

CORRUGATED PIPE SYSTEMS

TECHNICAL PRODUCT CATALOGUE

Reliable sourcing, technical coordination and export management from Türkiye.

ENGINEERED FOR LONG-TERM PERFORMANCE

Infrastructuresolutionsdesignedarounddurability,hydraulic performanceandinstallation efficiency.

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A2Z Eximco service framework

YOUR RELIABLE SUPPLY PARTNER IN TÜRKİYE

01

COMPANY PROFILE

A2Z Eximco connects international infrastructure projects with qualified manufacturers in Türkiye. We coordinate product selection, technical documentation, production follow-up and export operations through one accountable point of contact.

Our role is to make complex sourcing clear and dependable: requirements are confirmed, critical records are checked, delivery milestones are followed and communication remains structured from enquiry to shipment.

01 ONE POINT OF CONTACT

Clear ownership and consistent communication.

02 PROJECT-BASED SOURCING

Products aligned with technical and commercial needs.

03 EXPORT COORDINATION

Documentation, loading and shipment follow-up.

CONFIDENCE IS BUILT ON VERIFIABLE DETAILS.

The supply process is supported with clearly defined technical requirements and the applicable records available for each product and project scope.



PRODUCT CONFORMITY

Requested standards, dimensions and performance classes are checked against the confirmed offer.



TEST REPORTS

Applicable laboratory and product test records can be provided upon request.



TECHNICAL FILE

Datasheets, installation guidance and relevant certificates are coordinated for the order.



TRACEABLE COMMUNICATION

Revisions, approvals and delivery milestones are recorded through a structured workflow.

Applicable certificates and test documentation are supplied subject to product configuration and project scope.

TECHNICAL PROJECT COORDINATION

A disciplined process turns the right product into a dependable delivery.

01

REQUIREMENT REVIEW

Diameter, stiffness class, application, standards and delivery conditions are clarified.

02

PRODUCT CONFIGURATION

The proposed solution is matched to the technical and commercial scope.

03

PRODUCTION FOLLOW-UP

Order progress and agreed quality checkpoints are monitored.

04

SHIPMENT PLANNING

Packing, loading records and export documents are coordinated.

CLEAR CHECKPOINTS. FEWER SURPRISES.

Every order is managed around defined checkpoints that protect technical alignment, documentation quality and delivery readiness.

01

SCOPE CONFIRMATION

Approved product, quantity, standard and delivery terms.

02

QUALITY OVERSIGHT

Relevant checks and records coordinated before dispatch.

03

FINAL VERIFICATION

Order status, packing and document set reviewed.

04

EXPORT READINESS

Loading plan and shipping documentation completed.

READY TO SHIP. READY TO SUPPORT.

A reliable delivery is the result of coordinated preparation—not a last-minute check.

01

PRE-DISPATCH REVIEW

Confirmed quantities, configuration and document status.

02

LOADING COORDINATION

Packing and vehicle/container plan aligned with the shipment.

03

EXPORT DOCUMENTS

Commercial and shipping documents prepared for the route.

04

POST-SHIPMENT SUPPORT

Document follow-up and product-related coordination as required.

DOCUMENTS AVAILABLE ON REQUEST

Product datasheets • Applicable certificates • Test reports • Packing and loading records

4. CORRUGATED PIPE SYSTEMS

For non-pressurized underground drainage and sewerage applications

4.1. CORRUGATED PIPE SYSTEMS



Corrugated pipe systems are manufactured from polyethylene (PE) in compliance with TS EN 13476-3 standards. They are produced in ring stiffness classes ranging from SN4 to SN16 and in internal diameters of DN100, DN150, DN200, DN300, DN400, DN500, DN600, DN700, DN800, DN900, and DN1000, with 6-meter socketed pipe lengths.

4.1.1. APPLICATION AREAS

Thanks to their ease of installation and durability, corrugated pipe systems are widely used in various areas. These pipes possess excellent resistance to abrasion, chemicals, and corrosion, and are particularly effective in wastewater discharge systems. They are used in the transportation of urban and domestic wastewater,

drainage of rain and snowwater, groundwater removal in drainage systems, as well as in industrial and non-pressurized gravity flow systems. Additionally, they are preferred for energy and communication cable protection, chemical and biological waste transport systems. Their wide range of applications makes corrugated pipes both a practical and reliable solution.

4.1.2. GENERAL FEATURES OF CORRUGATED PIPES

Load Resistance

High resistance to soil and traffic loads thanks to the special structure.

Material

Made from HDPE, offering improved flexibility.

Elastic Deformation

Absorbs impact and pressure loads, returning to its original shape.

Temperature Resistance

Withstands temperatures between -50°C and +60°C.

Maintenance

Requires minimal maintenance; easily cut to desired length with a saw.

Damage Repair

Can be repaired by opening only the damaged section and using a sliding sleeve.

No Waste

Produces no waste during installation.

Chemical Resistance

Excellent resistance to chemicals and does not erode.

Inner Surface

Smooth interior prevents sediment buildup and can be used without sealing the ends.

Longevity

Long service life against external loads.

Cost Efficiency

Stacking inside each other saves space, time, and transportation costs.

Field Installation

Easy to install due to lightweight structure.

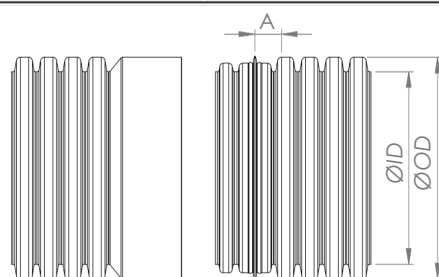
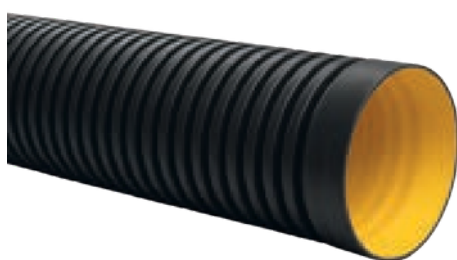
APPLICABLE TEST STANDARDS

STANDARD	REQUIRED PROPERTY	UNIT	TEST TYPE
TS EN ISO 1133-1	min. 0.20-1.6	g/10 min	Melt flow rate (MFR/MVR) of thermoplastics
TS EN ISO 1183-1	±0.930	g/ c m3	Density determination of non-cellular plastics
TS ISO 12091	No delamination or bubbles	Visual	Oven test for profiled thermoplastic pipes
TS EN ISO 9969	4-8-10-12-16	≥kN/m2	Determination of ring stiffness
TS EN ISO 3127	≤10	≤10% TIR without damage	Impact resistance under external impact
TS EN ISO 13968	30% without damage ≥	≥kN/m2	Determination of ring flexibility
TS EN 1277	No leakage	Visual	Leak tightness of elastomeric-sealed joints for underground use

Sn And Sr Comparison Table

TS 12132	DIN16961	DIN16566	TSEN13476 - 3	ISO 21138 - 3
	SR24= EI/r (kN/m ²)		SN=EI/D ³ (kN/m ²)	

Type 7	125	125	16	16
Type 6	63	63	8	8
Type 5	31,5	31,5	4	4
Type 4	16	16	2	2
Type 3	8	8	-	-
Type 2	4	4	-	-
Type 1	2	2	-	-



CORRUGATED PIPE NOMINAL DIAMETERS

DN	ØID (mm)	ØOD (mm)	Amin (mm)
100	98	115	32
150	148	171,5	43
200	198	231	54
300	297,5	348,5	64
400	397	466	74
500	496,5	582,5	85
600	600	701	96
800	800	936	118
1000	1000	1176	140

4.2. CORRUGATED PIPE FITTINGS

Safe and Long-Lasting Solutions for Corrugated Pipe Fittings

Corrugated fittings supplied by A2ZEximco providesafe anddurableconnections for sewerage, rainwater and other infrastructure systems. Sleeves, elbows, tees, reducers and adapters are selected for compatibility with the corrugated pipe system and support fast, practical field installation. Project-specific configurations can be coordinated for different diameters, slopes and connection requirements, helping maintain technical and operational efficiency across new installations and maintenance work.



Fittings are produced in line with the applicable quality requirements and can be supported with relevant tightness tests, mechanical strength records and product documentation. A2Z Eximco coordinates the supplied fitting package to support reliable field performance, system integrity and long-term project value.





4.3. STEEL-REINFORCED SPIRAL CORRUGATED PIPES

Steel-reinforced spiral corrugated pipes supplied by A2Z Eximco combine the performance of steel and polyethylene. Available in nominal diameters from 800 mm to 2400 mm and ring stiffness classes from SN4 to SN16, the pipes use a three-layer structure: inner and outer HDPE layers with a U-shaped steel reinforcement in the middle.

The inner layer is formed through HDPE extrusion in a winding process. Before profiling, the steel strip is coated with a special adhesive so the inner, reinforcement and outer layers integrate into a spirally ribbed structure. The steel core provides mechanical strength, while the HDPE coating protects the system against corrosion.

4.3.1. Steel Raw Material

DKP DC01 Cold-Rolled Coil Sheet

DKP DC01 is one kind of cold rolled low carbon steel sheet. DKP stands for “Low Carbon Stainless” and is a type of material commonly used in the manufacturing industry.

DC01 is a material with a high level of surface quality and is often suitable for painting or coating processes. It also has a high level of machinability due to its low carbon content and can be easily formed, cut and drilled.

Adhesive Resin

Maleic anhydride grafted polyethylene containing TPE for super adhesion properties that provide superior resistance to delamination of layers in the steel pipe coating method. HDPE is a modified polyethylene based adhesive resin designed for steel reinforced corrugated pipe application. This grade is mainly recommended for adhesion between polyethylene layer and steel strip in corrugated pipe application. It shows high bond strength, high thermal stability, flexibility and aging resistance.

LOW CARBON COLD ROLLED COLD FORMABLE STEELS (CR) (TS EN 10130)

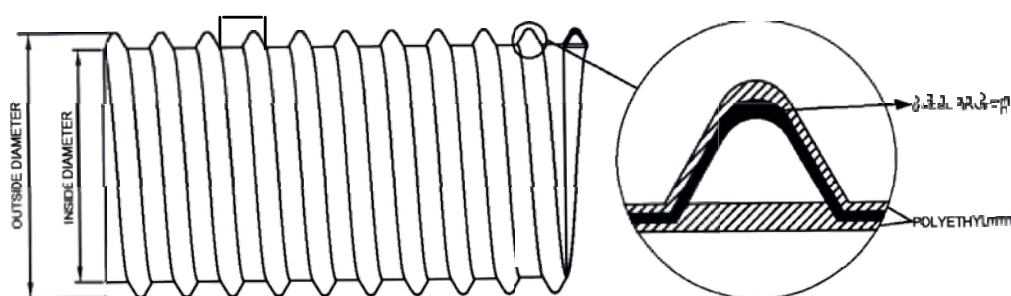
Order No	Steel Quality	Steel Number	Chemical Composition (%) Max				Mechanical Properties						
							Yield Stress (N/mm2) Max			Tensile Stress at Rupture (N/mm2)	Elongation Quantity (%) Min		
			C	S	P	Mn	e < 0,5	0,5 < e < 0,7	0,7 < e		e < 0,4	0,5 < e 0,7	0,7 < e
1	DC 01	1. 0330	0,12	0,045	0,045	0,60	320	300	280	270 - 410	24	26	28

A2Z Eximco's steel reinforced spiral corrugated pipes are widely used in infrastructure projects. They provide a durable solution for water transmission in hydroelectric power plants, and offer long-lasting and secure performance in irrigation systems and sewer lines. These pipes are also ideal for stormwater drainage, industrial applications requiring high strength, and treatment systems that demand safe and efficient water transport.

Technical Specifications

4.3.2.

Full resistance to corrosion and chemicals thanks to inner and outer HDPE layers
 100% HDPE use enables desired ring stiffness (SN values)
 High strength through steel rib reinforcement
 Easy to install; compatible with electrofusion band welding for all diameters



Nominal Sizes – Steel-Reinforced Spiral Corrugated Pipes

Nominal size (mm)	Inside Diameter (mm)	Outside Diameter (mm)	Pitch (mm)	Minimum Pipe Stiffness (MPa)
800	813	891,8	108	0,4
900	914	1 000, 8	124	0,4
1000	1016	1198,9	169,9	0,4
1200	1219	1432,1	205	0,4
1400	1372	1603,2	224,8	0,4
1600	1676	1940,6	235	0,4
1800	1829	2107,7	235	0,4
2000	2032	2317,8	235	0,4
2200	2235	2529,2	235	0,4
2400	2438	2732,6	235	0,4

Note: Custom diameters are available based on project requirements.

Ring Stiffness Of Steel-Reinforced Spiral Corrugated Pipes

Nominal Size (mm)	Ring Stiffness (kN/m ²)				
DN	SN4	SN8	SN10	SN12,5	SN16
800	+	+	+	+	+
900	+	+	+	+	+
1000	+	+	+	+	+
1200	+	+	+	+	+
1400	+	+	+	+	+
1600	+	+	+	+	+
1800	+	+	+	+	-
2000	+	+	+	+	-
2200	+	+	+	+	-
2400	+	+	+	+	-



4.4. GEOTEXTILE-WRAPPED DRAINAGE PIPES

Geotextile-wrapped drainage pipes supplied by A2Z Eximco use high-performance geotextile fabric to protect the pipe and provide an effective filtration layer.

The 100% synthetic, non-woven, needle-punched fabric is thermally processed to resist clogging during operation and help form a reliable filter medium.

4.4.1. Advantages

- Long service life underground
- High chemical resistance
- Lightweight structure for easy transport, installation, and storage
- Simple and quick application
- Can function effectively in sandy soils without additional filter material
- Strong construction from high-density polyethylene
- No material waste or clogging issues

4.4.2. Applications

- Removal of excess water from agricultural fields
- Protection of building foundations exposed to groundwater
- Base drainage in construction sites
- Drainage of turf fields
- Reclamation of muddy and clay-rich areas
- Roadside drainage
- Mine dewatering

4. 5. PERFORATED CORRUGATED PIPES

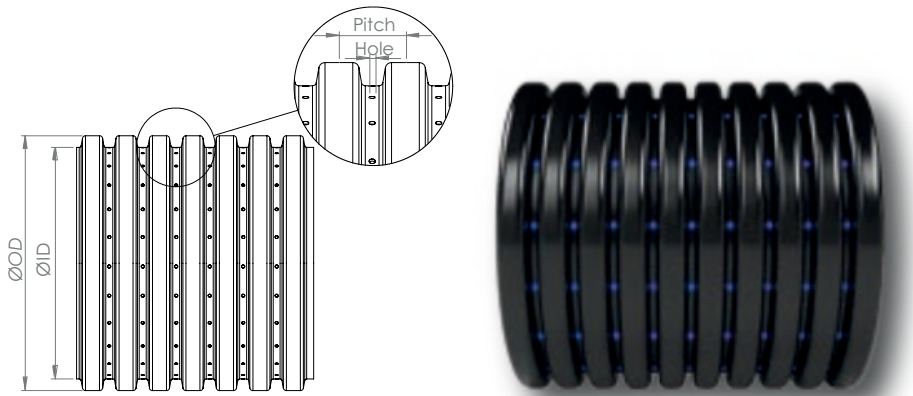
Corrugated perforated and slotted pipes made from high-density polyethylene are used to drain excess or polluted water from underground or surface areas. They are produced to R2 standards as per DIN 4262-1, with optional perforation/slitting patterns

on the outer ribbed surface based on customer demand. These pipes comply with TS EN 13476-3 standards and are available in ring stiffness classes from SN4 to SN16.



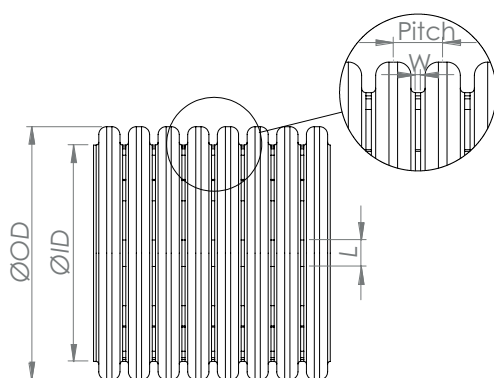
PERFORATION DIMENSIONS

DN	ØID (mm)	ØOD (mm)	Pitch (mm)	Hole Ø (mm)	Hole Count	Hole Count (max)
100	98	115	15,63	3	4	8
150	148	171,5	20,32	4	4	8
200	198	231	29,03	5	4	8
300	297,5	348,5	40,64	8	4	10
400	397	466	50,8	10	4	12
500	496,5	582,5	67,73	10	6	16
600	600	701	81,28	12	6	16
800	800	936	101,6	12	6	20
1000	1000	1176	135,47	12	8	24



Slotted Dimensions

DN	ØID (mm)	ØOD (mm)	Pitch (mm)	L (mm)	W (mm)	Slit Count	Slit Count (max)
100	98	115	15,63	20	1,5	4	6
150	148	171,5	20,32	20	2	4	6
200	198	231	29,03	25	2	4	6
300	297,5	348,5	40,64	30	2,5	4	8
400	397	466	50,8	35	2,5	4	8
500	496,5	582,5	67,73	40	3	6	10
600	600	701	81,28	50	3	6	10
800	800	936	101,6	60	3,5	6	12
1000	1000	1176	135,47	65	4	6	12



4.6. DOUBLE-WALL CABLE PROTECTION PIPES

A2Z Eximco cable protection pipes are essential components of infrastructure systems for telecommunications and data transmission. With their special design and

high-quality structure, they offer exceptional durability against environmental conditions. These pipes are manufactured in accordance with TS EN 61386-1 standards.



4. 6. 1. Applications

- Telecommunications lines
- Indoor installations
- Underground power lines
- Traffic light and signal systems
- Railway signal lines
- Industrial energy and data transmission lines

4. 6. 2. Key Features

- Flexible structure absorbs underground movements
- High strength against traffic and soil loads
- Elastic deformation under sudden loads
- Excellent chemical resistance
- Easy transport, installation, and storage

Cable Protection Pipe Dimensions

Outer Diameter (mm)	Inner Diameter (mm)	Packaging (m)
50	42	6/12 veya 100 m Kangal
63	54	6/12 veya 100 m Kangal
75	66	6/12 veya 100 m Kangal
90	78	6/12 veya 100 m Kangal
115	100	6, 7, 12, 13
160	150	6, 7, 12, 13
225	200	6, 7, 12, 13
275	250	6, 7, 12, 13
300	295	6, 7, 12, 13
400	395	6, 12

Raw Material Tests

Test	Valeu	Unit	Method
Melt Flow Rate (190 ° C / 5 kg)	0,15≤mfr≤0,40	g/10 min	TS EN ISO 1133-1
Density 23 ° C	≥ 0.960	g/ c m3	TS EN ISO 1183-1
Elongation at Break	>500	%	TS EN ISO 1183-1
Tensile Strength	Min 24	MN/m2	TS EN ISO 527-1
ESCR(% 10 Igepal C-630)2/10	>48	hour	ASTM 1693

Cable Casing Tube Tests (Flat Type 450-750 Nm)

Test Name	Value	Unit	Method
Melt Flow Rate (190 ° C / 5 kg)	$0,15 \leq mfr \leq 0,40$	g/10 min	TS EN ISO 1133-1
Density 23 ° C	≥ 0.960	g/ c m ³	TS EN ISO 1183-1
Elongation at Break	>500	%	TS EN ISO 527-1
Tensile Strength	Min 24	MN/m ²	TS EN ISO 527-1
ESCR(% 10 Igepal C-630)2/10	>48	hour	ASTM 1693
Impact Test	Max3/12 cracking	mm	TS EN 61386-24
Ring Flexibility	-	No Damage	TS EN ISO 9969
Deformation	$di \cdot 0,03$	g/ c m ³	DIN 16961

5. CORRUGATED PIPE JOINING METHODS

A2Z Eximco *corrugated pipes are joined using three methods:*

1. Socketed (Integral Bell) Gasket Joint
2. Coupler Gasket Joint
3. Electrofusion Welding with EF Tape (Steel Reinforced Spiral)



5. 1. Coupler Gasket Joint Method

In this method, a gasket is placed between two plain-ended corrugated pipes, and the pipes are inserted into a coupler. Once both pipe ends are pushed into the coupler, the connection is completed and sealed. This method provides excellent leak-tightness and durability, making it a preferred solution in drainage, sewer, and stormwater discharge systems.

5. 2. Socketed Gasket Joint Method

Socketed gasket joining is a reliable and practical solution for infrastructure projects. After selecting the gasket appropriate to the pipe diameter, it is placed on the socket end of the pipe. The socket and spigot ends are then joined to ensure leak-tightness. This method offers ease of installation and tight sealing and is commonly used in sewer, drainage, and stormwater discharge systems.

5. 3. Electrofusion Welding with EF Tape

For joining steel-reinforced corrugated pipes, the pipe ends are brought together and wrapped circumferentially with an EF (electrofusion) tape. Electrical current is applied to the tape ends, melting the material and completing the weld. Pipes must be aligned on a flat and clean surface under dry conditions. The fusion process takes 6–15 minutes at a temperature of 190–200°C. During the cooling stage, the pipes must remain stationary for 15–20 minutes. After cooling, the joint area is backfilled, and the pipes should not be moved

6. STORAGE & SHIPMENT

6.1. CONSIDERATIONS DUE TO NON-STANDARD VEHICLE BED SIZES

The fact that the vehicle bodies are not in standard sizes creates some difficulties in loading and transportation processes. Therefore, the following points should be considered when using the relevant tables.
During the checks, it was determined that the length of the crates varies according to the vehicle type.

Vehicle Type	Case Lengths	Case Widths	Inside Height
Trucks	6,80 - 7,40 meter	2,38 - 2,55 meter	2,60 - 3,00 meter
Trucks	12,00 - 13,60 meter	2,38 - 2,55 meter	2,60 - 3,00 meter

Considering these changes, the dimensions of each vehicle's chassis should be carefully checked and loadings should be made accordingly. Thus, possible problems can be minimized.

Corrugated Pipe

	OPEN TRUCK	TRUCK	CLOSED TRUCK
CROSS	NUMBER	NUMBER	NUMBER
100	1334	667	1196

150	570	285	510
200	320	160	286
300	140	70	112
400	70	35	50
500	48	24	40
600	30	15	24
800	18	9	12
1000	10	5	8
1200	8	4	6
1400	6	3	4
1600	4	2	4
2000	2	1	2
2200	2	1	2
2400	2	1	2

6.2. STORAGE AND TRANSPORTATION GUIDELINES

- The storage area must be free of sharp objects (rocks, stones, metal, etc.) that can damage the pipes.
 - Pipes must not be stacked more than 3 meters high.
 - Prolonged exposure to direct sunlight should be avoided. If possible, pipes should be stored in shaded or covered areas.
 - Elastomeric gaskets must be protected from direct sunlight.
 - Pipes should be stacked with sockets alternately placed to prevent deformation.
 - When tying down pipes during transport, use ropes that do not damage the pipe surface.
 - Pipes must be protected from impact during handling and installation. Lift them using slings at both ends.
 - When using a forklift, lift the pipes from the center in a balanced manner.
- For open-bed transportation, precautions to prevent vehicle side rails from damaging the pipes.
- Pipes must never be dragged on the ground; instead, roll them gently on clean, smooth surfaces.
 - In telescopic loading, when smaller pipes are nested inside larger ones, take care not to damage the socket or weld areas.



7. PIPE LAYING PRINCIPLES



Pipes used in sewer infrastructure must be designed and installed to provide long-term performance. Corrugated pipes supplied by A2Z Eximco are specified for buried applications with soil and traffic loads. Correct field practice remains essential to achieve decades of reliable service.

The backfill process after trench excavation is critical. Bedding and side-fill materials must be compacted according to the specifications. Proper compaction ensures that external loads are transferred to the bedding material, preserving the pipe's structural integrity. Insufficient compaction can lead to pipe deformation or failure.

7.1. SOIL LOAD CALCULATION (MARSTON THEORY)

The soil load is the weight of the soil cover on the pipe and is calculated using Marston's Theory.

7.1.1. Marston Formula

$$W = C_c \cdot \gamma \cdot B \cdot H$$

W: Vertical soil load on pipe (kN/m)

C_c : Marston load coefficient (dimensionless)

γ : Unit weight of soil (kN/m³)

B: Trench width (m) (pipe outer diameter + side clearances)

H: Soil cover height (m)

7.1.2. Marston Coefficient (C_c)

C_c is determined by the friction angle of the trench sidewalls, soil types and compaction conditions.

C_c Value for Narrow Trench Conditions:

K: Lateral earth pressure coefficient (typically 0.5)

μ : Soil-pipe friction coefficient

e: Base of natural logarithm

Note: In practice, C_c values are usually taken from standard tables.

7. 2. Traffic Load Calculation

Traffic load is the portion of loads from surface vehicles transmitted to the pipe. The effect of the load on the pipe decreases as the soil cover height increases.

7. 2. 1. Effective Traffic Load Calculation

The Boussinesq Theory or Equivalent Soil Cover Height Method is used.

7. 2. 2. Equivalent Soil Cover Height Method

$$P = \frac{P_0}{\left(1 + \frac{2H}{L}\right)^2}$$

P: Effective traffic load on the pipe (kN)

H: Soil cover height (m)

P₀: Single wheel load (kN)

L: Half-width of the load area (m)

7. 2. 3. Load Distribution Angle Approach

- Traffic load is distributed within the soil at a certain dispersion angle.
- Dispersion Ratio: 1.5:1 or 2:1 (vertical)

7. 2. 4. Effective Load Width (Be)

$$B_e = B + 2(H \times n)$$

Be: Effective load width (m)

B: Wheel track width (m)

n: Dispersion ratio (e.g., 1.5)

7. 3. TOTAL LOAD CALCULATION AND SAFETY FACTOR

7. 3. 1. Total Load

W_{total}: $W_{soil} + \frac{P}{L}$

W_{soil}: Soil load (kN/m)

P/L: Value of traffic load distributed along the pipe (kN/m)

7. 3. 2. Safety Factor

- For corrugated pipes, the safety factor is generally taken as 2.0.
- It is selected considering the material strength, ring stiffness, and long-term performance of the pipe.

7. 4. DESIGN CONSIDERATIONS

7. 4. 1. Ring Stiffness (SN) $SN = \frac{E \cdot I}{D^3}$

E: Elastic modulus of the material (MPa)

I: Second moment of area of the cross-section (mm⁴)

D: Pipe diameter (mm)

7. 4. 2. Backfill Material and Compaction

Side Backfill Material: Granular materials with good drainage properties should be preferred.

Compaction Rate: Should be at 90% Proctor density.

7. 4. 3. Trench Width (B)

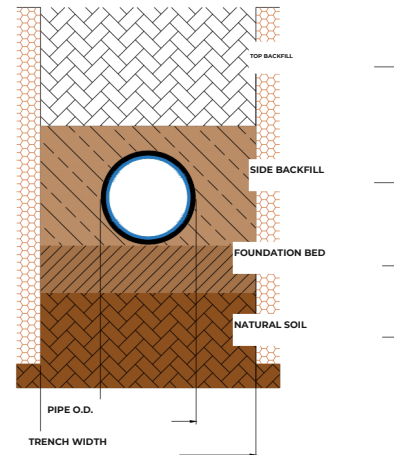
Minimum B: Pipe outer diameter (D) + 0.3 m

Maksimum B: Pipe outer diameter (D) + 0.6 m

7. 4. 4. Soil Cover Height (H)

Minumum H: The minimum value specified by the manufacturer and standards (generally 0.5 m)

Maksimum H: Determined based on pipe design and material.



8. USEFUL INFORMATION

8.1

Polyethylene is a thermoplastic material used in a wide range of applications and takes its name from the monomer ethylene. It is produced by polymerizing ethylene and is commonly abbreviated as PE in the plastics industry.

The ethylene molecule (C_2H_4) consists of two CH_2 groups connected by a double bond ($CH_2=CH_2$). Polyethylene is formed through polymerization, a chemical reaction in which monomer units are bonded to form polymer chains.



High-Density Polyethylene (Hdpe) Raw Material Tests

Property	Typical Value (*)	Unit	Test Method
Resin Properties			
Melt Flow Rate 190°C/2.16 kg)	> 0.05	g/10 min	ASTM D1238
Melt Flow Rate (190°C/5 kg)	> 0.20	g/10 min	ASTM D1238
Density at , 23°C ⁽¹⁾	>0.930	g/ c m ³	ASTM D1505
Melting Point (DSC, 2nd heating)	131	°C	ASTM D3418
Oxidation Induction Time	>20	min	TS EN 728
Volatile Content	<350	mg/ k g	TS EN 12099
Moisture Content	<300	mg/ k g	TS EN 12118
Carbon Black Content	2-2.5	%	ISO 6964
Mechanical Properties (**)			
Tensile Strength at Yield	24	MPa	ASTM D638
Tensile Strength at Break	31	MPa	ASTM D638
Elongation at Break	875	%	ASTM D638
Flexural Modulus at , 23°C	950	MPa	TS EN ISO 178
Notched Izod Impact Resistance at	380	J/m	ASTM D256
Hardness (Shore D)	63	-	ASTM D2240
Environmental Stress Crack Resistance ^(%10Igepal,F50)	> 3 000	saat	ASTM D1693
Thermal Properties			
Vicat Softening Point , 10 N	122	°C	ASTM D1525

8.2. Material Characteristics

The material used is polyethylene (PE). Additives are incorporated to facilitate the production of components in compliance with TS EN 13476-3. Type B spiral pipes may include a support profile made from polymers other than PE.

8. 2. 1. Material Properties of Pipes and Fittings

Polyethylene (Pe) Material

Property	Standard	Unit	Value
Melt Flow Index (MFI) at 190°C , 5Kg	TS EN ISO 1133-1	g/10 dk	≤ 1,6
Density	TS EN ISO 1183-1	K g/ m ³	≥ 930
Hardness	TS EN ISO 868	Shore D	63
Heat Resistance at , (150±2) °C	TS ISO 12091	heating time	No delamination, cracks, or blisters for: wall thickness
		e ≤ 3 mm 30 dk	

8. 3. 2. Mechanical and Performance Properties of PE Pipes and Fittings

Polyethylene (Pe) Material

Property	Standard	Unit	Value
Ring Stiffness, SN 4	TS EN ISO 9969	kN/m ²	≥ 4
Ring Stiffness, SN 16	TS EN ISO 9969	kN/m ²	≥ 16

Ring Stiffness (SN): A2Z Eximco corrugated pipes meet the SN4 and SN16 ring stiffness classifications as defined in TS EN 13476-3, verified through testing in accordance with ISO 9969.

Ring Flexibility: A2Z Eximco corrugated pipes are tested in accordance with TS EN ISO 13968. The pipe is subjected to external compression causing a 30% increase in diameter without permanent deformation, cracking, or breakage.

Impact Resistance: Tested to TS EN ISO 3127, A2Z Eximco corrugated pipes conditioned at 0°C withstand the impact of falling weights appropriate to their diameter without fracturing.

Leak Tightness: Systems comprising elastomer-sealed pipes and fittings are tested to TS EN 1277. The system maintains watertight integrity for 15 minutes under 0.5 bar pressure.





8. 2. 3. Chemical Resistance Chart

Hdpe Pe100 – Chemical Resistance Table

Chemicals	Resistance at 20°C			Chemicals	Resistance at 20°C		
	Strong A	Middle B	Weak C		Strong A	Middle B	Weak C
Acetate, butyl	x			Acid, sulpho-chromic			x
Acetone	x			Acid, sulphurous	x		
Acid, acetic (10%)	x			Acid, sulphuric (50 %)	x		
Acid, acetic (100%)	x			Acid, sulphuric (98 %)	x		
Acids, aromatic	x			Acid, tartaric	x		
Acid, benzoic*	x			Acid, trichloroacetic (50 %)	x		
Acid, boric*	x			Acid, trichloroacetic (100 %)	x		
Acid, butyric	x			Acrylonitril	x		
Acid, carbonic	x			Acrylonitri, allyl	x		
Acid, chromic (8 0%)	x			Acrylonitri, ally	x		
Acid, citric	x			Acrylonitri. benzyl	x		
Aceta Id ehy d e	x			Acid, stearic	x		

Acetate, butyl	x			Acid, sulpho- chromic			x
Acetone	x			Acid, sulphurous	x		
Acid, acetic (10%)	x			Acid, sulphuric (50 %)	x		
Acid, acetic (100%)	x			Acid, sulphuric (98 %)	x		
Acids, aromatic	x			Acid, tartaric	x		
Acid, benzoic*	x			Acid, trichloroacetic (50 %)	x		
Acid, boric*	x			Acid, trichloroacetic (100 %)	x		
Acid, butyric	x			Acrylonitril	x		
Acid, carbonic	x			Acrylonitri, allyl	x		
Acid, chromic (8.0%)	x			Acrylonitri, ally	x		
Acid, citric	x			Acrylonitri. benzyl	x		
Acetaldehyde	x			Acid, stearic	x		
Acetate, butyl	x			Acid, sulpho- chromic			x
Acetone	x			Acid, sulphurous	x		
Acid, acetic (10%)	x			Acid, sulphuric (50 %)	x		
Acid, acetic (100%)	x			Acid, sulphuric (98 %)	x		
Acids, aromatic	x			Acid, tartaric	x		
Acid, benzoic*	x			Acid, trichloroacetic (50 %)	x		
Acid, boric*	x			Acid, trichloroacetic (100 %)	x		
Acid, butyric	x			Acrylonitril	x		
Acid, carbonic	x			Acrylonitri, allyl	x		
Acid, chromic (8.0%)	x			Acrylonitri, ally	x		
Acid, citric	x			Acrylonitri. benzyl	x		

Acetaldehyde	x			Acid, stearic	x		
Chlorine (liquid and gas)			x	Glycol	X		
Chlorobenzene			x	Glycol, butyl	X		
Chloroethanol	x			Glycol, methyl	X		
Chloroform			x	Hydrogen chloride gas (dry, wet)	X		
Chloride, aluminium*	x			Hydrogen peroxide (30%)	X		
Chloride, ammonium*	x			Hydrogen peroxide (100%)	X		
Chloride, antimony*	x			Hydrogen sulphide	X		
Chloride, calcium-	x			Iodine tincture	X		
Chloride, ferric*	x			Isocane	X		
Chloride, magnesium*	x			Mercury	X		
Chloride, mercury*	x			Metallic sulphates	X		
Chloride, methylene			x	Methylethylacetone	X		
Chloride, potassium*	x			Molasses	X		
Chloride, sodium	x			Morpholine	X		
Chloride, sulphylic			x	Naphtha (heavy petrol)	X		
Chloride, thionyl			x	Naphthalene	X		
Chloride, zinc	x			Nickel salts*	X		
Composite	x			Nitrogen dioxide gas	X		
Copper salts*	X			Oils, essential		X	
Cresol	X			Oils, mineral	X		
Cyclohexane	X			Oils, paraffin	X		
Cyclohexanol	X			Oils, silicone	X		

Cy clohe xa none	X			Oils, vegetable and animal	X		
D eca line	X			Olleum		X	
D eterg ents	X			Ozone	X		
Dibutyl phthalate	X			Petroleum	X		
P- d ichlorob enzene		X		Petroleum ether	X		
D ichlor oe t ha ne		X		Phenols	X		
D ichlome thy lene			x	Phosphates*	X		
Diethyl ether	X			Phosphorus oxy chlor id e	X		
D ioxa ne	X			Phosphorus p entoxid e	X		
Ether		X		Phosphorus trichloride	X		
F luor ine			X	Photographic d ev elop ers	X		
Formaldehyde (40%)	X			Poly g ly cols	X		
Fruit juice	X			Potassium bichromate (40%)	X		
Ga s oline	X			Potassium hy d r oxid e	X		
Gelatin	X			Potassium permanganate	X		
Gly ce r in	X			Py r id ine	X		
Glycerin chlor ohy d ir in	X			Sea water	X		
Silver nitrate	X			Sulp hur	X		
Sodium benzoate	X			Ta llow	x		
Sodium borate	X			Tetrahydrofuran		X	
Sodium carbonate (lyes)	X			Tetralin	X		
Sodium chloride (50%)	X			Thiop hone		X	
Sodium hydroxide (lye)	X			Toluene		X	

Sodium hypochlorite*	X			Trichloroethylene			X
Sodium nitrate	X			Triethanolamine	X		
Sodium silicate*			x	Turpentine	X		
Sodium sulphide*	X			Vaseline		X	
Sodium tiosulphate	X			Yeast	X		
Sugar syrup	X			Xylene		X	

CODES

A Resistant no indication that serviceability would be impaired.

B Variable resistance, depending on conditions of use.

C Unresistant, not recommended for service applications under any conditions.



9. DOCUMENTS



Applicable certificates and test documentation can be provided upon request for the supplied products.

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10

APPLICATION AREAS

A versatile product range for projects where long service life, installation efficiency and reliable hydraulic performance matter.

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01

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Project requirements and standards

02

SELECT

Product and configuration

03

VERIFY

Technical records and order status

04

DELIVER

Loading, documents and shipment

THE RIGHT RECORDS. AT THE RIGHT TIME.

The document set is coordinated according to the supplied product, destination and agreed project scope.

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Datasheets, dimensions and application guidance

OK

QUALITY

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OK

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LOGISTICS

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