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







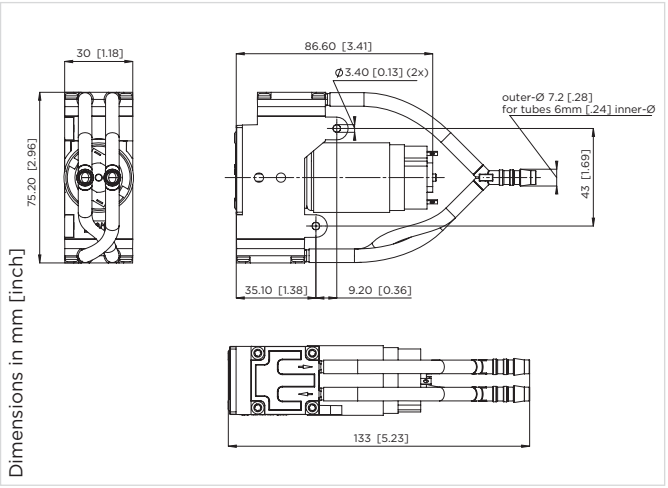


Diaphragm

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	**14200001**	14200160
	24 V	**14200002**	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 [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	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

WETTED PARTS

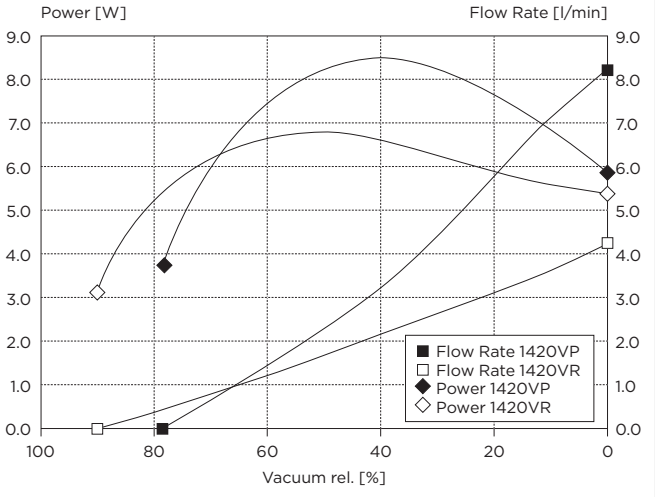
Pump head	PAA	PAA
Diaphragm	EPDM	EPDM
Valves	EPDM	EPDM
Tubing	PUR	PUR
Y-Connector	POM	POM

OPTIONS

PPS

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

FLOW CURVES



1420... Stock programme

Model key:

P=Parallel
R=Series

Eccentric

Motor type

1420 VP / 2.2 / E / LC

Type

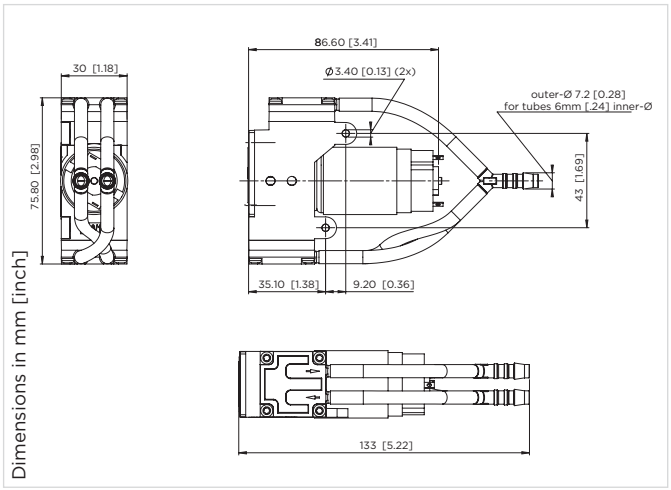
Vacuum

Diaphragm, Valves

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	IP00

GENERAL DATA

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

WETTED PARTS

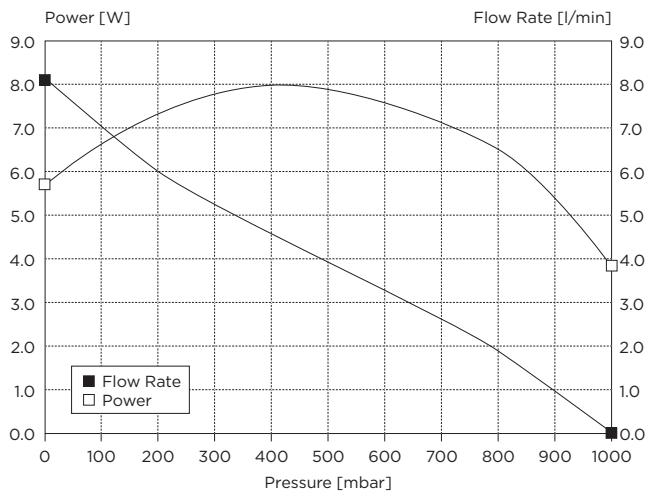
Pump head	PAA
Diaphragm	EPDM
Valves	EPDM
Tubing	PUR
Y-Connector	POM

OPTIONS

PPS

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

FLOW CURVES



1420... Stock programme

Model key:

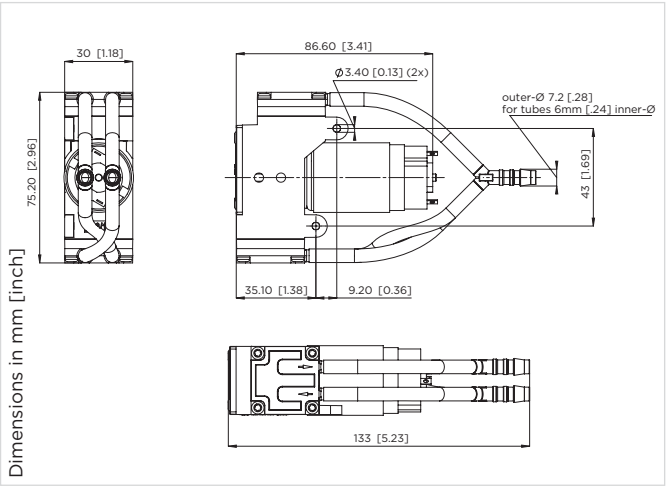
1420	DP	/	2.2	/	E	/	LC
Type	Pressure		Eccentric		Diaphragm, Valves		Motor type

P=Parallel
R=Series

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	IP00

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

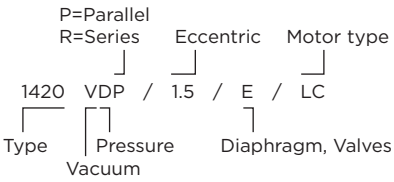
Pump head	PAA
Diaphragm	EPDM
Valves	EPDM
Tubing	PUR
Y-Connector	POM

OPTIONS

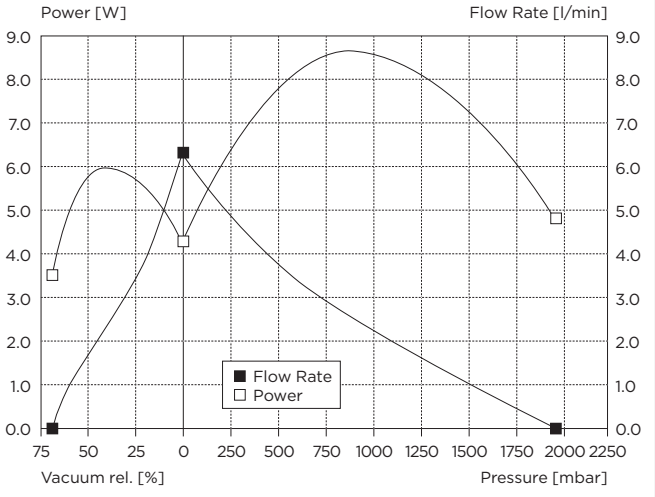
PPS

1420... Stock programme

Model key:



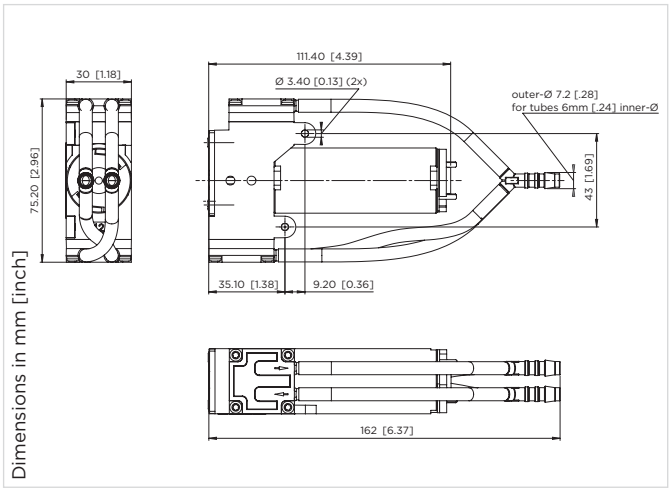
FLOW CURVES



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	**14200052**	14200162
	24 V	**14200053**	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	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

WETTED PARTS

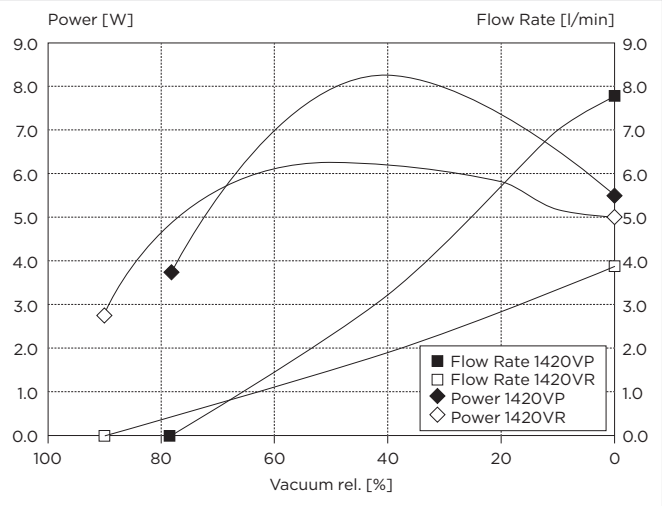
Pump head	PAA	PAA
Diaphragm	EPDM	EPDM
Valves	EPDM	EPDM
Tubing	PUR	PUR
Y-Connector	POM	POM

OPTIONS

PPS

1) radio interference suppression according to EN 55011-B

FLOW CURVES



1420... Stock programme

Model key:

P=Parallel
R=Series

Eccentric

Motor type

1420 VP / 2.2 / E / DC

Type

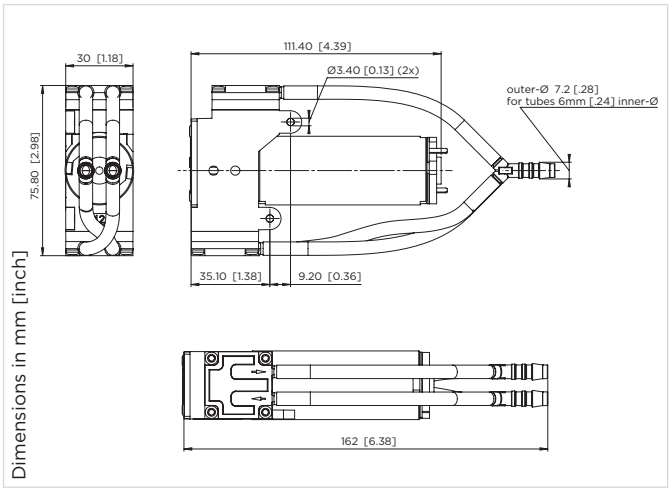
Vacuum

Diaphragm, Valves

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	IP00

GENERAL DATA

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

WETTED PARTS

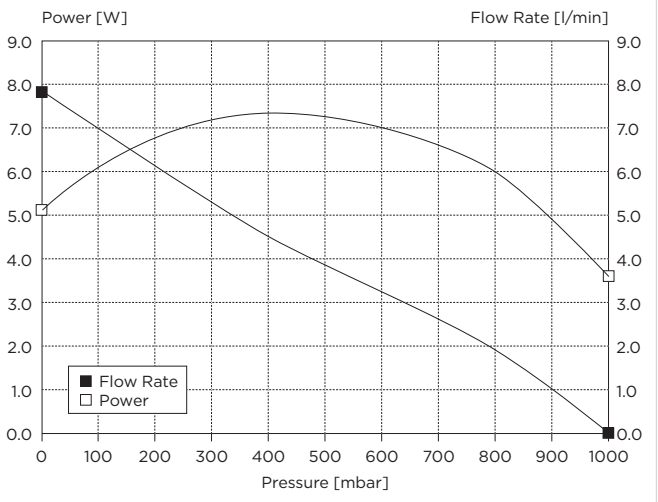
Pump head	PAA
Diaphragm	EPDM
Valves	EPDM
Tubing	PUR
Y-Connector	POM

OPTIONS

PPS

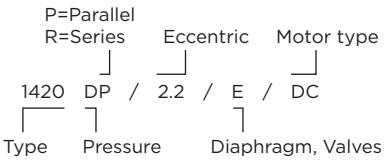
1) radio interference suppression according to EN 55011-B

FLOW CURVES



1420... Stock programme

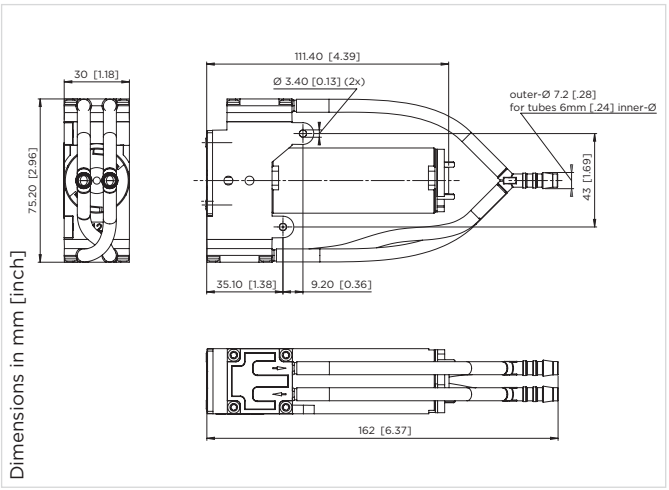
Model key:



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	IP00

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

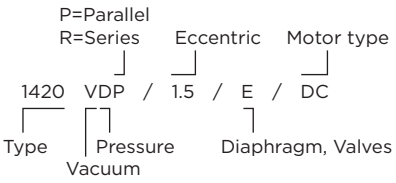
WETTED PARTS

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

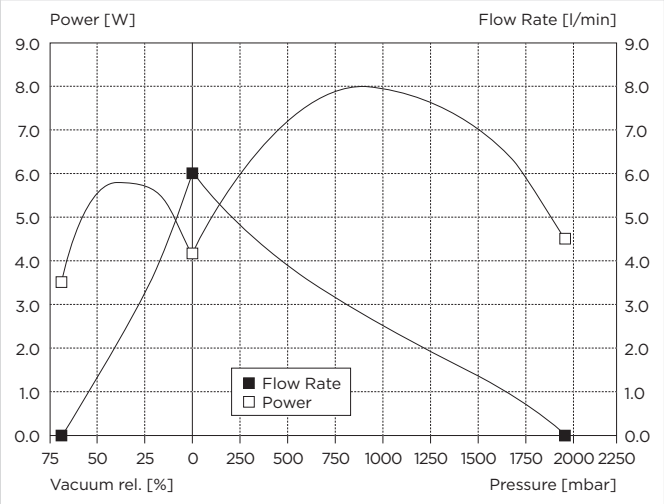
OPTIONS

PPS

Model key:



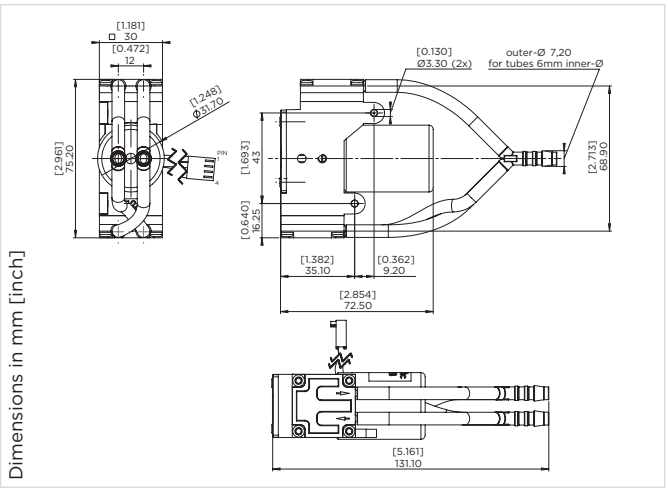
FLOW CURVES



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 22-01-3047
	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

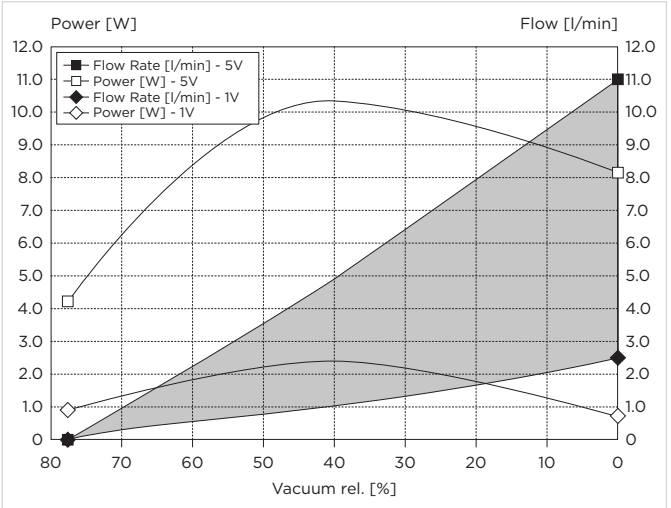
Model key:

P=Parallel
R=Series

1420 VP / 2.2 / E / BLDC

Type — Vacuum — Eccentric — Diaphragm, Valves — Motor type

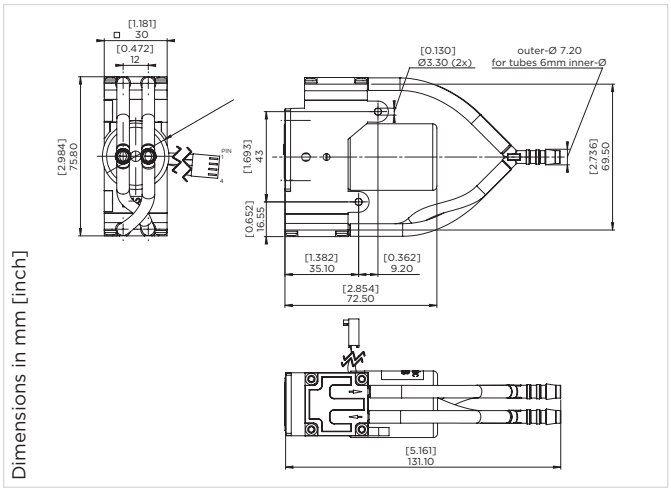
FLOW CURVES



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 22-01-3047
	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

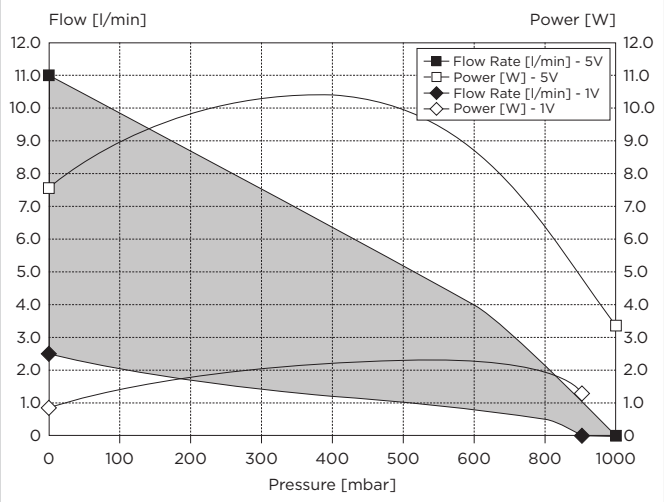
Model key:

P=Parallel
R=Series — Eccentric — Motor type

1420 DP / 2.2 / E / BLDC

Type — Vacuum — Diaphragm, Valves

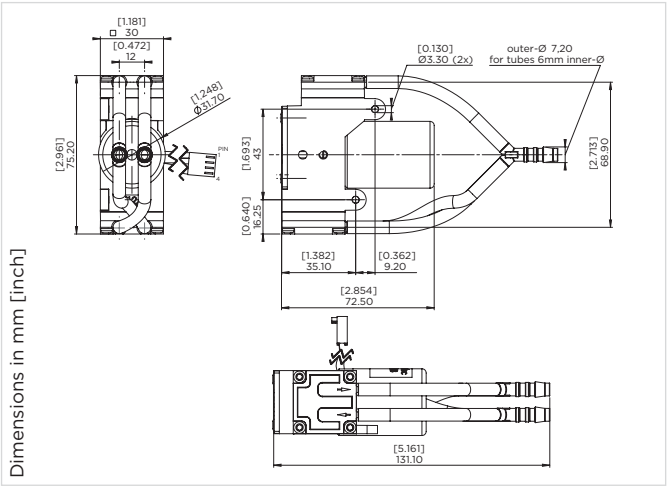
FLOW CURVES



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 22-01-3047
	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

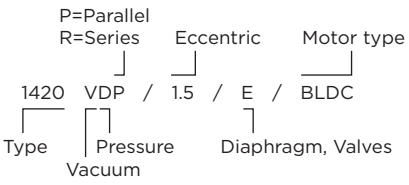
PPS

WIRING DIAGRAM

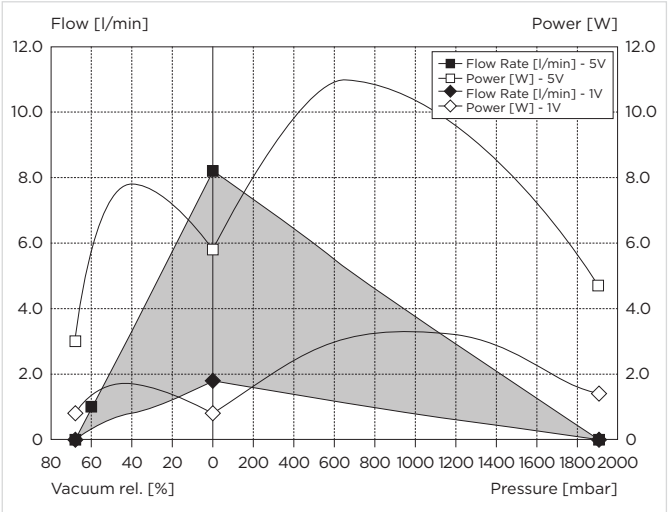
Pin 1	V Supply	Red	12 V DC (max. voltage range: 10..18 V DC) 24 V DC (max. voltage range: 10..28 V DC)
Pin 2	Ground	Black	Ground for Vsupply (PIN 1) and Speed Control (PIN 3)
Pin 3	Speed Control	White	analog: 0..5 V DC (max. 28V) PWM: 6..20kHz - 14..96% Speed voltage input threshold: 0.2 V
Pin 4	Tacho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



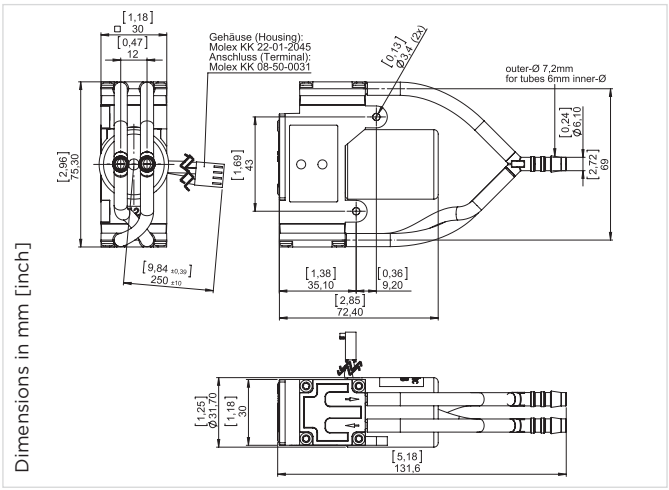
FLOW CURVES



Diaphragm Pump **1420HP BLDC**

Flow	**10.4 l/min**
Final pressure	**2.7 bar**





PNEUMATIC DATA

Description		1420HP/2.2/TF/BLDC
Part number	12 V	14201005
	24 V	14201006
Max. flow		10.4 l/min
Max. intermittent pressure		2.7 bar
Max. continuous pressure		0.5 bar @ 21°C (room temperature)
Max. restart pressure		0.5 bar @ 21°C (room temperature)

ELECTRICAL DATA

Motor type		Brushless DC
Nominal speed		0 - 4600 rpm
Nominal voltage		12/24 V DC
Drive electronics		integrated with reverse supply voltage protection
Max. power consumption		16.6 W
Motor insulation class		B
Protection class		IP20
Connector	Housing:	Molex KK 22-01-3047
	Terminal:	Molex KK 08-50-0031

GENERAL DATA

Ambient temperature	15 to 40 °C
Media temperature	15 to 40 °C
Weight	205 g
Configuration	Parallel

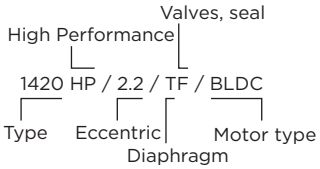
WETTED PARTS

Pump head	PPS
Diaphragm	ThomaLast
Valves	FKM
Tubing	PUR
Y-Connector	POM

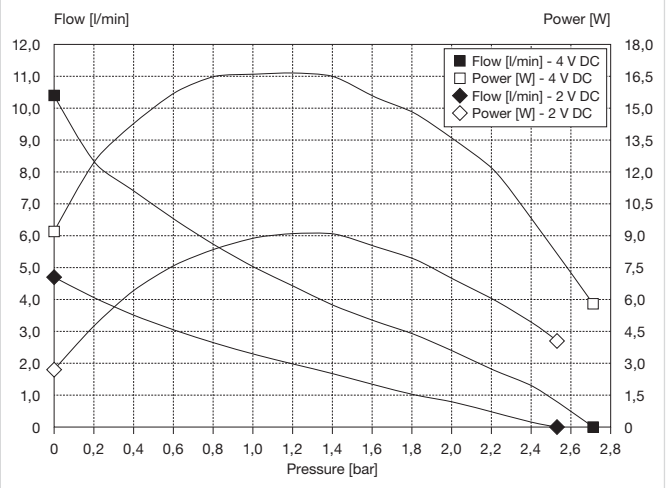
WIRING DIAGRAM

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 V Supply (Pin 1) and Speed control (Pin 3)
Pin 3	Speed Control	White	analog: 0..5 V DC 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

Model key:



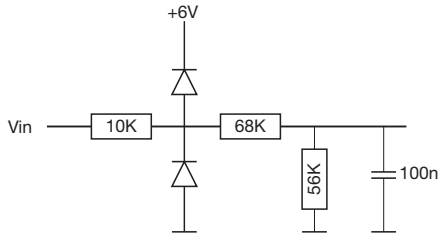
FLOW CURVES



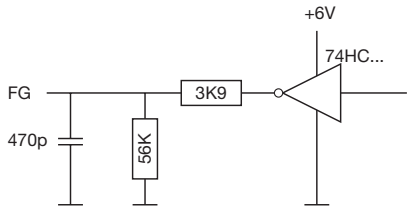
Wiring diagram (Brushless DC motor)

	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 µs Output level „LOW“: 0 / max. 0.5 V Output level „HIGH“: min. 4 V / max. 5 V

Speed Input

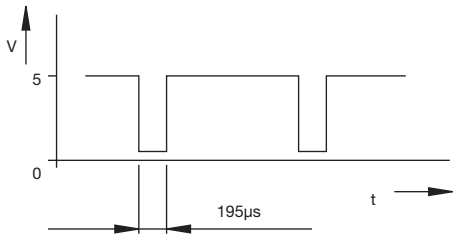


Speed Output



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

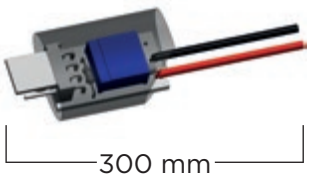
Speed Output signal



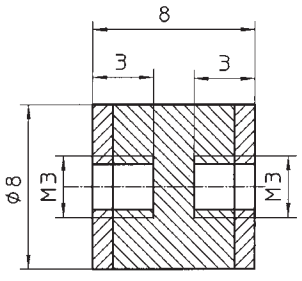
Options / Accessories

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)



Notes

THOMAS
by Gardner Denver

PUMP AND COMPRESSOR SOLUTIONS FOR OEMS WORLDWIDE

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