SUDARSHAN®
PIPES & FITTINGS

PVC-U UGD PIPES

CATALOGUE

IS 15328 - Solid Wall UGD
IS 16098(Pt.1) - Foam Core UGD

- LEAK-PROOF JOINTS
- CORROSION RESISTANT
- HIGH FLOW CAPACITY
- STRONG & DURABLE
- EASY INSTALLATION
- LONG SERVICE LIFE



CERTIFIED COMPANY

IS 15328:2003
16098:2013 PART 1 CERTIFIED

ENGINEERED FOR RELIABLE UNDERGROUND DRAINAGE SYSTEMS

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ABOUT SUDARSHAN

Engineering Quality, Building Trust



CA ARVIND SALAMPURIA

Chairman

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COMPANY OVERVIEW

Established in **2003, Sudarshan Pipes** has grown into one of India's trusted manufacturers of high-quality **PVC and HDPE piping systems**. With advanced manufacturing facilities in **Bommasandra** and **Dabaspet**, Bengaluru, the company delivers reliable piping solutions for agriculture, water supply, drainage, infrastructure, industrial, and construction applications.

Driven by innovation, quality, and customer satisfaction, Sudarshan Pipes manufactures a comprehensive range of products including **PVC-U Column Pipes, Underground Drainage (UGD) Pipes, HDPE Pipes, Casing Pipes, Agricultural Pipes, Telecom Ducts, DWC Pipes**, and has expanded into the next generation of piping solutions with PVC-O Pipes. Every product is engineered to meet stringent quality standards, ensuring durability, performance, and long service life.

Today, Sudarshan Pipes continues to support infrastructure development across India by providing dependable piping solutions backed by modern technology, rigorous quality control, and a commitment to engineering excellence.

OUR JOURNEY

2003

Sudarshan Extrusions Private Limited was established in **Bommasandra, Bengaluru,** with the launch of its advanced manufacturing facility for **PVC-U Column Pipes,** becoming one of the pioneers in India for high-quality column pipe solutions.

2018

Sudarshan Pipes Extrusions Pvt. Ltd. established its **HDPE manufacturing division at Dabaspet Industrial Area**, expanding its product portfolio to include HDPE pipes, MDPE pipes, PLB telecom ducts, and DWC pipes for infrastructure, water supply, gas distribution, and drainage projects.

TODAY

Sudarshan Pipes is expanding its manufacturing capabilities with a new facility at **Oblapura, Bengaluru**, to produce a complete range of **PVC-O Pipes, DWC Pipes & Fittings**, with future plans to manufacture **cPVC and PVC-U Pipes & Fittings** for the construction and real estate sectors.

Trusted By

Rural Development & Panchayat Raj Department
Rural Drinking Water & Sanitation Department

SNC

INDIAN RAILWAYS

Madhya Pradesh Jal Nigam Maryadit

TAMILNADU WATER SUPPLY AND DRAINAGE BOARD

GAEC

SUPRADA CONSTRUCTION

HILLTRACK

SURYA CONSTRUCTIONS
ENGINEERS AND CONTRACTORS

KERALA WATER AUTHORITY

namma metro

CVK Constructions Pvt. Ltd.

भा रा रा प्रा NHAI

meil

BSR INFRATECH

VITAL CAPITAL environment

HRL ENTERPRISES

AMRUT 2.0
Atal Mission for Rejuvenation and Urban Transformation

PVC-U Underground Drainage (UGD) Pipes

PVC-U Underground Drainage (UGD) pipes are engineered for efficient underground wastewater, sewage, and stormwater management.
Manufactured from high-quality unplasticized polyvinyl chloride, they offer exceptional corrosion resistance, long service performance, lightweight handling, and low service life—making them a reliable solution for modern drainage infrastructure.



PRODUCT RANGE

Standards

IS 15328:2003 - **Solid Wall UGD Pipes**

IS 16098:2013 Part 1 - **Foam Core UGD Pipes**

110 | 160 | 200 | 250 | 315

Stiffness Class

SN-2 | SN-4 | SN-8

Joint Type

Elastomeric Ring Type Joint

Solvent Cement Type Joint



APPLICATIONS

Residential Buildings
Reliable drainage for homes and housing projects.

Commercial Complexes
Efficient waste management for commercial spaces.

Industrial Facilities
Durable solution for industrial drainage applications.

Municipal Drainage Systems
Designed for municipal sewer networks.

Roads & Highways
Suitable for sub-surface road drainage systems.

Stormwater Drainage
Effective stormwater management and runoff control.

KEY FEATURES

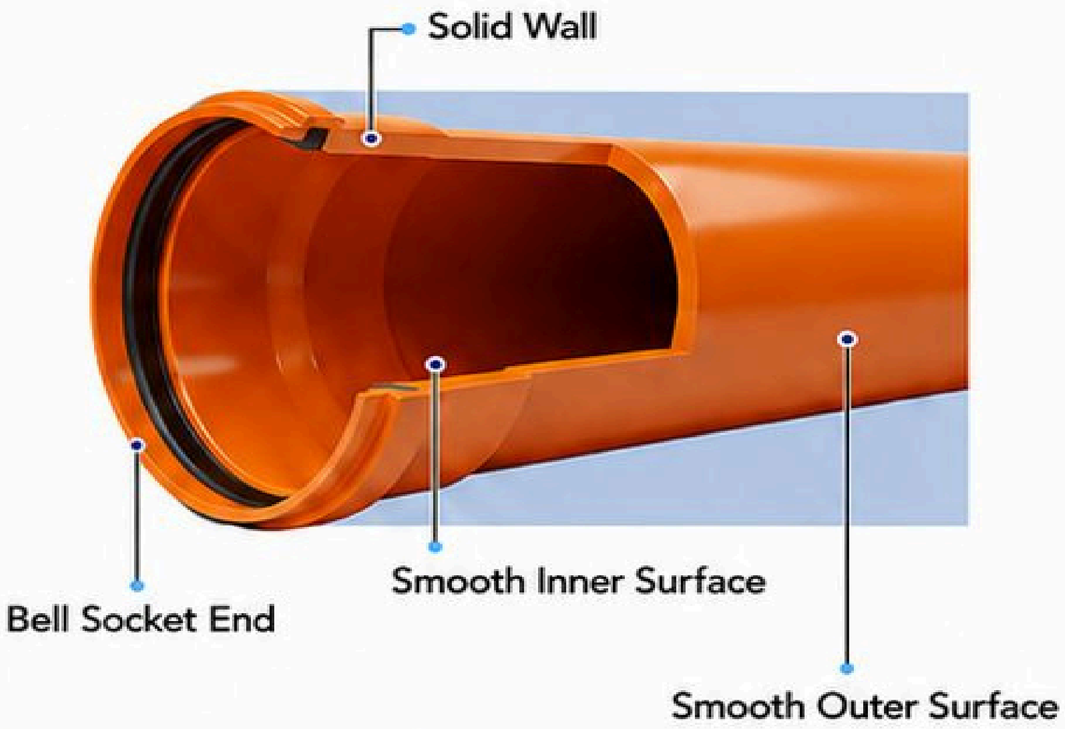
- Corrosion & Chemical Resistant
- Leak-Proof Joints
- High Structural Strength
- Lightweight & Easy Installation
- Smooth Internal Flow
- 50+ Years Service Life

SOLID WALL VS FOAM CORE UGD PIPES

A Quick Comparison to Help You Choose the Right Drainage Solution

SOLID WALL UGD PIPE

IS 15328:2003



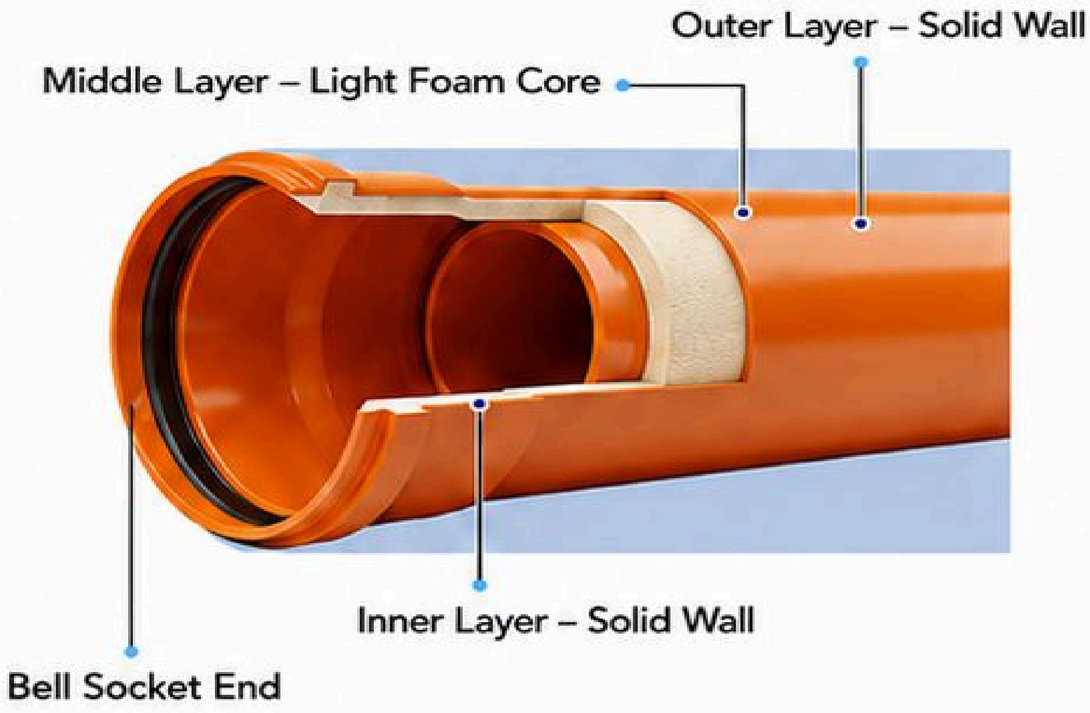
BEST SUITED FOR:

- Solid Wall Construction
- High structural strength
- Excellent impact resistance
- Smooth inner & outer surfaces
- Leak-proof bell socket joint
- Suitable for municipal drainage
- Ideal for industrial drainage
- Residential & commercial projects
- Long service life
- Easy installation

VS

FOAM CORE UGD PIPE

IS 16098:2013 PART 1



BEST SUITED FOR:

- Three-layer construction
- Solid wall outer layer
- Lightweight foam core
- Solid wall inner layer
- Lower installation weight
- Excellent ring stiffness
- High flow efficiency
- Reduced handling effort
- Corrosion resistant
- Cost-effective drainage solution

FEATURE	SOLID WALL UGD	FOAM CORE UGD
Standard	IS 15328:2003	IS 16098:2013 Part 1
Construction	Single Solid Wall	Three-Layer Foam Core
Weight	Heavier	Lighter
Strength	Very High	High
Ring Stiffness	Excellent	Excellent
Installation	Easy	Easier due to lower weight
Corrosion Resistance	Excellent	Excellent
Abrasion	Excellent	Excellent
Leak-proof Joint	Yes	Yes
Service Life	50+ Years	50+ Years
Best For	Heavy-duty drainage	Heavy-duty drainage

RING STIFFNESS CLASSES

SN-2



- Landscaped/ green areas
- Low-traffic areas

SN-4



- Walks, driveways or roads
- Parking areas

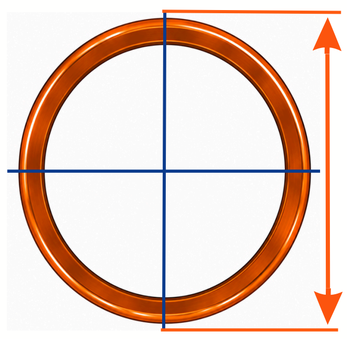
SN-8



- Highways
- Industrial areas
- Heavy traffic areas

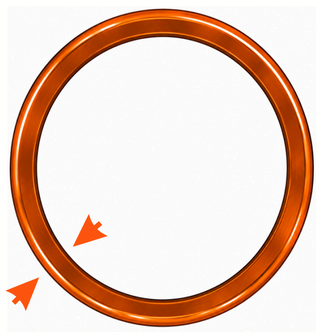
HOW THE PIPE DIMENSIONS ARE MEASURED

1 MEAN OUTSIDE DIAMETER



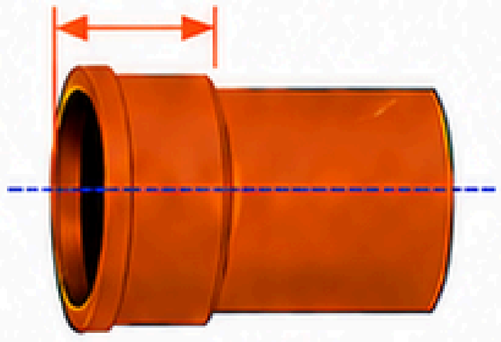
Average of Minimum & Maximum **OD**

2 WALL / LAYER THICKNESS



Measured at any point around the pipe

3 SOCKET DEPTH



Depth of socket from the end of the pipe

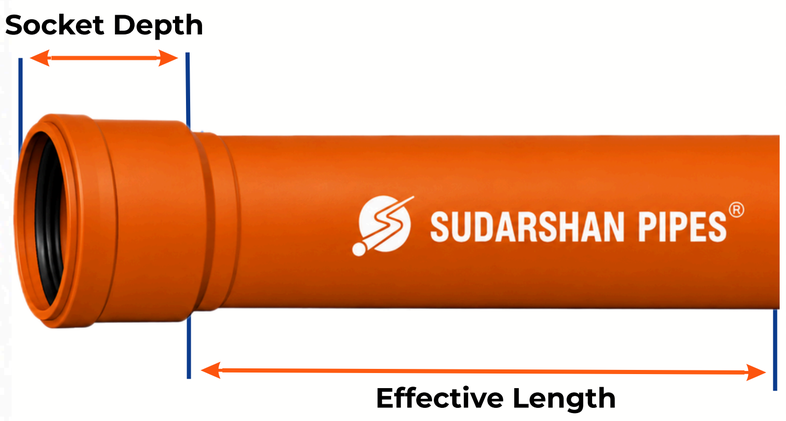
4 EFFECTIVE LENGTH



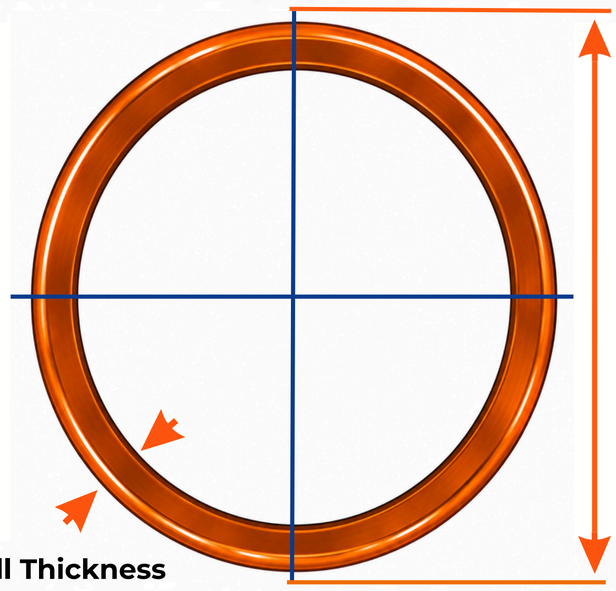
Usable length of pipe excluding socket

SOLID WALL UGD PIPES (IS:15328:2003)

PIPE & SOCKET OVERVIEW



CROSS-SECTION (SOLID WALL)



MEASUREMENTS USED IN TABLE

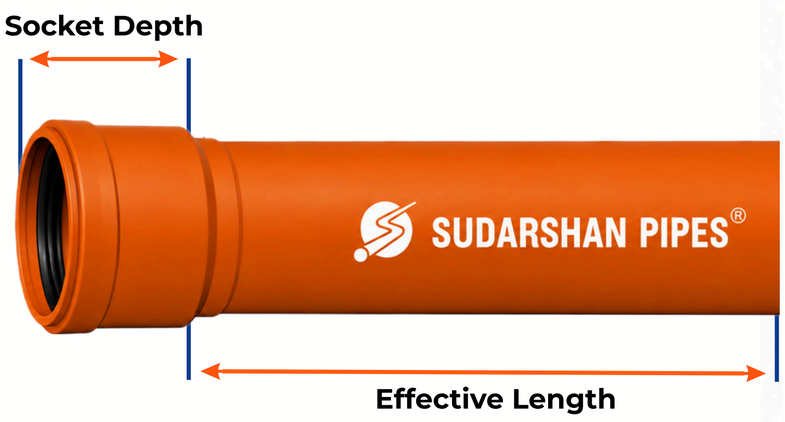
1. **Mean Outside Diameter**
   Average of Minimum & Maximum **OD**
2. **Wall Thickness**
   Measured at any point around the pipe
3. **Socket Depth**
   Depth of socket from the end of the pipe
4. **Effective Length**
   Usable length of pipe excluding socket

Nominal Outside Diameter (mm)	Mean Outside Diameter (mm)		Wall Thickness (mm)						Socket Depth (mm)	Effective Length (m)
			SN-2		SN-4		SN-8			
	Min	Max	Min	Max	Min	Max	Min	Max		
110	110	110.4	-	-	3.2	3.7	3.2	3.7	58 ± 3	5.8
160	160	160.5	3.2	3.7	4.0	4.6	4.7	5.4	65 ± 3	5.8
200	200	200.6	3.9	4.5	4.9	5.6	5.9	6.7	70 ± 3	5.8
250	250	250.8	4.9	5.6	6.2	7.0	7.3	8.3	80 ± 3	5.8
315	315	315.9	6.2	7.1	7.7	8.7	9.2	10.4	90 ± 3	5.8

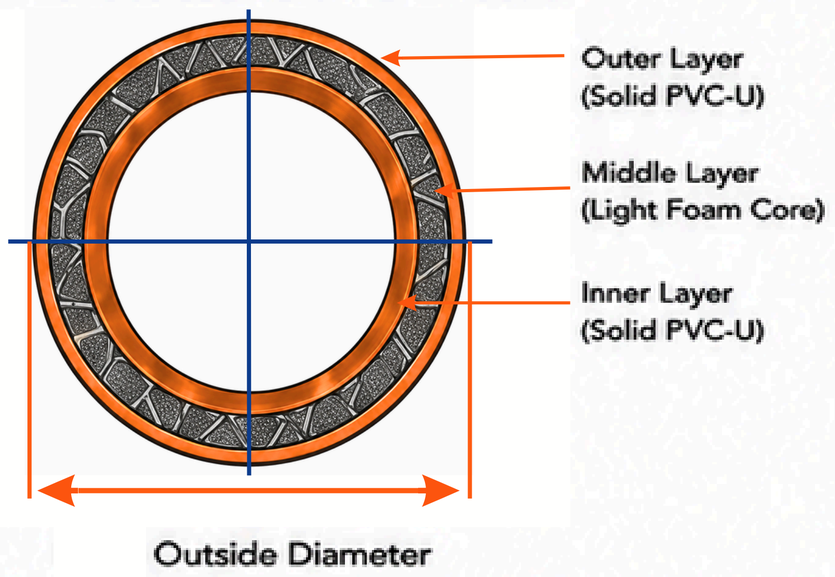
NOTE: Dimensions are in millimetres (mm)

FOAM CORE UGD PIPES (IS:16098:2013 PART 1)

PIPE & SOCKET OVERVIEW



CROSS-SECTION (FOAM CORE)



MEASUREMENTS USED IN TABLE

1. **Mean Outside Diameter**
   Average of minimum & Maximum OD
2. **Minimum Inside Layer Thickness**
   Minimum thickness of inner solid PVC-U layer

Sl. No.	Nominal Outside Diameter (mm)	Mean Outside Diameter Min (mm)	Mean Outside Diameter Max (mm)	Minimum Inside Layer Thickness - Multilayer (mm)
i	110	110.0	110.4	0.4
ii	125	125.0	125.4	0.4
iii	160	160.0	160.5	0.5
iv	200	200.0	200.6	0.6
v	250	250.0	250.8	0.7
vi	315	315.0	315.9	0.8
viii	400	405.0	401.2	1.0
viii	500	500.0	501.5	1.3
ix	630	630.0	631.9	1.6
x	800	800.0	802.4	2.0
xi	1000	1000.0	1003.0	2.5
xii	1200	1200.0	1204.0	2.8

NOTE: Dimensions are in millimetres (mm)

OD = Outside Diameter **e** = Wall Thickness **UGD** = Underground Drainage **PVC-U** = Unplasticized Polyvinyl Chloride

WHY PVC-U UGD IS THE WISER CHOICE FOR UGD'S SYSTEMS?

Engineered for the Real Conditions Inside a Sewer Line

Sewer lines don't fail on a datasheet — they fail from biogenic acid attack, flotation during floods, long-term creep, and poor bedding. The comparison below is based on real-world service conditions and performance parameters.

PERFORMANCE UNDER REAL SEWER CONDITIONS

Parameter	UPVC UGD	RCC	DWC / Corrugated HDPE
H_2S & Biogenic Acid Resistance	**Excellent** — inert to conc. H_2SO_4 from H_2S oxidation	**Poor** — acid dissolves cement & corrodes rebar; leading cause of sewer collapse.	**Excellent** — inert to the pH ~1–2 acid sewers actually generate; resistance charts rate HDPE "Excellent" up to 60–75% concentration, far above anything sewers produce.
Flotation Risk (Flooding / High Water Table)	**Neutral** — buoyancy close to water; easily managed with standard cover.	**Negligible** — sinks, but only via heavy dead weight.	**Very High** — hollow wall floats strongly; documented failures, joint pull-out.
Stiffness & Creep Resistance	**Stiffer, Low Creep** — higher elastic modulus (2.9–3.3 GPa) holds shape & slope without needing perfect bedding.	**Stiffest, Low Creep** — modulus ~25–32 GPa (IS 456); rigid, but brittle & rebar-dependent once cracked.	**Less Stiff, High Creep** — flexible wall depends on soil support; deflects/sags under sustained load.
Fire Resistance	**Excellent** — self-extinguishing.	**Excellent** — non-combustible.	**Poor** — combustible, keeps burning.
Impact Toughness & Ductility	**Excellent** — certified to 0°C (TIR≤10%); IS 15328 tests at Roughly 2x or higher the impact energy of DWC's equivalent test. 30% OD compression test.	**Poor** — brittle failure mode; cracks/spalls under sudden impact, no ductility.	**Excellent** — also certified to 0°C (TIR≤10%); IS 16098 Pt-2 (structured wall)
Chlorine & Soil-Chloride Resistance	**Excellent** — inert to chlorine; no antioxidants or rebar to attack.	**Poor** — chlorine corrodes rebar internally; chlorides leaching in from saline/aggressive soil attack it from outside too.	**Poor on exposure** — chlorine/ClO_2 oxidises & depletes antioxidants on contact. Risk scales with dose (continuous in disinfected mains, lower/intermittent in typical sewage).
Hydraulic Smoothness (Manning's n)	**0.009** — smoothest bore; best self-cleansing at flat gradients.	**0.012–0.015** — rougher; increases further with scaling.	**0.010–0.012 nominal** — comparable when new, but lab studies show corrugated pipe roughness is more variable than solid-wall pipe (liner waviness).
Design Life: Nominal vs Field	**Nominal 50+ yrs** **Field: 50+ yrs** — consistent; not dependent on biogenic acid or chlorine exposure.	**Nominal 50+ yrs** **Field: 10–20 yrs** — peer-reviewed studies document sharply reduced real-world life under sustained biogenic acid attack.	**Nominal ~50 yrs** **Field: 30–50 yrs** — shortened by chlorine dosing; mechanism applies at any exposure level, faster at higher doses.
Installation & Handling	**Easy** — markedly lighter than RCC (lower material density + thinner wall); no cranes, fast laying.	**Heavy** — needs cranes/heavy gear; slower, costlier laying.	**Lightest of the three** — corrugated profile gives high stiffness per kg, most economical to transport & handle; needs anchoring in flood-prone zones.

THE SEWER CORROSION MECHANISM

- Anaerobic bacteria in flowing sewage generate hydrogen sulphide (H_2S) gas.
- Above the flow line, Thiobacillus bacteria oxidise this H_2S into concentrated sulphuric acid (H_2SO_4) that condenses on the pipe crown.
- In RCC, this acid dissolves calcium compounds in the cement binder and, once the cover is breached, corrodes the reinforcement — irreversibly.
- **UPVC UGD is chemically inert to this reaction**, keeping the crown structurally sound for the full design life.

FLOTATION RISK IN FLOODING

- A hollow, corrugated-wall pipe has a bulk density of only ~0.3–0.5 g/cm³ when empty — it floats strongly.
- Multiple real-world cases exist of such lines lifting out of the trench in floods/high water table, pulling joints apart.
- Solid-wall **UPVC UGD sits close to neutral buoyancy** (~1.35–1.40 g/cm³) — flotation risk is low and managed with standard cover.
- RCC never floats, but only by carrying dead weight that drives up handling & laying cost.

THE BOTTOM LINE

Where RCC gives away structural life to biogenic acid and a corrugated wall gives away stability to flotation and creep, **UPVC UGD is engineered to resist both failure modes at once** — a chemically inert, dimensionally stable pipe built for the sewer environment as it actually behaves underground, not just on a datasheet.

CHEMICALLY INERT | NO FLOTATION RISK | HIGH RIGIDITY | SELF-EXTINGUISHING | SMOOTH BORE FLOW | 50+ YEAR SERVICE LIFE

APPLICATIONS

Reliable Underground Drainage Solutions

for Every infrastructure Projects



Sudarshan uPVC UGD Pipes are engineered for efficient **underground drainage** networks in residential, commercial, industrial, and municipal areas. Our pipes ensure hygienic and efficient waste water flow with a **long life** and **minimum maintenance**.



1. RESIDENTIAL BUILDINGS

Efficient underground drainage for homes, villas, and apartment projects.



2. COMMERCIAL COMPLEXES

Reliable drainage for offices, shopping malls, and commercial developments.



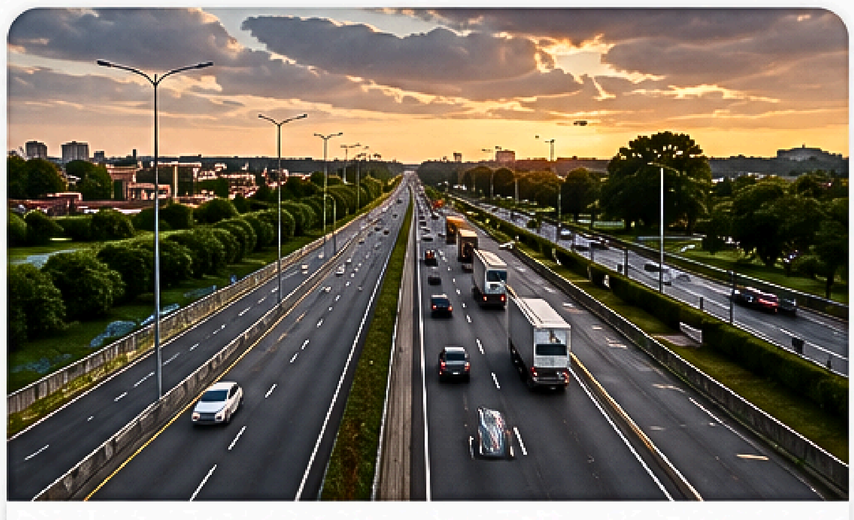
3. INDUSTRIAL FACILITIES

Designed for factories, warehouses, and industrial drainage systems.



4. MUNICIPAL SEWERAGE

Suitable for public sewerage networks and urban drainage infrastructure.



5. ROADS & HIGHWAYS

Ideal for roadside drainage and underground utility installations.



6. STORM WATER DRAINAGE

Ensures smooth rainwater disposal and helps reduce waterlogging.

SUDARSHAN®
PIPES & FITTINGS

QUALITY YOU CAN TRUST





OUR PRODUCT RANGE

HDPE DIVISION

- HDPE • MDPE • Power Duct
- DWC PLB Duct
- Electro Fusion Fittings
- Spigot Fittings

PVC DIVISION

- PVC – U UGD Solid Core
- PVC – U UGD Foam Core
- PVC – U Pressure Pipes
- PVC – O Pipes
- Column Pipe • Casing Pipe

SUDARSHAN EXTRUSIONS PVT.LTD.

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