

1420 Series

THOMAS
by Gardner Denver

FEATURES

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

TYPICAL APPLICATIONS

- > Medical devices
- > Analysis
- > Battery operated systems

BASE MODEL

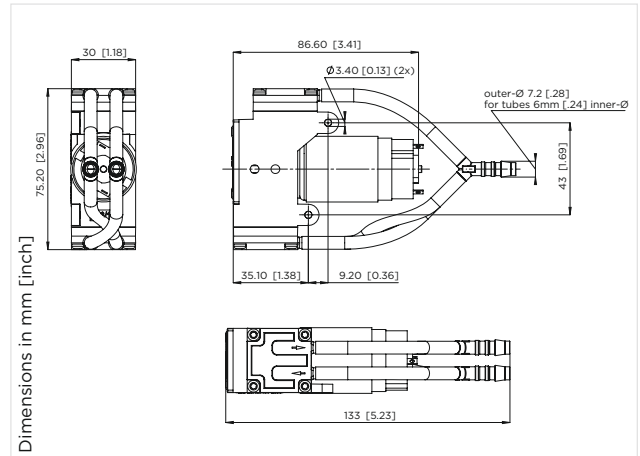
1420 LC
1420 DC
1420 BLDC



Diaphragm

Diaphragm Pump 1420VP LC, 1420VR LC

Flow	8.2 l/min
Final Vacuum	90 %



PNEUMATIC DATA

Description	1420VP/2.2/E/LC	1420VR/2.2/E/LC
Part number	12 V 24 V	14200001 14200002
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 ¹⁾	DC brush ¹⁾
Nominal speed	3400 rpm	3400 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	IPO0	IPO0

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

WETTED PARTS

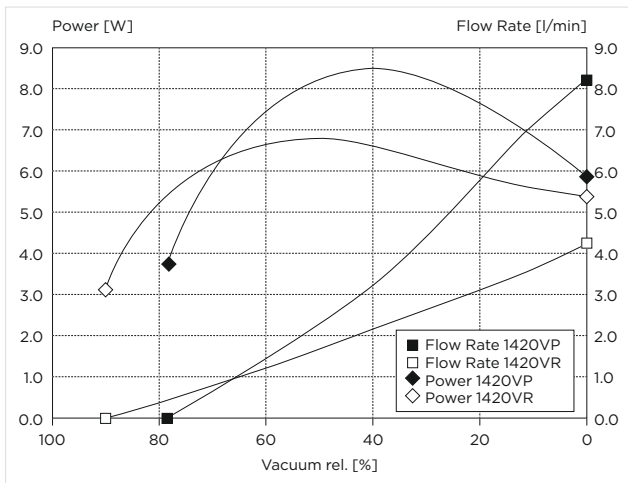
Pump head	PAA	PAA
Diaphragm	EPDM	EPDM
Valves	EPDM	EPDM
Tubing	PUR	PUR
Y-Connector	POM	POM

OPTIONS

PPS

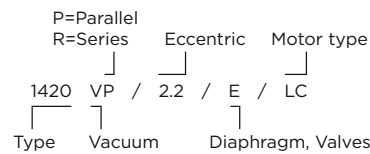
1) radio interference suppression according to EN 55011-B (12 V only)

FLOW CURVES



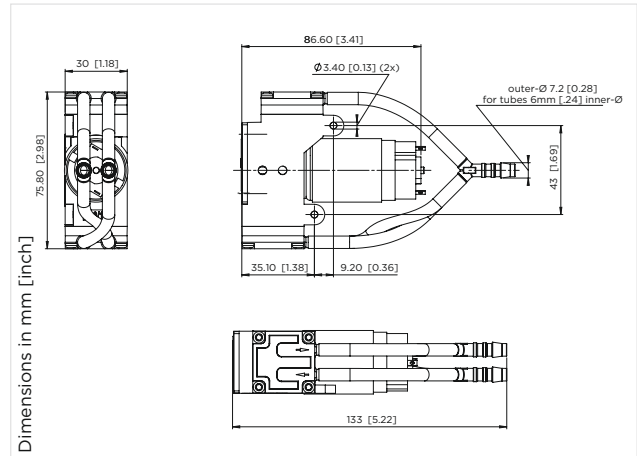
1420... Stock programme

Model key:



Diaphragm Pump 1420DP LC

Flow	8.2 l/min
Final Pressure	1.0 bar



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 ¹⁾
Nominal speed	3400 rpm
Nominal voltage	12/24 V DC
Max. power consumption	7.9 W
Motor insulation class	F
Protection class	IPO0

GENERAL DATA

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

WETTED PARTS

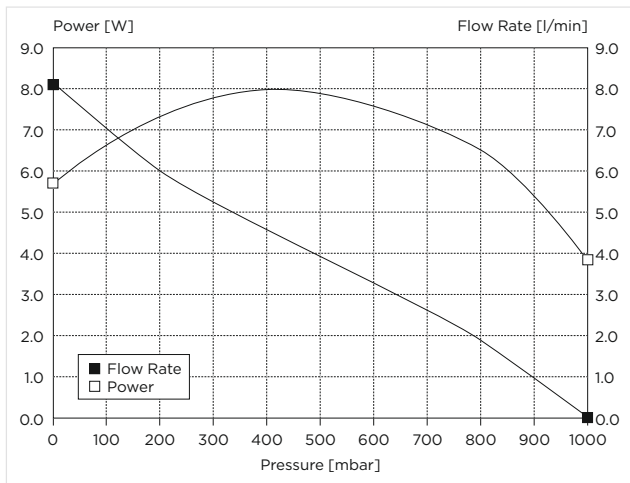
Pump head	PAA
Diaphragm	EPDM
Valves	EPDM
Tubing	PUR
Y-Connector	POM

OPTIONS

PPS

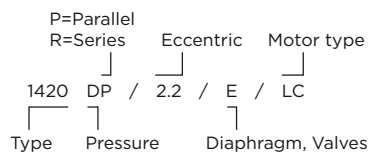
1) radio interference suppression according to EN 55011-B (12 V only)

FLOW CURVES



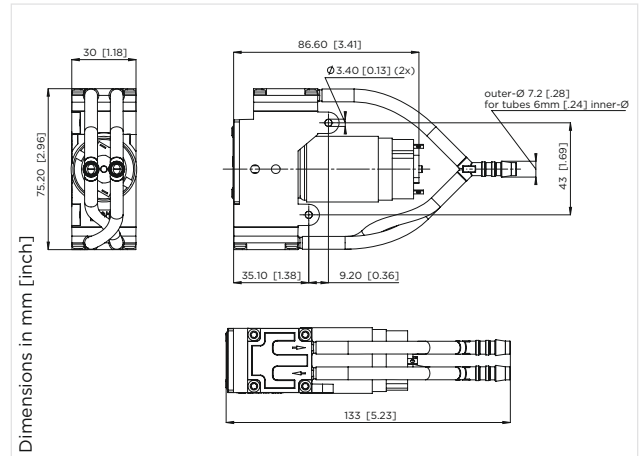
1420... Stock programme

Model key:



Diaphragm Pump 1420VDP LC

Flow	6.3 l/min
Final Pressure	1.9 bar
Final Vacuum	73 %



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 ¹⁾
Nominal speed	3400 rpm
Nominal voltage	12/24 V DC
Max. power consumption	8.3 W
Motor insulation class	F
Protection class	IPO0

GENERAL DATA

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

1) radio interference suppression according to EN 55011-B (12 V only)

WETTED PARTS

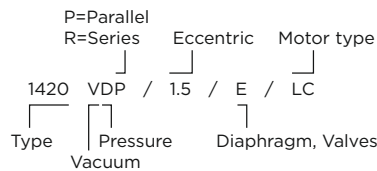
Pump head	PAA
Diaphragm	EPDM
Valves	EPDM
Tubing	PUR
Y-Connector	POM

OPTIONS

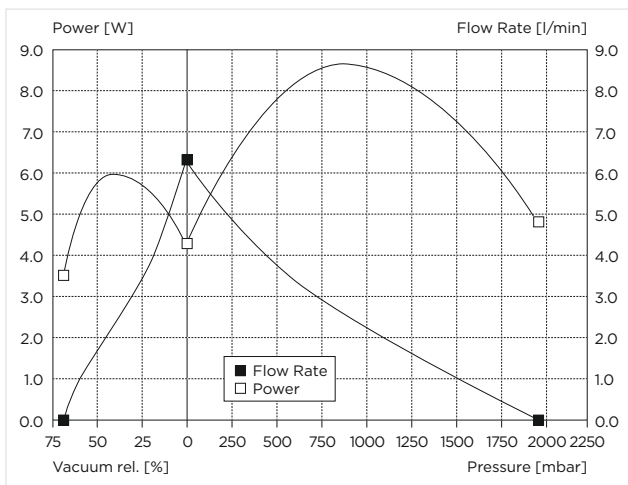
PPS

1420... Stock programme

Model key:

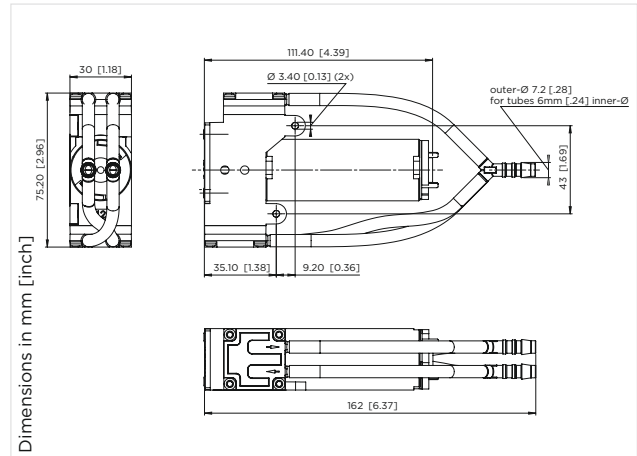


FLOW CURVES



Diaphragm Pump 1420VP DC, 1420VR DC

Flow	7.8 l/min
Final Vacuum	90 %



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 ¹⁾	DC brush ¹⁾
Nominal speed	3200 rpm	3200 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	IPO0	IPO0

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

WETTED PARTS

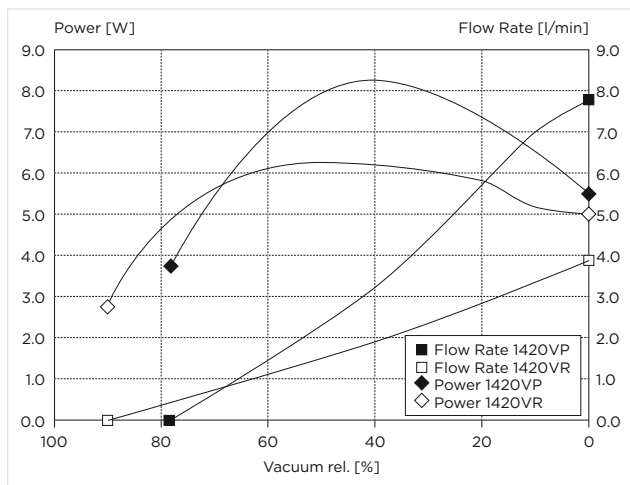
Pump head	PAA	PAA
Diaphragm	EPDM	EPDM
Valves	EPDM	EPDM
Tubing	PUR	PUR
Y-Connector	POM	POM

OPTIONS

PPS

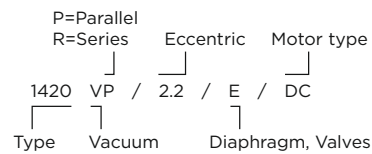
1) radio interference suppression according to EN 55011-B

FLOW CURVES



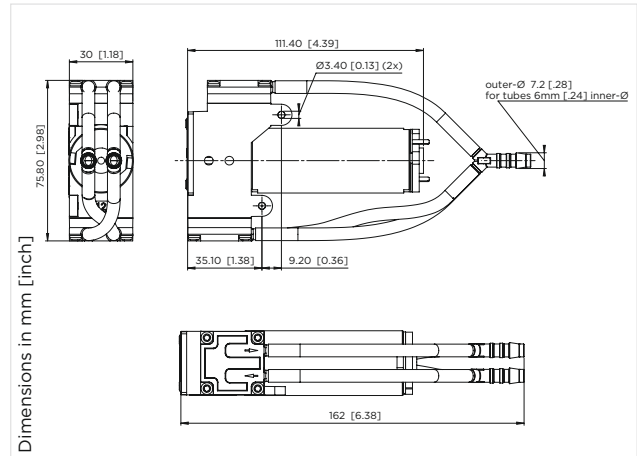
1420... Stock programme

Model key:



Diaphragm Pump 1420DP DC

Flow	7.8 l/min
Final Pressure	1.0 bar



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 ¹⁾
Nominal speed	3200 rpm
Nominal voltage	12/24 V DC
Max. power consumption	7.4 W
Motor insulation class	E
Protection class	IPO0

GENERAL DATA

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

WETTED PARTS

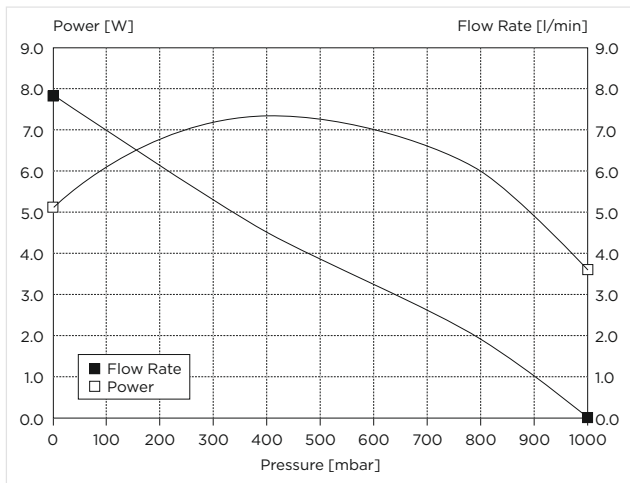
Pump head	PAA
Diaphragm	EPDM
Valves	EPDM
Tubing	PUR
Y-Connector	POM

OPTIONS

PPS

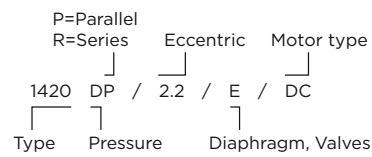
1) radio interference suppression according to EN 55011-B

FLOW CURVES



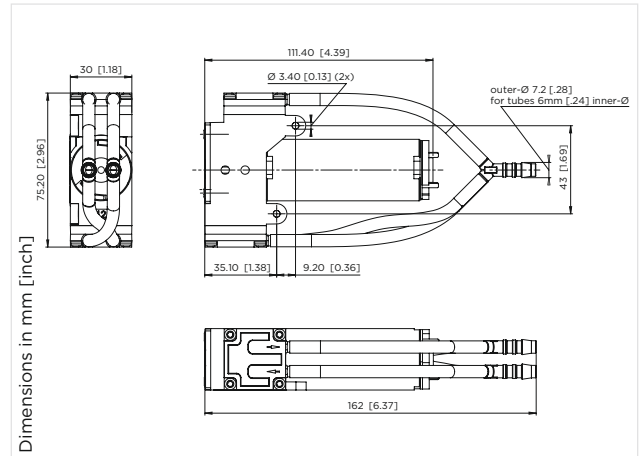
1420... Stock programme

Model key:



Diaphragm Pump 1420VDP DC

Flow	6.0 l/min
Final Pressure	1.9 bar
Final Vacuum	73 %



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 ¹⁾
Nominal speed	3200 rpm
Nominal voltage	12/24 V DC
Max. power consumption	7.9 W
Motor insulation class	E
Protection class	IPO0

GENERAL DATA

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

1) radio interference suppression according to EN 55011-B

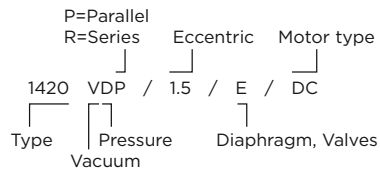
WETTED PARTS

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

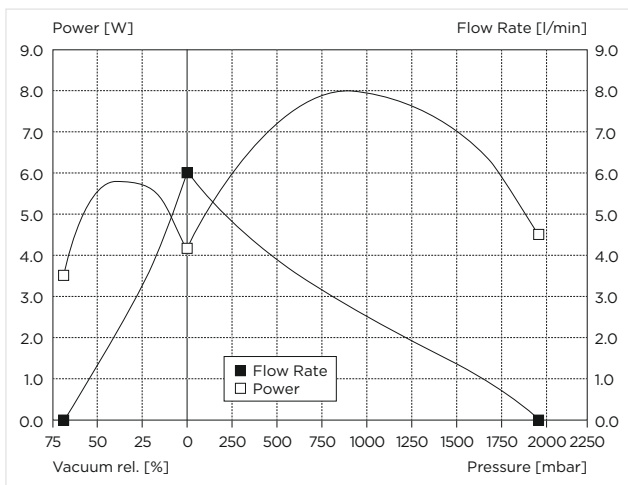
OPTIONS

PPS

Model key:

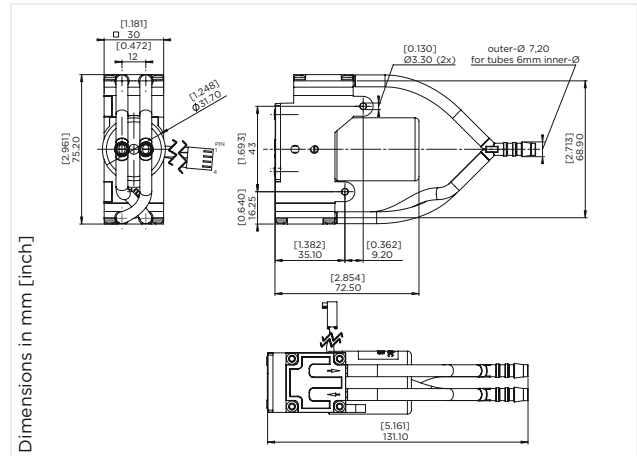


FLOW CURVES



Diaphragm Pump 1420VP BLDC

Flow	11 l/min
Final Vacuum	78 %



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 to 4600 rpm	
Nominal voltage	12/24 V DC	
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

GENERAL DATA

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

WETTED PARTS

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

OPTIONS

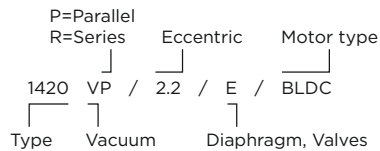
PPS

WIRING DIAGRAM

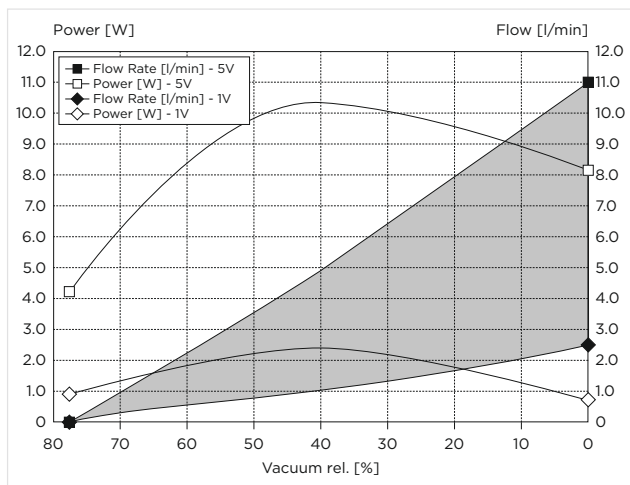
Pin 1	V Supply	Red	12 V DC (max. voltage range: 10..18 V DC) 24 V DC (max. voltage range: 10..28 V DC)
Pin 2	Ground	Black	Ground for Vsupply (PIN 1) and Speed Control (PIN 3)
Pin 3	Speed Control	White	analog: 0.5 V DC (max. 28V) PWM: 6..20kHz - 14..96% Speed voltage input threshold: 0.2 V
Pin 4	Tacho 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

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

Model key:

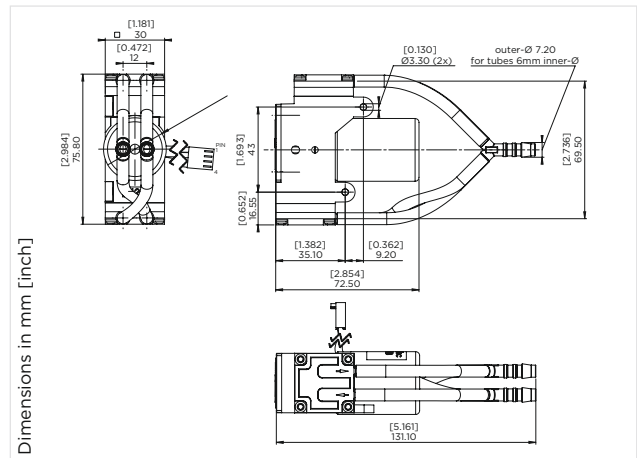


FLOW CURVES



Diaphragm Pump 1420DP BLDC

Flow	11 l/min
Final Pressure	1.0 bar



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 to 4600 rpm	
Nominal voltage	12/24 V DC	
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

GENERAL DATA

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

WETTED PARTS

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

OPTIONS

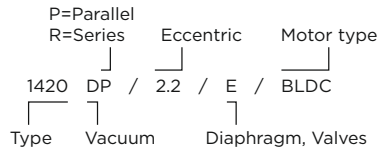
PPS

WIRING DIAGRAM

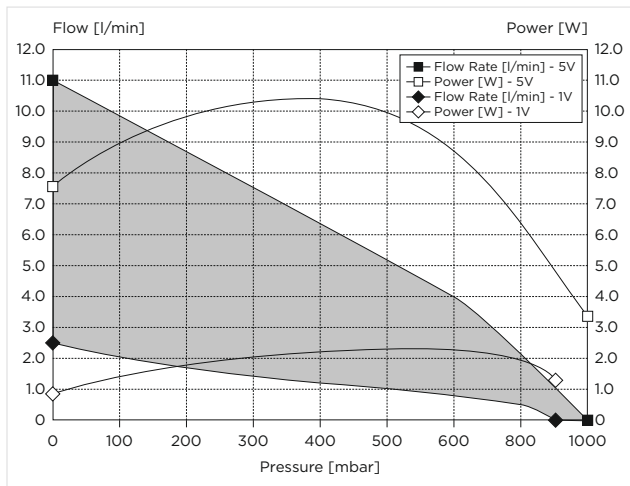
Pin 1	V Supply	Red	12 V DC (max. voltage range: 10..18 V DC) 24 V DC (max. voltage range: 10..28 V DC)
Pin 2	Ground	Black	Ground for Vsupply (PIN 1) and Speed Control (PIN 3) analog: 0..5 V DC (max. 28V) PWM: 6..20kHz - 14..96% Speed voltage input threshold: 0.2 V
Pin 3	Speed Control	White	
Pin 4	Tacho 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

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

Model key:

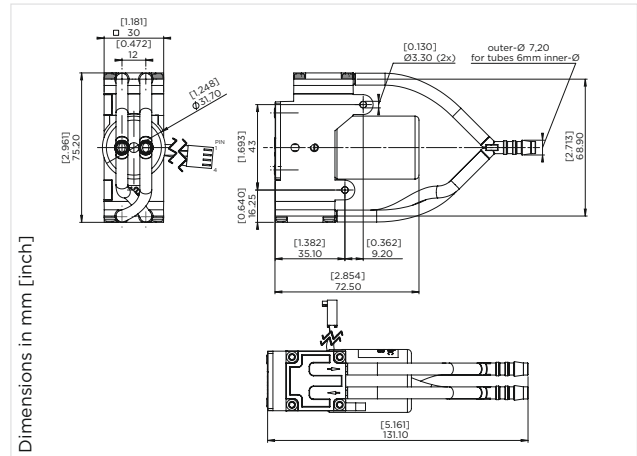


FLOW CURVES



Diaphragm Pump 1420VDP BLDC

Flow	8.2 l/min
Final Pressure	1.9 bar
Final Vacuum	73 %



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. intermittent pressure	1.9 bar	
Max. intermittent vacuum	73 %	
Max. continuous vacuum	73 %	
Max. restart vacuum	73 %	

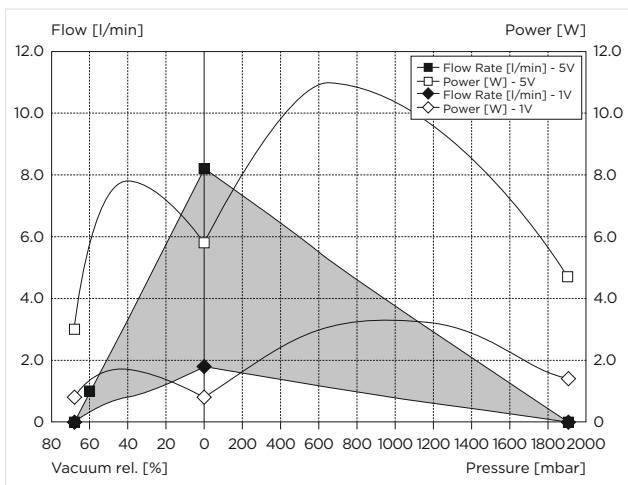
ELECTRICAL DATA

Motor type	Brushless DC	
Nominal speed	0 to 4600 rpm	
Nominal voltage	12/24 V DC	
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

GENERAL DATA

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

FLOW CURVES



WETTED PARTS

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

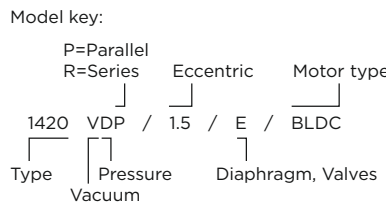
OPTIONS

PPS

WIRING DIAGRAM

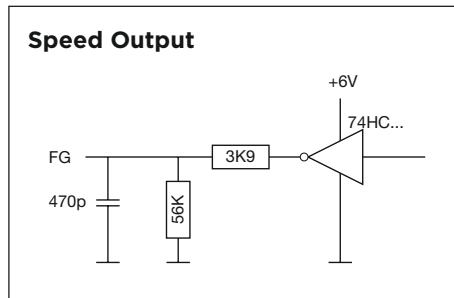
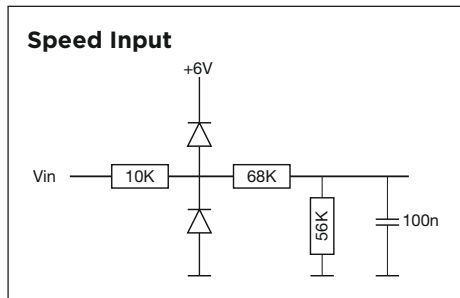
Pin 1	V Supply	Red	12 V DC (max. voltage range: 10..18 V DC) 24 V DC (max. voltage range: 10..28 V DC)
Pin 2	Ground	Black	Ground for Vsupply (PIN 1) and Speed Control (PIN 3)
Pin 3	Speed Control	White	analog: 0..5 V DC (max. 28V) PWM: 6..20kHz - 14..96% Speed voltage input threshold: 0.2 V
Pin 4	Tacho 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

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

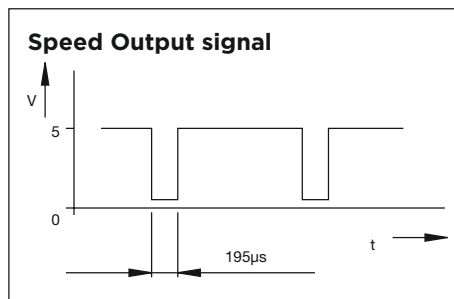


Wiring diagram (Brushless DC motor)

Pin	Function	Colour	Control
Pin 1	V Supply	Red	12 V DC (max. voltage range: 10..18 V DC) 24 V DC (max. voltage range: 10..28 V DC)
Pin 2	Ground	Black	Ground for Vsupply (PIN 1) and Speed Control (PIN 3)
Pin 3	Speed Control	White	analog: 0..5 V DC (max. 28V) PWM: 6..20kHz - 14..96% Speed voltage input threshold: 0.2 V
Pin 4	Tacho out	Green	18 pulses per revolution Pulse time „LOW“: 195 μ s Output level „LOW“: 0 / max. 0.5 V Output level „HIGH“: min. 4 V / max. 5 V



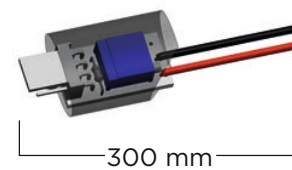
Optional: Adapter for 2-wire duty incl. potentiometer for speed adjustment



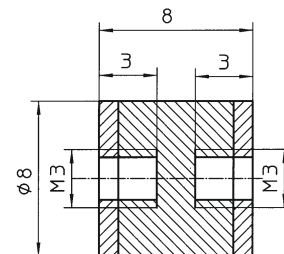
Options / Accessories

P/N 29011932 **Adapter for BLDC motor**
4-2 wire w/ manual speed control
12 V DC “red”

P/N 29011933 **Adapter for BLDC motor**
4-2 wire w/ manual speed control
24 V DC “black”



P/N 91420505 **Rubber feet assy.**
(2 pcs. incl. screws and washers)



PUMP AND COMPRESSOR SOLUTIONS FOR OEMS WORLDWIDE



The information presented in this material is based on technical data and test results of nominal units. It is believed to be accurate and reliable and is offered as an aid to help in the selection of Thomas products. It is the responsibility of the user to determine the suitability of the product for the intended use and the user assumes all risk and liability in connection therewith. Thomas does not warrant, guarantee or assume any obligation or liability in connection with this information.

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