

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: LF1U

 Client Ref.
 Rev. No.
 Issue Date
 Page

 VALERO
 1
 03 Jun 02
 1

 Compared with:
 0
 28 Feb 02

Appr. by:	: L.SMITH			Issued for: E Checked by:T.WILLIAMSON Issued by: T.WILLIAMSON								
Service: FIRE WATER (UND (FOR BRANCH CO	DERGROUNI	,	•	,								
Gaskets: SPIRAL WOUND GRAPHITE / S.S.304	Rating/F CL150 R	-	Corrosion 0.063" (1.5MM)	Facing Finish: ASME B16.5 Block Valve Trim: API TRIM No. 8	Weld Quality Insp : PER JOB SPEC -52A1	Stress Relief : NO						
<b>Materials</b> : CARBON STEEL P GENERAL NOTES		LVES (S	<u> </u> EE	Temp/Press Limits 150 PSIG AT -20F TO								
tem Name Jnique/Client* Code	Ra from	nge to		<u>1</u>		Det						
GATE-PIV 518GAAAAC	<u>4"</u>	<u>18"</u>				GAPI1						
			Codes: Body constr.: Rating: Ends: Trim constr.: Trim Mat'l: Bolt Mat'l: Gasket Mat'l: Packing: Note: Operator:	FF RESILIENT WEDGE, NC BRONZE TRIM BODY BOLTING AND GI PER MANUFACTURER'S GRAPHITE PACKING . GENERAL NOTES FOR	ON-RISING STEM, O.S. & Y. LAND BOLTING PER MANUFA	39						



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: LF1U

 Client Ref.
 Rev. No.
 Issue Date
 Page

 VALERO
 1
 03 Jun 02
 2

 Compared with:
 0
 28 Feb 02

GATE-PIV 518GAAAAD	<u>4"</u>	<u>18"</u>	GAPIZ	2 [*]
			Body Mat'l: DUCTILE IRON ASTM A395 Codes: MSS SP-70 Body constr.: BOLTED BONNET Rating: 150# Ends: FF  Trim constr.: RESILIENT WEDGE, NON-RISING STEM, 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: GRAPHITE PACKING. Note: GENERAL NOTES FOR VALVES: SEE JOB SPEC 59B9 Operator: W/INDICATOR POST. (4'-6" - DISTANCE FROM GRADE TO CENTER LINE OF VALVE.)	[*] [*] [*] [*] [*] [*] [*] [*] [*] [*]
GATE-PIV 518GAAAAE	<u>4"</u>	<u>18"</u>	GAPIS	³ [*]
			Body Matil: DUCTILE IRON ASTM A395 Codes: MSS SP-70 Body constr.: BOLTED BONNET Rating: 150# Ends: FF  Trim constr.: RESILIENT WEDGE, NON-RISING STEM, O.S. & Y. Trim Matil: BRONZE TRIM Bolt Matil: BODY BOLTING AND GLAND BOLTING PER MANUFACTURER'S STANDARD  Gasket Matil: PER MANUFACTURER'S STANDARD. Packing: GRAPHITE PACKING. Note: GENERAL NOTES FOR VALVES: SEE JOB SPEC 59B9  Operator: W/INDICATOR POST. (5'-6" - DISTANCE FROM GRADE TO CENTER LINE OF VALVE.)	[*] [*] [*] [*] [*] [*] [*] [*] [*] [*]
GATE VALVE 518GA0006	4"	18"	GAT	[*]
			Body Matil: DUCTILE IRON ASTM A395 Codes: MSS SP-70 Body constr.: BOLTED BONNET Rating: 150# Ends: FF Trim constr.: RESILIENT WEDGE, NON-RISING STEM, O.S. & Y. Trim Matil: BRONZE TRIM Bolt Matil: BODY BOLTING AND GLAND BOLTING PER MANUFACTURER'S STANDARD Gasket Matil: PER MANUFACTURER'S STANDARD. Packing: GRAPHITE PACKING. Note: GENERAL NOTES FOR VALVES: SEE JOB SPEC 59B9 Operator: 2" SQ. OPERATING AWWA NUT(CLOCK WISE TO CLOSE), W/ OPERATING WRENCH 5 FT. LONG.	[*]

<sup>\*</sup> Client codes only, not including sizes



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: LF1U

 Client Ref.
 Rev. No.
 Issue Date
 Page

 VALERO
 1
 03 Jun 02
 3

 Compared with:
 0
 28 Feb 02

BALL VALVE 1/2" 2" BAL

512BD0003

Body Mat'l: ASTM A105 OR ASTM A216 GR.WCB.

Codes: ASME B16.34 / API 607

Body constr. : FULL BORE Rating : 600# Ends : S.W.

Trim constr.: FLOATING BALL, FIRESAFE DESIGN, ANTISTATIC DEVICE, ANTI-BLOW

**OUT STEM** 

Trim Mat'l: CARBON STEEL CR-PLATED BALL & SS STEM, PTFE SEATS AND SEALS,

PTFE STEM SEALS.

Packing: GRAPHITE PACKING.

Note: GENERAL NOTES FOR VALVES: SEE JOB SPEC 59B9

Operator : LEVER

PIPE U/G 1/2" 2" SCH. XS PIUFW

581WG0003

Material: KILLED C.S. ASTM A106 GR.B

Manufact. : SMLS

Coating: EXT.COATED & WRAPPED PER JOB.SPEC. 83A4

Codes: ASME B36.10

Note: PIPE SHALL COMPLY WITH JOB SPEC 52A2

Ends : P.E.

PIPE U/G 4" 24" SCH. STD PIUFW

581WG0002

Material: KILLED C.S. ASTM A106 GR.B

Manufact. : SMLS

Coating: EXT.COATED & WRAPPED PER JOB.SPEC. 83A4

Codes: ASME B36.10

Note: PIPE SHALL COMPLY WITH JOB SPEC 52A2

Ends : **B.E.** 

NIPPLES 1/2" 2" SCH. 160 NIP

551NC0001

Material: C.S. ASTM A106 GR.B

Codes: ASME B36.10

Note: FITTINGS SHALL COMPLY WITH JOB SPEC 52A2

Ends: T.O.E.

<sup>\*</sup> Client codes only, not including sizes



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: LF1U

 Client Ref.
 Rev. No.
 Issue Date
 Page

 VALERO
 1
 03 Jun 02
 4

 Compared with:
 0
 28 Feb 02

<b>FLANGE</b> 581PB0001	4"	24"	SCH. STD	FLG	[
			Type: W.N.  Material: ASTM A105  Codes: ASME B16.5  Rating: 150#		F
			Ends: FF Note: FLANGES SHALL COMPLY WITH JOB SPECS 50A2 AND 52A2		[*
FLANGE W.N. 581PB0006	<u>3"</u>	<u>24"</u>	SCH. STD	FWN	1 [
			Type : W.N.		[*
			Material : ASTM A105		[*
			Codes : ASME B16.5  Rating : <b>150#</b>		[* [*
			Ends: RF		[*
			Note: FLANGES SHALL COMPLY WITH JOB SPECS 50A2 AND 52A2		[,
BLIND FLANGE 581DB0004	4"	24"		FBL	]
			Material : ASTM A105		
			Codes : ASME B16.5		
			Rating: 150# Ends: FF		[*
			Note: FLANGES SHALL COMPLY WITH JOB SPECS 50A2 AND 52A2		
90 ELBOW	1/2"	2"		90E	<u> </u>
551HBAAAB	1/2	2		30L	•
			Material : C.S. ASTM A105		
			Component : 90 DEGREES ELBOWS  Codes : ASME B16.11		
			Rating: 3000#		
			Ends: S.W.		
			Note: FITTING SHALL COMPLY WITH JOB SPEC 52A2 AND EXT.COATED & WRAPPED PER JOB SPEC. 83A4.		
<b>90 ELBOW</b> 581GF0003	4"	24"	SCH. STD	90E	
			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		
			NOTE. THE HINDS OF INCLE CONTINUES WITH JOB OF LO JAMA		1

<sup>\*</sup> Client codes only, not including sizes



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: LF1U

 Client Ref.
 Rev. No.
 Issue Date
 Page

 VALERO
 1
 03 Jun 02
 5

 Compared with:
 0
 28 Feb 02

45
CAI
ROI

<sup>\*</sup> Client codes only, not including sizes



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: LF1U

 Client Ref.
 Rev. No.
 Issue Date
 Page

 VALERO
 1
 03 Jun 02
 6

 Compared with:
 0
 28 Feb 02

<b>CONC. RED.</b> 581RF0003	4"	24"	SCH. STD	CRE
			Material: C.S. ASTM A234 WPB	
			Coating: EXT.COATED & WRAPPED PER JOB.SPEC. 83A4	
			Component : CONCENTRIC REDUCER	
			Codes : ASME B16.9	
			Manufact.: SMLS Ends: B.W.	
			Note: FITTINGS SHALL COMPLY WITH JOB SPEC 52A2	
			Note: THE INOC STALL CONT. L. WITH 30D ST LO 32A2	
ECC.RED.	4"	24"	SCH. STD	ERE
581RF0005				
			Material : C.S. ASTM A234 WPB	
			Coating: EXT.COATED & WRAPPED PER JOB.SPEC. 83A4	
			Component : ECCENTRIC REDUCER	
			Codes: ASME B16.9	
			Manufact. : SMLS	
			Ends: B.W.	
			Note: FITTINGS SHALL COMPLY WITH JOB SPEC 52A2	
TEE	4"	24"	SCH. STD	TEE
581GF0009				
			Material: C.S. ASTM A234 WPB	
			Coating: EXT.COATED & WRAPPED PER JOB.SPEC. 83A4	
			Component : TEE	
			Codes: ASME B16.9	
			Manufact: :SMLS	
			Ends: B.W.	
			Note: FITTINGS SHALL COMPLY WITH JOB SPEC 52A2	
RED.TEE	4"	24"	SCH. STD	TER
581RF0007				
			Material: C.S. ASTM A234 WPB	
			Coating: EXT.COATED & WRAPPED PER JOB.SPEC. 83A4	
			Component : REDUCER TEE	
			Codes : ASME B16.9	
			Manufact. :SMLS	
			Ends: B.W.	

Note: FITTINGS SHALL COMPLY WITH JOB SPEC 52A2

<sup>\*</sup> Client codes only, not including sizes



Contract N.: 1310087902

Valero Refining Company - Texas Client:

Location: **Texas City, Texas** 

Valero Refinery Reconfiguration (TCRR) Project:

Piping Material Specification Spec. No. : 10087902-SP-50-03 Class : LF1U									
Client Ref.	Rev. No.	Issue Date	Page						
VALERO	VALERO 1 03 Jun 02 7								
Compared with:	0	28 Feb 02							

WELDOLET 581HB0001	4"	14"	SCH. STD	WOL	
			Material: C.S. ASTM A105 Component: WELDOLET Codes: MSS SP97 Ends: B.W. Note: FITTINGS SHALL COMPLY WITH JOB SPEC 52A2		
STUD BOLTS 572Sf0001	1/2"	4"		STU	
			Material: ASTM A193 GR.B7 / WITH (2) HEAVY HEX NUTS ASTM A194 GR.2H, ST & NUTS TO BE TEFLON COATED PER XYLAN 1424.  Thr'd Code: ANSI B18.2.1 & B18.2.2  Note: BOLTING SHALL COMPLY WITH JOB SPEC 52A3	TUDS	
<u>STUD BOLTS</u> <u>572SC0002</u>	<u>1/2"</u>	<u>4"</u>		STS	[
			Material: ASTM A193 GR.B7 / WITH (2) HEAVY HEX NUTS ASTM A194 GR.2H Thr'd Code: ANSI B18.2.1 & B18.2.2 Note: BOLTING SHALL COMPLY WITH JOB SPEC 52A3		[* [*
GASKET 574SA0001	1/2"	24"		GAS	
			Material: SPIRAL WOUND SS.304/GRAPHITE Codes: DIMENSIONS PER ASME B16.20 Thickness: 3.2 MM (1/8") Rating: 150# 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: RF		
GASKET FF 574Cy0001	1/2"	24"		GASFF	
			Material: FLEXIBLE GRAPHITE ENCAPSULATED GASKET. CORR-A-SEAL / GRAPHONICS  Codes: DIMENSIONS PER ASME B16.21  Thickness: 1.6 MM (1/16")  Rating: 150#  Note: GASKETS SHALL COMPLY WITH JOB SPEC 52A3  Ends: FF		

## **General Notes:**

1.) Gear Operated Valves Shall Be Used When Indicated On The EFD'S.  $^{\star}$  Client codes only, not including sizes



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 : LF1U										
Client Ref.	Rev. No.	Issue Date	Page							
VALERO	VALERO 1 03 Jun 02 8									
Compared with:	0	28 Feb 02								

- 2.) Where Pipe Schedule Is Shown, It Is Adequate For The Full Flange Rating. Where "CALC" Is Shown, The Pressure Limit May Be Lower Than Flange Rating. See The Project Line List And Applicable Piping Drawing For Details.
- 3.) The Crotch Thickness Of The Branch Outlet Of Buttweld Tees Shall Be No Less Than 150% Of The Nominal Wall Thickness Of The Tee. The Crotch Radius Of The Branch Outlet Of Buttweld Tees Shall Be No Less Than 12.5% Of The Branch Outlet OD.
- 4.) 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.
- 5.) Branch Connections Should Follow The Guidlines Of Job Spec 52B2 And The Attachment Unless Specifically Overriden By The Pipe Stress Engineer.
- 6.) CORR-A-SEAL / GRAPHONICS Gaskets Shall Be Used For Flat Face Flanges.
- 7.) Concentric & Eccentric Reducers Are Limited To 2 Nominal Diameter Size Reductions Without Piping Engineer Approval.
- 8.) Remove Temporary Strainers After Flushing.
- 9.) Items "FWN", "STS", And "GAS" To Be Used At Risers With RF Flanges.

END OF DOCUMENT



Contract #: 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: LF1U

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

#### **ATTACHMENT "A"**

							RE	INFOR	CEMEN	IT CHA	RT									
APPI	ICABLE	TO PI	PE SPE	ECIFIC	ATION	(S) : LF	·IU													
MAT	ERIAL (S	S) :	CAF	RBON S	STEEL,	SMLS,	ASTM	A106 (	GR B C	C&W				P/SE	:		C.A.	0.063	1	
	GN LIMI	T (S):	285 PS	SIG AT	-20F T	O 100F							011 (11							
	NOM. THICK.	1/2	3/4	1	1 1/2	2	NOMII 3	NAL SI	<u>ZE OF</u>   6	BRANC	H CON	INECTI 12	ON (IN	ICHES)	18	20	24	30/36	42/48	
															10.041	0				<u> </u>
								NOTE	<u>: : .</u>		FABRI					.CULA	IED W	ALL		
										SEE	ENGIN	EERIN(	G STAI	NDARL	52B2	1	I			
								<u> </u> 												<u> </u>
																				<u> </u>
4	STD	SK	SK	SK	SK	SK	W	Т												<u> </u>
6	STD	SK	SK	SK	SK	SK	W	W	Т											
8	STD	SK	SK	SK	SK	SK	W	W	W	Т										
10	STD	SK	SK	SK	SK	SK	W	W	W	W	Т									
12	STD	SK	SK	SK	SK	SK	W	W	W	W	W	Т								
14	STD	SK	SK	SK	SK	SK	W	W	W	W	W	W	Т							
															Ì					
																	1			
																		1		
																				-
																				<u> </u>
																				<u> </u>

## **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.