

REVOLUTION³



PM Synchronous
circulator pump
for heating systems

Three revolutionary
advantages

Constant performance



SAVINGS
Up to 40% less than
traditional pumps



TECHNOLOGY
Best available
technology - PM Motor



ENVIRONMENT
protection



Askoll
Il futuro dell'innovazione

Askoll 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

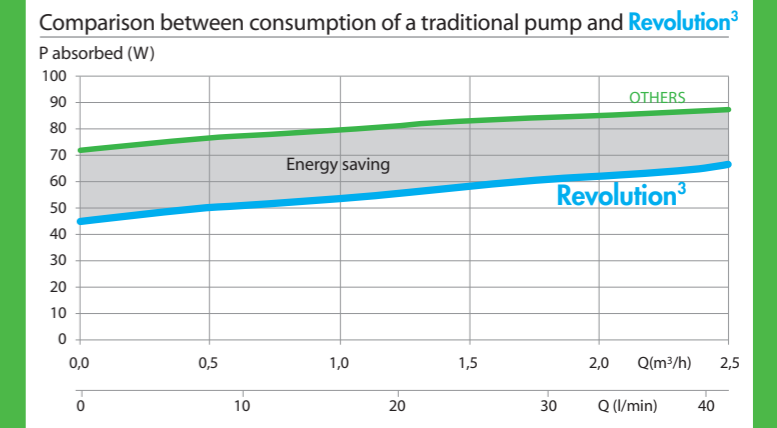


EXTRAORDINARY ENERGY EFFICIENCY MEANS LOWER ANNUAL OPERATING COST: UP TO 40% LESS THAN TRADITIONAL PUMPS!

1. ENERGY SAVINGS: greatly reduced consumption, over 40% less

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

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.



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)	P absorbed (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.

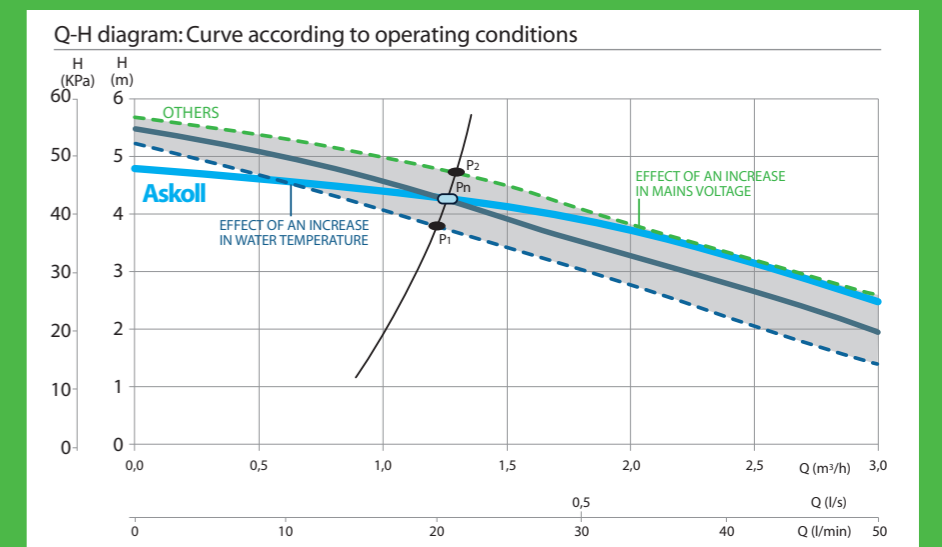
In addition to protecting the environment, there are obvious economic advantages from using an Askoll Revolution³ pump. As you can be seen from the graph, the power consumption of a traditional circulator (in W) is over 40% higher than a high-efficiency synchronous pump.

2. PERFORMANCE: stable with constant pressure in the working field

OPTIMAL HEAT AND NOISE CONDITIONS

The performance of Askoll 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.

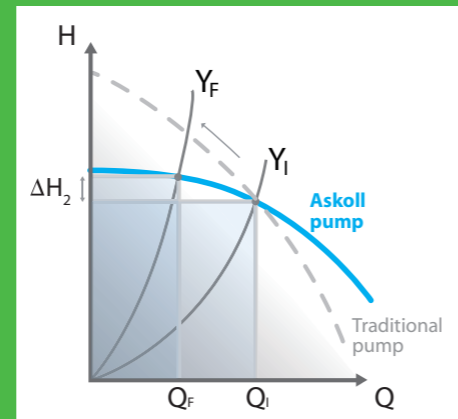
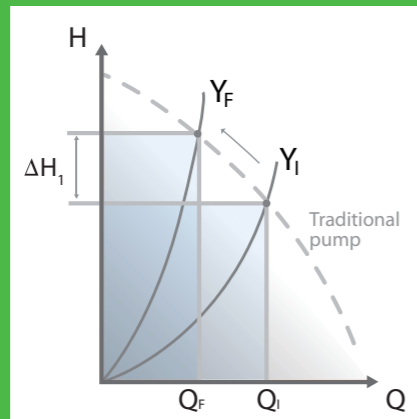
It is possible to determine the optimal working point with certainty, confident that this will not vary until the system's pressure drops are changed.



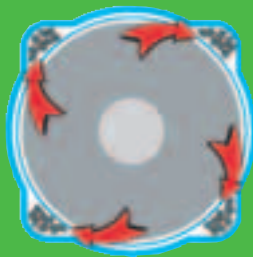
The characteristic curve is substantially flat for low flow rates: in addition, problems of system noise are also sharply reduced. In fact, when using traditional pumps, as the pressure in the heating system increases (going from Y_I to Y_F), there is a significant increase in the differential pressure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

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

Askoll 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, **Askoll Revolution³**'s electronic sensors detect any difficulty in rotation, repeatedly starting the motor with starting torque clearly higher than traditional motors in order to always guarantee correct start-ups.

APPLICATIONS

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

CONSTRUCTION CHARACTERISTICS

Askoll 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.

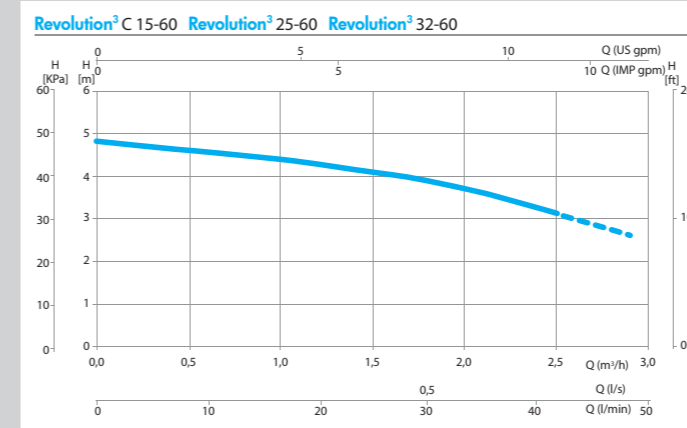
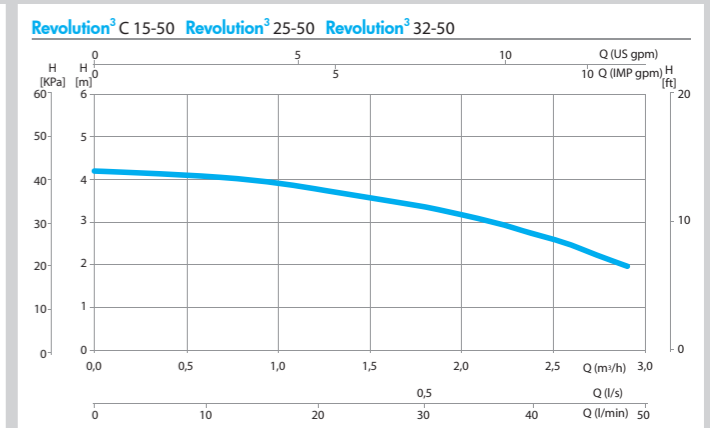
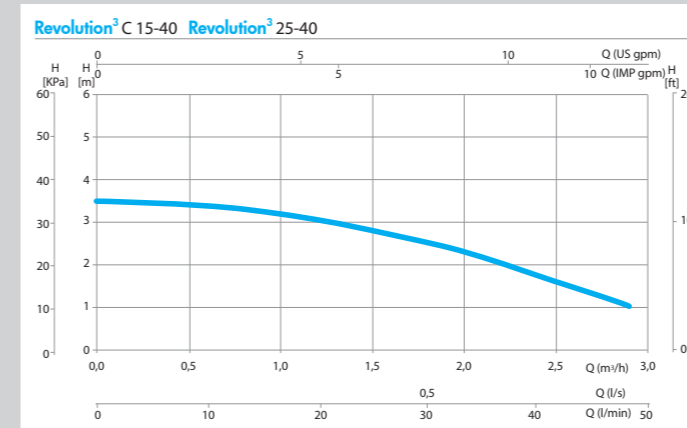
PUMP TECHNICAL DATA

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 61000 - 3 - 2 / EN 61000 - 3 - 3 / EN 55014 - 1 / EN 55014 - 2

LIQUIDS PUMPED

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

> Askoll Revolution³ pump models



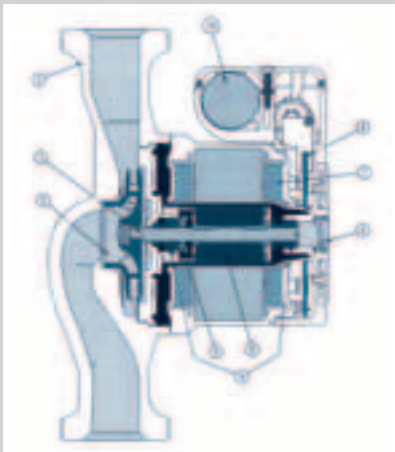
Explanation of the coding

Example **Revolution³** (C) (B) (A) 25 -50 /130 (F) (D)

Model	(C) (B) (A) 25 -50 /130 (F) (D)
Hydraulic housing in COMPOSITE	(C)
Hydraulic housing in BRONZE	(B)
Hydraulic housing with air vent	(A)
Rated diameters [DN] of the intake and output openings	25 -50 /130
Maximum head	(F)
Center-to-center distance size	(D)
Flanged pump	(F)
Twin pump	(D)

The curves refer to a liquid temperature of 80 °C and a water density $\rho = 1000 \text{ kg/m}^3$.

TYPE			230V A	P _{abs} W	Q	1~50 Hz (n=3,000 l/min)							
						m ³ /h	0	0,5	1,0	1,5	2,0	2,5	2,9
Revolution ³ C 15-40	Revolution ³ 25-40	Revolution ³ 32-40	0.23	53	H	l/min	0	8,3	16,6	25,0	33,3	41,6	48,3
Revolution ³ C 15-50	Revolution ³ 25-50	Revolution ³ 32-50	0.24	55		m	3,5	3,4	3,2	2,8	2,3	1,6	1,0
Revolution ³ C 15-60	Revolution ³ 25-60	Revolution ³ 32-60	0.29	65		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	

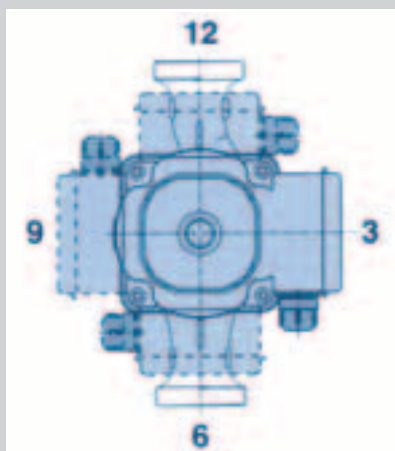
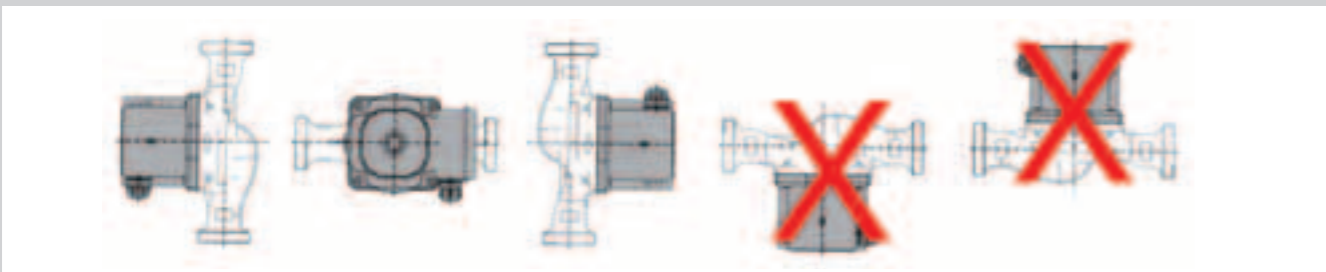


MATERIALS

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

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

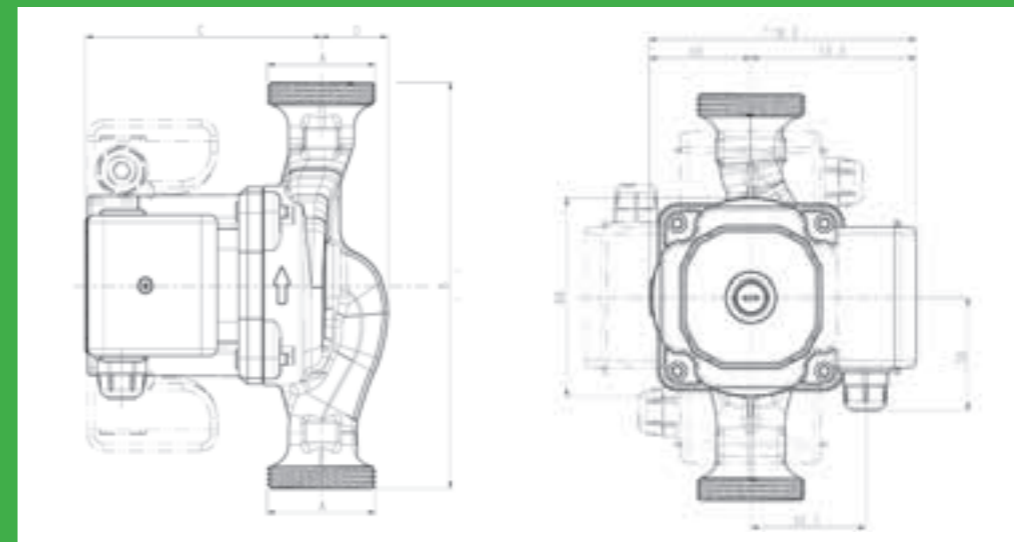


Make sure the pressure at the pump's intake is at least equal to the minimum value required.

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]
Revolution ³ C 15-40 / 130	G 1	130	102,7	22,8	1,42
Revolution ³ 25-40 / 130	G 1 1/2	130	94,4	29,4	2,10
Revolution ³ 25-40 / 180	G 1 1/2	180	94,4	29,4	2,25
Revolution ³ C 15-50 / 130	G 1	130	112,7	22,8	1,72
Revolution ³ 25-50 / 130	G 1 1/2	130	104,4	29,4	2,39
Revolution ³ 25-50 / 180	G 1 1/2	180	104,4	29,4	2,53
Revolution ³ 32-50 / 180	G 2	180	104,4	29,4	2,67
Revolution ³ C 15-60 / 130	G 1	130	112,7	22,8	1,72
Revolution ³ 25-60 / 130	G 1 1/2	130	104,4	29,4	2,39
Revolution ³ 25-60 / 180	G 1 1/2	180	104,4	29,4	2,53
Revolution ³ 32-60 / 180	G 2	180	104,4	29,4	2,67

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Askoll, founded in 1978 with its headquarters in Dueville (Vicenza), is a leading manufacturer of pumps and synchronous electric motors. Synchronous technology is the common thread that unites the three core businesses of Askoll: it was initially applied in the field of aquariology in the production of pumps; this business has gradually expanded and now includes the design and development of aquariums, filters and accessories for aquariums and ponds.

The applications of such technology were then transferred to the field of household appliances, mainly washing machines and dishwashers, and to that of heating. This technology allows the industry to ensure a significant reduction in costs, simplifying installation and maintenance activities and it provides significant energy savings, which can exceed 50% compared to conventional electric motors. For the same power of the motor it also allows to produce smaller engines and thus save on raw materials such as iron and copper.

Nowadays in the world, 98% of washing machines and dishwashers use synchronous technology pumps.

A winning intuition was then transformed into the key to the success of this Veneto Region company that has experience on synchronous pumps, its technologies, a know-how unique in the world, and an annual production of 50 million pumps and motors sold throughout the world.

Today Askoll is an international group of 11 business units with facilities in Italy, Brazil, Mexico, Slovakia, Romania and China, with trade representatives in the United States and South Korea. Its Center for Research & Development, within the company, boasts a portfolio of over 500 patents and collaborates with leading European universities.

Askoll develops a turnover of over 400 million Euro, to which contribute more than 2,800 employees, and it delivers its products in over 20 countries.

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