INTRODUCTION
Weida HDPE Double Wall Corrugated Sewer Pipe (DWCP) System provides the complete solution to your sewage pipeworks needs. **WEIDA DWCP** comes in a range of common diameter sizes and lengths with an advantageous, optional integral bell-end feature; coupled with an extensive range of pipe fittings, joints and accessories.

ADVANTAGES OF HDPE

- **LIGHTWEIGHT**
  HDPE pipe is lighter than traditional piping materials. Transportation, handling and laying becomes easy, quick and cost-effective.

- **“FLEXIBLE” PIPE MATERIAL**
  While rigid pipes crack and dislocate due to soil movement and overloading, flexible HDPE pipes bends and deflects to conform to the soil condition.

![](image1)

**WEIGHT COMPARISON**

<table>
<thead>
<tr>
<th>MATERIALS</th>
<th>WEIGHT (kg/m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>WEIDA DWCP</td>
<td></td>
</tr>
<tr>
<td>DUCTILE IRON</td>
<td></td>
</tr>
<tr>
<td>VC</td>
<td></td>
</tr>
<tr>
<td>CONCRETE</td>
<td></td>
</tr>
</tbody>
</table>

Weight Comparison of Various Types of Pipes (Based on 900mm Pipes)

**COMPARISON BETWEEN FLEXIBLE AND RIGID PIPE**

Comparison Between Flexible and Rigid Pipe
CHEMICAL RESISTANT & LONG LASTING
HDPE is highly resistant to chemical attacks from extremes of pH in soils and sewerage effluents. Unlike other traditional piping materials, it is applicable over a wide range of pH. A buried HDPE pipe does not decay or corrode, and can virtually last for tens of years.

ABRASION RESISTANT
WEIDA DWCP is very long lasting because HDPE material exhibits outstanding resistance to abrasion. The smooth finish produced from HDPE enables conveying or discharging fluids with abrasive material much easier & quicker.

**INTEGRAL BELL END**
Integral Bell End connections are joints with single seal. This eliminates the need for couplers, thus reducing costs and also chances of leakage.

**LONGER LENGTHS & LESS JOINTS**
Unlike vitrified clay pipes (VCP) and concrete pipes (CP) that comes in length of 1.5-2m, WEIDA DWCP is available in longer lengths of 6m, which reduces the number of joints and leakages.

**YELLOW INTERNAL SURFACE**
The bright internal surface makes pipe inspection via CCTV easy!

**HIGH FLOW CAPACITY**
The low Manning's "n" values below indicates that WEIDA DWCP has lower flow resistance and higher flow volume compared to steel pipes and concrete pipes.

<table>
<thead>
<tr>
<th>Comparison Of Pipe Wall Roughness</th>
<th>Manning's &quot;n&quot; Values</th>
</tr>
</thead>
<tbody>
<tr>
<td>Weida DWCP</td>
<td>0.010-0.012</td>
</tr>
<tr>
<td>Corrugated Steel Pipe</td>
<td>0.022-0.026</td>
</tr>
<tr>
<td>Reinforced Concrete Pipe</td>
<td>0.011-0.015</td>
</tr>
</tbody>
</table>

Source: Corrugated Polyethylene Pipe Association
DESIGN AND INSTALLATION

A good sewer network is the result of proper pipeline design and sound installation practices. The pipeline should be designed for adequate flow capacities; whilst maintaining the pipe's structural integrity during its lifespan in service. Installation should be properly done to ensure pipe deflection is within acceptable limits and the installed pipeline remains on grade conforming to the intended design.

<table>
<thead>
<tr>
<th>Size</th>
<th>Trench Width (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>100mm (4&quot;)</td>
<td>400</td>
</tr>
<tr>
<td>150mm (6&quot;)</td>
<td>500</td>
</tr>
<tr>
<td>225mm (9&quot;)</td>
<td>600</td>
</tr>
<tr>
<td>300mm (12&quot;)</td>
<td>800</td>
</tr>
<tr>
<td>450mm (18&quot;)</td>
<td>900</td>
</tr>
</tbody>
</table>

The various layers of backfill and their functions are as follows:

<table>
<thead>
<tr>
<th>Layer</th>
<th>Function</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foundation</td>
<td>To provide a hard support base for the bedding layer</td>
</tr>
<tr>
<td>Bedding</td>
<td>To establish line &amp; grade and to provide firm pipe support</td>
</tr>
<tr>
<td>Haunching</td>
<td>To provide resistance against soil and traffic loading</td>
</tr>
<tr>
<td>Initial backfill</td>
<td>To give pipe support and protect pipes from stones in the final backfill</td>
</tr>
<tr>
<td>Final backfill</td>
<td>To satisfy loading, pavements and other requirements</td>
</tr>
</tbody>
</table>

The limits of burial depends largely on the type of backfill material, degree of compaction and the imposed load over the pipe.

The minimum burial depth for H-25 vehicular loads are 300mm (1ft)*.

* [Based on Class 3 backfill, compacted to 90% Standard Proctor Density]

H-25 load represents a 25 tons truck of American Highway Standard (AASHTO)

The maximum burial depth typically ranges from 4-18m**, depending on applications and engineering design.

** [Source: Corrugated Polyethylene Pipe Association]

The recommended design and installation manual for WEIDA DWCP is The Complete Corrugated Polyethylene Pipe Design Manual and Installation Guide by the Corrugated Polyethylene Pipe Association (CPPA), USA.

The standard reference for HDPE sewer pipeline installation is the ASTM D 2321 : Standard Practice for Underground Installation of Thermoplastic Pipes for Sewer and Other Gravity Flow Applications.
CONNECTIONS: PIPE TO FITTING / DOUBLE-END SOCKETS

1. Clean pipe ends, rubber rings and internal faces of the socket with soap water.
2. Insert rubber ring onto the second valley of the pipe.
3. Align and insert socket into pipe.
4. Push socket into pipe carefully, ensuring that the socket ends are protected from damage.
5. Align the next pipe with the socket and repeat Step 1 and 2.
6. Pipe is pushed into the socket to complete the connection.

CONNECTIONS: PIPE TO INTEGRAL BELL END

1. Clean pipe end, rubber ring and internal faces of bell end with soap water.
2. Insert rubber ring onto second valley of the pipe.
3. Push the pipe into integral bell end.
4. Example of a complete connection.

MANHOLE CONNECTIONS

Grouting WEIDA DWCP to a concrete manhole.
Connection of Weida DWCP to Floline 3-W manhole.
PRODUCT STANDARD

WEIDA DWCP has the following certification and approval:
- DIN 16961 Part 1 & 2 - Thermoplastic Pipes and Fittings With Profiled Outer And Smooth Inner Surfaces
- Jabatan Perkhidmatan Pembetungan (JPP)

SIZES AVAILABLE

Pipe With Integral Bell End

Pipe With Plain End

<table>
<thead>
<tr>
<th>NOMINAL DIAMETER</th>
<th>mm</th>
<th>100</th>
<th>150</th>
<th>225</th>
<th>300</th>
<th>450</th>
</tr>
</thead>
<tbody>
<tr>
<td>inches</td>
<td></td>
<td>4</td>
<td>6</td>
<td>9</td>
<td>12</td>
<td>18</td>
</tr>
</tbody>
</table>

Standard Length: 6m

FITTINGS

Straight Reducer
End Cap
Transition Piece
Coupler
Elbow (45° & 90°)
Tee Branch (Equal & Unequal)
Wye Branch (Equal & Unequal)