PRINCE PIPES AND FITTINGS LTD.

Mfg. & Exporters of UPVC, CPVC, PPR & HDPE Pipes, Fittings & Valves

Corp. Off.: The Ruby, 8th Floor, 29, Senapati Bapat Marg (Tulsi Pipe Road), Dadar (W), Mumbai - 400028, Maharashtra, India.

F: 022-6602 2220 | **E:** info@princepipes.com | **W:** www.princepipes.com

Branch Off: Delhi: 011-4157 9511 | Pune: 020-2553 7339 | Ahmedabad: 079-269 34013 | Chennai: 044-2616 1899

Toll Free: 1800 267 7555

www.princepipes.com | info@princepipes.com | /princepipesofficial | /Prince_Pipes | /Prince Pipes Official

PPF/COR/E-L/1K/Rev. No. 01/Oct 2018
Printed in Oct 2018.

CORFIT®

Underground Double Wall Corrugated Pipes

A Revolution in India's Piping System

Prince Pipes and Fittings Ltd. is a leading manufacturer of PVC Piping Systems in India. Working towards its vision of making India's piping system a Zero-Defect System, Prince Pipes provides ideal solutions for Agriculture, Drainage, Plumbing, Sewerage and other applications with its extensive range of 7500+ products. With an array of products using wide range of polymers like CPVC, PVC, PPR & HDPE, Prince Pipes ensures that all the quality parameters are met before the product reaches our customers.

Prince Pipes has established an extensive distributor network spanning the entire length & breadth of India. With state-of-the-art facilities at Athal, Dadra, Haridwar, Kolhapur and Chennai, Prince Pipes has the largest manufacturing capacity for its latest product **Corfit DWC* Pipes.**

PRINCE® PIPING SYSTEMS

*ZERO DEFECT MANUFACTURING PROCESS

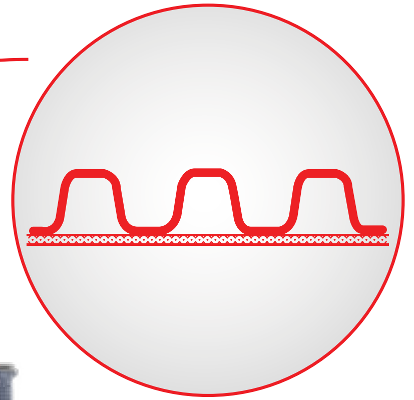
*DWC - Double Wall Corrugated

What is Corfit?

Corfit DWC* Pipes are manufactured using HDPE polymer. These pipes are resistant to various types of gases & chemicals which are generated due to putrification of various ingredients flowing in the system.

Corfit DWC* Pipes are manufactured as per IS 16098 (Part-2), have a smooth internal surface and corrugated external surface. The corrugated external surface provides greater stiffness, withstands soil movement & takes higher loads (static & dynamic), whereas the internal surface helps in smooth flow of sewerage.

Corfit DWC* Pipes are available in SN 4 and SN 8 stiffness classes with sizes from 100 mm to 1,000 mm ID. These pipes have a standard length of 6 metre and are available with rubber ring jointings.



*DWC - Double Wall Corrugated

Salient Features of HDPE Material

High Density Polyethylene (HDPE) is a polymer material that is durable, strong and corrosion resistant.

IMPACT RESISTANT

CORROSION & ABRASION RESISTANT

CHEMICAL RESISTANT

FLEXIBLE

LIGHTWEIGHT

HIGH FLOW CAPACITY

WEATHER RESISTANT

RECYCLABLE MATERIAL

Why use Corfit?

Currently, pipes that are widely used for underground non-pressure drainage & sewerage applications are made of RCC & Stoneware (Clay Pipes).

Due to their rigid nature, when embedded, these pipes experience severe stress because of the earth pressure & dynamic load which results in cracks and leads to system failure. In extreme cases, the pipe may collapse.

RCC or Stoneware pipes are generally available in 2 metre length thereby leading to more number of joints. As these pipes are heavy, during installation machines are required to lift & lay which is cumbersome.

In comparison to these pipes, **Corfit DWC* Pipes** are the ideal solution which addresses the main concerns of the underground drainage systems. We have enlisted some of the features here -

3Ms

MAINTENANCE
MATERIAL
MANPOWER

Material
Only the best and top notch materials are chosen for our products.

Manpower
An experienced team of experts ensure we always deliver the best.

Maintenance
Excellence in service is a habit we strictly follow every time.

Features of Corfit DWC* Pipes

EASY TO HANDLE

LONG LIFE

EASY TO TRANSPORT & STORE

CORROSION & ABRASION RESISTANT

SUPERIOR PERFORMANCE THAN RCC PIPES

6 METRE

LESSER JOINTS ENSURE LESSER CHANCE OF LEAKAGE

*DWC - Double Wall Corrugated

Parameters	DWC (HDPE Double-wall Corrugated) Pipes	RCC Pipes
Length of pipes available	6.0 m	2.0 - 2.5 m
Pipe diameters available	100 - 1000 mm	150 - 1000 mm
Pipe material property	Flexible pipe	Rigid pipe
Pipe design (structural property)	Due to its flexibility it allows deformation in diameter as well as in joints under external load and soil natural movement and hence operates years after years without affecting the environment	Due to its rigid nature it could not deform and hence gets damaged under external load or leaks due to natural soil movement at joint. Sewer water could also leach in ground water harming the environment
Pipe jointing	Socket & Spigot joint with elastomeric sealing ring	1. Coller joint with help of cement morter 2. Socket & Spigot joint with rubber ring and cement morter
Pipe weight	Very light	Heavy (19-20 times heavy than DWC* pipes)
Pipe roughness coefficient	0.009 Much higher flow rate due to less roughness coefficient and hence during design, pipe diameter requirement is less as compared to concrete & DI pipes	0.014 Lesser flow rate due to more roughness coefficient and hence during designing, pipe diameter requirement will be higher than DWC* pipe
Handling of pipe	Easy due to its light weight	Difficult due to its heavy weight
Corrosion resistance	Highly corrosion resistance	Not resistant to Hydrogen Sulfide gas which is present in all sewer pipes, hence Sulphate resistant cement is used during manufacture
Installation	Good flexibility, low requirements for foundation base for laying, good bending	High rigidity, high requirement for foundation base for laying, not easy to handle & bend, difficult to connect with other pipe
Pipe class	Stiffness class SN 4, SN 8 (Non-Internal Pressure Applications)	NP 1, NP 2, NP 3, NP 4 (Non-Internal Pressure Applications)
Pipe stacking on site	Stacked on plain ground. Smaller diameter pipes can be nested in bigger diameter pipes	Stacked on plain ground seperately. Can not be nested due to its heavy weight
Pipe handling on field	Light weight hence safe in manual handling, has high impact resistance and is non-breakable due to miss handling	Heavy weight hence poor safety during handling, may lead to damage due to mishandling
Working features	High safety under buried installation	Low safety under burried installation
Life time	More than 50 years	Around 15-20 years

*DWC - Double Wall Corrugated

Application of Corfit DWC* Pipes

Corfit DWC* Pipes are used for underground applications such as -

UNDERGROUND DRAINAGE

SEWERAGE

STORM WATER & SURFACE WATER DRAINAGE

HIGHWAY & ROAD DRAINAGE

INDUSTRIAL LIQUID WASTE

*DWC - Double Wall Corrugated

Fittings

TEE

BEND

COUPLER

Pipe Dimensions

IS:16098-2

Sizes (mm)	100	150	170	200	250	300	400	500	600	800	1000
Socket Length (mm)	32	43	48	54	59	64	74	85	96	118	140

DWC* PIPES AND FITTINGS RANGE

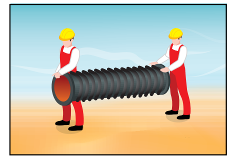
STIFFNESS CLASS (SN 4 & SN 8)

*DWC - Double Wall Corrugated

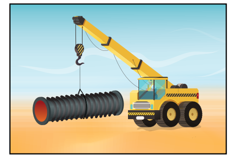
Handling Recommendations

To avoid damage to the pipe and fittings adhere to the following handling recommendations:

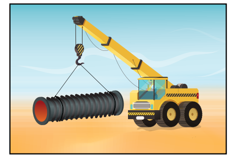
- 100 mm to 400 mm pipes can be moved by labourers (handheld)
- 500 mm to 800 mm pipes can be moved using a backhoe with a nylon sling
- 1000 mm pipes a sling at two points spaced at an approximate distance of 10ft should be used



100 - 400 mm



500 - 800 mm



1000 mm

- Contractor assistance is required to unload pipe
- Do not use a loading boom or forklift directly on or inside the pipe

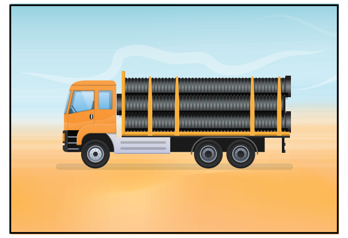
Transportation

Do's

- A flat bodied vehicle is ideal for transporting pipes
- Layer of pipes with integral socket should be placed with socket protruding alternately
- While stacking pipes ensure that higher diameter pipes are placed at the bottom
- Use nylon sling / cushioned cable while loading / unloading from trucks, shifting and lowering in trenches at the site
- Alternate bells should be kept on each row to support the length of pipes evenly
- While lifting a pipe, the nylon sling / cushioned wire should be wrapped on center 1/3rd portion of pipe

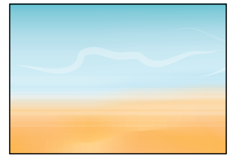
Don'ts

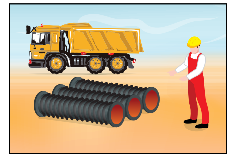
- Pipes should not overhang / hang outside the vehicle body
- Maximum height while loading should not exceed 2.5 metres



Receiving Recommendations

- Before you start unloading, direct driver to a smooth & flat area, free of rocks and debris





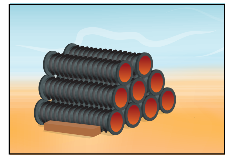
- Examine load quantities and quality immediately after unloading. Inspect pipe carefully for possible damage during transportation or unloading
- Make a note of damaged or missing items on delivery receipt
- Do not dispose of damaged items. Check with driver for proper return method. If the driver is unsure, contact our sales team

Pipe Storage

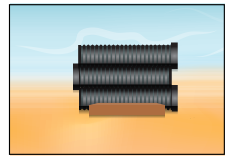
Storage Recommendations

To ensure that your delivered pipe products do not become damaged during job site storage, follow these simple guidelines:

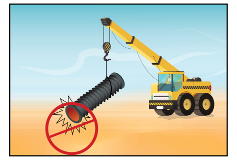
- Pipes may be stockpiled on a flat and clear area
- Use securing timbers (or blocks) to ensure the stockpile does not collapse
- Failure to block pipe may result in stack collapsing, pipe damage, or personal injury
- Ensure that the pipe stack is not higher than approximately 6 feet (1.8 m)



- Alternate bells for each row should be kept to support the pipe length evenly



- Do not drag or strike pipe ends while moving the pipe to prevent damage to the bell or spigot

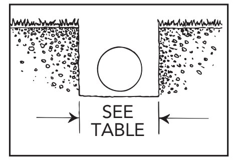


*DWC - Double Wall Corrugated

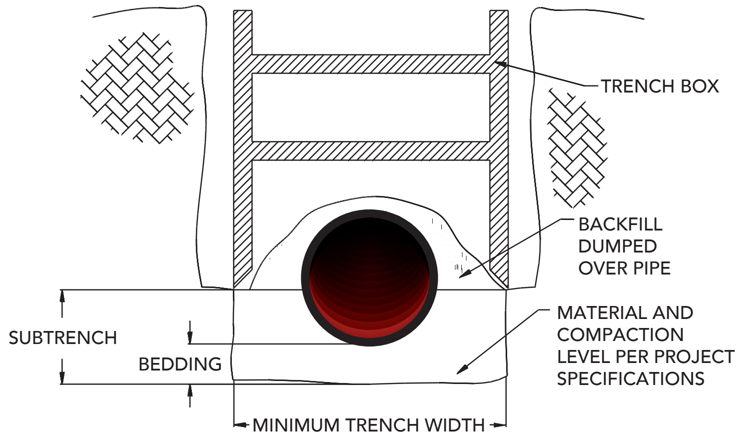
Installation of DWC* Pipes

Trench Preparation

Sewer Trench width depends on the soil condition, type of side protection and the working space required at the bottom of the trench for smooth installations. Considering all the above factors, minimum trench width as per IS 16098 Part 2 is -



Sr. No	Pipe Diameter (mm)	Trench Width (mtr)
1	75 to 200	0.6
2	250	0.7
3	300	0.8
4	400	0.9
5	600	1.2
6	800	1.3
7	900	1.6
8	1000	1.8



The trench depth should be minimum 1.5 mtr onwards

Excavation

- Sewer trenches should be in straight lines as much as possible
- Instead of conventional manholes, DWC* fittings such as tees and bends should be used at transitions
- Excavated spoils should not be deposited in the proximity to prevent the collapse of the side of the trenches
- The sides of the trench should be supported by shoring (wherever necessary) to ensure proper and speedy excavations and concurrently ensuring necessary protection to contiguous structures
- Dewatering: Sewer installations in trenches should be adequately dewatered for the placement of the pipe at proper gradient till the pipe is integrated through socket and spigot joint with the already laid segment

Bedding

- For maximum combined loading (Wheel Load + Backfill), any form of cement, concrete structural bedding would not be necessary
- For maintenance of sewer slopes the initial backfill should be enveloped with sand or gravel (as computed through structural design of buried flexible conduit) over a single BFS (Brick Flat Soling)

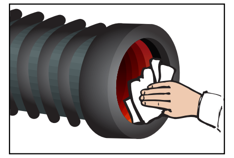
Laying

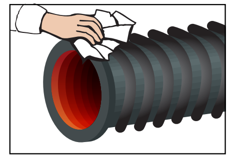
- For shallow trenches, place the pipe manually on the initial backfill envelop, directly
- For deep trenches with shoring / mild steel sheet piling
  a) Make the trench reasonably free from ground water and other liquids
  b) Place the pipe on the top level cross-struts of the timber shoring / mild steel sheet piling framework
  c) Dismantle one / two cross struts and lower layer of the cross-struts and re-fix the struts immediately
  d) In the same manner, reach up to the initial back filing and place the pipe at proper slope
  e) Ensure anchorage, if any, after laying

Jointing Procedure

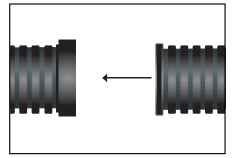
DWC* pipes are manufactured with built in socket / bell.

- Clean the surface of the spigot socket using a cloth





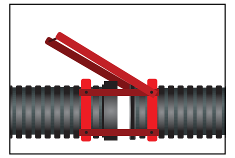
- Insert the rubber ring on the spigot end in between first corrugated valley
- Carefully insert the spigot end into the socket end of pipe in the following steps



*DWC - Double Wall Corrugated

(a) Jointing Jack Method

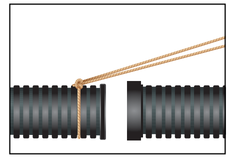
- Properly connect the jointing jack which is in two halves on DWC* pipe corrugation on socketed and spigot end of pipes



- Insert the rubber ring fitted spigot end of the pipe inside the socket of the jointing jack
- The entire jointing process only takes a few minutes and a leak-proof joint is achieved

(b) Rope Method

- Rope to be tied at appropriate distance from the spigot end of the pipe to get enough force for pulling the pipe



- Pull the rope tightly so that the spigot end can smoothly go into the socket end of the pipe
- Jointing can be completed within few minutes making a leak-proof joint

*DWC - Double Wall Corrugated

Construction of Backfill Envelope and Backfilling of the Trenches

- The material for initial backfill envelope should be as per the structural design of the flexible buried conduit
- It can be the same material that was removed during excavation or it can be fine sand / coarse sand / gravel depending on the over burden and superimposed load, but it should not be concrete which invariably induces undesired rigidity in the system
- The remaining portion of backfilling should be the material that was removed during excavation
- These materials should consist of clean earth and should not be from large clod or stone above 75 mm, ashes, refuse and other injurious materials
- Backfilling should start only after ensuring the water tightness test of joints for the concerned sewer segments. However, partial filling may be done while the joints are open

Service Life

Corfit DWC* Pipes have a very long service life, the wear and tear of the inner wall is very low due to the high abrasion resistance of HDPE material.

Under normal working conditions the life expectancy of these pipes is more than 50 years.

Corfit DWC* Pipes are reliable and durable which make these pipes suitable for long term drainage and sewerage applications.

50 YEARS OF SERVICE LIFE

*DWC - Double Wall Corrugated

Our Network of Global Success

Notes: