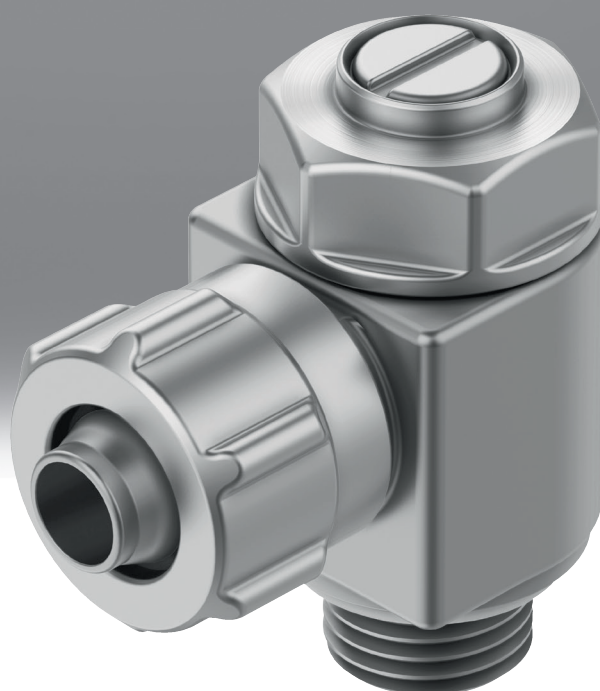


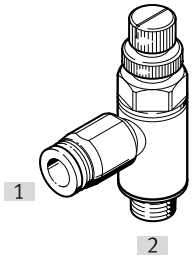
## One-way flow control valve GRxA, GRxZ

**FESTO**



## Characteristics

### At a glance



- [1] Pneumatic connection 1 (compressed air connection)  
[2] Pneumatic connection 2 (working port)

One-way flow control valve for precise adjustment of the flow rate. Lightweight, compact and sturdy thanks to the polymer/metal combination.

- Functional combination of one-way flow control valve and piloted check valve
- Flow control valve, flow control at one end
- Polymer, metal or stainless steel design
- Standard, mini, in-line variants with different flow rate ranges
- Connections: thread at both ends, push-in connector at both ends, thread/push-in connector

### Diagrams

Link [grla/grlz](#)



The diagrams shown in this document are also available online. These can be used to display precise values.

### Series

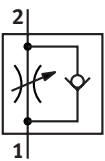
One-way flow control valves can be used to regulate the piston speed of pneumatic drives as they advance and retract.

This is achieved by restricting the flow rate of compressed air in exhaust air or supply air direction as required.

The non-return function works in the opposite direction. The flow control function creates an adjustable annular gap inside the valve.

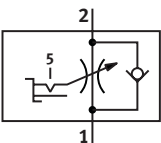
This gap can be increased or decreased by turning the knurled screw or slotted head screw. The required restriction can be set with the help of this adjustment element.

#### [GRLA] One-way flow control valve



The throttle function only works in the exhaust air direction, the non-return function works in the opposite direction.

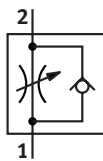
#### [GRLSA] One-way flow control valve



The throttle function only works in the exhaust air direction, the non-return function works in the opposite direction.

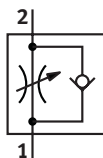
Gradual preselection of the flow rate range using a rotary switch and infinitely variable precision adjustment with hex key using a scale.

#### [GRLZ] One-way flow control valve



The throttle function only works in the supply air direction, the non-return function works in the opposite direction.

#### [CRGRLA] One-way flow control valve, corrosion resistant



The throttle function only works in the exhaust air direction, the non-return function works in the opposite direction.

## Characteristics

### Flow rate characteristic

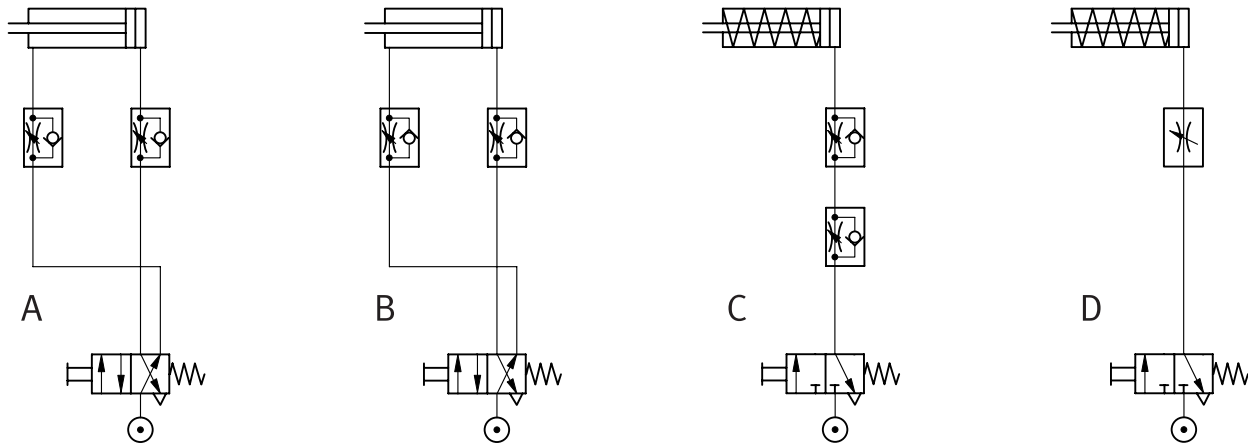
[LF] Low flow

Precise setting for low piston speeds

[MF] Medium flow

Precise setting for medium piston speeds

### Application example



Flow control functions and applications:

- [A] - Exhaust air flow control and non-return function: Speed is adjustable using exhaust air flow control. Free flowing supply air and throttled exhaust air ensure that the piston moves between the air pockets (improves motion, even with load changes).
- [B] - Supply air flow control and non-return function: Speed for advance and return strokes can be adjusted. The flow rate is identical in both directions.
- [C] - Exhaust and supply air flow control and non-return function: Speed for advance and return strokes can be adjusted. The flow rate can be adjusted differently for both directions.
- [D] - Flow control function, double-acting: Speed adjustment through flow control on both sides is often used with single-acting or small cylinders. The benefit of this application is its simplicity.

## Type code

| 001           | Series                                          |  |
|---------------|-------------------------------------------------|--|
| <b>GRLA</b>   | One-way flow control valve                      |  |
| <b>GRLSA</b>  | One-way flow control valve                      |  |
| <b>CRGRLA</b> | One-way flow control valve, corrosion resistant |  |
| <b>GRLZ</b>   | One-way flow control valve                      |  |

| 002        | Pneumatic connection |  |
|------------|----------------------|--|
| <b>M3</b>  | Male thread M3       |  |
| <b>M5</b>  | Male thread M5       |  |
| <b>1/8</b> | Male thread G1/8     |  |
| <b>1/4</b> | Male thread G1/4     |  |
| <b>3/8</b> | Male thread G3/8     |  |
| <b>1/2</b> | Male thread G1/2     |  |
| <b>3/4</b> | Male thread G3/4     |  |

| 003          | Pneumatic connection 1             |  |
|--------------|------------------------------------|--|
|              | Connection size as for port 1 or 2 |  |
| <b>PK-3</b>  | CK connection 3 mm                 |  |
| <b>PK-4</b>  | CK connection 4 mm                 |  |
| <b>PK-6</b>  | CK connection 6 mm                 |  |
| <b>QS-3</b>  | Push-in connector 3 mm             |  |
| <b>QS-4</b>  | Push-in connector 4 mm             |  |
| <b>QS-6</b>  | Push-in connector 6 mm             |  |
| <b>QS-8</b>  | Push-in connector 8 mm             |  |
| <b>QS-10</b> | Push-in connector 10 mm            |  |
| <b>QS-12</b> | Push-in connector 12 mm            |  |

| 004       | Adjusting component |  |
|-----------|---------------------|--|
|           | Standard            |  |
| <b>RS</b> | Knurled screw       |  |

| 005       | Flow rate characteristic |  |
|-----------|--------------------------|--|
|           | None                     |  |
| <b>LF</b> | Low flow                 |  |
| <b>MF</b> | Medium flow              |  |

| 006      | Generation |  |
|----------|------------|--|
|          | None       |  |
| <b>B</b> | Series B   |  |
| <b>C</b> | Series C   |  |
| <b>D</b> | D series   |  |

## Datasheet

## General technical data GRLA – push-in connector QS

|                                         |                                           |                        |                   |       |       |
|-----------------------------------------|-------------------------------------------|------------------------|-------------------|-------|-------|
| Pneumatic connection, port 2            | M5                                        | G1/8                   | G1/4              | G3/8  | G1/2  |
| Pneumatic connection, port 1            | QS-3, QS-4, QS-6                          | QS-3, QS-4, QS-6, QS-8 | QS-6, QS-8, QS-10 | QS-12 |       |
| Valve function                          | Exhaust air one-way flow control function |                        |                   |       |       |
| Adjustment component                    | Knurled screw, Slotted head screw         |                        |                   |       |       |
| Type of mounting                        | Screw-in, With male thread                |                        |                   |       |       |
| Mounting position                       | Any                                       |                        |                   |       |       |
| Nominal torque                          | 1.3 Nm                                    | 6 Nm                   | 10 Nm             | 13 Nm | 23 Nm |
| Tolerance for nominal tightening torque | ±20%                                      |                        |                   |       |       |

## General technical data GRLZ – push-in connector QS

|                                         |                                          |                            |                        |
|-----------------------------------------|------------------------------------------|----------------------------|------------------------|
| Pneumatic connection, port 2            | M3                                       | M5                         | G1/8                   |
| Pneumatic connection, port 1            | QS-3                                     | QS-3, QS-4, QS-6           | QS-3, QS-4, QS-6, QS-8 |
| Valve function                          | Supply air one-way flow control function |                            |                        |
| Adjustment component                    | Slotted head screw                       |                            |                        |
| Type of mounting                        | Screw-in                                 | Screw-in, With male thread |                        |
| Mounting position                       | Any                                      |                            |                        |
| Nominal torque                          | –                                        | 1.3 Nm                     | 6 Nm                   |
| Tolerance for nominal tightening torque | –                                        | ±20%                       |                        |

## Operating and environmental conditions GRLA/GRLZ – Push-in connector QS

|                                                                                             |                                                                                            |                   |                   |                     |                       |
|---------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|-------------------|-------------------|---------------------|-----------------------|
| Pneumatic connection, port 2                                                                | M5                                                                                         | G1/8              | G1/4              | G3/8                | G1/2                  |
| Operating pressure                                                                          | 0.02 ... 1 MPa                                                                             |                   |                   |                     |                       |
| Operating pressure                                                                          | 0.2 ... 10 bar                                                                             |                   |                   |                     |                       |
| Operating pressure                                                                          | 2.9 ... 145 psi                                                                            |                   |                   |                     |                       |
| Operating pressure complete temperature range                                               | 0.2 ... 10 bar                                                                             |                   |                   |                     |                       |
| Operating medium                                                                            | Compressed air to ISO 8573-1:2010 [7:4:4]                                                  |                   |                   |                     |                       |
| Note on operating and pilot medium                                                          | Lubricated operation possible (in which case lubricated operation will always be required) |                   |                   |                     |                       |
| Standard nominal flow rate in blocked direction <sup>1)</sup>                               | 60 ... 110 l/min                                                                           | 100 ... 500 l/min | 290 ... 500 l/min | 320 ... 975 l/min   | 925 ... 1,605 l/min   |
| Standard nominal flow rate in flow control direction                                        | 100 ... 115 l/min                                                                          | 130 ... 475 l/min | 400 ... 480 l/min | 495 ... 900 l/min   | 1,580 l/min           |
| Standard flow rate in flow control direction 0.6->0 MPa (6->0 bar, 87->0 psi) <sup>2)</sup> | 135 ... 185 l/min                                                                          | 180 ... 720 l/min | 600 ... 760 l/min | 740 ... 1,400 l/min | 2,220 l/min           |
| Standard flow rate in non-return direction 0.6->0 MPa (6->0 bar, 87->0 psi)                 | 130 ... 200 l/min                                                                          | 180 ... 760 l/min | 570 ... 790 l/min | 840 ... 1,620 l/min | 1,910 ... 2,500 l/min |
| Ambient temperature                                                                         | -10 ... 60°C                                                                               |                   |                   |                     |                       |
| Media temperature                                                                           | -10 ... 60°C                                                                               |                   |                   |                     |                       |
| Storage temperature                                                                         | –                                                                                          | -10 ... 40°C      |                   |                     |                       |
| Maritime classification <sup>3)</sup>                                                       | See certificate                                                                            |                   |                   |                     |                       |
| Corrosion resistance class CRC <sup>4)</sup>                                                | 0 - No corrosion stress, 1 - Low corrosion stress                                          |                   |                   |                     |                       |

1) The standard nominal flow rate q<sub>N</sub> is the volumetric flow rate based on standard conditions at an operating pressure of p<sub>1</sub> = 6 bar and an output pressure of p<sub>2</sub> = 5 bar, measured at room temperature t = 20 °C.

2) The standard flow rate q<sub>N</sub> is measured at an operating pressure of p<sub>1</sub> = 6 bar and an output pressure relative to atmospheric pressure (p<sub>2</sub> = 0 bar).

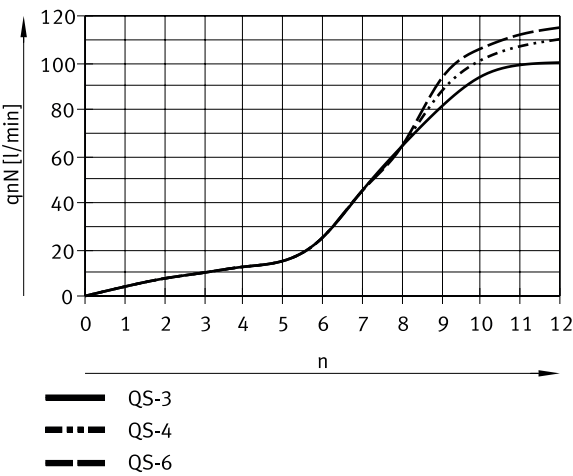
3) More information [www.festo.com/catalogue/gra](http://www.festo.com/catalogue/gra) → Support/Downloads.

4) More information [www.festo.com/x/topic/crc](http://www.festo.com/x/topic/crc)

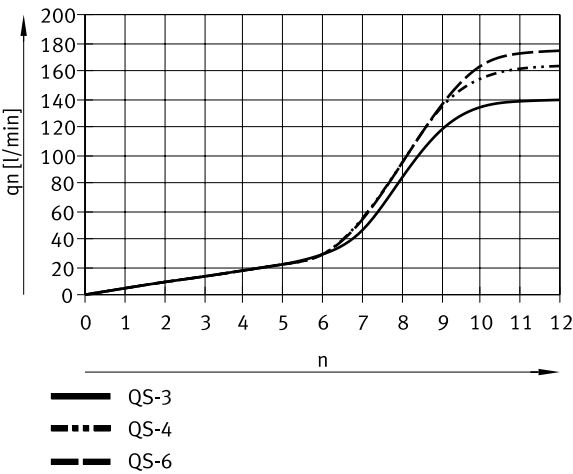
Datasheet

| Materials GRLA/GRLZ – push-in connector QS                |                                                         |
|-----------------------------------------------------------|---------------------------------------------------------|
| Material knurled head                                     | Wrought aluminium alloy, anodised                       |
| Material adjusting screw                                  | Brass                                                   |
| Material hollow bolt                                      | Wrought aluminium alloy, Brass, anodised, nickel-plated |
| Material release ring                                     | POM                                                     |
| Material swivel fitting                                   | Die-cast zinc                                           |
| Material seals                                            | NBR                                                     |
| Material nut                                              | Wrought aluminium alloy                                 |
| Note on materials                                         | RoHS compliant                                          |
| LABS (PWIS) conformity                                    | VDMA24364-B1/B2-L                                       |
| Cleanroom suitability, measured according to ISO 14644-14 | Class 4 according to ISO 14644-1                        |

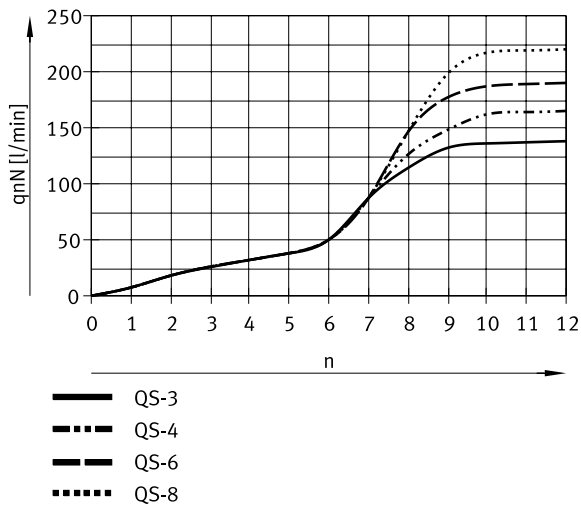
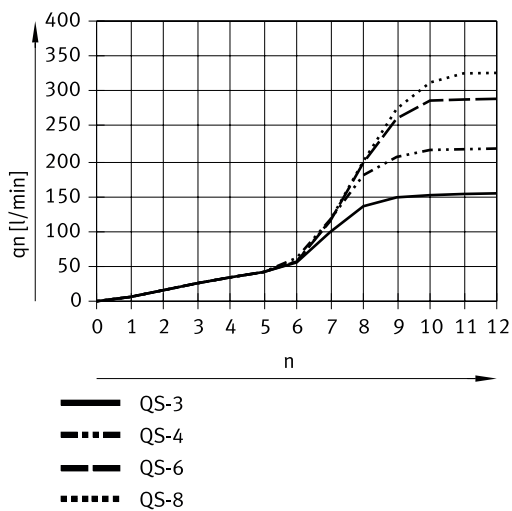
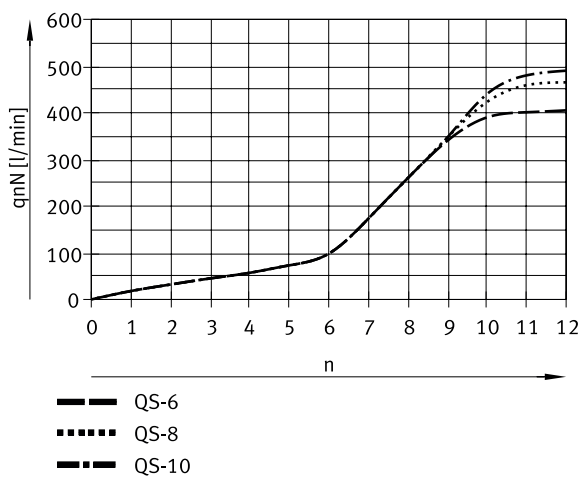
Standard nominal flow rate qnN at 6 → 5 bar as a function of spindle revolutions n (GRLA/GRLZ-M5 – push-in connector QS, metal)



Standard flow rate qn at 6 → 0 bar as a function of spindle revolutions n (GRLA/GRLZ-M5 – push-in connector QS, metal)

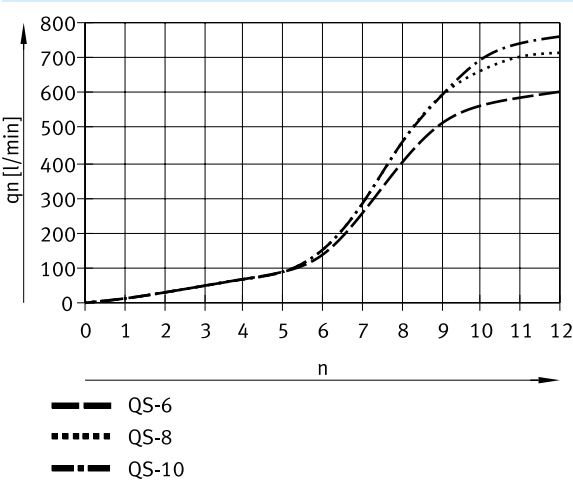


## Datasheet

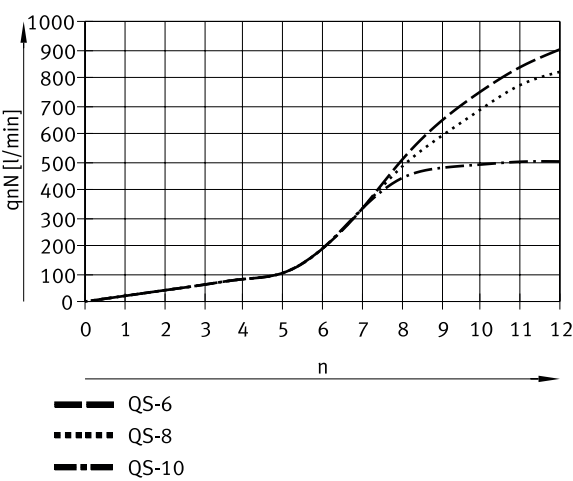
Standard nominal flow rate  $q_{nN}$  at 6 → 5 bar as a function of spindle revolutions  $n$  (GRLA/GRLZ-1/8 – push-in connector QS, metal)Standard flow rate  $q_n$  at 6 → 0 bar as a function of spindle revolutions  $n$  (GRLA/GRLZ-1/8 – push-in connector QS, metal)Standard nominal flow rate  $q_{nN}$  at 6 → 5 bar as a function of the spindle revolutions  $n$  (GRLA-1/8-...-MF, GRLA-1/4 – push-in connector QS, metal)

Datasheet

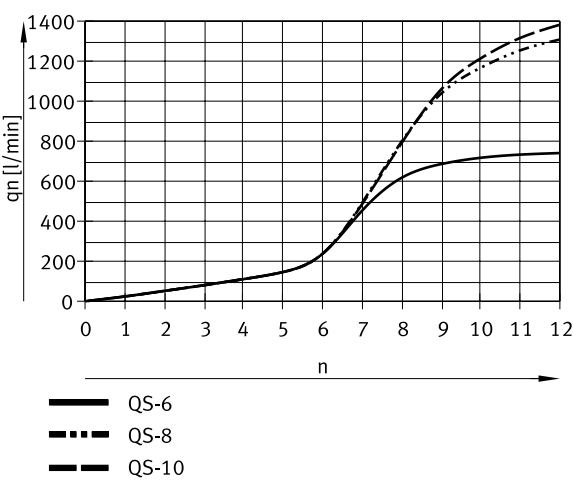
Standard flow rate  $q_n$  at 6 → 0 bar as a function of spindle revolutions  $n$  (GRLA-1/8-...-MF, GRLA-1/4 – push-in connector QS, metal)



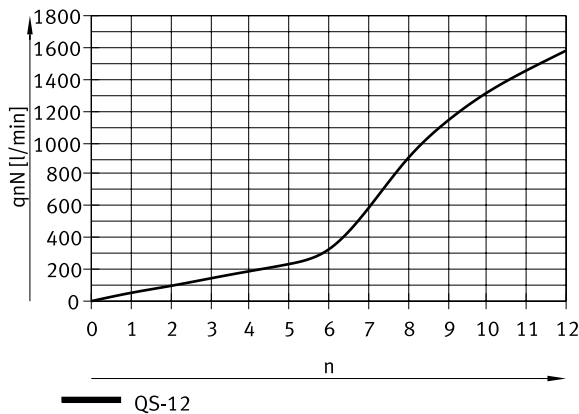
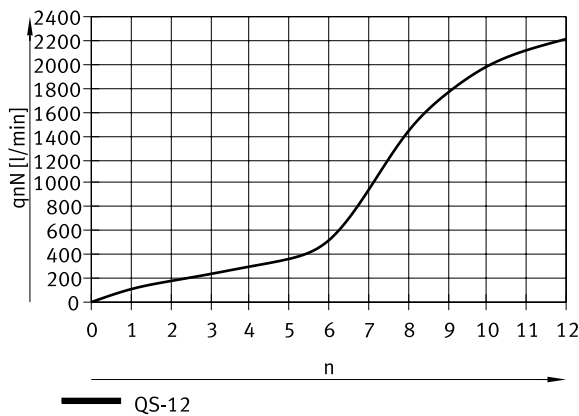
Standard nominal flow rate  $q_{nN}$  at 6 → 5 bar as a function of spindle revolutions  $n$  (GRLA/GRLZ-3/8 – push-in connector QS, metal)



Standard flow rate  $q_n$  at 6 → 0 bar as a function of spindle revolutions  $n$  (GRLA/GRLZ-3/8 – push-in connector QS, metal)



## Datasheet

Standard nominal flow rate  $q_{nN}$  at 6 → 5 bar as a function of spindle revolutions  $n$  (GRLA/GRLZ-1/2 – push-in connector QS, metal)Standard flow rate  $q_n$  at 6 → 0 bar as a function of spindle revolutions  $n$  (GRLA/GRLZ-1/2 – push-in connector QS, metal)

## General technical data GRLA – female thread/barbed connector

|                              |                                                                                                                          |                |                                                                              |                    |      |      |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------|----------------|------------------------------------------------------------------------------|--------------------|------|------|
| Pneumatic connection, port 2 | Male thread G1/4                                                                                                         | M5             | G1/8                                                                         | G3/8               | G1/2 | G3/4 |
| Pneumatic connection, port 1 | Female thread G1/4,<br>For barbed fitting I.D.<br>4 mm with union nut,<br>For barbed fitting I.D.<br>6 mm with union nut | M5, PK-3, PK-4 | G1/8, PK-3 with union<br>nut, PK-4 with union<br>nut, PK-6 with union<br>nut | G3/8               | G1/2 | G3/4 |
| Nominal size                 | 6                                                                                                                        | 2              | —                                                                            |                    |      |      |
| Valve function               | Exhaust air one-way flow control function                                                                                |                |                                                                              |                    |      |      |
| Adjustment component         | Knurled screw, Slotted head screw                                                                                        |                |                                                                              | Slotted head screw |      |      |
| Type of mounting             | Screw-in                                                                                                                 |                |                                                                              |                    |      |      |
| Mounting position            | Any                                                                                                                      |                |                                                                              |                    |      |      |
| Max. tightening torque       | 11                                                                                                                       | 1.5            | 6                                                                            | 20                 | 40   | 60   |

## General technical data GRLZ – female thread/barbed connector

| Pneumatic connection, port 2 | Male thread G1/4                         | M5     | G1/8 |
|------------------------------|------------------------------------------|--------|------|
| Pneumatic connection, port 1 | Female thread G1/4                       | M5     | G1/8 |
| Nominal size                 | 6                                        | 2      | –    |
| Valve function               | Supply air one-way flow control function |        |      |
| Adjustment component         | Knurled screw, Slotted head screw        |        |      |
| Type of mounting             | Screw-in                                 |        |      |
| Mounting position            | Any                                      |        |      |
| Max. tightening torque       | 11 Nm                                    | 1.5 Nm | 6 Nm |

## Datasheet

## Operating and environmental conditions GRLA/GRLZ – Female thread/barbed connector

| Pneumatic connection, port 2                                                              | Male thread G1/4                                                                           | M5                | G1/8              | G3/8                  | G1/2                  | G3/4                  |
|-------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|-------------------|-------------------|-----------------------|-----------------------|-----------------------|
| Operating pressure                                                                        | –                                                                                          | 0.2 ... 10 bar    | –                 | –                     | 0.3 ... 10 bar        | –                     |
| Operating pressure complete temperature range                                             | 0.3 ... 10 bar                                                                             | –                 | 0.3 ... 10 bar    | –                     | –                     | 0.3 ... 10 bar        |
| Operating medium                                                                          | Compressed air to ISO 8573-1:2010 [7:4:4]                                                  |                   |                   |                       |                       |                       |
| Standard nominal flow rate in blocked direction <sup>1)</sup>                             | 220 ... 820 l/min                                                                          | 72 ... 95 l/min   | 100 ... 420 l/min | 970 ... 1,600 l/min   | 1,550 ... 2,200 l/min | 3,220 ... 4,320 l/min |
| Standard nominal flow rate in flow control direction                                      | 260 ... 610 l/min                                                                          | 83 ... 95 l/min   | 110 ... 340 l/min | 1,450 l/min           | 2,100 l/min           | 4,320 l/min           |
| Standard flow rate in non-return direction 0.6->0 MPa (6->0 bar, 87->0 psi) <sup>2)</sup> | 315 ... 1,615 l/min                                                                        | 120 ... 170 l/min | 145 ... 760 l/min | 1,540 ... 2,540 l/min | 2,950 ... 4,190 l/min | 5,440 ... 7,300 l/min |
| Standard flow rate in flow control direction 0.6->0 MPa (6->0 bar, 87->0 psi)             | 370 ... 1,200 l/min                                                                        | 140 ... 169 l/min | 162 ... 615 l/min | 2,300 l/min           | 4,000 l/min           | 7,300 l/min           |
| Note on operating and pilot medium                                                        | Lubricated operation possible (in which case lubricated operation will always be required) |                   |                   |                       |                       |                       |
| Ambient temperature                                                                       | -10 ... 60°C                                                                               |                   |                   |                       |                       |                       |
| Media temperature                                                                         | -10 ... 60°C                                                                               |                   |                   |                       |                       |                       |
| Maritime classification <sup>3)</sup>                                                     | See certificate                                                                            |                   |                   |                       |                       |                       |
| Corrosion resistance class CRC <sup>4)</sup>                                              | 2 - Moderate corrosion stress                                                              | –                 | –                 | –                     | –                     | –                     |

1) The standard nominal flow rate  $q_{nN}$  is the volumetric flow rate based on standard conditions at an operating pressure of  $p_1 = 6$  bar and an output pressure of  $p_2 = 5$  bar, measured at room temperature  $t = 20$  °C.

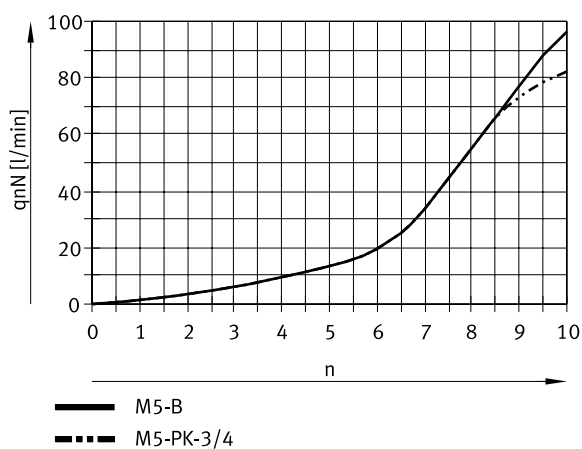
2) The standard flow rate  $q_n$  is measured at an operating pressure of  $p_1 = 6$  bar and an output pressure relative to atmospheric pressure ( $p_2 = 0$  bar).

3) GRLA only: More information [www.festo.com/catalogue/gerla](http://www.festo.com/catalogue/gerla) → Support/Downloads.

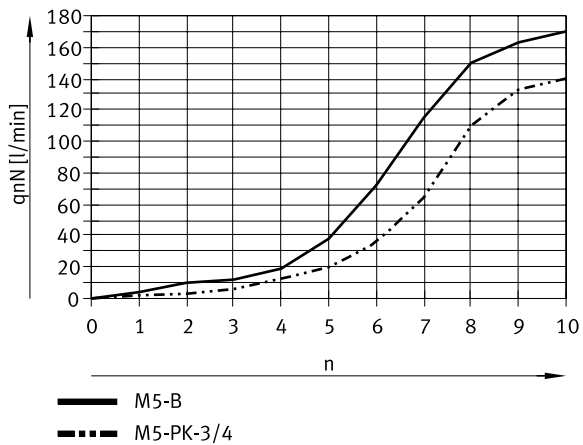
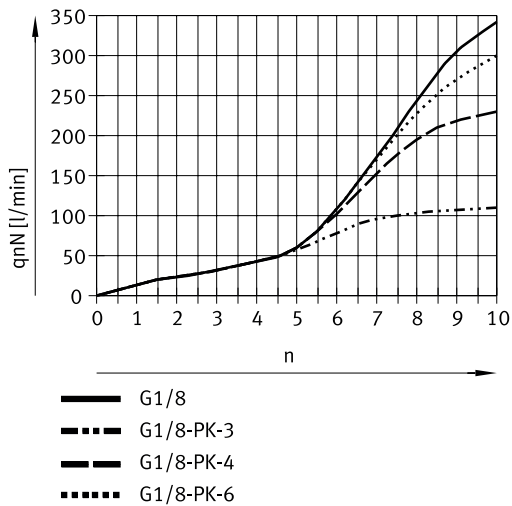
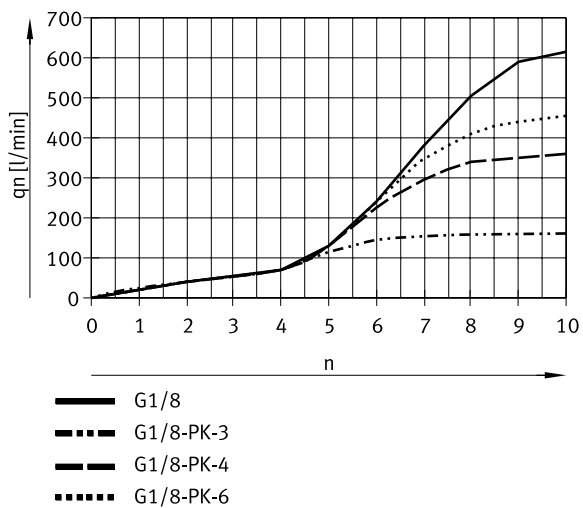
4) More information [www.festo.com/x/topic/crc](http://www.festo.com/x/topic/crc)

## Materials GRLA/GRLZ – female thread/barbed connector

|                                                           |                                               |
|-----------------------------------------------------------|-----------------------------------------------|
| Material adjusting screw                                  | Brass                                         |
| Material swivel fitting                                   | Die-cast zinc                                 |
| Material screwed plug                                     | Wrought aluminium alloy, Brass, nickel-plated |
| Material seals                                            | NBR                                           |
| Note on materials                                         | RoHS compliant                                |
| LABS (PWIS) conformity                                    | VDMA24364-B1/B2-L                             |
| Cleanroom suitability, measured according to ISO 14644-14 | Class 4 according to ISO 14644-1              |

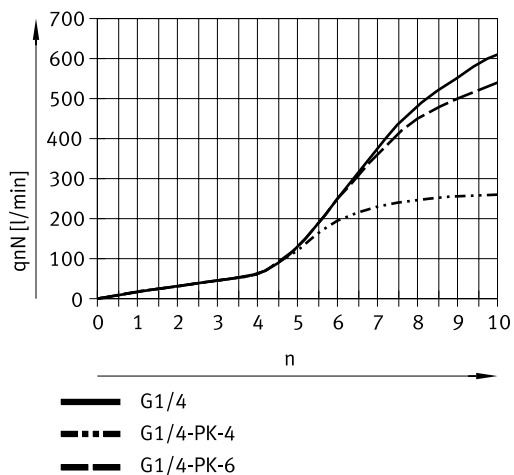
Standard nominal flow rate  $q_{nN}$  at 6 → 5 bar as a function of spindle revolutions  $n$  (GRLA/GRLZ-M5 – female thread/barbed connector, metal)

## Datasheet

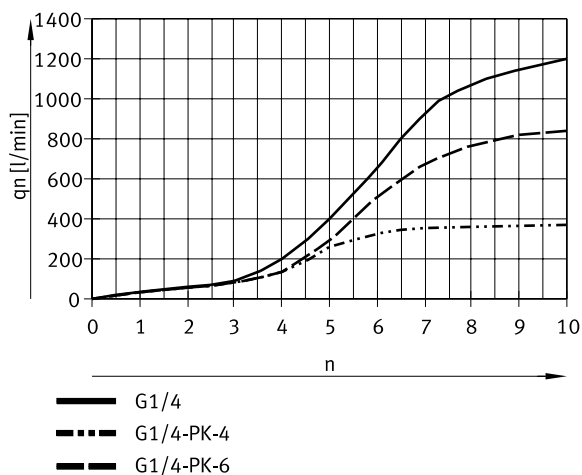
Standard flow rate  $q_n$  at 6 → 0 bar as a function of spindle revolutions  $n$  (GRLA/GRLZ-M5 – female thread/barbed connector, metal)Standard nominal flow rate  $q_{nN}$  at 6 → 5 bar as a function of spindle revolutions  $n$  (GRLA/GRLZ-1/8 – female thread/barbed connector, metal)Standard flow rate  $q_n$  at 6 → 0 bar as a function of spindle revolutions  $n$  (GRLA/GRLZ-1/8 – female thread/barbed connector, metal)

## Datasheet

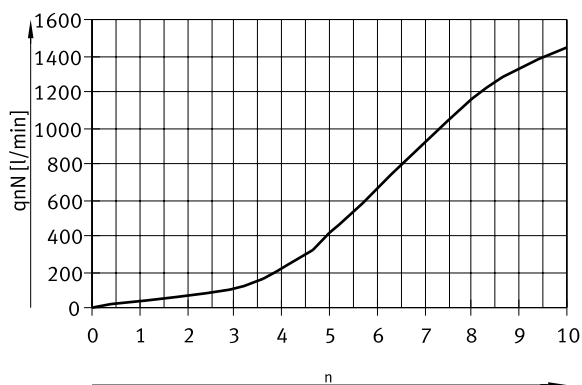
Standard nominal flow rate  $q_{nN}$  at 6 → 5 bar as a function of spindle revolutions  $n$  (GRLA/GRLZ-1/4 – female thread/barbed connector, metal)



Standard flow rate  $q_n$  at 6 → 0 bar as a function of spindle revolutions  $n$  (GRLA/GRLZ-1/4 – female thread/barbed connector, metal)

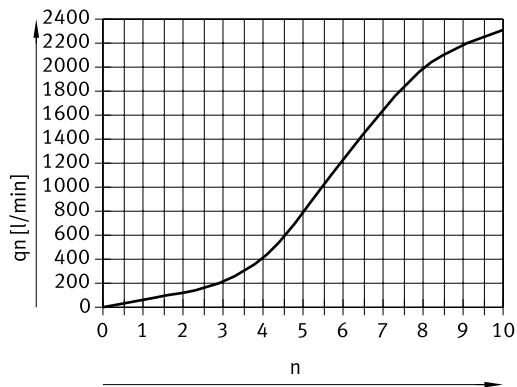


Standard nominal flow rate  $q_{nN}$  at 6 → 5 bar as a function of spindle revolutions  $n$  (GRLA/GRLZ-3/8 – female thread/barbed connector, metal)

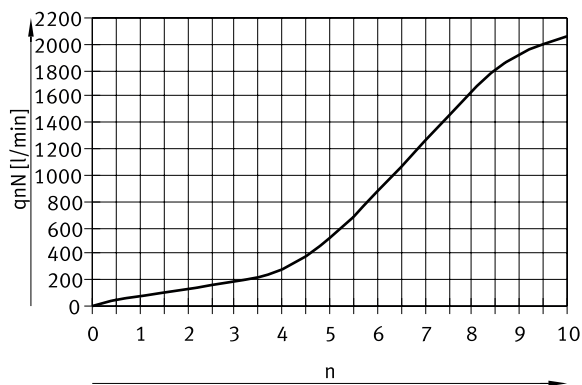


## Datasheet

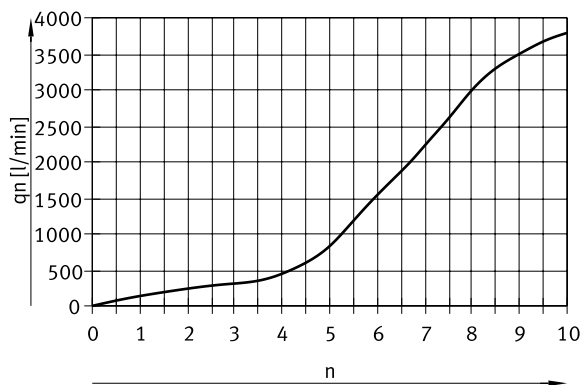
Standard flow rate  $q_n$  at 6 → 0 bar as a function of spindle revolutions  $n$  (GRLA/GRLZ-3/8 – female thread/barbed connector, metal)



Standard nominal flow rate  $q_{nN}$  at 6 → 5 bar as a function of spindle revolutions  $n$  (GRLA/GRLZ-1/2 – female thread/barbed connector, metal)

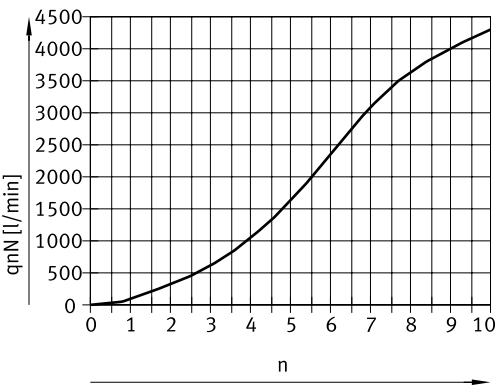


Standard flow rate  $q_n$  at 6 → 0 bar as a function of spindle revolutions  $n$  (GRLA/GRLZ-1/2 – female thread/barbed connector, metal)

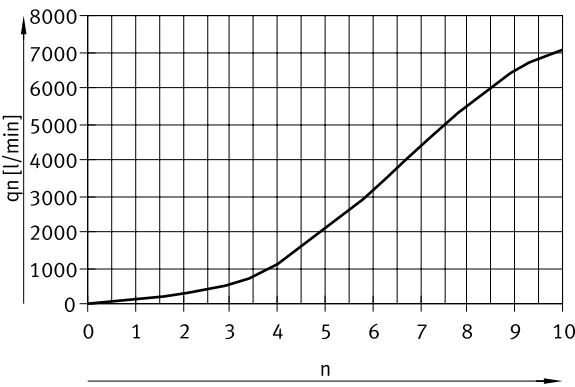


Datasheet

Standard nominal flow rate q<sub>N</sub> at 6 → 5 bar as a function of spindle revolutions n (GRLA/GRLZ-3/4 – female thread/barbed connector, metal)



Standard flow rate q<sub>n</sub> at 6 → 0 bar as a function of spindle revolutions n (GRLA/GRLZ-3/4 – female thread/barbed connector, metal)



| General technical data GRLSA – push-in connector QS |                                           |      |
|-----------------------------------------------------|-------------------------------------------|------|
| Pneumatic connection, port 2                        | G1/8                                      | G1/4 |
| Pneumatic connection, port 1                        | QS-6                                      | QS-8 |
| Valve function                                      | Exhaust air one-way flow control function |      |
| Adjustment component                                | Hexagon socket                            |      |
| Type of mounting                                    | Screw-in                                  |      |
| Mounting position                                   | Any                                       |      |
| Nominal torque                                      | 3.5                                       | 11   |
| Tolerance for nominal tightening torque             | ±20%                                      | ±10% |

## Datasheet

## Operating and environmental conditions GRLSA – Push-in connector QS

|                                                                                             |                                                                                            |                   |
|---------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|-------------------|
| Pneumatic connection, port 2                                                                | G1/8                                                                                       | G1/4              |
| Operating pressure complete temperature range                                               | 0.2 ... 10 bar                                                                             |                   |
| Operating medium                                                                            | Compressed air to ISO 8573-1:2010 [7:4:4]                                                  |                   |
| Standard nominal flow rate in flow control direction <sup>1)</sup>                          | 0 ... 250 l/min                                                                            | 0 ... 450 l/min   |
| Standard nominal flow rate in blocked direction                                             | 180 ... 310 l/min                                                                          | 390 ... 570 l/min |
| Standard flow rate in flow control direction 0.6->0 MPa (6->0 bar, 87->0 psi) <sup>2)</sup> | 0 ... 410 l/min                                                                            | 0 ... 700 l/min   |
| Standard flow rate in non-return direction 0.6->0 MPa (6->0 bar, 87->0 psi)                 | 430 ... 540 l/min                                                                          | 820 ... 930 l/min |
| Note on operating and pilot medium                                                          | Lubricated operation possible (in which case lubricated operation will always be required) |                   |
| Ambient temperature                                                                         | -10 ... 60°C                                                                               |                   |
| Media temperature                                                                           | -10 ... 60°C                                                                               |                   |
| Storage temperature                                                                         | -10 ... 40°C                                                                               |                   |
| Corrosion resistance class CRC <sup>3)</sup>                                                | 1 - Low corrosion stress                                                                   |                   |

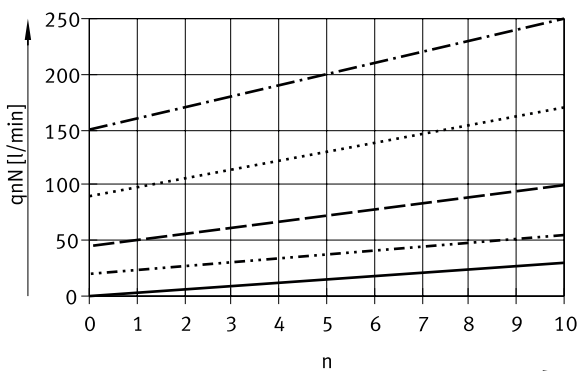
1) The standard nominal flow rate  $q_{nN}$  is the volumetric flow rate based on standard conditions at an operating pressure of  $p_1 = 6$  bar and an output pressure of  $p_2 = 5$  bar, measured at room temperature  $t = 20^\circ\text{C}$ .

2) The standard flow rate  $q_n$  is measured at an operating pressure of  $p_1 = 6$  bar and an output pressure relative to atmospheric pressure ( $p_2 = 0$  bar).

3) More information [www.festo.com/x/topic/crc](http://www.festo.com/x/topic/crc)

## Materials GRLSA – push-in connector QS

|                                                           |                                   |
|-----------------------------------------------------------|-----------------------------------|
| Material adjusting screw                                  | Reinforced PA                     |
| Material swivel fitting                                   | Die-cast zinc                     |
| Material release ring                                     | POM                               |
| Material hollow bolt                                      | Wrought aluminium alloy, anodised |
| Material seals                                            | NBR                               |
| LABS (PWIS) conformity                                    | VDMA24364-B2-L                    |
| Cleanroom suitability, measured according to ISO 14644-14 | Class 4 according to ISO 14644-1  |

Standard nominal flow rate  $q_{nN}$  at 6 → 5 bar as a function of the flow control screw position (scale)  $n$  (GRLSA-1/8 – push-in connector QS, metal)

A = Step A

B = Step B

C = Step C

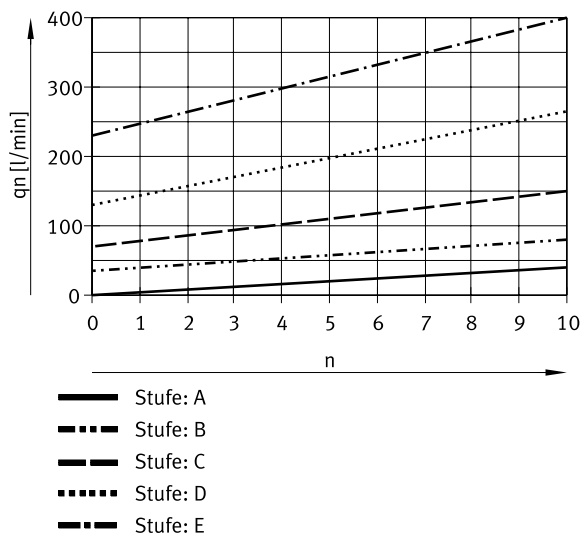
D = Step D

E = Step E

- Stufe: A
- - - Stufe: B
- · - Stufe: C
- · · · · Stufe: D
- - - - - Stufe: E

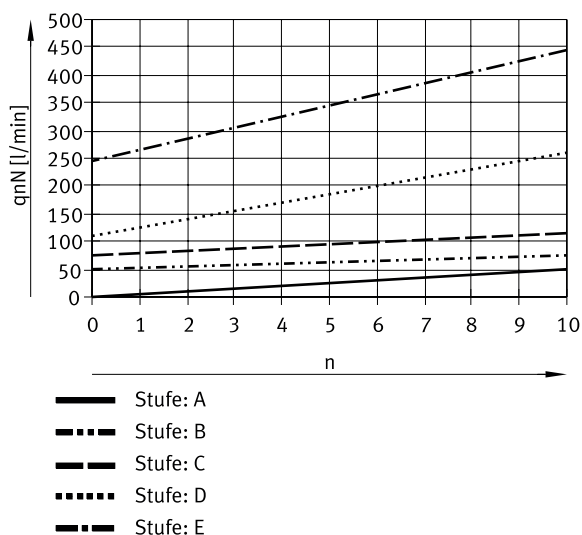
## Datasheet

Standard flow rate  $q_n$  at 6 → 0 bar as a function of the flow control screw position (scale)  $n$  (GRLSA-1/8 - push-in connector QS, metal)



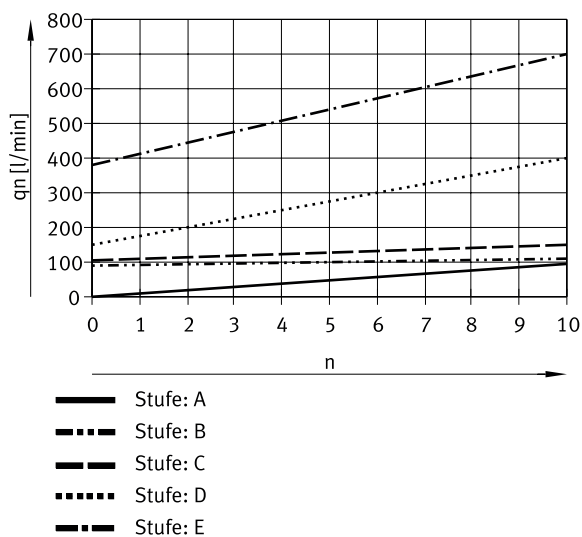
A = Step A  
B = Step B  
C = Step C  
D = Step D  
E = Step E

Standard nominal flow rate  $q_{nN}$  at 6 → 5 bar as a function of the flow control screw position (scale)  $n$  (GRLSA-1/4 – push-in connector QS, metal)



A = Step A  
B = Step B  
C = Step C  
D = Step D  
E = Step E

Standard flow rate  $q_n$  at 6 → 0 bar as a function of the flow control screw position (scale)  $n$  (GRLSA-1/4 – push-in connector QS, metal)



A = Step A  
B = Step B  
C = Step C  
D = Step D  
E = Step E

## Datasheet

## General technical data GRLA – push-in connector QS (Mini)

|                              |                                           |                            |
|------------------------------|-------------------------------------------|----------------------------|
| Pneumatic connection, port 2 | M3                                        | M5                         |
| Pneumatic connection, port 1 | QS-3                                      | QS-3, QS-4                 |
| Valve function               | Exhaust air one-way flow control function |                            |
| Adjustment component         | Slotted head screw                        |                            |
| Type of mounting             | Screw-in                                  | Screw-in, With male thread |
| Mounting position            | Any                                       |                            |
| Max. tightening torque       | 0.3 Nm                                    | –                          |
| Nominal torque               | –                                         | 1.3 Nm                     |

## General technical data GRLZ – push-in connector QS (Mini)

|                              |                                          |                            |
|------------------------------|------------------------------------------|----------------------------|
| Pneumatic connection, port 2 | M3                                       | M5                         |
| Pneumatic connection, port 1 | QS-3                                     | QS-3, QS-4                 |
| Valve function               | Supply air one-way flow control function |                            |
| Adjustment component         | Slotted head screw                       |                            |
| Type of mounting             | Screw-in                                 | Screw-in, With male thread |
| Mounting position            | Any                                      |                            |
| Max. tightening torque       | 0.3 Nm                                   | –                          |
| Nominal torque               | –                                        | 1.3 Nm                     |

## Operating and environmental conditions GRLA/GRLZ – Push-in connector QS (mini)

|                                                                                           |                                                                                            |                  |
|-------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|------------------|
| Pneumatic connection, port 2                                                              | M3                                                                                         | M5               |
| Operating pressure                                                                        | –                                                                                          | 0.02 ... 1 MPa   |
| Operating pressure                                                                        | 0.2 ... 10 bar                                                                             |                  |
| Operating pressure                                                                        | –                                                                                          | 2.9 ... 145 psi  |
| Operating pressure complete temperature range                                             | –                                                                                          | 0.2 ... 10 bar   |
| Operating medium                                                                          | Compressed air to ISO 8573-1:2010 [7:4:4]                                                  |                  |
| Note on operating and pilot medium                                                        | Lubricated operation possible (in which case lubricated operation will always be required) |                  |
| Standard nominal flow rate in flow control direction <sup>1)</sup>                        | 41 l/min                                                                                   | 40 ... 48 l/min  |
| Standard nominal flow rate in blocked direction                                           | 27 ... 50 l/min                                                                            | 36 ... 75 l/min  |
| Standard flow rate in non-return direction 0.6->0 MPa (6->0 bar, 87->0 psi) <sup>2)</sup> | 75 ... 110 l/min                                                                           | 60 ... 150 l/min |
| Standard flow rate in flow control direction 0.6->0 MPa (6->0 bar, 87->0 psi)             | 95 l/min                                                                                   | 80 l/min         |
| Ambient temperature                                                                       | -10 ... 60°C                                                                               |                  |
| Media temperature                                                                         | -10 ... 60°C                                                                               |                  |
| Maritime classification <sup>3)</sup>                                                     | See certificate                                                                            |                  |
| Corrosion resistance class CRC <sup>4)</sup>                                              | 1 - Low corrosion stress                                                                   |                  |

1) The standard nominal flow rate q<sub>N</sub> is the volumetric flow rate based on standard conditions at an operating pressure of p<sub>1</sub> = 6 bar and an output pressure of p<sub>2</sub> = 5 bar, measured at room temperature t = 20 °C.

2) The standard flow rate q<sub>n</sub> is measured at an operating pressure of p<sub>1</sub> = 6 bar and an output pressure relative to atmospheric pressure (p<sub>2</sub> = 0 bar).

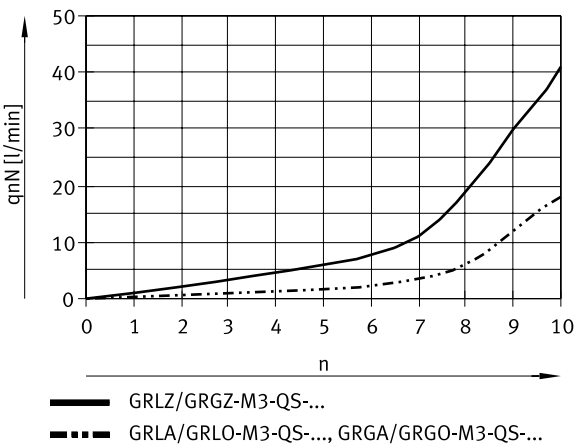
3) GRLA only: More information [www.festo.com/catalogue/eng](http://www.festo.com/catalogue/eng) → Support/Downloads.

4) More information [www.festo.com/x/topic/crc](http://www.festo.com/x/topic/crc)

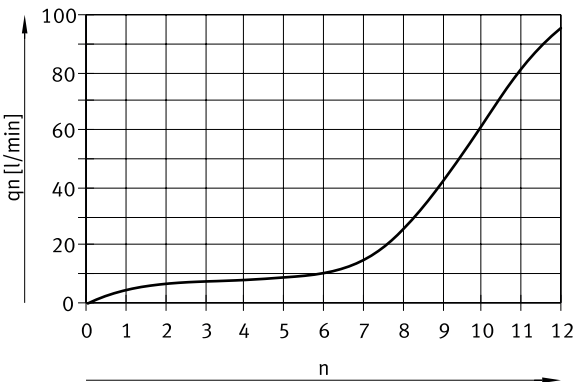
Datasheet

| Materials GRLA/GRLZ – push-in connector QS (Mini)         |                                  |                      |
|-----------------------------------------------------------|----------------------------------|----------------------|
| Pneumatic connection, port 2                              | M3                               | M5                   |
| Material adjusting screw                                  | Brass                            |                      |
| Material swivel fitting                                   | Die-cast zinc                    |                      |
| Material release ring                                     | POM                              |                      |
| Material screwed plug                                     | Brass, nickel-plated             | –                    |
| Material hollow bolt                                      | –                                | Brass, nickel-plated |
| Material seals                                            | NBR                              |                      |
| Note on materials                                         | RoHS compliant                   |                      |
| LABS (PWIS) conformity                                    | VDMA24364-B1/B2-L                |                      |
| Cleanroom suitability, measured according to ISO 14644-14 | Class 4 according to ISO 14644-1 |                      |

Standard nominal flow rate qnN at 6 → 5 bar as a function of spindle revolutions n (GRLA/GRLZ-M3, mini – push-in connector QS, metal)

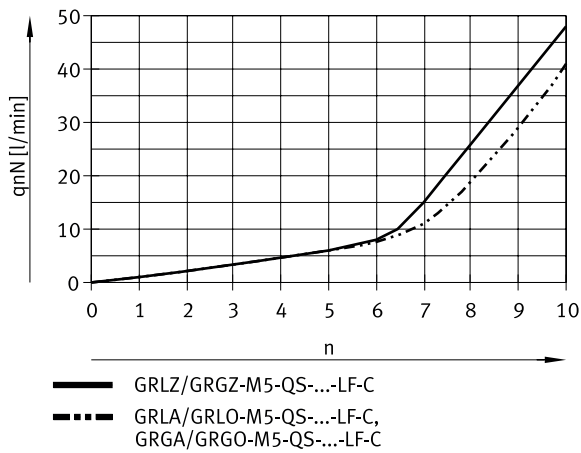


Standard flow rate qn at 6 → 0 bar as a function of spindle revolutions n (GRLA/GRLZ-M3, mini – push-in connector QS, metal)

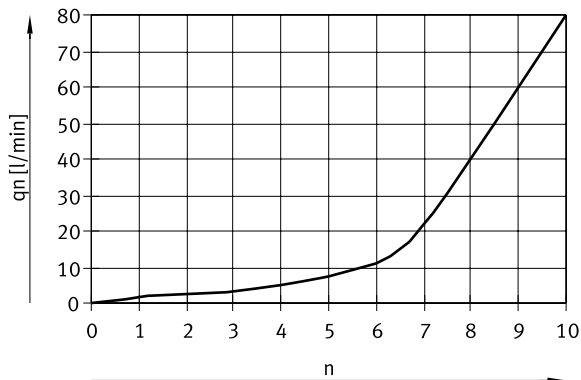


## Datasheet

Standard nominal flow rate  $q_{nN}$  at 6 → 5 bar as a function of spindle revolutions  $n$  (GRLA/GRLZ-M5, mini – push-in connector QS, metal)



Standard flow rate  $q_n$  at 6 → 0 bar as a function of spindle revolutions  $n$  (GRLA/GRLZ-M5, mini – push-in connector QS, metal)



### General technical data GRLA – female thread (Mini)

|                              |                                           |
|------------------------------|-------------------------------------------|
| Pneumatic connection, port 2 | M3                                        |
| Pneumatic connection, port 1 | M3                                        |
| Valve function               | Exhaust air one-way flow control function |
| Adjustment component         | Slotted head screw                        |
| Type of mounting             | Screw-in                                  |
| Mounting position            | Any                                       |
| Max. tightening torque       | 0.3 Nm                                    |

### General technical data GRLZ – female thread (Mini)

|                              |                                          |
|------------------------------|------------------------------------------|
| Pneumatic connection, port 2 | M3                                       |
| Pneumatic connection, port 1 | M3                                       |
| Valve function               | Supply air one-way flow control function |
| Adjustment component         | Slotted head screw                       |
| Type of mounting             | Screw-in                                 |
| Mounting position            | Any                                      |
| Max. tightening torque       | 0.3 Nm                                   |

## Datasheet

## Operating and environmental conditions GRLA/GRLZ – Female thread (mini)

|                                                                                             |                                                                                            |
|---------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|
| Operating pressure                                                                          | 0.2 ... 10 bar                                                                             |
| Operating medium                                                                            | Compressed air to ISO 8573-1:2010 [7:4:4]                                                  |
| Note on operating and pilot medium                                                          | Lubricated operation possible (in which case lubricated operation will always be required) |
| Standard nominal flow rate in flow control direction <sup>1)</sup>                          | 18 l/min                                                                                   |
| Standard nominal flow rate in blocked direction                                             | 18 ... 20 l/min                                                                            |
| Standard flow rate in flow control direction 0.6->0 MPa (6->0 bar, 87->0 psi) <sup>2)</sup> | 33 l/min                                                                                   |
| Standard flow rate in non-return direction 0.6->0 MPa (6->0 bar, 87->0 psi)                 | 33 ... 37 l/min                                                                            |
| Ambient temperature                                                                         | -10 ... 60°C                                                                               |
| Media temperature                                                                           | -10 ... 60°C                                                                               |
| Maritime classification <sup>3)</sup>                                                       | See certificate                                                                            |
| Corrosion resistance class CRC <sup>4)</sup>                                                | 1 - Low corrosion stress                                                                   |

1) The standard nominal flow rate  $q_{nN}$  is the volumetric flow rate based on standard conditions at an operating pressure of  $p_1 = 6$  bar and an output pressure of  $p_2 = 5$  bar, measured at room temperature  $t = 20$  °C.

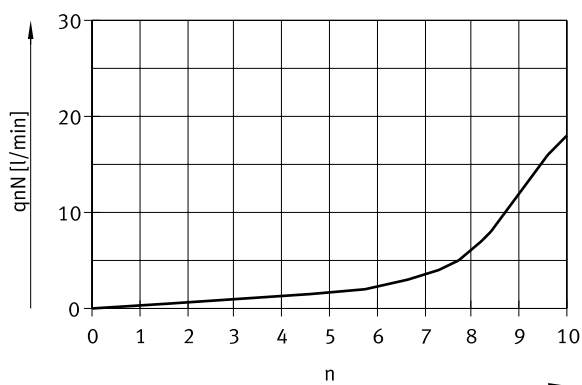
2) The standard flow rate  $q_n$  is measured at an operating pressure of  $p_1 = 6$  bar and an output pressure relative to atmospheric pressure ( $p_2 = 0$  bar).

3) GRLA only: More information [www.festo.com/catalogue/grla](http://www.festo.com/catalogue/grla) → Support/Downloads.

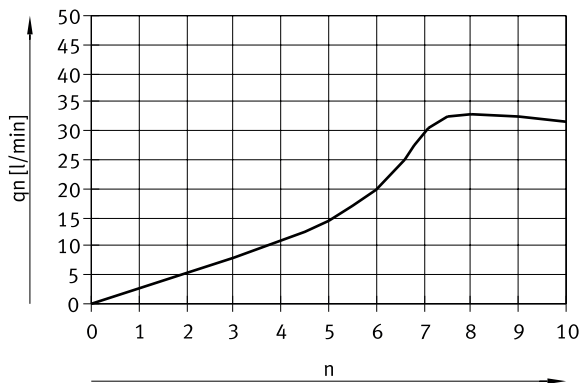
4) More information [www.festo.com/x/topic/crc](http://www.festo.com/x/topic/crc)

## Materials GRLA/GRLZ – female thread (Mini)

|                                                           |                                  |
|-----------------------------------------------------------|----------------------------------|
| Material adjusting screw                                  | Brass                            |
| Material swivel fitting                                   | Die-cast zinc                    |
| Material screwed plug                                     | Brass, nickel-plated             |
| Material seals                                            | NBR                              |
| Note on materials                                         | RoHS compliant                   |
| LABS (PWIS) conformity                                    | VDMA24364-B1/B2-L                |
| Cleanroom suitability, measured according to ISO 14644-14 | Class 4 according to ISO 14644-1 |

Standard nominal flow rate  $q_{nN}$  at 6 → 5 bar as a function of spindle revolutions  $n$  (GRLA/GRLZ, mini – female thread, metal)

## Datasheet

Standard flow rate  $q_n$  at 6 → 0 bar as a function of spindle revolutions  $n$  (GRLA/GRLZ, mini – female thread, metal)

## General technical data CRGRLA – female thread (stainless steel)

|                                                |                               |        |        |       |       |
|------------------------------------------------|-------------------------------|--------|--------|-------|-------|
| Pneumatic connection, port 2                   | M5                            | G1/8   | G1/4   | G3/8  | G1/2  |
| Pneumatic connection, port 1                   | M5                            | G1/8   | G1/4   | G3/8  | G1/2  |
| Valve function                                 | One-way flow control function |        |        |       |       |
| Adjustment component                           | Slotted head screw            |        |        |       |       |
| Type of mounting                               | Screw-in                      |        |        |       |       |
| Mounting position                              | Any                           |        |        |       |       |
| Max. tightening torque                         | 1.5 Nm                        | 6 Nm   | 11 Nm  | 20 Nm | 40 Nm |
| Permissible actuation moment, regulating screw | 0.2 Nm                        | 0.5 Nm | 1.5 Nm | 2 Nm  | 3 Nm  |

## Operating and environmental conditions CRGRLA – female thread (stainless steel)

| Pneumatic connection, port 2                                                              | M5                                                                                         | G1/8              | G1/4                  | G3/8                  | G1/2                  |
|-------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------|-------------------|-----------------------|-----------------------|-----------------------|
| Operating pressure                                                                        | 0.02 ... 1 MPa                                                                             |                   | 0.03 ... 1 MPa        |                       |                       |
| Operating pressure                                                                        | 0.2 ... 10 bar                                                                             |                   | 0.3 ... 10 bar        |                       |                       |
| Operating pressure                                                                        | 2.9 ... 145 psi                                                                            |                   | 4.35 ... 145 psi      |                       |                       |
| Operating medium                                                                          | Compressed air to ISO 8573-1:2010 [7:4:4]                                                  |                   |                       |                       |                       |
| Note on operating and pilot medium                                                        | Lubricated operation possible (in which case lubricated operation will always be required) |                   |                       |                       |                       |
| Standard nominal flow rate in blocked direction <sup>1)</sup>                             | 77 ... 95 l/min                                                                            | 260 ... 420 l/min | 450 ... 820 l/min     | 970 ... 1,600 l/min   | 1,550 ... 2,200 l/min |
| Standard nominal flow rate in flow control direction                                      | 95 l/min                                                                                   | 340 l/min         | 610 l/min             | 1,450 l/min           | 2,100 l/min           |
| Standard flow rate in non-return direction 0.6->0 MPa (6->0 bar, 87->0 psi) <sup>2)</sup> | 140 ... 150 l/min                                                                          | 530 ... 590 l/min | 1,030 ... 1,345 l/min | 2,095 ... 2,665 l/min | 3,550 ... 4,325 l/min |
| Standard flow rate in flow control direction 0.6->0 MPa (6->0 bar, 87->0 psi)             | 165 l/min                                                                                  | 580 l/min         | 1,265 l/min           | 2,515 l/min           | 4,265 l/min           |
| Ambient temperature                                                                       | -20 ... 80°C                                                                               |                   |                       |                       |                       |
| Media temperature                                                                         | -10 ... 60°C                                                                               |                   |                       |                       |                       |
| Storage temperature                                                                       | -10 ... 40°C                                                                               |                   |                       |                       |                       |
| Corrosion resistance class CRC <sup>3)</sup>                                              | 3 - high corrosion stress                                                                  |                   |                       |                       |                       |
| Suitable for use with food                                                                | See supplementary material information                                                     |                   |                       |                       |                       |
| Maritime classification <sup>4)</sup>                                                     | See certificate                                                                            |                   |                       |                       |                       |

1) The standard nominal flow rate  $q_n$  is the volumetric flow rate based on standard conditions at an operating pressure of  $p_1 = 6$  bar and an output pressure of  $p_2 = 5$  bar, measured at room temperature  $t = 20^\circ\text{C}$ .

2) The standard flow rate  $q_n$  is measured at an operating pressure of  $p_1 = 6$  bar and an output pressure relative to atmospheric pressure ( $p_2 = 0$  bar).

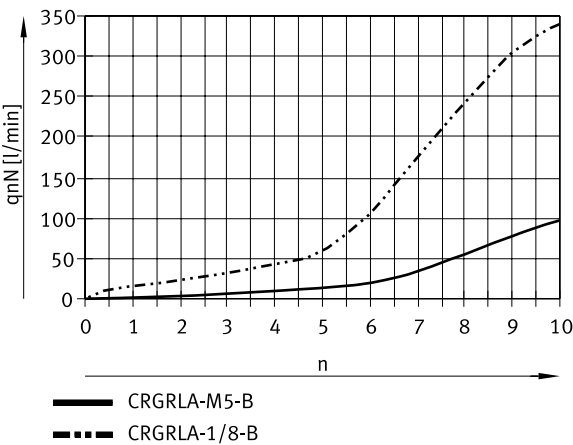
3) More information [www.festo.com/x/topic/crc](http://www.festo.com/x/topic/crc)

4) More information [www.festo.com/catalogue/crgla](http://www.festo.com/catalogue/crgla) → Support/Downloads.

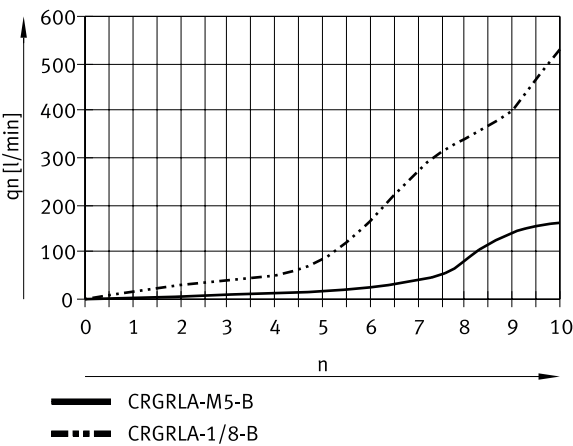
Datasheet

| Materials CRGRLA – female thread (stainless steel)        |                                  |
|-----------------------------------------------------------|----------------------------------|
| Material adjusting screw                                  | High-alloy stainless steel       |
| Material swivel fitting                                   | High-alloy stainless steel       |
| Material hollow bolt                                      | High-alloy steel                 |
| Material seals                                            | Fluoro rubber, PVC               |
| Note on materials                                         | RoHS compliant                   |
| LABS (PWIS) conformity                                    | VDMA24364-B2-L                   |
| Cleanroom suitability, measured according to ISO 14644-14 | Class 4 according to ISO 14644-1 |

Standard nominal flow rate q<sub>N</sub> at 6 → 5 bar as a function of spindle revolutions n (CRGRLA-M5, CRGRLA-1/8 – female thread, stainless steel)

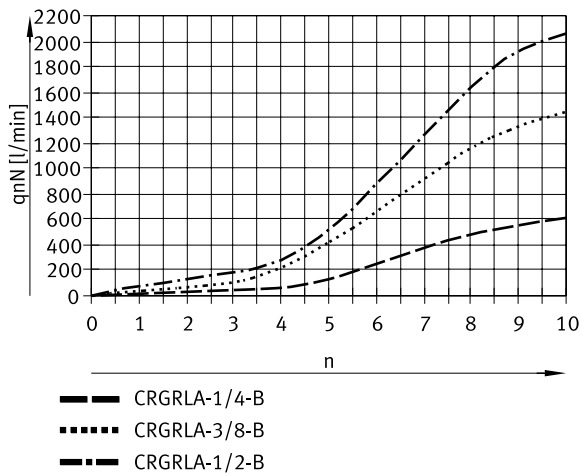


Standard flow rate q<sub>n</sub> at 6 → 0 bar as a function of spindle revolutions n (CRGRLA-M5, CRGRLA-1/8 – female thread, stainless steel)

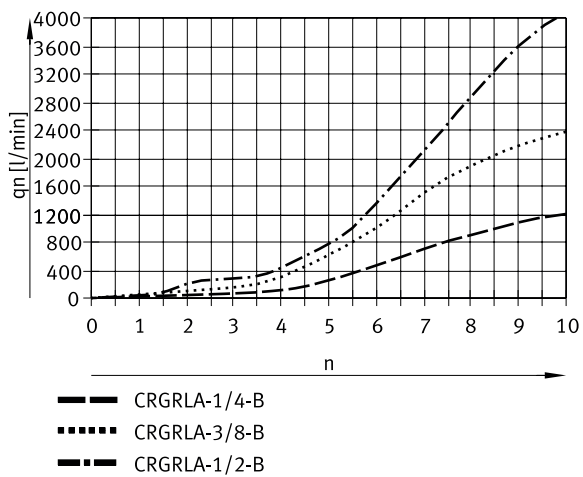


## Datasheet

Standard nominal flow rate  $q_{nN}$  at  $6 \rightarrow 5$  bar as a function of spindle revolutions  $n$  (CRGRLA-1/4, CRGRLA-3/8, CRGRLA-1/2 – female thread, stainless steel)

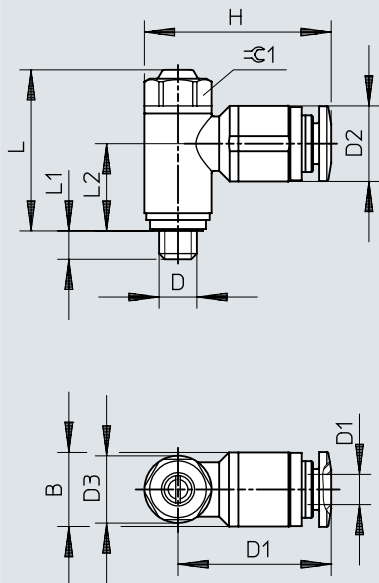


Standard flow rate  $q_n$  at  $6 \rightarrow 0$  bar as a function of spindle revolutions  $n$  (CRGRLA-1/4, CRGRLA-3/8, CRGRLA-1/2 - female thread, stainless steel)



## Dimensions

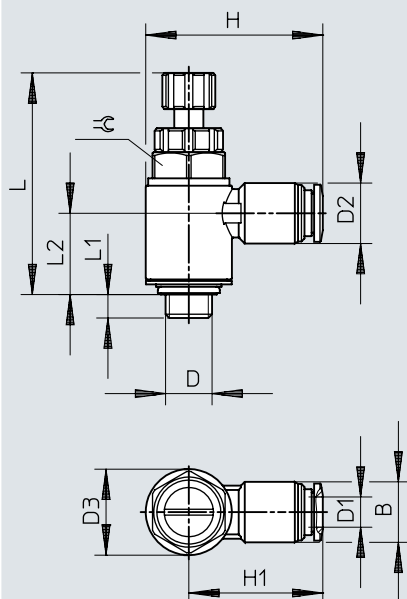
## Dimensions – Slotted head screw

Download CAD data [www.festo.com](http://www.festo.com)

|                 | D    | D1 | B        | D2<br>Ø    | D3<br>Ø    | ~H   | ~H1  | ~L   |       | L1                 | ~L2   | ≡C |
|-----------------|------|----|----------|------------|------------|------|------|------|-------|--------------------|-------|----|
| GRL...-M5       | M5   | 3  | –        | 8,2 +0,15  | 8,9 ±0,07  | 22,4 | 18   | 20,8 | ±3,3% | 3,9<br>+0,1/-0,45  | 10,7  | 8  |
|                 |      | 4  | 9,8 ±0,2 | 10,0 ±0,2  |            | 24,7 | 20,3 |      |       |                    | 9,7   |    |
|                 |      | 6  | –        | 12,0 ±0,2  |            | 26,5 | 22   |      |       |                    |       |    |
| GRL...-1/8      | G1/8 | 3  | –        | 10,2 ±0,2  | 13,8 ±0,07 | 31,9 | 25   | 26,5 | ±2,1% | 5,05<br>+0,15/-0,3 | 14,2  | 12 |
|                 |      | 4  |          | 10,2 ±0,2  |            | 29,4 | 22,5 |      |       |                    |       |    |
|                 |      | 6  |          | 12,5 ±0,2  |            | 32,6 | 25,7 |      |       |                    |       |    |
|                 |      | 8  |          | 14,5 ±0,2  |            | 35,6 | 28,7 |      |       |                    | 13,5  |    |
| GRLA-1/8-...-MF |      | 6  | –        | 12,5 ±0,2  | 17,8 ±0,15 | 36,6 | 27,7 | 30,9 | ±1,9% | 5,05<br>+0,15/-0,3 | 17    | 15 |
|                 |      | 8  |          | 14,5 ±0,2  |            | 39,6 | 30,7 |      |       |                    |       |    |
| GRLA-1/4        | G1/4 | 6  | –        | 12,5 ±0,2  | 17,8 ±0,15 | 36,6 | 27,7 | 31,5 | ±1,9% | 5,9<br>+0,17/-0,25 | 17,2  | 15 |
|                 |      | 8  |          | 14,5 ±0,2  |            | 39,6 | 30,7 |      |       |                    |       |    |
|                 |      | 10 |          | 17,5 ±0,2  |            | 42,0 | 33,1 |      |       |                    | 16,1  |    |
| GRLA-3/8        | G3/8 | 6  | –        | 12,5 ±0,2  | 22,4 ±0,15 | 39,8 | 28,6 | 35,3 | ±1,7% | 6,9<br>+0,15/-0,3  | 19,55 | 19 |
|                 |      | 8  |          | 14,5 ±0,2  |            | 44,1 | 32,9 |      |       |                    |       |    |
|                 |      | 10 |          | 17,5 ±0,2  |            | 46,7 | 35,5 |      |       |                    |       |    |
| GRLA-1/2        | G1/2 | 12 | –        | 20,5 ±0,15 | 27,8 ±0,15 | 55,3 | 41,4 | 42,6 | ±1,4% | 8,35<br>+0,15/-0,3 | 22,75 | 24 |

## Dimensions

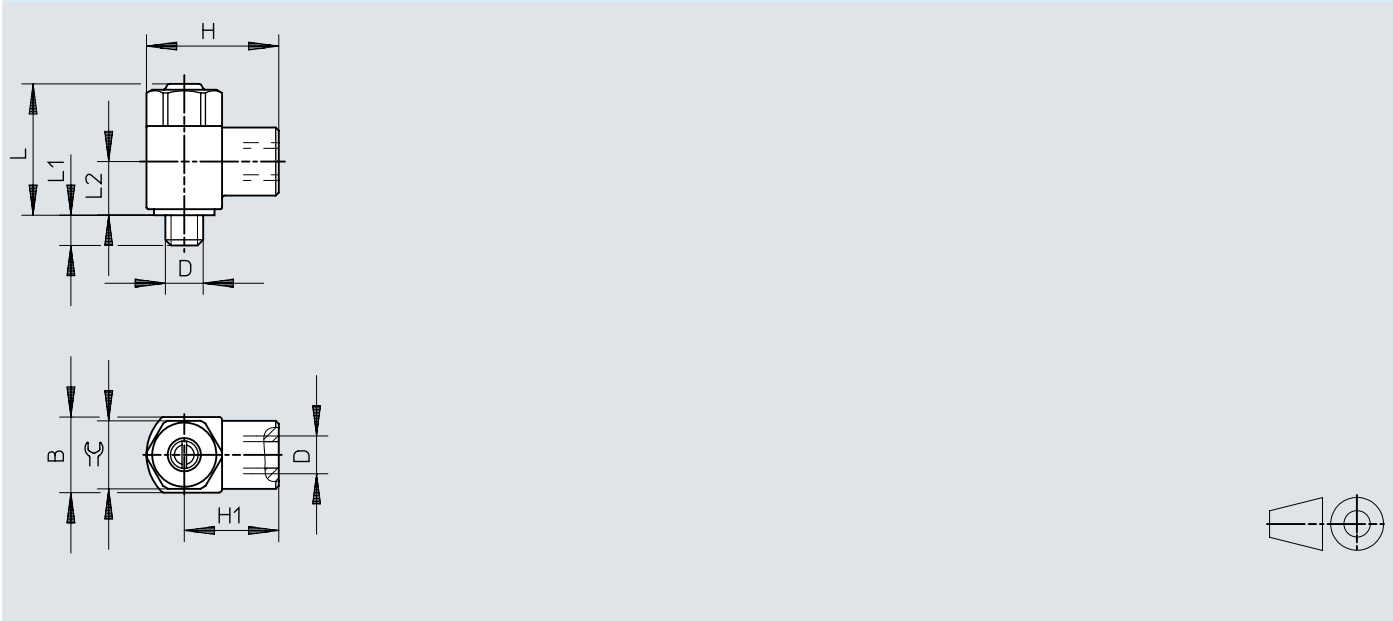
## Dimensions – Knurled screw

Download CAD data [www.festo.com](http://www.festo.com)

|                 | D    | D1 | B        | D2<br>ø    | D3<br>ø    | ~H   | ~H1  | ~L   |       | L1                 | ~L2   | ≙  |
|-----------------|------|----|----------|------------|------------|------|------|------|-------|--------------------|-------|----|
| GRL...-M5       | M5   | 3  | –        | 8,2 +0,15  | 8,9 ±0,07  | 22,4 | 18   | 31,5 | ±2,4% | 3,9<br>+0,1/-0,45  | 10,7  | 8  |
|                 |      | 4  | 9,8 ±0,2 | 10,0 ±0,2  |            | 24,7 | 20,3 |      |       |                    | 9,7   |    |
|                 |      | 6  | –        | 12,0 ±0,2  |            | 26,5 | 22   |      |       |                    |       |    |
| GRL...-1/8      | G1/8 | 3  | –        | 10,2 ±0,2  | 13,8 ±0,07 | 31,9 | 25   | 40,4 | ±1,6% | 5,05<br>+0,15/-0,3 | 14,2  | 12 |
|                 |      | 4  |          | 10,2 ±0,2  |            | 29,4 | 22,5 |      |       |                    |       |    |
|                 |      | 6  |          | 12,5 ±0,2  |            | 32,6 | 25,7 |      |       |                    |       |    |
|                 |      | 8  |          | 14,5 ±0,2  |            | 35,6 | 28,7 |      |       |                    | 13,5  |    |
| GRLA-1/8-...-MF |      | 6  | –        | 12,5 ±0,2  | 17,8 ±0,15 | 36,6 | 27,7 | –    | –     | 5,05<br>+0,15/-0,3 | 17    | 15 |
|                 |      | 8  |          | 14,5 ±0,2  |            | 39,6 | 30,7 |      |       |                    |       |    |
| GRLA-1/4        | G1/4 | 6  | –        | 12,5 ±0,2  | 17,8 ±0,15 | 36,6 | 27,7 | 48,5 | ±1,4% | 5,9<br>+0,17/-0,25 | 17,2  | 15 |
|                 |      | 8  |          | 14,5 ±0,2  |            | 39,6 | 30,7 |      |       |                    |       |    |
|                 |      | 10 |          | 17,5 ±0,2  |            | 42,0 | 33,1 |      |       |                    | 16,1  |    |
| GRLA-3/8        | G3/8 | 6  | –        | 12,5 ±0,2  | 22,4 ±0,15 | 39,8 | 28,6 | 55   | ±1,3% | 6,9<br>+0,15/-0,3  | 19,55 | 19 |
|                 |      | 8  |          | 14,5 ±0,2  |            | 44,1 | 32,9 |      |       |                    |       |    |
|                 |      | 10 |          | 17,5 ±0,2  |            | 46,7 | 35,5 |      |       |                    |       |    |
| GRLA-1/2        | G1/2 | 12 | –        | 20,5 ±0,15 | 27,8 ±0,15 | 55,3 | 41,4 | 65,9 | ±1,1% | 8,35<br>+0,15/-0,3 | 22,75 | 24 |

Dimensions

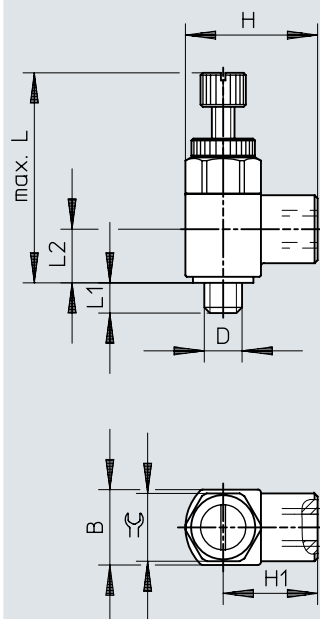
Dimensions – Connection type female thread slotted screw Download CAD data [www.festo.com](http://www.festo.com)



|            | D    | B        | ~H   | ~H1  | ~L   |       | L1              | ~L2  | ≙  |
|------------|------|----------|------|------|------|-------|-----------------|------|----|
| GRL...-M5  | M5   | 10 -0,15 | 17,5 | 12,5 | 18   | ±6,2% | 4,0 ±0,3        | 7,1  | 9  |
| GRL...-1/8 | G1/8 | 16 -0,15 | 28   | 20   | 26   | ±3,9% | 5,3 +0,45/-0,35 | 10,3 | 14 |
| GRL...-1/4 | G1/4 | 20 -0,2  | 36   | 26   | 31,7 | ±3,2% | 8,2 +0,45/-0,35 | 13,2 | 17 |
| GRLA-3/8   | G3/8 | 25 -0,2  | 41   | 28,5 | 38,5 | ±2,9% | 8,8 +0,45/-0,35 | 15,5 | 22 |
| GRLA-1/2   | G1/2 | 32 -0,2  | 53   | 37   | 50   | ±2,4% | 12,8 ±0,45      | 18,9 | 27 |
| GRLA-3/4   | G3/4 | 41 -0,3  | 64   | 43,5 | 61,8 | ±2,2% | 13,5 ±0,5       | 24,5 | 36 |

## Dimensions

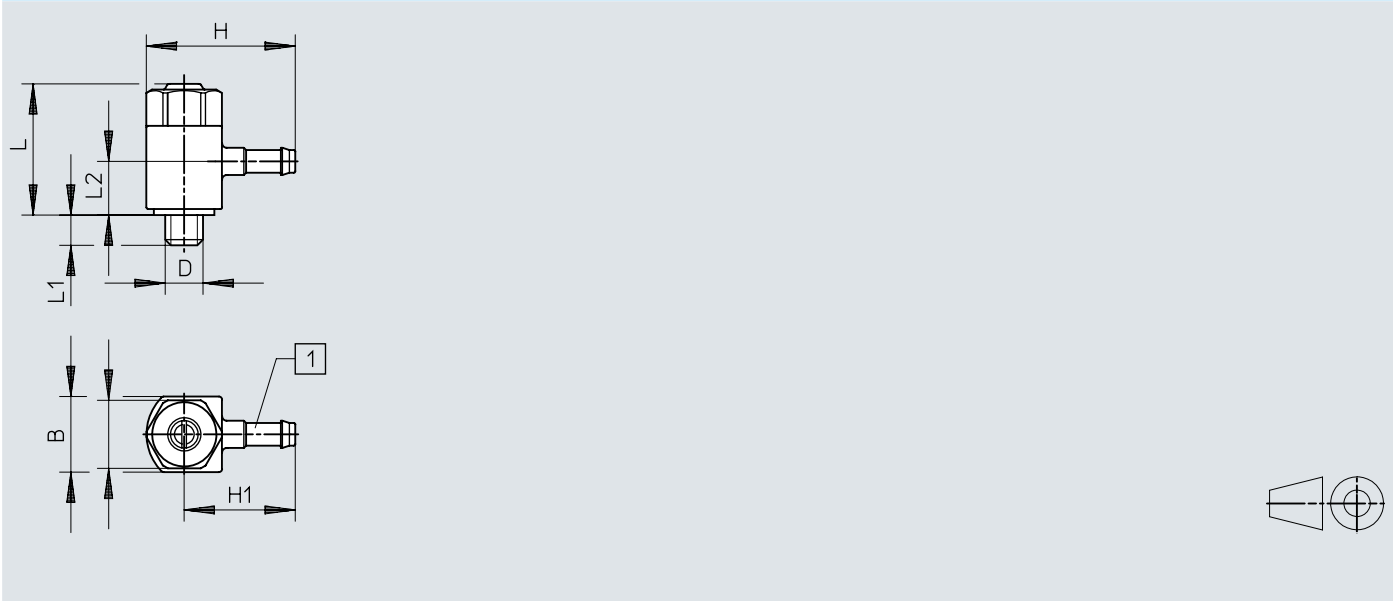
### Dimensions – Connection type female thread knurled screw

[Download CAD data](#) [www.festo.com](http://www.festo.com)


|            | D    | B        | ~H   | ~H1  | ~L   |       | L1              | ~L2  | ≅  |
|------------|------|----------|------|------|------|-------|-----------------|------|----|
| GRL...-M5  | M5   | 10 -0,15 | 17,5 | 12,5 | 28   | ±3,4% | 4,0 ±0,3        | 7,1  | 9  |
| GRL...-1/8 | G1/8 | 16 -0,15 | 28   | 20   | 39,4 | ±2,1% | 5,3 +0,45/-0,35 | 10,3 | 14 |
| GRL...-1/4 | G1/4 | 20 -0,2  | 36   | 26   | 47,4 | ±2,0% | 8,2 +0,45/-0,35 | 13,2 | 17 |
| GRLA-3/8   | G3/8 | 25 -0,2  | 41   | 28,5 | —    |       | 8,8 +0,45/-0,35 | 15,5 | 22 |
| GRLA-1/2   | G1/2 | 32 -0,2  | 53   | 37   | —    |       | 12,8 ±0,45      | 18,9 | 27 |
| GRLA-3/4   | G3/4 | 41 -0,3  | 64   | 43,5 | —    |       | 13,5 ±0,5       | 24,5 | 36 |

Dimensions

Dimensions – Connection type barbed connector GRL...-M5 Download CAD data [www.festo.com](http://www.festo.com)

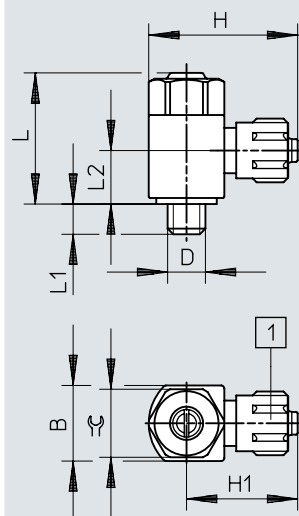


|                | D  | B        | ~H   | ~H1  | ~L |       | L1       | ~L2 | ≅ |
|----------------|----|----------|------|------|----|-------|----------|-----|---|
| GRL...-M5-PK-3 | M5 | 10 -0,15 | 19,7 | 14,7 | 18 | ±5,7% | 4,0 ±0,3 | 8,5 | 9 |
| GRL...-M5-PK-4 |    | 10 -0,15 | 21,7 | 16,7 | 18 | ±5,7% | 4,0 ±0,3 | 8,5 | 9 |

## Dimensions

Dimensions – Connection type barbed connector GRL...-1/8, GRL...-1/4

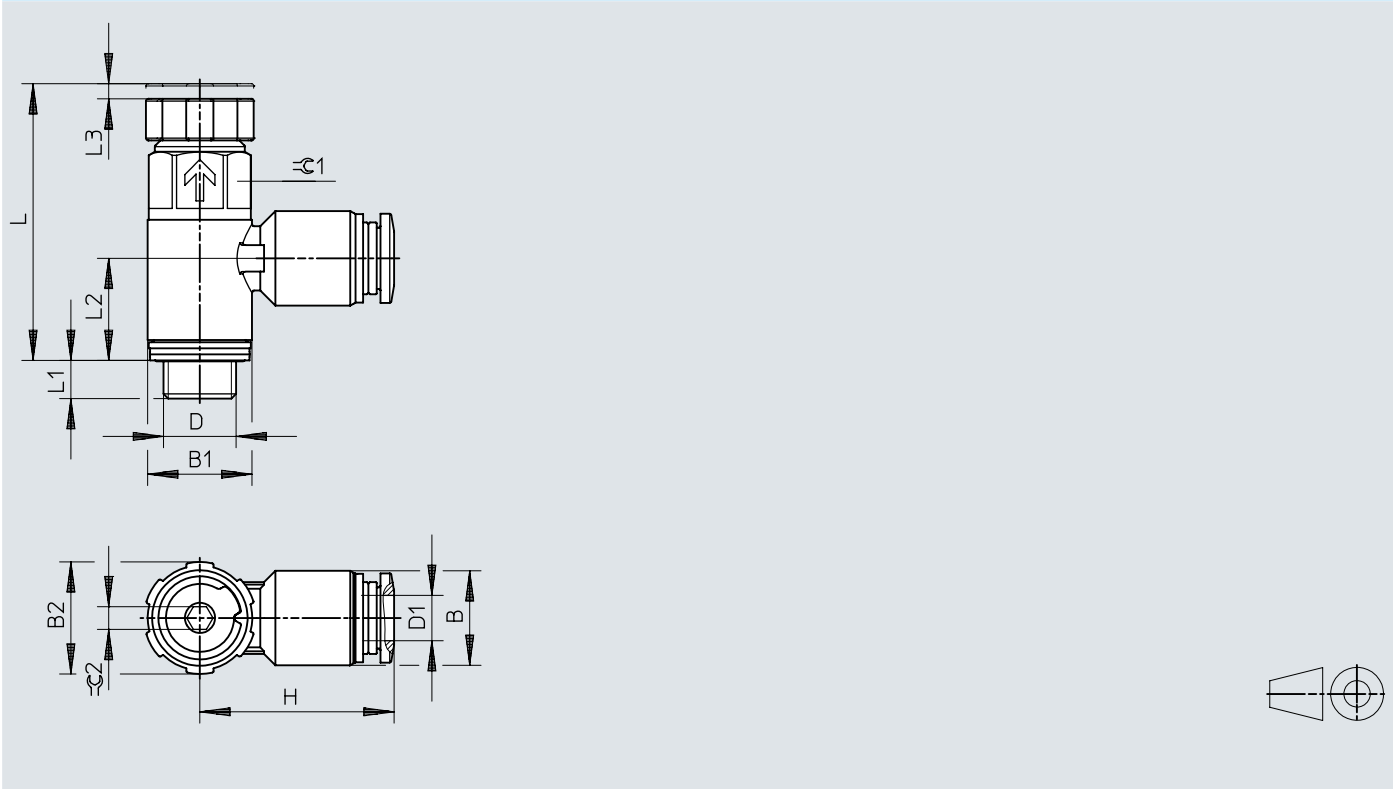
Download CAD data [www.festo.com](http://www.festo.com)



|                 | D    | B        | ~H   | ~H1  | ~L   |       | L1              | ~L2  | ≙C |
|-----------------|------|----------|------|------|------|-------|-----------------|------|----|
| GRL...-1/8-PK-3 | G1/8 | 16 -0,15 | 27,1 | 19,1 | 26   | ±3,9% | 5,3 +0,45/-0,35 | 13,4 | 14 |
| GRL...-1/8-PK-4 |      | 16 -0,15 | 30,2 | 22,2 | 26   | ±3,9% | 5,3 +0,45/-0,35 | 13,4 | 14 |
| GRL...-1/8-PK-6 |      | 16 -0,15 | 30,3 | 22,3 | 26   | ±3,9% | 5,3 +0,45/-0,35 | 12,0 | 14 |
| GRL...-1/4-PK-4 | G1/4 | 20 -0,2  | 34,2 | 24,2 | 31,7 | ±3,3% | 8,2 +0,45/-0,35 | 16,9 | 17 |
| GRL...-1/4-PK-6 |      | 20 -0,2  | 34,3 | 24,3 | 31,7 | ±3,3% | 8,2 +0,45/-0,35 | 17,2 | 17 |

Dimensions

Dimensions – One-way flow control valves GRLSA, standard Download CAD data [www.festo.com](http://www.festo.com)

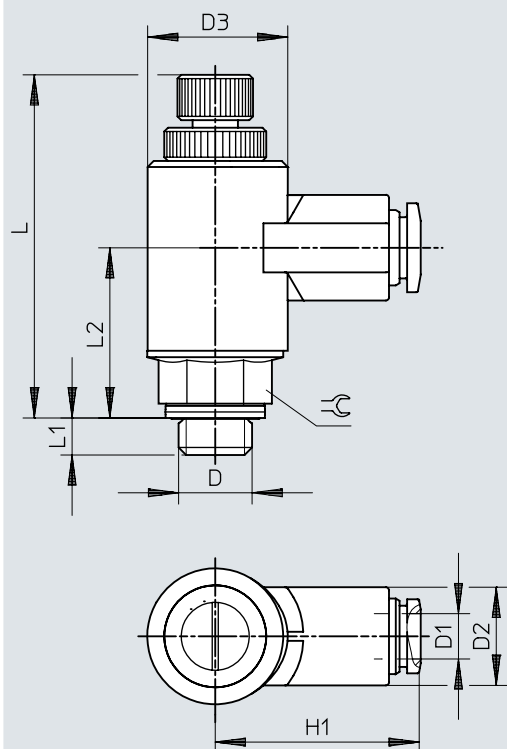


|           | D    | B    | B1   | B2   | H     | L    | L1  | L2   | L3 | 1  | 2 |
|-----------|------|------|------|------|-------|------|-----|------|----|----|---|
| GRLSA-1/8 | G1/8 | 12,5 | 13,8 | 15   | 25,7  | 36,6 | 5,1 | 13,5 | 2  | 12 | 3 |
| GRLSA-1/4 | G1/4 | 14,5 | 17,8 | 18,8 | 30,75 | 46,5 | 7   | 17,2 | 3  | 15 | 3 |

## Dimensions

Dimensions – One-way flow control valves GRLA, standard

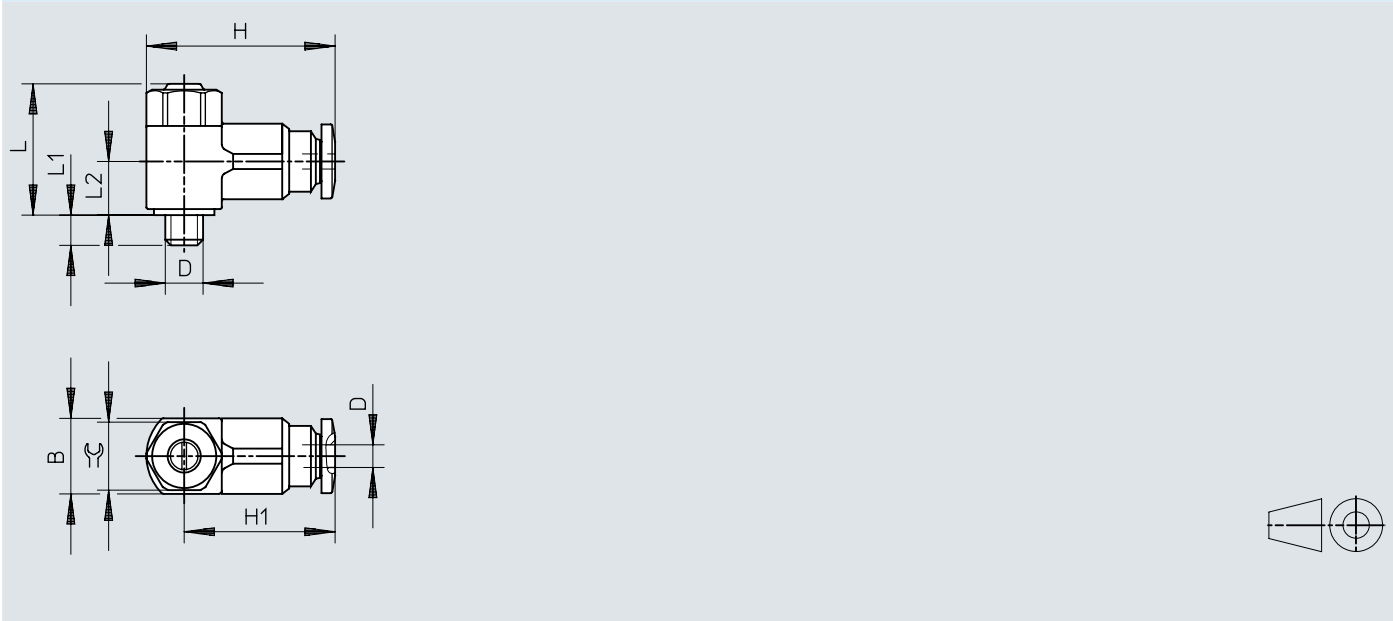
Download CAD data [www.festo.com](http://www.festo.com)



|          | D    | D1<br>ø | D2<br>ø    | D3<br>ø   | ~H1  | ~L   |       | ~L1 | ~L2  | ≈G |
|----------|------|---------|------------|-----------|------|------|-------|-----|------|----|
| GRLA-1/8 | G1/8 | 6       | 13,0 ±0,25 | 17,9 -0,1 | 27,2 | 48,1 | ±2,2% | 4,9 | 22,6 | 13 |
|          |      | 8       | 16,8 ±0,4  |           | 35,4 | 48   | ±2,3% |     |      |    |
| GRLA-1/4 | G1/4 | 6       | 13,0 ±0,25 | 17,9 -0,1 | 27,2 | 47,8 | ±2,3% | 5,8 | 22,3 | 17 |
|          |      | 8       | 16,8 ±0,4  |           | 35,4 | 47,8 | ±2,4% |     |      |    |
| GRLA-3/8 | G3/8 | 6       | 13,0 ±0,25 | 17,9 -0,1 | 27,2 | 47,8 | ±2,3% | 6,8 | 22,3 | 19 |
|          |      | 8       | 16,8 ±0,4  |           | 35,4 | 47,8 | ±2,4% |     |      |    |

Dimensions

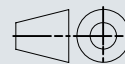
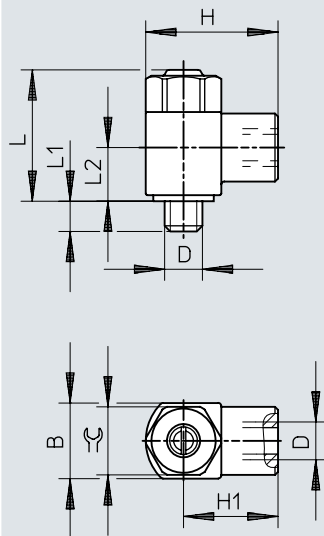
Dimensions – One-way flow control valves GRLA/GRLZ, mini Download CAD data [www.festo.com](http://www.festo.com)



|           | D  | D1<br>ø | B         | ~H   | ~H1  | ~L   |       | L1              | ~L2 | ≈C |
|-----------|----|---------|-----------|------|------|------|-------|-----------------|-----|----|
| GRLA/GRLZ | M3 | 3       | 8 -0,15   | 20   | 15,8 | 16,6 | ±3,3% | 2,3 +0,15/-0,3  | 7   | 7  |
|           | M5 | 3       | 9,8 -0,15 | 22,4 | 18,4 | 17,2 | ±3,1% | 3,1 +0,15/-0,35 | 7,3 |    |
|           |    | 4       | 9,8 -0,15 | 22,2 | 18,2 | 17,2 | ±3,1% | 3,1 +0,15/-0,35 | 7,3 |    |

## Dimensions

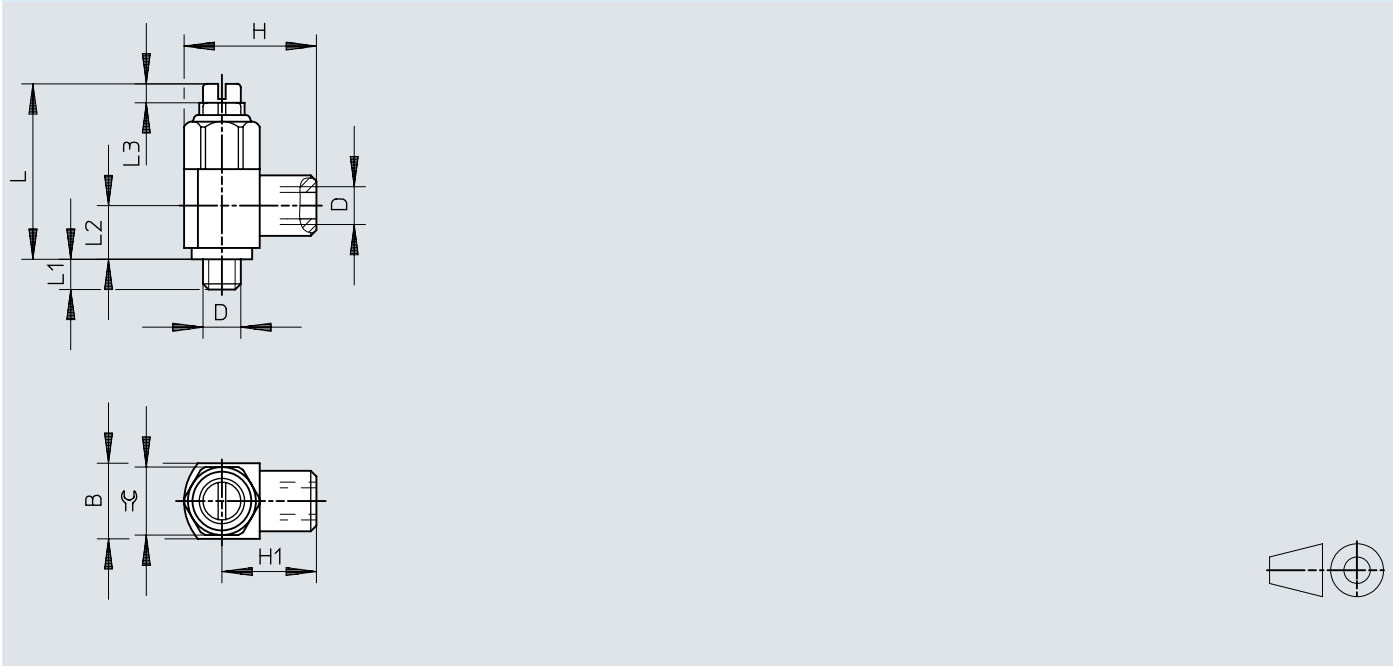
### Dimensions – Female thread, metal

[Download CAD data](#) [www.festo.com](http://www.festo.com)


|           | D  | B      | ~H | ~H1 | ~L   |       | L1             | ~L2 | ≅   |
|-----------|----|--------|----|-----|------|-------|----------------|-----|-----|
| GRLA/GRLZ | M3 | 5 -0,1 | 9  | 6,5 | 13,4 | ±3,9% | 2,5 +0,15/-0,3 | 6,4 | 4,5 |

Dimensions

Dimensions – One-way flow control valves CRGRLA-M5, corrosion-resistant Download CAD data [www.festo.com](http://www.festo.com)

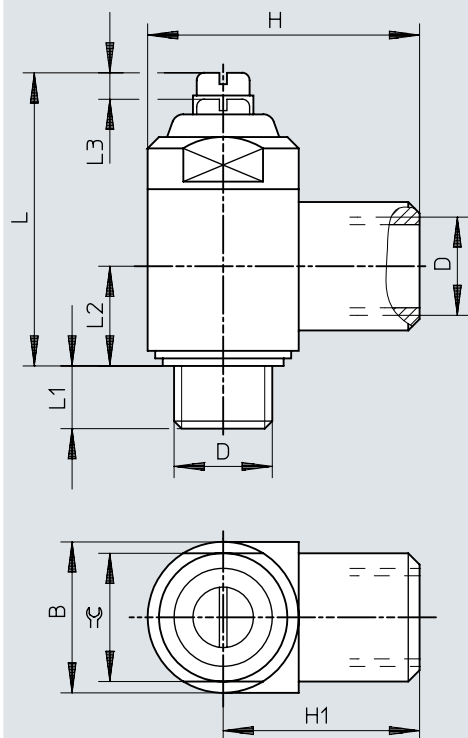


|           | D  | B        | H         | H1   | ~L   |       | ~L1 | ~L2 | ~L3 | ≡ |
|-----------|----|----------|-----------|------|------|-------|-----|-----|-----|---|
| CRGRLA-M5 | M5 | 10 -0,25 | 17,5 ±0,3 | 12,5 | 22,9 | ±3,5% | 4   | 7,1 | 2,5 | 9 |

## Dimensions

Dimensions – One-way flow control valves CRGRLA, corrosion-resistant

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|            | D    | B       | H            | H1   | ~L   |       | ~L1 | ~L2  | ~L3 | ⌀  |
|------------|------|---------|--------------|------|------|-------|-----|------|-----|----|
| CRGRLA-1/8 | G1/8 | 16 -0,4 | 28 +0,4/-0,3 | 20   | 33,8 | ±2,7% | 5,5 | 10,3 | 3,5 | 14 |
| CRGRLA-1/4 | G1/4 | 20 -0,3 | 36 +0,4/-0,2 | 26   | 38,8 | ±2,7% | 6,5 | 13,2 | 3,5 | 17 |
| CRGRLA-3/8 | G3/8 | 25 -0,3 | 41 +0,4/-0,2 | 28,5 | 48,5 | ±2,2% | 7,5 | 15,4 | 5   | 22 |
| CRGRLA-1/2 | G1/2 | 32 -0,4 | 53 ±0,5      | 37   | 62,2 | ±1,7% | 9   | 18,9 | 7,5 | 27 |

## Ordering data

## Ordering data GRLA – push-in connector QS

|                                                                                  | Pneumatic connection, port 2 | Pneumatic connection, port 1 | Corrosion resistance class CRC | Product weight | Part no. | Type                |
|----------------------------------------------------------------------------------|------------------------------|------------------------------|--------------------------------|----------------|----------|---------------------|
|  | M5                           | QS-3                         | 0 - No corrosion stress        | 13 g           | 193137   | GRLA-M5-QS-3-D      |
|                                                                                  |                              |                              | 1 - Low corrosion stress       | 14 g           | 197576   | GRLA-M5-QS-3-RS-D   |
|                                                                                  |                              | QS-4                         | 0 - No corrosion stress        | 13 g           | 193138   | GRLA-M5-QS-4-D      |
|                                                                                  |                              |                              | 1 - Low corrosion stress       | 14 g           | 197577   | GRLA-M5-QS-4-RS-D   |
|                                                                                  |                              | QS-6                         | 0 - No corrosion stress        | 13 g           | 193139   | GRLA-M5-QS-6-D      |
|                                                                                  |                              |                              | 1 - Low corrosion stress       | 14 g           | 197578   | GRLA-M5-QS-6-RS-D   |
|                                                                                  | G1/8                         | QS-3                         | 0 - No corrosion stress        | 22 g           | 193142   | GRLA-1/8-QS-3-D     |
|                                                                                  |                              |                              | 1 - Low corrosion stress       | 23 g           | 197579   | GRLA-1/8-QS-3-RS-D  |
|                                                                                  |                              | QS-4                         | 0 - No corrosion stress        | 22 g           | 193143   | GRLA-1/8-QS-4-D     |
|                                                                                  |                              |                              | 1 - Low corrosion stress       | 23 g           | 197580   | GRLA-1/8-QS-4-RS-D  |
|                                                                                  |                              | QS-6                         | 0 - No corrosion stress        | 22 g           | 193144   | GRLA-1/8-QS-6-D     |
|                                                                                  |                              |                              |                                | 32 g           | 537075   | GRLA-1/8-QS-6-MF-D  |
|                                                                                  |                              | QS-8                         | 0 - No corrosion stress        | 22 g           | 193145   | GRLA-1/8-QS-8-D     |
|                                                                                  |                              |                              |                                | 32 g           | 537076   | GRLA-1/8-QS-8-MF-D  |
|                                                                                  |                              | QS-10                        | 0 - No corrosion stress        | 22 g           | 193146   | GRLA-1/8-QS-10-D    |
|                                                                                  |                              |                              | 1 - Low corrosion stress       | 23 g           | 197581   | GRLA-1/8-QS-10-RS-D |
|                                                                                  |                              | QS-12                        | 0 - No corrosion stress        | 22 g           | 193147   | GRLA-1/8-QS-12-D    |
|                                                                                  |                              |                              | 1 - Low corrosion stress       | 23 g           | 197582   | GRLA-1/8-QS-12-RS-D |
|                                                                                  | G1/4                         | QS-6                         | 0 - No corrosion stress        | 42 g           | 193146   | GRLA-1/4-QS-6-D     |
|                                                                                  |                              |                              | 1 - Low corrosion stress       | 50 g           | 534338   | GRLA-1/4-QS-6-RS-D  |
|                                                                                  |                              | QS-8                         | 0 - No corrosion stress        | 42 g           | 193147   | GRLA-1/4-QS-8-D     |
|                                                                                  |                              |                              | 1 - Low corrosion stress       | 50 g           | 534339   | GRLA-1/4-QS-8-RS-D  |
|                                                                                  |                              | QS-10                        | 0 - No corrosion stress        | 42 g           | 193148   | GRLA-1/4-QS-10-D    |
|                                                                                  |                              |                              | 1 - Low corrosion stress       | 50 g           | 534340   | GRLA-1/4-QS-10-RS-D |
|                                                                                  | G3/8                         | QS-6                         | 0 - No corrosion stress        | 60 g           | 193149   | GRLA-3/8-QS-6-D     |
|                                                                                  |                              |                              | 1 - Low corrosion stress       | 72 g           | 534341   | GRLA-3/8-QS-6-RS-D  |
|                                                                                  |                              | QS-8                         | 0 - No corrosion stress        | 60 g           | 193150   | GRLA-3/8-QS-8-D     |
|                                                                                  |                              |                              | 1 - Low corrosion stress       | 72 g           | 534342   | GRLA-3/8-QS-8-RS-D  |
|                                                                                  |                              | QS-10                        | 0 - No corrosion stress        | 60 g           | 193151   | GRLA-3/8-QS-10-D    |
|                                                                                  |                              |                              | 1 - Low corrosion stress       | 72 g           | 534343   | GRLA-3/8-QS-10-RS-D |
|                                                                                  | G1/2                         | QS-12                        | 0 - No corrosion stress        | 106 g          | 193152   | GRLA-1/2-QS-12-D    |
|                                                                                  |                              |                              | 1 - Low corrosion stress       | 124 g          | 534344   | GRLA-1/2-QS-12-RS-D |

## Ordering data

## Ordering data GRLZ – push-in connector QS

|                                                                                   | Pneumatic connection, port 2 | Pneumatic connection, port 1 | Corrosion resistance class CRC | Product weight | Part no. | Type            |
|-----------------------------------------------------------------------------------|------------------------------|------------------------------|--------------------------------|----------------|----------|-----------------|
|  | M5                           | QS-3                         | 0 - No corrosion stress        | 13 g           | 193153   | GRLZ-M5-QS-3-D  |
|                                                                                   |                              | QS-4                         |                                |                | 193154   | GRLZ-M5-QS-4-D  |
|                                                                                   |                              | QS-6                         |                                |                | 193155   | GRLZ-M5-QS-6-D  |
|                                                                                   | G1/8                         | QS-3                         |                                | 22 g           | 193156   | GRLZ-1/8-QS-3-D |
|                                                                                   |                              | QS-4                         |                                |                | 193157   | GRLZ-1/8-QS-4-D |
|                                                                                   |                              | QS-6                         |                                |                | 193158   | GRLZ-1/8-QS-6-D |
|                                                                                   |                              | QS-8                         |                                |                | 193159   | GRLZ-1/8-QS-8-D |
|                                                                                   |                              |                              |                                |                |          |                 |

## Ordering data GRLA – female thread/barbed connector

|                                                                                   | Pneumatic connection, port 2 | Pneumatic connection, port 1                | Corrosion resistance class CRC | Product weight | Part no. | Type            |
|-----------------------------------------------------------------------------------|------------------------------|---------------------------------------------|--------------------------------|----------------|----------|-----------------|
|  | Male thread G1/4             | Female thread G1/4                          | 2 - Moderate corrosion stress  | 59 g           | 151175   | GRLA-1/4-RS-B   |
|                                                                                   |                              |                                             |                                |                | 151172   | GRLA-1/4-B      |
|                                                                                   |                              | For barbed fitting I.D. 4 mm with union nut |                                | 44 g           | 151173   | GRLA-1/4-PK-4-B |
|                                                                                   |                              | For barbed fitting I.D. 6 mm with union nut |                                | 45 g           | 151174   | GRLA-1/4-PK-6-B |
|                                                                                   | M5                           | M5                                          |                                | 11 g           | 151160   | GRLA-M5-B       |
|                                                                                   |                              |                                             |                                | 12 g           | 151163   | GRLA-M5-RS-B    |
|                                                                                   |                              | PK-3                                        |                                | 10 g           | 151161   | GRLA-M5-PK-3-B  |
|                                                                                   |                              | PK-4                                        |                                |                | 151162   | GRLA-M5-PK-4-B  |
|                                                                                   | G1/8                         | G1/8                                        |                                | 28 g           | 151165   | GRLA-1/8-B      |
|                                                                                   |                              |                                             |                                | 30 g           | 151169   | GRLA-1/8-RS-B   |
|                                                                                   |                              | PK-3 with union nut                         |                                | 22 g           | 151166   | GRLA-1/8-PK-3-B |
|                                                                                   |                              | PK-4 with union nut                         |                                | 25 g           | 151167   | GRLA-1/8-PK-4-B |
|                                                                                   |                              | PK-6 with union nut                         |                                |                | 151168   | GRLA-1/8-PK-6-B |
|                                                                                   |                              |                                             |                                |                |          |                 |
|                                                                                   | G3/8                         | G3/8                                        |                                | 97 g           | 151178   | GRLA-3/8-B      |
|                                                                                   | G1/2                         | G1/2                                        |                                | 204 g          | 151179   | GRLA-1/2-B      |
|                                                                                   | G3/4                         | G3/4                                        |                                | 377 g          | 151180   | GRLA-3/4-B      |

## Ordering data GRLZ – female thread/barbed connector

| Ordering data GRLZ Female thread/barbed connector                                   |                              |                              |                                |                |          |               |
|-------------------------------------------------------------------------------------|------------------------------|------------------------------|--------------------------------|----------------|----------|---------------|
|                                                                                     | Pneumatic connection, port 2 | Pneumatic connection, port 1 | Corrosion resistance class CRC | Product weight | Part no. | Type          |
|  | Male thread G1/4             | Female thread G1/4           | 2 - Moderate corrosion stress  | 59 g           | 151198   | GRLZ-1/4-RS-B |
|                                                                                     |                              |                              |                                |                | 151195   | GRLZ-1/4-B    |
|                                                                                     | M5                           | M5                           |                                | 11 g           | 151183   | GRLZ-M5-B     |
|                                                                                     |                              |                              |                                | 12 g           | 151186   | GRLZ-M5-RS-B  |
|                                                                                     | G1/8                         | G1/8                         |                                | 28 g           | 151188   | GRLZ-1/8-B    |
|                                                                                     |                              |                              |                                | 30 g           | 151192   | GRLZ-1/8-RS-B |
|                                                                                     |                              |                              |                                |                |          |               |

## Ordering data GRLSA – push-in connector QS

|                                                                                     | Pneumatic connection, port 2 | Pneumatic connection, port 1 | Corrosion resistance class CRC | Product weight | Part no. | Type           |
|-------------------------------------------------------------------------------------|------------------------------|------------------------------|--------------------------------|----------------|----------|----------------|
|  | G1/8                         | QS-6                         | 1 - Low corrosion stress       | 19.5 g         | 540661   | GRLSA-1/8-QS-6 |

## Ordering data

### Ordering data GRLSA – push-in connector QS

|                                                                                  | Pneumatic connection, port 2 | Pneumatic connection, port 1 | Corrosion resistance class CRC | Product weight | Part no.      | Type                  |
|----------------------------------------------------------------------------------|------------------------------|------------------------------|--------------------------------|----------------|---------------|-----------------------|
|  | G1/4                         | QS-8                         | 1 - Low corrosion stress       | 34.8 g         | <b>540662</b> | <b>GRLSA-1/4-QS-8</b> |

### Ordering data GRLA/GRLZ – push-in connector QS (Mini)

|                                                                                  | Pneumatic connection, port 2 | Pneumatic connection, port 1 | Corrosion resistance class CRC | Product weight | Part no. | Type              |
|----------------------------------------------------------------------------------|------------------------------|------------------------------|--------------------------------|----------------|----------|-------------------|
|  | M3                           | QS-3                         | 1 - Low corrosion stress       | 7 g            | 175043   | GRLZ-M3-QS-3      |
|                                                                                  |                              |                              |                                |                | 175041   | GRLA-M3-QS-3      |
|                                                                                  | M5                           | QS-4                         |                                | 9 g            | 175055   | GRLZ-M5-QS-3-LF-C |
|                                                                                  |                              |                              |                                |                | 175053   | GRLA-M5-QS-3-LF-C |
|                                                                                  |                              |                              |                                |                | 175056   | GRLA-M5-QS-4-LF-C |
|                                                                                  |                              |                              |                                |                | 175058   | GRLZ-M5-QS-4-LF-C |

### Ordering data GRLA/GRLZ – female thread (Mini)

|                                                                                    | Pneumatic connection, port 2 | Pneumatic connection, port 1 | Corrosion resistance class CRC | Product weight | Part no.      | Type           |
|------------------------------------------------------------------------------------|------------------------------|------------------------------|--------------------------------|----------------|---------------|----------------|
|  | M3                           | M3                           | 1 - Low corrosion stress       | 2 g            | <b>175038</b> | <b>GRLA-M3</b> |
|                                                                                    |                              |                              |                                |                | <b>175040</b> | <b>GRLZ-M3</b> |

### Ordering data CRGRLA – female thread (stainless steel)

|                                                                                    | Pneumatic connection, port 2 | Pneumatic connection, port 1 | Corrosion resistance class CRC | Product weight | Part no.      | Type                |
|------------------------------------------------------------------------------------|------------------------------|------------------------------|--------------------------------|----------------|---------------|---------------------|
|  | M5                           | M5                           | 3 - high corrosion stress      | 10.2 g         | <b>161403</b> | <b>CRGRLA-M5-B</b>  |
|                                                                                    | G1/8                         | G1/8                         |                                | 37.8 g         | <b>161404</b> | <b>CRGRLA-1/8-B</b> |
|                                                                                    | G1/4                         | G1/4                         |                                | 71.6 g         | <b>161405</b> | <b>CRGRLA-1/4-B</b> |
|                                                                                    | G3/8                         | G3/8                         |                                | 126.9 g        | <b>161406</b> | <b>CRGRLA-3/8-B</b> |
|                                                                                    | G1/2                         | G1/2                         |                                | 262.3 g        | <b>161407</b> | <b>CRGRLA-1/2-B</b> |