

## 1410 Series

**THOMAS**  
by Gardner Denver

### FEATURES

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

### TYPICAL APPLICATIONS

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

### BASE MODEL

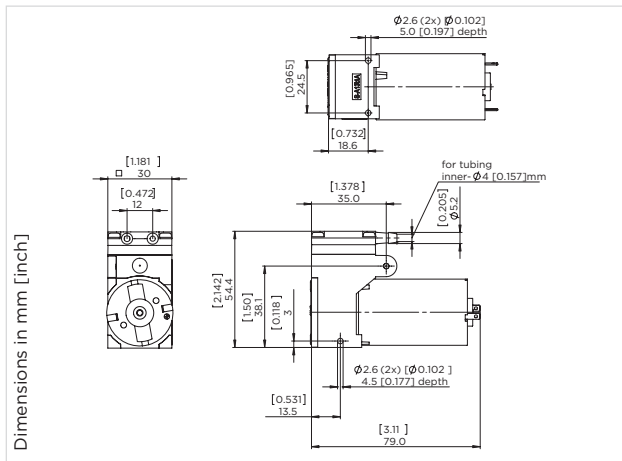
1410 LC  
1410 DC  
1410 BLDC



**Diaphragm**

## Diaphragm Pump 1410V DC

|              |           |
|--------------|-----------|
| Flow         | 4.2 l/min |
| Final Vacuum | 75 %      |



## PNEUMATIC DATA

|                          |      |                 |
|--------------------------|------|-----------------|
| Description              |      | 1410V/2.2/E/DC  |
| Part number              | 12 V | <b>14100300</b> |
|                          | 24 V | <b>14100301</b> |
| Max. flow                |      | 4.2 l/min       |
| Max. intermittent vacuum |      | 75 %            |
| Max. continuous vacuum   |      | 75 %            |
| Max. restart vacuum      |      | 50 %            |

## ELECTRICAL DATA

|                        |            |
|------------------------|------------|
| Motor type             | DC brush   |
| Nominal speed          | 3000 rpm   |
| Nominal voltage        | 12/24 V DC |
| Max. power consumption | 4.4 W      |
| Motor insulation class | A          |
| Protection class       | IP20       |

## GENERAL DATA

|                     |             |
|---------------------|-------------|
| Ambient temperature | 15 to 40 °C |
| Media temperature   | 15 to 40 °C |
| Weight              | 190 g       |
| Port direction      | D           |

WETTED PARTS

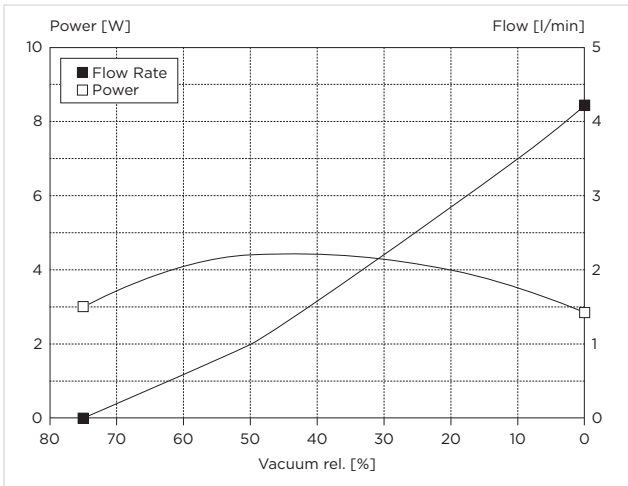
OPTIONS

|           |      |     |
|-----------|------|-----|
| Pump head | PA   | PPS |
| Diaphragm | EPDM | FKM |
| Valves    | EPDM | FKM |

## OPTIONS

|     |
|-----|
| PPS |
| FKM |
| FKM |

## FLOW CURVES



**1410...** Stock programme

Model key:

1410 V / 2.2 / E / DC  
Type Vacuum Diaphragm, Valves  
Eccentric Motor type

# 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           | <b>14100302</b> |
|                            | 24 V           | <b>14100303</b> |
| 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          | 3000 rpm   |
| Nominal voltage        | 12/24 V DC |
| Max. power consumption | 4.0 W      |
| Motor insulation class | A          |
| Protection class       | IP20       |

## GENERAL DATA

|                     |             |
|---------------------|-------------|
| Ambient temperature | 15 to 40 °C |
| Media temperature   | 15 to 40 °C |
| Weight              | 190 g       |
| Port direction      | D           |

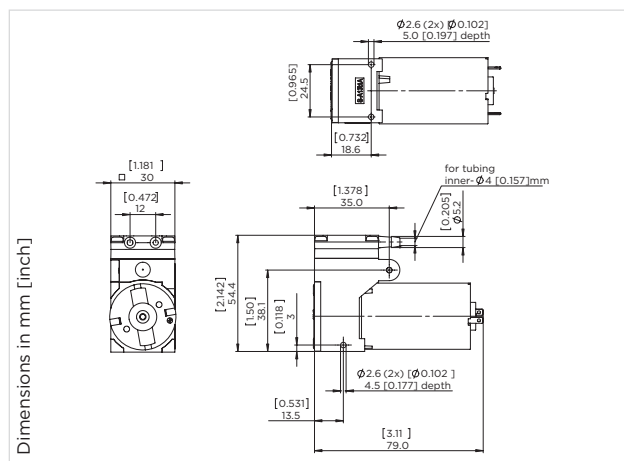
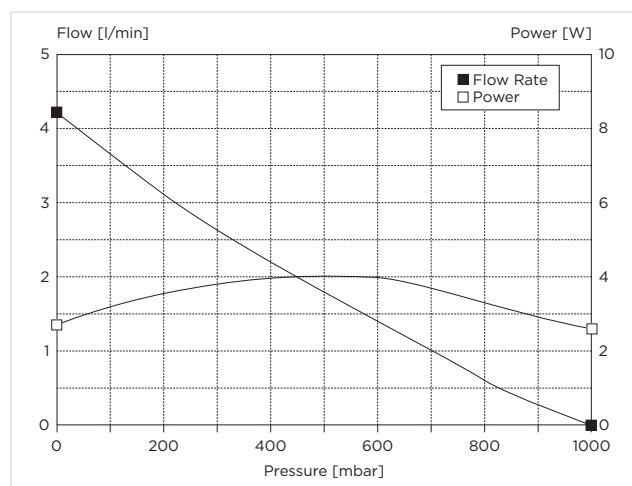
## WETTED PARTS

|           |      |
|-----------|------|
| Pump head | PA   |
| Diaphragm | EPDM |
| Valves    | EPDM |

## OPTIONS

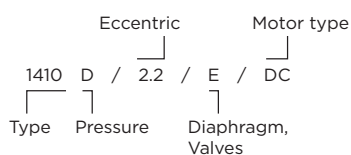
|     |
|-----|
| PPS |
| FKM |
| FKM |

## FLOW CURVES



1410... Stock programme

Model key:



# Diaphragm Pump 1410VD DC

|                       |                  |
|-----------------------|------------------|
| <b>Flow</b>           | <b>3.2 l/min</b> |
| <b>Final Pressure</b> | <b>1.9 bar</b>   |
| <b>Final Vacuum</b>   | <b>73 %</b>      |



## PNEUMATIC DATA

| Description                |      | 1410VD/1.5/E/DC |
|----------------------------|------|-----------------|
| Part number                | 12 V | <b>14100304</b> |
|                            | 24 V | <b>14100305</b> |
| Max. flow                  |      | 3.2 l/min       |
| Max. intermittent pressure |      | 1.9 bar         |
| Max. continuous pressure   |      | 0.7 bar         |
| Max. restart pressure      |      | 0.5 bar         |
| Max. intermittent vacuum   |      | 73 %            |
| Max. continuous vacuum     |      | 73 %            |
| Max. restart vacuum        |      | 50 %            |

## ELECTRICAL DATA

|                        |            |
|------------------------|------------|
| Motor type             | DC brush   |
| Nominal speed          | 3000 rpm   |
| Nominal voltage        | 12/24 V DC |
| Max. power consumption | 4.3 W      |
| Motor insulation class | A          |
| Protection class       | IP20       |

## GENERAL DATA

|                     |             |
|---------------------|-------------|
| Ambient temperature | 15 to 40 °C |
| Media temperature   | 15 to 40 °C |
| Weight              | 190 g       |
| Port direction      | D           |

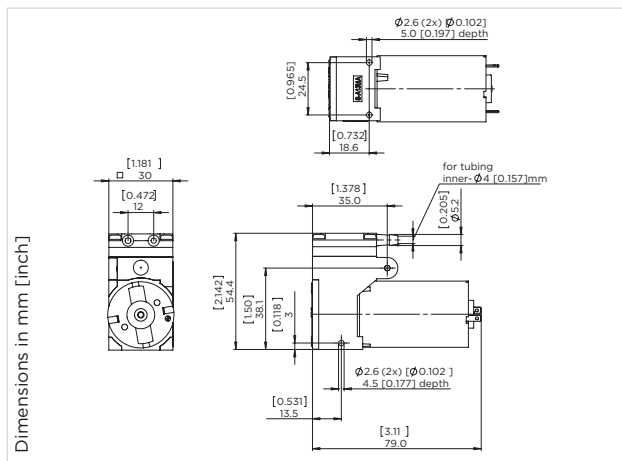
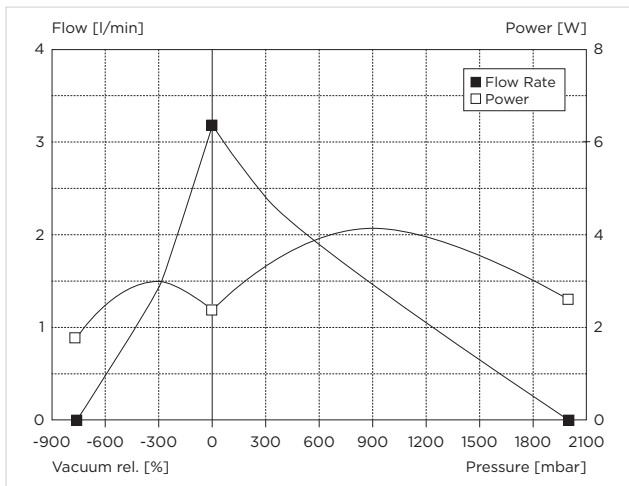
## WETTED PARTS

|           |      |
|-----------|------|
| Pump head | PA   |
| Diaphragm | EPDM |
| Valves    | EPDM |

## OPTIONS

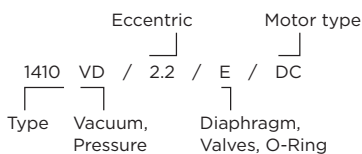
PPS

## FLOW CURVES



**1410...** Stock programme

Model key:



# Diaphragm Pump 1410V LC

|              |           |
|--------------|-----------|
| Flow         | 3.7 l/min |
| Final Vacuum | 75 %      |

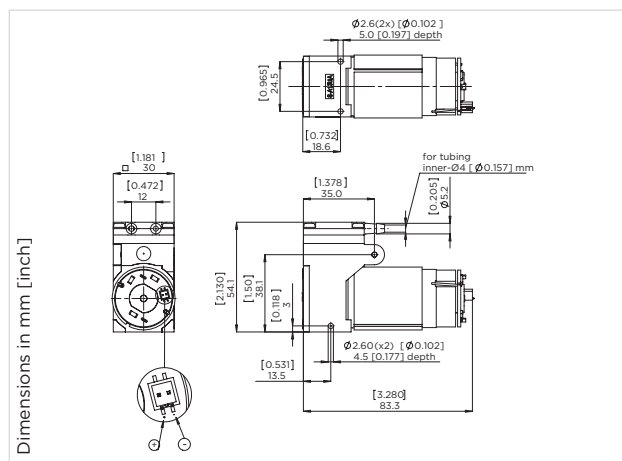
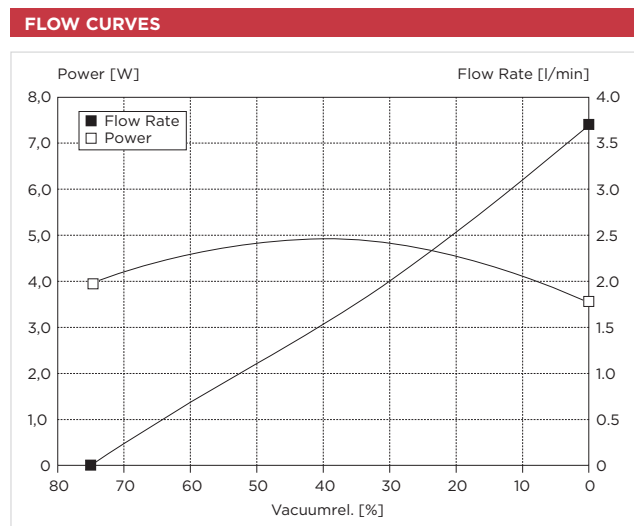


| PNEUMATIC DATA           |                |                 |
|--------------------------|----------------|-----------------|
| Description              | 1410V/2.2/E/LC |                 |
| Part number              | 12 V           | <b>14100103</b> |
|                          | 24 V           | <b>14100106</b> |
| 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          | 3000 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<br>Molex P/N: 87439-0200 |
|                        | 2x Crimp receptacle, 1.5mm, pitch<br>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           |

| WETTED PARTS |      | OPTIONS |
|--------------|------|---------|
| Pump head    | PA   | PPS     |
| Diaphragm    | EPDM |         |
| Valves       | EPDM |         |



1410... Stock programme

Model key:

Eccentric Motor type  
 1410 V / 2.2 / E / LC  
 Type Vacuum Diaphragm, Valves

# Diaphragm Pump 1410D LC

|                |           |
|----------------|-----------|
| Flow           | 3.7 l/min |
| Final Pressure | 1.0 bar   |

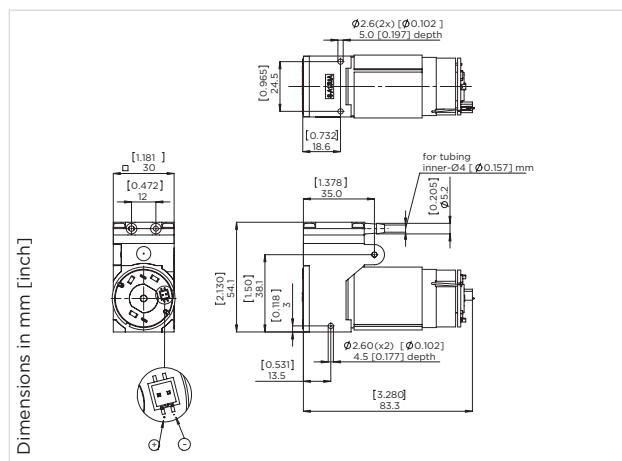
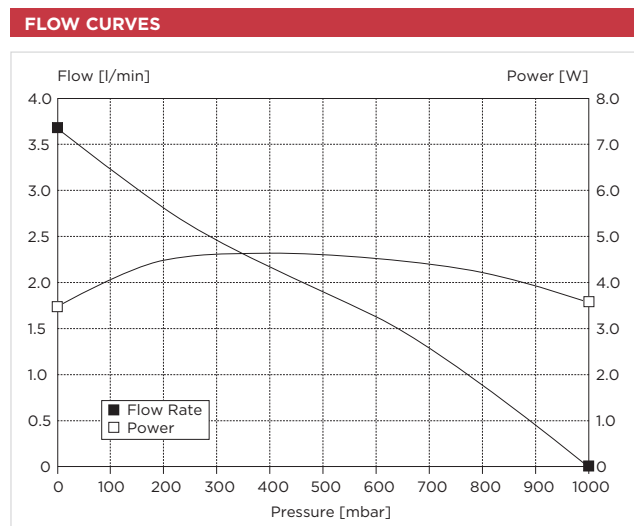


| PNEUMATIC DATA             |                |                 |
|----------------------------|----------------|-----------------|
| Description                | 1410D/2.2/E/LC |                 |
| Part number                | 12 V           | <b>14100104</b> |
|                            | 24 V           | <b>14100107</b> |
| 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          | 3000 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<br>Molex P/N: 87439-0200 |
|                        | 2x Crimp receptacle, 1.5mm, pitch<br>Molex P/N: 87421-0000 |

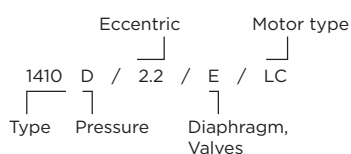
| GENERAL DATA        |             |
|---------------------|-------------|
| Ambient temperature | 15 to 40 °C |
| Media temperature   | 15 to 40 °C |
| Weight              | 180 g       |
| Port direction      | D           |

| WETTED PARTS |      | OPTIONS |
|--------------|------|---------|
| Pump head    | PA   | PPS     |
| Diaphragm    | EPDM |         |
| Valves       | EPDM |         |



**1410...** Stock programme

Model key:



# 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 | <b>14100105</b> |
|                            | 24 V | <b>14100108</b> |
| 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 %            |

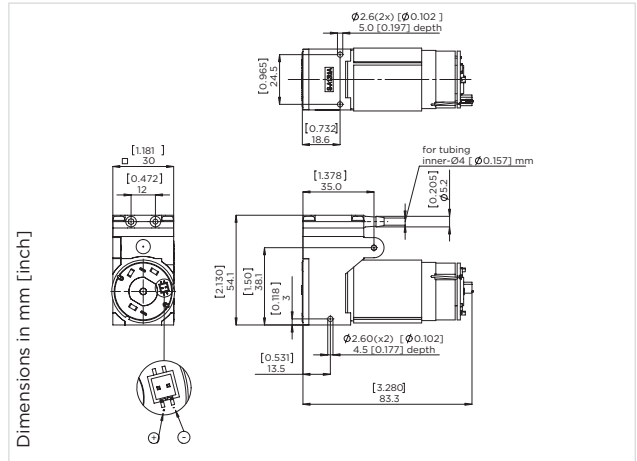
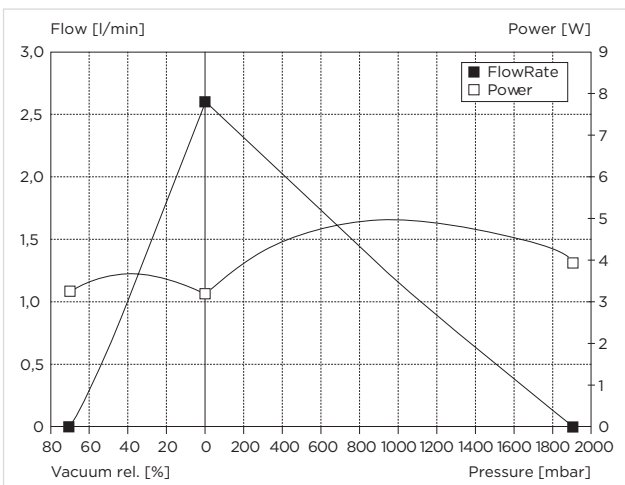
## ELECTRICAL DATA

|                        |                                                            |
|------------------------|------------------------------------------------------------|
| Motor type             | DC brush                                                   |
| Nominal speed          | 3000 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<br>Molex P/N: 87439-0200 |
|                        | 2x Crimp receptacle, 1.5mm, pitch<br>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           |

## FLOW CURVES



## WETTED PARTS

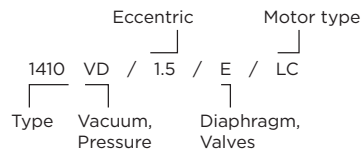
|           |      |
|-----------|------|
| Pump head | PA   |
| Diaphragm | EPDM |
| Valves    | EPDM |

## OPTIONS

PPS

**1410...** Stock programme

Model key:



# Diaphragm Pump 1410V BLDC

|              |           |
|--------------|-----------|
| Flow         | 5.5 l/min |
| Final Vacuum | 75 %      |

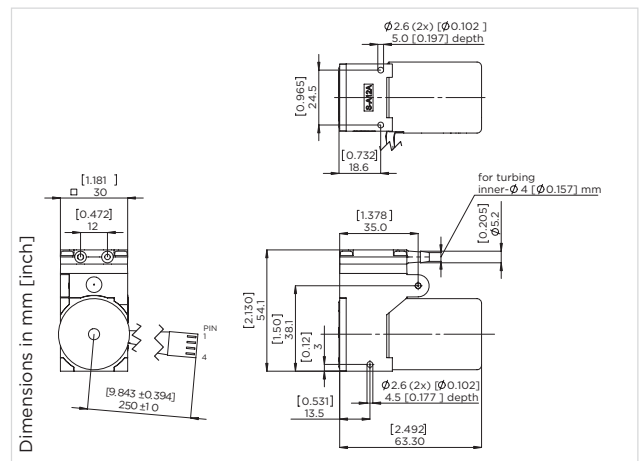
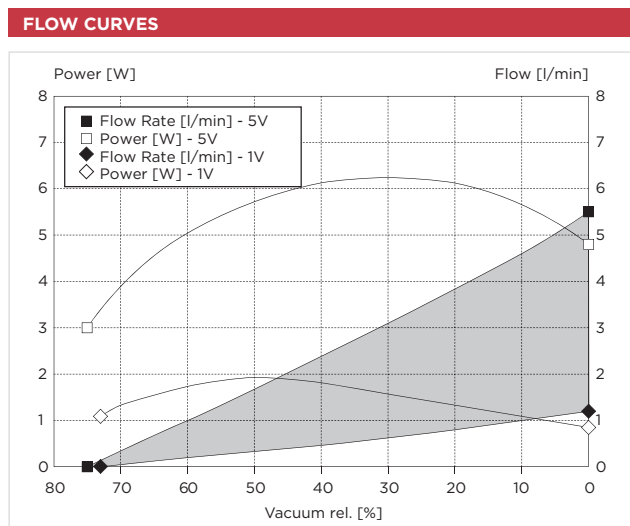


| PNEUMATIC DATA           |                  |          |
|--------------------------|------------------|----------|
| Description              | 1410V/2.2/E/BLDC |          |
| Part number              | 12 V             | 14100210 |
|                          | 24 V             | 14100211 |
| Max. 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 - 4600 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                               |

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

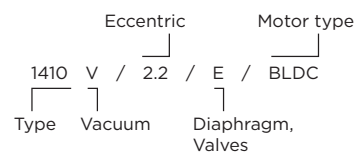
| WETTED PARTS |      | OPTIONS |  |
|--------------|------|---------|--|
| Pump head    | PA   | PPS     |  |
| Diaphragm    | EPDM |         |  |
| Valves       | EPDM |         |  |



| WIRING DIAGRAM |               |       |                                                                                                                                        |
|----------------|---------------|-------|----------------------------------------------------------------------------------------------------------------------------------------|
| Pin 1          | V Supply      | Red   | 12 V DC (max. voltage range: 10..18 V DC)<br>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)<br>PWM: 6..20kHz - 14..96%<br>Speed voltage input threshold: 0.2 V                                        |
| Pin 4          | Tacho out     | Green | 18 pulses per revolution<br>Pulse time „LOW“: 195 µs<br>Output level „LOW“: 0 / max. 0.5 V<br>Output level „HIGH“: min. 4 V / max. 5 V |

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

Model key:





# Diaphragm Pump 1410D BLDC

|                |           |
|----------------|-----------|
| Flow           | 5.5 l/min |
| Final Pressure | 1.0 bar   |

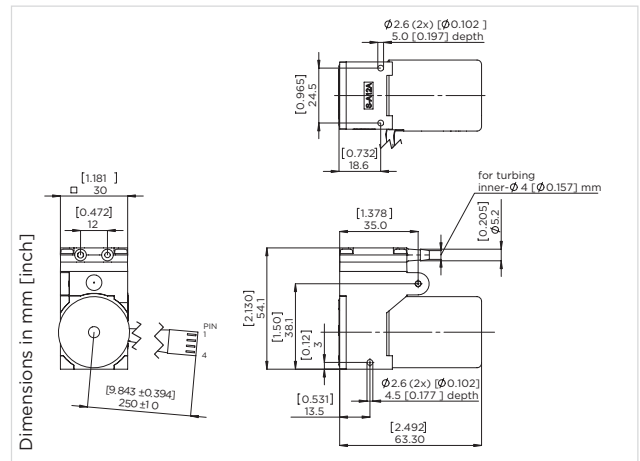
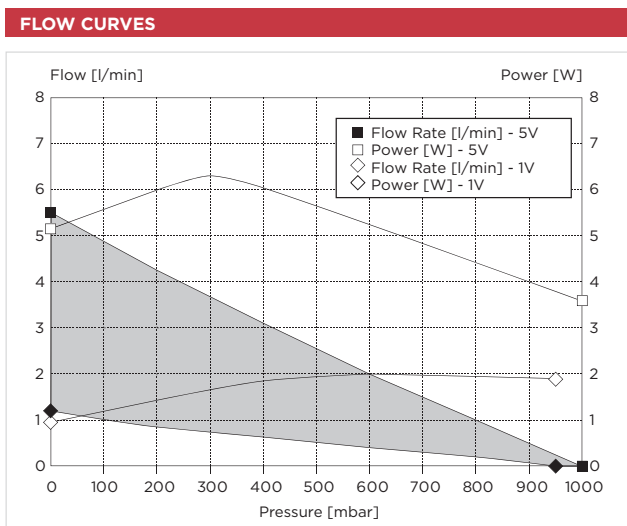


| PNEUMATIC DATA             |                  |          |
|----------------------------|------------------|----------|
| Description                | 1410D/2.2/E/BLDC |          |
| Part number                | 12 V             | 14100212 |
|                            | 24 V             | 14100215 |
| 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 - 4600 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 |

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

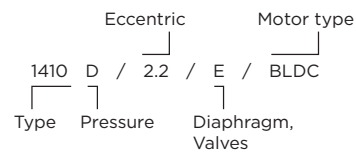
| WETTED PARTS |      | OPTIONS |
|--------------|------|---------|
| Pump head    | PA   | PPS     |
| Diaphragm    | EPDM |         |
| Valves       | EPDM |         |



| WIRING DIAGRAM |               |       |                                                                                                                                        |
|----------------|---------------|-------|----------------------------------------------------------------------------------------------------------------------------------------|
| Pin 1          | V Supply      | Red   | 12 V DC (max. voltage range: 10..18 V DC)<br>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)<br>PWM: 6..20kHz - 14..96%<br>Speed voltage input threshold: 0.2 V                                         |
| Pin 4          | Tacho out     | Green | 18 pulses per revolution<br>Pulse time „LOW“: 195 µs<br>Output level „LOW“: 0 / max. 0.5 V<br>Output level „HIGH“: min. 4 V / max. 5 V |

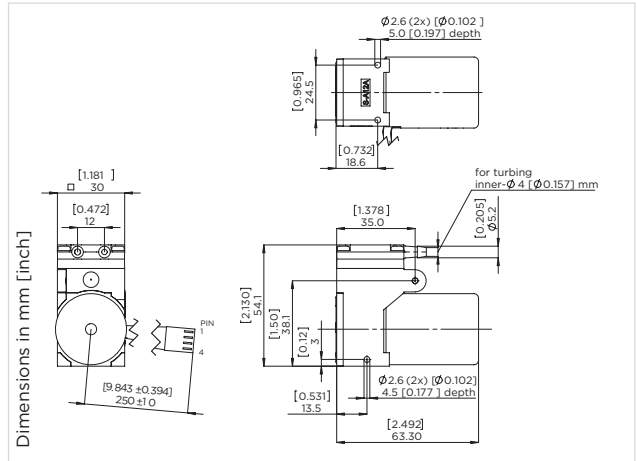
Optional: Adapter for 2-wire duty  
incl. potentiometer for  
speed adjustment

Model key:



# 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. 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 – 4600 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                     |

## GENERAL DATA

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

## WETTED PARTS

|           |      |
|-----------|------|
| Pump head | PA   |
| Diaphragm | EPDM |
| Valves    | EPDM |

## OPTIONS

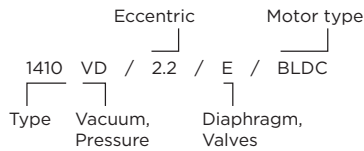
PPS

## WIRING DIAGRAM

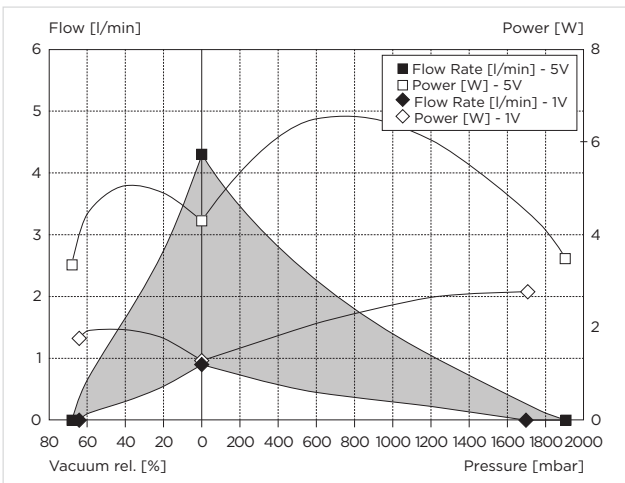
|       |               |       |                                                                                                                                        |
|-------|---------------|-------|----------------------------------------------------------------------------------------------------------------------------------------|
| Pin 1 | V Supply      | Red   | 12 V DC (max. voltage range: 10..18 V DC)<br>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)<br>PWM: 6..20kHz / 14..96%<br>Speed voltage input threshold: 0.2 V                                        |
| Pin 4 | Tacho out     | Green | 18 pulses per revolution<br>Pulse time „LOW“: 195 µs<br>Output level „LOW“: 0 / max. 0.5 V<br>Output level „HIGH“: min. 4 V / max. 5 V |

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

Model key:

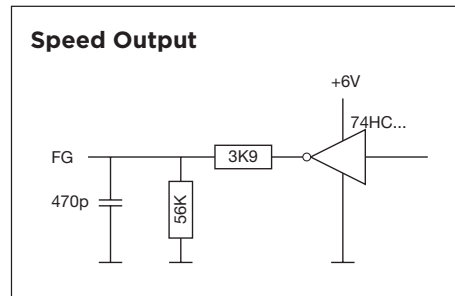
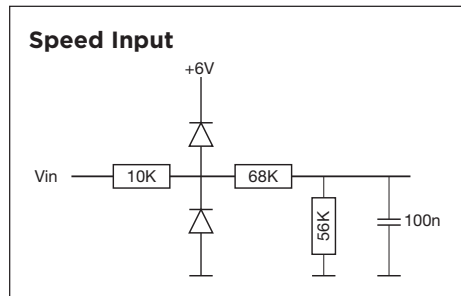


## FLOW CURVES

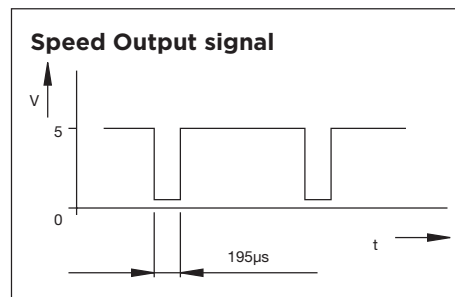


## Wiring diagram (Brushless DC motor)

|       | Function      | Colour | Control                                                                                                                                     |
|-------|---------------|--------|---------------------------------------------------------------------------------------------------------------------------------------------|
| Pin 1 | V Supply      | Red    | 12 V DC (max. voltage range: 10..18 V DC)<br>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)<br>PWM: 6..20kHz - 14..96%<br>Speed voltage input threshold: 0.2 V                                             |
| Pin 4 | Tacho out     | Green  | 18 pulses per revolution<br>Pulse time „LOW“: 195 $\mu$ s<br>Output level „LOW“: 0 / max. 0.5 V<br>Output level „HIGH“: min. 4 V / max. 5 V |



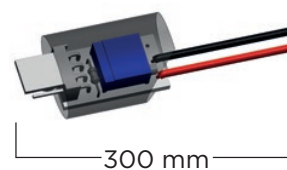
Optional: Adapter for 2-wire duty  
incl. potentiometer for  
speed adjustment



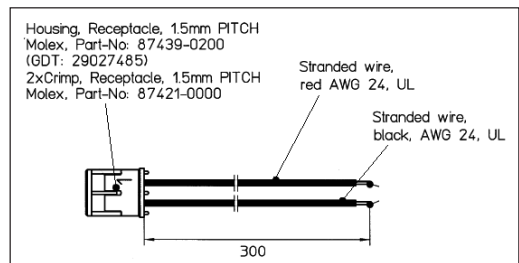
## Options / Accessories

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 29027486 **Cable harness for LC motor version**



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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