

DIAPHRAGM



Diaphragm Pumps

1410 SERIES

JADE

MODELS

1410 V
1410 D
1410 VD



1410 DC Series



1410 LC Series



1410 BLDC Series

FEATURES

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

TYPICAL APPLICATIONS

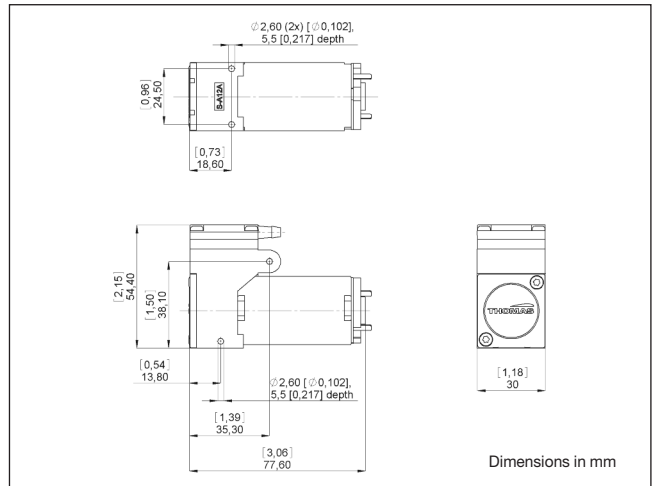
- Medical devices
- Gas detection
- Analysis
- Battery operated systems



THOMAS
A Gardner Denver Product

Diaphragm Pump 1410V DC

| | |
|---------------------|------------------|
| Flow | 4,3 l/min |
| Final Vacuum | 75 % |



Pneumatic Data

| | | |
|--------------------------|----------------|----------|
| Description | 1410V/2,2/E/DC | |
| Part number | 12 V | 14100053 |
| | 24 V | 14100056 |
| Max. flow | 4,3 l/min | |
| Max. intermittent vacuum | 75 % | |
| Max. continuous vacuum | 75 % | |
| Max. restart vacuum | 50 % | |

Electrical Data

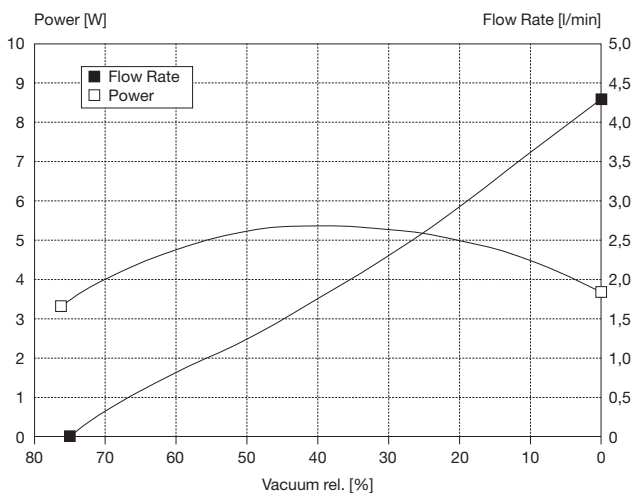
| | |
|------------------------|---------------------|
| Motor type | DC brush |
| Nominal speed | 3.400 rpm |
| Nominal voltage | 12/24 V DC |
| Max. power consumption | 5,3 W |
| Motor insulation class | E |
| Protection class | IP00 (Housing IP20) |

General Data

| | |
|---------------------|------------|
| Ambient temperature | 15 to 40°C |
| Media temperature | 15 to 40°C |
| Weight | 180 g |
| Port direction | D |

radio interference suppression according to EN 55011-B

Flow Curves



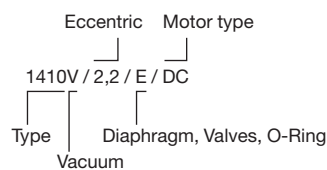
Wetted Parts

| | |
|-----------|------------|
| Pump head | PAA (IXEF) |
| Diaphragm | EPDM |
| Valves | EPDM |

Options

PPS (Ryton®)

Model key:

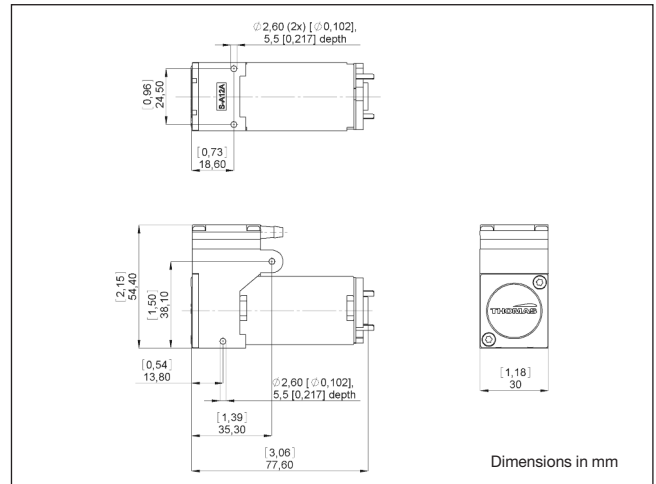
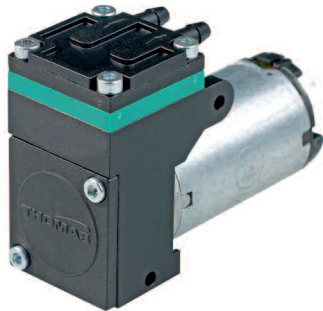


1410... Stock programme

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Diaphragm Pump 1410D DC

| | |
|-----------------------|------------------|
| Flow | 4,3 l/min |
| Final Pressure | 1,0 bar |



Pneumatic Data

| | | |
|----------------------------|----------------|----------|
| Description | 1410D/2,2/E/DC | |
| Part number | 12 V | 14100054 |
| | 24 V | 14100057 |
| Max. flow | 4,3 l/min | |
| Max. intermittent pressure | 1,0 bar | |
| Max. continuous pressure | 1,0 bar | |
| Max. restart pressure | 0,5 bar | |

Electrical Data

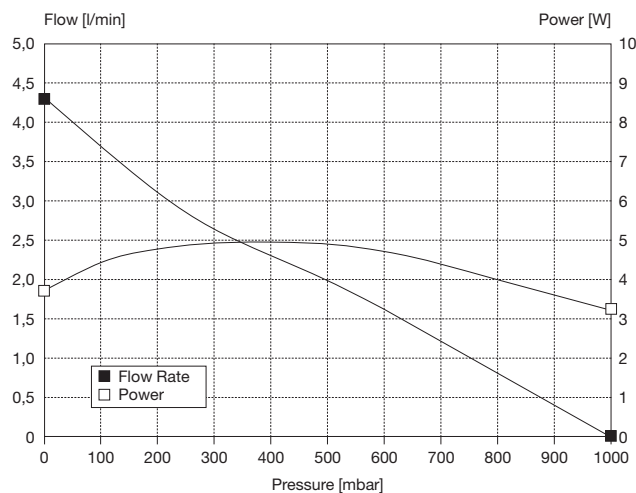
| | | |
|------------------------|---------------------|--|
| Motor type | DC brush | |
| Nominal speed | 3.400 rpm | |
| Nominal voltage | 12/24 V DC | |
| Max. power consumption | 5,0 W | |
| Motor insulation class | E | |
| Protection class | IP00 (Housing IP20) | |

General Data

| | | |
|---------------------|------------|--|
| Ambient temperature | 15 to 40°C | |
| Media temperature | 15 to 40°C | |
| Weight | 180 g | |
| Port direction | D | |

radio interference suppression according to EN 55011-B

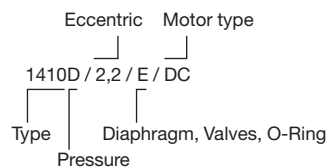
Flow Curves



Wetted Parts

| | | |
|-----------|------------|--------------|
| Pump head | PAA (IXEF) | Options |
| Diaphragm | EPDM | PPS (Ryton®) |
| Valves | EPDM | |

Model key: 1410... Stock programme

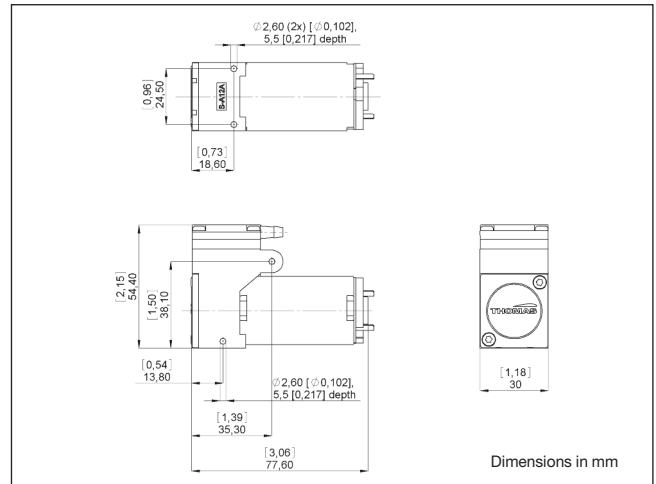


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Diaphragm Pump 1410VD DC

| | |
|-----------------------|------------------|
| Flow | 3,3 l/min |
| Final Pressure | 1,9 bar |
| Final Vacuum | 75 % |



Pneumatic Data

| | | |
|----------------------------|-----------------|----------|
| Description | 1410VD/1,5/E/DC | |
| Part number | 12 V | 14100055 |
| | 24 V | 14100058 |
| Max. flow | 3,3 l/min | |
| Max. intermittent pressure | 1,9 bar | |
| Max. continuous pressure | 0,7 bar | |
| Max. restart pressure | 0,5 bar | |
| Max. intermittent vacuum | 75 % | |
| Max. continuous vacuum | 75 % | |
| Max. restart vacuum | 50 % | |

Electrical Data

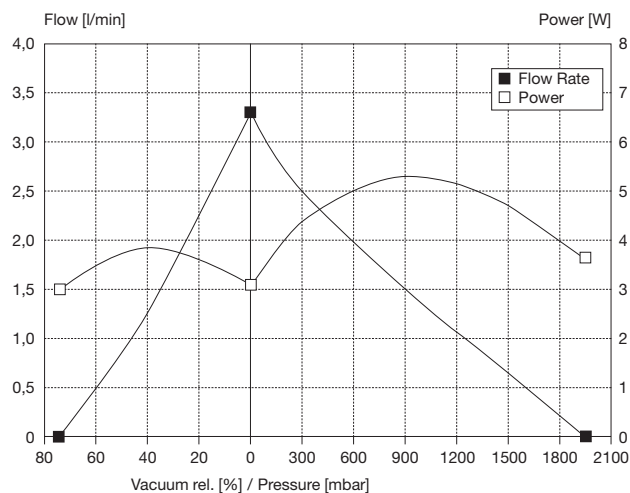
| | |
|------------------------|---------------------|
| Motor type | DC brush |
| Nominal speed | 3.400 rpm |
| Nominal voltage | 12/24 V DC |
| Max. power consumption | 5,3 W |
| Motor insulation class | E |
| Protection class | IP00 (Housing IP20) |

General Data

| | |
|---------------------|------------|
| Ambient temperature | 15 to 40°C |
| Media temperature | 15 to 40°C |
| Weight | 180 g |
| Port direction | D |

radio interference suppression according to EN 55011-B

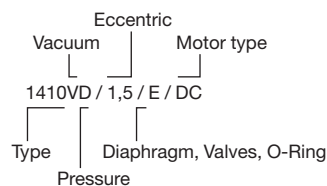
Flow Curves



Wetted Parts

| | | | |
|-----------|------------|---------|--------------|
| Pump head | PAA (IXEF) | Options | PPS (Ryton®) |
| Diaphragm | EPDM | | |
| Valves | EPDM | | |

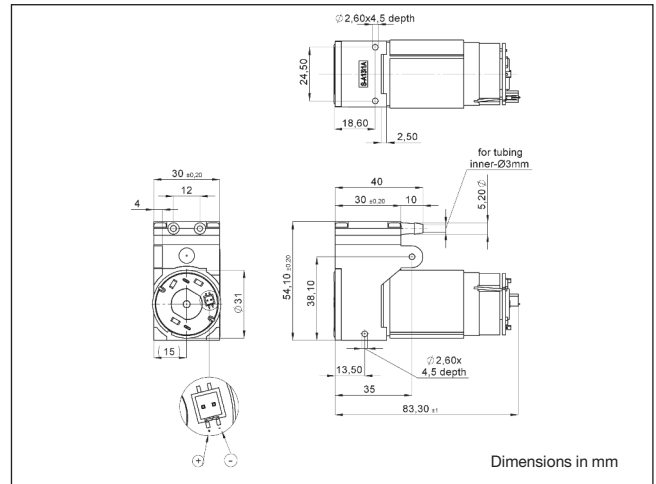
Model key: 1410... Stock programme



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Diaphragm Pump 1410V LC

| | |
|---------------------|------------------|
| Flow | 3,7 l/min |
| Final Vacuum | 75% |



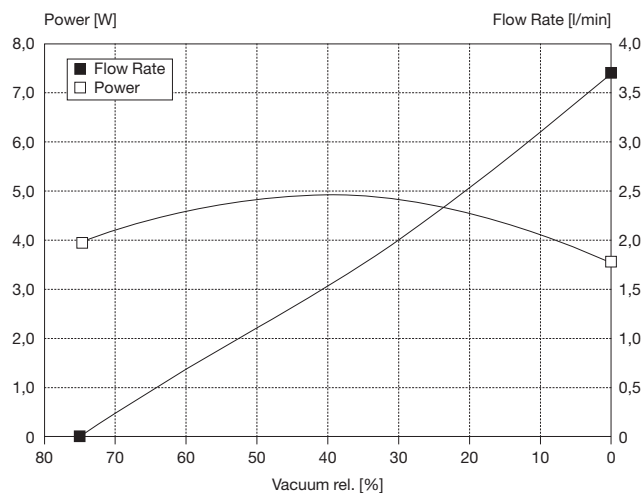
| Pneumatic Data | | |
|--------------------------|----------------|----------|
| Description | 1410V/2,2/E/LC | |
| Part number | 12 V | 14100103 |
| | 24 V | 14100106 |
| Max. flow | 3,7 l/min | |
| Max. intermittent vacuum | 75% | |
| Max. continuous vacuum | 75% | |
| Max. restart vacuum | 75% | |

| Electrical Data | | |
|------------------------|-----------------------------------|-----------------------|
| Motor type | DC brush | |
| Nominal speed | 3.000 rpm | |
| Nominal voltage | 12/24 V DC | |
| Max. power consumption | 5,0 W | |
| Motor insulation class | F | |
| Protection class | IP00 | |
| * Suitable connector | Housing, receptacle, 1.5mm, pitch | Molex P/N: 87439-0200 |
| | 2x Crimp receptacle, 1.5mm, pitch | Molex P/N: 87421-0000 |

| General Data | |
|---------------------|------------|
| Ambient temperature | 15 to 40°C |
| Media temperature | 15 to 40°C |
| Weight | 180 g |
| Port direction | D |

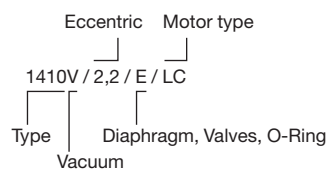
radio interference suppression according to EN 55011-B

Flow Curves



| Wetted Parts | | Options |
|--------------|------------|--------------|
| Pump head | PAA (IXEF) | PPS (Ryton®) |
| Diaphragm | EPDM | |
| Valves | EPDM | |

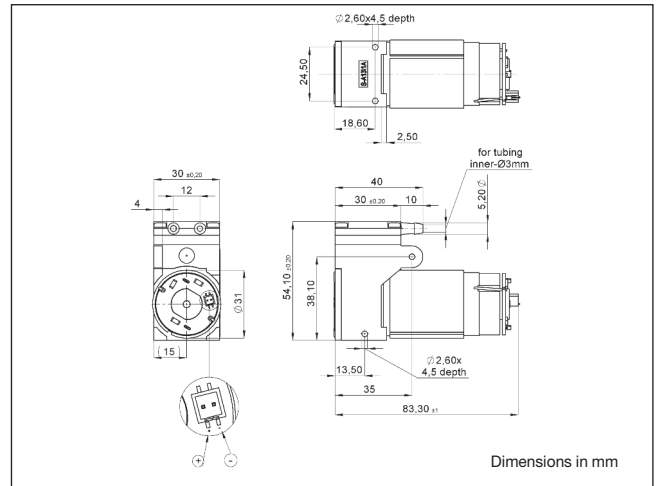
Model key: 1410... Stock programme



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Diaphragm Pump 1410D LC

| | |
|-----------------------|------------------|
| Flow | 3,7 l/min |
| Final Pressure | 1,0 bar |



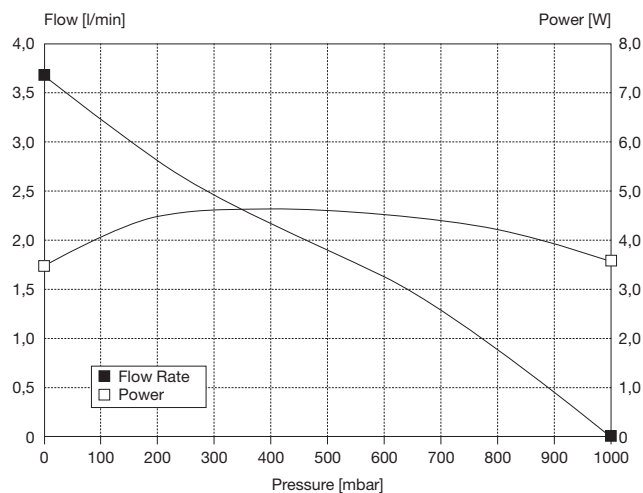
| Pneumatic Data | | |
|----------------------------|----------------|----------|
| Description | 1410D/2,2/E/LC | |
| Part number | 12 V | 14100104 |
| | 24 V | 14100107 |
| Max. flow | 3,7 l/min | |
| Max. intermittent pressure | 1,0 bar | |
| Max. continuous pressure | 1,0 bar | |
| Max. restart pressure | 1,0 bar | |

| Electrical Data | | |
|------------------------|-----------------------------------|-----------------------|
| Motor type | DC brush | |
| Nominal speed | 3.000 rpm | |
| Nominal voltage | 12/24 V DC | |
| Max. power consumption | 4,8 W | |
| Motor insulation class | F | |
| Protection class | IP00 | |
| * Suitable connector | Housing, receptacle, 1.5mm, pitch | Molex P/N: 87439-0200 |
| | 2x Crimp receptacle, 1.5mm, pitch | Molex P/N: 87421-0000 |

| General Data | | |
|---------------------|------------|--|
| Ambient temperature | 15 to 40°C | |
| Media temperature | 15 to 40°C | |
| Weight | 180 g | |
| Port direction | D | |

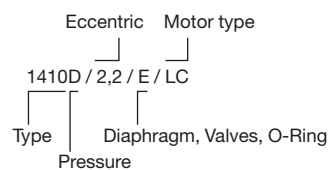
radio interference suppression according to EN 55011-B

Flow Curves



| Wetted Parts | | Options |
|--------------|------------|--------------|
| Pump head | PAA (IXEF) | PPS (Ryton®) |
| Diaphragm | EPDM | |
| Valves | EPDM | |

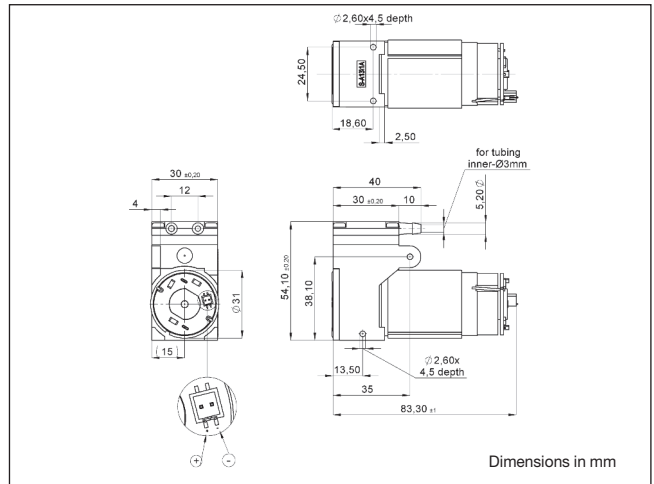
Model key: 1410... Stock programme



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Diaphragm Pump 1410VD LC

| | |
|-----------------------|------------------|
| Flow | 2,6 l/min |
| Final Pressure | 1,9 bar |
| Final Vacuum | 75 % |



Pneumatic Data

| | | |
|----------------------------|-----------------|----------|
| Description | 1410VD/1,5/E/LC | |
| Part number | 12 V | 14100105 |
| | 24 V | 14100108 |
| Max. flow | 2,6 l/min | |
| Max. intermittent pressure | 1,9 bar | |
| Max. continuous pressure | 0,7 bar | |
| Max. restart pressure | 1,9 bar | |
| Max. intermittent vacuum | 75% | |
| Max. continuous vacuum | 75% | |
| Max. restart vacuum | 75% | |

Electrical Data

| | | |
|------------------------|------------|--|
| Motor type | DC brush | |
| Nominal speed | 3.000 rpm | |
| Nominal voltage | 12/24 V DC | |
| Max. power consumption | 5,0 W | |
| Motor insulation class | F | |
| Protection class | IP00 | |

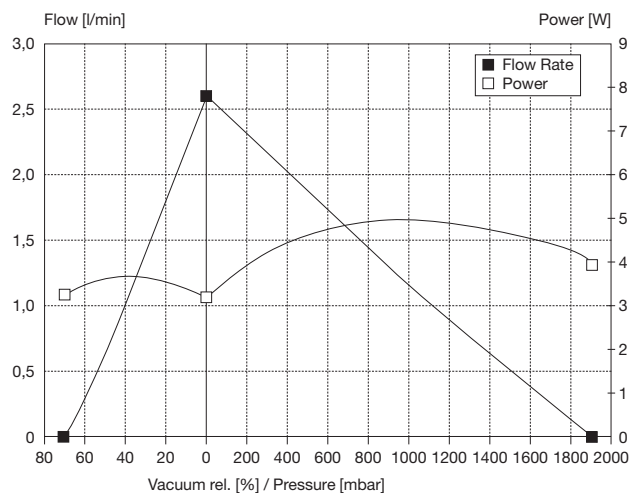
| | | |
|----------------------|-----------------------------------|-----------------------|
| * Suitable connector | Housing, receptacle, 1.5mm, pitch | Molex P/N: 87439-0200 |
| | 2x Crimp receptacle, 1.5mm, pitch | Molex P/N: 87421-0000 |

General Data

| | | |
|---------------------|------------|--|
| Ambient temperature | 15 to 40°C | |
| Media temperature | 15 to 40°C | |
| Weight | 180 g | |
| Port direction | D | |

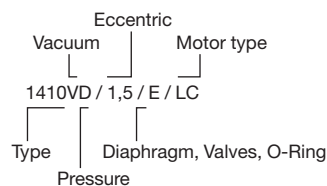
radio interference suppression according to EN 55011-B

Flow Curves



| | | |
|---------------------|------------|--------------|
| Wetted Parts | | |
| Pump head | PAA (IXEF) | PPS (Ryton®) |
| Diaphragm | EPDM | |
| Valves | EPDM | |

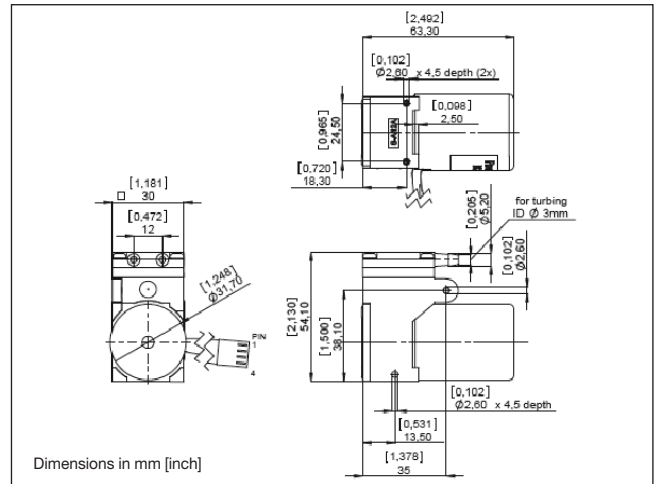
Model key: 1410... Stock programme



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Diaphragm Pump 1410V BLDC

| | |
|---------------------|------------------|
| Flow | 5,5 l/min |
| Final Vacuum | 75% |



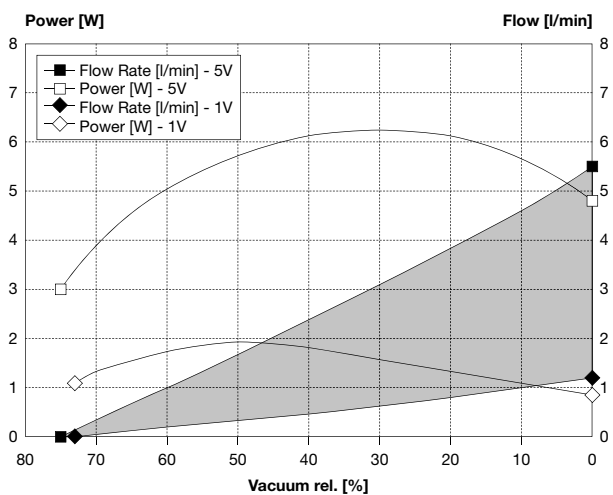
| Pneumatic Data | | |
|--------------------------|------------------|----------|
| Description | 1410V/2,2/E/BLDC | |
| Part number | 12 V | 14100210 |
| | 24 V | 14100211 |
| Max. flow | 5,5 l/min | |
| Max. intermittent vacuum | 75% | |
| Max. continuous vacuum | 75% | |
| Max. restart vacuum | 75% | |

| Electrical Data | | |
|------------------------|---|---------------------|
| Motor type | Brushless DC | |
| Nominal speed | 0..4.600 rpm | |
| Nominal voltage | 12/24 V DC | |
| Drive electronics | integrated with reverse supply voltage protection | |
| Max. power consumption | 6,3 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 (PIN 3) |
| | Pin 3 | Speed Control | White | analog: 0..5 VDC (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 |

| General Data | |
|---------------------|------------|
| Ambient temperature | 15 to 40°C |
| Media temperature | 15 to 40°C |
| Weight | 170 g |
| Port direction | D |

Flow Curve vs. Speed Control Input



| Wetted Parts | Options |
|--------------|-------------------------|
| Pump head | PAA (IXEF) PPS (Ryton®) |
| Diaphragm | EPDM |
| Valves | EPDM |

Model key:

Eccentric Motor type

1410V / 2,2 / E / BLDC

Type Diaphragm, Valves, O-Ring

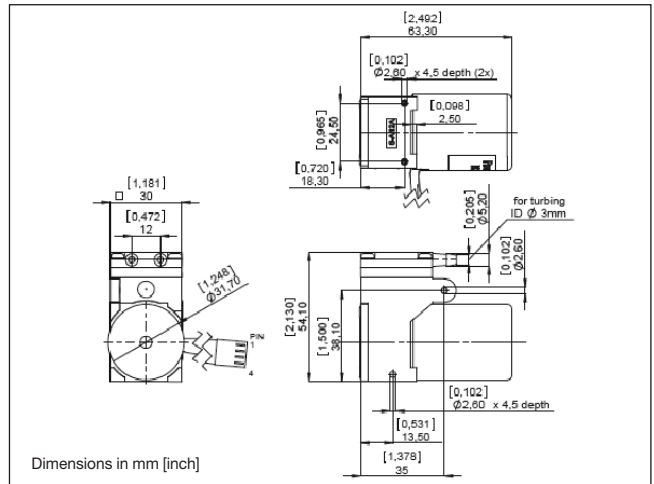
Vacuum

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Diaphragm Pump 1410D BLDC

| | |
|-----------------------|------------------|
| Flow | 5,5 l/min |
| Final Pressure | 1,0 bar |



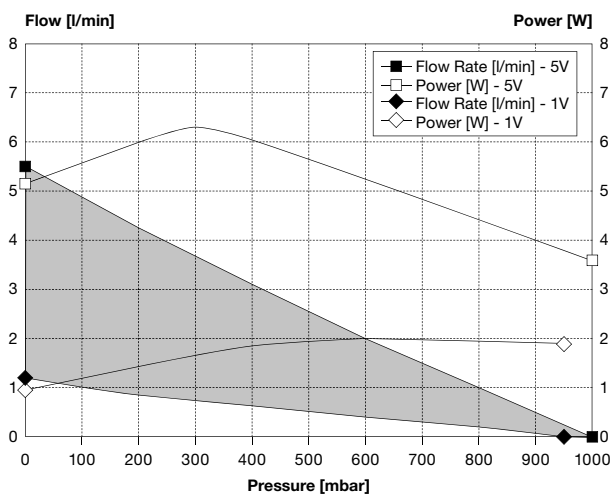
| Pneumatic Data | | |
|----------------------------|------|------------------|
| Description | | 1410D/2,2/E/BLDC |
| Part number | 12 V | 14100212 |
| | 24 V | 14100215 |
| Max. flow | | 5,5 l/min |
| Max. intermittent pressure | | 1,0 bar |
| Max. continuous pressure | | 1,0 bar |
| Max. restart pressure | | 1,0 bar |

| Electrical Data | | |
|------------------------|-----------|---|
| Motor type | | Brushless DC |
| Nominal speed | | 0..4.600 rpm |
| Nominal voltage | | 12/24 V DC |
| Drive electronics | | integrated with reverse supply voltage protection |
| Max. power consumption | | 6,3 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 (PIN 3) |
| | Pin 3 | Speed Control | White | analog: 0..5 VDC (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 |

| General Data | |
|---------------------|------------|
| Ambient temperature | 15 to 40°C |
| Media temperature | 15 to 40°C |
| Weight | 170 g |
| Port direction | D |

Flow Curve vs. Speed Control Input



| Wetted Parts | Options |
|--------------|--------------|
| Pump head | PAA (IXEF) |
| Diaphragm | EPDM |
| Valves | EPDM |
| | PPS (Ryton®) |

Model key:

Eccentric Motor type

1410D / 2,2 / E / BLDC

Type Diaphragm, Valves, O-Ring

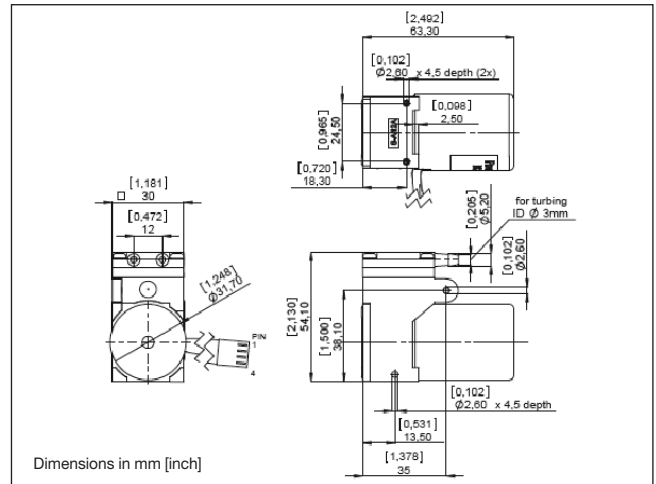
Pressure

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Diaphragm Pump 1410VD BLDC

| | |
|-----------------------|------------------|
| Flow | 4,3 l/min |
| Final Pressure | 1,9 bar |
| Final Vacuum | 73 % |



| Pneumatic Data | | |
|----------------------------|-------------------|----------|
| Description | 1410VD/1,5/E/BLDC | |
| Part number | 12 V | 14100216 |
| | 24 V | 14100217 |
| Max. flow | 4,3 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 | Brushless DC | |
| Nominal speed | 0..4.600 rpm | |
| Nominal voltage | 12/24 V DC | |
| Drive electronics | integrated with reverse supply voltage protection | |
| Max. power consumption | 7,0 W | |
| Motor insulation class | B | |
| Protection class | IP20 | |
| Connector | Housing: | Molex KK 22-01-2045 |
| | Terminal: | Molex KK 08-50-0031 |

Wiring diagram

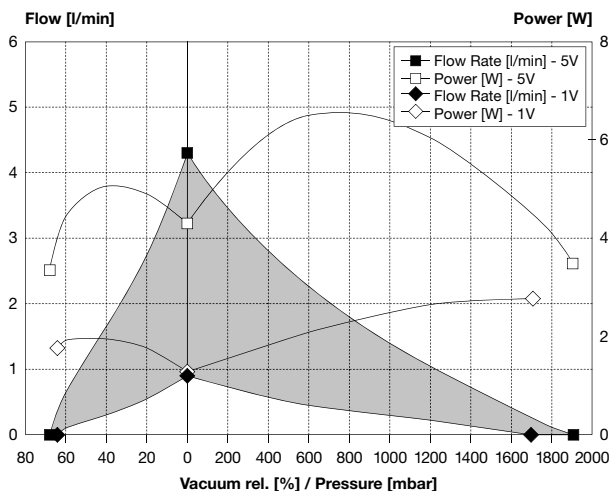
Optional: Adapter for 2-wire duty
incl. potentiometer for
speed adjustment

| 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 (PIN 3) |
| Pin 3 | Speed Control | White | analog: 0..5 VDC (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 |

General Data

| | |
|---------------------|------------|
| Ambient temperature | 15 to 40°C |
| Media temperature | 15 to 40°C |
| Weight | 170 g |
| Port direction | D |

Flow Curves



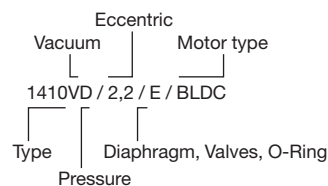
Wetted Parts

| | |
|-----------|------------|
| Pump head | PAA (IXEF) |
| Diaphragm | EPDM |
| Valves | EPDM |

Options

| |
|--------------|
| PPS (Ryton®) |
|--------------|

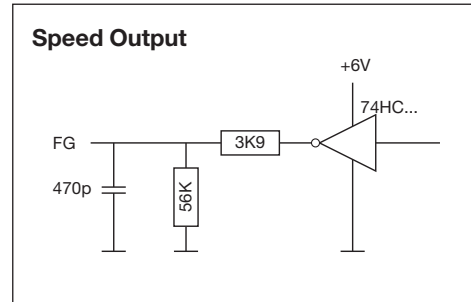
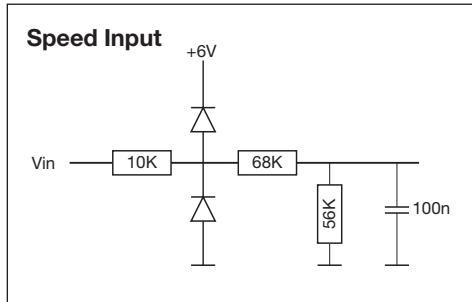
Model key:



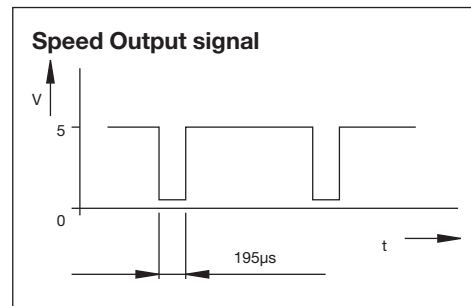
The information presented in this material is based on technical data and test results of nominal units. It is believed to be accurate and reliable and is offered as an aid to help in the selection of Thomas products. It is the responsibility of the user to determine the suitability of the product for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

Wiring diagram (Brushless DC motor)

| 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 (PIN 3) |
| Pin 3 Speed Control | White | analog: 0..5 VDC (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



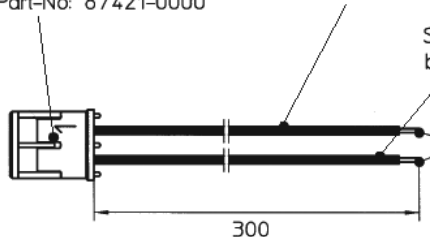
Options / Accessories

P/N 29027486 Cable harness for LC-Motor

Housing, Receptacle, 1,5mm PITCH
Molex, Part-No: 87439-0200
(GDT: 29027485)
2xCrimp, Receptacle, 1,5mm PITCH
Molex, Part-No: 87421-0000

Stranded wire,
red AWG 24, UL

Stranded wire,
black, AWG 24, UL





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