KTL-AR

KNIFE GATE VALVE

THROUGH-CONDUIT

Bidirectional wafer valve with two machined rolled-metal body halves. The stainless steel gate slides without rubbing against the body. Both faces are polished and the rounded edges extend the service life of the packing and seats.



APPLICATIONS

Pulp and paper industry and chemical plants.
Liquids with up to 20% suspended solids.

SIZES

DN50 to DN600.
Larger sizes on request.

PRESSURE AND TEMPERATURE

DN50–DN250	10 bar
DN300–DN400	6 bar
DN450	5 bar
DN500–DN600	4 bar

Temperature depends on the sealing material.

STANDARD FLANGES

EN 1092 PN10 / DIN PN10
ASME B16.5 Class 150 / ANSI 150
Other configurations on request.

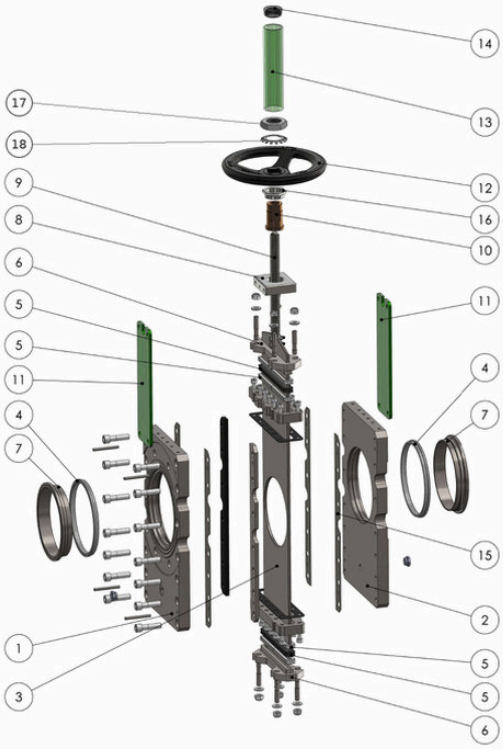
DIRECTIVES

For EU directives and certificates, see the VAYCOM document on compliance with directives and certification.

TESTING

VAYCOM tests every valve to EN 12266-1 before shipment.

COMPONENTS · DN200 HANDWHEEL CONFIGURATION



Pos.	Component	Material
1	Body half	S275JR
2	Body half	S275JR
3	Gate	AISI 304L
4	Seat	EPDM
5	Packing	SINT + PTFE
6	Packing gland	GJL250 / ALU / CF8M
7	Scraper ring	AISI 304L
8	Yoke	Steel
9	Stem	AISI 304
10	Stem nut	Bronze
11	Support plates	S275JR
12	Handwheel	GJS500-7
13	Stem cover	ST-52
14	Top plug	Plastic
15	Body-half gasket	EPDM
16	Yoke retaining nut	Steel
17	Stem cover nut	Steel
18	Castellated washer	Steel

VAYCOM reference exploded view.
The drawing is labelled DN150. Correspondence with the DN200 assembly is pending verification.

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DESIGN FEATURES

BODY
Two machined rolled-metal body halves in a wafer design for installation between flanges. Body materials: S275JR or AISI 316. Duplex and super duplex on request.

GATE
Through-going gate in AISI 304L or AISI 316L, polished on both faces with rounded edges. Duplex 2205 and super duplex 2507 on request.

SEAT AND SEAL
Metal-to-metal, EPDM or Viton seat. NBR, PTFE, silicone and other options on request, depending on the fluid and service conditions.

PACKING
Synthetic fibre with PTFE (SYNT + PTFE) or graphite, with an EPDM or NBR O-ring.
Other configurations on request.

SCRAPER RINGS
The KTL-AR exploded view shows one scraper ring on each side of the bore, identified as item 7.

STEM AND YOKE
On manual versions, the stem transmits motion from the handwheel to the gate. The support plates and yoke connect the actuator to the body.

COATING AND FINISH
The finish of the body and components depends on the materials and service conditions for each order.

GATE GUARDS
Guard configuration depends on the actuator, installation and applicable safety requirements.

ACTUATION
The KTL-AR accepts manual operators and pneumatic, hydraulic or electric actuators.

HANDWHEEL	GEAR OPERATOR	CHAINWHEEL
PNEUMATIC	HYDRAULIC	ELECTRIC

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OTHER OPTIONS

OTHER METALLIC MATERIALS
Carbon steel, stainless steel, duplex and super duplex versions, depending on the component and service conditions.

WELDED FABRICATION
Consult VAYCOM for special configurations for large diameters or specific pressure and process conditions.

SURFACE TREATMENTS
Finishes and coatings are available to protect against abrasion, corrosion or material build-up.

GUARDS AND PROXIMITY SENSORS
Consult VAYCOM for sensor arrangement and protection based on the actuator and available mounting space.

BONNET AND DOUBLE PACKING
Consult VAYCOM for these configurations when greater isolation of the process fluid from the environment is required.

SPECIAL PORTS
V-shaped or pentagonal ports. Port geometry depends on the application and required flow control.

LOCKING DEVICES
A locking pin can be specified to secure the gate in a defined position.

FLUSHING CONNECTIONS
Flush ports remove deposits from the guides and sealing area. The flushing medium depends on the process.

EMERGENCY MANUAL OVERRIDES
Emergency handwheel for manual operation, depending on the pneumatic or electric actuator selected.

OPERATING PEDESTALS AND EXTENSIONS
Stem extensions for valves installed below the operating level. Consult VAYCOM for supports and pedestals.

AUTOMATION ACCESSORIES
Limit switches, proximity sensors, solenoid valves, filters and junction boxes. Other accessories on request.

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SEATS, SEALS AND PACKING

SEAT / SEAL TYPES

Material	Max. temp. (°C)	Applications
PTFE + O-ring		
NBR (N)	120	Corrosion resistance[1]
FKM-FPM (V)	200	Corrosion resistance
VMQ (S)	250	Corrosion resistance
Polyurethane (PU)	90	Abrasion resistance
EPDM (E)	120	Acids and non-mineral oils
NBR (N)	120	Hydrocarbon resistance
FKM-FPM (V)	200	Chemical / high-temp. service

[1] Standard VAYCOM configuration with an NBR O-ring.
Data sheet seat options: metal-to-metal, EPDM and Viton. Others on request.

PACKING TYPES

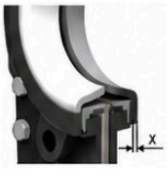
Material	Max. temp. (°C)	pH
Dynapack (DP)	270	2–14
Pure PTFE (TH)	260	0–14
Graphite (GR)	600	0–14
Ceramic fibre (FC)	1200	—

Synthetic fibre with PTFE or graphite, with an EPDM or NBR O-ring.
Other types in the table are available on request.

SEAL CONFIGURATION AND DESIGN

Type	Features	
K-type seat (PTFE)	Replaceable PTFE seat with O-ring. Replaceable stainless steel ring.	
K-type seat (EPDM)	Standard replaceable EPDM seat for tight shut-off. Replaceable stainless steel rings.	
Polyurethane	Replaceable polyurethane seat.	

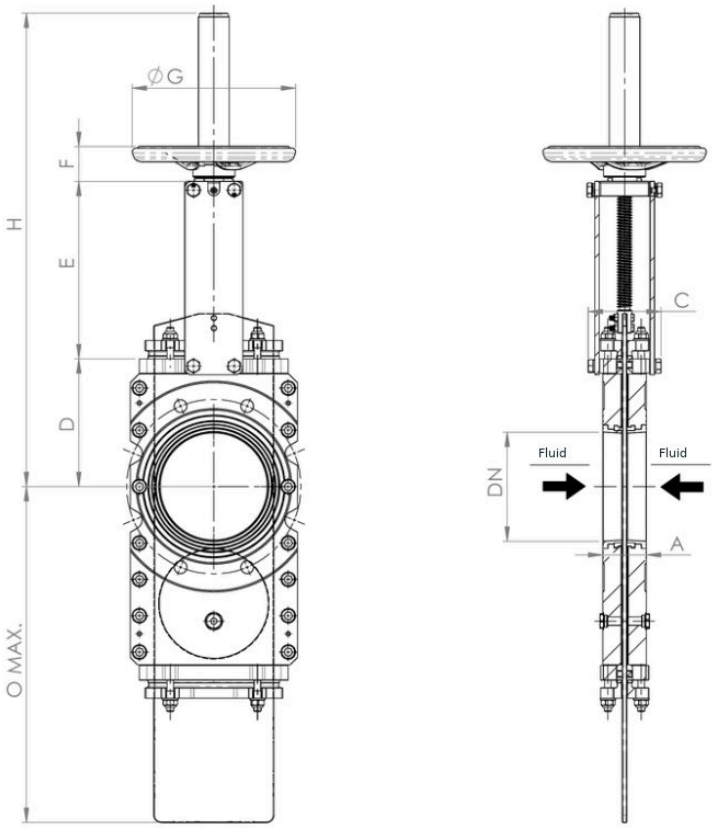
OTHER SEAT FEATURES

Type	Features	
C deflector cone	Protects the seat, gate and body in abrasive service. Materials include AISI 316 and Ni-Hard. Face-to-face increase: 9 mm (DN50–250) and 12 mm (DN300–600). Larger sizes on request.	

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RISING STEM HANDWHEEL

Manual operation for installations with limited space. Available from DN50 to DN600.
A gear operator is recommended from DN350.



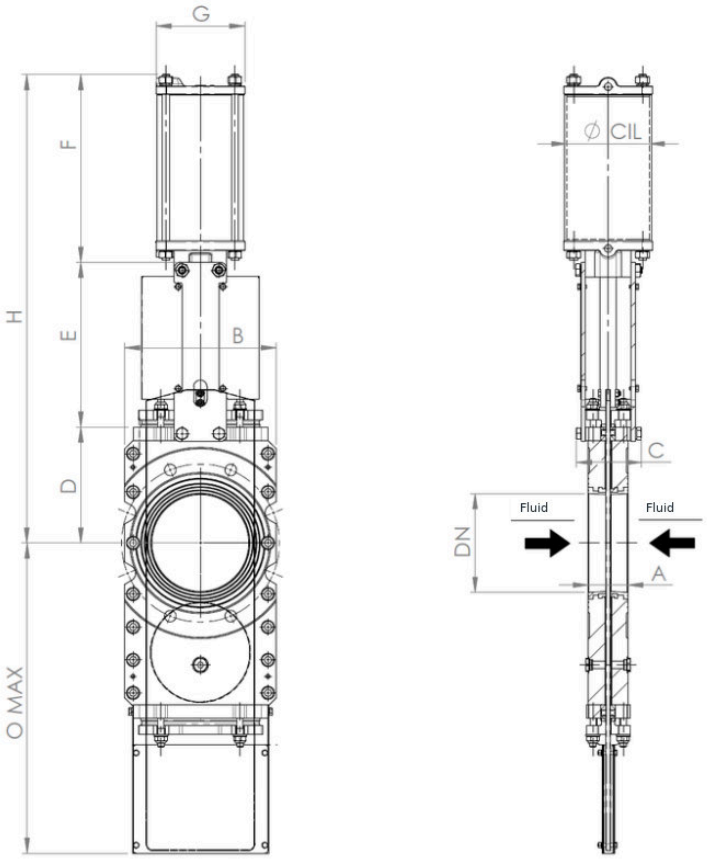
DN	A	ØB	H	O max.	Weight (kg)
50	41	225	307	232	12
65	41	225	329	255	14
80	51	225	415	312	17
100	51	225	456	367	22
125	56	225	490	432	31
150	60	225	541	497	37
200	60	310	646	637	75
250	69	310	746	777	100
300	78	310	846	907	170
350	78	410	984	1047	200
400	89	410	1058	1171	290
450	89	550	1180	1301	405
500	114	550	1305	1573	750
600	122	550	1450	1830	790

Dimensions in mm. Table pending revision.

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PNEUMATIC CYLINDER

Double-acting pneumatic cylinder as standard.
For horizontal mounting, support the actuator from the plant structure.



DN	A	O max.	B	H	Conn.	Weight (kg)
50	41	232	115	417	1/4″ G	14
65	41	255	115	454	1/4″ G	16
80	51	312	115	497	1/4″ G	19
100	51	367	115	558	1/4″ G	25
125	56	432	140	632	1/4″ G	36
150	60	497	175	722	1/4″ G	43
200	60	637	175	872	1/4″ G	86
250	69	777	220	1037	3/8″ G	116
300	78	907	220	1172	3/8″ G	188
350	78	1047	220	1389	3/8″ G	233
400	89	1171	277	1526	3/8″ G	324
450	89	1301	382	1708	3/8″ G	455
500	114	1573	382	1848	1/2″ G	800
600	122	1830	444	2170	3/4″ G	960
700	128	2005	444	2485	3/4″ G	2000
800	128	2340	515	2805	3/4″ G	2600
900	128	2595	515	3270	3/4″ G	3200

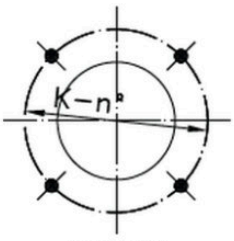
Approximate dimensions in mm. The table uses the reference nomenclature.

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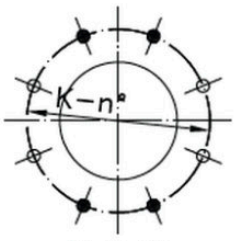
EN 1092 PN10 FLANGE DIMENSIONS

DN	K	nº	M	T	⌖ ⊕
50	125	4	M-16	11	4 - 0
65*	145	4	M-16	11	4 - 0
80	160	8	M-16	15	4 - 4
100	180	8	M-16	16	4 - 4
125	210	8	M-16	18	4 - 4
150	240	8	M-20	19	4 - 4
200	295	8	M-20	18	4 - 4
250	350	12	M-20	21	8 - 4
300	400	12	M-20	27	8 - 4
350	460	16	M-20	23	12 - 4
400	515	16	M-24	23	12 - 4
450	565	20	M-24	22	20 - 0
500	620	20	M-24	32	20 - 0
600	725	20	M-27	32	20 - 0
700	840	24	M-27	32	24 - 0
800	950	24	M-30	29	24 - 0
900	1050	28	M-30	32	24 - 0

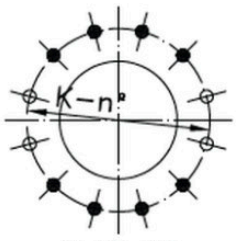
* DN65 PN10/16: EN 1092 allows 4 or 8 holes. Configuration shown: 4 holes.



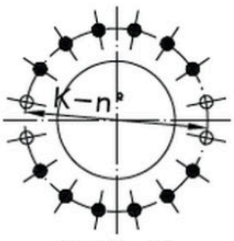
DN 50–65



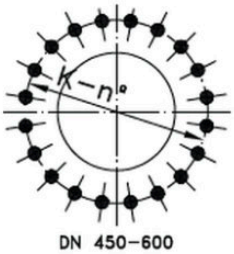
DN 80–200



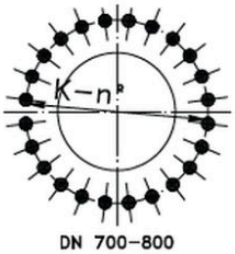
DN 250–300



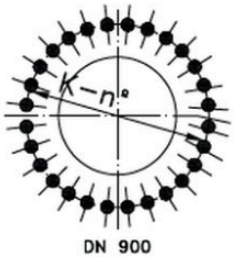
DN 350–400



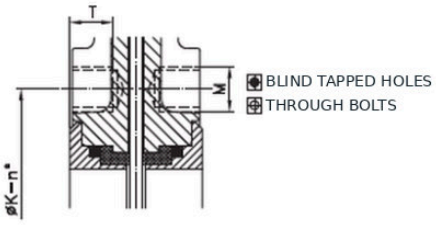
DN 450–600



DN 700–800



DN 900



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ASME B16.5 CLASS 150 FLANGE DIMENSIONS

DN	K	nº	M	T	⌖ ⊕
2"	4 ¾"	4	5/8" - 11 UNC	7/16"	4 - 0
2 ½"	5 ½"	4	5/8" - 11 UNC	7/16"	4 - 0
3"	6"	4	5/8" - 11 UNC	9/16"	4 - 0
4"	7 ½"	8	5/8" - 11 UNC	9/16"	4 - 4
5"	8 ½"	8	3/4" - 10 UNC	9/16"	4 - 4
6"	9 ½"	8	3/4" - 10 UNC	11/16"	4 - 4
8"	11 ¾"	8	3/4" - 10 UNC	11/16"	4 - 4
10"	14 ¼"	12	7/8" - 9 UNC	7/9"	8 - 4
12"	17"	12	7/8" - 9 UNC	1"	8 - 4
14"	18 ¾"	12	1" - 8 UNC	7/9"	8 - 4
16"	21 ¼"	16	1" - 8 UNC	7/9"	12 - 4
18"	22 ¾"	16	1 1/8" - 7 UNC	7/9"	16 - 0
20"	25"	20	1 1/8" - 7 UNC	1 1/4"	20 - 0
24"	29 ½"	20	1 1/4" - 7 UNC	1 1/4"	20 - 0
28"	34"	28	1 1/4" - 7 UNC	1 1/4"	28 - 0
32"	38 ½"	28	1 1/2" - 6 UNC	1 1/4"	28 - 0
36"	42 ¾"	32	1 1/2" - 6 UNC	1 1/4"	32 - 0

* ASME B16.47 Series A (Class 150) applies above NPS 24.

