Miniature Diaphragm Pumps

MODELS

2002
3003
3013



FEATURES

- Oil-less
- Maintenance free
- Balanced for smooth low vibration operation
- Low noise level
- Small
- Light weight
- High efficiency

TYPICAL APPLICATIONS

- Patient monitoring
- Anaesthetic control
- Gas detection devices
- Personal protection devices
- Flue gas measurement
- Pipetting devices

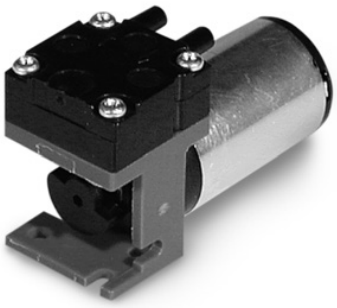
TÜV SÜD ISO 9001

THOMAS by Gardner Denver

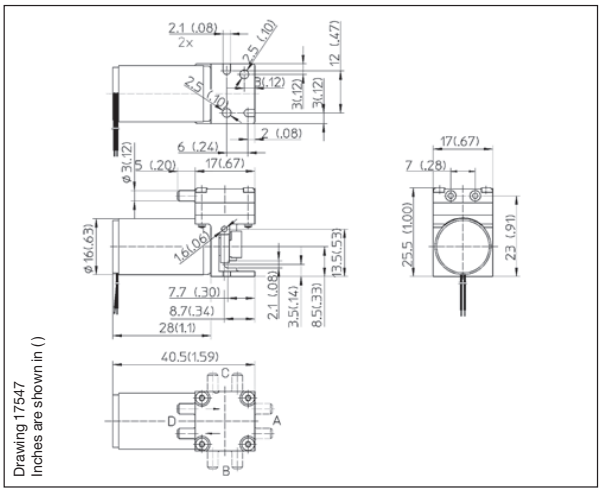
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(800) 799-4568 | 3810 Prospect Ave, Ste. A, Yorba Linda, CA 92886

Diaphragm Pump 2002 VD DC

Flow	**380 ml/min**
Max. pressure	**400 mbar**
Max. vacuum	**40%**



OIL-LESS



Pneumatic Data		
Description		2002VD/0,5/E/DC
Part number	3,5 V	20020301 (2 to 3,8 V)
	4,5 V	20020304 (3,5 to 7 V)
	6,0 V	20020307 (5 to 10 V)
Max. flow		380 ml/min
Max. intermittent duty		380 to 400 mbar
Max. continuous pressure		150 mbar
Max. restart pressure		150 mbar
Max. vacuum		36 to 40%
Max. restart vacuum		15%

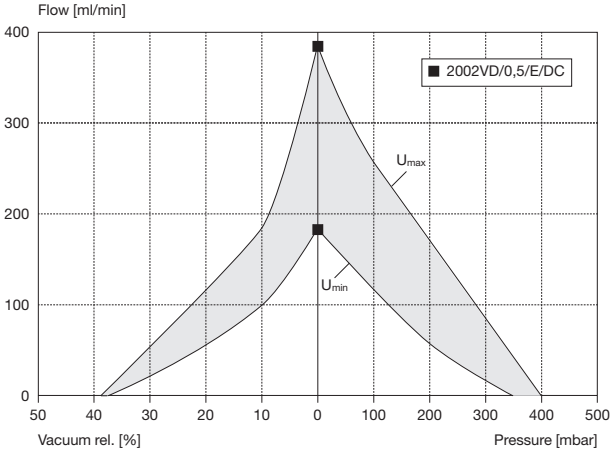
Electrical Data	
Motor type	Ironless core DC
Rated power	2 to 3,8 V/48 to 53 mA 3,5 to 7 V/32 to 37 mA 5 to 10 V/23 to 25 mA
Protection class	IP00
Bearing type	Sleeve bearing

General Data	
Ambient temperature	10 to 50 °C
Media temperature	10 to 50 °C
Weight	32 g
Port direction	D

Wetted Parts		**Options**
Pump head	Phenol resin	
Diaphragm, valves	EPDM	FKM, Silicone

Noise suppression for the purpose of guideline 89/336 EWG electromagnetic tolerance.

Flow Curves

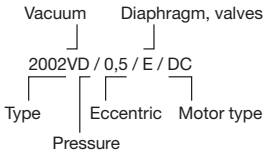


Options:

Bearing type	Ball bearing

Model key:

2002... Stock programme



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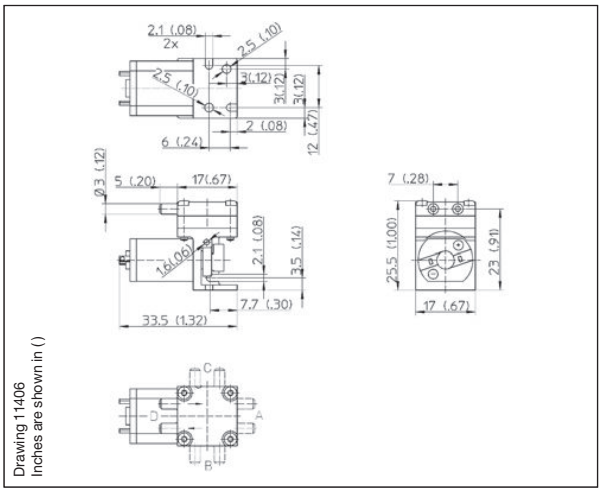
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Diaphragm Pump 2002 VD LC

Flow	**500 ml/min**
Max. pressure	**400 mbar**
Max. vacuum	**40%**



OIL-LESS



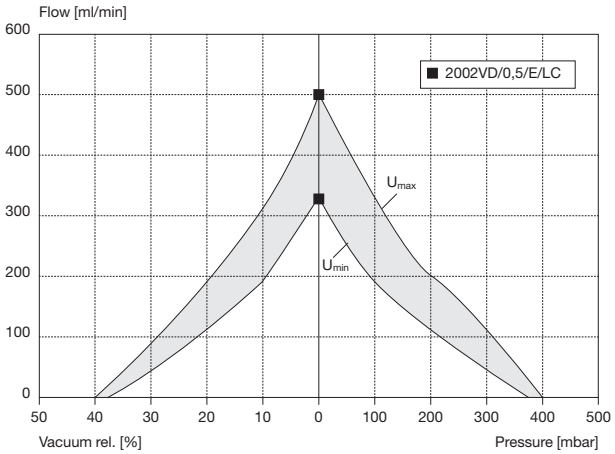
Pneumatic Data		
Description		2002VD/0,5/E/LC
Part number	3,5 V	20020215 (3,5 to 5 V)
Max. flow		500 ml/min
Max. intermittent duty		380 to 400 mbar
Max. continuous pressure		150 mbar
Max. restart pressure		150 mbar
Max. vacuum		36 to 40%
Max. restart vacuum		15%

Electrical Data	
Motor type	Permanent magnet
Rated power	3,5 to 5 V/90 mA
Protection class	IP00
Bearing type	Sleeve bearing

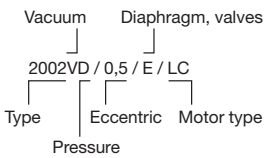
General Data	
Ambient temperature	10 to 50 °C
Media temperature	10 to 50 °C
Weight	17 g
Port direction	D

Wetted Parts		Options
Pump head	Phenol resin	
Diaphragm, valves	EPDM	FKM, Silicone

Flow Curves



Model key:



2002... Stock programme

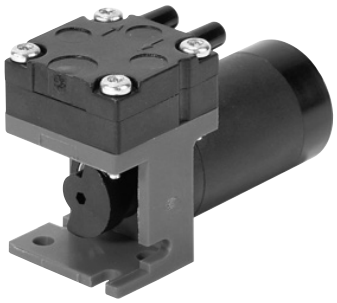
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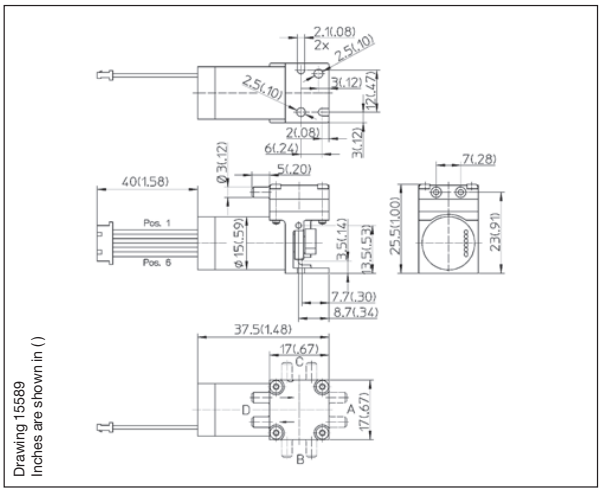
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Diaphragm Pump 2002 VD BLDC

Flow	**800 ml/min**
Max. pressure	**600 mbar**
Max. vacuum	**52%**



OIL-LESS



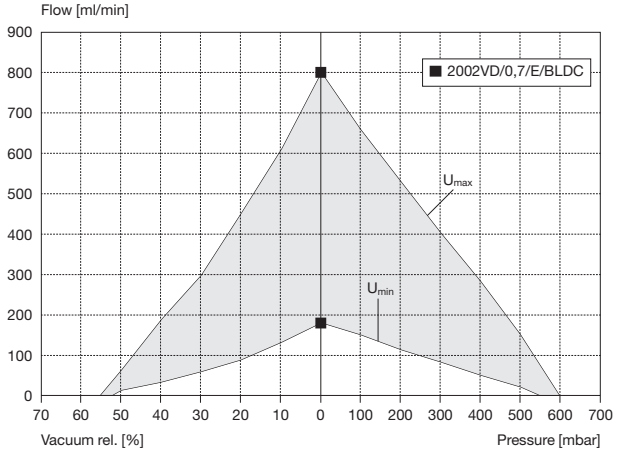
Pneumatic Data	
Description	2002VD/0,7/E/BLDC
Part number	20020434
Max. flow	800 ml/min
Max. intermittend duty	550 to 600 mbar
Max. continuous pressure	150 mbar
Max. restart pressure	600 mbar
Max. vacuum	50% to 52%
Max. restart vacuum	52%

Electrical Data					
Motor type				Brushless DC	
Power consumption				0,8 W	
Protection class (Motor)				IP40	
Drive electronic				integrated	
Bearing type				Ball bearing	
Connector type:				Molex 51021-0600 / Terminal 50058-8100	
Wiring diagramm:					
PIN	1	Vp	red	Electronics supply	5...18VDC
	2	Vmot	black	Motor supply	5...18VDC (min. 4VDC higher than input voltage on PIN 4)
	3	GND	black	Ground	
	4	Vnsoll	black	Speed control	1...4VDC
	5	DIR	black	Direction of rotation:	u < 3VDC: CW/ground: CCW
	6	FG	black	Signal / 3 impulses per rotation	

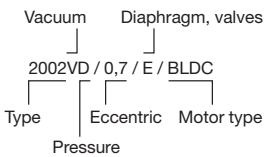
General Data	
Ambient temperature	10 to 50 °C
Media temperature	10 to 50 °C
Weight	22 g

Wetted Parts		**Options**
Pump head	Phenol resin	
Diaphragm, valves	EPDM	FKM, Silicone

Flow Curves



Model key:



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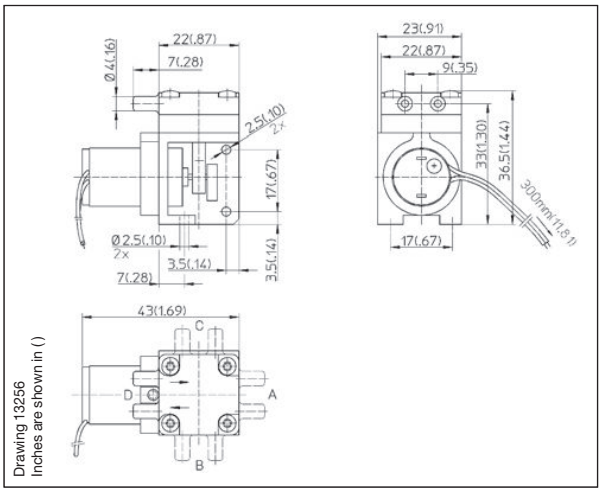
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Diaphragm Pump 3003 VD DC

Flow	**1000 ml/min**
Max. pressure	**650 mbar**
Max. vacuum	**38%**



OIL-LESS



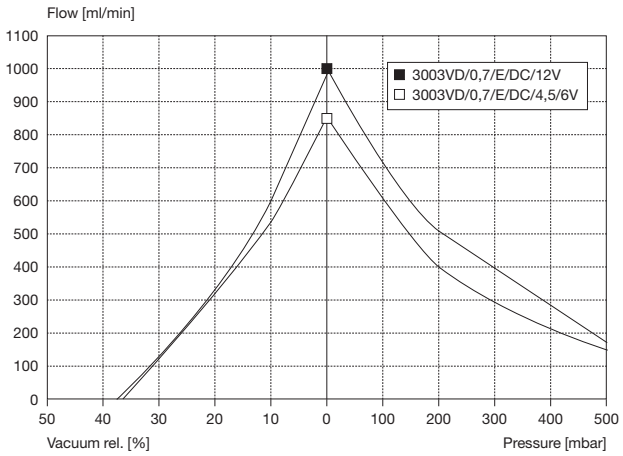
Pneumatic Data				
Description		3003VD/0,7/E/DC	3003VD/0,7/E/DC	3003VD/0,7/E/DC
Part number	4,5 V	30030506		
	6,0 V		30030511	
	12,0 V			30030509
Max. flow		850 ml/min	850 ml/min	1000 ml/min
Max. intermittent duty		650 mbar	650 mbar	650 mbar
Max. continuous pressure		200 mbar	200 mbar	200 mbar
Max. restart pressure		200 mbar	200 mbar	200 mbar
Max. vacuum		38%	38%	38%
Max. restart vacuum		20%	20%	20%

Electrical Data			
Motor type	Ironless core DC	Ironless core DC	Ironless core DC
Rated power	4,5 V/105 mA		
		6 V/80 mA	
			12 V/66 mA
Protection class	IP00	IP00	IP00
Bearing type	Sleeve bearing	Ball bearing	Sleeve bearing

General Data		
Ambient temperature	10 to 50 °C	10 to 50 °C	10 to 50 °C
Media temperature	10 to 50 °C	10 to 50 °C	10 to 50 °C
Weight	40 g	40 g	40 g
Port direction	D	D	D

Wetted Parts		**Options**
Pump head	Phenol resin	
Diaphragm plate	Polyamid	
Diaphragm, valves	EPDM	FKM, Silicone
Diaphragm screw	V2A	

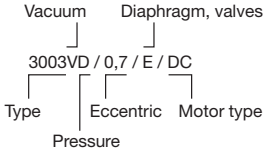
Flow Curves



Noise suppression for the purpose of guideline 89/336 EWG electromagnetic tolerance.

Model key:

3003... Stock programme

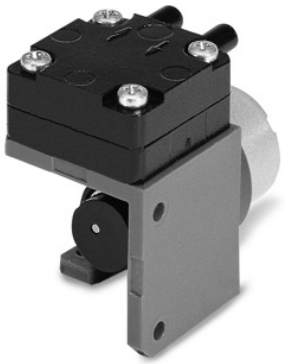


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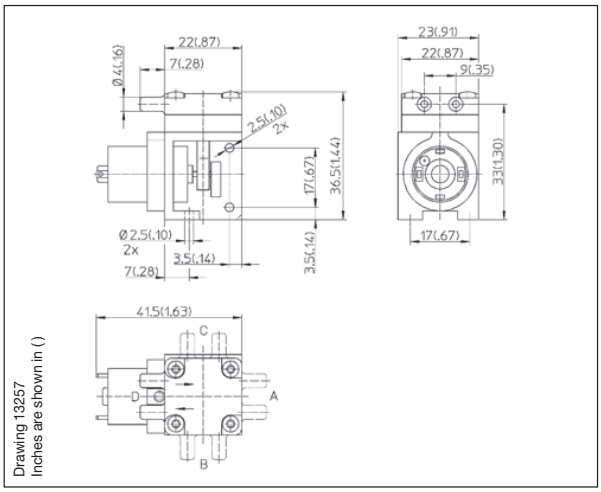
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Diaphragm Pump 3003 VD LC

Flow	**950 ml/min**
Max. pressure	**850 mbar**
Max. vacuum	**48%**



OIL-LESS



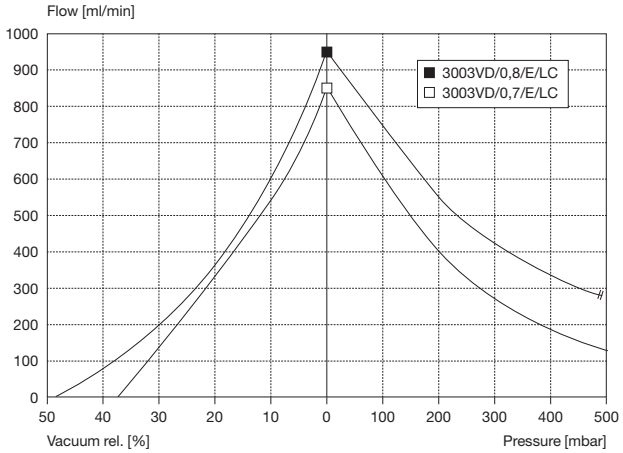
Pneumatic Data			
Description		3003VD/0,7/E/LC	3003VD/0,8/E/LC
Part number	3,5 V		30031505
	4,5 V	30030507	
Max. flow		850 ml/min	950 ml/min
Max. intermittent duty		650 mbar	850 mbar
Max. continuous pressure		200 mbar	200 mbar
Max. restart pressure		200 mbar	200 mbar
Max. vacuum		38%	48%
Max. restart vacuum		20%	20%

Electrical Data		
Motor type	Permanent magnet	Permanent magnet
Rated power		3,5 V/250 mA
	4,5 V/165 mA	
Protection class	IP00	IP00
Bearing type	Sleeve bearing	Sleeve bearing

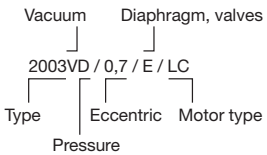
General Data		
Ambient temperature	10 to 50 °C	10 to 50 °C
Media temperature	10 to 50 °C	10 to 50 °C
Weight	35 g	35 g
Port direction	D	D

Wetted Parts		**Options**
Pump head	Phenol resin	
Diaphragm plate	Polyamid	
Diaphragm, valves	EPDM	FKM, Silicone
Diaphragm screw	V2A	

Flow Curves



Model key:



3003... Stock programme

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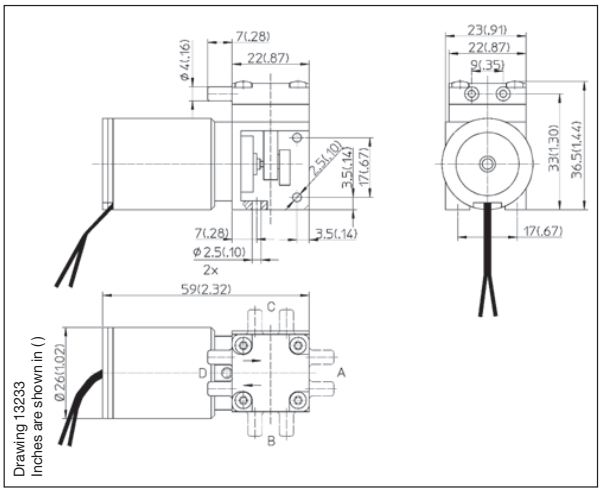
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Diaphragm Pump 3003 VD BLDC

Flow	**700 ml/min**
Max. pressure	**1000 mbar**
Max. vacuum	**48%**



OIL-LESS



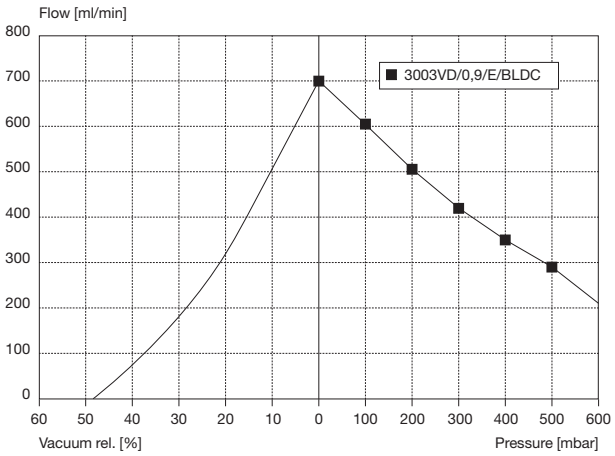
Pneumatic Data		
Description		3003VD/0,9/E/BLDC
Part number	6 V	30030512
Max. flow		700 ml/min
Max. intermittent duty		1000 mbar
Max. continuous pressure		300 mbar
Max. restart pressure		700 mbar
Max. vacuum		48%
Max. restart vacuum		48%

Electrical Data	
Motor type	Brushless DC
Rated power	6 V/180 mA
Protection class	IP00
Drive electronic	integrated
Bearing type	Ball bearing

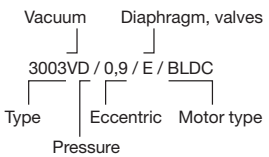
General Data	
Ambient temperature	10 to 50 °C
Media temperature	10 to 50 °C
Weight	95 g
Port direction	D

Wetted Parts		Options
Pump head	Phenol resin	
Diaphragm plate	Polyamid	
Diaphragm, valves	EPDM	FKM, Silicone
Diaphragm screw	V2A	

Flow Curves



Model key:



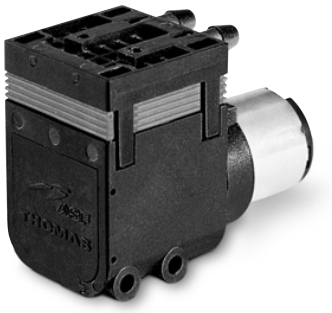
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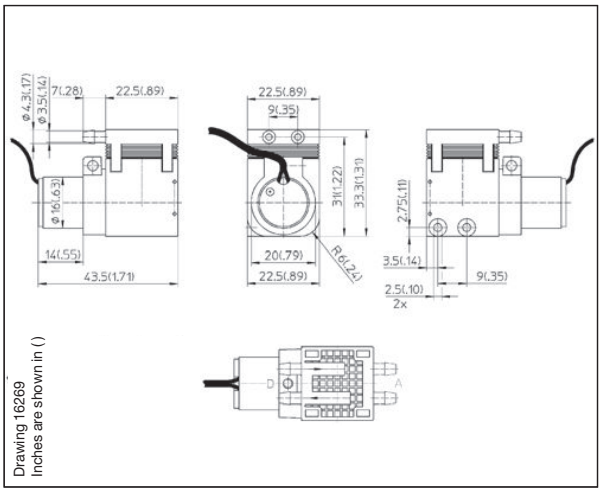
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Diaphragm Pump 3013 VD DC

Flow	**1,2 l/min**
Max. pressure	**450 mbar**
Max. vacuum	**40%**



OIL-LESS



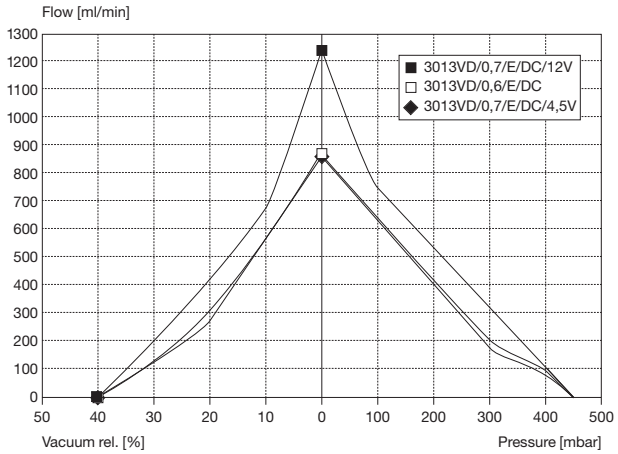
Pneumatic Data				
Description		3013VD/0,7/E/DC	3013VD/0,7/E/DC	3013VD/0,7/E/DC
Part number	4,5 V	30130007		
	6,0 V		30130224	
	12,0 V			30130006
Max. flow		0,9 l/min	0,85 l/min	1,2 l/min
Max. intermittent duty		450 mbar	450 mbar	450 mbar
Max. continuous pressure		200 mbar	200 mbar	200 mbar
Max. restart pressure		200 mbar	200 mbar	200 mbar
Max. vacuum		40%	40%	40%
Max. restart vacuum		20%	20%	20%

Electrical Data			
Motor type	Ironless core DC	Ironless core DC	Ironless core DC
Rated power	90 mA	40 mA	40 mA
Protection class	IP00	IP00	IP00
Bearing type	Sleeve bearing	Ball bearing	Sleeve bearing

General Data			
Ambient temperature	10 to 40 °C	10 to 40 °C	10 to 40 °C
Media temperature	10 to 40 °C	10 to 40 °C	10 to 40 °C
Weight	32 g	32 g	32 g
Port direction	D	D	D

Wetted Parts				Options
Pump head	Polycarbonate	Polycarbonate	Polycarbonate	PPS
Diaphragm	EPDM	EPDM	EPDM	FKM
Valve/gasket	EPDM	EPDM	EPDM	FKM

Flow Curves

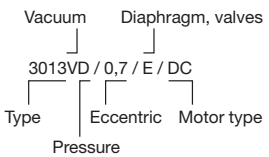


Option

Motor	BLDC motor
Bearing type	Ball bearing

Model key:

3013... Stock programme



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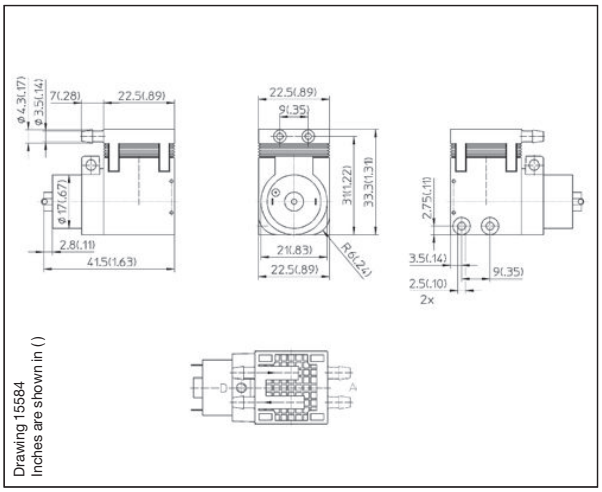
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Diaphragm Pump 3013 VD LC

Flow	**1,3 l/min**
Max. pressure	**600 mbar**
Max. vacuum	**45%**



OIL-LESS



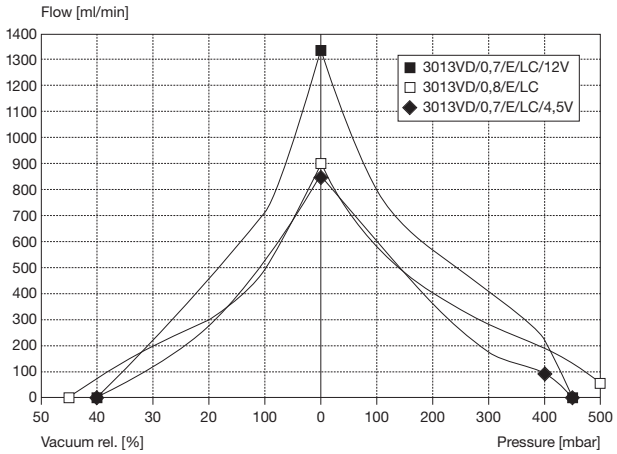
Pneumatic Data				
Description		3013VD/0,8/E/LC	3013VD/0,7/E/LC	3013VD/0,7/E/LC
Part number	3,0 V	30130039		
	4,5 V		30130002	
	12,0 V			30130003
Max. flow		0,9 l/min	0,9 l/min	1,3 l/min
Max. intermittent duty		600 mbar	450 mbar	450 mbar
Max. continuous pressure		200 mbar	200 mbar	200 mbar
Max. restart pressure		200 mbar	200 mbar	200 mbar
Max. vacuum		45%	40%	40%
Max. restart vacuum		20%	20%	20%

Electrical Data			
Motor type	Permanent magnet	Permanent magnet	Permanent magnet
Rated power	180 mA	120 mA	60 mA
Protection class	IP00	IP00	IP00
Bearing type	Sleeve bearing	Sleeve bearing	Sleeve bearing

General Data			
Ambient temperature	10 to 40 °C	10 to 40 °C	10 to 40 °C
Media temperature	10 to 40 °C	10 to 40 °C	10 to 40 °C
Weight	32 g	32 g	32 g
Port direction	D	D	D

Wetted Parts				**Options**
Pump head	Polycarbonate	Polycarbonate	Polycarbonate	PPS
Diaphragm	EPDM	EPDM	EPDM	FKM
Valve/gasket	EPDM	EPDM	EPDM	FKM

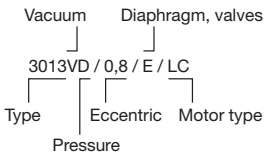
Flow Curves



Option

Motor	BLDC motor
Bearing type	Ball bearing

Model key:



3013... Stock programme

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