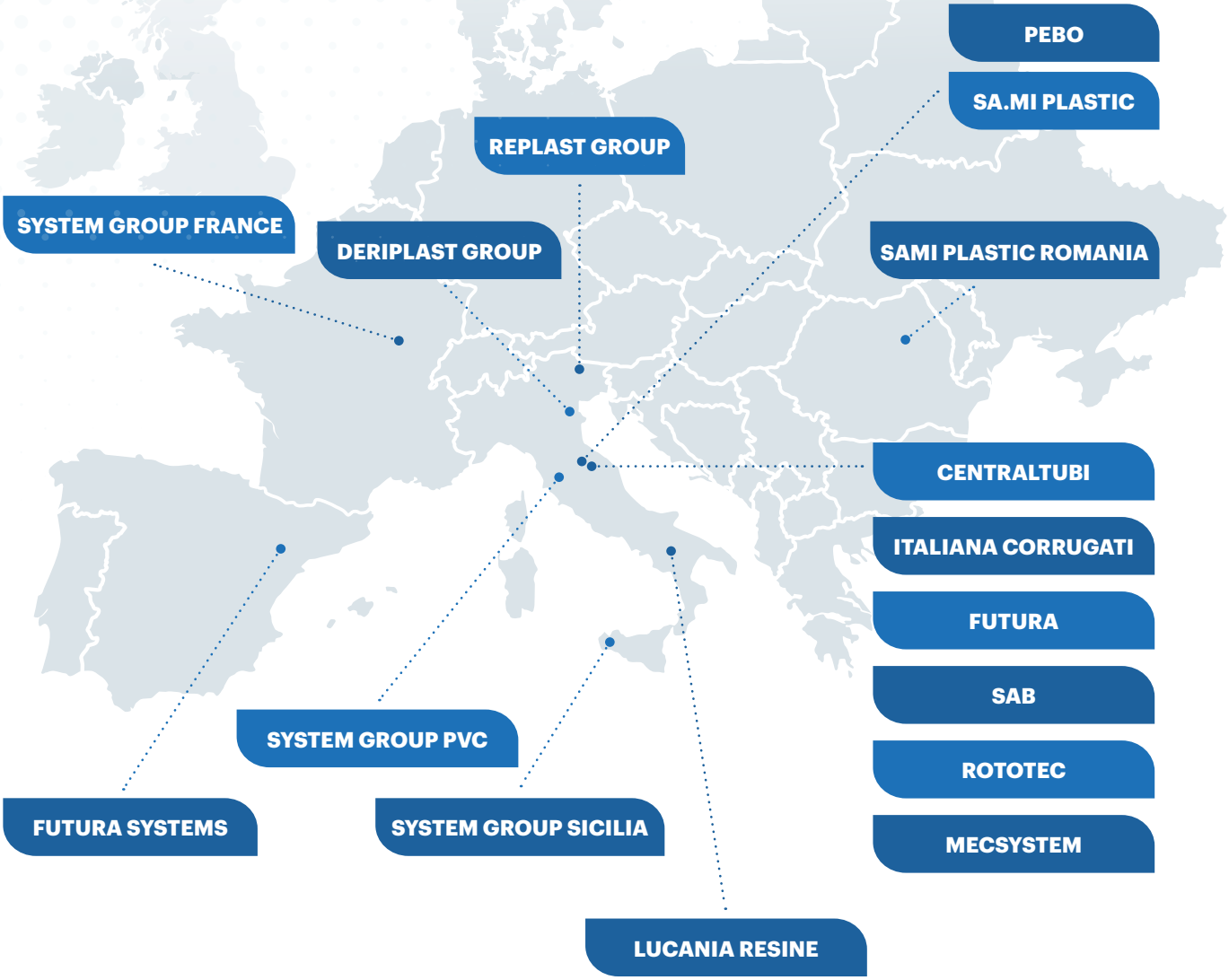
PLASTIC PIPES FOR CABLE MANAGEMENT SYSTEMS

ENERGY
LIGHTING
TELECOMMUNICATIONS
DATA CENTER
TELECONTROL

SYSTEM GROUP

sotto c'è un mondo


PEBO
SA.MI PLASTIC
REPLAST GROUP
SYSTEM GROUP FRANCE
DERIPLAST GROUP
SAMI PLASTIC ROMANIA
CENTRALTUBI
ITALIANA CORRUGATI
FUTURA
SAB
ROTOTEC
MECSYSTEM
SYSTEM GROUP PVC
FUTURA SYSTEMS
SYSTEM GROUP SICILIA
LUCANIA RESINE

SYSTEM GROUP

sotto c'è un mondo

SYSTEM GROUP is the brand identifying the Group of industrial companies majority-owned by the holding company **HB Boscarini S.p.A.**

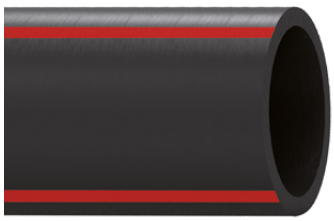
System Group's 15 production facilities specialize in the transformation of polyethylene (PE), polypropylene (PP), and polyvinyl chloride (PVC) into various products for cable pipeline applications, as well as water supply, gas and hydrogen distribution, irrigation, sewerage, rainwater storage and treatment, purification, dredging, and fire prevention.
They operate synergistically and with significant support from their technical departments.

The main products manufactured are: pipes (from DN 7 to 2500 mm), standard compression-molded and electrofusion fittings, as well as custom-formed fittings for all the Group's pipes, inspection manholes, monolithic and modular tanks for water storage, treatment and retentioning systems, floating systems for dredging, fish farms, docks and photovoltaic plants.

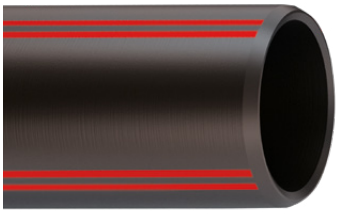
ENERGY

WIND / SOLAR / HYDROELECTRIC / GAS AND COAL / NUCLEAR / GEOTHERMAL / WAVES / WASTE-TO-ENERGY TREATMENT

HDPE FOR ELECTRICAL AND TELECOMMUNICATION CABLES WITH PARTIAL RECYCLED CONTENT



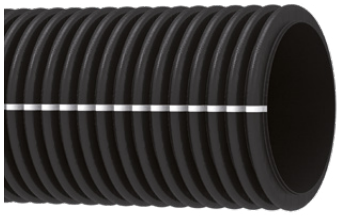
HDPE FOR HIGH VOLTAGE ELECTRICAL CABLES



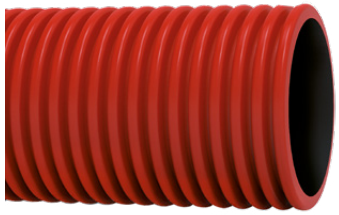
PE100-RT FOR HIGH VOLTAGE ELECTRICAL CABLES

PVC WITH SOCKET FOR ELECTRICAL AND TELECOMMUNICATION CABLES

PE DOUBLE WALL CORRUGATED FOR ELECTRICAL AND TELECOMMUNICATION CABLES



PE DOUBLE WALL CORRUGATED FOR ELECTRICAL AND TELECOMMUNICATION CABLES



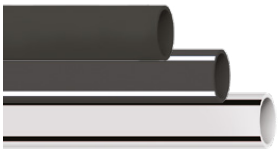
TELECOMMUNICATIONS

OPTIC FIBERS / PHONE / DATA CENTERS

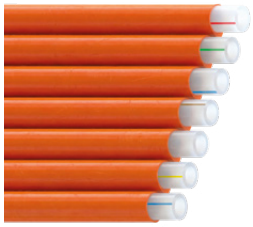
HDPE 3-TUBE
FOR FIBER OPTIC CABLES

HDPE FOR TELEPHONE
AND FIBER OPTIC CABLES

HDPE MICRODUCTS
FOR OPTIC FIBER CABLES

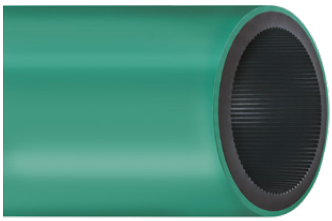


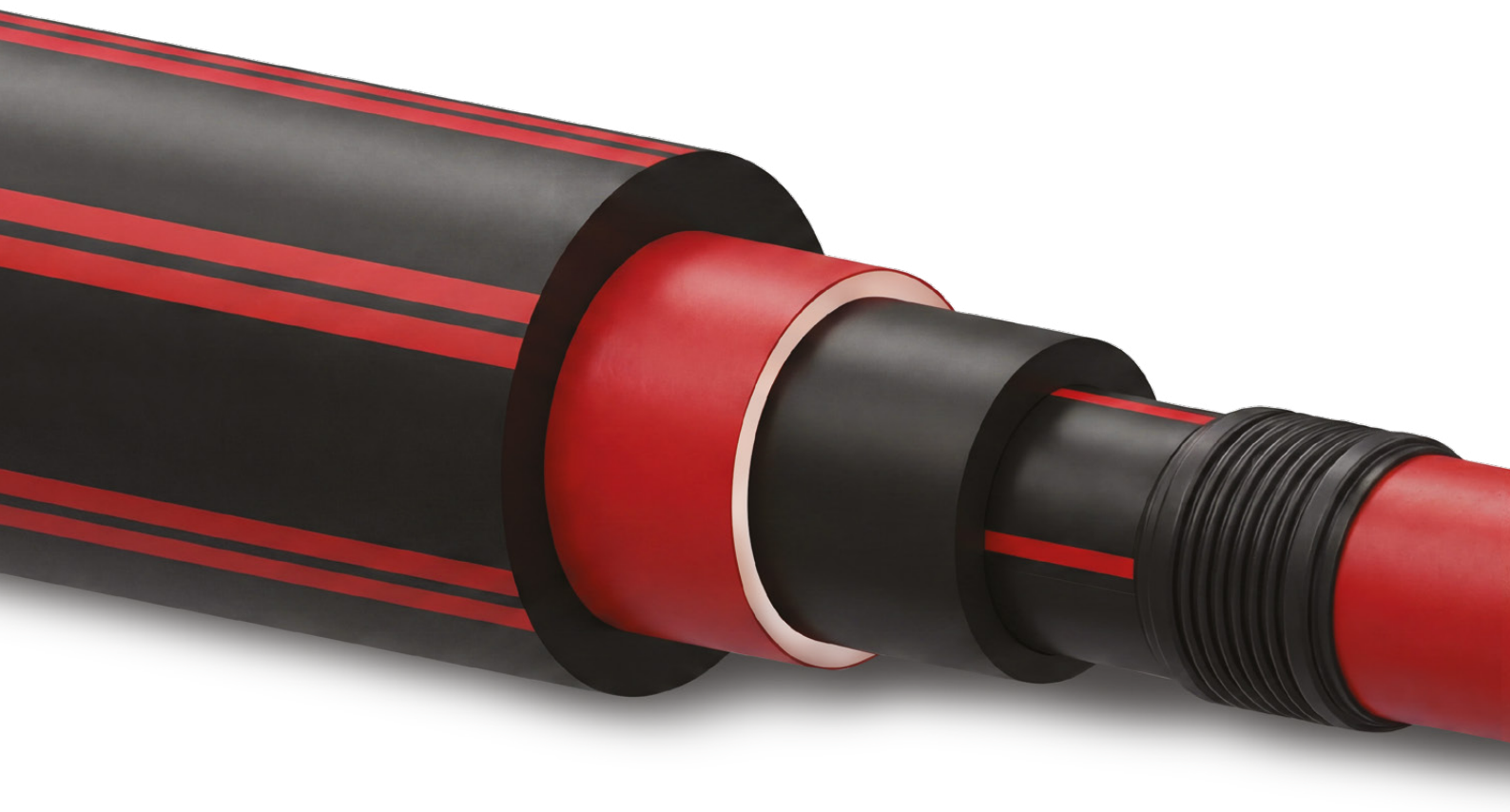
HDPE MICRODUCTS
FOR OPTIC FIBER CABLES
WRAPPED IN FENDER VERSION



HDPE MICRODUCTS
FOR OPTIC FIBER CABLES
WRAPPED IN FENDER VERSION

IHDPE MICRODUCTS
FOR OPTIC FIBER CABLES
WRAPPED IN FENDER VERSION





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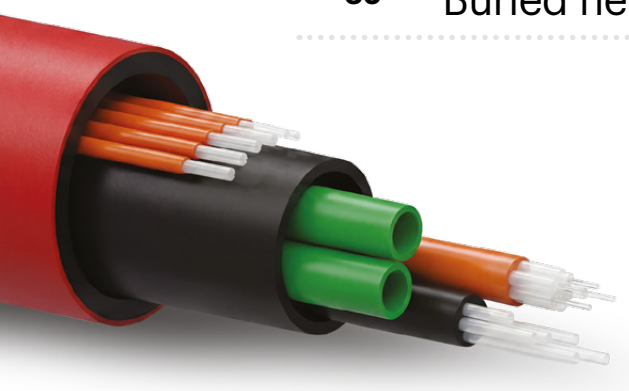


STANDARDS

A **technical product standard** is a detailed specification, approved by a standardization body (such as *EN, ISO and UNI*), that defines the requirements and characteristics (dimensional, performance-related, safety, etc.) that a product must have to be considered *"state of the art"* and to ensure quality, compatibility, and safety. Its adoption is voluntary unless it is incorporated into laws or regulations. It establishes standards for production and use, ensuring uniformity and interchangeability.

MAIN NATIONAL AND INTERNATIONAL ORGANIZATIONS FOR THE STANDARDIZATION OF ELECTROTECHNICAL, ELECTRONIC, AND TELECOMMUNICATIONS SYSTEMS

EUROPEAN COMMITTEE FOR STANDARDIZATION

EUROPEAN COMMITTEE FOR ELECTROTECHNICAL STANDARDIZATION

COMITATO ELETTRONICO ITALIANO

INTERNATIONAL ELECTROTECHNICAL COMMISISON

CEN *(European Committee for Standardization)* is one of the three European standardization organizations (together with **CENELEC** and **ETSI**) officially recognized by the European Union and the European Free Trade Association (EFTA) as responsible for developing and defining voluntary standards at the European level.

CENELEC is an association that brings together the National Electrotechnical Committees of 34 European countries.CENELEC develops voluntary standards in the electrotechnical field, helping to facilitate trade between countries, create new markets, reduce compliance costs, and support the development of a single European market.

The **CEI** *(Italian Electrotechnical Committee)* is a private, non-profit association responsible at the national level for technical standardization in the electrotechnical, electronic, and telecommunications fields. It participates directly—on behalf of the Italian State—in the corresponding European (CENELEC – *Comité Européen* de Normalisation Electrotechnique) and international (**IEC** – *International Electrotechnical Commission*) standardization organizations.

MAIN REFERENCE STANDARDS FOR UNDERGROUND DUCTING SYSTEMS

IEC EN 50626-1

EU Directives: LVD – effective from December 2023

Conduit systems buried underground for the protection and management of insulated electrical cables or communication cables. Part 1: General requirements.

This document defines the applicable requirements and tests for circular-cross section underground conduit systems for the protection and management of insulated conductors and/or power cables, as well as communication cables, installed either individually or as part of an assembly in which the installation of cables occurs via pulling or pushing action.

This standard specifies the performance, durability, and sealing requirements and tests for solid-wall underground conduit systems made of PE, PP, and PVC-U, within which cables are installed using blowing methods, floating methods, or trenchless installation.

The present standard completely replaces IEC EN 61386-1, which remains applicable until 21-07-2026.

IEC EN 50626-2

EU Directives: LVD – effective from February 2024

Conduit systems buried underground for the protection and management of insulated electrical cables or communication cables – Part 2: Polyethylene (PE), Polypropylene (PP) or unplasticized Poly(vinyl chloride) (PVC-U) – Requirements for solid-wall conduits, fittings and the systems used in special applications.

This document specifies the particular requirements and tests for conduit systems buried underground for the protection and management of insulated conductors and/or power or communication cables that are installed by different techniques, such as blowing.

The scope of this standard covers all circular-cross section conduit systems manufactured individually or as a part of an assembly.

EN ISO 15494

Plastics piping systems for industrial applications – polyethylene (PE), polyethylene of raised temperature resistance (PE-RT), crosslinked polyethylene (PE-X) – Metric series for specifications for components and the system.

EN 50626-2 is a ***HARMONIZED EUROPEAN UNION STANDARD***, therefore its prescription is mandatory for the purposes defined therein (electrical and telephone cables), as governed by Regulation (EU) 2024/3110 of the European Parliament and of the Council, consequently the affixing of the CE marking is mandatory

CERTIFICATIONS

OF PRODUCTS

COMPANY'S CERTIFICATIONS

PRODUCTION QUALITY
in accordance with the
UNI EN ISO 9001 standard

ENVIRONMENTAL QUALITY
in accordance with the
UNI EN ISO 14001 standard

SAFETY MANAGEMENT
in accordance with the
UNI ISO 45001 standard

ENERGY MANAGEMENT
in accordance with the
UNI CEI EN ISO 50001 standard

Certificates available on www.tubi.net

The Company applies a **Code of Ethics** and an organizational, management, and control model pursuant to Legislative Decree 231/01, and provides information regarding its economic, environmental, and social impacts (ESG) through reporting in the Sustainability Report, prepared in accordance with the 2021 GRI Standards and verified by an independent third-party body, publicly available.

SUSTAINABILITY

Ensure the fulfillment of the needs of the present generation without compromising the ability of future generations to meet their own


ICMQ

CERTIFICATO DI QUALIFICA DELL'ALGORITMO DI CALCOLO

Qualification certificate for calculation algorithm

TOOL0029

Centraltubi S.p.a

Via Foglia, 11 - 61026 LUNANO (PU)

CENTRALTUBI and **ITALIANA CORRUGATI** have obtained ICMQ certification for the environmental impact calculation scheme of various products, enabling the measurement, monitoring, and reporting through specific Environmental Product Declarations (EPD).

SUSTAINABILITY REPORT

Compared to an initially purely ENVIRONMENTAL concept, Sustainability has gradually taken on a more global meaning, also taking into account the ECONOMIC and SOCIAL (ESG) dimensions.

Based on these principles and values, strongly supported by a growing number of individuals and groups, including governments, companies, banks, non-governmental organizations, and local communities, System Group companies have adopted a voluntary group sustainability report, independently verified each year by a third-party organization, in which the commitments made on relevant environmental, economic, and social issues are disclosed and communicated publicly.

ENVIRONNMENT

Pipes for ducting systems can also be made from partially or fully recycled materials.
Network infrastructure management companies that adopt, or intend to promote, sustainability policies aimed at reducing environmental impacts can support the circular economy models encouraged by the European Commission [Communication COM (2003) 302], which in Italy have been made mandatory by the Public Contracts Code (Legislative Decree 36/2023). This can be achieved by allowing the use of recycled materials for the production of pipes and fittings intended for their network infrastructure, a practice also permitted by the specific product standard EN 50626.

Pipes made from carefully selected recycled materials can now meet technical and performance requirements suitable for various installation methods using trenchless techniques (e.g., HDD – Horizontal Directional Drilling), as well as for operation at high temperatures, with proven durability capabilities.The use of recycled materials for the production of cable conduit pipes now represents, in certain markets, an added environmental value that is preferred over traditional virgin materials derived solely from fossil sources.

These dynamics have created the need to prevent potential fraud by ensuring the circular origin of the raw materials used. As a result, various accredited organizations have emerged to oversee and issue certifications regarding the use of recycled materials.

The pipes for ducting systems from CENTRALTUBI S.p.A., ITALIANA CORRUGATI S.p.A., and SYSTEM GROUP PVC S.r.l., when produced partially or entirely from recycled materials, are marked with the **PSV** label.

The PSV label is a European product environmental certification system dedicated to materials and products made from the recovery of plastic waste.

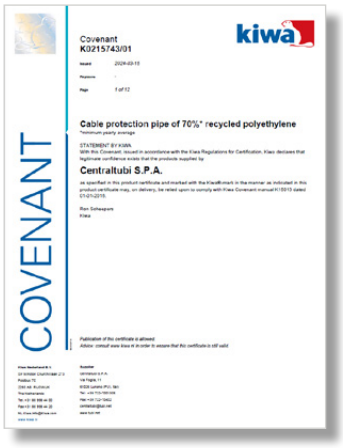
CENTRALTUBI S.p.A. (smooth HDPE pipes) holds the **PSV label for recycled materials** from separate collection.

PSV from separate collection: for materials and products made from 30% to 100% polymers derived from separate collection, with specifications defined by Ministerial Decree 203/03 on Green Public Procurement (GPP) as well as by the Ministry of the Environment circular of August 4, 2004. For post-consumer raw materials only, compliance with the applicable UNI standards of the 10667 series is required.

ITALIANA CORRUGATI S.p.A. (corrugated HDPE pipes) hold the **PSV Mix Eco** label.

PSV Mix Eco: for materials and products obtained from mixtures of materials derived from separate collection and/or industrial waste, which comply with a minimum recycled plastic content of 30%.

According to the 'Action Plans for Environmental Sustainability of Public Administration Consumption' (construction, roads, etc.), holding the PSV label justifies the product's compliance with the CAM criteria requirement.


Covenant
K0215743/01
kiwa
Cable protection pipe of 70%* recycled polyethylene
Centraltubi S.P.A.
COVENANT

The KIWA Covenant allows these pipes to undergo performance verification by an independent third party according to minimum requirements for both the product and the manufacturer.

The KIWA GREEN Covenant sets requirements for products and processes that improve the health of people and the planet.

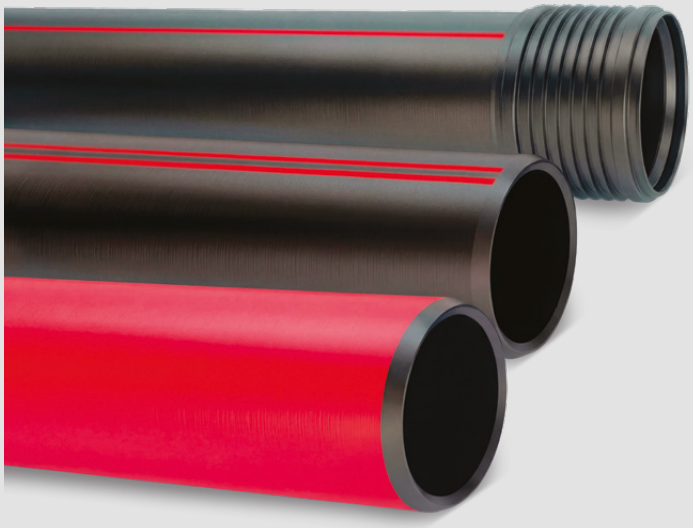
The smooth HDPE pipes of the 'CIRCULARTUBE' line by CENTRALTUBI S.p.A. are certified with the KIWA GREEN label for production using at least 70% recycled material.
These pipes undergo various performance verification tests, including:
- Weldability according to NEN 7200 (equivalent to ISO 13953)
- Yield tensile strength ≥ 18 [N/mm²] (EN ISO 6259)
- Elongation at break ≥ 300%

The plastic products manufactured by System Group companies are all fully recyclable, and therefore can be reused at the end of their life for similar or different applications.

PEBO is the System Group company specifically responsible for recycling production scrap and processing offcuts of PE pipes and special pieces, including material from external suppliers. It implements a complete circular production and consumption model and creates a full recycling supply chain, with the goal of *'doing more and better with less'* to strive for the highest possible environmental sustainability.

ENERGY / TELECOMMUNICATION

SMOOTH SOLID-WALL HDPE PIPES FOR
- *DUCTING SYSTEMS*



High-density polyethylene (HDPE) solid-wall pipes for duct network infrastructure

Materials: high-density polyethylene (HDPE)
- HDPE version
- PE100 version (RT – RC)
- "Green" version
(HDPE) partially or totally recycled

Standard color: fully black (Type 1), with or without co-extruded red stripes on the outer surface.
Other colors: available upon request.
Type 2 option: two distinct layers with different materials and colors.

Reference standard for ducting systems:

IEC EN 50626-2

Applicable for diameter range: 16 to 250 mm;
other nominal sizes are acceptable.

For different diameters, the reference standard (or technical specification) must be agreed upon for the specific project.

RING STIFFNESS OF HDPE SOLID WALL PIPES

SDR	41		33		26		21		17		13,6		11		9		7,4		
SN	1		2		4		8		16		32		64		130		254		
Ø	e_n	stiffness [N]	e_n	stiffness [N]	e_n	stiffness [N]	e_n	stiffness [N]	e_n	stiffness [N]	e_n	stiffness [N]	e_n	stiffness [N]	e_n	stiffness [N]	e_n	stiffness [N]	
20	-	-	-	-	-	-	-	-	-	-	-	-	2,0	>750	2,3	>1250	3,0	>2500	COILS
25	-	-	-	-	-	-	-	-	-	-	2,0	>450	2,3	>750	3,0	>1250	3,5	>2500	
32	-	-	-	-	-	-	-	-	2,0	>300	2,4	>450	3,0	>1250	3,6	>1250	4,4	>2500	
40	-	-	-	-	-	-	2,0	<300	2,4	>300	3,0	>750	3,7	>1250	4,5	>2500	5,5	>5000	
50	-	-	-	-	2,0	<300	2,4	<300	3,0	>450	3,7	>750	4,6	>1250	5,6	>2500	6,9	>5000	
63	-	-	-	-	2,5	<300	3,0	<300	3,8	>450	4,7	>750	5,8	>1250	7,1	>2500	8,6	>5000	
75	-	-	-	-	2,9	<300	3,6	>300	4,5	>450	5,6	>1250	6,8	>2500	8,4	>5000	10,3	>10000	
90	-	-	-	-	3,5	<300	4,3	>300	5,4	>750	6,7	>1250	8,2	>2500	10,1	>5000	12,3	>10000	
110	-	-	-	-	4,2	<300	5,3	>450	6,6	>750	8,1	>1250	10	>2500	12,3	>5000	15,1	>10000	
125	-	-	-	-	4,8	<300	6,0	>450	7,4	>750	9,2	>1250	11,4	>2500	14	>5000	17,1	>10000	
140	-	-	-	-	5,4	>300	6,7	>450	8,3	>1250	10,3	>2500	12,7	>5000	15,7	>10000	19,2	>20000	
160	-	-	-	-	6,2	>300	7,7	>750	9,5	>1250	11,8	>2500	14,6	>5000	17,9	>10000	21,9	>20000	
180	-	-	-	-	6,9	>300	8,6	>750	10,7	>1250	13,3	>2500	16,4	>5000	20,1	>10000	24,6	>20000	
200	-	-	-	-	7,7	>450	9,6	>750	11,9	>1250	14,7	>2500	18,2	>5000	22,4	>10000	27,4	>20000	
225	-	-	-	-	8,6	>450	10,8	>750	13,4	>1250	16,6	>2500	20,5	>5000	25,2	>10000	30,8	>30000	
250	-	-	-	-	9,6	>450	11,9	>750	14,8	>1250	18,4	>2500	22,7	>5000	27,9	>10000	34,2	>30000	
280	-	-	-	-	10,7	>450	13,4	>1250	16,6	>2500	20,6	>5000	25,4	>10000	31,3	>20000	38,3	>40000	
315	7,7	<300	9,7	>300	12,1	>750	15,0	>1250	18,7	>2500	23,2	>5000	28,6	>10000	35,2	>20000	43,1	>40000	
355	8,7	<300	10,9	>300	13,6	>750	16,9	>1250	21,1	>2500	26,1	>5000	32,2	>10000	39,7	>20000	48,5	>50000	
400	9,8	<300	12,3	>450	15,3	>750	19,1	>1250	23,7	>2500	29,4	>5000	36,3	>10000	44,7	>20000	54,7	>50000	
450	11,0	<300	13,8	>450	17,2	>750	21,5	>1250	26,7	>2500	33,1	>5000	40,9	>10000	50,3	>30000	61,5	>60000	
500	12,3	>300	15,3	>450	19,1	>750	23,9	>1250	29,7	>2500	36,8	>5000	45,4	>10000	55,8	>30000	-	-	
560	13,7	>300	17,2	>450	21,4	>1250	26,7	>2500	33,2	>5000	41,2	>10000	50,8	>20000	62,5	>40000	-	-	
630	15,4	>300	19,3	>450	24,1	>1250	30,0	>2500	37,4	>5000	46,3	>10000	57,2	>20000	70,3	>40000	-	-	
710	17,4	>300	21,8	>750	27,2	>1250	33,9	>2500	42,1	>5000	52,2	>10000	64,5	>20000	79,3	>50000	-	-	
800	19,6	>450	24,5	>750	30,6	>1250	38,1	>2500	47,4	>5000	58,8	>10000	72,6	>20000	89,3	>50000	-	-	
900	22,0	>450	27,6	>750	34,4	>1250	42,9	>2500	53,3	>5000	66,1	>10000	81,7	>30000	-	-	-	-	
1000	24,5	>450	30,6	>750	38,2	>1250	47,7	>2500	59,3	>5000	73,4	>10000	90,8	>30000	-	-	-	-	
1200	29,4	>450	36,7	>1250	45,9	>2500	57,2	>5000	71,1	>10000	88,2	>20000	-	-	-	-	-	-	

geometric measurements in mm

***N* (Newton):** ring stiffness according to IEC EN 50626-1

SN (kN/m²): ring stiffness according to EN ISO 9969

SMOOTH SOLID-WALL **PE100** PIPES FOR UNDERGROUND NETWORK INFRASTRUCTURES

- INSULATED ELECTRICAL CABLES

- TELECOMMUNICATIONS

ENERGY AND TELECOMMUNICATION

MEDIEL

DURABILITY **100** YEARS

TEST **80°** H 1000

DURABILITY **100** YEARS

TEST **80°** H 1000

Reference Standard: **IEC EN 50626-2 / EN 15494**

For different diameters, the standard (or technical specification) must be defined by the client.

SDR	41	33	26	21	17	13,6	11	9	7,4
SN	1	2	4	8	16	32	64	130	254
Ø	e_n	e_n	e_n	e_n	e_n	e_n	e_n	e_n	e_n
20	-	-	-	-	-	-	2,0	2,3	3,0
25	-	-	-	-	-	2,0	2,3	3,0	3,5
32	-	-	-	-	2,0	2,4	3,0	3,6	4,4
40	-	-	-	2,0	2,4	3,0	3,7	4,5	5,5
50	-	-	2,0	2,4	3,0	3,7	4,6	5,6	6,9
63	-	-	2,5	3,0	3,8	4,7	5,8	7,1	8,6
75	-	-	2,9	3,6	4,5	5,6	6,8	8,4	10,3
90	-	-	3,5	4,3	5,4	6,7	8,2	10,1	12,3
110	-	-	4,2	5,3	6,6	8,1	10	12,3	15,1
125	-	-	4,8	6,0	7,4	9,2	11,4	14	17,1
140	-	-	5,4	6,7	8,3	10,3	12,7	15,7	19,2
160	-	-	6,2	7,7	9,5	11,8	14,6	17,9	21,9
180	-	-	6,9	8,6	10,7	13,3	16,4	20,1	24,6
200	-	-	7,7	9,6	11,9	14,7	18,2	22,4	27,4
225	-	-	8,6	10,8	13,4	16,6	20,5	25,2	30,8
250	-	-	9,6	11,9	14,8	18,4	22,7	27,9	34,2
280	-	-	10,7	13,4	16,6	20,6	25,4	31,3	38,3
315	7,7	9,7	12,1	15	18,7	23,2	28,6	35,2	43,1
355	8,7	10,9	13,6	16,9	21,1	26,1	32,2	39,7	48,5
400	9,8	12,3	15,3	19,1	23,7	29,4	36,3	44,7	54,7
450	11,0	13,8	17,2	21,5	26,7	33,1	40,9	50,3	61,5
500	12,3	15,3	19,1	23,9	29,7	36,8	45,4	55,8	-
560	13,7	17,2	21,4	26,7	33,2	41,2	50,8	62,5	-
630	15,4	19,3	24,1	30	37,4	46,3	57,2	70,3	-
710	17,4	21,8	27,2	33,9	42,1	52,2	64,5	79,3	-
800	19,6	24,5	30,6	38,1	47,4	58,8	72,6	89,3	-
900	22,0	27,6	34,4	42,9	53,3	66,1	81,7	-	-
1000	24,5	30,6	38,2	47,7	59,3	73,4	90,8	-	-
1200	29,4	36,7	45,9	57,2	71,1	88,2	-	-	-

COILS

High-density polyethylene (PE100) pipes with solid wall profile and smooth inner and outer surfaces, intended for the insertion and management of insulated electrical cables or telecommunications cables, with a Product Quality mark issued by a third-party accredited certification body for compliance with IEC EN 50626-2 standard.
Expected service life: 100 years (EN ISO 1167 test: 80°C at 4 MPa for 1000 h).

geometric measurements in mm

e_n: pipe thickness

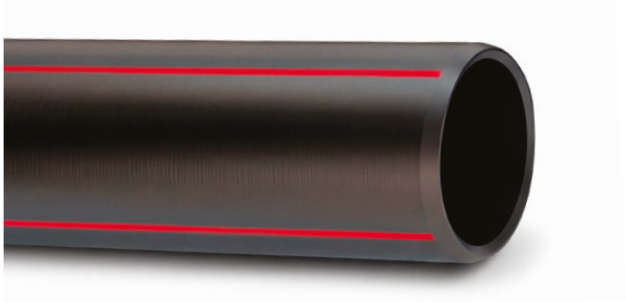
SN (kN/m²): ring stiffness according to EN ISO 9969

SMOOTH SOLID-WALL **HDPE** PIPES FOR UNDERGROUND NETWORK INFRASTRUCTURES

- INSULATED ELECTRICAL CABLES
- TELECOMMUNICATIONS

ENERGY AND TELECOMMUNICATION

ELECTROpipe50



DURABILITY **50** YEARS | TEST **80°** H 165

High-density polyethylene (HDPE) Type 1 pipes, black in color with single co-extruded red stripes on the outer surface, solid-wall profile with smooth inner and outer surfaces, for the installation and management of insulated electrical cables or for telecommunications, with a Product Quality mark issued by a third-party certification body for compliance with standard IEC EN 50626-2.
Designed service life of 50 years (tested according to EN ISO 1167: 80°C at 4 MPa for 165 h), containing at least 50% recycled material.

Reference Standard: **IEC EN 50626-2**

For different diameters, the standard (or technical specification) must be defined by the client.

SDR	26	21	17	13,6	11
SN	4	8	16	32	64
Ø	e_n	e_n	e_n	e_n	e_n
20	-	-	-	-	2,0
25	-	-	-	2,0	2,3
32	-	-	2,0	2,4	3,0
40	-	2,0	2,4	3,0	3,7
50	2,0	2,4	3,0	3,7	4,6
63	2,5	3,0	3,8	4,7	5,8
75	2,9	3,6	4,5	5,6	6,8
90	3,5	4,3	5,4	6,7	8,2
110	4,2	5,3	6,6	8,1	10
125	4,8	6,0	7,4	9,2	11,4
140	5,4	6,7	8,3	10,3	12,7
160	6,2	7,7	9,5	11,8	14,6
180	6,9	8,6	10,7	13,3	16,4
200	7,7	9,6	11,9	14,7	18,2
225	8,6	10,8	13,4	16,6	20,5
250	9,6	11,9	14,8	18,4	22,7

COILS

EPD ITALY
Available

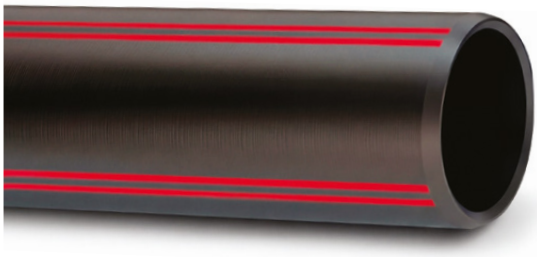
geometric measurements in mm
e_n: pipe thickness
SN (kN/m²): ring stiffness according to EN ISO 9969

SMOOTH SOLID-WALL **HDPE** PIPES FOR UNDERGROUND NETWORK INFRASTRUCTURES

ENERGY AND TELECOMMUNICATION

- *INSULATED ELECTRICAL CABLES*
- *TELECOMMUNICATIONS*

ELECTROpipe100



DURABILITY **100** YEARS

TEST **80°** H 1000

CE SI CERT

High-density polyethylene (HDPE) Type 1 pipes, black in color with double co-extruded red stripes on the outer surface, solid-wall profile with smooth inner and outer surfaces, for the installation and management of insulated electrical cables or for telecommunications, with a Product Quality mark issued by a third-party certification body for compliance with standard IEC EN 50626-2.
Designed service life of 100 years (tested according to EN ISO 1167: 80°C at 4 MPa for 1000 h), made from virgin material, suitable for trenchless installation technologies.

Reference Standard: **IEC EN 50626-2**

For different diameters, the standard (or technical specification) must be defined by the client.

SDR	26	21	17	13,6	11
SN	4	8	16	32	64
Ø	e_n	e_n	e_n	e_n	e_n
20	-	-	-	-	2,0
25	-	-	-	2,0	2,3
32	-	-	2,0	2,4	3,0
40	-	2,0	2,4	3,0	3,7
50	2,0	2,4	3,0	3,7	4,6
63	2,5	3,0	3,8	4,7	5,8
75	2,9	3,6	4,5	5,6	6,8
90	3,5	4,3	5,4	6,7	8,2
110	4,2	5,3	6,6	8,1	10
125	4,8	6,0	7,4	9,2	11,4
140	5,4	6,7	8,3	10,3	12,7
160	6,2	7,7	9,5	11,8	14,6
180	6,9	8,6	10,7	13,3	16,4
200	7,7	9,6	11,9	14,7	18,2
225	8,6	10,8	13,4	16,6	20,5
250	9,6	11,9	14,8	18,4	22,7

COILS

EPD ITALY

Available

geometric measurements in mm

e_n: pipe thickness

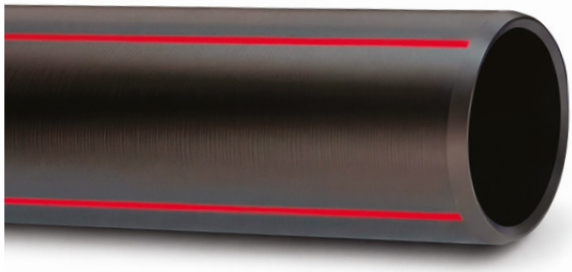
SN (kN/m²): ring stiffness according to EN ISO 9969

HDPE PIPES, SMOOTH SOLID WALL MADE WITH PARTIALLY RECYCLED MATERIAL FOR UNDERGROUND NETWORK INFRASTRUCTURES

- INSULATED ELECTRICAL CABLES

ENERGY

CIRCULARTUBE



DURABILITY **50** YEARS

TEST **80°** H 1000

Technical Specifications: **Kiwa Covenant** and **KIWAGREEN**
Reference Standard: **EN 50626-2**

KIWA GREEN

High-density polyethylene (HDPE) pipes, Type 1, with a minimum guaranteed 70% recycled material content, solid wall profile, and smooth inner and outer surfaces. Entirely black with co-extruded red stripes on the outer surface, intended for the insertion and management of insulated electrical cables or telecommunications cables. Manufactured according to Kiwa Covenant and in compliance with IEC EN 50626-2 standard, suitable for trenchless installation techniques and certified KIWAGREEN.
Expected service life: 50 years according to EN 50626-2 (EN ISO 1167 test: 80°C at 4 MPa for 165 h)

SDR	**17**	**11**	**9**	**7,4**
SN	**16**	**66**	**130**	**254**
Ø	e_n	e_n	e_n	e_n
50	3,0	4,6	5,6	6,9
63	3,8	5,8	7,1	8,6
75	4,5	6,8	8,4	10,3
90	5,4	8,2	10,1	12,3
110	6,6	10,0	12,3	15,1
125	7,4	11,4	14,0	17,1
140	8,3	12,7	15,7	19,2
160	9,5	14,6	17,9	21,9
180	10,7	16,4	20,1	24,6
200	11,9	18,2	22,4	27,4
225	13,4	20,5	25,2	30,8
250	14,8	22,7	27,9	34,2
280	16,6	25,4	31,3	38,3
315	18,7	28,6	35,2	43,1
355	21,1	32,2	39,7	48,5
400	23,7	36,3	44,7	54,7
450	26,7	40,9	50,3	61,5
500	29,7	45,4	55,8	-

Ideal for organizations aiming to promote environmental sustainability policies (circular economy) and to use products with reliable performance

In terms of GHG emissions, choosing this pipe allows a saving of approximately 1 kg_{CO2} per kilogram of pipe supplied.

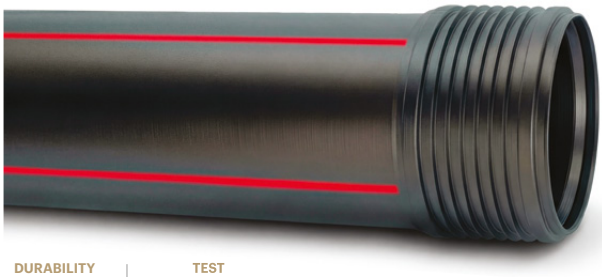
e_n : : numerical designation of wall thickness in millimeters [mm]

PE100-RT PIPES, SMOOTH SOLID WALL
FOR UNDERGROUND NETWORK INFRASTRUCTURES FOR HIGH-VOLTAGE CABLES

- INSULATED ELECTRICAL CABLES

ENERGY

ELECTROpipe RT



DURABILITY **100** YEARS

TEST **95°** H165

Reference Standard: **IEC EN 50626-2 / EN 15646 Allegato C**

For different diameters, the standard (or technical specification) must be defined by the client

High-density polyethylene (PE100 RT) pipes, Type I-II, with solid wall profile and smooth inner and outer surfaces, for the insertion and management of high-voltage insulated electrical cables (up to 500 kV, Um = 550 kV), compliant with EN 52626-2 standard, with an expected **service life of 100 years**. Tested according to EN 15494:
Type I: Pressure test EN ISO 1167 – stress 3.4 MPa at 95°C for 1000 h
Type II: Pressure test EN ISO 1167 – stress 3.6 MPa at 95°C for 1000 h

SDR	26	21	17	13,6	11	9	7,4
SN	4	8	16	32	64	130	254
Ø	e_n	e_n	e_n	e_n	e_n	e_n	e_n
63	2,5	3,0	3,8	4,7	5,8	7,1	8,6
75	2,9	3,6	4,5	5,6	6,8	8,4	10,3
90	3,5	4,3	5,4	6,7	8,2	10,1	12,3
110	4,2	5,3	6,6	8,1	10	12,3	15,1
125	4,8	6,0	7,4	9,2	11,4	14	17,1
140	5,4	6,7	8,3	10,3	12,7	15,7	19,2
160	6,2	7,7	9,5	11,8	14,6	17,9	21,9
180	6,9	8,6	10,7	13,3	16,4	20,1	24,6
200	7,7	9,6	11,9	14,7	18,2	22,4	27,4
225	8,6	10,8	13,4	16,6	20,5	25,2	30,8
250	9,6	11,9	14,8	18,4	22,7	27,9	34,2
280	10,7	13,4	16,6	20,6	25,4	31,3	38,3
315	12,1	15	18,7	23,2	28,6	35,2	43,1
355	13,6	16,9	21,1	26,1	32,2	39,7	48,5
400	15,3	19,1	23,7	29,4	36,3	44,7	54,7
450	17,2	21,5	26,7	33,1	40,9	50,3	61,5

COILS

geometric measurements in mm
e_n: pipe thickness
SN (kN/m²): ring stiffness according to EN ISO 9969

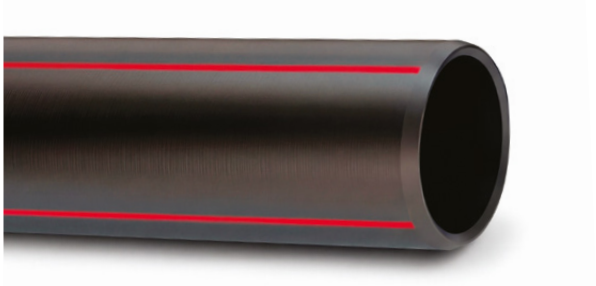
PE100 AND PE100-RC NF PIPES GROUP 5

SMOOTH SOLID WALL PIPES
FOR UNDERGROUND NETWORK INFRASTRUCTURES

- INSULATED ELECTRICAL CABLES

ENERGY

CENTRALTUBI NF



DURABILITY **50** YEARS

TEST **70°** H 1000

Reference Standard: **NF 114**

SDR	26	21	17	13,6	11	9	7,4
SN	4	8	16	32	66	130	254
Ø	e_n	e_n	e_n	e_n	e_n	e_n	e_n
40	-	-	-	-	3,7	-	-
50	-	-	-	-	4,6	-	-
63	-	-	-	-	5,8	-	-
75	-	-	-	5,6	6,8	-	-
90	3,5	4,3	5,4	6,7	8,2	10,1	-12,3
110	4,2	5,3	6,6	8,1	10,0	12,3	15,1
125	4,8	6,0	7,4	9,2	11,4	14,0	17,1
140	5,4	6,7	8,3	10,3	12,7	15,7	19,2
160	6,2	7,7	9,5	11,8	14,6	17,9	21,9
180	6,9	8,6	10,7	13,3	16,4	20,1	24,6
200	7,7	9,6	11,9	14,7	18,2	22,4	27,4
225	8,6	10,8	13,4	16,6	20,5	25,2	30,8
250	9,6	11,9	14,8	18,4	22,7	27,9	34,2
280	10,7	13,4	16,6	20,6	25,4	31,3	38,3
315	-	-	-	23,2	28,6	35,2	-
355	-	-	-	26,1	32,2	39,7	-
400	-	-	-	29,4	36,3	44,7	-
450	-	-	-	33,1	40,9	50,3	-
500	-	-	-	36,8	45,4	55,8	-
560	-	-	-	41,2	50,8	-	-
630	-	-	-	46,3	57,2	-	-
710	-	-	-	52,2	-	-	-
800	-	-	-	58,8	-	-	-

COILS

Ø: external diameter [mm] e_n : numerical designation of wall thickness in millimeters [mm]

High-density polyethylene (PE100 and PE100-RC) pipes type 1, with a solid wall profile and smooth inner and outer surfaces, featuring coextruded singles colored stripes on the outer wall, for threading and management of insulated electrical cables. Compliant with NF 114 certification regulation (Group 5), with a product quality mark issued by LNE* (Third Party accredited certification body).

Expected service life: 100 years according to EN 50626-2.

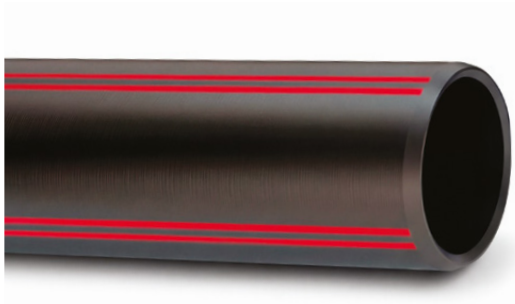
Tested according to NF114: (test EN ISO 1167: 80°C at 5 MPa per 1000 h).

***LNE:** Laboratoire National métrologie et d'Essais Organisme de certification mandaté pour la marque NF par AFNOR Certification*

PE100-HT NF PIPES GROUP 5
SMOOTH SOLID WALL PIPES
FOR UNDERGROUND NETWORK INFRASTRUCTURES
- INSULATED ELECTRICAL CABLES

ENERGY

CENTRALTUBI NF



DURABILITY **50** YEARS

TEST **70°** H1000

Reference Standard: **NF 114**

SDR	26	21	17	13,6	11	9	7,4
SN	4	8	16	32	66	130	254
d_n	e_n	e_n	e_n	e_n	e_n	e_n	e_n
140	5,4	6,7	8,3	10,3	12,7	15,7	19,2
160	6,2	7,7	9,5	11,8	14,6	17,9	21,9
180	6,9	8,6	10,7	13,3	16,4	20,1	24,6
200	7,7	9,6	11,9	14,7	18,2	22,4	27,4
225	8,6	10,8	13,4	16,6	20,5	25,2	30,8
250	9,6	11,9	14,8	18,4	22,7	27,9	34,2
450	-	-	-	33,1	-	-	-

d_n: external diameter, specified in millimetres [mm], assigned to the nominal size DN/OD
e_n: : numerical designation of wall thickness in millimeters [mm]

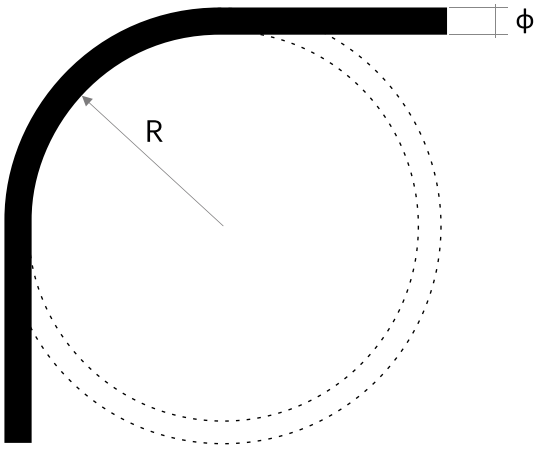
High-density polyethylene (PE100 HT) pipes, Type 1, with solid wall profile and smooth inner and outer surfaces, featuring co-extruded double colored stripes on the outer wall, for the insertion and management of high-voltage insulated electrical cables up to 500 kV (Um = 550 kV). Compliant with NF 114 certification regulation (Group 5), with Product Quality mark issued by LNE (third-party accredited certification body). Expected service life: 100 years according to EN 50626-2.*

Tested according to NF 114: Pressure test EN ISO 1167: 80°C at 5 MPa for 1000 h

Thermal durability at 110°C (NF EN ISO 21003-2) Δ elongation at tensile break (NF EN ISO 527-2) after 18 months (lifetime > 50 years at 70°C)

***LNE:** Laboratoire National métrologie et d'Essais Organisme de certification mandaté pour la marque NF par AFNOR Certification*

FLEXIBILITY



One of the most appreciated and exploited characteristics of HDPE pipes is their **flexibility**, which allows for the creation of bends and thus enables adaptation to the planimetric and altimetric profile of excavations. This flexibility allows unexpected obstacles to be overcome without resorting to cuts, joints, or the use of special fittings—conditions that are particularly costly in urban construction sites.

The limit value of the bending radius of HDPE pipes depends on the SDR and the temperature. Low ambient temperatures stiffen the material, while hot bending of the pipes is a practice that must be strictly avoided.

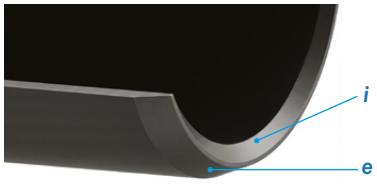
The recommended minimum bending values at an ambient temperature of 20°C are reported in the table. At 0°C, these values must be doubled.

For bends with radii smaller than those indicated in the table, the use of specially molded or fabricated fittings is recommended.

SDR	R	$R_{2\%}$	R_{min}
41	62,5 ϕ	65 ϕ	36 ϕ
33		52 ϕ	29 ϕ
26		41 ϕ	23 ϕ
21		33 ϕ	18 ϕ
17		26 ϕ	15 ϕ
13,6		21 ϕ	12 ϕ
11		17 ϕ	9 ϕ
9		13 ϕ	8 ϕ
7,4		11 ϕ	6 ϕ

R: bending radius that does not appreciably alter the circularity of the pipe
$R_{2\%:}$ bending radius causing a 2% diametral deformation
$R_{min:}$ bending radius at the collapse limit
Values referred to an environmental temperature of 20°C

EDGE CHAMFERING

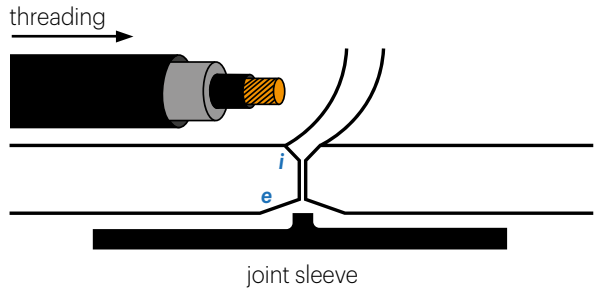


In smooth solid-wall pipes (PE – PP – PVC) it is good practice to provide chamfering of the outer ends of the pipes when using jointing elements equipped with seals, in order to:

- **avoid possible damage to the seals that could compromise sealing performance**
- **facilitate insertion onto the pipe**

For **NRG couplings**, this chamfering is carried out at the end of the production process when the pipes are ordered by the Customer together with the jointing sleeves, or upon specific request.
In any case, the installer must always check for the presence of the chamfer before insertion and, if absent, ensure that it is made.

Chamfering of the inner ends of the pipes is carried out to prevent possible damage to the outer sheathing of cables during insertion and removal. Such chamfering is performed only upon specific request of the Customer.



Chamfers on smooth pipe male ends
***e external**: prevents possible damage to the seals during insertion of the pipe into the coupling*

***i internal**: prevents possible damage to the outer sheath of cables during insertion*

JUNCTION SYSTEMS AND ACCESSORIES FOR SMOOTH PIPES

Pipes used for the construction of network infrastructures for cable pulling and management require fittings and accessories for their connections.

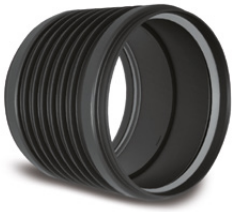
Connections between the elements can be made in different ways depending on the installation method and the level of performance required. For HDPE pipes, the following are available:

Butt fusion welding, a method required for installations using *trenchless* technologies

Electrofusion fittings, provide a high level of reliability and hydraulic sealing

d. Compression fittings, typical of pressurized hydraulic systems (PN10-16), commonly used for pipes with diameters ≤ 110 mm.

NRG gasketed couplings, quick and easy to install, do not require the use of electrical devices or specialized personnel, and provide an adequate level of reliability and hydraulic sealing when tested and certified according to standards or specific technical specifications.Protection rating IP68 according to IEC EN 60529 standard.



YouTube

Available in the sizes range DN 110 / 160 / 200 / 225 / 250

JUNCTIONS SEALING

The **CEI/IEC EN 60529** standard defines the various degrees of protection against the ingress of solid foreign objects and water.
The IP (Ingress Protection) rating is the coding system that indicates the degree of protection provided by an enclosure against access to hazardous parts, the penetration of solid foreign objects, and/or the ingress of water, and also provides additional information about such protection.
This additional information is expressed by two characteristic digits (e.g., IP68), where:
the first characteristic digit indicates the level of protection against solid foreign objects, ranging from 0 (no protection) to 6 (complete protection) the second characteristic digit indicates the level of protection against water, ranging from 0 (no protection) to 8 (protection against continuous immersion in water, typically up to 1 meter depth)

According to the **IEC EN 60529** standard, the IP68 rating has the following meaning:
first characteristic digit "6": completely protected against dust second characteristic digit "8": protected against the effects of continuous immersion

The reliability of the sealing performance is particularly important when cement mortar is cast around the pipes, in order to prevent the penetration of fluids and solid particles through the jointing system.

The reliability of the sealing performance is particularly beneficial when cement mortar is poured around the pipes, in order to prevent the ingress of fluids and solid particles through the jointing system.

JOINTING SYSTEMS AND ACCESSORIES FOR SMOOTH PIPES

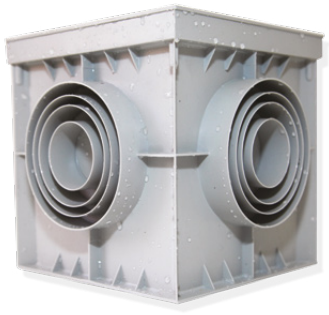
CAPS

Pipe end caps are applied (or supplied separately) only upon request.
The smooth PE pipe caps are made entirely of polyethylene and consist of a flat circular surface matching the pipe's outer diameter, on which a cylinder with flexible fins is mounted. When inserted into the pipe end, the fins bend and adapt to the internal diameter of the pipe, pressing against the inner surface to secure the cap in place.

THESE CAPS OFFER THE FOLLOWING ADVANTAGES:

- **No external overlaps on the pipes, which are the main cause of cap slippage and loss during handling and transport**
- **Complete protection of the pipe ends, preventing the ingress of foreign objects and animals**
- **High sealing capability due to self-adjusting fixation to the pipe's internal diameter (high tolerance for wall thickness variations)**
- **No need for air expansion compensation holes, as the caps themselves allow for pressure relief**
- **Available for diameters up to DN ≤ 315 mm**

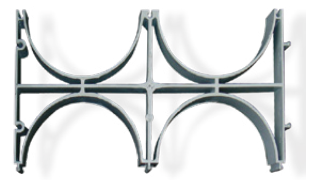
PP WELL COMPLETE WITH LID



Dimensions [cm]	n./pallet
20 x 20 + lid	432
30 x 30 + lid	128
40 x 40 + lid.	54
55 x 55 + lid	20

20x20 and 30x30 wells are stackable for extended use

PVC SPACER SADDLES



DN	Spaces	n./pack	minimum lot
90	2	60	540
110	2	50	500
110	3	30	510
125	2	50	500
125	3	30	510
140	2	40	520
160	2	40	520
200	1	40	520

PVC CABLE COVER PLATES

CABLE COVER PLATES FOR PROTECTING UNDERGROUND CABLES

PVC is resistant to chemical agents commonly found in soil, such as saline water and hydrocarbons. The cable covers are ash gray in color and have a virtually constant thickness across the entire section; the ribs must be at least 20 mm from the edges. The cable covers plates are equipped with a fastening system suitable for passing the tests required by ENEL 4831. This fastening system must be designed without additional elements and must allow for a continuous deviation of the installation axis of at least 30° while maintaining the overlap of the ends of the two adjacent elements; in typical conditions of use with a straight installation axis, the overlap must be between 50 and 60 mm.

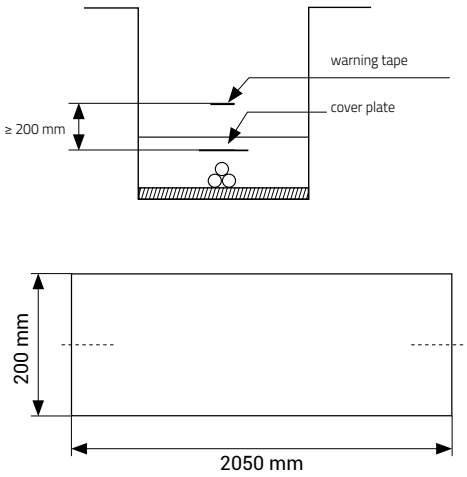
CABLE COVER PLATES USE

Cables are normally laid inside pipes (ducts) or are installed directly in the ground, in trenches on an open-air bedding. Both installation conditions require:
- additional mechanical protection (duct or synthetic resin element, like cover plates);
- warning tape

In this regard, the correct positioning of these two elements is crucial in order to prevent accidental contact and damages to the cables when when works are carried out in their vicinity.
The following illustrates the two typical cable installation situations:

Color: gray
Weight: 1.4 / 1.55 kg
Hardness: 90 / 98 shore A
Material: PVC
Usage temperature: - 60° 50° C

Thermal conductivity: 3.5 / 4
Fire behavior: self-extinguishing
Length: 2050 mm
Pieces per pallet: n. 500



The following types of plates are provided:
- TYPE A: depth from 0.6 to 1.00 m
- TYPE B: depth from 1.00 to 1.40 m
- at REDUCED HEIGHT: depth from 0.40 to 0.50 m

Type A plates are provided for roads for private use and for all other soils, where the minimum depths established by the IEC 11-17 standard apply.
Type B plates are provided for roads for public use, for which the minimum depth from the protection extrados is generally set by the Highway Code (usually 1 m).
Low-height plates are provided for special cases as specified by the network manager.

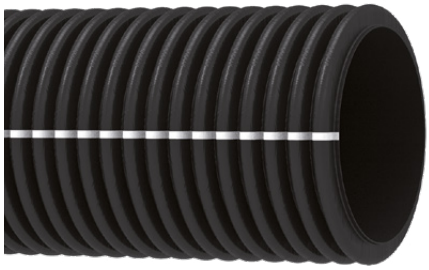
HDPE DOUBLE-WALL **CORRUGATED PIPES** FOR UNDERGROUND NETWORK INFRASTRUCTURES

- INSULATED ELECTRICAL CABLES

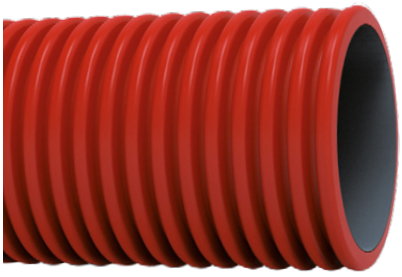
- TELECOMMUNICATIONS

ENERGY, LIGHTING, TELECOMMUNICATION

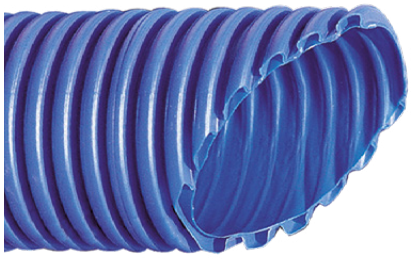
TPC



black white stripe



red inside black



blue

Reference Standard: **IEC EN 50626-1**

Polyethylene (PE) pipes with a structured double-wall profile, smooth internally and corrugated externally, equipped with a coupling sleeve and pre-inserted plastic draw wire for cable-pulling, for installation and management of insulated electrical cables or telecommunications cables, with Product Quality Mark issued by an accredited third-party certification body in compliance with the IEC EN 50626-1 standard.
Standard colors: black inside and outside, with or without a co-extruded colored stripe on the outer surface

Ring stiffness (SN) according to EN ISO 9969

Ø	d_{im}	450 N	750 N
		SN (kN/m²)	SN (kN/m²)
40	31	22	37
50	41	18	30
63	51	14	23
75	63	11	20
90	76	9	16
110	92	8	13
125	105	7	11
160	137	5	9
200	171	4	7

geometric measurements in mm

d_{im} average internal diameter

IMQ-CERTIFIED PIPES
All ϕ stiffness class 450 N in coils and lengths
Stiffness class 750 N in lengths
Upon request:
Stiffness class 750 N in coils (no Quality mark)

plastic second life

On request: pipes made from recycled material with **PSV** certification

SLEEVE JOINTS
Standard: **PE sleeve**
Seals available **on request**

HDPE DOUBLE-WALL CORRUGATED PIPES FOR PROVISIONAL HOUSING CABLES

- INSULATED ELECTRICAL CABLES

ENERGY
LIGHTING

BLACKCORCUT

ADVANTAGES:

- Lightness and handling
- Ease and speed of installation
- High chemical and electrical inertia
- Entirely recyclable (environmental friendly)
- Tube made from entirely recycled material (PSV brand)

Double-wall corrugated polyethylene pipe, entirely black in color, pre-cut longitudinally on an axis along the entire length of the roll or bar to allow for quick cable housing and extraction in temporary construction site situations. Packaged in rolls of 25 or 50 meters or in bars of 3 or 6 meters. The pipes are made using recycled plastic material from separate waste collection (RD) and/or industrial waste (SI) in a minimum quantity of 80%, according to the quality standards defined by the UNI 10667 standard.

The production chain is guaranteed by the PSV (Plastica Seconda Vita) brand, environmental labelling referred to the (UNI) EN ISO 14021 standard, with certification from the Italian Institute of Plastics (IIP).

COILS

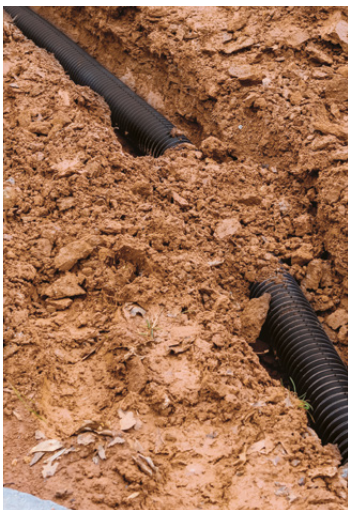
DN/OD	d_{im}	L
63	51	25/50
75	63	50/25
90	76	50/25
110	92	50/25
125	105	50/25
160	137	50/25
200	171	25

BARS

DN/OD	d_{im}	L
-	-	-
-	-	-
110	92	3/6
125	105	3/6
160	134	3/6
200	171	3/6

geometric measurements in mm

d_{im} average internal diameter



PVC SMOOTH SOLID-WALL PVC PIPES FOR UNDERGROUND NETWORK INFRASTRUCTURES

- INSULATED ELECTRICAL CABLES

- TELECOMMUNICATIONS

ENERGY AND TELECOMMUNICATION

SG-PVC CABLE

SOCKET JOINTS:

BY GLUING
(standard)

WITH GASKET

Reference Standard: **IEC EN 61386-1-24**

For different diameters, the standard (or technical specification) must be defined by the client

Poly (vinyl chloride) (PVC) pipes with a solid-wall profile and smooth internal and external surfaces, equipped with a socket for jointing, designed for the installation and management of insulated electrical cables or telecommunications cables, with a Product Quality mark issued by a third-party accredited certification body in compliance with IEC EN 61386-24 standard

	450 N		750 N		1250 N	
d_{im}	e_n	d_i	e_n	d_i	e_n	d_i
50	2,2	*45,6*	2,6	*44,8*	3,0	*44,0*
63	2,6	*57,8*	3,0	*57,0*	3,6	*55,8*
75	2,8	*69,4*	3,3	*68,4*	3,9	*67,2*
90	3,0	*84,0*	3,9	*82,2*	4,4	*81,2*
110	3,6	*102,8*	4,4	*101,2*	5,0	*100,0*
125	3,9	*117,2*	4,6	*115,8*	5,5	*114,0*
140	4,2	*131,6*	5,0	*130,0*	5,9	*128,2*
160	4,6	*150,8*	5,5	*149,0*	6,4	*147,2*
180	5,0	*170,00*	5,9	*168,2*	6,8	*166,4*
200	5,5	*189,0*	6,4	*187,2*	7,4	*185,2*
225	5,9	*213,2*	6,8	*211,4*	8,0	*209,0*
250	6,4	*237,2*	7,4	*235,2*	8,5	*233,0*

geometric measurements in mm

N (Newton): ring stiffnes according to EN 61386-24

d_i: internal diameter

IMQ-CERTIFIED PIPES
ϕ 110 + 125 + 160 + 200 mm
rigidity classes 450 + 750 N

MINITUBE SYSTEMS

FOR CONSTRUCTION OF NETWORK INFRASTRUCTURE DESIGNED FOR THE THREADING OF FIBRE OPTIC CABLES

STANDARD

IEC EN 50626-2 (2024-01)

The IEC EN 50626-2 standard specifies the particular requirements and tests for watertight, solid-wall and underground pipe systems with a specific performance time, for the protection and management of insulated electrical cables and/or power cables or communication, even for installations using different techniques such as, for example, blowing and without open-pit excavation. The scope of this standard includes all circular cross-section tube systems made of polyethylene (PE), made individually or as parts of a more complex assembly.

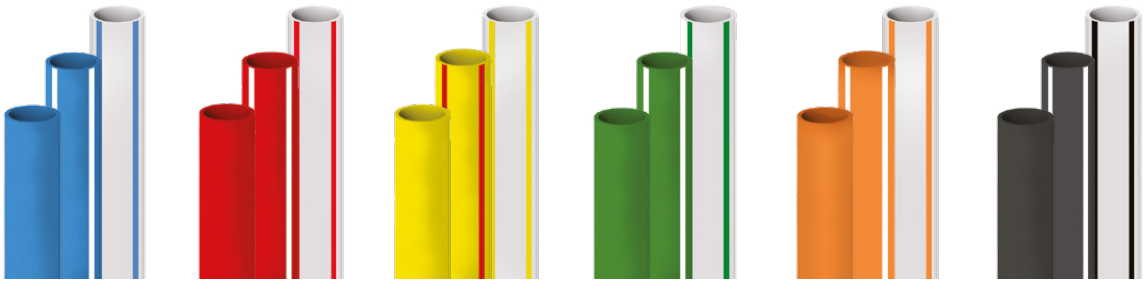
The IEC EN 50626-2 standardizes pipes from Ø 16 up to Ø 250 mm, but allows the use of other nominal sizes.
IEC EN 50626-2 is a harmonised European Union standard therefore, within the limits of its scope, it confers a presumption of compliance with the corresponding safety objectives of Directive 2014/35/EU of the European Parliament and of the Council of 26 February 2014.

CENTRALTUBI SpA has certified its standard products "MINITUBI" in accordance with the IEC EN 50626-2 standard for durability 50 years (EN ISO 1167 test: 80°C at 4 MPa for 165 h) by Third Party Certification Body.

CENTRALTUBI S.p.A. operates with systems of:

- **Production Quality** **UNI EN ISO 9001**
- **Environmental Quality** **UNI EN ISO 14001**
- **Safety Management** **UNI ISO 45001**
- **Energy Management** **UNI CEI EN ISO 50001**

COLORS

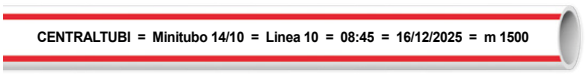


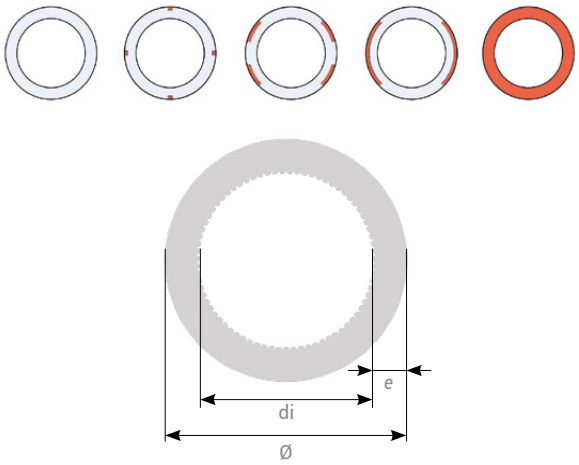
BLU **RED** **YELLOW** **GREEN** **ORANGE** **BLACK**

COMMON FEATURES OF MINITUBES [ST - S - AR]

MATERIAL	HDPE (high density polyethylene)
COLOR	"Natural" standard color (light, semi-transparent) with or without coloured coextruded bands on the outer surface custom colorings (whole tubes and coextrusions) available on request
SURFACES	**smooth outside** **internal** with raised longitudinal micro reliefs *(to reduce the friction surface during cable threading)*
STANDARD	**IEC EN 50626-2** or, on demand, according to customized technical specifications
MARKING	with all traceability REQUIREMENTS defined by the project standard or project specification possibility of customization on request

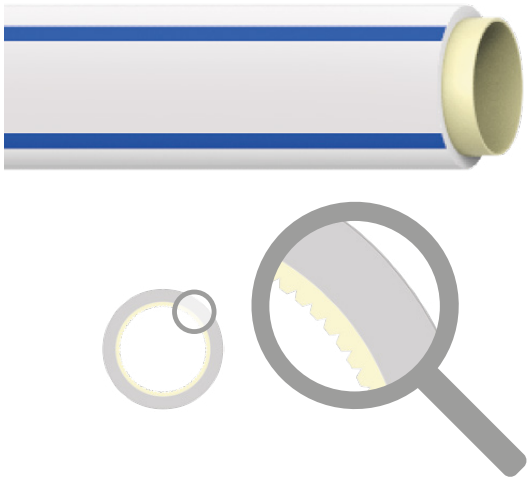
[ST] STANDARD MICRODUCTS





[S] MICRODUCTS WITH SLIPPING SILICONE

INTERNAL SURFACE WITH SILICONE TO REDUCE FRICTION WHEN THREADING CABLES



[AR] ANTI-RODENT

MINI-TUBE TREATED WITH A SUBSTANCE UNPLEASANT TO RODENTS

The **ANTI RODENT** additive is present throughout the tube, complies with the Dangerous Substances Directive of the European Union 2002/95/EC and does not contain lead, heavy metals, phthalates, diaryl pigments or insecticides in no shape.
The additive does not affect the mechanical characteristics, chemical and electrical of the product, on the process productive and does not require specific warnings regarding handling and handling.

MICRODUCTS

Ø / di	L m
7 / 3,5	2.000
7 / 4	2.000
8/6	2.000
10/6	2.000
10/8	2.000
12/8	2.000
12/10	2.000
14/10	1.500
14/12	1.500
16/12	1.500
16/14	1.500
18/25	1.200
20/15	1.000
20/16	1.000

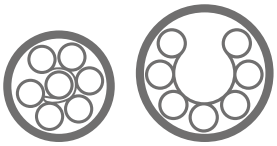
Available in the following versions:

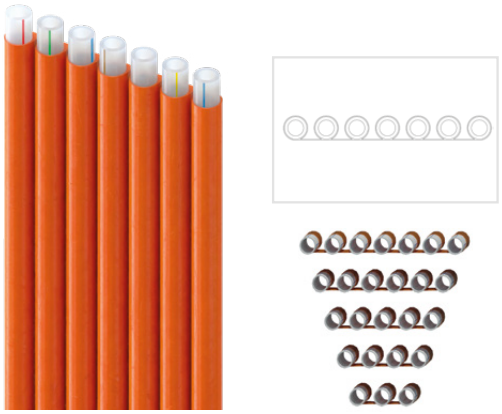
St	standard
S	silicone
AR	anti-rodent

additional custom diameters and thicknesses can be made on request.
L: standard lengths (on wooden reel); lengths customized on request.

MULTIMINITUBES
FENDER CONFIGURATION

FENDER multiminitubes consist of an external PE sheath in which 3 to 7 minitubes are positioned, individually fixed by an adherent external bandage.
The **FENDER** conformation allows:
- the orderly positioning of the minitubes on the same plane, optimizing the laying in mini trenches
- the arrangement in a collected or circular form for insertion into existing channels





MATERIAL HDPE

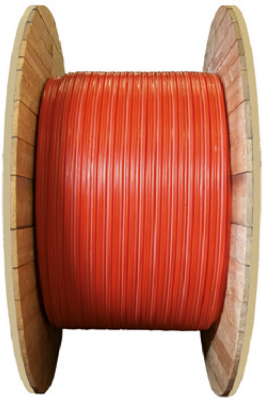
EXTERNAL SHEATH
color: according to the project specifications
thickness: mm 0,4 (± 0,1)

MINITUBI standard Ø 12 and 14 mm
color standard: clear semi-transparent
with or without coextruded colored bands
on the external surface
with longitudinal micro reliefs inside
with internal silicone slide

STANDARD **UNI EN 50626-2** (minitubes)
or, on demand, according to project specifications

FENDER

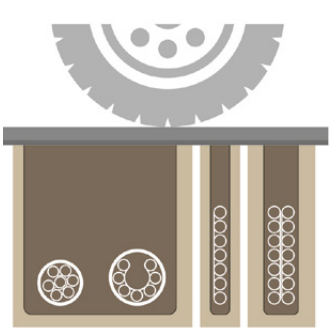
n. x Ø	sheath thickness		L coils
	min	max	
	mm	mm	m
3 x 12/10	0,4	0,6	2.000
4 x 12/10	0,4	0,6	2.000
5 x 12/10	0,4	0,6	2.000
6 X 12/10	0,4	0,6	2.000
7 x 12/10	0,4	0,6	2.000
3 x 14/10	0,4	0,6	1.500
4 x 14/10	0,4	0,6	1.500
5 x 14/10	0,4	0,6	1.500
6 x 14/10	0,4	0,6	1.500
7 x 14/10	0,4	0,6	1.500



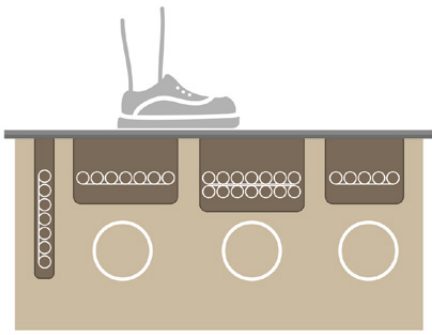
Standard packaging

Versions available:
St standard
S silicone
AR anti rodent

L: standard lengths (on wooden reel) Lengths customized on request.

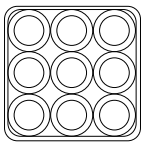


7x12/10 7x12/10



MULTIMINITUBES
BUNDLE CONFIGURATION

BUNDLE multiminitubes consist of an outer PE sheath containing up to 24 minitubes.
Such a sheath is easily removable (cut) when joints and branches of the minitubes are to be made.
The **BUNDLE** configuration allows for the orderly positioning of the minitubes in trenches or within existing channels.



MATERIAL HDPE

EXTERNAL SHEATH
color: according to the project specifications
thickness: mm 0,4 (± 0,1)

MINITUBES standard Ø 12 and 14 mm
color standard: clear semi-transparent
with or without coextruded colored bands on the external surface
with longitudinal micro reliefs inside
with internal silicone slide

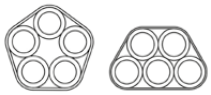
STANDARD **UNI EN 50626-2** (minitubes)
or, on demand, according to project specifications

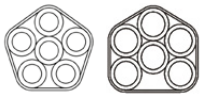
TYPICAL CONFORMATIONS


2 x ...


3 x ...

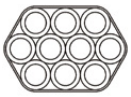

4 x ...

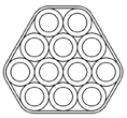

5 x ...

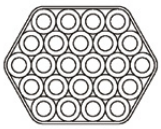

6 x ...


7 x ...


9 x ...


10 x ...


12 x ...


24 x ...


Customized conformations available on demand

BUNDLE TECHNICAL TABLE

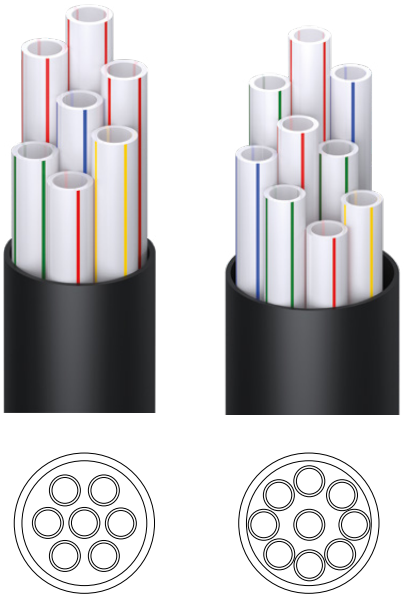
Ø/id	2 x ...	3 x ...	4 x ...	6 x ...	7 x ...	9 x ...	12 x ...
	L	L	L	L	L	L	L
mm	m	m	m	m	m	m	m
7/3,5	2.000	2.000	2.000	2.000	2.000	-	2.000
7/4	2.000	2.000	2.000	2.000	2.000	-	2.000
8/6	2.000	2.000	2.000	2.000	2.000	-	1.000
10/6	2.000	2.000	2.000	1.500	1.500	-	700
10/8	2.000	2.000	2.000	1.500	1.500	-	700
12/8	2.000	2.000	2.000	1.000	1.000	-	500
12/10	2.000	2.000	2.000	1.000	1.000	-	500
14/10	1.500	1.500	1.500	700	700	450	-
14/12	1.500	1.500	1.500	700	700	-	-
16/12	1.200	1.200	1.000	600	600	-	-
16/14	1.200	1.200	1.000	600	600	-	-
20/15	1.000	1.000	500	-	-	-	-
20/16	1.000	1.000	500	-	-	-	-

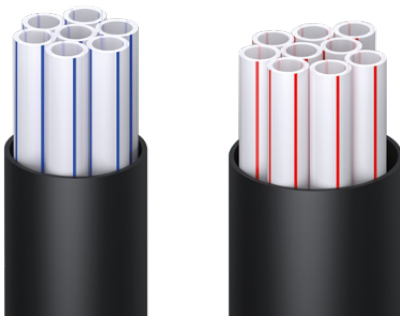
Versions available:
St standard
S silicone
AR anti-rodent

MULTIMINITUBES
SYSTEM PACK CONFIGURATION

Multiminitube **SYSTEM PACK** (also known as BUNDLE NO-DIG) consists of an HDPE outer tube containing 7 or 9 minitubes. The **SYSTEM PACK** configuration allows:

- **a high level of protection for the minitubes contained inside**
- **suitability for underground pulling installations using trenchless techniques.**





MATERIAL HDPE

EXTERNAL SHEATH
color: standard black

MINITUBES standard sizes
standard color: light semi-transparent
with or without co-extruded colored stripes on the outer surface
with longitudinal ribs inside
with or without internal silicone lubricant

STANDARD **IEC EN 50626-2** (Minitubes)
or, upon request, according to project specifications

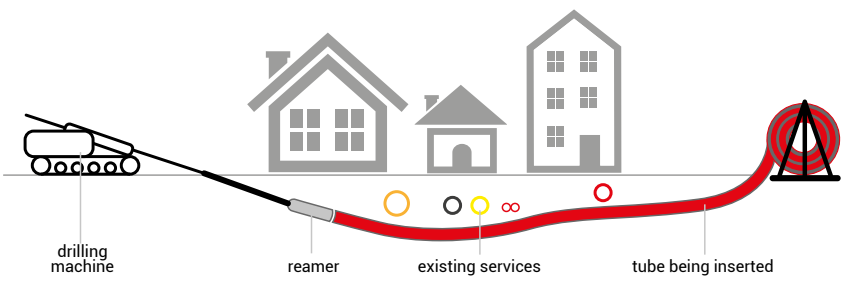
SYSTEM PACK

external tube	minitubes n. x Ø/id	outer tube thickness		
		min	max	L coil
Ø	Ø	mm	mm	m
50	7 x 12/10	3,2	3,8	500
63	9x12/10	3,8	4,3	500

Versions available:
St standard
S silicone
AR anti-rodent

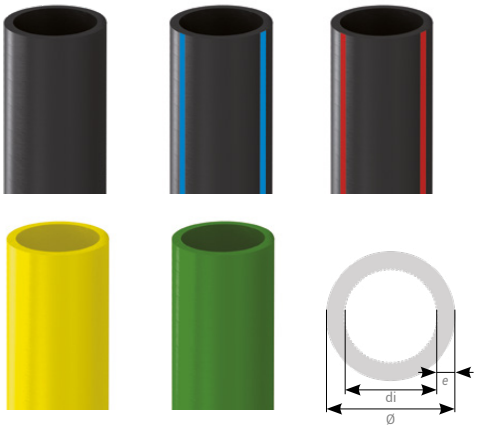
L: standard lengths (on wooden reel) Lengths customized on request.

On wooden reel on request



MONOTUBES

For the construction of networks predisposed for the threading of electrical, telephone and fibre optic cables



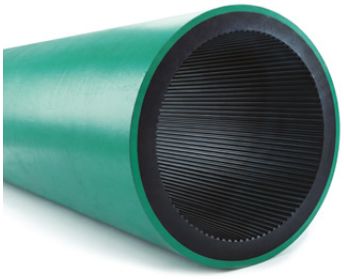
MONOTUBE

MATERIAL HDPE (high density polyethylene)

COLOR standard black
with or without co-extruded colored stripes on the outer surface
with/without longitudinal reliefs inside
customized colors (pipes and coextrusion bands) available on demand

SURFACES ***external*** smooths
internal with/without longitudinal reliefs inside
(to reduce friction when threading cables)

STANDARD IEC EN 50626-2 or according to the project specifications



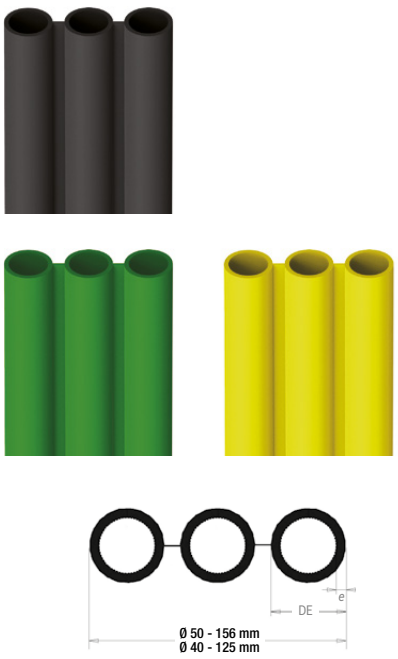
Ø 63 mm mono/bi-color with n.100 internal longitudinal reliefs

MONOTUBES

Ø	e	reliefs		L coil
mm	mm	h [mm]	n.	m
40	2,4	0,3 (± 0,1)	24	300
	2,7	0,3 (± 0,1)	24	300
	3,0	0,3 (± 0,1)	24	300
	3,7	0,3 (± 0,1)	24	300
50	3,0	0,4 (± 0,1)	24	300
	3,5	0,4 (± 0,1)	24	300
	4,6	0,4 (± 0,1)	24	300
	6,9	0,4 (± 0,1)	24	300
63	5,8	0,3 (± 0,1)	100	500

TRITUBES

For the construction of networks predisposed for the threading of electrical, telephone and fibre optic cables



TRITUBE 3 parallel tubes arranged on the same axis, joined by rigid partitions coextruded for alignment on the same plane

MATERIAL HDPE (high density polyethylene)

COLOR standard black
customized colors (pipes and coextrusion bands) available on demand

SURFACES ***external*** smooths
internal with/without longitudinal reliefs inside
(to reduce friction when threading cables)

STANDARD IEC EN 50626-2 or according to the project specifications

TRITUBES

Ø	e	reliefs		L coil
mm	mm	h [mm]	n.	m
50	3,0	0,4 (± 0,1)	24	350
	3,6	0,4 (± 0,1)	24	350
	4,6	0,4 (± 0,1)	24	350

STANDARD PACKAGING

WINDING/UNWINDING REELS

WOOD

METAL

coupleable version

ACCESSORIES

STANDARD

HEAT-SHRINKABLE SHEATHS

PULLING CORD

Diameter
Ø 3 mm

Material
NYLON

Packaging
coil 1000 m

Prices on request

FITTINGS FOR MINITUBES

For connection, reduction and end cap of HDPE minitubes, for threading of optical fiber cables

MAIN FEATURES

TUBE STOP	the reduced thickness of the tube stop allows the use of the same fitting for pipes with different internal diameters without the risk of problems during blowing
CONNECTION	mechanical (by manual pushing)
REMOVABLE	removable for the occasion of the pipe removal
MATERIAL	PC (high strength polycarbonate)
COLOR	transparent or black
TRANSPARENCY	allows you to visually detect the correct insertion of the minitube and the presence of the cable inside
STANDARD	EN 50411-2-8 (microduct connectors)
PROTECTION	IP68
TEMPERATURE	from - 20 up to + 50°C

minitube Ø/id mm	package pieces n.	reductions Ø/id
7/4	100	-
7/3,5	100	-
8/6	100	-
10/8	100	-
10/6	100	-
12/10	100	-
12/8	100	10/8
14/12	100	-
14/10	100	12/10
16/14	50	-
16/12	50	14/10
20/16	50	-
20/15	50	-

FITTINGS

REDUCTIONS

END CAPS

ACCESSORIES

MONOTUBES/TRITUBES FITTINGS

For connection and end caps of HDPE pipes for caviduct systems

MATERIAL	polypropylene (PP)
COLOR	***body:*** neutral or black ***nuts:*** black
CONNECTION	mechanical (manual)
REMOVABLE	removable for the occasion of the pipe removal
STANDARD	UNI 9561 - DIN 8076 - (UNI) EN 10226-1
CLASS	PN16 - IP68

PN	FITTINGS DN	FITTINGS packs n.	END CAPS DN	END CAPS packs n.
16	16	300 B - 30 P	16	450 B - 30 P
16	20	160 B - 20 P	20	280 B - 20 P
16	25	100 B - 10 P	25	200 B - 10 P
16	32	60 B - 10 P	32	120 B - 10 P
16	40	40 B	40	60 B
16	50	25 B	50	40 B
16	63	15 B	63	24 B

Items available up to DN 110 mm.
The compression fittings in the table are all PN16 (16 bar).
B= n. pieces in the box / P= n. pieces per bag

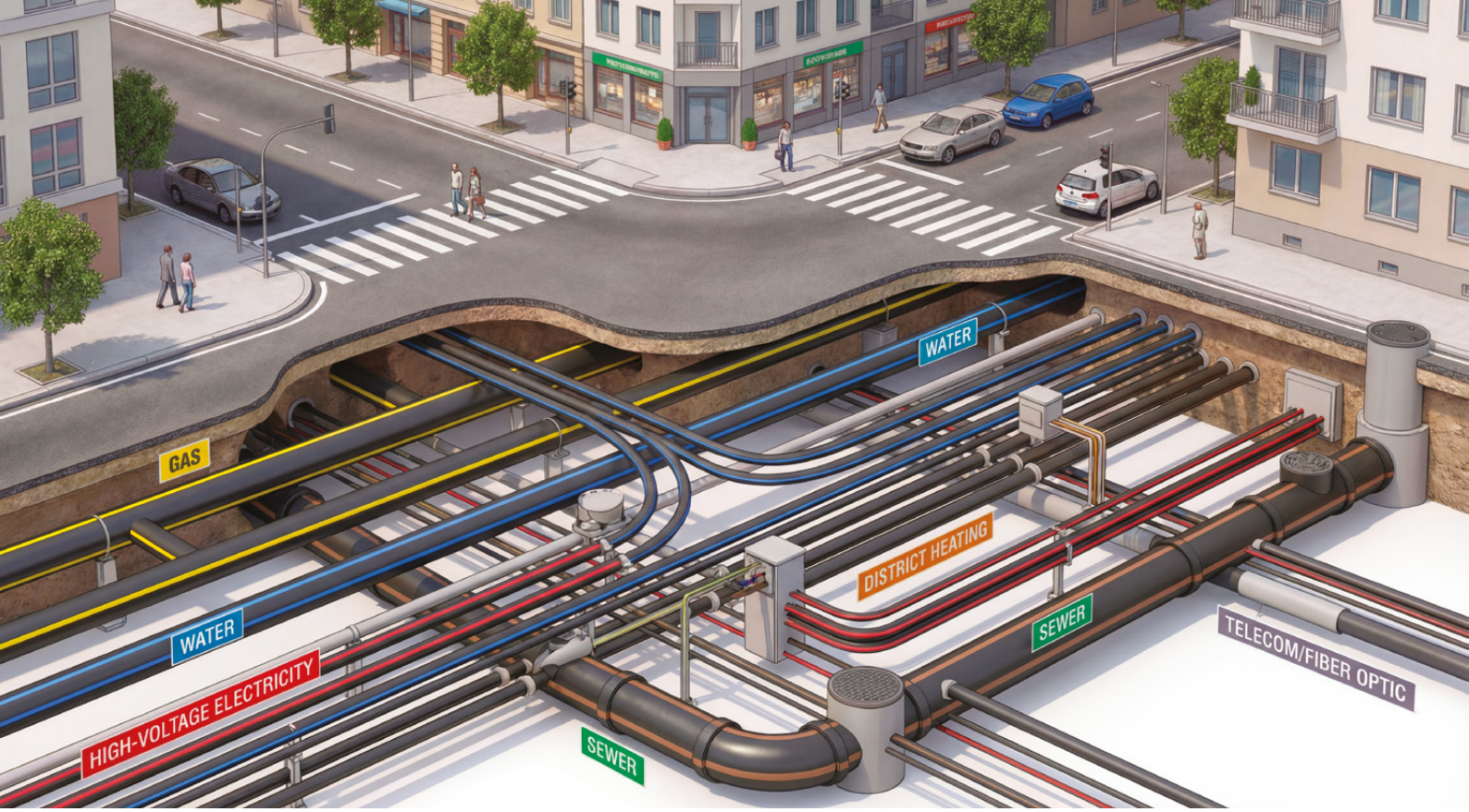
COMPRESSION END CAPS

FOR MONOTUBES AND TRITUBES

For connection and end caps of HDPE monotubes and tritubes for cable protection systems

MATERIAL	***body:*** ABS (10% glass-filled) ***gasket:*** rubber hardness 40 Shore
COLOR	black and blue
REMOVABLE	removable for the occasion of the pipe removal
EQUIPMENTS	ring for internal fixing of the pulling cord
CLASS	IP68

DN	pieces per pack n.	cod.
40	100	TE 40
50	100	TE 50



MAPPING AND DETECTING FOR MANAGING AND SAFETY

PIPE TRACER

PIPE TRACER SYSTEM

PIPE TRACER is a 3D detection and mapping system for underground network infrastructures, regardless of material, shape, size, or type.
It can be performed without excavation (as-built) and is repeatable over time.

The **Pipe Tracer** system is based on the emission of an electromagnetic signal that can be detected at the surface from any depth, enabling precise and continuous 3D location tracking of underground infrastructure without interference from nearby installations.

When equipped with optional RFID tags, the system also allows the association of detailed information and its future updates, which can be read and accessed via NFC-enabled mobile devices, including smartphones, making it especially useful for BIM-managed systems

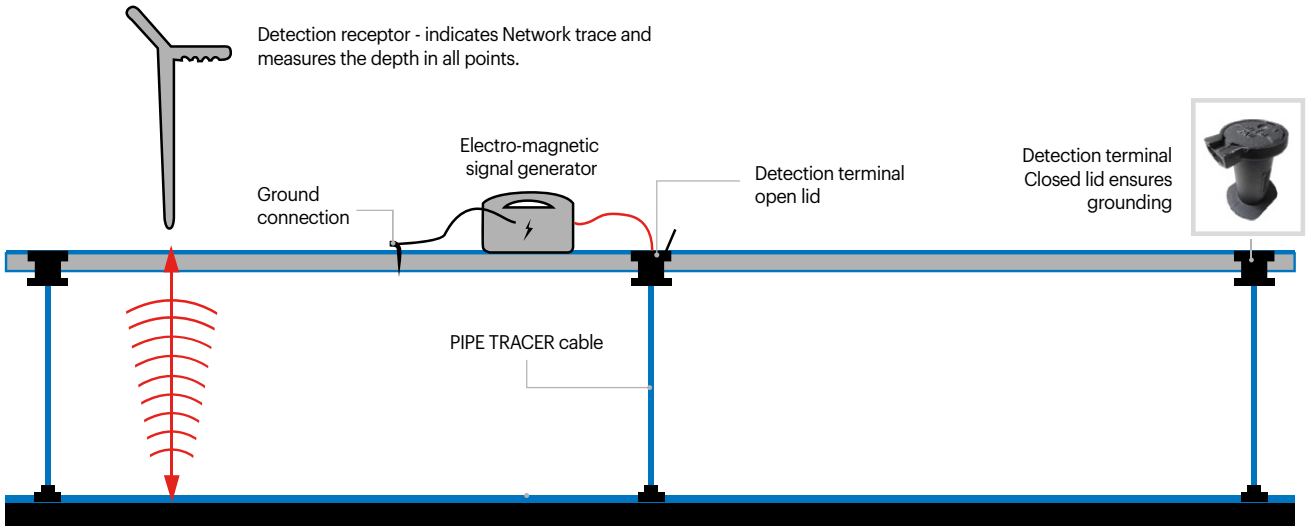
PIPE TRACER SYSTEM

FEATURES

- **Accurate 3D detection** (position coordinates + depth) on completed works (as-built)
- **Cost-effective detection devices**
- **No interference from other infrastructures** (reduces risk of errors)
- **Durability** (repeatable over time)
- **Information carrier** (updatable data)

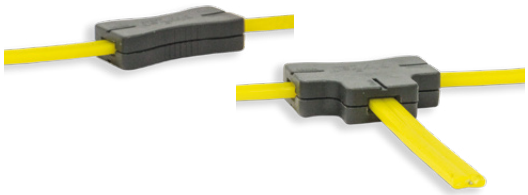
ADVANTAGES:

- **Independence, immediacy**, and precision in 3D mapping and verification of correct installation at project completion
- **Ability to operate quickly** and autonomously, avoiding reliance on external surveyors
- **Digitalization and BIM integration:** possibility to associate information with individual network sections, easily updatable
- **Service efficiency:** prevention of accidental damage from nearby excavation works and service interruptions
- **Safety:** protection of workers' health during excavation activities
- **Optimization of interventions and reduced emergency maintenance costs**



ACCESSORIES

CONNECTORS



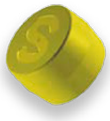
CABLE

PLUG

CONNECTION BOXES

INSPECTION MANHOLE

TAG RFID



NOTE

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SYSTEM GROUP
sotto c'è un mondo

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