

FILE NAME: Packings and Gaskets (PAG)

DATE: 1988

DOC#: PAG055

DOCUMENT DESCRIPTION: Piping Valve Specifications

PIPING VALVE SPECIFICATIONS

 ATTACHMENT IV
 SPEC. 15052

TYPE	GLOBE VALVE	MATERIAL	CARBON STEEL	ITEM CODE G-37
RATING	300# CLASS	SIZE RANGE	2-1/2" THRU 6"	
PRESS/TEMP.	450 PSIG @ 750°F			
ABBR. DESCR.	GLOBE, 300# S/40 B.W.E., C.S., 13% CR/STL. TRIM			

PURCHASE

ITEM - GLOBE VALVE
 RATING - 300# CLASS
 END CONN. - SCH. 40 BUTTWELD ENDS
 PORT - CONVENTIONAL
 MATERIAL - BODY & BONNET: CAST C.S., ASTM A216 GR WCB
 TRIM: 13% CR. STELLITED
 GRAFOIL STEM PACKING

PLAINTIFF'S EXHIBIT

CRA-616

NOTES

1. NO ASBESTOS MATERIALS SHALL BE USED.

REFERENCES

CRANE 151½ XU POWELL 3031-WE
 LUNKENHEIMER CO. 3042

COMMENTS

MANUFACTURER TO CERTIFY THE VALVES FOR DOWTHERM SERVICE AFTER SUBJECTING THEM TO STANDARD TEST PROCEDURES.

D I M E N S I O N					'A' DIM. FACE TO FACE	DESIGN STANDARD CRANE 151½-XU ASBESTOS FREE
SIZE	2½"	3"	4"	6"		
A	11.50"	12.50	14.00"	17.50		
SPEC. BY WNM		APPR. BY		REV. 9		
DATE 03-22-88		DATE		DATE 03-30-88		

CRBBTX00561216

PIPING VALVE SPECIFICATIONS

ATTACHMENT IV
SPEC. 15052

TYPE	GATE VALVE	MATERIAL	CARBON STEEL	ITEM CODE V-6 & V-6G
RATING	150# RF CLASS	SIZE RANGE	2" THRU 24"	
PRESS/TEMP.	200 PSIG @ 400°F OR 170 PSIG @ 500°F			
ABBR.DESCR.	GATE, 150# RF FLANGED, STL 13% CHROME-STEEL TRIM			

PURCHASE ITEM - GATE VALVE

RATING - 150# CLASS

END CONN. - 150# RF FLANGED, ANSI B16.5

PORT - FULL

MATERIAL - BODY & BONNET: CAST STEEL, ASTM A-216 GRADE WCB
TRIM: 13% CHROME - STELLITED FACED SEATING SURFACES
FEATURES: BOLTED BONNET, RISING STEM, OS & Y, SPIRAL WOUND
GASKET GRAFOIL STEM PACKING, 4" AND LARGER VALVES TO
HAVE FLEXIBLE WEDGES. 12" & LARGER VALVES WHEN USED IN STEAM
SERVICE SHALL HAVE MANUFACTURER STANDARD BYPASS.

NOTES

1. PRESSURE TEMPERATURE RANGE PER ANSI B16.5.
2. THIS VALVE IS DESIGNED FOR A WIDE VARIETY OF SERVICES WHERE 150# FLANGES CAN BE USED. ITS PRIMARY SERVICE IS STEAM: OTHER SERVICES INCLUDE OIL, WATER, GAS, MILD ERROSIVE AND LIMITED MILD CORROSIVE SERVICE. ON-OFF (NGN-THROTTLING) OPERATION, FLOW FROM EITHER DIRECTION.
3. 12" & SMALLER VALVES ARE HANDWHEEL OPERATED, 14" & LARGER VALVES ARE MANUAL GEAR OPERATED AND ARE CALLED OUT ON ENG. DWGS. WITH ITEM CODE WITH ALPHA SUFFIX "G" (i.e. V-6G).
4. NO ASBESTOS MATERIALS SHALL BE USED.

REFERENCES

POWELL	1503	LUNKENHEIMER	1512
CRANE	47-XU	PACIFIC	150U



COMMENTS

D I M E N S I O N								*VERIFY THE DIMENSIONS		DESIGN STANDARD CRANE 47-XU ASBESTOS FREE	
								"A" DIM. FACE TO FACE			
SIZE	3"	4"	5"	6"	8"	10"	12"				
A	8.0	9.0	10.0	10.5	11.5	13.0	14.0				
SIZE	14"	16"	18"	20"	24"						
A	15.0	16.0	17.0	18.0	20.0						
SPEC. BY VKS				APPR. BY				REV. 8			
DATE				DATE				DATE 02-02-88			

PIPING VALVE SPECIFICATIONS

ATTACHMENT IV
SPEC. 15052

TYPE	GLOBE VALVE	MATERIAL	CARBON STEEL	ITEM CODE G-3
RATING	300# CLASS	SIZE RANGE	3" THRU 8"	
PRESS/TEMP.	450 PSIG @ -20°F THRU 750°F			
ABBR. DESCR.	GLOBE, 300#, RF FLG, C.S., 13% CR/STEL. TRIM			

PURCHASE

ITEM - GLOBE VALVE

RATING - 300# CLASS

END CONN. - 300# RAISED FACE FLANGED, ANSI B16.5

PORT - CONVENTIONAL

MATERIAL - BODY & BONNET: CAST STEEL, ASTM A-216-WCB
TRIM: 13% CHROME TO HARD FACING (STELLITE OR EQV.)
FEATURES: PLUG TYPE DISC, BOLTED BONNET, RISING STEM,
RENEWABLE SEAT RINGS, OS & Y

NOTES

- PRESSURE TEMPERATURE RATING PER ANSI B16.5.
~~FLANGED FACED AND DRILLED PER ANSI B16.5.~~
FACE TO FACE DIMENSIONS PER ANSI B16.10.
- THIS VALVE IS DESIGNED FOR STEAM, CONDENSATE, FUEL OIL, AND DESUPERHEATED WATER LINES.
- NO ASBESTOS MATERIALS SHALL BE USED.

REFERENCES

CRANE	151XU	POWELL	3031
JENKINS BROS.	1042	STOCKHAM	30-GPF-U
LUNKENHEIMER CO.	3042-W		

COMMENTS

D I M E N S I O N							"A" DIM. FACE TO FACE	DESIGN STANDARD CRANE 151-XU ASBESTOS FREE 
SIZE	3"	3½"	4"	5"	6"	8"		
A	12.50	13.25	14.00	15.75	17.50	22.00		
B								
C								
SPEC. BY VKS		APPR. BY			REV. 8			
DATE		DATE			DATE 02-02-88			

PIPING VALVE SPECIFICATIONS

 ATTACHMENT IV
 SPEC. 15052

TYPE	GATE VALVE	MATERIAL	CARBON STEEL	ITEM CODE /9, V-33
RATING	300# BWE	SIZE RANGE	2-1/2" - 12"	
PRESS/TEMP.	450 PSIG @ 750°F			
ABBR. DESCR.	GATE, 300# BWE, CS body, 13% CHROME/STELLITE TRIM			

PURCHASE

ITEM - GATE VALVE
 RATING - 300#
 END CONN. - BUTT WELD ENDS - STD. BORE ✓
 PORT - STANDARD
 MATERIAL - CAST C.S. ASTM A216 GR. WCB
 PACKING - GRAFOIL ✓

NOTES

REFERENCES

CRANE # 33½ XU OR APPROVED EQUAL.

COMMENTS

MANUFACTURER TO CERTIFY THE VALVES FOR DOWTHERM SERVICE AFTER SUBJECTING THEM
 TO STANDARD TEST PROCEDURES.

DIMENSION								"A" END TO END DIM.		DESIGN STANDARD CRANE #33½XU
SIZE	2-1/2"	3"	4"	6"	8"	10"	12"			
A	9.50	11.12	12.0	15.88	16.50	18.0	19.75			
SPEC. BY	WNM			APPR. BY				REV.	9	
DATE	03/25/88			DATE				DATE	03/30/88	

PIPING VALVE SPECIFICATIONS

 ATTACHMENT IV
 SPEC. 15052

TYPE	GATE VALVE	MATERIAL	CARBON STEEL	ITEM CODE  V-39 & V-39G
RATING	150# RF 125 RMS CLASS	SIZE RANGE	2" THRU 24"	
PRESS/TEMP.	200 PSIG @ 400°F OR 170 PSIG @ 500°F			
ABBR.DESCR.	GATE, 150# RF 125 RMS FLANGED, STL 13% CHROME-STEL TRIM			

PURCHASE

ITEM - GATE VALVE

RATING - 150# CLASS

END CONN. - 150# RF 125 RMS FLANGED, ANSI B16.5

PORT - FULL

MATERIAL - BODY & BONNET: CAST STEEL, ASTM A-216 GRADE WCB
 TRIM: 13% CHROME - STELLITED FACED SEATING SURFACES
 FEATURES: BOLTED BONNET, RISING STEM, OS & Y, SPIRAL WOUND
 GASKET GRAFOIL STEM PACKING, 4" AND LARGER VALVES TO
 HAVE FLEXIBLE WEDGES. 12" & LARGER VALVES WHEN USED IN STEAM
 SERVICE SHALL HAVE MANUFACTURER STANDARD BYPASS.

NOTES

1. PRESSURE TEMPERATURE RANGE PER ANSI B16.5.
2. 12" & SMALLER VALVES ARE HANDWHEEL OPERATED, 14" & LARGER VALVES ARE MANUAL GEAR OPERATED AND ARE CALLED OUT ON ENG. DWGS. WITH ITEM CODE WITH ALPHA SUFFIX "G" (i.e. V-6G).
3. NO ASBESTOS MATERIALS SHALL BE USED.

REFERENCES

POWELL	1503	LUNKENHEIMER	1512
CRANE	47-XU	PACIFIC	150U

COMMENTS

<u>D I M E N S I O N</u>								*VERIFY THE DIMENSIONS		DESIGN STANDARD	
								"A" DIM. FACE TO FACE			
SIZE	3"	4"	5"	6"	8"	10"	12"			CRANE 47-XU	
A	8.0	9.0	10.0	10.5	11.5	13.0	14.0				
SIZE	14"	16"	18"	20"	24"					ASBESTOS	
A	15.0	16.0	17.0	18.0	20.0					FREE	
SPEC. BY WNM				APPR. BY				REV. 9			
DATE 03/19/88				DATE				DATE 03/30/88			

PIPING VALVE SPECIFICATIONS

 ATTACHMENT IV
 SPEC. 15052

TYPE	CHECK VALVE	MATERIAL	CARBON STEEL	ITEM CODE 9 C-32
RATING	300# CLASS,	SIZE RANGE	2-1/2" THRU 12"	
PRESS/TEMP.	450 PSIG @ -20°F THRU 750°F			
ABBR. DESCR.	CHECK, 300# ANSI CLASS, S/40 BWE, SWING TYPE			

PURCHASE

ITEM - CHECK VALVE
 RATING - 300# CLASS
 END CONN. - SCH. 40 BUTTWELD ENDS, ANSI B16.34
 PORT - REDUCED
 MATERIAL - BODY & BONNET: FORGED CARBON STEEL ASTM-A105
 TRIM: 13% CHROME STELLITED
 FEATURES: SWING CHECK; BOLTED BONNET;

NOTES

1. VALVE TO BE INSTALLED WITH FLOW ENTERING UNDER THE DISC.
2. NO ASBESTOS MATERIALS SHALL BE USED.

REFERENCES

CRANE NO. 159½-XU

COMMENTS

MANUFACTURER TO CERTIFY THE VALVES FOR DOWTHERM SERVICE AFTER SUBJECTING THEM TO STANDARD TEST PROCEDURES

STD GSKT NOT OK
 GRAFOIG -

DIMENSION								DESIGN STANDARD
"A" DIM. FACE TO FACE								CRANE NO. 159½-XU
SIZE	2-1/2"	3"	4"	6"	8"	10"	12"	
A	11.5"	12.5"	14"	17.5"	21"	24.5"	28"	
SPEC. BY	WNM			APPR. BY	REV. 9			
DATE	03/22/88			DATE	03-30-88			

CRANE

ORDER ENTRY

**SALES
OFFICE**

[illegible]

CRBBTX00561222

PIPING VALVE SPECIFICATIONS

ATTACHMENT IV
SPEC. 15052

TYPE	GATE VALVE	MATERIAL	CARBON STEEL	ITEM CODE V-7 & V-7G
RATING	300#, RF, CLASS	SIZE RANGE	3" THRU 24"	
PRESS/TEMP.	450 PSIG @ -20°F THRU 750°F			
ABBR. DESCR.	GATE, 300# RF, FLANGED, CS, 13% CHROME-STEL. TRIM			

PURCHASE

ITEM - GATE VALVE, OS&Y

RATING - 300# CLASS

END CONN. - 300# RF FLANGED, ANSI B16.5

PORT - CONVENTIONAL (REDUCED)

MATERIAL - BODY & BONNET: CAST CARBON STEEL, ASTM A-216 GRADE WCB
TRIM: 13% CHROME - STELLITED FACED SEATING SURFACES
FEATURES: FLEX.WEDGE, RISING STEM, BOLTED BONNET, CONVENTIONAL
METAL TO METAL SEAT, GRAFOIL STEM PACKING AND WOUND
BONNET GASKET. 6" & LARGER VALVES SHALL HAVE MANUFACTURER
STANDARD BYPASS.

NOTES

1. PRESSURE TEMPERATURE RATING PER ANSI B16.5
2. NO ASBESTOS MATERIALS SHALL BE USED.
3. 12" AND SMALLER VALVES ARE HANDWHEEL OPERATED, 14" AND LARGER VALVES ARE MANUAL WORM GEAR OPERATED AND ARE CALLED OUT ON ENGINEERING DRAWINGS WITH ITEM CODE WITH ALPHA SUFFIX "G" (i.e. V-7G).

NO ENGINEERING DWGS

REFERENCES

CRANE	33-XU	PACIFIC	350U
LUNKENHEIMER	3012	POWELL	3003



COMMENTS

DIMENSION								"A" DIM. FACE TO FACE		DESIGN STANDARD CRANE 33-XU ASBESTOS FREE
SIZE	3"	4"	5"	6"	8"	10"	12"			
A	11.12	12.0	15.0	15.88	16.50	18.0	19.75			
SIZE	14"	16"	18"	20"	24"					
A	30.0	33.0	36.0	39.0	45.0					
SPEC. BY VKS								APPR. BY		REV. 8
DATE								DATE		02-02-88



PIPING VALVE SPECIFICATIONS

ATTACHMENT IV
SPEC. 15052

TYPE	GLOBE VALVE	MATERIAL	CARBON STEEL	ITEM CODE G-2
RATING	150# CLASS	SIZE RANGE	2" THRU 12"	
PRESS/TEMP.	285 PSIG @ 100°F OR 160# @ 500°F			
ABBR. DESCR.	GLOBE, 150#, RF FLG, STL, 13% CR STEL. TRIM			

PURCHASE

ITEM - GLOBE VALVE

RATING - 150# CLASS

END CONN. - 150# RF FLANGED, ANSI B16.5

PORT - CONVENTIONAL

MATERIAL - BODY & BONNET: CAST CARBON STEEL, ASTM A216, GRADE WCB
TRIM: 13% CHROME/STELLITE FACED SEATING SURFACES
FEATURES: BOLTED BONNET, OS & Y, SOFT METAL BONNET GASKET

NOTES

- PRESSURE TEMPERATURE RATING PER ANSI B16.5.
- THIS VALVE IS DESIGNED FOR STEAM, AIR, GAS, OIL, AND OIL VAPOR SERVICES WHERE THROTTLING OPERATION IS REQUIRED.
- NO ASBESTOS MATERIALS SHALL BE USED.

REFERENCES

CRANE	143X	PACIFIC	161
JENKINS	1040	POWELL	1531
LUNKENHEIMER	1542		

COMMENTS

ITEM CODE NUMBERS WITH THE FOLLOWING SUFFIXES ARE AS FOLLOWS:
"G" DENOTES MANUAL GEAR OPERATOR
VALVE FIG. NO. MAY BE DIFFERENT FROM THOSE INDICATED ABOVE

DIMENSION										DESIGN STANDARD
*VERIFY THE DIMENSIONS "A" DIM. FACE TO FACE										CRANE 143X ASBESTOS FREE
SIZE	2"	2½"	3"	4"	5"	6"	8"	10"	12"	
A	8.0	8.5	9.5	11.5	14.0	16.0	19.5	24.5	27.5	
B										
C				9						
SPEC. BY	VKS				APPR. BY	REV. 9				
DATE					DATE	DATE 03/30/88				

PIPING VALVE SPECIFICATIONS

 ATTACHMENT IV
 SPEC. 15052

TYPE	GLOBE VALVE	MATERIAL	CARBON STEEL	ITEM CODE G-39
RATING	150# RF CLASS	SIZE RANGE	2" THRU 12"	
PRESS/TEMP.	285 PSIG @ 100°F or 160# @ 500°F			
ABBR. DESCR.	GLOBE, 150#, RF FLG, STL, 13% CR STEL. TRIM			

PURCHASE

ITEM - GLOBE VALVE
 RATING - 150# RF CLASS
 END CONN. - 150# RF 125 RMS FLANGED, ANSI B16.5
 PORT - CONVENTIONAL
 MATERIAL - BODY & BONNET: CAST CARBON STEEL, ASTM A216, GRADE WCB
 TRIM: 13% CHROME/STELLITE FACED SEATING SURFACES
 FEATURES: BOLTED BONNET, OS&Y, SOFT METAL BONNET GASKET

NOTES

1. PRESSURE TEMPERATURE RATING PER ANSI B16.5
2. THIS VALVE IS DESIGNED FOR SERVICES WHERE THROTTLING OPERATION IS REQUIRED.
3. NO ASBESTOS MATERIALS SHALL BE USED.

REFERENCES

CRANE	143X	PACIFIC	161
JENKINS	1040	POWELL	1531
LUNKENHEIMER	1542		

COMMENTS

ITEM CODE NUMBERS WITH THE FOLLOWING SUFFIXES ARE AS FOLLOWS:
 "G" DENOTES MANUAL GEAR OPERATOR
 VALVE FIG. NO. MAY BE DIFFERENT FROM THOSE INDICATED ABOVE.

D I M E N S I O N										DESIGN STANDARD
*VERIFY THE DIMENSIONS										
"A" DIM. FACE TO FACE										
SIZE	2"	2½"	3"	4"	5"	6"	8"	10"	12"	CRANE 143X ASBESTOS FREE WITH 125 RMS FINISH
A	8.0	8.5	9.5	11.0	14.0	16.0	19.5	24.5	27.5	
SPEC. BY		WNM			APPR. BY			REV. 9		
DATE		03-19-88			DATE			DATE 03-30-88		

PIPING VALVE SPECIFICATIONS

 ATTACHMENT IV
 SPEC. 15052

TYPE	GATE VALVE	MATERIAL	316 STAINLESS STEEL	ITEM CODE V-32
RATING	150# RF CLASS	SIZE RANGE	3/4" THRU 12"	
PRESS/TEMP.	150 PSI @ 475°F			
ABBR. DESCR.	GATE, 150# RF, 125 RMS, FLANGED, 316 SS BODY & TRIM			

PURCHASE

ITEM - GATE VALVE
 RATING - 150# CLASS
 END CONN. - 150# RAISED FACE, 125 RMS, FLANGED ANSI B16.5
 PORT - FULL
 MATERIAL - BODY & BONNET: 316 STAINLESS STEEL ASTM A351 GR. CF8M
 TRIM: 316 STAINLESS STEEL
 FEATURES: BOLTED BONNET WITH NON ASBESTOS BONNET GASKET,
 OS&Y, INTEGRAL SEAT, RISING STEM, SOLID WEDGE,
 HANDWHEEL OPERATOR.

NOTES

1. PRESSURE TEMPERATURE RANGE PER ANSI B16.5
2. NO ASBESTOS MATERIALS SHALL BE USED.

REFERENCES

ALLOYCO FIG. 117 OR APPROVED EQUAL

COMMENTS

Ron:

This is being sent to
 you per Tom Tokos'
 instructions.

DIMENSION

SIZE 3/4" 1" 1 1/2" 2" 3" 4" 5" 6" 8" 10" 12" 14"
 A 4 1/2" 5 6 1/2" 7 8 9 10 1/2" 11 1/2" 13" 14"

DESIGN STANDARD
 ALLOYCO FIG 117 WITH
 125 RMS FINISH

SPEC. BY WNM	APPR. BY	REV. 9
DATE 03-22-88	DATE	DATE 03-30-88

PIPING VALVE SPECIFICATIONS

TYPE	GATE VALVE	MATERIAL	316 STAINLESS STEEL	ITEM CODE V-62 V-62G
RATING	150# RF CLASS	SIZE RANGE	3" THRU 24"	
PRESS/TEMP.	150 PSI @ -20°F Thru 400°F			
ABBR. DESCR.	GATE, 150# RF, FLANGED, 316SS BODY & TRIM HANDWHEEL			

P U R C H A S E

ITEM - GATE VALVE

RATING - 150# CLASS

END CONN. - 150# RAISED FACE FLANGED ANSI B16.5

PORT - FULL

MATERIAL - BODY & BONNET: 316 STAINLESS STEEL ASTM A351 GR.CF8M
316 STAINLESS STEEL

TRIM: 316 STAINLESS STEEL

FEATURES: BOLTED BONNET WITH NON ASBESTOS BONNET GASKET,
OS&Y, INTEGRAL SEAL, RISING STEM, SOLID WEDGE,
HANDWHEEL OPERATOR, THRU 12", GEAR OPERATED
14" AND LARGER



NOTES

1. PRESSURE TEMPERATURE RANGE PER ANSI B16.5
2. NO ASBESTOS MATERIALS SHALL BE USED.

REFERENCES

3" THRU 12" ALLOYCO FIG #127 OR APPROVED EQUAL
14"-24" ALLOYCO FIG #9127 OR APPROVED EQUAL

COMMENTS

D I M E N S I O N		"A" DIM. FACE TO FACE					DESIGN STANDARD	
SIZE	3"	4"	6"	8"	10"	12"	ALLOYCO	
A	8.00"	9.00"	10.50"	11.50"	13.00"	14.00"	FIG #127/9127	
SIZE	14"	16"	18"	20"	24"		OR EQUAL	
A	15.00"	16.00"	17.00"	18.00"	20.00"			
SPEC. BY VKS		APPR. BY			REV. 9			
DATE		DATE			DATE 03-30-88			

CRBBTX00561227

PIPING VALVE SPECIFICATIONS

 ATTACHMENT IV
 SPEC. 15052

TYPE	GLOBE VALVE	MATERIAL	MONEL	ITEM CODE G-67
RATING	150# CLASS	SIZE RANGE	1" & SMALLER	
PRESS/TEMP.	150 PSIG & FULL VACUUM @ -20°F THRU 300°F			
ABBR. DESCR.	GLOBE, 150# CLASS, SW, MONEL BODY & TRIM, MODIFIED PLUG DISC			

PURCHASE

ITEM - GLOBE VALVE

RATING - 150# CLASS

END CONN. - SOCKET WELD, ANSI B16.11

PORT - CONVENTIONAL (REDUCED)

MATERIAL - BODY & BONNET: MONEL

MODIFIED PLUG DISC: MONEL

TRIM: MONEL

 FEATURES: BOLTED BONNET WITH NON ASBESTOS BONNET GASKET,
 OS&Y, INTEGRAL SEAT, RISING STEM, MODIFIED PLUG DISC

NOTES

1. PRESSURE TEMPERATURE RATING PER ANSI B16.34.
2. THIS VALVE IS DESIGNED FOR SERVICES WHERE THROTTLING OPERATION IS REQUIRED.
3. VALVE MUST BE SUITABLE FOR FULL VACUUM SERVICE.
4. NO ASBESTOS MATERIALS SHALL BE USED.

REFERENCES

ALLOYCO FIG #314-MONEL-TG

COMMENTS

DIMENSION		"A" DIM. END TO END					DESIGN STANDARD ALLOYCO FIG #314-MONEL-TG
SIZE	1/4"	3/8"	1/2"	3/4"	1"		
A	3-1/8"	3-1/8"	3-3/8"	3-3/4"	4-1/4"		
B							
C							
SPEC. BY VKS		APPR. BY		REV. 8			
DATE		DATE		DATE 02-02-88			

CRBBTX00561228

PIPING VALVE SPECIFICATIONS

 ATTACHMENT IV
 SPEC. 15052

TYPE	GLOBE VALVE	MATERIAL	316 STAINLESS STEEL	ITEM CODE  G-36
RATING	150# RF, CLASS	SIZE RANGE	1" THRU 10"	
PRESS/TEMP.	150 PSIG @ -20°F THRU 475°F			
ABBR.DESCR.	GLOBE, 150# RF, FLANGED, 125 RMS 316 SS BODY & TRIM			

PURCHASE

ITEM - GLOBE VALVE
 RATING - 150# CLASS
 END CONN. - 150# RAISED FACE 125 RMS FLANGED ANSI B16.5
 PORT - CONVENTIONAL (REDUCED)
 MATERIAL - BODY & BONNET: 316 STAINLESS STEEL ASTM A351 GR. CF8M
 MODIFIED PLUG DISC: 316 STAINLESS STEEL
 TRIM: 316 STAINLESS STEEL
 FEATURES: BOLTED BONNET WITH NON ASBESTOS BONNET GASKET,
 OS&Y, INTEGRAL SEAT, RISING STEM, MODIFIED PLUG DISC,
 HANDWHEEL OPERATOR.

NOTES

1. PRESSURE TEMPERATURE RATING PER ANSI B16.34
2. THIS VALVE IS DESIGNED FOR SERVICES WHERE THROTTLING OPERATIONS REQUIRED,.
3. NO ASBESTOS MATERIALS SHALL BE USED.

REFERENCES

ALLOYCO FIG #317 OR APPROVED EQUAL

COMMENTS

DIMENSION		'A' DIM. FACE TO FACE		DESIGN STANDARD ALLOYCO FIG #317	
SIZE	2" 2½" 3" 4" 6" 8" 10"				
A	8" 8½" 9½" 11½" 16" 19½" 24½"				
SPEC. BY	WNM	APPR. BY		REV.	9
DATE	03/22/88	DATE		DATE	03-30-88

PIPING VALVE SPECIFICATIONS

 ATTACHMENT IV
 SPEC. 15052

TYPE	GLOBE VALVE	MATERIAL	MONEL	ITEM CODE G-68 PLUG DISC.
RATING	150# CLASS	SIZE RANGE	1-1/2" THRU 4"	
PRESS/TEMP.	150 PSIG & FULL VACUUM @ -20°F THRU 300°F			
ASRR.DESCR.	GLOBE, 150# RF, CLASS, ANSI FLANGED, MONEL BODY & TRIM, MODIFIED			

PURCHASE

ITEM - GLOBE VALVE

RATING - 150# RF, CLASS

END CONN. - 150# RAISED FACE FLANGED, ANSI B16.5

PORT - CONVENTIONAL (REDUCED)

MATERIAL - BODY & BONNET: MONEL

MODIFIED PLUG DISC: MONEL

TRIM: MONEL

 FEATURES: BOLTED BONNET WITH NON ASBESTOS BONNET GASKET,
 OS&Y, INTEGRAL SEAT, RISING STEM, MODIFIED PLUG DISC

NOTES

1. PRESSURE TEMPERATURE RATING PER ANSI B16.34.
2. THIS VALVE IS DESIGNED FOR SERVICES WHERE THROTTLING OPERATION IS REQUIRED.
3. VALVE MUST BE SUITABLE FOR FULL VACUUM SERVICE.
4. NO ASBESTOS MATERIALS SHALL BE USED.

REFERENCES

ALLOYCO FIG #317

COMMENTS

DIMENSION						"A" DIM. FACE TO FACE	DESIGN STANDARD ALLOYCO FIG #317-TG
SIZE	1½"	2"	2½"	3"	4"		
A	6½"	8"	8½"	9½"	11½"		
B							
C							
SPEC. BY VKS		APPR. BY		REV. 8			
DATE		DATE		DATE 02-02-88			

PIPING VALVE SPECIFICATIONS

ATTACHMENT IV
SPEC. 15052

TYPE	GLOBE VALVE	MATERIAL	316 STAINLESS STEEL	ITEM CODE G-64
RATING	150# RF, CLASS	SIZE RANGE	2" THRU 10"	
PRESS/TEMP.	150 PSIG @ -20°F THRU 400°F			
ABBR. DESCR.	GLOBE, 150#RF, FLANGED, 316SS BODY & TRIM, HANDWHEEL			

PURCHASE

ITEM - GLOBE VALVE

RATING - 150#, CLASS

END CONN. - 150# RAISED FACE FLANGED ANSI B16.5

PORT - CONVENTIONAL (REDUCED)

MATERIAL - BODY & BONNET: 316 STAINLESS STEEL ASTM A351 GR. CF8M

MODIFIED PLUG DISC: 316 STAINLESS STEEL

TRIM: 316 STAINLESS STEEL

FEATURES: BOLTED BONNET WITH NON ASBESTOS BONNET GASKET,
OS&Y, INTEGRAL SEAT, RISING STEM, MODIFIED PLUG DISC,
HANDWHEEL OPERATOR.NOTES

1. PRESSURE TEMPERATURE RATING PER ANSI B16.34.
2. THIS VALVE IS DESIGNED FOR SERVICES WHERE THROTTLING OPERATION IS REQUIRED.
3. NO ASBESTOS MATERIALS SHALL BE USED.

REFERENCES

ALLOYCO FIG #317-TG OR APPROVED EQUAL

COMMENTS

DIMENSION								"A" DIM. FACE TO FACE	DESIGN STANDARD ALLOYCO FIG #317-TG
SIZE	2"	2½"	3"	4"	6"	8"	10"		
A	8"	8½"	9½"	11½"	16"	19½"	24½"		
B									
C									
SPEC. BY VKS		APPR. BY				REV. 8			
DATE		DATE				DATE 02-02-88			

CRBBTX00561231

PIPING VALVE SPECIFICATIONS

 ATTACHMENT IV
 SPEC. 15052

TYPE	GLOBE VALVE	MATERIAL	STAINLESS STEEL (TP-316)	ITEM CODE G-63
RATING	150# CLASS	SIZE RANGE	3" THRU 8"	
PRESS/TEMP.	285 PSIG @ -20°F THRU 100°F			
ABBR. DESCR.	GLOBE, 150#, RF FLG, 316 SS BODY & TRIM, FOR OXYGEN SERVICE			

PURCHASE

ITEM - GLOBE VALVE, OS & Y

RATING - 150#, CLASS

END CONN. - 150# RF FLANGED, ANSI B16.5

PORT - CONVENTIONAL (REDUCED)

MATERIAL - BODY & BONNET: 316 STAINLESS STEEL, ASTM A351 GRADE CF-8M

TRIM: 316 STAINLESS STEEL

 FEATURES: BOLTED BONNET; PLUG TYPE DISC, OS & Y, INTEGRAL SEATS,
 PREPARED, CLEANED AND DEGREASED FOR OXYGEN SERVICE.

NOTES

1. PRESSURE TEMPERATURE RATING PER ANSI B16.5.
2. THIS VALVE IS DESIGNED FOR USE WITH CORROSIVE FLUIDS WHERE THROTTLING OPERATION IS REQUIRED.
3. NO ASBESTOS MATERIALS SHALL BE USED.

REFERENCES

PACIFIC	S700-12		
POWELL	2475RF	ALOYCO	317-TG

9

COMMENTS

DIMENSION

 *VERIFY THE DIMENSIONS
 "A" DIM. FACE TO FACE

SIZE	3"	4"	6"
A	9.50	11.50	16.00
B			
C			

DESIGN STANDARD

 ALOYCO
 317-TG

9

SPEC. BY VKS

APPR. BY

REV. 9

DATE

DATE

DATE 03/30/88

PIPING VALVE SPECIFICATIONS

ATTACHMENT IV
SPEC. 15052

TYPE	CHECK VALVE	MATERIAL	316 STAINLESS STEEL	ITEM CODE C-65
RATING	150# CLASS	SIZE RANGE	1/2" THRU 2"	
PRESS/TEMP.	-9 TO +80 PSIG @ 225°F			
ABBR. DESCR.	CHECK 150# CLASS, SCREWED, 316 SS Body & TRIM, SWING TYPE			

PURCHASE

ITEM - CHECK VALVE, SWING TYPE

RATING - 150# CLASS

END CONN. - SCREWED NPT.

PORT - REGULAR

MATERIAL - BODY & COVER: 316 STAINLESS STEEL ASTM A351 GR. CF8M

DISC: 316 STAINLESS STEEL ASTM A351 GR CF8M

TRIM: 316 STAINLESS STEEL

FEATURES: CAN BE USED EITHER IN HORIZONTAL OR VERTICAL
POSITION, BOLTED COVER WITH NON ASBESTOS COVER
GASKET, INTEGRAL SEAT, RENEWABLE DISCNOTES

1. ~~INSTALL WITH PRESSURE UNDER DISC IN HORIZONTAL OR VERTICAL POSITION~~
2. VALVE MUST BE SUITABLE FOR -9 PSI VACUUM SERVICE.
3. NO ASBESTOS MATERIALS SHALL BE USED.

REFERENCES

ALLOYCO FIG #370-TG OR APPROVED EQUAL

COMMENTS

<u>D I M E N S I O N</u>		<u>"A" DIM. FACE TO FACE</u>						<u>DESIGN STANDARD</u>	
SIZE	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"		ALLOYCO	
A	3-3/4"	3-3/4"	5"	5 1/2"	6"	6 1/2"		FIG #370-TG	
B									
C									
SPEC. BY VKS		APPR. BY		REV. 8					
DATE		DATE		DATE 02-02-88					

CRBBTX00561233

PIPING VALVE SPECIFICATIONS

ATTACHMENT IV
SPEC. 15052

TYPE	CHECK VALVE	MATERIAL	316L STAINLESS STEEL	ITEM CODE C-77
RATING	150# SOCKET WELD	SIZE RANGE	1/2" THRU 2"	
PRESS/TEMP.	230# PSIG @ -20°F to 230°F			
ABBR. DESCR.	Check, 150# CLASS, SW, 316LSS BODY & TRIM, SWING TYPE			

PURCHASE

ITEM - CHECK VALVE, SWING TYPE

RATING - 150# ANSI CLASS, RATING PER B16.34

END CONN. - SOCKET WELD

PORT - REGULAR

MATERIAL - BODY: CAST STAINLESS STEEL, ASTM A351 GR-CF 3M - 316LSS
TRIM: 316 STAINLESS STEEL
FEATURES: RENEWABLE DISC, BOLTED COVER, INTEGRAL SEAT,
SUITABLE FOR HORIZONTAL OR VERTICAL USE.

NOTES

1. PRESSURE TEMPERATURE RATING PER ANSI B16.34.
2. SUITABLE FOR HORIZONTAL OR VERTICAL
3. NO ASBESTOS MATERIALS SHALL BE USED.

REFERENCES

ALLOYCO FIG #374-TG OR APPROVED EQUAL

COMMENTS

D I M E N S I O N		"A" DIM. END TO END						DESIGN STANDARD ALLOYCO FIG #374-TG
SIZE	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"		
A	3-3/4"	3-3/4"	5"	5 1/2"	6"	6 1/2"		
B								
C								
SPEC. BY	VKS	APPR. BY		REV.	8			
DATE		DATE		DATE	02-02-88			

PIPING VALVE SPECIFICATIONS

 ATTACHMENT IV
 SPEC. 15052

TYPE	CHECK VALVE	MATERIAL	316 STAINLESS STEEL	ITEM CODE C-37
RATING	150# CLASS	SIZE RANGE	1/2" THRU 1-1/2"	
PRESS/TEMP.	150 PSIG @ -20°F THRU 475°F			
ABBR. DESCR.	CHECK 150# CLASS, RF, 125 RMS 316 SS BODY & TRIM, SWING TYPE			

PURCHASE

ITEM - CHECK VALVE, SWING TYPE
 RATING - 150# CLASS
 END CONN. - 150# RF, 125 RMS, ANSI B16.5
 PORT - REGULAR
 MATERIAL - BODY & COVER: 316 STAINLESS STEEL ASTM A351 GR. CF8M
 DISC: 316 STAINLESS STEEL ASTM A351 GR. CF8M
 TRIM: 316 STAINLESS STEEL

NOTES

- INSTALL WITH PRESSURE UNDER DISC IN HORIZONTAL OR VERTICAL POSITION.
- NO ASBESTOS MATERIALS SHALL BE USED.

REFERENCES

ALLOYCO FIG #317 OR APPROVED EQUAL

COMMENTS

DIMENSION

'A' DIM. FACE TO FACE

SIZE	1/2"	3/4"	1"	1-1/2"
A	4-1/4"	4-5/8"	5"	6"

DESIGN STANDARD
 ALLOYCO
 FIG #377

SPEC. BY	WNM	APPR. BY	REV. 9
DATE	03/22/88	DATE	03-30-88

PIPING VALVE SPECIFICATIONS

 ATTACHMENT IV
 SPEC. 15052

TYPE	CHECK VALVE	MATERIAL	316 SS	ITEM CODE C-38
RATING	150# RF	SIZE RANGE	1-1/2" THRU 2"	
PRESS/ TEMP.	150°F PSIG @ -20°F THRU 110°F			
ABBR. DESCR.	CHECK, 150# RF, FLG'D, 316 SS BODY & TRIM, SWING TYPE			

PURCHASE

ITEM - CHECK VALVE, HORIZONTAL SWING
 RATING - 150# CLASS
 END CONN. - 150# RF FLANGED, ANSI B16.5
 PORT - REGULAR
 MATERIAL - BODY: CAST STAINLESS STEEL, ASTM A351 GR-CF-8M
 TRIM: 316 STAINLESS STEEL
 FEATURES: RENEWABLE DISC, BOLTED COVER, INTEGRAL SEAT

NOTES

- SUITABLE FOR HORIZONTAL OR VERTICAL USE.
- NO ASBESTOS MATERIALS SHALL BE USED.

REFERENCES

CRANE	61676	POWELL	2342 - UP TO 4"/2633 FOR 6" THRU 12"
LUNKENHEIMER	7003 RFD	ALLOYCO	377-TG

COMMENTS

DIMENSION "A" DIM. FACE TO FACE SIZE 1 1/2" 2" A 6" 6 1/2"		DESIGN STANDARD ALLOYCO #377
SPEC. BY WNM DATE 03/21/88	APPR. BY DATE	REV. 9 DATE 03-30-88

PIPING VALVE SPECIFICATIONS

 ATTACHMENT IV
 SPEC. 15052

TYPE	CHECK VALVE	MATERIAL	MONEL	ITEM CODE C-72
RATING	150# RF	SIZE RANGE	1" ONLY	
PRESS/TEMP.	275 PSIG @ -20°F THRU 100°F OR 200 PSIG @ 300°F OR FULL VACUUM			
ABBR. DESCR.	CHECK, 150# RF, FLGD, MONEL BODY & TRIM, SWING TYPE			

PURCHASE

ITEM - CHECK VALVE, HORIZONTAL SWING

 RATING - 150# CLASS

 END CONN. - 150# RF FLANGED, ANSI B16.5

 PORT - REGULAR

 MATERIAL - BODY: CAST MONEL ASTM A296/A494 GR-M-35
 TRIM: MONEL
 FEATURES: RENEWABLE DISC, BOLTED COVER, INTEGRAL SEAT,
 PREPARED FOR FULL VACUUM SERVICE, SUITABLE FOR
 HORIZONTAL OR VERTICAL USE

NOTES

1. PRESSURE TEMPERATURE RATING PER ANSI B16.5
2. THIS VALVE IS DESIGNED FOR FULL VACUUM SERVICE.
3. SUITABLE FOR HORIZONTAL OR VERTICAL USE.
4. NO ASBESTOS MATERIALS SHALL BE USED.

REFERENCES

ALLOYCO #377-TG OR APPROVED EQUAL

COMMENTS

DIMENSION		"A" DIM. FACE TO FACE	DESIGN STANDARD ALLOYCO #377-TG
SIZE 1" A 5" B C			
SPEC. BY VKS	APPR. BY	REV. 8	
DATE	DATE	DATE 02-02-88	

CRBBTX00561237

PIPING VALVE SPECIFICATIONS

 ATTACHMENT IV
 SPEC. 15052

TYPE	CHECK VALVE	MATERIAL	316 SS	ITEM CODE C-63
RATING	150# RF	SIZE RANGE	1/2" THRU 8"	
PRESS/TEMP.	150°F PSIG @ -20°F THRU 110°F ⑨			
ABBR. DESCR.	CHECK, 150# RF, FLG'D, 316 SS BODY & TRIM, SWING TYPE,			

F/OXYGEN SERVICE

PURCHASE

ITEM - CHECK VALVE, HORIZONTAL SWING
 RATING - 150# CLASS
 END CONN. - 150# RF FLANGED, ANSI B16.5
 PORT - REGULAR
 MATERIAL - BODY: CAST STAINLESS STEEL, ASTM A351 GR-CF-8M
 TRIM: 316 STAINLESS STEEL
 FEATURES: RENEWABLE DISC, BOLTED COVER, INTEGRAL SEAT, CLEANED,
 PREPARED AND DECREASED FOR OXYGEN SERVICE

NOTES

1. PRESSURE TEMPERATURE RATING PER ANSI B16.5.
2. THIS VALVE IS DESIGNED FOR OXYGEN SERVICE.
3. SUITABLE FOR HORIZONTAL OR VERTICAL USE.
4. NO ASBESTOS MATERIALS SHALL BE USED.

REFERENCES

CRANE	61676	POWELL	2342 - UP TO 4"/2633 FOR 6" THRU 12"
LUNKENHEIMER	7003 RFD	ALLOYCO	377-TG

COMMENTS

<u>D I M E N S I O N</u>										<u>"A" DIM. FACE TO FACE</u>	DESIGN STANDARD ALOYCO #377-TG
SIZE	1/2"	3/4"	1"	1-1/2"	2"	3"	4"	6"	8"		
A	4 1/2"	4-5/8"	5"	6 1/2"	8"	9 1/2"	11 1/2"	14"	19 1/2"		
9											
SPEC. BY			APPR. BY			REV. 9					
DATE			DATE			DATE 03-30-88					

PIPING VALVE SPECIFICATIONS

 ATTACHMENT IV
 SPEC. 15052

TYPE	GLOBE VALVE	MATERIAL	NICKEL	ITEM CODE G-69
RATING	300# CLASS	SIZE RANGE	3/4" & SMALLER	
PRESS/TEMP.	175 PSIG @ 350°F			
ASBR. DESCR.	GLOBE, 300# CLASS, SCREWED ENDS, NICKEL BODY & TRIM, MOD.PLUG DISC TYPE			

PURCHASE

ITEM - GLOBE VALVE

RATING - 300# CLASS

END CONN. - SCREWED,

PORT - CONVENTIONAL (REDUCED)

MATERIAL - BODY & BONNET: NICKEL ASTM - A296 GR CZ-100

MODIFIED PLUG DISC: NICKEL

TRIM: NICKEL

 FEATURES: BOLTED BONNET WITH NON ASBESTOS BONNET GASKET,
 OS&Y, INTEGRAL SEAT, RISING STEM, MODIFIED PLUG DISC

NOTES

1. PRESSURE TEMPERATURE RATING PER ANSI B16.34.
2. THIS VALVE IS DESIGNED FOR SERVICES WHERE THROTTLING OPERATION IS REQUIRED.
3. NO ASBESTOS MATERIALS SHALL BE USED.

REFERENCES

ALLOYCO FIG #2310 - A-TG OR APPROVED EQUAL

COMMENTS

DIMENSION

"A" DIM. END TO END

SIZE	1/2"	3/4"
A	3-3/4"	4-1/4"
B		
C		

 DESIGN STANDARD
 ALLOYCO
 FIG #2310-A-TG

SPEC. BY VKS

APPR. BY

REV. 8

DATE

DATE

DATE 02-02-88

PIPING VALVE SPECIFICATIONS

ATTACHMENT IV
SPEC. 15052

TYPE	GLOBE VALVE	MATERIAL	NICKEL	ITEM CODE G-70
RATING	300# RF CLASS	SIZE RANGE	1" THRU 4"	
PRESS/ TEMP.	175 PSIG @ 350°F			
ABBR. DESCR.	GLOBE, 300# CLASS, ANSI FLANGED, NICKEL BODY & TRIM, MOD. PLUG DISC TYPE			

PURCHASE

ITEM - GLOBE VALVE

RATING - 300# CLASS

END CONN. - 300# RAISED FACE FLANGED, ANSI B16.5

PORT - CONVENTIONAL (REDUCED)

MATERIAL - BODY & BONNET: NICKEL ASTM - A296 GR CZ-100

MODIFIED PLUG DISC: NICKEL

TRIM: NICKEL

FEATURES: BOLTED BONNET WITH NON ASBESTOS BONNET GASKET,
OS&Y, INTEGRAL SEAT, RISING STEM, MODIFIED PLUG DISC

NOTES

1. PRESSURE TEMPERATURE RATING PER ANSI B16.34.
2. THIS VALVE IS DESIGNED FOR SERVICES WHERE THROTTLING OPERATION IS REQUIRED.
3. NO ASBESTOS MATERIALS SHALL BE USED.

REFERENCES

ALLOYCO FIG #2317-A-TG OR APPROVED EQUAL

COMMENTS

DIMENSION

"A" DIM. FACE TO FACE

SIZE	1"	1½"	2"	2½"	3"	4"
A	8"	9"	10½"	11½"	12½"	14"
B						
C						

DESIGN STANDARD

ALLOYCO
FIG #2317-A-TG

SPEC. BY	VKS	APPR. BY	REV. 8
DATE		DATE	02-02-88

PIPING VALVE SPECIFICATIONS

ATTACHMENT IV
SPEC. 15052

TYPE	CHECK VALVE	MATERIAL	NICKEL	ITEM CODE C-74
RATING :	300# SCREWED	SIZE RANGE	3/4" AND SMALLER	
PRESS/TEMP.	175 PSIG @ 350°F			
ASBR.DESCR.	CHECK, 300# ANSI,SCRD, NICKEL BODY & TRIM, SWING TYPE			

PURCHASE

ITEM - CHECK VALVE, SWING TYPE

RATING - 300# CLASS

END CONN. - SCREWED,

PORT - REGULAR

MATERIAL - BODY: CAST NICKEL ASTM A296/A494 GR. CZ-100
TRIM: NICKEL
FEATURES: RENEWABLE DISC, BOLTED COVER, INTEGRAL SEAT,
SUITABLE FOR HORIZONTAL OR VERTICAL USE.

NOTES

1. PRESSURE TEMPERATURE RATING PER ANSI B16.34.
2. SUITABLE FOR HORIZONTAL OR VERTICAL
3. VALVE IS LIMITED TO SERVICES BELOW 350°F.
4. NO ASBESTOS MATERIALS SHALL BE USED.

REFERENCES

ALLOYCO FIG #2370-TG OR APPROVED EQUAL

COMMENTS

DIMENSION			"A" DIM. END TO END		DESIGN STANDARD ALLOYCO FIG #2370-TG
SIZE	1/2"	3/4"			
A	4-1/2"	5"			
B					
C					
SPEC. BY VKS			APPR. BY		REV. 8
DATE			DATE		02-02-88

PIPING VALVE SPECIFICATIONS

ATTACHMENT IV
SPEC. 15052

TYPE	CHECK VALVE	MATERIAL	316L STAINLESS STEEL	ITEM CODE C-66
RATING	300# SW	SIZE RANGE	1/2" THRU 2"	
PRESS/TEMP.	720 PSIG @ 100°F OR 670 PSIG @ 150°F			
ABBR.DESCR.	CHECK, 300# ANSI,SW, 316L SS BODY & TRIM, SWING TYPE			

PURCHASE

ITEM - CHECK VALVE, SWING TYPE

RATING - 300# CLASS

END CONN. - SOCKET WELD, ANSI B16.11

PORT - REGULAR

MATERIAL - BODY: CAST STAINLESS STEEL, ASTM A351 GR-CF 3M
TRIM: 316L STAINLESS STEEL
FEATURES: RENEWABLE DISC, BOLTED COVER, INTEGRAL SEAT,
SUITABLE FOR HORIZONTAL OR VERTICAL USE,

NOTES

1. PRESSURE TEMPERATURE RATING PER ANSI B16.34. (720 PSIG @ 100°F OR 670 PSIG @ 150°F)
2. SUITABLE FOR HORIZONTAL OR VERTICAL
3. NO ASBESTOS MATERIALS SHALL BE USED.

REFERENCES

ALLOYCO FIG #2374-TG OR APPROVED EQUAL

COMMENTS

DIMENSION						"A" DIM. FACE TO FACE	DESIGN STANDARD ALLOYCO FIG #2374
SIZE	1/2"	3/4"	1"	1-1/2"	2"		
A	4 1/2"	5"	5 1/2"	6"	6 1/2"		
B							
C							
SPEC. BY		VKS	APPR. BY		REV.	8	
DATE			DATE		DATE	02-02-88	

CRBBTX00561242

PIPING VALVE SPECIFICATIONS

ATTACHMENT IV
SPEC. 15052

TYPE	CHECK VALVE	MATERIAL	316 STAINLESS STEEL	ITEM CODE C-67
RATING	300# RF	SIZE RANGE	2" THRU 6"	
PRESS/TEMP.	700# PSIG @ 100°F OR 670 PSIG @ 150°F			
ABBR. DESCR.	CHECK, 300# RF, FLG'D, 316 SS BODY & TRIM, SWING TYPE,			

PURCHASE

ITEM - CHECK VALVE, HORIZONTAL SWING

RATING - 300# CLASS

END CONN. - 300# RF FLANGED, ANSI B16.5

PORT - REGULAR

MATERIAL - BODY: CAST STAINLESS STEEL, ASTM A351 GR-CF-8M
TRIM: 316 STAINLESS STEEL
FEATURES: RENEWABLE DISC, BOLTED COVER, INTEGRAL SEAT,
SUITABLE FOR HORIZONTAL OR VERTICAL USE.

NOTES

1. PRESSURE TEMPERATURE RATING PER ANSI B16.5.(720 PSIG @ 100°F OR 670 PSIG @ 150°F)
2. SUITABLE FOR HORIZONTAL OR VERTICAL USE.
3. NO ASBESTOS MATERIALS SHALL BE USED.

REFERENCES

ALLOYCO FIG # 2377-TG OR APPROVED EQUAL

COMMENTS

DIMENSION

"A" DIM. FACE TO FACE

SIZE	2"	2½"	3"	4"	6"
A	10½"	11½"	12½"	14"	17½"
B					
C					

DESIGN STANDARD
ALLOYCO #2377-TG

SPEC. BY VKS	APPR. BY	REV. B
DATE	DATE	DATE 02-02-88

PIPING VALVE SPECIFICATIONS

ATTACHMENT IV
SPEC. 15052

TYPE	CHECK VALVE	MATERIAL	NICKEL	ITEM CODE C-75
RATING	300# RF CLASS	SIZE RANGE	1" THRU 12"	
PRESS/TEMP.	175 PSIG @ 350°F			
ABBR. DESCR.	CHECK, 300# RF, FLGD, NICKEL BODY & TRIM, SWING TYPE			

PURCHASE

ITEM - CHECK VALVE, HORIZONTAL SWING

RATING - 300# CLASS

END CONN. - 300# RF FLANGED, ANSI B16.5

PORT - REGULAR

MATERIAL - BODY: CAST NICKEL ASTM A296/A494 GR. CZ-100
TRIM: NICKEL
FEATURES: RENEWABLE DISC, BOLTED COVER, INTEGRAL SEAT
SUITABLE FOR HORIZONTAL OR VERTICAL USE

NOTES

1. PRESSURE TEMPERATURE RATING PER ANSI B16.34.
2. SUITABLE FOR HORIZONTAL OR VERTICAL
3. VALVE IS LIMITED TO SERVICES BELOW 350°F.
4. NO ASBESTOS MATERIALS SHALL BE USED.

REFERENCES

ALLOYCO FIG #2377-TG OR APPROVED EQUAL

COMMENTS

<u>D I M E N S I O N</u>											DESIGN STANDARD ALLOYCO FIG #2377-TG
"A" DIM. FACE TO FACE											
SIZE	1"	1½"	2"	2½"	3"	4"	6"	8"	10"	12"	
A	8½"	9½"	10½"	11½"	12½"	14"	17½"	21"	24½"	28"	
B											
C											
SPEC. BY			VKS			APPR. BY			REV. 8		
DATE						DATE			DATE 02-02-88		

PIPING VALVE SPECIFICATIONS

 ATTACHMENT IV
 SPEC. 15052

TYPE	GLOBE VALVE	MATERIAL	CAST BRONZE	ITEM CODE G-21
RATING	200# CLASS CLASS	SIZE RANGE	1/4" THRU 2"	
PRESS/TEMP.	150# PSIG @ -20°F THRU 225°F			
ABBR. DESCR.	GLOBE 200#, SCREWED, CAST BRONZE BODY & TRIM			

PURCHASE

ITEM - GLOBE VALVE

RATING - 200# CLASS

END CONN. - SCREWED

PORT - CONVENTIONAL (REDUCED)

MATERIAL - BODY & BONNET: BRONZE, ASTM B62

TRIM: BRONZE, ASTM-B62

 FEATURES: UNION BONNET, BRONZE DISC, RENEWABLE SEAT,
 GRAPHITED ASBESTOS-FREE STEM PACKING

NOTES

1. THIS VALVE IS DESIGNED FOR STEAM, AND NON-SHOCK WATER, OIL AND GAS SERVICES WHERE THROTTLING OPERATION IS REQUIRED.
2. NO ASBESTOS MATERIALS SHALL BE USED.

REFERENCES

CRANE 7TF OR EQUAL



COMMENTS

STD.

DIMENSION		*VERIFY THE DIMENSIONS "A" DIM. END TO END		DESIGN STANDARD	
SIZE	1/4" 3/8" 1/2" 3/4" 1" 1 1/4" 1 1/2" 2"			CRANE 7TF	
A	1.94 1.94 2.51 2.90 3.44 4.02 4.58 5.10				
SPEC. BY	VKS	APPR. BY		REV.	9
DATE		DATE		DATE	03/30/88



PIPING VALVE SPECIFICATIONS

 ATTACHMENT IV
 SPEC. 15052

TYPE	CHECK VALVE	MATERIAL	CARBON STEEL	ITEM CODE 9 C-19
RATING	600# RF CLASS	SIZE RANGE	3" THRU 12"	
PRESS/TEMP.	625 PSIG @ 500°F			
ABBR. DESCR.	CHECK, 600# RF FLGD, CS BODY, TILTING DISC			

PURCHASE

ITEM - CHECK VALVE, TILTING DISC
 RATING - 600# CLASS
 END CONN. - 600# RF FLANGED, ANSI B16.5
 PORT - STANDARD
 MATERIAL - BODY: CAST CARBON STEEL, ASTM A216-WCB
 TRIM: 13% CHROME TO STELLITE SEATING SURFACE
 FEATURES: TILTING DISC, BOLTET BODY

NOTES

- PRESSURE TEMPERATURE RATING PER ANSI B16.5
- NO ASBESTOS MATERIALS SHALL BE USED.

REFERENCES

CRANE 623XU OR APPROVED EQUAL

COMMENTS

DIMENSION

"A" DIM. FACE TO FACE

SIZE	3"	4"	6"	8"	10"	12"
A	14"	17"	22"	26"	31"	33"

DESIGN STANDARD

 CRANE 623 XU
 ASBESTOS FREE

SPEC. BY JG	APPR. BY	REV. 9
DATE	DATE	DATE 03-30-88

PIPING VALVE SPECIFICATIONS

 ATTACHMENT IV
 SPEC. 15052

TYPE	GATE VALVE	MATERIAL	CARBON STEEL	ITEM CODE 9 V-14 & V-14G
RATING	600# CLASS	SIZE RANGE	3" THRU 12"	
PRESS/TEMP.	625 PSIG @ 500°F			
ABBR. DESCR.	GATE, CS 600# FLANGED RF, PRESSURE SEAL BONNET, HF SEATS			

PURCHASE

ITEM - GATE VALVE - PRESSURE SEAL BONNET

RATING - 600# CLASS

END CONN. - 600# RAISED FACE FLANGED ANSI B16.5

PORT - CONVENTIONAL

MATERIAL - BODY & BONNET: CAST CARBON STEEL, ASTM A-216 GRADE WCB
 TRIM: 13% CHROME - STELLITE FACED SEATING SURFACES
 FEATURES: FLEX.WEDGE, RISING STEM, PRESSURE SEAL BONNET,
 6" & LARGER VALVES SHALL HAVE MANUFACTURER
STANDARD BYPASS.

NOTES

1. PRESSURE TEMPERATURE RATING PER ANSI B16.5
2. NO ASBESTOS MATERIALS SHALL BE USED.
3. 10" AND SMALLER VALVES ARE HANDWHEEL OPERATED, 12" AND LARGER VALVES ARE MANUAL WORM GEAR OPERATED AND ARE CALLED OUT ON ENGINEERING DRAWINGS WITH ITEM CODE WITH ALPHA SUFFIX "G" (i.e. V-14G).

REFERENCES

CRANE 676U OR APPROVED EQUAL

COMMENTS

D I M E N S I O N								"A" DIM. FACE TO FACE		DESIGN STANDARD CRANE 676-U ASBESTOS FREE
SIZE	3"	4"	5"	6"	8"	10"	12"			
A	14"	17"	20"	22"	26"	31"	33"			
SPEC. BY JG			APPR. BY			REV. 9				
DATE			DATE			DATE 03-30-88				

PIPING VALVE SPECIFICATIONS

 ATTACHMENT IV
 SPEC. 15052

TYPE	GATE VALVE	MATERIAL	CARBON STEEL	ITEM CODE 9 V-15 & V-15G
RATING	600# CLASS	SIZE RANGE	3" THRU 18"	
PRESS/TEMP.	625 PSIG @ 500°F			
ABBR. DESCR.	GATE, CS 600# BUTT WELD, PRESSURE SEAL BONNET, HF SEATS			

PURCHASE

ITEM - GATE VALVE - PRESSURE SEAL BONNET

RATING - 600# CLASS

END CONN. - 600# BW/ANSI B16.25/BORE SCHEDULE 40

PORT - CONVENTIONAL

MATERIAL - BODY & BONNET: CAST CARBON STEEL, ASTM A-216 GRADE WCB
 TRIM: 13% CHROME - STELLITE FACED SEATING SURFACES
 FEATURES: FLEX.WEDGE, RISING STEM, PRESSURE SEAL BONNET,
 6" & LARGER VALVES SHALL HAVE MANUFACTURER
STANDARD BYPASS.

NOTES

- PRESSURE TEMPERATURE RATING PER ANSI B16.34
- NO ASBESTOS MATERIALS SHALL BE USED.
- 10" AND SMALLER VALVES ARE HANDWHEEL OPERATED, 12" AND LARGER VALVES ARE MANUAL WORM GEAR OPERATED AND ARE CALLED OUT ON ENGINEERING DRAWINGS WITH ITEM CODE WITH ALPHA SUFFIX "G" (i.e. V-15G).

REFERENCES

CRANE 776U OR APPROVED EQUAL

COMMENTS

DIMENSION

"A" DIM. FACE TO FACE

SIZE	3"	4"	5"	6"	8"	10"	12"
A	10"	12"	15"	18"	23"	28"	32"
SIZE	14"	16"	18"				
A	35"	39"	43"				

DESIGN STANDARD

CRANE 776-U

ASBESTOS FREE

SPEC. BY JG	APPR. BY	REV. 9
DATE	DATE	DATE 03-30-88

PIPING VALVE SPECIFICATIONS

 ATTACHMENT IV
 SPEC. 15052

TYPE	GLOBE VALVE	MATERIAL	STAINLESS STEEL	ITEM CODE 9 G-60
RATING	800# CLASS	SIZE RANGE	1/4" THRU 2"	
PRESS/TEMP.	820 PSIG @ 500°F			
ABBR. DESCR.	GLOBE, 800#, SW, 316L SS BODY			

PURCHASE

ITEM - GLOBE VALVE

RATING - 800# CLASS

END CONN. - SOCKET WELD, PER ANSI B16.11

PORT - CONVENTIONAL (REDUCED)

MATERIAL - BODY: FORGED STAINLESS STEEL, ASTM A 182F-316L

TRIM: 316 STAINLESS STEEL

 FEATURES: BOLTED BONNET W/SPIRAL WOUND GASKET, O&SY, LOOSE DISC,
 GRAFOIL PACKING

NOTES

1. NO ASBESTOS MATERIALS SHALL BE USED.

REFERENCES

VOGT

SW12501-GAF OR APPROVED EQUAL

B3644L-W-316L

COMMENTS

DIMENSION

"A" DIM. FACE TO FACE

SIZE	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
A	2.38"	2.38"	3.75"	4.00"	4.62"	6.25"	6.25"	7.75"

DESIGN STANDARD

 CRANE 7173U/7171U
 ASBESTOS FREE

SPEC. BY JG

APPR. BY

REV. 9

DATE

DATE

DATE 03-30-88

PIPING VALVE SPECIFICATIONS

 ATTACHMENT IV
 SPEC. 15052

TYPE	GLOBE VALVE	MATERIAL	CARBON STEEL	ITEM CODE 9 G-16
RATING	600# CLASS	SIZE RANGE	3" THRU 12"	
PRESS/TEMP.	625 PSIG @ 500°F			
ABBR. DESCR.	GLOBE, CS 600# BUTT WELD, PRESSURE SEAL BONNET, HF SEATS			

PURCHASE

ITEM - GLOBE VALVE - PRESSURE SEAL BONNET, T-PATTERN 3" & 4", Y-PATTERN 6" THRU 12"

RATING - 600# CLASS

END CONN. - 600# BW/ANSI B16.25/BORE SCHEDULE 40

PORT - CONVENTIONAL

MATERIAL - BODY & BONNET: CAST STEEL, ASTM A-216-WCB
 TRIM: 13% CHROME STEM, STELLITE FACED SEATING SURFACES
 FEATURES: PLUG TYPE DISC, PRESSURE SEAL BONNET HAMMER
 BLOW-HANDWHEEL, T-PATTERN THRU 4" Y-PATTERN
 6" THRU 12"

NOTES

1. PRESSURE TEMPERATURE RATING PER ANSI B16.34.
2. NO ASBESTOS MATERIALS SHALL BE USED.

REFERENCES

CRANE 3" & 4" (T-Pattern) 7171U OR APPROVED EQUAL
 CRANE 6" THRU 12" (Y-Pattern) 7173U OR APPROVED EQUAL

COMMENTS

D I M E N S I O N							"A" DIM. FACE TO FACE	DESIGN STANDARD CRANE 7173U/7171U ASBESTOS FREE
SIZE	3"	4"	6"	8"	10"	12"		
A	14"	17"	22"	26"	31"	33"		
SPEC. BY JG			APPR. BY			REV. 9		
DATE			DATE			DATE 03-30-88		

CRBBTX00561250

PIPING VALVE SPECIFICATIONS

TYPE	GATE VALVE	MATERIAL	B61 BRONZE	ITEM CODE  V-18
RATING	200# NON SHOCK CWP	SIZE RANGE	1/2 THRU 2"	
PRESS/TEMP.	400 PSIG @ 100°F			
ASBR.DESCR.	GATE, 200#, SCRD, BRZ, OS&Y, UL-FM			

PURCHASE

ITEM - GATE VALVE, OS&Y
 RATING - 400 PSI NON SHOCK CWP
 END CONN. - SCREWED
 PORT - FULL
 MATERIAL - B61 BRONZE
 SOLID WEDGE
 OS&Y

NOTES

- .. VALVE TO BE MANUFACTURED FOR FIRE WATER SERVICE.
 2. THESE VALVES ARE UL-FM LISTED FOR UP TO 175 PSI.

REFERENCES

CRANE #459 OR APPROVED EQUAL

COMMENTS

D I M E N S I O N						"A" END TO END DIM.	DESIGN STANDARD CRANE NO. 459
SIZE	1/2"	3/4"	1"	1-1/2"	2"		
	2.62	2.62	3.0	4.0	4.75		
SPEC. BY WNM			APPR. BY		REV. 9		
DATE 02-29-88			DATE		DATE 03-30-88		

PIPING VALVE SPECIFICATIONS

TYPE	GATE VALVE	MATERIAL	CAST IRON	ITEM CODE V-19
RATING	125# FF	SIZE RANGE	2½ - 12"	
PRESS/TEMP.	175 CWP - NON SHOCK			
ABBR. DESCR.	125# FF GATE, FM-UL, OS&Y			

PURCHASE

ITEM - GATE VALVE, OS&Y
 RATING - 125# FF
 END CONN. - 125# ANSI B16.1
 PORT - CONVENTIONAL
 MATERIAL - ASTM A126 Gr. B CAST IRON BODY & BONNET OS&Y
 BRONZE DISC & SEATS FM-UL LISTED

NOTES

- THIS VALVE IS INTENDED FOR FIRE WATER SERVICE.

REFERENCES

CRANE NO. 467 OR APPROVED EQUAL

COMMENTS

DIMENSION

"A" DIM. CENTER TO END

SIZE	2½"	3"	4"	6"	8"	10"	12"
A	7.50	8.0	9.0	10.5	11.5	13.0	14.0

DESIGN STANDARD

CRANE NO. 467

SPEC. BY WNM	APPR. BY	REV. 9
DATE 3-19-88	DATE	DATE -03-30-88

PIPING VALVE SPECIFICATIONS

TYPE	GATE VALVE	MATERIAL	DUCTILE IRON	ITEM CODE
RATING	150# RF CLASS	SIZE RANGE	2" THRU 24"	
PRESS/TEMP.	150° PSI @ 0°F TO 225°F			
ABBR. DESCR.	GATE, 150# RF, FLANGE, D.I., BRONZE TRIM; NRS-BB			

PURCHASE

ITEM - GATE VALVE, NON-RISING STEM, BOLTED BONNET
 RATING - 150# CLASS
 END CONN. - 150# RAISED FACE FLANGED ANSI B16.5
 PORT - FULL
 MATERIAL - BODY & BONNET: DUCTILE IRON, ASTM A395
 TRIM: BRONZE, ASTM B61
 FEATURES: BOLTED BONNET, NON-RISING STEM, SOLID WEDGE, BRONZE TRIM
 TEFLON IMPREGNATED ASBESTOS STEM PACKING 12" AND SMALLER -
 HANDWHEEL OPERATED, 14" & LARGER WITH GEAR OPERATOR

NOTES

1. PRESSURE TEMPERATURE RANGE PER ANSI B16.5
2. GENERAL SERVICES SUITABLE TO BODY MATERIAL, NON THROTTLING SERVICES ON-OFF OPERATIONS. SERVICES INCLUDE WATER, OIL, GAS, LIMITED MILD CORROSIVE.
3. VERIFY TEMPERATURE PRESSURE RATING FOR SIZES OVER 12"
4. 14" AND LARGER VALVES ARE WORM GEAR OPERATED AND ARE CALLED OUT ON ENGINEERING DRAWING WITH ITEM CODE WITH ALPHA SUFFIX "G" (i.e. V-43G)
5. NO EXPOSED ASBESTOS MATERIALS SHALL BE USED.

REFERENCES

CRANE 461-DI OR NIBCO F639-31 OR EQUAL

COMMENTS

DIMENSION

2" 3" 4" 6" 8" 10" 12" 14" 16" 18" 20" 24"
 7" 8" 9" 10½" 11½" 13" 14" 15" 16" 17" 18" 20"

DESIGN STANDARD

CRANE 461-DI
 OR NIBCO F639-31
 OR EQUAL

SPEC. BY	VKS	APPR. BY	REV.	8
DATE		DATE	DATE	02-02-88

PIPING VALVE SPECIFICATIONS

 ATTACHMENT IV
 SPEC. 15052

TYPE	GATE VALVE	MATERIAL	CARBON STEEL	ITEM CODE  V-15 V-15G
RATING	600# CLASS	SIZE RANGE	3" THRU 18"	
PRESS/TEMP.	625 PSIG @ 500°F			
ABBR. DESCR.	GATE, CS 600# BUTT WELD, PRESSURE SEAL BONNET, HF SEATS			

PURCHASE

ITEM - GATE VALVE - PRESSURE SEAL BONNET

RATING - 600# CLASS

END CONN. - 600# BW/ANSI B16.25/BORE SCHEDULE 40

PORT - CONVENTIONAL

MATERIAL - BODY & BONNET: CAST CARBON STEEL, ASTM A-216 GRADE WCB
 TRIM: 13% CHROME - STELLITE FACED SEATING SURFACES
 FEATURES: FLEX.WEDGE, RISING STEM, PRESSURE SEAL BONNET,
 6" & LARGER VALVES SHALL HAVE MANUFACTURER
STANDARD BYPASS.

NOTES

1. PRESSURE TEMPERATURE RATING PER ANSI B16.34
2. NO ASBESTOS MATERIALS SHALL BE USED.
3. 10" AND SMALLER VALVES ARE HANDWHEEL OPERATED, 12" AND LARGER VALVES ARE MANUAL WORM GEAR OPERATED AND ARE CALLED OUT ON ENGINEERING DRAWINGS WITH ITEM CODE WITH ALPHA SUFFIX "G" (i.e. V-15G).

REFERENCES

CRANE 776U OR APPROVED EQUAL

COMMENTS

DIMENSION								"A" DIM. FACE TO FACE		DESIGN STANDARD CRANE 776-U ASBESTOS FREE
SIZE	3"	4"	5"	6"	8"	10"	12"			
A	10"	12"	15"	18"	23"	28"	32"			
SIZE	14"	16"	18"							
A	35"	39"	43"							
SPEC. BY JG								APPR. BY		REV. 9
DATE								DATE		DATE 03-30-88

CRBBTX00561254

PIPING VALVE SPECIFICATIONS

ATTACHMENT IV
SPEC. 15052

TYPE	KNIFE GATE	MATERIAL	316 STAINLESS STEEL	ITEM CODE
RATING	150# NON SHOCK CWP	SIZE RANGE	2" THRU 14"	K-62 &
PRESS/TEMP.	-12 TO 100 PSIG @ 225°F			K-62G
ABBR. DESCR.	KNIFE GATE, DOUBLE FLANGED TYPE, WETTED PARTS 316SS, 150#RF FLANGES, TFE PKG			

PURCHASE

ITEM - KNIFE GATE VALVE

RATING - 150# NON SHOCK COLD WORKING PRESSURE (CWP)

END CONN. - 150# RAISED FACE FLANGES WITH TAPPED BOLTING HOLES

PORT - FULL

MATERIAL - BODY: 316 STAINLESS STEEL WITH STEEL FLANGES AND
YOKE ASSEMBLY (DEZURIK VALVES 6" & LARGER IN C.I.
BODY WITH STAINLESS STEEL LINER ARE ACCEPTABLE)
TRIM: ALL WETTED PARTS TO BE TYPE 316 STAINLESS STEEL
FEATURES: METAL SEATS, FLANGED WAFER BODY, HANDWHEEL
OPERATOR, STAINLESS STEEL STEM, SUITABLE FOR
PARTIAL VACUUM SERVICE, 12" & SMALLER WITH HAND-
WHEELS & 14" & LARGER WITH BEVEL GEAR OPERATOR

NOTES

1. PACKING MUST BE TEFLON WITH NO ASBESTOS CONTENT.
2. VALVE MUST BE SUITABLE FOR -12 PSIG VACUUM SERVICE.
3. GEAR OPERATOR IS REQUIRED FOR 14" & LARGER VALVES, ON ENGINEERING DRAWINGS VALVES WITH GEAR OPERATORS SHALL BE CALLED OUT WITH ALPHA SUFFIX "G" (I.E. K-62G)

REFERENCES

12" & SMALLER - DEZURIK SERIES L - 827-W-TEFLON-LHG
14" & LARGER - DEZURIK SERIES L - 827-W-TEFLON-LGG

COMMENTS

D I M E N S I O N			"H" DIM. FACE TO FACE							DESIGN STANDARD 12" & SMALLER - DEZURIK SERIES L 827-W-TEFLON-LHG 14" & LARGER - DEZURIK SERIES L 827-W-TEFLON-LGG
SIZE	2"	3"	4"	6"	8"	10"	12"	14"		
A										
B										
H	1.88	2.00	2.00	2.25	2.75	2.75	3.00	3.00		
SPEC. BY VKS			APPR. BY				REV. 8			
DATE			DATE				DATE 02-02-88			

DESIGN STANDARD

12" & SMALLER - DEZURIK
SERIES L 827-W-TEFLON-LHG
14" & LARGER - DEZURIK
SERIES L 827-W-TEFLON-LGG

PIPING VALVE SPECIFICATIONS

 ATTACHMENT IV
 SPEC. 15052

TYPE	BUTTERFLY VALVE	MATERIAL	316SS BODY & DISC	ITEM CODE Y-61L Y-61LG
RATING.	150# CLASS,	SIZE RANGE	4" THRU 12"	
PRESS/TEMP.	150 PSI @ 400°F			
ABBR. DESCR.	BUTTERFLY, 150# RF, 316SS BODY & TEFLON SEATS & SEALS, LUG TYPE			

PURCHASE

ITEM - BUTTERFLY VALVE, HIGH PERFORMANCE

RATING - 150# CLASS

 END CONN. - LUG TYPE (FOR INSTALLATION BETWEEN TWO 150# RF ANSI B16.5 FLANGES)
 WITH TAPPED LUG HOLES.

PORT - REGULAR

MATERIAL - BODY: 316 STAINLESS STEEL, ASTM A351 GR. CF8M

SHAFT: 17-4PH 1025 HARDENED STEEL

DISC: 316 STAINLESS STEEL

SEATS & SEALS: TEFLON (PTFE)

 FEATURES: QUARTER TURN OPERATION, HIGH PERFORMANCE BUTTERFLY,
 LEVER HANDLE THRU 6" VALVES, 8" AND LARGER VALVES
 TO HAVE ENCLOSED WORM GEAR OPERATOR WITH DISC
 POSITION INDICATOR

NOTES

1. VALVE IS LIMITED TO SERVICES BELOW 400°F.
2. DO NOT USE AS DEAD END VALVE. IN CASE OF DEAD END SERVICE REQUIREMENTS ADD A MATING FLANGE ON DOWNSTREAM SIDE OF THE VALVE.
3. VALVE MUST MEET API 598 AND MSS SP-61 CRITERIA.
4. ON ENGINEERING DRAWINGS VALVES WITH GEAR OPERATORS SHALL BE CALLED OUT WITH ITEM CODE WITH ALPHA SUFFIX "G" (i.e. Y-56LG).

REFERENCES

FLOW SEAL - 1LA-222-TTG-H SERIES 'D' UP TO 6" SIZE, OR EQUAL

FLOW SEAL - 1LA-222-TTG-3 SERIES 'D' UP TO 20" & SERIES 'E' FOR 24" OR EQUAL

COMMENTS

 ITEM CODE NUMBERS WITH THE FOLLOWING SUFFIXES ARE AS FOLLOWS:
 "G" GEAR OPERATED

DIMENSION

SIZE/3"	4"	6"	8"	10"	12"
G /1.937	2.125	2.25	2.5	2.875	3.25
SIZE/14"	16"	18"	20"	24"	
G /3.75	4.13	4.63	5.13	6.06	

DESIGN STANDARD

 FLOW SEAL
 6" & SMALLER-1LA-222-TTG-H
 Series 'D'
 8"THRU 20"-1LA-222-TTG-3
 Series 'D'
 24"-1LA-222-TTG-3
 SERIES 'E'

SPEC. BY	APPR. BY	REV. 8
DATE	DATE	DATE 02-02-88

PIPING VALVE SPECIFICATIONS

 ATTACHMENT IV
 SPEC. 15052

TYPE	BUTTERFLY VALVE	MATERIAL	CARBON STEEL/316SS DISC	ITEM CODE Y-2L & Y-2LG
RATING	150# CLASS,	SIZE RANGE	3" THRU 24"	
PRESS/TEMP.	200 PSI @ -20°F THRU 400°F			
ABBR. DESCR.	BUTTERFLY, 150# RF, CS BODY & 316SS DISC, FIRESAFE, LUG TYPE			

PURCHASE

ITEM - BUTTERFLY VALVE, HIGH PERFORMANCE

RATING - 150# CLASS

 END CONN. - LUG TYPE (FOR INSTALLATION BETWEEN TWO 150# RF ANSI B16.5 FLANGES)
 WITH TAPPED BOLT HOLES

PORT - REGULAR

MATERIAL - BODY: CARBON STEEL ASTM A-216 GR. WCB

SHAFT: 17-4PH 1025 HARDENED STEEL

DISC: 316 STAINLESS STEEL

SEATS: FIRESAFE METAL TO METAL

 FEATURES: QUARTER TURN OPERATION, HIGH PERFORMANCE BUTTERFLY,
 RESILIENT/METALLIC FIRESAFE SEAT DESIGN, LEVER HANDLE
 THRU 6" VALVES, 8" AND LARGER VALVES TO HAVE ENCLOSED
 WORM GEAR OPERATOR WITH DISC POSITION INDICATOR

NO 617

NOTES

1. VALVE IS LIMITED TO SERVICES BELOW 400°F.
2. DO NOT USE AS DEAD END VALVE. IN CASE OF DEAD END SERVICE REQUIREMENTS, ADD A MATING FLANGE ON DOWN STREAM SIDE OF THE VALVE.
3. VALVE MUST MEET API 598 AND MSS SP-61 CRITERIA.
4. ON ENGINEERING DRAWINGS VALVES WITH GEAR OPERATORS SHALL BE CALLED OUT WITH ITEM CODE WITH ALPHA SUFFIX "G" (i.e. Y-2G).

REFERENCES

POSI-SEAL - 232-12011-53-200

FOR 6" & SMALLER	-	FLOW SEAL 1LA-191FFF-H SERIES "D"
8" THRU 20"	-	FLOW SEAL 1LA-191FFF-3 SERIES "D"
24"	-	FLOW SEAL 1LA-191FFF-3 SERIES "E"

COMMENTS

 ITEM CODE NUMBERS WITH THE FOLLOWING SUFFIXES ARE AS FOLLOWS:
 "G" GEAR OPERATED

DIMENSION

SIZE/3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
C	1.937	2.125	2.25	2.5	2.875	3.25	3.75	4.13	4.63	5.13

DESIGN STANDARD

 FLOW SEAL
 6" & SMALLER-1LA-191FFF-H
 SERIES 'D'
 8" THRU 20--1LA-191FFF-3
 SERIES 'D'

SPEC. BY VKS	APPR. BY	REV. 8
DATE	DATE	DATE 02-02-88

 24"-1LA-191FFF-3
 SERIES 'E'

PIPING VALVE SPECIFICATIONS

ATTACHMENT IV
SPEC. 15052

TYPE	BUTTERFLY VALVE	MATERIAL	TEFLON LINED DI BODY/SS	ITEM CODE Y-53LG
RATING	150# RF CLASS	SIZE RANGE	26" THRU 36"	
PRESS/TEMP.	~40 INCHES WATER @ 100°F			
ABBR. DESCR.	BUTTERFLY VALVE, 150# RF, DOUBLE FLANGE, TEFLON LINED D.I.			

BODY & 316SS DISC GEAR OPER.

PURCHASE

ITEM - BUTTERFLY VALVE, DOUBLE FLANGED TYPE,

RATING - 150# CLASS

END CONN. - DOUBLE FLANGE TYPE (FOR INSTALLATION BETWEEN TWO 150# RF
ANSI B16.5 FLANGES.) WITH TAPPED BOLT HOLES

PORT - REGULAR

MATERIAL - BODY: DUCTILE IRON TEFLON (PTFE) LINED

DISC: 316 STAINLESS STEEL

FEATURES: GEAR OPERATED, NON-LUBRICATED BUSHINGS
316 SS, DISC & STEM, TEFLON LINER OVERLAY SEAL.

NOTES

- DO NOT USE AS DEAD END VALVE. IN CASE OF DEAD END SERVICE REQUIREMENTS ADD A MATING FLANGE ON DOWNSTREAM SIDE OF THE VALVE.
- FOR VENTILATION SERVICE
- ON ENGINEERING DRAWINGS VALVES WITH GEAR OPERATORS SHALL BE CALLED OUT WITH ITEM CODE WITH ALPHA SUFFIX "C" (i.e. Y-53LG)

REFERENCES

GARLOCK FIG. #101-F OR APPROVED EQUAL

COMMENTS

DIMENSION			"A" DIM. FACE TO FACE	DESIGN STANDARD GARLOCK FIG. #101-F
SIZE	30"	36"		
A	7"	8 1/2"		
B				
C				
SPEC. BY	VKS	APPR. BY	REV. 8	
DATE		DATE	DATE 02-02-88	

PIPING VALVE SPECIFICATIONS

ATTACHMENT IV
SPEC. 15052

TYPE	BUTTERFLY VALVE	MATERIAL	DUCTILE IRON/EPDM SEAT/SS DISC	ITEM CODE
RATING	150# RF, LUG TYPE	SIZE RANGE	26" THRU 38"	Y-59LG
PRESS/TEMP.	150 PSIG @ -20°F THRU 225°F			
ABBR. DESCR.	BUTTERFLY, 150# RF, DOUBLE FLANGE TYPE, D.I., 316 SS DISC, RESILIENT EPDM SEAT			

PURCHASE

ITEM - BUTTERFLY VALVE, LUG TYPE

RATING - 150# CLASS

END CONN. - DOUBLE FLANGED (FOR INSTALLATION BETWEEN TWO 150# RF, MSS-SP-44 FLANGES)

PORT - REGULAR

MATERIAL - BODY: DUCTILE IRON, PER ASTM A536 WITH RESILIENT EPDM SEAT
SHAFT: 316 STAINLESS STEEL WITH TEFLON BUSHINGS
DISC: 316 STAINLESS STEEL
SEATS: EPDM
FEATURES: QUARTER TURN OPERATION, GEAR OPERATOR

NOTES

1. VALVE IS LIMITED TO SERVICES BELOW 225°F.
2. DO NOT USE AS DEAD END VALVE. IN CASE OF DEAD END SERVICE REQUIREMENTS ADD A MATING FLANGE ON DOWNSTREAM SIDE OF THE VALVE.
3. BUBBLE TIGHT SHUT-OFF.
4. VALVES WITH GEAR OPERATORS SHALL BE CALLED OUT ON ENGINEERING DRAWING WITH ITEM CODE WITH ALPHA SUFFIX "G" (i.e. Y-59LG)

REFERENCES

GRINNELL FD-8272-7

COMMENTS

DIMENSION					"L" DIM. FACE TO FACE		DESIGN STANDARD GRINNELL FD-8272-7
SIZE	26"	30"	36"	38"			
L	5.87	6.38	7.87	-			
SPEC. BY	VKS	APPR. BY		REV. 8			
DATE		DATE		DATE 02-02-88			

PIPING VALVE SPECIFICATIONS

 ATTACHMENT IV
 SPEC. 15052

TYPE	BUTTERFLY VALVE	MATERIAL	D.I. BODY/NICKEL PLTD. D. I. DISC	CODE
RATING	150#RF CLASS	SIZE RANGE	3" THRU 24"	
PRESS/TEMP.	150 PSI @ 0°F TO 100°F			Y-50L & Y-50LG
ABBR. DESCR.	BUTTERFLY, 150#RF, LUG TYPE, D.I., N. PLTD DI DISC, RESILIENT EPDM SEAT			GR. OP.

PURCHASE

ITEM - BUTTERFLY VALVE, LUG TYPE

RATING - 150# RF, ANSI B16.5

 END CONN. - LUG TYPE (FOR INSTALLATION BETWEEN TWO 150# RF ANSI B16.5 FLANGES)
 WITH TAPPED BOLT HOLES

PORT - REGULAR

MATERIAL - BODY: DUCTILE IRON, ASTM-A395, WITH RESILIENT EPDM SEAT,
 SHAFT: 316 STAINLESS STEEL
 DISC: NICKEL PLATED DUCTILE IRON
 SEATS: EPDM
 FEATURES: QUARTER TURN OPERATION, 10 POSITION LOCK LEVER
 HANDLE THRU 6" VALVES, 8" AND LARGER VALVES TO
 HAVE ENCLOSED WORM GEAR OPERATOR WITH DISC
 POSITION INDICATOR, TAPPED LUG BOLT HOLES

NOTES

1. VALVE IS LIMITED TO SERVICES BELOW 225°F.
2. DO NOT USE AS A DEAD END VALVE. IN CASE OF DEAD END SERVICE REQUIREMENTS ADD A MATING FLANGE ON DOWN STREAM SIDE OF THE VALVE.
3. BUBBLE TIGHT SHUT-OFF.
4. ONE ENGINEERING DRAWINGS VALVES WITH GEAR OPERATORS SHALL BE CALLED OUT WITH A ALPHA SUFFIX "G" (i.e. Y-50LG)

REFERENCES

KEYSTONE: 2" THRU 8" FIG. 2-833 GRINNEL: LD-8201-2 FOR SIZES 6" & SMALLER
 10" THRU 20" FIG. 2-423 LD-8202-2 FOR SIZES 8" & LARGER
 24" FIG. 105-423

COMMENTS

D I M E N S I O N							DESIGN STANDARD GRINNEL 6" & Smaller-LD-8201-2 8" & Larger -LD-8202-2 OR KEYSTONE 2" THRU 8" FIG. 2-833 10" THRU 20" FIG. 2-423 24" FIG. #105-423
"L" DIM. FACE TO FACE							
SIZE	3"	4"	5"	6"	8"	10"	
L	1.75	2.00	2.12	2.12	2.37	2.75	
SIZE	12"	14"	16"	18"	20"	24"	
L	3.00	3.60	3.83	4.40	4.87	5.87	
SPEC. BY			APPR. BY		REV. 8		
DATE			DATE		DATE		

PIPING VALVE SPECIFICATIONS

 ATTACHMENT IV
 SPEC. 15052

TYPE	GATE VALVE	MATERIAL	DUCTILE IRON	ITEM CODE V-41 & V-41G
RATING	150# RF CLASS	SIZE RANGE	2" THRU 30"	
PRESS/TEMP.	150 PSI @ 0°F THRU 225°F			
ABBR. DESCR.	GATE, 150# RF, FLANGED, D.I., BRONZE TRIM, OS&Y-BB			

PURCHASE

ITEM - GATE VALVE, OS & Y, BOLTED BONNET

RATING - 150# CLASS

END CONN. - 150# RAISED FACE FLANGED ANSI B16.5

PORT - FULL

 MATERIAL - BODY & BONNET: DUCTILE IRON ASTM A395
 TRIM: BRONZE

 FEATURES: BOLTED BONNET, OS & Y, SOLID WEDGE, BRONZE STEM, TFE
 EMPREGNATED ASBESTOS STEM PACKING
 12" & SMALLER HANDWHEEL OPERATED
 14" & LARGER GEAR OPERATER

 NON-ASBESTOS ONLY
 AS PER FITTING SPEC

NOTES

- PRESSURE TEMPERATURE RANGE PER ANSI B16.5. - NO-OUT 80% OF B16.5
- GENERAL SERVICES SUITABLE TO BODY MATERIAL. NON THROTTLING SERVICES ON-OFF OPERATIONS. SERVICES INCLUDE WATER, OIL, GAS, LIMITED MILD CORROSIVE AND ERROSIVE SERVICES.
- VERIFY TEMPERATURE PRESSURE RATING FOR SIZES OVER 12".
- 14" & LARGER VALVES ARE WORM GEAR OPERATED AND ARE CALLED OUT ON ENGINEERING DRAWING WITH ITEM CODE WITH ALPHA SUFFIX "G" (i.e. V-41G)
- NO ASBESTOS MATERIALS SHALL BE USED.

REFERENCES

NIBCO - F637-31 OR CRANE #4651-DI OR EQUAL

COMMENTS

DIMENSION		"A" DIM. FACE TO FACE	DESIGN STANDARD
SIZE	2" 3" 4" 5" 6" 8" 10" 12" 14" 16" 18" 20" 24"		NIBCO F637-31 OR CRANE
A	7" 8" 9" 10" 10½" 11½" 13" 14" 15" 16" 17" 18" 20"		#4651-DI
B			
C			
SPEC. BY	VKS	APPR. BY	REV. 8
DATE		DATE	DATE 02-02-88

PIPING VALVE SPECIFICATIONS

ATTACHMENT IV
SPEC. 15052

TYPE	GLOBE VALVE	MATERIAL	DUCTILE IRON	ITEM CODE G-40
RATING	150# CLASS	SIZE RANGE	2" THRU 12"	
PRESS/TEMP.	150 PSIG @ -20°F THRU 225°F			
ABBR. DESCR.	GLOBE, 150# RT FLG, D.IRON, BRONZE TRIM, OS & Y-BB			

PURCHASE

ITEM - GLOBE VALVE, OS & Y-BB

RATING - 150# CLASS

END CONN. - 150# RAISED FACED FLANGED ANSI B16.5

PORT - CONVENTIONAL (REDUCED)

MATERIAL - BODY & BONNET: DUCTILE IRON, ASTM A395

TRIM: BRONZE, ASTM-B61

FEATURES: BOLTED BONNET, OS & Y, DISC GUIDE STEM,
GRAPHITE STEM PACKING, BACKSEATED.

NOTES

1. PRESSURE TEMPERATURE RATING PER ANSI B16.5.
2. THIS VALVE IS DESIGNED FOR STEAM, AND NON-SHOCK WATER, OIL AND GAS SERVICES WHERE THROTTLING OPERATION IS REQUIRED.
3. NO ASBESTOS MATERIALS SHALL BE USED.

REFERENCES

NIBCO - F738-31 OR CRANE - 351-DI

COMMENTS

DIMENSION

*VERIFY DIMENSIONS

"A" DIM. FACE TO FACE

SIZE	2"	2½"	3"	4"	5"	6"	8"	10"
A	8"	8½"	9½"	11½"	13"	14"	19½"	24½"
B								
C								

DESIGN STANDARD

NIBCO F738-31
OR CRANE 351-DI

SPEC. BY	APPR. BY	REV. 8
DATE	DATE	DATE 02-02-88

CRBBTX00561262

PIPING VALVE SPECIFICATIONS

 ATTACHMENT IV
 SPEC. 15052

TYPE	BUTTERFLY VALVE	MATERIAL	CARBON STEEL/316SS DISC	ITEM CODE Y-4L & Y-4LG
RATING	150# CLASS,	SIZE RANGE	4" THRU 36"	
PRESS/TEMP.	200 PSI @ -20°F THRU 400°F.			
ABBR. DESCR.	BUTTERFLY, 150# RF, CS BODY & 316SS DISC, S.S.SHAFT, LUG TYPE			

PURCHASE

ITEM - BUTTERFLY VALVE, HIGH PERFORMANCE.
 RATING - 150# CLASS
 END CONN. - LUG TYPE (FOR INSTALLATION BETWEEN TWO 150# RF ANSI B16.5 FLANGES) WITH TAPPED BOLT HOLES
 PORT - REGULAR
 MATERIAL - BODY: CARBON STEEL ASTM A-216 GR. WCB
 SHAFT: STAINLESS STEEL
 DISC: 316 STAINLESS STEEL
 SEATS & SEALS: TEFLON
 FEATURES: QUARTER TURN OPERATION, HIGH PERFORMANCE BUTTERFLY, TEFLON SEATS & SEALS, LEVER HANDLE THRU 6" VALVES, 8" AND LARGER VALVES TO HAVE ENCLOSED WORM GEAR OPERATOR WITH DISC POSITION INDICATOR

NOTES

1. VALVE IS LIMITED TO SERVICES BELOW 400°F.
2. MAY BE USED AS A DEAD END VALVE.
3. VALVE MUST MEET API 598 AND MSS SP-61 CRITERIA.
4. ON ENGINEERING DRAWINGS VALVES WITH GEAR OPERATORS SHALL BE CALLED OUT WITH ITEM CODE WITH ALPHA SUFFIX "G" (i.e. Y-2G).
5. FACE TO FACE TO BE IN ACCORDANCE WITH MSS-SP-67 THRU 24"

REFERENCES

POSI-SEAL - 132-12011-17-1-00 OR 6" & SMALLER - FLOW SEAL 1LA-121TTG-H SERIES "D"
 8" & LARGER - FLOW SEAL 1LA-121TTG-3 SERIES "D" & "E"

COMMENTS

ITEM CODE NUMBERS WITH THE FOLLOWING SUFFIXES ARE AS FOLLOWS:
 "G" GEAR OPERATED

DIMENSION							"C" DIM. FACE TO FACE		DESIGN STANDARD 
SIZE	4"	6"	8"	10"	12"	14"	16"		
C	2-1/8"	2 1/4"	2 1/2"	2-3/16"	3-13/16"	3-5/8"	4"		
SIZE	18"	20"	24"	30"	36"				
C	4 1/2"	5"	6-1/16"	6 1/2"	7"				
SPEC. BY VKS			APPR. BY			REV. 9			
DATE			DATE			DATE 03/30/88			

POSI - SEAL
 132-12011-17-1-00 OR
 6" & SMALLER - FLOW SEAL
 1LA-121TTG-H SERIES "D"
 8" & LARGER - FLOW SEAL
 1LA-121TTG-3 SERIES "D&E"

CRBBTX00561263

PIPING VALVE SPECIFICATIONS

ATTACHMENT IV
SPEC. 15052

TYPE	CHECK VALVE	MATERIAL	CARBON STEEL	ITEM CODE C-2
RATING	800# CLASS	SIZE RANGE	1-1/2" AND SMALLER	
PRESS/TEMP.	200 PSIG @ -20°F THRU 400°F			
ABBR. DESCR.	CHECK, 800# SW, UNION BONNET, CS BODY, 18Z CR. BALL, BALL CHECK TYPE			

PURCHASE

ITEM - CHECK VALVE, BALL CHECK TYPE

RATING - 800# CLASS SOCKET WELD

END CONN. - SOCKET WELD, ANSI B16.11

PORT - FULL

MATERIAL - BODY AND BONNET: CARBON STEEL ASTM A105
BALL: 18% CHROME STEEL
FEATURES: BALL CHECK WITH INTEGRAL SEAT, UNION BONNET, FLAT GASKET JOINT, SUITABLE FOR HORIZONTAL OR VERTICAL USE.

NOTES

1. SUITABLE FOR GENERAL SERVICE
2. SUITABLE FOR VERTICAL OR HORIZONTAL USE.

REFERENCES

VOGT FIG.# SW54853 OR APPROVED EQUAL

COMMENTS

D I M E N S I O N						DESIGN STANDARD VOGT # SW54853
'A' DIM. END TO END						
SIZE	1/2"	3/4"	1"	1-1/4"	1-1/2"	
A	3.38"	3.88"	5.31"	5.50"	5.62"	
B						
C						
SPEC. BY VKS		APPR. BY		REV. 8		
DATE		DATE		DATE 02-02-88		

PIPING VALVE SPECIFICATIONS

ATTACHMENT IV
SPEC. 15052

TYPE	GLOBE VALVE	MATERIAL	CARBON STEEL	ITEM CODE 9 G-14
RATING	600# CLASS	SIZE RANGE	3" THRU 8"	
PRESS/TEMP.	625# PSIG @ 500°F			
ABBR. DESCR.	GLOBE, 600# RF, FLGD, CS, 13% CR/STEL.TRIM			

PURCHASE

ITEM - GLOBE VALVE

RATING - 600# CLASS

END CONN. - 600# RAISED FACE FLANGED, ANSI B16.5

PORT - CONVENTIONAL

MATERIAL - BODY & BONNET: CAST STEEL, ASTM A-216-WBC
TRIM: 13% CHROME TO HARD FACING (STELLITE OR EQV.)
FEATURES: PLUG TYPE DISC., BOLTED BONNET, RISING STEM, RENEWABLE SEAT RING, OS&Y

NOTES

1. PRESSURE TEMPERATURE RATING PER ANSI B16.5
~~FLANGED FACED AND DRILLED PER ANSI B16.5~~
FACE TO FACE DIMENSIONS PER ANSI B16.10.
2. NO ASBESTOS MATERIALS SHALL BE USED.

REFERENCES

CRANE 171XU

COMMENTS

NON-ASB

<u>D I M E N S I O N</u>					"A" DIM. FACE TO FACE	DESIGN STANDARD VOGT 22493-MT
SIZE	3"	4"	6"	8"		
A	14"	17"	22"	26"		
B						
C						
SPEC. BY VKS		APPR. BY		REV.	9	
DATE		DATE		DATE	03-30-88	