Vylon®

PVC Gravity Sewer Pipe Installation Guide

Vylon® Pipe

Vylon Pipe unloading/handling and assembly checklist

- Count and inspect each pipe shipment upon arrival. Discrepancies and/or damage must be noted on the shipping Bill of Lading.
- In cases of damage, notify the carrier and file the claim per the carrier's procedures.
- It is recommended to use 8 ft. long extended forks to unload Vylon Pipe pallets. Maximum fork thickness should not exceed 2 in.
- To avoid damage, do not drop the pipe or roll it off the truck. Unload the pipe with care. Do not exceed the recommended stacking height found on the Vylon Shipping Information and Accessories data sheet (see the Vylon website).
- Use only nylon straps when handling Vylon Pipe.
- Do not drag the pipe on the bell or spigot.
- Inspect the barrel for damage.
- Prior to assembly, clean and lubricate the gasket. Complete lubrication instructions are found on page11.
- If 54 in. pipe is on the project, please refer to the 54 in. unloading instruction provided separately.

- Assembly methods:
- Pull joint together with nylon straps.
- Block the bell to push the spigot “home” with a backhoe bucket.
- Bar and block assembly.
- The joint is fully assembled or “home” when the second homing mark (farthest from the spigot end) aligns with the gasketed bell but is still visible.
- Do not drop the specified embedment on the pipe from heights greater than 5 ft.
- Shovel slice embedment in haunches to springline as specified.
- Unless it is a Class I material (crushed stone), compact the embedment material in accordance with the project specifications. Also refer to the Vylon Trench Detail and ASTM D2321 for more information.
- Follow safe trenching practices.

Call a local Vylon Pipe sales representative for further assistance.

Introduction

This guide is written specifically for installers and those who supervise the unloading, handling, installation and testing of Vylon PVC sewer pipe. Vylon Pipe is a large diameter flexible pipe with a closed profile design. The pipe must be handled and backfilled in accordance with project specifications and the suggestions of this guide. Careful attention to the project specifications and Vylon Pipe's installation recommendations will aid the installer in completing a successful project.

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1. ONE YEAR LIMITED WARRANTY

Vylon Pipe warrants that our products are manufactured in accordance with the applicable material specifications and are free from defects using our specifications as a standard. The limit of our liability for failure of any of our products to meet the foregoing warranty or for any breach of any other warranty, expressed or implied, shall be to supply an equivalent amount of products returned to us and found to be defective by us. Every claim under this warranty shall be deemed waived unless received in writing by Vylon Pipe within thirty (30) days of the date the defect was discovered or should have been discovered and within one year of the date of shipment from our factory. Defective goods may be returned to the seller only upon permission and definite instructions from the seller. **Vylon Pipe shall not be liable for any incidental or consequential damages caused by breach of this warranty. This exclusion shall be applied whether such damages are sought based on breach of warranty, breach of contract, negligence, strict liability in tort, or any other legal theory. This warranty does not apply to claims for personal injury by a third party. This warranty does not cover damages in shipment. Claims for damage in shipment should be made to the carrier in accordance with the terms of the shipping agreement. The physical properties of Vylon Pipe products represent typical average values obtained in accordance with ASTM testing methods and are subject to normal manufacturing tolerances.**

This warranty is in lieu of all other warranties, whether expressed, implied or oral, including warranty of merchantability, and implied warranty of fitness for a particular purpose, and any implied warranties otherwise arising from a course of dealing or trade. The technical data presented herein is reliable, however no guarantee is made or liability assumed.

2. Inspection when Received

Each pipe shipment should be inspected with care upon arrival by the contractor, distributor or field representative. **It is the responsibility of the consignee to make certain that there has been no loss or damage in transit.** The shipment should be checked against the tally sheet. Any discrepancy or damage must be reported to the carrier with appropriate notations made on the delivery receipt. File a claim with the carrier as Vylon Pipe is not responsible for damage in transit.

Inspection Checklist

- Upon arrival of each pipe shipment, walk around the entire shipment to inspect that it has arrived intact and undamaged.
- If the shipment has shifted, check to see that the gasketed bells have not been damaged from “rubbing” against the adjacent bundle of pipe. Carefully inspect each piece as it is unloaded.
- Check the total quantities of each item delivered against the Bill of Lading (diameter and quantity of pipe, lubricant, etc.).
- Any damaged or missing items must be noted on the shipping Bill of Lading.
- Notify the carrier immediately and file the claim in accordance with the carrier’s procedures.
- Retain the damaged material. Please follow the carrier’s procedures for replacement. (Note: An advantage to smooth outer Vylon Pipe wall is that slightly damaged joints can be easily field cut and used as “short lengths” where needed.)
- Damaged material and shortages are not automatically re-shipped. Please re-order through a local Vylon Pipe sales representative or distributor.

3. Unloading

Pipe should be removed in units using mechanical equipment. Remove restraints that bind the units to the truck. **Do not cut the bands that hold each unit together.** Unload the units by rows using a forklift or front-end-loader equipped with fork arms long enough to reach beyond the last pipe in the unit. Maximum fork thickness should not exceed 2". If a forklift is not available, a spreader bar may be used if it is combined with nylon straps capable of handling the load and spaced 8 ft. apart and looped under the unit. **Do not roll the pipe off the truck. Do not handle units with cables or chains or attach cables to unit frames for lifting.** All bundles should be stored on level ground and away from areas that could cause debris or soil to collect.

4. Cold Weather Handling

As the temperature approaches and drops below freezing, the flexibility and impact resistance of any plastic pipe is reduced. **Extra care should be used in handling Vylon Pipe during cold weather.** Regardless of the temperature, handle Vylon Pipe with nylon slings. In addition, check the bell carefully before installation and make sure to remove any ice that may have collected on or behind the gasket.

5. Storage

Pipe should be stored in units on a flat base. Pipe that has been stored for more than twelve months may have reduced impact strength. Other physical properties such as tensile and flexural strength are unaffected by the prolonged storage. If the pipe is to be stored exposed to sunlight for more than twelve months, it should be covered with canvas or other material opaque to ultraviolet light. Prior to using pipe that has been stored outdoors for extended periods, the rubber gaskets at the end of the bell should be inspected for cracking. Surface cracking is cosmetic and does not impair the performance of the gaskets.

6. Installation

A. At the Trench Site

Vylon Pipe should be handled with nylon straps rather than chains or cables. The pipe bedding should be prepared prior to pipe placement. If there is any discrepancy between the contract documents and the manufacturer's recommended installation procedures, the engineer should be contacted and the discrepancy resolved.

B. Foundation and Bedding

Foundation materials are based on site conditions and specified by the project engineer in contract documents to stabilize otherwise unstable conditions. Pipe **bedding** is used to bring the pipe to grade and provide uniform longitudinal support. **Haunching** material is most critical in controlling deflection and should be placed so as to eliminate voids and obtain densities required in contract specifications. Care must be taken to choose foundation, bedding, and haunching materials that are compatible to minimize migration or loss of bedding of haunching support. Good dewatering practices need to be followed so that embedment materials can be properly placed. If earthen dams are used at any point along the line, all material to construct the dam needs to be removed and replaced with the appropriate embedment material.

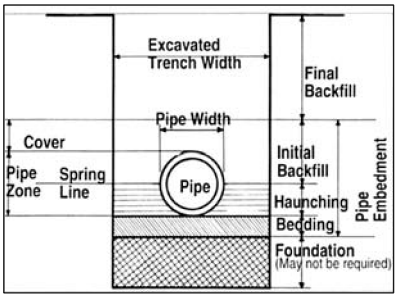


Figure 1
Trench
Terminology

C. Assembly of Pipe

Make certain that both the bell and the spigot are clean and contain no foreign matter including ice in cold weather conditions that could prevent an effective seal between the gasket and the spigot surfaces. Gaskets are securely glued in place at the factory. The gasket and interior should be lubricated with the pipe lubricant specifically suited for this purpose available from Vylon Pipe. Follow the instructions on the lube container, making sure to clean the gasket and the spigot thoroughly. Only the gasket needs to be lubricated around the entire circumference. Do not use lubricants that contain petroleum oils or vegetable oils, as they may harm the gasket materials. Be careful not to let the lubricated section touch the dirt or backfill as foreign material could adhere to the surface and compromise joint integrity. Insert the spigot into the bell entrance so that the two pipes are in alignment and form a straight line. For convenience of the manufacturing and testing process, the gasket is manufactured with an external “J-Lip”, which extends over the end and onto the exterior surface of the pipe. This “J-Lip”

does not serve any sealing function. Joint tightness is not affected by non-adhered areas along the “J-Lip”.

The following are recommended assembly procedures:

- Pulling the joint together with a nylon sling.
- Blocking the bell to push the spigot “home” with a backhoe bucket.

The pipe should be assembled so that the second circular assembly mark is just visible at the edge of the bell entrance. Do not over assemble the pipe beyond the second assembly mark. Such over assembly could prohibit expansion of the pipe due to temperature changes, cause an obstruction as the spigot necks down into the bottom of the bell, or compromise joint integrity. Assembly will require greater effort during cold weather.

D. Tamping and Backfill

Trench bedding shall be of uniform thickness and density. Once the pipe is joined together, pipe embedment material should be placed in the haunching and pipe zone areas as called for in the project specifications. Uniform stable support is provided by placing the specified material in small quantities to eliminate voids and make firm contact with the pipe. Bedding shall be placed in 6" – 8" lifts on alternate sides of the pipe and shovel sliced if a Class I material (crushed stone). Other materials will require compaction in accordance with the project specifications. Mechanical tampers may be specified in some instances and care should be taken to avoid direct contact with the pipe. Hydrohammers should not be used within three feet on top of the pipe and only then when the pipe zone material has been

previously compacted to a minimum of 95% of Standard Proctor Density.

The initial backfill extends from the springline of the pipe to a specified height of cover above the pipe, but no less than 6 inches.

Final backfill is placed over the pipe to protect it from other objects and should be free from large rocks (more than 3" in diameter), frozen lumps or debris. Final backfilling should begin after a final inspection of the trench. Refer to Figure 1 for definition of bedding, haunches, pipe zone, initial and final backfill.

For additional information, please refer to the Vylon trench detail and ASTM D2321. ASTM D2321 also contains useful information on how to deal with unstable or migrating soils.

7. Field Cutting and Sealing

Vylon Pipe PVC sewer pipe has a uniform outside diameter that provides a sealing surface at any point along its length. Open channels of the profile cross section have been factory sealed at both the spigot and bell end to prevent water entry and facilitate air testing. Each length of the pipe has been air tested in the factory to verify the integrity of the pipe, end seals and gasketed joints. Note that the factory spigot is formed to allow easy insertion into the bell, but that there may be a slight gap between the inner and outer wall of this formed end. Because the seals are made in the channels, this gap has no bearing on the sealing of the spigot end.

Pipe is easier cut to length before it is placed in the trench. A general-purpose circular saw with a carbide tooth blade or a gasoline powered abrasive

wheel saw works best. Mark off the length required from the spigot or bell end with a marking pen.

Do not follow the spiral barrel weld as a cutting guide. This process should be repeated until marks are made around the circumference of the pipe at intervals not more than two feet apart. A pipe wrap or straight edge can then be used to connect the marks into a continuous line for cutting.

NOTE:

Field Sealing, as described on pages 16 and 17, is no longer required as long as the factory bell or spigot exists on the cut piece of pipe. If both the bell and spigot are removed or if required by the project specifications, sealing is required. Use DeWalt AC100+ Gold adhesive to seal cut pipe ends.

Field cut lengths expose the internal cell or channel structure of Vylon Pipe. The number of exposed channels and cartridges of adhesive needed to seal each cut end is shown below:

Diameter	No. of Channels	Cartridges, (9.5 oz.) Needed to Seal Each End
21" - 30"	7	1.0
36"	5	1.0
42"	5	1.5
48"	4	1.5
54"	4	2.0

Both 9.5 oz and 28 oz cartridges are available from DeWalt. Store & apply the adhesive per manufacturers recommendation.

The following are sealing instructions:

1. Clean and dry the exposed channels. Adhesive will not cure under water or in continuously wet conditions.
2. Pre-plug the Vylon Pipe channels to be sealed with foam-rubber plugs or cotton balls. The plug material should be inserted at least 1-1/2" deep into the channel.
3. Seal the channels with a solid 1-1/2" long injection of adhesive to completely seal off the channel opening. Slowly withdraw the mixing tube while injecting the adhesive moving the tip around to push adhesive into the corners of each cell. It is not necessary for the sealant to be flush with the end of the pipe.

The adhesive adheres easily to clean and dry Vylon Pipe surfaces.

8. Manhole Connections

Manhole construction may vary regionally; however, the smooth outer wall of Vylon Pipe can be used directly as a sealing surface. Therefore, methods that apply to solid wall pipe can also be used with Vylon Pipe.

Manhole connections are generally made by one of the following methods:

A. Vylon Pipe manhole tee with standard Vylon Pipe bell by spigot joint connections.

B. Precast concrete manhole base with elastomeric gasket, boot or other flexible seal sized for Vylon Pipe minimum outside diameter. Please refer to Table 1 in the Appendix.

A-LOK and PRESS SEAL (PSX) Systems are commonly used with Vylon Pipe.

C. Poured in place manhole with Vylon Pipe water stop gasket placed firmly around the pipe. Concrete will not bond directly to PVC. A watertight system requires a flexible seal or water stop gasket between the Vylon Pipe and the manhole structure.

D. Fiberglass or polyethylene manhole stubs connected to Vylon Pipe with a properly sized flexible rubber coupling or full circle metal coupling. The couplings must be sized for the minimum pipe diameters.

The manhole foundation and bedding material should be compacted to 95% Proctor Density. The pipe bedding through the haunches at the manhole connection is critical in controlling deflection at the connection. Consult the manhole gasket manufacturer for the maximum amount of pipe deflection the gasket sealing system can tolerate at the manhole connection. **Beveling the outside surface of the Vylon Pipe before inserting will make the insertion process easier and help prevent damage to the gasket.**

9. Field Service Taps and Risers

Field service taps can be performed for all Vylon Pipe diameters by using one of the following recommended products.

A. Inserta Tee®

Inserta Tee is a three-piece service connection that is compression-fit into the cored wall of the Vylon Pipe wall. Inserta Tee consists of a PVC hub, rubber sleeve, and stainless-steel band. Inserta Tee connections are available for 4", 6", 8", 10" and 12" and 15" sizes. The rubber sleeve has a self-fitting/sealing insert ring that aligns with the specified Vylon Pipe diameter profile height. QwikSeal® manufactured by Fernco is a similar product.

A sharp hole saw should be used to obtain a precise hole. Exposed interior channels do not have to be sealed. The Inserta Tee can be installed precisely where needed without disturbing the bedding. Follow the recommended Inserta Tee installation instructions, but running the hole saw in reverse will prevent the saw teeth from grabbing the cell ribs and will provide a cleaner cut.

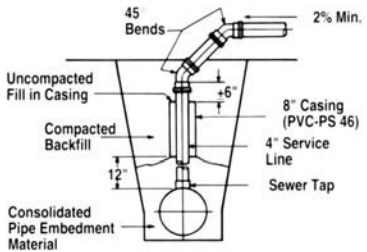
B. Fabricated Service Tees

Fabricated service tees may be specified by the owner or design engineer. The fabricated tee is a one-piece unit with a reducing service tap or hub “heat fused” to the Vylon Pipe barrel section. Fittings may be fabricated either from short lengths of Vylon Pipe or from solid wall pipe that has been sized to fit Vylon Pipe.

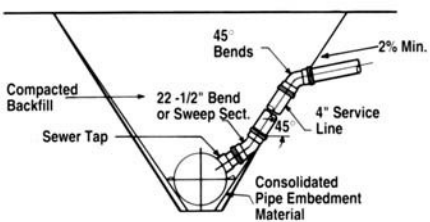
C. Risers

After the field tap is made, a vertical or angular riser is specified to complete the service connection. Service lines are generally 4" – 6" in diameter for single house leads whereas industrial or multi-use laterals may be larger.

Deep vertical risers generate high loads on the mainline pipe and fitting. For vertical risers exceeding 10 ft., an outer casing pipe should be used around the riser to accommodate the vertical settlement and frictional forces. The casing pipe should be filled with loose fill and supported above the tap with a Class I embedment material (crushed stone) pad. Please refer to the vertical riser illustration at right. Operating equipment and concentrated loads must be kept off the vertical riser until a minimum 4 ft. of cover has been consolidated above the riser. The service lines for angular risers should be placed against the undisturbed trench wall.



Vertical Riser



Angular Riser

10. Tunnel Casings and Grouting

All Vylon Pipe inserted into a tunnel casing should be blocked in place or backfilled to prevent flotation when the pipe is under the water table. The backfill specified by the design engineer (coarse sand, sand-cement mixture or light-weight cellular grout) must be carefully placed and the pipe filled with water during the grouting process. If grouted, the maximum grout pressure is 10 psi. Grouting pressures must be closely monitored with a pressure gauge that is calibrated in 1/10 psi graduations.

A. Vylon Pipe Bell Outside Diameter Minimum Casing Pipe Sizing

The minimum size casing is that which will allow the bell to pass without interference. Alternatively, Vylon Slipliner Pipe has a flush joint and may allow for a smaller casing. The table below gives the maximum bell dimension for Vylon Direct Bury pipe along with Vylon Slipliner Pipe.

Pipe Size	Direct Bury Bell O.D. (in)	SLIPLINER Max. O.D. (in)
21"	25.10	22.68
24"	28.05	25.43
27"	31.49	28.65
30"	34.95	31.90
32"	N/A	34.35
36"	41.90	38.35
42"	48.80	44.80
48"	55.60	N/A
54"	62.50	N/A

If Vylon Slipliner Pipe is used, transition pieces can be used to connect Slipliner Pipe to Direct Bury Pipe or the transition can be made at a manhole.

B. Casing Spacers

Vylon Pipe should not rest on the gasketed bell while being pushed or pulled into the casing. Casing spacers should be used to raise, support and place the pipe lengths in the casing.

Three spacers should be used per pipe length. Please follow the casing spacer manufacturers' recommendation.

NOTE: One of the spacers must be secured to Vylon Pipe at the second homing mark to prevent over-belling. The others should be equally spaced along the length of pipe.

C. Insertion Through the Tunnel Casing

Check with the casing spacer manufacturer's installation instruction in regards to securing the spacers and as to whether or not lubrication is necessary.

Vylon Pipe can be pulled through the tunnel, assembled to previously installed joint and blocked-in place. Use steady uniform pressure to insert and assemble the joint. Also, Vylon Pipe can be pushed through the tunnel casing using a backhoe or jacking machine in the bore pit. The maximum assembled lengths of Vylon Pipe to be pushed is as follows:

Diameter	Length
21"	1000 LF
24"	1000 LF
27"	750 LF
30"	750 LF
36"	500 LF
42"	500 LF
48"	400 LF
54"	400 LF

For greater lengths of Vylon Pipe to be pushed, use multiple jacking pits or shorter segments that will be joined inside the casing pipe.

D. Backfilling the Annular Space

The need for backfilling the annular space between the casing and Vylon Pipe carrier pipe is determined by the project specifications. If the Vylon Pipe carrier pipe will be below ground water, Vylon Pipe should be backfilled or blocked-in place to prevent flotation. The tunnel casing must be dewatered until after the backfill has been placed and allowed to set up.

Sand or sand-cement mixture can be blown into the annular space by using a hose or small pipe to slowly fill the void. Make certain the void is completely filled around the first pipe before moving on to the next.

<u>If pressure grouting is specified, please take the following precautions:</u>

1. Block the Vylon Pipe in place with casing spacers.
2. Fill the entire Vylon Pipe segment to be grouted with water.
3. Use a lightweight cellular grout mix or flowable fill.
4. Gravity flow or pump the grout into the annular space. Long runs may require pumping – **keep the pressure less than 10 psi in the annular space.** The grouting pressures must be closely monitored with a sensitive pressure gauge with 1/10 psi graduations.

11. Field Testing

A. Joint Integrity

Vylon Pipe joint gaskets are designed to meet the requirements of ASTM D-3212, the same joint requirement as solid wall PVC and other gravity flow sewer pipe. The joint integrity may be tested by an exfiltration test, infiltration test, or air test. Instructions for a particular test procedure shall be provided by the project engineer.

1. Air Testing

Air testing must be preceding by making certain all caps and plugs are securely blocked to prevent movement. ASTM F-1417, “Installation Acceptance of Plastic Gravity Sewer Lines Using Low-Pressure Air,” should be used as a guide. Recommended air leakage allowances for a 1.0 and 0.5 psi air pressure drop are shown in Tables 2A and 2B in the Appendix.

2. Allowable Infiltration

Allowable infiltration shall be 25 gallons per inch of pipe diameter per mile of length per day including pipe and manholes. This type of test is only acceptable when the top of the pipe is below ground water throughout the length of pipe being tested.

3. Allowable Exfiltration

The allowed exfiltration for pipe and manhole connections shall not exceed 25 gallons per inch of diameter per mile of length per day. Peak pressure shall not exceed 10.8 psi (25' of water) at the lowest end of the length being tested.

B. Deflection Testing

If there is a requirement for deflection testing, both designer and contractor should be aware of the following recommendations:

1. 7.5% is the recommended long-term deflection limit for pipe. Both designer and owner can be assured that 7.5% deflection affords a 4:1 minimum safety factor.
2. The least expensive method of deflection measurement is a Go-No Go device (mandrel). The owner, engineer and/or contractor is responsible for supplying the measurement device and conducting the deflection test.
3. Table 3 in the Appendix lists the base inside diameter of Vylon Pipe and the mandrel outside diameter for 5% (short term) and 7-1/2% (long term) deflection tests.

The contractor is responsible for locating and repairing joints or pipe sections that fail the acceptance tests. After the repairs are made, the line shall be retested.

12. Field Repairs

Vylon Pipe, if damaged before, during, or after installation can often be easily repaired.
Contact your Vylon Sales Representative or call Vylon at 800-382-0862 for instructions in regards to repairs.

13. Appendix of Tables

Table 1: Vylon Direct Bury Pipe Dimensions

Table 2A: Vylon Pipe Air Leakage Allowances for Low Pressure Air Testing (1.0 PSIG Pressure Drop)

Table 2B: Vylon Pipe Air Leakage Allowances for Low Pressure Air Testing (1.0 PSIG Pressure Drop)

Table 3: Vylon Pipe Deflection Dimensions

Table 1. Vylon Direct Bury Pipe Dimensions									
Nominal Size	Nominal O.D.	Bell O.D.	Nominal I.D.	Minimum Inner Wall	Y Minimum Profile Height	Spigot Assembly Marks		Lay Length (ft)	Overall Length
						D1	D2		
21"	22.29	24.79	20.75	0.080	0.770	7.0	8.0	15	15' 7.25"
24"	25.24	27.95	23.50	0.100	0.870	7.0	8.0	15	15' 7.25"
27"	28.46	31.39	26.50	0.115	0.980	8.0	9.0	15	15' 8.25"
30"	31.69	34.84	29.50	0.125	1.095	8.25	9.25	15	15' 8.5"
36"	38.13	41.72	35.50	0.150	1.315	8.25	9.25	15	15' 8.5"
42"	44.58	48.62	41.50	0.180	1.540	8.25	9.25	15	15' 8.5"
48"	51.02	55.50	47.50	0.210	1.760	9.5	10.5	15	15' 9.75"
54"	57.47	62.40	53.50	0.225	1.985	12.5	13.5	15	16' 0.75"

Table 2A. Vylon Pipe Air Leakage Allowances for Low Pressure Air Testing (1.0 PSIG Pressure Drop)											
Pipe Diameter (in.)	Minimum Time (min./sec.)	Length for Minimum Time (ft.)	Time for Longer Length (sec.)	Specified Minimum for Length (L) Show (min:sec)							
				100ft	150ft	200ft	250ft	300ft	350ft	400ft	450ft
21"	19:50	114	10.470 L	19:50	26:10	34:54	43:37	52:21	61:00	69:48	78:31
24"	22:40	99	13.674 L	22:47	34:11	45:34	56:58	68:22	79:46	91:10	102:33
27"	25:30	88	17.306 L	28:51	43:16	57:41	72:07	86:32	100:57	115:22	129:48
30"	28:20	80	21.366 L	35:37	53:25	71:13	89:02	106:50	124:38	142:26	160:15
36"	34:00	66	30.768 L	51:17	76:55	102:34	128:12	153:50	179:29	205:07	230:46
42"	39:48	57	41.883 L	69:48	104:42	139:37	174:30	209:24	244:19	279:13	314:07
48"	45:34	50	54.705 L	91:10	136:45	182:21	227:55	273:31	319:06	364:42	410:17
54"	51:02	44	69.236 L	115:24	173:05	230:47	288:29	346:11	403:53	461:34	519:16

*Q is the allowable leakage rate in cu. ft./min./ft.2 of inside surface area of pipe.

Table 2B. Vylon Pipe Air Leakage Allowances for Low Pressure Air Testing (0.5 PSIG Pressure Drop)											
Pipe Diameter (in.)	Minimum Time (min./sec.)	Length for Minimum Time (ft.)	Time for Longer Length (sec.)	Specified Minimum for Length (L) Show (min:sec)							
				100ft	150ft	200ft	250ft	300ft	350ft	400ft	450ft
21"	9:55	114	5.235 L	9:55	13:05	17:27	21:49	26:11	30:32	34:54	39:16
24"	11:20	99	6.837 L	11:24	17:57	22:48	28:30	34:11	39:53	45:35	51:17
27"	12:45	88	8.653 L	14:25	21:38	28:51	36:04	43:16	50:30	57:42	64:54
30"	14:10	80	10.683 L	17:48	26:43	35:37	44:31	53:25	62:19	71:13	80:07
36"	17:00	66	15.384 L	25:39	38:28	51:17	64:06	76:55	89:44	102:34	115:23
42"	19:54	57	20.942 L	34:54	52:21	69:49	87:15	104:42	122:10	139:37	157:04
48"	22:47	50	27.352 L	45:35	68:23	91:11	113:58	136:46	159:33	182:21	205:09
54"	25:31	44	34.618 L	57:42	86:33	115:24	144:15	173:05	201:56	230:47	259:38

*Q is the allowable leakage rate in cu. ft./min./ft.2 of inside surface area of pipe.

Table 3. Vylon Pipe Deflection Dimensions

Base I.D. = (I.D. min) - Out-of-Roundness Tolerance

Short Term: 5% Deflection = .95 (Base I.D.)
Long Term: 7 1/2% Deflection = .925 (Base I.D.)

Nominal Diameter	Min I.D. ASTM F-1803	Out-of-Roundness Tolerance	Base ID	5% Deflection	7 1/2% Deflection
21"	20.69	0.57	20.12	19.11	18.61
24"	23.43	0.64	22.79	21.65	21.08
27"	26.42	0.72	25.70	24.42	23.77
30"	29.41	0.80	28.61	27.18	26.46
36"	35.39	0.96	34.43	32.71	31.85
42"	41.37	1.13	40.24	38.23	37.22
48"	47.36	1.45	45.91	43.61	42.47
54"	53.35	1.94	51.41	48.84	47.55

NOTES

Work Safely… Work with Vylon Pipe

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