

## Brushless pumps



The stator and electronics are mechanically fully-separated from the rotor in the dry motor housing. The electronics and the stator winding generate an alternating electrical magnetic field, which in turn drives the rotor. The rotor, as part of the pump wheel, is located in the separate pump housing, therefore the coolant cannot come into contact with the electronics.

### Application examples

For versatile applications Bosch offers auxiliary water pumps with electronically commutated drive motors:

- ▶ Heater circuit
- ▶ Auxiliary heater
- ▶ Charge-air cooling
- ▶ Generator cooling
- ▶ Turbocharger cooling
- ▶ Fuel cooling
- ▶ After-run cooling of combustion engines
- ▶ Thermal management of electric vehicles
- ▶ Battery and electronic cooling

### Advantages for your application

- ▶ Compact design
- ▶ High delivery rate
- ▶ Long service life
- ▶ High efficiency
- ▶ Silent operation

# PAD

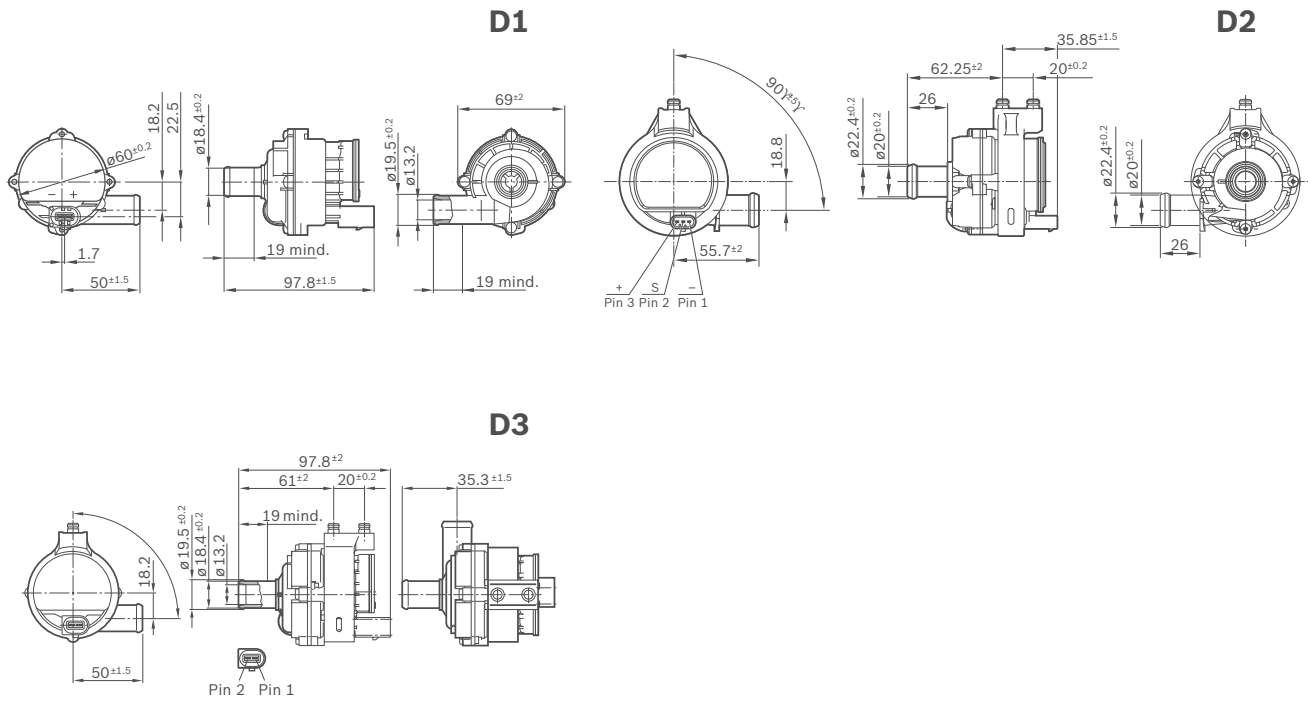


## Family features:

- ▶ Silent operation
- ▶ PWM control available
- ▶ Extended temperature range available
- ▶ Extended power range available
- ▶ Degree of protection: IPX7

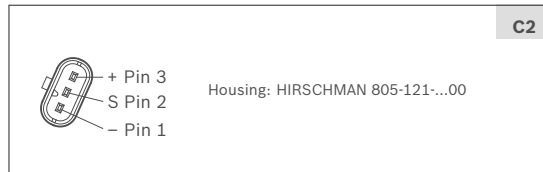
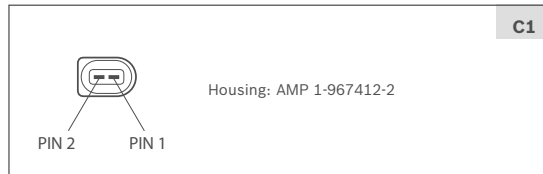
Voltage	Part number	Nominal pump pressure	Flow rate	Direction of rotation	Control	Dimensional drawing (D)	Connector (C)	Performance curve (P)
		bar	L/hr	CW or CCW				
12 V	0 392 023 232*	0.2	500	CW	PWM	D2	C2	P1
	0 392 023 004	0.1	900	CW	On / off	D1	C1	P2
	0 392 023 117**	0.1	900	CW	On / off	D3	C1	P3

\* Extended power range  
 \*\* Extended temperature range

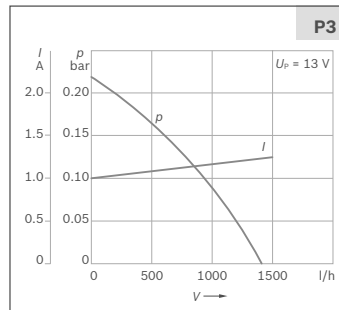
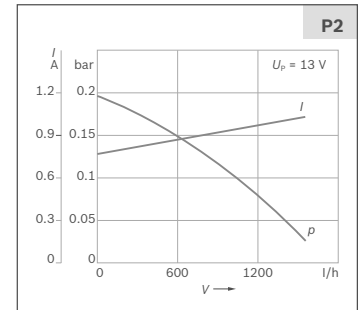
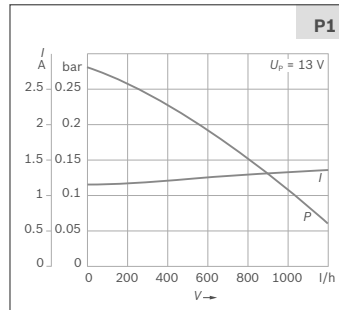


# PAD

## Mating connector (C)



## Performance curve (P)



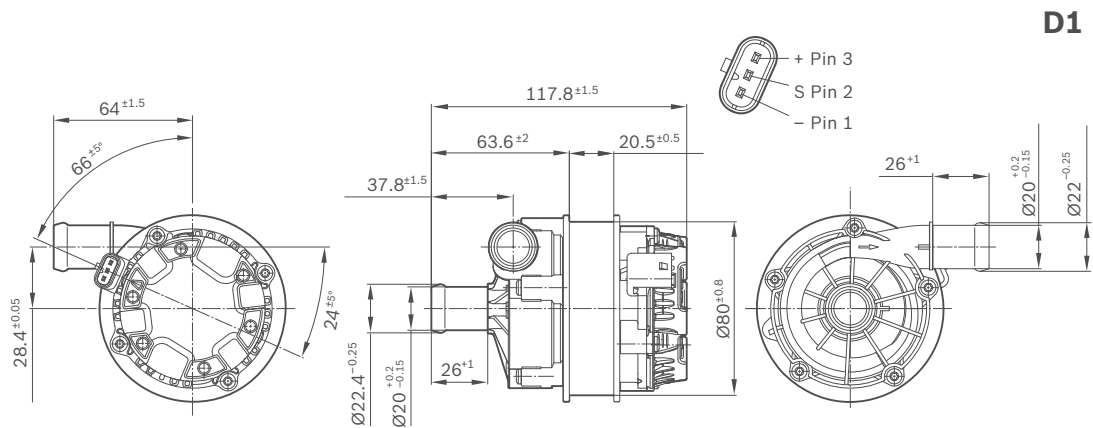
# PCE



## Family features:

- ▶ Silent operation
- ▶ PWM control available
- ▶ Extended temperature range available
- ▶ Extended power range available
- ▶ Degree of protection: IPX7

Voltage	Part number	Nominal pump pressure	Flow rate	Direction of rotation	Control	Dimensional drawing (D)	Connector (C)	Performance curve (P)
		bar	L/h	CW or CCW				
12 V	0 392 024 058	0.6	1200	CW	PWM	D1	C1	P1
	0 392 024 078	0.85	1000	CW	PWM	D1	C1	P2
24 V	0 392 024 041	0.6	1200	CW	PWM	D1	C1	P3



# PCE

## Mating connector (C)

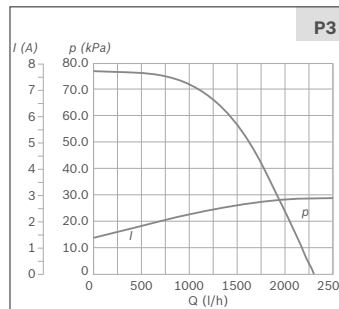
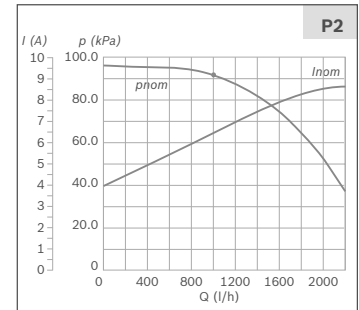
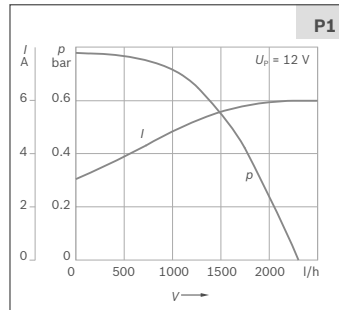


+ Pin 3  
S Pin 2  
- Pin 1

Housing: HIRSCHMAN 805-121-...00

C1

## Performance curve (P)



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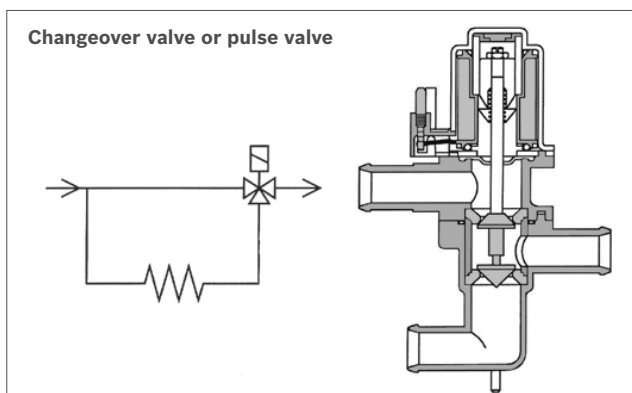
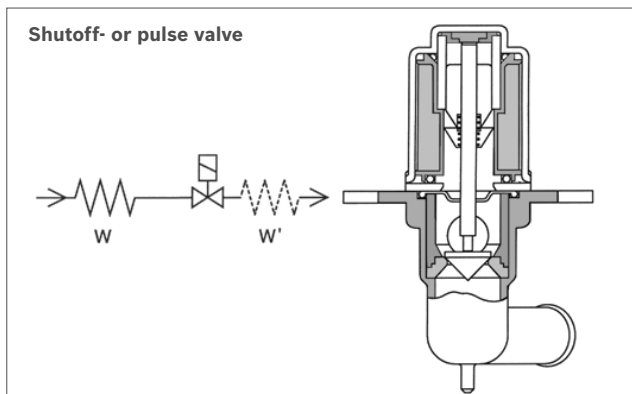
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## Solenoid valves



### Valves for coolant fluids

#### Application

Heater control for passenger cars and commercial vehicles.

#### Valve models

The valves are open when de-energized.

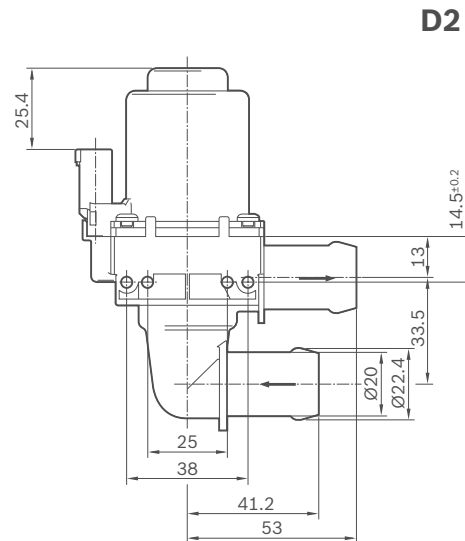
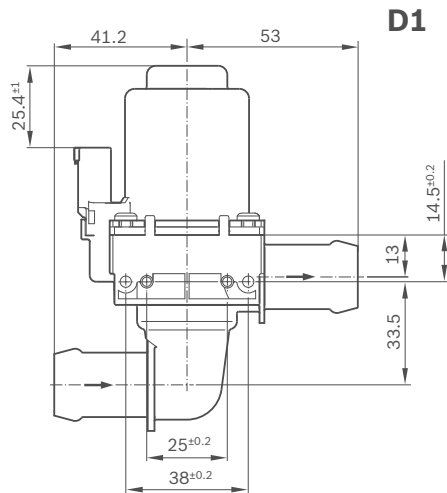
## Switch-off valves



### Family features:

- ▶ Proportional valve function possible
- ▶ Degree of protection: IP5K4
- ▶ Open when de-energized

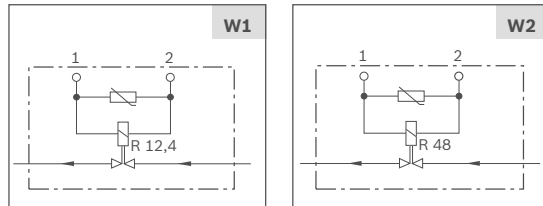
Voltage	Part number	Pressure drop	Flow rate	Switchable pressure difference	Resistance	Dimensional drawing (D)	Wiring diagram (W)	Connector (C)	Performance curve (P)
		kPa	L/hr	kPa	Ω				
12 V	1 147 412 208	35	1500	150	12.4	D1	W1	C1	P1
	1 147 412 205	35	1500	150	48	D1	W2	C1	P1
24 V	1 147 412 218	35	1500	150	48	D2	W2	C1	P1



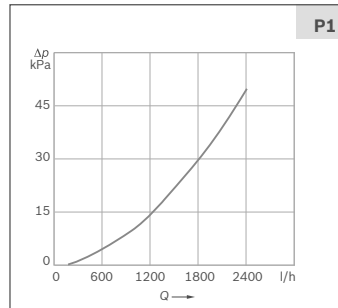


## Switch-off valves

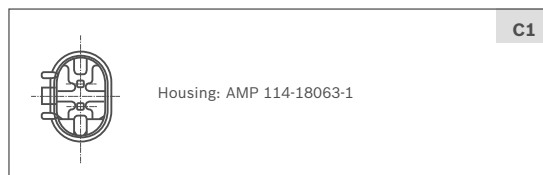
### Wiring diagram (W)



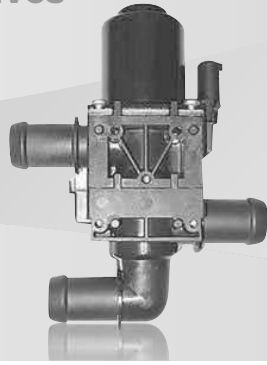
### Performance curve (P)



### Mating connector (C)



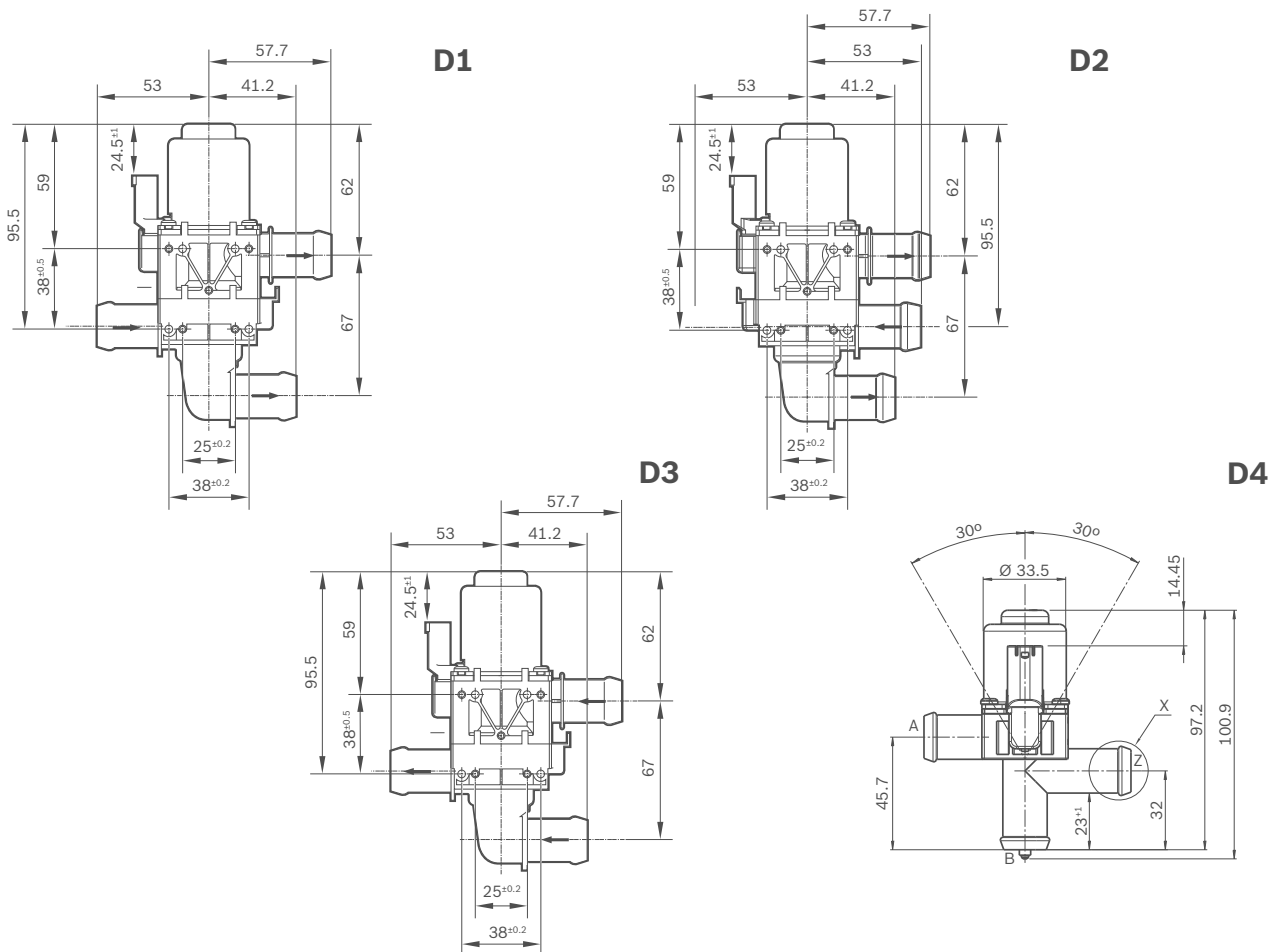
# Switch-over valves



## Family features:

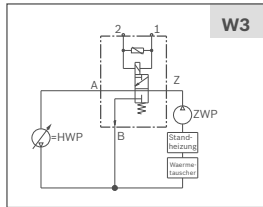
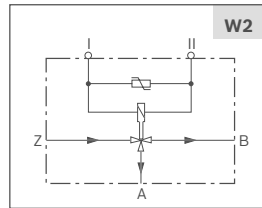
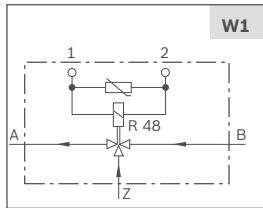
- ▶ Proportional valve function possible
- ▶ Degree of protection: IP5K4
- ▶ Open when de-energized

Voltage	Part number	Pressure drop	Flow rate	Switchable pressure difference	Resistance	Dimensional drawing (D)	Wiring diagram (W)	Connector (C)	Performance curve (P)
		kPa	L/hr	kPa	Ω				
12 V	1 147 412 207	45	1500	160	12.4	D3	W1	C1	P1
	1 147 412 211	45	1500	160	12.4	D1	W2	C1	P2
	1 147 412 213	45	1500	160	12.4	D2	W2	C1	P2
	1 147 412 282	35	1500	100	15.3	D4	W3	C1	-
24 V	1 147 412 202	45	1500	160	48	D1	W2	C1	P2
	1 147 412 204	45	1500	160	48	D3	W1	C1	P1

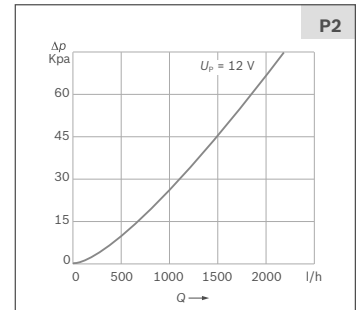
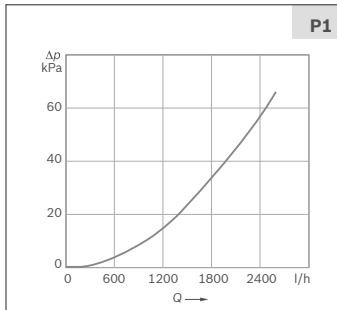


# Switch-over valves

## Wiring diagram (W)



## Performance curve (P)



## Mating connector (C)

