



Foster Wheeler USA Corporation

Contract N.: 1310087902

Client: Valero Refining Company - Texas

Location: Texas City, Texas

Project: Valero Refinery Reconfiguration (TCRR)

Piping Material Specification			
Spec. No. : 10087902-SP-50-03			
Class : LG1			
Client Ref.	Rev. No.	Issue Date	Page
VALERO	3	03 Jun 02	1
Compared with:	2	28 Feb 02	

Appr. by: L.SMITH

Issued for : E  
Issued by: T.WILLIAMSON

Checked by:T.WILLIAMSON

**Service:**

DRINKING WATER, POTABLE WATER, 2" AND SMALLER INSTRUMENT AIR,  
(FOR BRANCH CONNECTIONS SEE ATTACHMENT "A" )

<b>Gaskets :</b> FLEXIBLE GRAPHITE ENCAPSULATED	<b>Rating/Facing :</b> CL125 FF	<b>Corrosion :</b> 0.000"	<b>Facing Finish :</b> ASME B16.5	<b>Block Valve Trim :</b> BRONZE	<b>Weld Quality Insp :</b> PER JOB SPEC -52A1	<b>Stress Relief :</b> NO
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**Materials :**

GALV. CARBON STEEL PIPING, CI & BRONZE  
VALVES (SEE GENERAL NOTES 1 THRU 12)

**Temp/Press Limits :**

155 PSIG AT 100F MAX. TEMP.

Item Name	Range		Det	Rev
Unique/Client* Code	from	to		
<b>GATE VALVE</b> 518GL0003	<b>1/2"</b>	<b>2"</b>	<b>GAT</b>	
Body Mat'l : BRONZE ASTM B62 UNS-C83600 Codes : MSS SP-80 Body constr. : THREADED BONNET <b>Rating : 125#</b> <b>Ends : THDD</b> Trim constr. : PLAIN SOLID WEDGE, INSIDE SCREW RISING STEM Trim Mat'l : BRONZE TRIM Gasket Mat'l : PER MANUFACTURER'S STANDARD. Packing : MANUFACTURER STANDARD PACKING . Note : GENERAL NOTES FOR VALVES: SEE JOB SPEC 59B9 Operator : HANDWHEEL				
<b>DRIVE VALVE</b> 518GL0003	<b>1/2"</b>	<b>2"</b>	<b>GAD</b>	
Body Mat'l : BRONZE ASTM B62 UNS-C83600 Codes : MSS SP-80 Body constr. : THREADED BONNET <b>Rating : 125#</b> <b>Ends : THDD</b> Trim constr. : PLAIN SOLID WEDGE, INSIDE SCREW RISING STEM Trim Mat'l : BRONZE TRIM Gasket Mat'l : PER MANUFACTURER'S STANDARD. Packing : MANUFACTURER STANDARD PACKING . Note : GENERAL NOTES FOR VALVES: SEE JOB SPEC 59B9 Operator : HANDWHEEL				

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**GATE V. FLG.**      2"      2"      **GAF**  
518GL0004

Body Mat'l : CAST IRON ASTM A126 CL.B  
 Codes : MSS SP-70  
 Body constr. : BOLTED BONNET  
**Rating : 125#**  
**Ends : FF**  
 Face finish : MSS SP-6  
 Trim constr. : PLAIN OR FLEXIBLE SOLID WEDGE, O.S.& Y.  
 Trim Mat'l : BRONZE TRIM  
 Bolt Mat'l : BODY BOLTING AND GLAND BOLTING PER MANUFACTURER'S STANDARD  
 Gasket Mat'l : PER MANUFACTURER'S STANDARD.  
 Packing : MANUFACTURER STANDARD PACKING .  
 Note : GENERAL NOTES FOR VALVES: SEE JOB SPEC 59B9  
 Operator : HANDWHEEL

**GLOBE VALVE**      1/2"      2"      **GLO**  
518DL0001

Body Mat'l : BRONZE ASTM B62 UNS-C83600  
 Codes : MSS SP-80  
 Body constr. : THREADED BONNET  
**Rating : 125#**  
**Ends : THDD**  
 Trim constr. : LOOSE DISC, INSIDE SCREW RISING STEM  
 Trim Mat'l : BRONZE TRIM  
 Gasket Mat'l : PER MANUFACTURER'S STANDARD.  
 Operator : HANDWHEEL

**CHECK VALVE**      1/2"      2"      **CHE**  
518CL0001

Body Mat'l : BRONZE ASTM B62 UNS-C83600  
 Codes : MSS SP-80  
 Body constr. : SCREWED CAP  
**Rating : 125#**  
**Ends : THDD**  
 Trim constr. : SWING TYPE, HORIZONTAL & VERTICAL INSTALLATION  
 Trim Mat'l : BRONZE TRIM  
 Note : GENERAL NOTES FOR VALVES: SEE JOB SPEC 59B9

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**BALL VALVE**      1/2"      2"      **BAL**  
 518BL0001

Body Mat'l : BRONZE ASTM B62 UNS-C83600  
 Codes : MSS SP-80  
 Body constr. : REDUCED BORE  
**Rating : 125#**  
**Ends : THDD**  
 Trim constr. : FLOATING BALL  
 Trim Mat'l : BRONZE BALL & STEM, BUNA-N SEAT & SEAL  
 Packing : MANUFACTURER STANDARD PACKING .  
 Operator : LEVER

**PIPE A/G**      1/2"      2"      **SCH. XS**      **PIP**  
 541SJ0001

Material : C.S. ASTM A53 GR.B GALVANIZED IN ACCORDANCE TO ASTM A53  
 Manufact. : SMLS  
 Codes : ASME B36.10  
 Note : PIPE SHALL COMPLY WITH JOB SPEC 52A2  
**Ends : THREADED AND COUPLED 3000 LBS (NPT PER ASME/ANSI B1.20.1)**

**NIPPLES**      1/2"      2"      **SCH. 160**      **NIP**  
 551NG0001

Material : C.S. ASTM A53 GR. B GALVANIZED IN ACCORDANCE TO ASTM A53  
 Codes : ASME B36.10  
 Note : FITTINGS SHALL COMPLY WITH JOB SPEC 52A2  
**Ends : T.B.E.**

**FLANGE**      1/2"      2"      **FLG**  
 561TA0001

Type : THDD  
 Material : ASTM A105 GALV.IN ACCORDANCE TO ASTM A53  
 Codes : ASME B16.5  
**Rating : 150#**  
**Ends : FF**  
 Note : FLANGES SHALL COMPLY WITH JOB SPECS 50A2 AND 52A2

**BLIND FLANGE**      1/2"      2"      **FBL**  
 561BA0001

Material : ASTM A105 GALV.IN ACCORDANCE TO ASTM A53  
 Codes : ASME B16.5  
**Rating : 150#**  
**Ends : FF**  
 Note : FLANGES SHALL COMPLY WITH JOB SPECS 50A2 AND 52A2

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Continue....



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**ORIFICE FLG**      2"      2"      **SCH. XS**      **FTR**  
561CA0001

Material : ASTM A105 GALV.IN ACCORDANCE TO ASTM A53  
 Component : ORIFICE FLANGE SET, THREADED TYPE  
 Codes : ASME B16.36  
**Rating : 300#**  
**Ends : FF**  
 Hole Tape : N.2 HOLES 180 DEGREES 1/2" THDD & PLUG  
 Note : WITHOUT BOLTS AND GASKETS. FLANGES SHALL COMPLY WITH JOB SPECS 50A2, 52A2, AND 57B12 (JACK SCREWS).

**ORIFICE FLG**      2"      2"      **SCH. XS**      **FTRI**  
561CA0002

Material : ASTM A105 GALV.IN ACCORDANCE TO ASTM A53  
 Component : ORIFICE FLANGE SET, THREADED TYPE  
 Codes : ASME B16.36  
**Rating : 300#**  
**Ends : FF**  
 Hole Tape : N.4 HOLES 90 DEGREES 1/2" THDD & PLUG  
 Note : USE ONLY FOR SPECIAL INSTR. CONNECTIONS. WITHOUT BOLTS AND GASKETS. FLANGES SHALL COMPLY WITH JOB SPECS 50A2, 52A2, AND 57B12 (JACK SCREWS).

**90 ELBOW**      1/2"      2"      **90E**  
551HA0002

Material : C.S. ASTM A105 GALVANIZED IN ACCORDANCE TO ASTM A53  
 Component : 90 DEGREES ELBOWS  
 Codes : ASME B16.11  
**Rating : 3000#**  
**Ends : THDD**  
 Note : FITTINGS SHALL COMPLY WITH JOB SPEC 52A2

**45 ELBOW**      1/2"      2"      **45E**  
551HA0003

Material : C.S. ASTM A105 GALVANIZED IN ACCORDANCE TO ASTM A53  
 Component : 45 DEGREES ELBOWS  
 Codes : ASME B16.11  
**Rating : 3000#**  
**Ends : THDD**  
 Note : FITTINGS SHALL COMPLY WITH JOB SPEC 52A2

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**CONC.SWAGE**      1/2"      2"      **SCH. XS**      **CSB**  
551SG0001

Material : C.S. ASTM A53 GR. B GALVANIZED IN ACCORDANCE TO ASTM A53  
Component : CONCENTRIC SWAGE  
Codes : MANUFACTURED TO ASTM A234  
Manufact. : SMLS  
Note : FITTINGS SHALL COMPLY WITH JOB SPEC 52A2  
Ends : **T.B.E.**

**ECC.SWAGE**      1/2"      2"      **SCH. XS**      **ESB**  
551SG0002

Material : C.S. ASTM A53 GR. B GALVANIZED IN ACCORDANCE TO ASTM A53  
Component : ECCENTRIC SWAGE  
Codes : MANUFACTURED TO ASTM A234  
Manufact. : SMLS  
Note : FITTINGS SHALL COMPLY WITH JOB SPEC 52A2  
Ends : **T.B.E.**

**FULL CPLG.**      1/2"      2"      **CPL**  
551HA0007

Material : C.S. ASTM A105 GALVANIZED IN ACCORDANCE TO ASTM A53  
Component : FULL COUPLING  
Codes : ASME B16.11  
Rating : **3000#**  
Ends : **THDD**  
Note : FITTINGS SHALL COMPLY WITH JOB SPEC 52A2

**UNION**      1/2"      2"      **GRO**  
551HA0001

Material : C.S. ASTM A105 GALVANIZED IN ACCORDANCE TO ASTM A53  
Component : UNION, GROUND JOINT, INTEGRAL CS SEATS  
Codes : MSS SP83  
Rating : **3000#**  
Ends : **THDD**  
Note : FITTINGS SHALL COMPLY WITH JOB SPEC 52A2

**FIGURE 8**      1/2"      2"      **F8F**  
561Fa0001

Material : ASTM A515 Gr 70 GALVANIZED  
Codes : ASME B16.48  
Rating : **150#**  
Ends : **FF**  
Face finish : ASME B16.5  
Note : FLANGES SHALL COMPLY WITH JOB SPECS 50A2 AND 52A2

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<b>STUD BOLTS</b> 572SC0002	1/2"	4"	<b>STU</b>
<p>Material : ASTM A193 GR.B7 / WITH (2) HEAVY HEX NUTS ASTM A194 GR.2H          Thr'd Code : ANSI B18.2.1 &amp; B18.2.2          Note : BOLTING SHALL COMPLY WITH JOB SPEC 52A3</p>			

<b>GASKET</b> 574Cy0004	1/2"	<u>2"</u>	<b>GAS1</b> [*]
<p>Material : FLEXIBLE GRAPHITE ENCAPSULATED GASKET. CORR-A-SEAL / GRAPHONICS          Codes : DIMENSIONS PER ASME B16.21          Thickness : 1.6 MM (1/16")          Rating : <b>300#</b>          Note : GASKETS SHALL COMPLY WITH JOB SPEC 52A3          Ends : <b>FF</b></p>			

<b>GASKET FF</b> 574Cy0001	1/2"	<u>2"</u>	<b>GASFF</b> [*]
<p>Material : FLEXIBLE GRAPHITE ENCAPSULATED GASKET. CORR-A-SEAL / GRAPHONICS          Codes : DIMENSIONS PER ASME B16.21          Thickness : 1.6 MM (1/16")          Rating : <b>150#</b>          Note : GASKETS SHALL COMPLY WITH JOB SPEC 52A3          Ends : <b>FF</b></p>			

**General Notes:**

- 1.) Use Union Or Coupling To Join Pipe. Flanged Joint To Be Used Only Where Indicated On EFD'S.
- 2.) Couplings Shall Not Be Used For Branch Connections Use Inline Only.
- 3.) Use Flat Face Valve, Flange & Full Face Gasket To Mate With Flat Face Nozzles Only.
- 4.) Flanges Shall Not Be Insulated.
- 5.) For Instrument Air NPS 3" & Larger See Spec 'AA2A'.
- 6.) Temperature Instrument Connection Shall Be NPS 1-1/2" Flanged.
- 7.) Pressure Instrument Connection Shall Be NPS 3/4" Socket-weld.
- 8.) In Sizes Above NPS 24", Flanges In Accord With ASME B16.47 Series B (API-605) Preferred. Where Required To Match Equipment Or Wafer Style Valves, Flanges Per ASME B16.47 SERIES A (MSS-SP44) May Be Used.
- 9.) Branch Connections Should Follow The Guidelines Of Job Spec 52B2 And The Attachment Unless Specifically Overriden By The Pipe Stress Engineer.
- 10.) CORR-A-SEAL / GRAPHONICS Gaskets Shall Be Used For Flat Face Flanges.

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11.) Concentric & Eccentric Reducers Are Limited To 2 Nominal Diameter Size Reductions Without Piping Engineer Approval.

12.) Remove Temporary Strainers After Flushing.

END OF DOCUMENT

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ATTACHMENT "A"

REINFORCEMENT CHART																			
APPLICABLE TO PIPE SPECIFICATION (S) : LG1																			
MATERIAL (S) : CARBON STEEL, ASTM A53 GR.B GALV. IN ACCORDANCE TO ASTM A53										P/SE :					C.A. : NONE				
DESIGN LIMIT (S) : 150 PSIG AT 150F MAX. TEMP.																			
NOM. SIZE	NOM. THICK.	NOMINAL SIZE OF BRANCH CONNECTION (INCHES)																	
		1/2	3/4	1	1 1/2	2													
1/2	XS	T																	
3/4	XS	RT	T																
1	XS	RT	RT	T															
1 1/2	XS	RE	RT	RT	T														
2	XS	RE	RE	RT	RT	T													

**NOTE :** FOR FABRICATION DETAILS AND CALCULATED WALL  
 SEE ENGINEERING STANDARD 52B2

**LEGEND :**

- T = TEE
- RT = REDUCING TEE
- RE = TEE AND REDUCER OR REDUCING INSERT
- SK = SOCKOLET, SW ELBOLET OR LATROLET
- TH = THREDOLET, THD ELBOLET OR LATROLET
- W = WELDOLET, BW ELBOLET OR LATROLET
- LW = LONG WELD NECK FLANGE
- TB = TEE AND BUSHING
- CA = CALCULATE
- F1 = STUB IN WITH 3/8" FILLET WELD
- P2 = STUB IN WITH 2" WIDE PAD (PAD TO BE SAME THICKNESS AS RUN SIZE)
- P3 = STUB IN WITH 3" WIDE PAD (PAD TO BE SAME THICKNESS AS RUN SIZE)
- P4 = STUB IN WITH 4" WIDE PAD (PAD TO BE SAME THICKNESS AS RUN SIZE)
- P5 = STUB IN WITH 5" WIDE PAD (PAD TO BE SAME THICKNESS AS RUN SIZE)
- P6 = STUB IN WITH 6" WIDE PAD (PAD TO BE SAME THICKNESS AS RUN SIZE)
- P7 = STUB IN WITH 7" WIDE PAD (PAD TO BE SAME THICKNESS AS RUN SIZE)

**NOTE :** ANY SITUATION NOT COVERED BY THE ABOVE CHART SHOULD BE BROUGHT TO THE ATTENTION OF THE ASSIGNED PIPING ENGINEER.