



## SDR 35/PS46 FITTING SPECIFICATIONS

- 1.0 **GPK PVC Sewer Fittings** shall be manufactured in accordance with either ASTM D 3034, F 1336 or F 679. The PVC material shall have a minimum cell classification of 12454, 13343 or 12364 as defined in ASTM D 1784.
- 2.0 The **purpose** of GPK in-line fittings is to convey municipal sanitary and industrial wastes, storm water runoff and many other related applications. They are designed to be used in gravity flow and low pressure applications not to exceed 10.8 psi.
- 3.0 **Injection Molded Fittings** are produced in sizes 4" through 12" diameter. **Fabricated Fittings** are produced in sizes 4" through 27" diameter. A fabricated fitting is considered any fitting made from pipe or a combination of pipe and molded components.
- 4.0 **Chemical Resistance.** GPK fittings resist attack from certain alcohols, alkalies, salt solutions, acids and other types of chemicals. Refer to chemical resistance chart for suitability.
- 5.0 **Marking.** GPK fittings shall be marked with applicable size, "PVC", company name or logo, PSM and the ASTM specification number (D 3034, F 1336 or F 679). The fittings and/or packaging shall include the manufacturer's date and shift code.
- 6.0 **Testing.** A test after installation of either low pressure air (Uni-B-6) or a water infiltration-exfiltration test is recommended.
- 7.0 **Deflection Test.** The maximum allowable pipe fitting deflection should be 7 1/2% of base ID as shown in Table XI.1 of D 3034, and X2.1 of F 679.
- 8.0 **Backfilling and Tamping.** Backfilling should follow closely after assembly of pipe and fittings.
  - 8.1 **Backfilling** with proper material is important to achieve desired density in haunching area which enables pipe, fitting and soil to work together to meet designed load requirements. This eliminates excess deflection and shear breaks due to heavy loads. Approved material shall be used properly, compacted continuously above and around the pipe and fittings as well as between the fitting and trench wall. A cushion of approved material up to a minimum of 12" over the fittings and between the trench walls shall be applied in accordance with the engineers' specifications.
  - 8.2 **Tamping.** This shall be done by hand tamping of the embedment material between the trench wall of the service line fitting and riser connection. Tamping can also be done by mechanical tampers or by using water to consolidate the embedment material. **Extreme unstable ground conditions** may require wider trenches to enable you to compact a larger area around the pipe and fittings to the density consistent of the original ground surface conditions.
- 9.0 **Service Lines.** Normally, service lines from the property line to the collection sewer should be a minimum depth of 3 feet at the property line and should be laid in straight alignment and uniform slope of not less than 1/4" per foot for 4" nominal pipe and 1/8" per foot for 6" pipe. Where collection sewers are deeper than 7 feet a vertical standpipe of stack is permitted but not recommended, consult the project engineer for proper installation details. Deep sewer chimney and risers necessitate extreme care during backfilling. Where surface loading is anticipated the final backfill must be compacted to a density compatible with those surface loads to be encountered.
  - 9.1 **Backfilling around pipe service laterals on slope.** Extra attention should be given on slopes to prevent the newly backfilled trench from becoming a "French Drain." Before backfilling completely there is a tendency for ground and surface water to follow the direction of the looser soil. This flow may wash out soil from under or around pipe and branch line fittings, reducing or eliminating the support needed. To avoid this problem the backfilling should be of greater compaction. Tamping should be done in 4" layers and continued in this manner all the way up to ground or surface line of the trench. Concrete collars or other concrete poured around the fitting to stabilize unwanted movement is recommended to prevent water from undercutting the underside of the pipe and fittings.

**SUMMARY:** Due to various ground conditions and different situations, installation techniques vary widely. We warranty our products to be free of manufacturer's defects. We will not replace the products that are installed or used incorrectly. The design of the systems that our product is used in is a factor that cannot be overlooked.

# GPKFITTING SUBMITTAL SHEET

**Intro:** GPK manufactures PVC sewer fittings in accordance with either ASTM D 3034, F 1336 or F 679 to be used in gravity flow or low pressure applications. Injection molded fittings are produced in sizes 4" through 12" diameter. Fabricated fittings are produced in sizes 4" through 27" diameter.

**Material:** Fabricated fittings are manufactured from PVC pipe and molded components meeting the requirements of either ASTM D 3034, F 1336 or F 679 for workmanship, extrusion quality, stiffness, impact resistance, dimensions and structural performance.

Extruded pipe components are made from PVC material with a minimum cell classification of 12454, 13343 or 12364 as defined in ASTM D 1784.

Injection molded fittings are made from PVC material with a minimum cell classification of 12454 or 13343 as defined in ASTM D 1784.

**Extrusion Quality:** Extruded components are tested in accordance with and meet the requirements of ASTM D 2152 for properly fused PVC.

**Impact Resistance:** Extruded components are tested in accordance with ASTM D 2444 using a 20 lb. Tup A and a Flat Plate Holder B. The strength shall equal or exceed the values shown below:

4" - 5"	150 Ft-Lbs	6" - 8"	210 Ft-Lbs	10" - 27"	220 Ft-Lbs
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**Impact Resistance:** Injection molded fittings are tested in accordance with ASTM D 2444 using a 20 lb. Tup A and a Flat Plate Holder B. The strength shall equal or exceed the values shown below:

4"	50 Ft-Lbs	6" - 8"	75 Ft-Lbs	10"-12"	90 FT-Lbs
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**Pipe Stiffness:** Extruded components are tested in accordance with ASTM D 2421. The stiffness equals or exceeds the requirements of ASTM D 3034 and F 679 of 46 psi.

**Pipe Flattening:** Extruded components are flattened as described in ASTM D 3034 and F 679 until the distance between the plates is 40% of the outside diameter of the pipe. There shall be no splitting, cracking or breaking.

**Pressure/Pressure Deflection:** Gasketed joints are tested in accordance with ASTM D 3212.  
Pressure: 10 minutes @ 10.8 psi + 10 minutes deflected @ 10.8 psi.  
Vacuum: 10 minutes @ 22" Hg + 10 minutes deflected @ 22" Hg.

**Branch Bending:** The chemically fused areas around the fabricated branches of tee, wye and tee-wye fittings are tested to ASTM F 1336 to verify their strength and integrity.

**Pipe Stop Support:** Tee and tee-wye fittings are tested to requirements of ASTM F1336 for pipe stop load support. No cracking or splitting shall occur and pipe spigot shall not protrude into waterway of the fitting.

**Joining Methods:** Chemically Fused Solvent Weld Joints  
Solvent cement is handled and tested in accordance with ASTM D 2564 and D 2855. The Lap Shear Strength shall equal or exceed 900 psi @ 72 hours.

Heat Fusion Welded Joints (Butt Fusion Welds)

Elastomeric Seals (Gaskets)

Must meet all requirements of ASTM F 477 and D 3212.

**Saddles:** Injection molded saddle tees and saddle wyes shall have skirts with a minimum of 80 square inches surface area which can be bonded to pipe.

Fabricated saddle tees and saddle wyes shall have skirts with a minimum of 160 square inches surface area which can be bonded to pipe.

GPK does not recommend gasket skirts where air tests are required.