

Solutions for your DRINKING WATER AND SEWERAGE NETWORKS

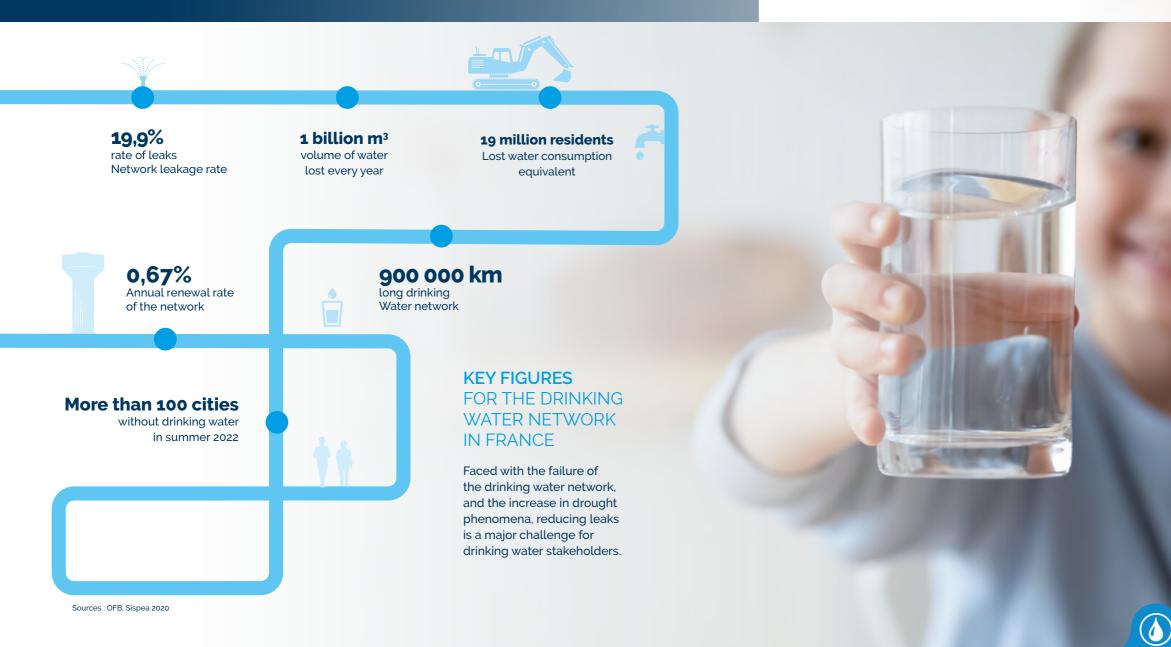




Managing water resources is at the heart of local authorities' challenges

KEY FIGURES FOR THE SEWERAGE SYSTEM IN FRANCE

A key component of the water cycle, the performance of wastewater networks represents a real challenge for the preservation of health and biodiversity.



Sources : OFB, Sispea 2020

0,46% annual renewal rate of the network Approximately 400,000 km of collective sewerage network

Water is a precious resource.

Climate change is affecting the water cycle and the quantity of available resources. In this context, limiting the risk of leaks in the networks is a real necessity. **Elydan's PE100 solutions provide an effective response to this problem.**

A high-performance solution, which increases network efficiency.

The advantages of PE100 pipes

FABRIQUÉ EN FRANCE

MORE

A responsible solution, which makes it possible to divide the carbon footprint of construction sites by 5.

Lower usage

4x lighter

han traditional

materials

Reduces the need

for lifting equipment

Only 15 kg

for 6 m long pipe

Example for a DN90 pipe

Transportation

Optimised Produced loads locally **5** factories 4 km on a single truck in France

Site and Operation

- Sustainability Lower leak risk 500 m **100 years** without any joints minimum life span

End of life 100% recyclable material

which is part of a circular economy system

Corrosion-resistant • No need for protective devices, even if there are stray currents · Suitable for all types of soil, even damp or corrosive



Viscoelastic behaviour Withstands earth movements, without

the risk of it rupturing Absorbs the effects of water hammer (overpressure divided up to 3X compared to a cast iron network)

Weldable

Low roughness coefficient Limits the risk of obstruction of the pipe Reduces network pressure losses



Chemically and biologically inert Preserves water quality



Available in long lengths • Reduces the number of joints between pipes



Minimum service life of 100 years • Long network life

A modern solution, which increases the productivity and safety of projects.





Naturally adapts to trench layout Bending radius up to 20x the outer diameter of the pipe

Easy to transport and handle On average 3x lighter than cast iron



 Self-butted solution, with no risk of dislodging · Long-lasting watertightness, without any joints

Enables high installation rates Up to 1700 metres of pipe on one reel



Saves on concrete thrust blocks Self-butting solutions



Elydan solutions

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A wide range of technical solutions and packaging

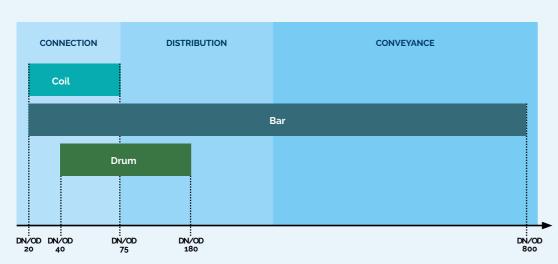
To adapt to the configuration of each site

The range

- Diameters: DN/OD 20 to DN/OD 800 mm
- Nominal pressure: PN 10 to PN25

Packaging

- Coils 15, 25, 50 and 100 m
- Lengths 6 and 12 m
- Reels up to 1700 m long





COIL Ideal solution for houses connections Can be carried by hand Easy to transport



6 METRE BAR Ideal solution for urban works Not bulky • Easy to handle



DRUM Ideal solution for interconnection work

- Long length (300 m to 1700 m)
- Quick to set up
- Fewer junctions

ELYDAN'S

• Large fleet of reels • Delivery as close

as possible to the

construction sites

Can be laid with a trencher

Connection techniques flawless reliability and tightness



ELYDAN'S

The ELYSPRINT offer comes with locked interlocking and is particularly adapted to the constraints of drinking water distribution sites in urban areas



Choosing the connection method: a key role in the durability of networks.

Welding is the preferred method for connecting HDPE pipes. It ensures an intimate mixture of the material and gives each joint the same mechanical characteristics as the pipe, guaranteeing a durable seal over time.

• by electrofusion: using electrofusion fittings, • by polyfusion: butt welding.



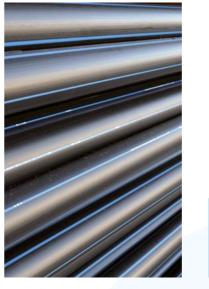
Additional mechanical connection solutions are also possible, such as interlocking, as with solutions for traditional materials.



DID YOU **KNOW?**

The electro-weldable fittings constitute reinforcement points for the pipe.

Elydan's solutions for drinking water networks





Advantages of PE100

POLYBLEU PE100 pipes are suitable for the vast majority of drinking water supply, distribution and connection projects.

Material: PE100 HDPE Diameters available: 20 to 800 mm Operating pressure: PN10 to PN25 **Certification:** NF114 stamp - Group 2 Certificate of Sanitary Conformity NF EN 12201 standard

ELYDAN'S 🕂

- Pre-sheathed version • Saves time during installation
- Easy to install

Drinking water selection guide

Installation technique	Operating conditions (chlorine disinfection)	Covering	POLYBLEU	OXYBLEU	PROLINEAR	ELYSPRINT
	Normal	Sand	\bigcirc	\bigcirc	\bigcirc	\bigcirc
Laying with trenches		Excavated material in-situ				
trenches	Severe*	Sand		I		
Directional drilling, bursting	Normal	-			(revêtu PP)	

🗸 Advisable 🗸 Possible

DESCRIPTION

The drinking water pipes will be made from high density polyethylene PE100 pipes, such as POLYBLEU from Elydan or equivalent.

The pipes must be manufactured in France, be NF 114 certified, and come with a 50-year manufacturer's guarantee.

Black PE100 polyethylene pipe with blue lines The reference for drinking water networks















OXYBLEU

PE100-RD polyethylene pipe, black with blue lines Special "severe" operating conditions: increased resistance to chlorinated disinfectants

Advantages of PE100-RD Highly resistant to chlorinated disinfectants

OXYBLEU pipes in PE100-RD are designed to withstand severe disinfection conditions with a high chlorine concentration.

They are recommended in the following cases: Use of chlorine dioxide

- Use of hypochloric acid with a high
- water temperature > $20^{\circ}C$
- High concentration of hypochloric acid (> 1 mg/L)

Material: PE100-RD HDPE Diameters available: 20 to 800 mm Operating pressure: PN10 to PN25 Certification: NF114 stamp - Group 2 Certificate of Sanitary Conformity NF EN 12201 standard

DESCRIPTION

The drinking water pipes will be made from PE100-RD high density polyethylene pipes, with improved performance to chlorinated disinfectants, such as OXYBLEU from Elydan or equivalent.

The pipes must be manufactured in France, be NF 114 certified, and come with a 50-year manufacturer's guarantee.





Advantages of PE100-RC

without sand embedding.

 Easier worksite logistics Reduces the environmental impact of worksites

NF EN 12201 standard

ELYDAN'S

Saves filler material

DESCRIPTION

The drinking water pipes will be made from high density polyethylene PE100-RC pipes, resistant to slow cracking, such as PROLINEAR Elydan or equivalent.

The pipes must be manufactured in France, be NF 114 certified, and come with a 50-year manufacturer's guarantee.

PROLINEAR AEP

PE100-RC polyethylene pipe, black with blue lines Installation without filler material

- ✓ Highly resistant to slow cracking
- Laying without sand embedding
- PROLINEAR pipes made of PE100-RC are characterised by their increased resistance to slow cracking.
- This technical feature makes them much more resistant to notching and punching than standard PE100.
- The trench can be backfilled by reusing the excavated material
 - Material: PE100-RC HDPE Diameters available: 20 to 800 mm Operating pressure: PN10 to PN25 Certification: NF114 stamp - Group 2 Certificate of Sanitary Conformity











PROLINEAR AEP REVÊTU PP

PE100-RC polyethylene pipe, black with blue lines, with polypropylene protective overlay "Aggressive" trenchless work: bursting, directional drilling, etc.

Advantages of PE100-RC
 Highly resistant to slow cracking
 Laying without sand embedding
 Highly resistant to scratching and impact

PROLINEAR PP REVÊTU PP pipes combine the advantages of the PE100-RC material and the polypropylene protective layer: • Highly resistant to slow cracking: can be laid in the ground

Highly resistant to cracks and impacts.

These characteristics make it the ideal solution for trenchless work by pulling the pipe into the ground: bursting, directional drilling, etc.

Material: PE100-RC HDPE, top layer in polypropylene (PP) Diameters available: 63 to 200 mm Operating pressure: PN10 to PN25 Certification: Certificate of Sanitary Conformity NF114 stamp - Group 2 (internal pipe) Certificate of Sanitary Conformity NF EN 12201 standard

DESCRIPTION

The drinking water pipes will be made from high density polyethylene PE100-RC pipes resistant to slow cracking, coated with a polypropylene layer, such as PROLINEAR PP PROTECT from Elydan or equivalent.

The pipes must be manufactured in France and come with a 50-year manufacturer's guarantee.





ELYSPRINT PE100 pipe with interlocking socket Fast and reliable for demanding construction sites

Advantages of PE100
 Quick to install
 Installation in all conditions

ELYSPRINT is a complete PE100 pipe system, specially designed to adapt to the constraints of construction sites in difficult environments.

ELYSPRINT is particularly recommended in urban areas or for sites that are less suitable for connection by welding (bad weather, presence of groundwater, cramped sites, etc.).

Its connection by interlocking means it can be installed without special tools, like with traditional materials. The integrated locking ring prevents any dislocation during the operation of the network.

ELYSPRINT'S

Push-fit connection
 Integrated lock ring

 Factory-prepared end (chamfer, insertion indicator) Length: 6 m Operating pressure: PN16 Certification: NF114 stamp - Group 2 (pipe) Certificate of Sanitary Conformity NF EN 12201 standard On consultation: Length 12 m

DESCRIPTION

The drinking water pipes shall be made of high density polyethylene PE100, with a locked spigot connection system, such as ELYSPRINT from ELYDAN or equivalent.

The pipes must be manufactured in France and come with a 10-year manufacturer's guarantee.

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Material: PE100 HDPE Diameters available: 90 to 250 mm





Elydan solutions for sewerage networks

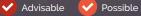


PE100

Material: PE100 HDPE

Sewerage selection guide

Installation technique	Covering	PE100 ASSAINISSEMENT	PROLINEAR
	Sand	O	S
Laying with trenches	Excavated material in-situ		O
Directional drilling, bursting	-		(revêtu PP)



DESCRIPTION

The sewerage pipes will be made from high density polyethylene PE100 pipes, such as PE100 Assainissement from Elydan or equivalent.

The pipes must be manufactured in France, be NF 114 certified, and come with a 50-year manufacturer's guarantee.



Black PE100 polyethylene pipe with brown lines The reference for pressurised wastewater systems

Avantages of PE100

PE100 Sewerage pipes are suitable for the vast majority of pressurised sewerage projects.

Diameters available: 63 to 800 mm Operating pressure: PN10 to PN16 Certification: NF114 stamp - Group 4 NF EN 12201 standard









PROLINEAR ASSAINISSEMENT

Black PE100-RC polyethylene pipe with brown lines Installation without filler material

Advantages of PE100-RC

Highly resistant to slow cracking

Laying without sand embedding

PROLINEAR pipes made of PE100-RC are characterised by their increased resistance to slow cracking.

This technical feature makes them much more resistant to notching and punching than standard PE100.

The trench can be backfilled by reusing the excavated material without sand embedding.

PROLINEAR'S +

- Easier worksite logistics Reduces the
- environmental impact of worksites Saves filler material

Material: PE100-RC HDPE Diameters available: 63 to 800 mm Operating pressure: PN10 to PN16 Certification: NF114 stamp - Group 4 NF EN 12201 standard

DESCRIPTION

The wastewater pipes will be made from high density polyethylene PE100-RC pipes, resistant to slow cracking, such as PROLINEAR Elydan or equivalent.

The pipes must be manufactured in France, be NF 114 certified, and come with a 50-year manufacturer's guarantee.



These characteristics make it the ideal solution for trenchless work by pulling the pipe into the ground: bursting, directional drilling, etc.

Material: PE100-RC HDPE, top layer in polypropylene (PP) Diameters available: 63 to 200 mm Operating pressure: PN10 to PN16 Certifications: NF114 stamp - Group 2 (internal pipe) Certificate of Sanitary Conformity NF EN 12201 standard

DESCRIPTION

The wastewater pipes will be made from high density polyethylene PE100-RC pipes resistant to slow cracking, coated with a polypropylene layer, such as PROLINEAR REVÊTU PP from Elydan or equivalent.

The pipes must be manufactured in France and come with a 50-year manufacturer's guarantee.

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PROLINEAR ASSAINISSEMENT REVÊTU PP

PE100-RC polyethylene pipe, black with brown lines, with polypropylene protective overlay. "Aggressive" trenchless work: bursting, directional drilling, etc.

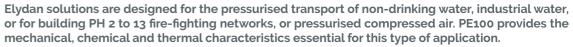
- Advantages of PE100-RC
- V Highly resistant to slow cracking
- Laying without sand embedding
- V Highly resistant to scratching and impact

PROLINEAR REVËTU PP pipes combine the advantages of the PE100-RC material and the polypropylene protective layer: • Highly resistant to slow cracking: can be laid in the ground Highly resistant to cracks and impacts



Elydan solutions for industry and non-drinking water

BREBE STITT







Material: PE100 HDPE Diameters available: 20 to 800 mm Operating pressure: PN6 to PN25 Certification: NF114 stamp - Group 4 NF EN 12201 standard



EXAMPLES OF APPLICATIONS

- Supplying snow cannons
- Compressed air
- Exhaust pipes
- Sea outfalls
- Marine farms, oyster farming





PE100 INDUSTRIE

Black PE100 polyethylene pipe

Advantages of PE100

PROLINEAR INDUSTRIE

Black PE100-RC polyethylene pipe Installation without filler material

Advantages of PE100

Highly resistant to slow cracking

Laying without sand embedding

Material: PE100-RC HDPE Diameters available: 20 to 800 mm Operating pressure: PN6 to PN25 Certification: NF114 stamp - Group 4 NF EN 12201 standard













Complementary solutions

NETWORK PROTECTION







NETWORK INSULATION



The network may need to be insulated to delay the risk of freezing in pipes installed overhead or buried at a shallow depth.







Easy to pull in pipes V Including push-in sleeves

Double-walled, smooth on the inside and ringed on the outside.

Material: Polyethylene Diameters available: 40 to 250 mm Packaging: coil or bar Application: drinking water network

RINGED PROTECTIVE SLEEVES QUATTRO

Easy to pull in pipes Including push-in sleeves **UV-resistant**

Smooth lubricated inner wall.

Material: Polyethylene Diameters available: 63 to 160 mm Packaging: coil or bar Application: drinking water network

Elydan offers pre-insulated pipe solutions on request.

Flexible: In coils from DN 25 to DN 125 mm Rigid: In bars 6 or 12 m from DN 90 to DN 630 mm Application: • Drinking water network

- Sewage system
- Industrial applications

DETECTING AND GEO-REFERENCING NETWORKS

ELIOT is a relevant response to current and future geo-referencing and network detection requirements. The RFID tag technology, which is NFC compatible, makes it possible to detect, identify, set up and geolocate buried networks up to 1.50 m deep with a very high degree of accuracy, to the order of a centimetre.

ELIOT'S 🕇

Very high accuracy in all circumstances: ± 10 cm up to 1.50 m deep
Secure work sites and save on survey costs: geo-referencing possible in a closed trench
Easy to use

YOU KNOW?

In France, the "anti-damage to networks" decree of 1st July 2012, relating to DT/DICT, introduces the obligation for operators of buried networks to be able to provide plans with class A accuracy, corresponding to ±40 cm of uncertainty. This regulatory obligation applies according to the following schedule: - From 1st January 2020: sensitive

From 1st January 2020: sensitive
 networks in urban areas.
 By 1st January 2026: sensitive

- networks outside urban units and non-sensitive networks in urban units
- By 1st January 2032: non-sensitive networks outside urban units. Unless there is a specific exemption, drinking water and wastewater networks are considered as non-sensitive.



ELIOT MARKER

ELIOT markers incorporate an NFCcompatible RFID tag, protected by a waterproof rigid polymer case. They can be installed on all types of pipes (cast iron, polyethylene, steel, concrete, PVC).



DETECTABLE DRINKING WATER PIPE PE100 drinking water pipe with integrated RFID tags protected by a layer of reinforced polypropylene.



WARNING NETTING A 2-in-1 product that combines the detection function of the netting with the identification and geolocation function of ELIOT.





ELIOT SCANNER

Makes it possible to locate, identify and geo-reference all structures equipped with ELIOT RFID systems.



ELIOT APPLICATION ON PDA / MOBILE

Makes it possible to encode and read RFID tags, by NFC technology, or by scanning barcodes/QR codes of related equipment.



ENCODING STATION

Makes it possible to simultaneously encode ELIOT RFID tags (10 tags at the same time).



SIGLIVE

Web interface for viewing and managing the data recorded and stored in the ELIOT RFID tags.

Elydan's achievements























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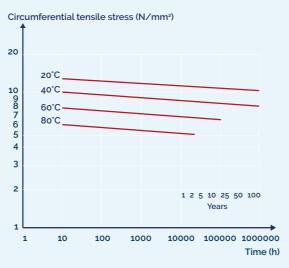
PE100 polyethylene

High performance and durable material

Polyethylene is a modern material that has been used for almost 60 years for underground pipelines. High Density Polyethylene PE100 stands out thanks to its **long term performance** characteristics, which give the pipes a minimum life span of 100 years.

PE100 is the highest quality polyethylene resin available today in terms of pressure resistance.





Regression curves from accelerated ageing tests and full-scale tests show that PE100 pipes can withstand a circumferential stress of 10 MPa for more than 100 years at a water temperature of 20°C.

This value, known as the 'minimum required strength' (MRS), is used to qualify the PE100 material.

The pipes are therefore dimensioned to withstand a constant hydrostatic pressure at 20°C equal to the PN of the pipe, for a minimum duration of 100 years.

Classification of Polyethylene	Minimum Required Strength (MRS)
PE100	10,0 MPa
PE80	8,0 MPa



The many advantages of PE100 polyethylene and KNOW? the welded connection make it the reference system for gas distribution, where there is

Dimensional characteristics

	PRESSURE RATINGS														
	PN 10 SDR 17		PN 12,5 SDR 13,6			PN 16 SDR 11			PN 20 SDR 9			PN 25 SDR 7,4			
DN/OD (mm)	Th. (mm)	Di (mm)	Weight (Kg/ml)	Th. (mm)	Di (mm)	Weight (Kg/ml)	Th. (mm)	Di (mm)	Weight (Kg/ml)	Th. (mm)	Di (mm)	Weight (Kg/ml)	Th. (mm)	Di (mm)	Weight (Kg/ml)
20	-	-	-	-	_	-	3,0	14,0	0,170	3,0	14,0	0,170	3,0	14,0	0,170
25	-	-	-	-	-	-	3,0	19,0	0,220	3,0	19,0	0,220	3,5	18,0	0,250
32	3,0	26,0	0,280	3,0	26,0	0,280	3,0	26,0	0,280	3,6	24,8	0,326	4,4	23,2	0,390
40	3,0	34,0	0,362	3,0	34,0	0,362	3,7	32,6	0,431	4,5	31,0	0,510	5,5	29,0	0,610
50	3,0	44,0	0,462	3,7	42,6	0,555	4,6	40,8	0,670	5,6	38,8	0,790	6,9	36,2	0,950
63	3,8	55,4	0,734	4,7	53,6	0,884	5,8	51,4	1,06	7,1	48,8	1,26	8,6	45,8	1,49
75	4,5	66,0	1,04	5,6	63,8	1,25	6,8	61,4	1,48	8,4	58,2	1,77	10,3	54,4	2,12
90	5,4	79,2	1,47	6,7	76,6	1,77	8,2	73,6	2,15	10,1	69,8	2,57	12,3	65,4	3,04
110	6,6	96,8	2,19	8,1	93,8	2,65	10	90,0	3,19	12,3	85,4	3,82	15,1	79,8	4,55
125	7,4	110,2	2,79	9,2	106,6	3,41	11,4	102,2	4,13	14,0	97	4,94	17,1	90,8	5,83
140	8,3	123,4	3,50	10,3	119,4	4,27	12,7	114,6	5,15	15,7	108,6	6,20	19,2	101,6	7,35
160	9,5	141,0	4,57	11,8	136,4	5,60	14,6	130,8	6,75	17,9	124,2	8,07	21,9	116,2	9,58
180	10,7	158,6	5,80	13,3	153,4	7,10	16,4	147,2	8,55	20,1	139,8	10,2	24,6	130,8	12,1
200	11,9	176,2	7,15	14,7	170,6	8,70	18,2	163,6	10,6	22,4	155,2	12,65	27,4	145,2	15,0
225	13,4	198,2	9,05	16,6	191,8	11,0	20,5	184,0	13,3	25,2	174,6	16,0	30,8	163,4	18,95
250	14,8	220,4	11,1	18,4	213,2	13,6	22,7	204,6	16,4	27,9	194,2	19,65	34,2	181,6	23,4
280	16,6	246,8	14,0	20,6	238,8	17,0	25,4	229,2	20,6	31,3	217,4	24,7	38,3	203,4	29,3
315	18,7	277,6	17.7	23,2	268,6	21,6	28,6	257,8	26,0	35,2	244,6	31,2	43,1	228,8	37,1
355	21,1	312,8	22,5	26,1	302,8	27,3	32,2	290,6	33,0	39,7	275,6	39,7	48,5	258,0	47,0
400	23,7	352,6	28,4	29,4	341,2	34,6	36,3	327,4	42,0	44,7	310,6	50,3	54,7	290,6	59,7
450	26,7	396,6	35,9	33,1	383,8	43,9	40,9	368,2	53,1	50,3	349,4	63,7	61,5	327,0	75,6
500	29,7	440,6	44,5	36,8	426,4	54,5	45,4	409,2	65,5	55,8	388,4	78,5	-	_	_
560	33,2	493,6	55,5	41,2	477,6	68,0	50,8	458,4	82,5	-	-	-	-	-	-
630	37,4	555,2	70,5	46,3	537,4	86,0	57,2	515,6	104,0	-	-	-	_	_	_
710	42,1	625,8	89,0	52,2	605,6	109,0	_	_	-	-	-	-	_	-	-
800	47,4	705,2	113,0	58,8	767,8	139,0	-	-	-	-	-	-	-	-	-

A solution for every site:



Logistics adapted to construction sites and distribution



Technical assistance and expertise



Large distribution network: nearly 5000 points of sale



On-site delivery



Accompagnement global



Strong commercial presence



5000 reel fleet

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Aide à la conception des



Approved training centre

Elydan in numbers

A complete range,

up to Ø 800 mm, in bars, eels and coils

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400+ employees 200 m€ turnover in 2022

10% of turnover from exports



of experience



and 1 in Belgium



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