



BIG BLUE™

MEETS AWWA C905



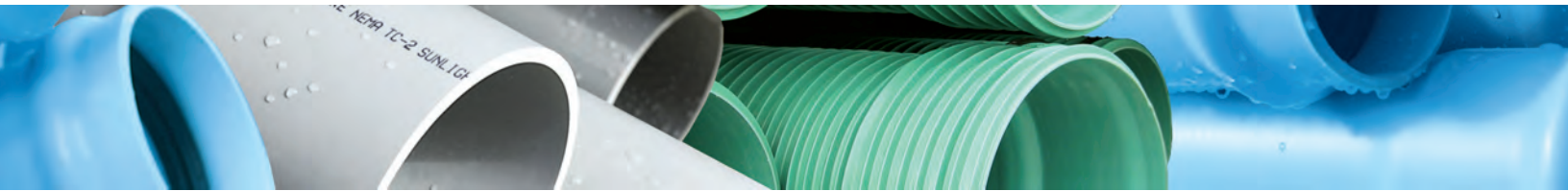
*Building essentials
for a better tomorrow™*



BIG BLUE™

PVC C.I.O.D. Transmission Pipe
DR 51/DR 41/DR 32.5/DR 25/DR 21/DR 18

*Pressure Rated 80, 100, 125, 165, 200 & 235 psi
Ring-Tite™ Joints 14"-48"*



BIG BLUE™

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01

PRODUCT DESCRIPTION

AWWA C905 BIG BLUE™

FOR USE IN TRANSMISSION, MUNICIPAL WATER SYSTEMS AND OTHER SERVICES

DESCRIPTION

JM Eagle's Big Blue™ pipe conforms to AWWA C905 specification with gaskets meeting ASTM F477 and joints in compliance with ASTM D3139. Big Blue™ water pipe has the long-term hydrostatic strength to meet the accepted high safety requirements of municipal water systems. This pipe conforms to cast iron O.D.'s and is available in DR 18 (235 psi) for sizes 14"-24" in diameter; DR 21 (200 psi) for sizes 14"-36" in diameter; DR 32.5 (125 psi); DR 25 (165 psi) and DR 41 (100 psi) for sizes 14"-48" in diameter; and DR 51 (80 psi) for sizes 30"-48" in diameter.

LONG LAYING LENGTHS

The standard laying length of Big Blue™ PVC pipe is 20 feet. This means that more ground can be covered during installation while eliminating the cost of unnecessary joints. For lengths of 14 feet, Non-Hydrotested pipe is available upon request.

MEETS AWWA C905, ANSI/NSF 61 AND ANSI/UL 1285 (14"-24")

See Short Form Specification.



APPLICATIONS

These products are typically used for transmission pipelines of potable water. However, these pipes may be used for gravity sewer, force main, and water reclamation projects where local ordinances allow. The pressure rating of these pipes indicate the maximum allowable sustained pressure capacity with a long-term 2 to 1 safety factor.



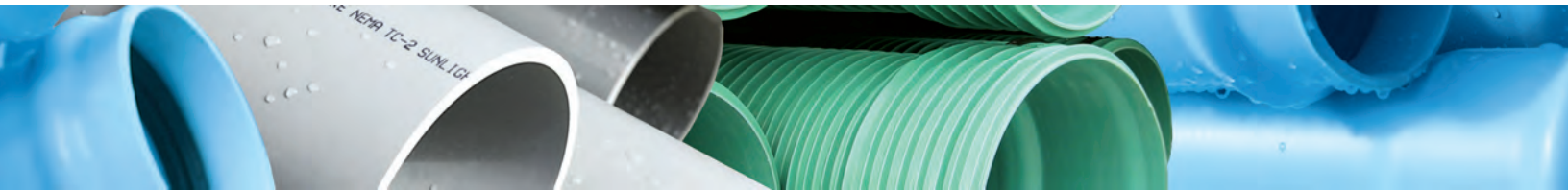
PURPLE RECLAIM AND GREEN SEWER FORCE MAIN

JM Eagle™ also manufactures this pipe in purple for reclaimed water systems, and green for sewer force main applications. This pipe is made to the same requirements as our standard products. The only difference is that the pigment used is purple or green. These products will not be marked with the UL or NSF listing marks. Additionally, the purple pipe will be marked: "Reclaimed Water... Do Not Drink" and the green pipe will be marked "Forced Sewer."

QUALITY CONTROL

Without exception, each 20 foot length of pipe is hydrostatically tested and subject to inspection by our quality control inspectors throughout every step of the manufacturing process. JM Eagle's Quality Management System is ISO 9001: 2000 registered. Copies of the registration certificates are available on our website at www.jmeagle.com.

* JM Eagle™ is in the process of obtaining the ISO 9001-2000 registration of Quality Management System for all locations.



CORROSION RESISTANCE

Big Blue™ PVC pipe is unaffected by electrolytic or galvanic corrosion, or any known corrosive soil or water conditions. You don't have to worry about tuberculation, or the need for costly lining, wrapping, coating, or cathodic protection.

FLOW CAPACITY

This PVC water pipe has a smooth interior that stays smooth over long years of service with virtually no loss in carrying capacity. Its coefficient of flow is $C = 150$ (Hazen & Williams) the best available in common use water systems. This capacity often allows savings in pumping costs as well as savings on the size of pipe required.

FIELD CUTTING AND BEVELING

In most cases, you can cut Big Blue™ pipe with a power saw or ordinary handsaw. This eliminates the need to invest in costly cutting equipment. The pipe can also be beveled without the use of any expensive or complicated machinery.

LIGHT WEIGHT

A 20-foot length of 16" DR 25 Big Blue™ water pipe weighs approximately 500 pounds. Installers prefer it because it goes into the ground quickly—thus saving on installation costs.

SERVICE LIFE

Since PVC does not corrode and is resistant to most chemicals, the pipe does not lose strength due to either potable water corrosion or external galvanic soil conditions. The design of the pipe allows for a 2 to 1 long-term safety factor at the marked capacity of the pipe.

INSTALLATION

This product should be installed in accordance with JM Eagle's Publication JME-03B, "Blue Brute™, Big Blue™, and Ultra Blue™ (C900/C905/C909) Installation Guide" and Uni-Bell® Publication UNI-PUB-08-07, "Tapping Guide for PVC Pressure Pipe."





PRODUCT DESCRIPTION

AWWA C905 BIG BLUE™

(CONTINUED)

CAST IRON O.D.

Available in 14", 16", 18", 20", 24", 30", 36", 42" and 48" trade sizes, this pipe can be connected directly into cast/ductile iron fittings and pipe. Connections to products with other O.D. regimens can be done using commonly available adapters or transition gaskets. Dimensions should be checked for use with butterfly valves.



RING-TITE™ JOINTS WITH LOCKED-IN GASKETS

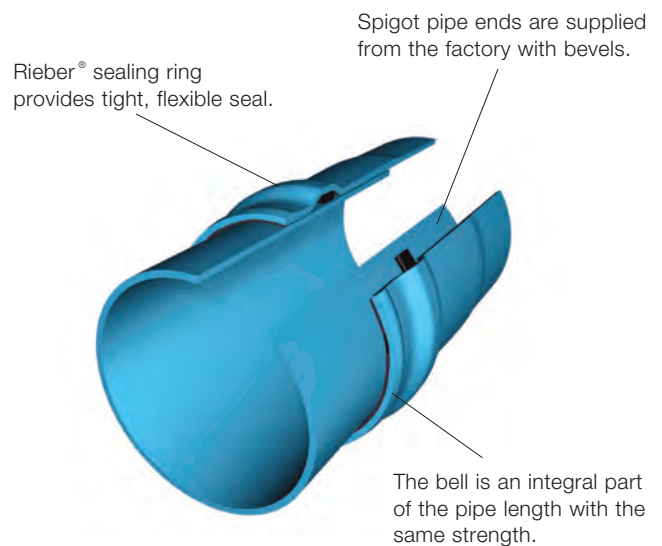
JM Eagle's Ring-Tite™ joint can be assembled quickly. Seated in a deep groove, the flexible elastomeric Rieber®* gasket provides a tight seal that protects the line from shock, vibration, earth movement and compensates for expansion and contraction of pipe lengths. There's no field mixing or application of cement. It's a simple push-together joint that remains tight under normal operating conditions.

The factory installed Rieber® gaskets provide a tight, flexible seal, that resists rolling during installation. Special gasket types are available for use with certain chemical and petroleum products. Spigot pipe ends are supplied from the factory with bevels. The bell is an integral part of the pipe length with the same strength. Joints meet or exceed ASTM D3139 for joint tightness, including a 22 in. Hg vacuum for one hour, under deflection with no leakage.

Note: Other types of gaskets may be provided. JM Eagle™ is in the process of converting all gasketed products to the Rieber® ring gasket.

* Rieber® is a registered trademark of TI Specialty Products Inc.

RING-TITE™ JOINT



ACCESSORIES

JM Eagle's Big Blue™ PVC pipe is compatible with all the items required for smooth installation of transmission pipelines.



SURGE DESIGN

SURGE PRESSURES IN VARIOUS PRESSURE PIPE

It is important to note that for the same conditions of interrupted flow, the surge pressures generated in pipe with high tensile moduli will be greater than the surges in low moduli (PVC) pipe of similar dimensions.

As the modulus of tensile elasticity for a piping material increases, the resultant pressure surge, or “water-hammer”, caused by a change in flow velocity also increases. For example, an instantaneous 2 fps (0.6 mps) flow velocity change in an 18" water main will create surge pressures as shown in **Table 1** for different pipe materials. For all system designs, surge pressures should be examined with the pipe material in use.

TABLE 1

PRESSURE SURGES IN 18 IN. WATER MAIN

In Response to 2 fps (0.6 mps) Instantaneous Flow Velocity Change.

PIPE PRODUCT	PRESSURE SURGE	
	psi	kPa
Class 50 DI Pipe	100.0	689
Class 150 AC Pipe	88.7	611
165 psi (DR 25) PVC Pipe	29.4	202

Pressure surges in PVC pipe of different dimension ratios in response to a 1 fps (0.3 mps) instantaneous flow velocity change are shown in **Table 2**.

TABLE 2

DESIGN TABLE FOR PVC PIPE-PRESSURE SURGE VS. DIMENSION RATIO

In Response to 1 fps (0.3 mps) Instantaneous Flow Velocity Change.

DIMENSION RATIO	PRESSURE SURGE	
	psi	kPa
13.5	20.2	139
14	19.8	137
17	17.9	123
18	17.4	120
21	16.0	110
25	14.7	101
26	14.4	99
32.5	12.8	88
41	11.4	79
51	10.8	74



SHORT FORM SPECIFICATION

AWWA C905 BIG BLUE™

SCOPE

This specification designates general requirements for 14" through 48" unplasticized polyvinyl chloride (PVC) plastic water pipe with integral bell and spigot joints for the conveyance of water and other fluids. This pipe shall meet AWWA C905 ANSI/NSF-61 and ANSI/UL 1285 (14"-24").

MATERIALS

This pipe shall meet the requirements of AWWA Standard C905 "Polyvinyl Chloride (PVC) Water Transmission Pipe." All pipe shall be made from quality PVC resin, compounded to provide physical and mechanical properties that equal or exceed cell class 12454 as defined in ASTM D1784.

HYDROSTATIC PROOF TESTING

Each standard and random length of pipe is tested to two times the rated pressure of the pipe for a minimum of 5 seconds. The integral bell shall be tested with the pipe.

STANDARD LAYING LENGTHS

Standard laying lengths are 20 feet for all sizes. For lengths of 14 feet, Non-Hydrotested pipe is available upon request.

PIPE

When specified as such, all pipe shall be suitable for use as pressure conduit. Provisions must be made for expansion and contraction at each joint with an elastomeric gasket. The bell shall consist of an integral wall section with a factory installed, solid cross section Rieber/other elastomeric gasket, which meets the requirements of ASTM F477. The bell section shall be designed to be at least as hydrostatically strong as the pipe barrel and meet the requirements of AWWA C905. The joint design shall meet requirements of ASTM D3139, under both pressure and 22 in. Hg vacuum. Sizes and dimensions shall be as shown in this specification.

Pipe installation and usage shall be in compliance with JM Eagle's Publication JME-03B, "Blue Brute™, Big Blue™ and Ultra Blue's C900/C905/C909 Installation Guide" and Uni-Bell® Publication UNI-PUB-0807, "Tapping Guide for PVC Pressure Pipe."

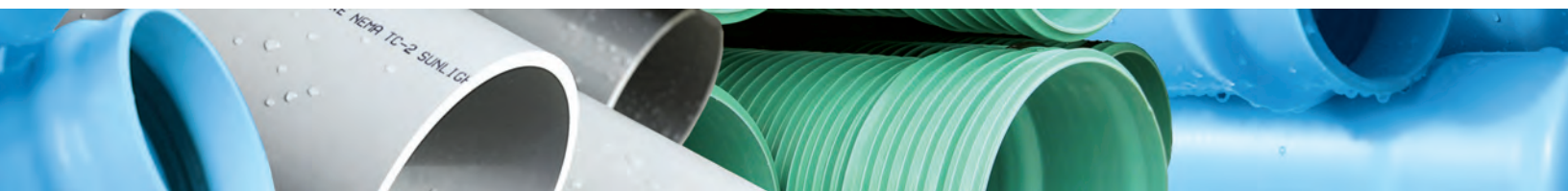
QUICK BURST TEST

Randomly selected samples tested in accordance with ANSI/UL 1285 shall withstand, without failure, the pressures listed below when applied for 60-70 seconds. This test is performed on pipe sizes less than 30".

FLATTENING TEST

DR	PRESSURE RATING (psi)	MINIMUM BURST
18	235	755
25	165	535
32.5	125	400
41	100	315
51	80	255

Specimens of pipe, a minimum of 6 in. (150 mm) long, shall be flattened between parallel plates in a suitable press until the distance between the plates is 40 percent of the OD of the pipe. The rate of flattening shall be uniform and such that the compression is completed within 2 to 5 minutes. There shall be no evidence of splitting, cracking or breaking.



TESTING REQUIREMENTS FOR AWWA C905

TEST	AWWA C905				
	80 psi	100 psi	125 psi	165 psi	235 psi
SHORT TERM BURST TEST (psi) less than 30"	255	315	400	535	755
EXTRUSION QUALITY OF PVC PIPE BY ACETONE IMMERSION TEST METHOD ASTM D2152	20 min	20 min	20 min	20 min	20 min
FLATTENING TEST Tests extrusion quality and ductility under slow loading conditions (Flattening Capability)	40% of OD between the plates within 2-5 min	40% of OD between the plates within 2-5 min	40% of OD between the plates within 2-5 min	40% of OD between the plates within 2-5 min	40% of OD between the plates within 2-5 min
HYDROSTATIC PROOF TEST (each piece) (psi)	160	200	250	330	470

TYPICAL PHYSICAL AND CHEMICAL PROPERTIES AND CAPACITIES

PROPERTY	AWWA C905 BIG BLUE™ PVC PIPE	ASTM TEST METHOD
Hoop Stress at 73°F Minimum Short Term Bursting Strength (psi)	6400	D1599
Working Pressure Rating 73°F (% of rating at 73°F) 80°F (% of rating at 73°F) 100°F (% of rating at 73°F)	100% 88% 62%	—
Chemical Resistance at 73°F Acids Salts-Bases Aliphatic Hydrocarbons (including crude oil)	Excellent Excellent Good	—
Physical Properties of Compound Std. Test Specimens Minimum Tensile Strength (psi) at 73°F	7000	D638
Thermal Expansion (in/100ft/50°F Change)	2"	—
Fire Resistance	Self Extinguishing	—
Flame Spread	10	E162
Smoke Development	330	E84
Coefficient of Flow Hazen & Williams	C= 150	—
Mannings N Value	N=0.009	—

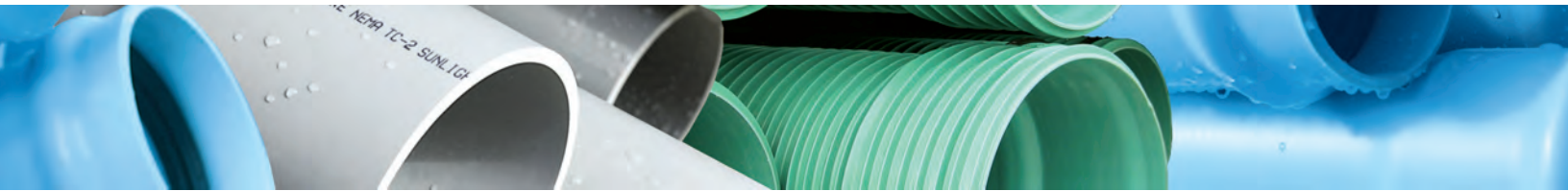
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DIMENSIONS AND WEIGHTS

SUBMITTAL AND DATA SHEET

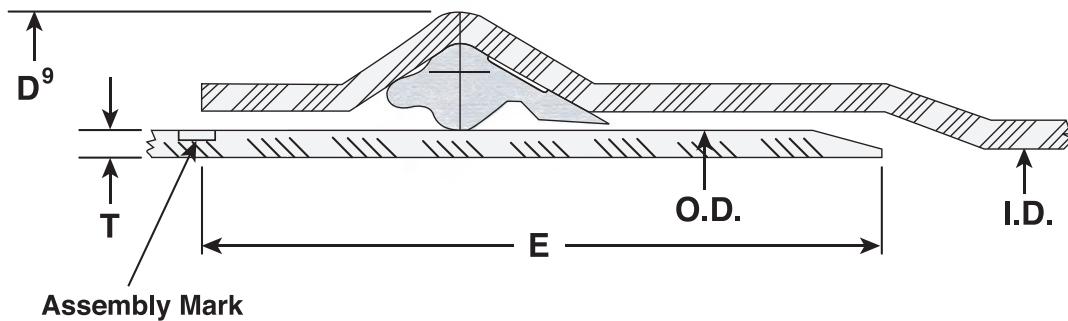
PIPE SIZE (IN)	AVERAGE O.D. (IN)	NOM. I.D. (IN)	MIN. T. (IN)	MIN. E (IN)	APPROX. D ⁹ (IN)	APPROX. WEIGHT (LBS/FT)
Rated 235 psi (DR 18)						
14	15.30	13.50	0.850	8.00	19.00	26.75
16	17.40	15.35	0.967	9.25	21.62	34.86
18	19.50	17.20	1.083	13.00	24.22	48.95
20	21.60	19.06	1.200	14.50	26.85	54.22
24	25.80	22.76	1.433	12.00	32.06	77.97
Rated 200 psi (DR 21)*						
14	15.30	13.75	0.729	8.00	18.22	23.07
16	17.40	15.64	0.829	9.25	20.72	30.04
18	19.50	17.53	0.929	13.00	23.22	37.27
20	21.60	19.42	1.029	14.50	25.72	46.71
24	25.80	23.19	1.229	12.00	30.72	67.53
30	32.00	28.77	1.524	16.75	38.10	103.71
36	38.30	34.43	1.824	19.02	45.60	152.16
Rated 165 psi (DR 25)						
14	15.30	14.00	0.612	8.00	17.94	19.48
16	17.40	15.92	0.696	9.25	20.41	25.38
18	19.50	17.85	0.780	13.00	22.87	31.99
20	21.60	19.77	0.864	14.50	25.34	39.46
24	25.80	23.61	1.032	12.00	30.27	56.98
30	32.00	29.29	1.280	16.75	37.12	88.49
36	38.30	35.05	1.532	19.02	44.43	128.41
42	44.50	40.73	1.780	22.43	51.62	176.02
48*	50.80	46.49	2.032	24.78	58.93	231.22
Rated 125 psi (DR 32.5)*						
14	15.30	14.30	0.471	8.00	17.48	15.14
16	17.40	16.27	0.535	9.25	19.88	19.63
18	19.50	18.23	0.600	13.00	23.30	24.75
20	21.60	20.19	0.665	14.50	24.38	30.54
24	25.80	24.12	0.794	12.00	29.47	44.11
30	32.00	29.91	0.985	16.75	35.94	68.45
36	38.30	35.80	1.178	19.02	43.01	99.22
42	44.50	41.60	1.369	22.43	49.98	135.49
48	50.80	47.49	1.563	24.78	56.73	178.49



PIPE SIZE (IN)	AVERAGE O.D. (IN)	NOM. I.D. (IN)	MIN. T. (IN)	MIN. E (IN)	APPROX. D ⁹ (IN)	APPROX. WEIGHT (LBS/FT)
Rated 100 psi (DR 41)						
14	15.30	14.52	0.373	8.00	16.07	12.01
16	17.40	16.51	0.424	9.25	18.28	15.63
18	19.50	18.50	0.476	13.00	20.49	19.72
20	21.60	20.49	0.527	14.50	22.70	24.31
24	25.80	24.48	0.629	12.00	27.11	35.10
30	32.00	30.35	0.780	16.75	35.12	54.65
36	38.30	36.30	0.934	19.02	42.04	78.97
42	44.50	42.18	1.085	22.43	48.84	108.19
48	50.80	48.14	1.239	24.78	55.76	142.10
Rated 80 psi (DR 51)**						
18	19.50	18.69	0.382	11.09	20.30	15.92
24	25.80	24.72	0.506	14.90	26.86	28.39
30	32.00	30.67	0.627	16.75	34.50	44.08
36	38.30	36.71	0.751	19.02	41.30	64.32
42	44.50	42.65	0.872	22.43	47.99	88.10
48	50.80	48.69	0.996	24.78	54.78	115.79

* Prior to ordering or specifying, please consult JM Eagle™ for product and/or listing availability.

** UL 1285 up to 24"



I.D. : Inside Diameter

O.D. : Outside Diameter

T. : Wall Thickness

D⁹: Bell Outside Diameter

E: Distance between Assembly Mark to the end of spigot.

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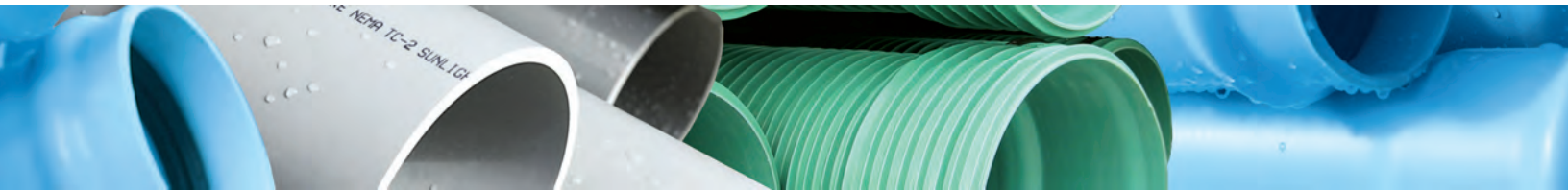
FLOW/FRICTION CHARTS

FLOW/FRICTION LOSS, BIG BLUE™ PVC PIPE

14" C.I.O.D. (AWWA C905) ACTUAL O.D. 15.300 INCH

FLOW (GAL/ MIN)	DR 41 (100 psi)		DR 32.5 (125 psi)		DR 25 (165 psi)		DR 21 (200 psi)		DR 18 (235 psi)	
	VELOCITY FT/S	PRESSURE DROP psi/100 FT	VELOCITY FT/S	PRESSURE DROP psi/100 FT	VELOCITY FT/S	PRESSURE DROP psi/100 FT	VELOCITY FT/S	PRESSURE DROP psi/100 FT	VELOCITY FT/S	PRESSURE DROP psi/100 FT
700	1.360	0.018	1.399	0.019	1.460	0.021	1.513	0.023	1.571	0.025
900	1.748	0.028	1.799	0.030	1.877	0.033	1.945	0.036	2.020	0.040
1100	2.136	0.041	2.199	0.044	2.294	0.048	2.377	0.053	2.468	0.058
1300	2.525	0.056	2.599	0.060	2.711	0.066	2.810	0.072	2.917	0.079
1500	2.913	0.072	2.999	0.078	3.128	0.086	3.242	0.094	3.366	0.103
1700	3.302	0.091	3.398	0.098	3.545	0.108	3.674	0.118	3.815	0.130
1900	3.690	0.112	3.798	0.120	3.962	0.133	4.106	0.145	4.264	0.159
2100	4.079	0.135	4.198	0.145	4.379	0.160	4.538	0.175	4.713	0.192
2300	4.467	0.160	4.598	0.171	4.796	0.190	4.971	0.207	5.161	0.227
2500	4.855	0.186	4.998	0.200	5.213	0.222	5.403	0.242	5.610	0.265
2700	5.244	0.215	5.397	0.231	5.630	0.256	5.835	0.279	6.059	0.306
2900	5.632	0.245	5.797	0.263	6.047	0.292	6.267	0.318	6.508	0.349
3000	5.827	0.261	5.997	0.280	6.256	0.311	6.483	0.339	6.732	0.371
3500	6.798	0.348	6.997	0.373	7.298	0.413	7.564	0.451	7.854	0.494
4000	7.769	0.445	7.996	0.478	8.341	0.529	8.645	0.577	8.976	0.633
4500	8.740	0.554	8.996	0.594	9.384	0.658	9.725	0.718	10.098	0.787
5000	9.711	0.673	9.995	0.722	10.426	0.800	10.806	0.873	11.220	0.956
5500	10.682	0.803	10.995	0.861	11.469	0.954	11.886	1.041	12.342	1.141

Based on calculation methods and design tables set forth by the Uni-Bell® PVC Pipe Association, "Handbook of PVC Pipe Design and Construction."



FLOW/FRICTION LOSS, BIG BLUE™ PVC PIPE

16" C.I.O.D. (AWWA C905) ACTUAL O.D. 17.400 INCH

FLOW (GAL/ MIN)	DR 41 (100 psi)		DR 32.5 (125 psi)		DR 25 (165 psi)		DR 21 (200 psi)		DR 18 (235 psi)	
	VELOCITY FT/S	PRESSURE DROP psi/100 FT	VELOCITY FT/S	PRESSURE DROP psi/100 FT	VELOCITY FT/S	PRESSURE DROP psi/100 FT	VELOCITY FT/S	PRESSURE DROP psi/100 FT	VELOCITY FT/S	PRESSURE DROP psi/100 FT
900	1.351	0.015	1.391	0.016	1.451	0.018	1.504	0.019	1.562	0.021
1200	1.802	0.026	1.854	0.027	1.935	0.030	2.005	0.033	2.082	0.036
1500	2.252	0.039	2.318	0.042	2.418	0.046	2.506	0.050	2.603	0.055
1800	2.703	0.054	2.782	0.058	2.902	0.065	3.008	0.070	3.123	0.077
2100	3.153	0.072	3.245	0.077	3.386	0.086	3.509	0.094	3.644	0.103
2400	3.604	0.092	3.709	0.099	3.870	0.110	4.010	0.120	4.165	0.131
2700	4.054	0.115	4.172	0.123	4.353	0.137	4.512	0.149	4.685	0.163
3000	4.505	0.140	4.636	0.150	4.837	0.166	5.013	0.181	5.206	0.199
3300	4.955	0.167	5.100	0.179	5.321	0.198	5.514	0.216	5.726	0.237
3500	5.256	0.186	5.409	0.199	5.643	0.221	5.848	0.241	6.073	0.264
4000	6.006	0.238	6.181	0.255	6.449	0.283	6.684	0.309	6.941	0.338
4500	6.757	0.296	6.954	0.318	7.255	0.352	7.519	0.384	7.809	0.421
5000	7.508	0.360	7.727	0.386	8.062	0.428	8.355	0.467	8.676	0.512
5500	8.259	0.429	8.499	0.460	8.868	0.510	9.190	0.557	9.544	0.610
6000	9.010	0.504	9.272	0.541	9.674	0.600	10.026	0.654	10.412	0.717
6500	9.760	0.585	10.045	0.627	10.480	0.696	10.861	0.759	11.279	0.832
7000	10.511	0.671	10.817	0.720	11.286	0.798	11.697	0.870	12.147	0.954
7500	11.262	0.763	11.590	0.818	12.092	0.907	12.532	0.989	13.014	1.084

Based on calculation methods and design tables set forth by the Uni-Bell® PVC Pipe Association, "Handbook of PVC Pipe Design and Construction."



FLOW/FRICTION CHARTS

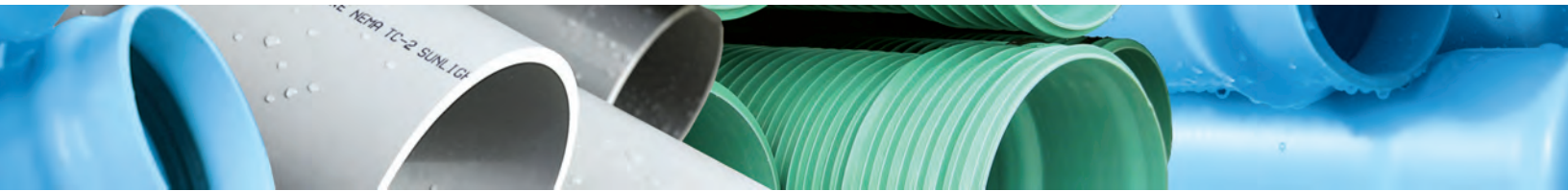
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FLOW/FRICTION LOSS, BIG BLUE™ PVC PIPE

18" C.I.O.D. (AWWA C905) ACTUAL O.D. 19.500 INCH

FLOW (GAL/ MIN)	DR 51 (80 psi)		DR 41 (100 psi)		DR 32.5 (125 psi)		DR 25 (165 psi)		DR 21 (200 psi)		DR 18 (200 psi)	
	VELOCITY FT/S	PRESSURE DROP psi/100 FT	VELOCITY FT/S	PRESSURE DROP psi/100 FT	VELOCITY FT/S	PRESSURE DROP psi/100 FT	VELOCITY FT/S	PRESSURE DROP psi/100 FT	VELOCITY FT/S	PRESSURE DROP psi/100 FT	VELOCITY FT/S	PRESSURE DROP psi/100 FT
1100	1.287	0.012	1.315	0.013	1.354	0.013	1.412	0.015	1.463	0.016	1.520	0.018
1400	1.639	0.019	1.674	0.020	1.723	0.021	1.797	0.023	1.863	0.025	1.934	0.028
1700	1.990	0.027	2.033	0.028	2.092	0.030	2.182	0.033	2.262	0.036	2.348	0.040
2000	2.341	0.036	2.392	0.038	2.461	0.041	2.567	0.045	2.661	0.049	2.763	0.054
2300	2.692	0.047	2.750	0.049	2.830	0.053	2.953	0.058	3.060	0.064	3.177	0.070
2600	3.043	0.058	3.109	0.062	3.199	0.066	3.338	0.073	3.459	0.080	3.592	0.088
2900	3.394	0.072	3.468	0.075	3.569	0.081	3.723	0.090	3.858	0.098	4.006	0.107
3200	3.745	0.086	3.827	0.090	3.938	0.097	4.108	0.108	4.257	0.117	4.420	0.129
3500	4.097	0.101	4.185	0.107	4.307	0.115	4.493	0.127	4.656	0.138	4.835	0.152
4000	4.682	0.130	4.783	0.137	4.922	0.147	5.135	0.163	5.322	0.177	5.526	0.194
4500	5.267	0.162	5.381	0.170	5.537	0.182	5.777	0.202	5.987	0.221	6.216	0.242
5000	5.852	0.196	5.979	0.207	6.153	0.222	6.419	0.246	6.625	0.268	6.907	0.294
5500	6.437	0.234	6.577	0.247	6.768	0.265	7.061	0.293	7.317	0.320	7.598	0.350
6000	7.023	0.275	7.175	0.290	7.383	0.311	7.702	0.345	7.983	0.376	8.288	0.412
6500	7.608	0.319	7.773	0.336	7.999	0.360	8.344	0.400	8.648	0.436	8.979	0.478
7000	8.193	0.366	8.371	0.386	8.614	0.414	8.986	0.458	9.313	0.500	9.670	0.548
7500	8.778	0.416	8.969	0.438	9.229	0.470	9.628	0.521	9.978	0.568	10.360	0.622
8000	9.364	0.469	9.566	0.494	9.844	0.530	10.270	0.587	10.643	0.640	11.051	0.702

Based on calculation methods and design tables set forth by the Uni-Bell® PVC Pipe Association, "Handbook of PVC Pipe Design and Construction."



FLOW/FRICTION LOSS, BIG BLUE™ PVC PIPE

20" C.I.O.D. (AWWA C905) ACTUAL O.D. 21.600 INCH

FLOW (GAL/ MIN)	DR 51 (80 psi)		DR 41 (100 psi)		DR 32.5 (125 psi)		DR 25 (165 psi)		DR 18 (235 psi)	
	VELOCITY FT/S	PRESSURE DROP psi/100 FT	VELOCITY FT/S	PRESSURE DROP psi/100 FT	VELOCITY FT/S	PRESSURE DROP psi/100 FT	VELOCITY FT/S	PRESSURE DROP psi/100 FT	VELOCITY FT/S	PRESSURE DROP psi/100 FT
1500	1.431	0.013	1.462	0.014	1.504	0.015	1.465	0.014	1.576	0.017
2000	1.908	0.022	1.949	0.023	2.006	0.025	1.988	0.025	2.139	0.030
2500	2.385	0.033	2.436	0.035	2.507	0.037	2.511	0.038	2.702	0.046
3000	2.862	0.046	2.924	0.049	3.009	0.052	3.034	0.054	3.265	0.065
3500	3.339	0.062	3.411	0.065	3.510	0.070	3.557	0.073	3.828	0.087
4000	3.816	0.079	3.898	0.083	4.012	0.089	4.080	0.094	4.391	0.113
4500	4.293	0.098	4.385	0.103	4.513	0.111	4.604	0.118	4.954	0.141
5000	4.770	0.119	4.873	0.126	5.015	0.135	5.127	0.144	5.517	0.172
5500	5.248	0.142	5.360	0.150	5.516	0.161	5.650	0.172	6.080	0.206
6000	5.725	0.167	5.847	0.176	6.018	0.189	6.278	0.209	6.756	0.250
7000	6.679	0.223	6.822	0.234	7.021	0.251	7.324	0.279	7.882	0.333
8000	7.633	0.285	7.796	0.300	8.024	0.322	8.370	0.357	9.007	0.427
9000	8.587	0.355	8.771	0.373	9.027	0.400	9.416	0.444	10.133	0.531
10000	9.541	0.431	9.745	0.454	10.030	0.487	10.463	0.539	11.259	0.645
11000	10.495	0.514	10.720	0.541	11.033	0.581	11.509	0.644	12.385	0.769
12000	11.449	0.604	11.695	0.636	12.036	0.682	12.555	0.756	13.511	0.904
13000	12.403	0.701	12.669	0.738	13.039	0.791	13.601	0.877	14.637	1.048
14000	13.357	0.804	13.644	0.846	14.042	0.908	14.648	1.006	15.763	1.203

Based on calculation methods and design tables set forth by the Uni-Bell® PVC Pipe Association, "Handbook of PVC Pipe Design and Construction."



FLOW/FRICTION CHARTS

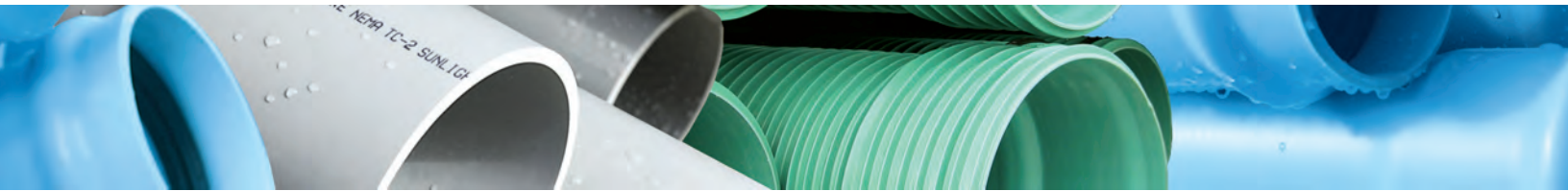
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FLOW/FRICTION LOSS, BIG BLUE™ PVC PIPE

24" C.I.O.D. (AWWA C905) ACTUAL O.D. 25.800 INCH

FLOW (GAL/ MIN)	DR 51 (80 psi)		DR 41 (100 psi)		DR 32.5 (125 psi)		DR 25 (165 psi)		DR 18 (235 psi)	
	VELOCITY FT/S	PRESSURE DROP psi/100 FT	VELOCITY FT/S	PRESSURE DROP psi/100 FT	VELOCITY FT/S	PRESSURE DROP psi/100 FT	VELOCITY FT/S	PRESSURE DROP psi/100 FT	VELOCITY FT/S	PRESSURE DROP psi/100 FT
2000	1.337	0.009	1.366	0.010	1.406	0.010	1.467	0.012	1.578	0.014
2500	1.672	0.014	1.708	0.015	1.757	0.016	1.833	0.017	1.973	0.021
3000	2.006	0.020	2.049	0.021	2.109	0.022	2.200	0.024	2.367	0.029
3500	2.340	0.026	2.391	0.027	2.460	0.029	2.567	0.033	2.762	0.039
4000	2.675	0.033	2.732	0.035	2.812	0.038	2.933	0.042	3.157	0.050
4500	3.009	0.041	3.074	0.044	3.163	0.047	3.300	0.052	3.551	0.062
5000	3.343	0.050	3.415	0.053	3.515	0.057	3.667	0.063	3.946	0.075
5500	3.678	0.060	3.757	0.063	3.866	0.068	4.033	0.075	4.340	0.090
6000	4.012	0.070	4.098	0.074	4.218	0.080	4.400	0.088	4.735	0.105
6500	4.346	0.082	4.440	0.086	4.569	0.092	4.767	0.102	5.129	0.122
7500	5.015	0.107	5.123	0.112	5.272	0.120	5.500	0.133	5.919	0.159
8500	5.684	0.134	5.806	0.141	5.975	0.152	6.233	0.168	6.708	0.201
9500	6.353	0.165	6.489	0.174	6.678	0.186	6.967	0.207	7.497	0.247
10500	7.021	0.199	7.172	0.209	7.381	0.224	7.700	0.249	8.286	0.297
11500	7.690	0.235	7.855	0.248	8.084	0.266	8.433	0.294	9.075	0.352
12500	8.359	0.274	8.538	0.289	8.787	0.310	9.167	0.344	9.864	0.411
13500	9.027	0.316	9.221	0.333	9.490	0.357	9.900	0.396	10.653	0.474
14500	9.696	0.361	9.904	0.380	10.193	0.408	10.633	0.452	11.443	0.541

Based on calculation methods and design tables set forth by the Uni-Bell® PVC Pipe Association, "Handbook of PVC Pipe Design and Construction."



FLOW/FRICTION LOSS, BIG BLUE™ PVC PIPE

30" C.I.O.D. (AWWA C905) ACTUAL O.D. 32.000 INCH

FLOW (GAL/MIN)	DR 51 (80 psi)		DR 41 (100 psi)		DR 32.5 (125 psi)		DR 25 (165 psi)	
	VELOCITY FT/S	PRESSURE DROP psi/100 FT	VELOCITY FT/S	PRESSURE DROP psi/100 FT	VELOCITY FT/S	PRESSURE DROP psi/100 FT	VELOCITY FT/S	PRESSURE DROP psi/100 FT
3000	1.304	0.007	1.332	0.007	1.371	0.008	1.430	0.009
3500	1.521	0.009	1.554	0.010	1.599	0.010	1.668	0.011
4000	1.739	0.012	1.776	0.012	1.828	0.013	1.907	0.015
4500	1.956	0.015	1.998	0.015	2.056	0.016	2.145	0.018
5000	2.173	0.018	2.220	0.019	2.285	0.020	2.384	0.022
5500	2.391	0.021	2.442	0.022	2.513	0.024	2.622	0.026
6000	2.608	0.025	2.664	0.026	2.742	0.028	2.860	0.031
6500	2.825	0.029	2.886	0.030	2.970	0.032	3.099	0.036
7000	3.042	0.033	3.108	0.035	3.199	0.037	3.337	0.041
8000	3.477	0.042	3.552	0.044	3.656	0.048	3.814	0.053
10000	4.346	0.064	4.440	0.067	4.570	0.072	4.767	0.080
12000	5.216	0.089	5.328	0.094	5.484	0.101	5.720	0.112
14000	6.085	0.119	6.216	0.125	6.398	0.134	6.674	0.149
16000	6.954	0.152	7.104	0.160	7.312	0.172	7.627	0.190
18000	7.823	0.189	7.992	0.199	8.226	0.214	8.581	0.237
20000	8.693	0.230	8.880	0.242	9.139	0.260	9.534	0.288
22000	9.562	0.274	9.768	0.289	10.053	0.310	10.487	0.343
24000	10.431	0.322	10.656	0.339	10.967	0.364	11.441	0.403

Based on calculation methods and design tables set forth by the Uni-Bell® PVC Pipe Association, "Handbook of PVC Pipe Design and Construction."



FLOW/FRICTION CHARTS

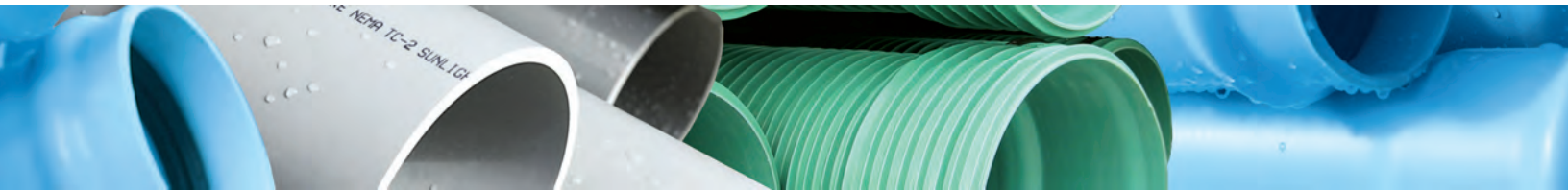
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FLOW/FRICTION LOSS, BIG BLUE™ PVC PIPE

36" C.I.O.D. (AWWA C905) ACTUAL O.D. 38.300 INCH

FLOW (GAL/MIN)	DR 51 (80 psi)		DR 41 (100 psi)		DR 32.5 (125 psi)		DR 25 (165 psi)	
	VELOCITY FT/S	PRESSURE DROP psi/100 FT	VELOCITY FT/S	PRESSURE DROP psi/100 FT	VELOCITY FT/S	PRESSURE DROP psi/100 FT	VELOCITY FT/S	PRESSURE DROP psi/100 FT
5000	1.517	0.007	1.550	0.008	1.595	0.008	1.664	0.009
5500	1.669	0.009	1.705	0.009	1.754	0.010	1.830	0.011
6000	1.821	0.010	1.860	0.011	1.914	0.012	1.997	0.013
6500	1.972	0.012	2.015	0.013	2.073	0.014	2.163	0.015
7000	2.124	0.014	2.170	0.014	2.223	0.015	2.329	0.017
8000	2.427	0.018	2.480	0.018	2.552	0.020	2.662	0.022
11000	3.338	0.032	3.409	0.033	3.509	0.036	3.661	0.040
14000	4.248	0.050	4.339	0.052	4.466	0.056	4.659	0.062
17000	5.158	0.071	5.269	0.075	5.422	0.080	5.657	0.089
20000	6.069	0.096	6.199	0.101	6.379	0.108	6.655	0.120
23000	6.979	0.124	7.129	0.131	7.336	0.140	7.654	0.155
26000	7.889	0.156	8.059	0.164	8.293	0.176	8.652	0.195
29000	8.799	0.191	8.988	0.201	9.250	0.215	9.650	0.239
32000	9.710	0.229	9.918	0.241	10.207	0.258	10.649	0.287
35000	10.620	0.270	10.848	0.285	11.164	0.305	11.647	0.338
38000	11.530	0.315	11.778	0.331	12.121	0.355	12.645	0.394
41000	12.441	0.362	12.708	0.381	13.078	0.409	13.644	0.453
44000	13.351	0.413	13.638	0.435	14.0352	0.466	14.642	0.517

Based on calculation methods and design tables set forth by the Uni-Bell® PVC Pipe Association, "Handbook of PVC Pipe Design and Construction."



FLOW/FRICTION LOSS, BIG BLUE™ PVC PIPE

42" C.I.O.D. (AWWA C905) ACTUAL O.D. 44.500 INCH

FLOW (GAL/MIN)	DR 51 (80 psi)		DR 41 (100 psi)		DR 32.5 (125 psi)		DR 25 (165 psi)	
	VELOCITY FT/S	PRESSURE DROP psi/100 FT	VELOCITY FT/S	PRESSURE DROP psi/100 FT	VELOCITY FT/S	PRESSURE DROP psi/100 FT	VELOCITY FT/S	PRESSURE DROP psi/100 FT
7000	1.573	0.007	1.607	0.007	1.654	0.007	1.726	0.008
7500	1.686	0.008	1.722	0.008	1.772	0.008	1.849	0.009
8000	1.798	0.008	1.837	0.009	1.890	0.010	1.972	0.011
8500	1.910	0.009	1.952	0.010	2.008	0.011	2.095	0.012
9000	2.023	0.011	2.066	0.011	2.127	0.012	2.219	0.013
9500	2.135	0.012	2.181	0.012	2.245	0.013	2.342	0.015
10000	2.248	0.013	2.296	0.013	2.363	0.014	2.465	0.016
14000	3.147	0.024	3.214	0.025	3.308	0.027	3.451	0.030
18000	4.046	0.038	4.133	0.040	4.253	0.043	4.437	0.048
22000	4.945	0.055	5.051	0.058	5.198	0.062	5.423	0.069
26000	5.844	0.075	5.969	0.079	6.143	0.085	6.409	0.094
30000	6.743	0.098	6.888	0.103	7.089	0.111	7.395	0.123
34000	7.642	0.123	7.806	0.130	8.034	0.139	8.381	0.155
38000	8.541	0.152	8.724	0.160	8.979	0.171	9.367	0.190
42000	9.440	0.183	9.643	0.192	9.924	0.206	10.353	0.229
46000	10.339	0.216	10.561	0.227	10.869	0.244	11.339	0.270
50000	11.238	0.252	11.480	0.265	11.814	0.285	12.325	0.316
54000	12.137	0.291	12.398	0.306	12.759	0.328	13.311	0.364

Based on calculation methods and design tables set forth by the Uni-Bell® PVC Pipe Association, "Handbook of PVC Pipe Design and Construction."



FLOW/FRICTION CHARTS

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FLOW/FRICTION LOSS, BIG BLUE™ PVC PIPE

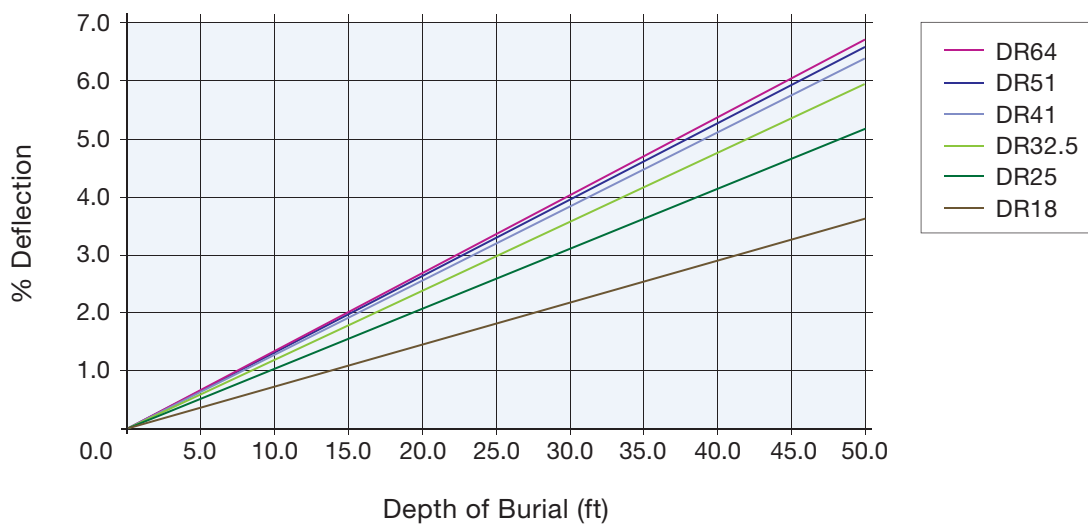
48" C.I.O.D. (AWWA C905) ACTUAL O.D. 50.80 INCH

FLOW (GAL/MIN)	DR 51 (80 psi)		DR 41 (100 psi)		DR 32.5 (125 psi)	
	VELOCITY FT/S	PRESSURE DROP psi/100 FT	VELOCITY FT/S	PRESSURE DROP psi/100 FT	VELOCITY FT/S	PRESSURE DROP psi/100 FT
9000	1.552	0.006	1.586	0.006	1.632	0.006
9500	1.639	0.006	1.674	0.006	1.723	0.007
10000	1.725	0.007	1.762	0.007	1.813	0.008
14000	2.415	0.013	2.467	0.013	2.538	0.014
18000	3.105	0.020	3.171	0.021	3.264	0.023
22000	3.794	0.029	3.876	0.030	3.989	0.033
26000	4.484	0.039	4.581	0.042	4.714	0.045
30000	5.174	0.051	5.285	0.054	5.440	0.058
34000	5.864	0.065	5.990	0.068	6.165	0.073
38000	6.554	0.080	6.695	0.084	6.890	0.090
42000	7.244	0.096	7.400	0.101	7.615	0.108
46000	7.934	0.113	8.104	0.119	8.341	0.128
50000	8.624	0.132	8.809	0.139	9.066	0.149
54000	9.314	0.153	9.514	0.161	9.791	0.172
58000	10.004	0.174	10.219	0.184	10.516	0.197
62000	10.693	0.197	10.923	0.208	11.242	0.223
66000	11.383	0.221	11.628	0.233	11.967	0.250
70000	12.073	0.247	12.333	0.260	12.6921	0.279

Based on calculation methods and design tables set forth by the Uni-Bell® PVC Pipe Association, "Handbook of PVC Pipe Design and Construction."

DEFLECTION CHART

BIG BLUE™ DEFLECTION BY DEPTH OF BURIAL : : †



: : Deflections computed using a unit weight of backfill at 120 lbs/cft and assume no internal pressure or live load.

: : Pipe embedment used in calculations is Class 1, 2, 3, or 4, as defined in ASTM D2321 with appropriate compaction to achieve an $E' = 1000$ psi.

† Based on calculation methods and design tables set forth by the Uni-Bell® PVC Pipe Association, "Handbook of PVC Pipe Design and Construction."

07

SHORT FORM INSTALLATION GUIDE/ WARNING

This information is furnished in order to provide a brief review of the installation requirements for JM Eagle™ Big Blue™ PVC pipe. It is not intended to serve as or replace the function of the FULL VERSION product installation guide available upon request.

1. Check to see that the gasket is properly seated in the bell groove, and that the bell and spigot are clean before assembly.
2. Apply the approved lubricant supplied with the pipe to the spigot end of the pipe, paying particular attention to the bevel. The coating should be equivalent to a brush coat of enamel paint.
3. Assemble the joint only to and not over the assembly mark provided on the spigot end.
4. If undue resistance to insertion of the spigot is encountered, or the assembly mark does not reach the flush position, disassemble the joint and check the position of the rubber gasket, and remove any debris.
5. JM Eagle's recommendation for 14" through 48" diameter **Big Blue™ Only** is that the angular deflection at the joint is a maximum of 1.5 degrees. This will produce an offset in a 20' section of approximately 6¼ inches. Joint deflection is achieved after the joint is assembled in straight alignment and to the reference mark.
6. Prior to backfilling, check to see that the assembly mark is flush with the end of the bell.
7. All taps performed on JM Eagle's pressure products, shall be in accordance with Uni-Bell® Publication UNI-PUB-08-07, "Tapping Guide for PVC Pressure Pipe."

▲ WARNING: RUPTURE HAZARD

IMPROPER INSTALLATION OR MISUSE OF TAPPING TOOLS MAY CAUSE PIPES UNDER HIGH PRESSURE TO RUPTURE AND RESULT IN HIGH VELOCITY AIRBORNE FRAGMENTATION LEADING TO SERIOUS INJURIES AND/OR DEATH.

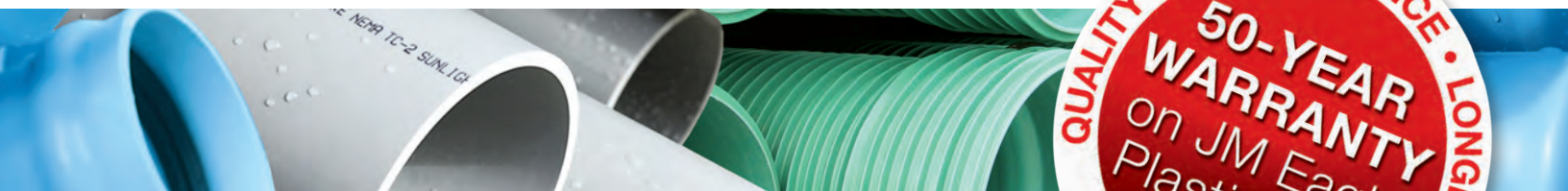
BEFORE AND DURING INSTALLATION, ALWAYS:

- Consult and follow the FULL VERSION of the product installation guide
- Closely follow job specifications
- Use protective gear and equipment

BEFORE AND DURING TAPPING, ALWAYS:

- Consult and follow Uni-Bell® Publication UNI-PUB-08-07, "Tapping Guide for PVC Pressure Pipe."
- Use the correct tapping tools
- Bleed air from pipes at high spot before tapping
- Use protective gear and equipment

Please contact JM Eagle™ Product Assurance at (800) 621-4404 to obtain FULL VERSION of the appropriate installation guide or for further assistance.



LIMITED WARRANTY

1. PERIODS AND SCOPE OF COVERAGE

JM Eagle™ warrants that the pipe products certified to the standards of the American Water Works Association (AWWA) for water distribution, transmission and force sewer mains including C900, C905, C909, C901 and C906 products manufactured by JM Eagle™ (each a “Product” and collectively, the “Products”)* are manufactured in accordance with the following AWWA, ASTM, ANSI/NSF, and UL standards as follows: (1) AWWA C900 and ASTM 1784 cell class 12454; Gaskets meet ASTM F477; Joints meet ASTM D3139; ANSI/NSF-61, UL 1285 for the C900, (2) AWWA C905 and ASTM 1784 cell class 12454; Gaskets meet ASTM F477; Joints meet ASTM D3139; ANSI/NSF-61, UL 1285 for C905, (3) AWWAC909 and UL 1285; Gaskets meet ASTM F477; Joints meet ASTM D3139 for C909 and (4) AWWA C901/906, ASTM D2239, ASTM D2737, ASTM D3035, F714, cell class per ASTM D3350, PPI listed material (TR-4) PE3408/3608 & PE4710, ANSI/NSF-14 for C901 and C906. JM Eagle™ warrants that each of these Products manufactured by JM Eagle™ leaves our plant free from defects in workmanship and materials. These Products as manufactured by JM Eagle™ are backed by our unprecedented fifty (50) year Limited Warranty. This Limited Warranty provides that Products manufactured by JM Eagle™ meet the above stated quality standards published by the AWWA, ASTM International (ASTM), American National Standards Institute/NSF International (ANSI/NSF), and Underwriters Laboratories (UL).

If any Product is determined within fifty (50) years from the date of invoice by JM Eagle™ to be defective because it failed to meet the above stated standards, JM Eagle™ will then provide replacement product of the same type, size and quantity of the product and pay for the costs directly related to its replacement*** or issue credits, offsets or a combination thereof for the wholesale purchase price of the defective product.

JM Eagle™ also warrants that the design of our Products are independently tested and/or certified by AWWA, NSF and UL to meet their respective standards and that our plants manufacturing the Products are already certified or in process of being certified to ISO 9001 certification** as part of our program to develop manufacturing processes that consistently produce high quality plastic pipe.

JM Eagle™ quality control programs encompass three critical aspects of the manufacturing process: the incoming raw material, pipe production, and the finished goods.

2. EXCLUSIONS FROM COVERAGE AND EXCLUSIVE REMEDY:

Products manufactured by JM Eagle™ are marked with JM Eagle, PW Eagle or US Poly stencil markings. This limited warranty excludes any Product not manufactured by JM Eagle™, even if it is sold by JM Eagle™, and also excludes defects or failures caused after shipment by:

- improper installation (including, without limitation, misalignment),
- use in improper applications or conditions or in conjunction with improper materials (including, without limitation, improper lubricants, pastes, solvents or sealants),
- contact with aggressive chemical agents, freezing or overheating of liquids in the Product, or unusual pressure surges or pulsation,
- vibration,
- temperature shocking,
- U.V. degradation,
- failure to adhere to JM Eagle™’s instructions concerning the proper handling, installation, testing and use of the Product,
- failure to adhere to applicable standards set forth by local laws, codes, or regulations and the applicable industry standards, or
- any other improper activities not listed above or damage caused by the fault or negligence of anyone other than JM Eagle™.



THE WARRANTIES IN THIS LIMITED WARRANTY ARE THE ONLY WARRANTIES APPLICABLE TO THE PRODUCTS. THERE ARE NO OTHER WARRANTIES, REPRESENTATIONS OR CONDITIONS OF ANY KIND, EXPRESS OR IMPLIED, STATUTORY OR OTHERWISE, WITH RESPECT TO THE PRODUCTS SUPPLIED HEREUNDER INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. ALL SUCH WARRANTIES ARE HEREBY SPECIFICALLY DISCLAIMED AND JM EAGLE™ SHALL NOT BE LIABLE IN THIS RESPECT NOTWITHSTANDING JM EAGLE'S™ ACTUAL KNOWLEDGE OF THE PRODUCT'S INTENDED USE OR ANY ADVICE OR REPRESENTATIONS THAT MAY HAVE BEEN RENDERED BY JM EAGLE™ CONCERNING THE DESIGN, MANUFACTURE, FABRICATION, SALE, USE, INSTALLATION OR PROVISION OF THE PRODUCTS. NO STATEMENT, CONDUCT OR DESCRIPTION BY JM EAGLE™ OR ITS REPRESENTATIVES, IN ADDITION TO OR BEYOND THIS LIMITED WARRANTY, SHALL CONSTITUTE A WARRANTY.

BUYER AGREES THAT ITS SOLE AND EXCLUSIVE REMEDY FOR BREACH OF THIS LIMITED WARRANTY, AND THE SOLE AND EXCLUSIVE OBLIGATION OF JM EAGLE™ IN RESPECT OF ANY CLAIMS FOR BREACH OF THIS LIMITED WARRANTY, SHALL BE (1) THE REPLACEMENT OF THE SAME TYPE, SIZE AND LIKE QUANTITY OF NON-DEFECTIVE PRODUCT, AT THE ORIGINAL POINT OF DELIVERY AND COSTS RELATED TO ITS REPLACEMENT***, OR (2) CREDITS, OFFSETS, OR A COMBINATION THEREOF, FOR THE WHOLESALE PURCHASE PRICE OF THE DEFECTIVE PRODUCT. IN NO EVENT SHALL JM EAGLE™ BE LIABLE FOR LOST PROFITS, LOSS OF GOODWILL, LOSS OF BUSINESS OPPORTUNITIES, DAMAGE TO REPUTATION, SPECIAL DAMAGES, INDIRECT DAMAGES, DELAY DAMAGES, PUNITIVE DAMAGES, EXEMPLARY DAMAGES, CONSEQUENTIAL DAMAGES OR INCIDENTAL DAMAGES.

3. REQUIREMENTS FOR MAKING CLAIMS:

Every claim for breach under this warranty shall be void unless it is made in writing to JM Eagle™ and postmarked within five business (5) days of the date the defect was discovered or in the exercise of ordinary care should have been discovered and, in any event, the claim must also be made within fifty (50) years of the date of the JM Eagle™ invoice. As noted above, Products manufactured by JM Eagle™ are marked with a JM Eagle, PW Eagle or US Polystencil. This limited warranty excludes any Product not manufactured by JM Eagle™, even if it is sold by JM Eagle™.

Any claim for breach of warranty must be sent to:

PRODUCT ASSURANCE DEPARTMENT
JM EAGLE
5200 W. CENTURY BOULEVARD
LOS ANGELES, CA, 90045

For questions regarding claims, the Product Assurance Department may be also contacted at 1-800-621-4404 or JMWebSupport1@jmeagle.com.

No claim under this limited warranty will be valid unless (1) proof of purchase with the date thereof as well as a description of the alleged defect in reasonable detail is presented to the satisfaction of JM Eagle™, (2) written permission and/or a Return Goods Authorization (RGA) is obtained from JM Eagle™, (3) JM Eagle™ is given a meaningful and reasonable opportunity to inspect the allegedly defective Product and its installation at the site and (4) at JM Eagle™'s request, representative samples of the allegedly defective Product are returned to JM Eagle™ in accordance with JM Eagle™'s instructions.

* Products covered by this Limited Warranty include similar PW Eagle and US Poly products manufactured by JM Eagle after July 1, 2007.

** JM Eagle's Conroe Texas plant in the process of obtaining ISO 9001 certification. The other plants are already certified to ISO 9001.

*** Replacement costs shall be reasonable and based on industry standard cost parameters such as those listed in the RS Means Assemblies Cost Data Book.



EXTENDED WARRANTY

NOTICE OF RETROACTIVE EXTENSION OF LIMITED WARRANTY

Pipe certified to the standards of the American Water Works Association (AWWA) for water distribution, transmission and force sewer mains including C900, C905, C909, C901 and C906 products manufactured by JM Eagle™ (hereinafter “Products”)* are now backed by our unprecedented fifty (50) year limited warranty. (See www.jmeagle.com for full details). JM Eagle™ is proud to announce that it is so confident in the quality of its products, that effective April 1, 2010, it will retroactively extend similar warranty protection for Product manufacturing defect failures. For any Products manufactured by JM Eagle™ and purchased from JM Eagle™ since December 1, 1982, JM Eagle™ will retroactively extend fifty (50) year warranty protection for any manufacturing defect that causes failure on or after April 1, 2010. As set forth in detail below, to be eligible for this retroactive extension, the Products need only have been manufactured by JM Eagle™, contain the original stencil markings, have been purchased since December 1, 1982, and failed on or after April 1, 2010. The fifty (50) year retroactive extended warranty will begin to run on the date of invoice for purchase from JM Eagle™ and will expire fifty (50) years from that date.

EXTENDED RETROACTIVE LIMITED WARRANTY

1. PERIODS AND SCOPE OF COVERAGE

JM Eagle™ warrants through this retroactive extension of Limited Warranty that its pipe products certified to the standards of the American Water Works Association for water distribution, transmission and force sewer mains including C900, C905, C909, C901 and C906 products manufactured by JM Eagle™ (each a “Product” and collectively, the “Products”)* were manufactured in accordance with any of the following AWWA, ASTM, ANSI/NSF, and UL standards then in existence as follows: (1) AWWA C900 and ASTM 1784 cell class 12454; Gaskets meet ASTM F477; Joints meet ASTM D3139; ANSI/NSF-61, UL 1285 for the C900, (2) AWWA C905 and ASTM 1784 cell class 12454; Gaskets meet ASTM F477; Joints meet ASTM D3139; ANSI/NSF-61, UL 1285 for C905, (3) AWWA C909 and UL 1285; Gaskets meet ASTM F477; Joints meet ASTM D3139 for C909 and (4) AWWA C901/906, ASTM D2239, ASTM D2737, ASTM D3035, F714, cell class per ASTM D3350, PPI listed material (TR-4) PE3408/3608 & PE4710, ANSI/NSF-14 for C901 and C906. JM Eagle™ warrants that each of these Products manufactured by JM Eagle™ left our plant free from defects in workmanship and materials. These Products as manufactured by JM Eagle™ are retroactively backed by our extended, unprecedented fifty (50) year Limited Warranty. This Limited Warranty provides that Products manufactured by JM Eagle™ met the applicable then-existing quality standards stated above and that are published by the AWWA, ASTM International (ASTM), American National Standards Institute/ NSF International (ANSI/NSF) and Underwriters Laboratories (UL).

If any Product fails after April 1, 2010 and is determined within fifty (50) years from the date of invoice by JM Eagle™ to be defective because it failed to meet the above stated standards, JM Eagle™ will then provide replacement product of the same type, size and quantity of the product and costs related to this replacement** or issue credits, offsets or a combination thereof for the wholesale purchase price of the defective product.

2. EXCLUSIONS FROM COVERAGE AND EXCLUSIVE REMEDY:

Products manufactured by JM Eagle™ are marked with JM Eagle, PW Eagle or US Poly stencil markings. This limited warranty excludes any Product not manufactured by JM Eagle™, even if it is sold by JM Eagle™, and also excludes defects or failures caused after shipment by:

- improper installation (including, without limitation, misalignment),
- use in improper applications or conditions or in conjunction with improper materials (including, without limitation, improper lubricants, pastes, solvents or sealants),
- contact with aggressive chemical agents, freezing or overheating of liquids in the Product, or unusual pressure surges or pulsation,



- vibration,
- temperature shocking,
- U.V. degradation,
- failure to adhere to JM Eagle™'s instructions concerning the proper handling, installation, testing and use of the Product,
- failure to adhere to applicable standards set forth by local laws, codes, or regulations and the applicable industry standards, or
- any other improper activities not listed above or damage caused by the fault or negligence of anyone other than JM Eagle™ .

THE WARRANTIES IN THIS LIMITED WARRANTY ARE THE ONLY WARRANTIES APPLICABLE TO THE PRODUCTS. THERE ARE NO OTHER WARRANTIES, REPRESENTATIONS OR CONDITIONS OF ANY KIND, EXPRESS OR IMPLIED, STATUTORY OR OTHERWISE, WITH RESPECT TO THE PRODUCTS SUPPLIED HEREUNDER INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. ALL SUCH WARRANTIES ARE HEREBY SPECIFICALLY DISCLAIMED AND JM EAGLE™ SHALL NOT BE LIABLE IN THIS RESPECT NOTWITHSTANDING JM EAGLE™'S ACTUAL KNOWLEDGE OF THE PRODUCT'S INTENDED USE OR ANY ADVICE OR REPRESENTATIONS THAT MAY HAVE BEEN RENDERED BY JM EAGLE™ CONCERNING THE DESIGN, MANUFACTURE, FABRICATION, SALE, USE, INSTALLATION OR PROVISION OF THE PRODUCTS. NO STATEMENT, CONDUCT OR DESCRIPTION BY JM EAGLE™ OR ITS REPRESENTATIVES, IN ADDITION TO OR BEYOND THIS LIMITED WARRANTY, SHALL CONSTITUTE A WARRANTY.

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3. REQUIREMENTS FOR MAKING CLAIMS:

Every claim for breach under this warranty shall be void unless it is made in writing to JM Eagle™ and postmarked within five business (5) days of the date the defect was discovered or in the exercise of ordinary care should have been discovered and, in any event, the claim must also be made within fifty (50) years of the date of the JM Eagle™ invoice. As noted above, Products manufactured by JM Eagle™ are marked with JM Eagle™, PW Eagle or US Poly stencils. This limited warranty excludes any Product not manufactured by JM Eagle™, even if it is sold by JM Eagle™ .

Any claim for breach of warranty must be sent to:

PRODUCT ASSURANCE DEPARTMENT
JM EAGLE
5200 W. CENTURY BOULEVARD
LOS ANGELES, CA, 90045

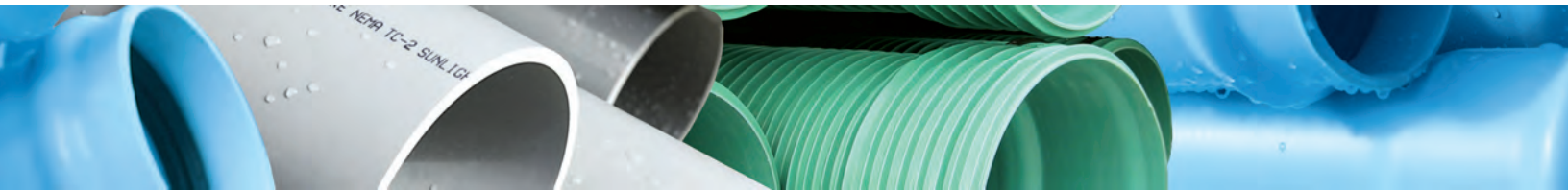
For questions regarding claims, the Product Assurance Department may be also contacted at 1-800-621-4404 or JMWebSupport1@jmeagle.com.

No claim under this limited warranty will be valid unless (1) proof of purchase with the date thereof as well as a description of the alleged defect in reasonable detail is presented to the satisfaction of JM Eagle™, (2) written permission and/or a Return Goods Authorization (RGA) is obtained from JM Eagle™, (3) JM Eagle™ is given a meaningful and reasonable opportunity to inspect the allegedly defective Product and its installation at the site and (4) at JM Eagle™'s request, representative samples of the allegedly defective Product are returned to JM Eagle™ in accordance with JM Eagle™'s instructions.

* Products covered by this Limited Warranty include similar PW Eagle and US Poly products manufactured by JM Eagle after July 1, 2007.

** JM Eagle's Conroe Texas plant in the process of obtaining ISO 9001 certification. The other plants are already certified to ISO 9001.

*** Replacement costs shall be reasonable and based on industry standard cost parameters such as those listed in the RS Means Assemblies Cost Data Book.



PLANT LOCATIONS

ADEL

2101 J-M Drive
Adel, Georgia 31620

BATCHELOR

2894 Marion Monk Road
Batchelor, Louisiana 70715

BUTNER

2602 West Lyon Station Road
Creedmoor, North Carolina 27522

CAMERON PARK

3500 Robin Lane
Cameron Park, California 95682

COLUMBIA

6500 North Brown Station Road
Columbia, Missouri 65202

CONROE

101 East Avenue M
Conroe, Texas 77301

FONTANA

10990 Hemlock Avenue
Fontana, California 92337

HASTINGS

146 North Maple Avenue
Hastings, Nebraska 68901

KINGMAN

4620 Olympic Way
Kingman, Arizona 86401

MAGNOLIA

2220 Duracrete Drive
Magnolia, Arkansas 71753

MCNARY

31240 Roxbury Road
Umatilla, Oregon 97882

MEADVILLE

15661 Delano Road
Cochran, Pennsylvania 16314

PERRIS

23711 Rider Street
Perris, California 92570

PUEBLO

1742 E. Platteville Boulevard
Pueblo West, Colorado 81007

STOCKTON

1051 Sperry Road
Stockton, California 95206

SUNNYSIDE

1820 South First Street
Sunnyside, Washington 98944

TACOMA

2330 Port of Tacoma Road
Tacoma, Washington 98421

TULSA

4501 West 49th Street
Tulsa, Oklahoma 74107

VISALIA

8875 Avenue 304
Visalia, California 93291

WHARTON

10807 US 59 RD
Wharton, Texas 77488

WILTON

1314 W. Third Street
Wilton, Iowa 52778

MEXICO

PLASTICS TECHNOLOGY
DE MÉXICO S DE R.L. DE S.A.
Av. Montes Urales No. 8 y 10
Parque Industrial Opción, Carretera
57 Qro. -S.L.P. Km. 57.8
C.P. 37980 San José Iturbide,
Guanajuato México

** Our Mexico location is a joint
venture between JM Eagle™ and
Plastics Technology*

GLOBAL HEADQUARTERS

5200 West Century Boulevard
Los Angeles, California 90045

REGIONAL OFFICE

Nine Peach Tree Hill Road
Livingston, New Jersey 07039

J-M Manufacturing Co., Inc. and PW Eagle, Inc. are doing business as JM Eagle™.

JM Eagle

- THE LEADER IN PIPE INNOVATION
- THE HIGHEST LEVEL OF QUALITY
- THE LARGEST BREADTH OF PRODUCT
- THE WIDEST CAPACITY
- EXPRESS DELIVERY



PLANT LOCATIONS

Revised March 2011
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for a better tomorrow™*

GLOBAL HEADQUARTERS:

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