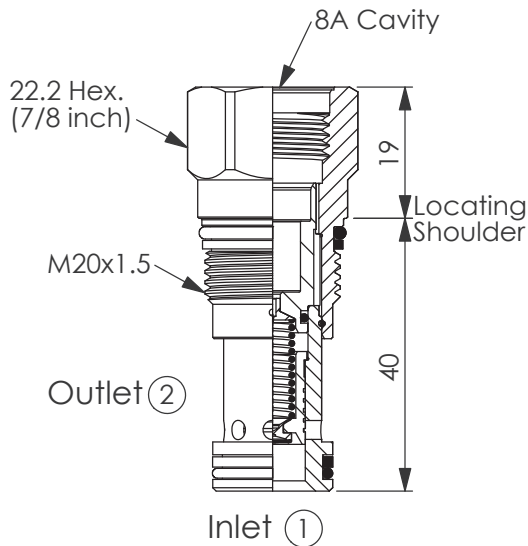
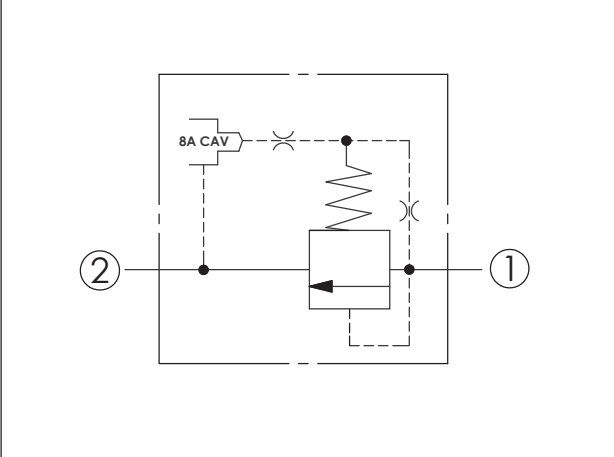




ZAWORY PROPORCJONALNE

Ordering Code: **RP-10A-X-Y-8**

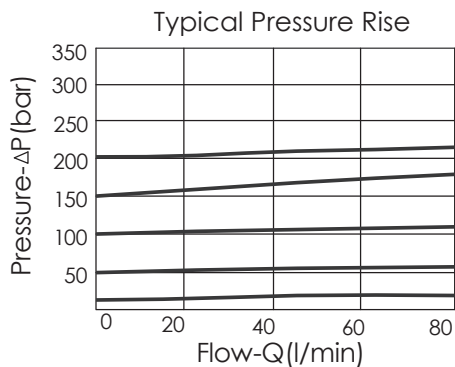


UNIT:mm

TECHNICAL DATA

| | | |
|-------------------------|---------|-------|
| Max.Operating pressure: | 350 bar | |
| Rated flow: | 95 | l/min |
| Cavity-Tooling: | 10A-2 | |
| Installation torque: | 40-50 | Nm |
| Weight: | 0.09 | kg |

Will accept maximum pressure at port 2; suitable for use in cross port relief circuits. If used in cross port relief circuits, consider spool leakage.



X

OPERATION

20

1 to 2 (P to T)

Response Time-Typical (10 ms)
Maximum Leakage (33 cc/min./70 bar)

Y

SPRINGS

MINIMUM CONTROL PRESSURE

D

1.7 bar (25 psi)

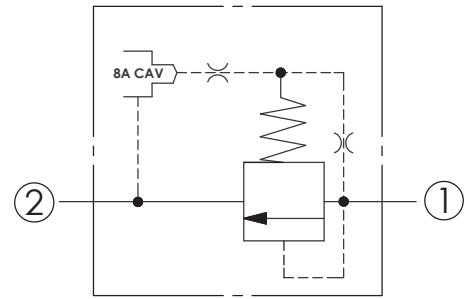
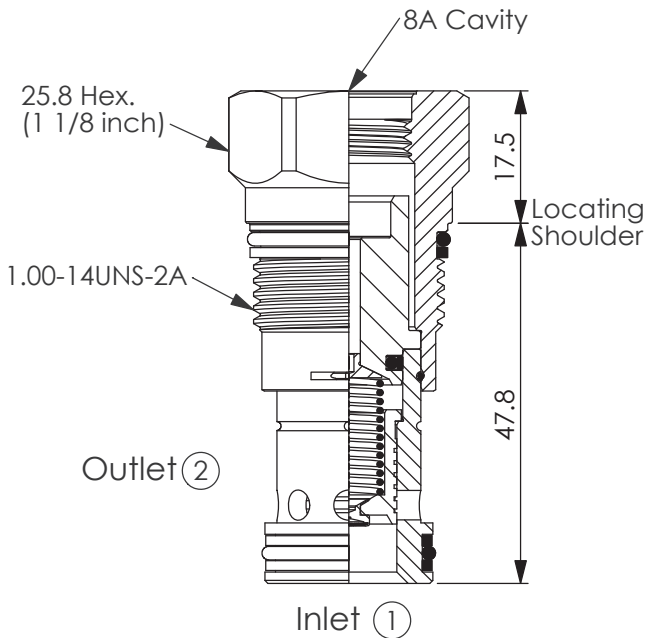
W

7 bar (100 psi)

W spring is suit for higher pressure drop application. Please consult our sales department.

(Pilot operated, balanced piston relief main stage with integral 8A control cavity)

Ordering Code: **RP-3A-X-Y-8**

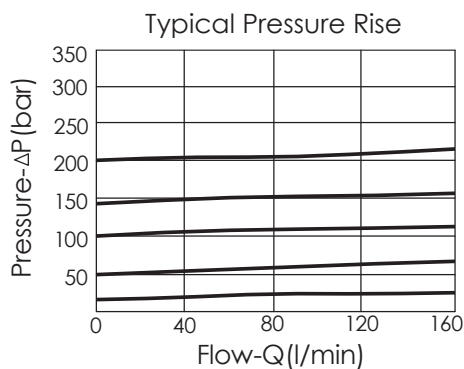


TECHNICAL DATA

| | |
|--------------------------|-----------|
| Max. Operating pressure: | 350 bar |
| Rated flow: | 200 l/min |
| Cavity-Tooling: | 3A-2 |
| Installation torque: | 60-70 Nm |
| Weight: | 0.17 kg |

Will accept maximum pressure at port 2; suitable for use in cross port relief circuits. If used in cross port relief circuits, consider spool leakage.

UNIT:mm



X OPERATION

| | |
|--|-----------------|
| 20 | 1 to 2 (P to T) |
| Response Time-Typical (10 ms) Maximum Leakage (50 cc/min./70 bar) | |

Y

SPRINGS

MINIMUM CONTROL PRESSURE

D

1.7 bar (25 psi)

W

7 bar (100 psi)

W spring is suit for higher pressure drop application. Please consult our sales department.

Ordering Code: **RP-16A-X-Y-8**

31.7 Hex. (1 1/4 inch)

8A Cavity

25

Locating Shoulder

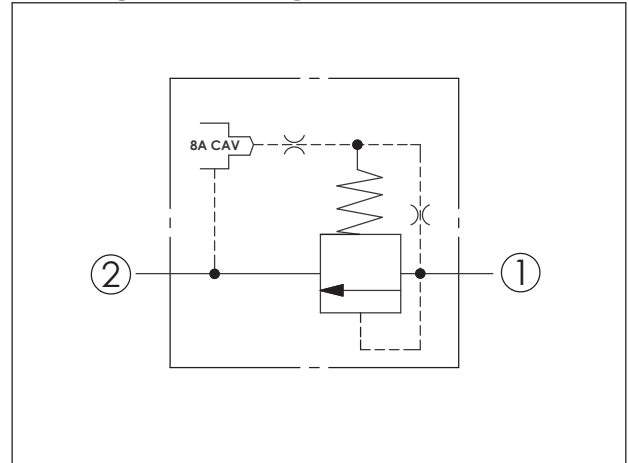
M36x2

62

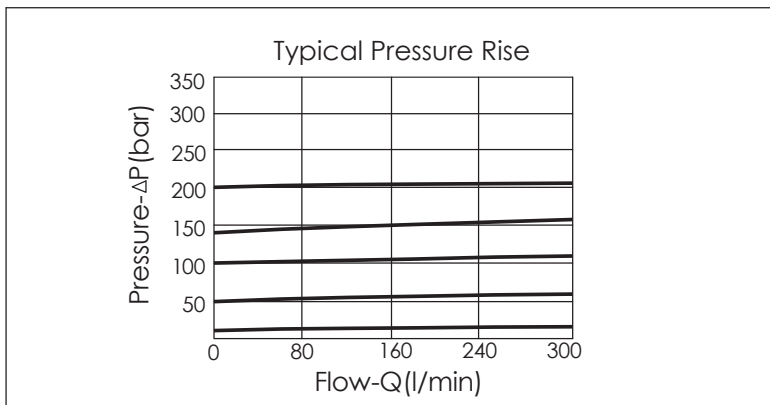
Outlet (2)

Inlet (1)

UNIT:mm



| TECHNICAL DATA | |
|--|------------|
| Max.Operating pressure: | 350 bar |
| Rated flow: | 380 l/min |
| Cavity-Tooling: | 16A-2 |
| Installation torque: | 200-215 Nm |
| Weight: | 0.43 kg |
| Will accept maximum pressure at port 2; suitable for use in cross port relief circuits. If used in cross port relief circuits, consider spool leakage. | |



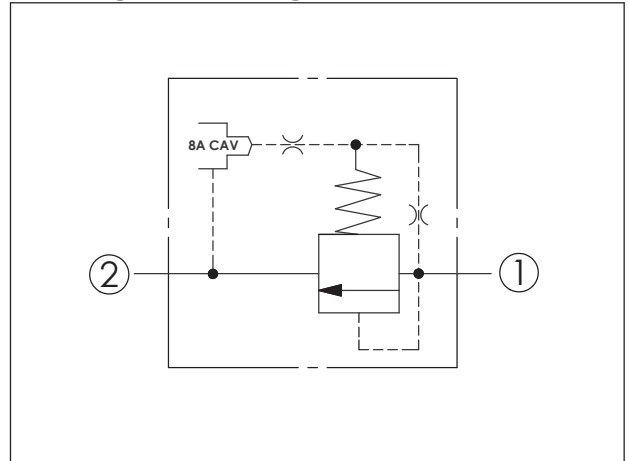
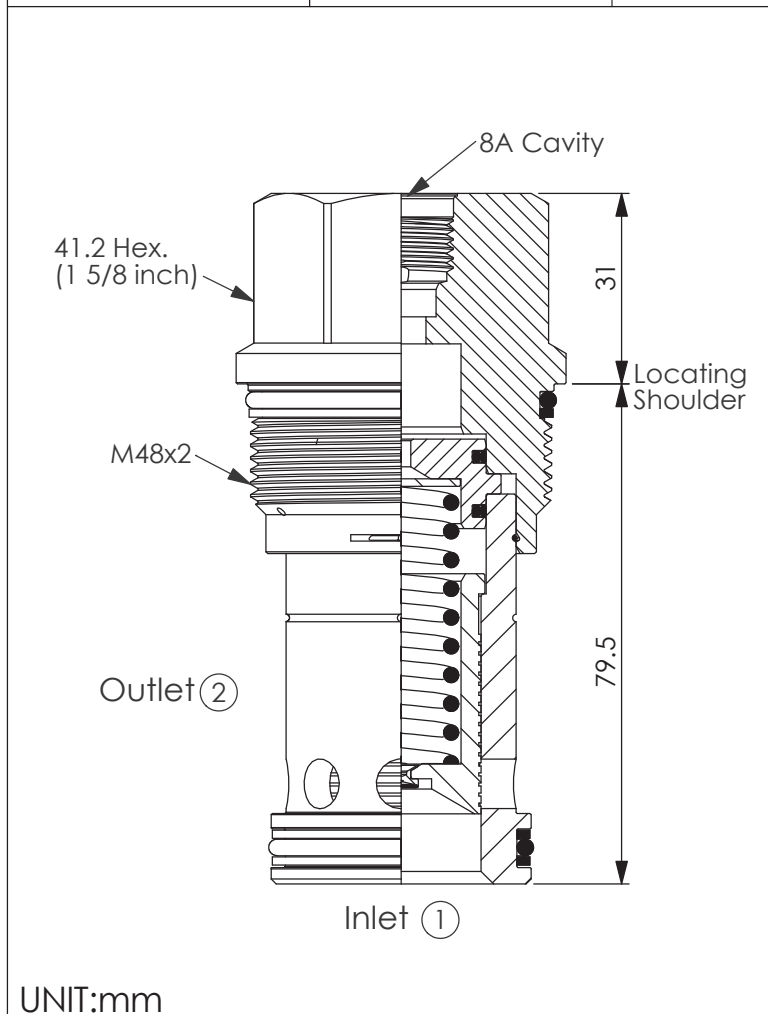
| X | OPERATION |
|-------------------------------------|-----------------|
| 20 | 1 to 2 (P to T) |
| Response Time-Typical (10 ms) | |
| Maximum Leakage (66 cc/min./70 bar) | |

| Y | SPRINGS |
|---|--------------------------|
| | MINIMUM CONTROL PRESSURE |
| D | 1.7 bar (25 psi) |
| W | 7 bar (100 psi) |
| W spring is suit for higher pressure drop application. Please consult our sales department. | |

| | |
|--|--|
| | |
| | |

(Pilot operated, balanced piston relief main stage with integral 8A control cavity)

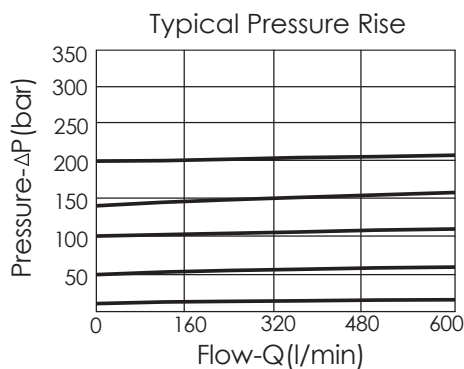
Ordering Code: **RP-18A-X-Y-8**



TECHNICAL DATA

| | |
|-------------------------|------------|
| Max.Operating pressure: | 350 bar |
| Rated flow: | 760 l/min |
| Cavity-Tooling: | 18A-2 |
| Installation torque: | 465-500 Nm |
| Weight: | 0.94 kg |

Will accept maximum pressure at port 2; suitable for use in cross port relief circuits. If used in cross port relief circuits, consider spool leakage.

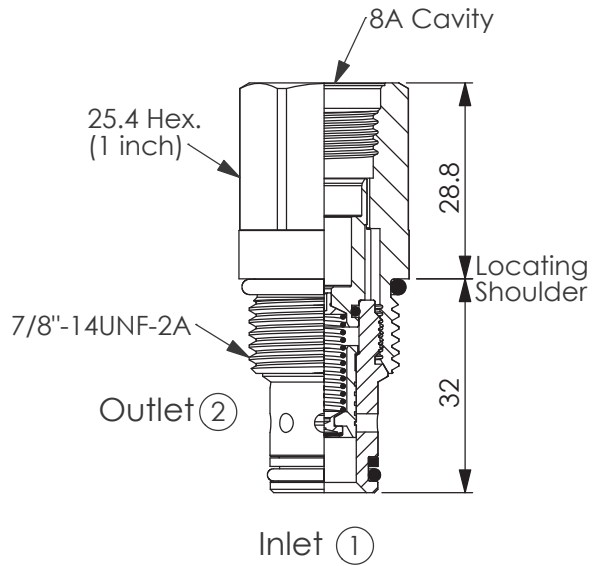
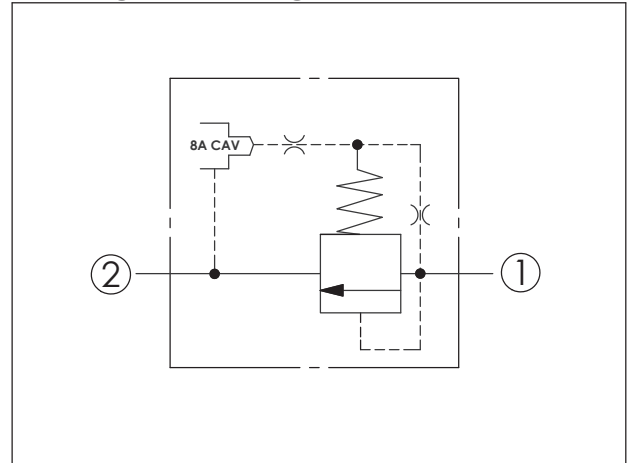


X OPERATION

| | |
|-------------------------------------|-----------------|
| 20 | 1 to 2 (P to T) |
| Response Time-Typical (10 ms) | |
| Maximum Leakage (82 cc/min./70 bar) | |

| Y | SPRINGS | |
|---|---|--|
| | MINIMUM CONTROL PRESSURE | |
| D | 1.7 bar (25 psi) | |
| W | 7 bar (100 psi) | |
| | W spring is suit for higher pressure drop application. Please consult our sales department. | |

Ordering Code: **RP-10W-X-Y-8**



UNIT:mm

TECHNICAL DATA

Max.Operating pressure: 350 bar

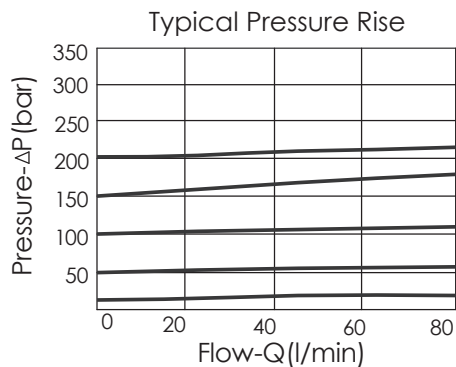
Rated flow: 95 l/min

Cavity-Tooling: 10W-2

Installation torque: 35-45 Nm

Weight: 0.11 kg

Will accept maximum pressure at port 2; suitable for use in cross port relief circuits. If used in cross port relief circuits, consider spool leakage.



X

OPERATION

20

1 to 2 (P to T)

Response Time-Typical (10 ms)
Maximum Leakage (33 cc/min./70 bar)

Y

SPRINGS

MINIMUM CONTROL PRESSURE

D

1.7 bar (25 psi)

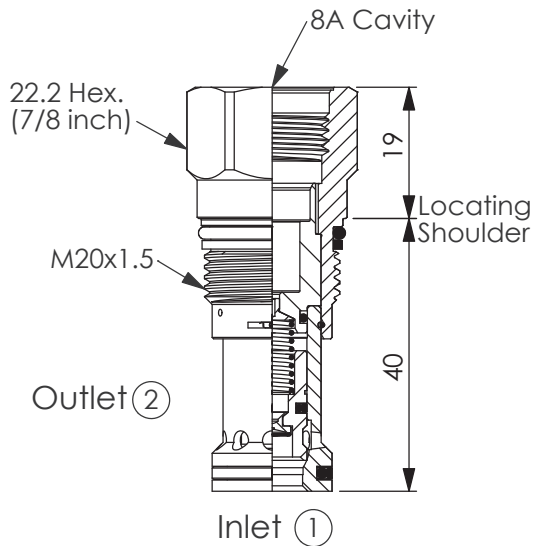
W

7 bar (100 psi)

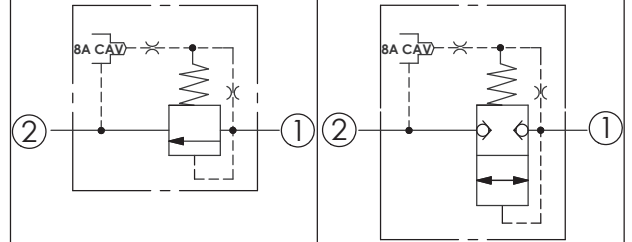
W spring is suit for higher pressure drop application. Please consult our sales department.

(Pilot Operated, Balanced Poppet Relief Main Stage With Integral 8A Control Cavity)

Ordering Code: **RP-10A-X-Y-8**



UNIT:mm



TECHNICAL DATA

Max. Operating pressure: 350 bar

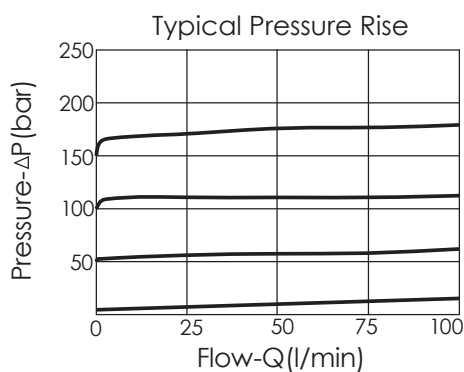
Rated flow: 95 l/min

Cavity-Tooling: 10A-2

Installation torque: 40-50 Nm

Weight: 0.09 kg

Will accept maximum pressure at port 2; suitable for use in cross port relief circuits.



X OPERATION

2G Balanced Poppet

Response Time-Typical (2 ms)
Maximum Leakage at 10% reseal 0.7cc/min

Y

SPRINGS

MINIMUM CONTROL PRESSURE

D

1.7 bar (25 psi)

W

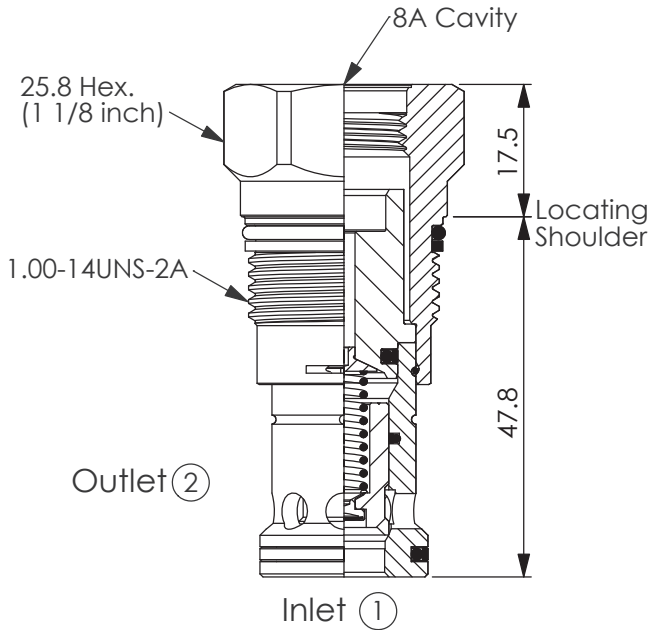
7 bar (100 psi)

W spring is suit for higher pressure drop application. Please consult our sales department.

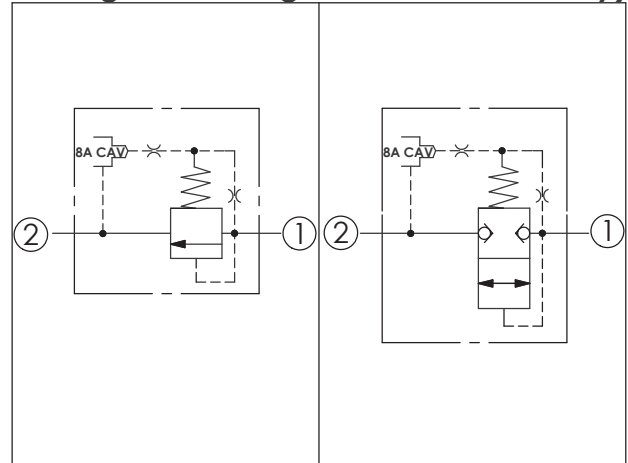
(Pilot Operated, Balanced Poppet Relief Main Stage With Integral 8A Control Cavity)

RELIEF VALVE

Ordering Code: **RP-3A-X-Y-8**



UNIT:mm



TECHNICAL DATA

Max.Operating pressure: 350 bar

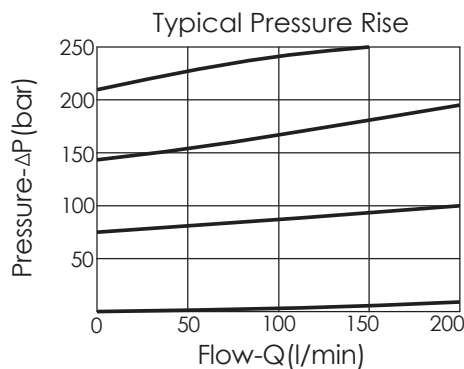
Rated flow: 200 l/min

Cavity-Tooling: 3A-2

Installation torque: 60-70 Nm

Weight: 0.18 kg

Will accept maximum pressure at port 2; suitable for use in cross port relief circuits.



X

OPERATION

2G

Balanced Poppet

Response Time-Typical (2 ms)
Maximum Leakage at 10% reseal 0.7cc/min)

Y

SPRINGS

MINIMUM CONTROL PRESSURE

B

3.5 bar (50 psi)

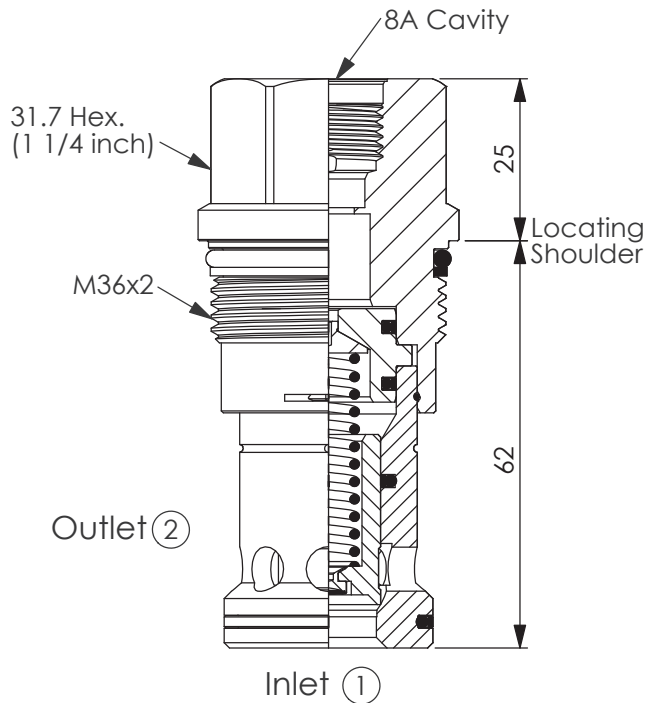
W

7 bar (100 psi)

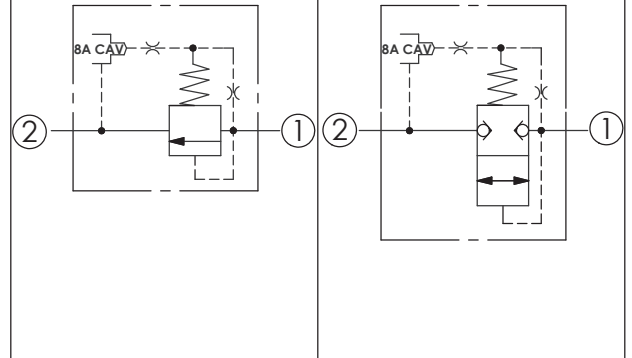
W spring is suit for higher pressure drop application. Please consult our sales department.

(Pilot Operated, Balanced Poppet Relief Main Stage With Integral 8A Control Cavity)

Ordering Code: **RP-16A-X-Y-8**



UNIT:mm



TECHNICAL DATA

Max. Operating pressure: 350 bar

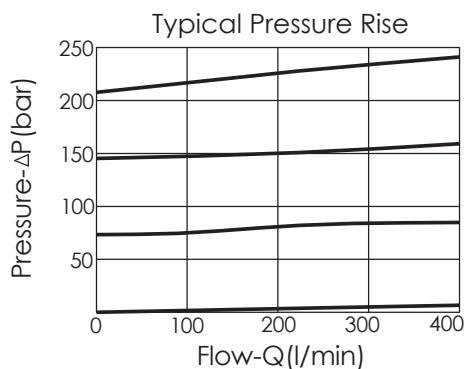
Rated flow: 380 l/min

Cavity-Tooling: 16A-2

Installation torque: 200-215 Nm

Weight: 0.44 kg

Will accept maximum pressure at port 2; suitable for use in cross port relief circuits.



X OPERATION

2G Balanced Poppet

Response Time-Typical (2 ms)
Maximum Leakage at 10% reset 0.7cc/min

Y

SPRINGS

MINIMUM CONTROL PRESSURE

B

3.5 bar (50 psi)

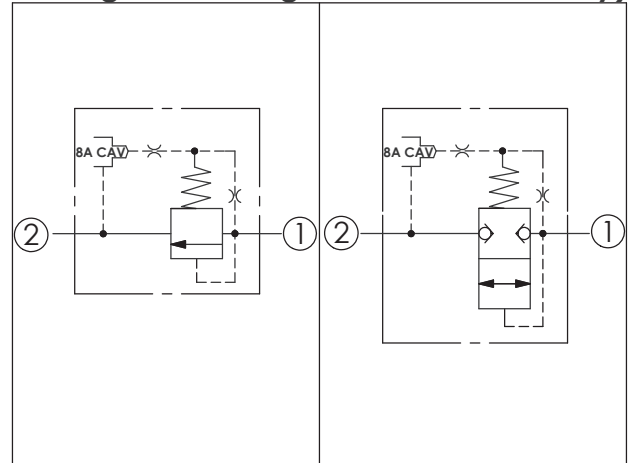
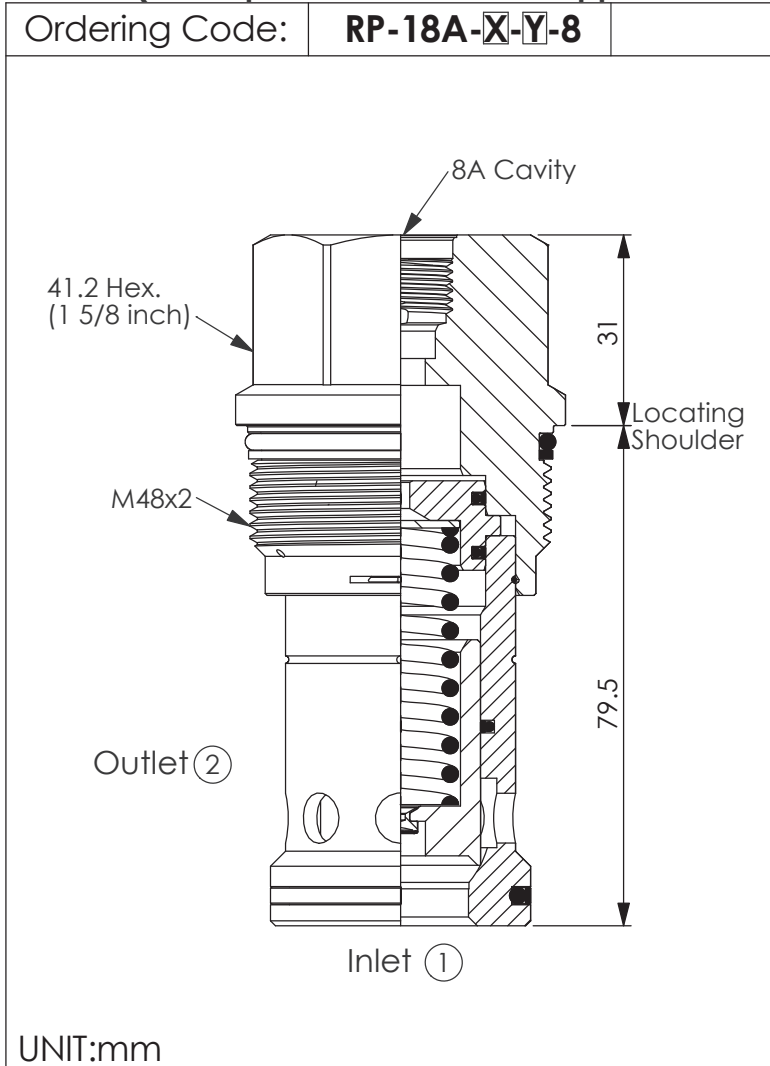
W

7 bar (100 psi)

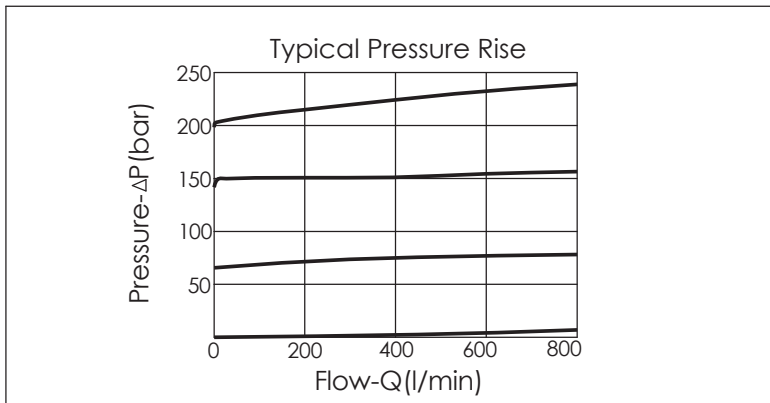
W spring is suit for higher pressure drop application. Please consult our sales department.

RELIEF VALVE

(Pilot Operated, Balanced Poppet Relief Main Stage With Integral 8A Control Cavity)



| TECHNICAL DATA | |
|---|------------|
| Max. Operating pressure: | 350 bar |
| Rated flow: | 760 l/min |
| Cavity-Tooling: | 18A-2 |
| Installation torque: | 465-500 Nm |
| Weight: | 0.93 kg |
| Will accept maximum pressure at port 2; suitable for use in cross port relief circuits. | |



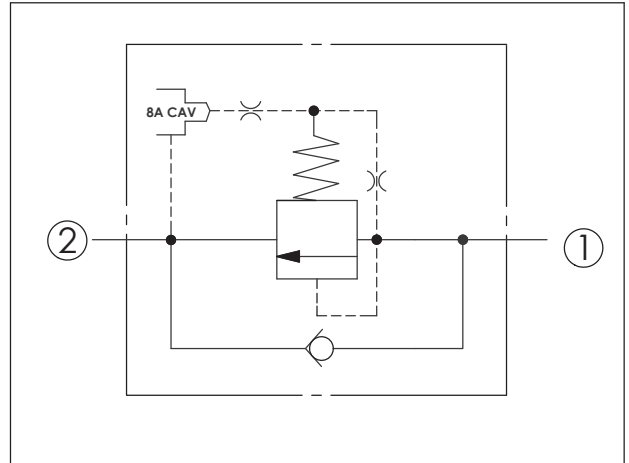
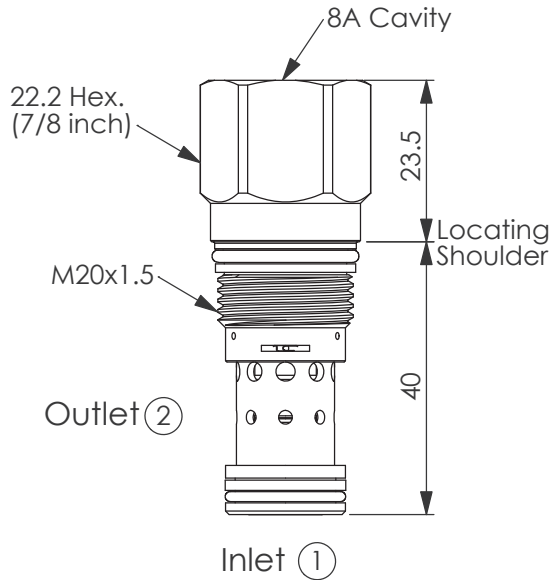
| X | OPERATION | |
|---|-----------------|--|
| 2G | Balanced Poppet | |
| Response Time-Typical (2 ms) | | |
| Maximum Leakage at 10% reseal 0.7cc/min | | |

| Y | SPRINGS | |
|---|---|--|
| | MINIMUM CONTROL PRESSURE | |
| B | 3.5 bar (50 psi) | |
| W | 7 bar (100 psi) | |
| | W spring is suit for higher pressure drop application. Please consult our sales department. | |

| | |
|--|--|
| | |
|--|--|

Ordering Code: **RC-10A-X-Y-8**

PATENT PENDING



TECHNICAL DATA

Max. Operating pressure: 350 bar

Rated flow: 95 l/min

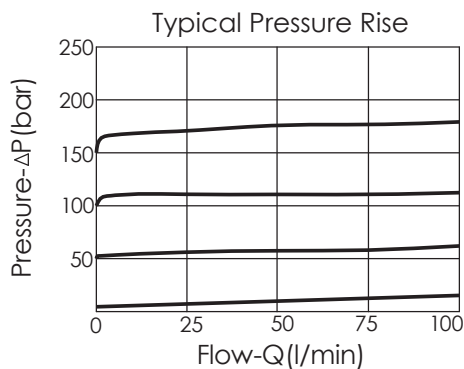
Cavity-Tooling: 10A-2

Installation torque: 40-50 Nm

Weight: 0.1 kg

Will accept maximum pressure at port 2; suitable for use in cross port relief circuits.

UNIT:mm



X OPERATION

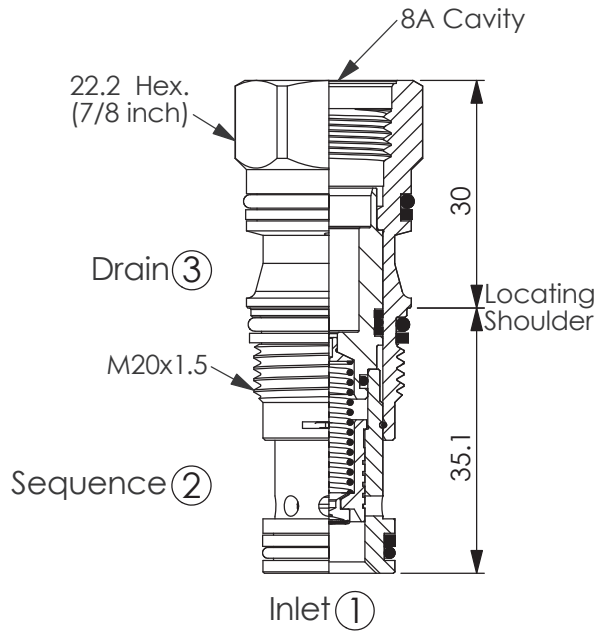
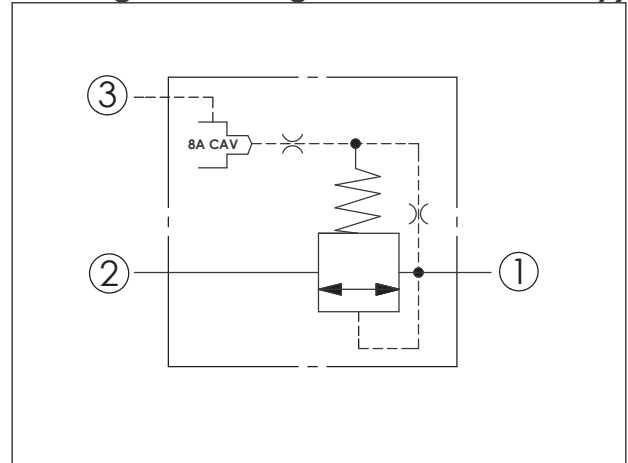
2G Balanced Poppet

Maximum Leakage at 5 cc/min

| Y | SPRINGS | |
|---|--------------------------|-------------------|
| | Minimum Control Pressure | Cracking Pressure |
| D | 1.7 bar | 0.3 bar |
| W | 7 bar | 0.3 bar |
| W spring is suit for higher pressure drop application. Please consult our sales department. | | |

(Ventable, balanced piston relief main stage with integral 8A control cavity)

Ordering Code: **RV-11A-X-Y-8**



UNIT:mm

TECHNICAL DATA

Max. Operating pressure: 350 bar

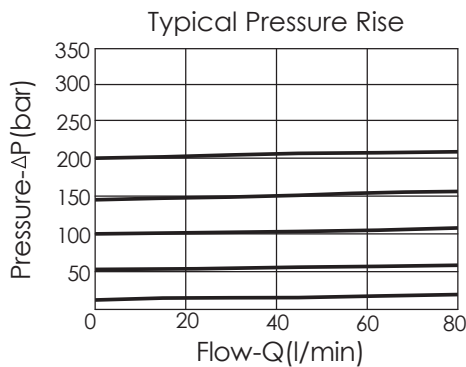
Rated flow: 60 l/min

Cavity-Tooling: 11A-3

Installation torque: 40-50 Nm

Weight: 0.10 kg

Will accept maximum pressure at port 2; suitable for use in cross port relief circuits. If used in cross port relief circuits, consider pool leakage.



X

OPERATION

30

Standard Type

Response Time-Typical (10 ms)
Maximum Leakage (33 cc/min./70 bar)

Y

SPRINGS

MINIMUM CONTROL PRESSURE

D

1.7 bar (25 psi)

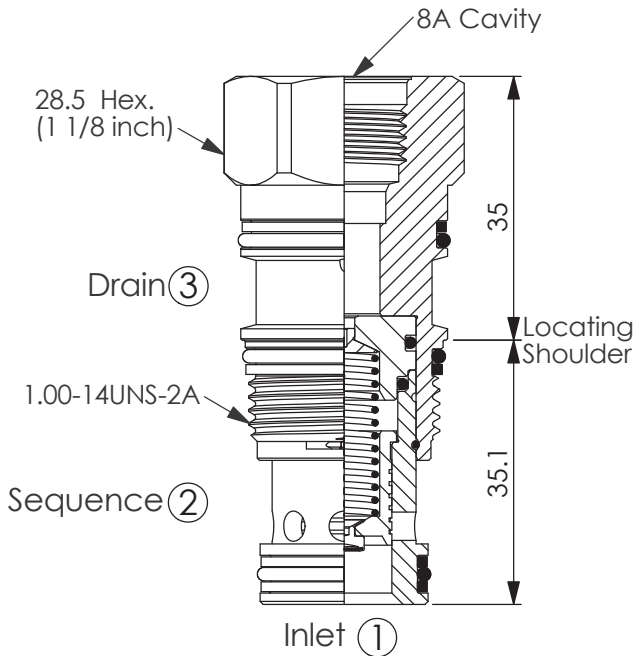
W

7 bar (100 psi)

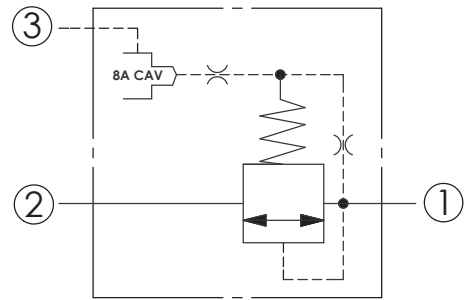
W spring is suit for higher pressure drop application. Please consult our sales department.

(Ventable, balanced piston relief main stage with integral 8A control cavity)

Ordering Code: **RV-2A-X-Y-8**



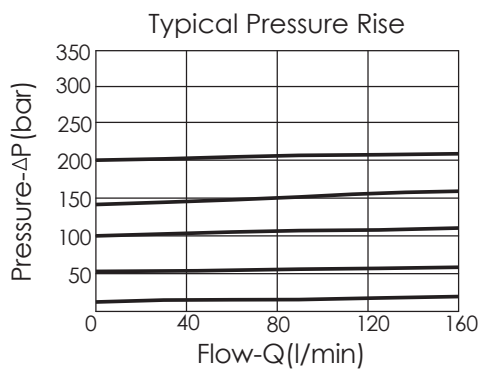
UNIT:mm



TECHNICAL DATA

| | | |
|--------------------------|-------|-------|
| Max. Operating pressure: | 350 | bar |
| Rated flow: | 120 | l/min |
| Cavity-Tooling: | 2A-3 | |
| Installation torque: | 60-70 | Nm |
| Weight: | 0.20 | kg |

Will accept maximum pressure at port 2; suitable for use in cross port relief circuits. If used in cross port relief circuits, consider spool leakage.



X OPERATION

30 Standard Type

Response Time-Typical (10 ms)
Maximum Leakage (50 cc/min./70 bar)

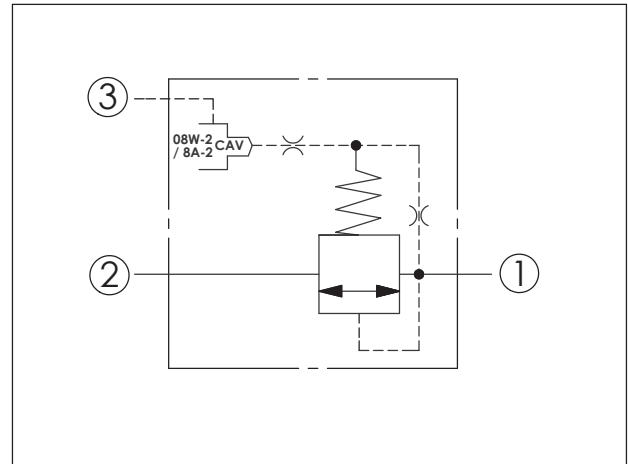
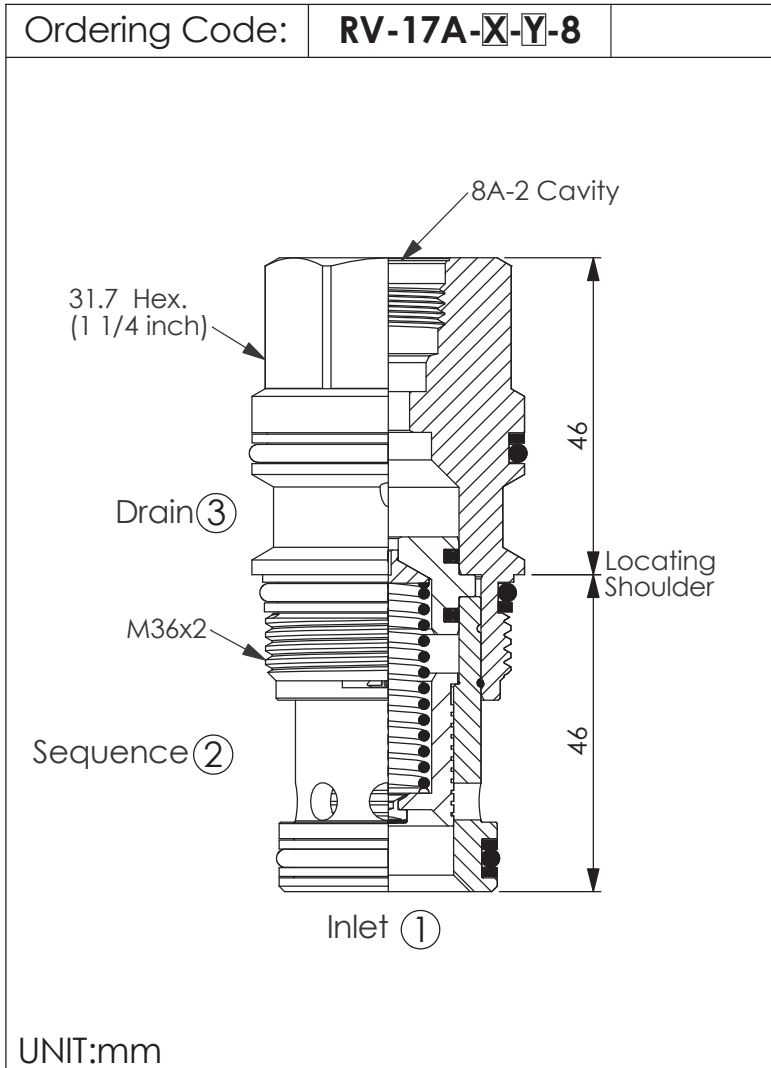
Y SPRINGS

MINIMUM CONTROL PRESSURE

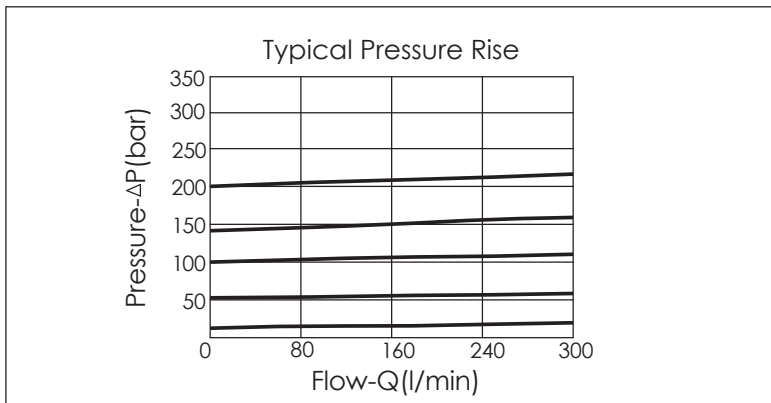
D 1.7 bar (25 psi)

W 7 bar (100 psi)

W spring is suit for higher pressure drop application. Please consult our sales department.



| TECHNICAL DATA | |
|---|------------|
| Max. Operating pressure: | 350 bar |
| Rated flow: | 240 l/min |
| Cavity-Tooling: | 17A-3 |
| Installation torque: | 200-215 Nm |
| Weight: | 0.49 kg |
| Will accept maximum pressure at port 2; suitable for use in cross port relief circuits. If used in cross port relief circuits, consider pool leakage. | |



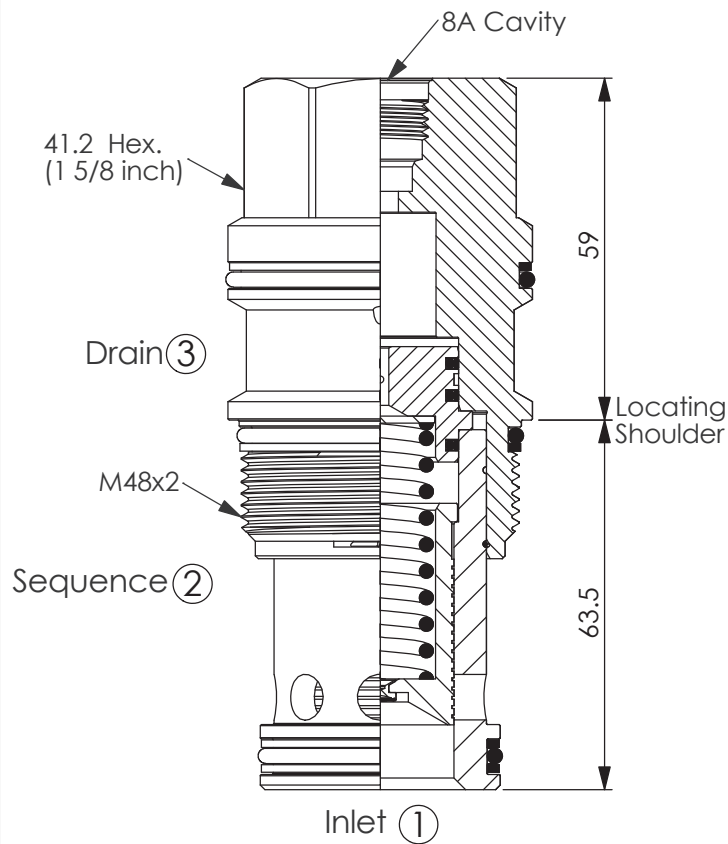
| X | OPERATION |
|--|---------------|
| 30 | Standard Type |
| Response Time-Typical (10 ms) Maximum Leakage (66 cc/min./70 bar) | |

| Y | SPRINGS |
|---|--------------------------|
| | MINIMUM CONTROL PRESSURE |
| D | 1.7 bar (25 psi) |
| W | 7 bar (100 psi) |
| W spring is suit for higher pressure drop application. Please consult our sales department. | |

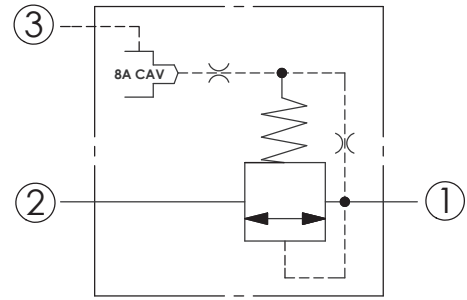
| | |
|--|--|
| | |
| | |

(Ventable, balanced piston relief main stage with integral 8A control cavity)

Ordering Code: **RV-19A-X-Y-8**



UNIT:mm



TECHNICAL DATA

Max. Operating pressure: 350 bar

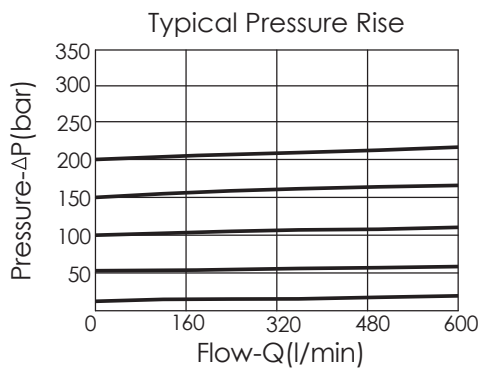
Rated flow: 480 l/min

Cavity-Tooling: 19A-3

Installation torque: 465-500 Nm

Weight: 1.19 kg

Will accept maximum pressure at port 2; suitable for use in cross port relief circuits. If used in cross port relief circuits, consider spool leakage.



X

OPERATION

30

Standard Type

Response Time-Typical (10 ms)
Maximum Leakage (82 cc/min./70 bar)

Y

SPRINGS

MINIMUM CONTROL PRESSURE

D

1.7 bar (25 psi)

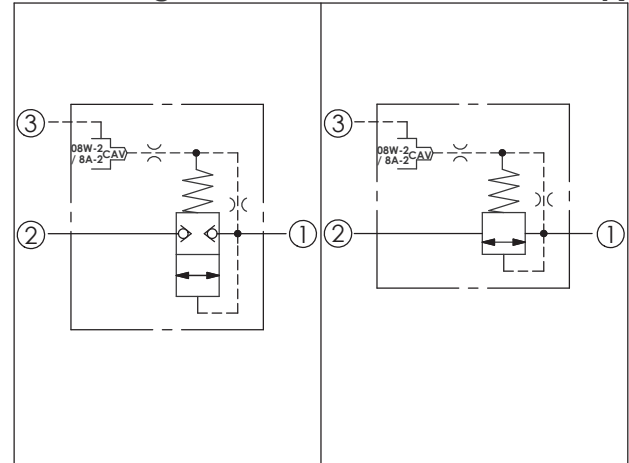
W

7 bar (100 psi)

W spring is suit for higher pressure drop application. Please consult our sales department.

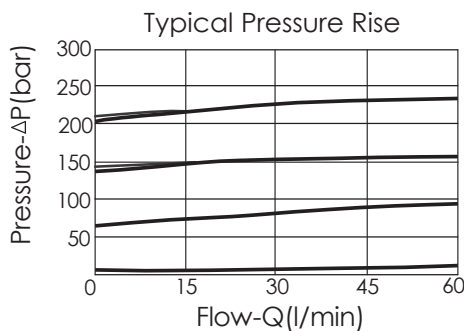
Ordering Code: **RV-11A-X-Y-Z**

UNIT:mm



TECHNICAL DATA

| | | |
|---|-------|-------|
| Max. Operating pressure: | 350 | bar |
| Rated flow: | 60 | l/min |
| Cavity-Tooling: | 11A-3 | |
| Installation torque: | 40-50 | Nm |
| Weight: | 0.10 | kg |
| Will accept maximum pressure at port 2; suitable for use in cross port relief circuits. | | |



X

OPERATION

3G

Balanced Poppet

Response Time-Typical (10 ms)
Maximum Leakage (0.7 cc/min.)
Dirt tolerant

Y

SPRINGS

MINIMUM CONTROL PRESSURE

B

3.5 bar (50 psi)

W

7 bar (100 psi)

W spring is suit for higher pressure drop application. Please consult our sales department.

Z

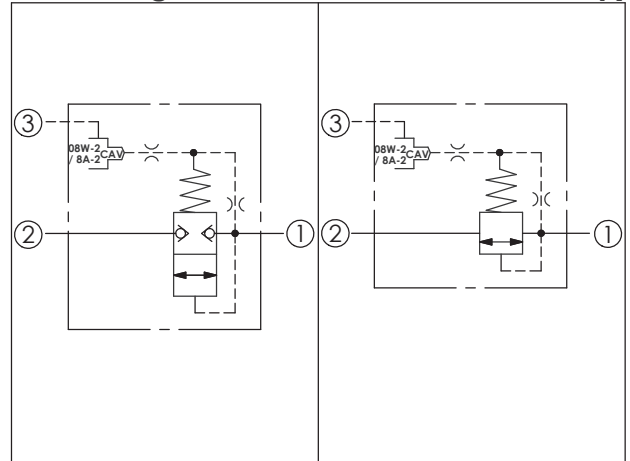
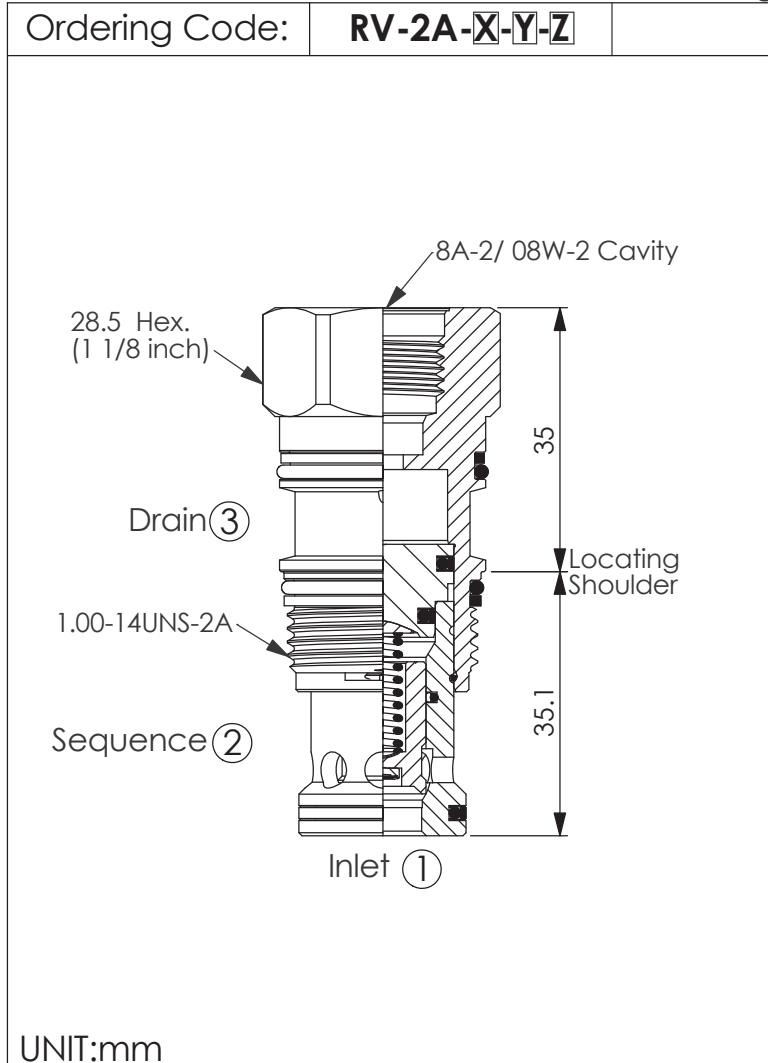
CAVITIES

8

8A-2 Cavity

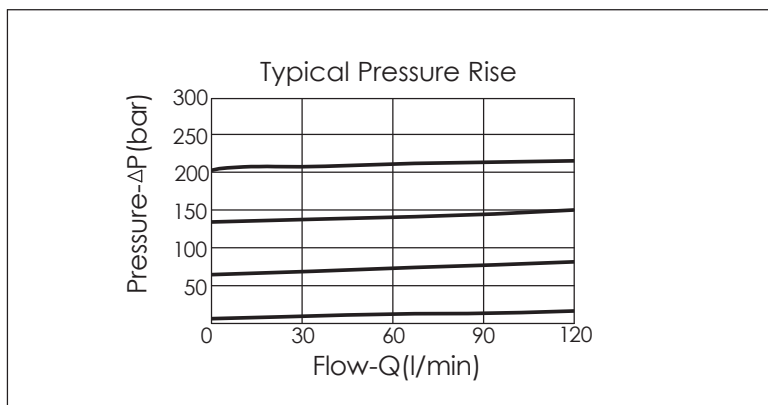
8W

08W-2 Cavity



TECHNICAL DATA

| | | |
|---|-------|-------|
| Max. Operating pressure: | 350 | bar |
| Rated flow: | 120 | l/min |
| Cavity-Tooling: | 2A-3 | |
| Installation torque: | 60-70 | Nm |
| Weight: | 0.20 | kg |
| Will accept maximum pressure at port 2; suitable for use in cross port relief circuits. | | |



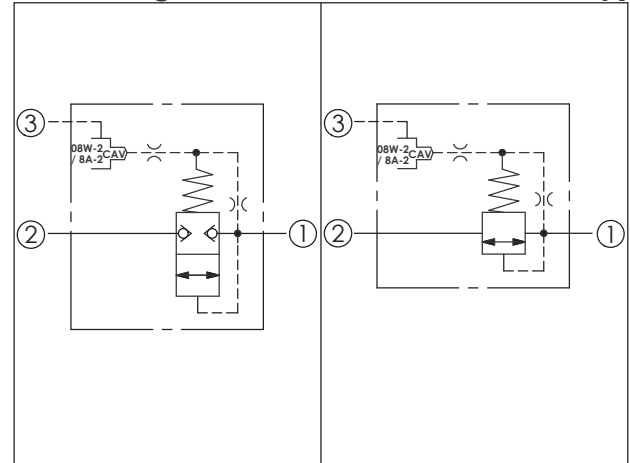
| | | |
|---|------------------|--|
| X | OPERATION | |
| 3G | Balanced Poppet | |
| Response Time-Typical (10 ms) Maximum Leakage (0.7 cc/min.) Dirt tolerant | | |

| | | |
|---|--------------------------|--|
| Y | SPRINGS | |
| | MINIMUM CONTROL PRESSURE | |
| B | 3.5 bar (50 psi) | |
| W | 7 bar (100 psi) | |
| W spring is suit for higher pressure drop application. Please consult our sales department. | | |

| | | |
|-----------|-----------------|--|
| Z | CAVITIES | |
| 8 | 8A-2 Cavity | |
| 8W | 08W-2 Cavity | |

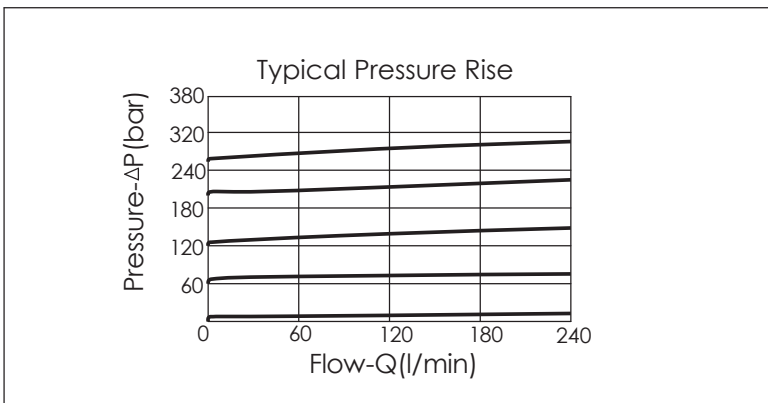
Ordering Code: **RV-17A-X-Y-Z**

UNIT:mm



TECHNICAL DATA

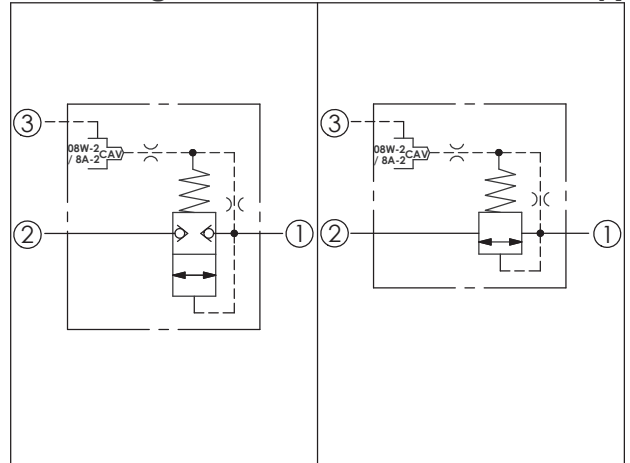
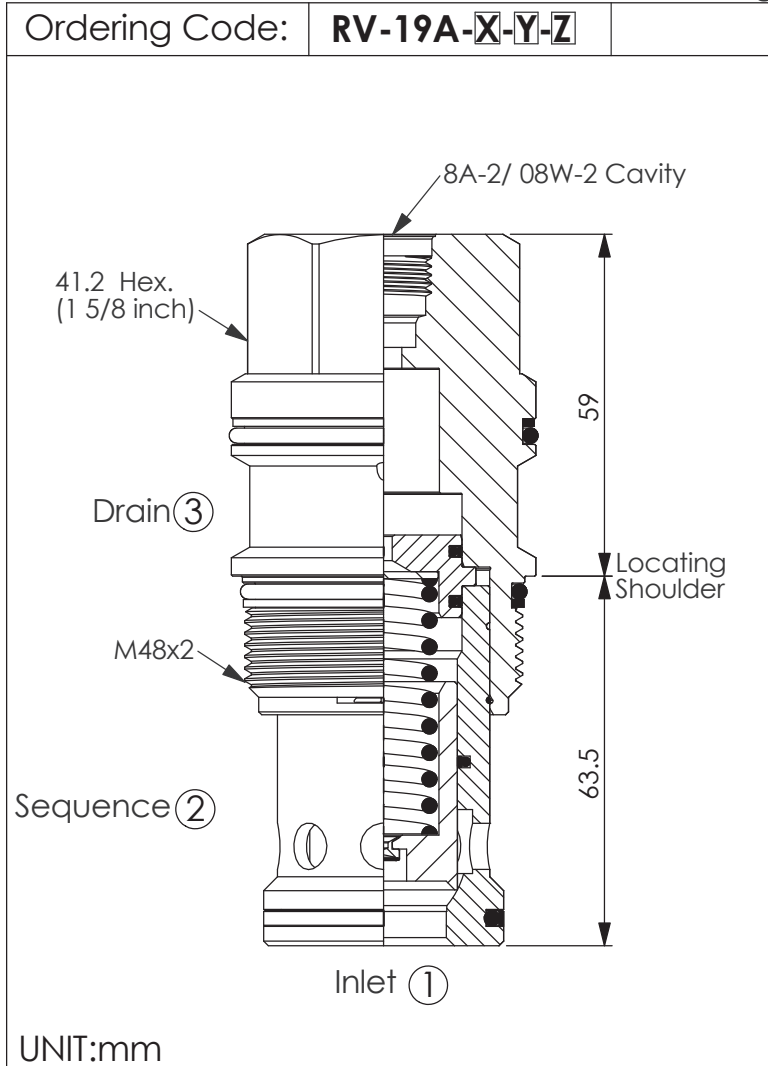
| | | |
|---|---------|-------|
| Max. Operating pressure: | 350 | bar |
| Rated flow: | 240 | l/min |
| Cavity-Tooling: | 17A-3 | |
| Installation torque: | 200-215 | Nm |
| Weight: | 0.50 | kg |
| Will accept maximum pressure at port 2; suitable for use in cross port relief circuits. | | |



| X | OPERATION | |
|--|-----------------|--|
| 3G | Balanced Poppet | |
| Response Time-Typical (2 ms) Maximum Leakage (0.7 cc/min.) Dirt tolerant | | |

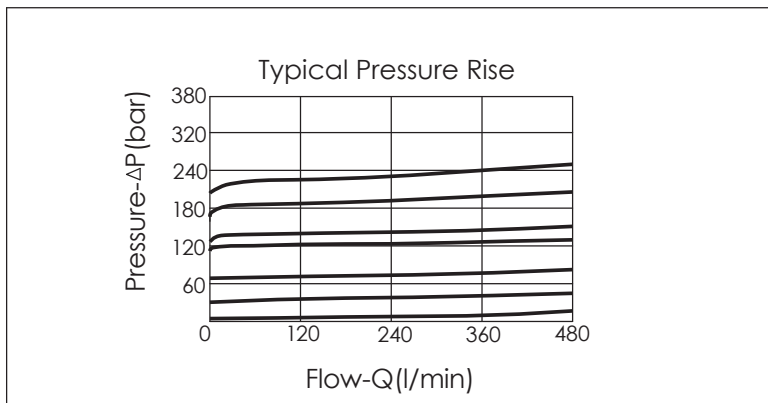
| Y | SPRINGS | |
|---|--------------------------|--|
| | MINIMUM CONTROL PRESSURE | |
| B | 3.5 bar (50 psi) | |
| W | 7 bar (100 psi) | |
| W spring is suit for higher pressure drop application. Please consult our sales department. | | |

| Z | CAVITIES | |
|----|--------------|--|
| 8 | 8A-2 Cavity | |
| 8W | 08W-2 Cavity | |



TECHNICAL DATA

| | | |
|---|---------|-------|
| Max. Operating pressure: | 350 | bar |
| Rated flow: | 480 | l/min |
| Cavity-Tooling: | 19A-3 | |
| Installation torque: | 465-500 | Nm |
| Weight: | 1.16 | kg |
| Will accept maximum pressure at port 2; suitable for use in cross port relief circuits. | | |



| | | |
|--|------------------|--|
| X | OPERATION | |
| 3G | Balanced Poppet | |
| Response Time-Typical (2 ms) Maximum Leakage (0.7 cc/min.) Dirt tolerant | | |

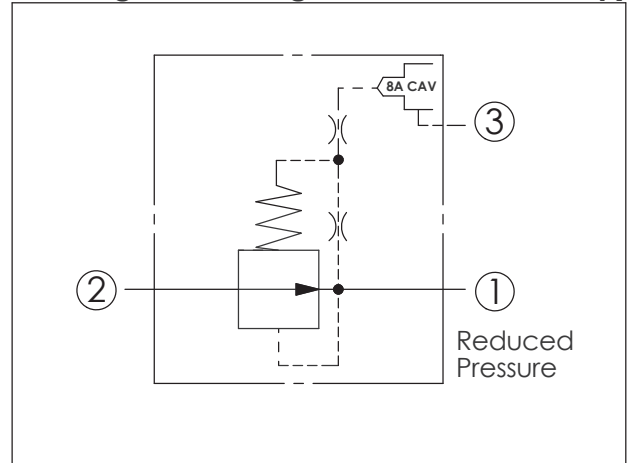
| | | |
|----------|---|--|
| Y | SPRINGS | |
| | MINIMUM CONTROL PRESSURE | |
| B | 3.5 bar (50 psi) | |
| W | 7 bar (100 psi) | |
| | W spring is suit for higher pressure drop application. Please consult our sales department. | |

| | | |
|-----------|-----------------|--|
| Z | CAVITIES | |
| 8 | 8A-2 Cavity | |
| 8W | 08W-2 Cavity | |

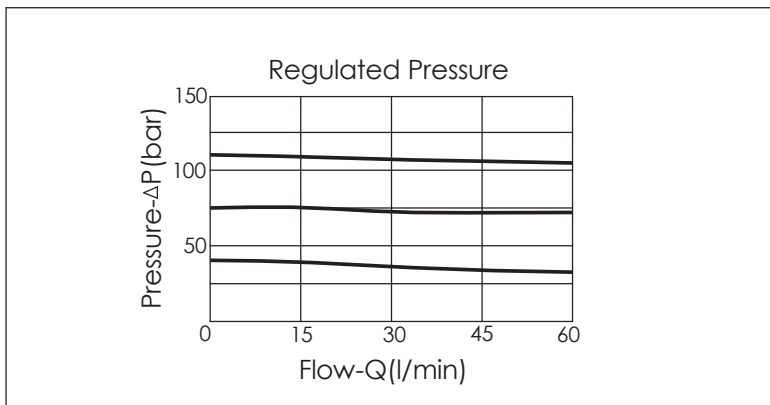
REDUCING VALVE (Pilot Operated Reducing main stage with integral 8A control cavity)

Ordering Code: **PB-11A-X-Y-8**

UNIT:mm



| TECHNICAL DATA | |
|--|----------|
| Max.Operating pressure: | 350 bar |
| Rated flow: | 40 l/min |
| Cavity-Tooling: | 11A-3 |
| Installation torque: | 40-50 Nm |
| Weight: | 0.10 kg |
| Control Pilot Flow (0.11 ~0.16 L/min.) | |



| X | OPERATION |
|----|---------------|
| 30 | Standard Type |

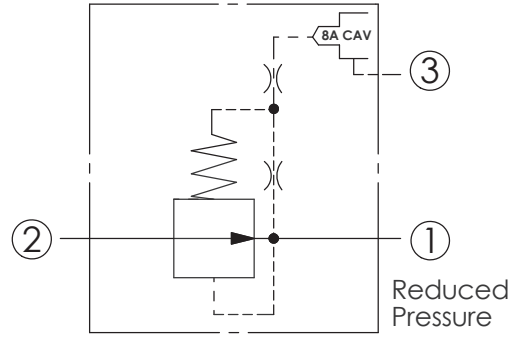
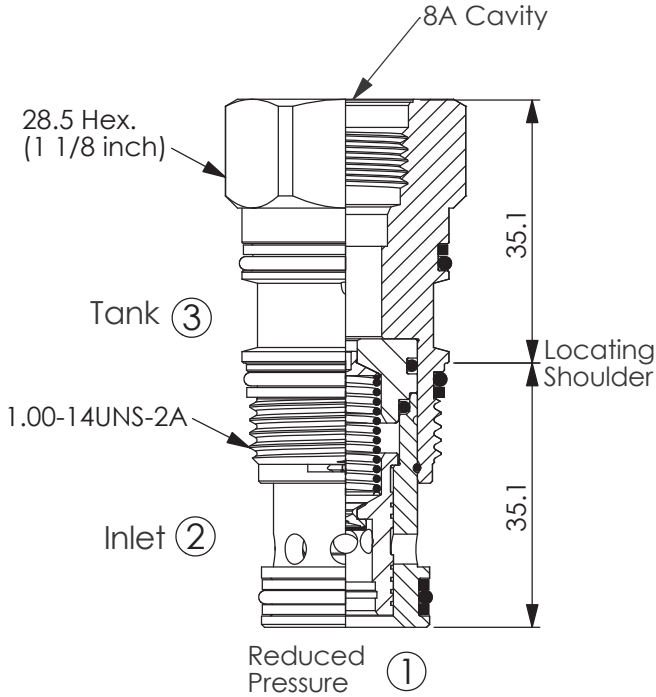
| Y | SPRINGS |
|---|--|
| | MINIMUM CONTROL PRESSURE |
| D | 1.7 bar (25 psi) |
| W | 7 bar (100 psi) |
| | Maximum inlet pressure is determined by the bias spring. The D spring is limited to 140 bar (2000 psi) maximum differential pressure and the W spring is limited to 350 bar (5000 psi) maximum inlet pressure. |

| | |
|--|--|
| | |
|--|--|

(Pilot Operated Reducing main stage with integral 8A control cavity)

REDUCING VALVE

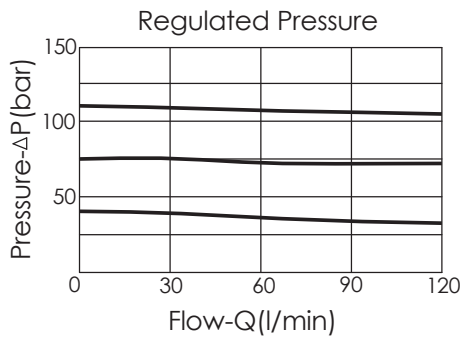
Ordering Code: **PB-2A-X-Y-8**



TECHNICAL DATA

| | | |
|--|-------|-------|
| Max. Operating pressure: | 350 | bar |
| Rated flow: | 80 | l/min |
| Cavity-Tooling: | 2A-3 | |
| Installation torque: | 60-70 | Nm |
| Weight: | 0.21 | kg |
| Control Pilot Flow (0.16 ~0.25 L/min.) | | |

UNIT:mm



X OPERATION

30 Standard Type

Y

SPRINGS

MINIMUM CONTROL PRESSURE

D

1.7 bar (25 psi)

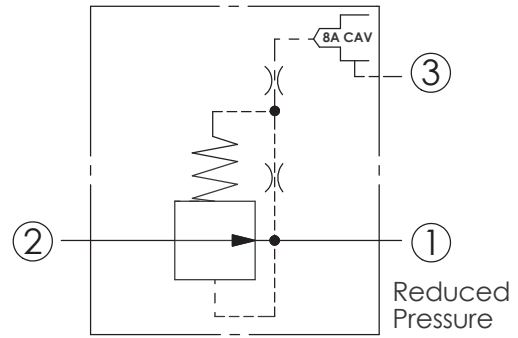
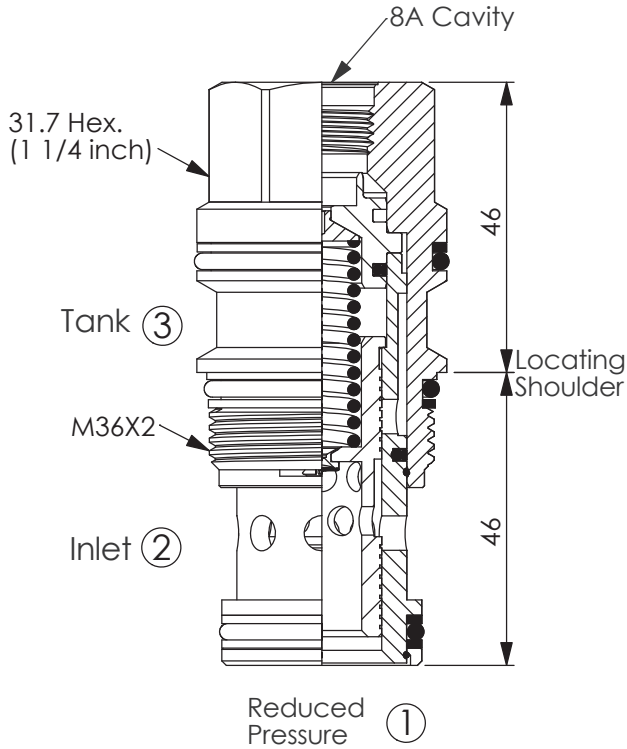
W

7 bar (100 psi)

Maximum inlet pressure is determined by the bias spring. The D spring is limited to 140 bar (2000 psi) maximum differential pressure and the W spring is limited to 350 bar (5000 psi) maximum inlet pressure.

REDUCING VALVE (Pilot Operated Reducing main stage with integral 8A control cavity)

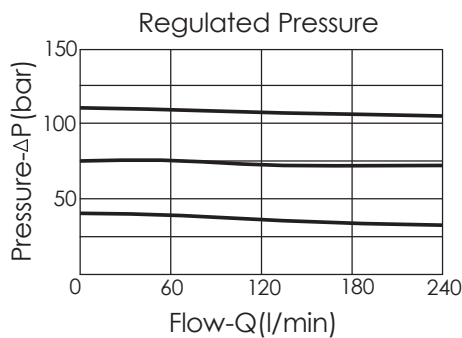
Ordering Code: **PB-17A-X-Y-8**



TECHNICAL DATA

| | | |
|--|---------|-------|
| Max. Operating pressure: | 350 | bar |
| Rated flow: | 160 | l/min |
| Cavity-Tooling: | 17A-3 | |
| Installation torque: | 200-215 | Nm |
| Weight: | 0.46 | kg |
| Control Pilot Flow (0.25 ~0.33 L/min.) | | |

UNIT:mm



X

OPERATION

30

Standard Type

Y

SPRINGS

MINIMUM CONTROL PRESSURE

D

1.7 bar (25 psi)

W

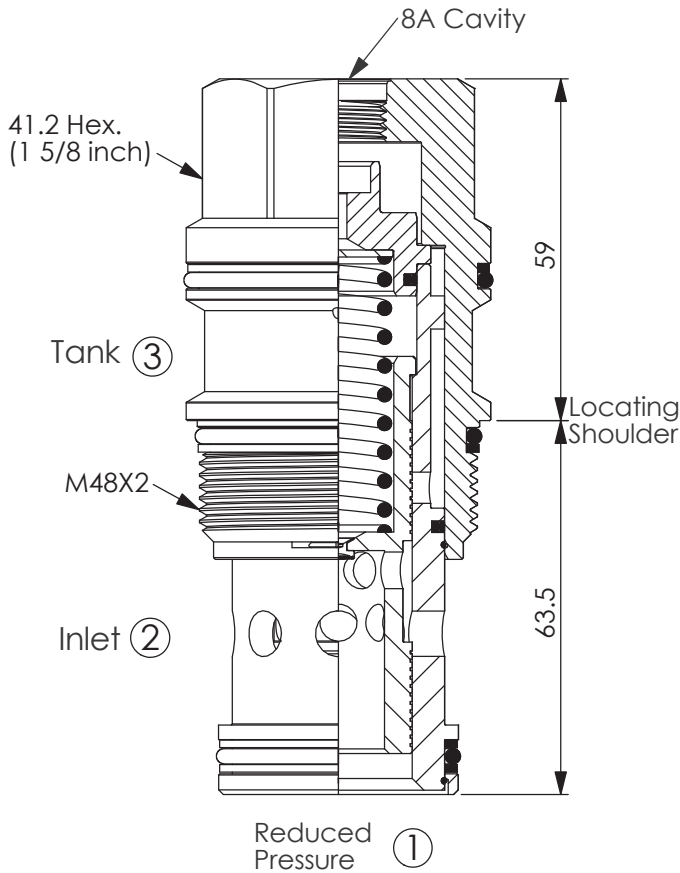
7 bar (100 psi)

Maximum inlet pressure is determined by the bias spring. The D spring is limited to 140 bar (2000 psi) maximum differential pressure and the W spring is limited to 350 bar (5000 psi) maximum inlet pressure.

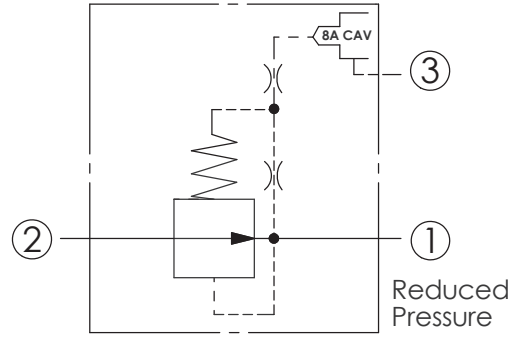
(Pilot Operated Reducing main stage with integral 8A control cavity)

REDUCING VALVE

Ordering Code: **PB-19A-X-Y-8**

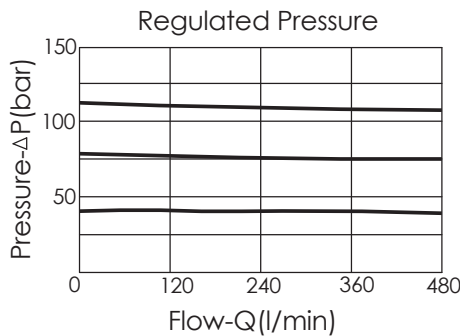


UNIT:mm



TECHNICAL DATA

| | | |
|--|---------|-------|
| Max.Operating pressure: | 350 | bar |
| Rated flow: | 320 | l/min |
| Cavity-Tooling: | 19A-3 | |
| Installation torque: | 465-500 | Nm |
| Weight: | 1.05 | kg |
| Control Pilot Flow (0.25 ~0.33 L/min.) | | |



X OPERATION

30 Standard Type

Y

SPRINGS

MINIMUM CONTROL PRESSURE

D

1.7 bar (25 psi)

W

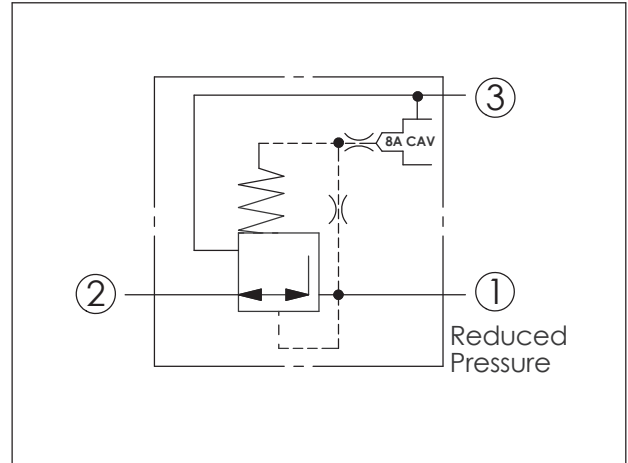
7 bar (100 psi)

Maximum inlet pressure is determined by the bias spring. The D spring is limited to 140 bar (2000 psi) maximum differential pressure and the W spring is limited to 350 bar (5000 psi) maximum inlet pressure.

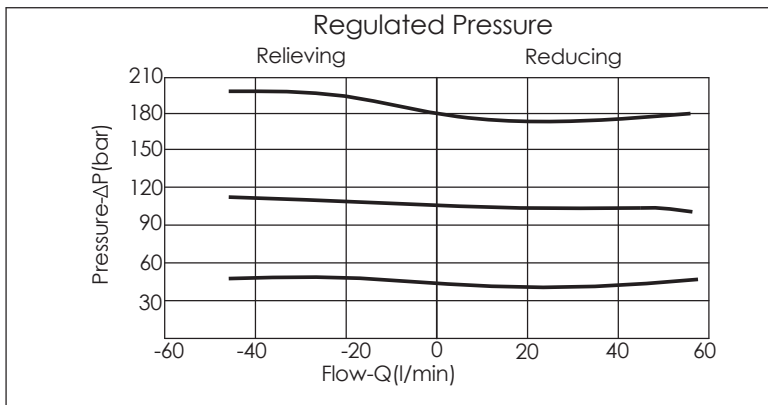
REDUCING/RELIEVING VALVE (Pilot operated, pressure reducing/relieving main stage with integral 8A control cavity)

Ordering Code: **PP-11A-X-Y-8**

UNIT:mm



| TECHNICAL DATA | |
|--|----------|
| Max.Operating pressure: | 350 bar |
| Rated flow: | 40 l/min |
| Cavity-Tooling: | 11A-3 |
| Installation torque: | 40-50 Nm |
| Weight: | 0.1 kg |
| Control Pilot Flow (0.11 ~0.16 L/min.) | |



| X | OPERATION |
|----|--|
| 30 | Standard Type Low Leakage |
| 33 | Option Type Improved Dynamic Response |

| Y | SPRINGS |
|---|--|
| | MINIMUM CONTROL PRESSURE |
| D | 1.7 bar (25 psi) |
| W | 7 bar (100 psi) |
| | Maximum inlet pressure is determined by the bias spring. The D spring is limited to 140 bar (2000 psi) maximum differential pressure and the W spring is limited to 350 bar (5000 psi) maximum inlet pressure. |

| | |
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|--|--|

REDUCING/RELIEVING VALVE (Pilot operated, pressure reducing/relieving main stage with integral 8A control cavity)

Ordering Code: **PP-2A-X-Y-8**

28.5 Hex.
(1 1/8 inch)

8A Cavity

Tank ③

1.00-14UNS-2A

Inlet ②

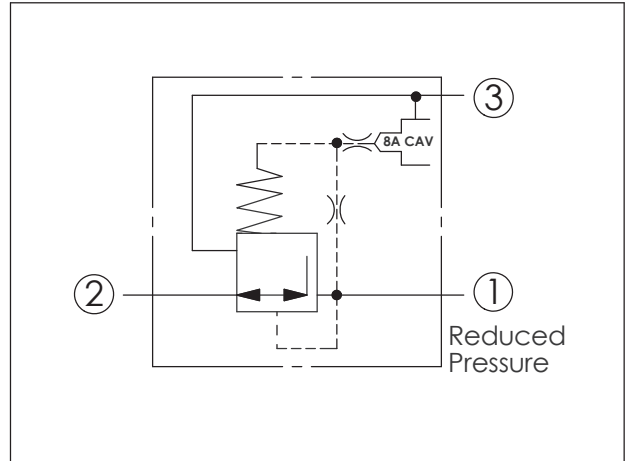
Reduced Pressure ①

35.1

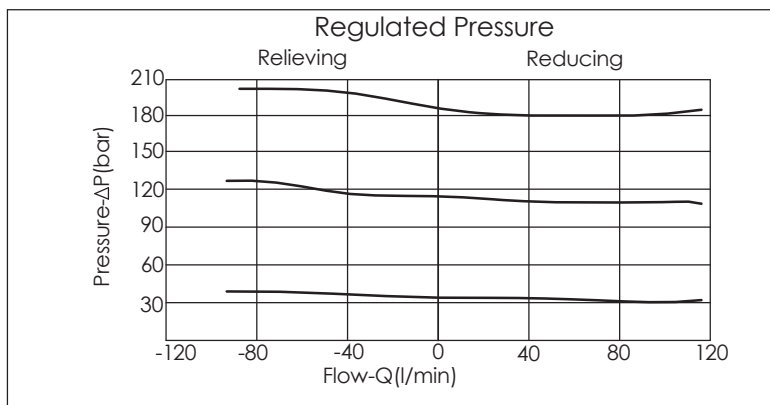
35.1

Locating Shoulder

UNIT:mm



| TECHNICAL DATA | |
|--|----------|
| Max. Operating pressure: | 350 bar |
| Rated flow: | 80 l/min |
| Cavity-Tooling: | 2A-3 |
| Installation torque: | 60-70 Nm |
| Weight: | 0.19 kg |
| Control Pilot Flow (0.16 ~0.25 L/min.) | |



| X | OPERATION | |
|----|---------------|---------------------------|
| 30 | Standard Type | Low Leakage |
| 33 | Option Type | Improved Dynamic Response |

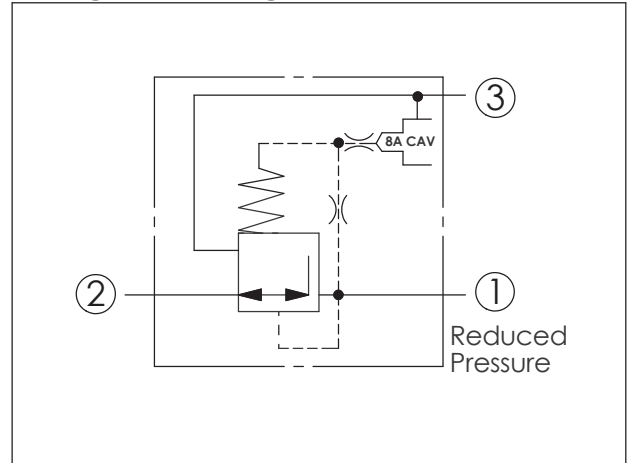
| Y | SPRINGS | |
|---|--|--|
| | MINIMUM CONTROL PRESSURE | |
| D | 1.7 bar (25 psi) | |
| W | 7 bar (100 psi) | |
| | Maximum inlet pressure is determined by the bias spring. The D spring is limited to 140 bar (2000 psi) maximum differential pressure and the W spring is limited to 350 bar (5000 psi) maximum inlet pressure. | |

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| | | |
|--|--|--|

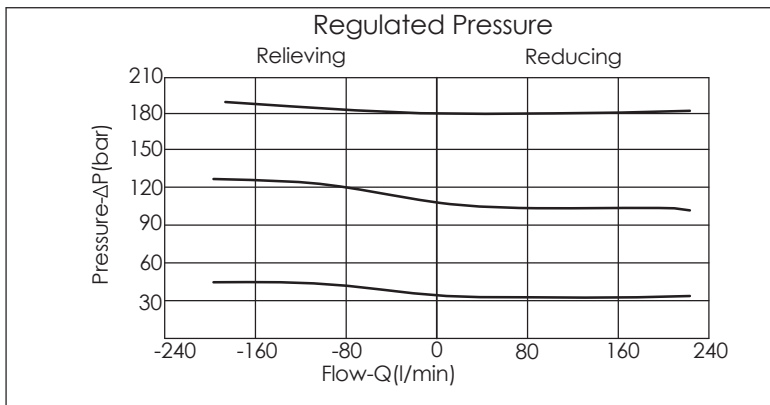
REDUCING/RELIEVING VALVE (Pilot operated, pressure reducing/relieving main stage with integral 8A control cavity)

Ordering Code: **PP-17A-X-Y-8**

UNIT:mm



| TECHNICAL DATA | |
|--|------------|
| Max.Operating pressure: | 350 bar |
| Rated flow: | 160 l/min |
| Cavity-Tooling: | 17A-3 |
| Installation torque: | 200-215 Nm |
| Weight: | 0.45 kg |
| Control Pilot Flow (0.25 ~0.33 L/min.) | |



| X | OPERATION | |
|----|---------------|---------------------------|
| 30 | Standard Type | Low Leakage |
| 33 | Option Type | Improved Dynamic Response |

| Y | SPRINGS | |
|---|--|--|
| | MINIMUM CONTROL PRESSURE | |
| D | 1.7 bar (25 psi) | |
| W | 7 bar (100 psi) | |
| | Maximum inlet pressure is determined by the bias spring. The D spring is limited to 140 bar (2000 psi) maximum differential pressure and the W spring is limited to 350 bar (5000 psi) maximum inlet pressure. | |

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| | | |
|--|--|--|

REDUCING/RELIEVING VALVE (Pilot operated, pressure reducing/relieving main stage with integral 8A control cavity)

Ordering Code: **PP-19A-X-Y-8**

41.2 Hex.
(1 5/8 inch)

8A Cavity

59

Tank (3)

Locating Shoulder

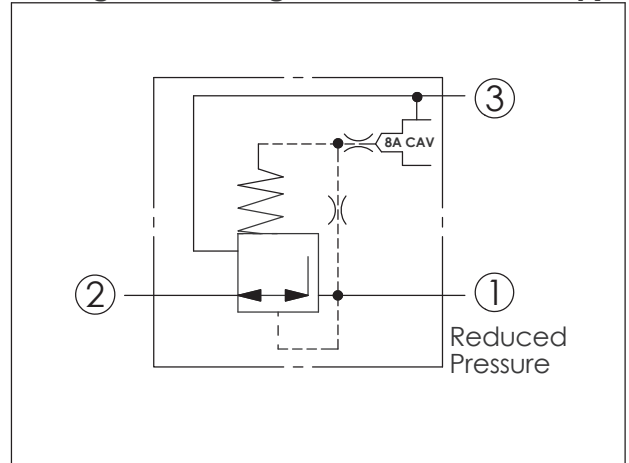
M48X2

63.5

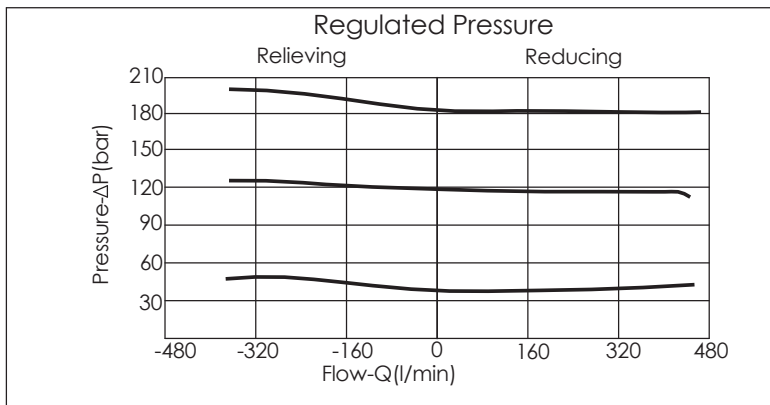
Inlet (2)

Reduced Pressure (1)

UNIT:mm



| TECHNICAL DATA | |
|--|------------|
| Max.Operating pressure: | 350 bar |
| Rated flow: | 320 l/min |
| Cavity-Tooling: | 19A-3 |
| Installation torque: | 465-500 Nm |
| Weight: | 1.03 kg |
| Control Pilot Flow (0.25 ~0.33 L/min.) | |



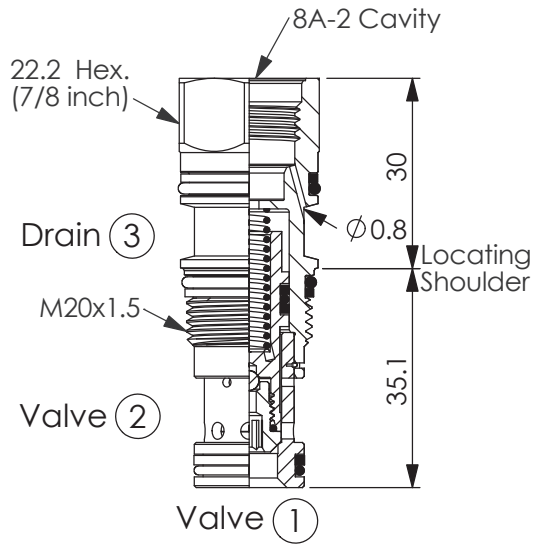
| X | OPERATION | |
|----|---------------|---------------------------|
| 30 | Standard Type | Low Leakage |
| 33 | Option Type | Improved Dynamic Response |

| Y | SPRINGS | |
|---|--|--|
| | MINIMUM CONTROL PRESSURE | |
| D | 1.7 bar (25 psi) | |
| W | 7 bar (100 psi) | |
| | Maximum inlet pressure is determined by the bias spring. The D spring is limited to 140 bar (2000 psi) maximum differential pressure and the W spring is limited to 350 bar (5000 psi) maximum inlet pressure. | |

| | | |
|--|--|--|
| | | |
|--|--|--|

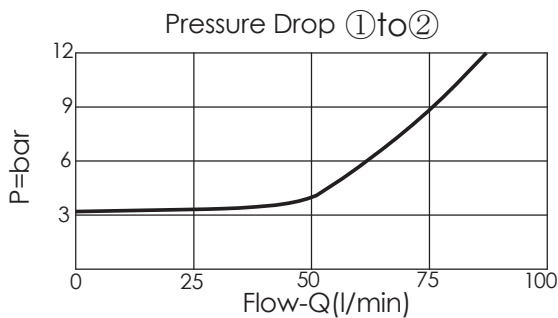
(unbalanced poppet, vent-to-open switching element main stage with integral 8A-2 control cavity)

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

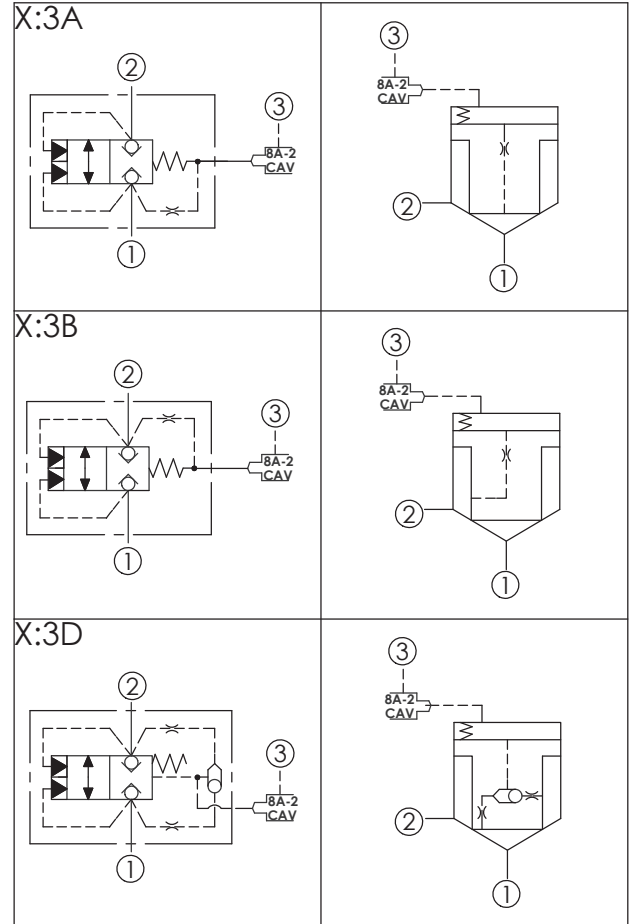


UNIT:mm

Control Orifice Diameter : ϕ 0.53 mm



| Y | SPRINGS | |
|---|-------------------|-------------------|
| | | Cracking pressure |
| D | 3.5 bar at port ① | |



TECHNICAL DATA

Max. pressure: 350 bar

Rated flow: 95 l/min

Cavity-Tooling: 11A-3

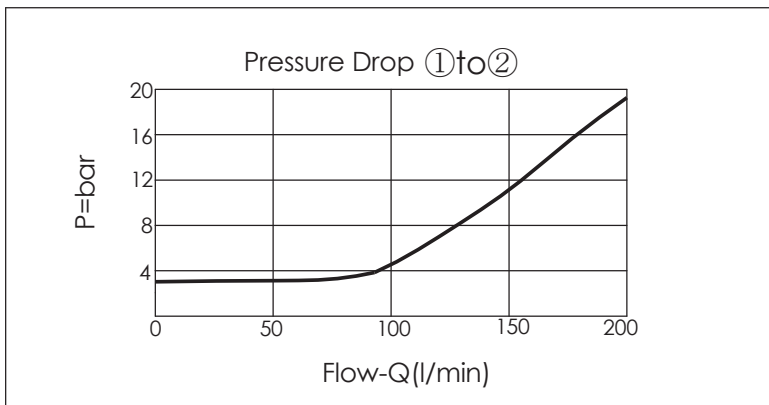
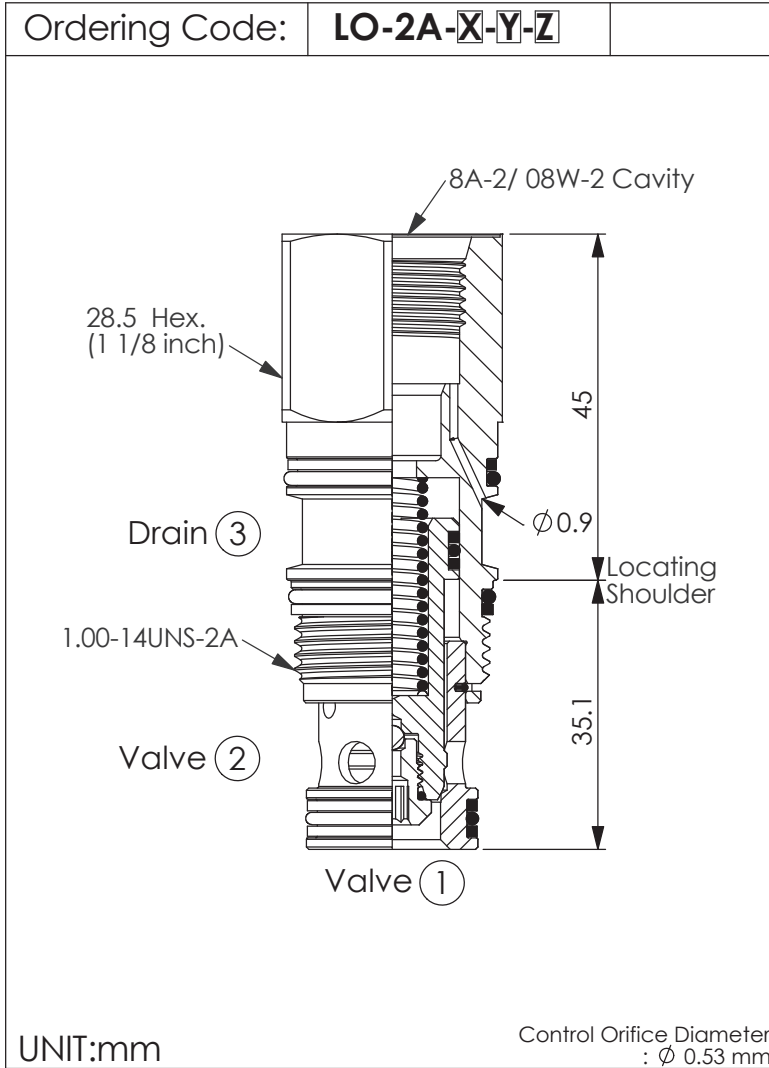
Installation torque: 40-50 Nm

Weight: 0.10 kg

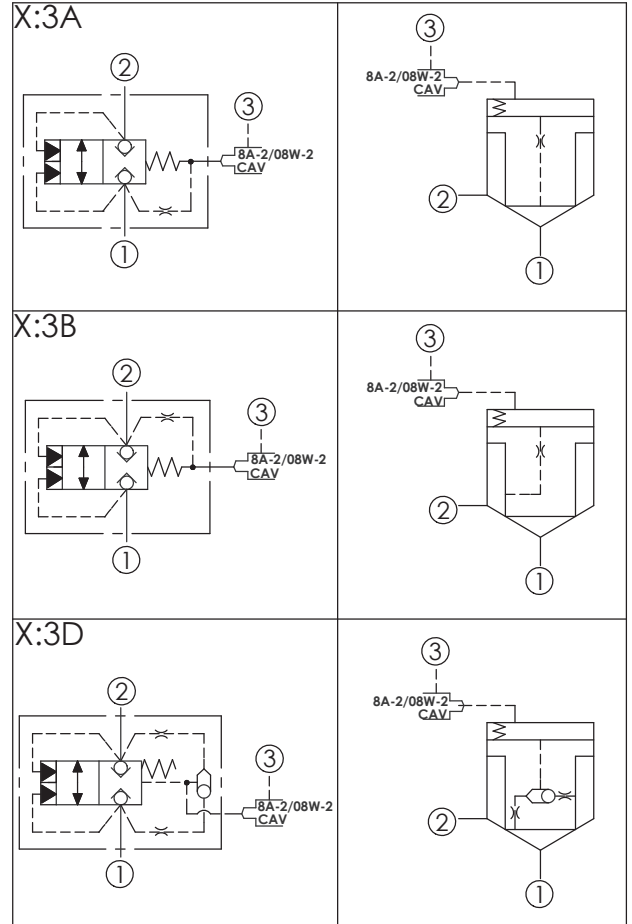
Area ratio:A3 to A1 = 1.8:1
Area ratio:A3 to A2 = 2.25:1

| X | OPERATION | |
|----|--|--|
| 3A | Spring biased closed pilot source from Port 1 | |
| 3B | Spring biased closed pilot source from Port 2 | |
| 3D | Spring biased closed Higher of Ports 1 or 2 pilot source | |

| Z | CAVITIES | |
|---|-------------|--|
| 8 | 8A-2 Cavity | |



| Y | SPRINGS |
|---|-------------------|
| | Cracking pressure |
| D | 3.5 bar at port ① |

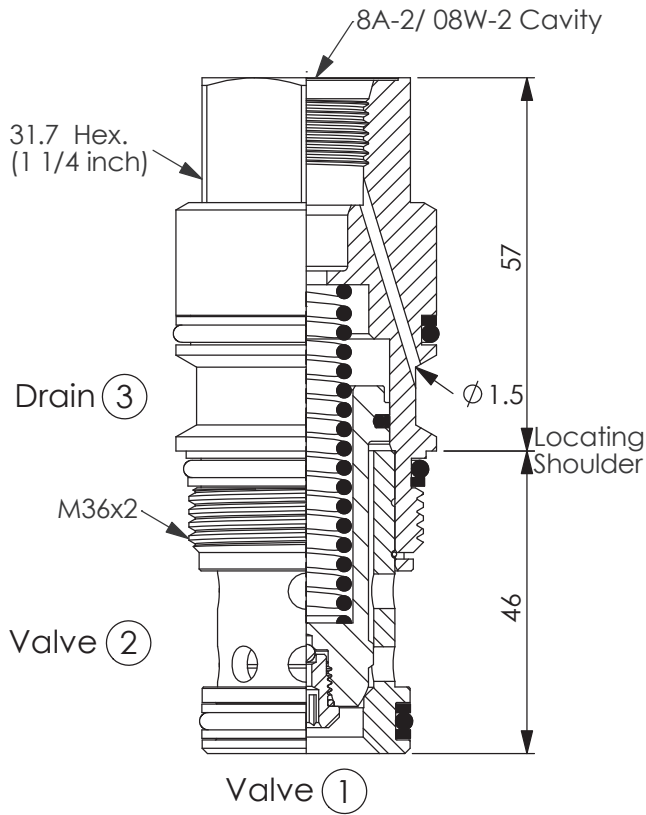


| TECHNICAL DATA | | |
|-----------------------|--------|-------|
| Max. pressure: | 350 | bar |
| Rated flow: | 200 | l/min |
| Cavity-Tooling: | 2A-3 | |
| Installation torque: | 60-70 | Nm |
| Weight: | 0.20 | kg |
| Area ratio:A3 to A1 = | 1.8:1 | |
| Area ratio:A3 to A2 = | 2.25:1 | |

| X | OPERATION |
|----|--|
| 3A | Spring biased closed pilot source from Port 1 |
| 3B | Spring biased closed pilot source from Port 2 |
| 3D | Spring biased closed Higher of Ports 1 or 2 pilot source |

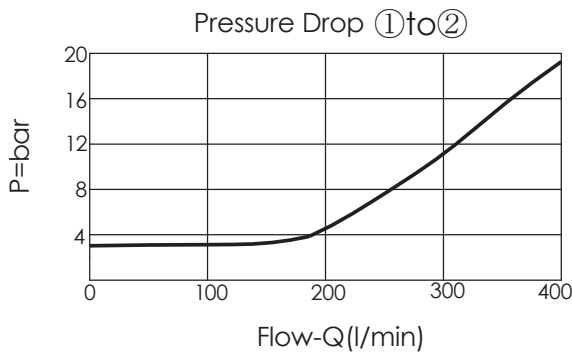
| Z | CAVITIES |
|----|--------------|
| 8 | 8A-2 Cavity |
| 8W | 08W-2 Cavity |

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

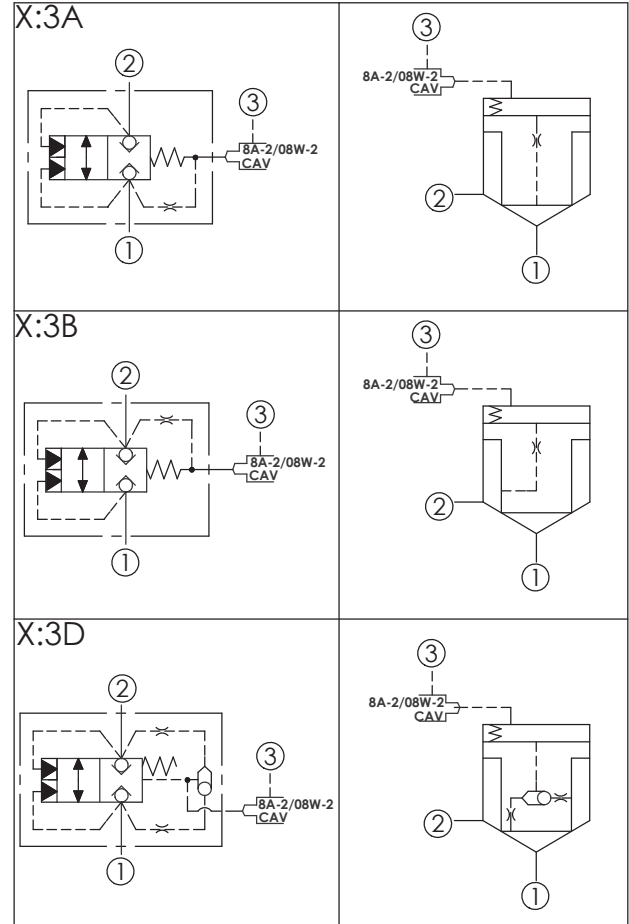


UNIT:mm

Control Orifice Diameter : ϕ 0.8 mm



| Y | SPRINGS | |
|---|-------------------|--|
| | Cracking pressure | |
| D | 3.5 bar at port ① | |
| E | 5.5 bar at port ① | |

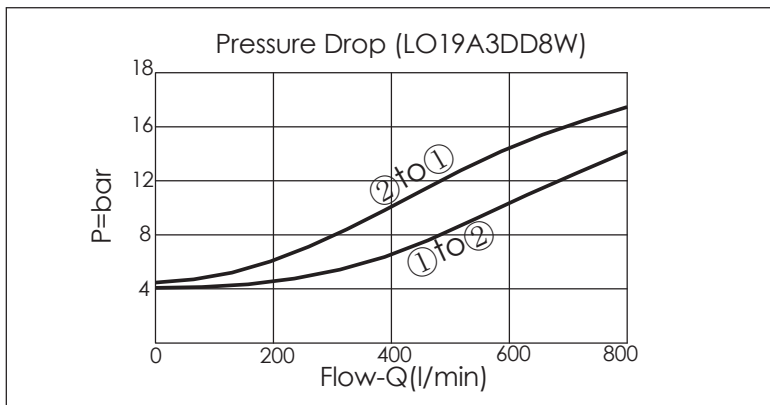
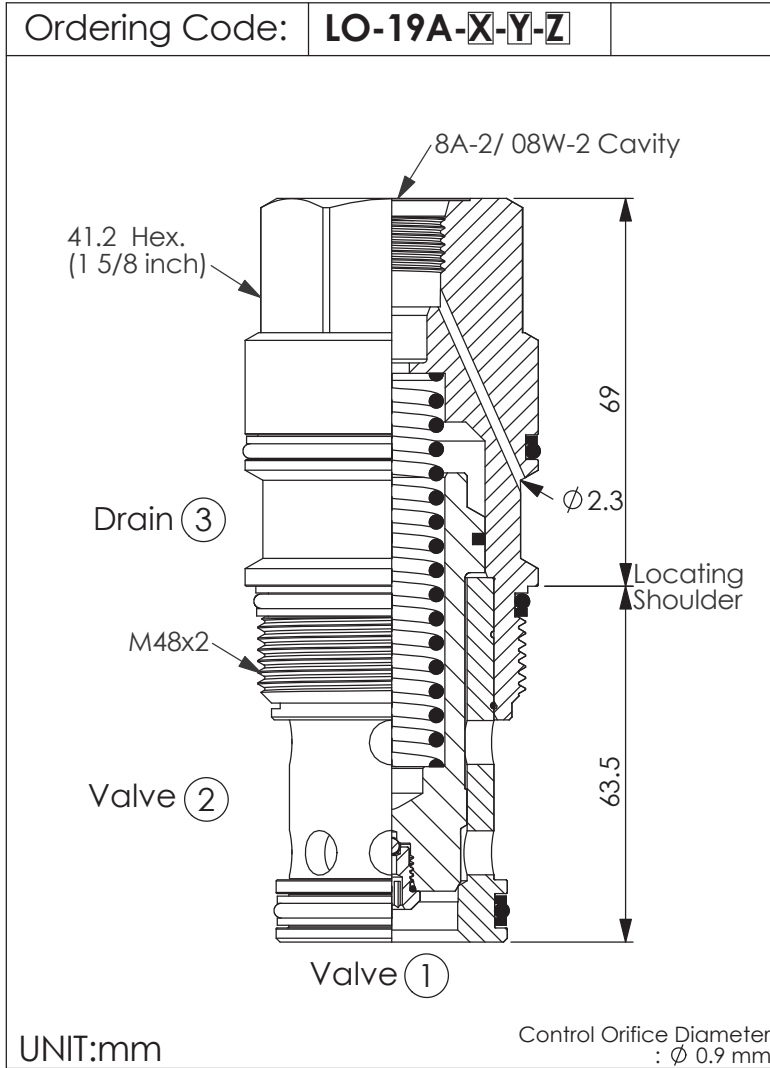


TECHNICAL DATA

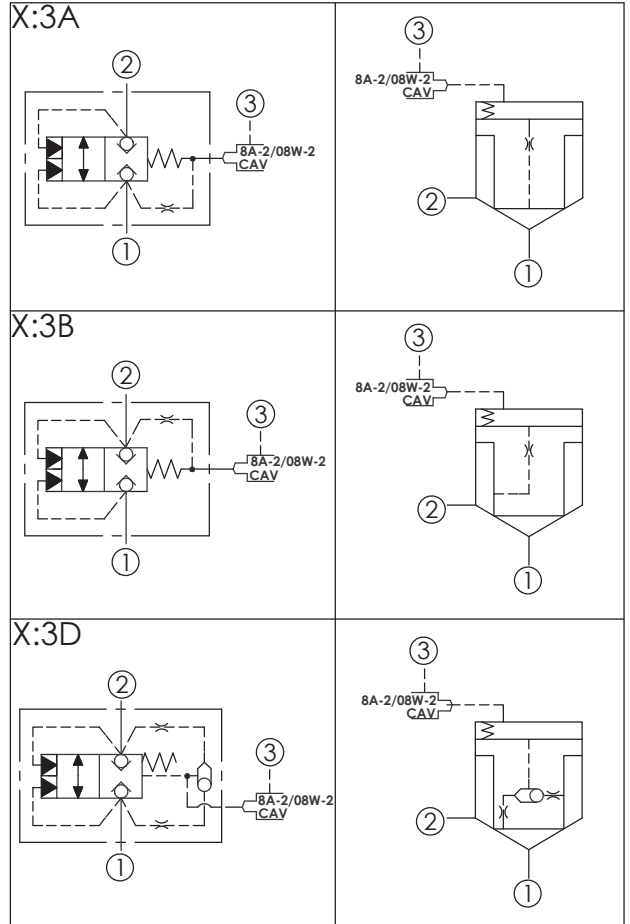
| | | |
|------------------------------|---------|-------|
| Max. pressure: | 350 | bar |
| Rated flow: | 380 | l/min |
| Cavity-Tooling: | 17A-3 | |
| Installation torque: | 200-215 | Nm |
| Weight: | 0.48 | kg |
| Area ratio:A3 to A1 = 1.8:1 | | |
| Area ratio:A3 to A2 = 2.25:1 | | |

| X | OPERATION | |
|----|--|--|
| 3A | Spring biased closed pilot source from Port 1 | |
| 3B | Spring biased closed pilot source from Port 2 | |
| 3D | Spring biased closed Higher of Ports 1 or 2 pilot source | |

| Z | CAVITIES | |
|----|--------------|--|
| 8 | 8A-2 Cavity | |
| 8W | 08W-2 Cavity | |



| Y | SPRINGS | |
|---|-------------------|--|
| | Cracking pressure | |
| D | 3.5 bar at port ① | |

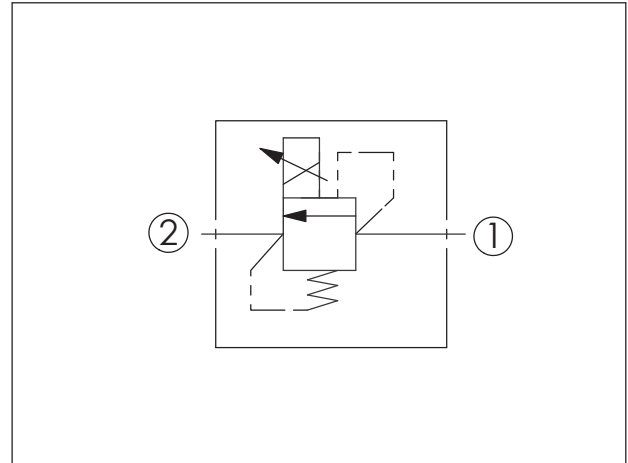
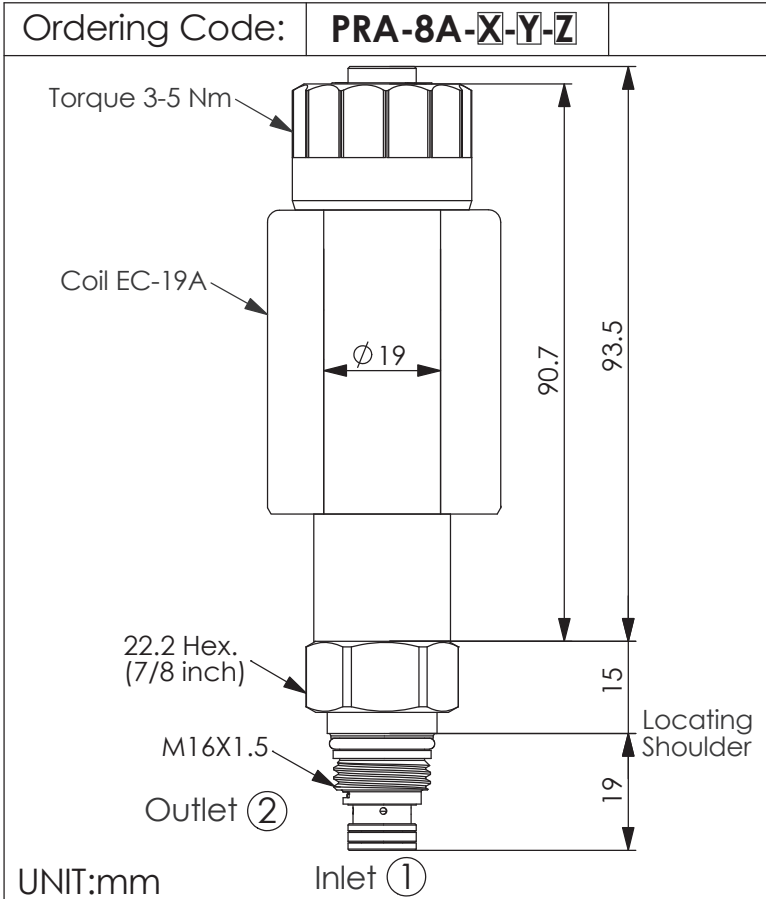


| TECHNICAL DATA | | |
|------------------------------|----------------|-------|
| Max. pressure: | 350 | bar |
| Rated flow: | 760 | l/min |
| Cavity-Tooling: | 19A-3 (19AB-3) | |
| Installation torque: | 465-500 | Nm |
| Weight: | 1.17 | kg |
| Area ratio:A3 to A1 = 1.8:1 | | |
| Area ratio:A3 to A2 = 2.25:1 | | |

| X | OPERATION | |
|----|--|--|
| 3A | Spring biased closed pilot source from Port 1 | |
| 3B | Spring biased closed pilot source from Port 2 | |
| 3D | Spring biased closed Higher of Ports 1 or 2 pilot source | |

| Z | CAVITIES | |
|----|--------------|--|
| 8 | 8A-2 Cavity | |
| 8W | 08W-2 Cavity | |

PILOT CONTROL VALVE (Electro-Proportional, Relief-Inverse Function)



TECHNICAL DATA

Max. Operating pressure: 350 bar

Rated flow: 1 l/min

Cavity-Tooling: 8A-2

Installation torque: 27-33 Nm

Weight: 0.31 kg (Without Coil)

Coils must be ordered separately

Maximum Valve Leakage at Reseat: 25 c.c./min
Back pressure on the tank port (port 2) is directly additive at a 1:1 ratio to valve setting

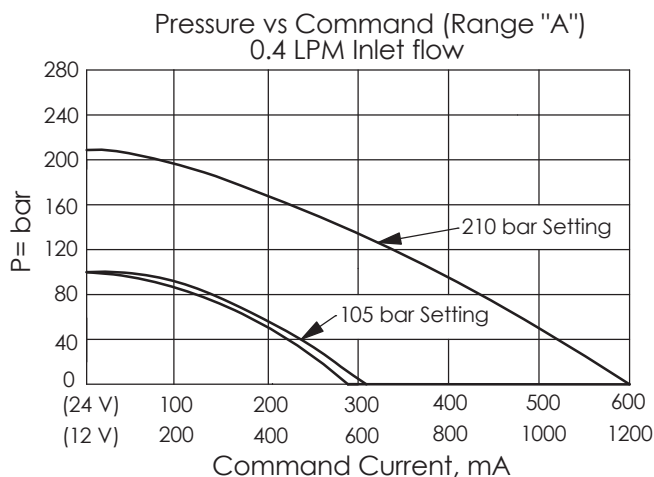
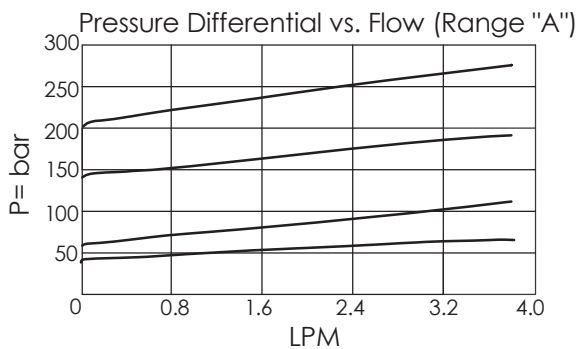
Hysteresis with DC input < 8%

Hysteresis with dither < 4%

Linearity with dither < 2%

Dither should be adjustable between 80-300Hz
(Recommended dither frequency 140Hz)


Reseat exceeds 85% of cracking pressure.



| X | OPERATION |
|----|--|
| 2D | 2 Ports · 22 Watt. Coil $\phi 19$ mm tube |

| Y | CONTROL PRESSURE RANGES |
|---|-------------------------|
| A | 210 to 105 bar |
| B | 105 to 55 bar |
| D | 55 to 20 bar |
| W | 315 to 210 bar |

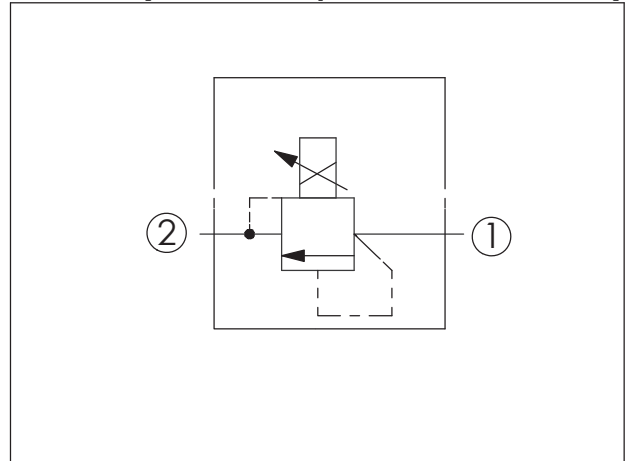
Customer must specify a pressure setting

| Z | OPTIONS |
|---|--|
| N | Non-adjustable  |

PILOT CONTROL VALVE (Electro-Proportional Pilot Relief)

Ordering Code: **PRB-8A-X-Y-Z**

UNIT:mm

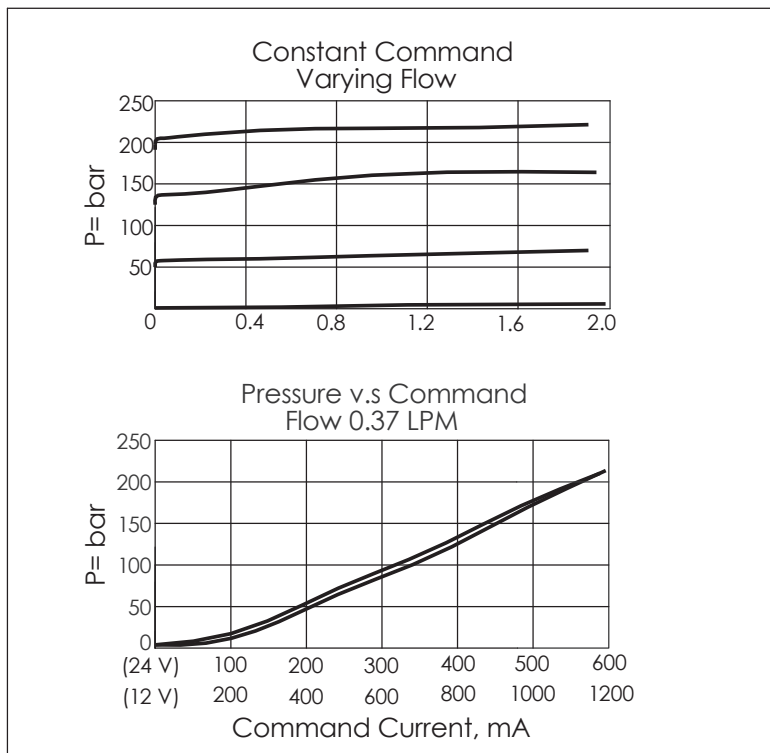


TECHNICAL DATA

| | | |
|-------------------------|---------|----------------|
| Max.Operating pressure: | 350 | bar |
| Rated flow: | 1 | l/min |
| Cavity-Tooling: | 8A-2 | |
| Installation torque: | 27-33 | Nm |
| Weight: | 0.16 kg | (Without Coil) |

Coils must be ordered separately

Maximum Valve Leakage at Reseat: 25 c.c./min
 Back pressure on the tank port (port 2) is directly additive at a 1:1 ratio to valve setting
 Hysteresis with DC input < 8%
 Hysteresis with dither < 4%
 Linearity with dither < 2%
 Dither should be adjustable between 80-300Hz (Recommended dither frequency 140Hz)
 Reseat exceeds 85% of cracking pressure.

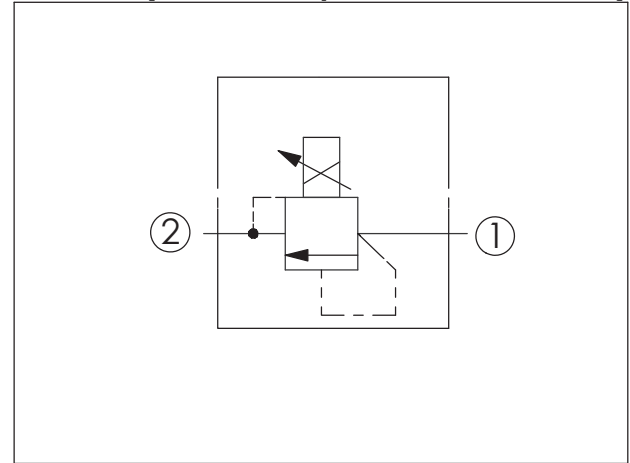
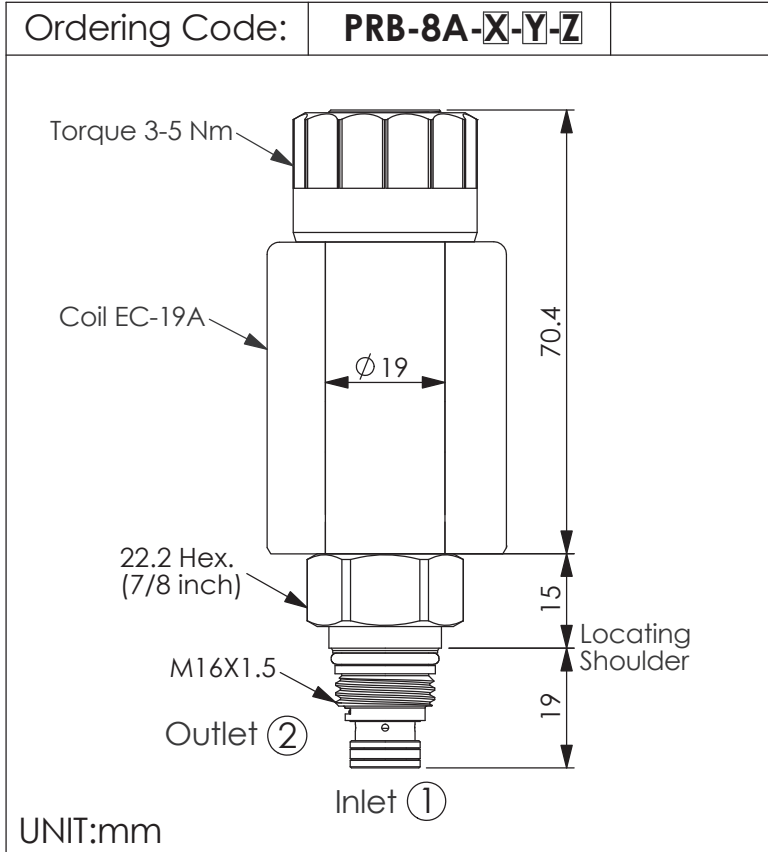


| X | OPERATION | |
|----|-------------------------|--------------|
| 2D | 2 Ports · 22 Watt. Coil | ∅ 19 mm tube |

| Z | OPTIONS | |
|---|----------------------------|--|
| N | Non-adjustable | |
| M | Manual Override | |
| P | Push Style Manual Override | |

| Y | CONTROL PRESSURE RANGES | |
|---|-------------------------|--|
| A | 20 to 210 bar | |
| B | 10.5 to 105 bar | |
| D | 3.5 to 50 bar | |
| W | 35 to 350 bar | |

PILOT CONTROL VALVE (Electro-Proportional Pilot Relief)



TECHNICAL DATA

Max. Operating pressure: 350 bar

Rated flow: 1 l/min

Cavity-Tooling: 8A-2

Installation torque: 27-33 Nm

Weight: 0.16 kg (Without Coil)

Coils must be ordered separately

Maximum Valve Leakage at Reseat: 25 c.c./min
Back pressure on the tank port (port 2) is directly additive at a 1:1 ratio to valve setting

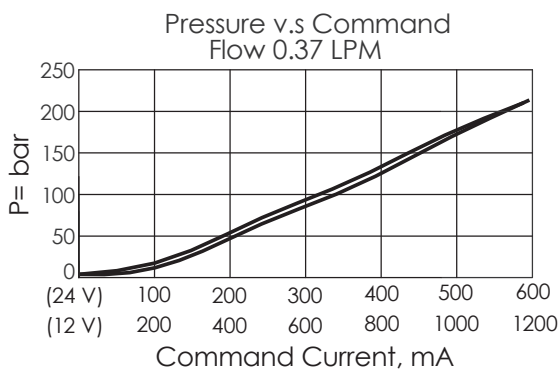
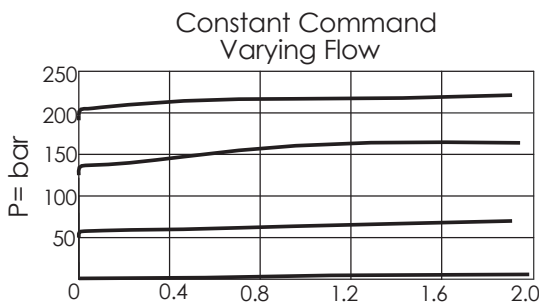
Hysteresis with DC input < 8%

Hysteresis with dither < 4%




Linearity with dither < 2%

Dither should be adjustable between 80-300Hz
(Recommended dither frequency 140Hz)

Reseat exceeds 85% of cracking pressure.



| X | OPERATION |
|----|---|
| 2D | 2 Ports · 22 Watt. Coil Ø 19 mm tube |

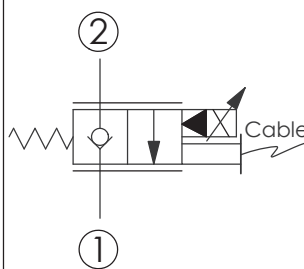
| Z | OPTIONS |
|---|--|
| N | Non-adjustable  |
| M | Manual Override  |
| P | Push Style Manual Override  |

| Y | CONTROL PRESSURE RANGES |
|---|-------------------------|
| A | 20 to 210 bar |
| B | 10.5 to 105 bar |
| D | 3.5 to 50 bar |
| W | 35 to 350 bar |

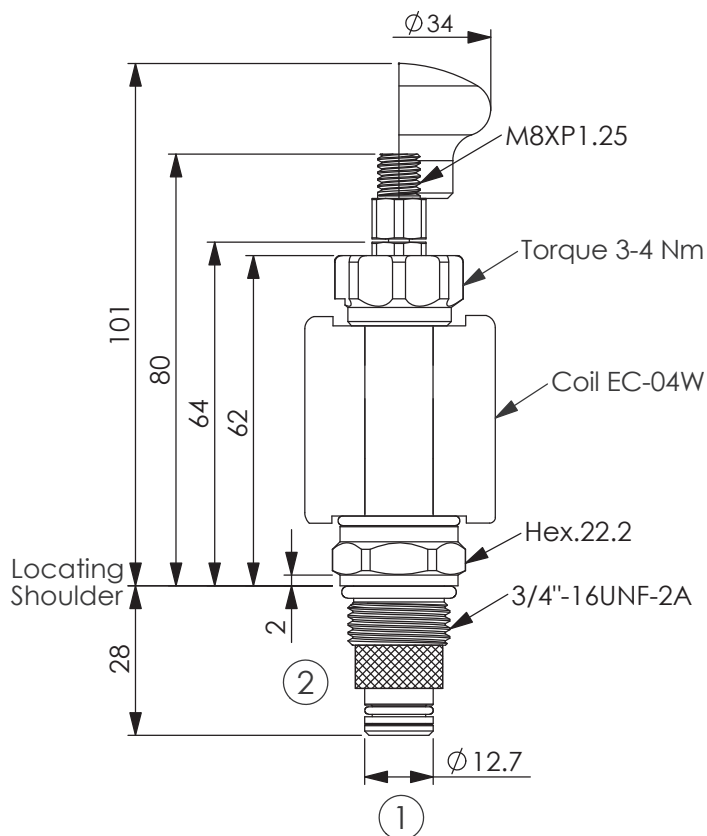
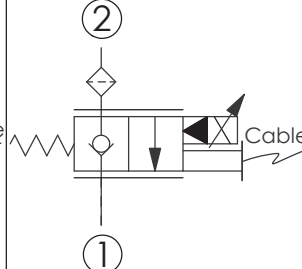
FLOW CONTROL VALVE (Electro-Proportional, Normally Closed With Cable)

Ordering Code: **PEP-08W-2A-X-Y-Z**

X:01



X:07



UNIT:mm

TECHNICAL DATA

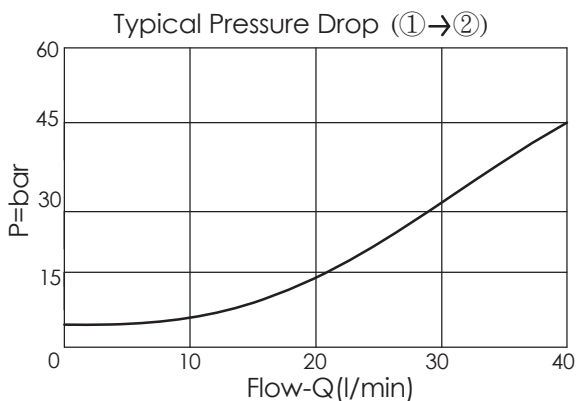
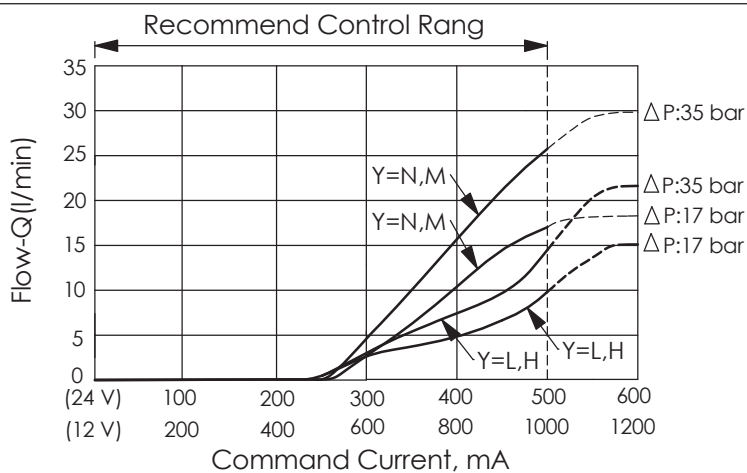
| | | |
|-------------------------|-------|-------|
| Max.Operating pressure: | 250 | bar |
| Rated flow: | 22 | l/min |
| Cavity-Tooling: | 08W-2 | |
| Installation torque: | 25-35 | Nm |
| Weight:(with Coil) | 0.37 | kg |
| (without Coil) | 0.15 | kg |

Coils must be ordered separately

Internal Leakage: 0.15cc/minute
(5 drops/minute) max.at 250 bar

Contionous Duty Coils:Current(A)

| Voltage(V) | Cold Coil | Hot Coil |
|------------|-----------|----------|
| 12 | 1.66 | 1.06 |
| 24 | 0.88 | 0.53 |



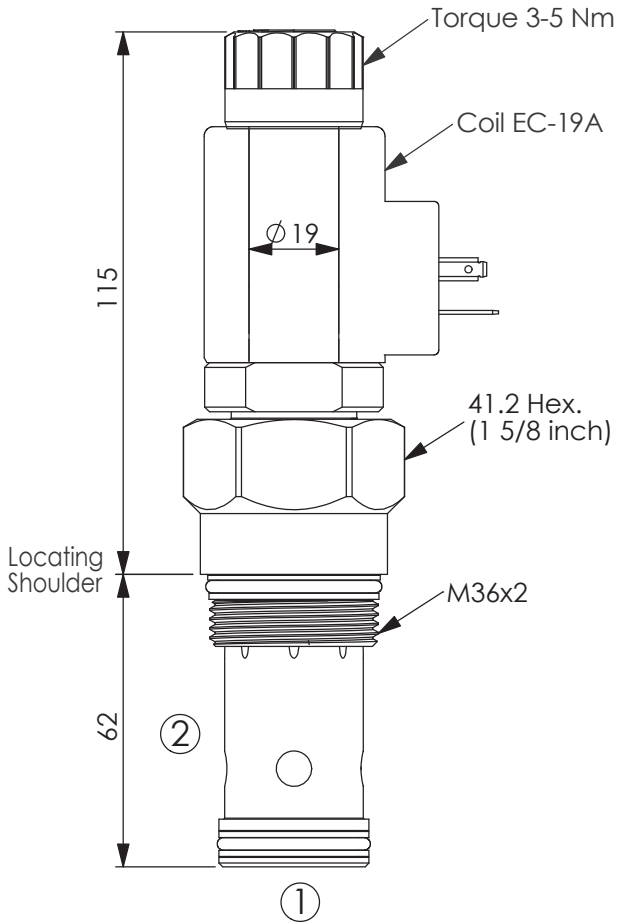
| X | STRUCTURE | |
|----|-----------------------------|---------------------------|
| 01 | Normally-Closed | No Reverse Flow Energized |
| 07 | Normally-Closed With Filter | No Reverse Flow Energized |

| Y | OPTIONS | |
|---|--------------------------------|--|
| N | Non-adjustable | |
| M | Manual Override | |
| L | PULL STYPE (CABLE OPERATED) | |
| H | PULL STYPE (HAND OPERATED) | |

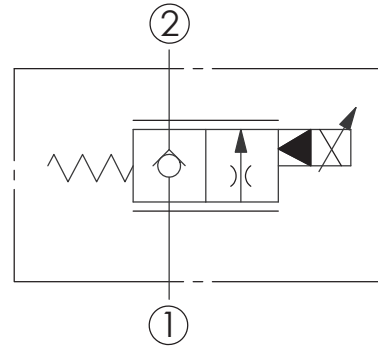
| Z | FLOW | |
|------|------------------|--|
| | NOMINAL CAPACITY | |
| 0220 | 0 - 22 LPM | |

FLOW CONTROL VALVE (Electro-Proportional, Normally Closed)

Ordering Code: **PEV-16A-2D-X-Y-Z**





UNIT:mm



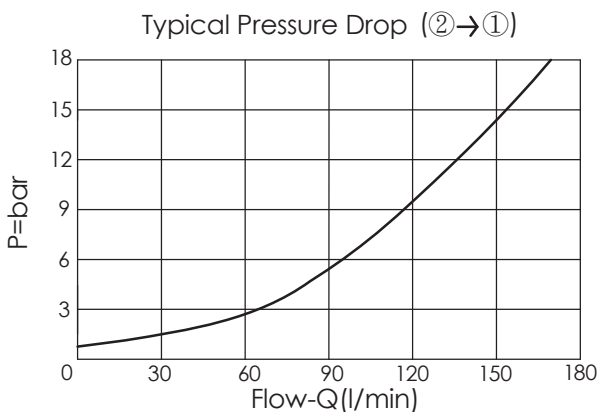
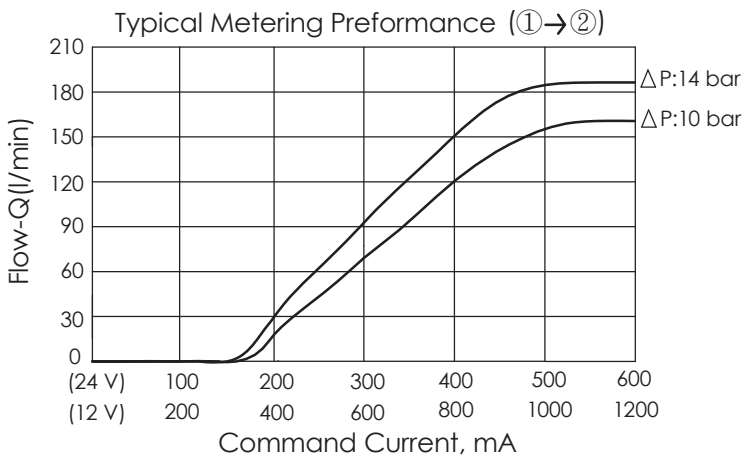
TECHNICAL DATA

| | | |
|---|---------|-------|
| Max.Operating pressure: | 350 | bar |
| Rated flow: | 160 | l/min |
| Cavity-Tooling: | 16A-2 | |
| Installation torque: | 200-215 | Nm |
| Weight:(with Coil) | 1.05 | kg |
| (without Coil) | 0.81 | kg |
| Fluids-Temperatures: | -40~120 | °C |
| Leakage at ΔP of 140 bar 40cc/minute maximum | | |
| Typical hysteresis less than 4% of rated current at 10 bar pressure drop - Pulse Width Modulated(PWM) | | |
| Recommended PWM frequency 60-150 HZ, application dependent, 140 HZ typical | | |
| Coils must be ordered separately | | |
| 2 Ports · 22 Watt. Coil ϕ 19 mm tube | | |

| | |
|-----------|--|
| X | OPTIONS |
| 09 | Normally-Closed, No Reverse Flow Energized, Nose-in, Side-out Operation |

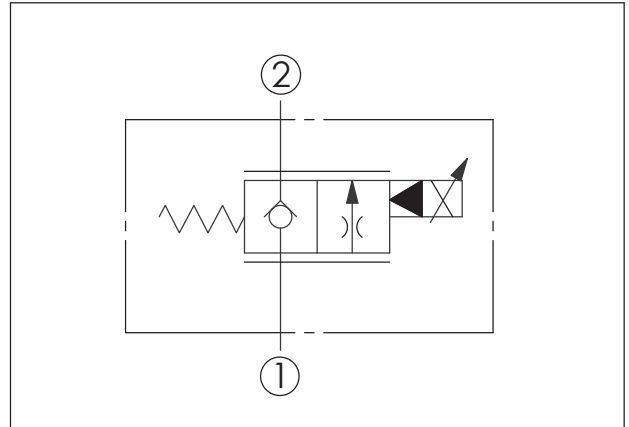
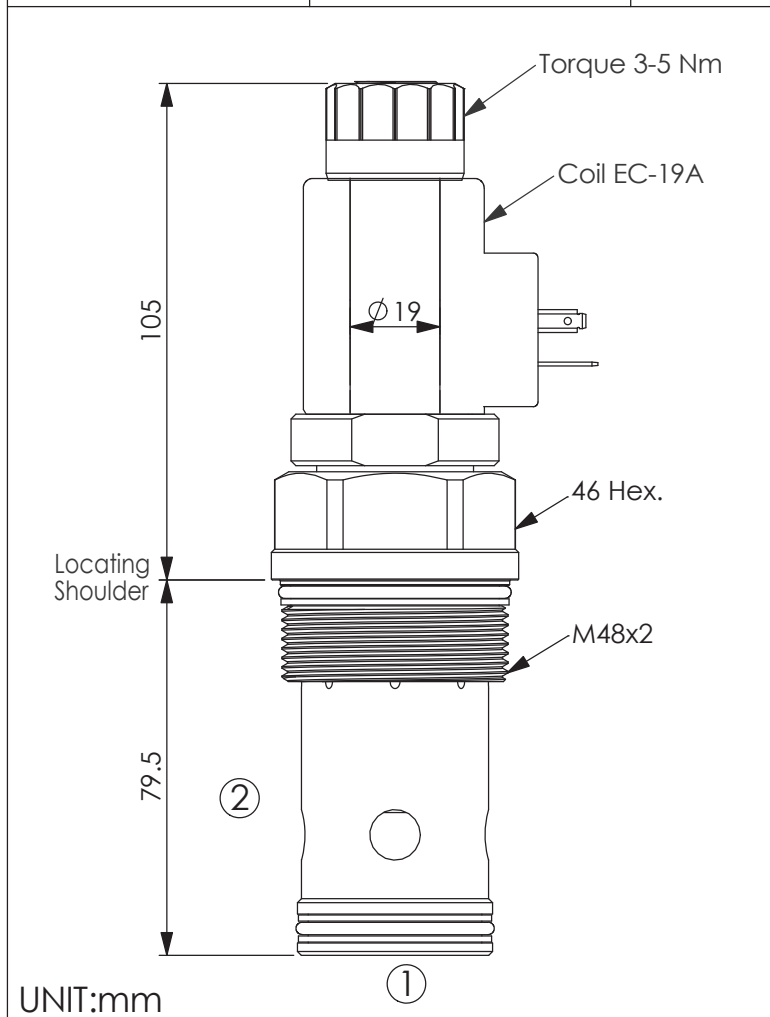
| | |
|----------|---|
| Y | OPTIONS |
| N | Non-adjustable  |
| P | Push Style Manual Override  |

| | |
|-------------|------------------|
| Z | FLOW |
| | NOMINAL CAPACITY |
| 1600 | 0-160 LPM |



FLOW CONTROL VALVE (Electro-Proportional, Normally Closed)

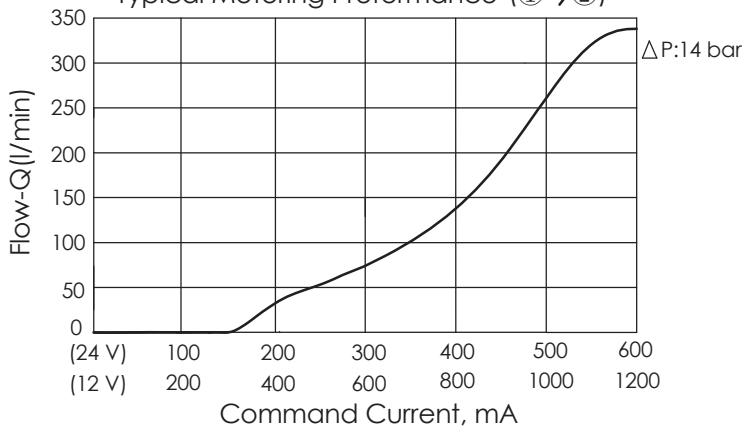
Ordering Code: **PEV-18A-2D-X-Y-Z**



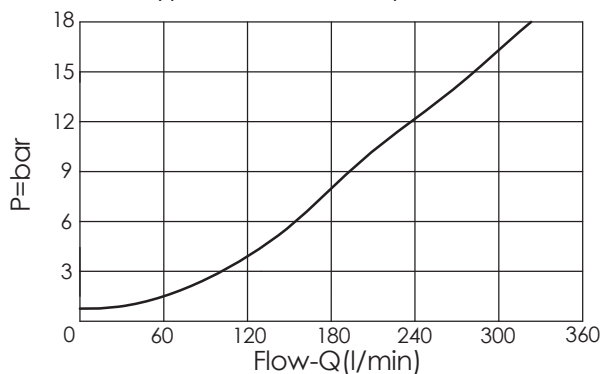
TECHNICAL DATA

| | | |
|---|---------|-------|
| Max. Operating pressure: | 350 | bar |
| Rated flow: | 320 | l/min |
| Cavity-Tooling: | 18A-2 | |
| Installation torque: | 200-215 | Nm |
| Weight:(with Coil) | 1.49 | kg |
| (without Coil) | 1.25 | kg |
| Fluids-Temperatures: | -40~120 | °C |
| Leakage at ΔP of 140 bar 50cc/minute maximum | | |
| Typical hysteresis less than 4% of rated current at 10 bar pressure drop - Pulse Width Modulated(PWM) | | |
| Recommended PWM frequency 60-150 HZ, application dependent, 140 HZ typical | | |
| Coils must be ordered separately | | |
| 2 Ports · 22 Watt. Coil ϕ 19 mm tube | | |

Typical Metering Performance (①→②)



Typical Pressure Drop (②→①)



| X | OPTIONS |
|----|---|
| 09 | Normally-Closed, No Reverse Flow Energized, Nose-in, Side-out Operation |

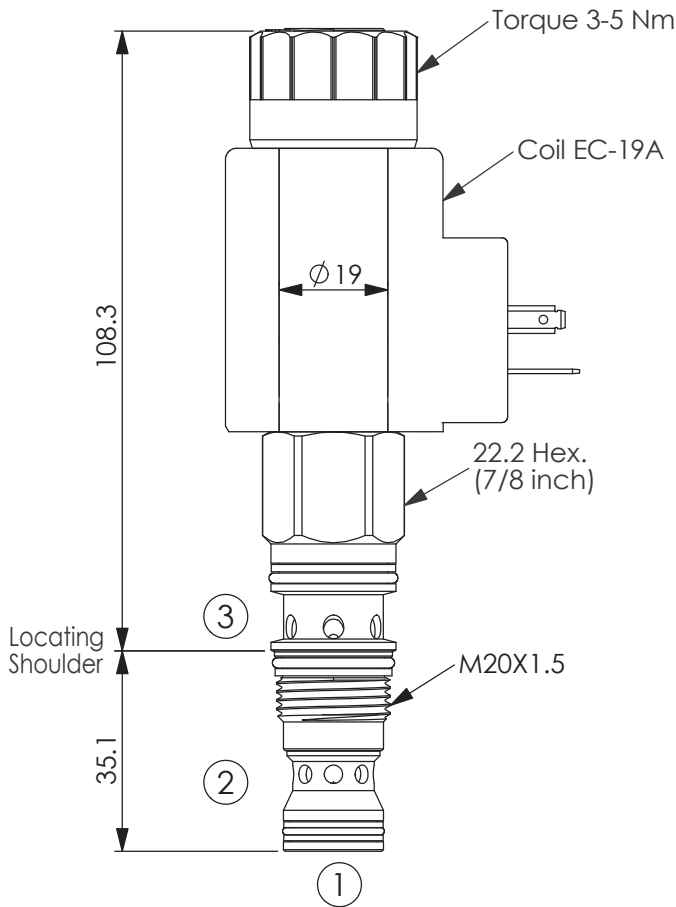
| Y | OPTIONS |
|---|----------------------------|
| N | Non-adjustable |
| P | Push Style Manual Override |

| Z | FLOW |
|------------------|-----------|
| NOMINAL CAPACITY | |
| 3200 | 0-320 LPM |

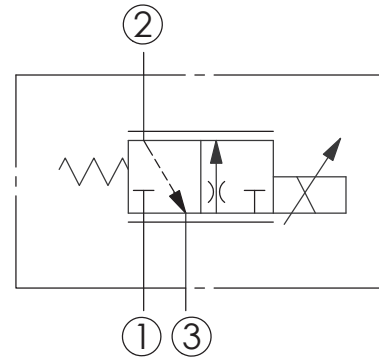
FLOW CONTROL VALVE

(Electro-Proportional, 3-way Flow Control Meter In Throttle)

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



UNIT:mm



TECHNICAL DATA

Max.Operating pressure: 350 bar

Rated flow: 34 l/min

Cavity-Tooling: 11A-3

Installation torque: 40-50 Nm

Linearity (with dither) <2%

Repeatability (with dither) <2%

Hysteresis (with dither) <4%

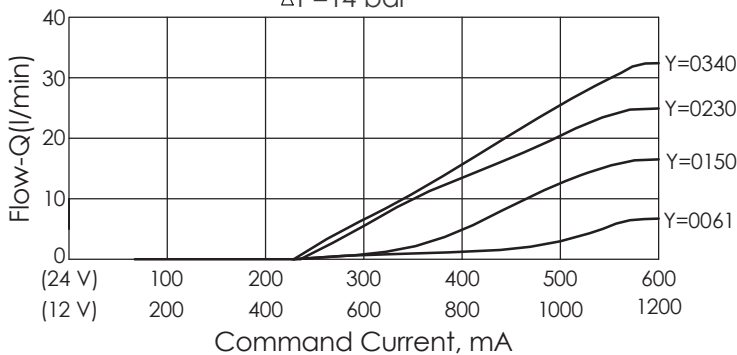
Hysteresis with DC input <8%

Deadband, nominal (as a percentage of input) 30%

The transition between positions is closed.

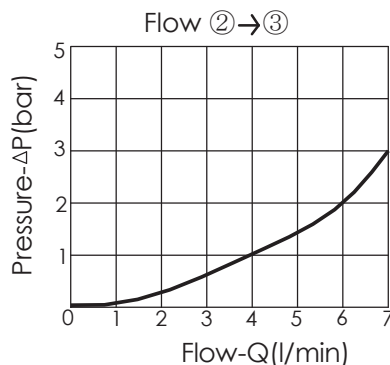
Weight:(with Coil) 0.57 kg
(without Coil) 0.29 kg

Typical Metering Performance (1→2)
 $\Delta P=14$ bar



If you need more information
Please contact our sales department

Note: Flow in the ②to③ direction is limited to about 5 LPM



| X | OPERATION | |
|----|---|--|
| 3D | 3 Ports · 22 Watt. Coil ∅ 19 mm tube | |

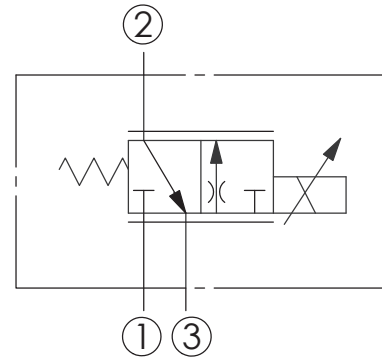
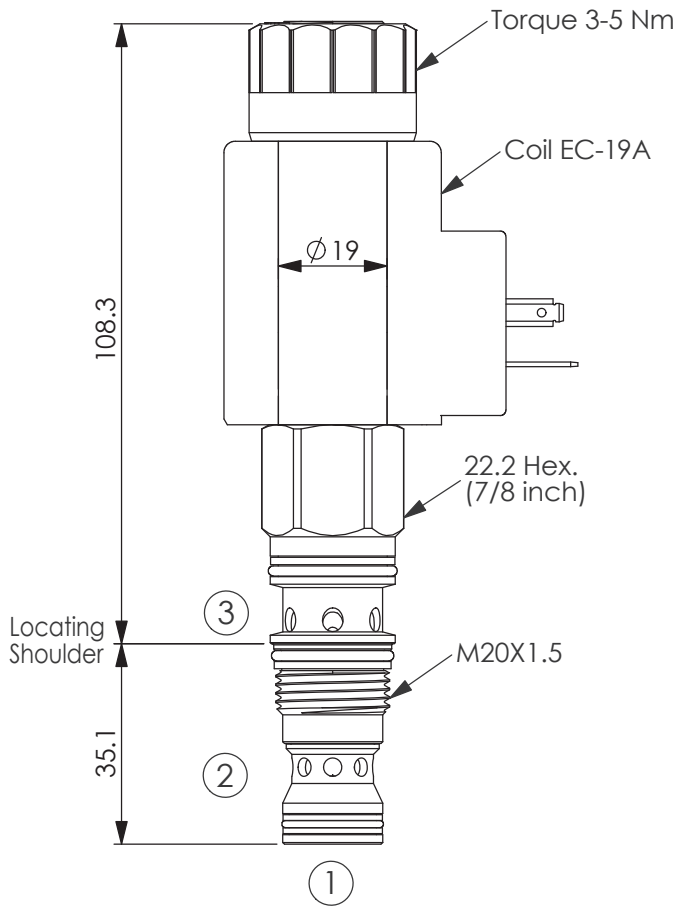
| Y | FLOW | |
|------|------------------|--|
| | NOMINAL CAPACITY | |
| 0061 | 0.4~6.1 LPM | |
| 0150 | 0.4~15 LPM | |
| 0230 | 0.4~23 LPM | |
| 0340 | 0.4~34 LPM | |

| Z | OPTIONS | |
|---|----------------|--|
| N | Non-adjustable | |

FLOW CONTROL VALVE

(Electro-Proportional, 3-way Flow Control Meter In Throttle)

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



TECHNICAL DATA

Max. Operating pressure: 350 bar

Rated flow: 23 l/min

Cavity-Tooling: 11A-3

Installation torque: 40-50 Nm

Linearity (with dither) <2%

Repeatibility (with dither) <2%

Hysteresis (with dither) <4%

Hysteresis with DC input <8%

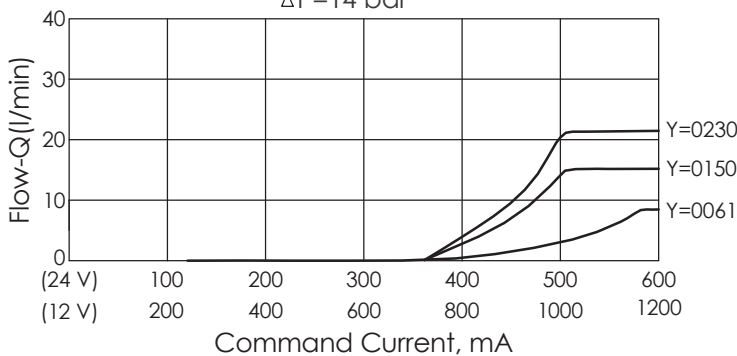
Deadband, nominal (as a percentage of input) 60%

The transition between positions is closed.

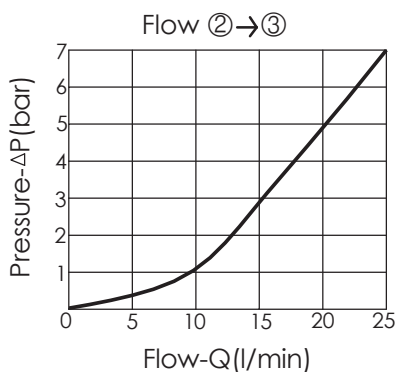
Weight: (with Coil) 0.57 kg
(without Coil) 0.29 kg

UNIT:mm

Typical Metering Performance (①→②)
ΔP=14 bar



If you need more information
Please contact our sales department



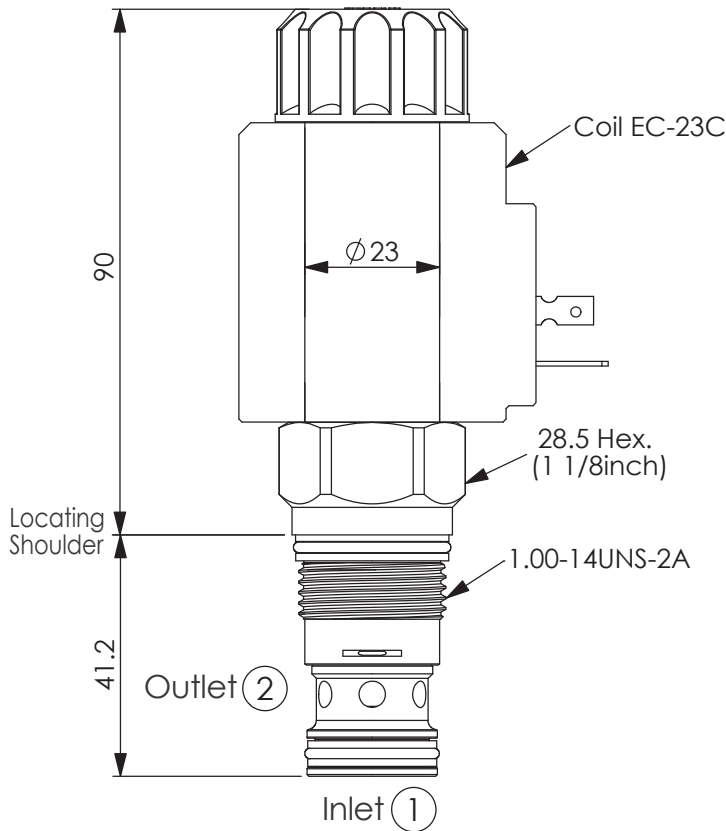
| X | OPERATION | |
|----|---|--|
| 3D | 3 Ports · 22 Watt. Coil ∅ 19 mm tube | |

| Y | FLOW | |
|------|------------------|--|
| | NOMINAL CAPACITY | |
| 0061 | 0.4~6.1 LPM | |
| 0150 | 0.4~15 LPM | |
| 0230 | 0.4~23 LPM | |
| 0340 | 0.4~34 LPM | |

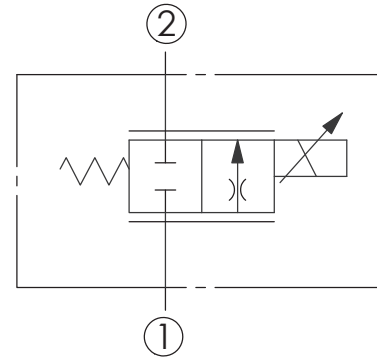
| Z | OPTIONS | |
|---|----------------|--|
| N | Non-adjustable | |

FLOW CONTROL VALVE (Electro-Proportional Flow Control Valve, Normally Closed Throttle)

Ordering Code: **PFC-5A-X-Y-Z**

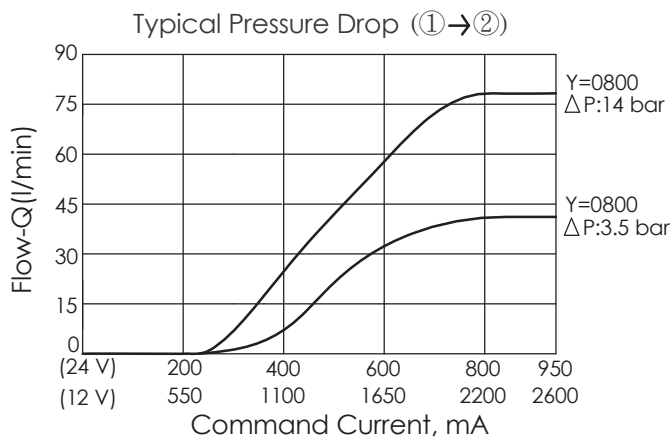
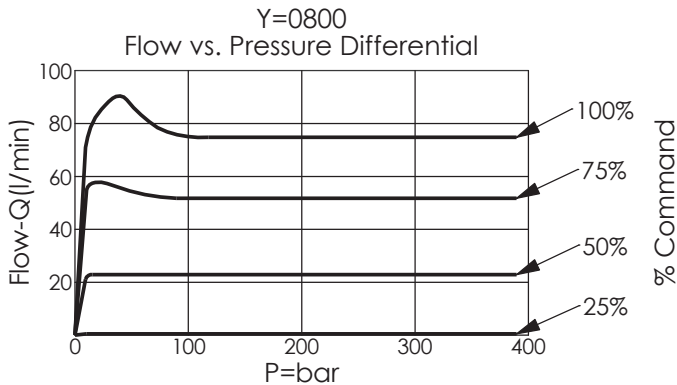


UNIT:mm



TECHNICAL DATA

| | | |
|--|-------|-------|
| Max.Operating pressure: | 350 | bar |
| Rated flow: | 80 | l/min |
| Cavity-Tooling: | 5A-2 | |
| Installation torque: | 60-70 | Nm |
| Linearity (with dither) | <2% | |
| Repeatability (with dither) | <2% | |
| Hysteresis (with dither) | <4% | |
| Hysteresis with DC input | <8% | |
| Deadband, nominal (as a percentage of input) | 25% | |
| Weight:(with Coil) | 0.71 | kg |
| (without Coil) | 0.36 | kg |



X OPERATION

2G 2 Ports - 30 Watt. Coil
Ø 23 mm tube

Y FLOW

NOMINAL CAPACITY

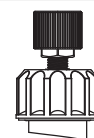
0800 80 LPM

Z OPTIONS

N Non-adjustable

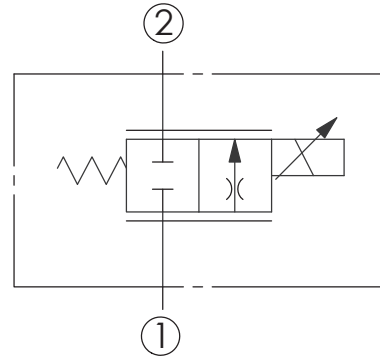
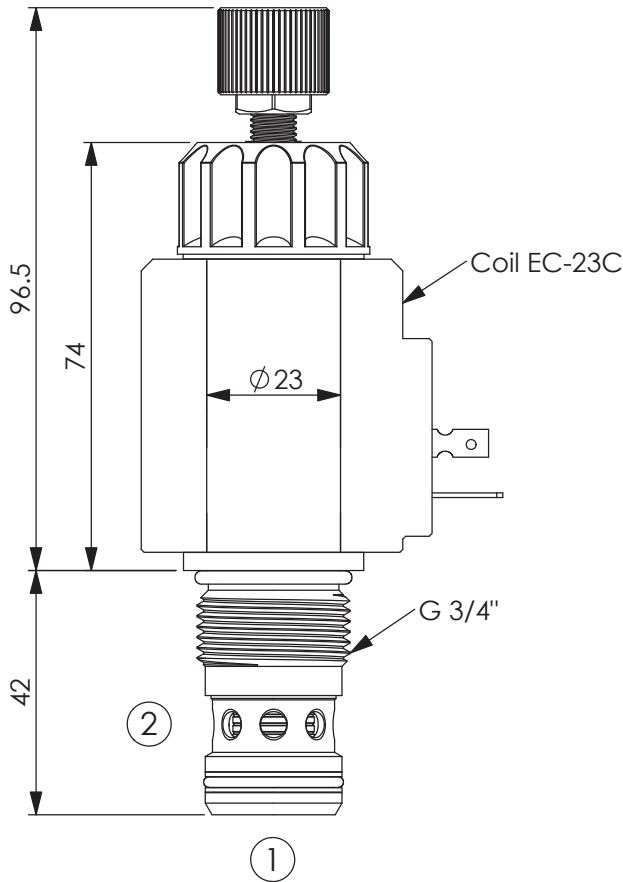


M Manual Override



FLOW CONTROL VALVE (Electro-Proportional, Normally Closed Throttle)

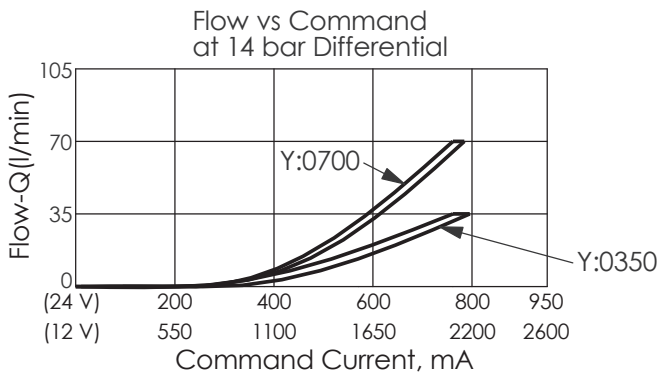
Ordering Code: **PFC-17E-X-Y-Z**



TECHNICAL DATA

| | | |
|--------------------------|-------|-------|
| Max. Operating pressure: | 350 | bar |
| Rated flow: | 70 | l/min |
| Cavity-Tooling: | 17E-2 | |
| Installation torque: | 45-55 | Nm |
| Weight:(with Coil) | 0.70 | kg |
| (without Coil) | 0.35 | kg |

UNIT:mm



X OPERATION

2G 2 Ports - 30 Watt. Coil

NOTE:Coil must be ordered separately. Use 12V DC or 24V DC (Series EC-23C) coils only.

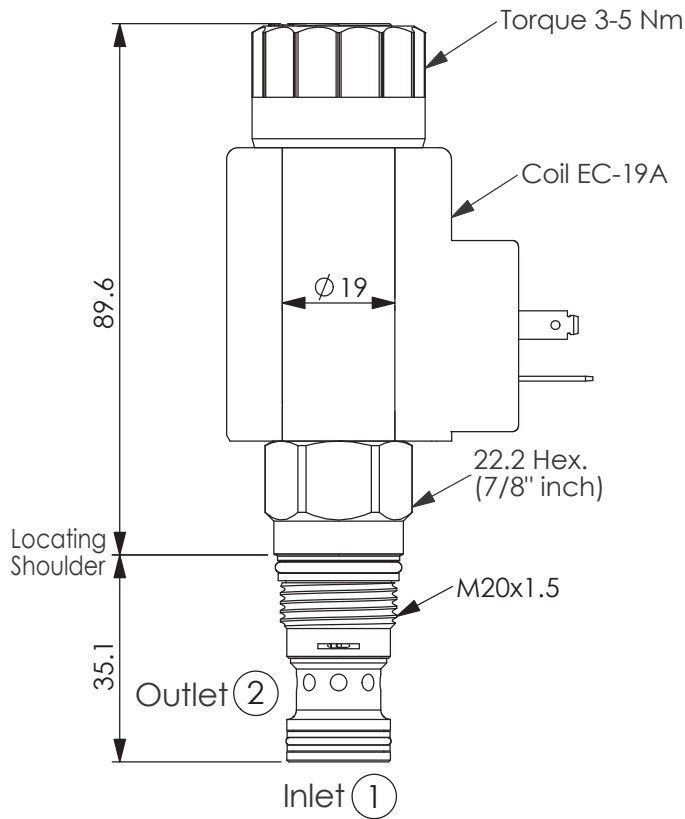
| Y | FLOW | |
|-------------|------------------|--|
| | NOMINAL CAPACITY | |
| 0350 | 35 LPM | |
| 0700 | 70 LPM | |

Z OPTIONS

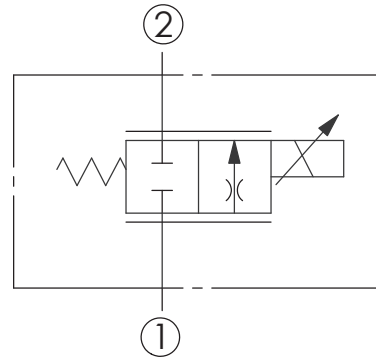
| | | |
|----------|----------------------------|--|
| N | Non-adjustable | |
| M | Manual Override (Standard) | |
| P | Push Style Manual Override | |

FLOW CONTROL VALVE (Electro-Proportional Flow Control Valve, Normally Closed Throttle)

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



UNIT:mm



TECHNICAL DATA

Max.Operating pressure: 350 bar

Rated flow: 40 l/min

Cavity-Tooling: 13A-2

Installation torque: 40-50 Nm

Linearity (with dither) <2%

Repeatability (with dither) <2%

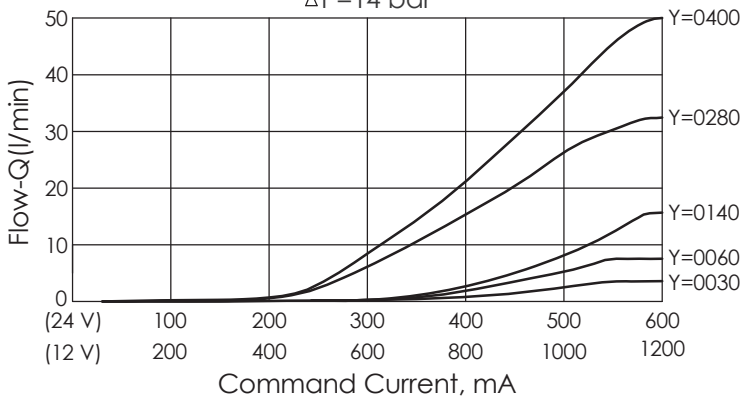
Hysteresis (with dither) <4%

Hysteresis with DC input <8%

Deadband, nominal (as a percentage of input) 25%

Weight:(with Coil) 0.53 kg
(without Coil) 0.28 kg

Typical Metering Performance (①→②)
 $\Delta P=14$ bar



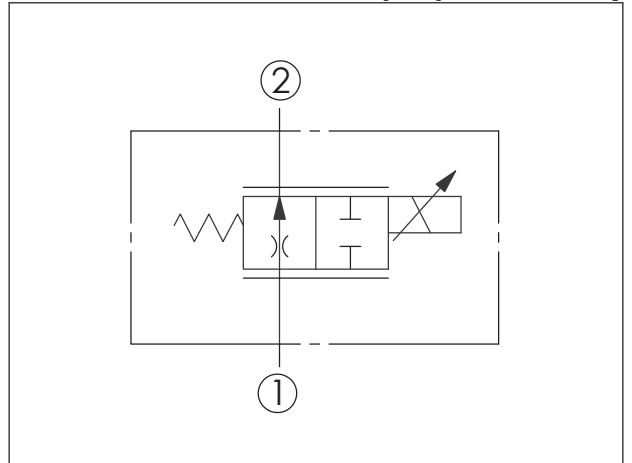
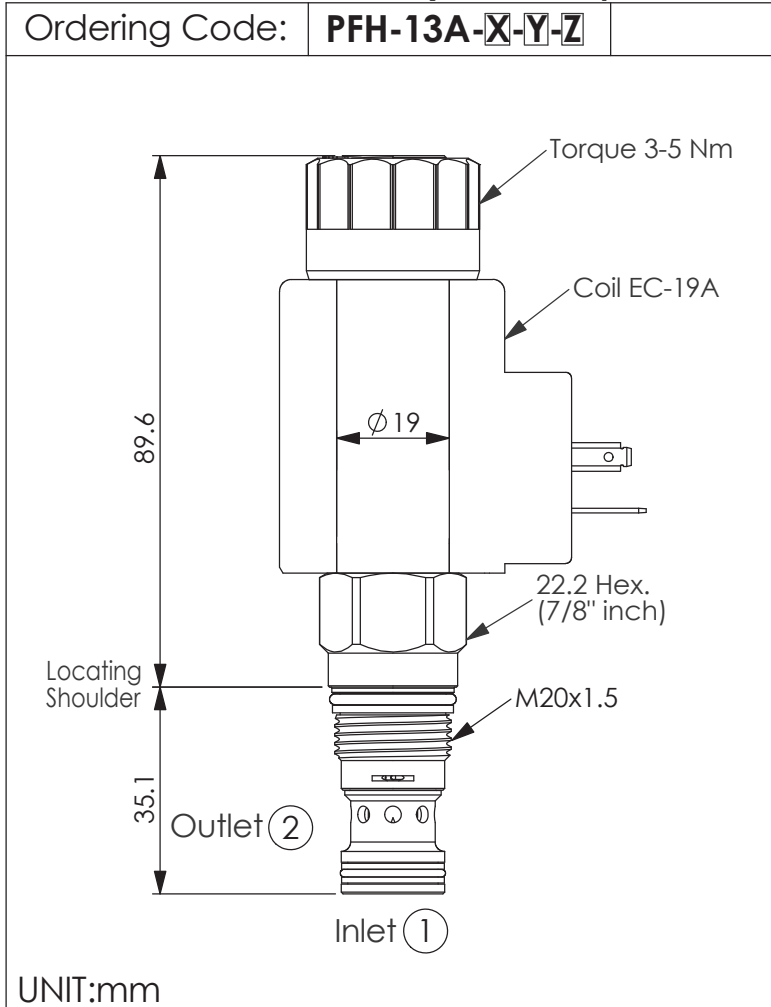
If you need more information
Please contact our sales department

| Y | FLOW | |
|------|-----------------------|--|
| | NOMINAL CAPACITY | |
| 0030 | 0.4~3 LPM | |
| 0060 | 0.4~6 LPM | |
| 0140 | 0.6~14 LPM | |
| 0280 | 0.8~28 LPM (Standard) | |
| 0400 | 1~40 LPM | |

| X | OPERATION | |
|----|---|--|
| 2D | 2 Ports · 22 Watt. Coil $\varnothing 19$ mm tube | |

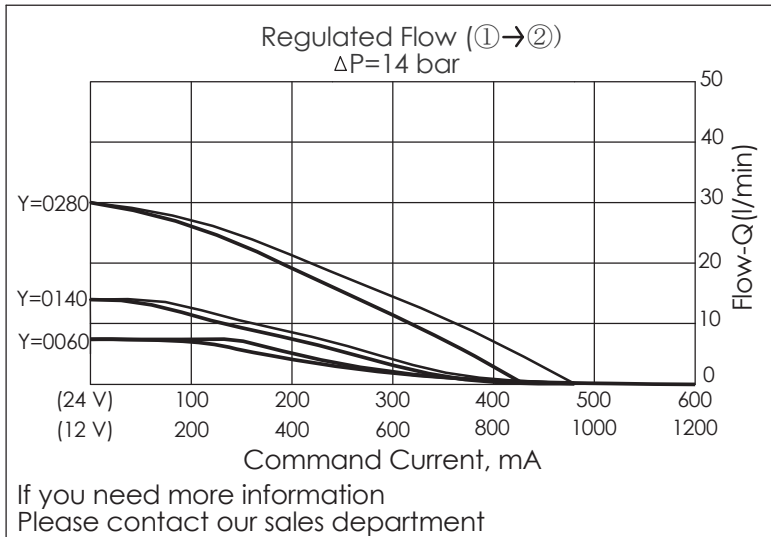
| Z | OPTIONS | |
|---|----------------------------|--|
| N | Non-adjustable | |
| M | Manual Override | |
| P | Push Style Manual Override | |

FLOW CONTROL VALVE (Electro-Proportional Flow Control Valve, Normally Open Throttle)



TECHNICAL DATA

| | | |
|--|-------|-------|
| Max. Operating pressure: | 350 | bar |
| Rated flow: | 28 | l/min |
| Cavity-Tooling: | 13A-2 | |
| Installation torque: | 40-50 | Nm |
| Linearity (with dither) | <2% | |
| Repeatability (with dither) | <2% | |
| Hysteresis (with dither) | <4% | |
| Hysteresis with DC input | <8% | |
| Deadband, nominal (as a percentage of input) | 25% | |
| Weight:(with Coil) | 0.53 | kg |
| (without Coil) | 0.30 | kg |



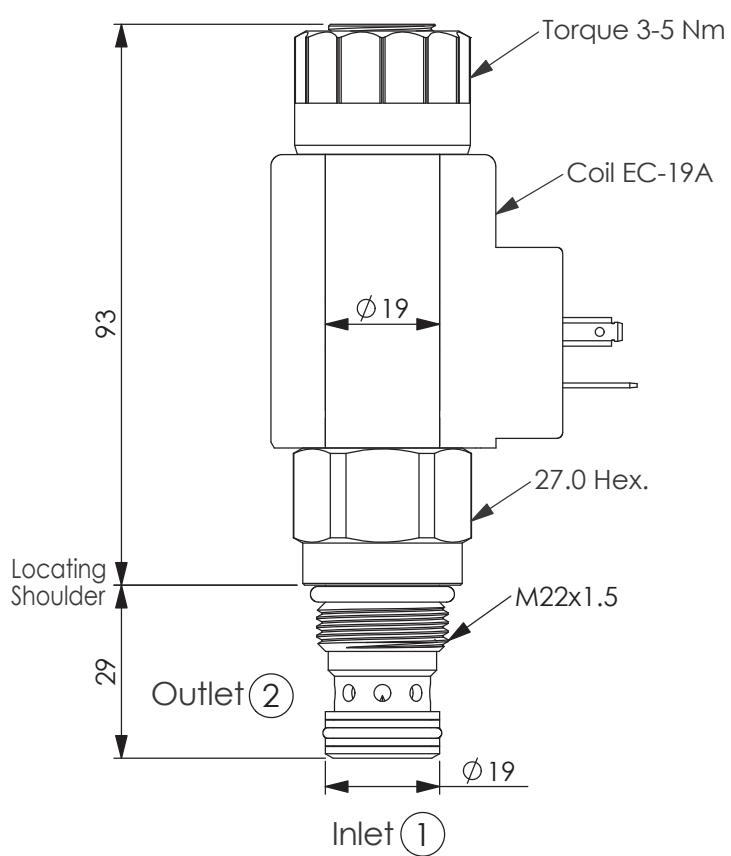
| Y | FLOW | |
|-------------|-----------------------|--|
| | NOMINAL CAPACITY | |
| 0060 | 0.4~6 LPM | |
| 0140 | 0.6~14 LPM | |
| 0280 | 0.8~28 LPM (Standard) | |

| X | OPERATION | |
|-----------|--|--|
| 2D | 2 Ports · 22 Watt. Coil $\phi 19$ mm tube | |

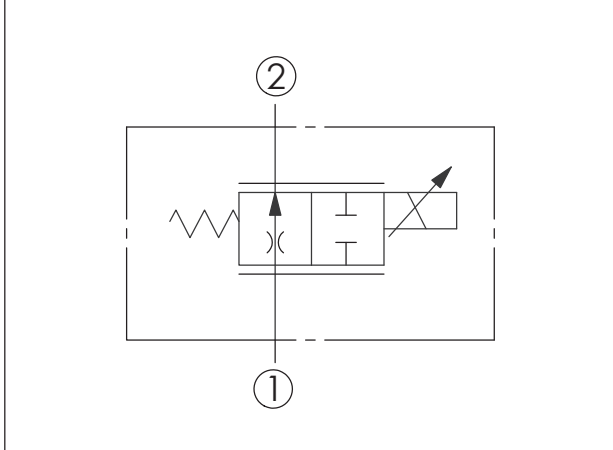
| Z | OPTIONS | |
|----------|-------------------------------|--|
| N | Non-adjustable | |
| P | Push Style Manual Override | |

FLOW CONTROL VALVE (Electro-Proportional Flow Control Valve, Normally Open Throttle)

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

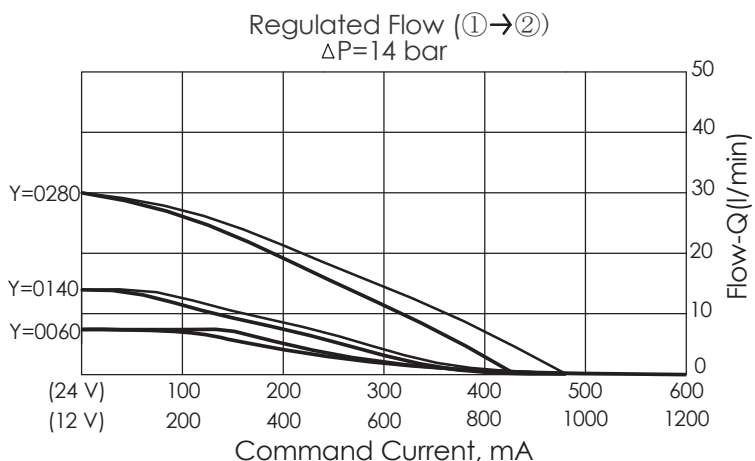


UNIT:mm



TECHNICAL DATA

| | | |
|--|-------|-------|
| Max.Operating pressure: | 350 | bar |
| Rated flow: | 28 | l/min |
| Cavity-Tooling: | 22M-2 | |
| Installation torque: | 60-70 | Nm |
| Linearity (with dither) | <2% | |
| Repeatability (with dither) | <2% | |
| Hysteresis (with dither) | <4% | |
| Hysteresis with DC input | <8% | |
| Deadband, nominal (as a percentage of input) | 25% | |
| Weight:(with Coil) | 0.73 | kg |
| (without Coil) | 0.50 | kg |



If you need more information
Please contact our sales department

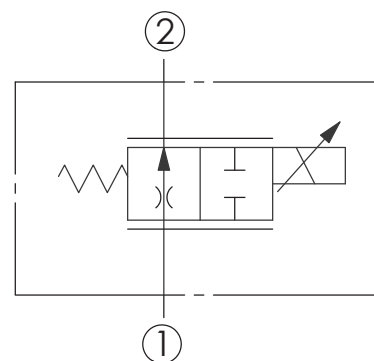
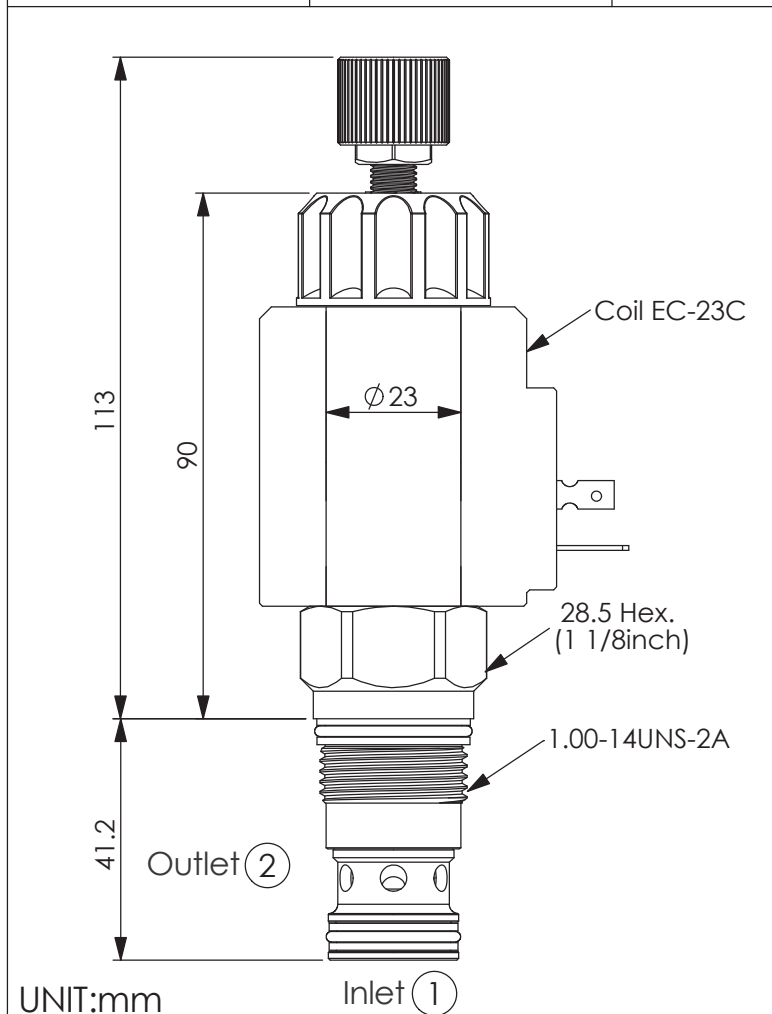
| | | |
|-----------|---|--|
| X | OPERATION | |
| 2D | 2 Ports · 22 Watt. Coil Ø 19 mm tube | |

| | | |
|----------|-------------------------------|--|
| Z | OPTIONS | |
| N | Non-adjustable | |
| P | Push Style Manual Override | |

| Y | FLOW | |
|-------------|-----------------------|--|
| | NOMINAL CAPACITY | |
| 0060 | 0.4~6 LPM | |
| 0140 | 0.6~14 LPM | |
| 0280 | 0.8~28 LPM (Standard) | |

FLOW CONTROL VALVE (Electro-Proportional Flow Control Valve, Normally Open Throttle)

Ordering Code: **PFH-5A-X-Y-Z**



TECHNICAL DATA

Max. Operating pressure: 350 bar

Rated flow: 56 l/min

Cavity-Tooling: 5A-2

Installation torque: 60-70 Nm

Linearity (with dither) <2%

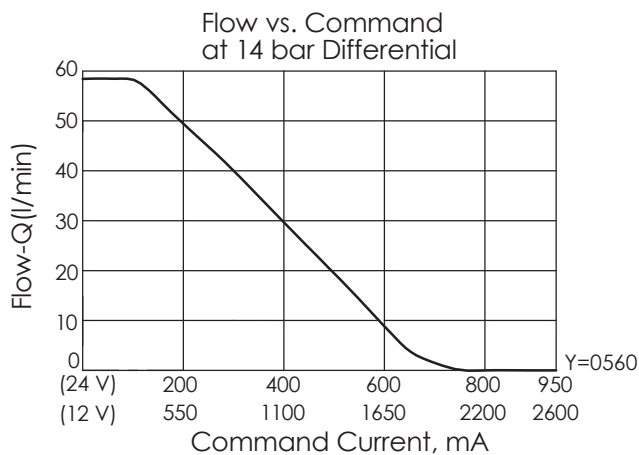
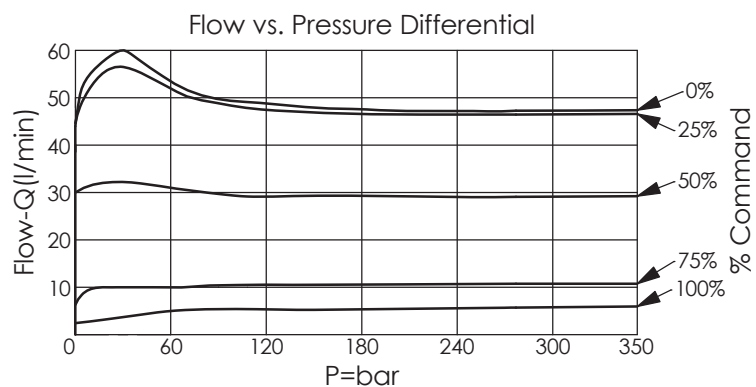
Repeatability (with dither) <2%

Hysteresis (with dither) <4%

Hysteresis with DC input <8%


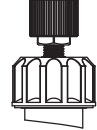
Deadband, nominal (as a percentage of input) 25%

Weight:(with Coil) 0.73 kg
(without Coil) 0.38 kg



| | | |
|-----------|------------------|---------------|
| X | OPERATION | |
| 2G | 2 Ports | 30 Watt. Coil |

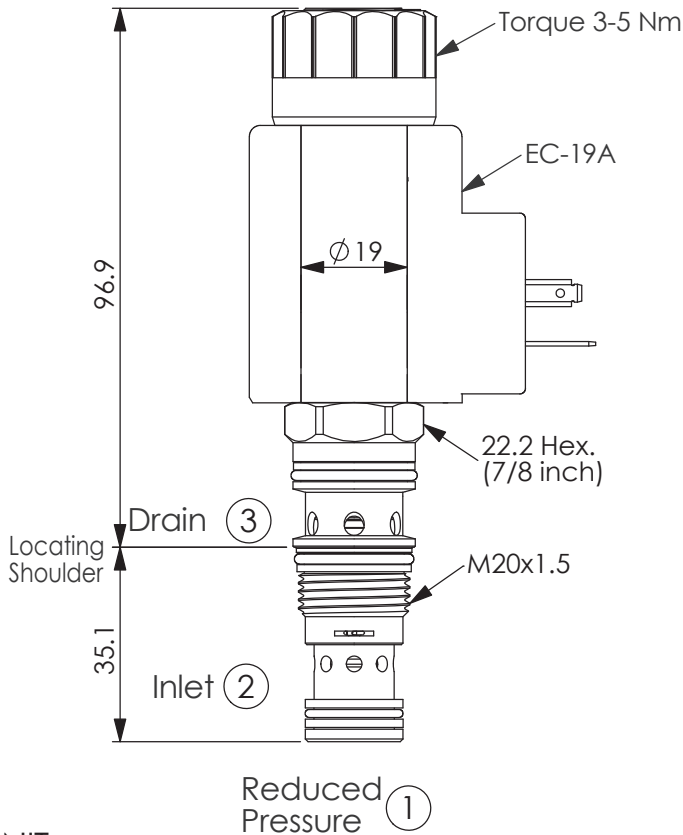
| | | |
|-------------|------------------|--|
| Y | FLOW | |
| | NOMINAL CAPACITY | |
| 0560 | 56 LPM | |

| | | |
|----------|----------------------------|---|
| Z | OPTIONS | |
| N | Non-adjustable |  |
| M | Manual Override (Standard) |  |

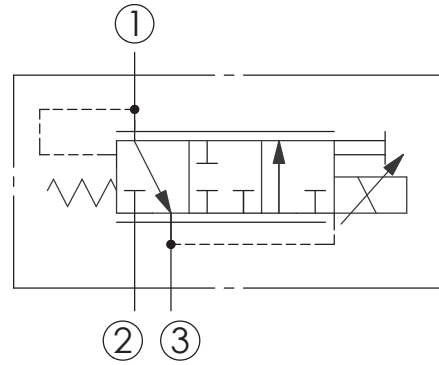
REDUCING/RELIEVING VALVE

(Electro-Proportional, Direct-Acting, Pressure Reducing/Relieving Valve)

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



UNIT:mm



TECHNICAL DATA

Max. Operating pressure: 350 bar

Rated flow: 20 l/min

Cavity-Tooling: 11A-3

Installation torque: 40-50 Nm

Linearity (with dither) <2%

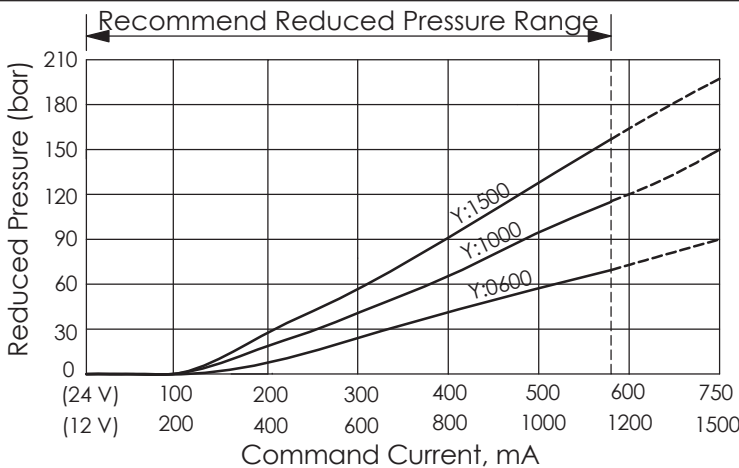
Repeatability (with dither) <2%

Hysteresis (with dither) <4%

Hysteresis with DC input <8%

Maximum valve leakage at 46 cSt = 40 cc/min. Leakage specified is out of port 3 with a supply pressure of 210 bar and the valve set at mid-range.

Weight:(with Coil) 0.48 kg
(without Coil) 0.24 kg



X OPERATION

3D 3 Ports - 22 Watt. Coil
Ø 19 mm tube
Recommend : The coil for proportional valve without VDR

Z OPTIONS

N Non-adjustable

P Push Style Manual Override

| Y | OPERATING RANGE | |
|-------------|-----------------|--|
| | Rated Pressure | |
| 0600 | 5.0~60 bar | |
| 1000 | 10~100 bar | |
| 1500 | 12~150 bar | |
| | | |
| | | |

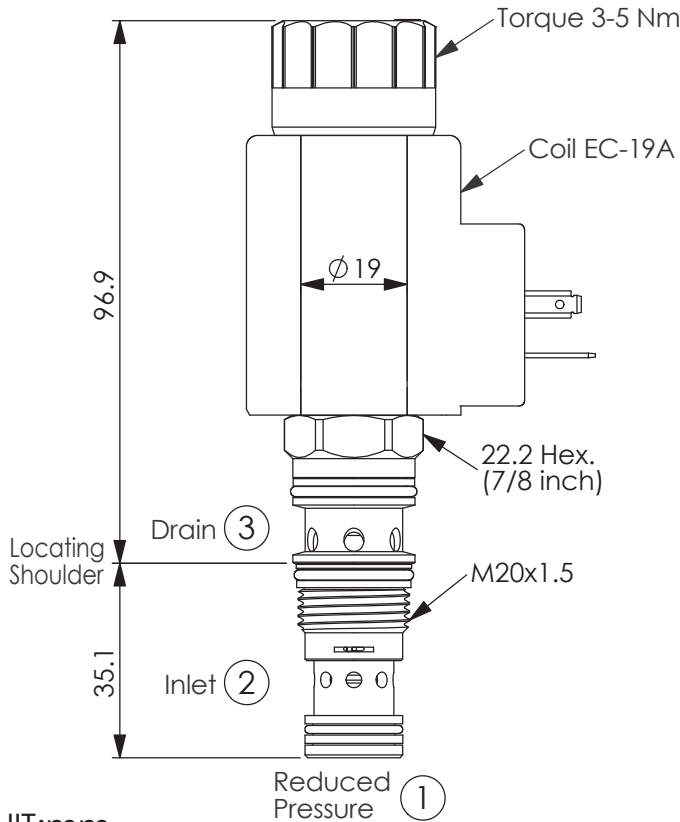
When inlet pressure up to 210~350 bar
Recommend : Keep "Reduced Pressure" (Port 1)
minimum 30 bar to have best control.

REDUCING/RELIEVING VALVE

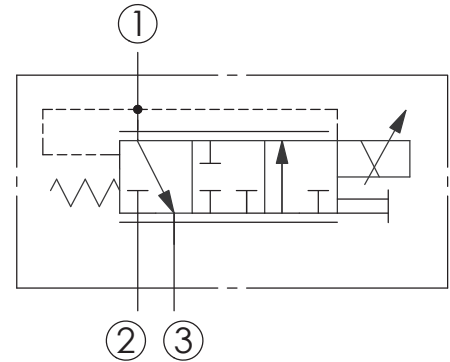
(Electro-Proportional, Direct-Acting,
Pressure Reducing/Relieving Valve, Improved Dynamic Response)

Ordering Code: **PPD-11A-X-Y-Z-74**

U.S. PATENT US9234605



UNIT:mm



TECHNICAL DATA

Max. Operating pressure: 350 bar

Rated flow: 20 l/min

Cavity-Tooling: 11A-3

Installation torque: 40-50 Nm

Linearity (with dither) <2%

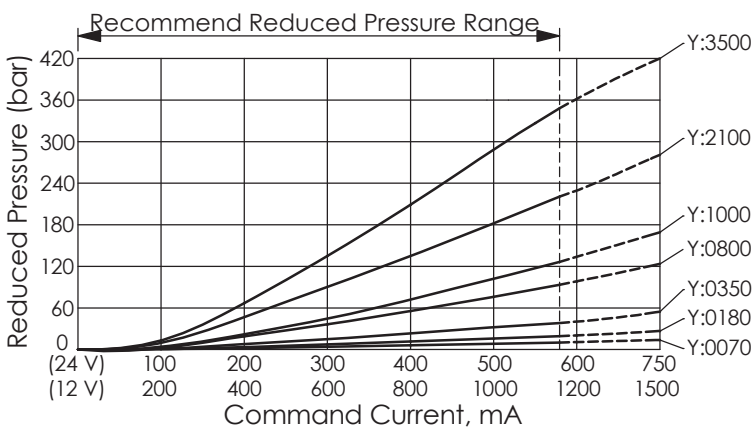
Repeatability (with dither) <2%

Hysteresis (with dither) <4%

Hysteresis with DC input <8%

Maximum valve leakage at 46 cSt = 40 cc/min.
Leakage specified is out of port 3 with a supply pressure of 210 bar and the valve set at mid-range.

Weight:(with Coil) 0.49 kg
(without Coil) 0.25 kg



| Y | OPERATING RANGE | |
|------|-----------------|--|
| | Rated Pressure | |
| 0070 | 1~7 bar | |
| 0180 | 1~18 bar | |
| 0350 | 1~35 bar | |
| 0800 | 2~80 bar | |
| 1000 | 10~100 bar | |
| 2100 | 20~210 bar | |
| 3500 | 35~350 bar | |

When inlet pressure up to 210~350 bar
Recommend : Keep "Reduced Pressure" (Port ①)
minimum 30 bar to have best control.

Rev.160321

| X | OPERATION | |
|----|--|--|
| 3D | 3 Ports - 22 Watt. Coil Ø 19 mm tube | |
| | Recommend : The coil for proportional valve without VDR | |

| Z | OPTIONS | |
|---|-------------------------------|--|
| N | Non-adjustable | |
| P | Push Style Manual Override | |

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