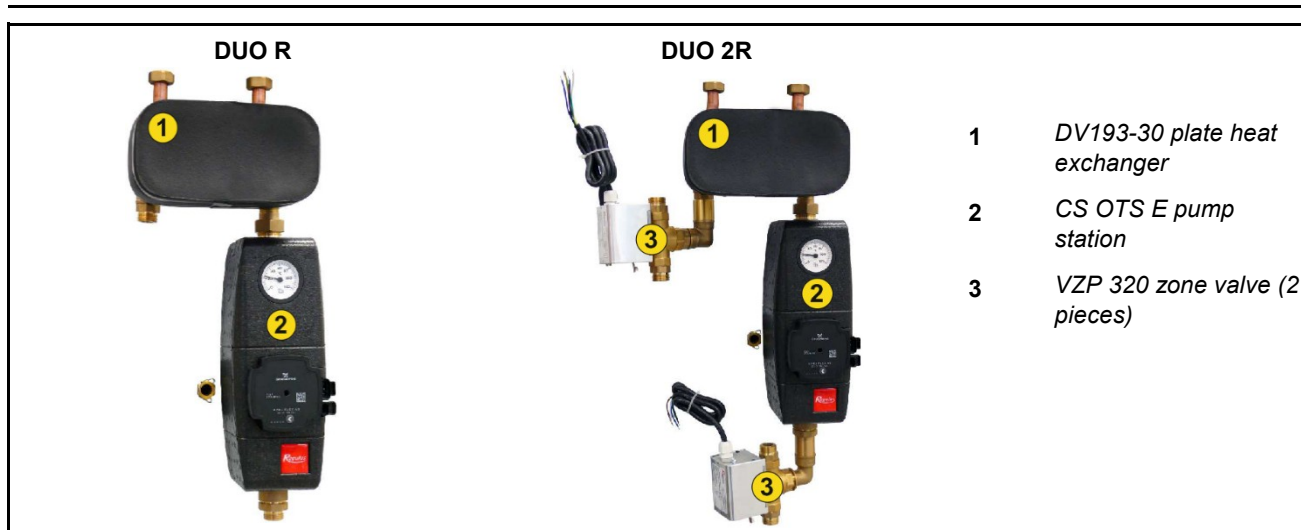


**DUO R and DUO 2R Kits**



- 1 DV193-30 plate heat exchanger
- 2 CS OTS E pump station
- 3 VZP 320 zone valve (2 pieces)

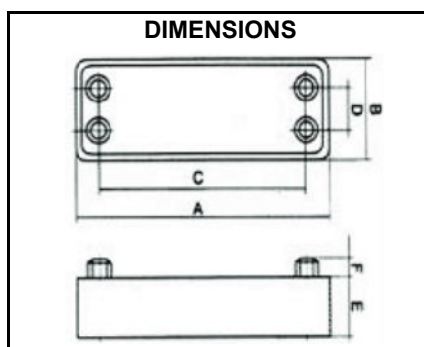
<b>Application</b>	Kits for DUO thermal stores consist of DV193-30 plate heat exchanger, CS OTS E pump station, and in DUO 2R also of two VZP 320 zone valves to switch between the upper and lower tank sections
<b>Purpose</b>	retrofitting a thermal store with a solar coil
<b>Code</b>	<b>14 908 (DUO R), 14 909 (DUO 2R)</b>

Max. operating temperature	90 °C
Max. working pressure	10 bar
Max. ambient temperature	60 °C
Max. relative humidity	95 % non condensing
Power supply	230 V, 50 Hz
Total weight	5.1 kg ( 9.5 kg with VZP valves)

**1. DATA ON DV-193-30 SOLDERED PLATE HEAT EXCHANGER**



Technical data	
Number of plates	30
Heat transfer surface area	0.42 m <sup>2</sup>
Fluid volume	0.45/0.45 l (heating/heated)
Max. working pressure	29.4 bar
Max. operating temperature	150 °C (175 °C in short term)
Max. solar collectors surface area at $\Delta\theta_{med} = 10 K^*$	10 m <sup>2</sup>



Dimensions, weight, material	
Height x width x thickness	223 x 113 x 109 mm
Pitch C between ports (see fig.)	154 mm
Pitch D between ports (see fig.)	42 mm
Port height F (see fig.)	20 mm
Connection dimensions	G 3/4" M
Weight	2.2 kg
HE material	stainless steel AISI 316 L
Insulation	yes

\* solarten/water, flow rate through collectors 1 l/min·m<sup>2</sup>, min. flow rate on secondary side 1000 l/hod

**DUO R and DUO 2R Kits**

**2. DATA ON CS OTS E PUMP STATION**



<b>Application</b>	flow to heating systems
<b>Description</b>	consists of UPM3 pump, pump ball valve, thermometer, insulation and ball valve with check valve

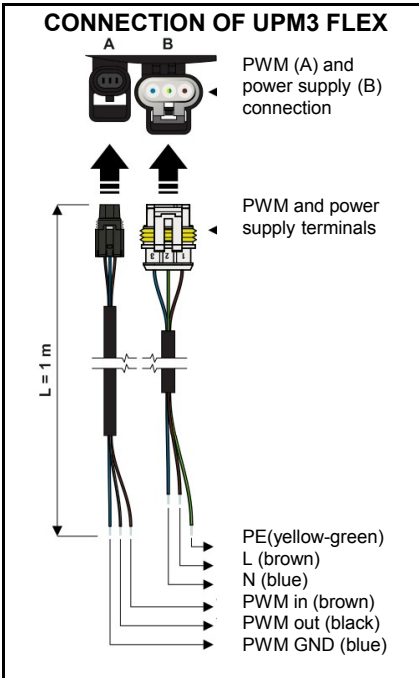
UPM3 FLEX AS Pump electric data	
Power supply	230 V, 50 Hz
Power input (min./max.)	2/52 W
Current (min./max)	0,04/0,5 A
IP rating	IP44
Max. speed	5766 rpm
Weighted average power	≤ 23 W
Energy Efficiency Index	≤ 0.2 per EN 16 297/3
Motor protection	not needed

Min. pressures at the pump suction port			
Min. pressures at the suction port to avoid cavitation	0.05 bar	at	75 °C
	0.5 bar	at	95 °C
	1.08 bar	at	110 °C

Other data	
Working pressure	10 bar
Operating temperature	2 - 90 °C
Insulation	yes
Connections	2 x G 1" F
Weight	2.85 kg
Overall dimensions	325 x 140 x 150 mm

Ambient temperature data	
Max. ambient temperature	70 °C
Max. relative humidity	95 % non condensing

**Power supply cables and PWM cables are included in supply.**



**Selected profile display during pump operation**

<b>Profile A (4M)</b>	<b>Profile A (5M)</b>	<b>Profile A (6M)</b>	<b>Profile A (7M)</b>

→ with no PWM signal the pump runs at max. speed according to the selected curve  
 → with PWM signal the pump speed changes with the signal value up to the maximum of the selected curve

**3. DATA ON VZP 320 ZONE VALVE**



<b>Application</b>	heating or solar circuits
<b>Control</b>	by means of a return spring (without voltage port B is open, with voltage port A is open)
<b>Working fluid</b>	water, antifreeze fluid for heating and solar circuits and heat pumps
<b>End switch</b>	potential-free, closed when fully open
<b>Valve opening time</b>	about 6 s
<b>Valve closing time</b>	about 10 s

**DUO R and DUO 2R Kits**

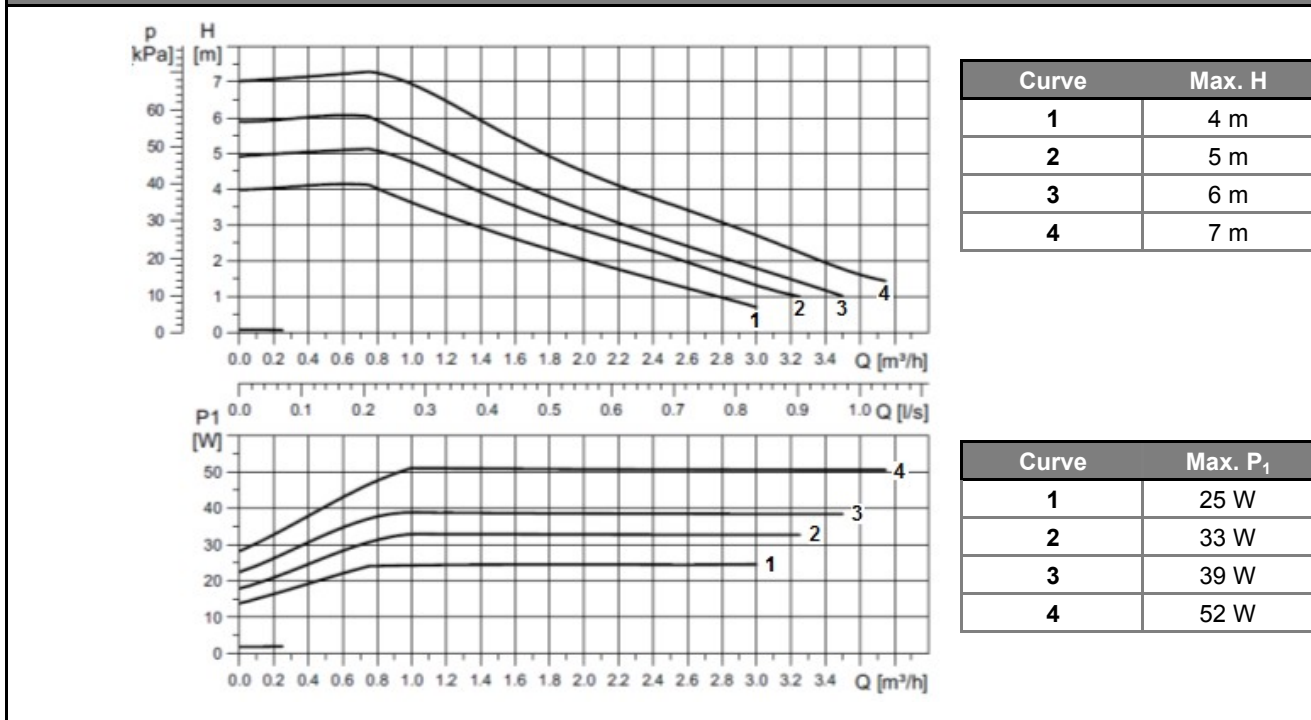
WIRING	TechnicAL DATA	
	Max. working pressure	1.6 MPa
	Ambient operating	5 - 60 °C
	Fluid operating temperature	5 - 95 °C (120 °C in short term, about 1 hr)
	Max. pressure difference	18 m H <sub>2</sub> O
	Kvs	3 m <sup>3</sup> /h
	Power supply	230 V, 50 Hz
	Current	7 W
	Power input	35 mA
	IP rating	IP 20 by EN 60529
	Protection class	II by EN 61140 ed.2
Connection dimensions	G 3/4"	
Weight	2.2 kg	

Interconnecting pipe length needed (pipes not included in Kit)					
DUO xxx/xxx P Thermal Store	390/130	600/200	750/200	1000/200	1700/200
Pipe length for Kit with valves	1.5 m	1.7 m	2 m	2 m	2 m
Pipe length for Kit without valves	3.2 m	3.8 m	4 m	4 m	4,8 m

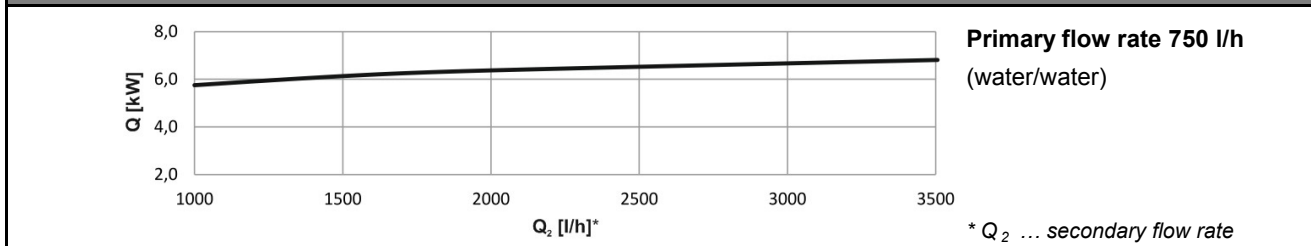
**The Kit does NOT include solar pump station, fittings, interconnecting pipes!**

**GRAPHS FOR SEPARATE COMPONENTS**

**Performance curves for UPM3 FLEX AS pump**

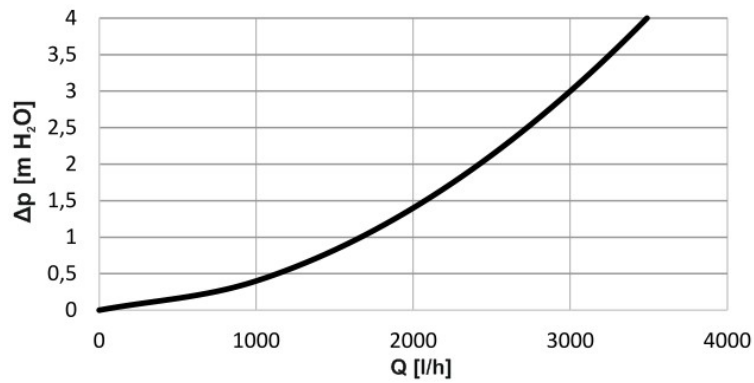


**Performance of DV193-30E for medium temperature drop of 6 K**



## DUO R and DUO 2R Kits

## Pressure drop for DV193-30E plate heat exchanger (water)



## Pressure drop for VZP 320 valve

