UPVC CAM-LOCK PIPES AS PER ASTM D 1785 SPECIFICATION

A Pressure Piping System with restrained joint & Ori-Plast's solution to plumbing & water supply for high rise buildings

Ori-Plast is nearly a five decades old company who with dedication, commitment and technological competence has become one of the leading manufacturers of thermoplastic i.e. PVC , CPVC, PE pipes and fittings in India.

Polyvinyl Chloride is one of the major raw materials used by Ori-Plast, However, PVC material used for manufacturing pipes for rigid plumbing, sanitary, water supply, borewell construction etc. widely differs from the same used for flexible pipes e.g. suction & delivery hoses, flexible bags or sheets. During manufacturing, PVC is compounded with various additives e.g. plasticizer, stabilizer, lubricant, colored pigment, filler to add various properties to the finished product. Plasticizer in particular, is added to reduce rigidity (or to add flexibility) of the PVC material. Flexible hoses, packaging items, wallpapers etc. are such products which contain plasticizer. PVC material required to produce rigid pipes does not contain plasticizer. Hence they are separately identified as either Unplasticized PVC or uPVC or PVC – U or PVC-R (i.e. Rigid PVC).

Useful properties of PVC makes it one of the most versatile piping materials.

UV Resistance	Flexibility	High Impact Strength
Corrosion Resistance	Watertight Joints	Low Friction Loss
Chemical Resistance	Immunity to Galvanic or Electrolytic Attack	Longer Lengths
Abrasion / Wear Resistance	Light Weight & Strength to Weight Ratio	Low Thermal Conductivity
Flame Resistance	Water Quality	Favorable Cost

Ori-Plast has vast experience in manufacturing uPVC pipes for multi-functional uses including plumbing, that led us to come out with another unique solution to an immediate commissioning of a pipeline post installation. The system is referred to as uPVC CAM-LOCK joints. The pipes that were developed with this joining system are as per ASTM D 1785 standard. Presently these pipes are available with regular Ori-Plast blue and white lead free materials.

Ori-Plast's uPVC Cam-Lock pipes provide a restrained joint by utilizing precision machined grooves on both spigot and socket ends of a pipe. When the spigot end goes in to the socket end, the grooves align to allow a spline (a nylon rope) to be inserted through the annular hole resulting in a fully circumferential restrained joint that locks the pipes properly. There are two elastomeric sealing rings in the socket end of the pipe to provide hydraulic seal to the joint.

Ori-Plast's uPVC Cam-Lock pipes are made from lead free materials. The commonly used heat stabilizers added to avoid discoloration, and to catalyze dehydrochlorination are, heavy metal based e.g. lead, tin (organotins) etc. However, there are some worldwide controversies over the use of these heavy metal stabilizers, as they do not degrade in environment and are highly toxic in nature.

It is feared that these heavy metals can migrate from the PVC materials into water and contaminate the same. Hence the present trend is to use stabilizers which are free from these heavy metals making the PVC pipes completely eco-friendly.

MINIMUM PROPERTY VALUE OF RIGID (UNPLASTICIZED) POLYVINYL CHLORIDE COMPOUNDS (PVC 1120 HAVING CELL CLASSIFICATION OF 12454-B) AS PER ASTM D 1784 AND 1785

Property	Unit	Value
Impact Strength (Izod)	J/m of Notch	34.7
Tensile Strength	Mpa	48.3
Modulus of Elasticity	Mpa	2758.0
Deflection Temperature under load (1.82 Mpa)	°C	70.0
Safe Hydrostatic Design Stress at 23°C	Mpa	14.0

APPLICATIONS

- Supply lines to over head reservoir from pump set in highrise buildings.
- Above the ground pressure lines.
- Buried pressure lines.
- Industrial piping.
- Slurry disposal lines.

ADVANTAGES

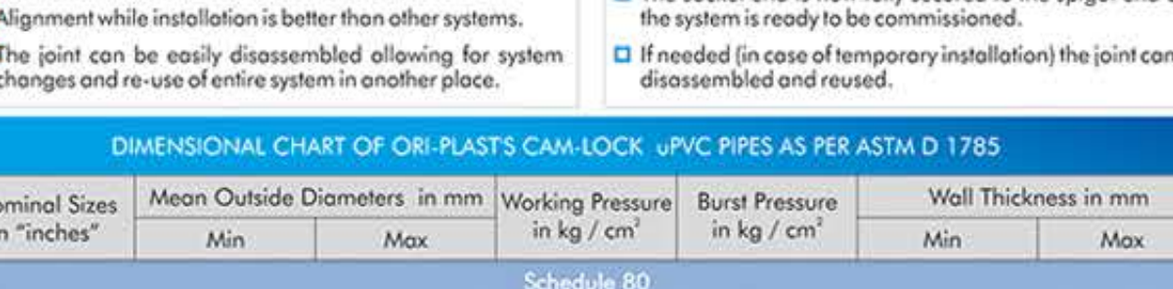
- Ori-Plast's Cam-Lock uPVC pipes are fast, simple and reliable which do not require solvent cement & any other major tools.
- The pipes can withstand very high pressure (refer to the dimensional chart at the end).
- The time of installation is comparatively lesser than other conventional systems.
- The pipeline can be commissioned immediately after installation.
- Thrust blocking arrangement is not required since there is allowance for accommodation of movement.
- Alignment while installation is better than other systems.
- The joint can be easily disassembled allowing for system changes and re-use of entire system in another place.

JOINING

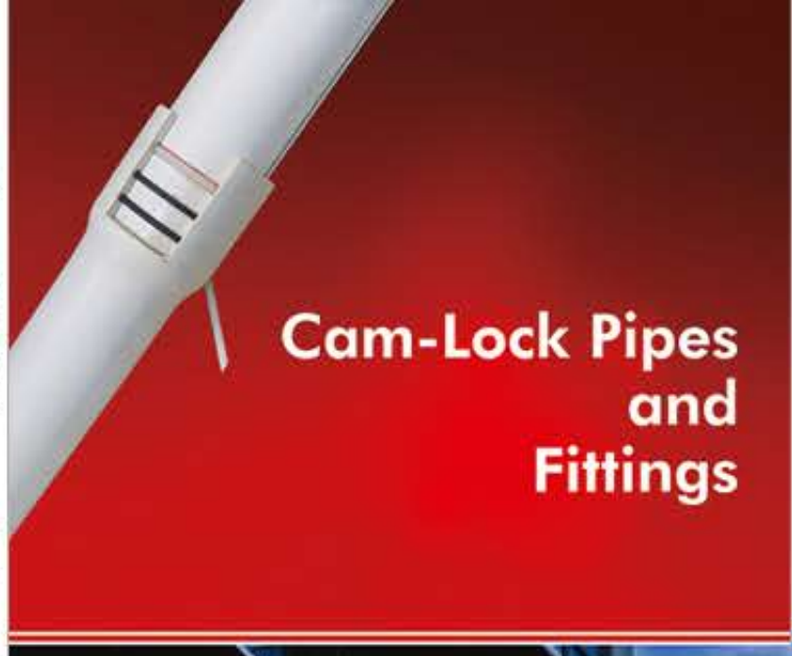
- Clean the pipe spigot and interior of the socket with a clean rag to ensure that there are no foreign materials.
- Make sure that the sealing ring/s is clean and evenly seated in the gasket groove.
- Apply good quality rubber lubricant on the sealing rings.
- Align and insert the spigot end into the socket end and push home. When the spigot end is fully inserted, the grooves are automatically aligned for spline insertion.
- The spline is then inserted through one of the two holes in the socket end until it comes out through the other hole.
- The socket end is now fully secured to the spigot end and the system is ready to be commissioned.
- If needed (in case of temporary installation) the joint can be disassembled and reused.

DIMENSIONAL CHART OF ORI-PLAST'S CAM-LOCK uPVC PIPES AS PER ASTM D 1785

Nominal Sizes in "inches"	Mean Outside Diameters in mm		Working Pressure in kg / cm²	Burst Pressure in kg / cm²	Wall Thickness in mm	
	Min	Max			Min	Max
Schedule 80						
1½	48.1	48.4	33.9	106.2	5.1	5.7
2	60.2	60.5	28.7	90.7	5.5	6.2
2½	72.8	73.2	30.4	95.7	7.0	7.9
3	88.7	89.1	26.8	84.4	7.6	8.5
4	114.1	114.5	23.3	73.1	8.6	9.6
5	141.1	141.6	20.6	65.4	9.5	10.7
6	168.0	168.6	20.0	62.6	11.0	12.3
Schedule 120						
1½	48.1	48.4	38.4	121.0	5.7	6.4
2	60.2	60.5	34.0	106.2	6.4	7.1
2½	72.8	73.2	33.3	104.8	7.6	8.5
3	88.7	89.1	31.9	99.9	8.9	10.0
4	114.1	114.5	30.8	97.0	11.1	12.4
5	141.1	141.6	28.2	88.6	12.7	14.2
6	168.0	168.6	26.6	83.6	14.3	16.0



WARNING uPVC are not recommended for use in compressed air/gas conveyance due to its brittle nature. Rapid decompression of any gas including air is explosive in nature. If an uPVC pipeline fails in brittle manner, fragments may be projected at quite high velocities by the expanding gas. Warranty of Ori-Plast's uPVC pipes will automatically cease if they are used in compressed air/gas conveyance systems. Ori-Plast cannot be held responsible for any damages/injuries whatsoever arising out of this situation.



Cam-Lock Pipes and Fittings

Ori-Plast®
Viswas ki Dhara

A Green Solution for Highrise Buildings

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