



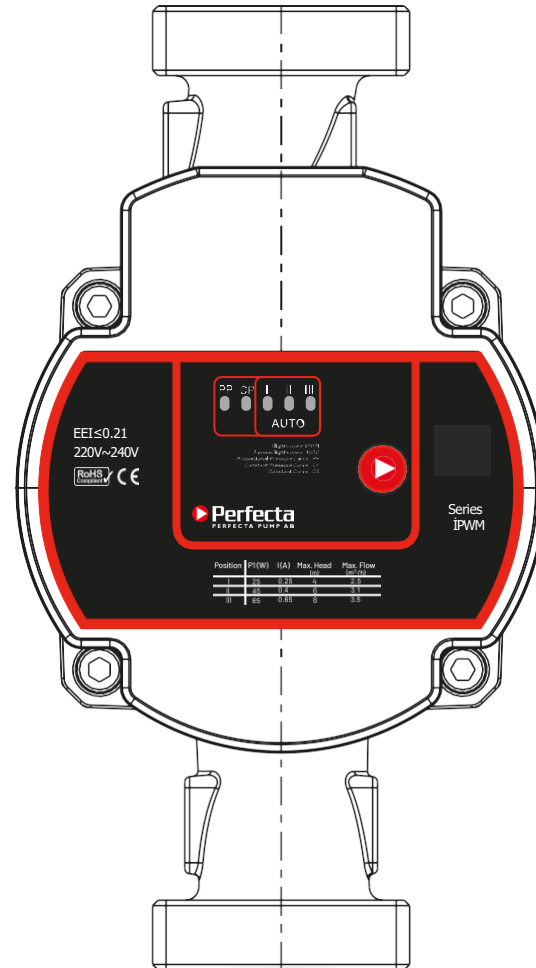
# Perfecta

PERFECTA PUMP AB






# Nemplate Design

- PANTONE 485 C
- BLACK
- PANTONE COLD GRAY 6 C



# BOX Design

-  PANTONE 485 C
-  BLACK
-  PANTONE COLD GRAY 6 C



# Perfecta Technical Specification

## Application

For domestic hot water system such as mix water under-floor heating system, air energy hot water circulation system, solar hot water circulation system and family hot, cold water pressurization circulation, etc.





## Main features

- $EI \leq 0.21$
- Permanent magnet plastic injection motor, intelligent frequency control
- Compact size, easy for installation
- Proportional pressure mode
- Constant pressure mode
- Constant speed mode
- AUTO adapt mode
- PWM external control optional
- Visualized operation
- Low noise, low temperature

## Working condition

- Liquid temperature :  $2^{\circ}\text{C} \sim 110^{\circ}\text{C}$
- Ambient temperature :  $0 \sim +40^{\circ}\text{C}$
- Max system pressure : 10bar
- Protection level : IP44
- Rated voltage/frequency : 220V ~ 240V/50Hz
- Insulation class : E
- Pumped liquid characteristics: clean liquid, free from solids and mineral oils, non-toxic, chemically neutral, close to the characteristics of water
- Installation: the motor shaft must be kept in horizontal direction

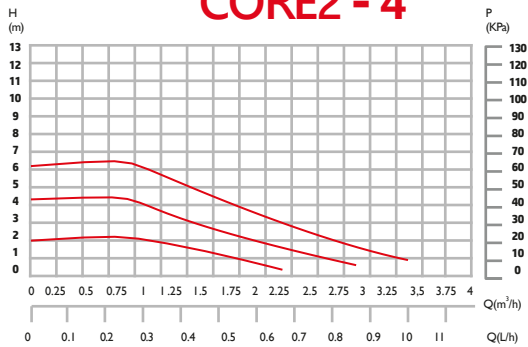


## Functions for different model

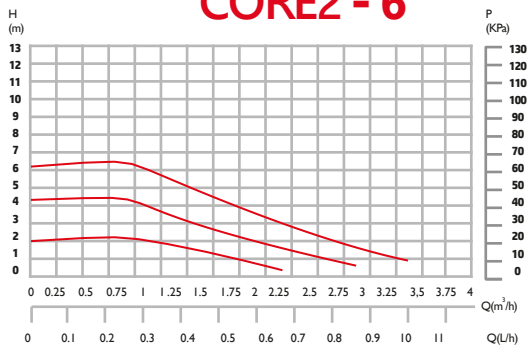
Model	Internal control			External control
	PP	CP	CS	PWM
Core2 XX - X - XXX	I	I	I	PWM1
	II	II	II	
	III	III	III	
	AUTO	/	/	
Core2 XX - X - XXX PWM1	/	/	III	PWM1
Core2 XX - X - XXX PWM2	/	/	III	PWM2

# Perfecta Curve

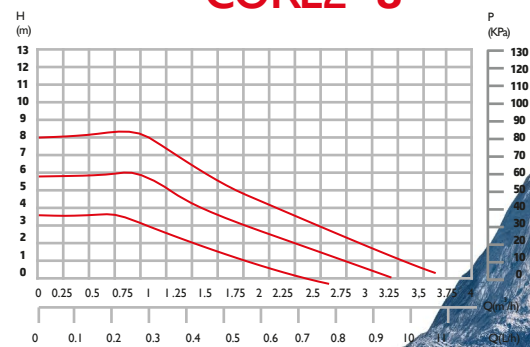
**CORE2 - 4**



**CORE2 - 6**



**CORE2-8**



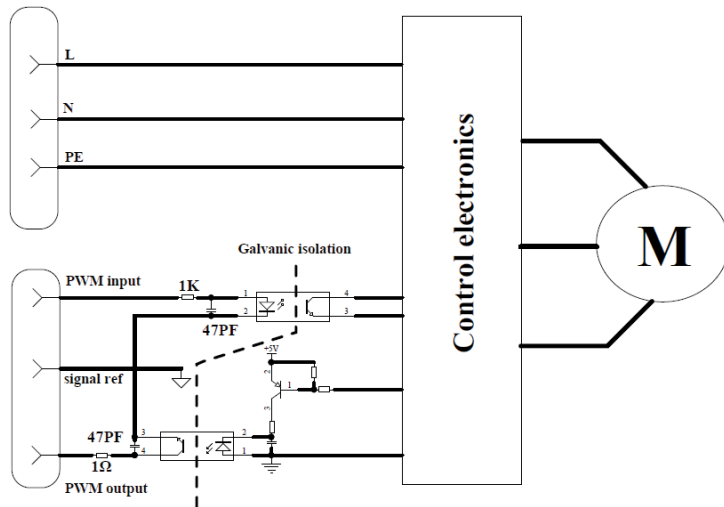
## Electrical and hydraulic data

Model	Inlet/ outlet		max flow	Head range	Voltage	Frequency	P1	In				
	mm		m <sup>3</sup> /h	m	V	Hz	W	A				
Core2 15U-4-13Q ( PWM1/PWM2 )	20	G1	2.2	1 ~ 4	220 ~ 240	50/60	25	0.3				
Core2 25u-4-13Q ( PWM1/PWM2 )	25	G1.5	2.5									
Core2 25u-4-18Q ( PWM1/PWM2 )	25	G1.5	2.5									
Core2 32u-4-18Q ( PWM1/PWM2 )	32	G2	2.9									
Core2 15U-6-13Q ( PWM1/PWM2 )	20	G1	2.9	1 ~ 6			220 ~ 240	50/60	40	0.5		
Core2 25u-6-13Q ( PWM1/PWM2 )	25	G1.5	3.2									
Core2 25u-6-18Q ( PWM1/PWM2 )	25	G1.5	3.2									
Core2 32u-6-18Q ( PWM1/PWM2 )	32	G2	3.6									
Core2 15U-8-13Q ( PWM1/PWM2 )	20	G1	2.9	1 ~ 8					220 ~ 240	50/60	65	0.65
Core2 25u-8-13Q ( PWM1/PWM2 )	25	G1.5	3.4									
Core2 25u-8-18Q ( PWM1/PWM2 )	25	G1.5	3.6									
Core2 32u-8-18Q ( PWM1/PWM2 )	32	G2	4.0									



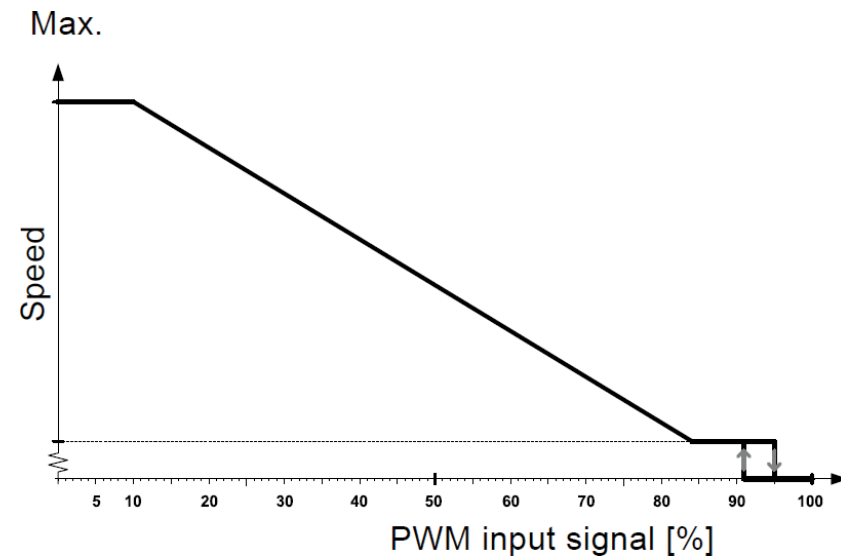
# PWM Basic Control Principles

When PWM signal is connected, the operation of circulating pump is controlled by PWM signal. If there is no PWM signal, the operation of circulating pump is controlled by internal control logic.



# Pwm Input Signal (P1 Heating)

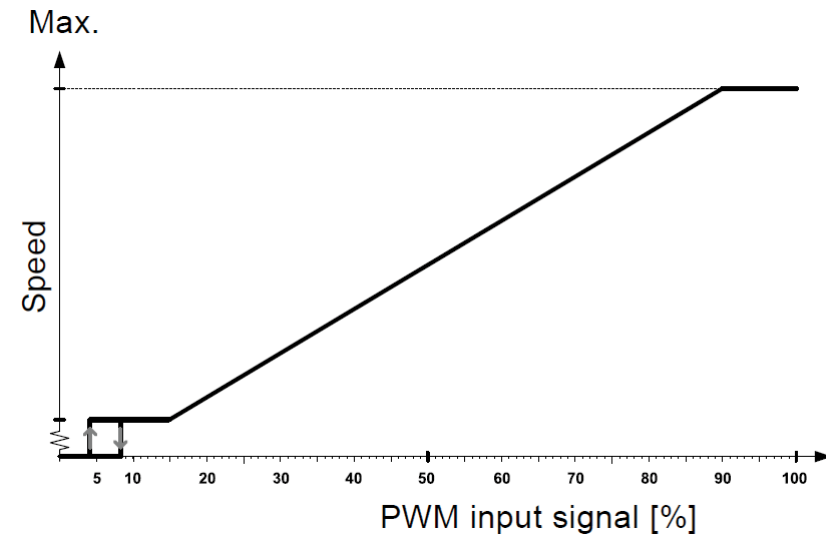
At high PWM signal percentages (duty cycles), a hysteresis prevents the circulating pump from starting and stopping if the input signal fluctuates around the shifting point. At low PWM signal percentages, the circulating pump speed is high for safety reasons. In case of a cable breakage in a gas boiler system, the circulating pump will continue to run at maximum speed to transfer heat from the primary heat exchanger. This is also suitable for heat circulating pumps to ensure that the circulating pump can transfer heat in case of a cable breakage.



PWM input signal (%)	Pump status
PWM=0	Switch the pump to non-PWM mode (internal control) operation
$0 < PWM \leq 10$	Maximum speed: Max.
$10 < PWM \leq 84$	Variable speed: max. to min.
$84 < PWM \leq 91$	Minimum speed: Min
$91 < PWM \leq 95$	Hysteresis area: on/off
$95 < PWM \leq 100$	Standby mode: off

# Pwm Input Signal (P2 Solar)

At low PWM signal percentages (duty cycles), a hysteresis prevents the circulating pump from starting and stopping if the input signal fluctuates around the shifting point. Without PWM signal percentages, the circulating pump will stop for safety reasons. If a signal missing, for example due to a cable breakage, the circulating pump will stop avoid overheating of the solar thermal system.



PWM input signal (%)	Pump status
PWM=0	Stop running
0 < PWM ≤ 5	Standby mode: off
5 < PWM ≤ 8	Hysteresis area: on/off
8 < PWM ≤ 15	Minimum speed: Min
15 < PWM ≤ 90	Variable speed: min. to max.
90 < PWM ≤ 100	Maximum speed: Max.



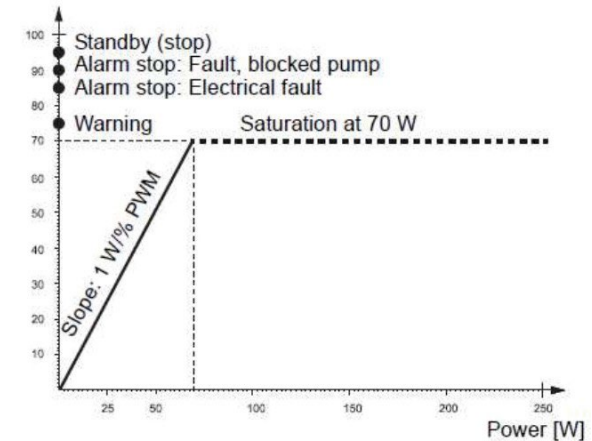
# Pwm Signal

<b>Optocoupler isolation</b>		<b>YES</b>
PWM input frequency		1000—2500Hz
High-level input voltage	UiH	4.0—5.5V
Low-level input voltage	UiL	< 0.7V
High-level input current	I <sub>H</sub>	Max3.5mA@4700Ohms Max10mA@100Ohms
PWM output duty cycle		0—100%
Signal polarity		fixed
Length of signal line		< 3m
Rising and falling edge time		< T/1000

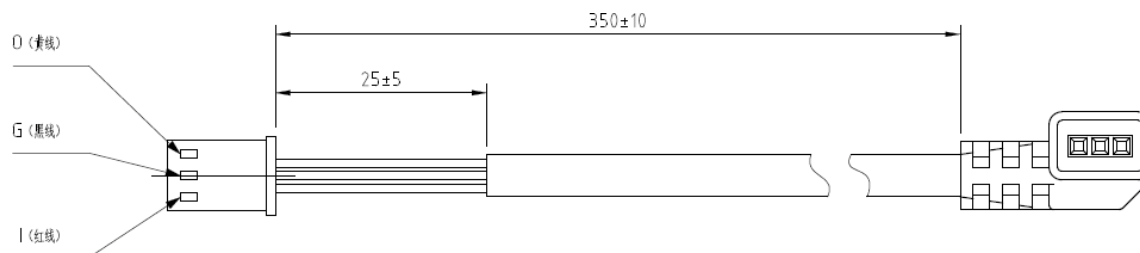


# Pwm Feedback Signa (Power Consumption)

PWM output signal (%)	Qualification time QT (s)	Pump information	Disqualification time DT (s)	Priority
95	0	Standby by PWM signal (STOP)	0	1
90	30	Alarm, stop, blocked error	12	2
85	0—30	Alarm, stop, electrical error	1-12	3
75	0	Warning	0	5
0-70		0—70W ( slope 1W/%PWM )		6
Output frequency	75Hz+/-5%			



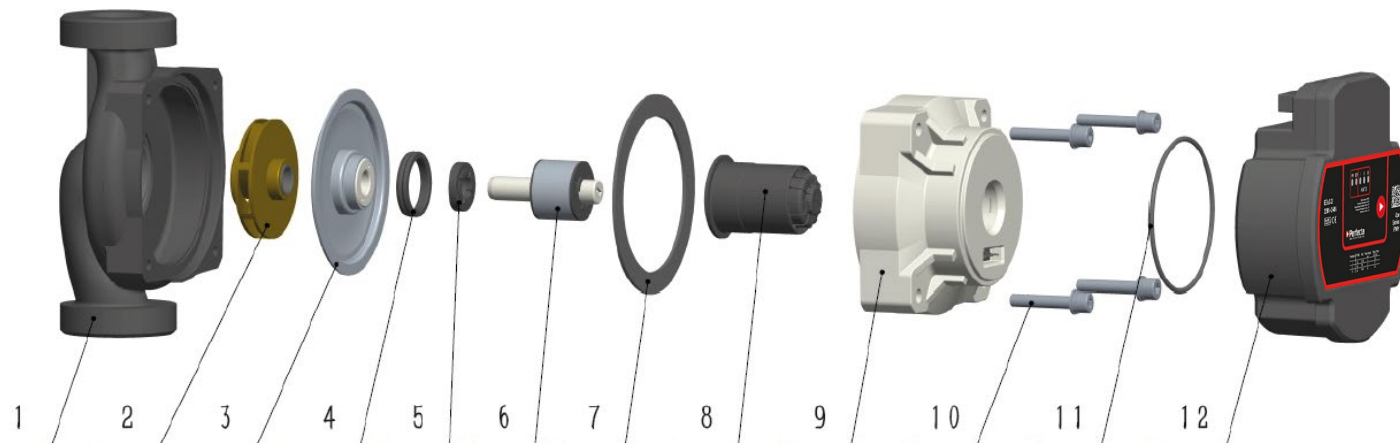
## Signal Connection



Black: Ground wire (GND)

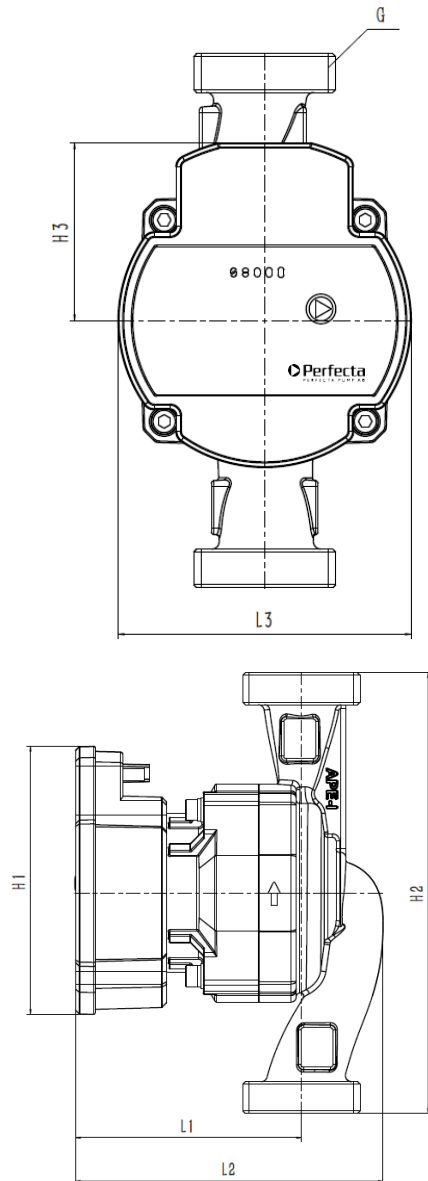
Red: PWM input (from controller)

Yellow: PWM output (from the pump)



NO	ITEM NAME
1	Pump body
2	Impeller
3	Pump cover assembly
4	Sealing ring
5	Thrust bearing
6	Rotor assembly

NO	ITEM NAME
7	Flat sealing
8	Rotor can assembly
9	Motor
10	Nuts
11	Oring
12	Control box assembly



Model CORE2	Size ( mm )								Inner box ( kg )		Outer box												
	L1	L2	L3	H1	H2	H3	G	Unions	NW	GW	Pcs/ carton	Size ( mm )	GW ( kg )										
15u-4-130 ( PWM1/PWM2 )	93	126	99	110	130	60			1.6	2.0	8	310× 290× 260	16										
15u-6-130 ( PWM1/PWM2 )														G1	G1 to G3/4								
15u-8-130 ( PWM1/PWM2 )																							
25u-4-130 ( PWM1/PWM2 )									G1 1/2	G1 1/2 to G1		1.7	2.2										
<b>25U-6-130 ( PWM1/PWM2 )</b>																							
25U-8-130 ( PWM1/PWM2 )									180								1.9	2.4		410× 290× 240	20		
<b>25U-4-180 ( PWM1/PWM2 )</b>																							
25U-6-180 ( PWM1/PWM2 )																	G2	G2 to G1 1/4		2.0	2.75		
25U-8-180 ( PWM1/PWM2 )																							
32U-4-180 ( PWM1/PWM2 )																							
32U-6-180 ( PWM1/PWM2 )																							
32U-8-180 ( PWM1/PWM2 )																							