

IRRIGATION TECHNICAL GUIDE



CHARLOTTE
PIPE AND FOUNDRY COMPANY
I R R I G A T I O N



Family-Owned Since 1901 – Trust Charlotte Pipe® for All Your Irrigation Product Needs.



Charlotte Pipe has a proud heritage of family ownership that goes back five generations, and it still operates on the philosophy of founder Willis Frank Dowd – provide the best service for the customer and produce the best product possible.

The company offers a complete line of irrigation piping – all proudly made in the USA to the highest quality standards.

- **PVC PIP PR 80 THROUGH PR 125**
- **PVC PR 100/SDR 41 THROUGH PR 315/SDR 13.5**
- **PVC D3034/DR 35 AND SDR 26 SEWER**
- **PVC SCH 40 AND SCH 80**
- **PVC SOLVENT WELD, GASKET, PURPLE RECLAIMED**



Get What You Need, When You Need It.

Charlotte Pipe's packaging and shipping systems allow quick delivery of large or small quantities. Our pallet configurations and bundles are designed for easy storage in your yard and to simplify picking and delivery.



We offer many options, including:

- Job site delivery – product shipments to your specific project location*
- Flexible freight – partial-truck and mixed-truckload, and non-peak orders.
- Regional stock – Charlotte Pipe's irrigation pipe is manufactured and stocked in six plants throughout the United States.

*based on minimum pallet quantities

World-Class Customer Service.

Our experienced customer service associates provide unmatched service, offering a wealth of information on products, orders and processes. We take a team approach to serving your business with flexibility and reliability you can count on.

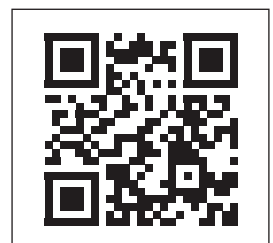
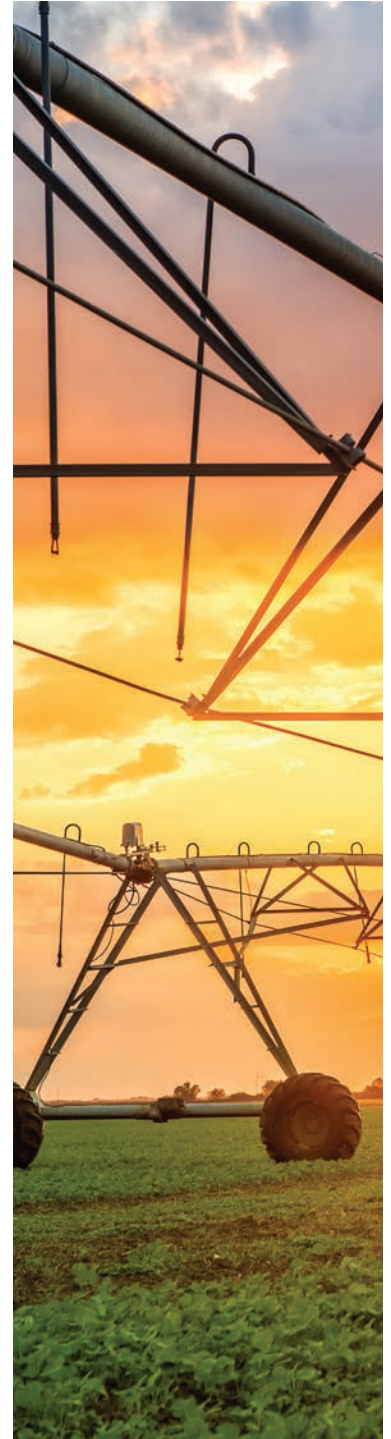
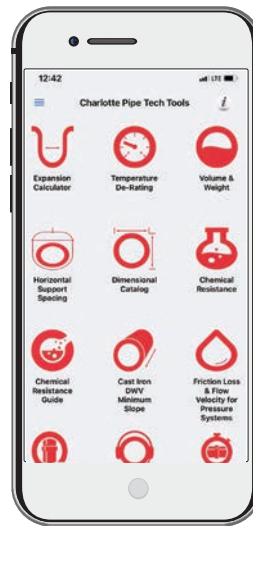
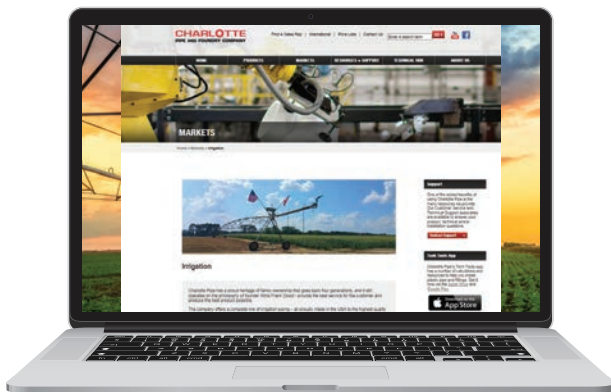
Multiple Locations to Serve You.

Charlotte Pipe has manufacturing facilities across the U.S.



Resources for You.

charlottepipe.com/techtoolsapp. Download it now at the App Store and Google Play or scan our QR code for tools such as our easy friction loss and flow velocity calculator for pressure systems, and more.



Get more information on our products, technical specs and much more at
charlottepipe.com/irrigation

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PIPE REFERENCE GUIDE																	
SIZES AVAILABLE																	
PRODUCT	½	¾	1	1¼	1½	2	2½	3	4	5	6	8	10	12	14	15	16
PVC SCH. 40 BELL END	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		*
PVC SCH. 40 PLAIN END	*	*	*	*	*	*	*	*	*		*	*	*	*	*		*
PVC SCH. 40 WELL CASING						*	*	*	*	*	*	*	*	*	*		*
PVC SCH. 80 BELL END	*	*	*	*	*	*	*	*	*		*	*	*	*	*		*
PVC SCH. 80 PLAIN END	*	*	*	*	*	*	*	*	*	*	*	*	*	*	*		*
PVC RECLAIMED WATER PIPE SDR 21 (PR 200) BELL END	*	*	*	*	*	*	*	*	*		*						
PVC RECLAIMED WATER PIPE SDR 21 (PR 200) GASKETED							*	*	*		*	*	*	*			
PVC RECLAIMED WATER PIPE SDR 13.5 (PR 315) BELL END	*																
PVC RECLAIMED WATER PIPE SCH 40 BELL END		*	*	*	*	*	*	*	*								
PVC SDR 41 (PR 100) BELL END								*	*	*	*	*	*	*			
PVC SDR 41 (PR 100) GASKETED											*	*	*	*			
PVC SDR 32.5 (PR 125) BELL END							*	*	*	*	*	*	*	*			
PVC SDR 32.5 (PR 125) GASKETED											*	*	*	*			
PVC SDR 26 (PR 160) BELL END				*	*	*	*	*	*		*						
PVC SDR 26 (PR 160) GASKETED								*	*		*	*	*	*			
PVC SDR 21 (PR 200) BELL END	*	*	*	*	*	*	*	*	*		*						
PVC SDR 21 (PR 200) GASKETED						*	*	*	*		*	*	*	*			
PVC PIP SDR 51 (PR 80) GASKETED											*	*	*	*		*	
PVC PIP SDR 41 (PR 100) GASKETED											*	*	*	*		*	
PVC PIP SDR 32.5 (PR 125) GASKETED											*	*	*	*		*	
PVC DR 35 SEWER MAIN PIPE BELL END									*		*		*	*		*	
PVC DR 35 SEWER MAIN PIPE BELL END PERFORATED									*								
PVC DR 35 SEWER MAIN PIPE GASKETED									*		*	*	*	*		*	
PVC SDR 26 SEWER MAIN PIPE GASKETED									*		*	*	*	*		*	
PVC 2729 SEWER/DRAIN PIPE BELL END (SOLID WALL)								*	*		*						
PVC 2729 SEWER/DRAIN PIPE BELL END (PERFORATED)								*	*								

DIMENSIONS

PVC SCH 40				
PIPE SIZE	AVG. OD.	MIN. WALL	AVG. ID	MAX PSI
1/2"	0.840	0.109	0.622	600 PSI
3/4"	1.050	0.113	0.824	480 PSI
1"	1.315	0.133	1.049	450 PSI
1 1/4"	1.660	0.140	1.380	370 PSI
1 1/2"	1.900	0.145	1.610	330 PSI
2"	2.375	0.154	2.067	280 PSI
2 1/2"	2.875	0.203	2.469	300 PSI
3"	3.500	0.216	3.068	260 PSI
4"	4.500	0.237	4.026	220 PSI
5"	5.563	0.258	5.047	190 PSI
6"	6.625	0.280	6.065	180 PSI
8"	8.625	0.322	7.981	160 PSI
10"	10.750	0.365	10.020	140 PSI
12"	12.750	0.406	11.938	130 PSI
14"	14.000	0.437	13.126	130 PSI
16"	16.000	0.500	15.000	130 PSI

PVC SCH 80				
PIPE SIZE	AVG. OD.	MIN. WALL	AVG. ID	MAX PSI
1/2"	0.840	0.147	0.546	850 PSI
3/4"	1.050	0.154	0.742	690 PSI
1"	1.315	0.179	0.957	630 PSI
1 1/4"	1.660	0.191	1.278	520 PSI
1 1/2"	1.900	0.200	1.500	470 PSI
2"	2.375	0.218	1.939	400 PSI
2 1/2"	2.875	0.276	2.323	420 PSI
3"	3.500	0.300	2.900	370 PSI
4"	4.500	0.337	3.826	320 PSI
5"	5.563	0.375	4.813	290 PSI
6"	6.625	0.432	5.761	280 PSI
8"	8.625	0.500	7.625	250 PSI
10"	10.750	0.593	9.564	230 PSI
12"	12.750	0.687	11.376	230 PSI
14"	14.000	0.750	12.500	220 PSI
16"	16.000	0.843	14.314	220 PSI

PVC SDR 41 (100 PSI)				
PIPE SIZE	AVG. OD.	MIN. WALL	AVG. ID	
3"	3.500	0.085	3.330	
4"	4.500	0.110	4.280	
5"	5.563	0.136	5.290	
6"	6.625	0.162	6.300	
8"	8.625	0.210	8.200	
10"	10.750	0.262	10.230	
12"	12.750	0.311	12.130	

DIMENSIONS

PVC SDR 32.5 (125 PSI)			
PIPE SIZE	AVG. OD.	MIN. WALL	AVG. ID
2½"	2.875	0.088	2.700
3"	3.500	0.108	3.280
4"	4.500	0.138	4.224
5"	5.630	0.171	5.221
6"	6.625	0.204	6.217
8"	8.625	0.265	8.095
10"	10.750	0.311	10.088
12"	12.750	0.392	11.966

PVC SDR 26 (160 PSI)			
PIPE SIZE	AVG. OD.	MIN. WALL	AVG. ID
1¼"	1.660	0.064	1.532
1½"	1.900	0.073	1.754
2"	2.375	0.091	2.193
2½"	2.875	0.110	2.655
3"	3.500	0.135	3.230
4"	4.500	0.173	4.154
5"	5.563	0.214	5.135
6"	6.625	0.255	6.115
8"	8.625	0.332	7.961
10"	10.750	0.413	9.924
12"	12.750	0.490	11.770

PVC SDR 21 (200 PSI)			
PIPE SIZE	AVG. OD.	MIN. WALL	AVG. ID
½"*	0.840	0.062	0.716
¾"	1.050	0.060	0.930
1"	1.315	0.063	1.189
1¼"	1.660	0.079	1.502
1½"	1.900	0.090	1.720
2"	2.375	0.113	2.149
2½"	2.875	0.137	2.601
3"	3.500	0.167	3.166
4"	4.500	0.214	4.072
5"	5.563	0.265	5.033
6"	6.625	0.316	5.993
8"	8.625	0.410	7.805
10"	10.750	0.511	9.728
12"	12.750	0.606	11.538

* PR 315/SDR 13.5

DIMENSIONS

PVC PIP SDR 51 (80 PSI)			
PIPE SIZE	AVG. OD.	MIN. WALL	AVG. ID
6"	6.140	0.150	5.840
8"	8.160	0.160	7.840
10"	10.200	0.200	9.800
12"	12.240	0.240	11.760
15"	15.300	0.300	14.700

PVC PIP SDR 41 (100 PSI)			
PIPE SIZE	AVG. OD.	MIN. WALL	AVG. ID
6"	6.140	0.150	5.840
8"	8.160	0.199	7.762
10"	10.200	0.249	9.702
12"	12.240	0.299	11.642
15"	15.300	0.373	14.554

PVC PIP SDR 32.5 (125 PSI)			
PIPE SIZE	AVG. OD.	MIN. WALL	AVG. ID
6"	6.140	0.189	5.762
8"	8.160	0.251	7.658
10"	10.200	0.314	9.572
12"	12.240	0.377	11.486
15"	15.300	0.471	14.358

LOADING CHART

PVC PIP SDR PIPE (WHITE)

PIP SDR 51 (PR 80 PSI) GASKETED

44' LENGTH						
PIPE SIZE	SKID QTY (FT)	WIDTH (IN)	HEIGHT (IN)	GROSS WT (LB)	SKIDS PER TRUCK	TRUCK % PER SKID
6"	1,452'	46"	34"	2,133 LB	6	16.67%
8"	528'	49"	20"	1,375 LB	10	10%
10"	440*/352'	51*/44"	24"	1,793*/1,435 LB	8	13.9*/11.2%
22' LENGTH						
PIPE SIZE	SKID QTY (FT)	WIDTH (IN)	HEIGHT (IN)	GROSS WT (LB)	SKIDS PER TRUCK	TRUCK % PER SKID
6"	726'	46"	34"	1,081 LB	12	8.33%
8"	264'	49"	20"	698 LB	20	5%
10"	220*/176'	51*/44"	24"	911*/729 LB	16	7*/5.75%
12"	176'	49"	27.5"	1,052 LB	12	8.33%
15"	132'	49"	33.5"	1,239 LB	12	8.33%
* "FIVE-WIDE" SKID DATA (MUST BE PURCHASED TOGETHER)						

PIP SDR 41 (PR 100 PSI) GASKETED

44' LENGTH						
PIPE SIZE	SKID QTY (FT)	WIDTH (IN)	HEIGHT (IN)	GROSS WT (LB)	SKIDS PER TRUCK	TRUCK % PER SKID
6"	1,452'	46"	34"	2,651 LB	6	16.67%
8"	528'	49"	20"	1,701 LB	10	10%
10"	440*/352'	51*/44"	24"	2,220*/1,776 LB	8	13.9*/11.2%
22' LENGTH						
PIPE SIZE	SKID QTY (FT)	WIDTH (IN)	HEIGHT (IN)	GROSS WT (LB)	SKIDS PER TRUCK	TRUCK % PER SKID
6"	726'	46"	34"	1,343 LB	12	8.33%
8"	264'	49"	20"	863 LB	20	5%
10"	220*/176'	44"	24"	1,128*/902 LB	16	7*/5.75%
12"	176'	49"	40"	1,303 LB	12	8.33%
15"	132'	49"	33.5"	1,527 LB	12	8.33%
* "FIVE-WIDE" SKID DATA (MUST BE PURCHASED TOGETHER)						

PIP SDR 32.5 (PR 125 PSI) GASKETED

22' LENGTH						
PIPE SIZE	SKID QTY (FT)	WIDTH (IN)	HEIGHT (IN)	GROSS WT (LB)	SKIDS PER TRUCK	TRUCK % PER SKID
6"	726'	46"	34"	1,680 LB	12	8.33%
8"	264'	49"	20"	1,081 LB	20	5%
10"	220*/176'	51*/44"	24"	1,412*/1,129 LB	16	7*/5.75%
12"	176'	49"	27.5"	1,631 LB	12	8.33%
15"	132'	49"	33.5"	1,913 LB	12	8.33%
* "FIVE-WIDE" SKID DATA (MUST BE PURCHASED TOGETHER)						

LOADING CHART

PVC RECLAIMED WATER PIPE (PURPLE)

SDR 21 (PR 200 PSI) BELL END (RW)

20' LENGTH						
PIPE SIZE	SKID QTY (FT)	WIDTH (IN)	HEIGHT (IN)	GROSS WT (LB)	SKIDS PER TRUCK	TRUCK % PER SKID
¾"	7,000'	42.5"	11"	917 LB	28	3.57%
1"	6,000'	43.25"	15"	1,038 LB	24	4.16%
1¼"	4,000'	46.5"	14.5"	1,040 LB	24	4.16%
1½"	3,300'	49"	14"	1,115 LB	28	3.57%
2"	2,220'	48.5"	14.25"	1,170 LB	28	3.57%
2½"	1,460'	48.5"	14.5"	1,123 LB	28	3.57%
3"	1,000'	47"	14.5"	1,138 LB	28	3.57%
4"	1,340'	49"	29.5"	2,513 LB	12	8.33%
6"	660'	51"	33"	2,643 LB	12	8.33%

SDR 21 (PR 200 PSI) GASKETED (RW)

20' LENGTH						
PIPE SIZE	SKID QTY (FT)	WIDTH (IN)	HEIGHT (IN)	GROSS WT (LB)	SKIDS PER TRUCK	TRUCK % PER SKID
2½"	1,460'	48.5"	14.5"	1,096 LB	28	3.57%
3"	1,000'	47"	14.5"	1,138 LB	28	3.57%
4"	1,340'	49"	29.5"	2,522 LB	12	8.33%
6"	660'	51"	33"	2,757 LB	12	8.33%
8"	280'	47"	26.5"	1,351 LB	16	6.25%
10"	160'	43"	23.5"	1,678 LB	16	6.25%
12"	60'	39.25"	14.75"	885 LB	28	3.57%

SDR 13.5 (PR 315 PSI) BELL END (RW)

20' LENGTH						
PIPE SIZE	SKID QTY (FT)	WIDTH (IN)	HEIGHT (IN)	GROSS WT (LB)	SKIDS PER TRUCK	TRUCK % PER SKID
½"	9,000'	42.5"	9.25"	945 LB	28	3.57%

SCH 40 BELL END (RW)

20' LENGTH						
PIPE SIZE	SKID QTY (FT)	WIDTH (IN)	HEIGHT (IN)	GROSS WT (LB)	SKIDS PER TRUCK	TRUCK % PER SKID
¾"	7,000'	42"	12.5"	1,491 LB	28	3.57%
1"	6,000'	46.5"	15.5"	1,896 LB	24	4.16%
1¼"	4,000'	46.5"	14"	1,716 LB	28	3.57%
1½"	3,300'	49"	14"	1,690 LB	24	4.17%
2"	2,220'	48.5"	14.25"	1,530 LB	28	3.57%
2½"	1,460'	48.5"	14.5"	1,591 LB	28	3.57%
3"	1000'	47"	14.5"	1,425 LB	28	3.57%
4"	1,340'	49"	29.5"	2,775 LB	12	8.33%

LOADING CHART

PVC SDR PRESSURE PIPE (WHITE)

SDR 41 (PR 100 PSI) BELL END

20' LENGTH						
PIPE SIZE	SKID QTY (FT)	WIDTH (IN)	HEIGHT (IN)	GROSS WT (LB)	SKIDS PER TRUCK	TRUCK % PER SKID
3"	1,000'	46"	14.25"	604 LB	28	3.57%
4"	1,340'	49"	29.5"	1,656 LB	12	8.33%
5"	760'	47.75"	26"	1,434 LB	12	8.33%
6"	660'	51"	33"	1,415 LB	12	8.33%
8"	280'	47"	26.5"	1,026 LB	16	6.25%
10"	160'	43"	23.5"	912 LB	16	6.25%
12"	80'	17.75"	26"	1,144 LB	28	3.57%

SDR 41 (PR 100 PSI) GASKETED

20' LENGTH						
PIPE SIZE	SKID QTY (FT)	WIDTH (IN)	HEIGHT (IN)	GROSS WT (LB)	SKIDS PER TRUCK	TRUCK % PER SKID
6"	660'	51"	33"	1,383 LB	12	8.33%
8"	280'	47"	26.5"	990	16	6.25%
10"	160'	43"	23.5"	880 LB	16	6.25%
12"	60'	39.25"	14.75"	465 LB	28	3.57%

SDR 32.5 (PR 125 PSI) BELL END

20' LENGTH						
PIPE SIZE	SKID QTY (FT)	WIDTH (IN)	HEIGHT (IN)	GROSS WT (LB)	SKIDS PER TRUCK	TRUCK % PER SKID
2½"	1,460'	48.5"	14.5"	745 LB	28	3.57%
3"	1,000'	46"	14.25"	756 LB	28	3.57%
4"	1,340'	49"	29.5"	1,656 LB	12	8.33%
5"	760'	47.75"	26"	1,434 LB	12	8.33%
6"	660'	51"	33"	1,767 LB	12	8.33%
8"	280'	47"	26.5"	1,287 LB	16	6.25%
10"	160'	47.75"	26"	1,144 LB	16	6.25%
12"	80'	51"	14.75"	804 LB	28	3.57%

SDR 32.5 (PR 125 PSI) GASKETED

20' LENGTH						
PIPE SIZE	SKID QTY (FT)	WIDTH (IN)	HEIGHT (IN)	GROSS WT (LB)	SKIDS PER TRUCK	TRUCK % PER SKID
6"	660'	51"	33"	1,730 LB	12	8.33%
8"	280'	47"	26.5"	1,241 LB	16	6.25%
10"	160'	43"	23.5"	1,159 LB	16	6.25%
12"	60'	39.25"	14.75"	582 LB	28	3.57%

LOADING CHART

PVC SDR PRESSURE PIPE (WHITE)

SDR 26 (PR 160 PSI) BELL END

20' LENGTH						
PIPE SIZE	SKID QTY (FT)	WIDTH (IN)	HEIGHT (IN)	GROSS WT (LB)	SKIDS PER TRUCK	TRUCK % PER SKID
1¼"	4,000'	46.5"	13.75"	860 LB	24	4.17%
1½"	3,300'	47"	15.5"	921 LB	24	4.16%
2"	2,220'	48.5"	14.25"	957 LB	24	4.17%
2½"	1,460'	48.5"	14.50"	915 LB	28	3.57%
3"	1,000'	47"	14.5"	933 LB	28	3.57%
4"	1,340'	49"	29.5"	2,050 LB	12	8.33%
6"	660'	51"	33"	2,192 LB	12	8.33%

SDR 26 (PR 160 PSI) GASKETED

20' LENGTH						
PIPE SIZE	SKID QTY (FT)	WIDTH (IN)	HEIGHT (IN)	GROSS WT (LB)	SKIDS PER TRUCK	TRUCK % PER SKID
3"	1,000'	47"	14.5"	908 LB	28	3.57%
4"	1,340'	49"	29.5"	2,007 LB	12	8.33%
6"	660'	51"	33"	2,145 LB	12	8.33%
8"	280'	47"	26.5"	1,543 LB	16	6.25%
10"	160'	43"	23.5"	1,367 LB	16	6.25%
12"	60'	39.25"	14.75"	760 LB	28	3.57%

SDR 21 (PR 200 PSI) BELL END

20' LENGTH						
PIPE SIZE	SKID QTY (FT)	WIDTH (IN)	HEIGHT (IN)	GROSS WT (LB)	SKIDS PER TRUCK	TRUCK % PER SKID
½"*	9,000'	42.5"	9.25"	945 LB	28	3.57%
¾"	7,000'	42.5"	11"	917 LB	24	4.16%
1"	6,000'	43.25"	15"	1,038 LB	24	4.16%
1¼"	4,000'	43"	14.5"	1,040 LB	24	4.17%
1½"	3,300'	46.5"	15.5"	1,115 LB	28	3.57%
2"	2,220'	48.5"	14.25"	1,170 LB	28	3.57%
2½"	1,460'	48.5"	14.5"	1,123 LB	28	3.57%
3"	1,000'	47"	14.5"	1,138 LB	28	3.57%
4"	1,340'	49"	29.5"	2,513 LB	12	8.33%
6"	660'	51"	33"	2,643 LB	12	8.33%

* PR 315/SDR 13.5

SDR 21 (PR 200 PSI) GASKETED

20' LENGTH						
PIPE SIZE	SKID QTY (FT)	WIDTH (IN)	HEIGHT (IN)	GROSS WT (LB)	SKIDS PER TRUCK	TRUCK % PER SKID
2"	2,220'	48.5"	44.25"	1,165 LB	28	3.57%
2½"	1,460'	48.5"	14.5"	1,096 LB	28	3.57%
3"	1,000'	47"	14.5"	1,138 LB	28	3.57%
4"	1,340'	49"	29.5"	2,522 LB	12	8.33%
6"	660'	51"	33"	2,757 LB	12	8.33%
8"	280'	47"	26.5"	1,891 LB	16	6.25%
10"	160'	43"	23.5"	1,678 LB	16	6.25%
12"	60'	39.25"	14.75"	885 LB	28	3.57%

LOADING CHART

PVC SCH. 40 PIPE (WHITE)

SCH. 40 BELL END

20' LENGTH						
PIPE SIZE	SKID QTY (FT)	WIDTH (IN)	HEIGHT (IN)	GROSS WT (LB)	SKIDS PER TRUCK	TRUCK % PER SKID
1/2"	9,000'	42"	11"	1,440 LB	28	3.57%
3/4"	7,000'	42"	12.5"	1,491 LB	28	3.57%
1"	6,000'	44.5"	15.5"	1,896 LB	24	4.16%
1 1/4"	4,000'	46.5"	14"	1,716 LB	24	4.16%
1 1/2"	3,300'	49"	14"	1,690 LB	28	3.57%
2"	2,220'	48.5"	14.25"	1,530 LB	28	3.57%
2 1/2"	1,460'	48.5"	14.5"	1,591 LB	28	3.57%
3"	1,000'	49"	14.5"	1,425 LB	28	3.57%
4"	1,340'	49"	29.5"	2,775 LB	12	8.33%
5"	760'	47.75"	26"	2,071 LB	12	8.33%
6"	660'	51"	33"	2,420 LB	12	8.33%
8"	280'	47"	26.5"	1,570 LB	16	6.25%
10"	160'	43"	23.5"	1,236 LB	16	6.25%
12"	80'	51"	14.75"	817 LB	28	3.57%
14"	60'	41.5"	16.5"	725 LB	24	4.16%
16"	60'	49.5"	18"	948 LB	20	5.00%

SCH. 40 BELL END

10' LENGTH						
PIPE SIZE	SKID QTY (FT)	WIDTH (IN)	HEIGHT (IN)	GROSS WT (LB)	SKIDS PER TRUCK	TRUCK % PER SKID
3/4"	3,500'	43"	11.5"	746 LB	56	1.78%
1"	3,000'	47"	15.75"	948 LB	44	2.27%

SCH. 40 PLAIN END

20' LENGTH						
PIPE SIZE	SKID QTY (FT)	WIDTH (IN)	HEIGHT (IN)	GROSS WT (LB)	SKIDS PER TRUCK	TRUCK % PER SKID
1/2"	9,000'	42"	10.5"	1,431 LB	28	3.57%
3/4"	7,000'	42"	11.75"	1,484 LB	28	3.57%
1"	6,000'	46"	16"	1,884 LB	24	4.16%
1 1/4"	4,240'	43.5"	14.5"	1,806 LB	24	4.16%
1 1/2"	3,300'	49"	14.5"	1,680 LB	28	3.57%
2"	2,220'	48.5"	14.25"	1,521 LB	28	3.57%
2 1/2"	1,460'	48.5"	14.75"	1,586 LB	28	3.57%
3"	1,000'	49"	14.5"	1,420 LB	28	3.57%
4"	1,340'	49"	30"	2,711 LB	12	8.33%
6"	660'	51"	33"	2,349 LB	12	8.33%
8"	280'	47"	26.5"	1,579 LB	12	8.33%
10"	220'	46.25"	30.5"	1,683 LB	12	8.33%
12"	80'	51"	14.75"	809 LB	28	3.57%
14"	60'	42"	16"	718 LB	24	4.16%
16"	60'	48.5"	18"	938 LB	20	5.00%

LOADING CHART

PVC SCH. 80 PIPE (GRAY)

SCH. 80 BELL END

20' LENGTH						
PIPE SIZE	SKID QTY (FT)	WIDTH (IN)	HEIGHT (IN)	GROSS WT (LB)	SKIDS PER TRUCK	TRUCK % PER SKID
1/2"	9,000'	42"	11"	1,836 LB	24	4.16%
3/4"	7,000'	42"	12.5"	1,932 LB	24	4.16%
1"	3,540'	43"	9"	1,441 LB	28	3.57%
1 1/4"	4,240'	45"	15.25"	2,387 LB	28	3.57%
1 1/2"	3,300'	49"	13.5"	2,251 LB	28	3.57%
2"	2,220'	48.5"	14.25"	2,093 LB	28	3.57%
2 1/2"	1,460'	48.5"	14.5"	2,101 LB	28	3.57%
3"	1,000'	49"	14.50"	1,926 LB	28	3.57%
4"	1,140'	49"	26.25"	3,211 LB	12	8.33%
6"	520'	51"	26"	2,794 LB	12	8.33%
8"	280'	48"	26.5"	2,825 LB	12	8.33%
10"	160'	46.5"	23"	1,936 LB	12	8.33%
12"	60'	39.25"	14.75"	999 LB	28	3.57%
14"	60'	43.75"	16"	1,198 LB	24	4.17%
16"	60'	48"	19"	1,540 LB	20	5.00%

SCH. 80 PLAIN END

20' LENGTH						
PIPE SIZE	SKID QTY (FT)	WIDTH (IN)	HEIGHT (IN)	GROSS WT (LB)	SKIDS PER TRUCK	TRUCK % PER SKID
1/2"	9,000'	42"	11"	1,827 LB	24	4.16%
3/4"	7,000'	42"	12.5"	1,925 LB	24	4.16%
1"	3,540'	43"	9"	1,437 LB	28	3.57%
1 1/4"	4,240'	45"	15.25"	2,379 LB	28	3.57%
1 1/2"	3,300'	49"	13.25"	2,244 LB	28	3.57%
2"	2,220'	48.5"	14.25"	2,087 LB	28	3.57%
2 1/2"	1,460'	48.5"	14.5"	2,094 LB	28	3.57%
3"	1,000'	49"	14.50"	1,920 LB	28	3.57%
4"	1,140'	49"	26.25"	3,201 LB	12	8.33%
5"	760'	49.5"	28"	2,959 LB	16	6.25%
6"	520'	51"	26"	2,785 LB	12	8.33%
8"	280'	47"	26.5"	2,278 LB	12	8.33%
10"	160'	43"	24"	1,930 LB	12	8.33%
12"	80'	51"	14.75"	1,328 LB	12	8.33%
14"	60'	42"	15.5"	1,194 LB	24	4.17%
16"	60'	48"	19"	1,535 LB	20	5.00%

SCH. 80 PLAIN END (GRAY or WHITE)

10' LENGTH						
PIPE SIZE	SKID QTY (FT)	WIDTH (IN)	HEIGHT (IN)	GROSS WT (LB)	SKIDS PER TRUCK	TRUCK % PER SKID
3/4"	4,000'	42.5"	13.50"	1,100 LB	48	2.08%
1"	2,600'	47.5"	11.25"	1,056 LB	44	2.27%

LOADING CHART

PVC SEWER PIPE (NOT FOR PRESSURE) (GREEN)

DR 35 BELLED END

20' LENGTH

PIPE SIZE	SKID QTY (FT)	WIDTH (IN)	HEIGHT (IN)	GROSS WT (LB)	SKIDS PER TRUCK	TRUCK % PER SKID
4"*	1,340'	49"	29.5"	1,365 LB	12	8.33%
6"	660'	51"	33"	1,502 LB	12	8.33%

* Also Offered in White

DR 35 BELLED END

10' LENGTH

PIPE SIZE	SKID QTY (FT)	WIDTH (IN)	HEIGHT (IN)	GROSS WT (LB)	SKIDS PER TRUCK	TRUCK % PER SKID
4"*	670'	49"	29.5"	683 LB	24	4.16%
6"*	330'	51"	33"	778 LB	24	4.16%

* Also Offered in White

DR 35 BELLED END PERFORATED

10' LENGTH

PIPE SIZE	SKID QTY (FT)	WIDTH (IN)	HEIGHT (IN)	GROSS WT (LB)	SKIDS PER TRUCK	TRUCK % PER SKID
4"	670'	49"	29.5"	689 LB	24	4.16%

DR 35 GASKETED

20' LENGTH

PIPE SIZE	SKID QTY (FT)	WIDTH (IN)	HEIGHT (IN)	GROSS WT (LB)	SKIDS PER TRUCK	TRUCK % PER SKID
4"	1340'	49"	29.5"	1,470 LB	12	8.33%
6"	660'	51"	33"	1,630 LB	12	8.33%

DR 35 GASKETED

14' LENGTH

PIPE SIZE	SKID QTY (FT)	WIDTH (IN)	HEIGHT (IN)	GROSS WT (LB)	SKIDS PER TRUCK	TRUCK % PER SKID
4"	938'	49"	29.5"	1,036 LB	18	5.56%
6"	462'	51"	33"	1,153 LB	18	5.56%
8"	196'	47"	26.5"	884 LB	24	4.17%
10"	112'	43"	23.5"	760 LB	24	4.17%
12"	42'	39.25"	14.75"	409 LB	36	2.78%
15"	42'	49"	16.55"	613 LB	18	5.56%

SDR 26 SEWER MAIN PIPE GASKETED

14' LENGTH

PIPE SIZE	SKID QTY (FT)	WIDTH (IN)	HEIGHT (IN)	GROSS WT (LB)	SKIDS PER TRUCK	TRUCK % PER SKID
4"	938'	49"	28.5"	1,341 LB	18	5.56%
6"	462'	51"	33"	1,474 LB	18	5.56%
8"	196'	47"	26.5"	1,127 LB	24	4.17%
10"	112'	43"	23.5"	1,011 LB	24	4.17%
12"	42'	39.25"	14.75"	541 LB	36	2.78%
15"	42'	49"	16.55"	817 LB	18	5.56%

PVC 2729 SEWER & DRAIN PIPE (NOT FOR PRESSURE) (WHITE)

2729 PIPE BELLED END (SOLID WALL)

10' LENGTH

PIPE SIZE	SKID QTY (FT)	WIDTH (IN)	HEIGHT (IN)	GROSS WT (LB)	SKIDS PER TRUCK	TRUCK % PER SKID
3"	1,130'	49"	29"	522 LB	24	4.16%
4"	670'	49"	30"	431 LB	24	4.16%
6"	330'	51"	33"	423 LB	24	4.16%

2729 PIPE BELLED END (PERFORATED)

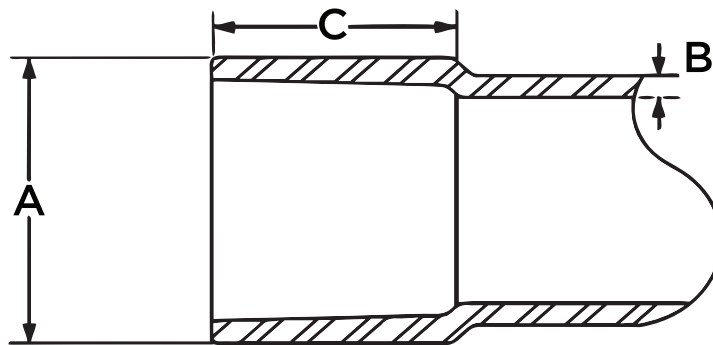
10' LENGTH

PIPE SIZE	SKID QTY (FT)	WIDTH (IN)	HEIGHT (IN)	GROSS WT (LB)	SKIDS PER TRUCK	TRUCK % PER SKID
3"	1,130'	49"	29"	519 LB	24	4.16%
4"	670'	49"	30"	430 LB	24	4.16%

BELL END DIMENSIONS

BELL END SOLVENT WELD PIPE

PIPE SIZE	MINIMUM WALL THICKNESS (B)				AVERAGE PIPE OD (A)	AVERAGE BELL DEPTH (C)
	SDR 41	SDR 32.5	SDR 26	SDR 21		
¾"	N/A	N/A	N/A	0.060	1.050	1.250
1"	N/A	N/A	N/A	0.063	0.063	1.500
1¼"	N/A	N/A	0.064	0.079	1.660	1.750
1½"	N/A	N/A	0.073	0.09	1.900	2.000
2"	N/A	N/A	0.091	0.113	2.375	2.250
2 ½"	N/A	0.088	0.110	0.137	2.875	2.500
3"	0.085	0.108	0.135	0.167	3.500	3.250
4"	0.110	0.138	0.173	0.214	4.500	4.000
5"	0.136	0.171	N/A	N/A	5.563	4.000
6"	0.162	0.204	0.255	0.316	6.625	6.000
8"	0.210	0.265	0.332	N/A	8.625	6.000
10"	0.262	0.311	0.413	N/A	10.750	7.500
12"	0.311	0.392	0.490	N/A	12.750	8.500

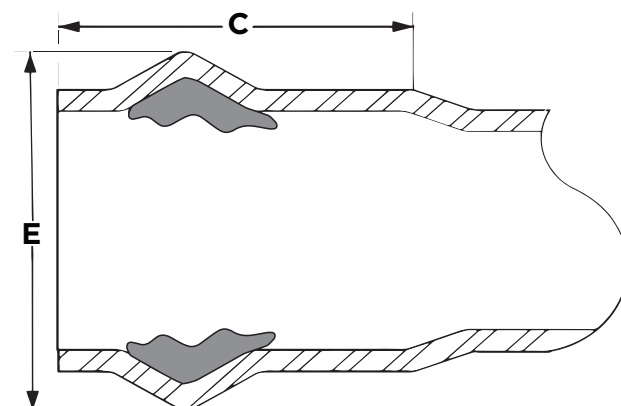
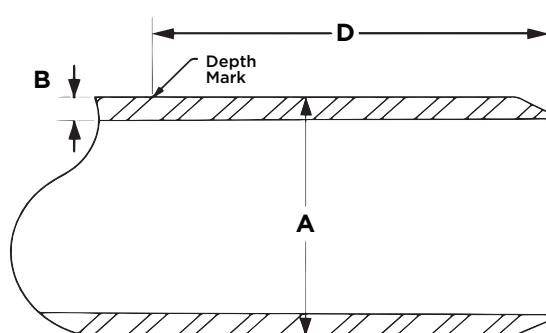


+/- 1/2" Tolerance For (C) Dimension

GASKETED DIMENSIONS

GASKETED PRESSURE PIPE ASTM D2241

PIPE SIZE	MINIMUM WALL THICKNESS (B)				AVERAGE PIPE OD (A)	INSERTION MARK (D)	AVERAGE BELL DEPTH (C)	APPROXIMATE BELL OD CLEARANCE (E)
	SDR 41	SDR 32.5	SDR 26	SDR 21				
2"	N/A	N/A	N/A	0.113	2.375	2.500	3.500	3.010
2½"	N/A	N/A	N/A	0.137	2.875	3.750	4.750	4.000
3"	N/A	N/A	0.135	0.167	3.500	4.250	5.250	4.750
4"	N/A	N/A	0.173	0.214	4.500	6.000	6.000	6.000
6"	0.162	0.204	0.255	0.316	6.625	5.250	6.500	8.250
8"	0.210	0.265	0.332	0.410	8.625	5.750	7.000	10.500
10"	0.262	0.311	0.413	0.511	10.750	7.500	8.250	13.000
12"	0.311	0.392	0.490	0.606	12.750	6.750	8.000	15.250

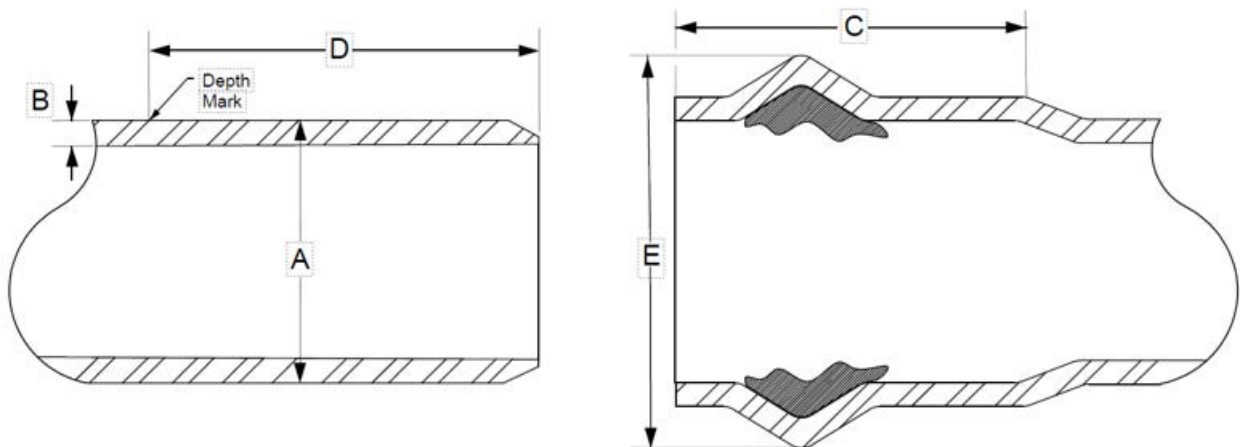


+/- 1/2" Tolerance For (C) And (D) Dimensions

GASKETED DIMENSIONS

GASKETED SEWER MAIN PIPE

PIPE SIZE	MINIMUM WALL THICKNESS (B)		AVERAGE PIPE OD (A)	INSERTION MARK (D)	AVERAGE BELL DEPTH (C)	APPROXIMATE BELL OD CLEARANCE (E)
	DR 35	SDR 26				
4"	0.120	0.162	4.215	4.500	5.000	5.000
6"	0.180	0.241	6.275	4.500	5.000	7.500
8"	0.240	0.323	8.400	5.500	6.000	10.500
10"	0.300	0.404	10.500	5.500	6.500	12.000
12"	0.360	0.481	12.500	7.500	8.000	14.500
15"	0.437	0.588	15.300	7.500	8.000	17.500



+/- 1/2" Tolerance For (C) And (D) Dimensions

FRICITION LOSS AND FLOW VELOCITY CHART

FRICITION LOSS AND FLOW VELOCITY FOR PVC SCH. 40 IPS THERMOPLASTIC PIPE (Friction head and friction loss are per 100 feet of pipe.) Notice: Flow velocities should not exceed 5 feet per second, velocities exceeding 5 feet per second may result in failure and property damage																																
Gallons per Minute	Velocity Feet Per Second	Friction Head Feet	Friction Loss PSI	Velocity Feet Per Second	Friction Head Feet	Friction Loss PSI	Velocity Feet Per Second	Friction Head Feet	Friction Loss PSI	Velocity Feet Per Second	Friction Head Feet	Friction Loss PSI	Velocity Feet Per Second	Friction Head Feet	Friction Loss PSI	Velocity Feet Per Second	Friction Head Feet	Friction Loss PSI	Velocity Feet Per Second	Friction Head Feet	Friction Loss PSI	Velocity Feet Per Second	Friction Head Feet	Friction Loss PSI								
	1/2"			3/4"			1"																									
3	3.170	7.580	3.280	2.230	3.210	1.390	1.110	0.600	0.260																							
4	4.230	12.910	5.600	2.970	5.470	2.370	1.490	1.020	0.440															1 1/4"								
6	8.230	51.570	22.360	4.450	11.590	5.030	2.680	3.360	1.460															1.500	0.820	0.360	1 1/2"					
10	10.560	70.450	30.540	7.420	29.860	12.950	3.710	5.540	2.400															2.150	1.460	0.630	1 1/2"					
13	13.730	114.530	49.650	9.650	48.540	21.050	4.830	9.010	3.900															2.790	2.370	1.030	2.050	1.120	0.490	1 1/2"		
20				14.850	107.800	46.740	7.430	20.000	8.670															4.290	5.270	2.280	3.150	2.490	1.080	1 1/2"		
23							8.540	25.910	11.230															4.940	6.820	2.960	3.630	3.220	1.400	1 1/2"		
30							11.140	42.380	18.370															6.440	11.160	4.840	4.730	5.270	2.290	1 1/2"		
31																								6.650	11.860	5.140	4.890	5.600	2.430	2"		
36										7.730	15.640	6.780	5.680	7.390	3.200	3.440	2.190	0.950	2"													
40													6.310	8.980	3.890	3.830	2.660	1.150	2"													
45													7.100	11.170	4.840	4.300	3.310	1.440	2"													
50																4.780	4.030	1.740	2 1/2"													
52																4.970	4.330	1.880	3.490	1.820	0.790	2 1/2"										
60																5.740	5.640	2.450	4.020	2.380	1.030	2 1/2"										
65																6.220	6.540	2.840	4.360	2.760	1.190	2 1/2"										
70																6.700	7.510	3.250	4.690	3.160	1.370	2 1/2"										
74																						2 1/2"										
82																			4.960	3.500	1.520	2 1/2"										
85																			5.500	4.240	1.840	3"										
90																			5.700	4.530	1.960	3.690	1.570	0.680								
95																			6.030	5.040	2.180	3.910	1.750	0.760								
100																						4.130	1.930	0.840								
115	4"																					4.340	2.130	0.920								
130	3.280	0.920	0.400																			4.990	2.760	1.190								
135	3.400	0.990	0.430																													
140	3.530	1.060	0.460																													
150	3.780	1.200	0.520																													
198	4.990	2.010	0.870																													
220	5.550	2.440	1.060	5"																												
225	5.670	2.550	1.100	3.610	0.850	0.370																										
245	6.180	2.980	1.290	3.930	0.990	0.430																										
250				4.010	1.030	0.450																										
275				4.410	1.230	0.530																										
311				4.990	1.540	0.670																										
325				5.210	1.670	0.730	6"																									
340				5.460	1.820	0.790	3.780	0.740	0.320																							
350				5.620	1.920	0.830	3.890	0.790	0.340																							
370							4.110	0.870	0.380																							
400							4.440	1.010	0.440																							
450							5.000	1.250	0.540																							
480							5.330	1.410	0.610																							
500							5.560	1.520	0.660																							
535							5.940	1.720	0.750	8"																						
550										3.530	0.480	0.210																				
600										3.850	0.560	0.240																				
650										4.170	0.650	0.280																				
700										4.490	0.750	0.320																				
779										5.000	0.910	0.390																				
800										5.130	0.960	0.410	10"																			
820										5.260	1.000	0.430	3.340	0.330	0.140																	
850										5.450	1.070	0.460	3.460	0.350	0.150	12"																
900													3.660	0.390	0.170	2.580	0.170	0.070														
1000													4.070	0.480	0.210	2.870	0.200	0.090	14"													
1228													5.000	0.700	0.300	3.520	0.300	0.130	2.910	0.190	0.080	16"										
1500													6.110	1.010	0.440	4.300	0.430	0.190	3.560	0.270	0.120	16"										
1745													7.100	1.340	0.580	5.000	0.570	0.250	4.140	0.360	0.160	3.170	0.190	0.080								
1800													7.330	1.420	0.610	5.160	0.600	0.260	4.270	0.380	0.170	3.270	0.200	0.090								
2100																6.020	0.800	0.350	4.980	0.510	0.220	3.810	0.260	0.110								
2500																7.170	1.110	0.480	5.930	0.700	0.300	4.540	0.370	0.160								
2755																			6.400	0.800	0.350	5.000	0.440	0.190								
3000																			7.120	0.980	0.430	5.450	0.510	0.220								
3500																						6.360	0.680	0.300								
4000																						7.270	0.870	0.380								

FRICTION LOSS AND FLOW VELOCITY CHART

FRICTION LOSS AND FLOW VELOCITY FOR PVC SCH. 80 IPS THERMOPLASTIC PIPE (Friction head and friction loss are per 100 feet of pipe.) Notice: Flow velocities should not exceed 5 feet per second, velocities exceeding 5 feet per second may result in failure and property damage																								
Gallons per Minute	Velocity Feet Per Second	Friction Head Feet	Friction Loss PSI	Velocity Feet Per Second	Friction Head Feet	Friction Loss PSI	Velocity Feet Per Second	Friction Head Feet	Friction Loss PSI	Velocity Feet Per Second	Friction Head Feet	Friction Loss PSI	Velocity Feet Per Second	Friction Head Feet	Friction Loss PSI	Velocity Feet Per Second	Friction Head Feet	Friction Loss PSI	Velocity Feet Per Second	Friction Head Feet	Friction Loss PSI			
	½"			¾"			1"			1¼"			1½"			2"			2½"					
1	1.370	1.870	0.810	0.740	0.420	0.180	0.450	0.120	0.050															
3	4.110	14.290	6.190	2.230	3.210	1.390	1.340	0.930	0.400	1"			1½"			2"			2½"					
6	8.230	51.570	22.360	4.450	11.590	5.030	2.680	3.360	1.460													1.500	0.820	0.360
10	13.710	132.820	57.580	7.420	29.860	12.950	4.460	8.660	3.750	2.500	2.120	0.920	1"			1½"			2"			2½"		
11	15.080	158.460	68.700	8.170	35.630	15.450	4.910	10.330	4.480	2.750	2.530	1.100												
15				11.140	62.380	27.430	6.690	18.350	7.950	3.750	4.490	1.950	2.720	2.060	0.890	2"			2½"					
20							8.930	31.260	13.550	5.000	7.650	3.320	3.630	3.510	1.520									
25							11.160	47.250	20.490	6.260	11.570	5.010	4.540	5.310	2.300	2"			2½"					
27										6.760	13.340	5.780	4.900	6.120	2.650							2.94	1.75	0.76
36										9.010	22.730	9.850	6.540	10.420	4.520	3.910	2.990	1.300	2½"					
40													7.270	12.670	5.490	4.350	3.630	1.580						
45													8.170	15.760	6.830	4.890	4.520	1.960	3.41	1.88	0.81			
46																5.000	4.710	2.040	3.48	1.95	0.85			
50																5.440	5.490	2.380	3.790	2.280	0.990			
60																6.520	7.700	3.340	4.540	3.200	1.390			
66																7.170	9.190	3.980	5.000	3.810	1.650			
70																			5.300	4.250	1.840			
74																			5.600	4.710	2.040			
82																			6.210	5.700	2.470			
85																				3.99	1.94	0.84		
90																				4.130	2.070	0.900		
95																				4.370	2.300	1.000		
102																				4.620	2.540	1.100		
115	4"																			4.960	2.900	1.260		
130	3.630	1.180	0.510																	5.590	3.620	1.570		
135	3.770	1.270	0.550																	6.320	4.550	1.970		
140	3.910	1.350	0.590																	6.560	4.880	2.110		
150	4.190	1.540	0.670																					
179	5.000	2.140	0.930																					
220	6.140	3.130	1.360	5"																				
225	6.280	3.260	1.410	3.970	1.070	0.460																		
245	6.840	3.820	1.660	4.320	1.250	0.540																		
250				4.410	1.300	0.560																		
275				4.850	1.550	0.670																		
283				4.990	1.630	0.710																		
325				5.730	2.110	0.910	6"																	
340				6.000	2.290	0.990	4.190	0.960	0.410															
350				6.180	2.420	1.050	4.310	1.010	0.440															
370							4.560	1.120	0.480															
400							4.930	1.290	0.560															
406							5.000	1.330	0.580															
480							5.910	1.810	0.790															
500							6.160	1.950	0.850															
535							6.590	2.210	0.960	8"														
550										3.870	0.600	0.260												
600										4.220	0.700	0.300												
650										4.570	0.810	0.350												
700										4.920	0.930	0.400												
710										4.990	0.960	0.410												
800										5.620	1.190	0.520	10"											
820										5.760	1.250	0.540	3.660	0.410	0.180									
850										5.980	1.330	0.580	3.800	0.440	0.190	12"								
900													4.020	0.490	0.210	2.840	0.210	0.090						
1000													4.470	0.600	0.260	3.160	0.260	0.110	14"					
1120													5.000	0.740	0.320	3.540	0.320	0.140	2.930	0.200	0.090			
1500													6.700	1.270	0.550	4.740	0.550	0.240	3.920	0.340	0.150			
1580													7.060	1.400	0.610	4.990	0.600	0.260	4.130	0.380	0.160			
1800													8.040	1.780	0.770	5.680	0.760	0.330	4.710	0.480	0.210			
1910																6.030	0.850	0.370	5.000	0.540	0.230			
2000																6.320	0.930	0.400	5.230	0.590	0.250			
2500																			6.540	0.890	0.390			
3000																			0.540	1.250	0.540			
3500																				6.980	0.860	0.370		
4000																				7.980	1.100	0.480		

FRICITION LOSS AND FLOW VELOCITY CHART

FRICITION LOSS AND FLOW VELOCITY FOR PVC SDR 21 THERMOPLASTIC PIPE
(Friction head and friction loss are per 100 feet of pipe.) Notice: Flow velocities should not exceed 5 feet per second, velocities exceeding 5 feet per second may result in failure and property damage

Gallons Per Minute	Velocity Feet Per Second	Friction Head Feet	Friction Loss PSI	Velocity Feet Per Second	Friction Head Feet	Friction Loss PSI	Velocity Feet Per Second	Friction Head Feet	Friction Loss PSI	Velocity Feet Per Second	Friction Head Feet	Friction Loss PSI	Velocity Feet Per Second	Friction Head Feet	Friction Loss PSI	Velocity Feet Per Second	Friction Head Feet	Friction Loss PSI	Velocity Feet Per Second	Friction Head Feet	Friction Loss PSI			
	¾"			1"			1¼"			1½"			2"			2½"			3"					
5	2.360	2.760	1.200	1.450	0.830	0.360																		
10	4.730	9.950	4.310	2.890	3.010	1.310																		
15	7.090	21.090	9.140	4.340	6.380	2.770																2.720	2.050	0.890
17	8.030	26.590	11.530	4.910	8.050	3.490	3.080	2.580	1.120	2"			2½"			3"								
20	9.450	35.930	15.580	5.780	10.870	4.710	3.620	3.490	1.510										2.760	1.800	0.780			
25				7.230	16.430	7.120	4.530	5.270	22.900										3.450	2.730	1.180			
27				7.810	18.950	8.220	4.890	6.080	2.640										3.730	3.140	1.360			
30							5.430	7.390	3.200	4.140	3.820	1.660	2.650	1.290	0.560	2½"			3"					
35							6.340	9.830	4.260	4.840	5.080	2.200	3.100	1.720	0.750									
36							6.520	10.360	4.490	4.970	5.360	2.320	3.190	1.810	0.790									
40										5.530	6.510	2.820	3.540	2.200	0.960							2.420	0.870	0.380
45										6.220	8.100	3.510	3.980	2.740	1.190	2.720	1.080	0.470	3"					
50										6.910	9.840	4.270	4.420	3.330	1.440	3.020	1.320	0.570						
56													4.960	4.110	1.780	3.380	1.620	0.700				2.280	0.620	0.270
60													5.310	4.670	2.020	3.620	1.840	0.800				2.450	0.710	0.310
65																5.750	5.410	2.350	3.930	2.140	0.930	2.650	0.820	0.360
70																6.190	6.210	2.690	4.230	2.450	1.060	2.850	0.940	0.410
75																			4.530	2.790	1.210	3.060	1.070	0.460
82	4"																		4.950	3.290	1.430	3.340	1.260	0.550
85	2.100	0.400	0.170																5.140	3.520	1.520	3.470	1.350	0.590
90	2.220	0.440	0.190																5.440	3.910	1.690	3.670	1.500	0.650
95	2.340	0.490	0.210																5.740	4.320	1.870	3.870	1.660	0.720
100	2.460	0.540	0.230																			4.080	1.830	0.790
122	3.010	0.780	0.340	5"																		4.970	2.640	1.140
130	3.200	0.870	0.380	2.100	0.310	0.130																5.300	2.970	1.290
135	3.330	0.940	0.410	2.180	0.330	0.140																5.500	3.180	1.380
140	3.450	1.000	0.430	2.260	0.360	0.150																5.710	3.400	1.480
150	3.700	1.140	0.490	2.420	0.410	0.180	6"																	
203	5.000	1.990	0.860	3.280	0.710	0.310	2.310	0.300	0.130															
220	5.420	2.310	1.000	3.550	0.820	0.360	2.500	0.350	0.150															
225	5.550	2.410	1.040	3.630	0.860	0.370	2.560	0.370	0.160															
245	6.040	2.820	1.220	3.950	1.010	0.440	2.790	0.430	0.190															
250				4.030	1.040	0.450	2.840	0.450	0.190															
275				4.440	1.250	0.540	3.130	0.530	0.230	8"														
310				5.000	1.560	0.670	3.530	0.670	0.290	2.080	0.180	0.080												
325				5.240	1.700	0.740	3.700	0.730	0.310	2.180	0.200	0.090												
340				5.490	1.850	0.800	3.870	0.790	0.340	2.280	0.220	0.090												
350				5.650	1.950	0.840	3.980	0.830	0.360	2.350	0.230	0.100												
370							4.210	0.920	0.400	2.480	0.260	0.110												
400							4.550	1.070	0.460	2.680	0.290	0.130												
439							5.000	1.270	0.550	2.950	0.350	0.150	10"											
480							5.460	1.490	0.650	3.220	0.410	0.180	2.070	0.140	0.060									
500							5.690	1.610	0.700	3.350	0.450	0.190	2.160	0.150	0.070									
535							6.090	1.830	0.790	3.590	0.510	0.220	2.310	0.170	0.080									
550										3.690	0.530	0.230	2.380	0.180	0.080									
600										4.030	0.620	0.270	2.590	0.210	0.090	12"								
650										4.360	0.720	0.310	2.810	0.250	0.110	2.000	0.110	0.050						
700										4.700	0.830	0.360	3.020	0.280	0.120	2.150	0.120	0.050						
745										5.000	0.930	0.400	3.220	0.320	0.140	2.290	0.140	0.060						
800										5.370	1.060	0.460	3.460	0.360	0.160	2.460	0.160	0.070						
820										5.500	1.110	0.480	3.540	0.380	0.170	2.520	0.170	0.070						
850										5.700	1.190	0.520	3.670	0.410	0.180	2.610	0.180	0.080						
900													3.890	0.450	0.200	2.760	0.200	0.090						
1000													4.320	0.550	0.240	3.070	0.240	0.100						
1158													5.000	0.720	0.310	3.560	0.320	0.140						
1500													6.480	1.170	0.510	4.610	0.510	0.220						
1630													6.910	1.320	0.570	5.000	0.590	0.250						
1800													7.770	1.640	0.710	5.530	0.710	0.310						
2000																6.140	0.870	0.380						
2500																7.680	1.310	0.570						

FRICTION LOSS AND FLOW VELOCITY CHART

FRICTION LOSS AND FLOW VELOCITY FOR PVC SDR 26 THERMOPLASTIC PIPE																						
(Friction head and friction loss are per 100 feet of pipe.) Notice: Flow velocities should not exceed 5 feet per second, velocities exceeding 5 feet per second may result in failure and property damage																						
Gallons per Minute	Velocity Feet Per Second	Friction Head Feet	Friction Loss PSI	Velocity Feet Per Second	Friction Head Feet	Friction Loss PSI	Velocity Feet Per Second	Friction Head Feet	Friction Loss PSI	Velocity Feet Per Second	Friction Head Feet	Friction Loss PSI	Velocity Feet Per Second	Friction Head Feet	Friction Loss PSI	Velocity Feet Per Second	Friction Head Feet	Friction Loss PSI	Velocity Feet Per Second	Friction Head Feet	Friction Loss PSI	
	1 1/4"			1 1/2"																		
20	3.480	3.170	1.370	2.660	1.640	0.710																
25	4.350	4.790	2.080	3.320	2.480	1.070	2"															
28	4.880	5.910	2.560	3.720	3.060	1.330	2.380	1.030	0.450													
30	5.220	6.710	2.910	3.990	3.470	1.510	2.550	1.170	0.510													
35	6.090	8.930	3.870	4.650	4.620	2.000	2.970	1.560	0.680	2 1/2"												
37	6.440	9.900	4.290	4.920	5.120	2.220	3.140	1.730	0.750	2.150	0.680	0.300										
40				5.310	5.920	2.570	3.400	2.000	0.870	2.320	0.790	0.340										
45				5.980	7.360	3.190	3.820	2.480	1.080	2.610	0.980	0.420										
50				6.640	8.950	3.880	4.250	3.020	1.310	2.900	1.190	0.520	3"									
55							4.670	3.600	1.560	3.190	1.420	0.620	2.150	0.550	0.240							
60							5.100	4.230	1.830	3.480	1.670	0.720	2.350	0.640	0.280							
65							5.520	4.910	2.130	3.770	1.940	0.840	2.550	0.750	0.320							
70							5.950	5.630	2.440	4.060	2.220	0.960	2.740	0.860	0.370							
75										4.350	2.520	1.090	2.940	0.970	0.420	4"						
80										4.640	2.840	1.230	3.130	1.100	0.470	1.890	0.320	0.140				
85										4.930	3.180	1.380	3.330	1.230	0.530	2.010	0.360	0.160				
90										5.220	3.540	1.530	3.530	1.360	0.590	2.130	0.400	0.170				
95										5.510	3.910	1.690	3.720	1.510	0.650	2.250	0.440	0.190				
100										5.800	4.300	1.860	3.920	1.660	0.720	2.370	0.490	0.210	6"			
125													4.900	2.500	1.090	2.960	0.740	0.320	1.370	0.110	0.050	
130													5.090	2.690	1.170	3.080	0.790	0.340	1.420	0.120	0.050	
135													5.290	2.890	1.250	3.200	0.850	0.370	1.480	0.130	0.060	
140													5.480	3.090	1.340	3.320	0.910	0.390	1.530	0.140	0.060	
150																3.550	1.030	0.450	1.640	0.160	0.070	
200																4.740	1.760	0.760	2.190	0.270	0.120	
215																5.090	2.010	0.870	2.350	0.310	0.130	
220																5.210	2.100	0.910	2.400	0.320	0.140	
225																5.330	2.190	0.950	2.460	0.330	0.140	
245																			2.680	0.390	0.170	
250																			2.730	0.400	0.180	
275																			3.010	0.480	0.210	
300																			3.280	0.570	0.250	
325																			3.550	0.660	0.290	
340																			3.720	0.720	0.310	
350																			3.830	0.760	0.330	
370																			4.040	0.840	0.360	
375	10"																		4.100	0.860	0.370	
400	1.660	0.090	0.040																4.370	0.970	0.420	
450	1.870	0.110	0.050																4.920	1.200	0.520	
470	1.950	0.120	0.050																5.140	1.300	0.570	
480	1.990	0.130	0.060																5.250	1.360	0.590	
500	2.070	0.140	0.060																5.470	1.460	0.630	
550	2.280	0.170	0.070	12"																		
600	2.490	0.190	0.080	1.770	0.080	0.040																
650	2.700	0.230	0.100	1.920	0.100	0.040																
700	2.900	0.260	0.110	2.070	0.110	0.050																
750	3.110	0.290	0.130	2.210	0.130	0.060													4.840			
800	3.320	0.330	0.140	2.360	0.140	0.060													5.160			
820	3.400	0.350	0.150	2.420	0.150	0.070													5.290			
850	3.530	0.370	0.160	2.510	0.160	0.070													5.480			
900	3.730	0.410	0.180	2.660	0.180	0.080																
1000	4.150	0.500	0.220	2.950	0.220	0.090																
1200	4.980	0.700	0.300	3.540	0.310	0.130																
1300	5.390	0.810	0.350	3.840	0.350	0.150																
1500	6.220	1.060	0.460	4.430	0.460	0.200																
1600	6.640	1.190	0.520	4.720	0.520	0.230																
1650				4.870	0.550	0.240																
1700				5.020	0.580	0.250																
1800				5.310	0.650	0.280																
2000				5.900	0.790	0.340																

FRICITION LOSS AND FLOW VELOCITY CHART

FRICITION LOSS AND FLOW VELOCITY FOR PVC SDR 32.5 THERMOPLASTIC PIPE																											
(Friction head and friction loss are per 100 feet of pipe.) Notice: Flow velocities should not exceed 5 feet per second, velocities exceeding 5 feet per second may result in failure and property damage																											
Gallons per Minute	Velocity Feet Per Second	Friction Head Feet	Friction Loss PSI	Velocity Feet Per Second	Friction Head Feet	Friction Loss PSI	Velocity Feet Per Second	Friction Head Feet	Friction Loss PSI	Velocity Feet Per Second	Friction Head Feet	Friction Loss PSI	Velocity Feet Per Second	Friction Head Feet	Friction Loss PSI	Velocity Feet Per Second	Friction Head Feet	Friction Loss PSI	Velocity Feet Per Second	Friction Head Feet	Friction Loss PSI	Velocity Feet Per Second	Friction Head Feet	Friction Loss PSI			
	2½"																										
20	1.120	0.200	0.090	3"																							
25	1.400	0.300	0.130	0.950	0.120	0.050																					
30	1.680	0.430	0.180	1.140	0.170	0.070																					
35	1.960	0.570	0.250	1.330	0.220	0.100																					
40	2.240	0.730	0.310	1.520	0.280	0.120																					
45	2.520	0.900	0.390	1.710	0.350	0.150																					
50	2.800	1.100	0.480	1.900	0.430	0.180	4"																				
55	3.080	1.310	0.570	2.090	0.510	0.220	1.260	0.150	0.060																		
60	3.360	1.540	0.670	2.280	0.600	0.260	1.370	0.170	0.080																		
65	3.640	1.780	0.770	2.470	0.690	0.300	1.490	0.200	0.090																		
70	3.920	2.050	0.890	2.660	0.790	0.340	1.600	0.230	0.100																		
75	4.200	2.320	1.010	2.850	0.900	0.390	1.720	0.260	0.110																		
80	4.490	2.620	1.140	3.040	1.020	0.440	1.830	0.300	0.130	5"																	
85	4.770	2.930	1.270	3.230	1.140	0.490	1.950	0.330	0.140	1.270	0.120	0.050															
90	5.050	3.260	1.410	3.420	1.260	0.550	2.060	0.370	0.160	1.350	0.130	0.060															
95	5.330	3.600	1.560	3.610	1.400	0.610	2.180	0.410	0.180	1.420	0.150	0.060															
100	5.610	3.960	1.720	3.800	1.540	0.670	2.290	0.450	0.190	1.500	0.160	0.070															
125				4.750	2.320	1.010	2.860	0.680	0.290	1.870	0.240	0.100															
130				4.940	2.500	1.080	2.980	0.730	0.320	1.950	0.260	0.110	6"														
135				5.130	2.680	1.160	3.090	0.780	0.340	2.020	0.280	0.120	1.430	0.120	0.050												
140				5.320	2.870	1.240	3.210	0.840	0.360	2.100	0.300	0.130	1.480	0.130	0.060												
150				5.700	3.260	1.410	3.440	0.950	0.410	2.250	0.340	0.150	1.590	0.150	0.060												
200							4.580	1.620	0.700	3.000	0.580	0.250	2.110	0.250	0.110												
215							4.920	1.850	0.800	3.220	0.660	0.290	2.270	0.280	0.120												
220							5.040	1.930	0.840	3.300	0.690	0.300	2.330	0.290	0.130												
225							5.150	2.020	0.870	3.370	0.720	0.310	2.380	0.310	0.130	8"											
245							5.610	2.360	1.020	3.670	0.840	0.360	2.590	0.360	0.160	1.530	0.100	0.040									
250										3.750	0.870	0.380	2.640	0.370	0.160	1.560	0.100	0.040									
275										4.120	1.040	0.450	2.910	0.450	0.190	1.720	0.120	0.050									
300										4.500	1.220	0.530	3.170	0.520	0.230	1.870	0.140	0.060									
325										4.870	1.420	0.620	3.440	0.610	0.260	2.030	0.170	0.070									
340										5.100	1.540	0.670	3.600	0.660	0.290	2.120	0.180	0.080	10"								
350										5.250	1.630	0.710	3.700	0.700	0.300	2.180	0.190	0.080	1.410	0.070	0.030						
370										5.550	1.810	0.780	3.910	0.770	0.330	2.310	0.210	0.090	1.490	0.070	0.030						
375													3.970	0.790	0.340	2.340	0.220	0.100	1.510	0.080	0.030						
400													4.230	0.890	0.390	2.490	0.250	0.110	1.610	0.080	0.040						
450													4.760	1.110	0.480	2.810	0.310	0.130	1.810	0.110	0.050						
470													4.970	1.200	0.520	2.930	0.330	0.140	1.890	0.110	0.050	12"					
480													5.080	1.250	0.540	2.990	0.350	0.150	1.930	0.120	0.050	1.370	0.050	0.020			
500													5.290	1.350	0.580	3.120	0.370	0.160	2.010	0.130	0.060	1.430	0.060	0.020			
535													5.660	1.530	0.660	3.340	0.420	0.180	2.150	0.150	0.060	1.530	0.060	0.030			
550																3.430	0.450	0.190	2.210	0.150	0.070	1.570	0.070	0.030			
600																3.740	0.520	0.230	2.410	0.180	0.080	1.710	0.080	0.030			
650																4.050	0.610	0.260	2.610	0.210	0.090	1.860	0.090	0.040			
700																4.370	0.700	0.300	2.810	0.240	0.100	2.000	0.100	0.050			
750																4.680	0.790	0.340	3.010	0.270	0.120	2.140	0.120	0.050			
800																4.990	0.890	0.390	3.210	0.310	0.130	2.280	0.130	0.060			
820																5.110	0.930	0.400	3.290	0.320	0.140	2.340	0.140	0.060			
850																5.300	1.000	0.430	3.410	0.340	0.150	2.430	0.150	0.060			
900																5.610	1.110	0.480	3.610	0.380	0.160	2.570	0.170	0.070			
1000																			4.020	0.460	0.200	2.850	0.200	0.090			
1200																			4.820	0.650	0.280	3.430	0.280	0.120			
1300																			5.220	0.750	0.330	3.710	0.330	0.140			
1500																			6.020	0.980	0.420	4.280	0.430	0.180			
1600																			6.430	1.100	0.480	4.570	0.480	0.210			
1700																						4.850	0.540	0.230			
1800																									5.140	0.600	0.260
2000																									5.710	0.730	0.320
2500																									7.140	1.100	0.480

FRICITION LOSS AND FLOW VELOCITY CHART

FRICITION LOSS AND FLOW VELOCITY FOR PVC SDR 41 THERMOPLASTIC PIPE

(Friction head and friction loss are per 100 feet of pipe.) Notice: Flow velocities should not exceed 5 feet per second, velocities exceeding 5 feet per second may result in failure and property damage

Gallons Per Minute	Velocity Feet Per Second	Friction Head Feet	Friction Loss PSI	Velocity Feet Per Second	Friction Head Feet	Friction Loss PSI	Velocity Feet Per Second	Friction Head Feet	Friction Loss PSI	Velocity Feet Per Second	Friction Head Feet	Friction Loss PSI	Velocity Feet Per Second	Friction Head Feet	Friction Loss PSI	Velocity Feet Per Second	Friction Head Feet	Friction Loss PSI	Velocity Feet Per Second	Friction Head Feet	Friction Loss PSI			
	3"																							
20	0.740	0.070	0.030	4"																				
25	0.920	0.110	0.050	0.560	0.030	0.010																		
30	1.110	0.150	0.070	0.670	0.050	0.020																		
35	1.290	0.200	0.090	0.780	0.060	0.030																		
40	1.470	0.260	0.110	0.890	0.080	0.030																		
45	1.660	0.330	0.140	1.000	0.100	0.040																		
50	1.840	0.400	0.170	1.120	0.120	0.050																5"		
55	2.030	0.470	0.200	1.230	0.140	0.060																0.800	0.050	0.020
60	2.210	0.550	0.240	1.340	0.160	0.070																0.880	0.060	0.030
65	2.400	0.640	0.280	1.450	0.190	0.080	0.950	0.070	0.030															
70	2.580	0.740	0.320	1.560	0.220	0.090	1.020	0.080	0.030															
75	2.760	0.840	0.360	1.670	0.250	0.110	1.100	0.090	0.040															
80	2.950	0.940	0.410	1.780	0.280	0.120	1.170	0.100	0.040	6"														
85	3.130	1.060	0.460	1.900	0.310	0.140	1.240	0.110	0.050	0.880	0.050	0.020												
90	3.320	1.170	0.510	2.010	0.350	0.150	1.310	0.120	0.050	0.930	0.050	0.020												
95	3.500	1.300	0.530	2.120	0.380	0.170	1.390	0.140	0.060	0.980	0.060	0.030												
100	3.690	1.430	0.620	2.230	0.420	0.180	1.460	0.150	0.070	1.030	0.060	0.030												
125	4.610	2.160	0.940	2.790	0.640	0.280	1.830	0.230	0.100	1.290	0.100	0.040												
130	4.790	2.320	1.010	2.900	0.680	0.300	1.900	0.240	0.110	1.340	0.100	0.050	8"											
135	4.980	2.490	1.080	3.010	0.730	0.320	1.970	0.260	0.110	1.390	0.110	0.050	0.820	0.030	0.010									
140	5.160	2.660	1.150	3.120	0.790	0.340	2.040	0.280	0.120	1.440	0.120	0.050	0.850	0.030	0.010									
150	5.530	3.030	1.310	3.350	0.890	0.390	2.190	0.320	0.140	1.540	0.140	0.060	0.910	0.040	0.020									
200	7.370	5.150	2.230	4.460	1.520	0.660	2.920	0.540	0.240	2.060	0.230	0.100	1.220	0.060	0.030									
220				4.910	1.810	0.790	3.210	0.650	0.280	2.270	0.280	0.280	1.340	0.080	0.030									
225				5.020	1.890	0.820	3.290	0.670	0.290	2.320	0.290	0.120	1.370	0.080	0.030	10"								
245				5.470	2.210	0.960	3.580	0.790	0.340	2.520	0.340	0.150	1.490	0.090	0.040	0.960	0.030	0.010						
250				5.580	2.300	1.000	3.650	0.820	0.360	2.570	0.350	0.150	1.520	0.100	0.040	0.980	0.030	0.010						
275							4.020	0.980	0.420	2.830	0.420	0.180	1.670	0.120	0.050	1.070	0.040	0.020						
300							4.380	1.150	0.500	3.090	0.490	0.210	1.820	0.140	0.060	1.170	0.050	0.020						
325							4.750	1.330	0.580	3.350	0.570	0.250	1.980	0.160	0.070	1.270	0.050	0.020						
340							4.970	1.450	0.630	3.500	0.620	0.270	2.070	0.170	0.070	1.330	0.060	0.030	12"					
350							5.110	1.530	0.660	3.600	0.650	0.280	2.130	0.180	0.080	1.370	0.060	0.030	0.970	0.030	0.010			
370							5.400	1.690	0.730	3.810	0.720	0.310	2.250	0.200	0.090	1.440	0.070	0.030	1.030	0.030	0.010			
375							5.480	1.740	0.750	3.860	0.740	0.320	2.280	0.210	0.090	1.460	0.070	0.030	1.040	0.030	0.010			
400										4.120	0.840	0.360	2.430	0.230	0.100	1.560	0.080	0.030	1.110	0.030	0.010			
450										4.630	1.040	0.450	2.740	0.290	0.130	1.760	0.100	0.040	1.250	0.040	0.020			
480										4.940	1.170	0.510	2.920	0.330	0.140	1.870	0.110	0.050	1.330	0.050	0.020			
500										5.150	1.260	0.550	3.040	0.350	0.150	1.950	0.120	0.050	1.390	0.050	0.020			
535										5.510	1.430	0.620	3.250	0.400	0.170	2.090	0.140	0.060	1.490	0.060	0.030			
550										5.660	1.510	0.650	3.340	0.420	0.180	2.150	0.140	0.060	1.530	0.060	0.030			
600													3.650	0.490	0.210	2.340	0.170	0.070	1.670	0.070	0.030			
650													3.950	0.570	0.250	2.540	0.190	0.080	1.810	0.080	0.040			
700													4.250	0.650	0.280	2.730	0.220	0.100	1.940	0.100	0.040			
750													4.560	0.740	0.320	2.930	0.250	0.110	2.080	0.110	0.050			
800													4.860	0.840	0.360	3.120	0.290	0.120	2.220	0.120	0.050			
820													4.980	0.880	0.380	3.200	0.300	0.130	2.280	0.130	0.060			
850													5.170	0.940	0.410	3.320	0.320	0.140	2.360	0.140	0.060			
900													5.470	1.040	0.450	3.510	0.360	0.150	2.500	0.150	0.070			
1000													6.080	1.270	0.550	3.910	0.430	0.190	2.780	0.190	0.080			
1280																5.000	0.680	0.300	3.560	0.300	0.130			
1500																5.860	0.910	0.400	4.170	0.400	0.170			
1600																6.250	1.030	0.450	4.440	0.450	0.200			
1800																7.030	1.280	0.560	5.000	0.560	0.240			
2000																			5.560	0.680	0.290			
2500																			6.940	1.030	0.450			
3000																			8.330	1.440	0.620			

FRICITION LOSS AND FLOW VELOCITY CHART

FRICITION LOSS AND FLOW VELOCITY FOR PVC PIP SDR 32.5 THERMOPLASTIC PIPE (Friction head and friction loss are per 100 feet of pipe.) Notice: Flow velocities should not exceed 5 feet per second, velocities exceeding 5 feet per second may result in failure and property damage															
Gallons per Minute	Velocity Feet Per Second	Friction Head Feet	Friction Loss PSI	Velocity Feet Per Second	Friction Head Feet	Friction Loss PSI	Velocity Feet Per Second	Friction Head Feet	Friction Loss PSI	Velocity Feet Per Second	Friction Head Feet	Friction Loss PSI	Velocity Feet Per Second	Friction Head Feet	Friction Loss PSI
	6"														
175	2.150	0.280	0.120												
200	2.460	0.360	0.160												
250	3.080	0.540	0.230												
300	3.690	0.760	0.330	8"											
350	4.310	1.010	0.440	2.440	0.250	0.110									
405	4.990	1.320	0.570	2.820	0.330	0.140									
415	5.110	1.380	0.600	2.890	0.350	0.150									
470	5.790	1.740	0.750	3.280	0.440	0.190	10"								
500	6.160	1.950	0.850	3.480	0.490	0.210	2.230	0.170	0.070						
550				3.830	0.580	0.250	2.450	0.200	0.090						
600				4.180	0.690	0.300	2.680	0.230	0.100						
650				4.530	0.800	0.340	2.900	0.270	0.120	12"					
700				4.880	0.910	0.400	3.120	0.310	0.130	2.170	0.130	0.060			
718				5.000	0.960	0.410	3.200	0.320	0.140	2.220	0.130	0.060			
800				5.580	1.170	0.510	3.570	0.390	0.170	2.480	0.160	0.070			
820				5.710	1.220	0.530	3.660	0.410	0.180	2.540	0.170	0.070			
850				5.920	1.310	0.570	3.790	0.440	0.190	2.630	0.180	0.080			
900							4.010	0.490	0.210	2.790	0.200	0.090	15"		
1000							4.460	0.600	0.260	3.100	0.250	0.110	1.980	0.080	0.040
1120							5.000	0.740	0.320	3.470	0.300	0.130	2.220	0.100	0.040
1300							5.800	0.970	0.420	4.030	0.400	0.170	2.580	0.130	0.060
1500							6.690	1.260	0.550	4.650	0.520	0.230	2.970	0.180	0.080
1610							7.180	1.440	0.620	4.990	0.590	0.260	3.190	0.200	0.090
1690										5.240	0.650	0.280	3.350	0.220	0.100
1745										5.410	0.690	0.300	3.460	0.230	0.100
1800										5.580	0.730	0.320	3.570	0.250	0.110
2000													3.970	0.300	0.130
2100													4.160	0.330	0.140
2520													5.000	0.460	0.200
3000													5.950	0.630	0.280
3500													6.940	0.840	0.370
4000													7.930	1.080	0.470

FRICTION LOSS AND FLOW VELOCITY CHART

FRICTION LOSS AND FLOW VELOCITY FOR PVC PIP SDR 41 THERMOPLASTIC PIPE (Friction head and friction loss are per 100 feet of pipe.) Notice: Flow velocities should not exceed 5 feet per second, velocities exceeding 5 feet per second may result in failure and property damage															
Gallons per Minute	Velocity Feet Per Second	Friction Head Feet	Friction Loss PSI	Velocity Feet Per Second	Friction Head Feet	Friction Loss PSI	Velocity Feet Per Second	Friction Head Feet	Friction Loss PSI	Velocity Feet Per Second	Friction Head Feet	Friction Loss PSI	Velocity Feet Per Second	Friction Head Feet	Friction Loss PSI
	6"														
175	2.100	0.260	0.110												
200	2.400	0.340	0.150												
250	3.000	0.510	0.220												
300	3.600	0.710	0.310	8"											
350	4.190	0.940	0.410	2.370	0.240	0.100									
400	4.790	1.210	0.520	2.710	0.300	0.130									
416	4.990	1.300	0.560	2.820	0.330	0.140									
470	5.630	1.630	0.710	3.190	0.410	0.180	10"								
500	5.990	1.830	0.790	3.390	0.460	0.200	2.170	0.150	0.070						
550	6.590	2.180	0.950	3.730	0.550	0.240	2.390	0.180	0.080						
600				4.070	0.640	0.280	2.610	0.220	0.090						
650				4.410	0.740	0.320	2.820	0.250	0.110	12"					
700				4.750	0.850	0.370	3.040	0.290	0.130	2.110	0.120	0.050			
735				4.990	0.930	0.410	3.190	0.320	0.140	2.220	0.130	0.060			
800				5.430	1.090	0.470	3.470	0.370	0.160	2.410	0.150	0.070			
820				5.560	1.140	0.500	3.560	0.390	0.170	2.470	0.160	0.070			
850				5.770	1.220	0.530	3.690	0.410	0.180	2.560	0.170	0.070			
900							3.910	0.460	0.200	2.710	0.190	0.080	15"		
1000							4.340	0.560	0.240	3.020	0.230	0.100	1.930	0.080	0.030
1150							4.990	0.720	0.310	3.470	0.300	0.130	2.220	0.100	0.040
1300							5.640	0.910	0.390	3.920	0.370	0.160	2.510	0.130	0.050
1500							6.510	1.180	0.510	4.520	0.490	0.210	2.890	0.160	0.070
1600							6.950	1.330	0.580	4.820	0.550	0.240	3.090	0.190	0.080
1650										4.980	0.580	0.250	3.180	0.200	0.090
1745										5.260	0.650	0.280	3.370	0.220	0.090
1800										5.430	0.680	0.300	3.470	0.230	0.100
2000										6.030	0.830	0.360	3.860	0.280	0.120
2100													4.050	0.310	0.130
2590													5.000	0.450	0.200
3000													5.790	0.590	0.260
3500													6.750	0.790	0.340
4000													7.720	1.010	0.440

FRICION LOSS AND FLOW VELOCITY CHART

FRICION LOSS AND FLOW VELOCITY FOR PVC PIP SDR 51 THERMOPLASTIC PIPE (Friction head and friction loss are per 100 feet of pipe.) Notice: Flow velocities should not exceed 5 feet per second, velocities exceeding 5 feet per second may result in failure and property damage															
Gallons per Minute	Velocity Feet Per Second	Friction Head Feet	Friction Loss PSI	Velocity Feet Per Second	Friction Head Feet	Friction Loss PSI	Velocity Feet Per Second	Friction Head Feet	Friction Loss PSI	Velocity Feet Per Second	Friction Head Feet	Friction Loss PSI	Velocity Feet Per Second	Friction Head Feet	Friction Loss PSI
	6"														
175	2.100	0.260	0.110												
200	2.400	0.340	0.150												
250	3.000	0.510	0.220												
300	3.600	0.710	0.310	8"											
350	4.190	0.940	0.410	2.330	0.230	0.100									
400	4.790	1.210	0.520	2.660	0.290	0.130									
415	4.970	1.290	0.560	2.760	0.310	0.130									
470	5.630	1.630	0.710	3.130	0.390	0.170	10"								
500	5.990	1.830	0.790	3.320	0.440	0.190	2.130	0.150	0.060						
550	6.590	2.180	0.950	3.660	0.520	0.230	2.340	0.180	0.080						
600				3.990	0.610	0.270	2.550	0.210	0.090						
650				4.320	0.710	0.310	2.770	0.240	0.100	12"					
700				4.650	0.810	0.350	2.980	0.270	0.120	2.070	0.110	0.050			
750				4.990	0.920	0.400	3.190	0.310	0.140	2.220	0.130	0.060			
800				5.320	1.040	0.450	3.400	0.350	0.150	2.360	0.140	0.060			
820				5.450	1.090	0.470	3.490	0.370	0.160	2.420	0.150	0.070			
850				5.650	1.170	0.510	3.620	0.390	0.170	2.510	0.160	0.070			
900							3.830	0.440	0.190	2.660	0.180	0.080	15"		
1000							4.260	0.530	0.230	2.960	0.220	0.090	1.890	0.070	0.030
1175							5.000	0.720	0.310	3.470	0.300	0.130	2.220	0.100	0.040
1300							5.530	0.860	0.370	3.840	0.360	0.150	2.460	0.120	0.050
1500							6.380	1.130	0.490	4.430	0.460	0.200	2.840	0.160	0.070
1600							6.810	1.270	0.550	4.730	0.520	0.230	3.030	0.180	0.080
1690										4.990	0.580	0.250	3.200	0.200	0.080
1745										5.160	0.610	0.270	3.300	0.210	0.090
1800										5.320	0.650	0.280	3.400	0.220	0.100
2000										5.910	0.790	0.340	3.780	0.270	0.120
2500													4.730	0.400	0.170
2640													4.990	0.450	0.190
3000													5.670	0.570	0.250
3500													6.620	0.750	0.330
4000													7.570	0.960	0.420

Gasketed Pipe Assembly*

Bar and block is the recommended method of assembly. Small-diameter pipes can be assembled by one worker, while larger diameters may require two people working together.

Besides quicker installation of a pipe line, the major advantage of barring pipe (see Bar & Block illustration below) is that the worker has a feel for the process. This assures proper alignment and assembly.

NOTE: Assembly with power equipment is not recommended.

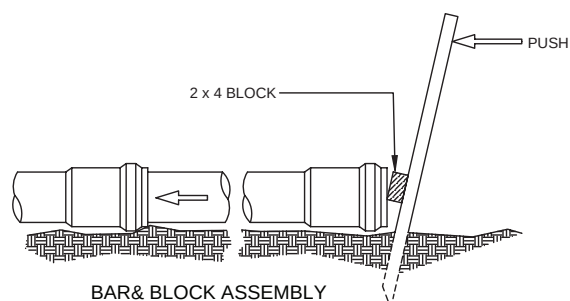
Standard good mechanical assembly practice take alignment into consideration and produces reliable, leak-free pipe lines.

Straight alignment assembly will not dislodge gaskets. Forced, improper alignment insertion produces an insertion curve characterized by the tremendous force necessary to dislodge the gasket from the race, trap it between the bell and spigot surfaces, and stretch it backwards. The insertion force necessary to assemble a joint with dislodged gaskets is so extreme, it can only be accomplished using mechanical equipment without the operator's knowledge of the dislocation.

Joint Insertion Instructions

1. Clean the gasket area. Remove sand, dirt, grease, and debris. Do not remove gaskets from bells.
2. Check the gasket. Make sure it is seated uniformly in the groove by running your finger around the inner edge of the gasket. If the gasket has a plastic retainer ring, make sure it's properly seated into the rubber portion of the gasket.
3. Clean the spigot. Use a rag to wipe the spigot clean.
4. Lower the pipe into the trench carefully to avoid getting dirt onto the bell or spigot.
5. Lubricate. Apply approved pipe lubricant to the bevel of the spigot end and approximately mid-way back to the reference line. A thin layer of lubricant may be applied to the face of the gasket, but be careful not to get lubricant behind or under the gasket.
6. Keep lubricated areas clean. If dirt or sand adheres to lubricated areas, clean and re-lubricate.

7. Assemble pipe. Insert the spigot end into the pipe until it contacts the gasket uniformly or is a short distance from the gasket. Straight alignment is essential. Apply steady pressure by hand or by mechanical means (bar and block, come-along, hydraulic jack) until the spigot slips through the gasket. Insert pipe until the assembly stop line is flush with the bell end.
8. If undue resistance to pipe insertion is encountered or if the pipe cannot be inserted to the reference mark, disassemble the joint and check the position of the gasket. If the gasket is still properly positioned, verify proper positioning of the reference mark. Relocate the mark if it is not correctly positioned. In general, fittings allow less insertion than do pipe bells.
9. If the pipe must be field-cut, mark the entire circumference to ensure a square cut. Bevel the field cut the same as a factory bevel. If being installed into fittings, follow manufacturer's recommendations. Round off any sharp edges on the leading edge of the bevel with a pocket knife or a file. Mark cut end with an insertion line similar to uncut pipe.



*Data and language courtesy of Hultec

NOTICE

Piping systems differ in chemical resistance. Pipe or fittings may be damaged by contact with products containing incompatible chemicals resulting in property damage.

- Verify that paints, thread sealants, lubricants, plasticized PVC products, foam insulations, caulks, leak detectors, insecticides, termiticides, antifreeze solutions, pipe sleeve, firestop materials or other materials are chemically compatible with ABS, PVC or CPVC.
- Do not use edible oils such as Crisco® for lubricant.
- Read and follow chemical manufacturer's literature before using with piping materials.

LIMITED WARRANTY

Irrigation Technical Guide
(Updated September 11, 2026)

Charlotte Pipe and Foundry Company® (Charlotte Pipe®) Products are warranted to be free from manufacturing defects and to conform to currently applicable ASTM standards for a period of five (5) years from date of delivery. Buyer's remedy for breach of this warranty is limited to replacement of, or credit for, the defective product. This warranty excludes any expense for removal or reinstallation of any product and any other incidental, consequential, or punitive damages. **This limited warranty is the only warranty made by seller and is expressly in lieu of all other warranties, express and implied, including any warranties of merchantability and fitness for a particular purpose.** No statement, conduct or description by Charlotte Pipe or its representative, in addition to or beyond this Limited Warranty, shall constitute a warranty. This Limited Warranty may only be modified in writing signed by an officer of Charlotte Pipe.

This Limited Warranty will not apply if:

- 1) The Products are used for purposes other than their intended purpose as defined by local plumbing and building codes, and the applicable ASTM standard.
- 2) The Products are not installed in good and workmanlike manner consistent with normal industry standards; installed in compliance with the latest instructions published by Charlotte Pipe and good plumbing practices; and installed in conformance with all applicable plumbing, fire and building code requirements.
- 3) This limited warranty does not apply when the products of Charlotte Pipe are used with the products of other manufacturers that do not meet the applicable ASTM or CISPI standards or that are not marked in a manner to indicate the entity that manufactured them.
- 4) In hubless cast iron installations, this warranty will not apply if products are joined with unshielded hubless couplings. Charlotte Pipe requires that its hubless cast iron pipe and fittings be joined only with shielded hubless couplings manufactured in accordance with CISPI 310, ASTM C 1277 and certified by NSF® International or with Heavy Duty Couplings meeting ASTM C 1540.
- 5) The Products fail due to defects or deficiencies in design, engineering, or installation of the piping system of which they are a part.
- 6) The Products have been the subject of modification; misuse; misapplication; improper maintenance or repair; damage caused by the fault or negligence of anyone other than Charlotte Pipe; or any other act or event beyond the control of Charlotte Pipe.
- 7) The Products fail due to the freezing of water in the Products.
- 8) The Products fail due to contact with chemical agents, fire stopping materials, thread sealant, plasticized vinyl products, or other aggressive chemical agents that are not compatible.
- 9) Pipe outlets, sound attenuation systems or other devices are permanently attached to the surface of Charlotte® PVC, ABS or CPVC products with solvent cement or adhesive glue.

Charlotte Pipe products are manufactured to the applicable ASTM or CISPI standard. Charlotte Pipe and Foundry **cannot** accept responsibility for the performance, dimensional accuracy, or compatibility of pipe, fittings, gaskets, or couplings not manufactured or sold by Charlotte Pipe and Foundry.

This Limited Warranty will not apply unless written notice of a claim is mailed to Charlotte Pipe at the address below within 30 days of discovery of the allegedly defective product.

Any Charlotte Pipe products alleged to be defective **must** be made available to Charlotte Pipe at the following address for verification, inspection and determination of cause:

Charlotte Pipe and Foundry Company
Attention: Technical Services
2109 Randolph Road
Charlotte, North Carolina 28207

Purchaser must obtain a return materials authorization and instructions for return shipment to Charlotte Pipe of any product claimed defective or shipped in error.

Any Charlotte Pipe product **proved** to be defective in manufacture will be replaced F.O.B. point of original delivery, or credit will be issued, at the discretion of Charlotte Pipe.

5/19/23

Charlotte, Charlotte Pipe and "You can't beat the system" are registered trademarks of Charlotte Pipe and Foundry Company.

PO BOX 35430 CHARLOTTE, NORTH CAROLINA 28235
SALES PHONE (704) 348 6450 (800) 572 4199
TECHNICAL PHONE (800) 438 6091 FAX (800) 553 1605
WWW.CHARLOTTEPIPE.COM

This image shows a full page of blank, lined paper. It features approximately 20 evenly spaced horizontal grey lines across its entire width, typical of notebook or legal stationery. The paper is otherwise completely empty, with no text, markings, or illustrations.

This image shows a full page of blank, lined paper. It features approximately 28 evenly spaced horizontal grey lines across its entire width, providing a template for writing or drawing. The margins are consistent on all sides.

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[illegible]

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

CHARLOTTE
PIPE AND FOUNDRY COMPANY

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PHONE:
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FAX 800.553.1605

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704.348.9884

[CHARLOTTEPIPE.COM/IRRIGATION](https://charlottepipe.com/irrigation)



All products manufactured by
Charlotte Pipe and Foundry Company
are proudly made in the U.S.A.