

Submittal Transmittal

RECEIVED
5/19/10

PCRWRD Plant Interconnect
Prime Contract #: 03-03-S-141878-0309
Pima County, AZ

Sundt/Kiewit, Joint Venture
Project # 810925
Project Phone: 602-262-5295
Project Fax: 602-254-0301

Date: 5/17/2010

Reference Number: 0179

Transmitted To:

Dave Wilson
Don Kelly Construction Inc dba Kell and
Company
3275 W Ina Road
Tucson, AZ 85741
Tel: 520-399-4606
Fax: 520-399-2001

Transmitted By:

Gary Endler
Sundt/Kiewit, Joint Venture
2620 S 55th Street
Tempe, AZ 85282
Tel: 480-293-3000
Fax: 480-293-3079

Qty	Submittal Package No:	Description:	Due Date:	Package Action:
3	74 - Appendix I - 0	10" SFM Product Data		For Record Only

Transmitted For:	Delivered Via:	Tracking Number:
Files	Hand	

Items:	Qty:	Description:	Notes:	Item Action:
Appendix I - 0012 - 3	1	Misc Pipe fittings, Valves, Gaskets, & DIP		For Record Only

Cc:	Company Name:	Contact Name:	Copies:	Notes:

Remarks:


Signature Gary Endler

5/17/10
Signed Date

333 East Wetmore Road, Suite 165
 Tucson, Arizona 85705

SUBMITTAL REVIEW COMMENTS

PROJECT NAME: PCWMD Plant Interconnect Project	
SUBMITTAL NO.: 012B	PROJECT NO.: 133888
SPECIFICATION: Appendix I	DATE RECEIVED: 05/12/10
DESCRIPTION: Misc. Pipe Fittings, Valves, Gaskets, & DIP	DATE REVIEWED: 05/13/10
MANUFACTURER: HD Supply Water Works	REVIEWER(S): Jim Nichols, P.E.

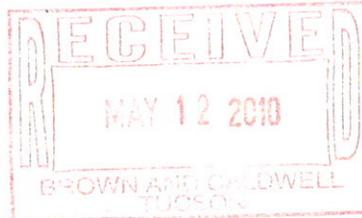
SUBMITTAL REVIEW ACTION

REVIEW IS FOR GENERAL COMPLIANCE WITH CONTRACT DOCUMENTS. NO RESPONSIBILITY IS ASSUMED FOR CORRECTNESS OF DIMENSIONS OR DETAILS. THE CONTRACTOR SHALL ASSUME FULL RESPONSIBILITY FOR DEVIATIONS FROM CONTRACT REQUIREMENTS NOT SPECIFICALLY INDICATED ON THIS SUBMITTAL.

- | | |
|---|---|
| <input type="checkbox"/> NO EXCEPTIONS TAKEN (NET) | <input type="checkbox"/> AMEND AND RESUBMIT (A&R) |
| <input type="checkbox"/> MAKE CORRECTIONS NOTED (MCN) | <input type="checkbox"/> REJECTED (R) |
| <input checked="" type="checkbox"/> PRODUCT DATA FOR INFORMATION ONLY (FIO) | |

REVIEW COMMENTS:

Per The County - FIO



CONTRACTOR NAME

PROJECT: *PCRWD PLANT INTERCONNECT*

JOB NO. *03-03-S-1487-0309*

THIS SUBMITTAL HAS BEEN CHECKED BY THIS GENERAL CONTRACTOR. IT IS CERTIFIED CORRECT, COMPLETE, AND IN COMPLIANCE WITH CONTRACT DRAWINGS AND SPECIFICATIONS. ALL AFFECTED CONTRACTORS AND SUPPLIERS ARE AWARE OF, AND WILL INTEGRATE THIS SUBMITTAL INTO THEIR OWN WORK.

SUBMITTAL NUMBER... *133 R 3/142 / 012 R 1*
DATE RECEIVED... *5/12/10*
SPECIFICATION SECTION NO. *13282/03301 / APP I*
SPECIFICATION PARAGRAPH NO. *1.04 / 1.04 / NA*
DRAWING NUMBER.....
SUBCONTRACTOR NAME... *CARATROL / DEGAN / DKC*
SUPPLIER NAME... *CARBIDE / DAYTON SUPERIOR / HD WATERWORKS*
MANUFACTURER NAME... *CARATROL / NA / NA*

NOTE: DEVIATIONS FROM THE CONTRACT DOCUMENTS ARE PROPOSED AS FOLLOWS

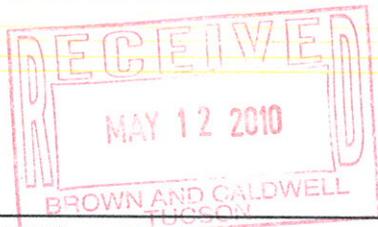
DEVIATION

NONE

DEVIATION BEING INCORPORATED:

CERTIFIED BY: 

DATE: *5/12/10*



Submittal Transmittal

PCRWRD Plant Interconnect
Prime Contract #: 03-03-S-141878-0309
Pima County, AZ

Sundt/Kiewit, Joint Venture
Project # 810925
Project Phone: 602-262-5295
Project Fax: 602-254-0301

Date: 5/12/2010 **Reference Number: 0177**

Transmitted To:
Bernadette Visitacion
Brown & Caldwell
333 E. Wetmore Rd, Suite 165
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Tel: 520.624.5744
Fax: 520.791.2738

Transmitted By:
Gary Endler
Sundt/Kiewit, Joint Venture
2620 S 55th Street
Tempe, AZ 85282
Tel: 480-293-3000
Fax: 480-293-3079

Qty	Submittal Package No:	Description:	Due Date:	Package Action:
6	74 - Appendix I - 0	10" SFM Product Data	5/26/2010	For Record Only

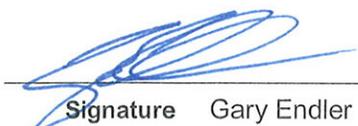
Transmitted For: Information	Delivered Via: Hand	Tracking Number:
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Items:	Qty:	Description:	Notes:	Item Action:
Appendix I - 0012 - 3	1	Misc Pipe fittings, Valves, Gaskets, & DIP		For Record Only

Cc:	Company Name:	Contact Name:	Copies:	Notes:
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Remarks:

Per Jaime, this for information only and is replacing the approved 8" SFM.


Signature Gary Endler

5/12/10
Signed Date



1410 W. Harvard
Gilbert, Az 85233
Telephone (480) 926-7003
Facsimile (480) 926-7046

SUBMITTAL DATE: MAY 11TH 2010

SALES REPRESENTATIVE: LEX CASSIERE

**ALL PIPE, VALVES, HYDRANTS, FITTINGS AND APPURTENANCES SHALL
BE FURNISHED IN ACCORDANCE WITH MAG SPECIFICATIONS.**

CONTRACTOR: DON KELLY CONSTRUCTION INC.

PROJECT: INA RD. TO ROGER RD. PLANT INTERCONNECT – TUCSON, AZ.

SUBMITTAL DATA

PRODUCTS

10" DR9 IPS HDPE PIPE

10" DR9 IPS HDPE FITTINGS

MANUFACTURERS

WL PLASTICS CORPORATION

INDUSTRIAL PIPE FITTINGS

WL Plastics Pipe Standards



Industry Standards for WL Plastics Pipe

WL Plastics pipe is produced in accordance with Customer Purchase Order specifications. Industry standards for polyethylene pipe manufacture include the API, ASTM, AWWA, FM, NSF and AASHTO standards below. Upon request, pipe may be manufactured to other industry standards or to custom standards or to proprietary standards or specifications. Contact WL Plastics Customer Service for information, pricing, and availability.

Industry standards are for different applications, and may or may not be compatible with each other. Standards differ in requirements for materials, sizes, dimensions, tolerances, and performance. Pipe made to an industry standard for an application may be unsuitable for a different application although the material and size may be the same. Regulations and Codes frequently require compliance with specific standards and pipe not so marked may be unacceptable to the jurisdictional authority. Before placing an order, confirm that the pipe specified is acceptable to the jurisdictional authority. Upon receipt, inspect and verify that the pipe received conforms to the Customer Purchase Order. See WL119 Warranty.

Industry Standard	Table Notes	Sizing System	OD Size	DR	Application
API 15LE	1	IPS	¾ - 54 in	7 - 32.5†	Oil & gas gathering
ASTM D 2513	1	IPS	¾ - 24 in	7 - 32.5†	Gas gathering
ASTM F 2619	1	IPS	¾ - 54 in	7 - 32.5†	Oil & gas gathering
ASTM D 3035	2, 3	IPS	¾ - 24 in	7 - 32.5†	Pressure & non-pressure fluids;
ASTM F 714	2, 5, 6	IPS	3 - 54 in	7 - 32.5†	municipal & industrial water; sewer & culvert; rehabilitation; geothermal; heat transfer
		DIPS	4 - 30 in	7 - 32.5†	
AWWA C901	3, 5	IPS	¾ - 3 in	9 - 21†	Water service & distribution
AWWA C906‡	2, 5	IPS	4 - 54 in	7.3 - 32.5†	Water distribution & transmission
		DIOD (DIPS)	4 - 30 in		
FM1613	4, 5	IPS	4 - 36	Class 150 & 200	Underground fire main
NSF-61	5	All	All	All	Potable water
AASHTO M-326	2, 6	IPS	300-1600 mm (12 - 63 in)	26, 32.5	Sewer & culvert sliplining

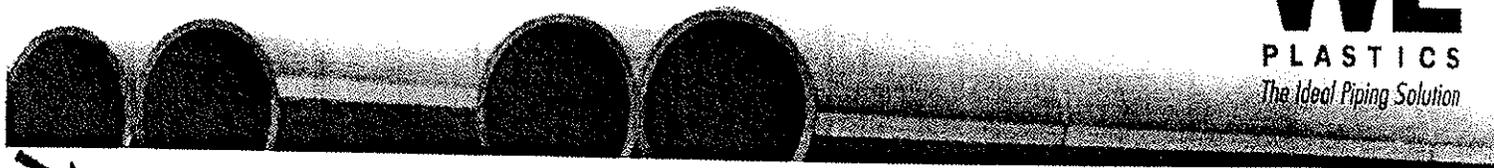
† Custom DR's may be produced to order. Contact WL Plastics Customer Service for availability.

‡ PE3608/PE3408 ratings only; PE4710 ratings not applicable.

- PE pipe for non-jurisdictional oil and gas gathering may be compatible with API 15LE and/or ASTM D2513 and/or ASTM F2619. Jurisdictional gas gathering in the US requires ASTM D2513. Jurisdictional gas gathering in Canada requires API 15LE. WL Plastics does not produce PE pipe for jurisdictional gas distribution in the US or Canada. Oil and gas gathering pipe is not suitable for potable water pipe that is subject to municipal code regulations.
- General purpose PE pipe may be compatible with ASTM F714 and/or ASTM D3035 and/or AWWA C901 and/or AWWA C906 and/or AASHTO M-326. When produced to comply with more than one standard, compatibility is limited to the most restrictive application, material, size, DR and requirement(s) in the compatible standards. General purpose PE pipe is not allowed in jurisdictional gas gathering, distribution or transmission.
- OD controlled sizes only. Compatible with 3-in and smaller ASTM D3035, and 3-in ASTM F714.
- By certification agreement with FM approvals, FM Approved pipe is manufactured in accordance with FM1613 and is available only in the sizes and pressure classes specified in WL132. Per FM1613, WL Plastics FM Approved pipe complies with AWWA C906-99. WL Plastics FM Approved pipe complies with NFPA 24. Where underground fire mains also provide potable water service, NSF-61 certification for potable water service fire main is available upon request. Underground service only.
- Potable water and geothermal applications require NSF-61 certified material. Specify NSF-61 certification when ordering.
- AASHTO M-326 PE pipe is limited to rehabilitation lining applications; available in DR 26 and 32.5 only.

DISCLAIMER: WL Plastics Corp. disclaims all responsibility and liability for products that are incorrectly or incompletely specified on the Purchase Order received by WL Plastics. The Purchaser designated on the Purchase Order is solely responsible for the Purchase Order received by WL Plastics. WL Plastics liability shall in no event exceed limited liability in accordance with WL119 Warranty. Changes to this publication may occur from time to time without notice. Contact WL Plastics Corporation to determine if you have the most current edition.

PE3608/PE3408 PIPE COMPOUND



Typical Physical Properties for WL Plastics PE3608/PE3408 Pipe Compound

- WL Plastics HDPE PE3608/PE3408 pipe is manufactured from pressure rated polyethylene compound that meets or exceeds ASTM D 3350 Cell Classification 345464C and meets or exceeds material designation codes PE3608 and PE3408.
- WL Plastics HDPE PE3608/PE3408 polyethylene pipe materials are listed by PPI in TR-4 with HDB ratings of 1600 psi at 73°F and 800 psi at 140°F, and HDS ratings for water of 800 psi at 73°F and 400 psi at 140°F.
- For potable water service, WL Plastics HDPE PE3608/PE3408 black polyethylene compounds are certified by the National Sanitation Foundation in accordance with NSF-61.

Physical Property	Test Method	Typical Value ¹
Cell Classification (black compound)	ASTM D3350	345464C
Melt Index (190/2.16)	ASTM. D1238	0.1 g/10 min
High Load Melt Index ² (190/21.6)	ASTM. D1238	6 – 18 g/10 min
Density with 2% minimum carbon black	ASTM. D792	0.955 g/cm ³
Tensile strength at yield (2 in/min)	ASTM. D638	>3000 psi
Tensile elongation (2 in/min)	ASTM. D638	>700%
Flexural modulus	ASTM. D790	110,000 < 160,000 psi
SCG Resistance, PENT (80°C, 2.4 MPa)	ASTM. F1473	> 100 h
Thermal stability	ASTM. D3350	>428°F (>220°C)
Brittleness temperature	ASTM. D746	<-103°F (<-75°C)
Thermal expansion coefficient	ASTM. D696	9 x 10 ⁻⁵ in/in/°F
HDB ³ at 140°F (60°C)	D2837/PPI TR-3	800 psi
HDS ³ at 73°F (23°C)	D2837/PPI TR-3	800 psi
HDS at 140°F (60°C)	D2837/PPI TR-3	400 psi

Contact WL Plastics Customer Service for availability. 1. Typical values determined from laboratory tests of resin plaques and specimens prepared in accordance with industry standard test methods. Values determined on samples taken from pipe may vary. The typical values presented herein are for PE3608/PE3408 polyethylene pipe compounds (resin) but do not constitute engineering properties for pipe. 2. Overall range of HLM values for all compounds from all WL Plastics compound suppliers; HLM variation for an individual compound will be well within the overall range. 3. Listed HDB and HDS ratings are published by the Plastics Pipe Institute in PPI TR-4 by the compound manufacturer (independent listing) and WL Plastics (dependent listing) in accordance with ASTM D 2837 and PPI TR-3. Compound supplier codes for WL Plastics PE3608/PE3408 PPI dependent listings are D (Dow), E (Lyondell Basell), N (Nova), S (Ineos) and T (Total).

This publication is intended for use as a piping system guide. It should not be used in place of a professional engineer's judgment or advice and it is not intended as installation instructions. The information in this publication does not constitute a guarantee or warranty for piping installations and cannot be guaranteed because the conditions of use are beyond our control. The user of this information assumes all risk associated with its use. WL Plastics Corporation has made every reasonable effort to ensure accuracy, but the information in this publication may not be complete, especially for special or unusual applications. Changes to this publication may occur from time to time without notice. Contact WL Plastics Corporation to determine if you have the most current edition. Publication duplication permitted.



American Water Works Association
dedicated to safe drinking water



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 CEDAR CITY PLANT: 4660 W. Highway 56 • P. O. Box 627 • Cedar City, UT 84721 • Customer Service 435-867-8908 • Fax: 435-865-2703
 GILLETTE PLANT: 1301 E Lincoln St • Gillette, WY 82716 • Customer Service 307-682-5554 • Fax: 307-682-3339
 BOWIE PLANT: 1110 Old Wise Road • PO Box 32 • Bowie, TX 76230 • Customer Service 940-872-8300 • Fax: 940-872-8304
 CROSSFIELD PLANT: PO Box 860 • 1030 Western Drive • Crossfield, AB T0M 0S0 Canada • Customer Service 403-946-0202 • Fax: 403-946-0252

IPS PIPE SIZES & PRESSURE RATINGS - PE3608/PE3408



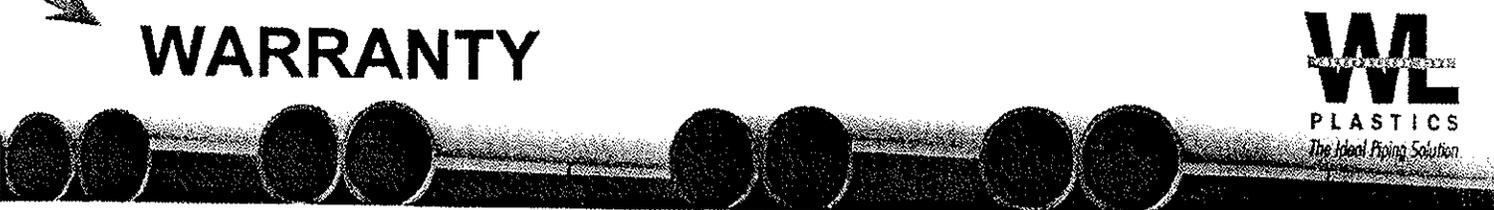
CONTACT WL PLASTICS CUSTOMER SERVICE TO CONFIRM AVAILABILITY AND FOR SIZES AND DR'S NOT SHOWN. SEE FOOTNOTES ON PAGE 2.

IPS SIZE	AVG OD	DR	7	7.3	9	11	13.5	15.5	17	19	21	26	32.5
1	1.315	PR	267	254	200	160	128	110	100	89	80	64	51
		Min wall lb/ft	0.188	0.180	0.146	0.120							
1 1/4	1.660	PR	0.917	0.933	1.005	1.062							
		Min wall lb/ft	0.288	0.278	0.232	0.195							
1 1/2	1.900	PR	0.237	0.227	0.184	0.151							
		Min wall lb/ft	1.157	1.178	1.269	1.340							
2	2.375	PR	0.459	0.442	0.369	0.310							
		Min wall lb/ft	1.325	1.348	1.452	1.534							
2 1/4	2.875	PR	0.600	0.580	0.485	0.406							
		Min wall lb/ft	0.339	0.325	0.264	0.216	0.153	0.140	0.205	2.079	0.462	0.256	0.185
3	3.500	PR	1.656	1.685	1.816	1.917							
		Min wall lb/ft	0.939	0.906	0.758	0.634	0.462	0.256	0.185	0.169	0.213	2.424	2.482
4	4.500	PR	2.004	2.040	2.198	2.321							
		Min wall lb/ft	1.377	1.329	1.109	0.928	0.771	0.711	0.622	0.206	0.226	3.021	3.064
5	5.563	PR	2.440	2.484	2.676	2.825							
		Min wall lb/ft	2.040	1.968	1.646	1.376	1.141	1.006	0.923	0.265	0.237	0.214	0.173
6	6.625	PR	3.137	3.193	3.440	3.633							
		Min wall lb/ft	3.372	3.253	2.720	2.275	1.887	1.660	1.526	0.265	0.237	0.214	0.173
7	7.125	PR	3.795	3.878	4.253	4.491							
		Min wall lb/ft	4.154	4.975	4.156	3.479	2.886	2.540	2.328	0.327	0.293	0.265	0.214
8	8.625	PR	5.154	4.975	4.156	3.479							
		Min wall lb/ft	0.946	0.908	0.736	0.602	0.491	0.427	0.390	0.327	0.293	0.265	0.214
10	10.750	PR	4.619	4.701	5.064	5.348							
		Min wall lb/ft	7.305	7.059	5.894	4.930	4.095	3.599	3.307	0.419	0.375	0.339	0.274
12	12.750	PR	1.232	1.182	0.958	0.784							
		Min wall lb/ft	6.013	6.120	6.593	6.963	7.271	7.445	7.549	6.236	6.330	6.406	6.544
14	14.000	PR	12.385	11.963	9.988	8.359							
		Min wall lb/ft	1.536	1.473	1.194	0.977	0.796	0.694	0.632	3.821	3.442	3.128	2.553
16	16.000	PR	7.494	7.628	8.218	8.678							
		Min wall lb/ft	19.245	18.581	15.515	12.983	10.774	9.490	8.695	5.597	5.044	4.591	3.744
18	18.000	PR	1.821	1.747	1.417	1.159							
		Min wall lb/ft	8.889	9.047	9.747	10.293	10.748	11.066	11.160	6.507	0.454	0.411	0.332
20	20.000	PR	27.062	26.138	21.837	18.267							
		Min wall lb/ft	2.000	1.918	1.556	1.273	1.037	0.903	0.824	6.236	6.330	6.406	6.544
24	24.000	PR	9.760	9.934	10.702	11.302							
		Min wall lb/ft	32.635	31.511	26.329	22.030	18.279	16.082	14.763	3.821	3.442	3.128	2.553





WARRANTY



WL
PLASTICS
The Ideal Piping Solution

LIMITED WARRANTY – WL Plastics Corporation (“WL Plastics”) warrants to the Purchaser designated on the Purchase Order received by WL Plastics (“Purchaser”) of any product (“Product”) manufactured by WL Plastics for a period of one (1) year¹ that the Product shall be free from defects in materials and workmanship (“defect”). WL Plastics further warrants to the Purchaser for the period of one (1) year¹ that the use or sale of the Product will not infringe on the claims of any United States patent covering the Product itself. WL Plastics does not warrant against patent infringement if the Product is used in combination with any other product or material or used in the process of manufacturing any other product or material. This Limited Warranty does not extend to any subsequent purchaser or third party user of the Product. This Limited Warranty shall not apply to any Product subjected to misuse or misapplication due to common negligence or accident, or to the use or installation of the Product in, or affixing the Product to, other goods, or incorporating the Product into any other good or product by the Purchaser or agent of the Purchaser, or to misuse or misapplication including internal or external load or pressure in excess of WL Plastics recommended pressure, temperature, time, fluid and environmental limitations during installation, testing, operation or use.

DISCLAIMER OF IMPLIED WARRANTIES – WL Plastics hereby gives notice that any statement made by WL Plastics or any other person on behalf of WL Plastics in the sale of any Product shall not create any warranty that the Product shall be fit for any particular purpose. The Limited Warranty stated herein is expressly in lieu of any other express or implied warranty, condition, representation or guarantee given by WL Plastics, or any other person on behalf of WL Plastics, with respect to any Product. Any implied warranties of merchantability or fitness for a particular purpose imposed on the sale of the Product under state law, or otherwise, are hereby disclaimed pursuant to UCC § 2-316(3)(b).

DEFECTIVE MATERIALS – The Purchaser shall inspect or shall cause the inspection² of all Products within ten (10) days from the date of delivery to determine if the Products conform to the requirements of the Purchaser’s Purchase Order and if there are any defects. The Purchaser shall be deemed to have accepted the Product for all purposes unless the Purchaser notifies WL Plastics in writing of any nonconformity with the Purchase Order (“nonconformity”) or of any defect within such ten (10) day period. If the Purchaser accepts the Product, refuses to inspect the Product, or fails to make or cause to be made an inspection of the Product for any reason within such ten (10) day period, the Purchaser assumes the risks of any nonconformity or defect that could have been discovered upon inspection. No Product shall be returned to WL Plastics without prior written permission from WL Plastics and any cost incurred in the return of the Product will be the responsibility of the Purchaser. WL Plastics shall have the sole and exclusive right to determine any Product defect or nonconformity and the decision of WL Plastics shall be final. If WL Plastics determines that the Product is defective or nonconforming, WL Plastics shall, at its option, replace or repair such defective or nonconforming Product.

LIMITATION ON SPECIAL AND CONSEQUENTIAL DAMAGES – The liability of WL Plastics under this Limited Warranty is limited to the purchase price of the Product. Under no circumstances shall WL Plastics be liable to the Purchaser, to any subsequent purchaser or to any third party for any special or consequential damages, whether arising out of breach of warranty, breach of contract or otherwise.

SPECIALLY MANUFACTURED PRODUCTS – Specially Manufactured Products are any Products that are not specifically listed in WL Plastics’ sales literature. If the Purchaser’s Purchase Order for Specially Manufactured Products is suspended or terminated for any reason, the Purchaser shall take delivery of and make payment for any Specially Manufactured Products that are completed or are in the process of manufacture on the date that the Purchaser’s Purchase Order is terminated. If, however, the Purchaser does not accept delivery, such Specially Manufactured Products shall be stored at the Purchaser’s expense and the Purchaser shall make payment as though delivery had been made to the Purchaser.

SEVERABILITY – In the event that one or more of the provisions contained in this Limited Warranty should be held by a court of law to be invalid, illegal or unenforceable in any respect, the validity, legality and enforceability of the remaining provisions shall not be affected nor impaired and the rights and obligations of the parties shall be construed and enforced as if the warranty did not contain the particular part, term or provision held to be invalid.

TECHNICAL INFORMATION – Purchasers or Users of the Product may consult WL Plastics for Technical Information relating to Product performance, installation, joining or testing. WL Plastics will furnish such Technical Information at no cost and at the Purchaser’s or User’s risk. The Purchaser’s or User’s reliance upon WL Plastics Technical Information regarding the Purchaser’s or User’s application of the Product shall in no way be construed to expand WL Plastics’ Limited Warranty as set forth herein or to limit or otherwise affect its Warranty Disclaimer as set forth herein.

¹ The one (1) year warranty period shall be from the date of WL Plastics invoice to the original purchaser.

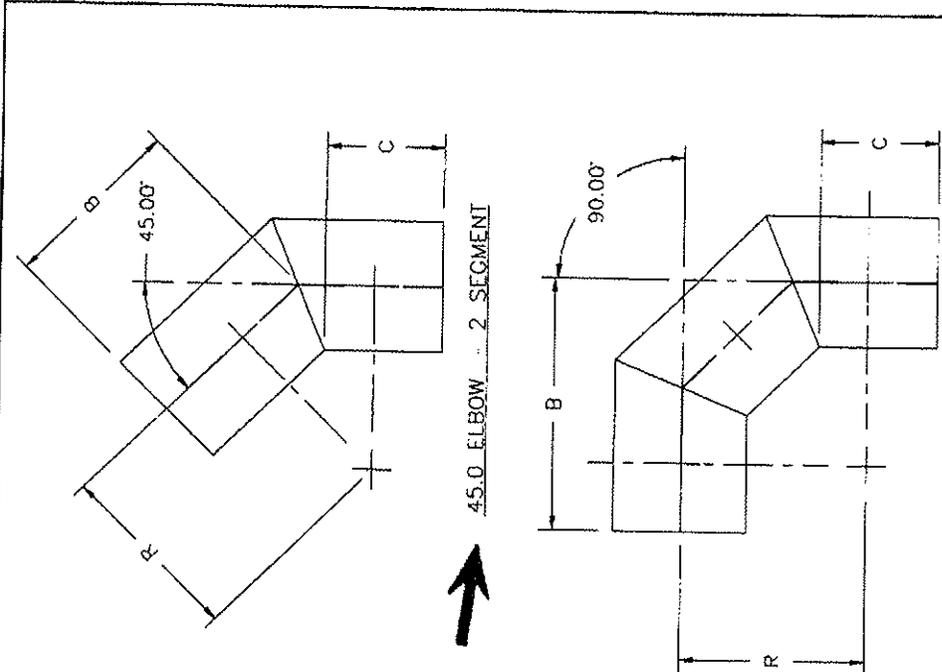
² Inspect and inspection are examination or testing to product standard requirements per ASTM, AWWA, API, FM and NSF and mutually agreeable pre-order acceptance of custom specifications, excluding all ultrasonic testing and examination such as phased array, B-Scan, and time of flight diffraction.

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FOR SUBMITTAL
PURPOSES ONLY

NOM IPS SIZE IN	R/D RATIO	RADIUS "R"	END SEG INSIDE LENGTH "C"	CENTER TO FACE "B"	90 DEG
2	2.02	4 3/4	4	4 1/2	7 1/4
3	1.53	5 3/8	4	4 3/4	7 7/8
4	1.30	5 7/8	5	5 7/8	9 3/8
5	1.15	6 3/8	5	6 1/8	9 7/8
6	1.41	9 3/8	6	7 3/8	12 7/8
8	1.20	10 3/8	6 1/2	8 1/4	14 3/8
10	1.17	12 5/8	6 1/2	8 3/4	16 1/8
12	1.07	13 5/8	8	10 5/8	18 5/8
14	1.02	14 1/4	8	10 7/8	19 1/4
16	0.95	15 1/4	8	11 3/8	20 1/4
18	0.90	16 1/4	8	11 3/4	21 1/4
20	0.86	17 1/4	8	12 1/8	22 1/4
22	1.05	23 1/8	8	12 1/2	26 1/8
24	1.00	24	8	13	27
26	1.47	38 1/4	14	19 3/8	41 3/4
28	1.36	38 7/8	14	19 3/4	42 1/8
30	1.28	38 3/8	14	20 1/4	42 3/4
32	1.20	38 3/8	14	20 5/8	43 1/8
34	1.13	38 3/8	14	21	43 1/2
36	1.07	38 1/2	14	21 1/2	44
42	1.20	50 3/8	21	28 3/4	59 1/4
48	1.05	50 3/8	21	31	60 1/2
54	0.94	50 3/4	21	32 1/8	61 7/8
63	0.90	56 7/8	21	34	67 1/4
TOL.	REF	REF	REF	REF	REF



- FACTORY MUTUAL NOTES:
1. APPLIES ONLY TO NOMINAL SIZES
 2. THRU 18" FOR FACTORY MUTUAL
 3. NOMINAL O.D.'S WALL THICKNESSES AND TOLERANCES MANUFACTURED ACCORDING TO ASTM D3261.
 4. ALL CLASS 150 FAB FITTINGS MADE FROM DR 9.0 FEEDSTOCK
 5. ALL CLASS 200 FAB FITTINGS MADE FROM DR 7.0 FEEDSTOCK
 6. MACHINED ENDS OPTIONAL.
 7. CLASS 150 ENDS ARE TO BE MACHINED TO SDR 11 WALL (SEE 70D370)
 8. CLASS 200 ENDS ARE TO BE MACHINED TO SDR 9 WALL (SEE 70D370)
 9. FOR FEED O.D., WALL & END MACHINING SPEC. SEE PIPE 70B907
 10. MATERIAL: PE3608 AND/OR PE4710 ONLY.

INDUSTRIAL PIPE FITTINGS
 6020 USBORN ST Phone: 713-645-2850
 HOUSTON, TEXAS 77033 Fax: 713-645-1756

2" - 63" IPS FABRICATED ELBOWS
 SUBMITTAL DIMENSIONS - 22 1/2" MITER
 MATERIAL PE3608 AND/OR PF4710

REV	DATE	DESCRIPTION	BY	CHK	APP
1					

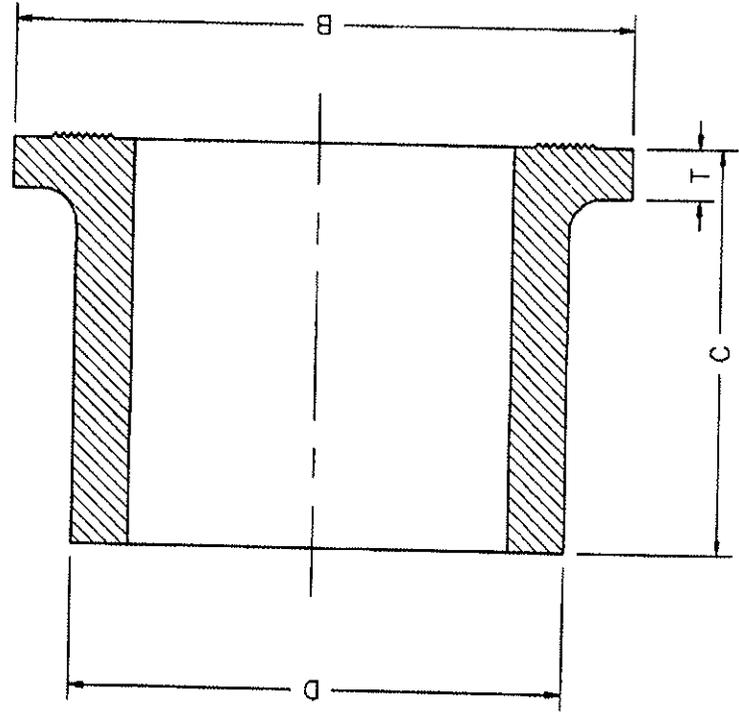
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NOTES:
 1.) ALL DIMENSIONS ARE IN INCHES.

DIMENSIONS (INCHES)

NOMINAL PIPE SIZE	OUTLET O.D. D	FLANGE ADAPTER LENGTH C	STUB END LENGTH C	FLANGE THICKNESS T								
				DR 5	DR 7-8	DR 11-41	DR 11-41	DR 11-41	DR 11-41			
1	1.315	2.375	4.000	4.000	4.000	2.000	0.302	0.402	0.240	0.340	0.240	0.340
1-1/4	1.860	2.750	6.000	6.000	2.000	2.000	0.382	0.482	0.273	0.373	0.240	0.340
1-1/2	1.900	3.125	6.000	6.000	2.000	2.000	0.437	0.537	0.312	0.412	0.240	0.340
2	2.375	3.750	6.000	6.125	2.000	2.000	0.546	0.646	0.390	0.490	0.248	0.348
3	3.500	4.750	6.000	6.125	2.000	2.000	0.805	0.905	0.575	0.675	0.366	0.466
4	4.500	6.000	6.000	7.125	2.000	2.000	1.035	1.135	0.759	0.859	0.470	0.570
5	5.563	7.500	8.000	7.375	2.000	2.000	1.295	1.395	0.925	1.025	0.589	0.689
6	6.625	8.125	8.125	8.000	2.000	2.000	1.524	1.624	1.089	1.189	0.693	0.793
7	7.125	10.750	8.625	8.500	2.000	2.000	1.839	1.939	1.171	1.271	0.745	0.845
8	8.625	10.750	8.625	8.500	2.000	2.000	1.984	2.084	1.171	1.271	0.802	1.002
10	10.750	12.750	8.750	12.000	3.000	3.000	2.475	2.575	1.786	1.886	1.124	1.224
12	12.750	15.500	8.125	12.000	3.000	3.000	2.933	3.033	2.095	2.195	1.333	1.433
14	14.000	17.000	12.000	12.000	4.000	4.000	3.220	3.320	2.300	2.400	1.464	1.564
16	16.000	19.500	12.000	11.500	4.000	4.000	3.680	3.805	2.629	2.754	1.673	1.798
18	18.000	20.125	12.000	11.500	4.5.000	4.5.000	4.140	4.284	2.957	3.082	1.882	2.007
20	20.000	23.313	12.000	12.000	4.5.000	4.5.000	4.600	4.780	3.296	3.411	2.091	2.216
22	22.000	25.250	12.000	12.000	5.000	5.000	5.090	5.236	3.614	3.739	2.300	2.425
24	24.000	27.688	12.000	12.000	5.000	5.000	5.520	5.712	3.943	4.068	2.509	2.634



INDUSTRIAL PIPE FITTINGS
 6020 GARDNER ST
 HOUSTON, TEXAS 77033
 Phone: 713-645-2854
 Fax: 713-645-1756

1" - 63" IPS
 FLANGE ADAPTERS & STUB ENDS
 SUBMITTAL DIMENSIONS

IND. NO. FA 70B275

NO.	REV.	DATE	BY	CHK.	APP.
1					

REFERENCE DRAWINGS

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