General information – OEM Circulators

Circulator designation
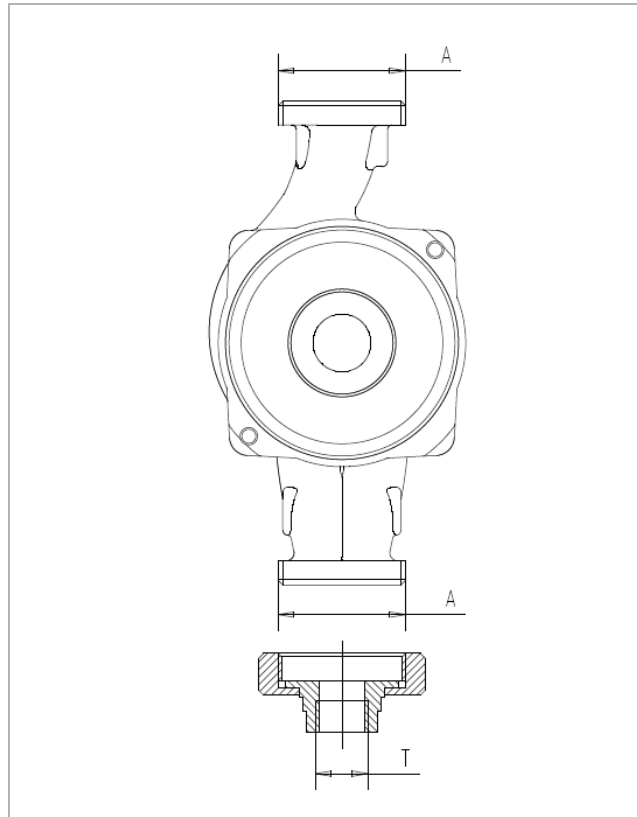
Wilo designation

Range	
RS TOP–RL TOP–S	Standard
RSL	Standard with air venter
RSG	Heat circulator standard
E	Electronic terminal box
Z	Sanitary water circulator
HU	Hydraulic unit
RSB	Block circulator
ST	Solar circulator
NFS	Standard air venting circulator housing

Electric connection	
PL	Packing gland on the left
PR	Packing gland on the right
CL	Connector on the left
CR	Connector on the right
FSL	Overmoulded cable on the left
FSR	Overmoulded cable on the right

Height circulator : 130 mm / 180 mm

INT RSL 25 / 5 – 3 Ku PR 130 – 9 – I

Roughly height of water (mCE) at water flow=0

Packaging	
I	Individual
	Collective

Position of terminal box

Nominal width of connection	
12	Threading 3/4"
15	Threading 1"
20	Threading 1"¼
25	Threading 1"½
30	Threading 2"

Ku = Composite circulator housing

Control	
3	3 speeds (Max/Medium/Eco)
2	2 speeds (Max/Medium)
1	1 speed (Max)
PWM–X	Electronic circulators (PWM regulation)
PWM–C	

INT	Integrated asynchronous motor
	Asynchronous motor

WILO

General information – OEM Circulators

Circulator connection

Circulating circulator threaded connection

Designation	WILO circulator's section designation	12	15	20	25	30
	SALMSON circulator's section designation	12	15	20	25	32
A	Circulator's thread diameter (inch) – G	3/4"	1"	1¼"	1½"	2"
	Circulator's thread diameter (mm)	26,44	33,25	41,91	47,8	59,61
T	Pipe's diameter (inch) – Rp		1/2"	3/4"	3/4" or 1"	1¼"
	Pipe's designation (mm)		15/21	20/27	20/27 or 26/34	33/42

Recommendations for hydraulic connections (cast iron or bronze or composite pump housing)

> material for flat gasket type EPDM 70 shores

General information – OEM Circulators

Abbreviations and what they stand for

Abbreviation	Meaning
1/min	Revolutions per minute (rpm)
°dH	Degree of German water hardness, unit for assessing water hardness
Δp–c	Control mode for constant differential pressure
Δp–v	Control mode for variable differential pressure
External controlled pump	Pump regulated by external system
H	Delivery head in m (1 m = 0.098 bar)
HVAC	Heating, Ventilation and Air Conditioning
PN	Nominal pressure. The pump has been validated at the defined pressure with security coefficient
Q	Volume flow in m³/h
Remote control	The speed selection of the pump can be defined by an external system
Stand alone or self controlled pump	Pump with integrated regulation (generally Δp–c and Δp–v)
TF	Normative water temperature classification
VDI 2035	VDI guideline for the prevention of damage in hot water heating installations

General information – OEM Circulators

Specific functions

Self regulating pumps provide specific features:

In Δp–c control mode, the electronic module keeps the differential pressure generated by the pump constant at the differential pressure set point HS over the permissible volume flow range.
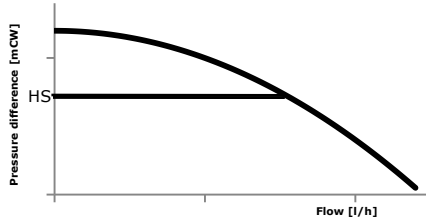
In Δp–v control mode, the electronic module changes the differential pressure set point to be maintained by the pump in linear fashion between Hs and ½Hs. The differential pressure set point value varies with the volume flow Q.
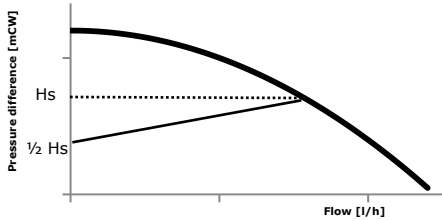
The choice of the control mode must be made by qualified personnel during installation according to pipe losses characteristics.

Air venting routine

An air venting routine is implemented to help the installer to drain air out of the heating installation. This routine can easily be selected turning the red button to the middle position. It runs 10 minutes by alternating low and high speeds of the pump. At the end of the process, the pump automatically switches to a preset speed. The installer can then select the requested setting with the red button.

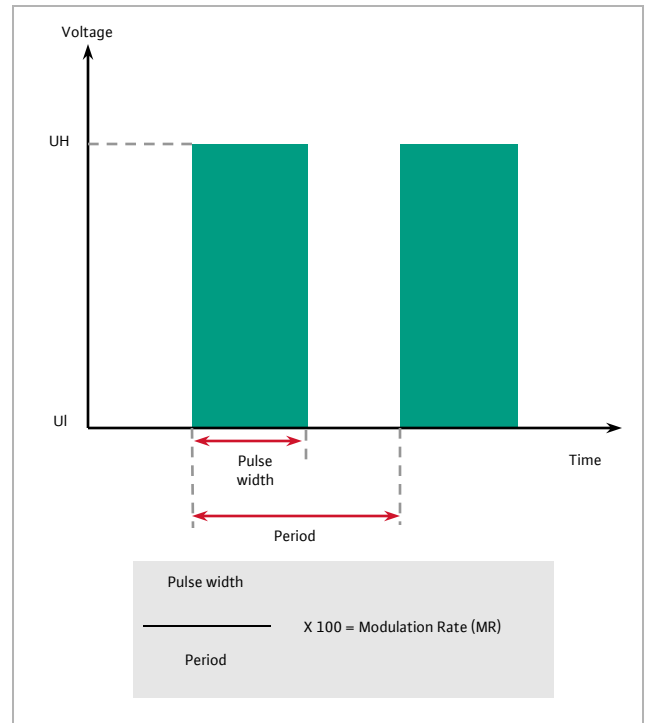**PWM regulation**

Interface specification
    Signal polarity : both
    PWM frequency range : 150 Hz to 4 kHZ

PWM voltage range :

	Min	Max
UH	5V	15V
UL	0V	0,5V

Required control current :
4 mA @ 5V
7.5mA @ 15V

Description: the PWM module receives the signal from the boiler controller and switches the circulator into one of the power stage or rotation speed. There is no possibility to read out any information from the module (unidirectional interface).

Signal logic   0% PWM ⟹ Maximum stage or speed

heating   100% PWM ⟹ circulator off (stand-by)

Signal logic   100% PWM ⟹ Maximum stage or speed

solar   0% PWM ⟹ circulator off (stand-by)

See transfer curves in the electronic and high efficiency circulators pages.

General information – OEM circulators

Operating modes for PWM
> Power-On:
– The circulator starts with the maximum stage
– After stable running, the circulator switches into the stage
selected by PWM signal
> PWM changing :
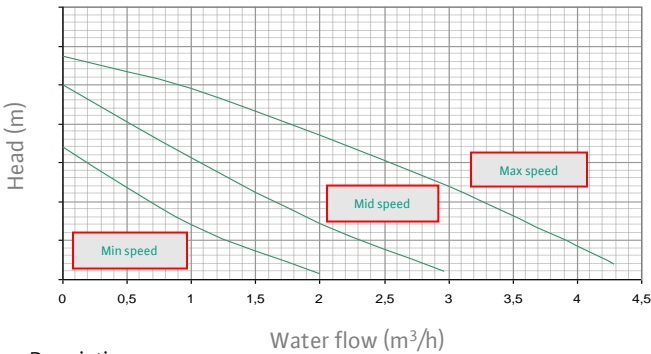– The circulator switches directly to the selected stage

Type PWM-X

For the model PWM-X, the electronics switches between 24 predefined
stages according to the following transfer curve
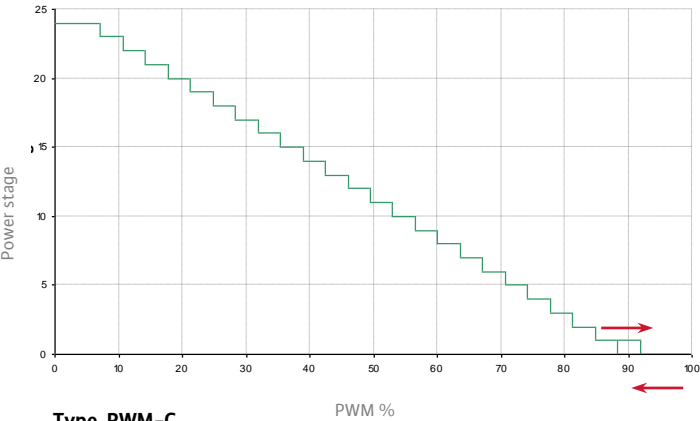
Type PWM-C

For the model PWM-C, the electronic control provides one of the 3
hydraulic curves of the standard circulator

Description :
The PWM-C module receives the signal from the boiler controller and
switches the circulator into one of the 3 power stage of the standard
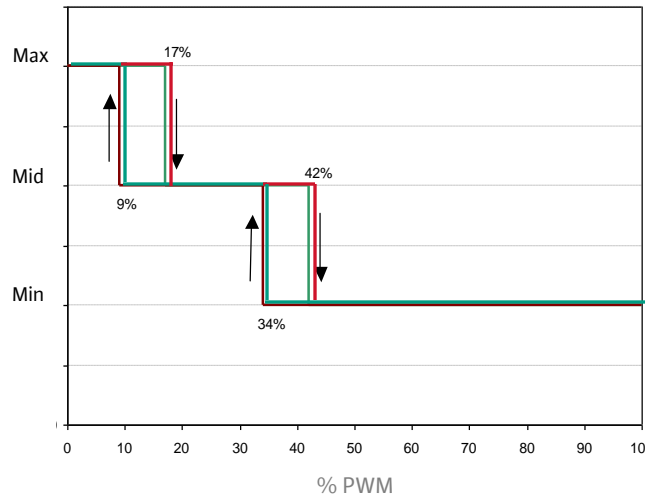circulator.

The switching points are fixed.

Signal logic :   0% PWM $\Rightarrow$ Max speed
                        100% PWM $\Rightarrow$ Min speed
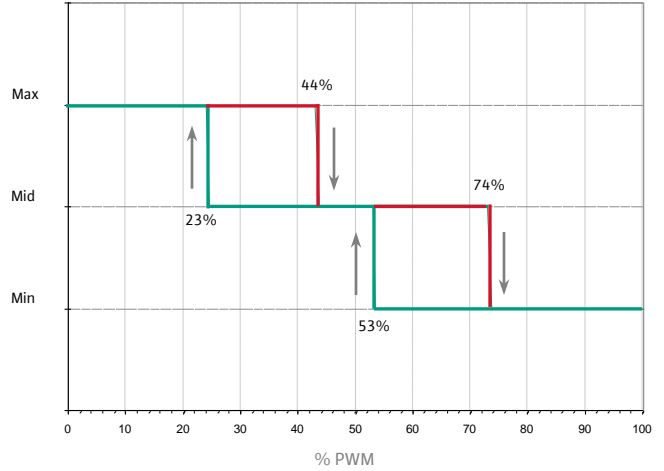
The variant C/A has been created especially for the boiler controller
type Honeywell MCBA14xxD-HR7A

Transfer curve PWM-C/A

WILO
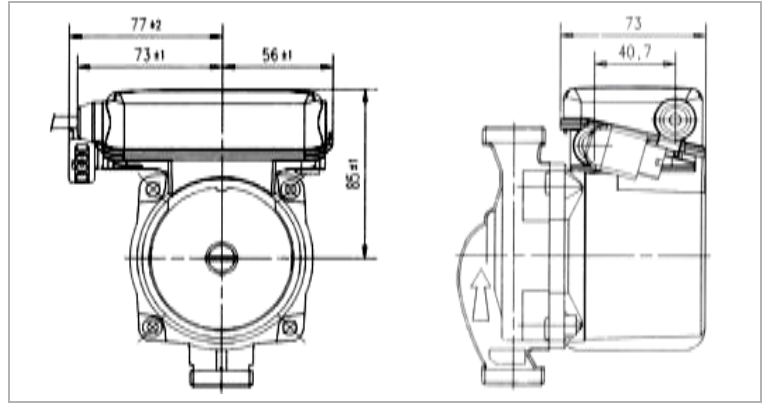
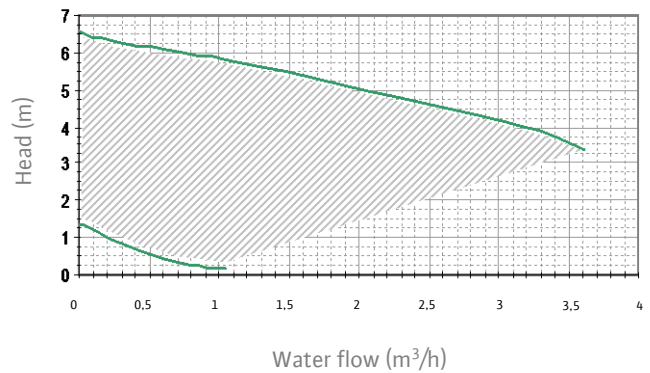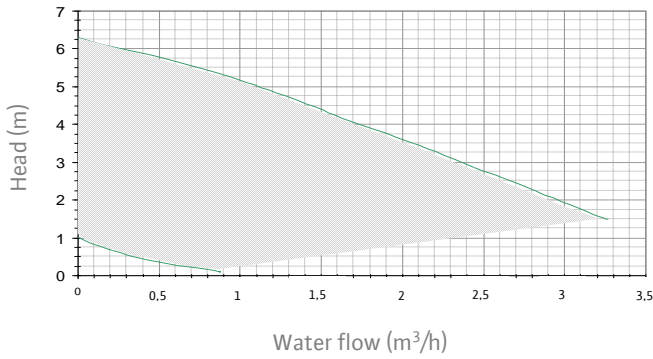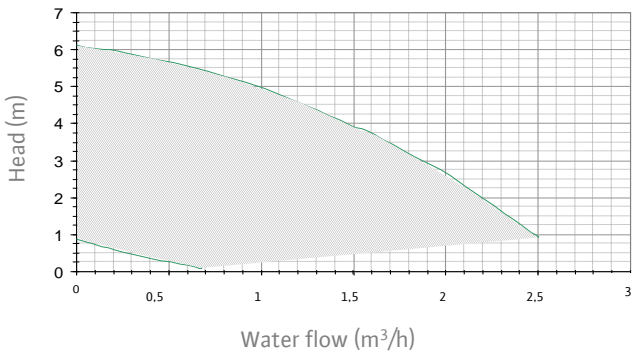## Electronic circulators for heating application

Type PWM-X

RS../6 PWM-X

Head (m) / Water flow (m³/h)

RS 25/7 PWM-X

Head (m) / Water flow (m³/h)

RSL 15/6 Ku PWM-X

Head (m) / Water flow (m³/h)

		n	P1	I
		1 / min	W	A
RS../6 PWM-X	max	2200	92	0.40
RSL 15/6 Ku PWM-X	min	400	31	0.22
RS../7 PWM-X	max	2750	124	0.54
	min	450	40	0.29

Nota bene : tolerances of each curve are according to EN 1151-1:2006

Asynchronous circulators for sanitary application

Type : Z20

Z20/5

Water flow (m³/h)

Z20/6

Water flow (m³/h)
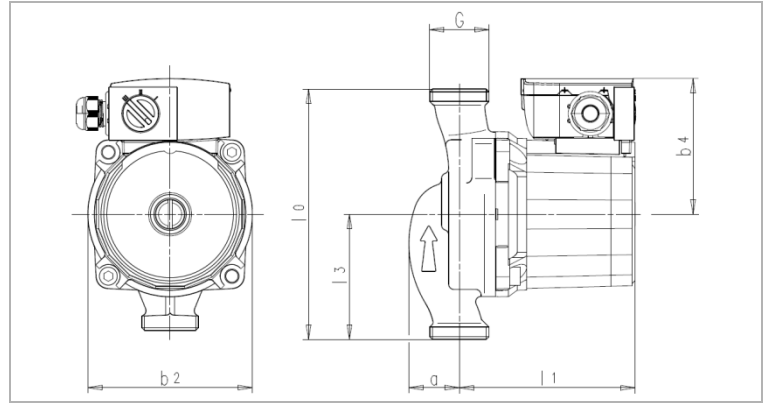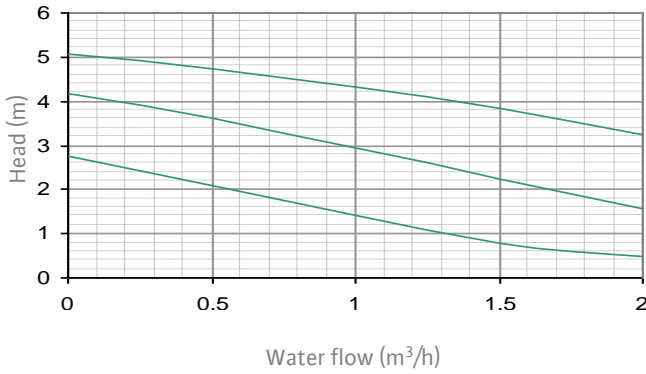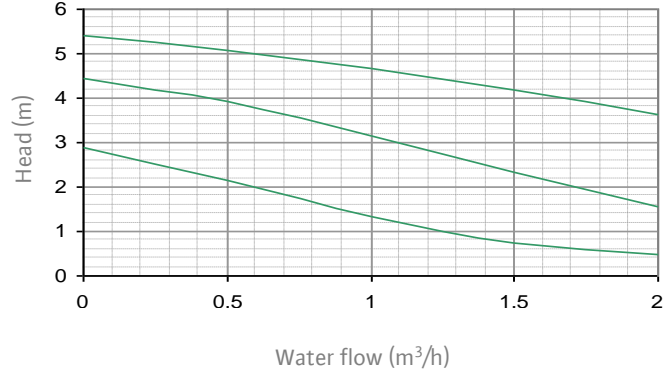
			n l/m	P1 W	I A	Capacitor µf / VDB
Z20/5	max	2150		89	0,39	
		1600		66	0,29	2,6 / 400
	min	1050		45	0,20	
Z20/6	max	2200		99	0,41	
		1900		74	0,32	2,6 / 400
	min	1200		50	0,22	

	Thread	Dimensions					
	G	l0	l3	l1	a	b2	b4
Z20/5	1"	140	70	96,6	32,2	92,5	76
Z20/6							

Nota bene : tolerances of each curve are according to EN 1151–1:2006