

Knife Gate Valve

HERA-BHT

Type Series Booklet



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Type Series Booklet HERA-BHT

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Knife Gate Valves

Bi-directional Knife Gate Valve

HERA-BHT



Main applications

- Paper industry / pulp 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

Table 1: 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

Valve body materials

Table 2: Overview of available materials

Material	Temperature limit
ASTM A216 WCB	≤ 425 °C
ASTM A351 CF8	≤ 538 °C
ASTM A351 CF8M	≤ 538

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

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.

7330.1/09-EN

- Suitable for universal use. Metal-seated and soft-seated (PTFE and EPDM) designs available to suit a variety of processes.

Product information

Product information as per Regulation No. 1907/2006 (REACH)

For information as per European chemicals regulation (EC) No. 1907/2006 (REACH) see <https://www.ksb.com/en-global/company/corporate-responsibility/reach>.

Product information as per European Pressure Equipment Directive 2014/68/EU (PED)

The valves satisfy the safety requirements of Annex I of the European Pressure Equipment Directive 2014/68/EU (PED) for fluids in Group 2.

Product information as per UK Pressure Equipment (Safety) Regulations 2016

The valves satisfy the safety requirements of the UK Pressure Equipment (Safety) Regulations 2016 (PER) for fluids in Group 2.

Product information as per Directive 2014/34/EU (ATEX)

The valves do not have a potential internal source of ignition and can be used in potentially explosive atmospheres, Group II, category 2 (zones 1+21) and category 3 (zone 2+22) to ATEX 2014/34/EU.

Product information as per UK Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016

The valves do not have a potential internal source of ignition and can be used in accordance with the UK's Equipment and Protective Systems Intended for Use in Potentially Explosive Atmospheres Regulations 2016 in potentially explosive atmospheres, Group II, category 2 (zones 1+21) and category 3 (zone 2+22).

Related documents

Table 3: 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

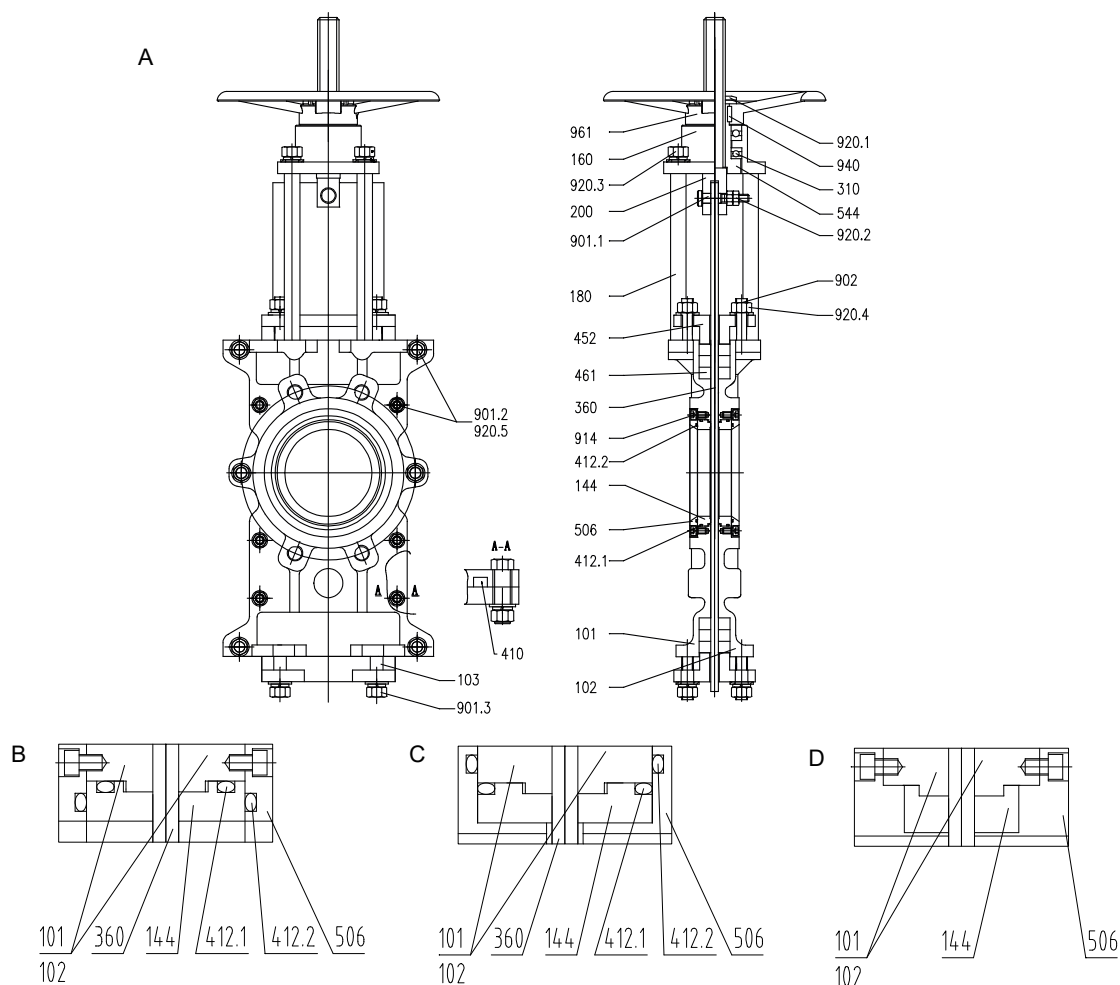
Pressure/temperature ratings

Table 4: 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



A	Sectional drawing, HERA-BHT	C	Sectional drawing, PTFE seat
B	Sectional drawing, metal seat	D	Sectional drawing, EPDM seat

Table 5: 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 cover	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 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

Part No.	Description	Material	Note
360	Blade	ASTM A 276 410 + HCr	For soft-seated and metal-seated designs
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	-

Variants

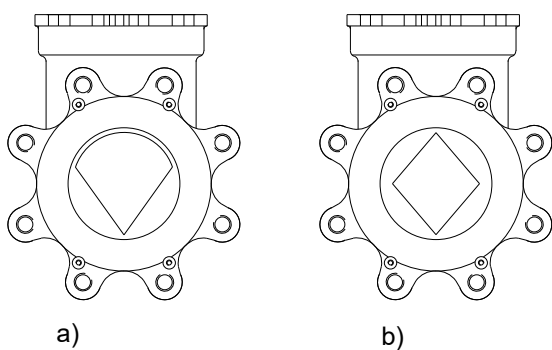
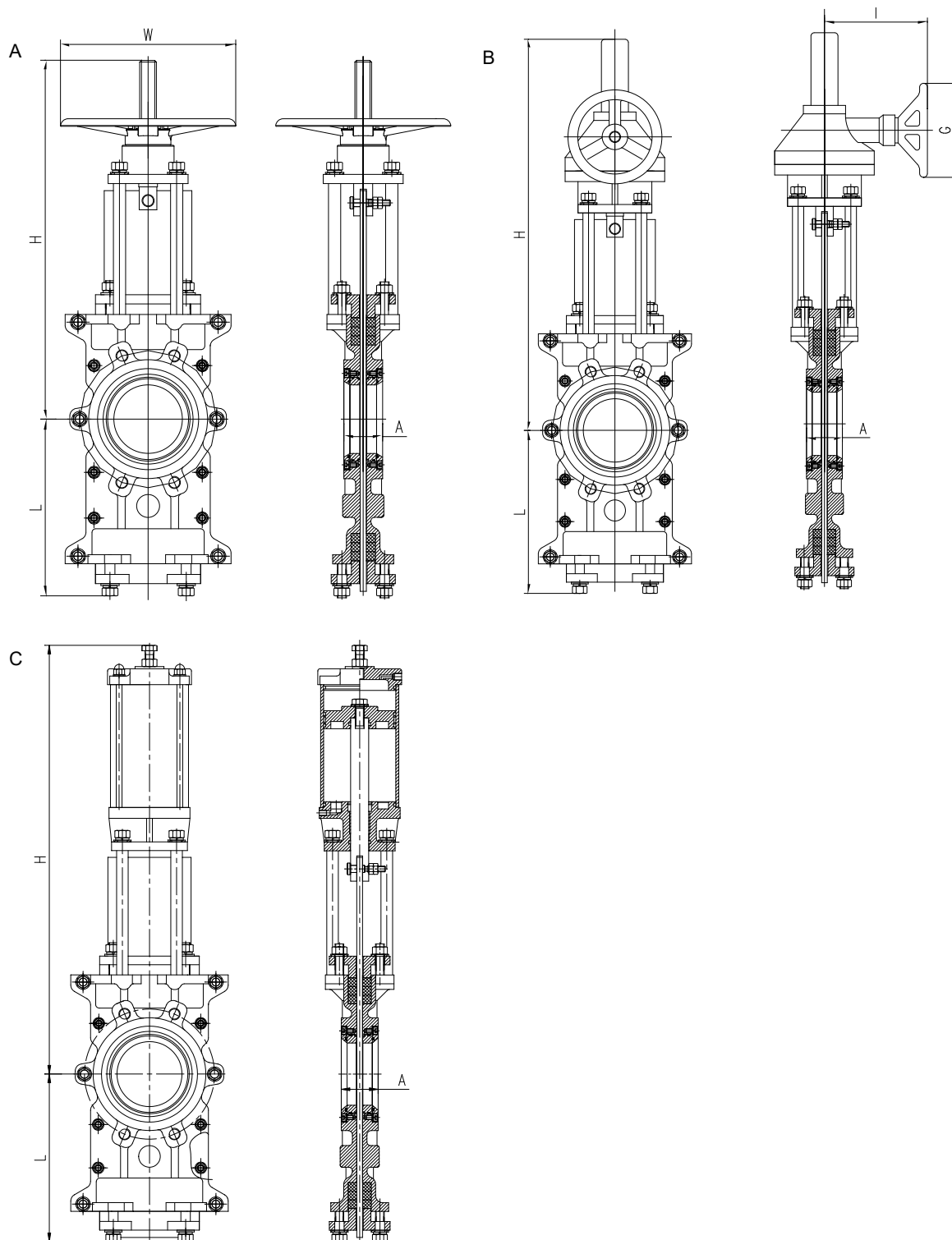


Fig. 1: Blade design
a) V port
b) Diamond port

Table 6: Blade design

DN	Round-port Cv	V-port Cv	Diamond-port Cv
50	156	80	100
65	230	120	150
80	340	180	220
100	612	315	390
125	970	500	620
150	1430	730	615
200	2620	1350	1670
250	4230	2150	2700
300	5395	2750	3500
350	6730	3450	4300
400	8735	4420	4600
450	10870	5500	7000
500	14095	7100	9000
600	20655	10450	13200

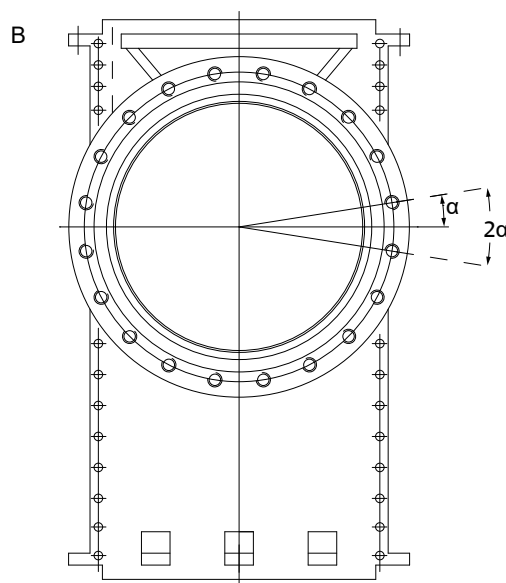
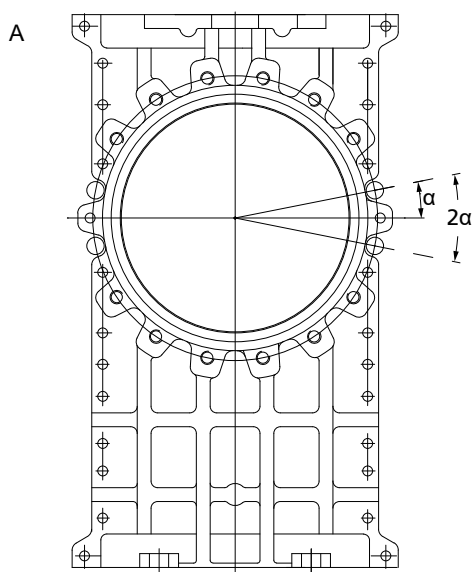
Dimensions and weights



A	Dimensions of HERA-BHT with handwheel	C	Dimensions of HERA-BHT with pneumatic actuator
B	Dimensions of HERA-BHT with gearbox		

Table 7: Dimensions [mm] and weights [kg]

PN	DN	A	L	H ²⁾	W	G	I	H1	With hand-wheel	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



A	Sectional drawing, DN 80-400 (semi-lug type)	B	Sectional drawing, DN 450-600 (full-lug type)
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Table 8: 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
	500	670	620	0	20
	600	780	725	0	20
16	80	200	160	4	4
	100	220	180	4	4
	125	250	210	4	4

² Fully open

³ Welded design

PN	DN	Flange OD	Bolt circle diameter	Number of clearance holes	Number of tapped holes
16	150	285	240	4	4
	200	340	295	4	8
	250	405	355	4	8
	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

Table 9: 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°
	600	30	M27	30	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°

Table 10: 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

Table 11: 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°

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

Mating dimensions as per standard

Face-to-face lengths: MSS SP-81

Flanges: Mating dimensions
EN 1092-1 (PN 10/16)
ASME B16.5 (Class 150)



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