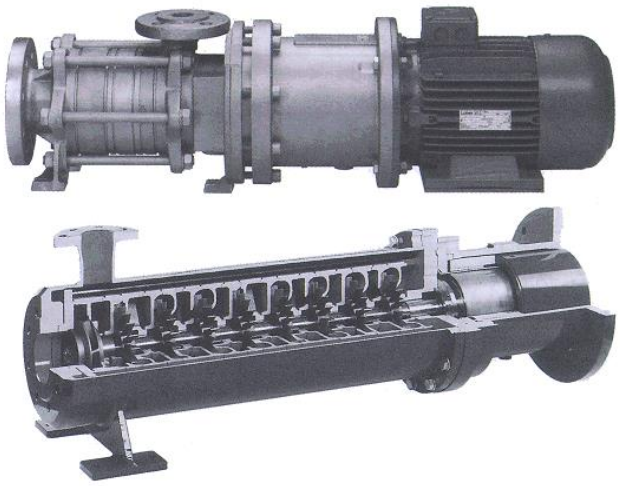
Side Channel Pumps

CEH 1201 ... 6108
CEH 1201/6 ... 6107/6 with magnetic coupling

TECHNICAL DATA

Output:	max. 35 m³/h
Delivery head:	max. 354 m (at 1450 rpm)
Speed:	max. 1800 rpm
Temperature:	max. 180 °C
Casing pressure:	PN 40
Shaft sealing:	without shaft seal because of magnetic coupling
Flange connections:	DIN 2501 PN 40
Direction of rotation:	anti-clockwise, seen from the drive on the pump



CEH pump with shell

APPLICATION

CEH pumps are side channel pumps with **NPSH inducer stage** suitable to handle liquids which do not contain solid matters or abrasive admixtures. The NPSH inducer stage allows the operation under unfavourable pumping conditions at suction side, also at positive suction heads lower than 0,5 m.
The special ability of these pumps to handle liquids at the boiling point has led to a wide field of application when condensate, distillate, coolant and liquefied gas shall be pumped.
CEH pumps are applied in the chemical and petrochemical industry, in the pharmaceutical industry, in the plastic and rubber industry, in the surface finishing and hardening, in the foot, beverage and tobacco industry and in the air conditioning and refrigeration engineering.

Pumps of the series CEH····/6 with retaining sage to guarantee the min. filling level in the pump are especially applied to handle liquids under vapour pressure, also from underground tanks.

DESIGN

Pumps of the series CEH are horizontal, selfpriming side channel pumps, capable of handling gas along with the medium, in segmental-type construction, with open vane wheel impeller as well as pre-arranged centrifugal stage for attaining favourable NPSH values. The sealing to atmosphere is effected glandless by an isolation shroud; the driver power is transmitted contactless by a magnetic coupling. The use of stable permanent magnetic material ensures the transmission of the nominal torque and given protection against overload.

On the basis of the compact close coupled design has been created a pumping unit that is easily to be installed. All IEC standard motors of the construction type IM B 35 are applicable. This design permits the operation of the pump without any additional coupling. Thus the alignment, a source of trouble, can be omitted.

The pumps of the series CEH····/6 are equipped with an additional retaining stage, behind the centrifugal stage, to prevent the emptying of the pump during standstill and thus keeping the selfpriming ability of the pump.

The simple construction of the pump allows the assembly or disassembly without special tools.

CONSTRUCTION

Casing pressure:

Construction size 1200 to 6100: PN 40
Please note:
Casing pressure = zero head + inlet pressure
Test pressure 52 bar resp. 33 bar

Branch positions:

Suction branch arranged axially, discharge branch radially upwards.

Flanges:

The flanges comply with DIN 2535/PN 40
Flanges according to DIN 2512 with groove and bored to ANSI 150 or 300 as well as to BS table F is possible.

Hydraulics:

First hydraulics, designation of this construction type: A·

Bearings:

The pump shaft runs in two sleeve bearings of pure silicon carbide (SiC), lubricated by the pumping medium
The remaining axial forces are absorbed by axial sleeve bearings.
Optionally available a friction reducing coating of the bushings to avoid critical operation.
The outer magnet is directly fixed on the motor shaft consequently the external bearing becomes unnecessary.
Designation of this construction type: ·F

Sense of rotation:

Anti-clockwise when seen from the drive on the pump.

Shaft sealing:

Without shaft seals by an isolation shroud Transmission of the driving moment by a magnetic coupling.
Designation of this construction type: see last page.

Material design:

Pos.	Parts	MATERIAL DESIGN				
		1A	1B	1F	4B	4F
10.60 10.70 10.80 10.90 11.40 11.41 10.81	suction casing discharge casing intermediate piece retaining stage	GGG 40.3 (0.7043)			1.4408	
21.00	shaft	1.4021			1.4462	
23.10	impeller	GG 25 (0.6025)			1.4408	
23.50	vane wheel impeller	2.0550	1.4517	PAEK	1.4517	PAEK
0242	bearing bush	-			special carbon	
31.40 52.90 52.91 54.00 54.01	thrust bearing bushing bearing bush	SiC				
34.60	stool	GG 25 (0.6025) or 1.0570				
81.70	isolation shroud	Hastelloy C4 (2.4610) or ZrO2				
81.71	flange for can	1.0570				
84.71	inner magnet	1.4571/SmCo				
84.72	outer magnet	1.0570/SmCo				
84.80	driving flange	1.0570				

Casing sealing:

The casing sealing is made by soft Teflon and 0--ring PTFE. Designation of this construction type: 4

Drive:

By commercial three-phase A.C. motors, construction type IM B35. The selection is depending on the power consumption of the hydraulics, taking into consideration the density and viscosity of the pumping medium. For the motor rating the eddy current losses are to be added to the pump performance.
Motors controlled by frequency converters are admissible. The motors and magnetic couplings indicated in the delivery programme are selected for a mains frequency of max. 50 Hz and are applicable for watery liquids. In case of differing speeds other magnetic dipole moments are necessary for the couplings. It is recommendable to check the selection with Sterling SIHI.

Position:

Usually the pump units are installed horizontally. The operation with vertically installed pump units is possible, but should be made only in consultation with Sterling SIHI because of the special instructions for starting-up, the support and thermal load of the drive motor.

General remarks:

The following pump series with magnetic couplings are available:

Side channel pump without NPSH inducer stage:
Series **AEHB** with vertical connection flanges

Volute casing pumps acc. to:
Series **CBMD** volute casing pump as per **DIN EN 22858 bearing bracket design**
Series **CBED** volute casing pump as per **DIN EN 22858 close coupled construction**
Series **ZLKD** volute casing pump close coupled construction - branches as per **DIN 24255 / EN 733**
Series **ZLID** inline pump

For lower delivery heads:
Series **AKLA /AKVA** single-stage inline side channel pump

Technical documentation on these programmes is available on request.

FUNCTION

Partial flow:

For the cooling of the isolation shroud, heated up by eddy currents, a partial flow is derived which at the same time serves as lubricant for the ceramic sleeve bearings. The partial flow flows through two longitudinal bores in the discharge casing into the isolation shroud and is led back through the hollow bored shaft and the balance bores of the rear vane wheel impeller to its suction side. By the pumping capability of the inner magnet, inside the isolation shroud a circulation flow is created which flows through the longitudinal bores of the inner magnet towards the bottom of the isolation shroud and in the gap between inner magnet and isolation shroud back to the front side of the inner magnet. This circulation flow is nearly independent of the operating point of the pump. Consequently the cooling of the isolation shroud is guaranteed over the entire characteristic.
By the pumping capability of the lubricating grooves in the thrust bearing disk a further flow is created through the bearing gap of the radial bearing over the thrust bearing towards the longitudinal bores of the inner magnet. Thus, also independent of the operating point of the pump, the lubrication of the bearings is guaranteed.

The front radial bearings are lubricated by a partial flow that flows from the first side channel stage through the bearing gap towards the rear side of the NPSH impeller.

Bearings:

The SiC bushings are clamped axially on the shaft. The material combination secures that the clamping power is maintained also in case of high temperatures. The stationary bearing inserts are screwed to the discharge casing or pressed into the intermediate piece.. Alternatively bearings coated with adamantine carbon are available. Hereby are considerably reduced the coefficients of friction during dry operation and danger to the pump can be prevented. This coating is applicable up to 250°C.

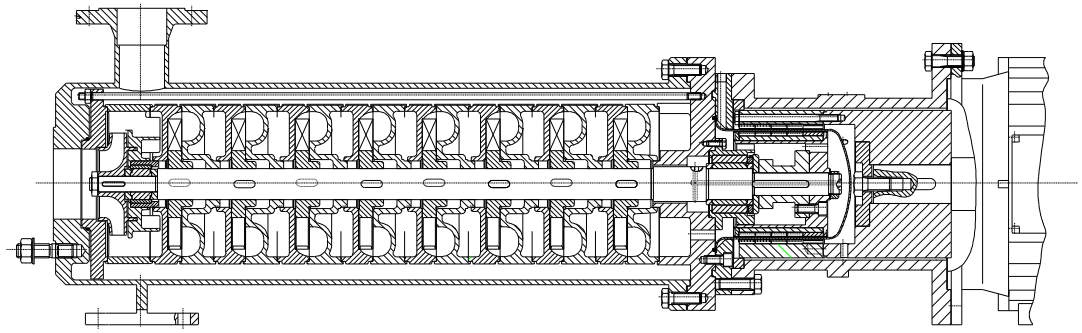
Safety:

The magnetic bell is directly fixed on the motor shaft. The load on the bearings resulting from this is relatively slight and therefore a damage to the bearings very improbable. In order to protect the isolation shroud against internal or external damages by rotating parts, a stationary seat is installed in the stool and at the bearing insert. The distance from the rotors is smaller than that of the rotors from the isolation shroud.
In order to obtain double leakproofness the application of fanless motors which withstand flooding, is possible. Then the sealed stool chamber serves to control the function of the isolation shroud.

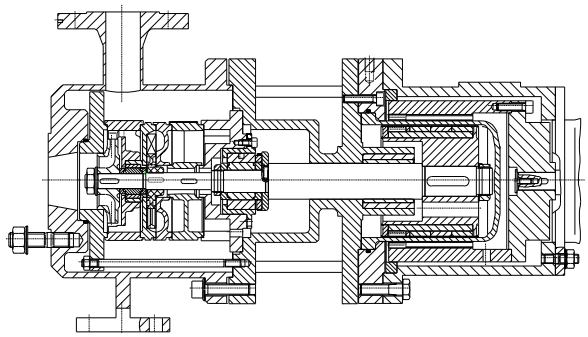
The pump has to be run with a motor load detector. It protects the machine against dry operation and operation beyond the range of the characteristic curves.

VARIANTS

Pump with shell applicable at high operating temperature and/or high operating pressure. Independent of the number of stages only two sealing points are necessary.



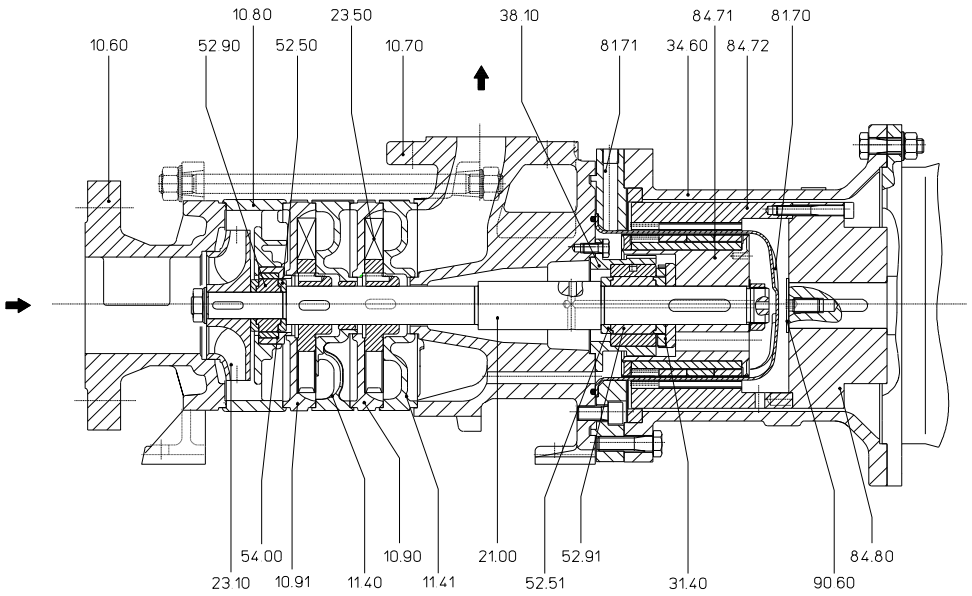
The pump shown down on the right is equipped with a heat barrier and thus applicable at medium temperatures up to 400°C without cooling.



Pumps with heating or cooling chambers for the handling of smeltings or boiling media also are available. For such cases special heating stages, instead of normal stages, are installed in the pump and thus offering the heating or cooling by means of liquid or vapour.

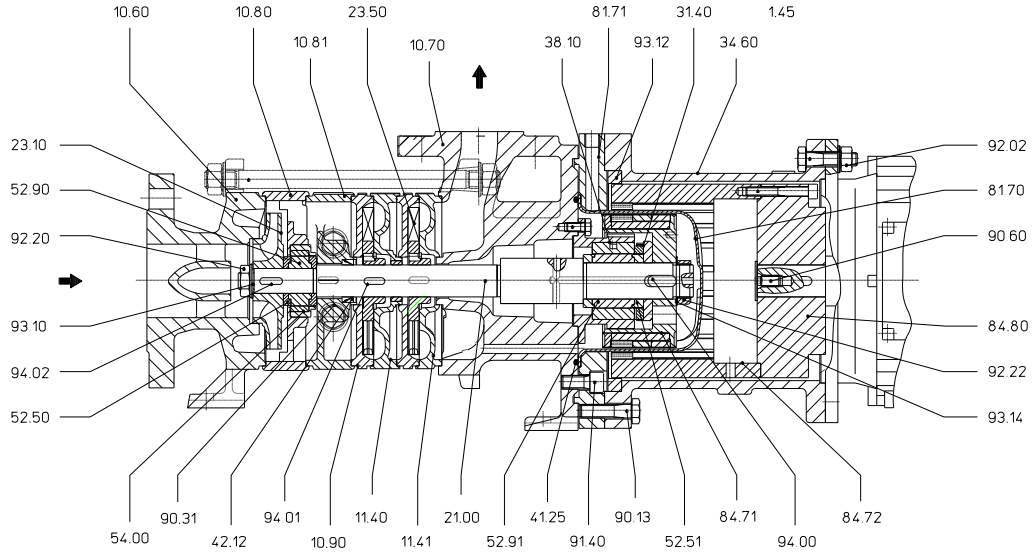
Sectional drawing and nomenclature

CEH



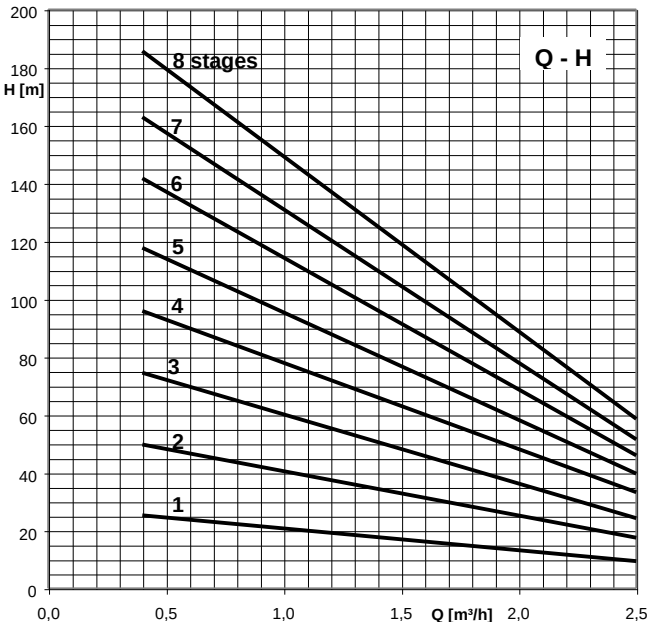
10.60	suction casing	23.50	vane wheel impeller	81.70	isolation shroud
10.70	discharge casing	31.40	thrust bearing	81.71	flange for can
10.80	intermediate piece	34.60	stool	84.71	interior magnet
10.90, 10.91	suction piece	38.10	bearing carrier	84.72	exterior magnet
11.40, 11.41	discharge piece	52.50, 52.51	spacer	84.80	driving flange
21.00	shaft	52.90, 52.91	sleeve	90.60	shaft screw
23.10	impeller	54.00	bearing bush		

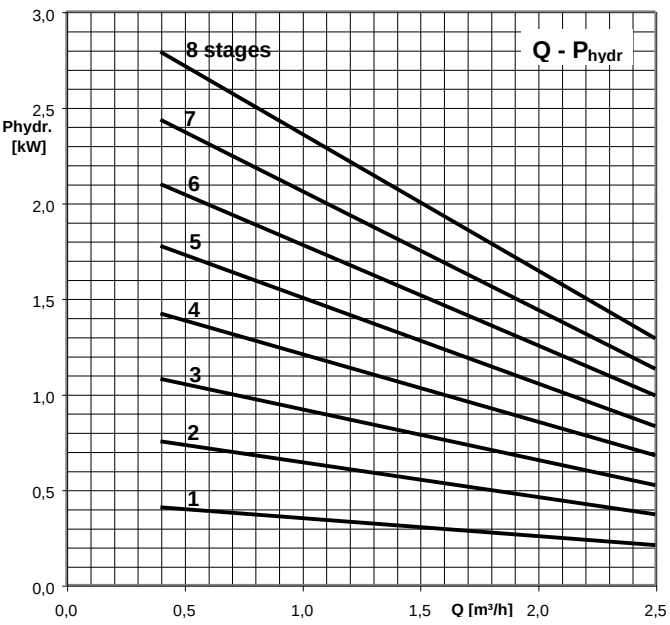
CEH /6

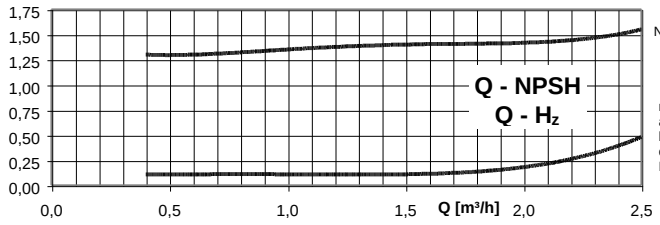


10.60	suction casing	23.10	impeller	54.00	bearing bush
10.70	discharge casing	23.50	vane wheel impeller	81.70	isolation shroud
10.80	intermediate piece	31.40	thrust bearing	81.71	flange for can
10.81	retaining stage	34.60	stool	84.71	interior magnet
10.90, 10.91	suction piece	38.10	bearing carrier	84.72	exterior magnet
11.40, 11.41	discharge piece	52.50, 52.51	spacer	84.80	driving flange
21.00	shaft	52.90, 52.91	sleeve	90.60	shaft screw

Characteristic curves



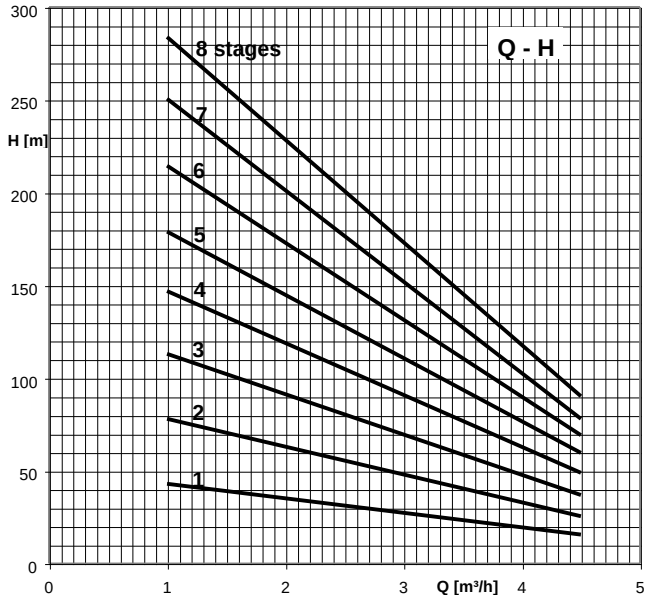


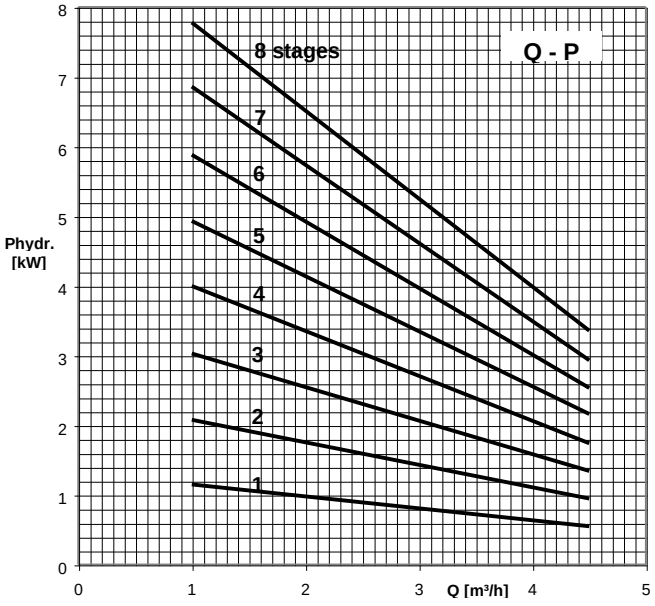


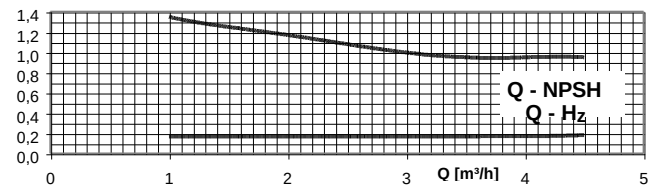
CEH 1200 with magnetic coupling

n = 1450 rpm, Visc.= 1 mm²/s, spec.grav. = 1 kg/dm³

* pay attention to suction conditions







NPSH [m]

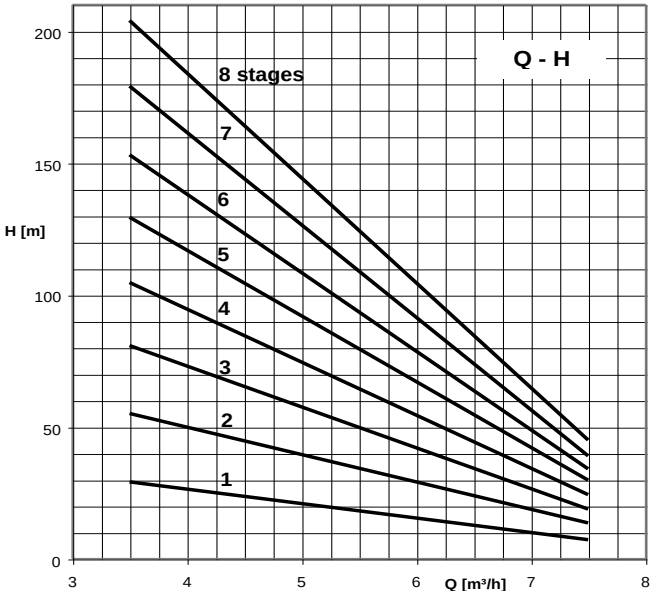
pos.suction head at boiling conditions* H_z [m].

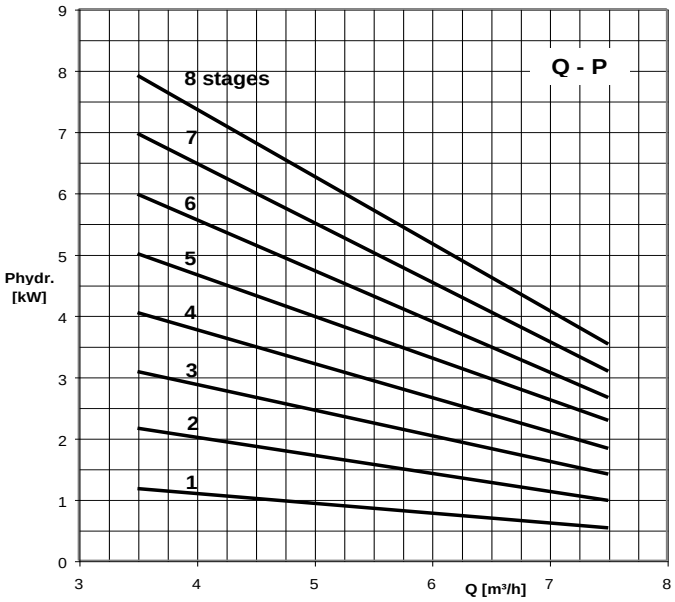
CEH 3100 with magnetic coupling

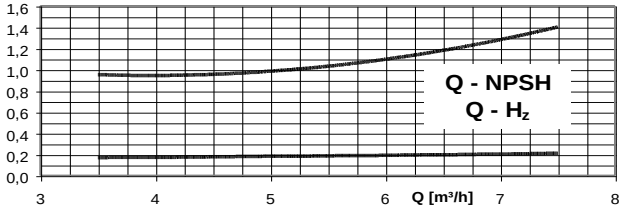
n = 1450 rpm, Visc. 1 mm²/s, spec.grav. 1 kg/dm³

* pay attention to suction conditions

Characteristic curves



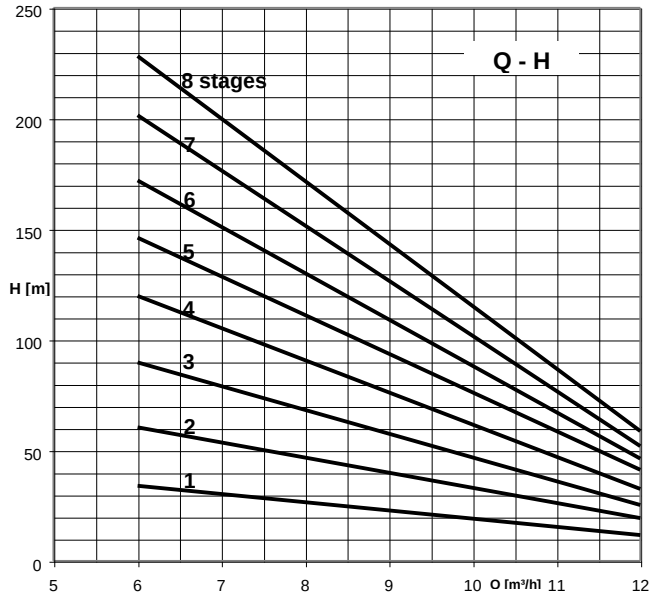


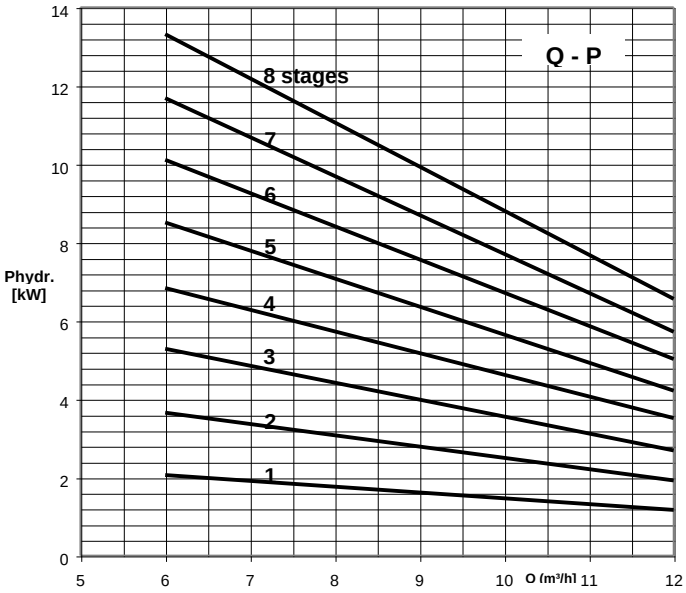


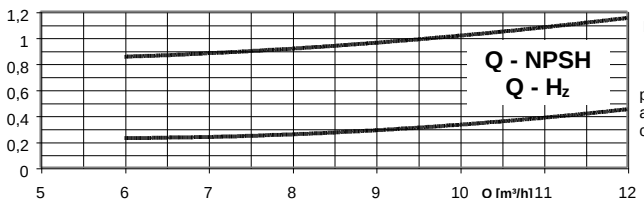
CEH 3600 with magnetic coupling

n = 1450 rpm, Visc. 1 mm²/s, spec.grav. 1 kg/dm³

* pay attention to suction conditions





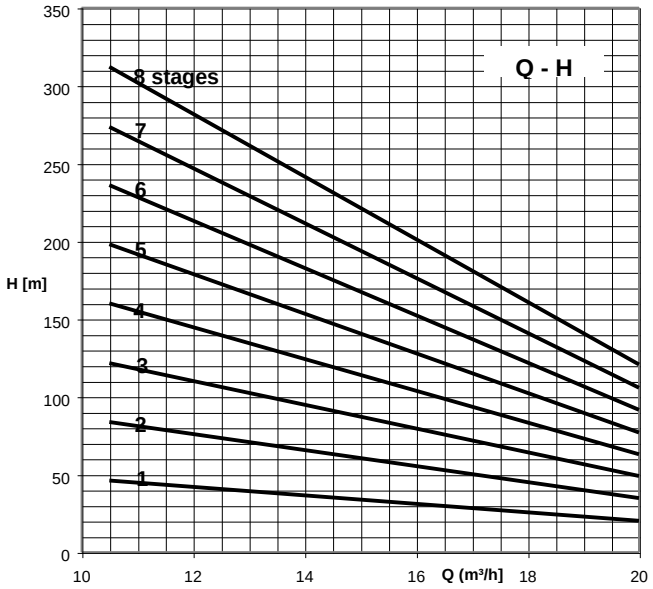


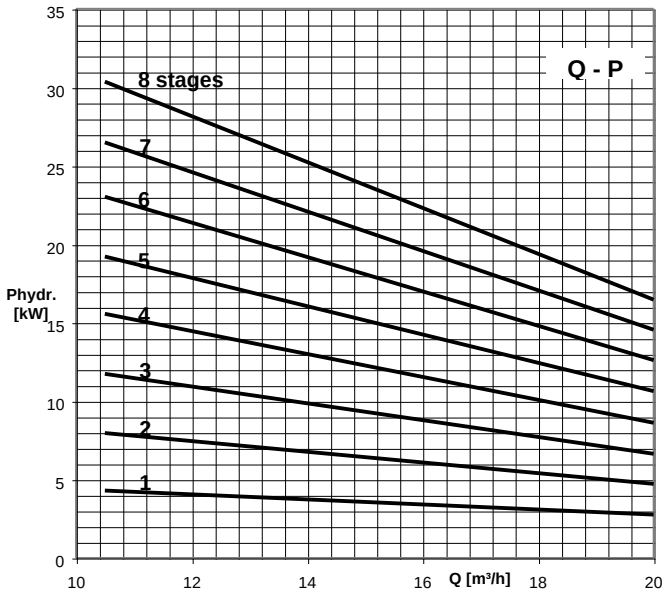
CEH 4100 with magnetic coupling

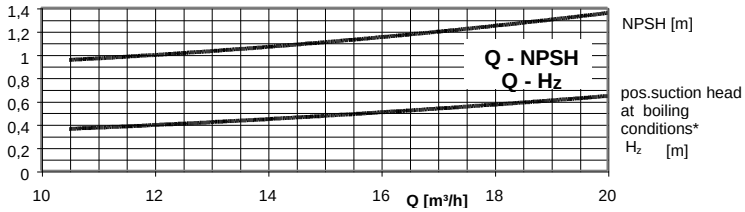
n = 1450 rpm, Visc. 1 mm²/s, spec.grav. 1 kg/dm³

* pay attention to suction conditions

Characteristic curves



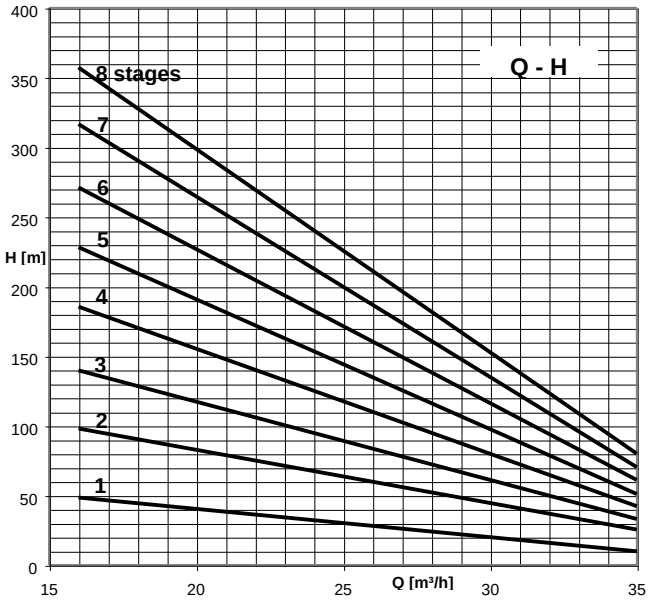


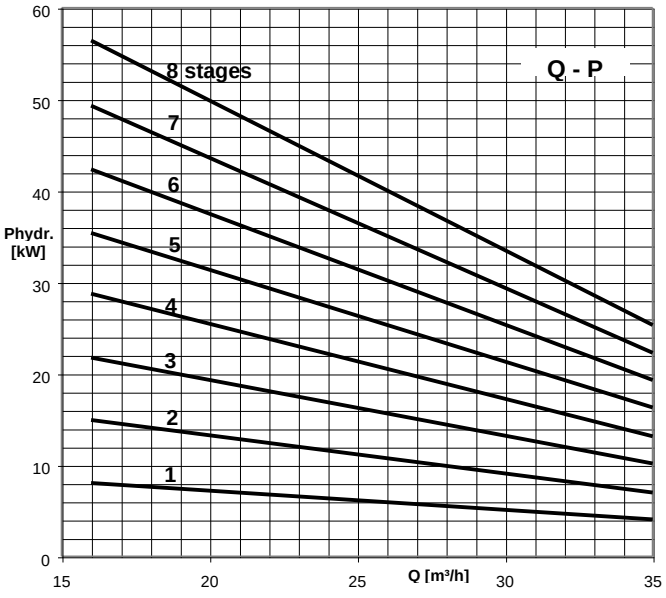


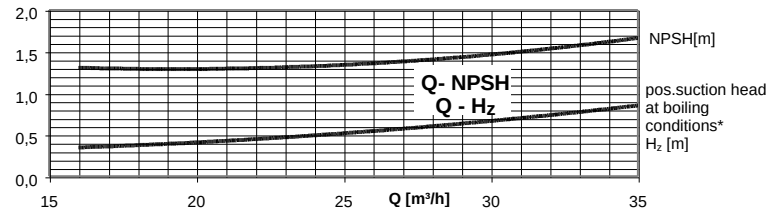
CEH 5100 with magnetic coupling

n = 1450 rpm, Visc. 1 mm²/s, spec.grav. 1 kg/dm³

* pay attention to suction conditions







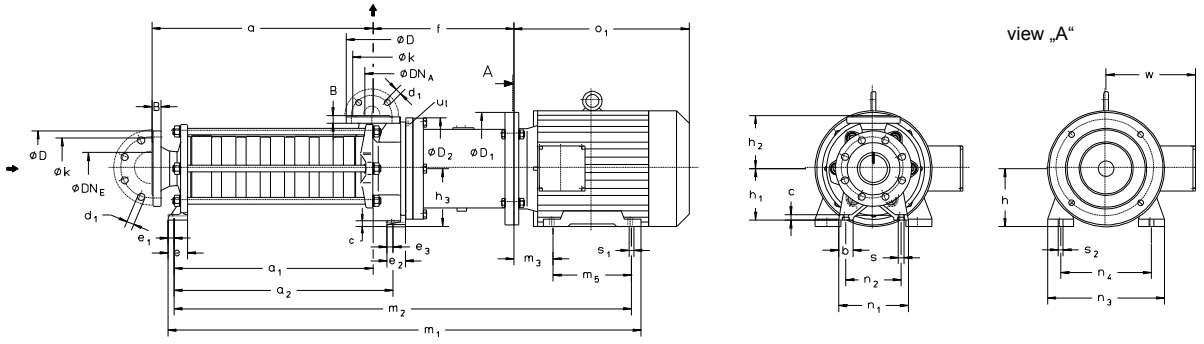
CEH 6100 with magnetic coupling

n = 1450 rpm, Visc. 1 mm²/s, spec.grav. 1 kg/dm³

* pay attention to suction conditions

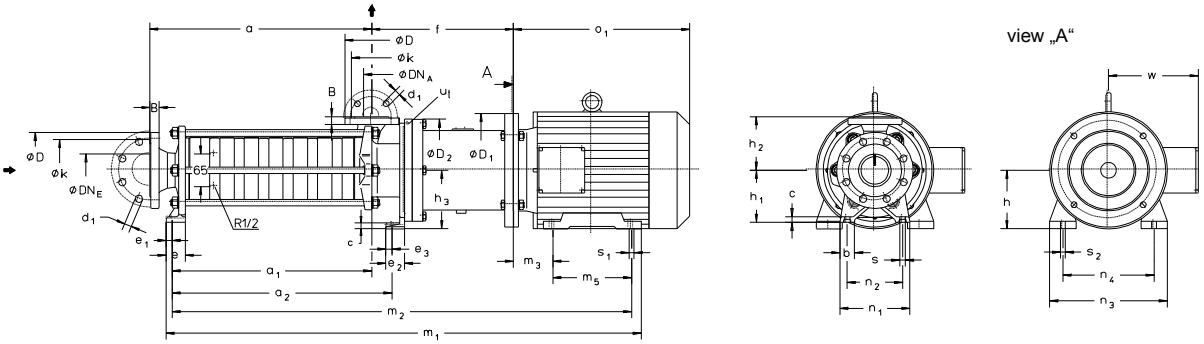
Dimension table

CEHB 1201 - 6108



u_t : connection for temperature probe G¼

CEHB 1201/6 - 6107/6



u_t : connection for temperature probe G¼

flanges acc. DIN 2501 PN 40							
$DN_{A/E}$	20	32	40	50	65	80	100
D	115	140	154	165	190	200	235
k	75	100	110	125	145	160	190
d_2 x number	14 X 4	18 x 4	18 x 4	18 x 4	18 x 8	18 x 8	22 x 8

Dimensions of the motor

size	nominal power		D_1	h	m_3	m_5	n_3*	n_4	o_1*	s_1*	s_2*	w*	weight
	IP54resp. EExde	EExe	mm										abt. kg
80A	0,55	0,55	200	80	50	100	151	125	229	8,5	15	121	8,3
80B	0,75	0,75	200	80	50	100	151	125	229	8,5	15	121	10
90 S	1,1	1,0	200	90	56	100	180	140	250	10,5	-	167	14
90 L	1,5	1,35	200	90	56	125	180	140	275	10,5	-	167	18
100 L 1	2,2	2,0	250	100	63	140	205	160	323	12	-	175	23
100 L 2	3,0	2,5	250	100	63	140	205	160	323	12	-	175	25
112 M	4,0	3,6	250	112	70	140	230	190	329	12	18	191	38
132 S	5,5	5,0	300	132	89	140	266	216	361	12	18	213	59
132 M	7,5	6,8	300	132	89	178	266	216	399	12	18	213	69
160 M	11,0	10,0	350	160	108	210	310	254	470	15	22	245	108
160 L	15,0	13,5	350	160	108	254	310	254	514	15	22	245	130
180 M	18,5	15,0	350	180	121	241	345	279	536	15	25	280	162
180 L	22,0	17,5	350	180	121	279	345	279	574	15	25	295	176
200 L	30,0	24,0	400	200	133	305	400	318	656	20	26	329	254
225 S	37,0	30,0	450	225	149	286	450	356	678	20	26	365	305
225 M	45,0	36,0	450	225	149	311	450	356	703	20	26	365	335
250 M	55,0	44,0	550	250	168	349	505	406	790	25	36	406	425

* : dimension dependent on motor make

Dimensions of the pump

size	IP 54	EExe II T3	torque of the magnetic coupling	DN_A	DN_E	a	a_1	a_2	b	c	D_2	e	e_1	e_2	e_3	f	h_1	h_2	h_3	m_1*	m_2*	n_1	n_2	s	weight of the pump
	kW	kW		mm																					kg
1201	0,55	0,55	K	20	40	195	146	196	32	10	182	44	17	34	17		100	100	100	553	523	140	105	13	46
	0,75	0,75																							
	0,75	0,75																		587	557				
1202	1,1	1	K			229	180	230								227				595	563				51
	1,5	1,35																		620	588				
	0,75	0,75	K																	621	591				
1203	1,1	1				263	214	264												629	597				62
	1,5	1,35	P																	654	622				
	2,2	2														237				686	654				
	1,1	-	K													227				663	631				
1204	1,5	1,35	P			297	248	298												688	656				65
	2,2	2														237				720	688				
	3	2,5	V																						
	1,5	1,35	P													227				722	690				
	-	2																							
1205	2,2	-	V			331	282	332								237				754	722				67
	3	2,5																							
	-	3,6																		764	729				
	-	1,35	P													227				756	724				
	-	2																							
1206	2,2	-	V			365	316	366												788	756				70
	3	2,5																							
	4	3,6																		798	763				
	-	2	P																						
1207	2,2	-	V			399	350	400								237				822	790				73
	3	2,5																							
	4	3,6																		832	797				
	2,2	2																		856	824				
1208	3	2,5	V			433	384	434																	76
	4	3,6																		866	831				
	-	5														257				910	870				
3101	1,1	1														295				644	612				
3601	1,5	1,35	T			213	161	218												669	637				122
	2,2	2														305				701	669				
	1,5	1,35														295				709	677				
3102	2,2	2	T			253	201	258												741	709				130
3602	3	2,5														305									
	4	3,6																		751	716				
	2,2	2																		781	749				
3103	3	2,5	T													305									
3603	4	3,6				293	241	298												791	756				138
	-	5														325				835	795				
	5,5	-	W																						
	3	2,5														305				821	789				
	-	3,6	T																	831	796				
3104	-	5				333	281	338								325				875	835				142
3604	4	-	W													305				831	796				
	5,5	-														325				875	835				
	-	6,8	Z																	913	873				
	3	-														305				861	829				
	-	3,6	T																	871	836				
3105	-	5		32	65				35	12	260	50	17	50	17	325	112	132	132	915	875	170	135	13	
3605	4	-	W			373	321	378								305				871	836				146
	5,5	-	Z																	915	875				
	-	6,8														325				953	913				
	7,5	-	A																						
	-	3,6	T													305				911	876				
	4	-	W																						
3106	-	5																		955	915				
3606	5,5	-	Z			413	361	418								325									157
	-	6,8																		993	953				
	7,5	-	A																						
	11	10														355				1074	1034				
	4	-	W													305				951	916				
	-	5																		995	955				
3107	5,5	-	Z			453	401	458								325									161
3607	-	6,8																		1033	993				
	7,5	-	A																						
	11	10														355				1114	1074				
	5,5	5	Z													325				1035	995				
3108	7,5	6,8	A			493	441	498												1073	1033				165
3608	11	10														355				1154	1114				
	-	13,5	C																	1198	1158				

size	IP 54	EExe II T3	torque of the magnetic coupling	DN_A	DN_E	a	a_1	a_2	b	c	D_2	e	e_1	e_2	e_3	f	h_1	h_2	h_3	m_1*	m_2*	n_1	n_2	s	weight of the tpump
	kW	kW		mm																					kg
4101	2,2	2	T	40	80	268	205	266	36	15	260	52	17	49	17	311	132	140	132	751	719	195	155	13	113
	3	2,5																							
	-	3,6																		761	726				
	4	-	W																						
4102	2,2	2	T			323	260	321								311				806	774				140
	3	2,5																							
	4	3,6	W																	816	781				
	5,5	5	Z													331				860	820				
4103	3	-	T			378	315	376								311				861	829				156
	-	3,6	W																	871	836				
	4	-	Z																						
	5,5	5														331				915	875				
	7,5	6,8	A																	953	913				
	-	10														361				1034	994				
4104	-	5	Z			433	370	431								331				970	930				204
	5,5	-																							
	7,5	6,8	A																	1008	968				
	-	10														361				1089	1049				
	11	-	C																						
4105	-	5	Z			488	425	486								331				1025	985				211
	5,5	-	A																						
	-	6,8																		1063	1023				
	7,5	-	C																						
	11	10														361				1144	1104				
	-	13,5	D																	1188	1148				
4106	-	6,8	A			543	480	541								331				1118	1078				218
	7,5	-	C																						
	-	10														361				1199	1159				
	11	-	D																						
	15	13,5	E																	1243	1203				
	-	15																		1250	1203				
4107	7,5	6,8	C			598	535	596								331				1173	1133				225
	-	10																		1254	1214				
	11	-	D													361									
	15	13,5	E																	1298	1258				
	18,5	15																		1305	1258				
4108	7,5	-	C			653	590	651								331				1229	1188				235
	-	10	D																	1309	1269				
	11	-														361									
	15	13,5	E																	1353	1313				
	18,5	15																		1360	1313				
	-	17,5																		1398	1351				
5101	3	-	T	50	100	305	237	299	45	17	260	60	19	57	19	318	160	165	160	792	758	215	170	15	200
	4	3,6	W																	802	765				
	5,5	5	Z													338				846	804				
	7,5	6,8	A																	884	842				
5102	-	5	Z			380	312	374								338				921	879				235
	5,5	-	A																						
	7,5	6,8																		959	917				
	11	10	C																	1040	998				
	-	13,5	D													368				1084	1042				
	-	15																		1091	1042				
5103	-	6,8	A			455	387	449								338				1034	992				254
	7,5	-	C																						
	-	10														368				1115	1073				
	11	-	D																						
	15	13,5	E																	1159	1117				
	18,5	15																		1166	1117				
5104	-	10	D			530	462	524								368				1190	1148				315
	11	-																							
	15	13,5	E																	1234	1192				
	18,5	15																		1241	1192				
	-	17,5																		1279	1230				
	-	24	F																	1317	1268				
5105	-	10	A			605	537	599			315					434				1331	1289				366
	11	-	B																						
	15	13,5																		1375	1333				
	18,5	15	E																	1381	1333				
	-	17,5																		1419	1371				
	22	-	F																						
	-	24																		1458	1409				
	30	-	H																						
5106	15	13,5				680	612	674								434				1450	1408				378
	18,5	15	E																	1456	1408				
	-	17,5																		1494	1446				
	22	-	F																						
	-	24																		1533	1484				
	30	-	H																						
	-	30														464				1572	1511				

size	IP 54	EExe II T3	torque of the magnetic coupling	DN_A	DN_E	a	a_1	a_2	b	c	D_2	e	e_1	e_2	e_3	f	h_1	h_2	h_3	m_1*	m_2*	n_1	n_2	s	weight of the pump
	kW	kW		mm																					kg
5107	15	-	E	50	100	755	687	749	45	17	315	60	19	57	19	434	160	165	160	1525	1483	215	170	15	389
	18,5	15																		1531	1483				
	-	17,5																		1569	1521				
	22	-	F																						
	-	24																		1608	1559				
	30	-	H																						
	-	30														464				1647	1586				
	37	-	J																						
5108	-	17,5	E			830	762	824								434				1644	1596				401
	22	-	F																	1683	1634				
	-	24																							
	30	-	H																	1722	1661				
	-	30														464									
	37	-	J																	1747	1686				
	-	36																							
	45	-	L																	1797	1743				
	-	44	K																						
6101	5,5	5	A	65	100	338	265	332	50	20	315	64	19	65	20	413	180	180	180	948	907	245	195	15	298
	7,5	6,8																		986	945				
	-	10														443				1068	1026				
	11	-	B																						
	-	13,5	E																	1112	1070				
6102	7,5	-	A			428	355	422								413				1077	1035				320
	-	10																		1158	1116				
	11	-	B													443									
	15	13,5	E																	1202	1160				
	18,5	15																		1208	1160				
	-	17,5																		1246	1198				
6103	15	13,5	E			518	445	512								443				1292	1250				335
	18,5	15																		1298	1250				
	-	17,5																		1336	1288				
	22	-	F																						
	-	24																		1375	1326				
	30	-	H																						
6104	-	13,5	E			608	535	602								443				1382	1340				349
	18,5	15																		1388	1340				
	-	17,5																		1426	1378				
	22	-	F																						
	-	24																		1465	1416				
	30	-	H																						
	-	30																		1504	1443				
	37	-	J													473									
	-	36																		1529	1468				
6105	-	17,5	E			698	625	692								443				1516	1468				368
	22	-	F																						
	-	24																		1555	1506				
	30	-	H																						
	-	30																		1594	1533				
	37	-	J																						
	-	36														473				1619	1558				
	45	-	L																						
	-	44	K																	1669	1615				
6106	22	-	H			788	715	782								443				1607	1558				382
	-	24	F																	1645	1596				
	30	-	J																						
	-	30	H																	1684	1623				
	37	-	J													473									
	-	36																		1709	1648				
	45	-	L																						
	-	44	K																	1759	1705				
	55	-	M																						
6107	-	24	F			878	805	872								443				1735	1686				397
	30	-	K																						
	37	-																		1774	1713				
	-	30	H													473									
	-	36	J																	1799	1738				
	45	-	L																						
	-	44	K																	1849	1795				
	55	-	M																						
6108	30	-	K			968	895	962								443				1825	1776				415
	37	-																		1864	1803				
	-	30	H													473									
	-	36	J																	1889	1828				
	45	-	L																						
	-	44	K																	1939	1885				
	55	-	M																						

size	IP 54	EExe II T3	torque of the magnetic coupling	DN_A	DN_E	a	a_1	a_2	b	c	D_2	e	e_1	e_2	e_3	f	h_1	h_2	h_3	m_1*	m_2*	n_1	n_2	s	weight of the pump
	kW	kW		mm																					kg
1201/6	0,55	0,55	K			229	180	230												587	557				48
	0,75	0,75																							
	0,75	0,75																		621	591				
1202/6	1,1	1	K			263	214	264								227				629	597				53
	1,5	1,35																		654	622				
	0,75	0,75	K																	655	625				
1203/6	1,1	1				297	248	298												663	631				64
	1,5	1,35	P																	688	656				
	2,2	2														237				720	688				
	1,1	-	K													227				697	665				
1204/6	1,5	1,35	P			331	282	332												722	690				67
	2,2	2														237				754	722				
	3	2,5	V																						
	1,5	1,35	P													227				756	724				
	-	2																							
1205/6	2,2	-		20	40	365	316	366	32	10	182	44	17	34	17	237	100	100	100	788	756	140	105	13	69
	3	2,5	V																						
	-	3,6																		798	763				
	-	1,35	P													227				790	758				
	-	2																							
1206/6	2,2	-				399	350	400												822	790				72
	3	2,5	V																						
	4	3,6																		832	797				
	-	2	P																						
1207/6	2,2	-				433	384	434								237				856	824				75
	3	2,5	V																						
	4	3,6																		866	831				
3101/6	1,1	1														295				684	652				
3601/6	1,5	1,35	T			253	201	258												709	677				126
	2,2	2														305				741	709				
	1,5	1,35														295				749	717				
3102/6	2,2	2	T			293	241	298												781	749				136
3602/6	3	2,5														305									
	4	3,6																		791	756				
	2,2	2																		821	789				
3103/6	3	2,5	T													305									
3603/6	4	3,6				333	281	338												831	796				142
	-	5														325				875	835				
	5,5	-	W																						
	3	2,5														305				861	829				
	-	3,6	T																	871	836				
3104/6	-	5				373	321	378								325				915	875				146
3604/6	4	-	W													305				871	836				
	5,5	-														325				915	875				
	-	6,8	Z																	953	913				
	3	-														305				901	869				
	-	3,6	T																	911	876				
3105/6	-	5		32	65				35	12	260	50	17	50	17	325	112	132	132	955	915	170	135	13	
3605/6	4	-	W			413	361	418								305				911	876				150
	5,5	-	Z																	955	915				
	-	6,8														325				993	953				
	7,5	-	A																						
	-	3,6	T													305				951	916				
	4	-	W																						
3106/6	-	5																		995	955				
3606/6	5,5	-	Z			453	401	458								325									161
	-	6,8																		1033	993				
	7,5	-	A																						
	11	10														355				1114	1074				
	4	-	W													305				991	956				
	-	5																		1035	995				
3107/6	5,5	-	Z			493	441	498								325									165
3607/6	-	6,8																		1073	1033				
	7,5	-	A																						
	11	10														355				1154	1114				

size	IP 54	EExe II T3	torque of the magnetic coupling	DN_A	DN_E	a	a_1	a_2	b	c	D_2	e	e_1	e_2	e_3	f	h_1	h_2	h_3	m_1*	m_2*	n_1	n_2	s	weight of the pump
	kW	kW		mm																					kg
4101/6	2,2	2	T	40	80	323	260	321	36	15	260	52	17	49	17	311	132	140	132	806	774	195	155	13	119
	3	2,5																							
	-	3,6																		816	781				
	4	-	W																						
4102/6	2,2	2	T			378	315	376								311				861	829				146
	3	2,5																							
	4	3,6	W																	871	836				
	5,5	5	Z													331				915	875				
4103/6	3	-	T			433	370	431								311				916	884				162
	-	3,6	W																	926	891				
	4	-	Z																						
	5,5	5														331				970	930				
	7,5	6,8	A																	1008	968				
	-	10														361				1089	1049				
4104/6	-	5	Z			488	425	486								331				1025	985				210
	5,5	-																							
	7,5	6,8	A																	1063	1023				
	-	10														361				1144	1104				
	11	-	C																						
4105/6	-	5	Z			543	480	541								331				1080	1040				217
	5,5	-	A																						
	-	6,8																		1118	1078				
	7,5	-	C																						
	11	10														361				1199	1159				
	-	13,5	D																	1243	1203				
4106/6	-	6,8	A			598	535	596								331				1173	1133				224
	7,5	-	C																						
	-	10																		1254	1214				
	11	-	D													361									
	15	13,5	E																	1298	1258				
	-	15																		1305	1258				
4107/6	7,5	6,8	C			653	590	561								331				1228	1188				231
	-	10																		1309	1269				
	11	-	D													361									
	15	13,5	E																	1353	1313				
	18,5	15																		1360	1313				
5101/6	3	-	T			380	312	374								318				867	833				210
	4	3,6	W																	877	840				
	5,5	5	Z													338				921	879				
	7,5	6,8	A																	959	917				
5102/6	-	5	Z			455	387	449								338				996	954				245
	5,5	-	A																						
	7,5	6,8																		1034	992				
	11	10	C																	1115	1073				
	-	13,5	D													368				1159	1117				
	-	15																		1166	1117				
5103/6	-	6,8	A			530	462	524			260					338				1109	1067				264
	7,5	-	C																						
	-	10														368				1190	1148				
	11	-	D																						
	15	13,5	E																	1234	1192				
	18,5	15																		1241	1192				
5104/6	-	10	D			605	537	599								368				1265	1223				325
	11	-																							
	15	13,5	E																	1309	1267				
	18,5	15																		1316	1267				
	-	17,5																		1354	1305				
	-	24	F	50	100				45	17		60	19	57	19		160	165	160	1392	1343	215	170	15	
5105/6	-	10	A			680	612	674			315					434				1406	1364				376
	11	-	B																						
	15	13,5																		1450	1408				
	18,5	15	E																	1456	1408				
	-	17,5																		1494	1446				
	22	-	F																						
	-	24																		1533	1484				
	30	-	H																						
5106/6	15	13,5	E			755	687	749								434				1525	1483				388
	18,5	15																		1531	1483				
	-	17,5																		1569	1521				
	22	-	F																						
	-	24																		1608	1559				
	30	-	H																						
	-	30														464				1647	1586				
5107/6	15	-	E			830	762	824								434				1600	1558				399
	18,5	15																		1606	1558				
	-	17,5																		1644	1596				
	22	-	F																						
	-	24																		1683	1634				
	30	-	H																						
	-	30														464				1722	1661				
	37	-	J																						

size	IP 54	EExe II T3	torque of the magnetic coupling	DN_A	DN_E	a	a_1	a_2	b	c	D_2	e	e_1	e_2	e_3	f	h_1	h_2	h_3	m_1*	m_2*	n_1	n_2	s	weight of the pump
	kW	kW		mm																					kg
6101/6	5,5	5	A	65	100	428	355	422	50	20	315	64	19	65	20	413	180	180	180	1038	997	245	195	15	311
	7,5	6,8																		1076	1035				
	-	10														443				1158	1116				
	11	-	B																						
	-	13,5	E																	1202	1160				
6102/6	7,5	-	A			518	445	512								413				1167	1125				332
	-	10														443				1248	1206				
	11	-	B																						
	15	13,5	E																	1292	1250				
	18,5	15																		1298	1250				
	-	17,5																		1336	1288				
6103/6	15	13,5	E			608	535	602								443				1382	1340				348
	18,5	15																		1388	1340				
	-	17,5																		1426	1378				
	22	-	F																						
	-	24																		1465	1416				
	30	-	H																						
6104/6	-	13,5	E			698	625	692								443				1472	1430				362
	18,5	15																		1478	1430				
	-	17,5																		1516	1468				
	22	-	F																						
	-	24																		1555	1506				
	30	-	H																						
	-	30																		1594	1533				
	37	-	J													473									
	-	36																		1619	1558				
6105/6	-	17,5	E			788	715	782								443				1516	1558				381
	22	-	F																						
	-	24																		1645	1596				
	30	-	H																						
	-	30																		1684	1623				
	37	-	J													473									
	-	36																		1709	1648				
	45	-	L																						
	-	44	K																	1759	1705				
6106/6	22	-	H			878	805	872								443				1697	1648				395
	-	24	F																	1735	1686				
	30	-	J																						
	-	30	H																	1774	1713				
	37	-	J													473									
	-	36																		1799	1738				
	45	-	L																						
	-	44	K																	1849	1795				
	55	-	M																						
6107/6	-	24	F			968	895	962								443				1825	1776				410
	30	-	K																						
	37	-																		1864	1803				
	-	30	H													473									
	-	36	J																	1889	1828				
	45	-	L																						
	-	44	K																	1939	1885				
	55	-	M																						

Data regarding pump size - order hints

<table>
<tr><th colspan="2">series +
size</th><th>hydraulics + bearings</th><th>shaft sealing +
magnetic coupling</th><th>material design</th><th>casing seal</th></tr>
<tr><td colspan="2"></td><td>A• first hydraulics

•F two liquid surrounded sleeve bearing</td><td>1 • • coupling system 1
2 • • coupling system 2
3 • • coupling system 3
4 • • coupling system 4

isolation shroud of:
• A • Hastelloy C (2.4610)

torque of desynchronization [Nm] for
system 1 2 / 3 4
• • A 78 69
• • B 83
• • C 100
• • D 112
• • E 158 133
• • F 179 178
• • H 212
• • J 255
• • K 14 293
• • L 330
• • M 380
• • P 23
• • T 33
• • V 38
• • W 41
• • Z 54</td><td>1A main parts of spheroidal cast iron vane wheel impeller of brass
1B main parts of spheroidal cast iron vane wheel impeller of chrome steel
1F main parts of spheroidal cast iron vane wheel impeller of PEAK
4B stainless steel
4F stainless steel, vane wheel impeller PEAK</td><td>4 soft PTFE and PTFE-O-ring at isolation shroud</td></tr>
<tr><td rowspan="72">CEH•</td><td>1201</td><td rowspan="72">AF</td><td>1AK</td><td rowspan="72">alternatively:
1A
1B
1F
4B
4F</td><td rowspan="72">4</td></tr>
<tr><td>1202</td><td>1AK</td></tr>
<tr><td>1203</td><td>1AK, 1AP</td></tr>
<tr><td>1204</td><td>1AK, 1AP, 1AV</td></tr>
<tr><td>1205</td><td>1AP, 1AV</td></tr>
<tr><td>1206</td><td>1AP, 1AV</td></tr>
<tr><td>1207</td><td>1AP, 1AV</td></tr>
<tr><td>1208</td><td>1AV</td></tr>
<tr><td>3101 and 3601</td><td>2AT</td></tr>
<tr><td>3102 and 3602</td><td>2AT</td></tr>
<tr><td>3103 and 3603</td><td>2AT, 2AW</td></tr>
<tr><td>3104 and 3604</td><td>2AT, 2AW, 2AZ</td></tr>
<tr><td>3105 and 3605</td><td>2AT, 2AW, 2AZ, 2AA</td></tr>
<tr><td>3106 and 3606</td><td>2AT, 2AW, 2AZ, 2AA</td></tr>
<tr><td>3107 and 3607</td><td>2AW, 2AZ, 2AA</td></tr>
<tr><td>3108 and 3608</td><td>2AZ, 2AA, 2AC</td></tr>
<tr><td>4101</td><td>3AT, 3AW</td></tr>
<tr><td>4102</td><td>3AT, 3AW, 3AZ</td></tr>
<tr><td>4103</td><td>3AT, 3AW, 3AZ, 3AA</td></tr>
<tr><td>4104</td><td>3AZ, 3AA, 3AC</td></tr>
<tr><td>4105</td><td>3AZ, 3AA, 3AC, 3AD</td></tr>
<tr><td>4106</td><td>3AA, 3AC, 3AD, 3AE</td></tr>
<tr><td>4107</td><td>3AC, 3AD, 3AE</td></tr>
<tr><td>4108</td><td>3AC, 3AD, 3AE</td></tr>
<tr><td>5101</td><td>3AT, 3AW, 3AZ, 3AA</td></tr>
<tr><td>5102</td><td>3AZ, 3AA, 3AC, 3AD</td></tr>
<tr><td>5103</td><td>3AA, 3AC, 3AD, 3AE</td></tr>
<tr><td>5104</td><td>3AD, 3AE, 3AF</td></tr>
<tr><td>5105</td><td>4AA, 4AB, 4AE, 4AF, 4AH</td></tr>
<tr><td>5106</td><td>4AE, 4AF, 4AH</td></tr>
<tr><td>5107</td><td>4AE, 4AF, 4AH, 4AJ</td></tr>
<tr><td>5108</td><td>4AE, 4AF, 4AH, 4AJ, 4AK; 4AL</td></tr>
<tr><td>6101</td><td>4AA, 4AB, 4AE</td></tr>
<tr><td>6102</td><td>4AA, 4AB, 4AE</td></tr>
<tr><td>6103</td><td>4AE, 4AF, 4AH</td></tr>
<tr><td>6104</td><td>4AE, 4AF, 4AH, 4AJ</td></tr>
<tr><td>6105</td><td>4AE, 4AF, 4AH, 4AJ, 4AK; 4AL</td></tr>
<tr><td>6106</td><td>4AF, 4AH, 4AJ, 4AK; 4AL,4AM</td></tr>
<tr><td>6107</td><td>4AF, 4AH, 4AJ, 4AK; 4AL,4AM</td></tr>
<tr><td>6108</td><td>4AH, 4AJ, 4AK; 4AL,4AM</td></tr>
</table>

Possible pump-magnetic coupling-motor combinations please take from the dimensions table.

series + size		hydraulics + bearings	shaft sealing + magnetic coupling	material design	casing seal
			1 • • coupling system 1 2 • • coupling system 2 3 • • coupling system 3 4 • • coupling system 4 isolation shroud of: • A • Hastelloy C (2.4610)	1A main parts of spheroidal cast iron vane wheel impeller of brass 1B main parts of spheroidal cast iron vane wheel impeller of chrome steel 1F main parts of spheroidal cast iron vane wheel impeller of PEAK 4B steinless steel 4F stainless steel, vane wheel impeller PEAK	4 soft PTFE and PTFE O-ring at isolation shround
		A• first hydraulics •F two liquid surrounded sleeve bearing	torque of desychronization [Nm] for System 1 2 / 3 4 • • A 78 69 • • B 83 • • C 100 • • D 112 • • E 158 133 • • F 179 178 • • H 212 • • J 255 • • K 14 293 • • L 330 • • M 380 • • P 23 • • T 33 • • V 38 • • W 41 • • Z 54		
CEH•	1201/6	AF	1AK	alternatively: 1A 1B 1F 4B 4F	4
	1202/6		1AK		
	1203/6		1AK, 1AP		
	1204/6		1AK, 1AP, 1AV		
	1205/6		1AP, 1AV		
	1206/6		1AP, 1AV		
	1207/6		1AP, 1AV		
	3101/6 and 3601/6		2AT		
	3102/6 and 3602/6		2AT		
	3103/6 and 3603/6		2AT, 2AW		
	3104/6 and 3604/6		2AT, 2AW, 2AZ		
	3105/6 and 3605/6		2AT, 2AW, 2AZ, 2AA		
	3106/6 and 3606/6		2AT, 2AW, 2AZ, 2AA		
	3107/6 and 3607/6		2AW, 2AZ, 2AA		
	4101/6		3AT, 3AW		
	4102/6		3AT, 3AW, 3AZ		
	4103/6		3AT, 3AW, 3AZ, 3AA		
	4104/6		3AZ, 3AA, 3AC		
	4105/6		3AZ, 3AA, 3AC, 3AD		
	4106/6		3AA, 3AC, 3AD, 3AE		
	4107/6		3AC, 3AD, 3AE		
	5101/6		3AT, 3AW, 3AZ, 3AA		
	5102/6		3AZ, 3AA, 3AC, 3AD		
	5103/6		3AA, 3AC, 3AD, 3AE		
	5104/6		3AD, 3AE, 3AF		
	5105/6		4AA, 4AB, 4AE, 4AF, 4AH		
	5106/6		4AE, 4AF, 4AH		
	5107/6		4AE, 4AF, 4AH, 4AJ		
	6101/6		4AA, 4AB, 4AE		
	6102/6		4AA, 4AB, 4AE		
	6103/6		4AE, 4AF, 4AH		
	6104/6		4AE, 4AF, 4AH, 4AJ		
	6105/6		4AE, 4AF, 4AH, 4AJ, 4AK; 4AL		
	6106/6		4AF, 4AH, 4AJ, 4AK; 4AL,4AM		
	6107/6		4AF, 4AH, 4AJ, 4AK; 4AL,4AM		

Possible pump-magnetic coupling-motor combinations please take from the dimensions table.

Order hints

selection table - 3-phase AC motors, speed: n=1450 rpm				
	IP 54 EEx e II T3 (Ex e G3)		IP 54 and IP 54 EEx d II T3 (TEF)	
size	nominal power [kW]	SIHI designation	nominal power [kW]	SIHI designation
80A	0,55	FK	0,55	FB
80B	0,75	GK	0,75	GB
90 S	1,0	HK	1,1	HB
90 L	1,35	JK	1,5	JB
100 L 1	2,0	KK	2,2	KB
100 L 2	2,5	LK	3,0	LB
112 M	3,6	MK	4,0	MB
132 S	5,0	NK	5,5	NB
132 M	6,8	PK	7,5	PB
160 M	10,0	SK	11,0	SB
160 L	13,5	UK	15,0	UB
180 M	15,0	VK	18,5	VB
180 L	17,5	WK	22,0	WB
200 L	24,0	XK	30,0	XB
225 S	30,0	ZK	37,0	ZB
225 M	36,0	AK	45,0	AB
250 M	44,0	BK	55,0	BB

Example of order

A two stage pump (the NPSH-impeller is not conected) of size 3100 in material design 4B, equipped with a T-magnet and a 1,35 kW motor, protection type EEx e II T3 has the complete order number:

CEH• 3102 AF 2AT 4B 4 JK

On delivery, the point (•) in the fourth place of the type designation is replaced by a letter in the factory.

Any changes in the interest of the technical development are reserved.

Sterling SIHI GmbH
Lindenstraße 170 , D-25524 Itzehoe, Germany
Telephone +49 (0)4821 / 771-01 , Fax +49 (0)4821 / 771-274
www.sihi.com