

Side Channel Pumps

Self-priming, segmental type with verly low NPSH



SIHI® Pumps

CEH

Sizes 1201 ... 6108, 1202/5 ... 6108/5, 1202/7 ... 6107/7

Technical data

Capacity:	max. 35 m ³ /h
Delivery head:	max. 354 m
Speed:	max. 1800 1/min
Temperature:	max. 120 °C max. 180 °C for high temperature design (higher temperatures upon request)
Casing pressure:	PN 40
Shaft sealing:	Stuffing box or mechanical seal
Flange connections:	DIN 2501 / PN 40
Direction of rotation:	anti-clockwise (when seen from the drive end)



Application

The SIHI CEH pump is a self-priming side channel pump capable of handling gas along with the medium and operates at a low noise level.

The CEH pumps are used for problem-free pumping of clean liquids at unfavourable suction side conditions. They are also very suitable for positive suction heads below 0.5m.

The different material possibilities with uniform dimensions and performance characteristics as well as the standard exchangeable components, make the CEH particularly recommendable for applications in the pharmaceutical, chemical or petrochemical market as well as in the plastic or oil industry. Because of its low NPSH and positive suction head the CEH is very suitable for the pumping of liquefied gasses and liquids under vapour pressure like condensate, refrigerant, boiler feed water or LPG.

The pumps of the CEH /7 series have a retaining stage to avoid the dry running by controlling the liquid level in the pump. This design is especially developed for the handling of liquids under vapour pressure or when pumping from underground tanks. The series CEH /5 are used for bottom off-loading of liquids under vapour pressure.

Design

Pumps of the series CEH have a segmental type construction with open vane wheel impellers. The construction of the CEH pump is a so-called centrifugal combined system. This combination pump is suited with a centrifugal stage in serial connection before the side channel stages to obtain a more favourable NPSH.

The program comprises 6 sizes each with 1-8 stages. The existing material design allows an optimum rating for the respectively desired performance range and the pumping medium.

Pumps of the series CEH /7 are equal to the CEH series but equipped with a retaining stage. This program comprises 6 sizes with 2-7 stages. The series CEH /5 have also 6 sizes but with 2-8 stages.

The applied hydraulic components are from our Modular Side Channel system (interchangeability of parts).

Construction

Casing pressure

Maximum 40 bar from -40 °C up to +120 °C.
Maximum 32 bar from +120 °C up to +180 °C.
Pressure stages for temperature as per DIN EN 1333.

Please observe

Technical rules and safety regulations.
Casing pressure = inlet pressure + delivery head at minimum pump capacity.

Position of branches

Axial suction branch, discharge branch points radially upwards.

Flanges

The flanges correspond to DIN EN 1092-2 / PN 40.
Flange design as per DIN 2512 with groove or drilled according to ANSI 150 or 300 lbs is basically possible.

Bearing

One grease lubricated ball bearing according to DIN 625 and one liquid surrounded sleeve bearing (design A). The ball bearing is greased for life.

Direction of rotation

Anti-clockwise, when looking from the drive end.

Shaft sealing

The shaft can be sealed by a stuffing box or a mechanical seal conform DIN EN 12756. The shaft sealing is also available in a design suitable for heating or cooling of the stuffing box or the mechanical seal.

Double mechanical seal (back-to-back as well as tandem) or a quench design with throttle bush are available upon request. The CEH can also be supplied with a magnetic coupling (for information see the separate catalogue).

CEH

Material design

Cast iron and ductile iron

Pos.	Components	Material design					
		0A	0B	0F	1A	1B	1F
1060	Suction casing	EN-GJL-250			EN-GJS-400-18-LT		
1070	Discharge casing	EN-GJL-250			EN-GJS-400-18-LT		
1080 1090 1140 1141	Intermediate piece	EN-GJL-250			EN-GJS-400-18-LT		
2100	Shaft	X 20 Cr 13					
2310	Impeller	EN-GJL-250					
2350	Vane wheel impeller	CuZn40Al2	G-X 3 CrNiMoCuN 26 6 3 3	PAEK	CuZn40Al2	G-X 3 CrNiMoCuN 26 6 3 3	PAEK
3500	Bearing housing	EN-GJL-250					
4410	Mechanical seal casing	EN-GJL-250			EN-GJS-400-18-LT		
4510	Stuffing box casing	EN-GJL-250			EN-GJS-400-18-LT		
0241	Bearing bush	CY 10 C / Carbon Antimony*					

* Bearing bush in carbon antimony is used only in the high temperature design. This high temperature design is also provided with cup springs and a cooled stuffing box or cooled mechanical seal.

Stainless steel

Pos.	Components	Material design	
		4B	4F
1060	Suction casing	G-X 6 CrNiMo 18 10	
1070	Discharge casing	G-X 6 CrNiMo 18 10	
1080 1090 1140 1141	Intermediate piece	G-X 6 CrNiMo 18 10	
2100	Shaft	X 5 CrNiMo 17 12 2	
2310	Impeller	G-X 3 CrNiMoNb 18 10	
2350	Vane wheel impeller	G-X 3 CrNiMoCuN 26 6 3 3	PAEK
3500	Bearing housing	EN-GJL-250 coated	
4410	Mechanical seal casing	G-X 6 CrNiMo 18 10	
0241	Bearing bush	CY 10 C / Carbon Antimony *	

* Bearing bush in carbon antimony is used only in the high temperature design. This high temperature design is also provided with cup springs and a cooled stuffing box or cooled mechanical seal.

Casing seal

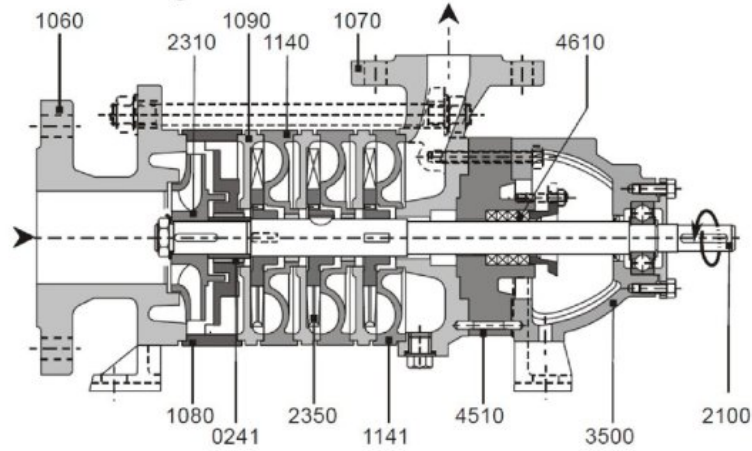
The casing seal can be sealed with a liquid compound or soft Teflon.

Drive

By lelectrica motor, type of construction IM B3.
For LPG, EExe or Eex d(e) motors are available.

Sectional drawing and parts list

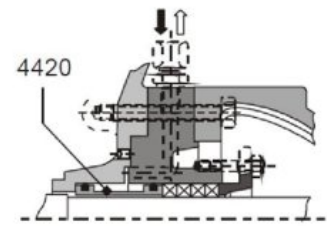
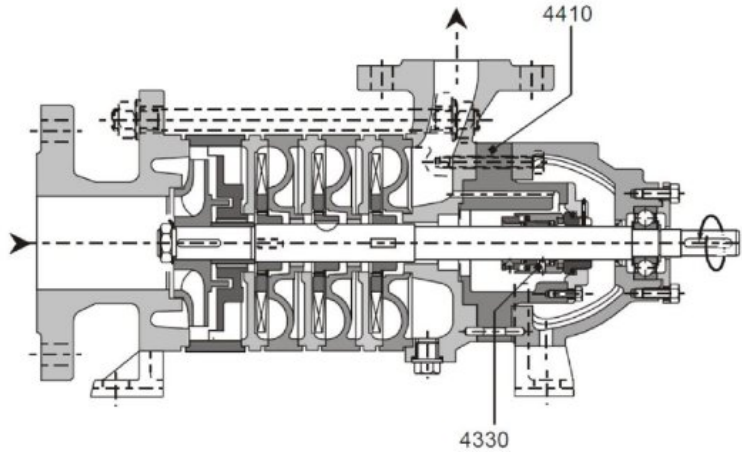
CEH with stuffing box



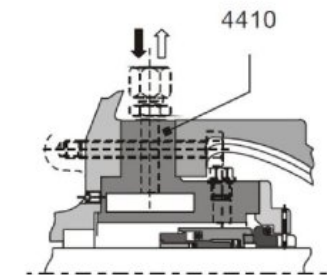
- 0241 Bearing bush
- 1060 Suction casing
- 1070 Discharge casing
- 1080 Intermediate piece
- 1081 Retaining stage
- 1090 Suction intermediate piece
- 1140 Discharge intermediate piece
- 1141 Discharge intermediate piece
- 2100 Shaft
- 2310 Impeller
- 2350 Vane wheel impeller
- 3500 Bearing housing
- 4330 Mechanical seal
- 4410 Mechanical seal casing
- 4420 Cooling insert
- 4510 Stuffing box casing
- 4610 Stuffing box

CEH with mechanical seal

Unbalanced as well as balanced mechanical seals are available.

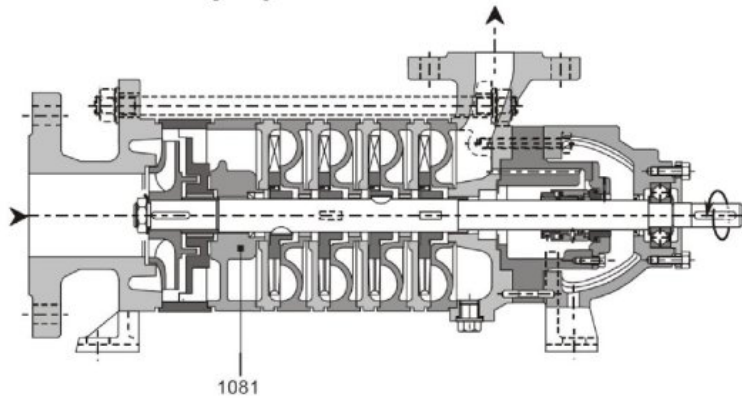


Cooled stuffing box



Cooled mechanical seal

CEH /7 with retaining stage



CEH

Performance range

General conditions

Liquid: Water
 Density: 1 kg/dm³
 Viscosity: 1 cSt
 Temperature: 20 °C
 Atmospheric pressure: 1013 mbar

Characteristic tolerances

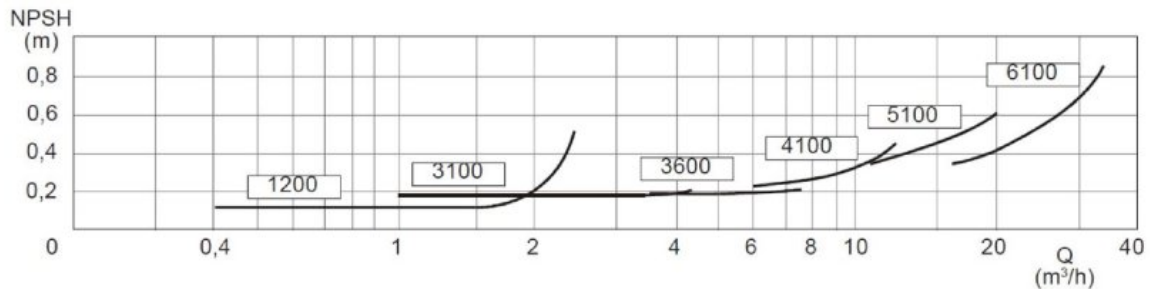
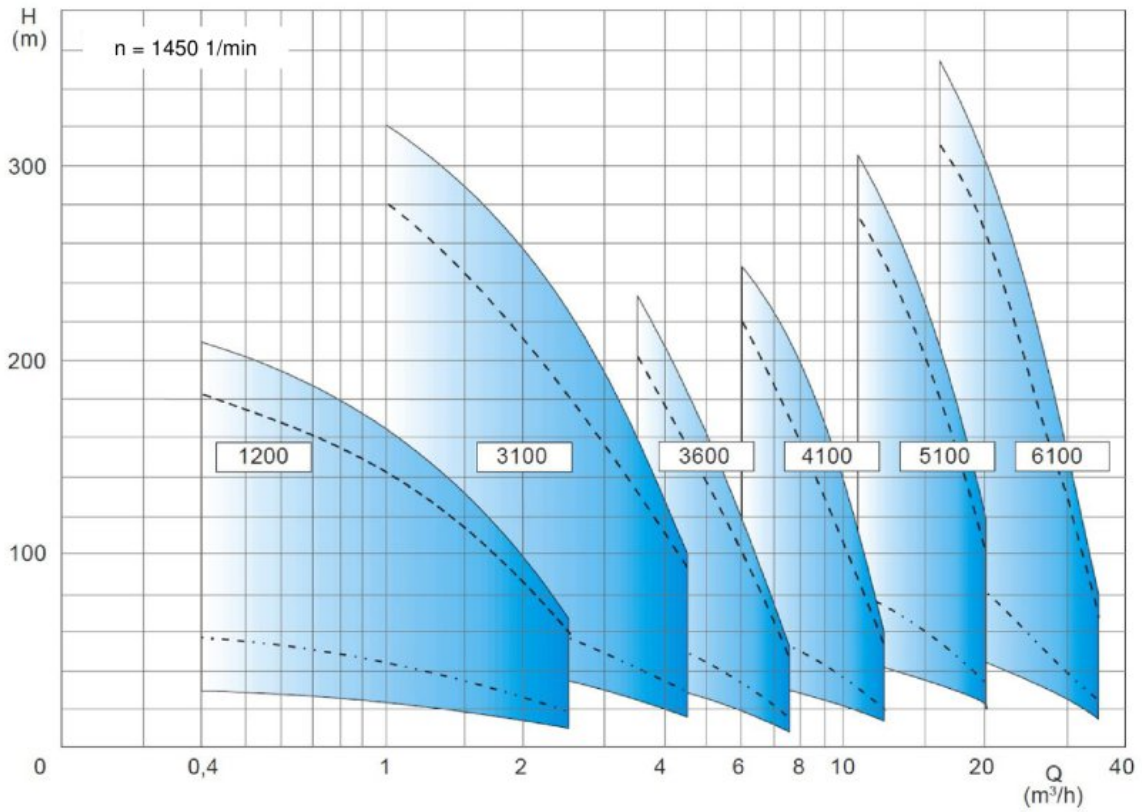
Capacity ± 5% - Delivery head ± 5% - Power + 10%

For designs with a mechanical seal or a casing seal of soft Teflon, the tolerance for the delivery head is extended by 2% each.

Measuring standard

According to ISO 5198.

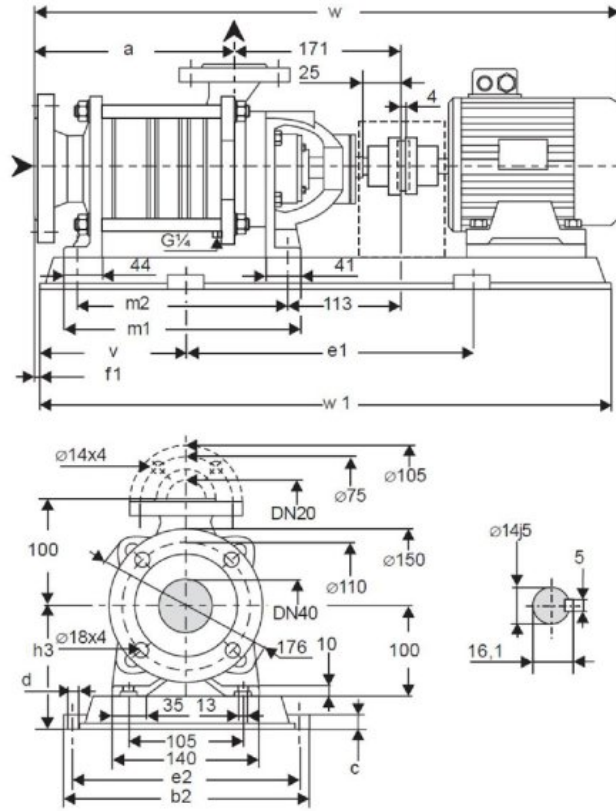
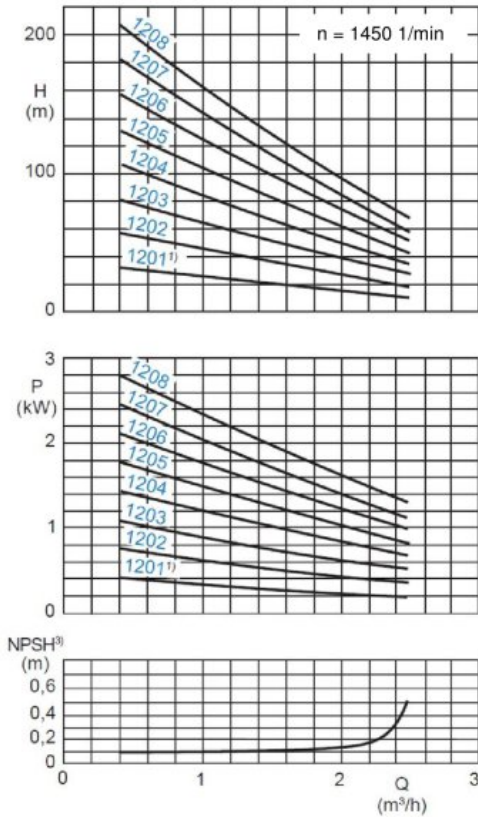
--- = Maximum for CEH /7 (with retaining stage)
 -.- = Minimum for CEH /5 (e.g. LPG handling), CEH/7



The NPSH curve is suitable for liquids without gas. When using a liquid containing gas (e.g. water 20°C) a safety margin of 1 m has to be added.

Dimension chart, pump set drawing and performance curves

CEH 1200 and CEH 1200/5



Values are valid for water at 1 kg/dm³ and Viscosity at 1 cSt.

Capacity ± 5% - Delivery head ± 5% - Power + 10%

For designs with a mechanical seal or a casing seal of soft Teflon, the tolerance for the delivery head is extended by 2% each.

Pump size	Motor		Base plate	Coupling		Weight [kg]		Dimensions [mm]																			
	kW	kW ²⁾		size	B	BDS ²⁾	Pump	set	a	b2	c	d	e1	e2	v	f1	h3	m1	m2	w*	w1						
1201	0.37	1)	71	P007	68	71	18	39	195	317	20	15	350	285	110	-9	135	238	204	609	570						
	0.55		80	P008				45		297			400	265			120		140	643	640						
1202	0.55	0.55	80	P008	68	76	20	47	229	297	20	15	400	265	120	-9	140	272	238	677	640						
	0.75	0.75	80					56		330			25	19			480		290	125	165	735	730				
	1.1	1.0	90S					P241		52			300	420			260		115	165	711	650					
1203	0.75	0.75	80	P241	68	76	22	62	263	330	25	19	480	290	125	-9	165	306	272	769	730						
	1.1	1.0	90S					60		297			480	290			125		165	803	730						
1204	1.5	1.35	90L	P272	80	88	24	75	297	360	25	19	540	320	140	-9	165	340	306	844	820						
	1.1	1.0	90S					66		331			360	25			19		540	320	140	-9	165	374	340	837	820
	1.5	1.35	90L					70		331			360	25			19		540	320	140	-9	165	374	340	878	820
1205	2.2	2.0	100L	P272	68	76	26	77	360	360	25	19	540	320	140	-9	165	374	340	878	820						
	1.5	1.35	90L					72					360	19			540		320	140	165	871	820				
	2.2	2.0	100L					84					365	361			25		15	600	325	160	-9	150	408	374	912
1206	3.0	2.5	100L	P015	80	88	28	85	361	361	25	15	600	325	160	-9	150	408	374	912	920						
	1.5	1.35	90L					74					361	25			15		600	325	160	-9	150	408	374	905	920
	2.2	2.0	100L					86					399	361			25		15	600	325	160	-9	150	442	408	946
1207	3.0	2.5	100L	P015	80	88	30	87	399	361	25	15	600	325	160	-9	150	442	408	946	920						
	2.2	2.0	100L					88					433	361			25		15	600	325	160	-9	150	476	442	980
1208	3.0	2.5	100L	P015	80	88	32	89	433	361	25	15	600	325	160	-9	150	476	442	980	920						
	2.2	2.0	100L					88					433	361			25		15	600	325	160	-9	150	476	442	980

* Dimensions depend upon the motor brand. ¹⁾ Not for design CEH /5, ²⁾ for EExe II T3 motors, ³⁾ A safety margin of 1 m has to be added when using a liquid containing gas. The weight for stainless steel will be approximately 6% higher.