

DIAPHRAGM



# Diaphragm Pumps

## 1420 SERIES

### JADE

#### MODELS

1420 VP/VR  
1420 DP  
1420 VDP



1420 LC Series



1420 DC Series



1420 BLDC Series

#### FEATURES

- Oil-less
- Low power consumption
- Low sound level
- Low vibration
- Long lifetime
- Compact design
- Lightweight

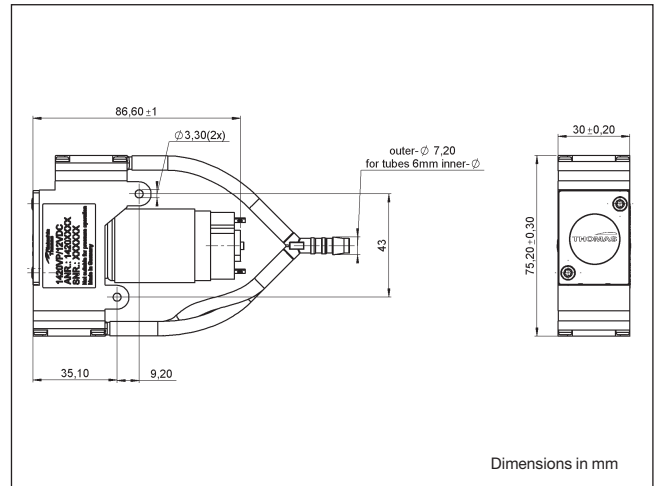
#### TYPICAL APPLICATIONS

- Medical devices
- Analysis
- Battery operated systems
- Fuel Cell



# Diaphragm Pump 1420VP LC, 1420VR LC

<b>Flow</b>	<b>8,2 l/min</b>
<b>Final Vacuum</b>	<b>90 %</b>



## Pneumatic Data

Description	1420VP/2,2/E/LC	1420VR/2,2/E/LC
Part number	12 V 24 V 14200001 14200002	14200160 14200161
Max. flow	8,2 l/min	4,2 l/min
Max. intermittent vacuum	78 %	90%
Max. continuous vacuum	78 %	90%
Max. restart vacuum	78 %	90%

## Electrical Data

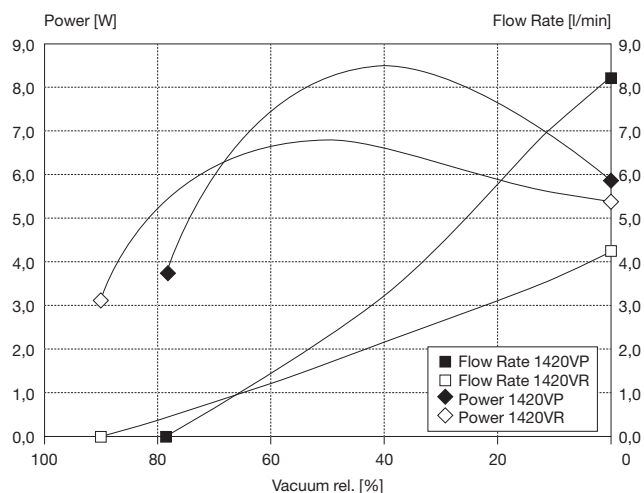
Motor type	DC brush <sup>1)</sup>	DC brush <sup>1)</sup>
Nominal speed	3.400 rpm	3.400 rpm
Nominal voltage	12/24 V DC	12/24 V DC
Max. power consumption	8,5 W	6,8 W
Motor insulation class	F	F
Protection class	IP00	IP00

## General Data

Ambient temperature	5 to 50°C	5 to 50°C
Media temperature	5 to 50°C	5 to 50°C
Weight	220 g	220 g
Configuration	Parallel	Series

<sup>1)</sup> radio interference suppression according to EN 55011-B (12 V only)

## Flow Curves



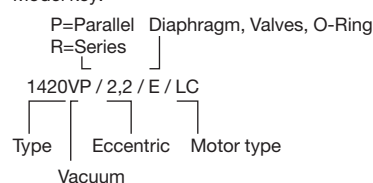
## Wetted Parts

Pump head	PAA (IXEF)
Diaphragm	EPDM
Valves	EPDM
Tubing	PUR
Y-Connector	POM

## Options

PPS (Ryton®)

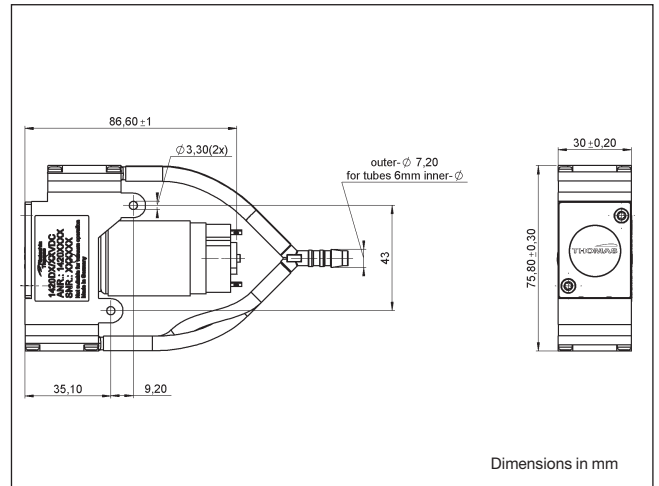
## Model key:



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# Diaphragm Pump 1420DP LC

<b>Flow</b>	<b>8,2 l/min</b>
<b>Final Pressure</b>	<b>1,0 bar</b>



## Pneumatic Data

Description	1420DP/2,2/E/LC	
Part number	12 V	14200003
	24 V	14200004
Max. flow	8,2 l/min	
Max. intermittent pressure	1,0 bar	
Max. continuous pressure	1,0 bar	
Max. restart pressure	1,0 bar	

## Electrical Data

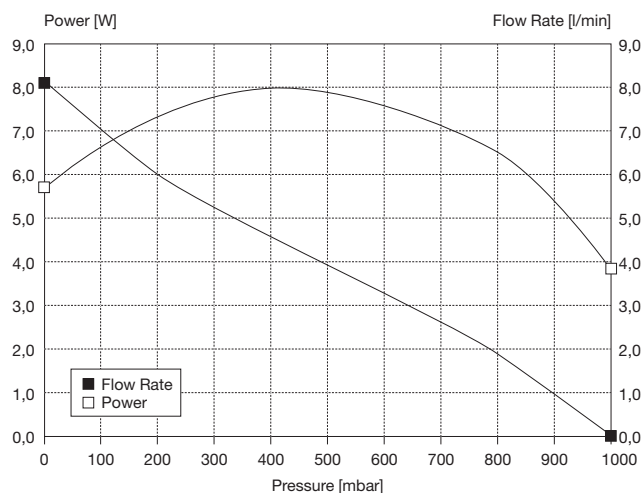
Motor type	DC brush <sup>1)</sup>
Nominal speed	3.400 rpm
Nominal voltage	12/24 V DC
Max. power consumption	7,9 W
Motor insulation class	F
Protection class	IP00

## General Data

Ambient temperature	5 to 50°C
Media temperature	5 to 50°C
Weight	220 g
Configuration	Parallel

<sup>1)</sup> radio interference suppression according to EN 55011-B (12 V only)

## Flow Curves



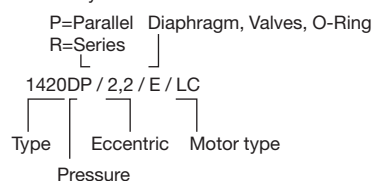
## Wetted Parts

Pump head	PAA (IXEF)
Diaphragm	EPDM
Valves	EPDM
Tubing	PUR
Y-Connector	POM

## Options

PPS (Ryton®)

## Model key:

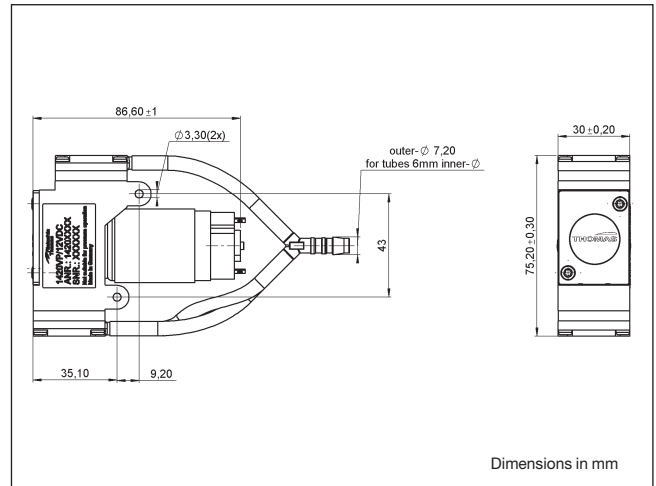


1420... Stock programme

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# Diaphragm Pump 1420VDP LC

<b>Flow</b>	<b>6,3 l/min</b>
<b>Final Pressure</b>	<b>1,9 bar</b>
<b>Final Vacuum</b>	<b>73 %</b>



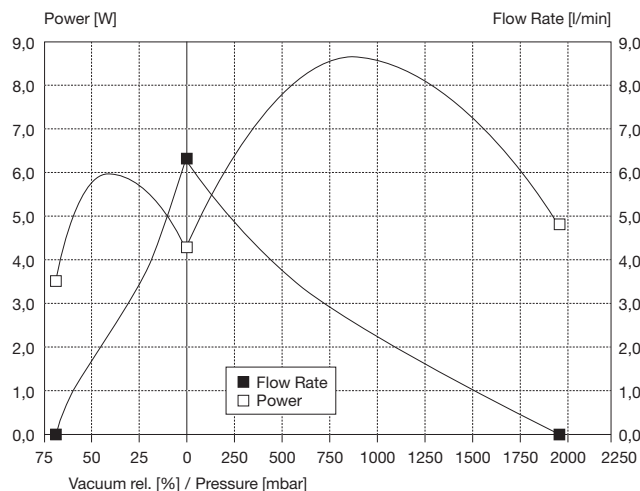
Pneumatic Data		
Description	1420VDP/1,5/E/LC	
Part number	12 V	14200200
	24 V	14200201
Max. flow	6,3 l/min	
Max. intermittent pressure	1,9 bar	
Max. continuous pressure	0,7 bar	
Max. restart pressure	1,9 bar	
Max. intermittent vacuum	73%	
Max. continuous vacuum	73%	
Max. restart vacuum	73%	

Electrical Data	
Motor type	DC brush <sup>1)</sup>
Nominal speed	3.400 rpm
Nominal voltage	12/24 V DC
Max. power consumption	8,3 W
Motor insulation class	F
Protection class	IP00

General Data	
Ambient temperature	5 to 50°C
Media temperature	5 to 50°C
Weight	220 g
Configuration	Parallel

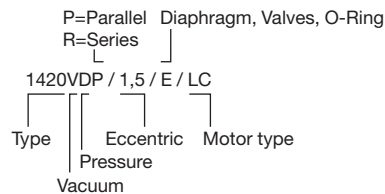
<sup>1)</sup> radio interference suppression according to EN 55011-B (12 V only)

## Flow Curves



Wetted Parts	Options
Pump head	PAA (IXEF)
Diaphragm	EPDM
Valves	EPDM
Tubing	PUR
Y-Connector	POM
	PPS (Ryton®)

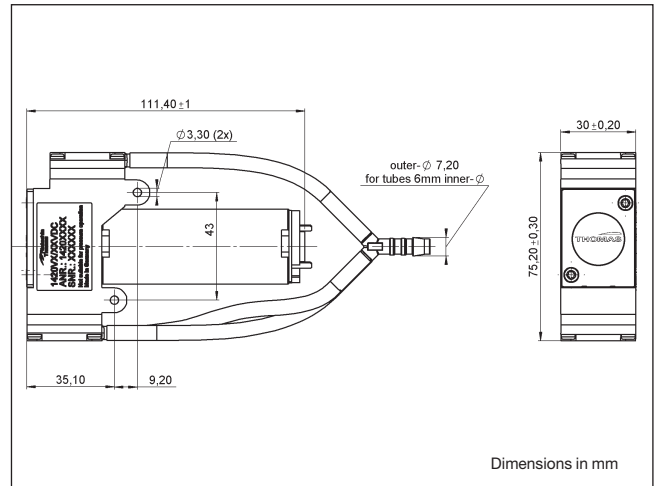
Model key: 1420... Stock programme



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# Diaphragm Pump 1420VP DC, 1420VR DC

<b>Flow</b>	<b>7,8 l/min</b>
<b>Final Vacuum</b>	<b>90 %</b>



## Pneumatic Data

Description	1420VP/2,2/E/DC	1420VR/2,2/E/DC
Part number	12 V 24 V 14200052 14200053	14200162 14200163
Max. flow	7,8 l/min	4,0 l/min
Max. intermittent vacuum	78 %	90%
Max. continuous vacuum	78 %	90%
Max. restart vacuum	78 %	90%

## Electrical Data

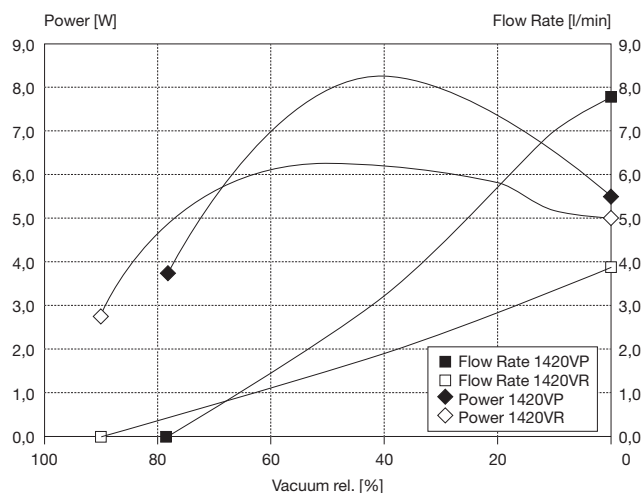
Motor type	DC brush <sup>1)</sup>	DC brush <sup>1)</sup>
Nominal speed	3.200 rpm	3.200 rpm
Nominal voltage	12/24 V DC	12/24 V DC
Max. power consumption	8,1 W	6,3 W
Motor insulation class	E	E
Protection class	IP00	IP00

## General Data

Ambient temperature	5 to 50°C	5 to 50°C
Media temperature	5 to 50°C	5 to 50°C
Weight	310 g	310 g
Configuration	Parallel	Series

<sup>1)</sup> radio interference suppression according to EN 55011-B

## Flow Curves



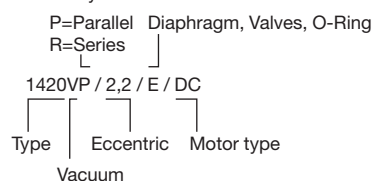
## Wetted Parts

Pump head	PAA (IXEF)
Diaphragm	EPDM
Valves	EPDM
Tubing	PUR
Y-Connector	POM

## Options

PPS (Ryton®)

## Model key:

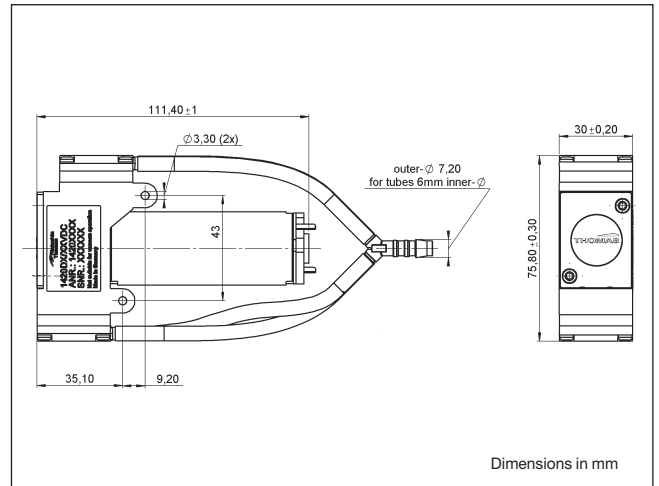


1420... Stock programme

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# Diaphragm Pump 1420DP DC

<b>Flow</b>	<b>7,8 l/min</b>
<b>Final Pressure</b>	<b>1,0 bar</b>



## Pneumatic Data

Description	1420DP/2,2/E/DC	
Part number	12 V	14200050
	24 V	14200051
Max. flow	7,8 l/min	
Max. intermittent pressure	1,0 bar	
Max. continuous pressure	1,0 bar	
Max. restart pressure	1,0 bar	

## Electrical Data

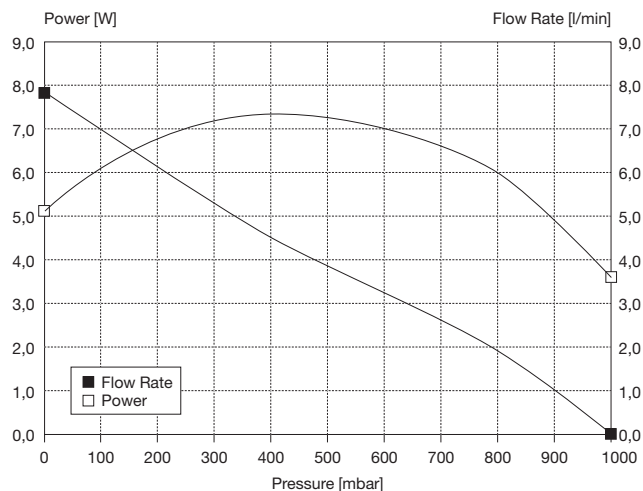
Motor type	DC brush <sup>1)</sup>
Nominal speed	3.200 rpm
Nominal voltage	12/24 V DC
Max. power consumption	7,4 W
Motor insulation class	E
Protection class	IP00

## General Data

Ambient temperature	5 to 50°C
Media temperature	5 to 50°C
Weight	310 g
Configuration	Parallel

<sup>1)</sup> radio interference suppression according to EN 55011-B

## Flow Curves



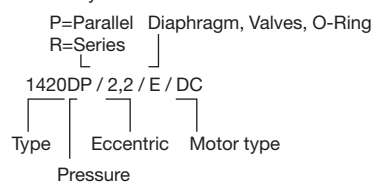
## Wetted Parts

Pump head	PAA (IXEF)
Diaphragm	EPDM
Valves	EPDM
Tubing	PUR
Y-Connector	POM

## Options

PPS (Ryton®)

## Model key:

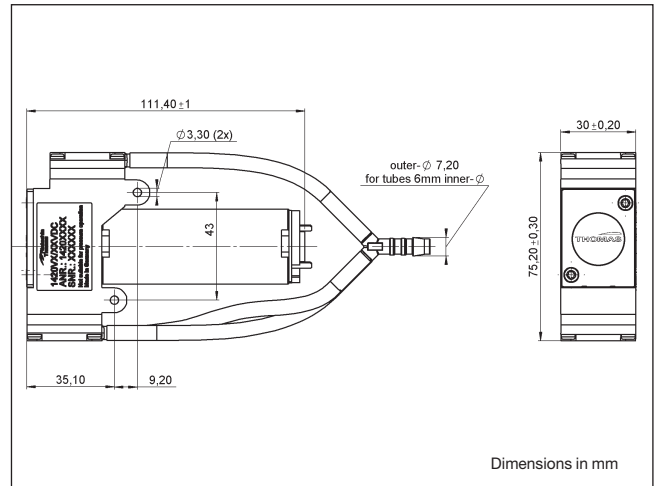


1420... Stock programme

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# Diaphragm Pump 1420VDP DC

<b>Flow</b>	<b>6,0 l/min</b>
<b>Final Pressure</b>	<b>1,9 bar</b>
<b>Final Vacuum</b>	<b>73 %</b>



## Pneumatic Data

Description	1420VDP/1,5/E/DC	
Part number	12 V	14200202
	24 V	14200203
Max. flow	6,0 l/min	
Max. intermittent pressure	1,9 bar	
Max. continuous pressure	0,7 bar	
Max. restart pressure	1,9 bar	
Max. intermittent vacuum	73%	
Max. continuous vacuum	73%	
Max. restart vacuum	73%	

## Electrical Data

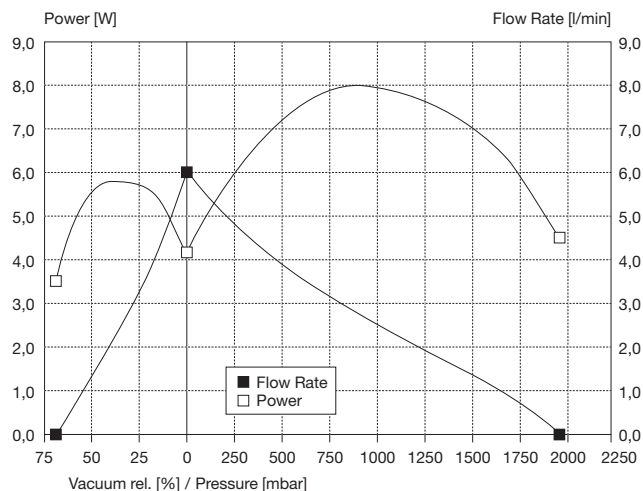
Motor type	DC brush <sup>1)</sup>
Nominal speed	3.200 rpm
Nominal voltage	12/24 V DC
Max. power consumption	7,9 W
Motor insulation class	E
Protection class	IP00

## General Data

Ambient temperature	5 to 50°C
Media temperature	5 to 50°C
Weight	310 g
Configuration	Parallel

<sup>1)</sup> radio interference suppression according to EN 55011-B

## Flow Curves



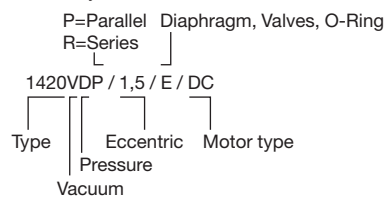
## Wetted Parts

Pump head	PAA (IXEF)
Diaphragm	EPDM
Valves	EPDM
Tubing	PUR
Y-Connector	POM

## Options

PPS (Ryton®)

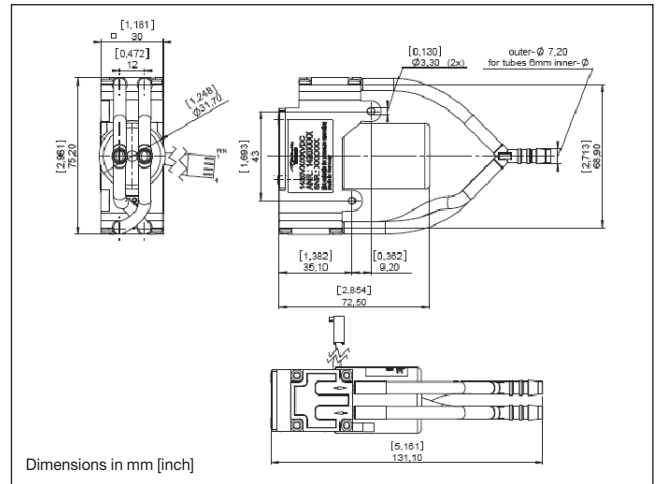
## Model key:



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# Diaphragm Pump 1420VP BLDC

<b>Flow</b>	<b>11 l/min</b>
<b>Final Vacuum</b>	<b>78 %</b>



Dimensions in mm [inch]

## Pneumatic Data

Description	1420VP/2,2/E/BLDC	
Part number	12 V	14200500
	24 V	14200501
Max. flow	11 l/min	
Max. intermittent vacuum	78 %	
Max. continuous vacuum	78 %	
Max. restart vacuum	78 %	

## Electrical Data

Motor type	Brushless DC	
Nominal speed	0..4.600 rpm	
Nominal voltage	12/24 VDC	
Drive electronics	integrated with reverse supply voltage protection	
Max. power consumption	10,5 W	
Motor insulation class	B	
Protection class	IP20	
Connector	Housing:	Molex KK 22-01-2045
	Terminal:	Molex KK 08-50-0031

## Wiring diagram

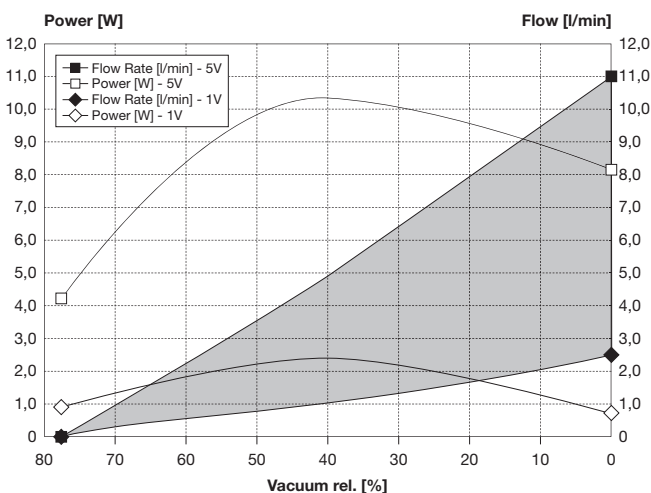
Optional: Adapter for 2-wire duty incl. potentiometer for speed adjustment

Pin	Function	Colour	Control
Pin 1	V Supply	Red	12 VDC (max. voltage range: 10..18 VDC) 24 VDC (max. voltage range: 10..28 VDC)
Pin 2	Ground	Black	Ground for Vsupply (PIN 1) and Speed Control (PIN3)
Pin 3	Speed control	White	analog: 0..5 VDC (max. 28V) PWM: 6..20 kHz - 14..96% Speed voltage input threshold: 0,2 V
Pin 4	Tacho out	Green	18 pulses per revolution Pulse time „LOW“: 195 us Output level „LOW“: 0 / max. 0,5 V Output level „HIGH“: min. 4 V / max. 5 V

## General Data

Ambient temperature	15..40°C
Media temperature	15..40°C
Weight	190 g
Configuration	parallel

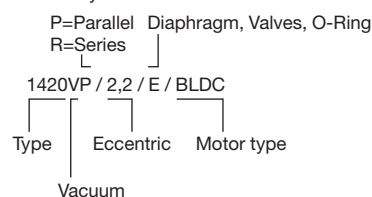
## Flow Curves



## Wetted Parts

Pump head	PAA (IXEF)	Options	PPS (Ryton®)
Diaphragm, valves	EPDM		
Tubing	PUR		
Y-Connector	POM		

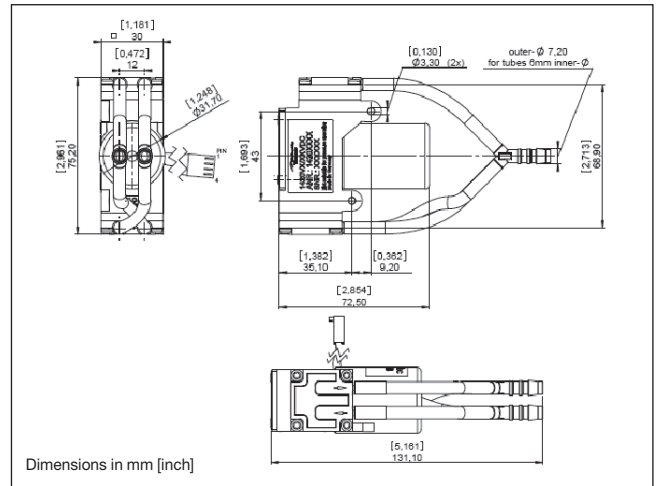
## Model key:



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# Diaphragm Pump 1420DP BLDC

<b>Flow</b>	<b>11 l/min</b>
<b>Final Pressure</b>	<b>1,0 bar</b>



## Pneumatic Data

Description	1420DP/2,2/E/BLDC	
Part number	12 V	14200502
	24 V	14200503
Max. flow	11 l/min	
Max. intermittent pressure	1,0 bar	
Max. continuous pressure	1,0 bar	
Max. restart pressure	1,0 bar	

## Electrical Data

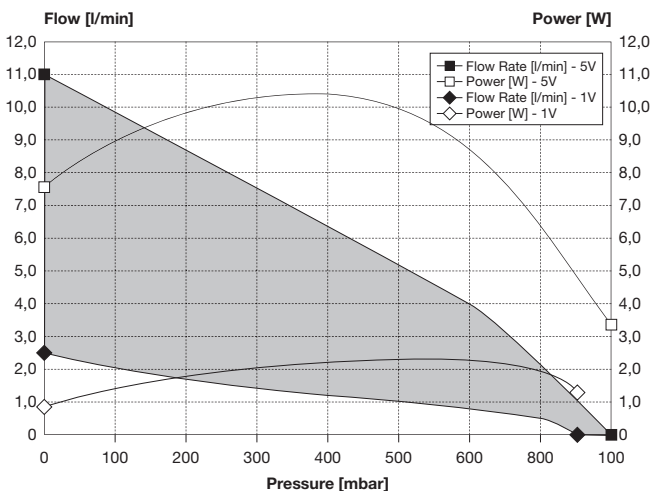
Motor type	Brushless DC	
Nominal speed	0..4.600 rpm	
Nominal voltage	12/24 VDC	
Drive electronics	integrated with reverse supply voltage protection	
Max. power consumption	10,5 W	
Motor insulation class	B	
Protection class	IP20	
Connector	Housing:	Molex KK 22-01-2045
	Terminal:	Molex KK 08-50-0031

Wiring diagram	Function	Colour	Control
Optional: Adapter for 2-wire duty incl. potentiometer for speed adjustment	Pin 1	V Supply	Red 12 VDC (max. voltage range: 10..18 VDC) 24 VDC (max. voltage range: 10..28 VDC)
	Pin 2	Ground	Black Ground for Vsupply (PIN 1) and Speed Control (PIN3)
	Pin 3	Speed control	White analog: 0..5 VDC (max. 28V) PWM: 6..20 kHz - 14..96% Speed voltage input threshold: 0,2 V
	Pin 4	Tacho out	Green 18 pulses per revolution Pulse time „LOW“: 195 µs Output level „LOW“: 0 / max. 0,5 V Output level „HIGH“: min. 4 V / max. 5 V

## General Data

Ambient temperature	15..40°C
Media temperature	15..40°C
Weight	190 g
Configuration	parallel

## Flow Curves



Wetted Parts	Options
Pump head	PAA (IXEF) PPS (Ryton®)
Diaphragm, valves	EPDM
Tubing	PUR
Y-Connector	POM

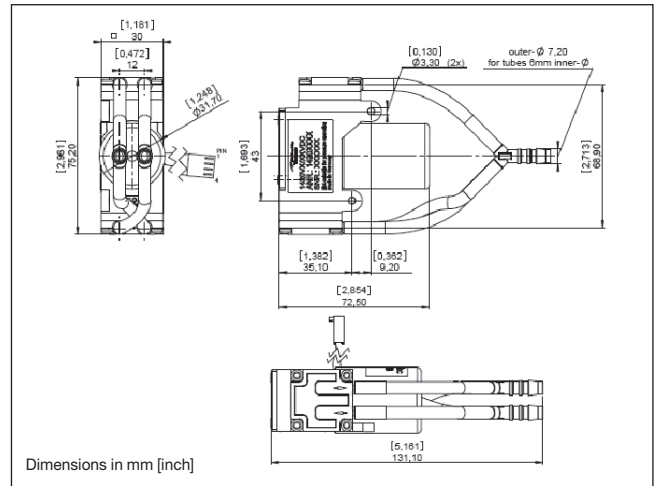
Model key:

P=Parallel Diaphragm, Valves, O-Ring  
R=Series  
1420DP / 2,2 / E / BLDC  
Type Eccentric Motor type  
Pressure

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# Diaphragm Pump 1420VDP BLDC

<b>Flow</b>	<b>8,2 l/min</b>
<b>Final Pressure</b>	<b>1,9 bar</b>
<b>Final Vacuum</b>	<b>73 %</b>



## Pneumatic Data

Description	1420VDP/1,5/E/BLDC	
Part number	12 V	14200504
	24 V	14200505
Max. flow	8,2 l/min	
Max. intermittent pressure	1,9 bar	
Max. continuous pressure	0,7 bar	
Max. restart pressure	1,9 bar	
Max. intermittent vacuum	73%	
Max. continuous vacuum	73%	
Max. restart vacuum	73%	

## Electrical Data

Motor type	Brushless DC	
Nominal speed	0..4.600 rpm	
Nominal voltage	12/24 VDC	
Drive electronics	integrated with reverse supply voltage protection	
Max. power consumption	11 W	
Motor insulation class	B	
Protection class	IP20	
Connector	Housing:	Molex KK 22-01-2045
	Terminal:	Molex KK 08-50-0031

## Wiring diagram

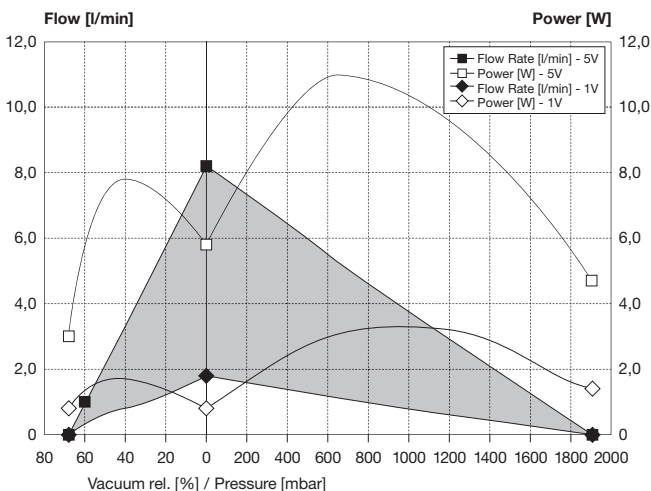
Optional: Adapter for 2-wire duty incl. potentiometer for speed adjustment

Function	Colour	Control
Pin 1	V Supply	Red 12 VDC (max. voltage range: 10..18 VDC) 24 VDC (max. voltage range: 10..28 VDC)
Pin 2	Ground	Black Ground for Vsupply (PIN 1) and Speed Control (PIN3)
Pin 3	Speed control	White analog: 0..5 VDC (max. 28V) PWM: 6..20 kHz - 14..96% Speed voltage input threshold: 0,2 V
Pin 4	Tacho out	Green 18 pulses per revolution Pulse time „LOW“: 195 µs Output level „LOW“: 0 / max. 0,5 V Output level „HIGH“: min. 4 V / max. 5 V

## General Data

Ambient temperature	15..40°C
Media temperature	15..40°C
Weight	190 g
Configuration	parallel

## Flow Curves



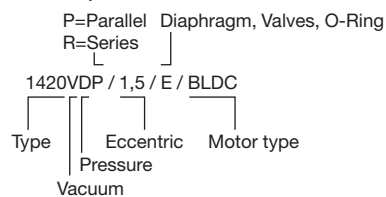
## Wetted Parts

Pump head	PAA (IXEF)
Diaphragm, valves	EPDM
Tubing	PUR
Y-Connector	POM

## Options

PPS (Ryton®)

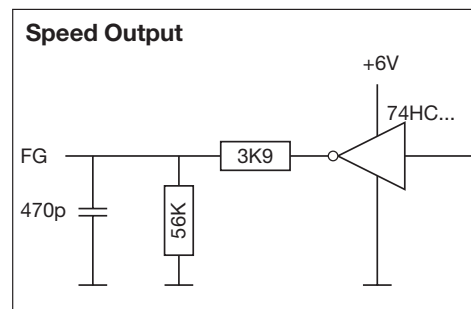
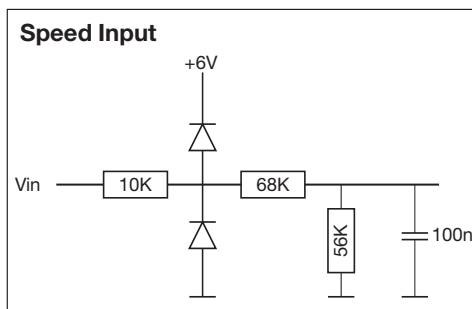
## Model key:



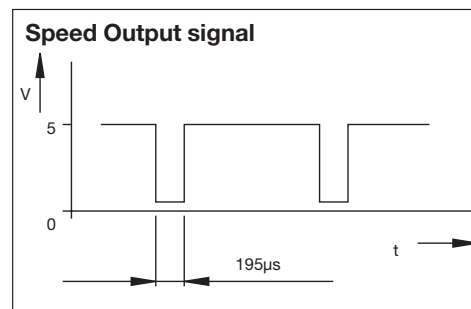
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# Wiring diagram (Brushless DC motor)

Pin	Function	Colour	Control
Pin 1	V Supply	Red	12 VDC (max. voltage range: 10..18 VDC) 24 VDC (max. voltage range: 10..28 VDC)
Pin 2	Ground	Black	Ground for Vsupply (PIN 1) and Speed Control (PIN3)
Pin 3	Speed control	White	analog: 0..5 VDC (max. 28V) PWM: 6..20 kHz - 14..96% Speed voltage input threshold: 0,2 V
Pin 4	Tacho out	Green	18 pulses per revolution Pulse time „LOW“: 195 $\mu$ s Output level „LOW“: 0 / max. 0,5 V Output level „HIGH“: min. 4 V / max. 5 V



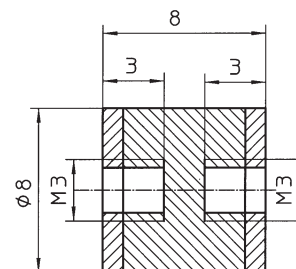
Optional: Adapter for 2-wire duty incl. potentiometer for speed adjustment



## Options / Accessories

P/N 91420505

Rubber feet assy.  
(2 pcs. incl. screws and washers)





Printed in Germany.  
Art.-Nr.: 17000219 11/2010  
ClimatePartner   
**klimateutral gedruckt**

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Benzstraße 28 · Gewerbegebiet Nord · D-82178 Puchheim  
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