



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 : K1U			
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 Checked by:T.WILLIAMSON  
 Issued by: T.WILLIAMSON

**Service:**

OILY WATER, STORM SEWER (UNDERGROUND PIPING). COATED AND WRAPPED PER JOB SPEC -83A4.  
 (FOR BRANCH CONNECTIONS SEE ATTACHMENT "A" )

<b>Gaskets :</b> FLEXIBLE GRAPHITE ENCAPSULATED	<b>Rating/Facing :</b> CL150 FF	<b>Corrosion :</b> 0.063" (1.5MM)	<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
<b>Materials :</b> CARBON STEEL PIPING (SEE GENERAL NOTES 1 THRU 4)			<b>Temp/Press Limits :</b> 150 PSIG AT 100F ; 150 PSIG AT 160F TEMP.			

Item Name	Range			Det	Rev
Unique/Client* Code	from	to			
<b>GATE VALVE</b> 518GL0004	4"	12"		<b>GAT</b>	
Body Mat'l : CAST IRON ASTM A126 CL.B Codes : MSS SP-70 Body constr. : BOLTED BONNET <b>Rating : 125#</b> <b>Ends : FF</b> 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					
<b>PIPE U/G</b> 581WK0001	3"	24"	<b>SCH. STD</b>	<b>PIUG</b>	
Material : C.S. ASTM A53 GR.B Manufact. : E.R.W. Coating : EXT.COATED & WRAPPED PER JOB.SPEC. 83A4 Codes : ASME B36.10 Note : PIPE SHALL COMPLY WITH JOB SPEC 52A2 <b>Ends : B.E.</b>					

\* Client codes only, not including sizes



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 : K1U			
Client Ref.	Rev. No.	Issue Date	Page
VALERO	3	03 Jun 02	2
Compared with:	2	28 Feb 02	

<b>PIPE U/G</b> 581WA0001	<b>30"</b>	<b>36"</b>	<b>SCH. STD</b>	<b>PIPUG</b>
Material : C.S. API 5L GR.B Manufact. : E.R.W. Coating : EXT.COATED & WRAPPED PER JOB.SPEC. 83A4 Codes : ASME B36.10 Note : PIPE SHALL COMPLY WITH JOB SPEC 52A2 Ends : <b>B.E.</b>				

<b>FLANGE</b> 581PB0001	<b>3"</b>	<b>24"</b>	<b>SCH. STD</b>	<b>FLG</b>
Type : W.N. Material : ASTM A105 Codes : ASME B16.5 Rating : <b>150#</b> Ends : <b>FF</b> Note : FLANGES SHALL COMPLY WITH JOB SPECS 50A2 AND 52A2				

<b>FLANGE W.N.</b> 581PB0003	<b>30"</b>	<b>36"</b>	<b>SCH. STD</b>	<b>FWN7A</b>
Type : W.N. Material : ASTM A105 Codes : ASME B16.47 "A" ( EX MSS-SP44 ) Rating : <b>150#</b> Ends : <b>FF</b> Note : FLANGES SHALL COMPLY WITH JOB SPECS 50A2 AND 52A2				

<b>FLANGE W.N.</b> 581PB0002	<b>30"</b>	<b>36"</b>	<b>SCH. STD</b>	<b>FWN7B</b>
Type : W.N. Material : ASTM A105 Codes : ASME B16.47 "B" ( EX API-605 ) Rating : <b>150#</b> Ends : <b>FF</b> Note : FLANGES SHALL COMPLY WITH JOB SPECS 50A2 AND 52A2				

<b><u>FLANGE W.N.</u></b> <u>581PB0006</u>	<b><u>3"</u></b>	<b><u>24"</u></b>	<b><u>SCH. STD</u></b>	<b><u>FWN</u></b> [*]
Type : W.N. Material : ASTM A105 Codes : ASME B16.5 Rating : <b>150#</b> Ends : <b>RF</b> Note : FLANGES SHALL COMPLY WITH JOB SPECS 50A2 AND 52A2				

\* Client codes only, not including sizes

Continue....



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 : K1U			
Client Ref.	Rev. No.	Issue Date	Page
VALERO	3	03 Jun 02	3
Compared with:	2	28 Feb 02	

**BLIND FLANGE**      3"      24"      **FBL**  
 581DB0004

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

**BLIND F.47/A**      30"      36"      **FBL7A**  
 581DB0005

Material : ASTM A105  
 Codes : ASME B16.47 "A" ( EX MSS-SP44 )  
**Rating : 150#**  
**Ends : FF**  
 Note : FLANGES SHALL COMPLY WITH JOB SPECS 50A2 AND 52A2

**BLIND F.47/B**      30"      36"      **FBL7B**  
 581DB0002

Material : ASTM A105  
 Codes : ASME B16.47 "B" ( EX API-605 )  
**Rating : 150#**  
**Ends : FF**  
 Note : FLANGES SHALL COMPLY WITH JOB SPECS 50A2 AND 52A2

**90 ELBOW**      3"      24"      **SCH. STD**      **90E**  
 581GF0003

Material : C.S. ASTM A234 WPB  
 Coating : EXT.COATED & WRAPPED PER JOB.SPEC. 83A4  
 Component : 90 DEGREES LONG RADIUS  
 Codes : ASME B16.9  
 Manufact. : SMLS  
**Ends : B.W.**  
 Note : FITTINGS SHALL COMPLY WITH JOB SPEC 52A2

**90 ELBOW**      30"      36"      **SCH. STD**      **90E**  
 581GF0004

Material : C.S. ASTM A234 WPB  
 Coating : EXT.COATED & WRAPPED PER JOB.SPEC. 83A4  
 Component : 90 DEGREES LONG RADIUS  
 Codes : ASME B16.9  
 Manufact. : WELDED  
**Ends : B.W.**  
 Note : FITTINGS SHALL COMPLY WITH JOB SPEC 52A2

\* Client codes only, not including sizes



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 : K1U			
Client Ref.	Rev. No.	Issue Date	Page
VALERO	3	03 Jun 02	4
Compared with:	2	28 Feb 02	

**180 S.R. RTN**      3"      24"      **SCH. STD**      **180R**  
581GF0013

Material : C.S. ASTM A234 WPB  
Coating : EXT.COATED & WRAPPED PER JOB.SPEC. 83A4  
Component : 180 SHORT RADIUS RETURN  
Codes : ASME B16.28  
Manufact. : SMLS  
Ends : **B.W.**  
Note : FITTINGS SHALL COMPLY WITH JOB SPEC 52A2

**90 S.R.ELBOW**      3"      24"      **SCH. STD**      **90R**  
581GF0001

Material : C.S. ASTM A234 WPB  
Coating : EXT.COATED & WRAPPED PER JOB.SPEC. 83A4  
Component : 90 DEGREES SHORT RADIUS  
Codes : ASME B16.9  
Manufact. : SMLS  
Ends : **B.W.**  
Note : FITTINGS SHALL COMPLY WITH JOB SPEC 52A2

**90 S.R.ELBOW**      30"      36"      **SCH. STD**      **90R**  
581GF0002

Material : C.S. ASTM A234 WPB  
Coating : EXT.COATED & WRAPPED PER JOB.SPEC. 83A4  
Component : 90 DEGREES SHORT RADIUS  
Codes : ASME B16.9  
Manufact. : WELDED  
Ends : **B.W.**  
Note : FITTINGS SHALL COMPLY WITH JOB SPEC 52A2

**45 ELBOW**      3"      24"      **SCH. STD**      **45E**  
581GF0005

Material : C.S. ASTM A234 WPB  
Coating : EXT.COATED & WRAPPED PER JOB.SPEC. 83A4  
Component : 45 DEGREES LONG RADIUS  
Codes : ASME B16.9  
Manufact. : SMLS  
Ends : **B.W.**  
Note : FITTINGS SHALL COMPLY WITH JOB SPEC 52A2

\* Client codes only, not including sizes













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 : K1U			
Client Ref.	Rev. No.	Issue Date	Page
VALERO	3	03 Jun 02	9
Compared with:	2	28 Feb 02	

<b><u>GASKET</u></b>	<b><u>1/2"</u></b>	<b><u>24"</u></b>	<b>GAS</b>	[*]
<i>574SA0001</i>				
Material : SPIRAL WOUND SS.304/GRAPHITE				
Codes : DIMENSIONS PER ASME B16.20				
Thickness : 3.2 MM (1/8")				
Rating : <b>150#</b>				
Ring Out/In : 3.2 MM (1/8") THK. OUTER C.S. RING				
Note : GASKETS SHALL COMPLY WITH JOB SPEC 52A3. GASKETS TO BE SUPPLIED W/O TAPE, STRING OR OTHER WRAPPING AROUND SPIRAL WINDING.				
Ends : <b>RF</b>				

<b>GASKET FF</b>	<b>1/2"</b>	<b>24"</b>	<b>GASFF</b>	
<i>574Cy0001</i>				
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>				

**General Notes:**

- 1.) 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.
- 2.) Branch Connections Should Follow The Guidelines Of Job Spec 52B2 And The Attachment Unless Specifically Overriden By The Pipe Stress Engineer.
- 3.) CORR-A-SEAL / GRAPHONICS Gaskets Shall Be Used For Flat Face Flanges.
- 4.) Concentric & Eccentric Reducers Are Limited To 2 Nominal Diameter Size Reductions Without Piping Engineer Approval.
- 5.) Items "FWN", "STS", And "GAS" To Be Use At Valve Box With RF Flanges.

END OF DOCUMENT

\* Client codes only, not including sizes



Foster Wheeler USA Corporation

**Piping Material Specification**

**Spec. No.: 10087902-SP-50-03**

**Class: K1U**

Contract #: 1310087902  
 Client: Valero Refining Company - Texas  
 Location: Texas City, Texas  
 Project: Valero Refinery Reconfiguration (TCRR)

Client Ref. VALERO	Rev. No. 3	Issue Date 3-Jun-02	Page 1
Compared with:			

**ATTACHMENT "A"**

REINFORCEMENT CHART																			
APPLICABLE TO PIPE SPECIFICATION (S) : K1U																			
MATERIAL (S) : CARBON STEEL, ERW, ASTM A53 GR. B												P/SE :		C.A. : 0.063"					
CARBON STEEL, ERW, API 5L GR B																			
DESIGN LIMIT (S) : 285 PSIG AT 100F; 272.5 PSIG AT 150F																			
NOM. SIZE	NOM. THICK.	NOMINAL SIZE OF BRANCH CONNECTION (INCHES)																	
		1/2	3/4	1	1 1/2	2	3	4	6	8	10	12	14	16	18	20	24	30/36	
1/2	STD																		
3/4	STD																		
1	STD																		
1 1/2	STD																		
2	STD																		
3	STD																		
4	STD																		
6	STD																		
8	STD																		
10	STD																		
12	STD																		
14	STD																		
16	STD																		
18	STD																		
20	STD																		
24	STD																		
30/36	STD																		

**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.