



PENBERTHY SERIES 300 AND 400 OFFSET PATTERN FLAT GLASS GAUGE COCKS

Offset pattern gaugecocks that provide a 90° connection to the process vessel and isolate the gauge chamber from the liquid content of the vessel



Model 330



Model 430

FEATURES

- Offset pattern allows easy cleaning.
- Integral bonnet (300 series).
- Union bonnet (400 series).
- Union vessel connection.
- Ball check shut-off prevents loss of process fluid in the event of an accidental breakage of the gauge glass.
- Integral seat (300 series).
- Threaded renewable seat (400 series).
- Can be supplied to meet ASME requirements.
- Wide variety of gauge and vessel connections available.

GENERAL APPLICATION

These gaugecocks have internal screw threads that are wetted by the process liquid. They are used in conjunction with direct reading flat glass gauges in the petroleum, chemical and general process industries.

TECHNICAL DATA

| | |
|--------------------|--|
| Materials: | Forged steel, stainless steel |
| Sizes: | ½" to 1" (DN 15 to 25) |
| Gauge connection | |
| Model 320/420: | Union |
| Model 330/430: | Rigid |
| Pressure (max.): | 4000 psi at 100°F (275.8 bar at 38°C) |
| Temperature range: | -300°F to 750°F (-184°C to 399°C) |

PENBERTHY SERIES 300 AND 400 OFFSET PATTERN FLAT GLASS GAUGE COCKS

PRODUCT OVERVIEW

The 300 and 400 series includes models 320/420 and 330/430. These gaugecocks have inside screw threads that are wetted by the liquid. They are offered with a wide range of features in offset pattern design.

Offset gaugecocks have the advantage of permitting the inside of the gauge glass to be cleaned easily with a minimum of disassembly. By removing the vent and drain plugs (or other connection), a straight passage is opened through the gauge chamber. A brush can be inserted through the gaugecock vent and drain for glass cleaning.

Gaugecock seat leakage is Class I per ISA RP39.6, FCI 70-2 (formerly ASME B16. 105) and/or IEC 60534-4.

A variety of optional features are available when specified. Optional materials can be specified for the gaugecock body and trim (trim consists of the stem, stem packing retainer, ball check and seat (400 series only)). Standard and optional materials conform to ASTM specifications.

CENTER-TO-CENTER DIMENSIONS, in (cm)

| Model | Dimension X | Dimension Y |
|---------|------------------------|-----------------------|
| 320/420 | 5 $\frac{5}{8}$ [14.9] | 3 $\frac{3}{8}$ [9.2] |
| 330/430 | 2 $\frac{5}{8}$ [7.3] | $\frac{3}{8}$ [1.6] |

To obtain the maximum length permissible for given vessel center-to-center dimension using $\frac{1}{2}$ " nipples:

$$\text{Maximum gauge length} = (\text{gaugecock center-to center dimension}) - (\text{dimension X})$$

To determine the overall length of nipples needed to make up a gauge set for fixed vessel center-to-center dimension using $\frac{1}{2}$ " nipples:

$$\text{Combined nipple length} = (\text{gaugecock center-to-center dimension}) - (\text{gauge length} + \text{dimension Y})$$

Overall nipple length can be divided between nipples to suit the application.

Minimum length required for each nipple is: 1 $\frac{1}{8}$ " for $\frac{1}{2}$ " NPT nipple; 1 $\frac{3}{8}$ " for $\frac{3}{4}$ " NPT nipple.

A floating shank union vessel connection permits the gaugecock center-to-center dimension to vary $\frac{3}{8}$ " (9.5 mm) total from the actual vessel center-to-center dimension.

PRESSURE/TEMPERATURE

| | Maximum working pressure psi (kPa) at temperatures to: | | | | | | | | | |
|-----|--|-----------------|---------------|--------------|--------------|---------------|---------------|---------------|---------------|---------------|
| | -300°F (-184°C) | -150°F (-101°C) | -20°F (-29°C) | 100°F (38°C) | 200°F (93°C) | 300°F (149°C) | 400°F (204°C) | 500°F (260°C) | 550°F (288°C) | 750°F (399°C) |
| ** | - | - | 4000 [27580] | 4000 [27580] | 3900 [26890] | 3815 [26300] | 3730 [25720] | 3525 [24300] | 3355 [23130] | 2620 [18060] |
| *** | 4000 [27580] | 4000 [27580] | 4000 [27580] | 4000 [27580] | 3900 [26890] | 3815 [26300] | 3730 [25720] | 3525 [24300] | 3355 [23130] | 2755 [18990] |

** Forged steel

*** Stainless steel

PENBERTHY SERIES 300 AND 400 OFFSET PATTERN FLAT GLASS GAUGE COCKS

Automatic ball check shut-off

To prevent rapid loss of fluid in the event of accidental glass breakage, Penberthy gaugecocks are supplied with automatic ball check shut-off. Should the glass break, the pressure drop causes the ball checks to seat to prevent loss of tank contents. To unseat these ball checks during the liquid level readings, the tip of the gaugecock stem has an extension that pushes the ball away from its seat while allowing the gauge column to fill as liquid contents pass around the ball. Stainless steel retainers prevent reverse seating of balls or loss of balls during installation.

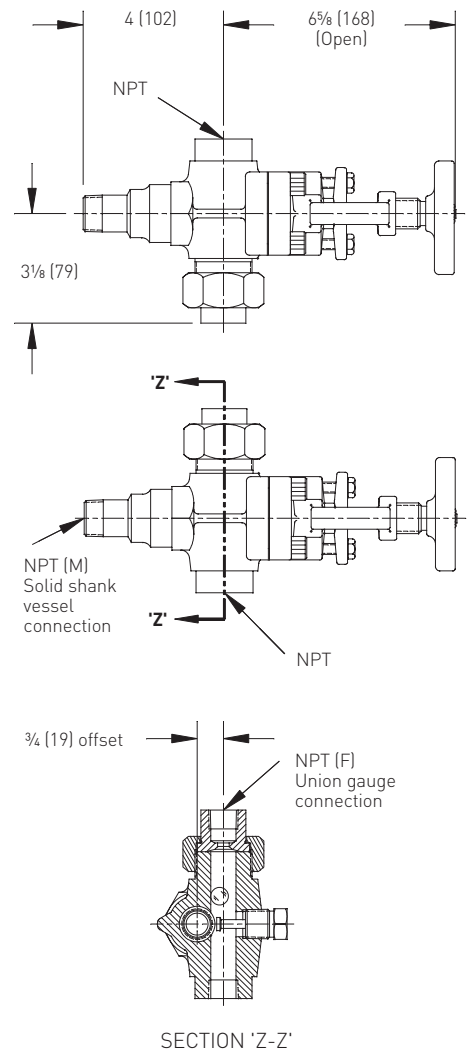
Both upper and lower gaugecocks in each set are equipped with horizontal ball checks. Balls are located on the vessel side of the gaugecock seats.

Gaugecocks with ball checks omitted meet ASME boiler requirements. As an alternative method to ASME boiler requirements, the lower gaugecock is available with an optional vertical rising ball check located in the offset portion of the gaugecock body and the upper gaugecock has a leaky seat.

ASME Boiler Code

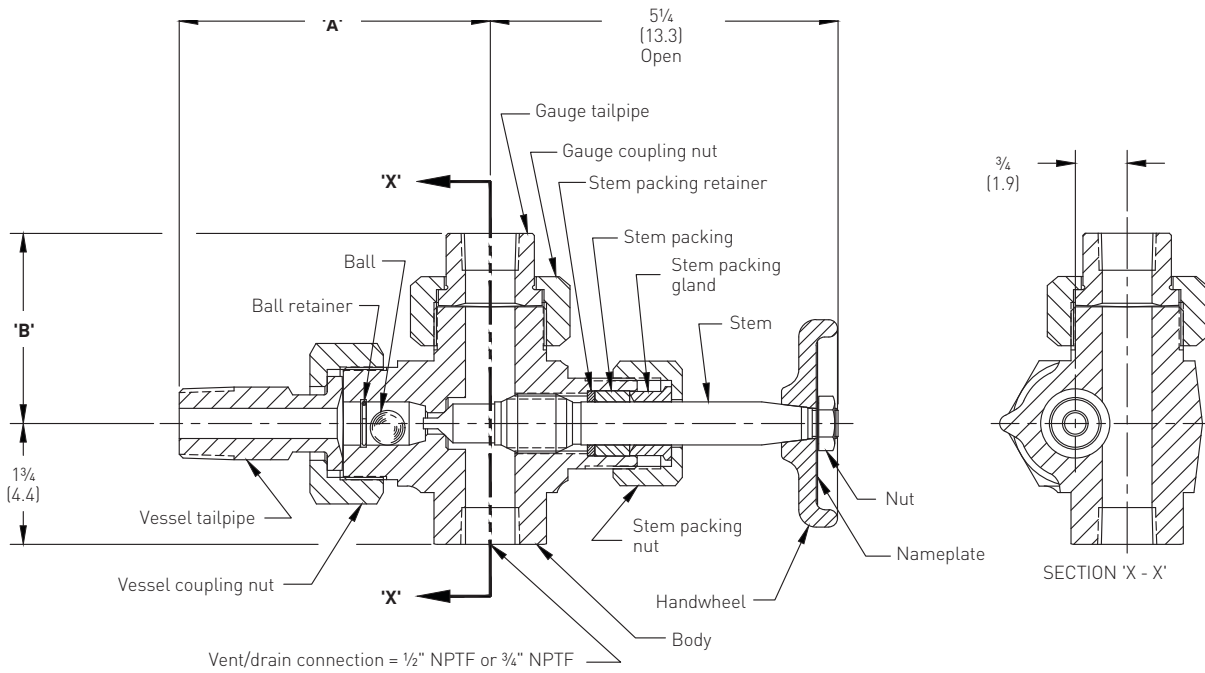
Series 300 and 400 gaugecock sets that are acceptable for ASME Boiler Code are available as an option. Model 320/420 gaugecock sets with this option can be supplied either with ball check shut-offs or with them omitted. Model 330/430 gaugecock sets with this option have the ball check shut-offs omitted.

VERTICALLY RISING BALL CHECK



PENBERTHY SERIES 300 AND 400 OFFSET PATTERN FLAT GLASS GAUGE COCKS

SERIES 300 - DIMENSIONS



In. (cm)

SERIES 300 - DIMENSIONS

| Connection | Dimension 'A' inches (cm) | Dimension 'B' inches (cm) | |
|------------------------|---------------------------|---------------------------|---------------------------|
| | | Standard | 320 option / Side connect |
| Union | | | |
| 1/2" NPTF | 3 3/16 (8.1) | 2 3/4 (7.0) | - |
| 1/2" NPTM | 4 3/8 (11.1) | 3 3/8 (8.6) | 4 1/16 (10.3) |
| 3/4" NPTF | 3 3/16 (8.1) | 2 3/4 (7.0) | - |
| 3/4" NPTM | 4 1/2 (11.4) | 3 3/8 (8.6) | 4 1/16 (10.3) |
| 1" NPTM | 4 5/8 (11.7) | - | - |
| Rigid | | | |
| 1/2" NPTF | - | 1 1/4 (3.2) | - |
| 3/4" NPTF | - | 1 1/4 (3.2) | - |
| Solid shank | | | |
| 1/2" NPTM | 4 (10.2) | - | - |
| 3/4" NPTM | 4 (10.2) | - | - |
| 1" NPTM | 4 (10.2) | - | - |
| Socketweld | | | |
| 1/2" Female union | - | 2 3/4 (7.0) | - |
| 1/2" Female rigid | - | 1 1/4 (3.2) | - |
| 1/2" Male union | 4 3/8 (11.1) | 3 3/8 (8.6) | 4 1/16 (10.3) |
| 3/4" Female rigid | - | 1 1/4 (3.2) | - |
| 3/4" Male union | 4 1/2 (11.4) | 3 3/8 (8.6) | 4 1/16 (10.3) |
| 1" Male union | 4 5/8 (11.7) | - | - |
| Spherical union | | | |
| 1/2" NPTF | 4 7/16 (11.6) | 4 1/8 (10.5) | - |
| 1/2" NPTM | 4 7/16 (11.6) | 4 1/8 (10.5) | - |
| 3/4" NPTM | 4 7/16 (11.6) | 4 1/8 (10.5) | - |

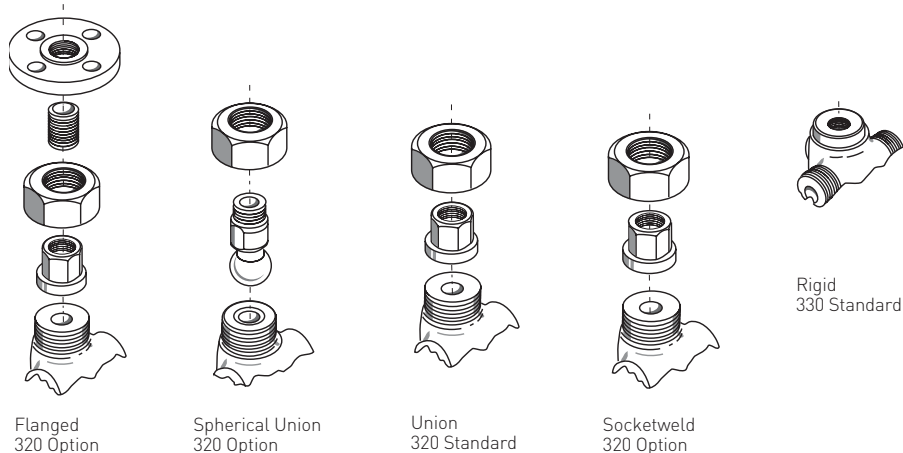
PENBERTHY SERIES 300 AND 400 OFFSET PATTERN FLAT GLASS GAUGE COCKS

SERIES 300 - DIMENSIONS

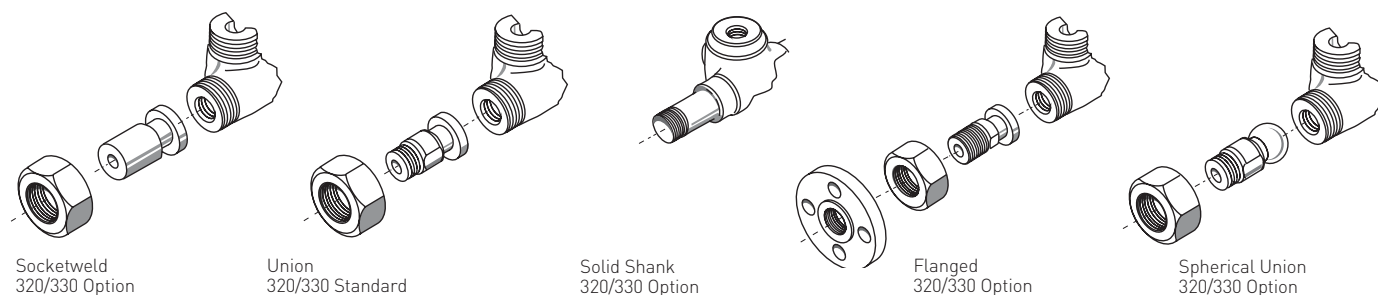
SERIES 300 - DIMENSIONS - FLANGED CONNECTION

| Flanged connection | Dimension 'A' inches (cm) | | Dimension 'B' inches (cm) | |
|----------------------|---------------------------|--------------|---------------------------|----------------|
| | RF Threaded | RF Slip on | RF Threaded | RF Slip on |
| Union | | | | |
| 1/2" - 150 P-Cl (F) | - | - | 3 11/16 (9.4) | 3 13/16 (9.7) |
| 1/2" - 300 P-Cl (F) | - | - | 3 15/16 (10.0) | 3 15/16 (10.0) |
| 1/2" - 600 P-Cl (F) | - | - | 4 3/16 (10.6) | 4 3/16 (10.6) |
| 1/2" - 1500 P-Cl (F) | - | - | 4 13/16 (12.2) | 4 3/4 (12.1) |
| 1/2" - 150 P-Cl (M) | 4 1/2 (11.4) | 4 5/8 (11.7) | 3 11/16 (9.4) | 3 3/8 (9.2) |
| 1/2" - 300 P-Cl (M) | 4 1/2 (11.4) | 4 5/8 (11.7) | 3 3/4 (9.5) | 3 3/4 (9.5) |
| 1/2" - 600 P-Cl (M) | 4 3/4 (12.1) | 4 5/8 (11.7) | 4 1/16 (10.3) | 4 1/16 (10.3) |
| 1/2" - 1500 P-Cl (M) | 5 (12.7) | 4 5/8 (11.7) | 4 3/4 (12.1) | 4 3/4 (12.1) |
| 3/4" - 150 P-Cl (F) | - | - | 3 15/16 (10.0) | - |
| 3/4" - 300 P-Cl (F) | - | - | 4 3/16 (10.6) | - |
| 3/4" - 600 P-Cl (F) | - | - | 4 7/16 (11.3) | - |
| 3/4" - 1500 P-Cl (F) | - | - | 4 15/16 (12.5) | - |
| 3/4" - 150 P-Cl (M) | 4 5/8 (11.7) | 4 3/4 (12.1) | 3 3/4 (9.5) | 3 3/4 (9.5) |
| 3/4" - 300 P-Cl (M) | 4 5/8 (11.7) | 4 3/4 (12.1) | 4 1/8 (10.5) | 4 1/16 (10.3) |
| 3/4" - 600 P-Cl (M) | 5 (12.7) | 4 3/4 (12.1) | 4 3/8 (11.1) | 4 5/16 (11.0) |
| 3/4" - 1500 P-Cl (M) | 5 1/4 (13.3) | 4 3/4 (12.1) | 4 7/8 (12.4) | 4 7/8 (12.4) |
| Rigid | | | | |
| 3/4" - 150 P-Cl (F) | - | - | 2 15/16 (7.5) | 2 7/8 (7.3) |
| 3/4" - 300 P-Cl (F) | - | - | 3 3/16 (8.1) | 3 3/16 (8.1) |
| 3/4" - 600 P-Cl (F) | - | - | 3 7/16 (8.7) | 3 7/16 (8.7) |
| 3/4" - 1500 P-Cl (F) | - | - | 4 1/16 (10.3) | 4 (10.2) |
| Union | | | | |
| 1" - 150 P-Cl (M) | 4 11/16 (11.9) | 4 7/8 (12.4) | 3 3/4 (9.5) | 3 3/4 (9.5) |
| 1" - 300 P-Cl (M) | 4 11/16 (11.9) | 4 7/8 (12.4) | 4 1/8 (10.5) | 4 1/16 (10.3) |
| 1" - 600 P-Cl (M) | 5 1/16 (12.9) | 4 7/8 (12.4) | 4 3/8 (11.1) | 4 5/16 (11.0) |
| 1" - 1500 P-Cl (M) | 5 3/8 (13.7) | 4 7/8 (12.4) | - | - |

GAUGE CONNECTIONS



VESSEL CONNECTIONS



PENBERTHY SERIES 300 AND 400 OFFSET PATTERN FLAT GLASS GAUGE COCKS

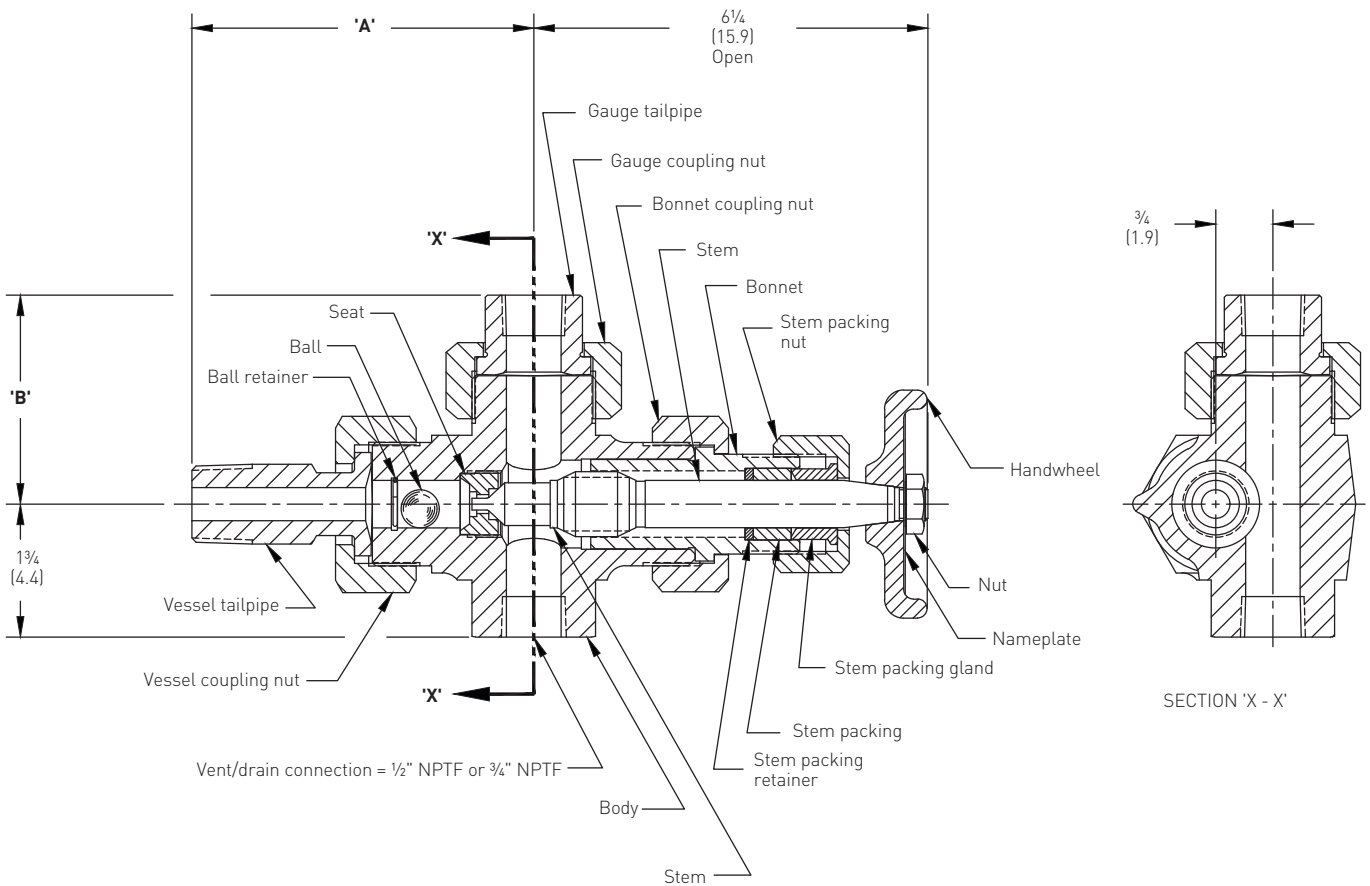
SERIES 300 - MATERIALS

SERIES 300 MATERIALS

| Ref. no. | Description | Standard materials | | | | Optional materials |
|----------------------|-----------------------|--------------------------------------|--|--|--|--|
| | | Carbon steel to -20°F | STS construction to -325°F | Sour gas service to -20°F | Low-temp. to -50°F | |
| 11 | Body | ASTM A105 (forged) carbon steel | ASTM A182 (forged) Gr. F316/F316L STS | ASTM A105 (forged) carbon steel per NACE MR0175 and/or MR0103 | ASTM A350 (forged) carbon steel Gr. LF2 Cl. 1 | ASTM A351 304/304L STS Gr. CF3 ASTM A351 316/316L STS Gr. CF3M ASTM A182 Gr. F304/F304L STS ASTM A182 Gr. F51 Duplex 2205 STS ASTM A494 Hastelloy B® Gr. N-12MV ASTM A352 carbon steel Gr. LCC ASTM A743 Alloy 20 Gr. CN7M ASTM B564 Monel® 400 N04400 ASTM A494 Hastelloy C® Gr. CW12MW ASTM A123 galvanized steel |
| 12 | Vessel tailpipe | ASTM A108 carbon steel AISI C1018 | ASTM A276 316/316L STS | ASTM A108 carbon steel AISI C1018 per NACE MR0175 and/or MR0103 | ASTM A350 carbon steel Gr. LF2 Cl. 1 | ASTM A276 304/304L, Duplex 2205 STS ASTM B164 Monel® 400 ASTM B473 Alloy 20 [CARP 20Cb-3]® ASTM B335 Hastelloy B® |
| 13 | Vessel coupling nut | ASTM A108 carbon steel AISI C1018 | Investment cast 316 STS | NACE MR0175 and/or MR0103 | Investment cast 316 STS | ASTM B574 Hastelloy C® 276 ASTM A123 galvanized steel |
| 14 | Ball retainer | ASTM A313 316 STS (spring wire) | | | | None |
| 15 | T R I M Ball | ASTM A493, A262 or A276 316 STS | | | | ASTM B574 Hastelloy C® 276 Borosilicate glass ASTM B473 Alloy 20 [CARP 20Cb-3]® ASTM B164 Monel® 400 ASTM B335 Hastelloy B® CRS 304 STS ASTM A276 Duplex 2205 STS |
| 17 | | Stem | ASTM A582 416 STS or ASTM A276 410 STS | ASTM A276 316/316L STS | ASTM A276 316/316L STS per NACE MR0175 and/or MR0103 | ASTM A582 416 STS or ASTM A276 410 STS |
| 18 | Stem packing retainer | MPIF SS-316N2-33 316 STS (sintered) | | | | ASTM B473 Alloy 20 [CARP 20Cb-3]® ASTM B335 Hastelloy B® ASTM B574 Hastelloy C® 276 |
| 19 | Stem packing gland | | | | | |
| 25 | Stem packing | Graphite composite | | | | Teflon® Viton® |
| 26 | Stem packing nut | ASTM A108 carbon steel AISI C1018 | Investment cast 316/316L STS | ASTM A108 carbon steel AISI C1018 | Investment cast 316/316L STS | ASTM A276 304/304L, Duplex 2205 STS ASTM B164 Monel® 400 ASTM B473 Alloy 20 [CARP 20Cb-3]® ASTM B335 Hastelloy B® ASTM B574 Hastelloy C® 276 ASTM A123 galvanized steel |
| 28 | Handwheel | ASTM A216 Carbon steel Gr. WCB | | | | None |
| 30 | Handwheel nut | ASTM A563 Steel Gr. A | | | | None |
| 320 Gaugecock | | | | | | |
| 31 | Gauge tailpipe | ASTM A108 carbon steel AISI C1018 | ASTM A276 316/316L STS | ASTM A108 carbon steel AISI C1018 per NACE MR0175 and/or MR0103 | ASTM A350 carbon steel Gr. LF2 Cl. 1 | ASTM A276 304/304L, Duplex 2205 STS ASTM B164 Monel® 400 ASTM B473 Alloy 20 [CARP 20Cb-3]® |
| 32 | Gauge coupling nut | ASTM A108 carbon steel AISI C1018 | Investment cast 316 STS | NACE MR0175 and/or MR0103 | Investment cast 316 STS | ASTM B335 Hastelloy B® ASTM B574 Hastelloy C® 276 ASTM A123 galvanized steel |

PENBERTHY SERIES 300 AND 400 OFFSET PATTERN FLAT GLASS GAUGE COCKS

SERIES 400 - DIMENSIONS



In. (cm)

SERIES 400 - DIMENSIONS

| Connection | Dimension 'A' inches (cm) | Dimension 'B' inches (cm) | |
|------------------------|---------------------------|---------------------------|---------------------------|
| | | Standard | 420 option / Side connect |
| Union | | | |
| 1/2" NPTF | 3 3/16 (8.1) | 2 3/4 (7.0) | - |
| 1/2" NPTM | 4 3/8 (11.1) | 3 3/8 (8.6) | 4 1/16 (10.3) |
| 3/4" NPTF | 3 3/16 (8.1) | 2 3/4 (7.0) | - |
| 3/4" NPTM | 4 1/2 (11.4) | 3 3/8 (8.6) | 4 1/16 (10.3) |
| 1" NPTM | 4 5/8 (11.7) | - | - |
| Rigid | | | |
| 1/2" NPTF | - | 1 1/4 (3.2) | - |
| 3/4" NPTF | - | 1 1/4 (3.2) | - |
| Solid shank | | | |
| 1/2" NPTM | 4 (10.2) | - | - |
| 3/4" NPTM | 4 (10.2) | - | - |
| 1" NPTM | 4 (10.2) | - | - |
| Socketweld | | | |
| 1/2" Female union | - | 2 3/4 (7.0) | - |
| 1/2" Female rigid | - | 1 1/4 (3.2) | - |
| 1/2" Male union | 4 3/8 (11.1) | 3 3/8 (8.6) | 4 1/16 (10.3) |
| 3/4" Female rigid | - | 1 1/4 (3.2) | - |
| 3/4" Male union | 4 1/2 (11.4) | 3 3/8 (8.6) | 4 1/16 (10.3) |
| 1" Male union | 4 5/8 (11.7) | - | - |
| Spherical union | | | |
| 1/2" NPTF | 4 7/16 (11.6) | 4 1/8 (10.5) | - |
| 1/2" NPTM | 4 7/16 (11.6) | 4 7/8 (10.5) | - |
| 3/4" NPTM | 4 7/16 (11.6) | 4 7/8 (10.5) | - |

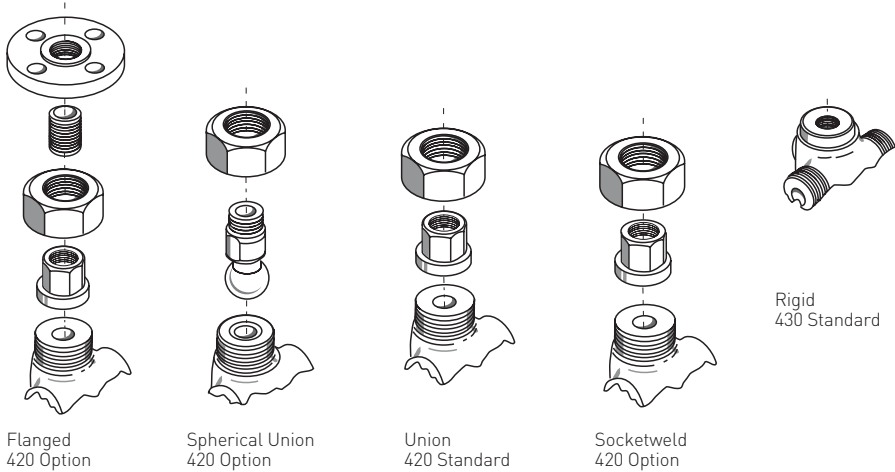
PENBERTHY SERIES 300 AND 400 OFFSET PATTERN FLAT GLASS GAUGE COCKS

SERIES 400 - DIMENSIONS

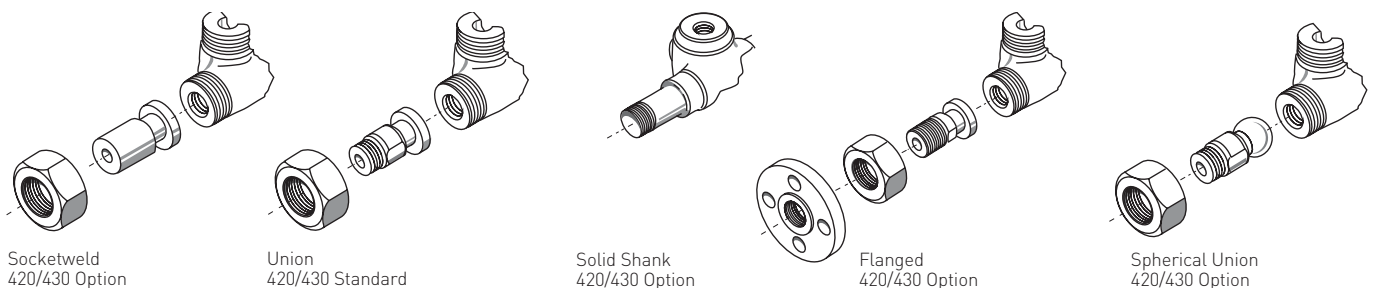
SERIES 400 - DIMENSIONS - FLANGED CONNECTION

| Flanged connection | Dimension 'A' inches (cm) | | Dimension 'B' inches (cm) | |
|----------------------|---------------------------|--------------|---------------------------|----------------|
| | RF Threaded | RF Slip on | RF Threaded | RF Slip on |
| Union | | | | |
| 1/2" - 150 P-Cl (F) | - | - | 3 11/16 (9.4) | 3 13/16 (9.7) |
| 1/2" - 300 P-Cl (F) | - | - | 3 15/16 (10.0) | 3 15/16 (10.0) |
| 1/2" - 600 P-Cl (F) | - | - | 4 3/16 (10.6) | 4 3/16 (10.6) |
| 1/2" - 1500 P-Cl (F) | - | - | 4 13/16 (12.2) | 4 3/4 (12.1) |
| 1/2" - 150 P-Cl (M) | 4 1/2 (11.4) | 4 5/8 (11.7) | 3 11/16 (9.4) | 3 5/8 (9.2) |
| 1/2" - 300 P-Cl (M) | 4 1/2 (11.4) | 4 5/8 (11.7) | 3 3/4 (9.5) | 3 3/4 (9.5) |
| 1/2" - 600 P-Cl (M) | 4 3/4 (12.1) | 4 5/8 (11.7) | 4 1/16 (10.3) | 4 1/16 (10.3) |
| 1/2" - 1500 P-Cl (M) | 5 (12.7) | 4 5/8 (11.7) | 4 3/4 (12.1) | 4 3/4 (12.1) |
| 3/4" - 150 P-Cl (F) | - | - | 3 15/16 (10.0) | - |
| 3/4" - 300 P-Cl (F) | - | - | 4 3/16 (10.6) | - |
| 3/4" - 600 P-Cl (F) | - | - | 4 7/16 (11.3) | - |
| 3/4" - 1500 P-Cl (F) | - | - | 4 15/16 (12.5) | - |
| 3/4" - 150 P-Cl (M) | 4 5/8 (11.7) | 4 3/4 (12.1) | 3 3/4 (9.5) | 3 3/4 (9.5) |
| 3/4" - 300 P-Cl (M) | 4 5/8 (11.7) | 4 3/4 (12.1) | 4 1/8 (10.5) | 4 1/16 (10.3) |
| 3/4" - 600 P-Cl (M) | 5 (12.7) | 4 3/4 (12.1) | 4 3/8 (11.1) | 4 5/16 (11.0) |
| 3/4" - 1500 P-Cl (M) | 5 1/4 (13.3) | 4 3/4 (12.1) | 4 7/8 (12.4) | 4 7/8 (12.4) |
| Rigid | | | | |
| 3/4" - 150 P-Cl (F) | - | - | 2 15/16 (7.5) | 2 7/8 (7.3) |
| 3/4" - 300 P-Cl (F) | - | - | 3 3/16 (8.1) | 3 3/16 (8.1) |
| 3/4" - 600 P-Cl (F) | - | - | 3 7/16 (8.7) | 3 7/16 (8.7) |
| 3/4" - 1500 P-Cl (F) | - | - | 4 1/16 (10.3) | 4 (10.2) |
| Union | | | | |
| 1" - 150 P-Cl (M) | 4 11/16 (11.9) | 4 7/8 (12.4) | 3 3/4 (9.5) | 3 3/4 (9.5) |
| 1" - 300 P-Cl (M) | 4 11/16 (11.9) | 4 7/8 (12.4) | 4 1/8 (10.5) | 4 1/16 (10.3) |
| 1" - 600 P-Cl (M) | 5 1/16 (12.9) | 4 7/8 (12.4) | 4 3/8 (11.1) | 4 5/16 (11.0) |
| 1" - 1500 P-Cl (M) | 5 3/8 (13.7) | 4 7/8 (12.4) | - | - |

GAUGE CONNECTIONS



VESSEL CONNECTIONS



PENBERTHY SERIES 300 AND 400 OFFSET PATTERN FLAT GLASS GAUGE COCKS

SERIES 400 - MATERIALS

SERIES 400 MATERIALS

| Ref. no. | Description | Standard materials | | | | Optional materials |
|----------------------|-----------------------|--|---------------------------------------|---|---|--|
| | | Carbon steel to -20°F | STS construction to -325°F | Sour gas service to -20°F | Low-temp. to -50°F | |
| 11 | Body | ASTM A105 (forged) carbon steel | ASTM A182 (forged) Gr. F316/F316L STS | ASTM A105 (forged) carbon steel per NACE MR0175 and/or MR0103 | ASTM A350 (forged) carbon steel Gr. LF2 Cl. 1 | ASTM A351 304/304L STS Gr. CF3 ASTM A351 316/316L STS Gr. CF3M ASTM A182 Gr. F304/F304L STS ASTM A182 Gr. F51 Duplex 2205 STS ASTM A494 Hastelloy B® Gr. N-12MV ASTM A352 carbon steel Gr. LCC ASTM A743 Alloy 20 Gr. CN7M ASTM B564 Monel® 400 N04400 ASTM A494 Hastelloy C® Gr. CW12MW ASTM A123 galvanized steel |
| 12 | Vessel tailpipe | ASTM A108 carbon steel AISI C1018 | ASTM A276 316/316L STS | ASTM A108 carbon steel AISI C1018 per NACE MR0175 and/or MR0103 | ASTM A350 carbon steel Gr. LF2 Cl. 1 | ASTM A276 304/304L STS ASTM A276 Duplex 2205 STS ASTM B164 Monel® 400 ASTM B473 Alloy 20 [CARP 20Cb-3]® |
| 13 | Vessel coupling nut | ASTM A108 carbon steel AISI C1018 | Investment cast 316 STS | | Investment cast 316 STS | ASTM B335 Hastelloy B® ASTM B574 Hastelloy C® 276 ASTM A123 Galvanized steel |
| 14 | Ball retainer | ASTM A313 316 STS (spring wire) | | | | None |
| 15 | PRIM Ball | ASTM A493, A262 or A276 316 STS | | | | ASTM B574 Hastelloy C® 276 Borosilicate glass ASTM B473 Alloy 20 [CARP 20Cb-3]® ASTM B164 Monel® 400 ASTM B335 Hastelloy B® CRS 304 STS ASTM A276 Duplex 2205 STS |
| 16 | | Seat | ASTM A276 316/316L STS | | | |
| 17 | Stem | ASTM A582 416 STS or ASTM A276 410 STS | ASTM A276 316/316L STS | ASTM A276 316/316L STS per NACE MR0175 and/or MR0103 | ASTM A582 416 STS or ASTM A276 410 STS | ASTM A276 316/316L STS ASTM A276 304/304L STS ASTM A276 Duplex 2205 STS ASTM B164 Monel® 400 ASTM B473 Alloy 20 [CARP 20Cb-3]® ASTM B335 Hastelloy B® ASTM B574 Hastelloy C® 276 |
| 18 | Stem packing retainer | MPIF SS-316N2-33 316 STS (sintered) | | | | |
| 19 | Stem packing gland | | | | | |
| 20 | Bonnet | ASTM A108 carbon steel AISI C1018 | ASTM A276 316/316L STS | ASTM A108 carbon steel AISI C1018 per NACE MR0175 and/or MR0103 | ASTM A350 Carbon steel Gr. LF2 Cl. 1 | ASTM A276 304/304L STS ASTM A276 Duplex 2205 STS ASTM B164 Monel® 400 ASTM B473 Alloy 20 [CARP 20Cb-3]® |
| 21 | Bonnet nut | ASTM A108 carbon steel AISI C1018 | Investment cast 316 STS | ASTM A108 carbon steel AISI C1018 | Investment cast 316 STS | ASTM B335 Hastelloy B® ASTM B574 Hastelloy C® 276 ASTM A123 galvanized steel |
| 25 | Stem packing | Graphite composite | | | | Teflon® Viton® |
| 26 | Stem packing nut | ASTM A108 carbon steel AISI C1018 | Investment cast 316/316L STS | ASTM A108 carbon steel AISI C1018 | Investment cast 316/316L STS | ASTM A276 304/304L, Duplex 2205 STS ASTM B164 Monel® 400 ASTM B473 Alloy 20 [CARP 20Cb-3]® ASTM B335 Hastelloy B® ASTM B574 Hastelloy C® 276 ASTM A123 galvanized steel |
| 28 | Handwheel | ASTM A216 Carbon steel Gr. WCB | | | | None |
| 30 | Handwheel nut | ASTM A563 Steel Gr. A | | | | None |
| 420 Gaugecock | | | | | | |
| 31 | Gauge tailpipe | ASTM A108 carbon steel AISI C1018 | ASTM A276 316/316L STS | ASTM A108 carbon steel AISI C1018 per NACE MR0175 and/or MR0103 | ASTM A350 carbon steel Gr. LF2 Cl. 1 | ASTM A276 304/304L, Duplex 2205 STS ASTM B164 Monel® 400 ASTM B473 Alloy 20 [CARP 20Cb-3]® |
| 32 | Gauge coupling nut | ASTM A108 carbon steel AISI C1018 | Investment cast 316 STS | | Investment cast 316 STS | ASTM B335 Hastelloy B® ASTM B574 Hastelloy C® 276 ASTM A123 galvanized steel |

PENBERTHY SERIES 300 AND 400 OFFSET PATTERN FLAT GLASS GAUGE COCKS

FEATURES

STANDARD/OPTIONAL FEATURES

| Feature | 320 | | 420 | | 330 | | 430 | |
|--|------------------------|------|------|------|------|------|------|------|
| | Std. | Opt. | Std. | Opt. | Std. | Opt. | Std. | Opt. |
| Pattern | | | | | | | | |
| Offset | X | - | X | - | X | - | X | - |
| Bonnet | | | | | | | | |
| Integral | X | - | - | - | X | - | - | - |
| Union | - | - | X | - | - | - | X | - |
| Gauge connection | | | | | | | | |
| Union | 1/2" NPTF | X | - | X | - | - | - | - |
| | 1/2" NPTM | - | X | - | X | - | - | - |
| | 3/4" NPTF | - | X | - | X | - | - | - |
| | 3/4" NPTM | - | X | - | X | - | - | - |
| Rigid | 1/2" NPTF | - | - | - | - | X | - | X |
| | 3/4" NPTF | - | - | - | - | - | X | - |
| Socketweld | 1/2" Female | - | X | - | X | - | X | - |
| | 1/2" Male | - | X | - | X | - | - | - |
| | 3/4" Male | - | X | - | X | - | - | - |
| | 3/4" Female | - | - | - | - | - | X | - |
| Flanged | - | X | - | X | - | X | - | X |
| Spherical union | 1/2" NPTF | - | X | - | X | - | - | - |
| | 1/2" NPTM | - | X | - | X | - | - | - |
| | 3/4" NPTM | - | X | - | X | - | - | - |
| Vessel connection | | | | | | | | |
| Union | 1/2" NPTF | - | X | - | X | - | X | - |
| | 1/2" NPTM | - | X | - | X | - | X | - |
| | 3/4" NPTM | X | - | X | - | X | - | X |
| | 1" NPTM (non floating) | - | X | - | X | - | X | - |
| Solid shank | 1/2" NPTM | - | X | - | X | - | X | - |
| | 3/4" NPTM | - | X | - | X | - | X | - |
| | 1" NPTM | - | X | - | X | - | X | - |
| Socketweld | 1/2" Male | - | X | - | X | - | X | - |
| | 3/4" Male | - | X | - | X | - | X | - |
| | 1" Male | - | X | - | X | - | X | - |
| Flanged | - | X | - | X | - | X | - | |
| Spherical union | 1/2" NPTF | - | X | - | X | - | X | - |
| | 1/2" NPTM | - | X | - | X | - | X | - |
| | 3/4" NPTM | - | X | - | X | - | X | - |
| Vent/drain connection | | | | | | | | |
| 1/2" NPTF | X | - | X | - | X | - | X | - |
| 3/4" NPTF | - | X | - | X | - | X | - | X |
| Ball check shut-off | | | | | | | | |
| Horizontal lower and upper gaugecocks | X | - | X | - | X | - | X | - |
| Vertical lower/horizontal upper gaugecock* | - | X | - | X | - | - | - | - |
| Omitted* | - | X | - | X | - | X | - | X |
| Vacuum - horizontal upper and lower | - | X | - | X | - | X | - | X |
| Seat | | | | | | | | |
| Integral | X | - | - | - | X | - | - | - |
| Threaded (renewable) | - | - | X | - | - | - | X | - |
| Backseating stem | - | - | - | X | - | - | - | X |
| Handwheel | | | | | | | | |
| w/standard pitch threads | X | - | X | - | X | - | X | - |
| w/quick closing thread | - | X | - | X | - | X | - | X |
| Lever | | | | | | | | |
| w/quick closing thread (1/4 turn) | - | X | - | X | - | X | - | X |

* Acceptable for ASME service

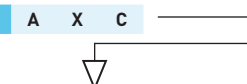
PENBERTHY SERIES 300 AND 400 OFFSET PATTERN FLAT GLASS GAUGE COCKS

SELECTION GUIDE - PART 1

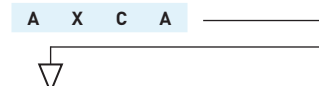
SELECTION GUIDE

| | | | | | |
|-----------------------------------|---|----------|----------|----------|----------|
| Example: | 320 | C | C | X | E |
| Model | | | | | |
| 320 | Model 320 | | | | |
| 321 | Model 320 with gasketed vessel tailpipe | | | | |
| 322 | Model 320 with gasketed gauge tailpipe | | | | |
| 323 | Model 320 with gasketed vessel and gauge tailpipe | | | | |
| 330 | Model 330 | | | | |
| 331 | Model 330 with gasketed vessel tailpipe | | | | |
| 420 | Model 420 | | | | |
| 421 | Model 420 with gasketed vessel tailpipe | | | | |
| 422 | Model 420 with gasketed gauge tailpipe | | | | |
| 423 | Model 420 with gasketed vessel and gauge tailpipe | | | | |
| 430 | Model 430 | | | | |
| 431 | Model 430 with gasketed vessel tailpipe | | | | |
| Body material | | | | | |
| C | Carbon steel (standard) | | | | |
| S | 316/316L Stainless | | | | |
| L | Low-temp carbon steel | | | | |
| M | Monel® | | | | |
| A | Alloy 20 | | | | |
| H | Hastelloy C® | | | | |
| D | Duplex 2205 | | | | |
| F | 304/304L Stainless | | | | |
| I | Incoloy 625 | | | | |
| N | A105 N | | | | |
| B | A182 F9 body/tp/flg | | | | |
| Trim material | | | | | |
| C | 416 Stainless steel (standard) | | | | |
| S | 316/316L Stainless | | | | |
| B | 410 Stainless Steel | | | | |
| M | Monel® | | | | |
| A | Alloy 20 | | | | |
| H | Hastelloy C® | | | | |
| D | Duplex 2205 | | | | |
| F | 304/304L Stainless | | | | |
| I | Incoloy 625 | | | | |
| NACE MR-01-75 a/or MR-0103 | | | | | |
| X | None | | | | |
| E | Environmental | | | | |
| Vessel connection size | | | | | |
| C | ½" | | | | |
| E | ¾" (standard) | | | | |
| F | 1" | | | | |
| G | 1¼" (flange only) | | | | |
| H | 1½" (flange only) | | | | |
| J | 2" (flange only) | | | | |
| K | 2½" (flange only) | | | | |
| L | 3" (flange only) | | | | |

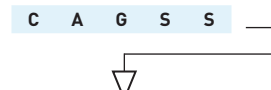
PART 2 - PAGE 12



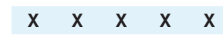
PART 3 - PAGE 13



PART 4 - PAGE 14



PART 5 - PAGE 15



PENBERTHY SERIES 300 AND 400 OFFSET PATTERN FLAT GLASS GAUGE COCKS

SELECTION GUIDE - PART 2

PART 1 - PAGE 11

320 C C X E

SELECTION GUIDE - PART 2

Example:

A X C

PART 3 - PAGE 13

A X C A

Vessel connection type

- A NPTM union (standard)
- B NPTF union
- C Socket weld male union
- D Socket weld female union
- E Spherical union NPTM
- F Spherical union NPTF
- G Spherical union SWM
- H Spherical union SWF
- L Welded solid shank NPTM
- M Welded solid shank SWM
- N Raised face SO flange
- P Flat face SO flange
- R RTJ SO flange
- S Raised face SW flange
- T Flat face SW flange
- U RTJ SW flange
- V Raised face WN flange
- W Flat face WN flange
- Y RTJ WN flange
- Z Spherical union RTJ SO flange
- 1 Spherical union RF SO flange
- 2 Spherical union RF WN flange
- 4 Spherical union RTJ WN flange
- 5 Welded SSV flanged
- 6 Raised face threaded flange
- 7 Vessel Tlp and Cplg nut omitted

Vessel connection pressure class (if flanged)

- X None
- 1 P CL 150
- 3 P CL 300
- 6 P CL 600
- 9 P CL 900
- F P CL 1500
- T P CL 2500

Gauge connection size

- X None
- C 1/2" (standard)
- E 3/4"
- F 1" (flange only)
- G 1 1/4" (flange only)
- H 1 1/2" (flange only)
- J 2" (flange only)
- K 2 1/2" (flange only)
- L 3" (flange only)

PART 4 - PAGE 14

C A G S S

PART 5 - PAGE 15

X X X X X

PENBERTHY SERIES 300 AND 400 OFFSET PATTERN FLAT GLASS GAUGE COCKS

SELECTION GUIDE - PART 3

PART 1 - PAGE 11

| | | | | |
|-----|---|---|---|---|
| 320 | C | C | X | E |
|-----|---|---|---|---|

PART 2 - PAGE 12

| | | |
|---|---|---|
| A | X | C |
|---|---|---|

SELECTION GUIDE - PART 3

| | | | | |
|-----------------|---|---|---|---|
| Example: | A | X | C | A |
|-----------------|---|---|---|---|

| | | | | |
|---|---|--|--|--|
| Gauge connection type | | | | |
| A | NPTF union (standard on 32X or 42X model) | | | |
| D | Socket weld female union | | | |
| G | Spherical union NPTF | | | |
| H | Spherical union NPTM | | | |
| J | Spherical union SWF | | | |
| K | Spherical union SWM | | | |
| Y | NPTF rigid (standard on 33X or 43X model) | | | |
| Z | SWF rigid | | | |
| L | Raised face SO flange | | | |
| M | Flat face SO flange | | | |
| N | RTJ SO flange | | | |
| P | Raised face SW flange | | | |
| R | Flat face SW flange | | | |
| S | RTJ SW flange | | | |
| T | Raised face WN flange | | | |
| U | Flat face WN flange | | | |
| V | RTJ WN flange | | | |
| 1 | NPTM union flange | | | |
| B | NPTM union 1 ¹ / ₁₆ L | | | |
| C | NPTM union 2 ³ / ₈ L | | | |
| E | SWM union 1 ¹ / ₁₆ L | | | |
| F | SWM union 2 ³ / ₈ L | | | |
| 2 | Socket weld female Coupling | | | |
| 5 | Raised face treaded | | | |
| Gauge connection pressure class (if flanged) | | | | |
| X | None | | | |
| 1 | P CL 150 | | | |
| 3 | P CL 300 | | | |
| 6 | P CL 600 | | | |
| 9 | P CL 900 | | | |
| F | P CL 1500 | | | |
| T | P CL 2500 | | | |
| Vent connection size | | | | |
| X | None | | | |
| C | 1/2" (standard) | | | |
| E | 3/4" | | | |
| F | 1" (flange only) | | | |
| G | 1 1/4" (flange only) | | | |
| H | 1 1/2" (flange only) | | | |
| J | 2" (flange only) | | | |
| K | 2 1/2" (flange only) | | | |
| L | 3" (flange only) | | | |
| Vent connection type | | | | |
| X | None | | | |
| A | NPTF (standard) | | | |
| B | Socket weld female | | | |
| C | Raised face SO flange | | | |
| D | Flat face SO flange | | | |
| E | RTJ SO flange | | | |
| F | Raised face SW flange | | | |
| G | Flat face SW flange | | | |
| H | RTJ SW flange | | | |
| J | Raised face WN flange | | | |
| K | Flat face WN flange | | | |
| L | RTJ WN flange | | | |
| M | Socket weld plugged | | | |
| N | Socket weld male | | | |
| P | NPT plugged | | | |

PART 4 - PAGE 14

| | | | | |
|---|---|---|---|---|
| C | A | G | S | S |
|---|---|---|---|---|

PART 5 - PAGE 15

| | | | | |
|---|---|---|---|---|
| X | X | X | X | X |
|---|---|---|---|---|

PENBERTHY SERIES 300 AND 400 OFFSET PATTERN FLAT GLASS GAUGE COCKS

SELECTION GUIDE - PART 4

PART 1 - PAGE 11

320 C C X E

PART 2 - PAGE 12

A X C

PART 3 - PAGE 13

A X C A

SELECTION GUIDE - PART 4

Example: C A G S S X X X X X

Drain connection size

- X None
- C 1/2" (standard)
- E 3/4"
- F 1" (flange only)
- G 1 1/4" (flange only)
- H 1 1/2" (flange only)
- J 2" (flange only)
- K 2 1/2" (flange only)
- L 3" (flange only)

Drain connection type

- X None
- A NPTF (standard)
- B Socket weld female
- C Raised face SO flange
- D Flat face SO flange
- E RTJ SO flange
- F Raised face SW flange
- G Flat face SW flange
- H RTJ SW flange
- J Raised face WN flange
- K Flat face WN flange
- L RTJ WN flange
- M Socket weld plugged
- N Socket weld male
- P NPT plugged

Stem packing material

- G Grafoil (standard)
- T Teflon®
- V Viton® A

Stem operation

- S Standard close w/handwheel (standard)
- A Quick close w/lever
- B Quick close w/handwheel
- C Standard close, back seat w/handwheel (400 series only)
- D Quick close, back seat w/lever (400 series only)
- E Quick close, back seat w/handwheel (400 series only)
- F Standard close w/lever

Paint specification

- X None
- S Standard
- O Offshore spec 2600 paint

PENBERTHY SERIES 300 AND 400 OFFSET PATTERN FLAT GLASS GAUGE COCKS

SELECTION GUIDE - PART 5

PART 1 - PAGE 11

320 C C X E



PART 2 - PAGE 12

A X C



PART 3 - PAGE 13

A X C A



PART 4 - PAGE 14

C A G S S

SELECTION GUIDE - PART 5

Example: X X X X X

Option 1

- X None
- N Vacuum Service Vessel
- R 100% Hydro Test Required

Option 2

- X None
- B Pre-heat Welds to 200°F

Option 3

- X None
- B For Steam Service
- C For -50°F Service

Option 4

- X None
- B ASME Vert Ball L-Val Plug
- C ASME Ball Checks Omitted

Option 5

- X None
- F USA Origin Only
- M Welded Solid Shank Vessel
- Y Schedule 160 Nipples

NOTES

Hastelloy® is a registered trademark of Haynes International, Inc.
 Grafoil® is a registered trademark of GrafTech International.
 Monel® is a registered trademark of the Special Metals Corporation.
 Viton® and Teflon® are registered trademarks of the Chemours Company.
 20Cb-3® is a registered trademark of Carpenter Technology Corporation.

Neither Emerson, Emerson Automation Solutions, nor any of their affiliated entities assumes responsibility for the selection, use or maintenance of any product. Responsibility for proper selection, use, and maintenance of any product remains solely with the purchaser and end user.

Penberthy is a mark owned by one of the companies in the Emerson Automation Solutions business unit of Emerson Electric Co. Emerson Automation Solutions, Emerson and the Emerson logo are trademarks and service marks of Emerson Electric Co. All other marks are the property of their respective owners.

The contents of this publication are presented for informational purposes only, and while every effort has been made to ensure their accuracy, they are not to be construed as warranties or guarantees, express or implied, regarding the products or services described herein or their use or applicability. All sales are governed by our terms and conditions, which are available upon request. We reserve the right to modify or improve the designs or specifications of such products at any time without notice.

Emerson.com/FinalControl