pressure	PN 10/16, Class 150
Nominal size	DN 50-600
Max. permissible pressure	10 bar
Max. permissible temperature	120 °C

Body materials

Overview of available materials

Material	Temperature limit
ASTM A 216 WCB	Up to 425 °C
ASTM A 351 CF8	Up to 538 °C
ASTM A 351 CF8M	Up to 538 °C

Other materials on request.

Design details

Design

- Design to ASME B16.34 and MSS SP-81
- Pressure/temperature ratings to MSS SP-81
- Full-lug body
- Wafer-type body
- Bi-directional seal
- Rising stem
- Non-rising handwheel
- Resilient lining
- The valves satisfy the safety requirements of Annex I of the European Pressure Equipment Directive 97/23/EC (PED) for fluids in Group 2.

Variants

- Non-rising stem
- Graphite gland packing for high temperatures
- Locking device
- Protection plate
- Mounting of electric and pneumatic actuators
- Mounting of gearboxes
- Other material variants
- Larger nominal sizes up to DN 900

Product benefits

- Blade bottom edge curved for high cutting force. Smooth blade surface due to precision grinding and hard chromium plating, for increased abrasion resistance and long service life.
- Internal gland packing with improved sealing performance
- Two-piece body designed without dead volumes to prevent pulp deposits inside the body and jamming of the blade, particularly in the case of solids-laden fluids.
- Long service life due to resilient, abrasion-resistant die-cast rubber seat with metal backing ring Replaceable seats, easy to remove and install
- Drain facility at the bottom of the valve body. Body bottom dismantles easily for regular cleaning. Flushing system can be fitted by customer.

Related documents

- Operating manual 7332.8

On all enquiries/orders please specify

- | | |
|--|---|
| <ol style="list-style-type: none"> 1. Type 2. Nominal pressure 3. Nominal size 4. Operating pressure 5. Operating temperature 6. Line connection | <ol style="list-style-type: none"> 7. Material 8. Fluid handled 9. Variants 10. Number of type series booklet <p>Always indicate the original serial number and the year of construction when ordering spare parts.</p> |
|--|---|

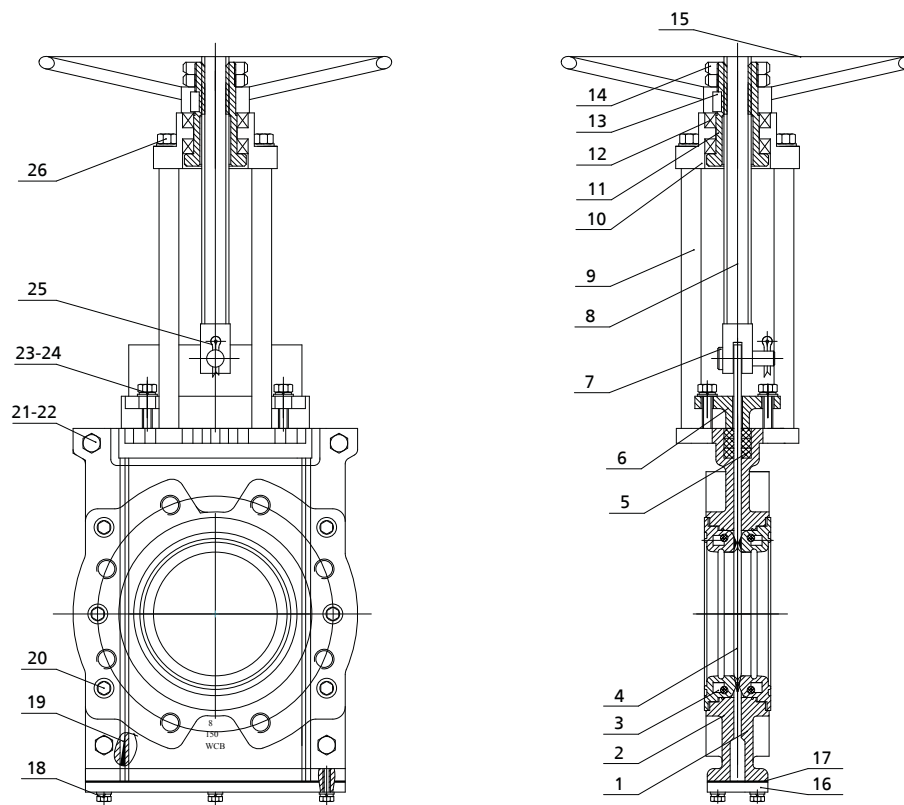
Pressure/temperature ratings

Test and operating pressures

Nominal pressure	Nominal size	Shell test ¹⁾²⁾	Leak test (seat) ¹⁾	Permissible operating pressures
		with water		
PN	DN	[bar]	[bar]	[bar]
10	50-600	15	2,8	10,3
16	50-600	24	2,8	10,3
Class 150	50-600	30	2,8	10,3

Materials

HERA-BDS with handwheel



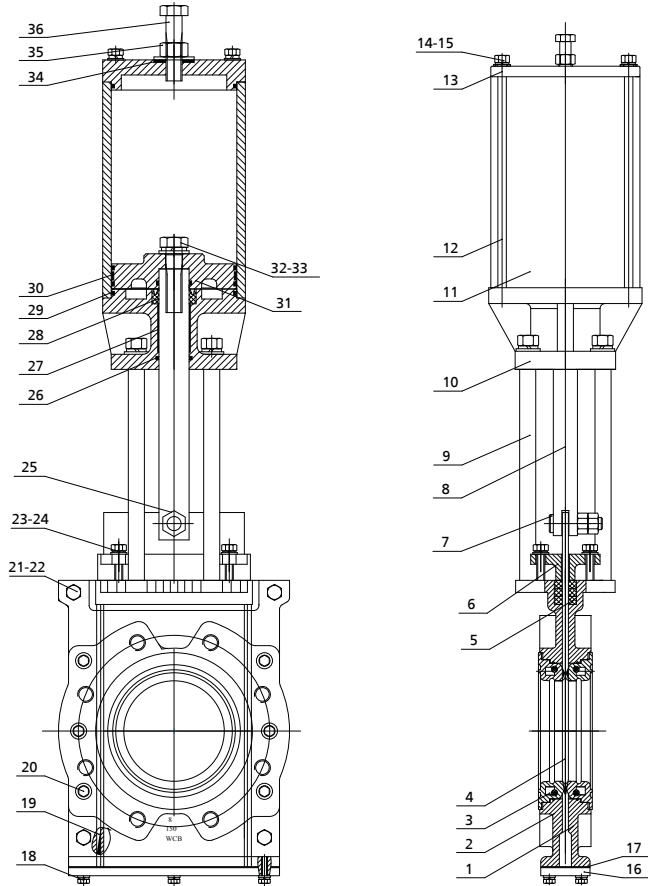
Overview of available materials

Part No.	Description	Material	Note
1	Upper body section	ASTM A 216 WCB	
		ASTM A 351 CF8	

1) Test procedure to MSS SP-81
2) Test medium at 0 °C to 66 °C

Part No.	Description	Material	Note
		ASTM A 351 CF8M	
2	Lower body section	ASTM A 216 WCB	
		ASTM A 351 CF8	
		ASTM A 351 CF8M	
3	Seat	EPDM	
		NBR	
		Rubber	
4	Blade	ASTM A 182 F304	Hard chromium plated
		ASTM A 182 F316	Hard chromium plated
		ASTM A 276 410	Material available for model with metal (hard chromium plated) seat only
5	Packing ring	PTFE	
6	Gland follower	ASTM A 216 WCB	
		ASTM A 351 CF8	
		ASTM A 351 CF8M	
7	Pin	ASTM A 182 F304	
8	Stem	ASTM A 182 F304	
9	Pillar	ASTM A 182 F304	Body made of A 351 CF8(M)
		C45 + Cr	Body made of A 216 WCB
10	Cover	ASTM A 216 WCB	
		ZL102	
11	Nut	H59	
12	Plain bearing	GCr6	
13	Key	45#	
14	Slotted round nut	45#	Electroless nickel-plated
15	Handwheel	Nodular cast iron	
16	Bottom	ASTM A 216 WCB	
		ASTM A 351 CF8	
		ASTM A 351 CF8M	
17	Gasket	NBR	
18	Hexagon head bolt	ASTM A 182 F304	
19	Sealing cord	NBR	
20	Hexagon socket head cap screw	ASTM A 182 F304	
21	Hexagon head bolt	ASTM A 182 F304	
22	Hexagon nut	ASTM A 182 F304	
23	Stud	ASTM A 182 F304	
24	Hexagon nut	ASTM A 182 F304	
25	Split pin	Stainless steel	
26	Hexagon nut	ASTM A 182 F304	

HERA-BDS with pneumatic actuator

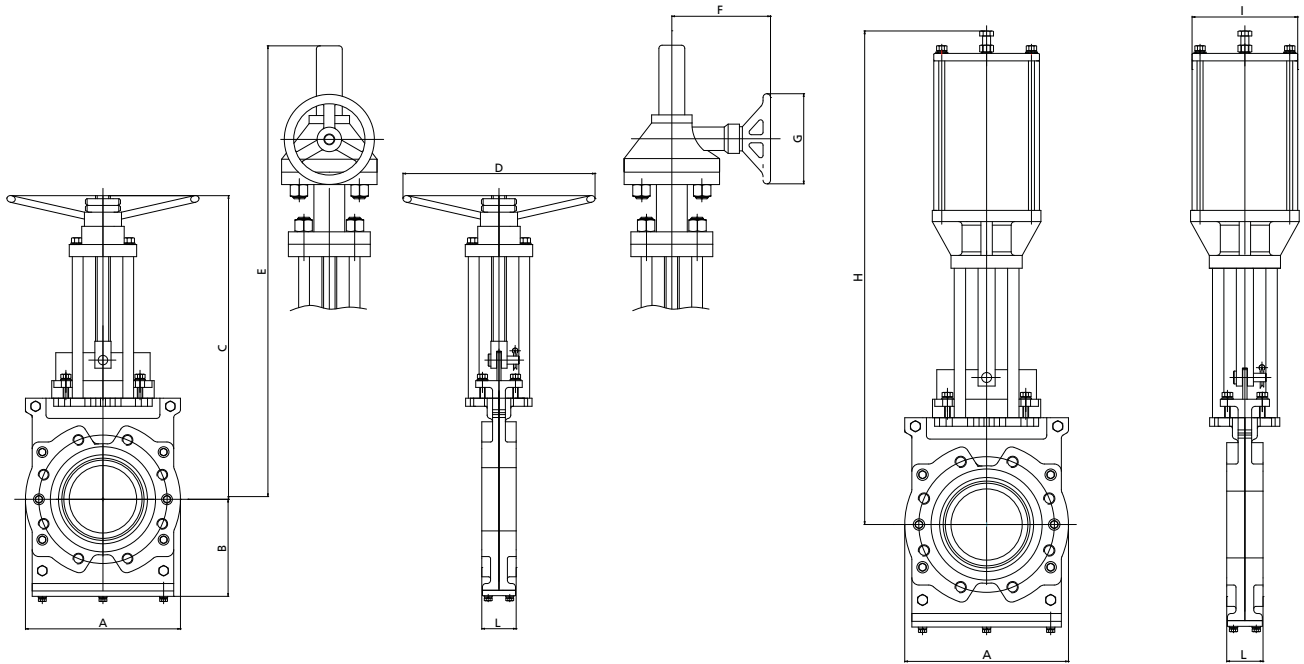


Overview of available materials

Part No.	Description	Material	Note
1	Upper body section	ASTM A 216 WCB	
		ASTM A 351 CF8	
		ASTM A 351 CF8M	
2	Lower body section	ASTM A 216 WCB	
		ASTM A 351 CF8	
		ASTM A 351 CF8M	
3	Seat	EPDM	
		NBR	
		Rubber	
4	Blade	ASTM A 182 F304	Hard chromium plated
		ASTM A 182 F316	Hard chromium plated
		ASTM A 276 410	Material available for model with metal (hard chromium plated) seat only
5	Packing ring	PTFE	
6	Gland follower	ASTM A 216 WCB	
		ASTM A 351 CF8	
		ASTM A 351 CF8M	
7	Pin	ASTM A 182 F304	
8	Cylinder rod	45#	Hard chromium plated
9	Pillar	ASTM A 182 F304	Body made of A 351 CF8(M)
		C45 + Cr	Body made of A 216 WCB
10	Bottom end cap	Q 235	
		ZL102	
11	Cylinder	Q 235	Aluminium alloy
12	Tie bolt	Q 235	Galvanised

Part No.	Description	Material	Note
13	Top end cap	Q 235	
		ZL102	
14	Hexagon nut	ASTM A 182 F304	
15	Spring washer	65Mn	
16	Bottom	ASTM A 216 WCB	
		ASTM A 351 CF8	
		ASTM A 351 CF8M	
17	Gasket	NBR	
18	Hexagon head bolt	ASTM A 182 F304	
19	Sealing cord	NBR	
20	Hexagon socket head cap screw	ASTM A 182 F304	
21	Hexagon head bolt	ASTM A 182 F304	
22	Hexagon nut	ASTM A 182 F304	
23	Stud	ASTM A 182 F304	
24	Hexagon nut	ASTM A 182 F304	
25	Hexagon nut	ASTM A 182 F304	
26	O-ring	NBR	
27	Boundary-lubricated bearing	Composite	
28	Y-ring	Polyurethane	
29	O-ring	NBR	
30	Guide ring	PTFE	
31	Piston	ZL102	
		Q 235	
32	Hexagon head bolt	45#	
33	Spring washer	65Mn	
34	Gasket	PTFE	
35	Hexagon nut	ASTM A 182 F304	
36	Adjusting screw	ASTM A 182 F304	

Dimensions



Dimensions in mm

DN	L	A	B	C ³⁾	E ³⁾	D	F	G	H	I	With handwheel	With gearbox	With pneumatic actuator
											[kg]	[kg]	[kg]
50	48	165	120	450/360	-	220	-	-	550	120	20	-	26
65	48	190	130	475/390	-	220	-	-	600	120	22	-	30
80	51	200	145	535/415	-	220	-	-	640	120	26	-	35
100	51	230	150	600/450	-	250	-	-	700	145	35	-	42
125	57	230	180	690/510	-	250	-	-	840	190	38	-	50
150	57	285	200	740/550	-	282	-	-	910	190	42	-	66
200	70	345	220	885/660	-	355	-	-	1100	225	65	-	87
250	70	405	275	1060/780	-	355	-	-	1280	225	85	-	140
300	76	485	330	-	1450/1105	-	260	310	1440	282	-	162	225
350	76	535	350	-	1570/1160	-	260	310	1700	330	-	190	298
400	89	600	380	-	1670/1220	-	260	310	1855	410	-	230	335
450	89	635	400	-	1800/1230	-	340	460	2000	500	-	290	395
500	114	705	450	-	1950/1790	-	340	460	2180	550	-	360	470
600	114	820	510	-	1890/2490	-	340	460	2400	650	-	440	570

Mating dimensions – Standards

Face-to-face MSS SP-81

lengths:

Flanges: Mating dimensions Class 150: ANSI B 16.5
Mating dimensions PN 10, PN 16: DIN 2501

³⁾ (Fully open/closed)

По вопросам продаж и поддержки обращайтесь:

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Екатеринбург (343)384-55-89	Новосибирск (383)227-86-73	Тула (4872)74-02-29
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	Самара (846)206-03-16	

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