

High-efficiency Circulator Pump

Calio S

Type Series Booklet



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Type Series Booklet Calio S

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Building Services: Heating

Variable Speed Circulator Pumps

Calio S



Main applications

Heating and air-conditioning systems, industrial plants

- › One-pipe and two-pipe systems
- › Underfloor heating systems
- › Boiler or primary circuit
- › Storage tank circuit
- › Solar power systems
- › Heat pumps

Fluids handled

- › Heating water to VDI 2035
- › Highly viscous fluids (e.g. 30 % glycol content and above) on request
- › Pure, thin-bodied, non-aggressive and non-explosive fluids not containing any mineral oil, solids or long fibres
- › Fluids with a viscosity of 10 mm²/s max.

Operating data

Operating properties

Characteristic	Value
Flow rate	Q Up to 3.5 m ³ /h, 1.0 l/s
Head	H Up to 6 m
Fluid temperature	t +2 °C to +95 °C
Ambient temperature	0 °C to +40 °C
Operating pressure	p Up to 10 bar
Sound pressure level	<45 dB (A)
Piping connection	R 1/2, R 1, R 1 1/4

Designation

Example: Calio S 25-40-130

Key to the designation

Code	Description
Calio S	High-efficiency pump
25	Nominal diameter of pipe connection 15 = R 1/2 25 = R 1 30 = R 1 1/4
40	Head in m x 10 (example: 40 = 4 m)
-130	Overall length 130 mm

Design details

Design

- › Maintenance-free, high-efficiency screw-ended wet rotor pump (glandless) with high-efficiency electric motor and continuously variable differential pressure control

Modes of operation

- › Automatic mode with constant-pressure or proportional-pressure control
- › Open-loop control mode (n = constant) with manual setpoint

Automatic functions

- › Continuous output adjustment depending on the mode of operation
- › Soft start (limitation of starting current)
- › Full motor protection with integrated trip electronics
- › Integrated setback function

Manual functions

- › Setting the operating mode
- › Unlocking the rotor
- › Setting the differential pressure setpoint
- › Setting the speed

Signalling and display functions

- › Error messages on the display

Drive

- › Electronically commutated synchronous motor with permanent magnet rotor
- › 230 V - 50/60 Hz
- › IP44 enclosure
- › Thermal class F
- › Temperature class TF 95
- › RFI emission EN 55014-1
- › Interference immunity EN 55014-2

Bearings

- › Product-lubricated special plain bearing

Materials


Overview of available materials

Component	Material
Volute casing	Grey cast iron with cathodic electrocoating
Shaft	Ceramics
Impeller	Polyamide (PA - GF 35)
Bearing	Ceramics
Bearing plate	Stainless steel 1.4301
Can	Stainless steel 1.4301
Heat insulation	Polypropylene

Product benefits

- › Maximum savings of operating costs by high-efficiency technology combined with speed control
- › Future-proof by maximum energy efficiency, exceeding future energy efficiency regulations such as ErP 2015, and 5-year spare parts availability as per the German "Handwerkermarke" trade seal
- › Simple to set with capacitive keys combined with an integrated display and symbols indicating the operating mode
- › High availability by manual and integrated protective functions
- › Compact dimensions and KSB plug make the pumps easy to install. Heat insulation included in the scope of supply.

Certifications

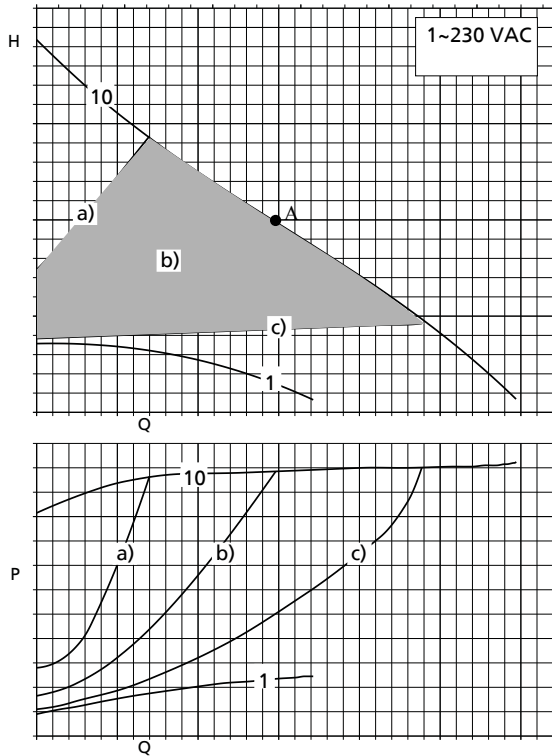
Label	Effective in:	Note
	Europe	Calio S 15...-40 EEI ≤0.20 Calio S 15...-60 EEI ≤0.23
	Germany	All pump sizes

Design

Features and functions

Functions	Included
Modes of operation	
Δp -v for variable differential pressure	—
Δp -c for constant differential pressure	—
Open-loop control (n = constant)	—
Manual functions	
Setting the operating mode	—
Setting the differential pressure setpoint	—
Setting the speed level (open-loop control)	—
Vent plug	—
Unlocking the rotor	—
Automatic functions	
Continuous output adjustment depending on the mode of operation (Δp control)	—
Integrated setback operation	—
Soft start	—
Signalling and display functions	
Error codes indicated on the display	—

Description of the characteristic curve



Selection example

1	Min.	Open-loop control (n = constant)
10	Max.	Open-loop control (n ≠ constant)
A	Point of maximum pump power output (Q x H = P _{max.})	
	Control range, setting in 0.5 m increments	
a)	Characteristic curve, maximum head	
b)	Characteristic curve, optimum efficiency (factory setting)	
c)	Characteristic curve, minimum head	

i The characteristic curve can be adjusted between a) and c) by pressing the control keys.

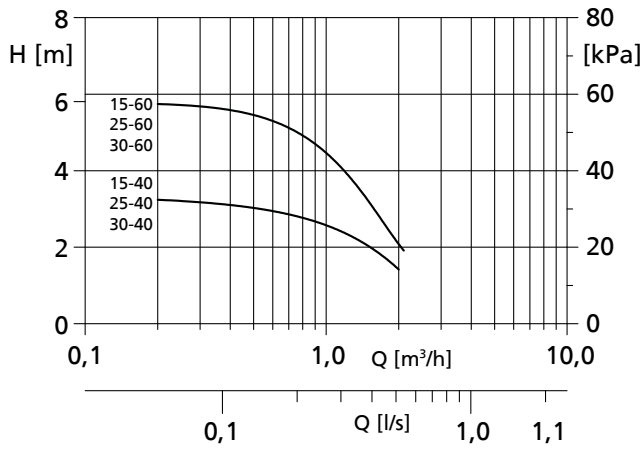
Technical data

Calio S selection table

Calio S	R DN	G	PN	P ₁	Motor protection	Signalling contacts	Rated current 1~230 VAC, 50/60 Hz [A]	Mat. No.	[kg]
				[W]					
15-40-130	R •	G 1	10 bar	4,5 - 23	—	-	0,06 - 0,23	29134268	2.5
15-60-130	R •	G 1	10 bar	4,0 - 47	—	-	0,05 - 0,48	29134269	2.5
25-40-130	R 1	G 1 •	10 bar	4,5 - 23	—	-	0,06 - 0,23	29134270	2.5
25-60-130	R 1	G 1 •	10 bar	4,0 - 47	—	-	0,05 - 0,48	29134271	2.5
25-40	R 1	G 1 •	10 bar	4,5 - 23	—	-	0,06 - 0,23	29134272	2.7
25-60	R 1	G 1 •	10 bar	4,0 - 47	—	-	0,05 - 0,48	29134273	2.7
30-40	R 1 ~	G 2	10 bar	4,5 - 23	—	-	0,06 - 0,23	29134274	2.7
30-60	R 1 ~	G 2	10 bar	4,0 - 47	—	-	0,05 - 0,48	29134275	2.7

— = Integrated motor protection in the terminal box

Performance chart



Minimum pressure

Minimum pressure p_{min} at the pump suction nozzle to avoid cavitation noise at an ambient temperature of +40 °C and a pumped-water temperature of t_{max} :

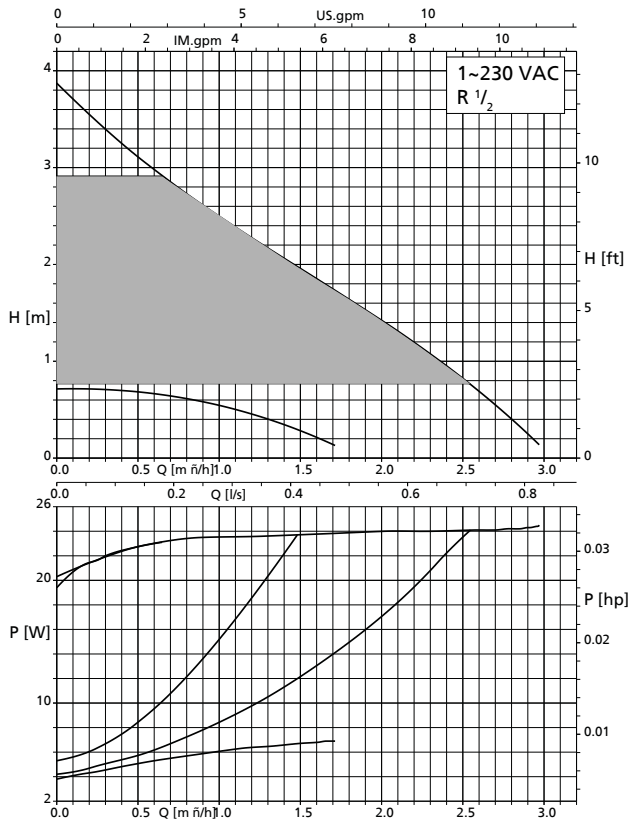
The values are applicable up to 300 m above sea level. For installation at altitudes > 300 m, an allowance of +0.01 bar/100 m must be added.

Minimum inlet pressure p_{min} [bar] specified for the fluid temperature [°C]

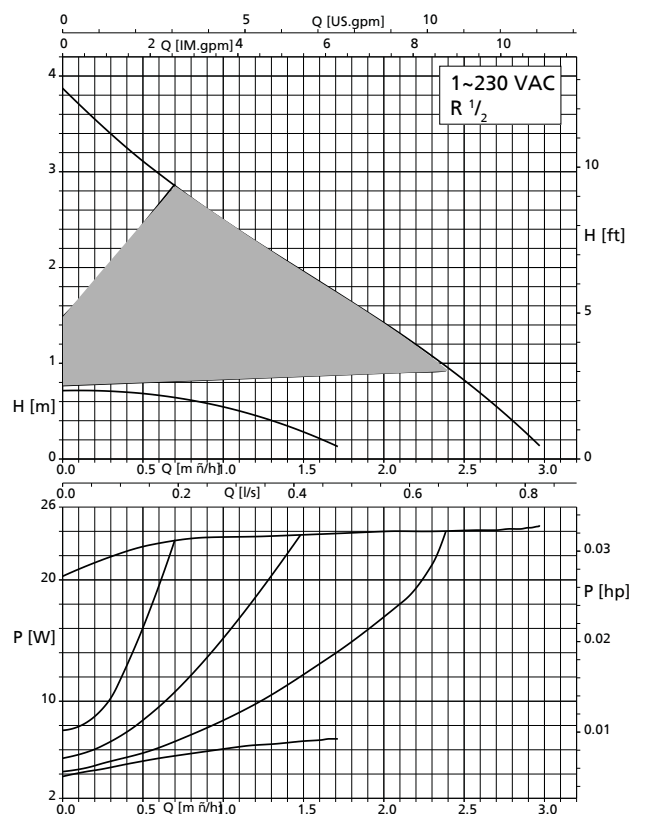
t	<75	>90
All	0,05	0,28

Characteristic curves

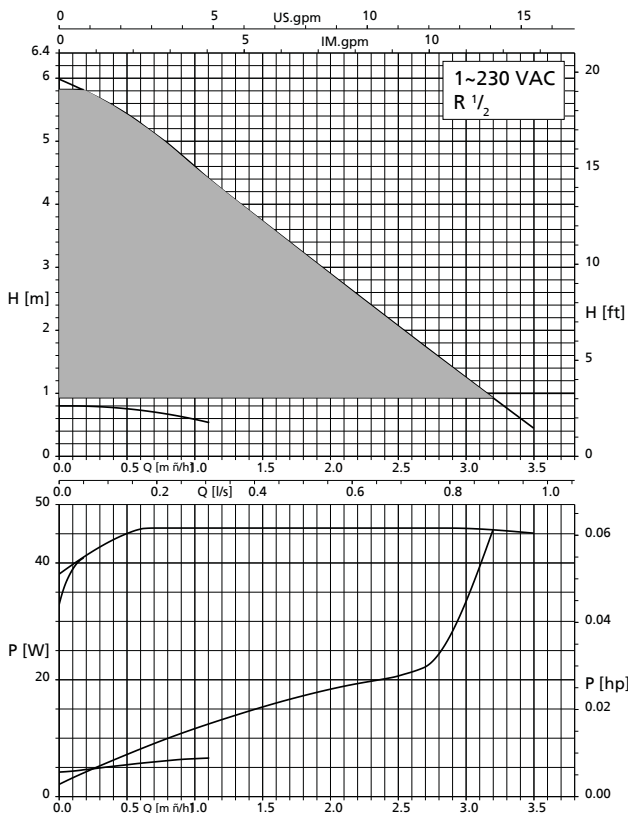
Calio S 15-40 - $\hat{A}pc$



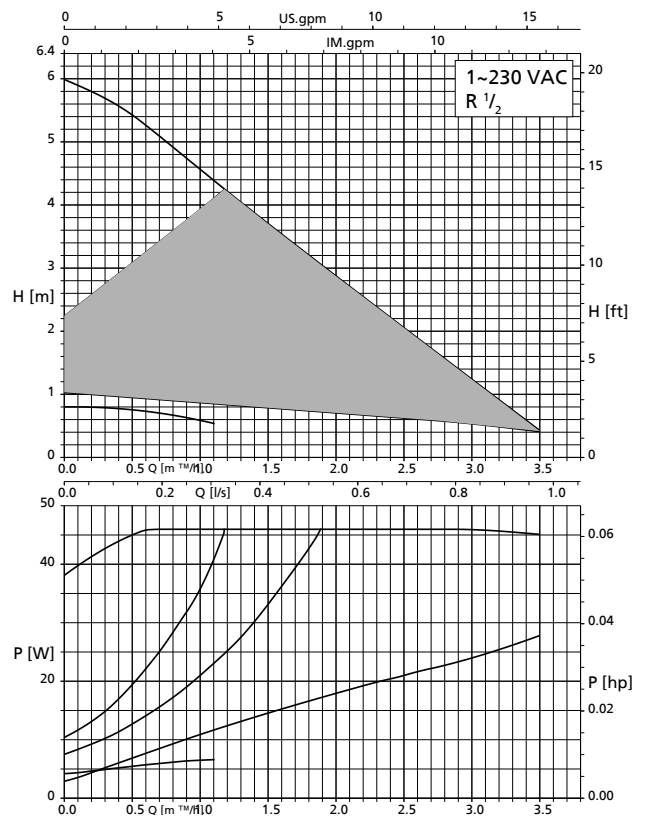
Calio S 15-40 - $\hat{A}pv$



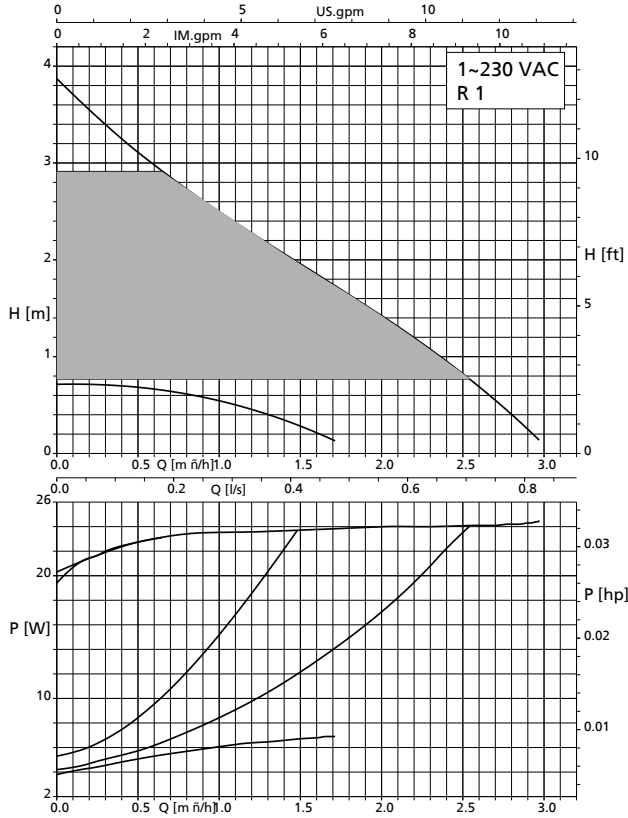
Calio S 15-60 - $\hat{A}pc$



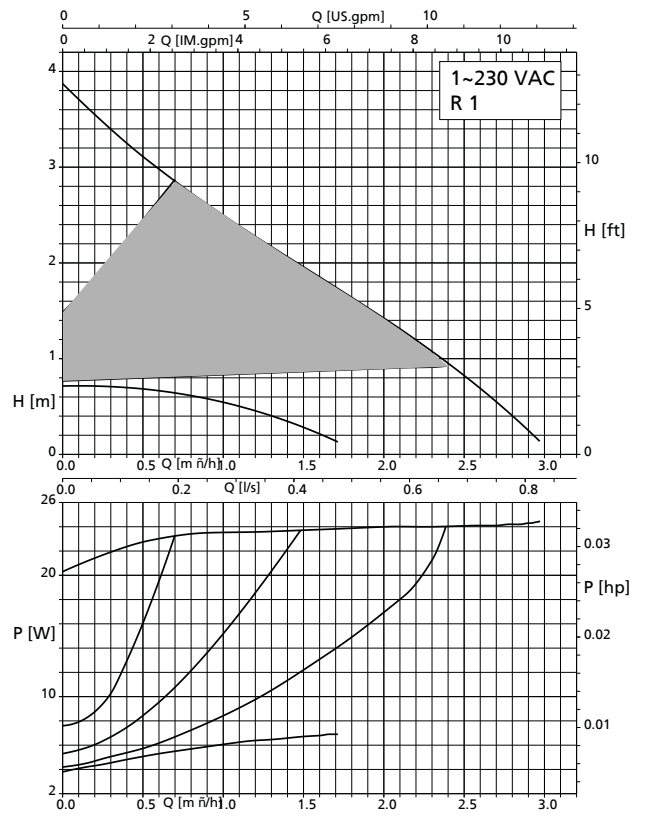
Calio S 15-60 - $\hat{A}pv$



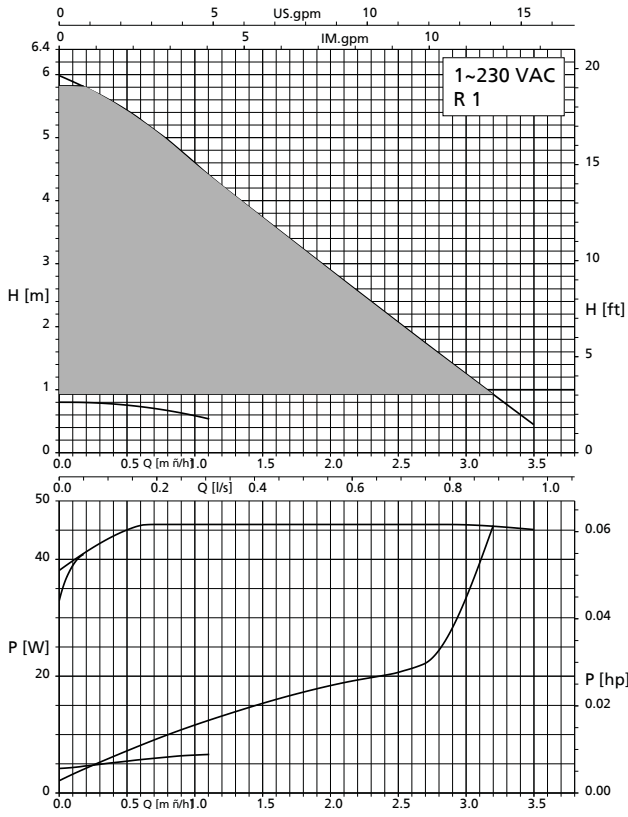
Calio S 25-40 - Âpc



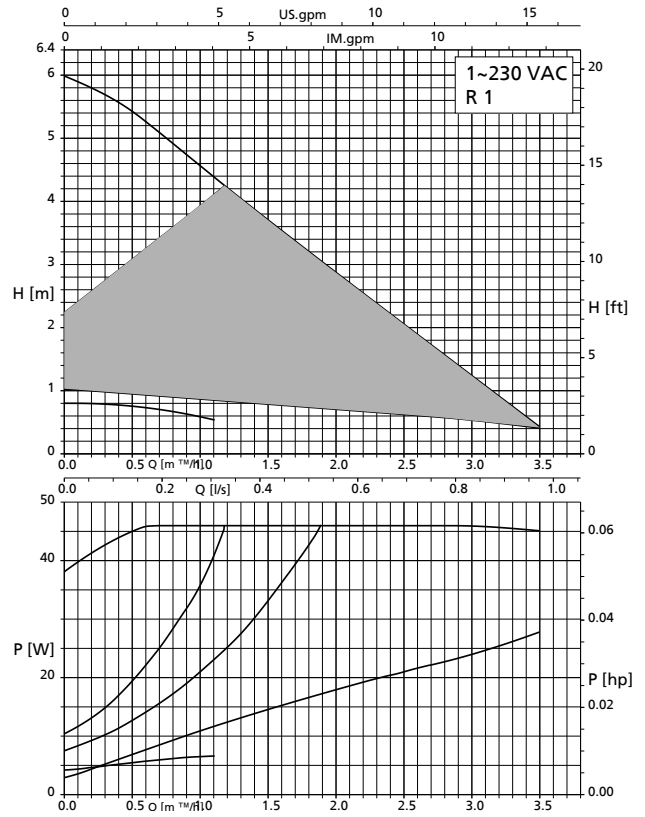
Calio S 25-40 - Âpv



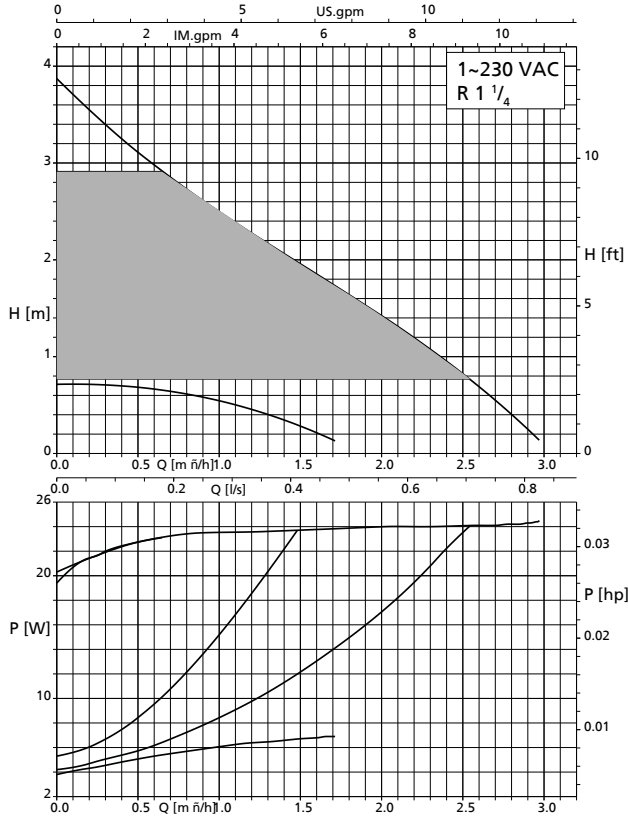
Calio S 25-60 - Âpc



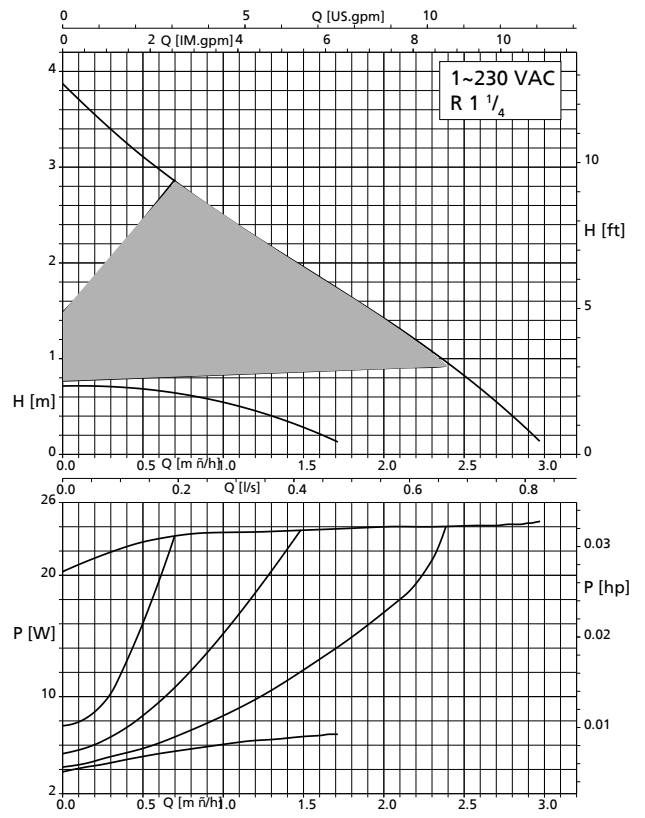
Calio S 25-60 - Âpv



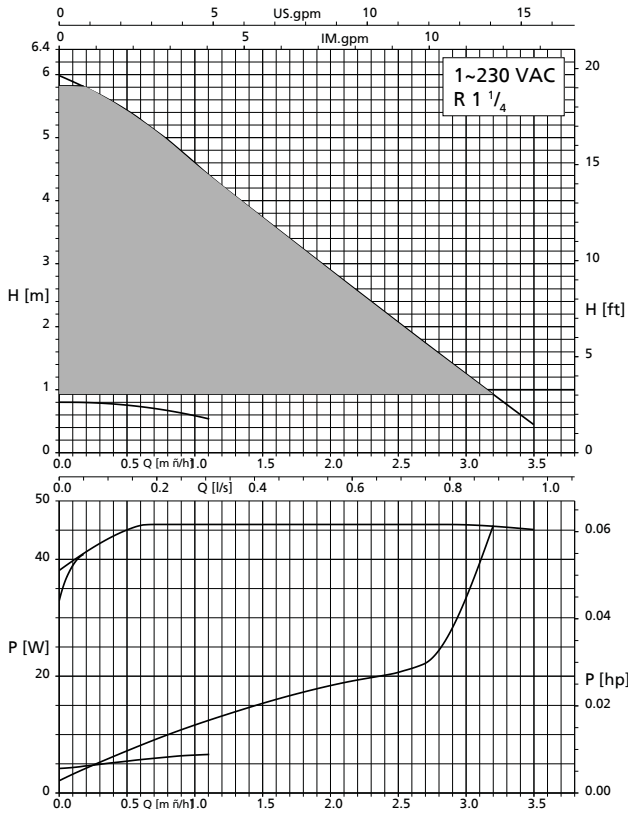
Calio S 30-40 - Âpc



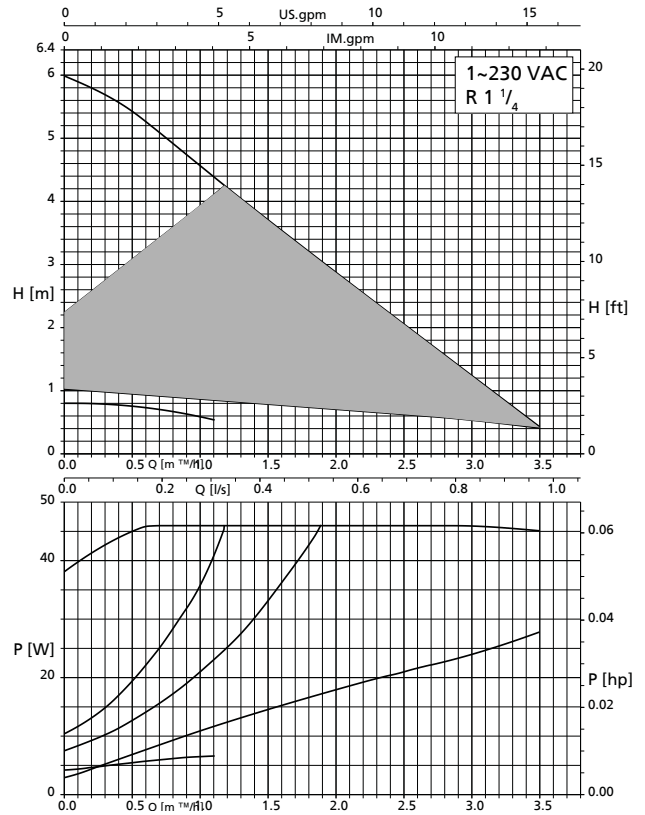
Calio S 30-40 - Âpv



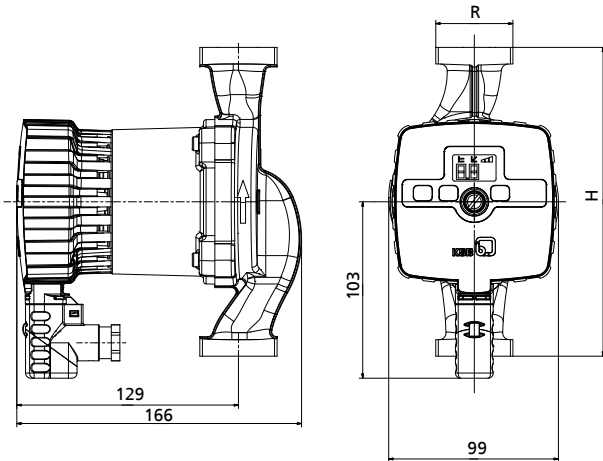
Calio S 30-60 - Âpc



Calio S 30-60 - Âpv



Dimensions



Screw-ended pumps

Dimensions [mm]

Calio S	R	G	H
15-40-130	1/2	1	130
15-60-130	1/2	1	130
25-40-130	1	1 1/2	130
25-60-130	1	1 1/2	130
25-40	1	1 1/2	180
25-60	1	1 1/2	180
30-40	1 1/4	2	180
30-60	1 1/4	2	180

Notes on installation

Permissible installation positions

Sizes	
All	

Scope of supply

- › Pump
- › Sealing elements
- › Installation and operating manual
- › Heat insulation (for 180 mm overall length only)



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