

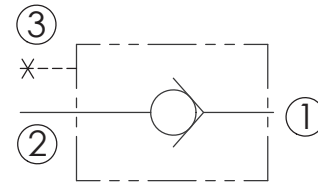
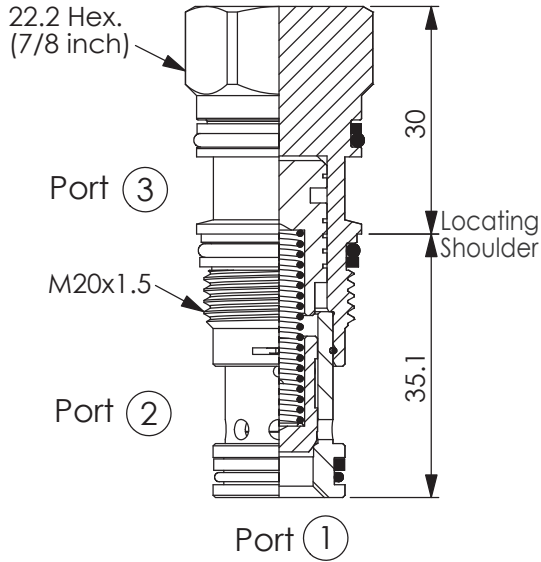


# ZAWORY ZWROTNE 3-DROGOWE

## CHECK VALVES

(Free Flow Nose to Side, Port 3 Blocked)

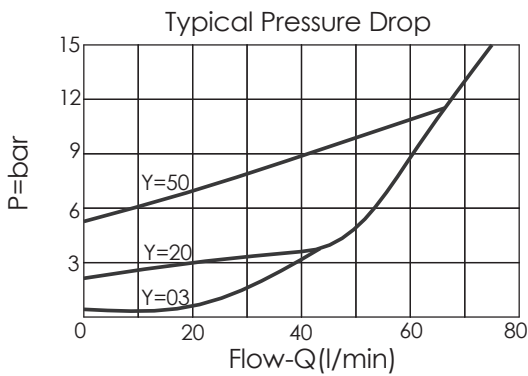
Ordering Code: **CV-11A-X-Y-Z**



### TECHNICAL DATA

|                      |       |       |
|----------------------|-------|-------|
| Max. pressure:       | 350   | bar   |
| Rated flow:          | 80    | l/min |
| Cavity-Tooling:      | 11A-3 |       |
| Installation torque: | 40-50 | Nm    |
| Weight:              | 0.13  | kg    |

UNIT:mm



**X**

### OPERATION

**20**

1 to 2 (Free Flow)

**Y**

### SPRINGS

Cracking pressure

**03** 0.3 bar

**10** 1.0 bar

**20** 2.0 bar

**50** 5.0 bar

**70** 7.0 bar

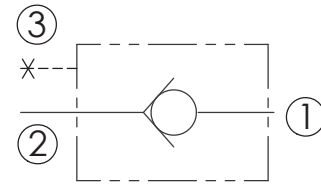
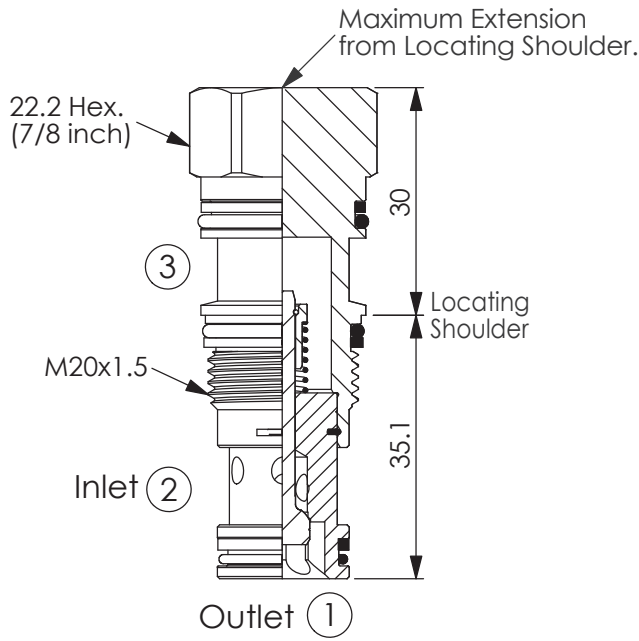
**Z**

### OPTION

**N**

Non-adjustable

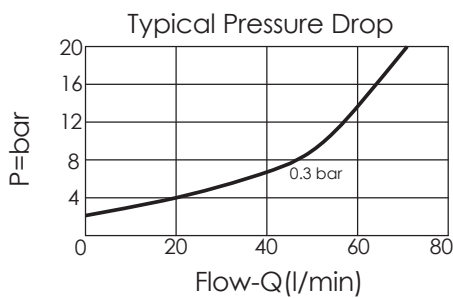
Ordering Code: **CV-11A-X-Y-Z**



### TECHNICAL DATA

|                      |       |       |
|----------------------|-------|-------|
| Max. pressure:       | 350   | bar   |
| Rated flow:          | 60    | l/min |
| Cavity-Tooling:      | 11A-3 |       |
| Installation torque: | 40-50 | Nm    |
| Weight:              | 0.12  | kg    |

UNIT:mm



### X OPERATION

**21** 2 to 1 (Free Flow)

### SPRINGS

Cracking pressure

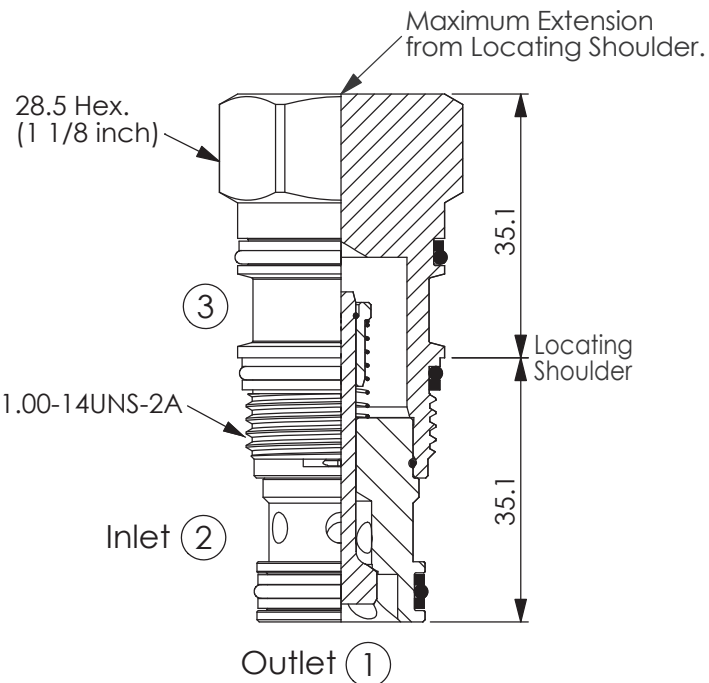
|           |         |  |
|-----------|---------|--|
| <b>03</b> | 0.3 bar |  |
| <b>10</b> | 1.0 bar |  |
| <b>20</b> | 2.0 bar |  |
| <b>35</b> | 3.5 bar |  |
| <b>50</b> | 5.0 bar |  |
| <b>70</b> | 7.0 bar |  |

### Z OPTION

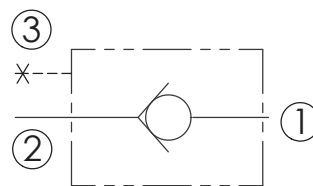
**N** Non-adjustable

## CHECK VALVES

Ordering Code: **CV-2A-X-Y-Z**

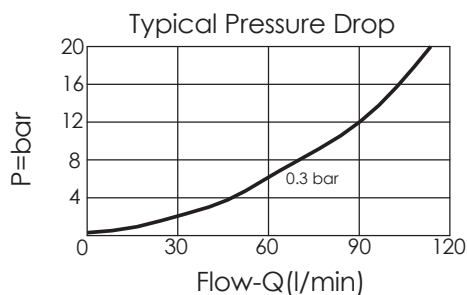


UNIT:mm



### TECHNICAL DATA

|                      |       |       |
|----------------------|-------|-------|
| Max. pressure:       | 350   | bar   |
| Rated flow:          | 120   | l/min |
| Cavity-Tooling:      | 2A-3  |       |
| Installation torque: | 60-70 | Nm    |
| Weight:              | 0.22  | kg    |



### X OPERATION

**21** 2 to 1 (Free Flow)

### Y SPRINGS

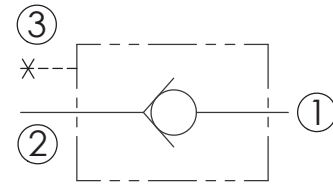
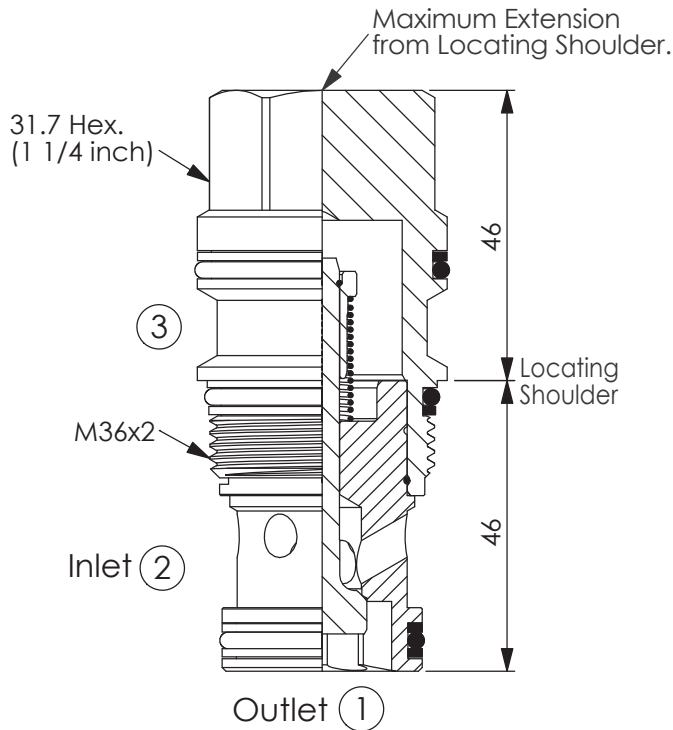
Cracking pressure

|           |         |
|-----------|---------|
| <b>03</b> | 0.3 bar |
| <b>10</b> | 1.0 bar |
| <b>20</b> | 2.0 bar |
| <b>35</b> | 3.5 bar |
| <b>50</b> | 5.0 bar |
| <b>70</b> | 7.0 bar |

### Z OPTION

**N** Non-adjustable

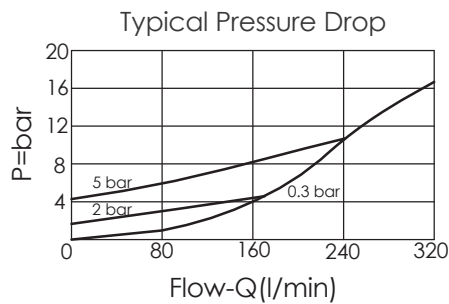
Ordering Code: **CV-17A-X-Y-Z**



### TECHNICAL DATA

|                      |         |       |
|----------------------|---------|-------|
| Max. pressure:       | 350     | bar   |
| Rated flow:          | 240     | l/min |
| Cavity-Tooling:      | 17A-3   |       |
| Installation torque: | 200-215 | Nm    |
| Weight:              | 0.48    | kg    |

UNIT:mm



### X OPERATION

**21** 2 to 1 (Free Flow)

### SPRINGS

Cracking pressure

| Y         | Cracking pressure |
|-----------|-------------------|
| <b>03</b> | 0.3 bar           |
| <b>10</b> | 1.0 bar           |
| <b>20</b> | 2.0 bar           |
| <b>35</b> | 3.5 bar           |
| <b>50</b> | 5.0 bar           |
| <b>70</b> | 7.0 bar           |

### Z OPTION

**N** Non-adjustable

## CHECK VALVES

Ordering Code: **CV-19A-X-Y-Z**

41.2 Hex. (1 5/8 inch)

Maximum Extension from Locating Shoulder.

59

63.5

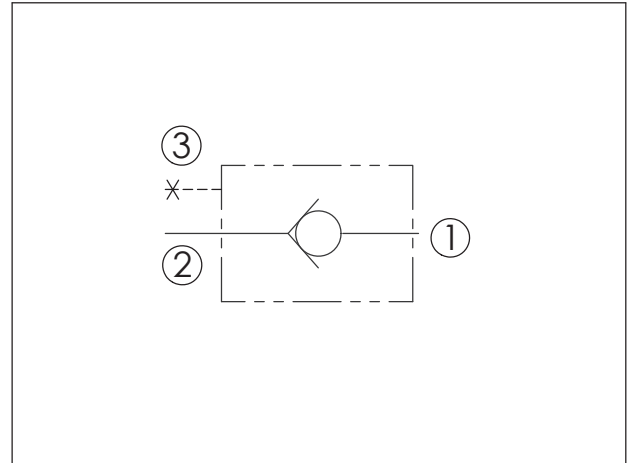
Locating Shoulder

M48x2

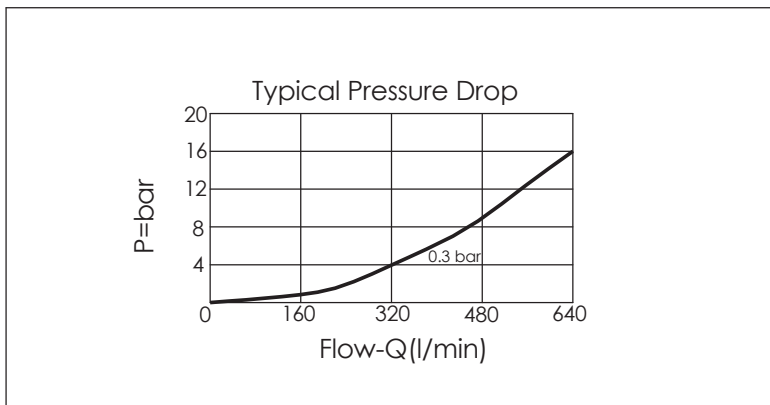
Inlet (2)

Outlet (1)

UNIT:mm



| TECHNICAL DATA       |         |       |
|----------------------|---------|-------|
| Max. pressure:       | 350     | bar   |
| Rated flow:          | 480     | l/min |
| Cavity-Tooling:      | 19A-3   |       |
| Installation torque: | 465-500 | Nm    |
| Weight:              | 1.08    | kg    |



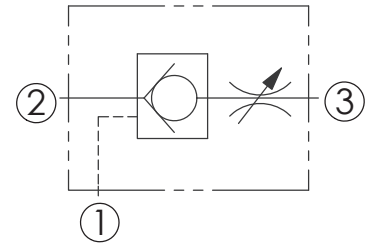
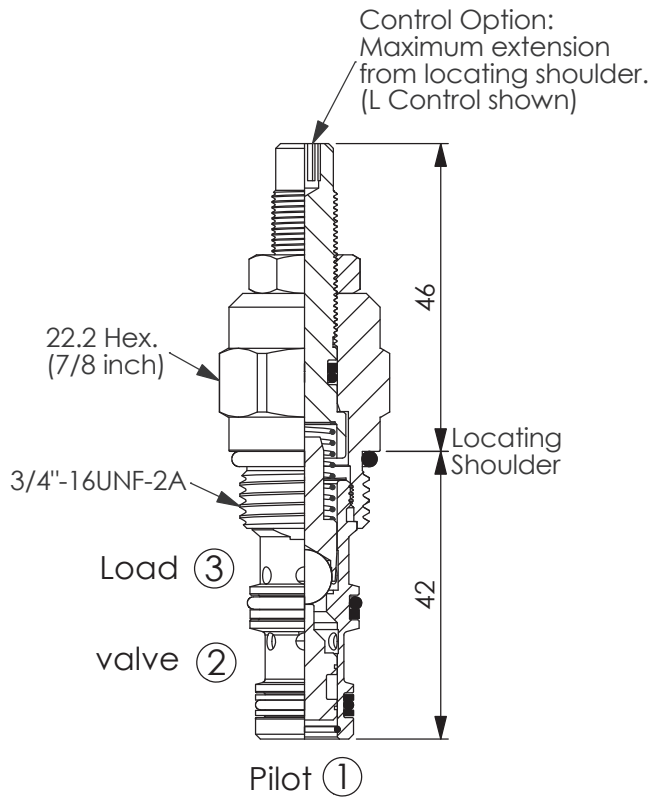
| X  | OPERATION          |  |
|----|--------------------|--|
| 21 | 2 to 1 (Free Flow) |  |

| Y  | SPRINGS           |  |
|----|-------------------|--|
|    | Cracking pressure |  |
| 03 | 0.3 bar           |  |
| 10 | 1.0 bar           |  |
| 20 | 2.0 bar           |  |
| 35 | 3.5 bar           |  |
| 50 | 5.0 bar           |  |
| 70 | 7.0 bar           |  |

| Z | OPTION         |  |
|---|----------------|--|
| N | Non-adjustable |  |

## CHECK VALVE (Pilot-To-Open with Adjustment)

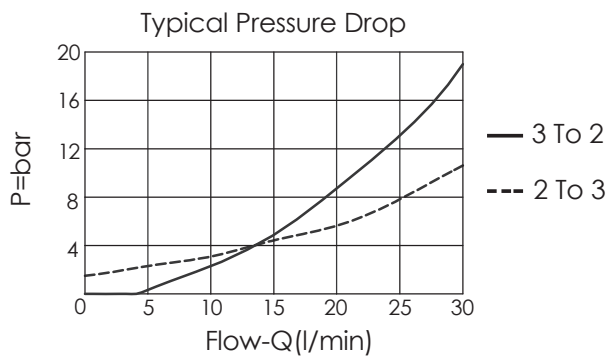
Ordering Code: **CO-08W-X-Y-Z**



### TECHNICAL DATA

|                      |       |       |
|----------------------|-------|-------|
| Max. pressure:       | 240   | bar   |
| Rated flow:          | 30    | l/min |
| Cavity-Tooling:      | 08W-3 |       |
| Installation torque: | 25-35 | Nm    |
| Weight:              | 0.12  | kg    |

UNIT:mm



### X OPERATION

|           |   |  |
|-----------|---|--|
| <b>30</b> | 2 to 3 Free Flow<br>(Pilot to Open)<br>Pilot Ratio 2:1<br>(Check Spring Bias)<br>(Min. 1.7 bar)       |  |
| <b>3A</b> | 2 to 3 (Free Flow)<br>Sealed Pilot Piston<br>Pilot Ratio 2:1<br>(Check Spring Bias)<br>(Min. 4.1 bar) |  |

### Y

### SPRINGS

Cracking pressure

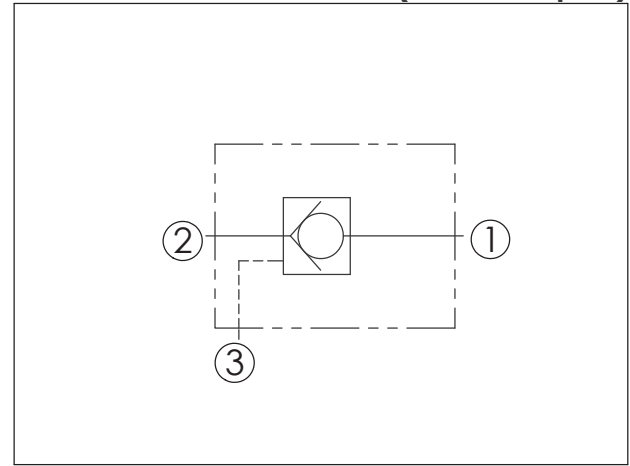
|            |          |  |
|------------|----------|--|
| <b>17</b>  | 1.7 bar  |  |
| <b>41</b>  | 4.1 bar  |  |
| <b>69</b>  | 6.9 bar  |  |
| <b>103</b> | 10.3 bar |  |
| <b>138</b> | 13.8 bar |  |
| <b>176</b> | 17.6 bar |  |

### Z OPTION

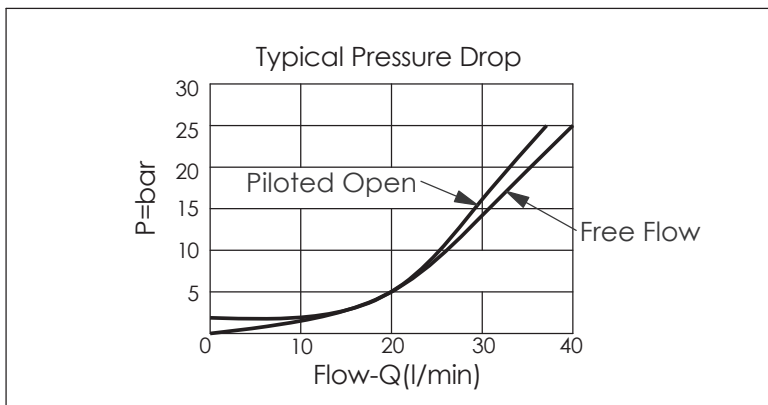
|          |                              |  |
|----------|------------------------------|--|
| <b>L</b> | Leakproof hex. socket screw. |  |
|----------|------------------------------|--|

Ordering Code: **CO-163A-X-Y-Z**

UNIT:mm



| TECHNICAL DATA       |        |       |
|----------------------|--------|-------|
| Max. pressure:       | 350    | bar   |
| Rated flow:          | 30     | l/min |
| Cavity-Tooling:      | 163A-3 |       |
| Installation torque: | 27-33  | Nm    |
| Weight:              | 0.09   | kg    |



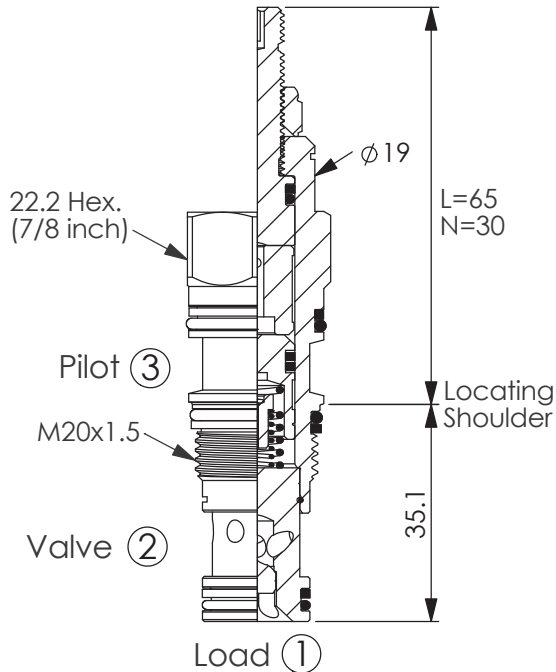
| X  | OPERATION          |  |
|----|--------------------|--|
| 30 | 2 to 1 (Free Flow) | Pilot Ratio 3:1                        |
| 3C | 2 to 1 (Free Flow) | Sealed Pilot Piston<br>Pilot Ratio 3:1 |

| Y  | SPRINGS           |  |
|----|-------------------|--|
|    | Cracking pressure |  |
| 20 | 2.0 bar           |  |
| 35 | 3.5 bar           |  |
| 50 | 5.0 bar           |  |

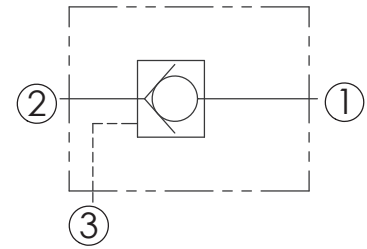
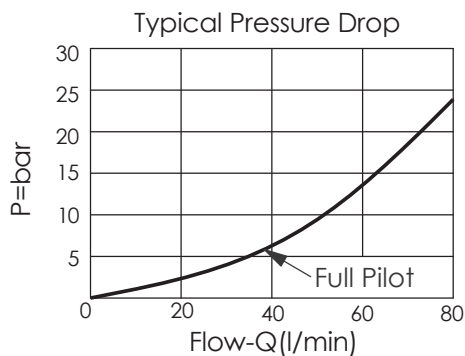
| Z  | OPTION   |  |
|----|--|--|
| N  | Non-adjustable   |  |
| NP | Non-adjustable<br>With stainless steel<br>external metal components<br>(Buna-N Seal) |  |



Ordering Code: **CO-11A-X-Y-Z**



UNIT:mm



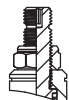
### TECHNICAL DATA

|                      |               |       |
|----------------------|---------------|-------|
| Max. pressure:       | 350           | bar   |
| Rated flow:          | 60            | l/min |
| Cavity-Tooling:      | 11A-3         |       |
| Installation torque: | 40-50         | Nm    |
| Weight:              | 0.13 (Z:N,NP) | kg    |
|                      | 0.16 (Z:L)    | kg    |

### X OPERATION

|           |  |
|-----------|--|
| <b>30</b> | 2 to 1 (Free Flow)<br>Pilot Ratio 3:1                          |
| <b>3C</b> | 2 to 1 (Free Flow)<br>Sealed Pilot Piston<br>Pilot Ratio 3:1   |
| <b>3D</b> | 2 to 1 (Free Flow)<br>Sealed Pilot Piston<br>Pilot Ratio 4.2:1 |

### Z OPTION

|           |   |
|-----------|---|
| <b>N</b>  | Non-adjustable  |
| <b>NP</b> | Non-adjustable<br>With stainless steel<br>external metal components<br>(Buna-N Seal)                                  |
| <b>L</b>  | Leakproof hex.<br>socket screw.  |

### Y SPRINGS

Cracking pressure

|           |         |
|-----------|---------|
| <b>01</b> | 0.1 bar |
| <b>03</b> | 0.3 bar |
| <b>10</b> | 1.0 bar |
| <b>20</b> | 2.0 bar |
| <b>35</b> | 3.5 bar |
| <b>50</b> | 5.0 bar |
| <b>70</b> | 7.0 bar |

Ordering Code: **CO-2A-X-Y-Z**

28.5 Hex.  
(1 1/8 inch)

Pilot ③

1.00-14UNS-2A

Valve ②

Load ①

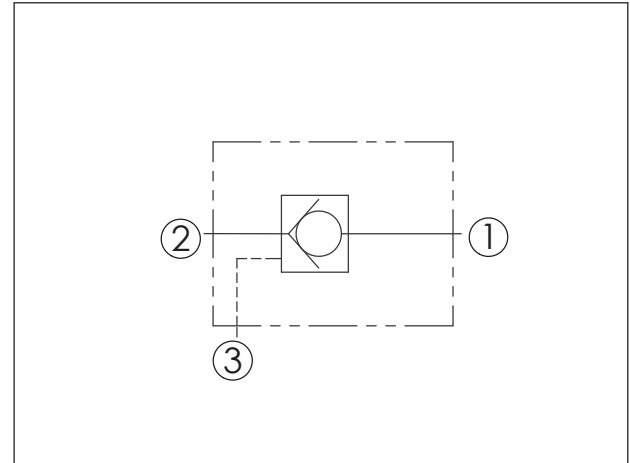
Locating Shoulder

35.1

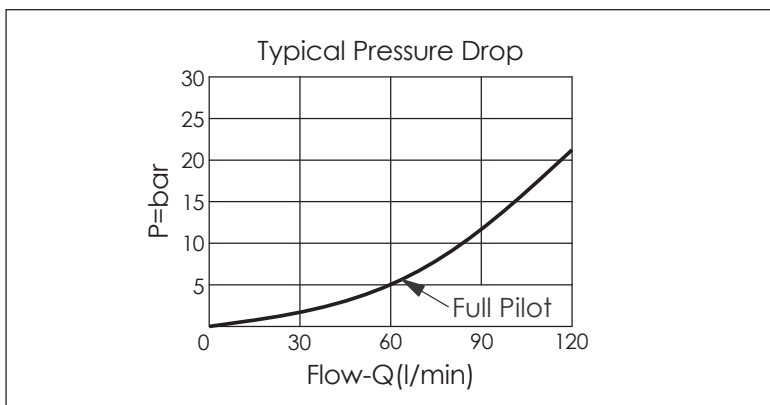
Ø25

L=71  
N=35

UNIT:mm



| TECHNICAL DATA       |               |       |
|----------------------|---------------|-------|
| Max. pressure:       | 350           | bar   |
| Rated flow:          | 120           | l/min |
| Cavity-Tooling:      | 2A-3          |       |
| Installation torque: | 60-70         | Nm    |
| Weight:              | 0.24 (Z:N,NP) | kg    |

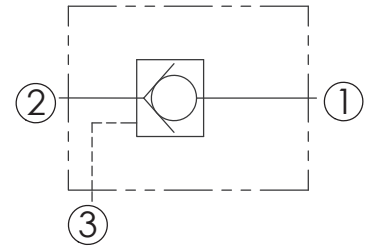
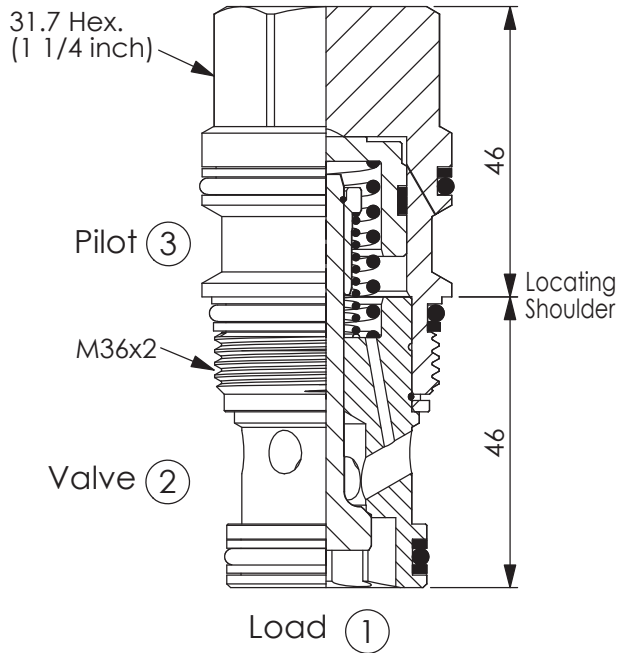


| X  | OPERATION          |  |
|----|--------------------|--|
| 30 | 2 to 1 (Free Flow) | Pilot Ratio 3:1                        |
| 3C | 2 to 1 (Free Flow) | Sealed Pilot Piston<br>Pilot Ratio 3:1 |

| Y   | SPRINGS           |  |
|-----|-------------------|--|
|     | Cracking pressure |  |
| 015 | 0.15 bar          |  |
| 03  | 0.3 bar           |  |
| 10  | 1.0 bar           |  |
| 20  | 2.0 bar           |  |
| 35  | 3.5 bar           |  |
| 50  | 5.0 bar           |  |
| 70  | 7.0 bar           |  |

| Z  | OPTION   |  |
|----|--|--|
| N  | Non-adjustable   |  |
| NP | Non-adjustable<br>With stainless steel<br>external metal components<br>(Buna-N Seal) |  |
| L  | Leakproof hex.<br>socket screw.  |  |

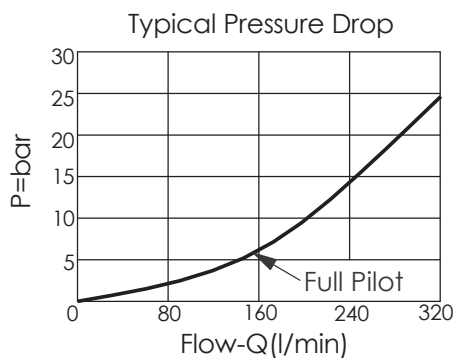
Ordering Code: **CO-17A-X-Y-Z**



### TECHNICAL DATA

|                      |         |       |
|----------------------|---------|-------|
| Max. pressure:       | 350     | bar   |
| Rated flow:          | 240     | l/min |
| Cavity-Tooling:      | 17A-3   |       |
| Installation torque: | 200-215 | Nm    |
| Weight:              | 0.52    | kg    |

UNIT:mm



### X OPERATION

|           |  |
|-----------|--|
| <b>30</b> | 2 to 1 (Free Flow)<br>Pilot Ratio 3:1                        |
| <b>3C</b> | 2 to 1 (Free Flow)<br>Sealed Pilot Piston<br>Pilot Ratio 3:1 |

### Y SPRINGS

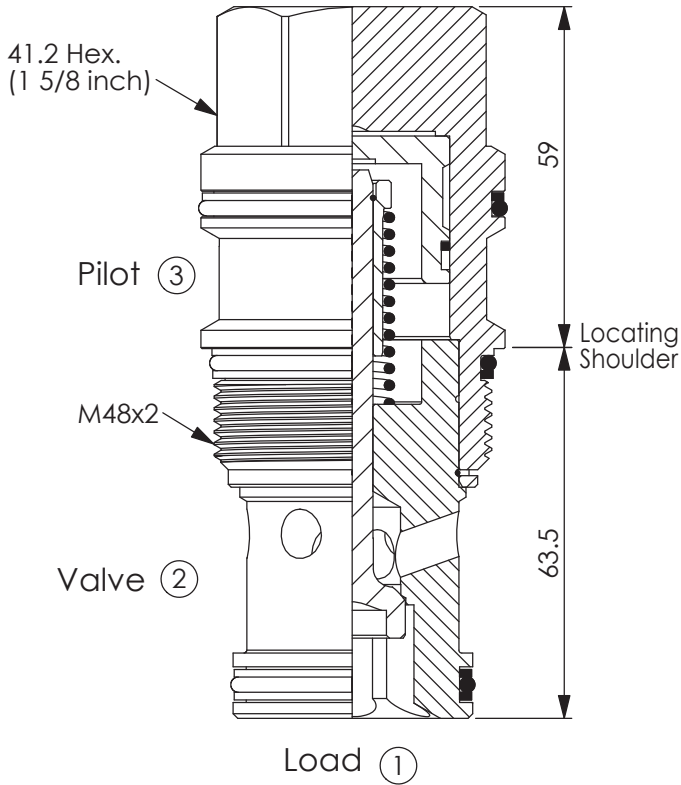
Cracking pressure

|            |          |
|------------|----------|
| <b>015</b> | 0.15 bar |
| <b>03</b>  | 0.3 bar  |
| <b>10</b>  | 1.0 bar  |
| <b>20</b>  | 2.0 bar  |
| <b>35</b>  | 3.5 bar  |
| <b>50</b>  | 5.0 bar  |
| <b>70</b>  | 7.0 bar  |

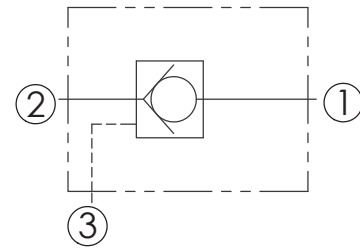
### Z OPTION

**N** Non-adjustable

Ordering Code: **CO-19A-X-Y-Z**

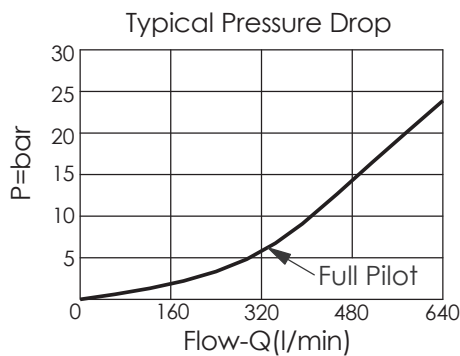


UNIT:mm



### TECHNICAL DATA

|                      |            |       |
|----------------------|------------|-------|
| Max. pressure:       | 350        | bar   |
| Rated flow:          | 480        | l/min |
| Cavity-Tooling:      | 19A-3      |       |
| Installation torque: | 465-500    | Nm    |
| Weight:              | 1.19 (Z:N) | kg    |



**X**

### OPERATION

**30** 2 to 1 (Free Flow)  
Pilot Ratio 3:1

**3C** 2 to 1 (Free Flow)  
Sealed Pilot Piston  
Pilot Ratio 3:1

**Y**

### SPRINGS

Cracking pressure

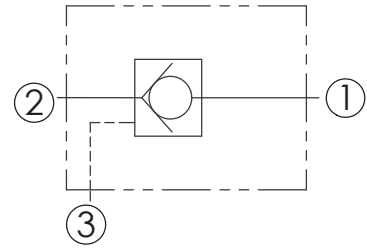
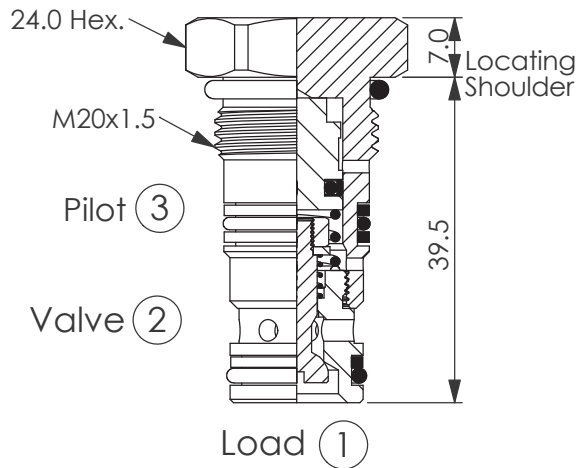
|            |          |
|------------|----------|
| <b>015</b> | 0.15 bar |
| <b>03</b>  | 0.3 bar  |
| <b>10</b>  | 1.0 bar  |
| <b>20</b>  | 2.0 bar  |
| <b>35</b>  | 3.5 bar  |
| <b>50</b>  | 5.0 bar  |
| <b>70</b>  | 7.0 bar  |

**Z**

### OPTION

**N** Non-adjustable

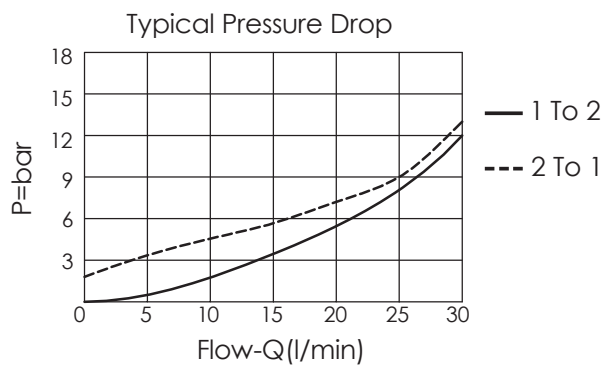
Ordering Code: **CO-20MS-X-Y-Z**



### TECHNICAL DATA

|                      |        |       |
|----------------------|--------|-------|
| Max. pressure:       | 350    | bar   |
| Rated flow:          | 30     | l/min |
| Cavity-Tooling:      | 20MS-3 |       |
| Installation torque: | 40-50  | Nm    |
| Weight:              | 0.81   | kg    |

UNIT:mm



### X OPERATION

**3C** 2 to 1 (Free Flow)  
Sealed Pilot Piston  
Pilot Ratio 3:1

### Y SPRINGS

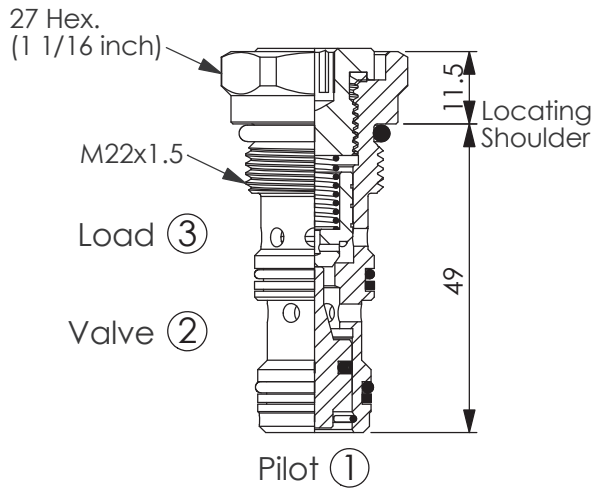
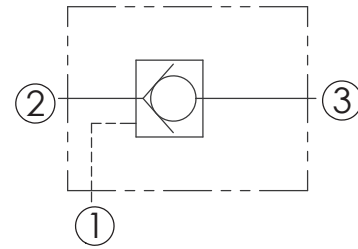
Cracking pressure

**20** 2.0 bar

### Z OPTION

**N** Non-adjustable

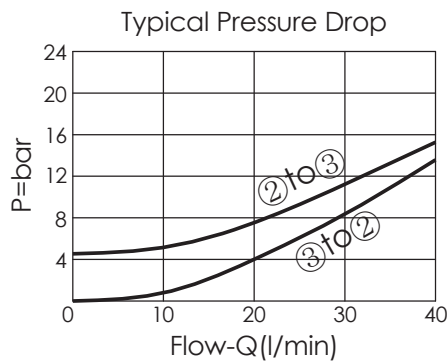
Ordering Code: **CO-22M-X-Y-Z**



### TECHNICAL DATA

|                      |       |       |
|----------------------|-------|-------|
| Max. pressure:       | 315   | bar   |
| Rated flow:          | 30    | l/min |
| Cavity-Tooling:      | 22M-3 |       |
| Installation torque: | 44-50 | Nm    |
| Weight:              | 0.12  | kg    |

UNIT:mm



**X**

### OPERATION

**3C**

2 to 3 (Free Flow)  
Sealed Pilot Piston  
Pilot Ratio 3.4 : 1

**Y**

### SPRINGS

Cracking pressure

**50**

5.0 bar

**100**

10.0 bar

**200**

20.0 bar

**Z**

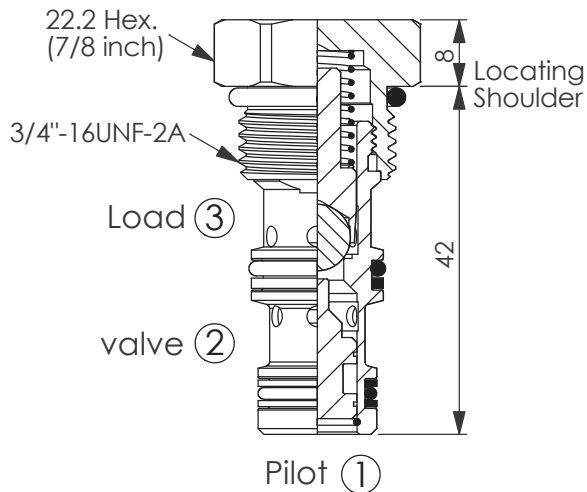
### OPTION

**N**

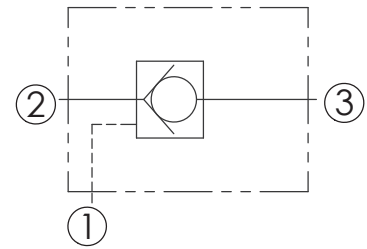
Non-adjustable

Ordering Code: **CO-08W-X-Y-Z**

**Example: CO-08W-30-17-N**  
**Example: CO-08W-3A-69-N**

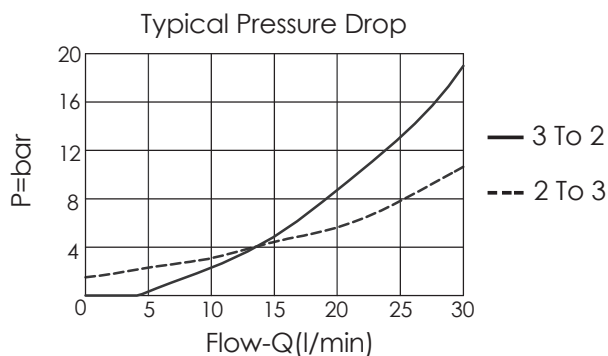


UNIT:mm



### TECHNICAL DATA

|                      |       |       |
|----------------------|-------|-------|
| Max. pressure:       | 240   | bar   |
| Rated flow:          | 30    | l/min |
| Cavity-Tooling:      | 08W-3 |       |
| Installation torque: | 25-35 | Nm    |
| Weight:              | 0.06  | kg    |



### X OPERATION

|           |   |
|-----------|---|
| <b>30</b> | 2 to 3 (Free Flow)<br>Pilot Ratio 2:1<br>(Check Spring Bias)<br>(Min. 1.7 bar)                        |
| <b>3A</b> | 2 to 3 (Free Flow)<br>Pilot Ratio 2:1<br>Sealed Pilot Piston<br>(Check Spring Bias)<br>(Min. 4.1 bar) |

### Y SPRINGS

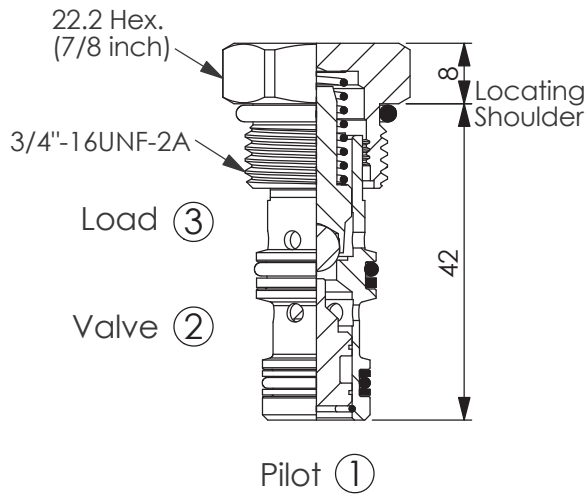
Cracking pressure

|            |          |
|------------|----------|
| <b>17</b>  | 1.7 bar  |
| <b>41</b>  | 4.1 bar  |
| <b>69</b>  | 6.9 bar  |
| <b>82</b>  | 8.2 bar  |
| <b>103</b> | 10.3 bar |
| <b>138</b> | 13.8 bar |
| <b>176</b> | 17.6 bar |

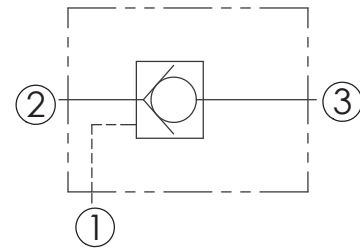
### Z OPTION

|          |                |
|----------|----------------|
| <b>N</b> | Non-adjustable |
|----------|----------------|

Ordering Code: **CO-08W-X-Y-Z**

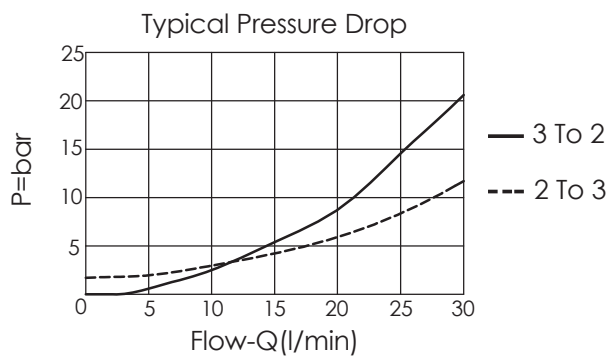


UNIT:mm



### TECHNICAL DATA

|                      |       |       |
|----------------------|-------|-------|
| Max. pressure:       | 240   | bar   |
| Rated flow:          | 30    | l/min |
| Cavity-Tooling:      | 08W-3 |       |
| Installation torque: | 25-35 | Nm    |
| Weight:              | 0.06  | kg    |



**X**

### OPERATION

**33**

2 to 3 (Free Flow)  
Pilot Ratio 3:1

**3C**

2 to 3 (Free Flow)  
Sealed Pilot Piston  
Pilot Ratio 3:1  
(Check Spring Bias)  
(Min. 4.8 bar)

**Y**

### SPRINGS

Cracking pressure

**17**

1.7 bar

**48**

4.8 bar

**62**

6.2 bar

**82**

8.2 bar

**Z**

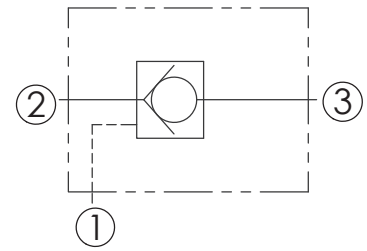
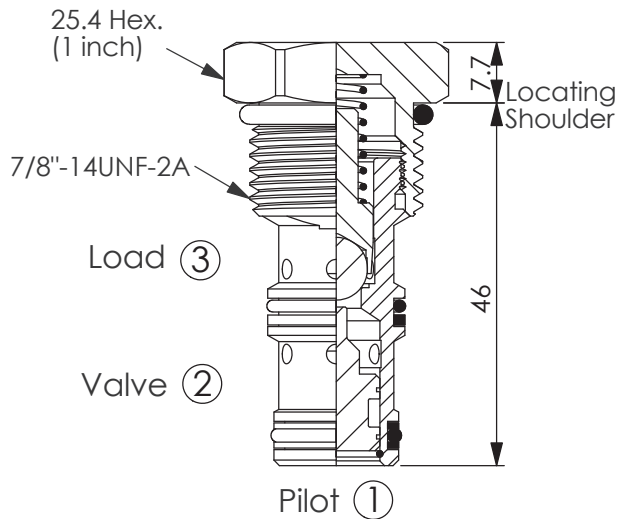
### OPTION

**N**

Non-adjustable



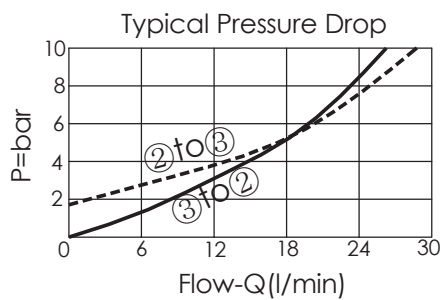
Ordering Code: **CO-10W-X-Y-Z**



### TECHNICAL DATA

|                      |       |       |
|----------------------|-------|-------|
| Max. pressure:       | 240   | bar   |
| Rated flow:          | 30    | l/min |
| Cavity-Tooling:      | 10W-3 |       |
| Installation torque: | 35-45 | Nm    |
| Weight:              | 0.09  | kg    |

UNIT:mm



### X OPERATION

|           |  |
|-----------|--|
| <b>30</b> | 2 to 1 (Free Flow)<br>Pilot Ratio 3:1                        |
| <b>3C</b> | 2 to 1 (Free Flow)<br>Sealed Pilot Piston<br>Pilot Ratio 3:1 |

### Y SPRINGS

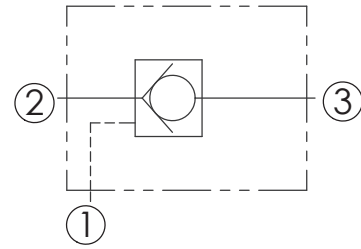
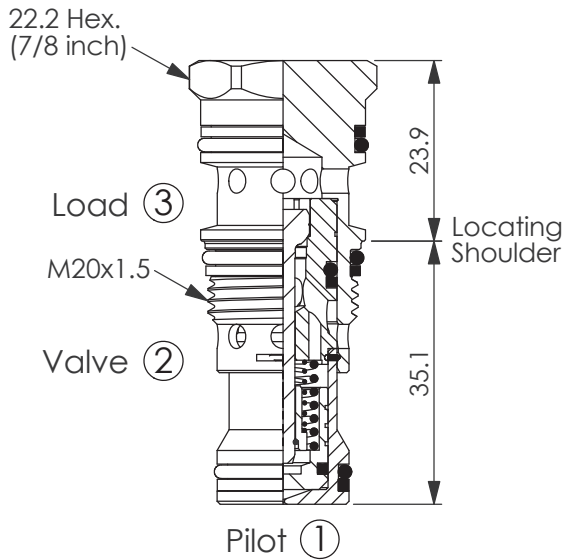
| Y         | Cracking pressure |
|-----------|-------------------|
| <b>20</b> | 2.0 bar           |
| <b>50</b> | 5.0 bar           |
| <b>62</b> | 6.2 bar           |

### Z OPTION

|          |                |
|----------|----------------|
| <b>N</b> | Non-adjustable |
|----------|----------------|

## CHECK VALVE (Pilot-To-Open)

Ordering Code: **CO-11A-X-Y-Z**

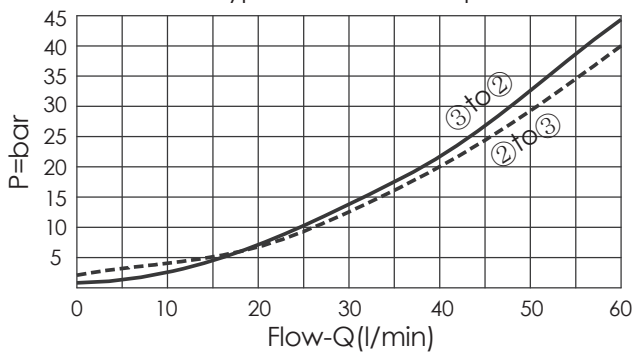


### TECHNICAL DATA

|                      |       |       |
|----------------------|-------|-------|
| Max. pressure:       | 350   | bar   |
| Rated flow:          | 60    | l/min |
| Cavity-Tooling:      | 11A-3 |       |
| Installation torque: | 40-50 | Nm    |
| Weight:              | 0.13  | kg    |

UNIT:mm

Typical Pressure Drop



**X**

### OPERATION

**38**

2 to 3 (Free Flow)  
Sealed Pilot Piston  
Pilot Ratio 3:1

**Y**

### SPRINGS

Cracking pressure

**10**

1.0 bar

**Z**

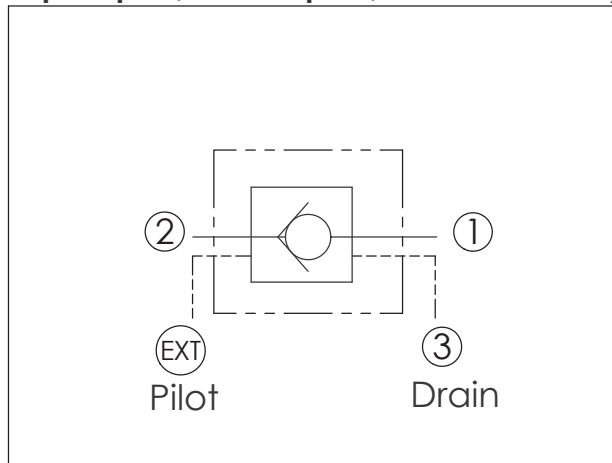
### OPTION

**N**

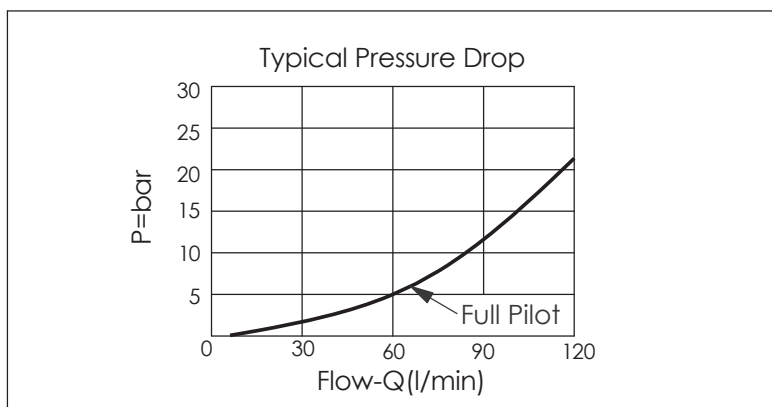
Non-adjustable

Ordering Code: **CO-2A-X-Y-Z**

UNIT:mm



| TECHNICAL DATA       |       |       |
|----------------------|-------|-------|
| Max. pressure:       | 350   | bar   |
| Rated flow:          | 120   | l/min |
| Cavity-Tooling:      | 2A-3  |       |
| Installation torque: | 60-70 | Nm    |
| Weight:              | 0.25  | kg    |



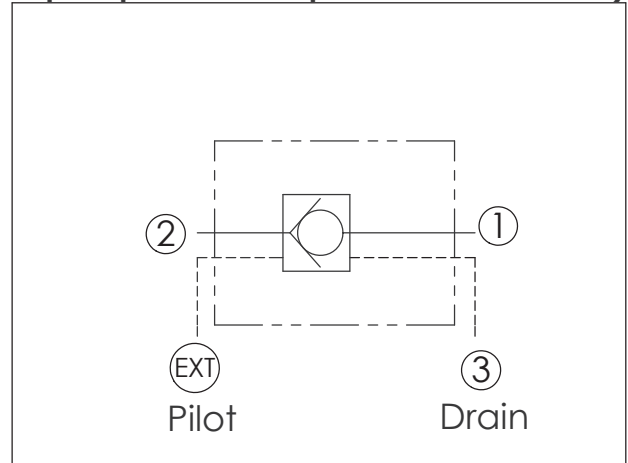
| X  | OPERATION  |  |
|----|--|--|
| 3F | 2 to 1 (Free Flow)<br>Sealed Pilot Piston<br>Pilot Ratio 3:1 |  |

| Y  | SPRINGS           |  |
|----|-------------------|--|
|    | Cracking pressure |  |
| 20 | 2.0 bar           |  |
| 50 | 5.0 bar           |  |

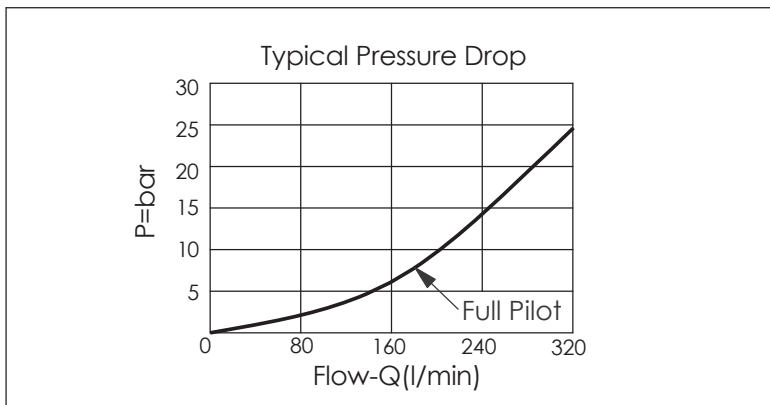
| Z   | OPTION (External Ports) |  |
|-----|-------------------------|--|
| G02 | G 1/4"                  |  |

Ordering Code: **CO-17A-X-Y-Z**

UNIT:mm



| TECHNICAL DATA       |         |       |
|----------------------|---------|-------|
| Max. pressure:       | 350     | bar   |
| Rated flow:          | 240     | l/min |
| Cavity-Tooling:      | 17A-3   |       |
| Installation torque: | 200-215 | Nm    |
| Weight:              | 0.50    | kg    |

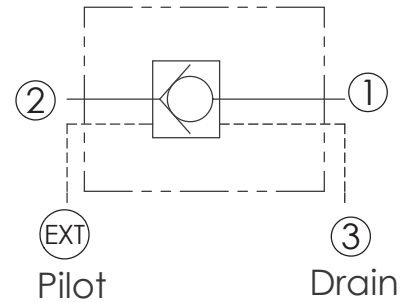
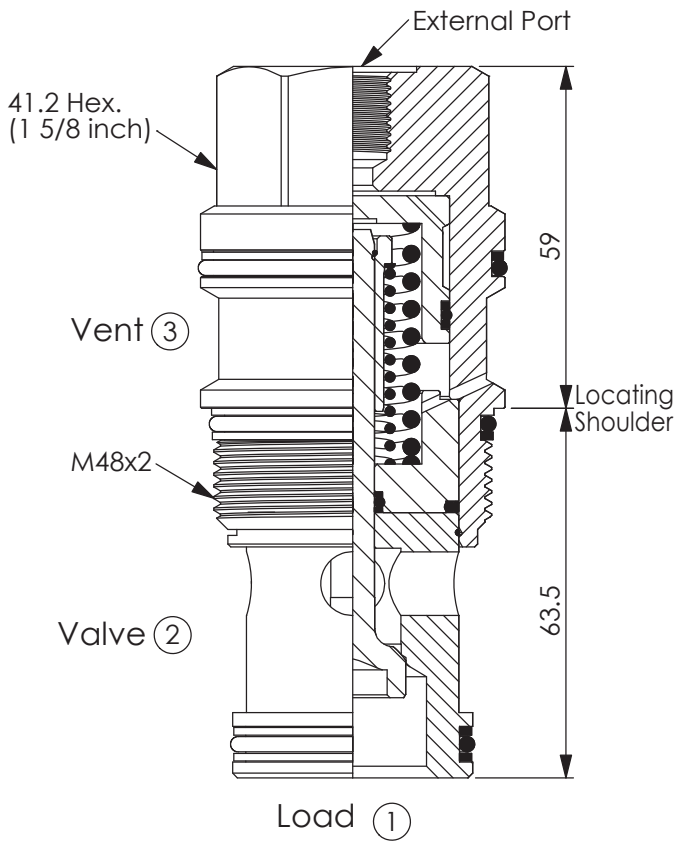


| X  | OPERATION  |  |
|----|--|--|
| 3F | 2 to 1 (Free Flow)<br>Sealed Pilot Piston<br>Pilot Ratio 3:1 |  |

| Y  | SPRINGS           |  |
|----|-------------------|--|
|    | Cracking pressure |  |
| 20 | 2.0 bar           |  |
| 50 | 5.0 bar           |  |

| Z   | OPTION (External Ports) |  |
|-----|-------------------------|--|
| G02 | G 1/4"                  |  |

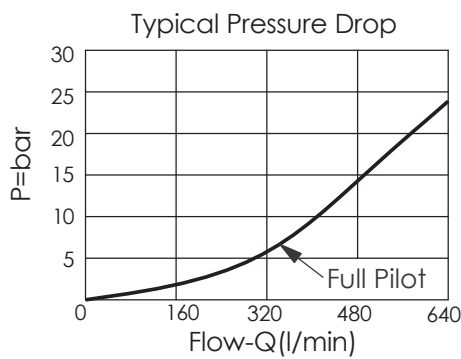
Ordering Code: **CO-19A-X-Y-Z**



### TECHNICAL DATA

|                      |         |       |
|----------------------|---------|-------|
| Max. pressure:       | 350     | bar   |
| Rated flow:          | 480     | l/min |
| Cavity-Tooling:      | 19A-3   |       |
| Installation torque: | 465-500 | Nm    |
| Weight:              | 1.17    | kg    |

UNIT:mm



### X OPERATION

**3F**  
2 to 1 (Free Flow)  
Sealed Pilot Piston  
Pilot Ratio 3:1

### Y SPRINGS

Cracking pressure

**20** 2.0 bar

**50** 5.0 bar

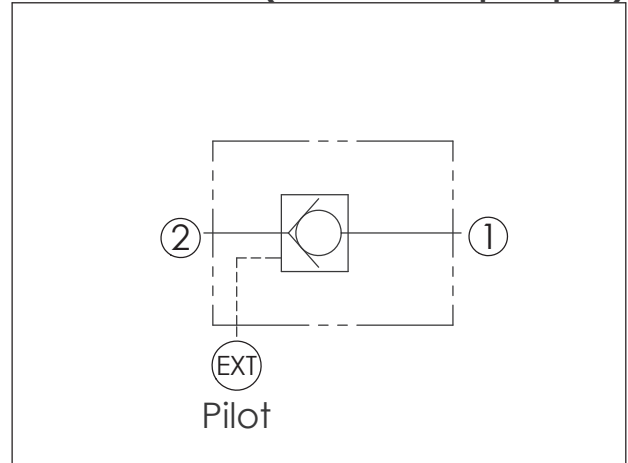
### Z OPTION (External Ports)

**G02** G 1/4"

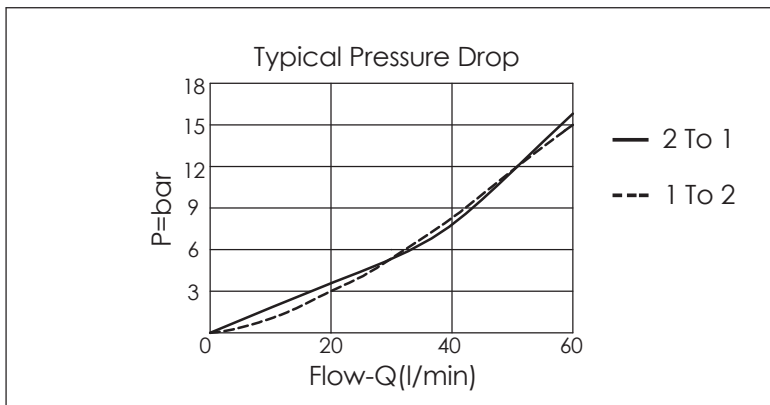
## CHECK VALVE Pilot-To-Open (with external pilot port)

Ordering Code: **CO-13A-X-Y-Z**

UNIT:mm



| TECHNICAL DATA       |       |       |
|----------------------|-------|-------|
| Max. pressure:       | 350   | bar   |
| Rated flow:          | 60    | l/min |
| Cavity-Tooling:      | 13A-2 |       |
| Installation torque: | 40-50 | Nm    |
| Weight:              | 0.12  | kg    |

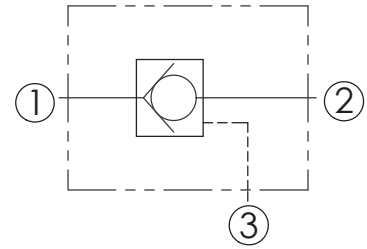
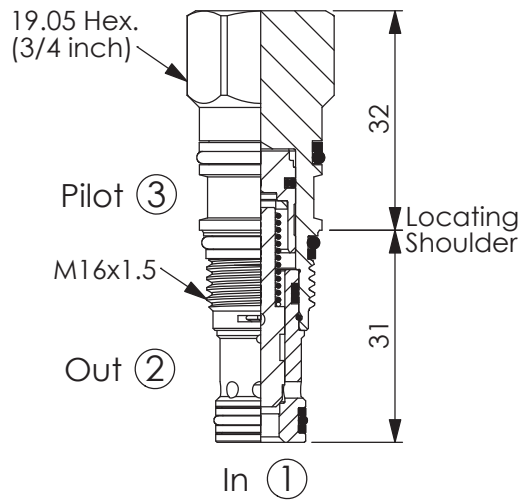


| X  | OPERATION          |                     |
|----|--------------------|---------------------|
| 20 | 2 to 1 (Free Flow) | Sealed Pilot Piston |

| Y  | SPRINGS           |  |
|----|-------------------|--|
|    | Cracking pressure |  |
| 03 | 0.3 bar           |  |
| 20 | 2.0 bar           |  |
| 50 | 5.0 bar           |  |
| 70 | 7.0 bar           |  |

| Z   | OPTION (External Ports)              |  |
|-----|--------------------------------------|--|
| G02 | External G 1/4" Port                 |  |
| S04 | External SAE-4 Port (7/16"-20UNF-2B) |  |

Ordering Code: **CC-163A-X-Y-Z**

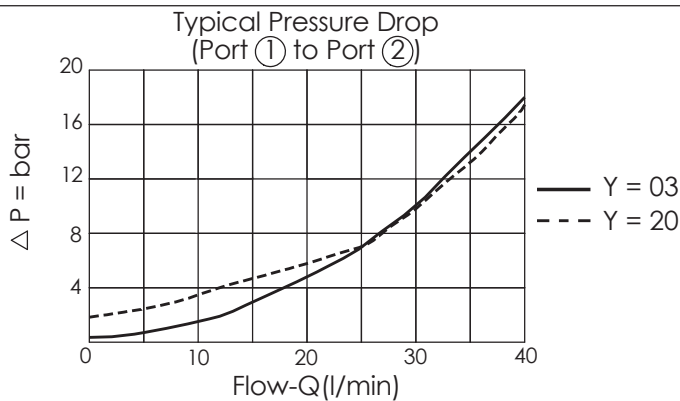


### TECHNICAL DATA

|                      |        |       |
|----------------------|--------|-------|
| Max. pressure:       | 350    | bar   |
| Rated flow:          | 40     | l/min |
| Cavity-Tooling:      | 163A-3 |       |
| Installation torque: | 27-33  | Nm    |
| Weight:              | 0.09   | kg    |

· Maximum Leakage (0.07 cc/min.)(46 cSt, 40°C)

UNIT:mm



### X OPERATION

**30** 1 to 2 (Free Flow)  
Pilot Ratio 3:1

### Y SPRINGS

Cracking pressure

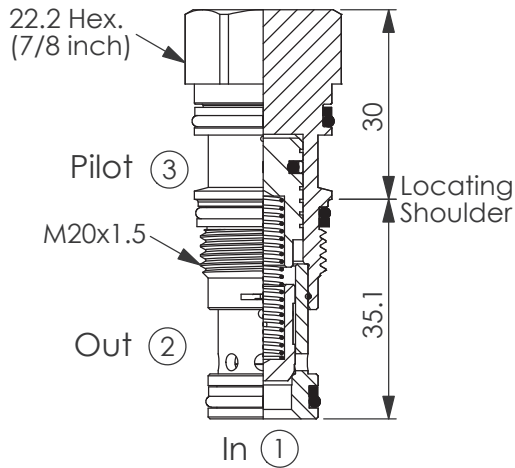
| Y   | Cracking pressure |
|-----|-------------------|
| ※03 | 0.3 bar           |
| 20  | 2.0 bar           |
| 35  | 3.5 bar           |
| 50  | 5.0 bar           |
| 70  | 7.0 bar           |
| 140 | 14.0 bar          |

※ Please consult our technical department.

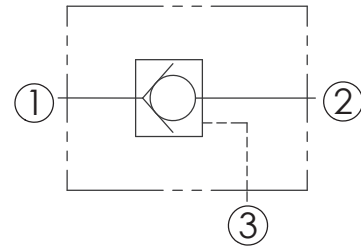
### Z OPTION

**N** Non-adjustable

Ordering Code: **CC-11A-X-Y-Z**

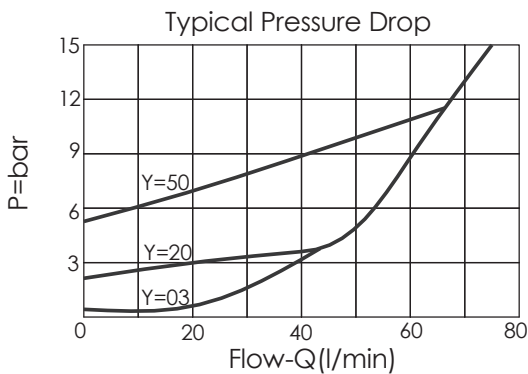


UNIT:mm



### TECHNICAL DATA

|                      |       |       |
|----------------------|-------|-------|
| Max. pressure:       | 350   | bar   |
| Rated flow:          | 80    | l/min |
| Cavity-Tooling:      | 11A-3 |       |
| Installation torque: | 40-50 | Nm    |
| Weight:              | 0.13  | kg    |



**X**

### OPERATION

**30**

1 to 2 (Free Flow)  
Pilot Ratio 1.8:1

**Y**

### SPRINGS

Cracking pressure

**03** 0.3 bar

**10** 1.0 bar

**20** 2.0 bar

**50** 5.0 bar

**70** 7.0 bar

**Z**

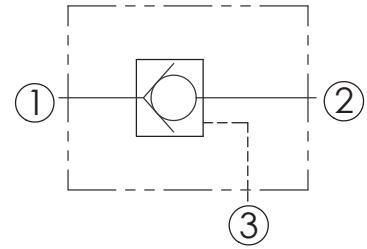
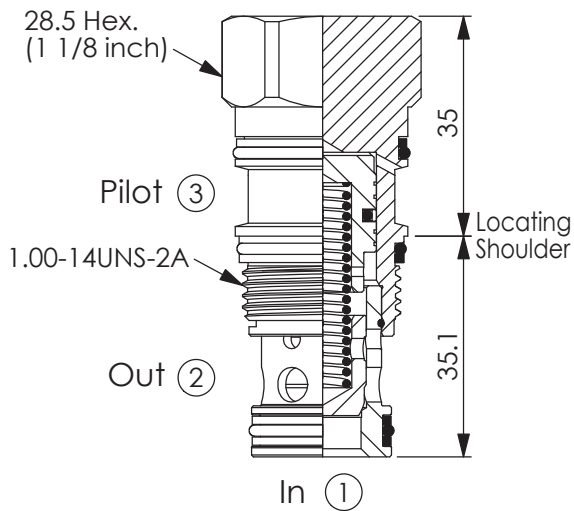
### OPTION

**N**

Non-adjustable



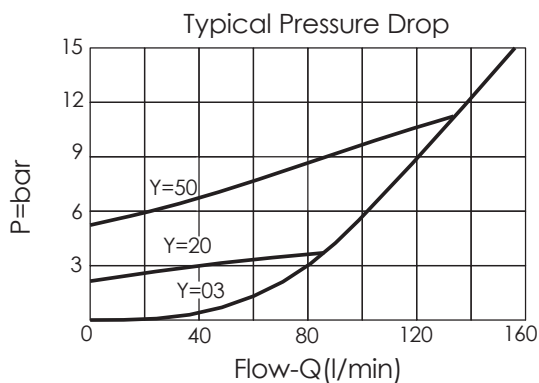
Ordering Code: **CC-2A-X-Y-Z**



### TECHNICAL DATA

|                      |            |       |
|----------------------|------------|-------|
| Max. pressure:       | 350        | bar   |
| Rated flow:          | 160        | l/min |
| Cavity-Tooling:      | 2A-3       |       |
| Installation torque: | 60-70      | Nm    |
| Weight:              | 0.23 (Z:N) | kg    |

UNIT:mm



### X OPERATION

**30** 1 to 2 (Free Flow)  
Pilot Ratio 1.8:1

### Y SPRINGS

Cracking pressure

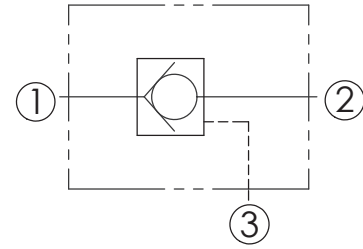
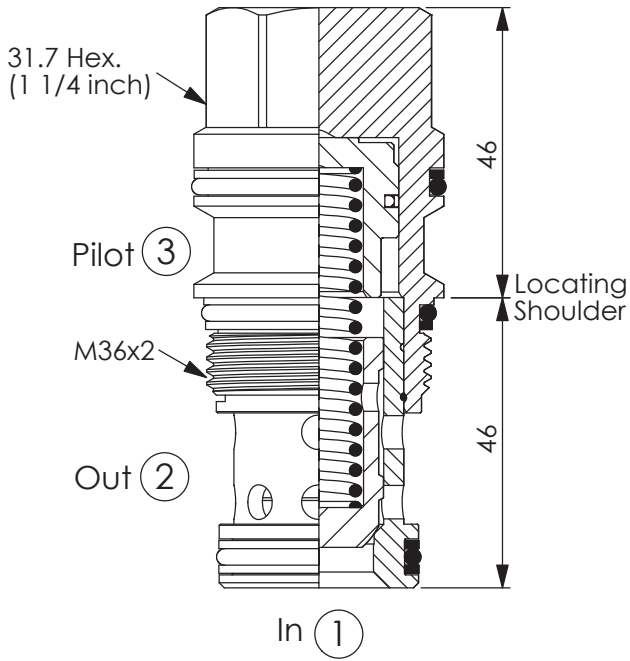
| Y          | Cracking pressure |
|------------|-------------------|
| <b>03</b>  | 0.3 bar           |
| <b>10</b>  | 1.0 bar           |
| <b>20</b>  | 2.0 bar           |
| <b>50</b>  | 5.0 bar           |
| <b>70</b>  | 7.0 bar           |
| <b>100</b> | 10.0 bar          |

### Z OPTION

**N** Non-adjustable

## CHECK VALVE (Pilot-To-Close)

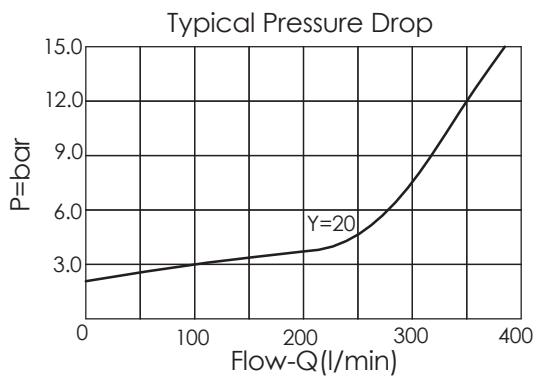
Ordering Code: **CC-17A-X-Y-Z**



### TECHNICAL DATA

|                      |         |       |
|----------------------|---------|-------|
| Max. pressure:       | 350     | bar   |
| Rated flow:          | 320     | l/min |
| Cavity-Tooling:      | 17A-3   |       |
| Installation torque: | 200-215 | Nm    |
| Weight:              | 0.50    | kg    |

UNIT:mm



### X OPERATION

**30** 1 to 2 (Free Flow)  
Pilot Ratio 1.8:1

### Y SPRINGS

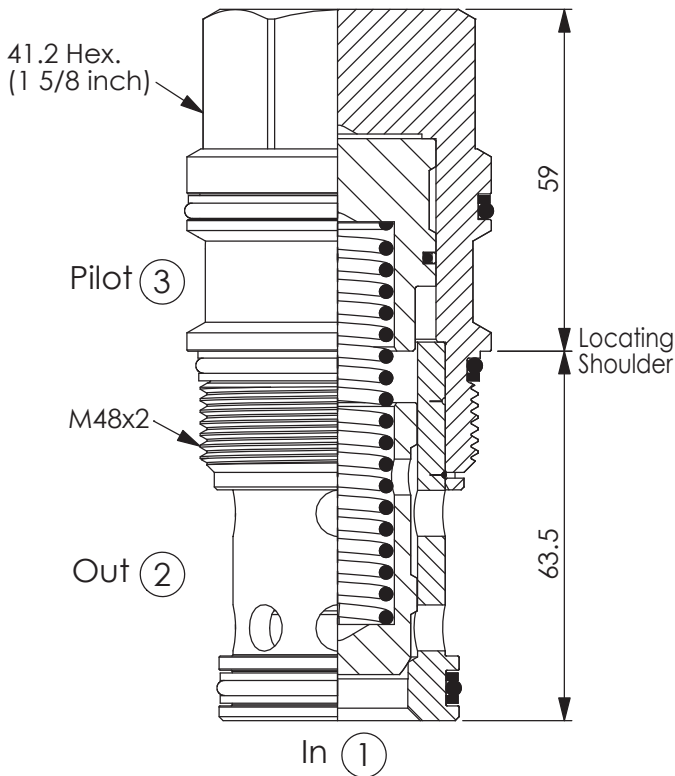
Cracking pressure

|           |         |
|-----------|---------|
| <b>03</b> | 0.3 bar |
| <b>20</b> | 2.0 bar |
| <b>50</b> | 5.0 bar |
| <b>70</b> | 7.0 bar |

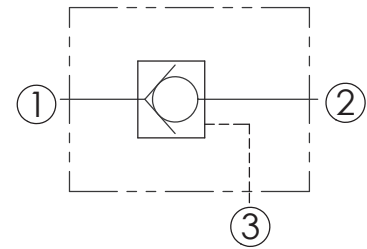
### Z OPTION

**N** Non-adjustable

Ordering Code: **CC-19A-X-Y-Z**

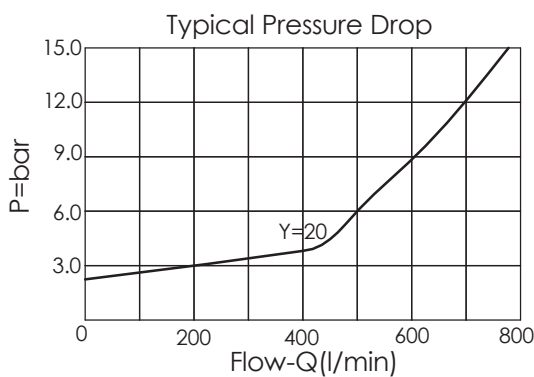


UNIT:mm



### TECHNICAL DATA

|                      |         |       |
|----------------------|---------|-------|
| Max. pressure:       | 350     | bar   |
| Rated flow:          | 640     | l/min |
| Cavity-Tooling:      | 19A-3   |       |
| Installation torque: | 465-500 | Nm    |
| Weight:              | 1.15    | kg    |



### X OPERATION

**30** 1 to 2 (Free Flow)  
Pilot Ratio 1.8:1

### Y SPRINGS

Cracking pressure

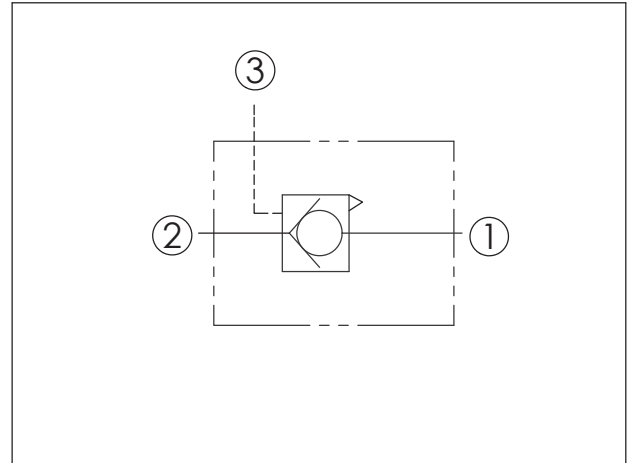
|           |         |
|-----------|---------|
| <b>03</b> | 0.3 bar |
| <b>20</b> | 2.0 bar |
| <b>50</b> | 5.0 bar |
| <b>70</b> | 7.0 bar |

### Z OPTION

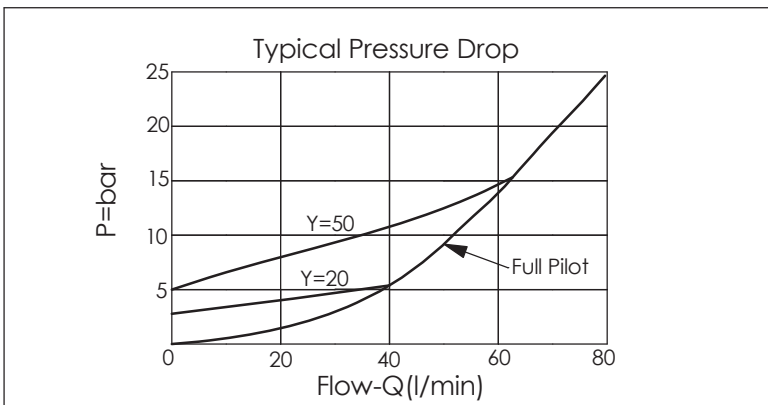
**N** Non-adjustable

Ordering Code: **CK-11A-X-Y-Z**

UNIT:mm



| TECHNICAL DATA  |              |       |
|---|--------------|-------|
| Max. pressure:  | 350          | bar   |
| Rated flow:   | 60           | l/min |
| Cavity-Tooling:   | 11A-3        |       |
| Installation torque:  | 40-50        | Nm    |
| Weight:   | 0.15 (Z:N)   | kg    |
|   | 0.14 (Z:S04) |       |
| <ul style="list-style-type: none"> <li>• Maximum Leakage (0.07 cc/min.)(46 cSt, 40°C)</li> <li>• Approximately 1 drop (0.07 cc) of fluid will pass from the pilot area to the vented spring chamber every 4000 cycles.</li> </ul> |              |       |



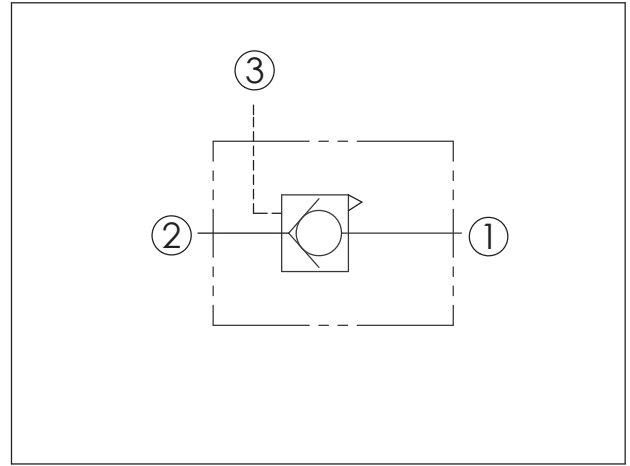
| X  | OPERATION         |  |
|----|-------------------|--|
| 3C | Pilot Ratio 3 : 1 |  |

| Y  | SPRINGS           |  |
|----|-------------------|--|
|    | Cracking pressure |  |
| 03 | 0.3 bar           |  |
| 10 | 1.0 bar           |  |
| 20 | 2.0 bar           |  |
| 35 | 3.5 bar           |  |
| 50 | 5.0 bar           |  |
| 70 | 7.0 bar           |  |

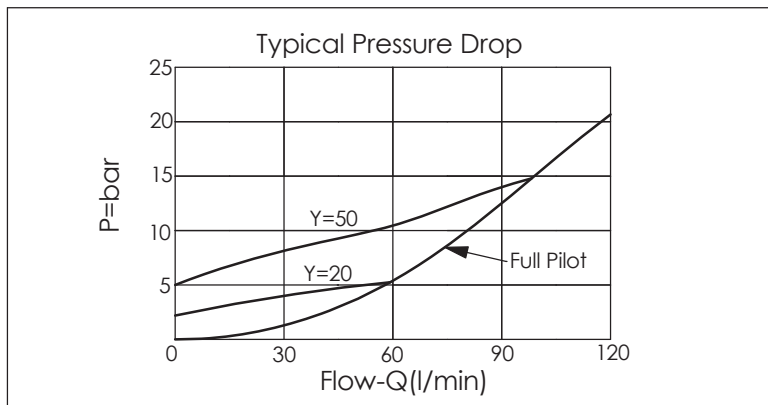
| Z   | OPTION                               |  |
|-----|--------------------------------------|--|
| N   | Non-adjustable                       |  |
| S04 | External SAE-4 Port (7/16"-20UNF-2B) |  |

Ordering Code: **CK-2A-X-Y-Z**

UNIT:mm



| TECHNICAL DATA   |                            |       |
|--|----------------------------|-------|
| Max. pressure:   | 350                        | bar   |
| Rated flow:  | 120                        | l/min |
| Cavity-Tooling:  | 2A-3                       |       |
| Installation torque:   | 60-70                      | Nm    |
| Weight:  | 0.29 (Z:N)<br>0.28 (Z:S04) | kg    |
| <ul style="list-style-type: none"> <li>Maximum Leakage (0.07 cc/min.) (46 cSt, 40°C)</li> <li>Approximately 1 drop (0.07 cc) of fluid will pass from the pilot area to the vented spring chamber every 4000 cycles.</li> </ul> |                            |       |



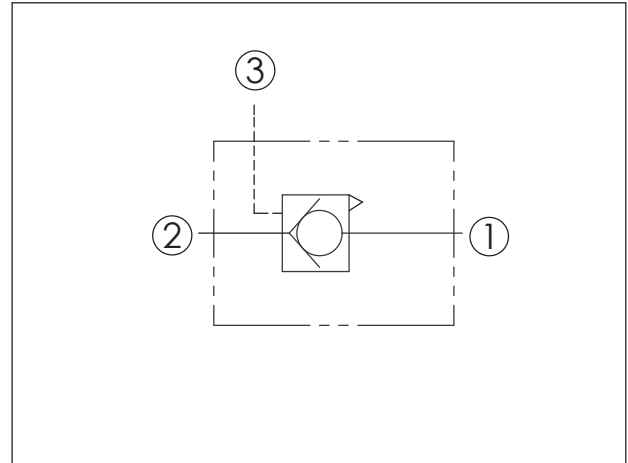
| X  | OPERATION         |  |
|----|-------------------|--|
| 3C | Pilot Ratio 3 : 1 |  |

| Y  | SPRINGS           |  |
|----|-------------------|--|
|    | Cracking pressure |  |
| 03 | 0.3 bar           |  |
| 10 | 1.0 bar           |  |
| 20 | 2.0 bar           |  |
| 35 | 3.5 bar           |  |
| 50 | 5.0 bar           |  |
| 70 | 7.0 bar           |  |

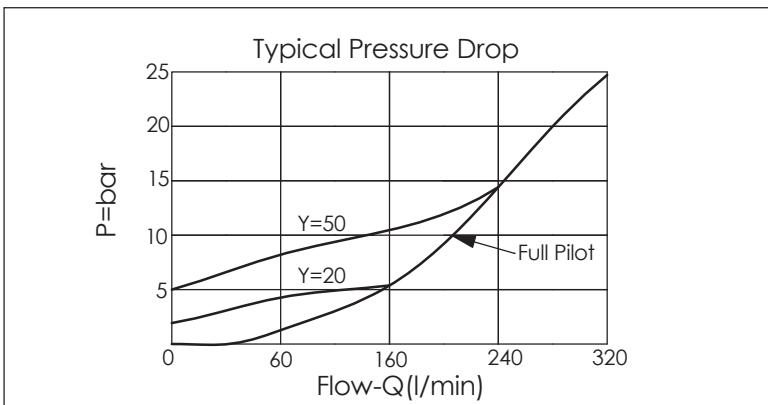
| Z   | OPTION                               |  |
|-----|--------------------------------------|--|
| N   | Non-adjustable                       |  |
| S04 | External SAE-4 Port (7/16"-20UNF-2B) |  |

Ordering Code: **CK-17A-X-Y-Z**

UNIT:mm



| TECHNICAL DATA  |              |       |
|---|--------------|-------|
| Max. pressure:  | 350          | bar   |
| Rated flow:   | 240          | l/min |
| Cavity-Tooling:   | 17A-3        |       |
| Installation torque:  | 200-215      | Nm    |
| Weight:   | 0.60 (Z:N)   | kg    |
|   | 0.59 (Z:S04) |       |
| <ul style="list-style-type: none"> <li>• Maximum Leakage (0.07 cc/min.)(46 cSt, 40°C)</li> <li>• Approximately 1 drop (0.07 cc) of fluid will pass from the pilot area to the vented spring chamber every 4000 cycles.</li> </ul> |              |       |

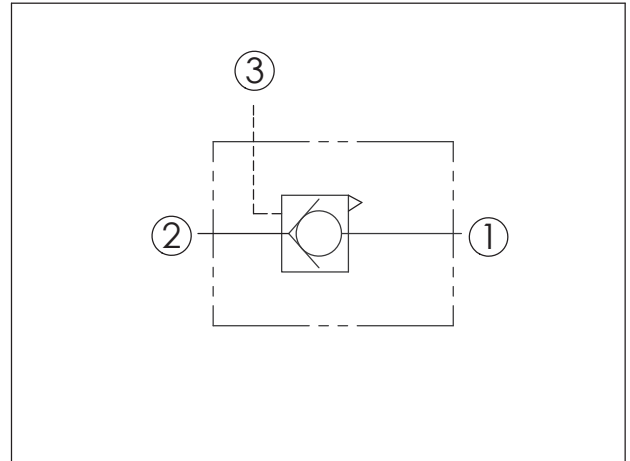
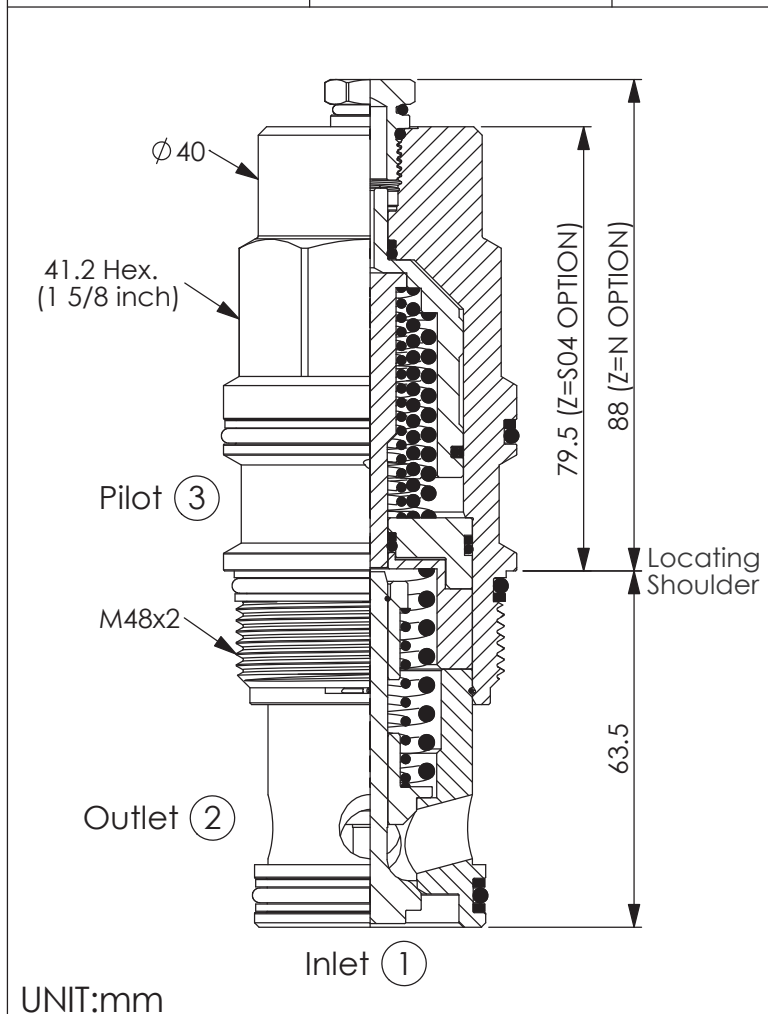


| X  | OPERATION         |  |
|----|-------------------|--|
| 3C | Pilot Ratio 3 : 1 |  |

| Y  | SPRINGS           |  |
|----|-------------------|--|
|    | Cracking pressure |  |
| 03 | 0.3 bar           |  |
| 10 | 1.0 bar           |  |
| 20 | 2.0 bar           |  |
| 35 | 3.5 bar           |  |
| 50 | 5.0 bar           |  |
| 70 | 7.0 bar           |  |

| Z   | OPTION                               |  |
|-----|--------------------------------------|--|
| N   | Non-adjustable                       |  |
| S04 | External SAE-4 Port (7/16"-20UNF-2B) |  |

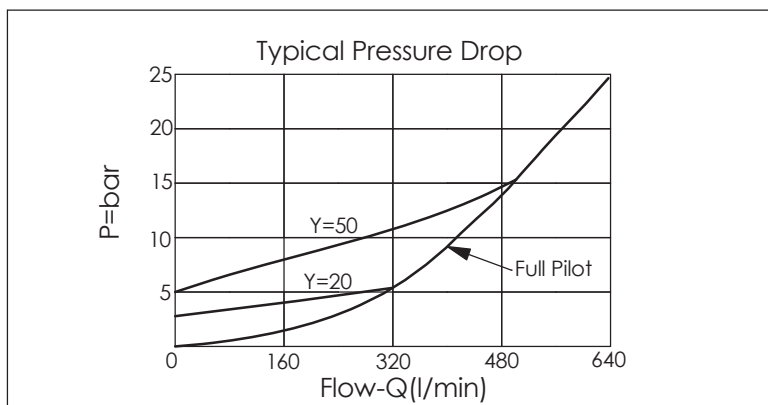
Ordering Code: **CK-19A-X-Y-Z**



### TECHNICAL DATA

|                      |              |       |
|----------------------|--------------|-------|
| Max. pressure:       | 350          | bar   |
| Rated flow:          | 480          | l/min |
| Cavity-Tooling:      | 19A-3        |       |
| Installation torque: | 475-500      | Nm    |
| Weight:              | 1.39 (Z:N)   | kg    |
|                      | 1.38 (Z:S04) |       |

- Maximum Leakage (0.07 cc/min.) (46 cSt, 40°C)
- Approximately 1 drop (0.07 cc) of fluid will pass from the pilot area to the vented spring chamber every 4000 cycles.



| X  | OPERATION         |  |
|----|-------------------|--|
| 3C | Pilot Ratio 3 : 1 |  |

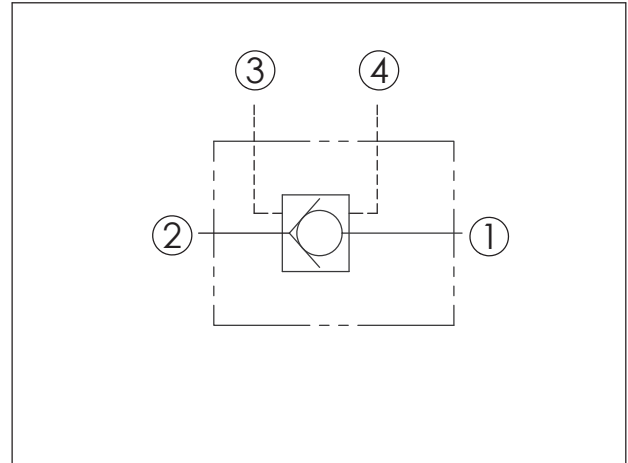
| Y  | SPRINGS           |  |
|----|-------------------|--|
|    | Cracking pressure |  |
| 03 | 0.3 bar           |  |
| 10 | 1.0 bar           |  |
| 20 | 2.0 bar           |  |
| 35 | 3.5 bar           |  |
| 50 | 5.0 bar           |  |
| 70 | 7.0 bar           |  |

| Z   | OPTION                               |  |
|-----|--------------------------------------|--|
| N   | Non-adjustable                       |  |
| S04 | External SAE-4 Port (7/16"-20UNF-2B) |  |

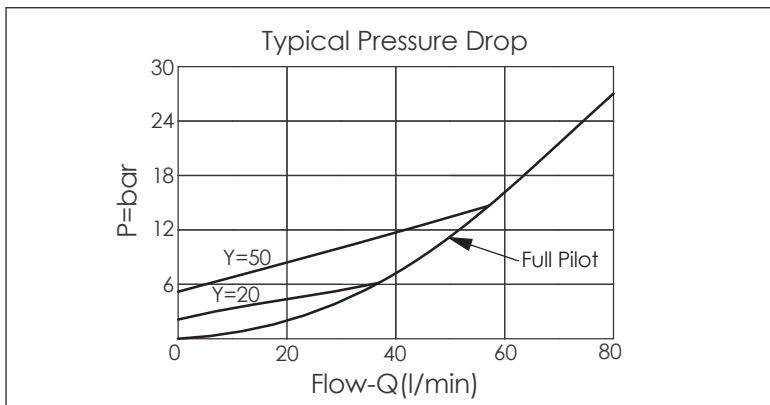
## CHECK VALVES (Vented Pilot-to-Open, Check Valve)

Ordering Code: **CK-21A-X-Y-Z**

UNIT:mm



| TECHNICAL DATA  |            |       |
|---|------------|-------|
| Max. pressure:  | 350        | bar   |
| Rated flow:   | 60         | l/min |
| Cavity-Tooling:   | 21A-4      |       |
| Installation torque:  | 40-50      | Nm    |
| Weight:   | 0.17 (Z:N) | kg    |
|   | 0.18 (Z:L) |       |
| <ul style="list-style-type: none"> <li>• Maximum Leakage (0.07 cc/min.)(46 cSt, 40°C)</li> <li>• Approximately 1 drop (0.07 cc) of fluid will pass from the pilot area to the vented spring chamber every 4000 cycles.</li> </ul> |            |       |



| X  | OPERATION       |  |
|----|-----------------|--|
| 4C | Pilot Ratio 3:1 |  |

| Y  | SPRINGS           |  |
|----|-------------------|--|
|    | Cracking pressure |  |
| 03 | 0.3 bar           |  |
| 10 | 1.0 bar           |  |
| 20 | 2.0 bar           |  |
| 35 | 3.5 bar           |  |
| 50 | 5.0 bar           |  |
| 70 | 7.0 bar           |  |

| Z | OPTION                       |  |
|---|------------------------------|--|
| N | Non-adjustable               |  |
| L | Leakproof hex. socket screw. |  |



## CHECK VALVES (Vented Pilot-to-Open, Check Valve)

Ordering Code: **CK-22A-X-Y-Z**

Control Option:  
Maximum extension  
from locating shoulder.  
(L Control shown)

28.5 Hex.  
(1 1/8 inch)

Vent ④

Pilot ③

1.00-14UNS-2A

Valve ②

Load ①

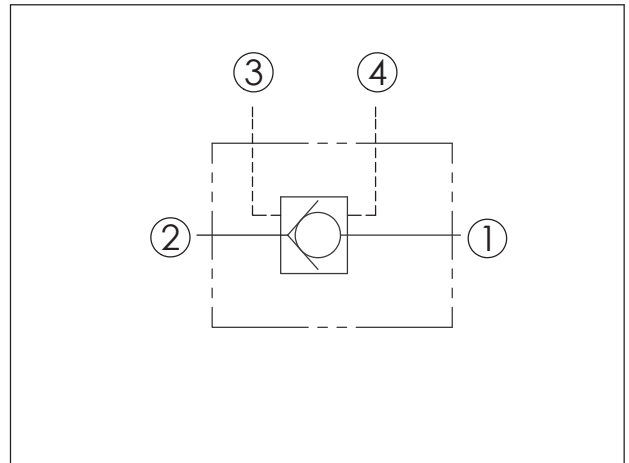
N=59

L=69.2

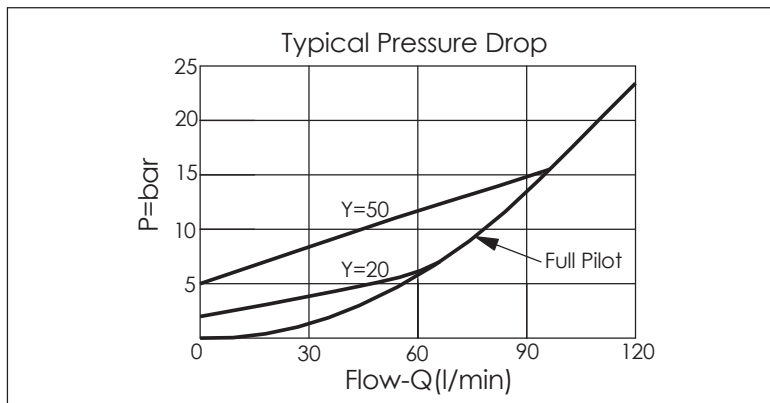
Locating Shoulder

35.1

UNIT:mm



| TECHNICAL DATA  |              |       |
|---|--------------|-------|
| Max. pressure:  | 350          | bar   |
| Rated flow:   | 120          | l/min |
| Cavity-Tooling:   | 22A-4        |       |
| Installation torque:  | 60-70        | Nm    |
| Weight:   | 0.30 (Z:N,L) | kg    |
| Maximum Leakage (0.07 cc/min.) (46 cSt, 40°C)<br>Approximately 0.07 cc of fluid will pass from the pilot area to the vented spring chamber every 4000 cycles. |              |       |



| X  | OPERATION       |  |
|----|-----------------|--|
| 4C | Pilot Ratio 3:1 |  |

| Y  | SPRINGS           |  |
|----|-------------------|--|
|    | Cracking pressure |  |
| 03 | 0.3 bar           |  |
| 10 | 1.0 bar           |  |
| 20 | 2.0 bar           |  |
| 35 | 3.5 bar           |  |
| 50 | 5.0 bar           |  |
| 70 | 7.0 bar           |  |

| Z | OPTION                       |  |
|---|------------------------------|--|
| N | Non-adjustable               |  |
| L | Leakproof hex. socket screw. |  |

## CHECK VALVES (Vented Pilot-to-Open, Check Valve)

Ordering Code: **CK-23A-X-Y-Z**

Control Option:  
Maximum extension  
from locating shoulder.  
(L Control shown)

31.7 Hex.  
(1 1/4 inch)

Vent ④

Pilot ③

M36x2

Valve ②

Load ①

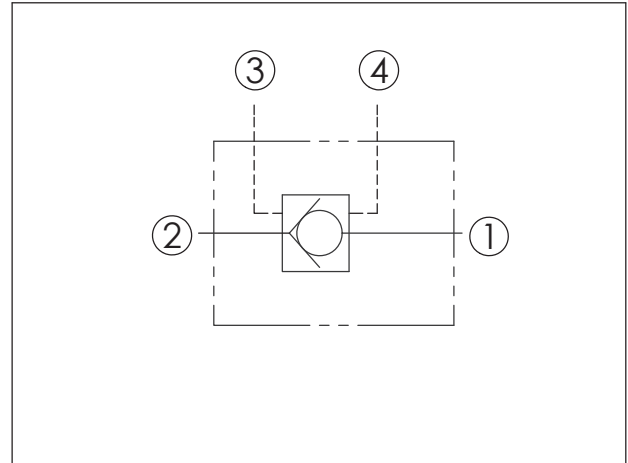
N=70.8

L=81

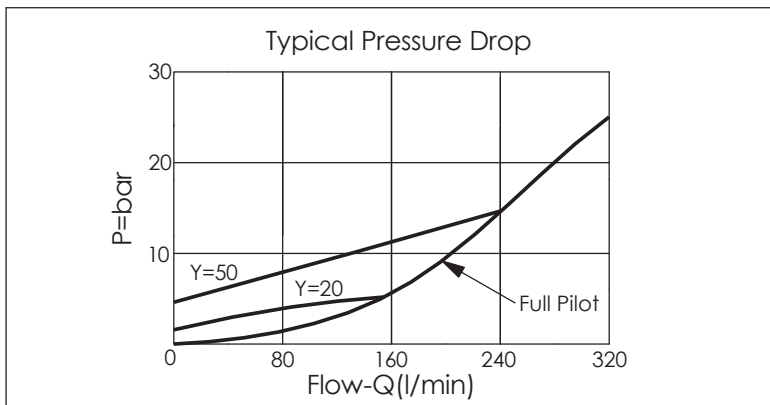
46

Locating Shoulder

UNIT:mm



| TECHNICAL DATA  |              |       |
|---|--------------|-------|
| Max. pressure:  | 350          | bar   |
| Rated flow:   | 240          | l/min |
| Cavity-Tooling:   | 23A-4        |       |
| Installation torque:  | 200-215      | Nm    |
| Weight:   | 0.68 (Z:N,L) | kg    |
| Maximum Leakage (0.07 cc/min.) (46 cSt, 40°C)<br>Approximately 0.07 cc of fluid will pass from the pilot area to the vented spring chamber every 4000 cycles. |              |       |

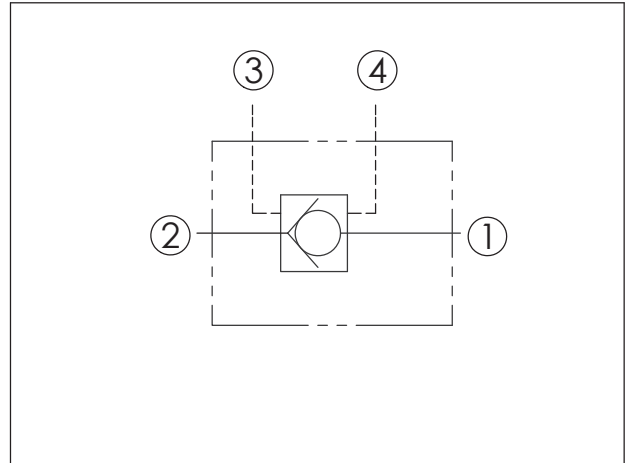
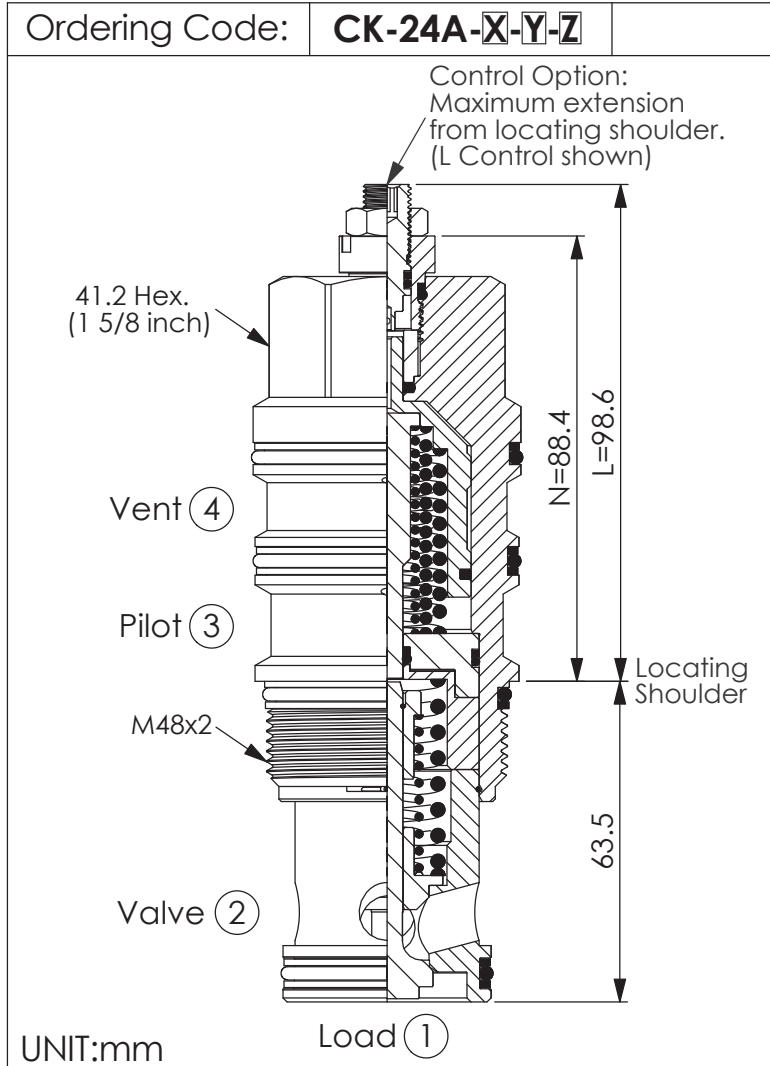


| X  | OPERATION       |  |
|----|-----------------|--|
| 4C | Pilot Ratio 3:1 |  |

| Y  | SPRINGS           |  |
|----|-------------------|--|
|    | Cracking pressure |  |
| 03 | 0.3 bar           |  |
| 10 | 1.0 bar           |  |
| 20 | 2.0 bar           |  |
| 35 | 3.5 bar           |  |
| 50 | 5.0 bar           |  |
| 70 | 7.0 bar           |  |

| Z | OPTION                       |  |
|---|------------------------------|--|
| N | Non-adjustable               |  |
| L | Leakproof hex. socket screw. |  |

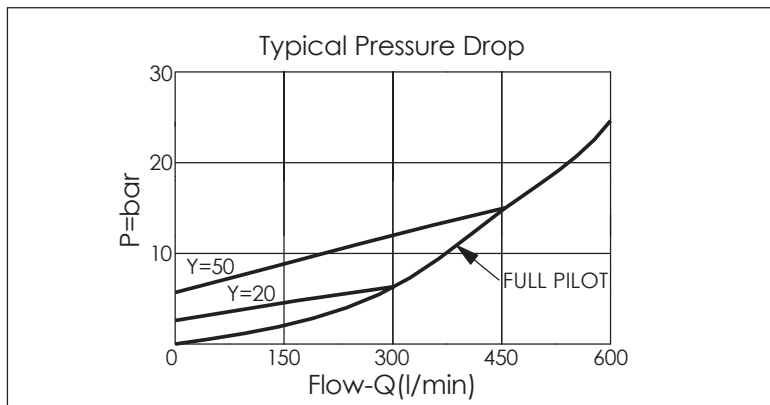
## CHECK VALVES (Vented Pilot-to-Open, Check Valve)



### TECHNICAL DATA

|                      |            |       |
|----------------------|------------|-------|
| Max. pressure:       | 350        | bar   |
| Rated flow:          | 480        | l/min |
| Cavity-Tooling:      | 24A-4      |       |
| Installation torque: | 465-500    | Nm    |
| Weight:              | 1.53 (Z:N) | kg    |

Maximum Leakage (0.07 cc/min.) (46 cSt, 40°C)  
Approximately 0.07 cc of fluid will pass from the pilot area to the vented spring chamber every 4000 cycles.



| X  | OPERATION       |  |
|----|-----------------|--|
| 4C | Pilot Ratio 3:1 |  |

| Y  | SPRINGS           |  |
|----|-------------------|--|
|    | Cracking pressure |  |
| 03 | 0.3 bar           |  |
| 10 | 1.0 bar           |  |
| 20 | 2.0 bar           |  |
| 35 | 3.5 bar           |  |
| 50 | 5.0 bar           |  |
| 70 | 7.0 bar           |  |

| Z | OPTION                       |  |
|---|------------------------------|--|
| N | Non-adjustable               |  |
| L | Leakproof hex. socket screw. |  |

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