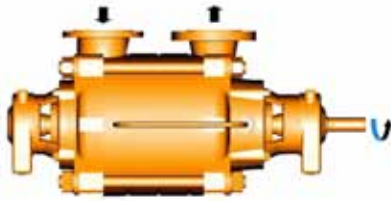


CUC, CUD, CUE, CUF
Multi-stage general-purpose pumps

PUMPS BASIC VERSIONS

C



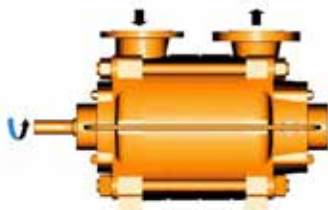
The pump with radial suction and discharge flange, with shaft supported on both pump sides by rolling bearings and sealed on sides by seals. Axial thrust balancing is performed by balancing drum.

D



The same design as C, but with drive on suction side.

E



The pump in ecological design with radial suction and discharge flange, with shaft supported on both sides in ceramic bearings lubricated with pumped liquid. Shaft is sealed on drive side by not cooled mechanical seal. Axial thrust balancing is performed by balancing disc and counter disc.

F



The pump with radial suction and discharge flange, with shaft supported on both pump sides by rolling bearings and sealed on both sides by seals. Axial thrust balancing is performed by balancing disc and counter disc.

PUMP TYPE DESIGNATION

The table below gives an example of pump type designation explanation:

Pump designation	CU
Design	D
Design size	2
Hydraulic size	3.1
Dimension of discharge flange	50
Stages number	5
Material code	10
Seal code	61



Comparison of design sizes - pumps CUE2 a CUE4

PUMPING APPLICATION

General water supply
Potable water
Irrigation (polluted liquids)
Hot and boiling water
Destillates and condensates
Lubricantes and fuel
Process application
Circulating application
Pumping of liquids in explosion hazardous areas

TECHNICAL DATA

Design size		DN 40 to DN 200
Flow	Q	max. 190 l.s ⁻¹ (684 m ³ .h ⁻¹)
Head	H	max. 630 m
Operational temperature	t	max. 180 °C
Operational pressure	p_2	max. 6,3 MPa ¹⁾
Liquid density	ρ	800–1100 kg.m ⁻³
1) Sum of suction pressure and pressure deduced from pump head		

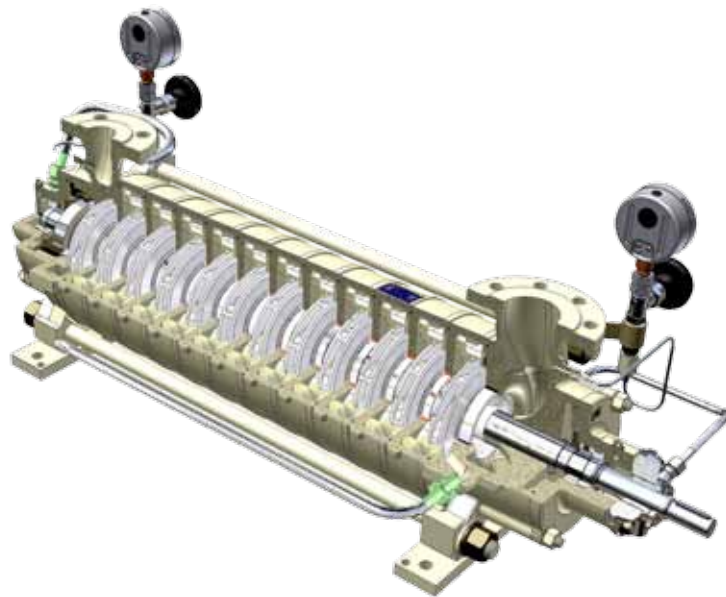
MATERIAL VERSION

Pozice	Part name	Material code				
		10	11	13	20	30
106	Suction casing	EN-GJL-250	1.0619	1.0619	1.4008	1.4408
107	Discharge casing	EN-GJL-250	1.0619	1.0619	1.4008	1.4408
108	Interstage	EN-GJL-250	1.0619	1.0619	1.4008	1.4408
171	Diffuser	EN-GJL-HB 155	EN-GJL-HB 155	1.4008	1.4008	1.4408
210	Shaft	1.4313	1.4313	1.4313	1.4313	1.4313
230	Impeller	EN-GJL-HB 155	EN-GJL-HB 155	1.4008	1.4008	1.4408
231	1st stage impeller	1.4008	1.4008	1.4008	1.4008	1.4408
502	Wearing rings	EN-GJL-250	3346	3346	3346	3346
502.1	1st stage wear ring	3346	3346	3346	3346	3346
441	Sealing housing	EN-GJL-250	EN-GJL-250	EN-GJL-250	1.4008	1.4408
601	Drum (Balancing disc)	3347	3347	3347	3347	3347
602	Drum bush	3346	3346	3346	3346	3346
350	Bearing housing	EN-GJL-250	EN-GJL-250	EN-GJL-250	EN-GJL-250	EN-GJL-250
905	Connecting screw	1.8159+QT	1.8159+QT	1.8159+QT	1.8159+QT	1.8159+QT
920	Connecting screw nut	1.8159+QT	1.8159+QT	1.8159+QT	1.8159+QT	1.8159+QT

MULTI-STAGE GENERAL-PURPOSE PUMPS

PUMP DESIGN

Horizontal multi-stage centrifugal pump with radial suction and discharge branch. Radial impellers, of which the 1st stage is equipped with a special impeller for NPSH improvement. For rotor fitting and lubrication - see „PUMP BASIC VERSIONS“.



AXIAL THRUST BALANCING

Caused by different dimensions of front and rear impeller discs surfaces an axial force emerges affecting the rotor towards pump suction. For absorbing of this force the rotor is equipped with a drum (balancing disc). Residual axial thrust is by pump version C and D absorbed through thrust bearing.

PUMP UNIT

Pump may be delivered on separate base frames (designation F/2) or on common base frame with a drive (designation FE) including base screws, pump – drive coupling and coupling cover.

ROTOR SEALING

Rotor sealing inside the pump stator is made with single or double lite mechanical seals. The seal choice is determined on kind and temperature of pumped media.

CERTIFICATION

EN ISO 9001, QA: 041005278.

DRIVE

The pump may be driven by electric drive 50 or 60 Hz, or diesel engine respectively.



SEAL CODE

Design, type of seal	Seal code	Possible type of sealing
Mechanical seal balanced, uncooled	61	John Crane 58B, type 5610, Burgmann Cartex, Flowserve type 615 Standard connection API plan 11
Mechanical seal balanced, cooled	62	John Crane 58B, type 5610, Burgmann Cartex, Flowserve type 615 Standard connection API plan 21 nebo 23
Mechanical seal double	63	BURGMANN Cartex Standard connection API plan 52

EXAMPLE OF SEAL USE

Pumped media	Material code		Seal code			Note
	140 °C	180 °C	100 °C	140 °C	180 °C	
River water, industrial water slightly polluted, cooling water	10 11	–	61	–	–	Pumps in design CUC and CUD may be used for pumping of polluted and muddy water with maximum 1 % content of sludge or fine solids with size up to 0,15 mm. Pumps in CUE and CUF design can be used for pumping of liquid without solids only.
Potable water	10 11 20	–	61	–	–	
Feed water, condensate pH 6,5 - 8,5	10 20 30	13 20 30	61	61	62	
Water polluted by oil emulsion, glycol or crude oil	10	–	61 62	61 62	–	
Water with pH 8,5 - 9,3 at 25°C	10	–	61	61	–	

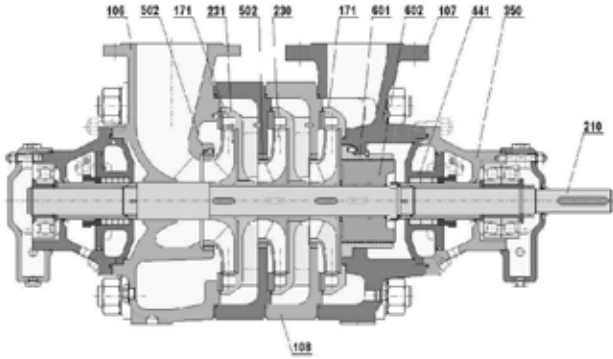
PUMP FLANGES

Flanges orientation viewed from the drive	0°	90°	270°
<p>Flanges design according to standards ČSN EN 1092, DIN, ANSI.</p> <p>DN of flanges is specified in dimensions table of pump, PN of suction flange can be 6, 10 or 16, PN of discharge flange can be 25,40 or 63.</p> <p>The pump can be supplied with flanges in positions as shown in the picture.</p>			

An exact choice of pump material version, size and flange station, seals used shall be specofoed by the manufacturer in Pump Data Sheet.

PUMP CROSS-SECTION ARRANGEMENT

CUC

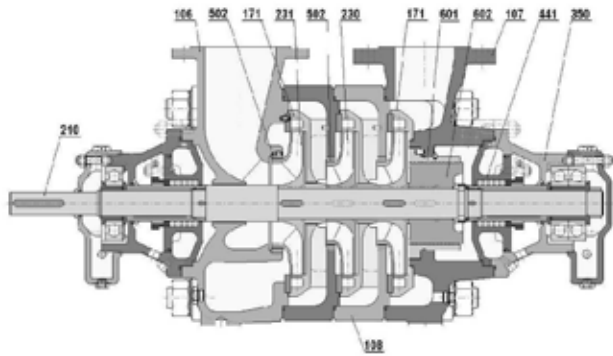


Pump design

- Suction side - radial ball bearing
- Antifriction thrust bearing
- Balance device - drum, bush
- Shaft seal - mechanical seal
- Bearing lubrication - oil, grease

106	Suction case
107	Discharge case
108	Interstage
171	Diffuser
210	Shaft
230	Impeller
231	1st stage Impeller
350	Bearing housing
441	Sealing housing
502	Wearing rings
601	Balancing drum
602	Drum bush
905	Joint screw

CUD

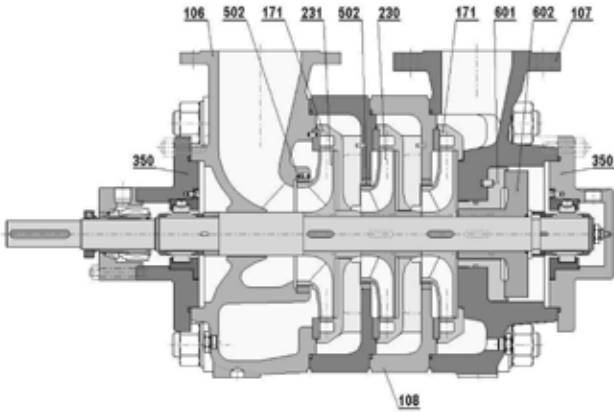


Pump design

- Suction side - radial ball bearing
- Antifriction thrust bearing
- Balance device - drum, bush
- Shaft seal - mechanical seal
- Bearing lubrication - oil, grease

106	Suction case
107	Discharge case
108	Interstage
171	Diffuser
210	Staff
230	Impeller
231	First stage Impeller
350	Bearing housing
441	Sealing housing
502	Wearing rings
601	Balancing drum
602	Drum bush
905	Joint screw

CUE



Pump design

Ceramic radial bearing

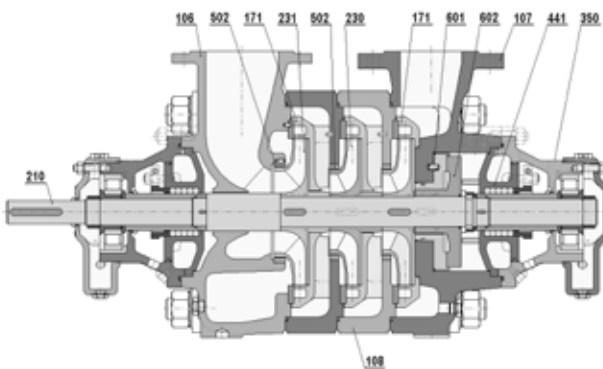
Balance device - disc, counter disc

Shaft seal - mechanical seal

Bearing lubrication - pumped liquid

106	Suction case
107	Discharge case
108	Interstage
171	Diffuser
210	Staff
230	Impeller
231	First stage Impeller
350	Bearing housing
441	Sealing housing
502	Wearing rings
601	Balancing disc
602	Counter disc
905	Joint screw

CUF



Pump design

Cylindrical bearings on suction and discharge sides

Balance device - disc, counter disc

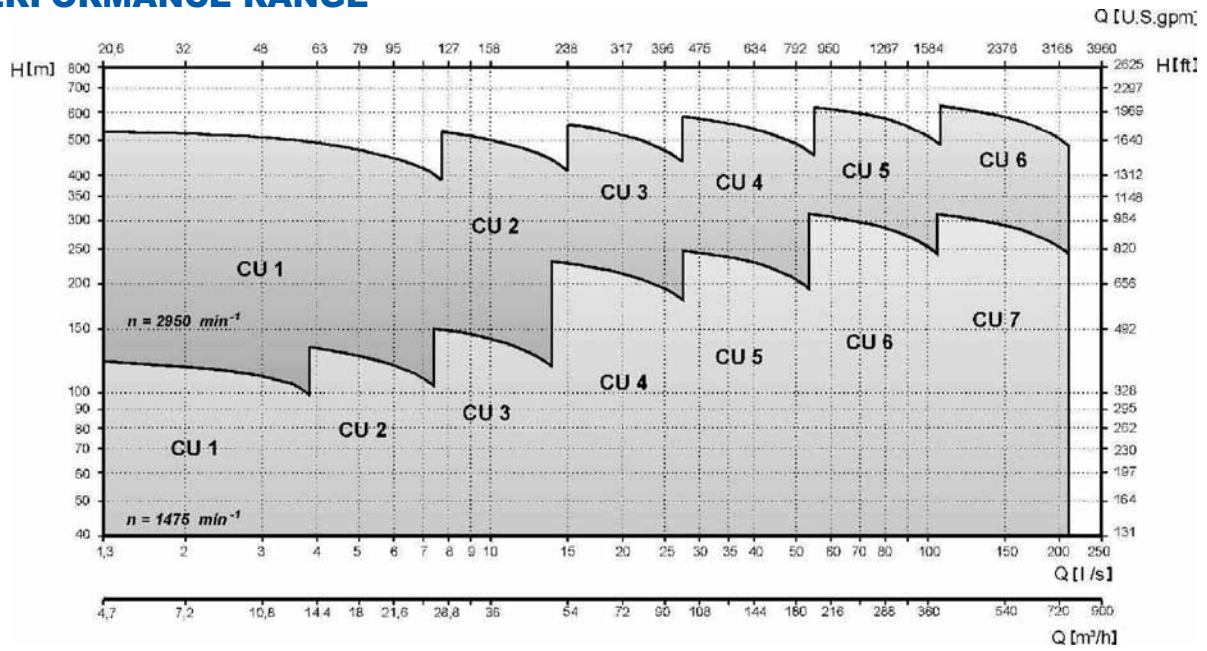
Shaft seal - mechanical seal

Bearing lubrication - oil, grease

106	Suction case
107	Discharge case
108	Interstage
171	Diffuser
210	Staff
230	Impeller
231	First stage Impeller
350	Bearing housing
441	Sealing housing
502	Wearing rings
601	Balancing disc
602	Counter disc
905	Joint screw

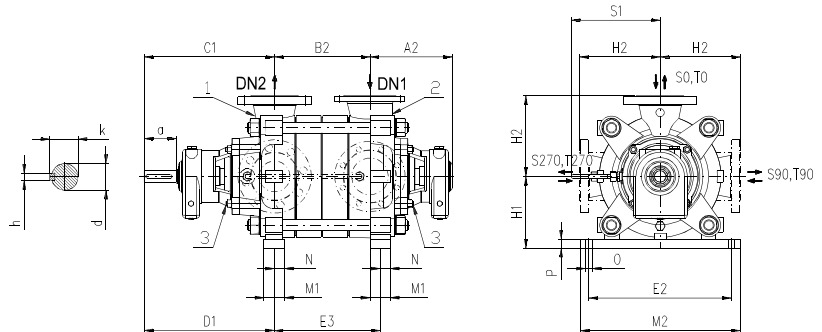
PERFORMANCE RANGE AND DIMENSIONS

PERFORMANCE RANGE

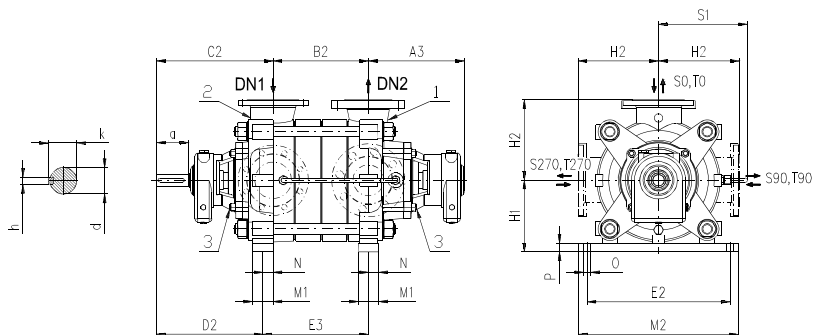


DIMENSIONS

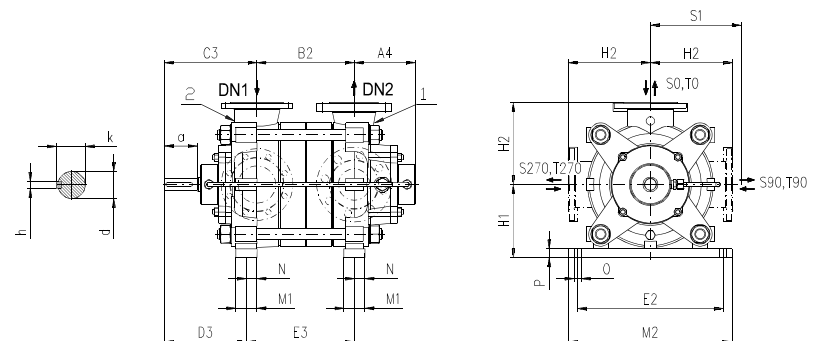
CUC



CUD, CUF



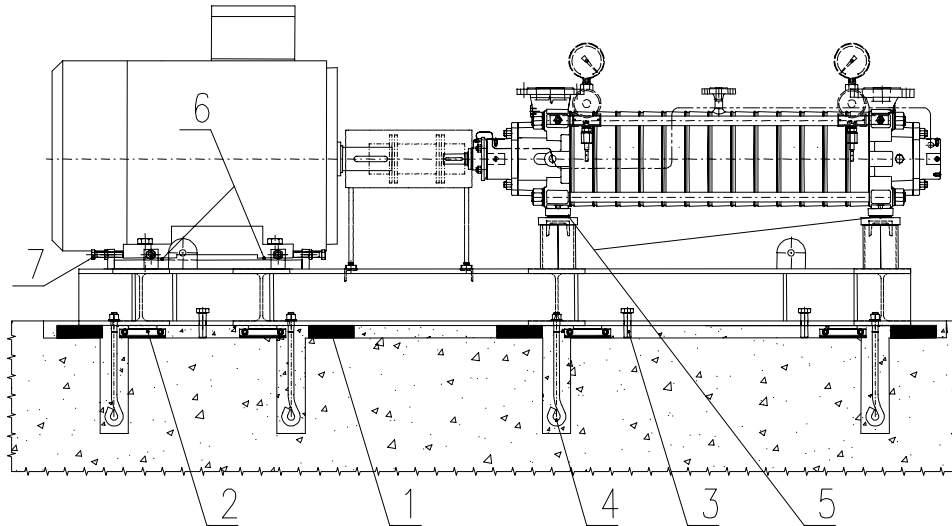
CUE



KV	HV	St.	DNax	DN1	DN2	A2	A3	A4	B2	C1	C2	C3	D1	D2	D3	E2	E3
1	1.1 2.1	2	80	65	40	300	343,5	164	127,5	330	320,5	275	327	326	295	320	132
		3	80	65	40	300	343,5	164	185,5	330	320,5	275	327	326	295	320	190
		4	80	65	40	300	343,5	164	243,5	330	320,5	275	327	326	295	320	248
		5	80	65	40	300	343,5	164	301,5	330	320,5	275	327	326	295	320	306
		6	80	65	40	300	343,5	164	359,5	330	320,5	275	327	326	295	320	364
		7	80	65	40	300	343,5	164	417,5	330	320,5	275	327	326	295	320	422
		8	80	65	40	300	343,5	164	475,5	330	320,5	275	327	326	295	320	480
		9	80	65	40	300	343,5	164	533,5	330	320,5	275	327	326	295	320	538
		10	80	65	40	300	343,5	164	591,5	330	320,5	275	327	326	295	320	596
		11	80	65	40	300	343,5	164	649,5	330	320,5	275	327	326	295	320	654
		12	80	65	40	300	343,5	164	707,5	330	320,5	275	327	326	295	320	712
		13	80	65	40	300	343,5	164	765,5	330	320,5	275	327	326	295	320	770
		14	80	65	40	300	343,5	164	823,5	330	320,5	275	327	326	295	320	828
		2	3.1 4.1	2	100	80	50	296	285,5	165,5	157	360	330	302,5	364,5	353,5	323,5
3	100			80	50	296	285,5	165,5	222	360	330	302,5	364,5	353,5	323,5	320	194
4	100			80	50	296	285,5	165,5	287	360	330	302,5	364,5	353,5	323,5	320	259
5	100			80	50	296	285,5	165,5	352	360	330	302,5	364,5	353,5	323,5	320	324
6	100			80	50	296	285,5	165,5	417	360	330	302,5	364,5	353,5	323,5	320	389
7	100			80	50	296	285,5	165,5	482	360	330	302,5	364,5	353,5	323,5	320	454
8	100			80	50	296	285,5	165,5	547	360	330	302,5	364,5	353,5	323,5	320	519
9	100			80	50	296	285,5	165,5	612	360	330	302,5	364,5	353,5	323,5	320	584
10	100			80	50	296	285,5	165,5	677	360	330	302,5	364,5	353,5	323,5	320	649
11	100			80	50	296	285,5	165,5	742	360	330	302,5	364,5	353,5	323,5	320	714
12	100			80	50	296	285,5	165,5	807	360	330	302,5	364,5	353,5	323,5	320	779
13	100			80	50	296	285,5	165,5	872	360	330	302,5	364,5	353,5	323,5	320	844
14	100			80	50	296	285,5	165,5	937	360	330	302,5	364,5	353,5	323,5	320	909
3	5.1 6.1			2	125	100	65	300	338,5	185	190	428	389	315	427,5	419	345
		3	125	100	65	300	338,5	185	270	428	389	315	427,5	419	345	400	240
		4	125	100	65	300	338,5	185	350	428	389	315	427,5	419	345	400	320
		5	125	100	65	300	338,5	185	430	428	389	315	427,5	419	345	400	400
		6	125	100	65	300	338,5	185	510	428	389	315	427,5	419	345	400	480
		7	125	100	65	300	338,5	185	590	428	389	315	427,5	419	345	400	560
		8	125	100	65	300	338,5	185	670	428	389	315	427,5	419	345	400	640
		9	125	100	65	300	338,5	185	750	428	389	315	427,5	419	345	400	720
		10	125	100	65	300	338,5	185	830	428	389	315	427,5	419	345	400	800
		11	125	100	65	300	338,5	185	910	428	389	315	427,5	419	345	400	880
		4	7.1 8.1	2	150	125	100	315	357	206	235	478,5	436,5	375	452,5	476,5	415
3	150			125	100	315	357	206	325	478,5	436,5	375	452,5	476,5	415	490	311
4	150			125	100	315	357	206	415	478,5	436,5	375	452,5	476,5	415	490	401
5	150			125	100	315	357	206	505	478,5	436,5	375	452,5	476,5	415	490	491
6	150			125	100	315	357	206	595	478,5	436,5	375	452,5	476,5	415	490	581
7	150			125	100	315	357	206	685	478,5	436,5	375	452,5	476,5	415	490	671
8	150			125	100	315	357	206	775	478,5	436,5	375	452,5	476,5	415	490	761
9	150			125	100	315	357	206	865	478,5	436,5	375	452,5	476,5	415	490	851
10	150			125	100	315	357	206	955	478,5	436,5	375	452,5	476,5	415	490	941
11	150			125	100	315	357	206	1045	478,5	436,5	375	452,5	476,5	415	490	1031
5	9.1 9.2 10.1 10.2			2	200	150	125	339	393,5	257,5	289,5	509,5	455	405	466,5	498	448
		3	200	150	125	339	393,5	257,5	404,5	509,5	455	405	466,5	498	448	605	404,5
		4	200	150	125	339	393,5	257,5	519,5	509,5	455	405	466,5	498	448	605	519,5
		5	200	150	125	339	393,5	257,5	634,5	509,5	455	405	466,5	498	448	605	634,5
		6	200	150	125	339	393,5	257,5	749,5	509,5	455	405	466,5	498	448	605	749,5
		7	200	150	125	339	393,5	257,5	864,5	509,5	455	405	466,5	498	448	605	864,5
		8	200	150	125	339	393,5	257,5	979,5	509,5	455	405	466,5	498	448	605	979,5
		6	11.1 11.2 12.1 12.2	2	250	200	150	359	392	251	349	533	500	464	483	500	414
3	250			200	150	359	392	251	484	533	500	464	483	500	414	730	534
4	250			200	150	359	392	251	619	533	500	464	483	500	414	730	669
5	250			200	150	359	392	251	754	533	500	464	483	500	414	730	804
6	250			200	150	359	392	251	889	533	500	464	483	500	414	730	939
7	13.1 14.1			2	-	300	200	552,5	683	-	510	740	700	-	685	715	-
		3	-	300	200	552,5	683	-	690	740	700	-	685	715	-	825	730
		4	-	300	200	552,5	683	-	870	740	700	-	685	715	-	825	910
		5	-	300	200	552,5	683	-	1050	740	700	-	685	715	-	825	1090

KV	HV	St.	H1	H2	M1	M2	N	P	a	d	h	k	O	S1	01 02	03
1	1.1 2.1	2	150	175	40	370	20	20	60	25	8	27,9	18	210	M16x1,5	G1/2"
		3	150	175	40	370	20	20	60	25	8	27,9	18	210	M16x1,5	G1/2"
		4	150	175	40	370	20	20	60	25	8	27,9	18	210	M16x1,5	G1/2"
		5	150	175	40	370	20	20	60	25	8	27,9	18	210	M16x1,5	G1/2"
		6	150	175	40	370	20	20	60	25	8	27,9	18	210	M16x1,5	G1/2"
		7	150	175	40	370	20	20	60	25	8	27,9	18	210	M16x1,5	G1/2"
		8	150	175	40	370	20	20	60	25	8	27,9	18	210	M16x1,5	G1/2"
		9	150	175	40	370	20	20	60	25	8	27,9	18	210	M16x1,5	G1/2"
		10	150	175	40	370	20	20	60	25	8	27,9	18	210	M16x1,5	G1/2"
		11	150	175	40	370	20	20	60	25	8	27,9	18	210	M16x1,5	G1/2"
		12	150	175	40	370	20	20	60	25	8	27,9	18	210	M16x1,5	G1/2"
		13	150	175	40	370	20	20	60	25	8	27,9	18	210	M16x1,5	G1/2"
		14	150	175	40	370	20	20	60	25	8	27,9	18	210	M16x1,5	G1/2"
		2	3.1 4.1	2	160	200	70	370	35	20	60	28	8	30,9	18	265
3	160			200	70	370	35	20	60	28	8	30,9	18	265	M16x1,5	G1/2"
4	160			200	70	370	35	20	60	28	8	30,9	18	265	M16x1,5	G1/2"
5	160			200	70	370	35	20	60	28	8	30,9	18	265	M16x1,5	G1/2"
6	160			200	70	370	35	20	60	28	8	30,9	18	265	M16x1,5	G1/2"
7	160			200	70	370	35	20	60	28	8	30,9	18	265	M16x1,5	G1/2"
8	160			200	70	370	35	20	60	28	8	30,9	18	265	M16x1,5	G1/2"
9	160			200	70	370	35	20	60	28	8	30,9	18	265	M16x1,5	G1/2"
10	160			200	70	370	35	20	60	28	8	30,9	18	265	M16x1,5	G1/2"
11	160			200	70	370	35	20	60	28	8	30,9	18	265	M16x1,5	G1/2"
12	160			200	70	370	35	20	60	28	8	30,9	18	265	M16x1,5	G1/2"
13	160			200	70	370	35	20	60	28	8	30,9	18	265	M16x1,5	G1/2"
14	160			200	70	370	35	20	60	28	8	30,9	18	265	M16x1,5	G1/2"
3	5.1 6.1			2	200	225	70	450	35	25	80	35	10	38,3	18	250
		3	200	225	70	450	35	25	80	35	10	38,3	18	250	M20x1,5	G1/2"
		4	200	225	70	450	35	25	80	35	10	38,3	18	250	M20x1,5	G1/2"
		5	200	225	70	450	35	25	80	35	10	38,3	18	250	M20x1,5	G1/2"
		6	200	225	70	450	35	25	80	35	10	38,3	18	250	M20x1,5	G1/2"
		7	200	225	70	450	35	25	80	35	10	38,3	18	250	M20x1,5	G1/2"
		8	200	225	70	450	35	25	80	35	10	38,3	18	250	M20x1,5	G1/2"
		9	200	225	70	450	35	25	80	35	10	38,3	18	250	M20x1,5	G1/2"
		10	200	225	70	450	35	25	80	35	10	38,3	18	250	M20x1,5	G1/2"
		11	200	225	70	450	35	25	80	35	10	38,3	18	250	M20x1,5	G1/2"
		4	7.1 8.1	2	240	275	70	545	35	30	110	40	12	43,1	22	260
3	240			275	70	545	35	30	110	40	12	43,1	22	260	M20x1,5	G1/2"
4	240			275	70	545	35	30	110	40	12	43,1	22	260	M20x1,5	G1/2"
5	240			275	70	545	35	30	110	40	12	43,1	22	260	M20x1,5	G1/2"
6	240			275	70	545	35	30	110	40	12	43,1	22	260	M20x1,5	G1/2"
7	240			275	70	545	35	30	110	40	12	43,1	22	260	M20x1,5	G1/2"
8	240			275	70	545	35	30	110	40	12	43,1	22	260	M20x1,5	G1/2"
9	240			275	70	545	35	30	110	40	12	43,1	22	260	M20x1,5	G1/2"
10	240			275	70	545	35	30	110	40	12	43,1	22	260	M20x1,5	G1/2"
11	240			275	70	545	35	30	110	40	12	43,1	22	260	M20x1,5	G1/2"
5	9.1 9.2 10.1			2	290	340	100	675	50	30	110	50	14	53,5	26	320
		3	290	340	100	675	50	30	110	50	14	53,5	26	320	M20x1,5	G1/2"
		4	290	340	100	675	50	30	110	50	14	53,5	26	320	M20x1,5	G1/2"
		5	290	340	100	675	50	30	110	50	14	53,5	26	320	M20x1,5	G1/2"
		6	290	340	100	675	50	30	110	50	14	53,5	26	320	M20x1,5	G1/2"
		7	290	340	100	675	50	30	110	50	14	53,5	26	320	M20x1,5	G1/2"
		8	290	340	100	675	50	30	110	50	14	53,5	26	320	M20x1,5	G1/2"
		6	11.1 11.2 12.1 12.2	2	340	410	100	800	50	30	130	60	18	64,2	33	390
3	340			410	100	800	50	30	130	60	18	64,2	33	390	M20x1,5	G1/2"
4	340			410	100	800	50	30	130	60	18	64,2	33	390	M20x1,5	G1/2"
5	340			410	100	800	50	30	130	60	18	64,2	33	390	M20x1,5	G1/2"
6	340			410	100	800	50	30	130	60	18	64,2	33	390	M20x1,5	G1/2"
7	13.1 14.1	2	430	520	170	900	85	50	140	70	20	74,6	33	500	M20x1,5	G3/4"
		3	430	520	170	900	85	50	140	70	20	74,6	33	500	M20x1,5	G3/4"
		4	430	520	170	900	85	50	140	70	20	74,6	33	500	M20x1,5	G3/4"
		5	430	520	170	900	85	50	140	70	20	74,6	33	500	M20x1,5	G3/4"

PUMP POSITIONING ON CONCRETE FOUNDATION



1	Base frame supporting metal plates
2	Base adjusting wedges
3	Adjusting screws
4	Base screws with nuts and washers
5	Set of adjusting washers under the pump
6	Set of adjusting washers under the motor
7	Thrust screws of motor feet with washers

CUD3 pump ready for first startu in regular operation





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