

SHC(E)

Horizontal pump
Composite—Single stage
Fix speed or variable speed pump

WORKING RANGE

Flow rate	as far as 35 m ³ /h
Height	as far as 24 m
Max pressure at the outlet	= 6.5 bars
Max pressure at the inlet	= 4 bars
Temperature range :	-20 °C - 60 °C
Ambient temperature	maxi = +40°C
DN	1 "1/2 et 2 "

THE CHILLER'S PUMP



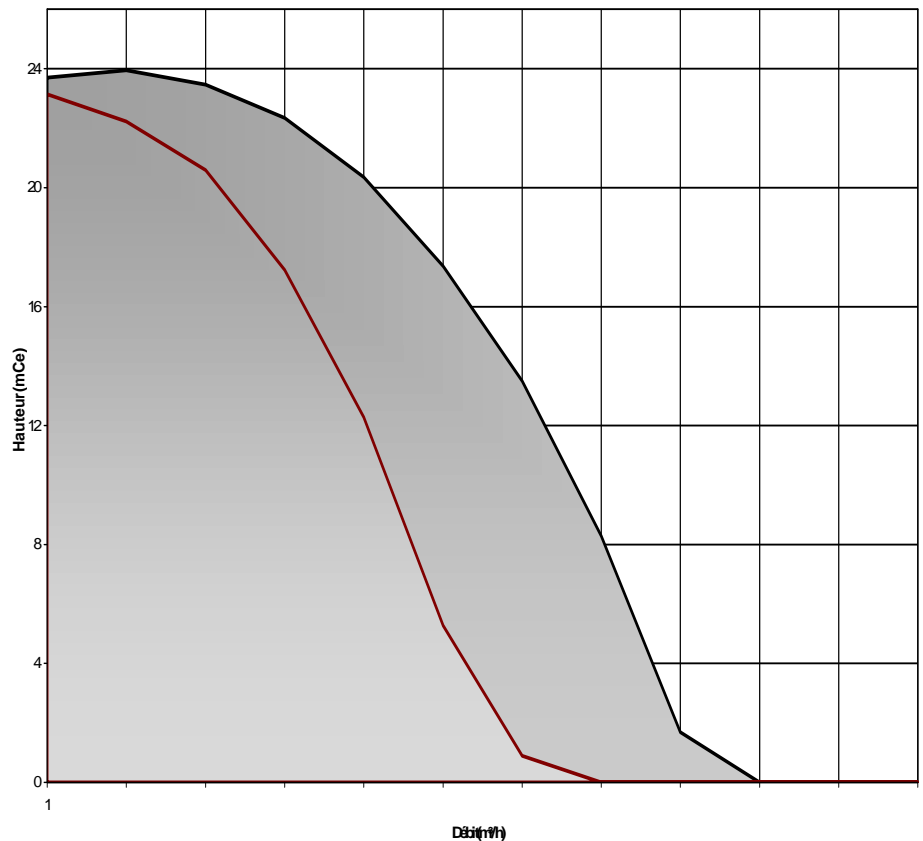
Salmson 

SHC

AVANTAGES

- Common dimension for the whole range
- Different possible direction for the outlet
- Possibility to integrate sensor 1/4"
- Foot customizing
- Hydraulic fixation Victaulic or threat
- High hydraulic efficiency
- Low life cycle cost
- Full life grease ball bearing.
- Corrosion resistant
- Very low thermal lose through composite casing
- Possibility of thermal sensor

WORKING RANGE

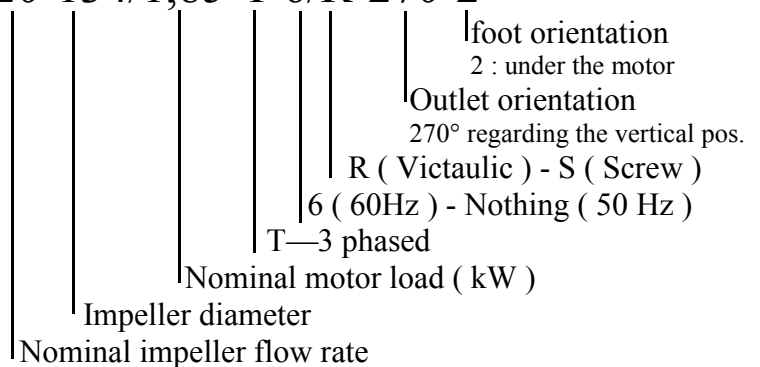


DESIGN

- Hydraulic parts**
 - Complete composite, monobloc
 - Centrifugal single stage
 - Axial Inlet 2"
 - Off line outlet 1", 1/2"
 - Mechanical seal rotative tightness.
- Motor**
 - Fan cooled motor
 - Long shaft
 - Three phased with or without thermal sensor
 - Speed : 2900 RPM
 - Winding : 400 V- 50 Hz
 - Insulation class : F(155°C)
 - Protection index : IP54

IDENTIFICATION

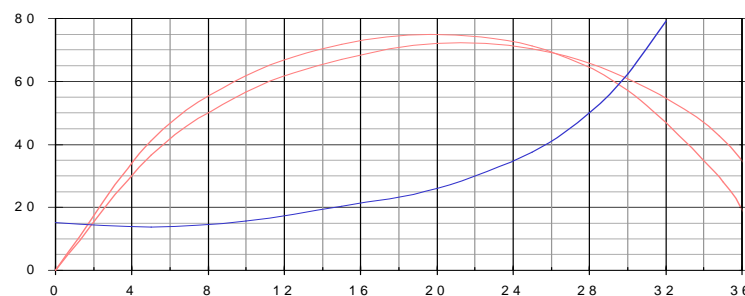
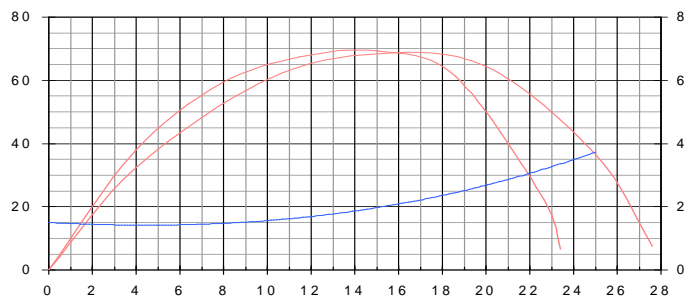
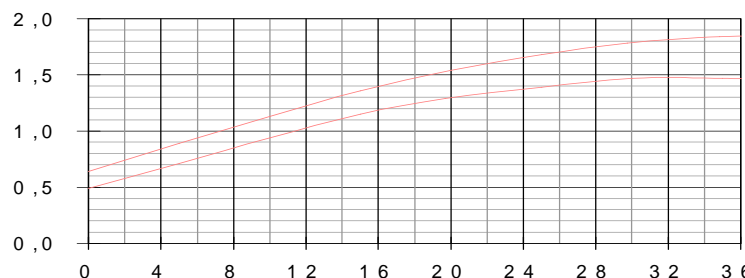
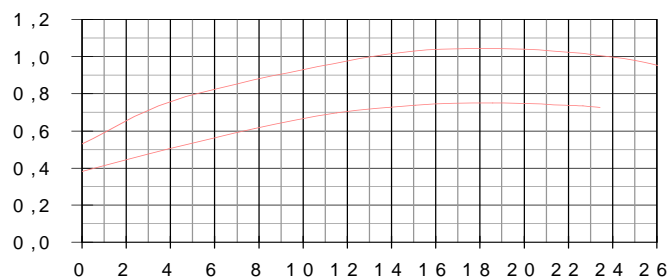
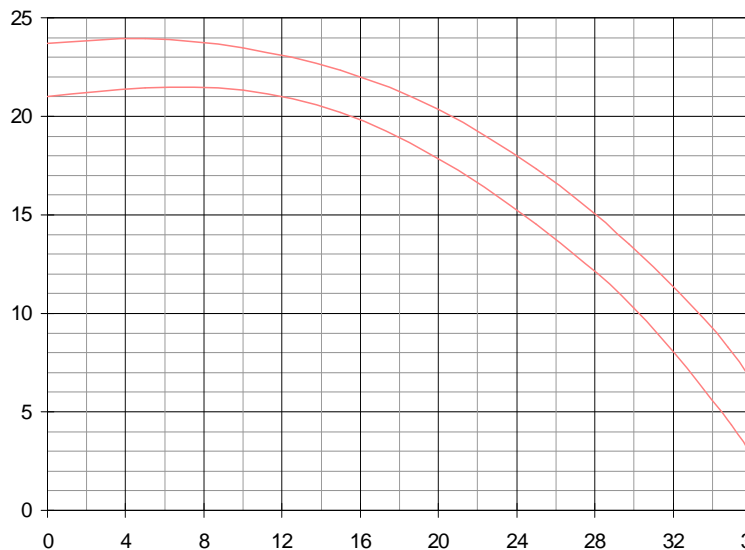
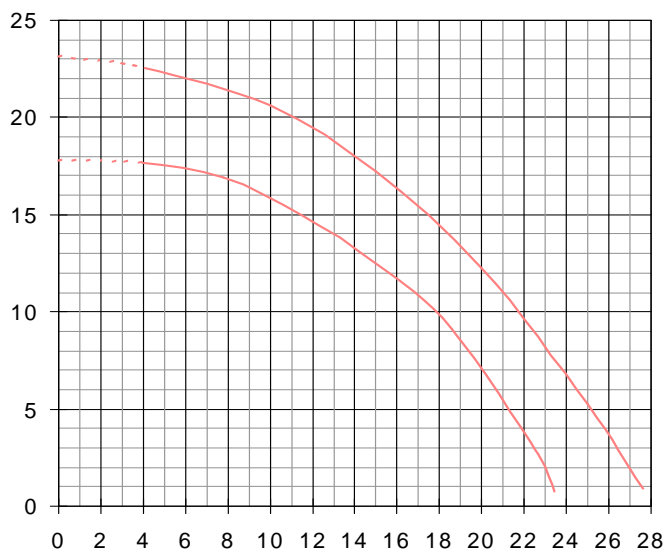
SHC20-134/1,85-T-6/R-270-2



CONSTRUCTION

- | | |
|-----------------------|----------------------------|
| Composite hydraulic : | Mechanical seal : |
| Ring holder PP | Carbon—Ceramic – Nitril |
| Casing PA6.6 VF | Shaft magnetic stainless S |
| Impeller PPO | O ring : EPDM |

HYDRAULICS PERFORMANCES — 12 m³/h and 20 m³/h



Pressure head delivered

Q (m ³ /h)	0	4	8	10	12	16	20	24
SHC12-129 (mCE)	17,8	17,6	16,9	16,0	13,8	12,8	7,0	0,8
SHC12-136 (mCE)	23,1	22,5	21,5	20,8	19,5	16,3	12,3	6,8

Electrical consumption

Q (m ³ /h)	0	4	8	10	12	16	20	24
SHC12-129 (W)	584	731	876	960	1 010	1 080	1 085	1 030
SHC12-136 (W)	770	1030	1180	1240	1300	1 380	1390	1320

Pressure head delivered

Q (m ³ /h)	-	5	10	15	20	25	30	35
SHC20-128(mCE)	21,0	21,5	21,3	20,2	18,0	14,6	10,3	4,3
SHC20-134(mCE)	23,7	24,0	23,5	22,3	20,4	17,4	13,5	8,0

Electrical consumption

Q (m ³ /h)	-	5	10	15	20	25	30	35
SHC20-128 (W)	766	1 000	1 265	1 520	1 690	1 820	1 930	1 930
SHC20-134 (W)	919	1 195	1 470	1 740	1 960	2 130	2 260	2 340

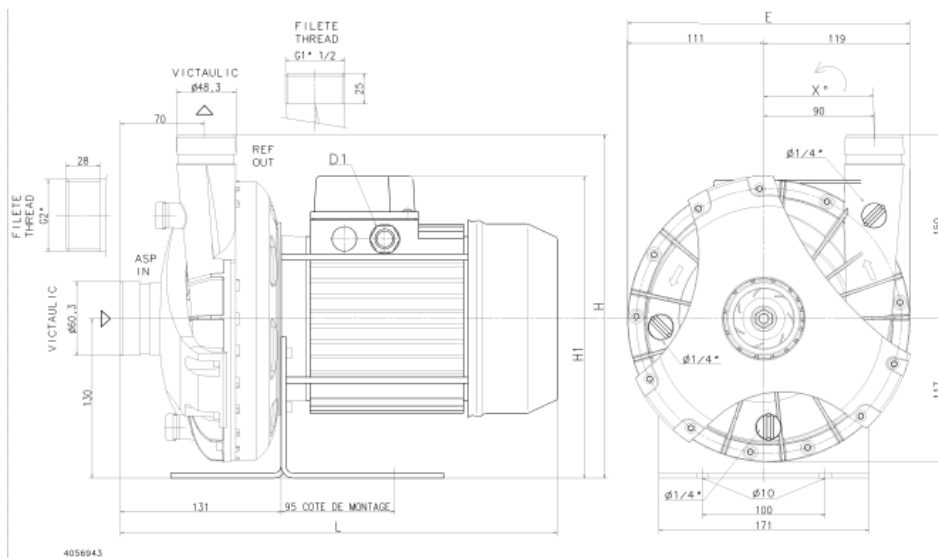
The long flow rate range is adapted to chillers from 40 kW to 200 kW.

The exceptional hydraulic efficiency provide an important

electrical consumption of the pump and so, follows the way of thinking of Kyoto rules and the French thermal regulation 2000 (Décret 2000-1153).

The mechanical load and electric consumption are increased by around 5 % when the liquid is made of 30 % of ethylene glycol

OVERALL DIMENSIONNEMENT— MECANICAL ASPECT



Hydraulic pipes

- 2 pumps connections are available : Victaulic ou Filetée
- The outlet can be turned in any direction perpendicularly to the impeller shaft..
- Suction inlet 2 ". Discharge 1" 1/2

Fixation on the floor

- The foot for fixing the pump to the chiller frame can be adapted :
 - Fixation under the motor
 - Fixation under the casing
- Easy to lift (place for lifting ring)
- Can be customized.

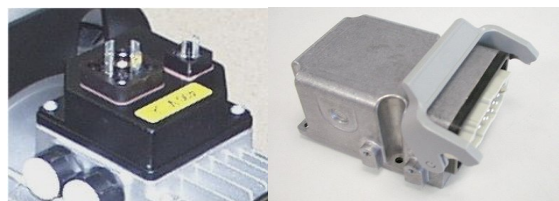
TYPE DE POMPE		P2 KW	HZ	H	H1	L	E	X°	PRESSE ET OUPE		MASSE KG		
PUMPTYPE									D1	*			
SHC	12- 129			0,75	50	280	235	347	230		PG11	PG11	10,4
SHC	12- 129	-----	-270-	0,75	50	241	235	347	267	270°	PG11	PG11	10,4
SHC	12- 136			1,1	50	280	235	347	230		PG11	PG11	12,7
SHC	12- 136	-----	-270-	1,1	50	241	235	347	267	270°	PG11	PG11	12,7
SHC	20- 128			1,5	50	280	246	356	230		PG13,5	PG11	13,8
SHC	20- 128	-----	-270-	1,5	50	241	246	356	267	270°	PG13,5	PG11	13,8
SHC	20- 134			1,85	50	280	246	356	230		PG13,5	PG11	15,4
SHC	20- 134	-----	-270-	1,85	50	241	246	356	267	270°	PG13,5	PG11	15,4

Electrical connexion

- Standard connection in the terminal box
- Connexion with Hirschmann connector (in option)
- Thermal sensor in option : PTO.

A common and flexible fixation for the whole range

A dedicated electrical connexion for all application.



Connexioncautious :

Itisadvicetoconnectthehydraulicpartsbeforefixingthepumptothefloor.Themaximumstrainsforthecasing arethefollowing:

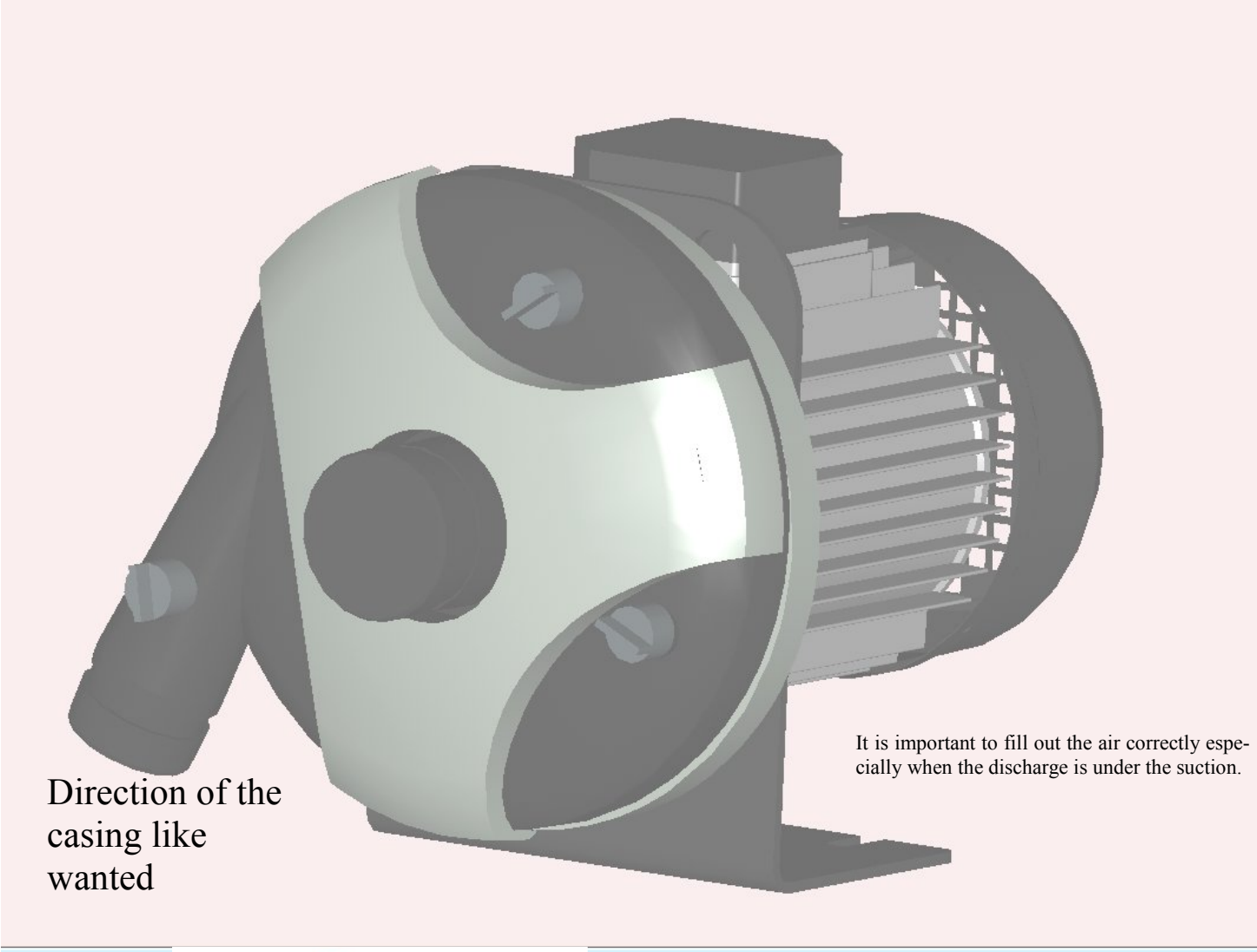
ecasing

Maxstrainonthecasing	VictaulicFlexible		Fileté	
	Force Torque	misalignment	Force Torque	misalignment
ØSUCTION	500 N 30 N.m	3.46°	500 N 30 N.m	Non acceptable
ØDISCHARGE		3.1°		

Fillingcautious:

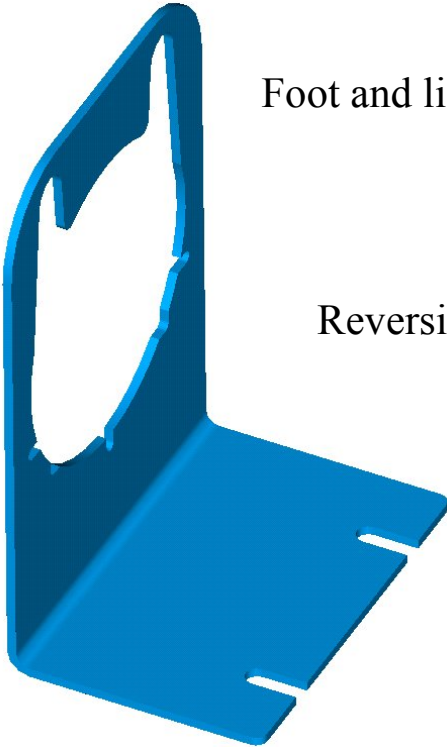
Thefillingofthepumpmustbedoneatalowflowratewithoutwaterhammerchoc(Below5m³/h)

Fillout heaircorrectlywiththeupperplugespeciallywhenthe dischargeishorizontal.



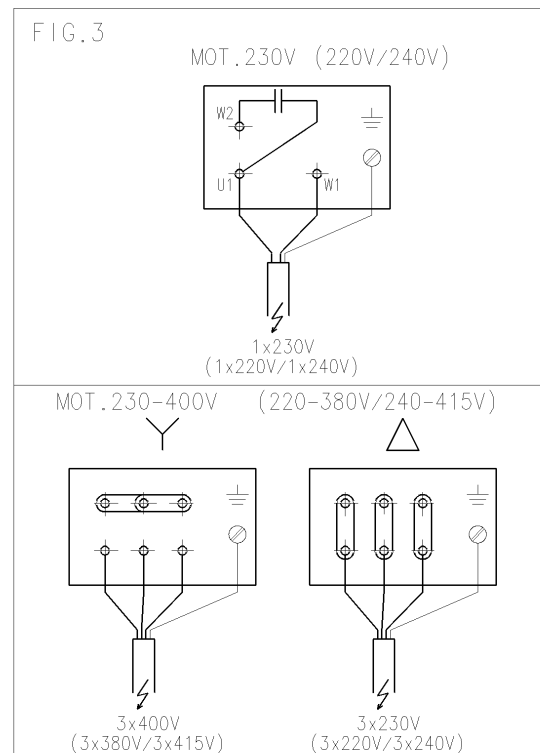
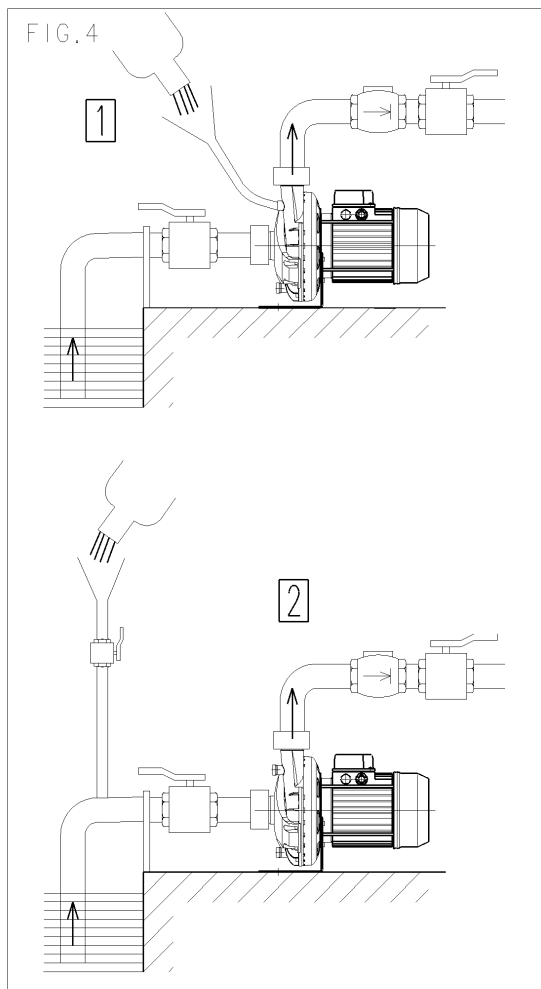
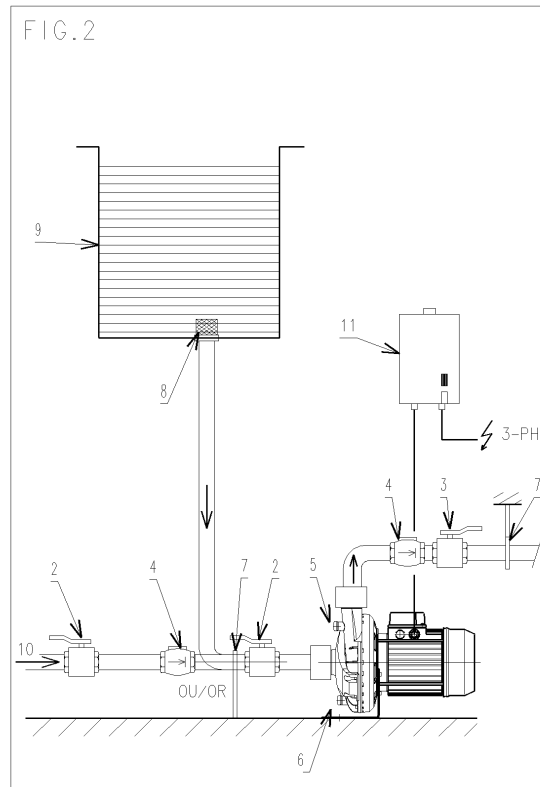
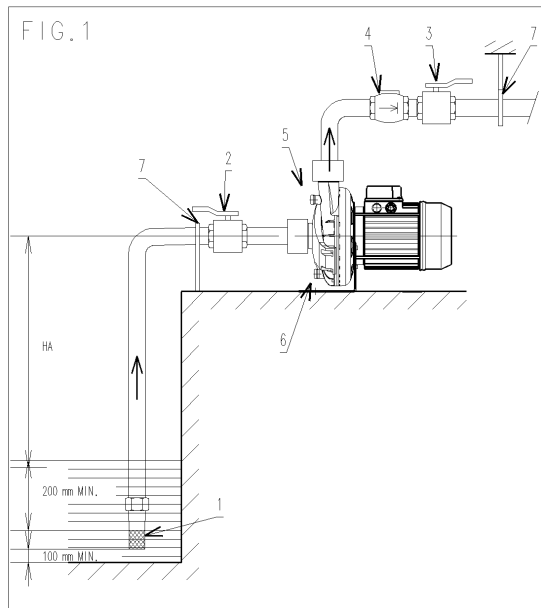
Direction of the casing like wanted

It is important to fill out the air correctly especially when the discharge is under the suction.



Foot and lift holder

Reversible foot

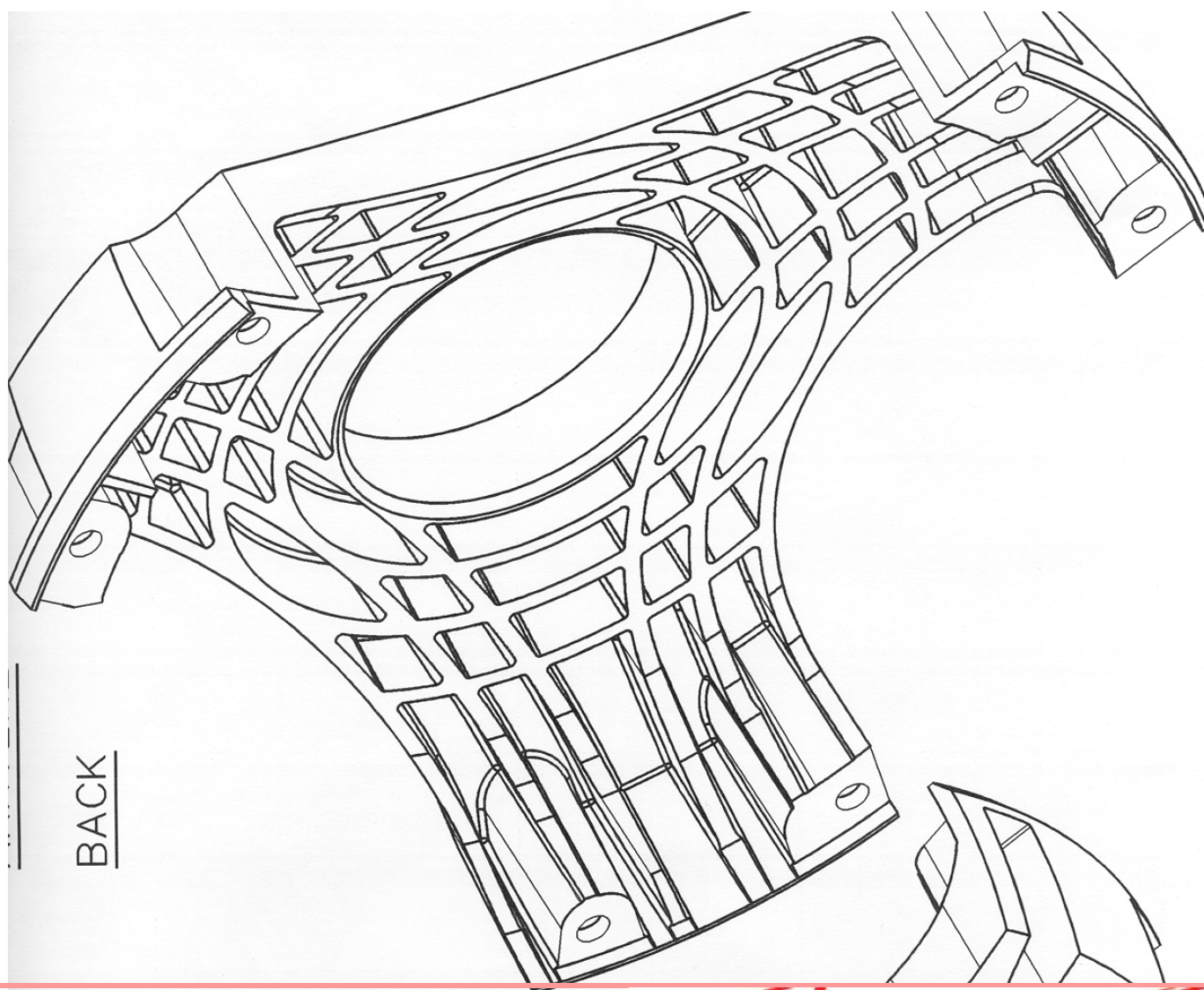


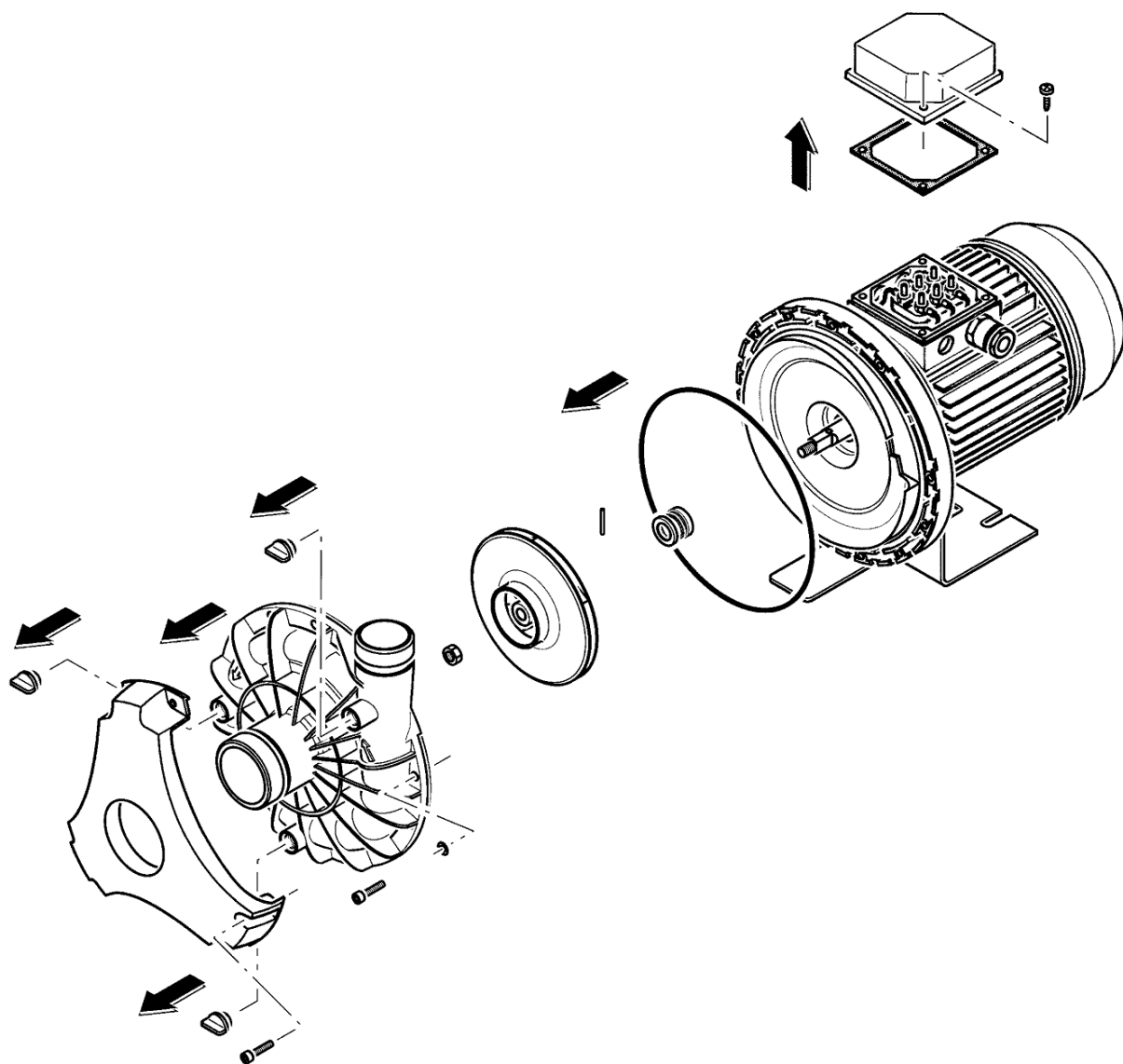
ACCOUSTIC LEVEL

SHC12-126 :	58 dBA
SHC12-136 :	58 dBA
SHC 20-128 :	63 dBA
SHC20-134 :	65 dBA

Precaution for installation and use

- Mix of water+35%/glycol max.
- The used liquid must be in accordance with VDI 2035.
- **Some additives like descaler, stop-leakage; anti-corrosion could damage the parts of the**
- **Be cautious. Antifreeze additives must be absolutely neutral with the pump parts.**
- **No aggressive water: demineralised, de-ionised, seawater**
- **No oil emulsion**
- Maximum Viscosity=50cst
- Maximum Density=1040kg/m³.





Hydraulics Parts			Motor Parts		
4062362	Tightness Kit	All pumps	4033245	Fan cover	0,75 and 1,1 kW
4056987	Impeller 12-129	SHC12-129	4033246	Fan cover	1,5 and 1,85 kW
4055332	Impeller 12-136	SHC12-136	4007227	Ball bearing 6304	All pumps
4056988	Impeller 20-128	SHC20-128	4057002	Aluminium cover	All pumps
4055333	Impeller 20-134	SHC20-134			
4054789	Casing Victaulic	All pumps			
4058413	Casing fileté	All pumps			
4054790	Seal holder	All pumps			

LIFE CYCLE COST (LCC)

The Life Cycle Cost must be calculated for each use according to the application of the cooling . As an example, we will consider a building equipped by a reversible chiller of around 200 kW frigorific working more or less 8 month per year. When you look at the pump consumption, we will base our calculation at a working point of 22 m³/h—19 m of head. At this point, $\eta_{Hydraulic} = 74\%$, et $P_{electric} = 2,1 \text{ kW}$ for a mix of water and 30% of ethylene glycol.

The figure to take in account are :

Acquisition cost +

Installation cost+

Victaulic connection , Hirschmann connection : max : 15 min (OEM case)

Working cost +

In the previous condition : 5 800 h = 12200 kW/h / an

Maintenance cost +

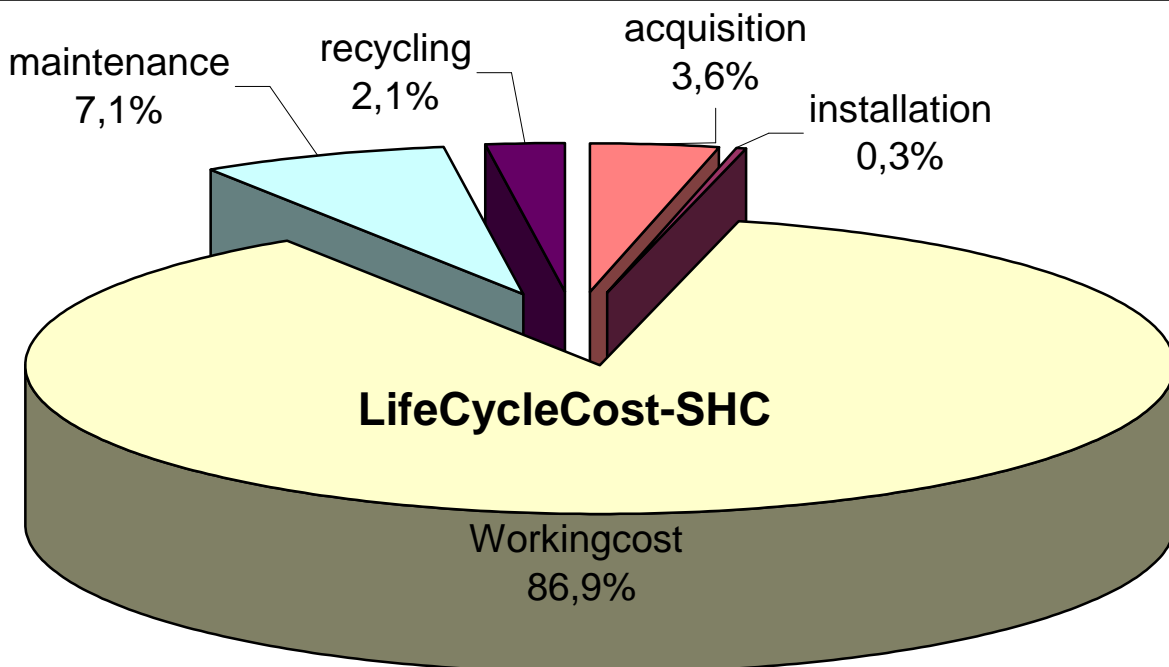
Mecanical seal (10 000 h) / Ball bearing (20 000 h) : 1, 3 h / year

Life target (MTBF of other parts than wear part > 80 000 h) +

25 000 h

Recycling cost +

No bi-material parts except the motor parts (winding and rotor) :



A delta of 5 points of hydraulic efficiency lead to a modification of 4,5 % of your life cycle cost

SHC

MAINTENANCE

In the normal conditions of working, the components have an estimated life time like following :

Mechanical seal :	10 000 h
Ball bearing	20 000 h
Hydraulic	25 000 h
	150 000 cycles
Motor	25 000 h

The components have been validated for a minimum written before with the pressure, temperature and liquid indicated in the previous pages.

SHCE

The variable speed on the SHCE provide to the chillers the possibility to work at the optimised point of the chillers. The compressor can in that case be optimised. For a dedicated temperature, the SHCE provide the exact exchange you need and have an electrical consumption in accordance with this point.

The maximum hydraulic performances of the SHCE20-134 are the same as the SHC20-134.

The pump can be driven by a 4 -20 mA signal or by a communication bus close to the profibus dialog (dialog USS).

BOOSTER 2 PUMPS

The 2 pumps SHC booster warranty an optimal working without stop during maintenance or reparation. It is also a security on process cooling and .

The pumps work alternatively and are assembled in a reduce place.

Some possibility are available with the same flexibility as the SHC alone. These positions can be customized case by case according to the place and the configuration in the chiller.