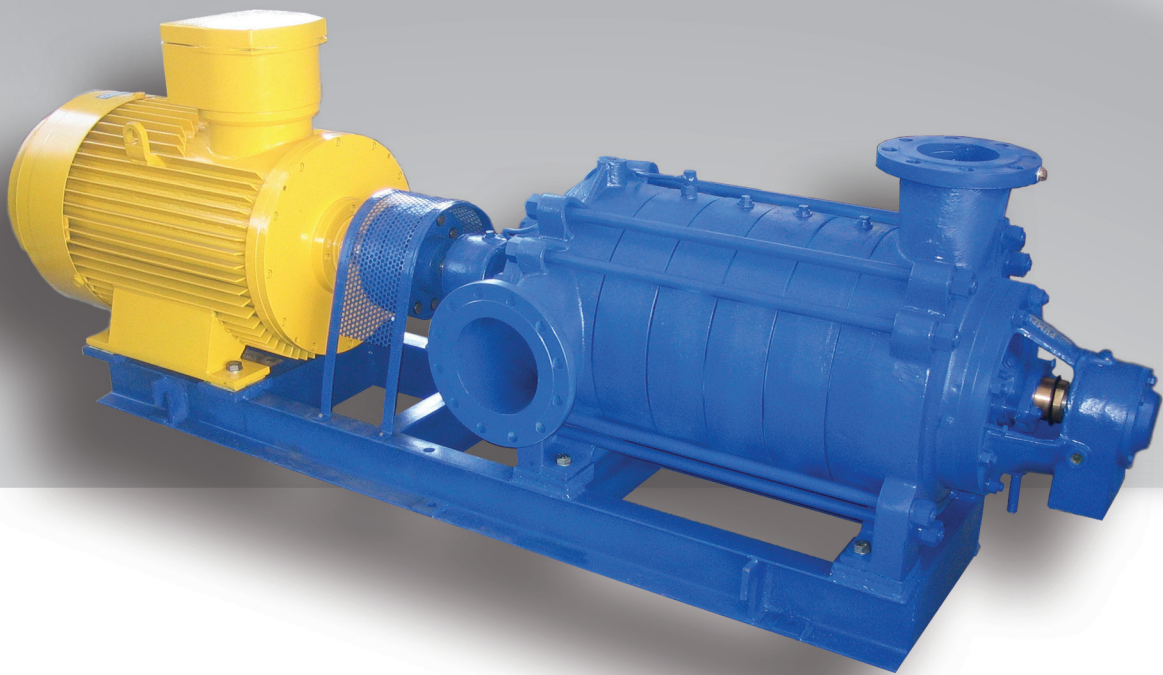


KCP, KCPv KCPL, KCPLv

PUMPE VISOKOG PRITISKA
CONDENSATE CENTRIFUGAL PUMPS



KCP, KCPv, KCPL, KCPLv

PRIMENA

Pumpe tip KCP i KCPv mogu, osim čiste vode, transportovati i nečistu vodu. Pogodne su za teže uslove usisa kao kod kondenzata većih usisnih visina, otpora u usisnom cevovodu i sl. Mogu transportovati fluid do 80 °C.

Pumpe tip KCPv imaju ugrađenu komoru za hlađenje pletenice, pa se primenjuju za transport fluida do 105 °C.

Pumpe tip KCPL i KCPLv namenjene su uglavnom za transport kondenzata kako čiste tako i nečiste vode. Pumpe tip KCPLv imaju mogućnost hlađenja pletenice pa mogu transportovati fluid do 130 °C.

Odgovarajuće su za teže uslove usisa. Zbog vertikalne izvedbe odlikuju se sigurnošću u radu, a za ugradnju je potrebno manje prostora.

KARAKTERISTIKE

Pumpe tip KCP i KCPv
Broj obrtaja: 1450 min⁻¹
Kapacitet (protok): 5÷120 l/s
Visina dizanja: 35÷330 m
Temperatura: do 105 °C
Zaptivanje: pletenica ili mehanička zaptivka

Pumpe tip KCPL i KCPLv
Broj obrtaja: 1450 min⁻¹
Kapacitet (protok): 2,5÷130 l/s
Visina dizanja: 8÷380 m
Temperatura: do 130 °C
Zaptivanje: pletenica ili mehanička zaptivka

OPIS IZVOĐENJA

KUĆIŠTE

Pumpe su sekcionog tipa tj. svako statorsko kolo ugrađeno je u svoje sekciono kućište (međukućište) i zajedno sa radnim kolom, smeštenim na vratilu, čini jedan stepen. Potreban broj stepeni, zajedno sa usisnim i potisnim kućištem, spregnuti su pomoću zajedničkih steznih vijaka.

Kod KCPL pumpi čitava pumpa je smeštena u loncu zavarene izvedbe sa konstantnim dotokom fluida. Visina lonca je definisana zahtevom projekta.

RADNA I STATORSKA KOLA

Radna kola su jednostrujna sa dvostrukim procepnim prstenovima. Na radnim kolima urađeni su otvori koji služe za izjednačavanje sila u aksijalnom pravcu. Procepni prstenovi, ugrađeni u kućištima, su zamenljivi. Statorska kola su posebni delovi koji se mogu jednostavno montirati i demontirati.

VRATILA I LEŽAJEVI

Vratila su uležištena u dva uljem podmazivana kuglična ležaja kojima je dodat i jedan aksijalni ležaj. Ovaj ležaj preuzima ostatak aksijalnih sila koje mogu nastati zbog nedovoljne izjednačenosti sila u pumpi i nejednakog trošenja procepnih prstenova. Ležajevi su podmazivani uljem ili mašću, a kod visokih temperatura (KCPv pumpe) u kućišta ležajeva ugrađuju se hladnjaci ulja sa zasebnim dovodom i odvodom hladne vode.

Vratilo kod KCPL pumpi je uležišteno u jednom ili više kliznih radijalnih ležajeva podmazivanih vodom i jednim kotrljajućim ležajem, koji prenosi aksijalnu silu. U slučaju nečiste vode, klizni ležajevi se podmazuju mašću, posebnom pumpom za mast. Vratilo je zaštićeno distantnim čaurama, tako da ne dolazi u dodir sa fluidom koji pumpa transportuje.

ZAPTIVNA PLETENICA

Sa obe strane pumpe omogućen je pristup pletenicama. U slučaju podpritiska u usisnom kućištu, zaptivna voda se priključuje na prvi stepen pumpe. Na specijalan zahtev, umesto zaptivnih pletenica moguće je ugraditi mehaničku zaptivku.

MATERIJALI

U standardnoj izvedbi, kućišta, radna kola i statorska kola se izrađuju od sivog liva. Procepni prstenovi, distantne i zaštitne čaure izrađuju se od bronzne, a vratila od ugljeničnog čelika. Na zahtev kupca, delovi pumpi mogu biti izrađeni i od drugih materijala.

POLOŽAJ PRIRUBNICA

Položaj usisne i potisne prirubnice može biti vertikalno gore ili horizontalno levo, odnosno desno, nezavisno jedna od druge. Na poseban zahtev, pumpe mogu biti izrađene sa položajem prirubnica vertikalno dole. Položaj prirubnica definiše se gledano od pogonske strane pumpe tj. od strane spojnice. Šematski prikaz položaja prirubnica dat je ispod merne skice pumpe.

Kod KCPL pumpi usisna i potisna prirubnica su iznad poda postrojenja u istoj osi pod uglom od 180°.

Na zahtev kupca isporučujemo ove pumpe i sa drugim položajem prirubnica.

AGREGATIRANJE

Na zahtev kupca pumpe se isporučuju sa pogonskim mašinama: elektromotorima, dizel i benzinskim motorima, parnim turbinama i dr. Temeljna postolja su jednodelna ili dvodielna, mogu biti livena ili zavarena iz čeličnih profila. Uz pumpe može biti isporučena i armatura.

PORUDŽBINA PUMPE

Kod poručivanja, preporučuje se navesti sledeće: vrstu fluida (slatka ili morska voda, PH vrednost, hemijski sastav, agresivnost, stepen nečistoće i sl.), protok, visinu dizanja, NPSH postrojenja ili potrebnu usisnu visinu, pritisak na ulazu u pumpu, temperaturu medija, položaj prirubnica.

Kod KCPL pumpi navesti kolika je potrebna kota "L".

USES

Pumps type KCP and KCPv can, beside the clean water, transport impure water as well. Suitable for more difficult suction conditions such as condensates of major geodetic suction heights, resistance in the suction pipeline, etc. Transportable fluids to temperature up to 80°C.

Pumps type KCPv have a cooling chamber packing incorporated, and are used for the transport of hot water up to 105°C.

Pumps type KCPL and KCPLv are intended mainly for the transport of condensate, both clean and impure water. Pumps type KCPLv have the ability to cool the packing so they can transport fluid up to 130°C.

They are suitable for more difficult suction conditions. Due to the vertical design, they are characterized by safety in operation, and less space is required for installation.

FEATURES

Pumps types KCP and KCPv

Speed: 1450 r.p.m

Capacity: 5÷120 l/s

Total head: 35÷330 m

Temperature: up to 105°C

Sealing: packing or by mechanical seal

Pumps types KCPL and KCPLv

Speed: 1450 r.p.m

Capacity: 2,5÷130 l/s

Total head: 8÷380 m

Temperature: up to 130°C

Sealing: packing or by mechanical seal

PERFORMANCE

CASING

The pumps are of a sectional design, thus having each diffuser built into the sectional interstage casing, which comprehensively, with and impeller, being affixed on the shaft, forms one stage. Adequate number of stages, together with a suction and delivery casing, are tightened over joint tightening bolts.

At KCPL pumps, the entire pump is located in a welded tank with a constant fluid supply. The height of the tank is defined by the project requirement.

IMPELLERS AND DIFFUSERS

Impellers are of the single-suction design with double wear rings. Holes made on the impellers are used for equalizing thrusts in the axial direction. Wear rings, installed in casings, are replaceable. Diffusers are separate very easy mantling and dismantling parts.

SHAFTS AND BEARINGS

Shafts are placed in the two oil lubricated roller bearings to which an axial bearing has been added.

This bearing absorbs the rest of the axial thrusts which may arise due to lack of the tie thrusts in the pump and of uneven use of wear rings. The bearings are lubricated with oil or grease, and at high temperature (KCPv pumps) in the bearing bracket are installed oil coolers with a separate supply of cold water.

PACKING

Access to packing is provided on both sides. Should subpressure in a suction casing occur, sealing water is to be connected to the first pump stage. Mechanical seals with slide rings can be fitted instead of packings, upon customer' requirements.

MATERIALS

In the standard version, the casing, impellers and diffusers are made of cast iron. Wear rings, spaced and protective sleeve are made of bronze, and shaft of carbon steel. At the customer's request, pump components may be also made from other materials.

POSITION OF THE FLANGES

Position of a suction and delivery flanges can be directed vertically upwards, horizontally left or right, thus being independent of each other. Pumps having the flange position vertically downwards are made on a special requirement. Flange position is defined, taking a view from a pump driving side i.e. coupling side. Drawings of flange position is given below the drawing measure of pumps.

At KCPL pumps, the suction and discharge flanges are above the floor of the plant in the same axis at an angle of 180 °.

At the customer's request, we also deliver these pumps with a different flange position.

INSTALLATION OF UNITS

On a customer's requirements, pumps are supplied with drive machines: electric motors, diesel and petrol engines, steam turbines and others. Base plates are one-piece or two-piece, can be cast or welded of steel. Pumps are also accompanied by adequate fittings.

PUMP ORDER

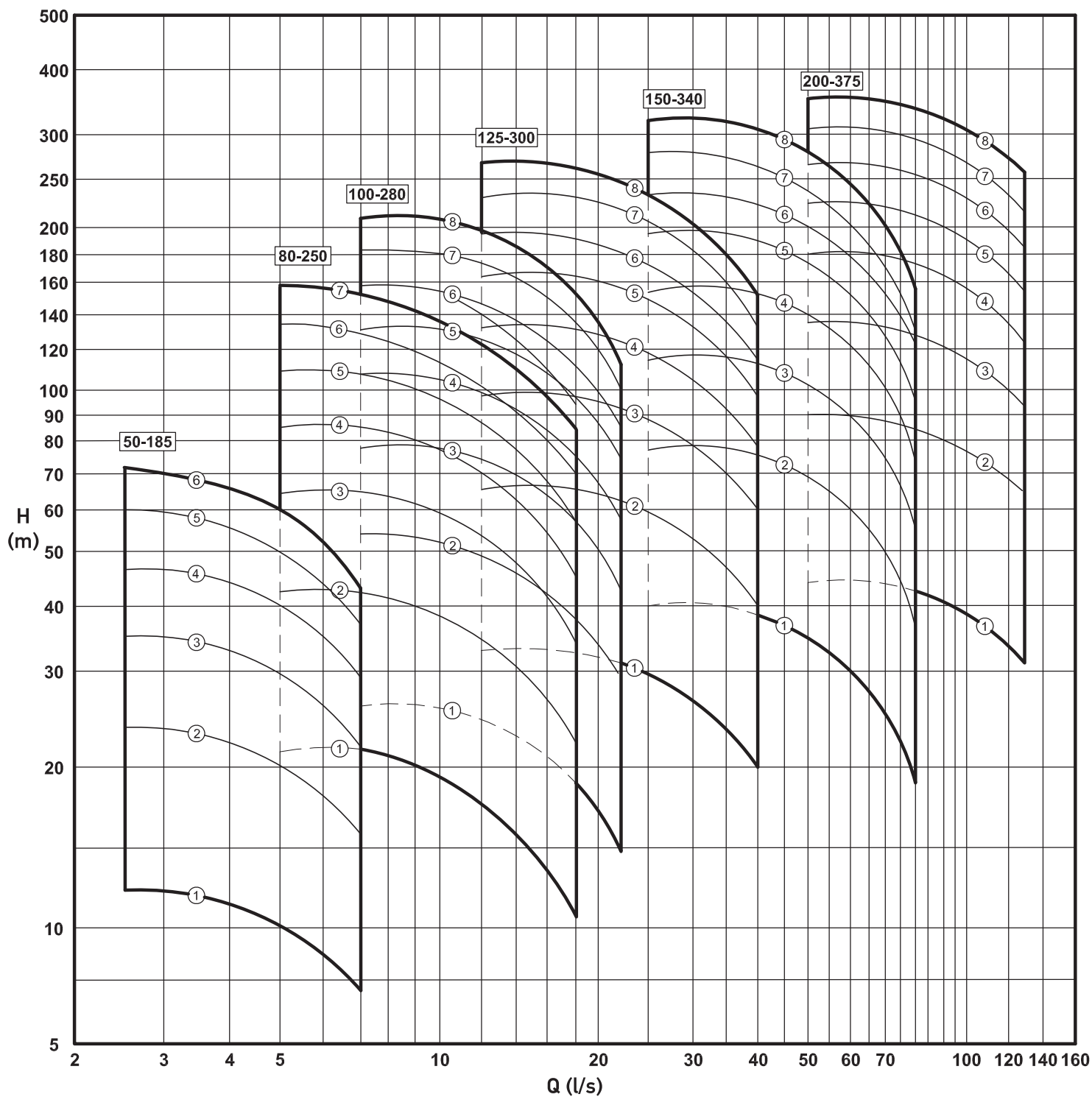
When ordering the pump it is recommended to indicate the following: the type of fluid (fresh or sea water, PH value, chemical composition, aggressiveness, the degree of impurities etc.), capacity, total head, NPSH plant or the necessary suction head, the pressure at the pump inlet, temperature of fluid, position of flanges.

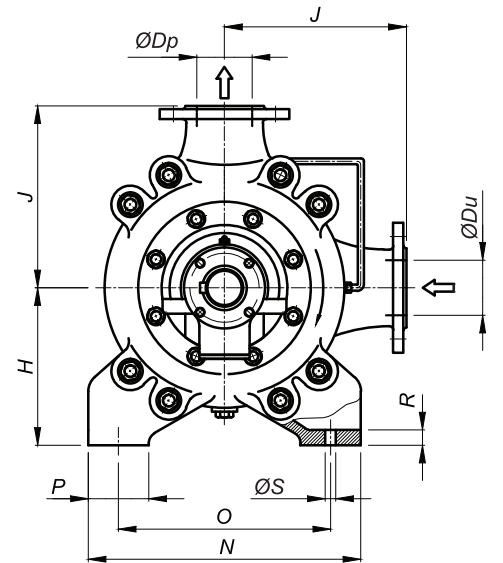
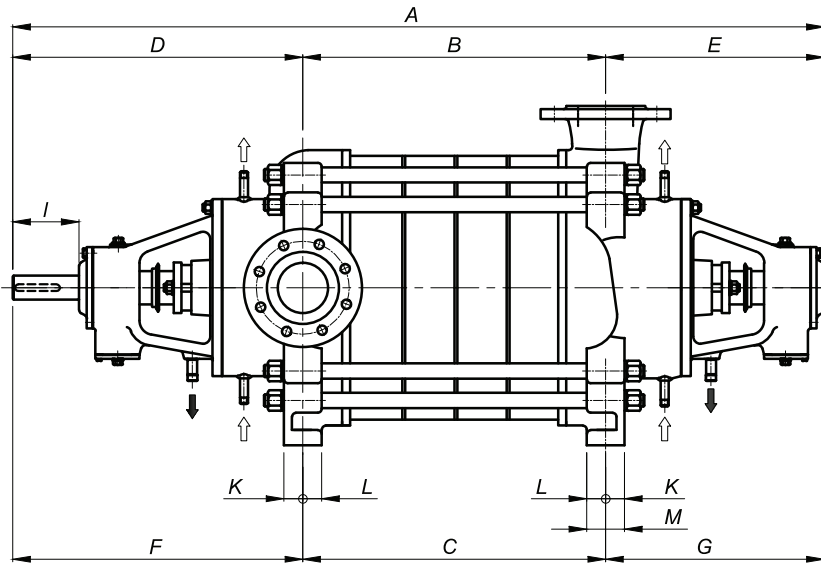
For KCPL pumps, specify the required length "L".

KCP, KCPv, KCPL, KCPLv

PODRUČJE PRIMENE (n=1450 min⁻¹)

SUPPLY RANGE (n=1450 r.p.m.)

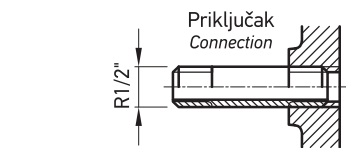
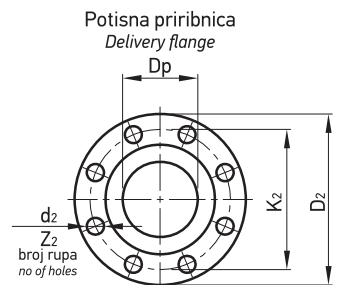
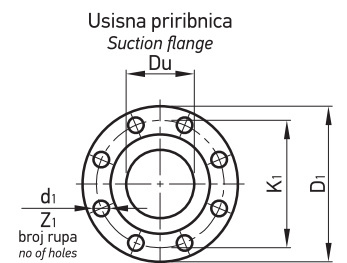




		Tip pumpe / type of pump KCP-KCPv						
Veličina pumpe Type of pump		50-185	80-250	100-280	125-300	150-340	200-375	
A	Broj stepeni / No. of stages	2	784	796	939	1266	1452	1560
	3	839	897	1019	1371	1577	1700	
	4	894	958	1099	1476	1702	1840	
	5	949	1039	1179	1581	1827	1980	
	6	1004	1120	1259	1686	1952	2120	
	7		1201	1339	1791	2077	2260	
	8			1419	1896	2202	2400	
	B	Broj stepeni / No. of stages	2	147	197	210	307	357
3		202	278	290	412	482	510	
4		257	359	370	517	607	650	
5		312	440	450	622	732	790	
6		367	521	530	727	857	930	
7			602	610	832	982	1070	
8				690	937	1107	1210	
C		Broj stepeni / No. of stages	2	107	131	195	280	357
	3	162	212	275	385	482	510	
	4	217	293	355	490	607	650	
	5	272	374	435	595	732	790	
	6	327	455	515	700	857	930	
	7		536	595	805	982	1070	
	8			675	910	1107	1210	
	D	322	358	382	550	610	685	
E	315	241	347	409	485	505		
F	351	394	392	550	610	685		
G	338	271	352	436	485	505		
H	170	200	245	280	300	350		
J	230	260	350	350	440	500		
K	56	25	35	40	60	70		
L	24	55	35	40	60	70		
M	80	80	70	80	120	140		
N	330	355	500	480	560	650		
O	280	300	450	420	480	560		
P	50	78	80	90	100	140		
R	15	15	55	25	25	28		
S	18	23	23	23	23	27		

		Tip pumpe / type of pump KCP-KCPv					
Veličina pumpe Type of pump		50-185	80-250	100-280	125-300	150-340	200-375
Vratilo Shaft	d	30k6	35k6	35k6	50k6	60m6	65m6
	a	10	10	10	14	18	18
	h	33.4	38.4	38.4	53.6	64.3	69.3
	l	70	90	90	130	120	170
	NP	16	10	10	10	16	16
Usisna prirubnica Suction flange	Du	65	100	125	150	200	200
	K1	145	180	210	240	295	295
	D1	185	220	250	285	340	340
Potisna prirubnica Delivery flange	d1	18	18	18	23	23	23
	Z1	4	8	8	8	12	12
	NP	64	25	25	25	40	40
	Dp	50	80	100	125	150	200
	K2	135	160	190	220	250	320
	D2	180	200	235	270	300	375
d2	22	18	23	27	27	30	
Z2	4	8	8	8	8	12	

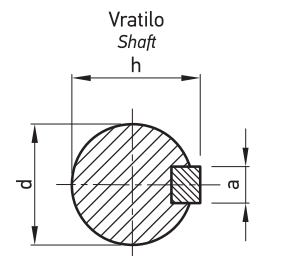
Mere u mm - neobavezne!
Dimensions in mm (subject to modification)



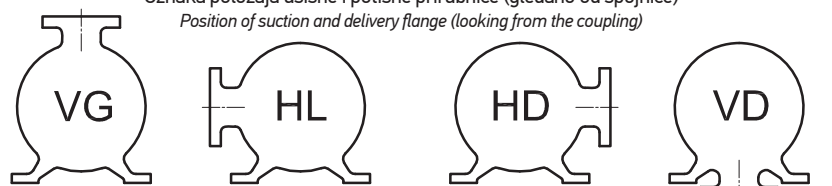
Priljučak
Connection

Priljučak za dovod i odvod vode za hlađenje pletenice samo za tip KCPv
Connection of water supply and drainage for cooling packing only type KCPv

Priljučak za drenažu vode
Connection for water drainage



Oznaka položaja usisne i potisne prirubnice (gledano od spojnice)
Position of suction and delivery flange (looking from the coupling)

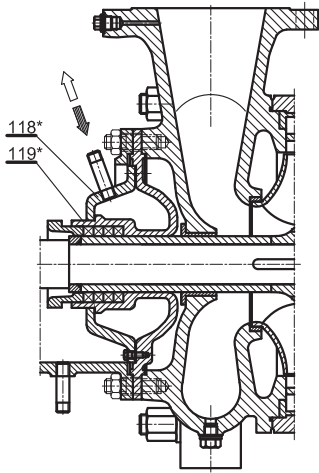


Na poseban zahtev
On request

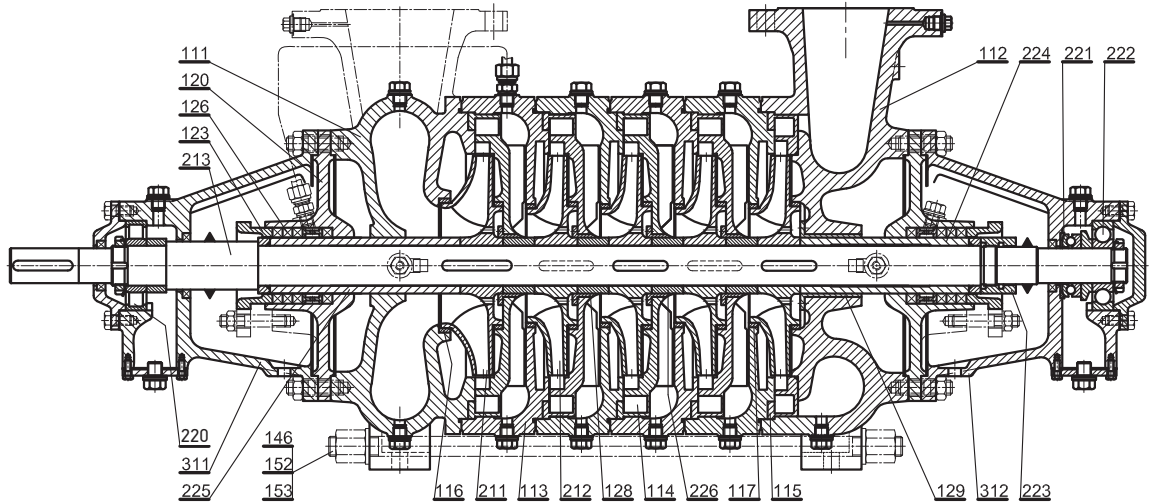
KCP, KCPv, KCPL, KCPLv

PRESEK PUMPE tip KCP

CROSS-SECTION OF PUMP type KCP



Detalj zaptivanja vratila pumpe tip KCPv sa hladenjem pletenice
Shaft seal detail of pump type KCPv with cooling of packing



Pozicija Naziv

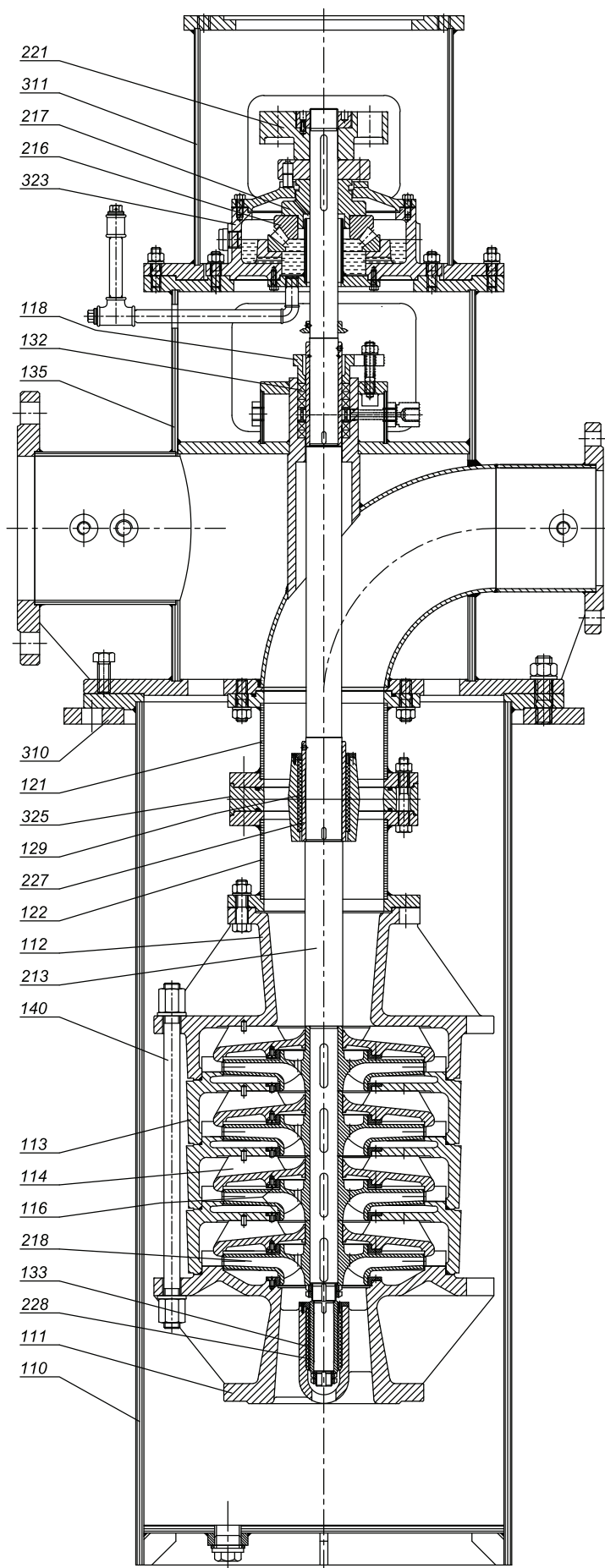
111	Usisno kućište
112	Potisno kućište
113	Međukućište
114	Statorsko kolo I
115	Statorsko kolo II
116	Procepní prsten
117	Procepní prsten
*118	Hladnjak pletenice
*119	Nosač pletenice
120	Nosač pletenice
123	Pritezač pletenice
126	Pletenica
128	Čaura statora
129	Čaura kućišta
146	Stezni vijak
152	Navrtka steznog vijka
153	Podloška steznog vijka
211	Radno kolo I
212	Radno kolo II
213	Vratilo
220	Ležaj
221	Ležaj
222	Ležaj
223	Navrtka seta
224	Zaštitna čaura
225	Zaštitna čaura
226	Distantna čaura
311	Nosač ležaja
312	Nosač ležaja

Item Part name

111	Suction casing
112	Discharge casing
113	Stage casing
114	Diffusor I
115	Diffusor II
116	Wear ring
117	Wear ring
*118	Packing cooler
*119	Stuffing box
120	Stuffing box
123	Gland
126	Packing
128	Sleeve
129	Sleeve
146	Tie bolt
152	Tie bolt nut
153	Tie bolt
211	Impeller I
212	Impeller II
213	Shaft
220	Bearing
221	Bearing
222	Bearing
223	Nut
224	Protection sleeve
225	Protection sleeve
226	Spaced sleeve
311	Bearing bracket
312	Bearing bracket

Pozicija	Naziv dela	Vrsta materijalnog izvođenja			
		N	B	Č	K
111	Usisno kućište	SL250	PCuSn10	ČL0500	ČL4574
112	Potisno kućište	SL250	PCuSn10	ČL0500	ČL4574
113	Međukućište	SL250	PCuSn10	ČL0500	ČL4574
114	Statorsko kolo	SL250	PCuSn10	ČL0500	ČL4574
116	Procepní prsten	PCuSn10	PCuSn10	ČL0500	ČL4574
211	Radno kolo	SL250	PCuSn10	ČL4574	ČL4574
213	Vratilo	Č 1731	Č 4570	Č 4732	Č 4574
224	Zaštitna čaura	PCuSn10	PCuSn10	Č 4172	Č 4574
226	Distantna čaura	PCuSn10	PCuSn10	Č 4172	Č 4574
311	Nosač ležaja	SL250	PCuSn10	SL250	SL250
312	Nosač ležaja	SL250	PCuSn10	SL250	SL250

Item	Part name	Materials			
		N	B	Č	K
111	Suction casing	GJL250	GCuSn10	GS-52	AISI316
112	Discharge casing	GJL250	GCuSn10	GS-52	AISI316
113	Stage casing	GJL250	GCuSn10	GS-52	AISI316
114	Diffusor	GJL250	GCuSn10	GS-52	AISI316
116	Wear ring	GCuSn10	GCuSn10	GS-52	AISI316
211	Impeller	GJL250	GCuSn10	AISI316	AISI316
213	Shaft	Ck45	AISI431	AISI316	AISI316
224	Protection sleeve	GCuSn10	GCuSn10	AISI420	AISI316
226	Distant sleeve	GCuSn10	GCuSn10	AISI420	AISI316
311	Bearing bracket	GJL250	GCuSn10	GJL250	GJL250
312	Bearing bracket	GJL250	GCuSn10	GJL250	GJL250



Pozicija	Naziv
110	Plajt pumpe
111	Usisno kućište
112	Potisno kućište
113	Međukućište
114	Statorsko kolo
116	Procepni prsten
118	Pritezač pletenice
121	Cevni nastavak I
122	Cevni nastavak II
129	Klizni ležaj I
132	Pletenica
133	Klizni ležaj II
135	Izlazno kućište
140	Stezni vijak
213	Vratilo
216	Ležaj
217	Nosač aksijalnog ležaja
218	Radno kolo
221	Disk spojnice - gonjeni
227	Čaura ležaja I
228	Čaura ležaja II
310	Noseća ploča
311	Nosač motora
323	Kućište ležaja
325	Nosač međuležaja

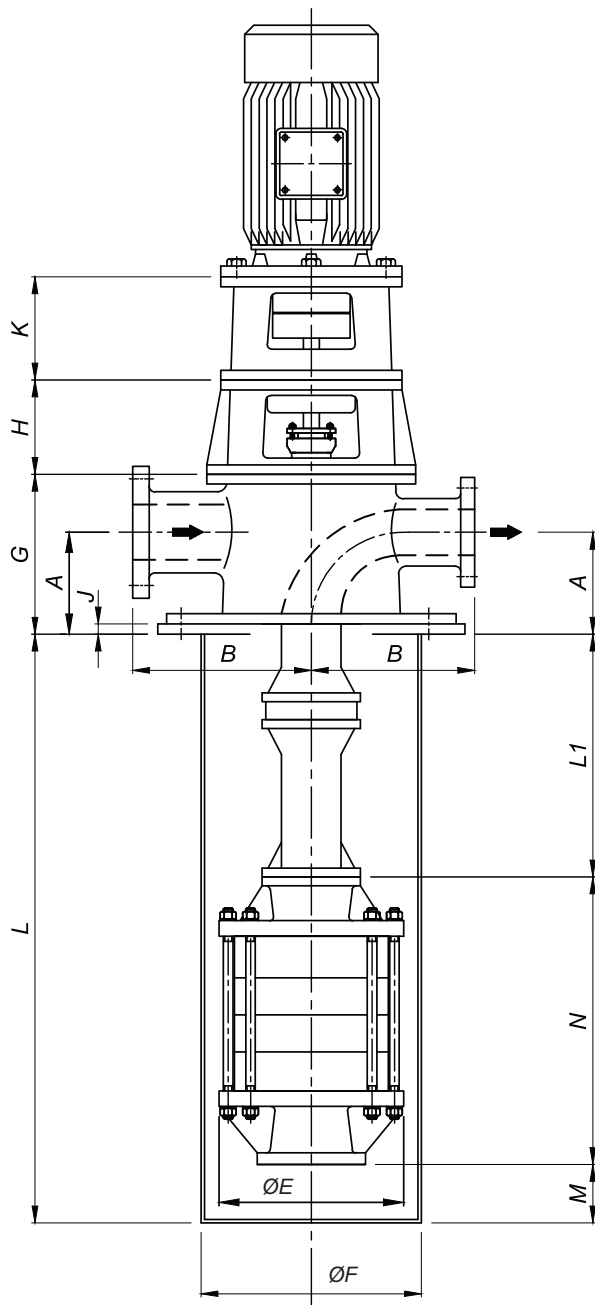
Item	Part name
110	Pump cover
111	Suction casing
112	Discharge casing
113	Stage casing
114	Diffusor
116	Wear ring
118	Gland
121	Pipe I
122	Pipe II
129	Bearing
132	Soft packing
133	Bearing
135	Discharge casing
140	Tie bolt
213	Shaft
216	Bearing
217	Axial bearing mounting
218	Impeller
221	Coupling disc
227	Bearing sleeve I
228	Bearing sleeve II
310	Base plate
311	Motor mounting
323	Bearing bracket
325	Intermediate bearing bracket

KCP, KCPv, KCPL, KCPLv

MERNA SKICA PUMPE tip KCPL i KCPLv

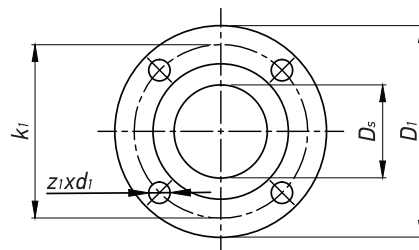
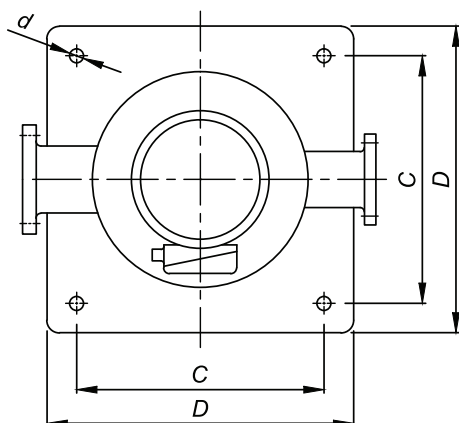
DRAWING MEASURE OF PUMPS type KCPL and KCPLv

Mere su u mm - neobavezne
Dimensions in mm (subject to modification)

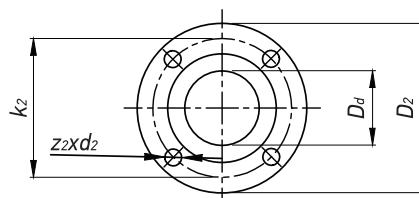


Tip pumpe Pump type KCPL, KCPLv	50-185	100-280	125-300	150-340	200-375		
A	215	245	270	300	320		
B	350	400	500	550	625		
C	520	640	720	890	1000		
D	600	720	800	980	1100		
d	30	33	33	39	39		
E	370	450	570	670	750		
F	450	550	700	800	900		
G	300	380	430	480	550		
H	250	300	350	400	450		
J	30	35	40	45	50		
K	300	350	400	450	500		
M	130	150	170	200	220		
DIMENZIJE PUMPI / PUMP DIMENSIONS	N BROJ STEPENI / NUMBER OF STAGES	1	320	360	450	540	715
		2	375	440	555	665	855
		3	430	520	660	790	995
		4	485	600	765	915	1135
		5	540	680	870	1040	1275
		6	595	760	975	1165	1415
		7	650	840	1080	1290	1555
		8	705	920	1185	1415	1695
		9	760	1000	1290	1540	1835
		10	815	1080	1395		
		11	870				
		12	925				
		PRIRUBNICE / FLANGES	USISNA / SUCTION	NP	16	16	16
D _s	65			125	150	200	250
D ₁	185			250	285	340	405
k ₁	145			210	240	295	355
d ₁	18			18	23	23	27
z ₁	4			8	8	12	12
POTISNA / DISCHARGE	NP		25	25	40	40	40
	D _d		50	100	125	150	200
	D ₂		165	235	270	300	375
	k ₂		125	190	220	250	320
	d ₂		18	23	27	27	30
	z ₂		4	8	8	8	12

Kote L i L1 određuje projektant prema projektu
Dimensions L and L1 are determined according to the project.

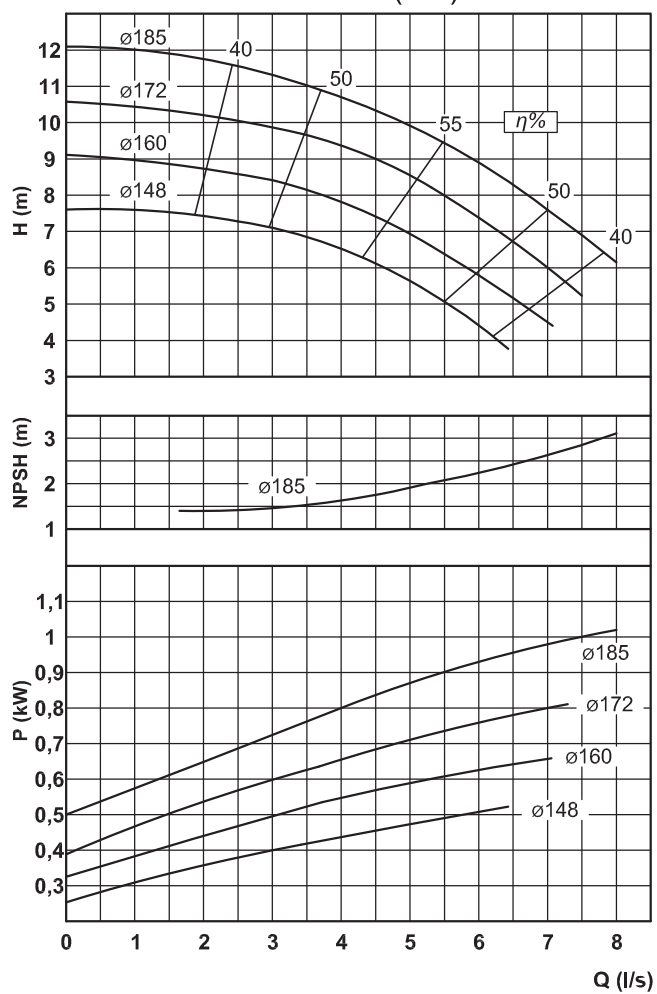


Usisna prirubnica
Suction flange

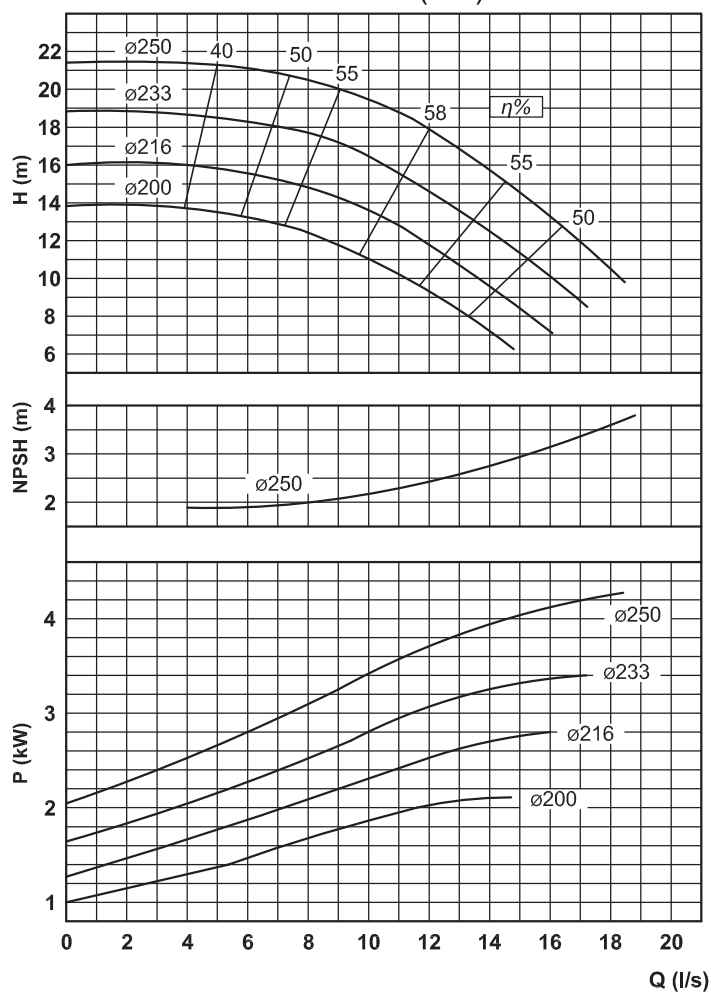


Potisna prirubnica
Discharge flange

50-185/1 (2-6)



80-250/1 (3-7)

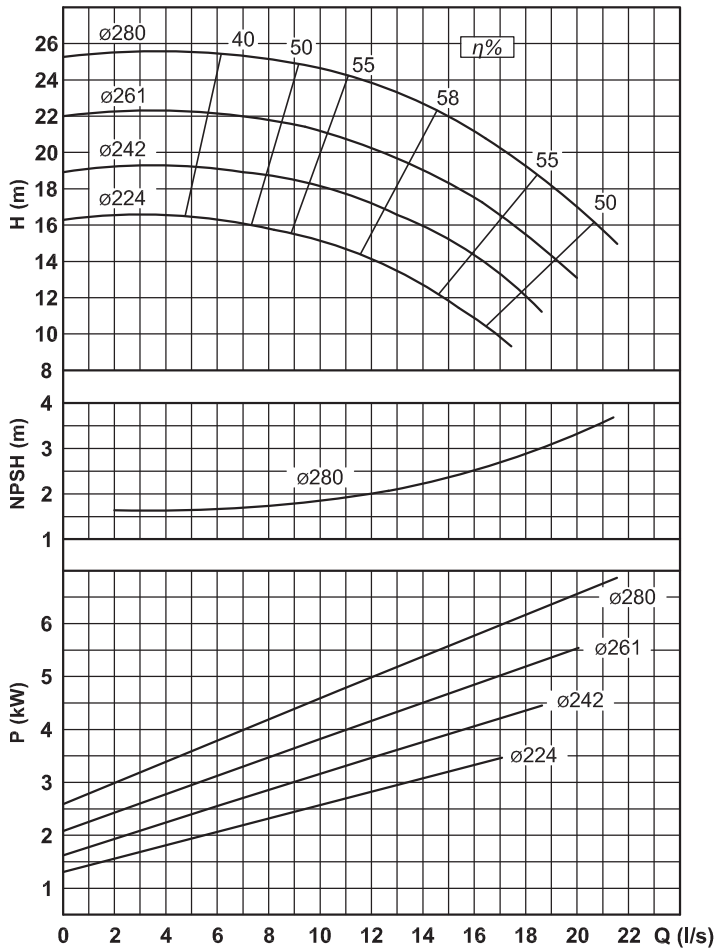


KCP, KCPv, KCPL, KCPLv

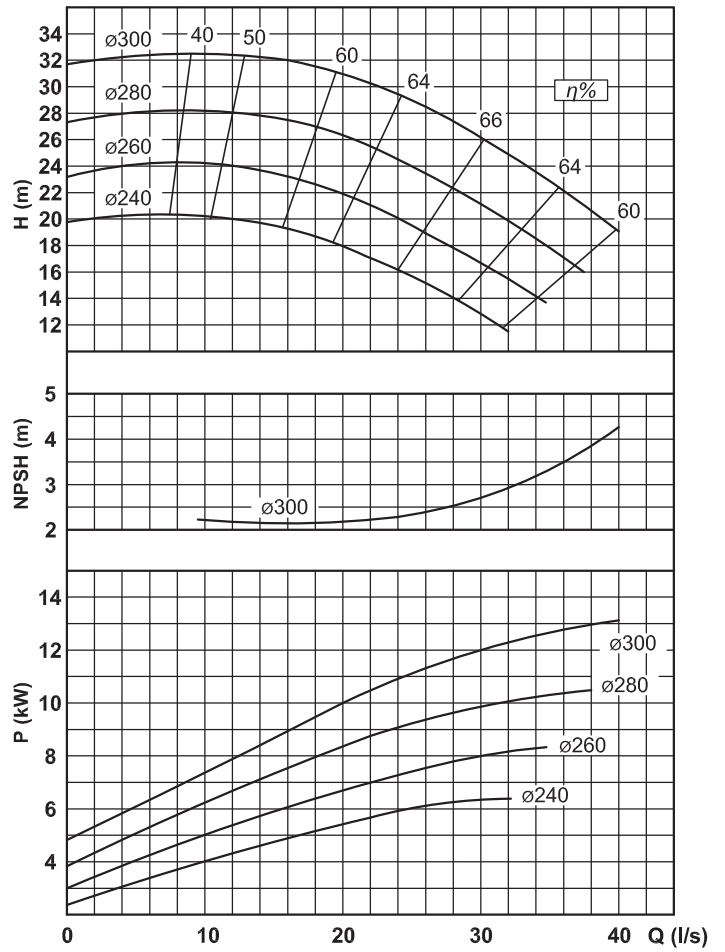
POJEDINAČNI DIJAGRAMI PUMPE TIP KCP (n=1450 min⁻¹)

SINGLE CHARTS OF PUMP TYPE KCP (n=1450 r.p.m.)

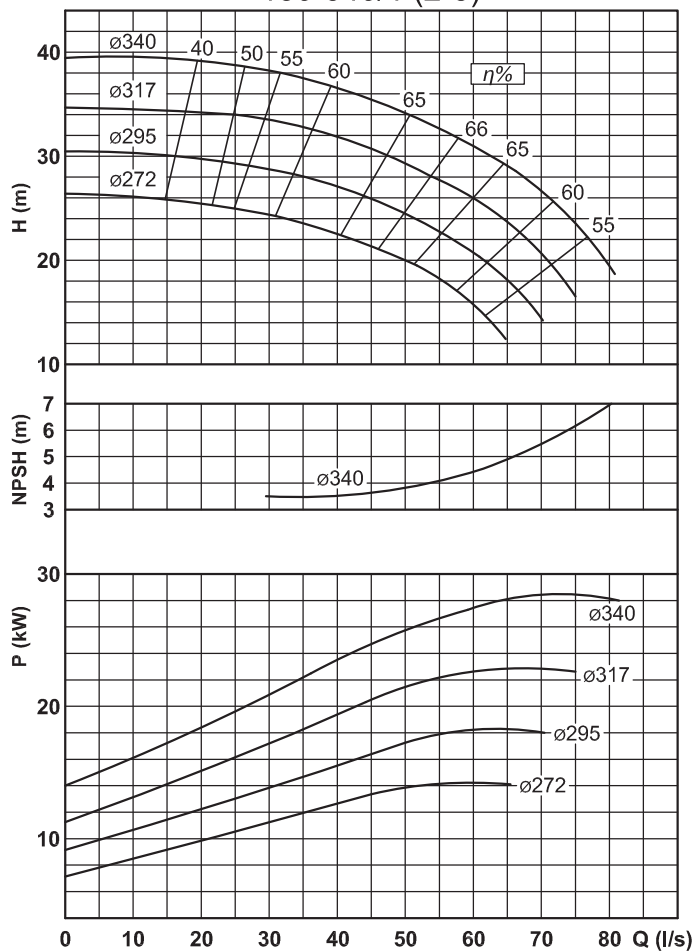
100-280/1 (2-8)



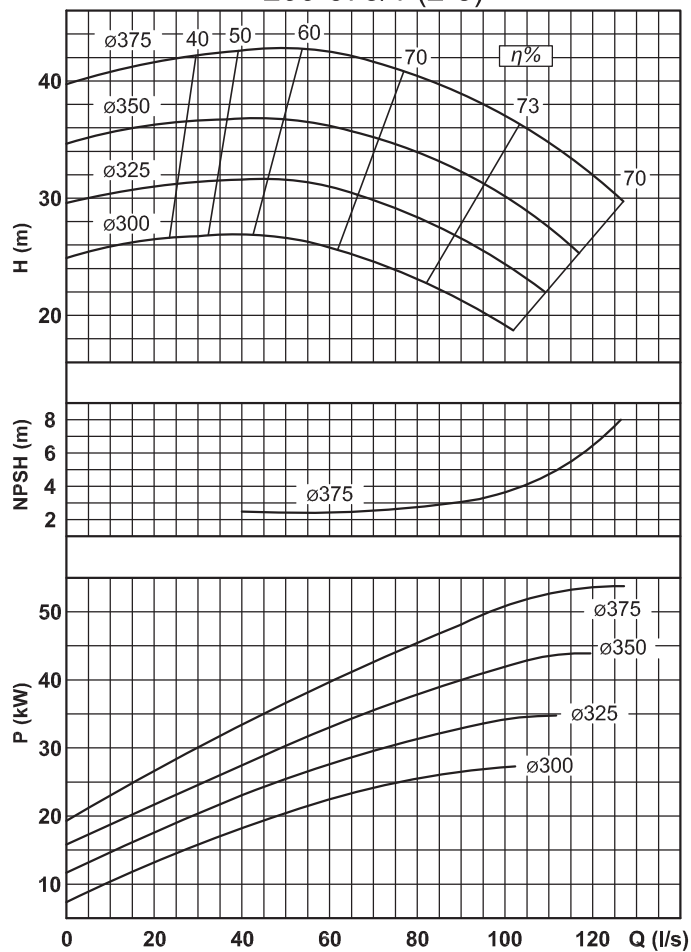
125-300/1 (2-8)



150-340/1 (2-8)



200-375/1 (2-8)



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