

EQUIPMENT SELECTIONS

WATER LINE REPLACEMENT VA MEDICAL CENTER HAMPTON, VIRGINIA

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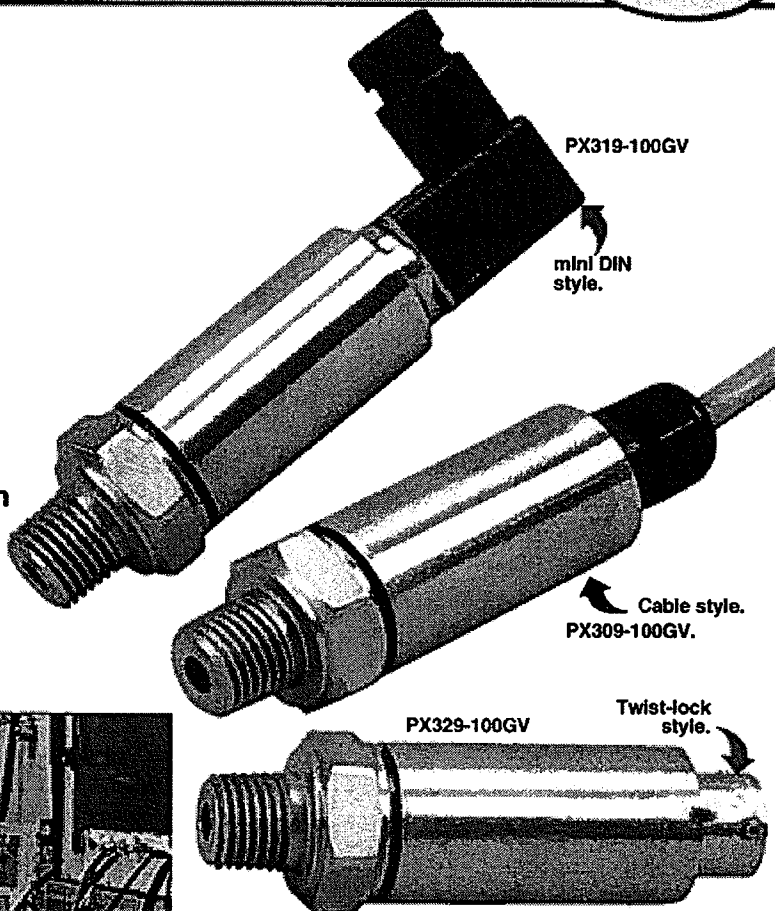
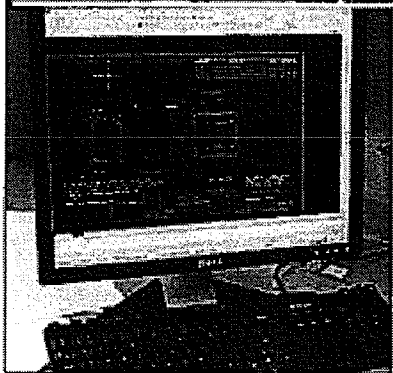
ALL STAINLESS STEEL TRANSDUCER MULTIMEDIA COMPATIBILITY HIGH-PERFORMANCE SILICON TECHNOLOGY

0-1 to 0-10,000 psi
0-0.07 to 0-690 bar
100 mV, 0 to 5 V,
and 4 to 20 mA Outputs

PX309 Series



- ✓ 1, 2 & 5 psi Low Pressure Ranges!
- ✓ All Stainless Steel Construction
- ✓ Gage or Absolute Pressure
- ✓ Rugged Solid State Design
- ✓ High Stability, Low Drift
- ✓ 0.25% Static Accuracy
- ✓ IP 65 Protection Class



All models shown actual size.

We provide a complete range of services—from product inception, through design and prototypes, to manufacturing and testing. Our application engineers work closely with our customers to **customize, design** or create entirely **new products**. Call us—whether you're an OEM, manufacturer, or end user.

**LARGE
INVENTORY
Fast Shipment!**



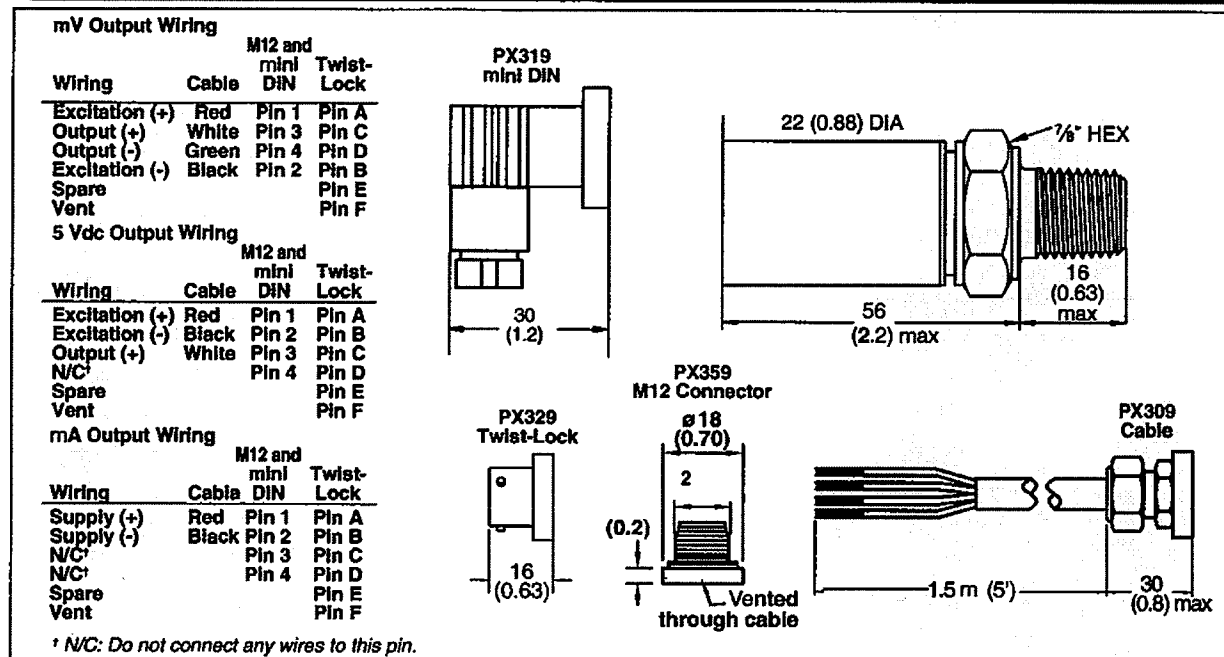
MILLIVOLT OUTPUT
PRESSURE TRANSDUCERS
B

**Now Available
with M12
Connector**

**Engineered from
1 to 10,000 psi.
Low Pressure Ranges:
1, 2 & 5 psi.**

RUGGED, GENERAL PURPOSE TRANSDUCER

COMMON SPECIFICATIONS



SPECIFICATIONS

OMEGA's PX309 Series models below 100 psi use a high-accuracy silicon sensor protected by an oil-filled stainless steel diaphragm. Units 100 psi and above use silicon strain gages molecularly bonded to the stainless steel diaphragm.

Long-Term Stability (1 Year):

±0.25% typical

Typical Life: 10 million cycles typical

Operating Temperature: -40 to 85°C (-40 to 185°F)

Proof Pressure:

All psia and ±50 psig Ranges:

3x capacity or 20 psi, whichever is greater

100 psig Ranges: 2x capacity

Burst Pressure: 500% of capacity or 25 psi, whichever is greater

Response Time: <1 ms

Shock: 50 g, 11 ms half-sine

Vibration: ±20 g

Protection Class: IP 65

Wetted Parts:

316 SS for all psia and 1 to 50 psig ranges; 17-4 PH stainless steel for ranges 100 to 10,000 psig

Pressure Port: 1/8-18 MNPT

Electrical Connections:

PX309: 1.5 m (5') 2-, 3-, or 4-conductor cable (mA, 5V, mV outputs, respectively)

PX319: mini DIN connector with mating connector included

PX329: Twist-lock connector, vented mating connector sold separately (PT06V-10-6S)

PX359: M12, 4-pin connector

Weight:

PX309: 154 g (5.4 oz)

PX319, PX329, PX359: 100 g (3.5 oz)

100 mV OUTPUT

Excitation:

0 to 50 psig and All psia Ranges:

10 Vdc (ratiometric), (5 to 12 Vdc limits)

100 to 10,000 psig Ranges:

5 Vdc (ratiometric), (3 to 10 Vdc limits)

Output:

0 to 100 mV, except

2 psi = 40 mV and 1 psi = 20 mV

Accuracy: ±0.25% FS BSL at 25°C; includes linearity, hysteresis and repeatability

Zero Offset: ±2% FSO;

±4% for 1 and 2 psi ranges

Span Setting: ±2% FSO;

±4% for 1 and 2 psi ranges

Compensated Temperature: 0 to 50°C (32 to 122°F)

Thermal Zero and Span Effects

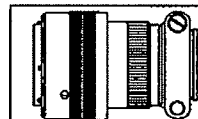
(Over Compensated Range):

15 to 10,000 psig Ranges: ±2% FSO

5 psi Range: ±3% FSO

2 psi Range: ±4% FSO

1 psi Range: ±5% FSO



PX329
Mating
Connector
PT06V-10-6S

5V OUTPUT

Excitation: 9 to 30 Vdc (reverse polarity and overvoltage protected)

Output: 0 to 5 Vdc or 4 to 20 mA

Static Accuracy 5 to 10,000 psi:

±0.25% FS BSL at 25°C; includes linearity, hysteresis and repeatability

Zero Offset: ±2% FSO;

±4% for 1 and 2 psi ranges

Span Setting: ±2% FSO; ±4% for 1 and 2 psi ranges

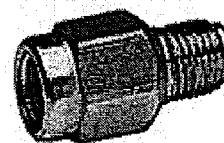
Compensated Temperature:

>5 psi Range: -20 to 85°C (-4 to 185°F)

≤5 psi Range: 0 to 50°C (32 to 122°F)

Total Error Band: ±2% FSO; includes linearity, hysteresis, repeatability, thermal hysteresis and thermal errors (except 2 psi = ±3% and 1 psi = ±4.5%)

Order a
snubber to
protect your
pressure
transducer!



PS-4G, shown actual size.

Snubbers protect sensors from fluid hammers/spikes.

HOW TO ORDER PX309 SERIES WITH 100 mV OUTPUTS

100 mV Output
0-1 to 0-10,000 psi
0-70 mbar to 0-690 bar



PX319-050GV,
mini DIN connector
included, shown smaller
than actual size.

Metric thread
adaptors available,
visit omega.com/mta_brik

PX309 Series



- ✓ Gage or Absolute Pressure
- ✓ Low Pressure to 1 psig
- ✓ Rugged Solid State Design
- ✓ All Stainless Steel Construction
- ✓ High Stability, Low Drift
- ✓ 0.25% Accuracy

100 mV OUTPUT SPECIFICATIONS

Excitation:

0 to 50 psig and All psia Ranges:
10 Vdc (ratiometric), (5 to 12 Vdc limits)
100 to 10,000 psig Ranges:
5 Vdc (ratiometric), (3 to 10 Vdc limits)

Output: 0 to 100 mV, except
2 psi = 40 mV and 1 psi = 20 mV

Accuracy: $\pm 0.25\%$ FS BSL at 25°C;
includes linearity, hysteresis and
repeatability

Zero Offset: $\pm 2\%$ FSO;
 $\pm 4\%$ for 1 and 2 psi ranges

Span Setting: $\pm 2\%$ FSO;
 $\pm 4\%$ for 1 and 2 psi ranges

Compensated Temperature: 0 to 50°C
(32 to 122°F)

Thermal Zero and Span Effects
(Over Compensated Range):

15 to 10,000 psi Ranges: $\pm 2\%$ FSO
5 psi Range: $\pm 3\%$ FSO
2 psi Range: $\pm 4\%$ FSO
1 psi Range: $\pm 5\%$ FSO

To Order Visit omega.com/px309 for Pricing and Details

RANGE bar	psi	1.5 m CABLE CONNECTION	MINI DIN CONNECTION	TWIST-LOCK CONNECTION
ABSOLUTE PRESSURE				
0 to 0.34	0 to 5	PX309-005AV	PX319-005AV	PX329-005AV
0 to 1	0 to 15	PX309-015AV	PX319-015AV	PX329-015AV
0 to 2.1	0 to 30	PX309-030AV	PX319-030AV	PX329-030AV
0 to 3.4	0 to 50	PX309-050AV	PX319-050AV	PX329-050AV
0 to 6.9	0 to 100	PX309-100AV	PX319-100AV	PX329-100AV
0 to 14	0 to 200	PX309-200AV	PX319-200AV	PX329-200AV
0 to 21	0 to 300	PX309-300AV	PX319-300AV	PX329-300AV
GAGE PRESSURE				
0 to 0.07	0 to 1	PX309-001GV	PX319-001GV	PX329-001GV
0 to 0.14	0 to 2	PX309-002GV	PX319-002GV	PX329-002GV
0 to 0.34	0 to 5	PX309-005GV	PX319-005GV	PX329-005GV
0 to 1	0 to 15	PX309-015GV	PX319-015GV	PX329-015GV
0 to 2.1	0 to 30	PX309-030GV	PX319-030GV	PX329-030GV
0 to 3.4	0 to 50	PX309-050GV	PX319-050GV	PX329-050GV
0 to 6.9	0 to 100	PX309-100GV	PX319-100GV	PX329-100GV
0 to 10	0 to 150	PX309-150GV	PX319-150GV	PX329-150GV
0 to 14	0 to 200	PX309-200GV	PX319-200GV	PX329-200GV
0 to 21	0 to 300	PX309-300GV	PX319-300GV	PX329-300GV
0 to 34	0 to 500	PX309-500GV	PX319-500GV	PX329-500GV
0 to 69	0 to 1000	PX309-1KGV	PX319-1KGV	PX329-1KGV
0 to 138	0 to 2000	PX309-2KGV	PX319-2KGV	PX329-2KGV
0 to 207	0 to 3000	PX309-3KGV	PX319-3KGV	PX329-3KGV
0 to 345	0 to 5000	PX309-5KGV	PX319-5KGV	PX329-5KGV
0 to 517	0 to 7500	PX309-7.5KGV	PX319-7.5KGV	PX329-7.5KGV
0 to 690	0 to 10,000	PX309-10KGV	PX319-10KGV	PX329-10KGV

Comes complete with 5-point NIST-traceable calibration.

Notes: 1. Units 100 psig and above may be subjected to vacuum on the pressure port without damage. 2. For alternative performance specifications to suit your application, contact Engineering.

Ordering Examples: PX309-100GV, 100 psi gage pressure transducer with 100 mV output at 5 Vdc excitation and 1.5 m cable termination. PX319-015AV, 15 psi absolute pressure transducer with 100 mV output @ 10 Vdc excitation and mini DIN termination.

PX329-3KGV, 3000 psi gage pressure transducer with 100 mV output @ 5 Vdc excitation and twist-lock termination. Mating connector sold separately, order PT06V-10-6S, Consult Sales for OEM pricing.

ACCESSORIES

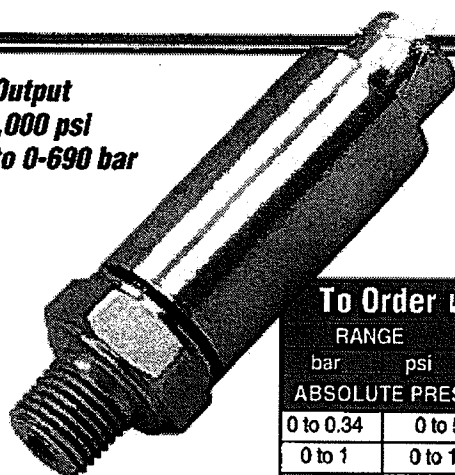
MODEL NO.	DESCRIPTION
CAL-3	Recalibration: 5-point NIST traceable
PT06V-10-6S	Mating connector for PX329
CA-39-4PC22-5	4-conductor mating twist-lock connector with 1.5 m (5') cable for PX329
CX5302	Extra mini DIN connector for PX319



MILLIVOLT OUTPUT
PRESSURE TRANSDUCERS
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HOW TO ORDER PX309 SERIES WITH 0 TO 5 Vdc OUTPUT

0 to 5 Vdc Output
0-1 to 0-10,000 psi
0-70 mbar to 0-690 bar



Twist-lock style.

PX329-015G5V
shown actual size.

Metric thread
adaptors available,
visit omega.com/mta_brk

PX309 Series



- ✓ Gage or Absolute Pressure
- ✓ Low Pressure to 1 psig
- ✓ Rugged Solid State Design
- ✓ All Stainless Steel Construction
- ✓ High Stability, Low Drift
- ✓ 0.25% Static Accuracy

5V OUTPUT SPECIFICATIONS

Excitation: 9 to 30 Vdc
(reverse polarity and overvoltage protected)

Output: 0 to 5 Vdc or 4 to 20 mA

Static Accuracy 5 to 10,000 psi:
±0.25% FS BSL at 25°C; includes
linearity, hysteresis and repeatability

Zero Offset: ±2% FSO;
±4% for 1 and 2 psi ranges

Span Setting: ±2% FSO; ±4% for 1
and 2 psi ranges

Compensated Temperature:

>5 psi Range: -20 to 85°C (-4 to 185°F)

≤5 psi Range: 0 to 50°C (32 to 122°F)

Total Error Band: ±2% FSO; includes
linearity, hysteresis, repeatability,
thermal hysteresis and thermal errors
(except 2 psi = ±3% and 1 psi = ±4.5%)

To Order Visit omega.com/px309 for Pricing and Details

RANGE bar	psi	1.5 m CABLE CONNECTION	MINI DIN CONNECTION	TWIST-LOCK CONNECTION
ABSOLUTE PRESSURE				
0 to 0.34	0 to 5	PX309-005A5V	PX319-005A5V	PX329-005A5V
0 to 1	0 to 15	PX309-015A5V	PX319-015A5V	PX329-015A5V
0 to 2.1	0 to 30	PX309-030A5V	PX319-030A5V	PX329-030A5V
0 to 3.4	0 to 50	PX309-050A5V	PX319-050A5V	PX329-050A5V
0 to 6.9	0 to 100	PX309-100A5V	PX319-100A5V	PX329-100A5V
0 to 14	0 to 200	PX309-200A5V	PX319-200A5V	PX329-200A5V
0 to 21	0 to 300	PX309-300A5V	PX319-300A5V	PX329-300A5V
GAGE PRESSURE				
0 to 0.07	0 to 1	PX309-001G5V	PX319-001G5V	PX329-001G5V
0 to 0.14	0 to 2	PX309-002G5V	PX319-002G5V	PX329-002G5V
0 to 0.34	0 to 5	PX309-005G5V	PX319-005G5V	PX329-005G5V
0 to 1	0 to 15	PX309-015G5V	PX319-015G5V	PX329-015G5V
0 to 2.1	0 to 30	PX309-030G5V	PX319-030G5V	PX329-030G5V
0 to 3.4	0 to 50	PX309-050G5V	PX319-050G5V	PX329-050G5V
0 to 6.9	0 to 100	PX309-100G5V	PX319-100G5V	PX329-100G5V
0 to 10	0 to 150	PX309-150G5V	PX319-150G5V	PX329-150G5V
0 to 14	0 to 200	PX309-200G5V	PX319-200G5V	PX329-200G5V
0 to 21	0 to 300	PX309-300G5V	PX319-300G5V	PX329-300G5V
0 to 34	0 to 500	PX309-500G5V	PX319-500G5V	PX329-500G5V
0 to 69	0 to 1000	PX309-1KG5V	PX319-1KG5V	PX329-1KG5V
0 to 138	0 to 2000	PX309-2KG5V	PX319-2KG5V	PX329-2KG5V
0 to 207	0 to 3000	PX309-3KG5V	PX319-3KG5V	PX329-3KG5V
0 to 345	0 to 5000	PX309-5KG5V	PX319-5KG5V	PX329-5KG5V
0 to 517	0 to 7500	PX309-7.5KG5V	PX319-7.5KG5V	PX329-7.5KG5V
0 to 690	0 to 10,000	PX309-10KG5V	PX319-10KG5V	PX329-10KG5V

Comes complete with 5-point NIST-traceable calibration.

Notes: 1. Units 100 psig and above may be subjected to vacuum on the pressure port without damage.

2. For alternative performance specifications to suit your application, contact Engineering.

Ordering Examples: PX309-100G5V, 100 psi gage pressure transducer with 0 to 5 Vdc output and 1.5 m cable termination.

PX319-015A5V, 15 psi absolute pressure transducer with 0 to 5 Vdc output and mini DIN termination.

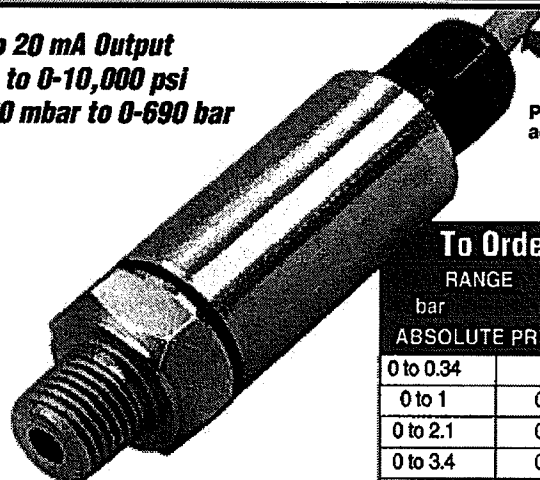
PX329-3KG5V, 3000 psi gage pressure transducer with 0 to 5 Vdc output and twist-lock termination. Mating connector sold separately; order PT06V-10-6S. Consult Sales for OEM pricing.

ACCESSORIES

MODEL NO.	DESCRIPTION
CAL-3	Recalibration: 5-point NIST traceable
PT06V-10-6S	Mating connector for PX329
CA-39-4PC22-5	4-conductor mating twist-lock connector with 1.5 m (5') cable for PX329
CX5302	Extra mini DIN connector for PX319

HOW TO ORDER PX309 SERIES WITH 4 TO 20 mA OUTPUT

4 to 20 mA Output
0-1 to 0-10,000 psi
0-70 mbar to 0-690 bar



Cable style.

PX309-030GI shown
actual size.

Metric thread
adaptors available,
visit omega.com/mta_brk

PX309 Series



- ✓ Gage or Absolute Pressure
- ✓ Low Pressure to 1 psig
- ✓ Rugged Solid State Design
- ✓ All Stainless Steel Construction
- ✓ High Stability, Low Drift
- ✓ 0.25% Static Accuracy

4 to 20 mA OUTPUT SPECIFICATIONS

Excitation: 9 to 30 Vdc
(reverse polarity and overvoltage protected)

Output: 4 to 20 mA

Static Accuracy 5 to 10,000 psi:
±0.25% FS BSL at 25°C; includes
linearity, hysteresis and repeatability

Zero Offset: ±2% FSO;
±4% for 1 and 2 psi ranges

Span Setting: ±2% FSO;
±4% for 1 and 2 psi ranges

Compensated Temperature:

>5 psi Range: -20 to 85°C
(-4 to 185°F)

≤5 psi Range: 0 to 50°C
(32 to 122°F)

Total Error Band: ±2% FSO; includes
linearity, hysteresis, repeatability,
thermal hysteresis and thermal errors
(except 2 psi = ±3% and 1 psi = ±4.5%)

To Order Visit omega.com/px309 for Pricing and Details

RANGE		1.5 m CABLE CONNECTION	MINI DIN CONNECTION	TWIST-LOCK CONNECTION
bar	psi			
ABSOLUTE PRESSURE				
0 to 0.34	0 to 5	PX309-005AI	PX319-005AI	PX329-005AI
0 to 1	0 to 15	PX309-015AI	PX319-015AI	PX329-015AI
0 to 2.1	0 to 30	PX309-030AI	PX319-030AI	PX329-030AI
0 to 3.4	0 to 50	PX309-050AI	PX319-050AI	PX329-050AI
0 to 6.9	0 to 100	PX309-100AI	PX319-100AI	PX329-100AI
0 to 14	0 to 200	PX309-200AI	PX319-200AI	PX329-200AI
0 to 21	0 to 300	PX309-300AI	PX319-300AI	PX329-300AI
GAGE PRESSURE				
0 to 0.07	0 to 1	PX309-001GI	PX319-001GI	PX329-001GI
0 to 0.14	0 to 2	PX309-002GI	PX319-002GI	PX329-002GI
0 to 0.34	0 to 5	PX309-005GI	PX319-005GI	PX329-005GI
0 to 1	0 to 15	PX309-015GI	PX319-015GI	PX329-015GI
0 to 2.1	0 to 30	PX309-030GI	PX319-030GI	PX329-030GI
0 to 3.4	0 to 50	PX309-050GI	PX319-050GI	PX329-050GI
0 to 6.9	0 to 100	PX309-100GI	PX319-100GI	PX329-100GI
0 to 10	0 to 150	PX309-150GI	PX319-150GI	PX329-150GI
0 to 14	0 to 200	PX309-200GI	PX319-200GI	PX329-200GI
0 to 21	0 to 300	PX309-300GI	PX319-300GI	PX329-300GI
0 to 34	0 to 500	PX309-500GI	PX319-500GI	PX329-500GI
0 to 69	0 to 1000	PX309-1KGI	PX319-1KGI	PX329-1KGI
0 to 138	0 to 2000	PX309-2KGI	PX319-2KGI	PX329-2KGI
0 to 207	0 to 3000	PX309-3KGI	PX319-3KGI	PX329-3KGI
0 to 345	0 to 5000	PX309-5KGI	PX319-5KGI	PX329-5KGI
0 to 517	0 to 7500	PX309-7.5KGI	PX319-7.5KGI	PX329-7.5KGI
0 to 690	0 to 10,000	PX309-10KGI	PX319-10KGI	PX329-10KGI

Comes complete with 5-point NIST-traceable calibration.

Notes: 1. Units 100 psig and above may be subjected to vacuum on the pressure port without damage. 2. For alternative performance specifications to suit your application, contact Engineering.

Ordering Examples: PX309-100GI, 100 psi gage pressure transducer with 4 to 20 mA output and 1.5 m cable termination. PX319-015AI, 15 psi absolute pressure transducer with 4 to 20 mA output and mini DIN termination. PX329-3KGI, 3000 psi gage pressure transducer with 4 to 20 mA output and twist-lock termination. Mating connector sold separately; order PT06V-10-6S. Consult Sales for OEM pricing.

ACCESSORIES

MODEL NO.	DESCRIPTION
CAL-3	Recalibration: 5-point NIST traceable
PT06V-10-6S	Mating connector for PX329
CA-39-4PC22-5	4-conductor mating twist-lock connector with 1.5 m (5') cable for PX329
CX5302	Extra mini DIN connector for PX319



MILLIVOLT OUTPUT
PRESSURE TRANSDUCERS
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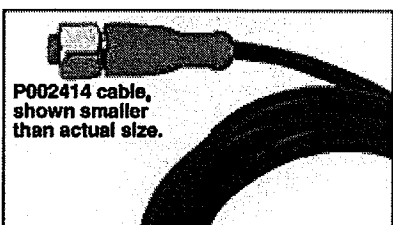


HOW TO ORDER PX309 SERIES

M12 CONNECTOR WITH 100 mV, 0 TO 5 Vdc, OR 4 TO 20 mA OUTPUTS

M12 Connector Series
0-1 to 0-10,000 psia
0-70 mbar to 0-690 bar

PX309 Series



- ✓ 5-Point NIST Traceable Calibration
- ✓ Gage or Absolute Pressure
- ✓ All Stainless Steel Construction
- ✓ Rugged solid State Design
- ✓ High Stability, Low Drift
- ✓ 0.25% Accuracy

To Order Visit omega.com/px309 for Pricing and Details

RANGE		10 mV/V OUTPUT MODEL NO.	0 to 5 Vdc OUTPUT MODEL NO.	4 to 20 mA OUTPUT MODEL NO.
psi	bar			
ABSOLUTE PRESSURE				
0 to 5	0 to 0.34	PX359-005AV	PX359-005A5V	PX359-005AI
0 to 15	0 to 1	PX359-015AV	PX359-015A5V	PX359-015AI
0 to 30	0 to 2.1	PX359-030AV	PX359-030A5V	PX359-030AI
0 to 50	0 to 3.4	PX359-050AV	PX359-050A5V	PX359-050AI
0 to 100	0 to 6.9	PX359-100AV	PX359-100A5V	PX359-100AI
0 to 200	0 to 14	PX359-150AV	PX359-150A5V	PX359-150AI
0 to 300	0 to 21	PX359-200AV	PX359-200A5V	PX359-200AI
GAGE PRESSURE				
0 to 1	0 to 0.07	PX359-001GV	PX359-001G5V	PX359-001GI
0 to 2	0 to 0.14	PX359-002GV	PX359-002G5V	PX359-002GI
0 to 5	0 to 0.34	PX359-005GV	PX359-005G5V	PX359-005GI
0 to 15	0 to 1	PX359-015GV	PX359-015G5V	PX359-015GI
0 to 30	0 to 2.1	PX359-030GV	PX359-030G5V	PX359-030GI
0 to 50	0 to 3.4	PX359-050GV	PX359-050G5V	PX359-050GI
0 to 100	0 to 6.9	PX359-100GV	PX359-100G5V	PX359-100GI
0 to 150	0 to 10.3	PX359-150GV	PX359-150G5V	PX359-150GI
0 to 200	0 to 14	PX359-200GV	PX359-200G5V	PX359-200GI
0 to 300	0 to 21	PX359-300GV	PX359-300G5V	PX359-300GI
0 to 500	0 to 34	PX359-500GV	PX359-500G5V	PX359-500GI
0 to 1000	0 to 69	PX359-1KGV	PX359-1KG5V	PX359-1KGI
0 to 2000	0 to 138	PX359-2KGV	PX359-2KG5V	PX359-2KGI
0 to 3000	0 to 207	PX359-3KGV	PX359-3KG5V	PX359-3KGI
0 to 5000	0 to 345	PX359-5KGV	PX359-5KG5V	PX359-5KGI
0 to 7500	0 to 517	PX359-7.5KGV	PX359-7.5KG5V	PX359-7.5KGI
0 to 10,000	0 to 690	PX359-10KGV	PX359-10KG5V	PX359-10KGI

Comes complete with 5-point NIST traceable calibration. M12 cables sold separately, see accessories.

Note: Ranges 100 psi and above may be subjected to a vacuum on the process port without damage.

Ordering Examples: PX359-100GV, 100 psi gage pressure transducer 10 mV/V output and M12 connector termination.

PX359-030A5V, 30 psi absolute pressure transducer 0 to 5 Vdc output and M12 connector termination.

PX359-3KGI, 3000 psi gage pressure transducer 4 to 20 mA output and M12 connector termination.

P002414-1, 2 m (6') vented cable for PX359.

ACCESSORIES

MODEL NO.	DESCRIPTION
DP25B-S	4-digit strain meter for mV/V models
DP25B-E	4-digit process meter for amplified models
PT06V-10-6S	Mating connector for PX359
P002414-1	2 m (6') vented cable with M12 connector for PX359 for gage ranges >100 psi
P002414-2	5 m (16') vented cable with M12 connector for PX359 for gage ranges >100 psi
M12C-PVC-4-S-F-5	5 m (16') PVC cable, straight 4-pin M12 female connector one end, flying leads one end, for all PX359 absolute ranges and gage ranges >100 psi
CAL-3	Recalibration with 5 pt NIST traceable documentation

omega.com®

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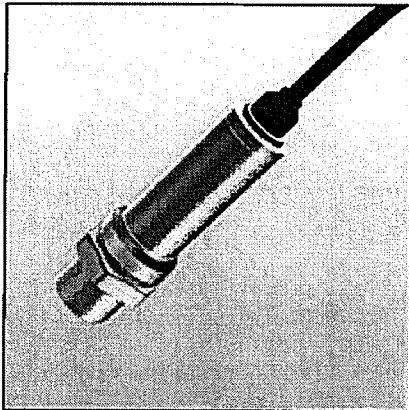
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Final Part Number:

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Add to CartApplication: GeneralTransducer Type: GageRange/Units: 150 PSIOutput: 0-10 VdcAccuracy: +/-0.03% (PSI units only)Process Fitting: 1/4-18 NPT FemaleElectrical Termination: Cable (2m, 6ft)Temperature Compensation: -40 to 105°C (-40 to 220°F)Thermal Accuracy: +/-0.30% Zero Shift, +/-0.30% Span Shift5-Point NIST Traceable Calibration Included.**search** by:

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BFP-1

ES-009

For Health Hazard Applications

Job Name WATER LINE PROJECT
 Job Location _____
 Engineer _____
 Approval _____

Contractor _____
 Approval _____
 Contractor's P.O. No. _____
 Representative _____

Series 009 Reduced Pressure Zone Assemblies

Sizes: 1/4" - 3" (8 - 80mm)

Series 009 Reduced Pressure Zone Assemblies are designed to protect potable water supplies in accordance with national plumbing codes and water authority requirements. This series can be used in a variety of installations, including the prevention of health hazard cross connections in piping systems or for containment at the service line entrance.

This series features two in-line, independent check valves, captured springs and replaceable check seats with an intermediate relief valve. Its compact modular design facilitates easy maintenance and assembly access. Sizes 1/4" - 1" (8 - 25mm) shutoffs have tee handles.

Features

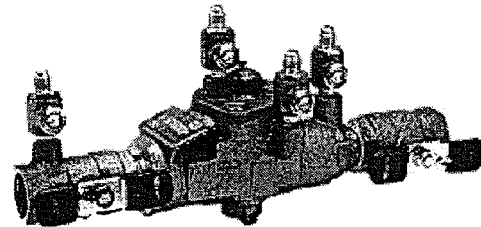
- Single access cover and modular check construction for ease of maintenance
- Top entry - all internals immediately accessible
- Captured springs for safe maintenance
- Internal relief valve for reduced installation clearances
- Replaceable seats for economical repair
- Bronze body construction for durability 1/4" - 2" (8 - 50mm)
- Fused epoxy coated cast iron body 2 1/2" and 3" (65 and 80mm)
- Ball valve test cocks — screwdriver slotted 1/4" - 2" (8 - 50mm)
- Large body passages provides low pressure drop
- Compact, space saving design
- No special tools required for servicing

Specifications

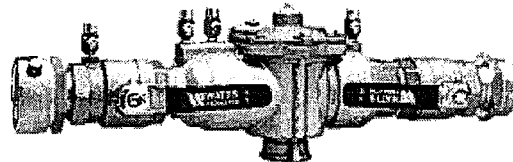
A Reduced Pressure Zone Assembly shall be installed at each potential health hazard location to prevent backflow due to backsiphonage and/or backpressure. The assembly shall consist of an internal pressure differential relief valve located in a zone between two positive seating check modules with captured springs and silicone seat discs. Seats and seat discs shall be replaceable in both check modules and the relief valve. There shall be no threads or screws in the waterway exposed to line fluids. Service of all internal components shall be through a single access bronze cover secured with stainless steel bolts. The assembly shall also include two resilient seated isolation valves, four resilient seated test cocks and an air gap drain fitting. The assembly shall meet the requirements of: USC Manual 8th Edition†; ASSE Std. 1013; AWWA Std. C511; CSA B64.4. Shall be a Watts Regulator Co. Series 009.

†Does not indicate approval status. Refer to Page 2 for approved sizes & models.

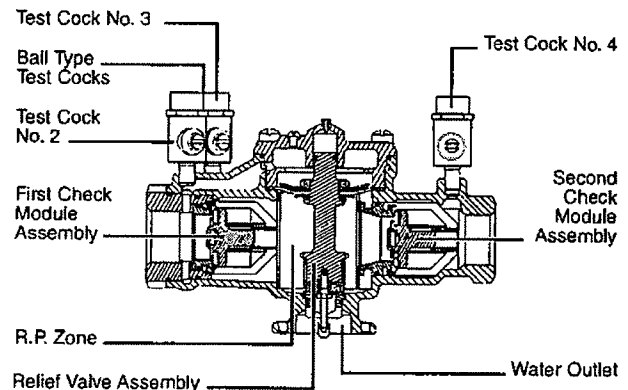
Watts product specifications in U.S. customary units and metric are approximate and are provided for reference only. For precise measurements, please contact Watts Technical Service. Watts reserves the right to change product design, construction, specifications or materials, with or without notice and without incurring any obligation to make such changes and modifications on Watts products previously or subsequently sold.



1/2" (15mm) 009QT



2" (50mm) 009M2QTHC



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 FOR LOCAL INSTALLATION REQUIREMENTS**

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Available Models: 1/4" – 2" (8 – 50mm)

Suffix:

- QT – quarter-turn ball valves
- S – bronze strainer
- LF – without shutoff valves
- AQT – elbow fittings for 360° rotation
3/4" – 2" (20 – 50mm) only
- PC – internal Polymer Coating
- LH – locking handle ball valves (open position)
- SH – stainless steel ball valve handles
- HC – 2 1/2" inlet/outlet fire hydrant fitting (2" valve)

Prefix:

- C – clean and check strainer
3/4" – 1" (20 – 25mm) only
- U – union connections (see ES-U009)

Available Models: 2 1/2" – 3" (65 – 80mm)

Suffix:

- NRS – non-rising stem resilient seated gate valves
- OSY – UL/FM outside stem and yoke resilient seated gate valves
- S-FDA – FDA epoxy coated strainer
- QT-FDA – FDA epoxy coated quarter-turn ball valve shutoffs
- LF – without shutoff valves
- S – cast iron strainer

Note: The installation of a drain line is recommended. When installing a drain line, an air gap is necessary (see ES-AG).

Materials: 1/4" – 2" (8 – 50mm)

Bronze body construction, silicone rubber disc material in the first and second check plus the relief valve. Replaceable polymer check seats for first and second checks. Removable stainless steel relief valve seat. Stainless steel cover bolts.

Standardly furnished with NPT body connections. For optional bronze union inlet and outlet connections, specify prefix U (1/2" – 2" (15 – 50mm)). Series 009QT furnished with quarter turn, full port, resilient seated, bronze ball valve shutoffs.

Materials: 2 1/2" and 3" (65 – 80mm)

- (FDA approved) Epoxy coated cast iron unibody with bronze seats
- Relief valve with stainless steel seat and trim
- Bronze body ball valve test cocks

Pressure / Temperature

Series 009 1/4" – 2" (8 – 50mm) Suitable for supply pressure up to 175psi (12 bar). Water temperature: 33°F – 180°F (0.5°C – 75°C).

Sizes 2 1/2" and 3" (65 and 80mm) are suitable for supply pressures up to 175psi (12.1 bar) and water temperature at 110°F (43°C) continuous, 140°F (60°C) intermittent.

Standards

USC Manual 8th Edition†

ASSE No. 1013

AWWA C511-92

CSA B64.4

IAPMO File No. 1563.

†Does not indicate approval status. See below for approved models.



Approvals

ASSE, AWWA, CSA, IAPMO

Approved by the Foundation for Cross-Connection Control and Hydraulic Research at the University of Southern California.

Approval models QT, AQT, PC, NRS, OSY.

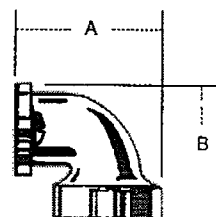
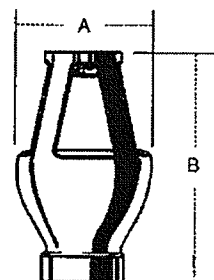
UL Classified 3/4" – 2" (20 – 50mm)

(LF models only except 009M3LF)

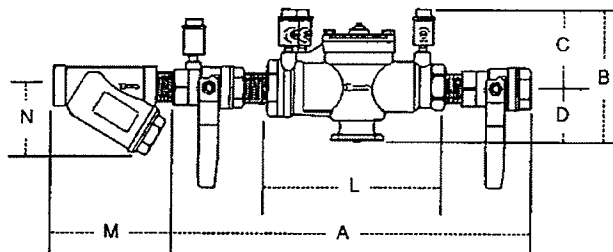
2 1/2" and 3" (65 and 80mm) with OSY gate valves.

Air Gaps and Elbows

MODEL	for 909, 009 and 993 sizes	DRAIN OUTLET		DIMENSIONS				WEIGHT	
		in.	mm	A in.	mm	B in.	mm	lbs.	kgs.
909AG-A	1/4"-1/2" 009, 3/4" 009M2/M3	1/2	13	2 3/4	60	3 3/4	79	.625	.28
909AG-C	3/4"-1" 009/909, 1"-1 1/2" 009M2	1	25	3 1/4	83	4 7/8	124	1.50	.68
909AG-F	1 1/4"-2" 009Mt, 1 1/4"-3" 009/909, 2" 009M2, 4"-6" 993	2	51	4 3/8	111	6 3/4	171	3.25	1.47
909AG-K	4"-6" 909, 8"-10" 909M1	3	76	6 3/8	162	9 3/8	243	6.25	2.83
909AG-M	8"-10" 909	4	102	7 3/8	187	11 1/4	394	15.50	7.03
909EL-A	1/4"-1/2" 009, 3/4" 009M2/M3	-	-	-	-	-	-	-	-
909EL-C	3/4"-1" 009/909	-	-	2 3/4	60	2 3/4	60	.38	.17
909EL-F	1 1/4"-2" 009M1, 1 1/4"-2" 009/909, 2" 009M2, 4"-6" 993	-	-	3 3/4	92	3 3/4	92	2	.91
909EL-H Vertical	2 1/2"-3" 009/909	-	-	-	-	-	-	-	-



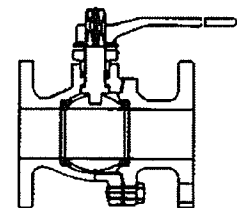
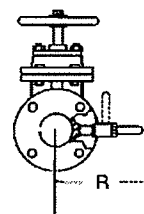
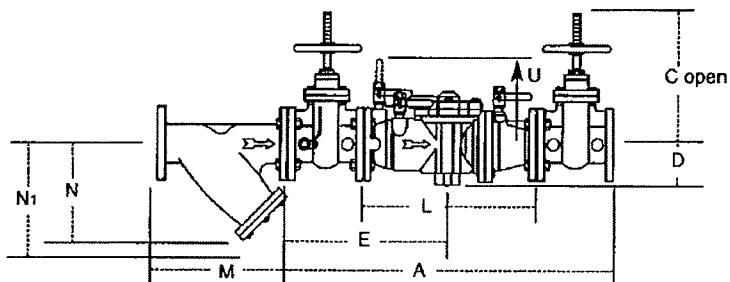
Dimensions and Weight: 1/4" – 2" (8 – 50mm) 009



Suffix HC – Fire Hydrant Fittings dimension 'A' = 25" (637mm)
009 1/4" – 2"

SIZE (DN)		DIMENSIONS (APPROX.)								STRAINER DIMENSIONS				WEIGHT			
		A		B		C		D		L		M		N			
in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	lbs.	kg.s
¼	8	10	250	4½	117	3¾	86	1¼	32	5½	140	2¾	60	2½	64	5	2
⅜	10	10	250	4½	117	3¾	86	1½	32	5½	140	2¾	60	2½	64	5	2
½	15	10	250	4½	117	3¾	86	1¼	32	5½	140	2¾	70	2¼	57	5	2
¾	20	10¾	273	5	127	3½	89	1½	38	6¾	171	3¼	81	2¾	70	6	3
1	25	14½	368	5½	140	3	76	2½	64	9½	241	3¾	95	3	76	12	5
1¼	32	17¾	441	6	150	3½	89	2½	64	11½	289	4⅞	113	3½	89	15	6
1½	40	17¾	454	6	150	3½	89	2½	64	11½	283	4¾	124	4	102	16	7
2	50	21¾	543	7¾	197	4½	114	3¾	83	13½	343	5⅞	151	5	127	30	13

Dimensions and Weight: 2 1/2" and 3" (65 and 80mm) 009



Watts G-4000 Series
QT – Ball Valves

STRAINER SIZE		DIMENSIONS (approx.)				WEIGHT	
in.	mm	M		N		lbs.	kgs.
		in.	mm	in.	mm		
2 1/2	65	10	254	6 1/2	165	28	12.7
3	80	10 1/4	257	7	178	34	15.4

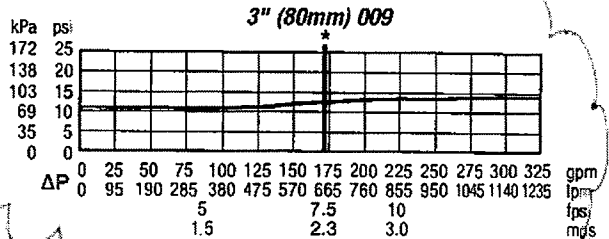
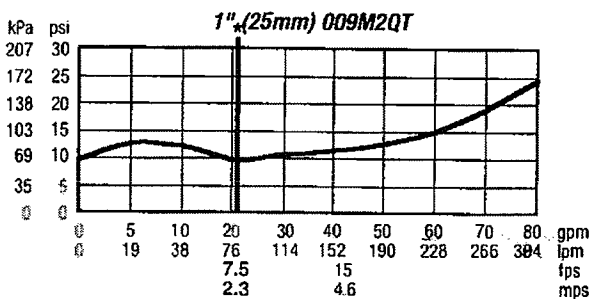
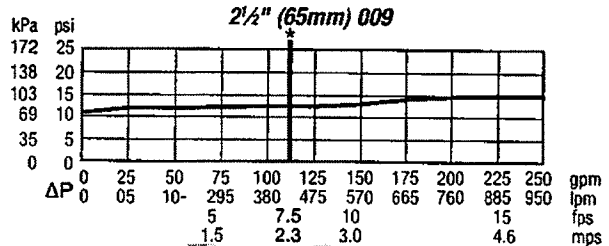
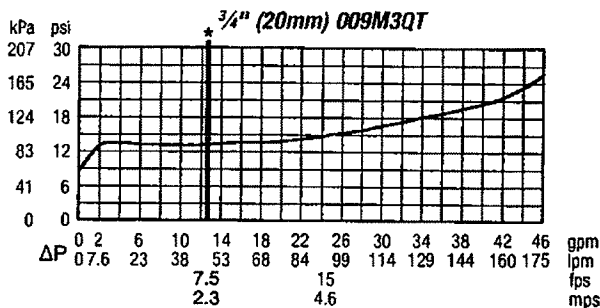
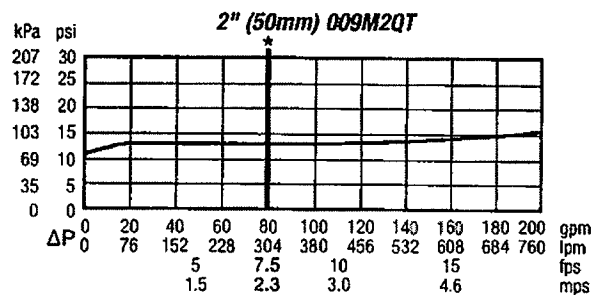
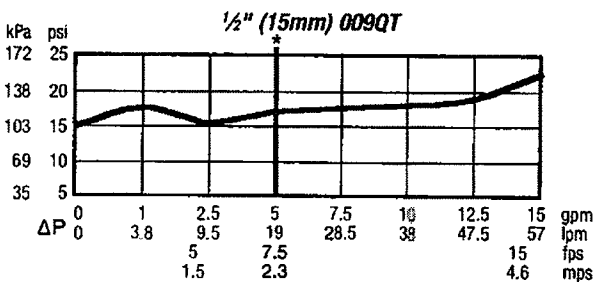
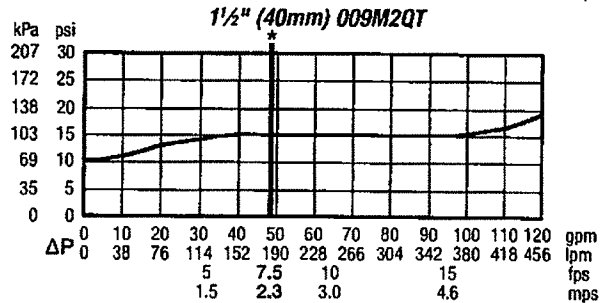
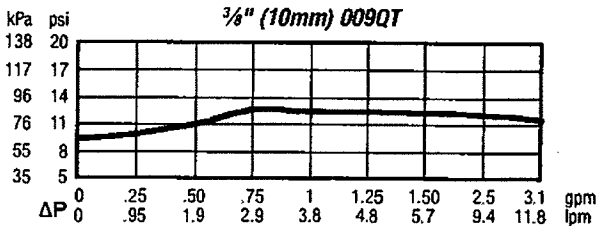
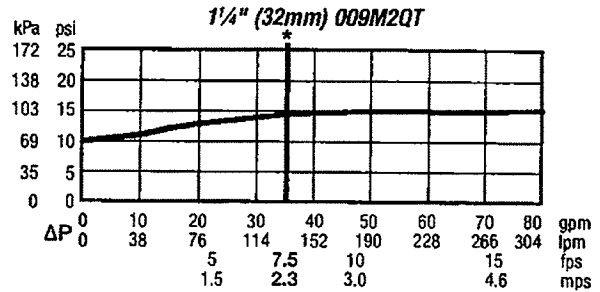
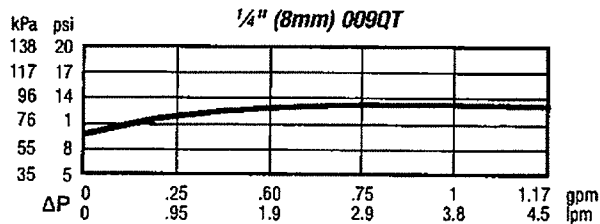
†Clearance for servicing

MODEL	SIZE ON		DIMENSIONS (APPROX.)										WEIGHT					
	in.	mm	A		C		D		E		L		R		U		lbs.	kgs.
009LF	2½	65	—	—	—	—	4½	114	—	—	18½	460	—	—	10½	270	76	34.5
009OSY	2½	65	33¾	845	15½	403	4½	114	16½	416	18½	460	7½	197	10½	270	166	75.3
009NRS	2½	65	33¾	845	11½	289	4½	114	16½	416	18½	460	7½	197	10½	270	161	73.0
009QT	2½	65	33¾	845	6	152	4½	114	16½	416	18½	460	7½	197	10½	270	150	68.0
009LF	3	80	—	—	—	—	4½	114	—	—	18½	460	—	—	10½	270	76	34.5
009OSY	3	80	34¼	870	18½	470	4½	114	16½	422	18½	460	8½	222	10½	270	198	89.8
009NRS	3	80	34¼	870	12½	324	4½	114	16½	422	18½	460	8½	222	10½	270	191	86.6
009QT	3	80	34¼	870	7	178	4½	114	16½	422	18½	460	8½	222	10½	270	150	71.7

Capacity

Performance as established by an independent testing laboratory.

*Typical maximum system flow rate (7.5 feet/sec., 2.3 meters/sec.)



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VF Series

Two-Way, Industrial-Grade, Non-Spring Return, VA-90xx Series Electric Actuated, High-Pressure, High-Temperature Butterfly Valve Assemblies

Description

VF Series Two-Way, Industrial-Grade, Non-Spring Return, VA-90xx Series Electric Actuated, High-Pressure, High-Temperature Butterfly Valve Assemblies are specifically designed for a wide range of Heating, Ventilating, and Air Conditioning (HVAC) applications including two-position and modulating/throttling control of hot water, chilled water, condenser water, and steam. Refer to the *VF Series High-Pressure, High-Temperature Butterfly Valves for Steam Service Application Note (LIT 977321)* for more information on steam applications. These lug-style valves offer bidirectional shutoff at full-rated American National Standards Institute (ANSI) Class 150 and 300 operating pressures, increasing the range of applications—particularly in high-rise building HVAC control applications. ANSI Class 150 and 300 models are also suitable for steam applications.

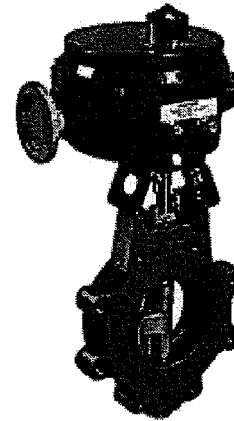
Refer to the *VF Series High-Pressure, High-Temperature Butterfly Valves Product Bulletin (LIT-977208)* for important product application information.

Features

- compatible with all types of ANSI 150/300 slip-on and weld-neck flanges
- high-pressure, high-temperature design
- bidirectional shutoff, dead-end service
- live-loaded seat design with fully encased O-ring
- double offset stem design
- broad range of compact pre-assembled actuators available
- direct actuator-to-stem mounting

Repair Information

If the Two-Way, Industrial-Grade, Non-Spring Return, VA-90xx Series Electric Actuated, High-Pressure, High-Temperature Butterfly Valve fails to operate within its specifications, refer to the *VF Series High-Pressure, High-Temperature Butterfly Valves Product Bulletin (LIT-977208)* for a list of replacement parts available.



Two-Way, Industrial-Grade, Non-Spring Return, VA-90xx Series Electric Actuated, High-Pressure, High-Temperature Butterfly Valve Assemblies

Selection Chart

Actuator				AC 120 V Powered Actuator		AC 24 V Powered Actuator	
Size, In.	Cv at 90°	Cv at 70°	Closeoff Pressure	On/Off	0 to 10 VDC Proportional	On/Off	0 to 10 VDC Proportional
Two-Way, Normally Closed – ANSI Class 300 Flanges ¹							
2-1/2	160	100	550 psig	VFC-025ZE-723D	VFC-025ZE-703N	VFC-025ZE-725D4	VFC-025ZE-705N4
3	185	155		VFC-030ZE-723D	VFC-030ZE-703N	VFC-030ZE-725D4	VFC-030ZE-705N4
4	375	315		VFC-040ZE-723D	VFC-040ZE-703N	VFC-040ZE-725D4	VFC-040ZE-705N4
5	790	500		VFC-050ZE-725D	VFC-050ZE-705N	VFC-050ZE-725D4	VFC-050ZE-705N4
6	1,000	710		VFC-060ZE-728D	VFC-060ZE-706N	VFC-060ZE-727D4	VFC-060ZE-707N4
8	2,000	1,360		VFC-080ZE-727D	VFC-080ZE-707N	VFC-080ZE-727D4	VFC-080ZE-707N4
10	2,650	1,740		VFC-100ZE-927D	VFC-100ZE-907N	—	—
12	4,000	2,500		VFC-120ZE-928D	VFC-120ZE-908N	—	—
14	4,100	2,600		VFC-140ZE-928D	VFC-140ZE-908N	—	—
Two-Way, Normally Closed – ANSI Class 150 Flanges ²							
2-1/2	160	100	240 psig	VFC-025VE-722D	VFC-025VE-702N	VFC-025VE-722D4	VFC-025VE-702N4
3	185	155		VFC-030VE-722D	VFC-030VE-702N	VFC-030VE-722D4	VFC-030VE-702N4
4	375	315		VFC-040VE-722D	VFC-040VE-702N	VFC-040VE-722D4	VFC-040VE-702N4
5	790	500		VFC-050VE-724D	VFC-050VE-704N	VFC-050VE-725D4	VFC-050VE-705N4
6	1,350	750		VFC-060VE-725D	VFC-060VE-705N	VFC-060VE-725D4	VFC-060VE-705N4
8	2,800	1,590		VFC-080VE-726D	VFC-080VE-706N	VFC-080VE-727D4	VFC-080VE-707N4
10	4,300	2,430		VFC-100VE-727D	VFC-100VE-707N	VFC-100VE-727D4	VFC-100VE-707N4
12	6,650	3,750		VFC-120VE-728D	VFC-120VE-708N	—	—
14	7,650	4,300		VFC-140VE-927D	VFC-140VE-907N	—	—
16	9,800	5,510		VFC-160VE-928D	VFC-160VE-908N	—	—

1. Maximum closeoff pressure for ANSI Class 300 valves is 740 psig (5102.1 kPa) for fluid temperatures below 100°F (37.8°C), and 550 psig (3,790 kPa) for fluid temperatures at 250°F (121.1°C). Maximum steam pressure is 150 psig (1034.2 kPa) for On/Off service, and 50 psig (344.8 kPa) for proportional service.
2. Maximum closeoff pressure for ANSI Class 150 valves is 285 psig (1965 kPa) for fluid temperatures below 100°F (37.8°C), and 240 psig (1654.8 kPa) for fluid temperatures at 250°F (121.1°C). Maximum steam pressure is 150 psig (1034.2 kPa) for On/Off service, and 50 psig (344.8 kPa) for proportional service.

The performance specifications are nominal and conform to acceptable industry standards. For applications at conditions beyond these specifications, consult the local Johnson Controls office. Johnson Controls, Inc. shall not be liable for damages resulting from misapplication or misuse of its products. © 2011 Johnson Controls, Inc. www.johnsoncontrols.com

Two-Way, Industrial-Grade, Non-Spring Return, VA-90xx Series Electric Actuated, High-Pressure, High-Temperature Butterfly Valve Assemblies (Continued)

Technical Specifications

Two-Way, Industrial-Grade, Non-Spring Return, VA-90xx Series Electric Actuated, High-Pressure, High-Temperature Butterfly Valve Assemblies ¹		
Service		Hot Water, Chilled Water, Condenser Water, and Steam ²
Body Styles and Sizes		Two-Way, 2-1/2 through 16 in., Fully Lugged ³
Fluid Temperature Limits		-20 to 500°F (-29 to 260°C)
Maximum Closeoff Pressure	2-1/2 through 16 in. ANSI Class 150 Valves (Type V)	240 psig (1,654 kPa) at 250°F (121°C) Fluid Temperature, Bidirectional ³
		240 psig (1,654 kPa) at 250°F (121°C) Fluid Temperature, Dead-End Service ^{3, 4}
	2-1/2 through 14 in. ANSI Class 300 Valves (Type Z)	550 psig (3,790 kPa) at 250°F (121°C) Fluid Temperature, Bidirectional ^{3, 5}
		550 psig (3,790 kPa) at 250°F (121°C) Fluid Temperature, Dead-End Service ^{3, 4, 5}
Materials	Body	Carbon Steel, ASTM A216 GR WCB/A516 GR 70
	Disc	Stainless Steel, ASTM A 351 GR CF8M
	Seat Assembly	RTFE with Silicone Rubber O-Ring
	Seat Retainer	Carbon Steel, ASTM A516 GR 70
	Stem	17-4 PH Stainless Steel, ASTM A564 Type 630
Ambient Storage Temperature Limits		-20 to 150°F (-29 to 66°C); Preferably 40 to 85°F (4 to 29°C)

1. Refer to the *VF Series High-Pressure, High-Temperature Butterfly Valves Product Bulletin (LIT-977208)* for actuator specifications.
2. Type V and Z valves are rated for 150 psig (1,034 kPa) saturated steam at 366°F (186°C) for two-position applications, and 50 psig (345 kPa) saturated steam at 297°F (147°C) for modulating applications. Refer to the *VF Series High-Pressure, High-Temperature Butterfly Valves for Steam Service Application Note (LIT-977321)* for more information.
3. For 18 in. or larger ANSI Class 150 valves and 16 in. or larger ANSI Class 300 valves, consult the local Johnson Controls office.
4. The preferred orientation of the seat retainer in dead-end service is against the flange.
5. For pressures between 550 and 740 psig (3,790 and 5,099 kPa), consult the local Johnson Controls office.