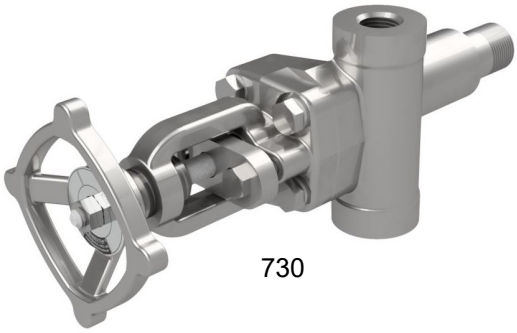
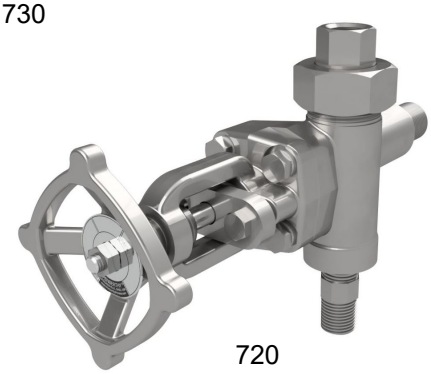
PENBERTHY SERIES 700 OS&Y OFFSET PATTERN FLAT GLASS GAUGECOCKS

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



730



720

FEATURES

- Offset pattern allows easy cleaning.
- Outside screw and yoke design isolates the stem thread from the liquid.
- Solid shank vessel connection.
- Union, or rigid gauge connections.
- Ball check shut-off prevents loss of process fluid in the event of an accidental breakage of the gauge glass.
- Threaded renewable seat.
- Back seating stem.
- Built in accordance with ASME standards
- Low Emission to API 624

GENERAL APPLICATION

Outside screw and yoke gaugecocks are used for high temperature or corrosive-liquid applications in conjunction with direct reading flat glass gauges int eh petroleum, chemical and general process industries.

TECHNICAL DATA

Materials:	Carbon Steel, LTCS, 316SS
Sizes:	½” to 1” (DN 15 to 25)
Gauge connection	
Model 720:	Union
Model 730:	Rigid
Pressure (max):	3000 @ 100°F (206.8 bar @ 38°C)
Temperature range:	-20F to 800°F -29C to 427°C

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OVERVIEW

With a 600# P-Cl ANSI rating, outside screw and yoke gaugecocks are used for high temperature or corrosive-liquid applications. The OS&Y design isolates the stem threads from the liquid. The stem seats in a reciprocative instead of a rotary fashion.

Offset gaugecocks have he 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 (0r 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.

Optional materials can be specified for the gaugecock body and trim (trim consists of the stem, ball check and seat). Standard and optional materials conform to ASTM specifications.

Carbon Steel Valves

Temperature		Pressure			
°F	°C	PSI	BarG	Kg/cm^2	KPaG
100	38	3000	206.8	210.9	20684
200	93	2723	187.8	191.5	18775
300	149	2446	168.7	172.0	16867
400	204	2169	149.6	152.5	14958
500	260	1893	130.5	133.1	13049
600	316	1616	111.4	113.6	11140
700	371	1339	92.3	94.1	9231
800	427	1062	73.2	74.7	7322

Saturated steam rating 750 WSP

Stainless Steel Valves

Temperature		Pressure			
°F	°C	PSI	BarG	Kg/cm^2	KPaG
100	38	2100	144.8	147.6	14479
200	93	1908	131.5	134.1	13153
300	149	1715	118.3	120.6	11827
400	204	1523	105.0	107.1	10502
500	260	1331	91.8	93.6	9176
600	316	1139	78.5	80.0	7850
700	371	946	65.2	66.5	6524
800	427	754	52.0	53.0	5199

Saturated steam rating 750 WSP

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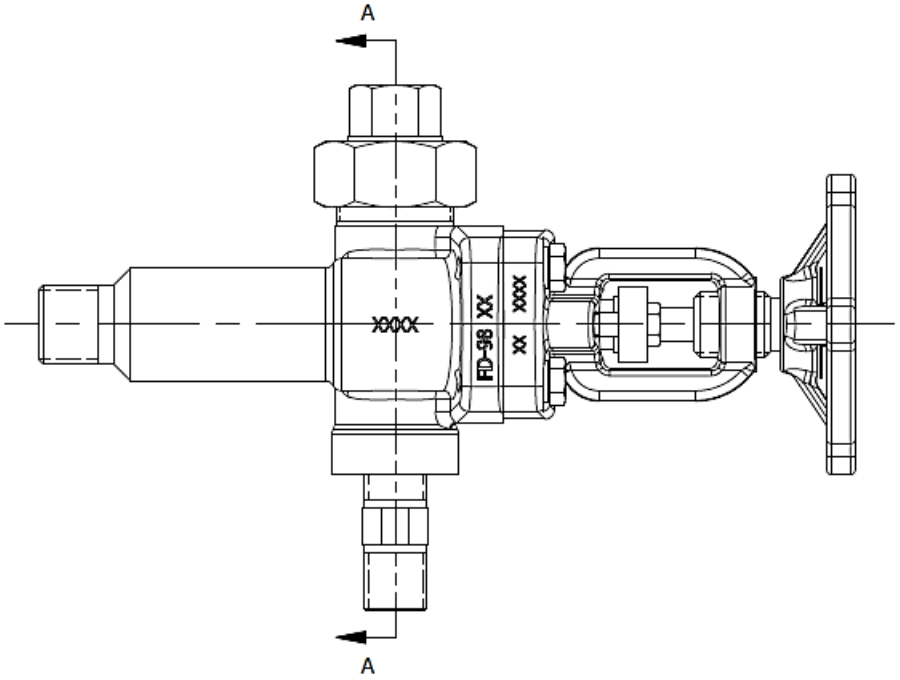
AUTOMATIC BALL CHECK SHUT-OFF

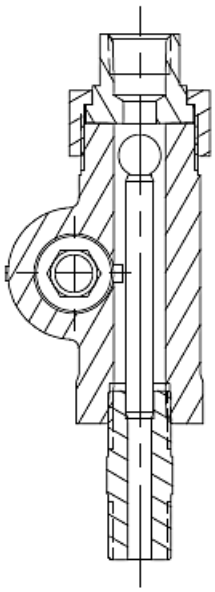
To prevent rapid loss of fluid in the event of accidental glass breakage, Penberthy gaugecocks are supplied with automatic ball check shut-off. Should the glass break, the pressure drop causes the ball checks to seat to prevent loss of tank contents. To unseat these ball checks during the liquid level 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.

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

ASME Boiler Code

Gaugecocks with ball checks omitted meet ASME boiler requirements. As an alternative method to ASME boiler requirements, the lower gaugecock on Model 720 is available with a optional vertical rising ball check located in the offset portion of the gaugecock body and the upper gaugecock has a leaky seat.





SECTION A-A

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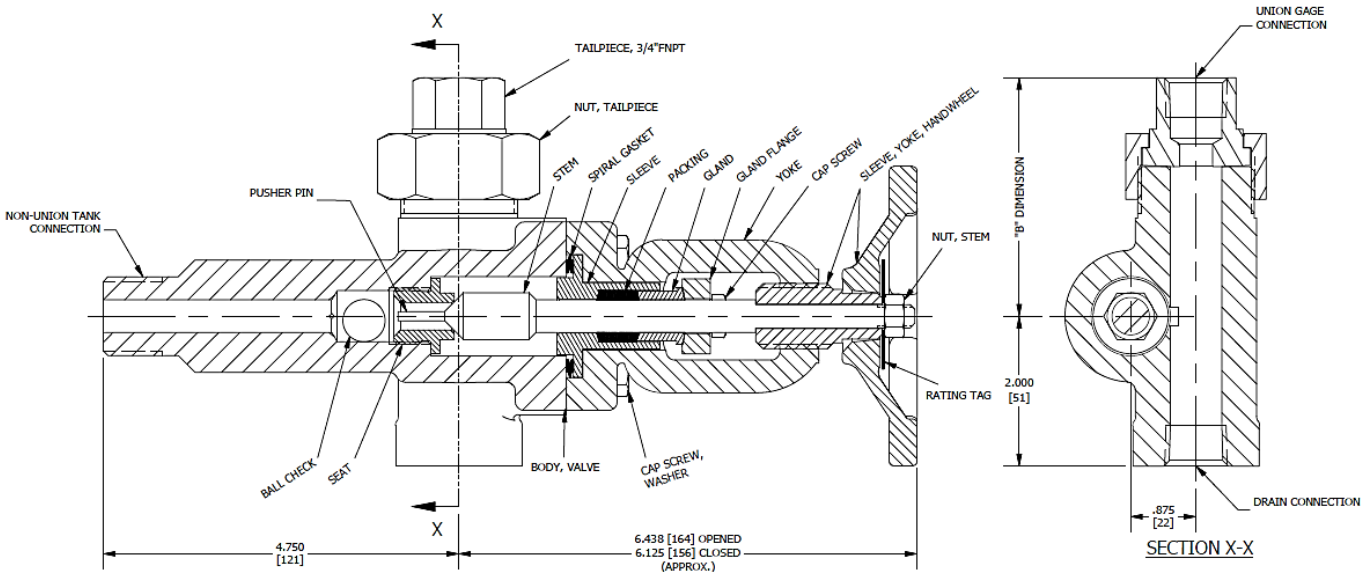
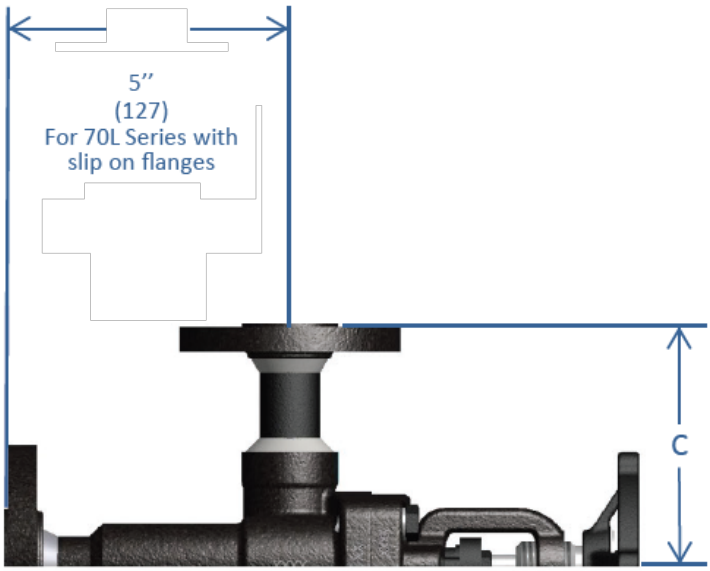


DIMENSIONS

Connection	Dimension 'A' inches (cm)	Dimension 'B' Inches (cm) Standard
Union		
1/2" NPTF		3.18 (81)
1/2" NPTM		4.06 (103)
3/4" NPTF		3.18 (81)
3/4" NPTM		4.06 (103)
Rigid		
1/2" NPTF		2 (51)
3/4" NPTF		2 (51)
Solid shank		
1/2" NPTM	4.75 (121)	
3/4" NPTM	4.75 (121)	
1" NPTM	4.75 (121)	
Socketweld		
1/2" Female union		3.18 (81)
1/2" Female rigid		2 (51)
1/2" Male union		4.06 (103)
1/2" Male rigid	4.75 (121)	
3/4" Female rigid		2 (51)
3/4" Male union		4.06 (103)
3/4" Male rigid	4.75 (121)	
1" Male rigid	4.75 (121)	
Spherical union		
1/2" NPTF		4.68 (119)
1/2" NPTM		4.68 (119)
3/4" NPTM		4.68 (119)

DIMENSIONS – FLANGED CONNECTION

Non-Union Gage Connection (C Dimension)						
Flange Size	Flange Rating					Valves
	150#	300#	600#	900#	1500#	
1/2"	4" (102)	4-1/4" (108)	4-1/2" (114)	5-1/2" (140)	5-1/2" (140)	73 76
3/4"	4" (102)	4-3/4" (121)	5" (127)	5-1/2" (140)	5-1/2" (140)	
1"	4-1/4" (108)	4-3/4" (121)	5" (127)	6" (152)	6" (152)	
1-1/2"	4-1/4" (108)	4-3/4" (121)	5" (127)	6" (152)	6" (152)	
2"	4-1/4" (108)	4-3/4" (121)	5" (127)	6" (152)	6" (152)	
1/2"	3-5/8" (92)	3-7/8" (98)	4-1/8" (105)	5-1/8" (130)	5-1/8" (130)	73BL 76BL 363
3/4"	3-5/8" (92)	4-3/8" (111)	4-5/8" (117)	5-1/8" (130)	5-1/8" (130)	
1"	3-7/8" (98)	4-3/4" (121)	4-5/8" (117)	5-5/8" (143)	5-5/8" (143)	
1-1/2"	3-7/8" (98)	4-3/4" (121)	4-5/8" (117)	5-5/8" (143)	5-5/8" (143)	
2"	3-7/8" (98)	4-3/4" (121)	4-5/8" (117)	5-5/8" (143)	5-5/8" (143)	
"C" Dimensions for Slip-On or Socket-Weld Flanges						



*Contact Factory for Socket Weld Dimensions

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Materials

	Description	Carbon Steel	Low Temp	All 316SS	Optional Materials
Trim	Body	Carbon Steel A105	A350 Gr. LF2	316SS (A182 316/316L)	Contact Factory
	Seat	416SS	316SS A479		
	Stem	416SS	316SS A276 or A479		
	Ballcheck	440 SS	316SS		
	Yoke	Carbon Steel A105	Carbon Steel A105	316SS (A182 316/316L)	
	Sleeve	Carbon Steel A350 Gr. LF2	316SS A479		
	Spiral Gasket	316 / Flexicarb			
	Cap Screw	Alloy Steel A193 Gr. B7		316SS A193 Gr.B8M	
	Washer	316SS			
	Packing	Graphite/Inconel			
	Gland	Carbon Steel A108		316SS A479	
	Gland Flange	Carbon Steel		316SS	
	Cap Screw	Alloy Steel A193 Gr. B7		316SS A193 Gr.B8M	
	Handwheel	Carbon Steel		316SS	
	Stem Nut	Carbon Steel		316SS	
	Rating Tag	304SS			
	720 Gaugecock				
	Tailepice	LTCS A350 Gr LF2		316SS A276 Gr. 316/316L	
	Tailpeice Nut	LTCS A350 Gr LF2		316SS A276 Gr. 316/316L	

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STANDARD/OPTIONAL FEATURES

		720		730	
Feature		**Std.**	**Opt.**	**Std.**	**Opt.**
Pattern					
Offset		X		X	
OS&Y					
OS&Y		X		X	
Gauge connection					
Union	1/2" NPTF	X			
	1/2" NPTM		X		
	3/4" NPTF		X		
	3/4" NPTM		X		
Rigid	1/2" NPTF			X	
	3/4" NPTF				X
Socketweld	1/2" Female		X		X
	1/2" Male		X		
	3/4" Female				X
	3/4" Male		X		
Flanged			X		X
Spherical union	1/2" NPTF		X		
	1/2" NPTM		X		
	3/4" NPTM		X		
Vessel connection (solid shank)					
Threaded	1/2" NPTM		X		X
	3/4" NPTM	X		X	
	1" NPTM		X		X
Socketweld	1/2" Male		X		X
	3/4" Male		X		X
	1" Male		X		X
Flanged			X		X
Vent/drain connection					
1/2" NPTF		X		X	
3/4" NPTF			X		X
Ball check shut-off					
Horizontal lower and upper gaugecocks		X		X	
Vertical lower/horizontal upper gaugecock*			X		
Omitted*			X		X
Seat					
Threaded (renewable)		X		X	
Backseating stem		X		X	
Handwheel					
w/ standard pitch threads		X		X	
w/ quick closing thread (1/4 turn)			X		X

*Acceptable for ASME service

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SELECTION GUIDE

Example:		**720**	**C**	**C**	**X**	**E**
Model						
720	Model 720					
722	Model 722 with gasketed gauge tailpipe					
730	Model 730					
Body Material						
C	Carbon Steel A105N (standard)					
S	316/316L Stainless					
L	Low-temp carbon steel					
M	Monel®					
A	Alloy 20					
H	Hastelloy C®					
D	Duplex 31803					
I	Incoloy 625					
N	A105 N					
Trim Material						
C	416 Stainless steel (standard)					
S	316/316L Stainless					
M	Monel®					
A	Alloy 20					
H	Hastelloy C®					
D	Duplex 31803					
I	Incoloy 625					
NACE MR-01-75 and/or MR-0103						
X	None					
W	NACE Wetted					
E	Environmental					
Vessel Connection Size						
C	1/2"					
E	3/4" Standard					
F	1"					
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)					

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J X C A

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X C A C

PART 4 - PAGE 11
A G S S

PART 5 - PAGE 12
X X X X X

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720	C	C	X	E	Example:	J	X	C	A
					Vessel Connection Type				
					J Solid shank NPTM (standard)				
					K Solid shank SW Male				
					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				
					Vessel Connection Pressure Class (If Flanged)				
					X None				
					1 150 P-Cl				
					3 300 P-Cl				
					6 600 P-Cl				
					9 900 P-Cl				
					F 1500 P-Cl				
					T 2500 P-Cl				
					Gauge Connection Size				
					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)				
					Gauge Connection Type				
					A NPTF union (standard)				
					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 Model 730)				
					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				
					2 Socket weld female Coupling				

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X	C	A	C

PART 4 - PAGE 11

A	G	S	S

PART 5 - PAGE 12

X	X	X	X	X

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720 C C X E

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J X C A

SELECTION GUIDE

Example:	X	C	A	C

Gauge Connection Pressure Class (If Flanged)

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

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	No Connection (not machined)
N	Socket weld male
P	NPT plugged

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)

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A G S S

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X X X X X

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720	C	C	X	E

PART 2 - PAGE 9

J	X	C	A

PART 3 - PAGE 10

X	C	A	C

SELECTION GUIDE

Example:	A	G	S	S
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 No Connection (not machined)				
N Socket weld male				
P NPT plugged				
Stem Packing Material				
G Flex Graphite / Inconel (Low Emission Certified)				
Stem Operation				
S Standard				
A Quick close stem w/lever				
B Quick close stem w/handwheel				
F Standard close stem w/lever				
Paint Specification				
X None				
S Standard				
O Offshore spec				

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X	X	X	X	X

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PART 1 - PAGE 8					SELECTION GUIDE					
720	C	C	X	E	**Example:**	X	X	X	X	

Option 1

X	None
M	Schedule XXS Nipples
N	Vacuum Service Vessel
F	Material Origin Restricted (USA, Canada, Western Europe)
B	ASME Vertical Ball
C	ASME Ball Checks Omitted
Y	Steam Seat Surface Stellite

PART 2 - PAGE 9			
J	X	C	A

PART 3 - PAGE 10			
X	C	A	C

PART 4 - PAGE 11			
A	G	S	S

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