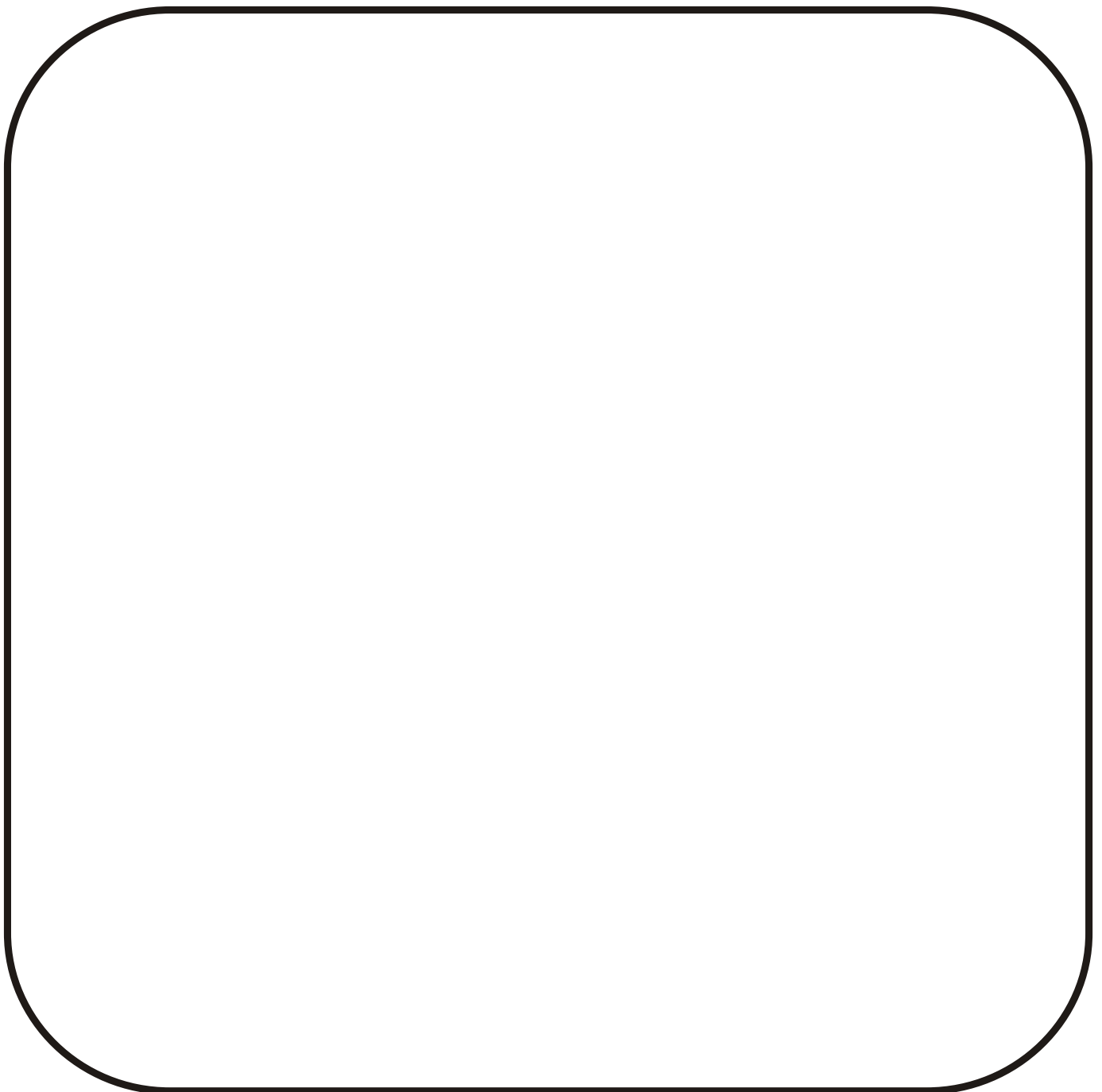


**LEPTIRASTE  
POVRATNE KLAPNE**

**9**

**BUTTERFLY  
RETURN FLAPS**





## LEPTIRASTE POVRATNE KLAPNE BUTTERFLY RETURN FLAPS

LPK

### PRIMENA

Leptiraste povratne klapne su zaštitni uređaji u cevovodima i cevnim sistemima za transport i uskladištenje tečnih fluida. Primenuju se za sprečavanje povratnog strujanja radnog fluida, a delovanje leptirastih povratnih klapni je automatsko.

Najširu primenu imaju u postrojenjima za dobijanje, pripremu i distribuciju vode, u postrojenjima za prečišćavanje otpadnih voda, u komunalnim objektima, u sistemima za navodnjavanje, u raznim postrojenjima hemijske i petrohemijske industrije i energetskim postrojenjima.

Leptiraste povratne klapne dozvoljavaju strujanje fluida samo u jednom smeru, tako da prilikom montaže treba obratiti pažnju na to da smer strelice na kućištu leptiraste povratne klapne odgovara smeru kretanja radnog fluida u datom cevovodu.

### IZVOĐENJE

Leptiraste povratne klapne izrađujemo sa zapornim telom koje je dvostruko ekscentrično, a rotira sa vratilom na čijem je levom kraju, gledano u smeru strujanja, nasadena poluga sa kontrategom. Uloga kontra-tega je da zaporno telo pokrene pre nego što brzina radnog fluida bude jednaka nuli, a time smanji količinu fluida koji će da se vrati kroz klapnu i umanji veličinu inercijalne sile.

Uporni prstren na kućištu klapne navaruje se odgovarajućom nerđajućom elektrodom, a zaptivanje se ostvaruje preko gumenog prstena smeštenog po obodu zapornog

### APPLICATION

Butterfly return flaps are protective units within pipelines and piping systems for conveying and storage of liquid fluids. They are applied to prevent the operating fluid backflow, the butterfly return flaps, acting automatically.

They are most frequently used in water treatment, preparation and distribution plants, in waste waters treatment plants, communal facilities, irrigation systems, various chemical and petrochemical industries and power plants.

Butterfly return flaps permit fluids flow in one direction only, so that during the fitting, attention should be paid to the arrow direction, indicated on the butterfly return flaps housing, to match the operating fluid flow direction in the pipeline given.

### FABRICATION

Butterfly return flaps are made with a double eccentric shutoff body, that rotates together with the shaft on the left side of which, viewed in the flow direction, there is a lever with a counterweight. The role of a counterweight is to move the shutoff body before the operating fluid rate be equal to zero, decreasing in that way the fluid quantity that will return through the flap and get the inertia force value decreased.

The washer, on the flap housing is welded on (weaved) by a corresponding stainless electrode, the sealing being effected through a rubber ring, located across the shutoff body circumference, that rests onto the fine polished surface of the washer.

tela koji naleže na fino poliranu površinu upornog prstena.

Leptiraste povratne klapne izrađujemo sa ugradbenim dužinama koje odgovaraju standardima JUS M.C5.005 - F4 i DIN 3202 - F4, a priključne mere prirubnica su prema JUS M.B6.011 i DIN 2501. Nazivni prečnici leptirastih povratnih klapni naše proizvodnje kreću se od DN 150 do DN 1500(mm), pritisci od NP 2.5 do NP 25 (bar), a na zahtev i do 40 (bar), za najveću temperaturu radnog fluida do 150 (°C).

Leptiraste povratne klapne koje su za veće povratne pritiske i većih nazivnih prečnika opremaju se hidrauličnim amortizujućim cilindrima za regulisanje brzine zatvaranja, radi smanjenja hidrauličnog udara i smanjenja jačine udara zapornog tela o graničnik.

### MATERIJAL

Kućište, zaporno telo, poluga i teg leptirastih povratnih klapni izrađuju se od konstrukcionih čelika zavarivanjem, a vratilo od nerđajućeg čelika ili čelika za poboljšanje sa kliznim površinama od nerđajućeg čelika.

Klizni ležajevi su od sivog liva, a izbor materijala za zaptivne elemente zavisi od pritiska i temperature za koje su namenjene leptiraste povratne klapne. Zaptivni elementi za temperaturu do 80 (°C) izrađuju se od EPDM-a, a za temperature do 150 (°C) od specijalnog EPDM-a.

### NARUČIVANJE

Naručivanje se vrši opisno kao što je naznačeno u opštim napomenama.

We fabricate butterfly return flaps with in-built measures that comply to JUS M.C5.005-F4 and DIN 3202-F4 Standard and the flanges fitting dimensions are according to JUS M.B6.011 and DIN 2501. Nominal diameters of butterfly return flaps that we produce, range from DN 150 to DN 1500 (mm), and pressures from NP 2.5 to NP 25 (bar) and up to 40 (bar) if requested, and for the operating fluid maximum temperature up to 150(°C).

Butterfly return flaps for higher back pressures and larger nominal diameters are equipped with hydraulic shock absorbing cylinders for closing speed regulation and for the purpose of reducing water hammer and decreasing shutoff body stroke strength onto the limit stop.

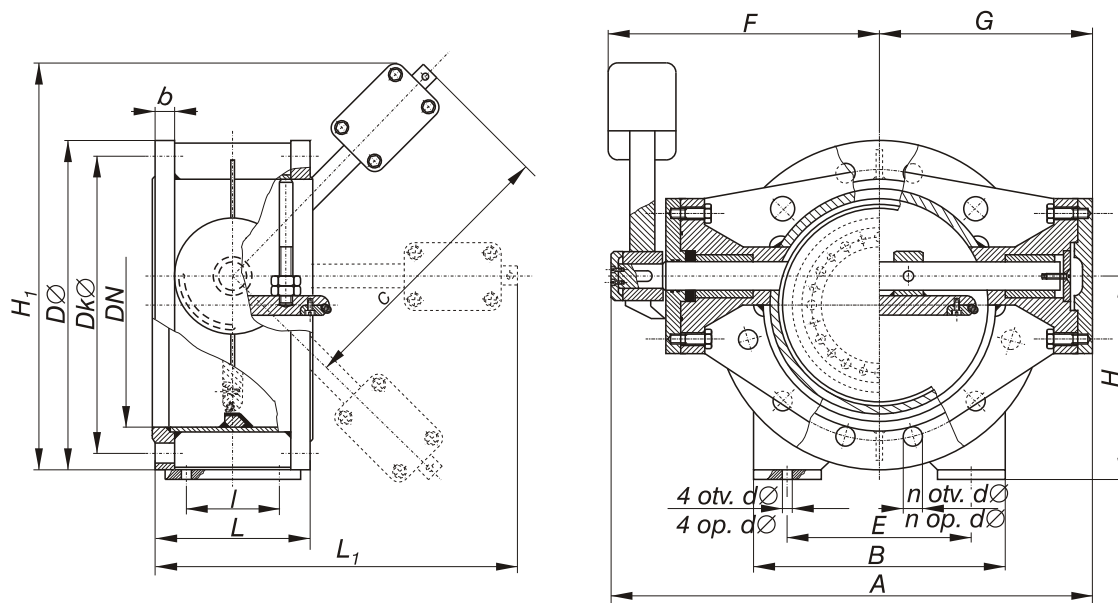
### MATERIAL

Butterfly return flaps housing, shutoff body, lever and weight are made of structural steels by welding; the shaft - of stainless steel and improved (enriched) steels with sliding surfaces made of stainless steel.

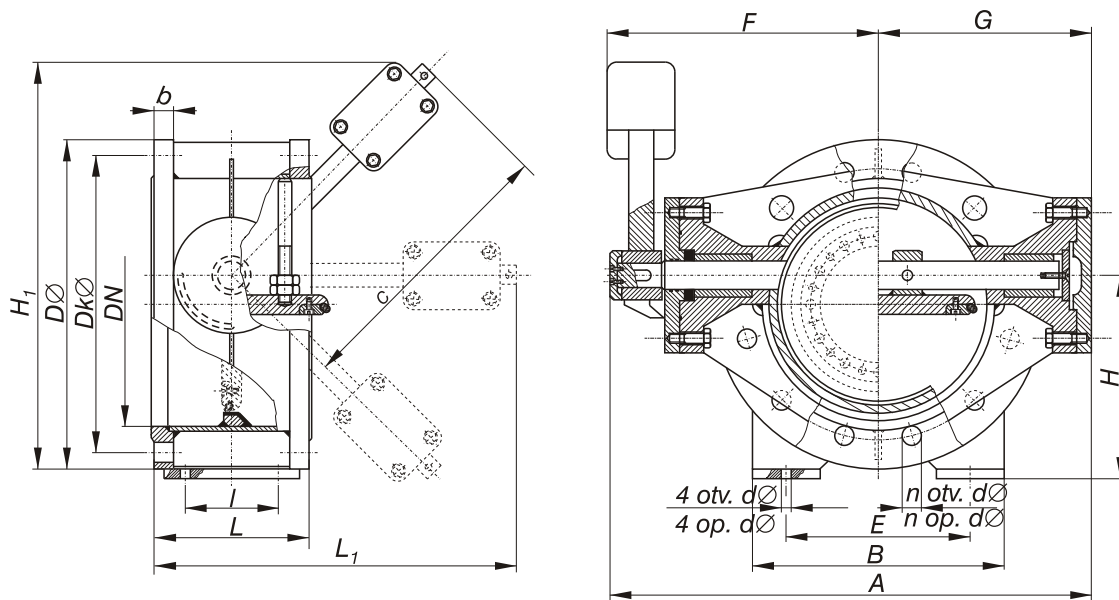
Slide bearings are made of grey cast iron and the choice of the sealing elements material depend on the pressure and temperature, the butterfly return flaps are to be exposed to. Sealing elements for temperatures up to 80 (°C) are made of EPDM and special EPDM is used for the temperatures up to 150 (°C).

### HOW TO ORDER

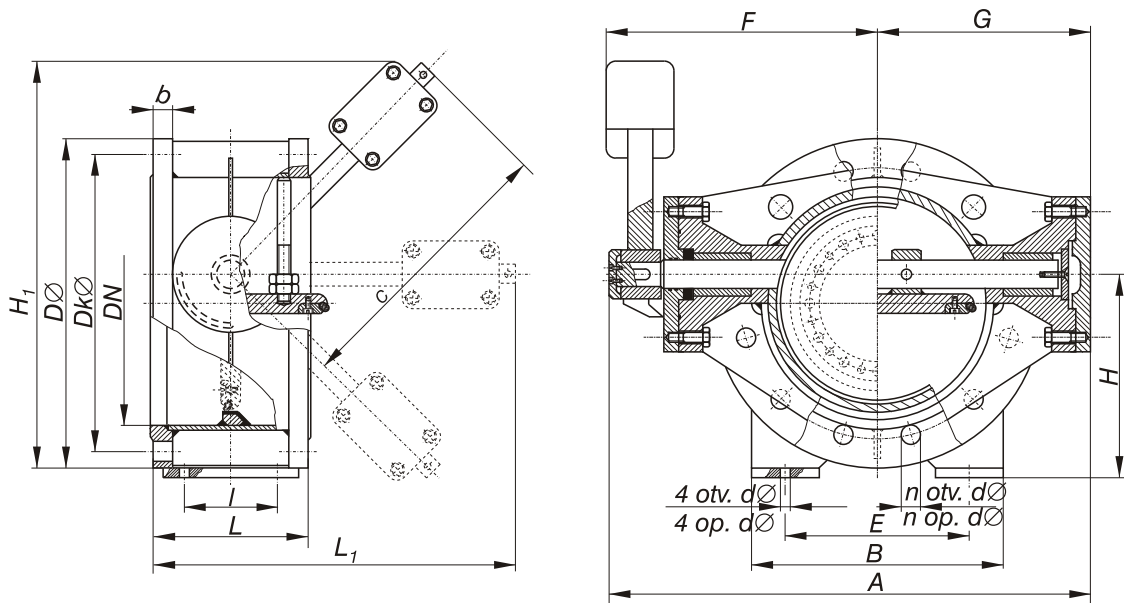
You can order as described in general note.



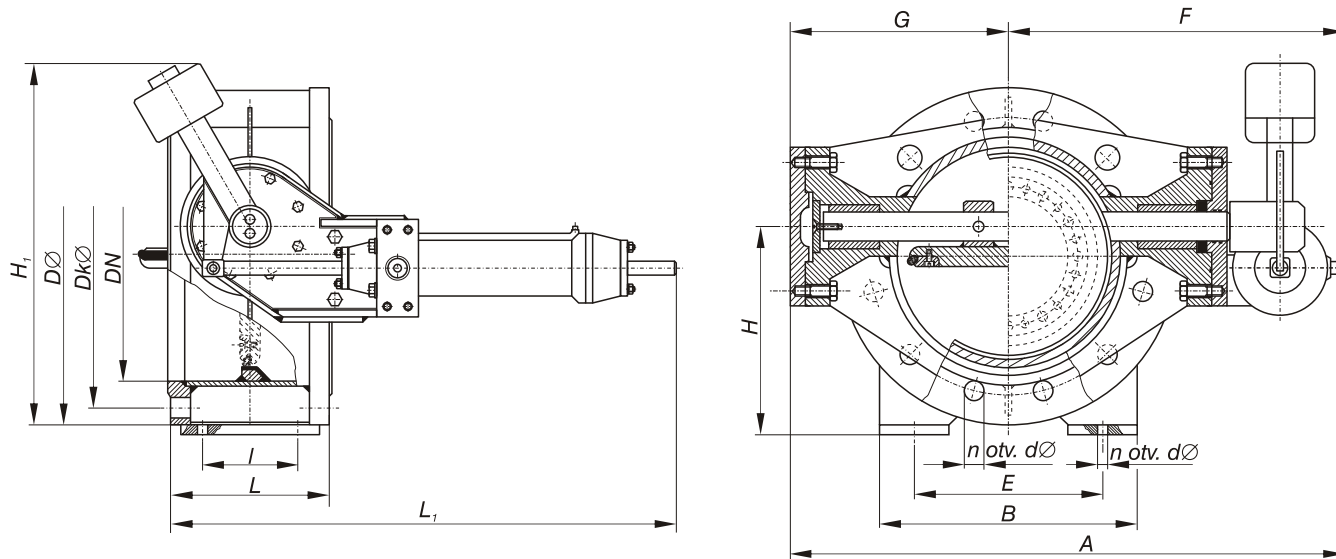
DN	DØ	DkØ	L	A	F	G	C	L <sub>1</sub>	H <sub>1</sub>	b	n	dØ	B	E	H	I	m(kg)
150	285	240	210	390	235	165	240	345	340	22	8	22					45
200	340	295	230	495	277	215	330	445	385	24	8	22					60
250	395	350	250	600	340	260	470	595	438	26	12	22					80
300	445	400	270	648	366	282	450	585	508	26	12	22					100
350	505	460	290	740	420	320	500	645	587	26	16	22					135
400	565	515	310	800	442	358	530	685	662	26	16	26					182
450	615	565	330	880	490	390	550	715	782	26	20	26					230
500	670	620	350	960	530	438	600	775	924	28	20	26	500	370	450	190	280
600	780	725	380	1045	565	470	620	810	1018	28	20	30	600	440	530	220	410
700	895	840	420	1170	645	520	630	840	1085	32	24	30	750	630	590	220	540
800	1015	950	470	1285	705	580	700	935	1185	34	24	33	850	720	640	250	720
900	1115	1050	510	1480	830	650	800	1055	1315	33	28	33	900	750	700	250	940
1000	1230	1160	550	1600	880	720	900	1175	1456	34	28	36	1000	800	770	300	1230
1100	1340	1270	590	1750	960	790	900	1195	1506	36	32	36	1100	800	820	325	1540
1200	1455	1380	630	1910	1050	860	960	1275	1710	38	32	39	1200	900	980	400	2050
1300	1575	1490	670	2100	1150	950	1000	1335	1810	40	32	42	1300	1250	1050	400	2500
1400	1675	1590	710	2300	1250	1050	1000	1355	1860	42	36	42	1400	1250	1100	400	3100
1500	1745	1700	750	2500	1350	1150	1000	1375	1930	44	36	42	1500	1280	1170	425	3300



DN	DØ	DkØ	L	A	F	G	C	L <sub>1</sub>	H <sub>1</sub>	b	n	dØ	B	E	H	I	m(kg)
150	285	240	210	390	235	165	240	345	340	22	8	22					60
200	340	295	230	495	277	215	330	445	385	24	12	22					70
250	405	355	250	600	340	260	470	595	438	26	12	26					76
300	460	410	270	648	366	282	450	585	508	28	12	26					146
350	520	470	290	740	420	320	500	645	587	30	16	26					185
400	580	525	310	800	442	358	530	685	662	32	16	30					225
450	640	585	330	880	490	390	550	715	782	34	20	30					260
500	715	650	350	960	530	430	570	775	924	34	20	33	500	370	450	190	385
600	840	770	390	1040	565	470	600	810	1018	36	20	36	600	450	530	220	540
700	910	840	420	1170	645	520	630	840	1085	36	24	36	750	630	590	220	775
800	1025	950	470	1285	705	580	700	935	1185	38	24	39	850	720	640	250	890
900	1125	1050	510	1480	830	650	800	1055	1315	40	28	39	900	800	700	250	1500
1000	1255	1170	550	1600	880	720	900	1175	1456	42	28	42	1000	800	770	300	1800
1100	1355	1270	590	1750	960	790	900	1195	1506	44	32	42	1100	800	820	325	2250
1200	1485	1390	630	1910	1050	860	900	1275	1710	48	32	48	1200	900	980	350	2825

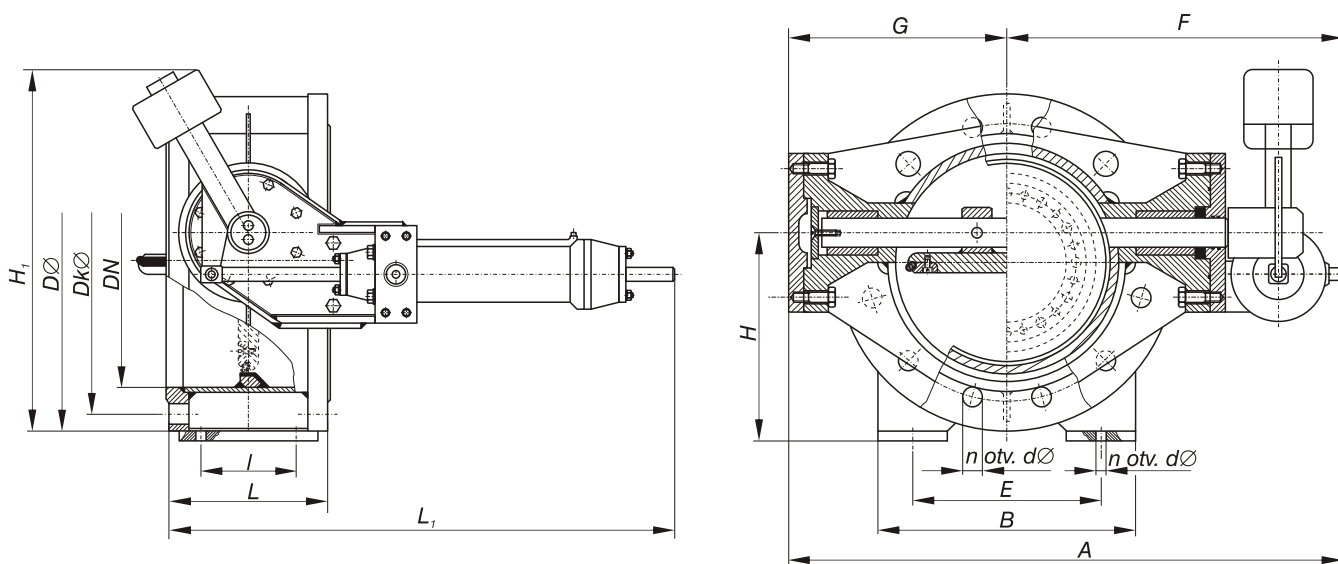


DN	DØ	DkØ	L	A	F	G	C	L <sub>1</sub>	H <sub>1</sub>	b	n	dØ	B	E	H	I	m(kg)
150	300	250	210	390	235	165	240	345	340	28	8	26					90
200	360	310	230	495	277	215	330	445	385	30	12	26					120
250	425	370	250	600	340	260	470	595	438	32	12	30					160
300	485	430	270	648	366	282	450	585	508	34	16	30					200
350	555	490	290	740	420	320	500	645	587	38	16	33					270
400	620	550	310	800	442	358	530	685	662	40	16	36					360
450	670	600	330	880	490	390	550	715	782	42	20	36					460
500	730	660	350	960	530	430	570	775	924	44	20	36	500	370	450	180	560
600	845	770	390	1040	565	470	600	810	1018	46	20	39	600	450	530	220	820
700	960	875	430	1170	645	520	630	840	1085	46	24	42	750	630	590	220	1080
800	1085	990	470	1285	705	580	700	935	1185	50	24	48	850	720	640	250	1440
900	1185	1090	510	1480	830	720	800	1055	1315	54	28	48	900	750	700	250	1880
1000	1320	1210	550	1600	880	720	900	1175	1456	58	28	56	1000	800	770	315	2500



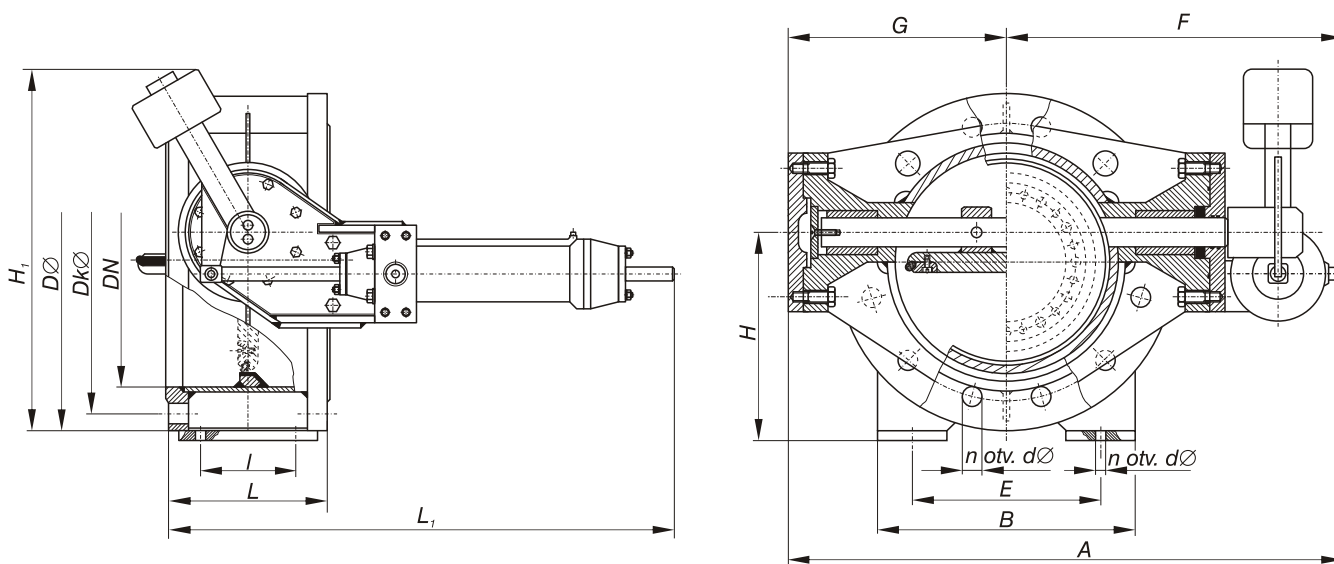
**NAPOMENA: DIMENZIJA  $L_1$  JE PROMENLJIVA I ZAVISI OD DUŽINE HIDRAULIČNOG AMORTIZERA.  
NOTE: SIZE  $L_1$  IS CHANGEABLE AND IT DEPENDS ON HYDRAULIC ABSORBER LENGTH.**

DN	DØ	DkØ	L	A	F	G	C	$L_1$	$H_1$	b	n	dØ	B	E	H	I	m(kg)
150	285	240	210	390	235	165	240	345	340	22	8	22					45
200	340	295	230	495	277	215	330	445	385	24	8	22					60
250	395	350	250	600	340	260	470	595	438	26	12	22					80
300	445	400	270	648	366	282	450	585	508	26	12	22					100
350	505	460	290	740	420	320	500	645	587	26	16	22					135
400	565	515	310	800	442	358	530	685	662	26	16	26					182
450	615	565	330	880	490	390	550	715	782	26	20	26					230
500	670	620	350	960	530	438	600	775	924	28	20	26	500	370	450	190	280
600	780	725	380	1045	565	470	620	810	1018	28	20	30	600	440	530	220	410
700	895	840	420	1170	645	520	630	840	1085	32	24	30	750	630	590	220	540
800	1015	950	470	1285	705	580	700	935	1185	34	24	33	850	720	640	250	720
900	1115	1050	510	1480	830	650	800	1055	1315	33	28	33	900	750	700	250	940
1000	1230	1160	550	1600	880	720	900	1175	1456	34	28	36	1000	800	770	300	1230
1100	1340	1270	590	1750	960	790	900	1195	1506	36	32	36	1100	800	820	325	1540
1200	1455	1380	630	1910	1050	860	960	1275	1710	38	32	39	1200	900	980	400	2050
1300	1575	1490	670	2100	1150	950	1000	1335	1810	40	32	42	1300	1250	1050	400	2500
1400	1675	1590	710	2300	1250	1050	1000	1355	1860	42	36	42	1400	1250	1100	400	3100
1500	1745	1700	750	2500	1350	1150	1000	1375	1930	44	36	42	1500	1280	1170	425	3300



**NAPOMENA: DIMENZIJA  $L_1$  JE PROMENLJIVA I ZAVISI OD DUŽINE HIDRAULIČNOG AMORTIZERA.  
NOTE: SIZE  $L_1$  IS CHANGEABLE AND IT DEPENDS ON HYDRAULIC CYLINDER ABSORBER.**

DN	DØ	DkØ	L	A	F	G	C	$L_1$	$H_1$	b	n	dØ	B	E	H	I	m(kg)
150	285	240	210	390	235	165	240	345	340	22	8	22					60
200	340	295	230	495	277	215	330	445	385	24	12	22					70
250	405	355	250	600	340	260	470	595	438	26	12	26					76
300	460	410	270	648	366	282	450	585	508	28	12	26					146
350	520	470	290	740	420	320	500	645	587	30	16	26					185
400	580	525	310	800	442	358	530	685	662	32	16	30					225
450	640	585	330	880	490	390	550	715	782	34	20	30					260
500	715	650	350	960	530	430	570	775	924	34	20	33	500	370	450	190	385
600	840	770	390	1040	565	470	600	810	1018	36	20	36	600	450	530	220	540
700	910	840	420	1170	645	520	630	840	1085	36	24	36	750	630	590	220	775
800	1025	950	470	1285	705	580	700	935	1185	38	24	39	850	720	640	250	890
900	1125	1050	510	1480	830	650	800	1055	1315	40	28	39	900	800	700	250	1500
1000	1255	1170	550	1600	880	720	900	1175	1456	42	28	42	1000	800	770	300	1800
1100	1355	1270	590	1750	960	790	900	1195	1506	44	32	42	1100	800	820	325	2250
1200	1485	1390	630	1910	1050	860	900	1275	1710	48	32	48	1200	900	980	350	2825



**NAPOMENA: DIMENZIJA  $L_1$  JE PROMENLJIVA I ZAVISI OD DUŽINE HIDRAULIČNOG AMORTIZERA.  
NOTE: SIZE  $L_1$  IS CHANGEABLE AND IT DEPENDS ON HYDRAULIC ABSORBER LENGTH.**

DN	DØ	DkØ	L	A	F	G	C	$L_1$	$H_1$	b	n	dØ	B	E	H	I	m(kg)
150	300	250	210	390	235	165	240	345	340	28	8	26					90
200	360	310	230	495	277	215	330	445	385	30	12	26					120
250	425	370	250	600	340	260	470	595	438	32	12	30					160
300	485	430	270	648	366	282	450	585	508	34	16	30					200
350	555	490	290	740	420	320	500	645	587	38	16	33					270
400	620	550	310	800	442	358	530	685	662	40	16	36					360
450	670	600	330	880	490	390	550	715	782	42	20	36					460
500	730	660	350	960	530	430	570	775	924	44	20	36	500	370	450	180	560
600	845	770	390	1040	565	470	600	810	1018	46	20	39	600	450	530	220	820
700	960	875	430	1170	645	520	630	840	1085	46	24	42	750	630	590	220	1080
800	1085	990	470	1285	705	580	700	935	1185	50	24	48	850	720	640	250	1440
900	1185	1090	510	1480	830	720	800	1055	1315	54	28	48	900	750	700	250	1880
1000	1320	1210	550	1600	880	720	900	1175	1456	58	28	56	1000	800	770	315	2500