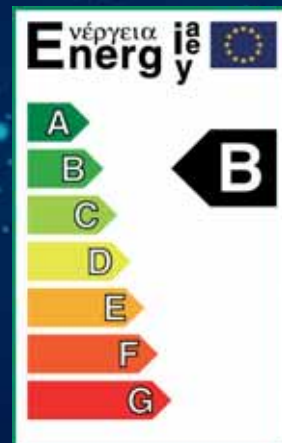


Revolution³

Highly energy-efficient
synchronous circulators



Askoll

Revolution³

Technology raised to the power



Highly energy-efficient synchronous circulators

Revolution³

Three revolutionary advantages

Unique, specific and exclusive technological know-how combined with the skills learned over twenty-five years in white-goods industry make Askoll the recognized leader in the production of synchronous pumps. Askoll provides also the heating field with a winning technology that offers extraordinary advantages in terms of:

1 **Energy savings**

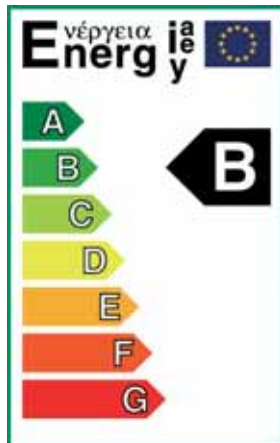
2 **Performance**

3 **Reliability**

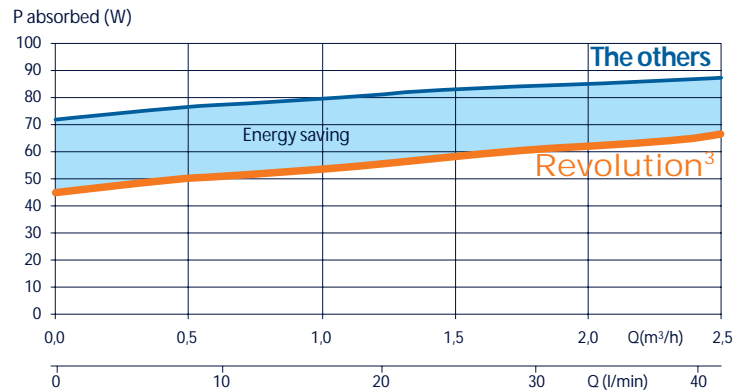


1 Energy savings: greatly reduced consumption, over 40% less

Revolution³ pumps are extraordinarily efficient, almost twice than traditional circulators, with corresponding remarkably reduced power absorption.



Comparison between consumption of a traditional pump and Revolution³



This translates into exceptional energy savings, **over 190 kWh per year**, if one considers that a circulation pump is estimated to run for about 6,000 hours a year.

In addition to protecting the environment, there are obvious economic advantages from using a Revolution³ pump. As can be seen from the graph, the power consumption of a traditional circulator (in W) are over 40% higher than a high-efficiency synchronous pump.

Calculation of annual average consumption (kWh) of a Revolution³ pump

Energy Labelling load profile		Revolution ³ 25-40		
Time (%)	Flow rate (%)	Flow rate (l/h)	Total head (m)	Pabsorbed (W)
44.0%	25%	625	3.5	43
35.0%	50%	1250	3.3	46
15.0%	75%	1875	2.7	50
6.0%	100%	2500	2.1	52
Annual average consumption in kWh				274 kWh

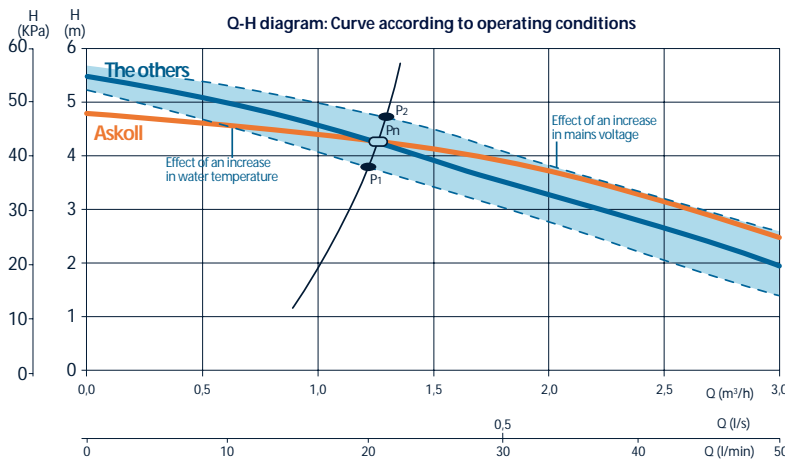
The calculation of annual average consumption of the pump refers to the load profile set by the commitment on energy labelling of circulation pumps considering a maximum flow rate of 2500 l/h and an operating period of 6000 hours.

EXTRAORDINARY ENERGY EFFICIENCY MEANS LOWER ANNUAL OPERATING COST: UP TO 40% LESS THAN TRADITIONAL PUMPS!

2 Performance: stable with constant pressure in the working field

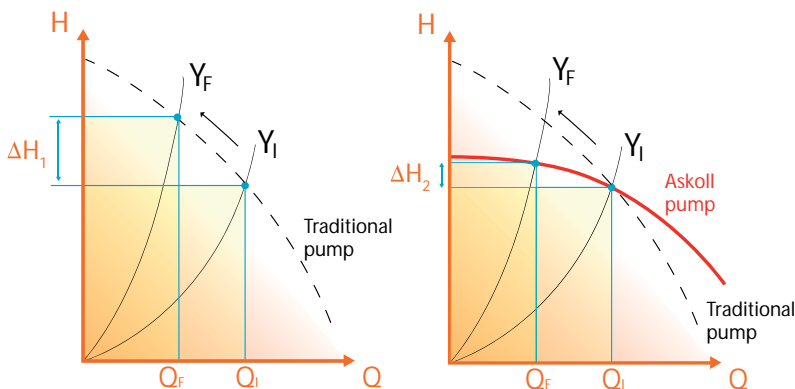
OPTIMAL HEAT AND NOISE CONDITIONS

The performance of **Revolution³** pumps is constant and highly stable: the characteristic curve undergoes no translation, either with changes in the temperature of the liquid pumped or changing operating conditions.



It is possible to determine the optimal working point with certainty, confident that this will not vary until the system's pressure drops are changed.

The characteristic curve is substantially flat for low flow rates: in addition, problems of system noise are also sharply reduced. In fact, when using traditional pumps, as the pressure in the heating system increases (going from Y_1 to Y_F) there is a significant increase in the differential pressure (see ΔH_1).



This leads to unwanted increased noise, in addition to greater energy consumption.

Revolution³ pumps do not have the unacceptable increase in differential pressure of traditional pumps (the value of ΔH_2 is more or less negligible compared to ΔH_1) with the advantage of a quieter system.

3 Reliability: no more rotor locking

The exclusive, patented "square chamber" design eliminates almost any cause of locking: in fact, any impurities in the rotor chamber escape into special areas derived from the chamber itself.



In addition, **Revolution³**'s electronic sensors detect any difficulty in rotation, repeatedly starting the motor with starting torque that are clearly higher than traditional motors to always guarantee correct start-up.

Askoll

Applications

Revolution³ circulation pumps are innovative synchronous technology pumps designed and manufactured for use in heating and circulation plants, in domestic and commercial buildings.

Construction characteristics

Revolution³ is a wet rotor pump driven by a synchronous motor controlled by an on-board microchip.

MOTOR technical data

Permanent Magnet synchronous motor controlled by an on-board microchip

Mains voltage and frequency	1 X 230 V (–10%; +6%) - 50 Hz
Insulation class	H
Enclosure class	IP 44
Appliance class	II
Overload protection	Automatic protection with electronic rotor release Protection through thermal protector
The pump does not require any external protection of the motor	

PUMP technical data

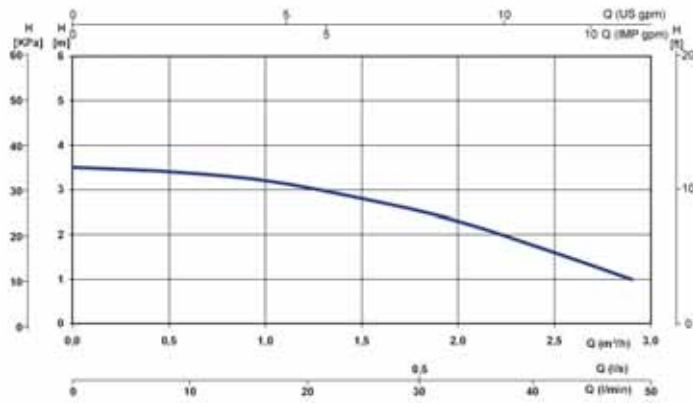
Allowed temperature field	from +2°C to +95°C
Ambient temperature	from +2°C to +40°C
Max. operating pressure	6 bar
Storage conditions	from -20°C to +70°C with R.H.= 95% at 40°C
Sound pressure level	< 43 dB(A)
Minimum suction pressure	0.3 bar with a temperature of +95°C
Maximum glycol percentage	40%
Constructed in accordance with directives	EN 55014 - 1 EN 61000 - 2 - 3 EN 55014 - 2

Liquids pumped

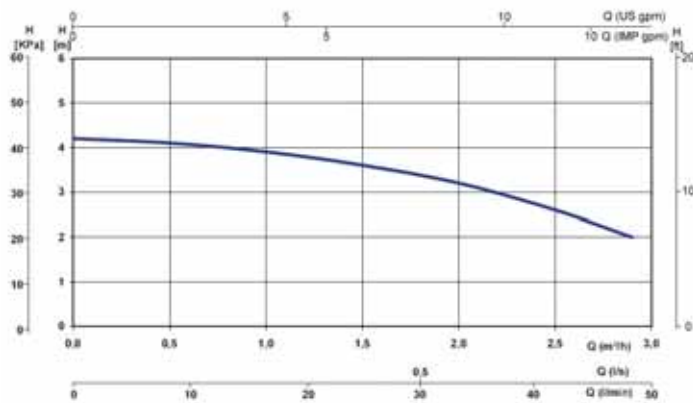
Revolution³ circulation pumps have been designed to pump clean liquids that do not attack its materials and are free of solid particles that could obstruct its moving parts. They must not be used to pump inflammable and/or explosive liquids.

Revolution³ - Pump models

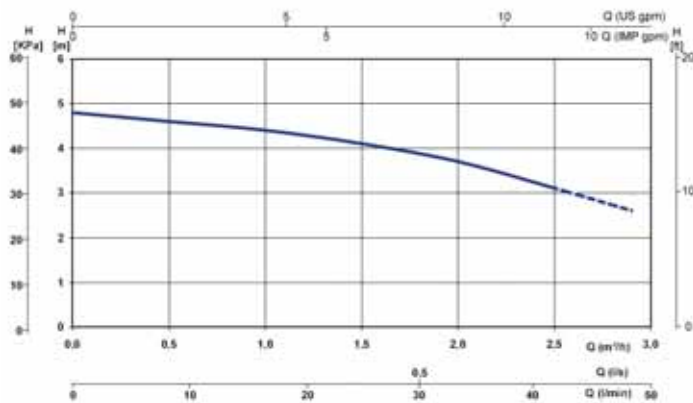
Revolution³ C 15-40 Revolution³ 25-40



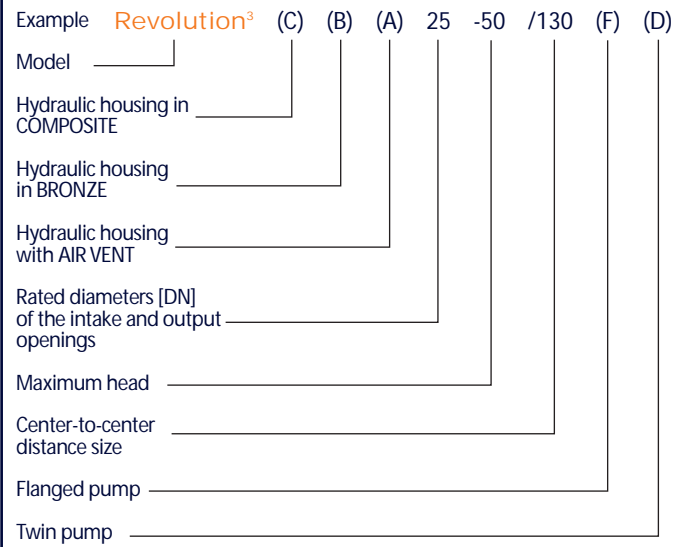
Revolution³ C 15-50 Revolution³ 25-50 Revolution³ 32-50



Revolution³ C 15-60 Revolution³ 25-60 Revolution³ 32-60



Explanation of the coding

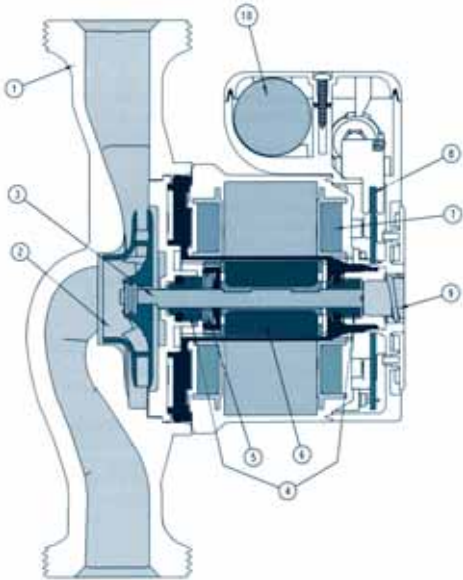


The curves refer to a liquid temperature of 80 °C. The liquid used to measure them is water without air. The conversion from pressure head H [m] was made for water with a density $\rho = 1000 \text{ kg/m}^3$.

1~50 Hz (n=3000 1/min)

TYPE			230V A	P _{abs} W	Q	m ³ /h														
						l/min														
Revolution ³ C 15-40	Revolution ³ 25-40	Revolution ³ 32-40	0.23	53	H	0	0,5	1,0	1,5	2,0	2,5	2,9	3,5	3,4	3,2	2,8	2,3	1,6	1,0	
						0	8,3	16,6	25,0	33,3	41,6	48,3	4,2	4,1	3,9	3,6	3,2	2,6	2,0	
						4,8	4,6	4,4	4,1	3,7	3,1	2,6								
Revolution ³ C 15-50	Revolution ³ 25-50	Revolution ³ 32-50	0.24	55																
Revolution ³ C 15-60	Revolution ³ 25-60	Revolution ³ 32-60	0.29	65																

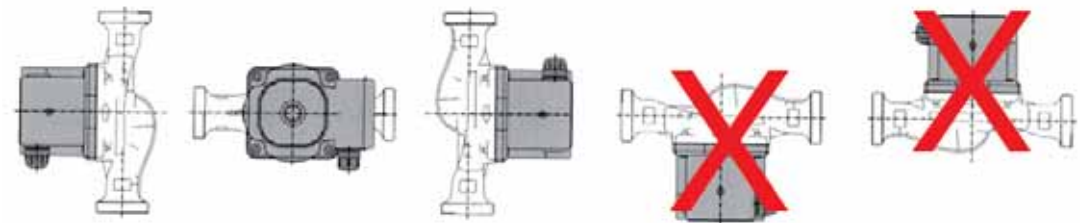
Materials



Component	Pos.	Material
Pump housing	1	Cast iron GJL 200 EN 1561/ Composite
Impeller	2	Composite
Shaft	3	Stainless steel
Bearings	4	Graphite
Thrust bearing	5	Ceramic
Rotor	6	Hard ferrite (Permanent Magnet)
Winding	7	Copper wire
Electronic card	8	---
Plug	9	Composite
Capacitor	10	---
Gasket	---	EPDM

Installation

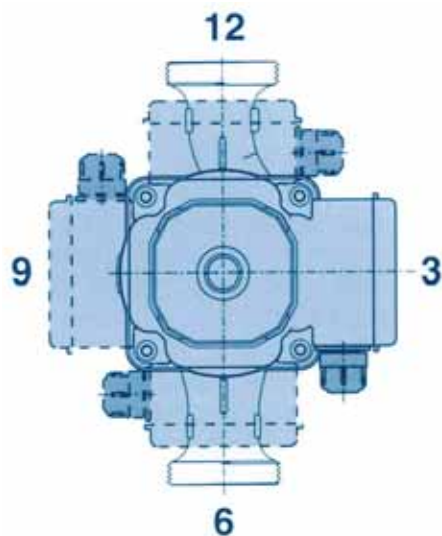
Revolution³ pumps have to be always installed with the motor shaft horizontal.



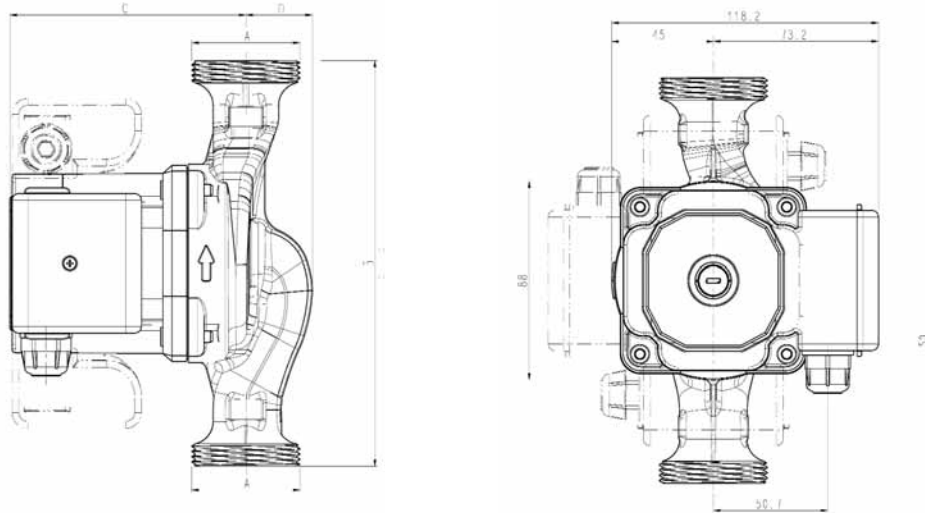
Make sure that the pressure at the pump's intake is at least equal to the minimum value required.

It is recommended not to start the pump before having filled and drained the hydraulic circuit. It is possible to drain the rotor by removing the drain plug on the motor.

Possible connections box positions:



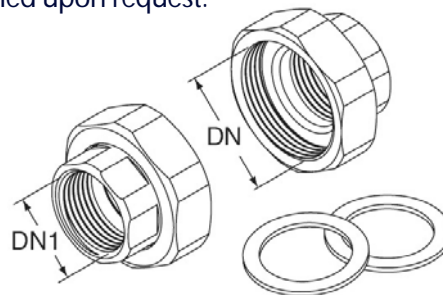
Dimensions



TYPE	A [DN]	B [mm]	C [mm]	D [mm]	Net weight [kg]
Revolution³ C 15-40 / 130	G 1"	130	102,7	22,8	1,42
Revolution³ 25-40 / 130	G 1" 1/2	130	94,4	29,4	2,10
Revolution³ 25-40 / 180	G 1" 1/2	180	94,4	29,4	2,25
Revolution³ C 15-50 / 130	G 1"	130	112,7	22,8	1,72
Revolution³ 25-50 / 130	G 1" 1/2	130	104,4	29,4	2,39
Revolution³ 25-50 / 180	G 1" 1/2	180	104,4	29,4	2,53
Revolution³ 32-50 / 180	G 2"	180	104,4	29,4	2,67
Revolution³ C 15-60 / 130	G 1"	130	112,7	22,8	1,72
Revolution³ 25-60 / 130	G 1" 1/2	130	104,4	29,4	2,39
Revolution³ 25-60 / 180	G 1" 1/2	180	104,4	29,4	2,53
Revolution³ 32-60 / 180	G 2"	180	104,4	29,4	2,67

Unions

Revolution³ pumps are not equipped with unions required for the connection to the hydraulic circuit; a complete kit is supplied upon request. Unions kit are available in brass.



Unions

TYPE	DN	DN1	kg
Kit G1" 1/2 - G1"	G1" 1/2	G1"	0,41 x 2
Kit G2" - G1" 1/4	G2"	G1" 1/4	0,55 x 2

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