

Couplings solutions



Sealing strength for lasting performance



100 45



The right coupling for lasting confidence

Couplings are the link between the different parts of the system and ensure that the whole system is watertight.

As the robust cast iron components can address any pressure hazard, then the couplings will be submitted to the strain.

Quality

Couplings are crucial elements of drainage systems. Their quality and careful selection according to their field of use will prevent misalignment or disconnection of the pipework to guarantee both water tightness and mechanical stability.

Our couplings are compliant with the EN877 standard.

Choosing a complete and consistent range of cast iron products, which has been performance tested against regulatory requirements, provides you with peace of mind that few other materials can guarantee.

Mechanical assembly

The installation of drainage systems is crucial as it determines whether the performance given by the manufacturer is achieved. Furthermore, the quality of the installation influences the life span of the equipment.

Our systems are easy to install without pre-assembly, welding or gluing. There are no constraints due to ambient temperature or drying time. The announced performances (water-tightness, durability, acoustic comfort...) are reached immediately and at 100%.

Main features

A coupling is made of several components: casing, screws, barrel and gasket.

- 1** Screw and nut
- 2** Casing
- 3** Barrel
- 4** Gasket



Several grades of steel

We follow a global material designation for steel components of the coupling described in the following table.

Material designation*

		DIN	AISI
W2	Screw and nut	Coated steel class 8.8	
	Barrels	1.4510	430Ti
	Casing or strap	1.4510	430Ti
W4	Screw	1.4404	316L
	Barrels	1.4401	316
	Casing or strap	1.4301	304
W5	Screw	1.4404	316L
	Barrels	1.4401	316
	Casing or strap	1.4404	316L

*Please refer to datasheet for specific information as some material may differ depending on the coupling design.

The selection of steel grade is related to the level of external stresses:

- W2** – most common, recommended in most aerial networks and inside or outside of the buildings for normal climate.
- W4*** – most common for HP couplings, recommended for inside or outside of the buildings, and for a non-aggressive environment.
- W5** – for networks where external stresses are high due to climate exposure such as pollution, condensation, or saline mist.

* Only available for High-Pressure couplings

Elastomeric gaskets

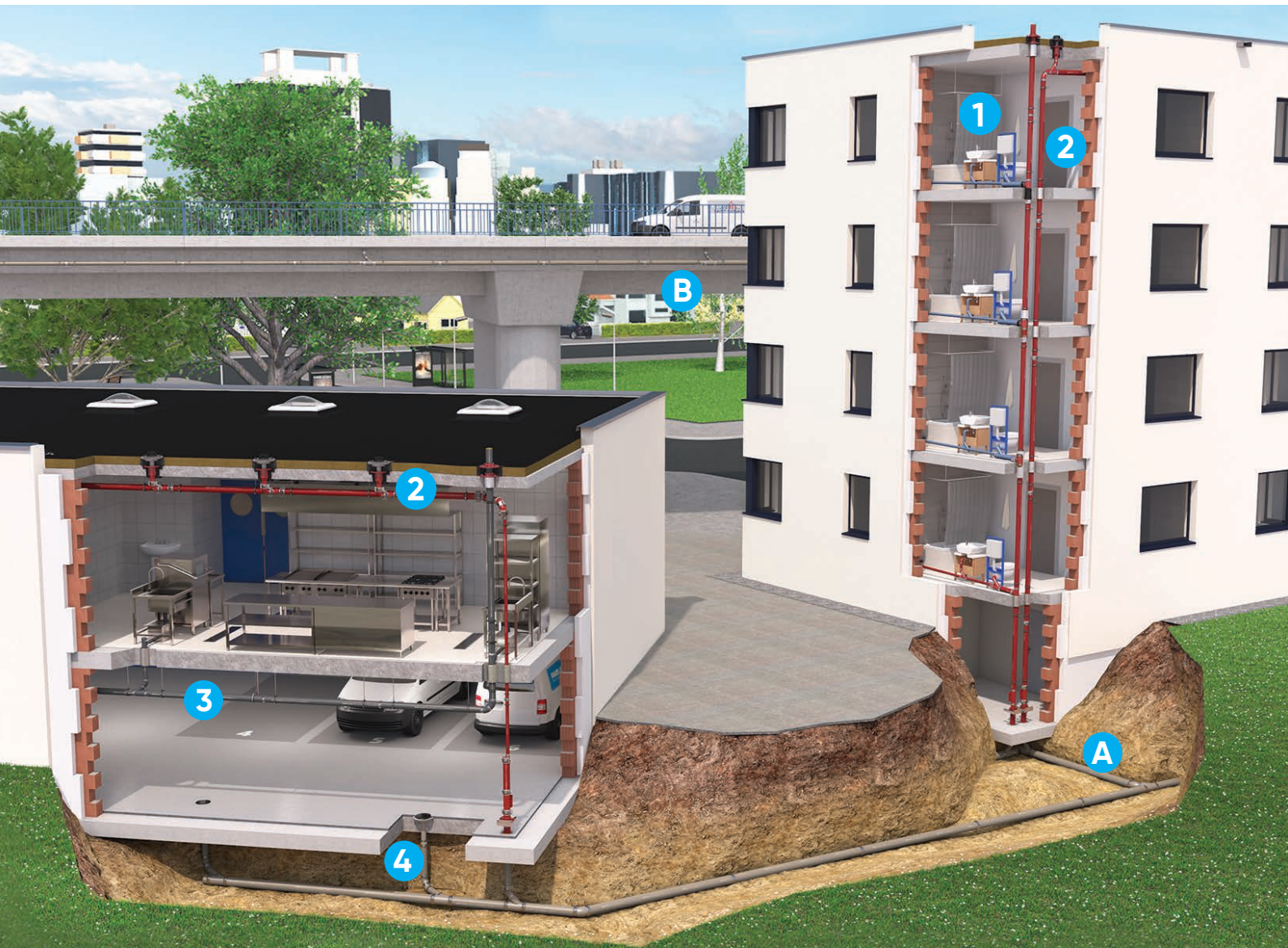
The choice of the elastomeric gasket is related to the nature of the effluent.

- EPDM** – EPDM rubber is suitable for most types of effluents.
- NBR** – Nitrile Butadiene Rubber is recommended for wastewater and runoff water liable to contain hot oil, solvents or hydrocarbons. They are recommended for infrastructure applications depending on the coupling design.

Stainless steel grade and rubber gasket selection

		Type of network				
		Aerial network	In concrete	External stresses*	Burried network	Infrastructure
Type of effluent	Wastewater	S range	W2 W4 EPDM	Zn range	ITINERO® W5 EPDM	ITINERO® W5 NBR
	Rainwater					
	Agressive effluents	Plus range	W2 W4 EPDM	Plus range	Plus range	
	Hydrocarbon runoff water	Plus range W2 W4 NBR			ITINERO® W5 NBR	

*ie. Climate exposure; pollution, sea-side



Resistance to pressure

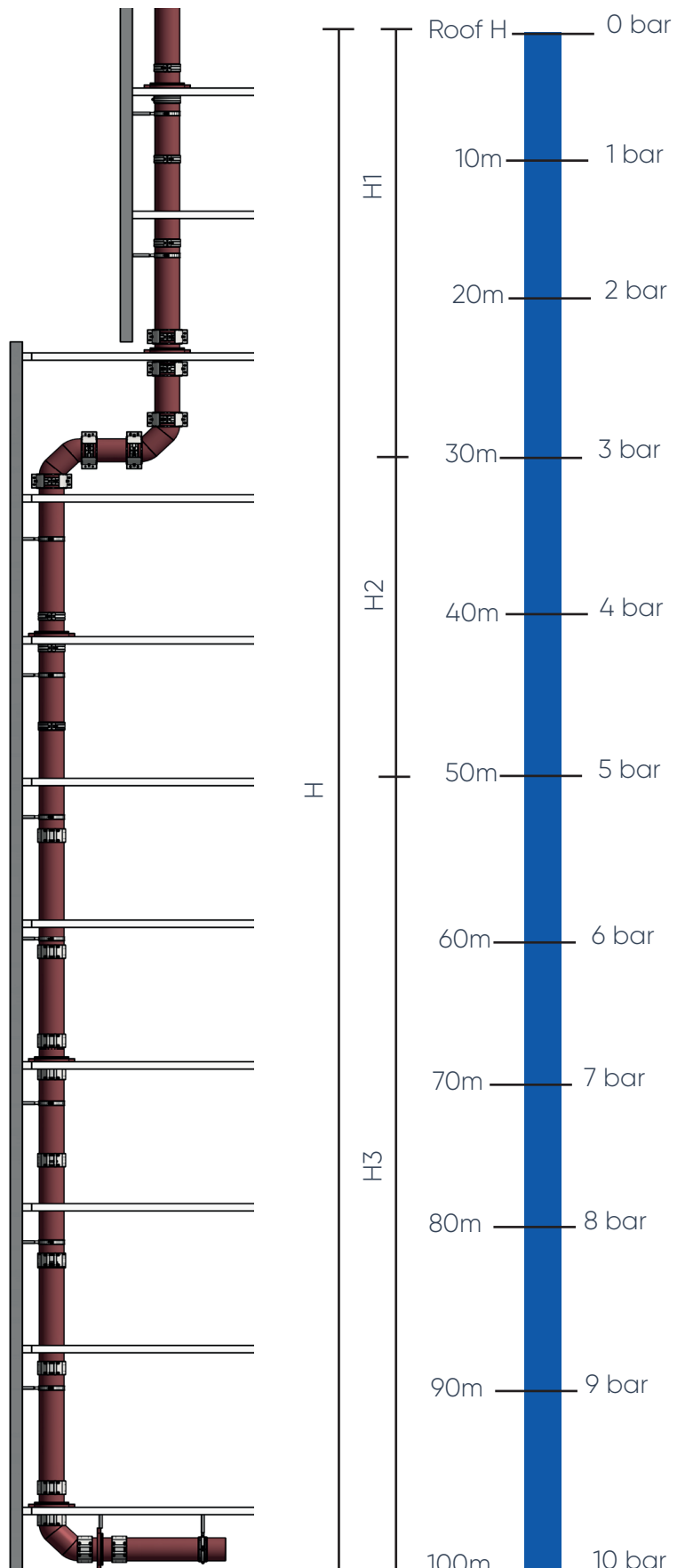
In a drainage network, pressure resistance requirements are dependent on:

- **The height of the water column**
between the considered point of the network and the first outlet located upstream. Generally speaking, we differentiate domestic wastewater networks from rainwater networks.
- **The risk of accidental loading.**
The most frequent cases are due to occasional obstruction of downstream pipeline or flooding of the public network.

In terms of coupling requirements, we will differentiate between “**standard pressure**” and “**high pressure**” couplings.

Recommendations will be based on their admissible pressure loads (see p.10), type and height of network, and position in the network.

Gravity drainage systems operate without pressure. However, our systems are designed to withstand accidental overloading from occasional obstruction of downstream pipeline.



Types of network



Wastewater networks

Risk of pressure build-up with a low water column

Generally, the pressures that occur in wastewater drainage systems cannot exceed the pressure corresponding to the height of one storey, i.e. about 0.3 bar, as sanitary appliances on each floor serve as outlets in case of accidental overloading. Our standard couplings meet these requirements.

Risk of pressure build-up with a high water column

In very rare cases, where domestic wastewater downpipes cross several levels of a building without any outlet, and where there would be a risk of accidental loading, the installation must comply with the recommendations applicable to rainwater networks.

Rainwater networks

Risk of pressure build-up with a low water column

Same as wastewater networks.

Risk of pressure build-up with a high water column

In case of accidental overloading, the pressure resistance required to ensure these systems remain leak tight and stable depends on the height of the water column liable to occur, and could call for high-pressure couplings able to withstand the resulting pressure (up to 10 bar). If pressure resistance is required, we offer HP joints.

Coupling solutions will be differentiated for building height between 0 to 30 m, 30 to 50 m, 50 to 100 m corresponding to different levels of pressure resistance requirements.

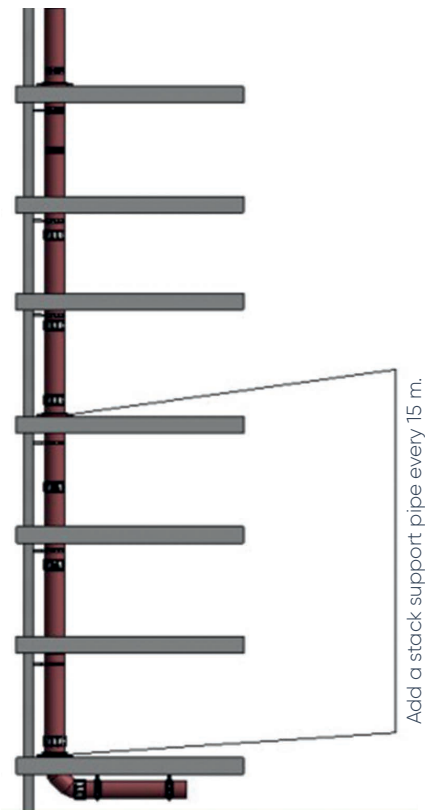
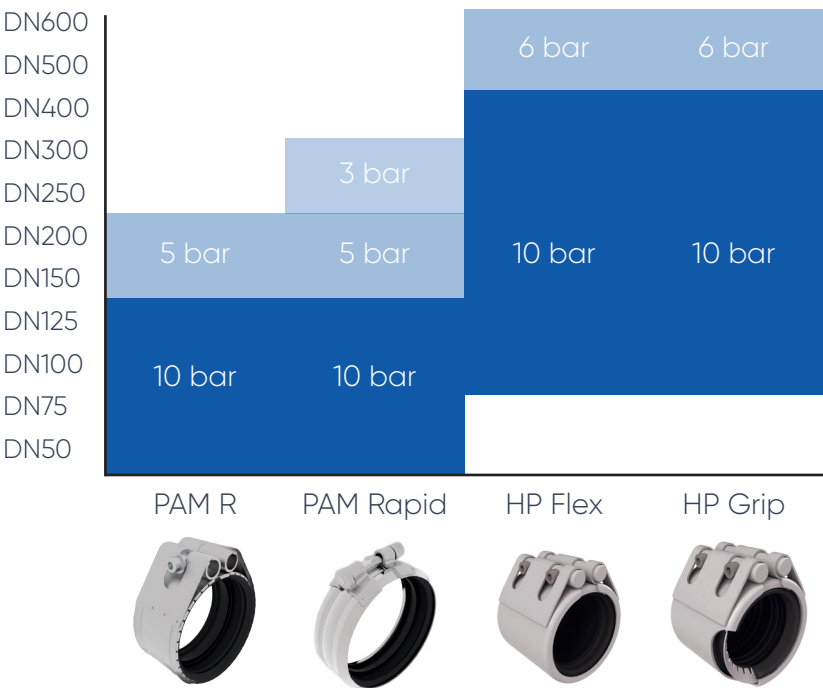
Choice of couplings according to the risks of loading

Straight runs of the pipework

Straight runs between two fixed points and rigid bracketing do not experience exceptional forces. In case of accidental overloading, the couplings will only have to address hydrostatic pressure. As indicated in the table below, standard pressure couplings withstand up to 10 bar for DN50–DN125, up to 3 bar for DN250–DN300. High pressure couplings withstand up to 10 bar for DN100–DN400 and up to 6 bar for DN500 and DN600.

Hydrostatic pressure

The pressure exerted at each point of a liquid at rest, perpendicular to the wall of a pipe or any other pipework element like joints. When we state that a coupling withstands a 5 bar hydrostatic pressure, it is to consider only the sealing performance of the gasket. While considering that the spigots are not exposed to any dislodging forces which are taken up by other elements of the network.



Stack support

On vertical straight runs, stack support pipes should be installed to address the stacks' weight. At the bottom of the stack, the first stack support pipe addresses both the pipes' weight and the end thrust effort. For the last case, it is recommended that the support and fixings be adapted accordingly. We recommend positioning the first stack support pipe at the base of the first floor, and then every subsequent fifth floor, in the case of a standard average 2.5 m between floors, or more generally every 15 m

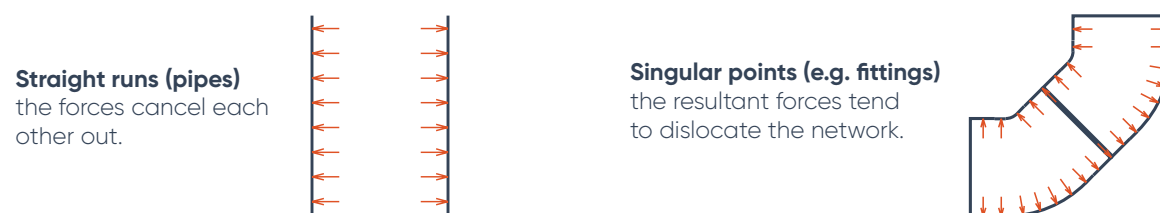


Changes of direction and specific elements (plugs, branches, bends)

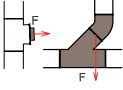
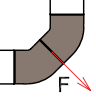
End thrust forces can be exerted with changes of direction, gradient and specific components like branches and plugs. These forces have to be addressed to avoid any risk of the pipe system disconnecting or slipping using specific couplings.

It is considered that end-thrust effect must be addressed when drainage pipework may be exposed to an internal pressure higher than 0.5 bar.

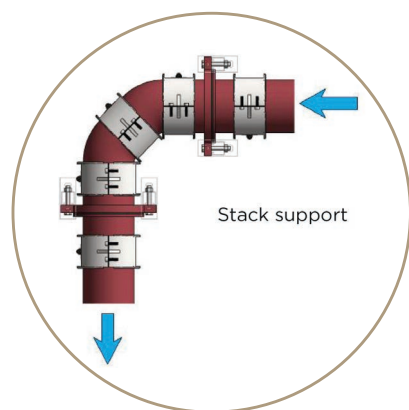
In such conditions, the installation must be able to stay in place to perform its functions of water tightness, and mechanical stability, preventing any dislocation at the couplings. Grip collars and gripped HP couplings are part of the solutions to secure the network.



The forces significantly increase with large pipe diameter as illustrated in the following table.

	DN50	DN75	DN100	DN125	DN150	DN200	DN250	DN300	DN400	DN500	DN600
Expansion plugs or single long arm branches 	10.5	22.5	41.5	63.5	90.5	157	269.5	387	666.5	1029	1475
Two 45° bends 	14.5	32	59	95	127.5	225.5	382	544	941	1455.5	2087.5

Thrust effect under 5 m water column (daN), corresponding to a 0.5 bar pressure.



It is considered that end-thrust effect must be addressed for:

1. **Pipes** laid under the groundwater table
2. **Rainwater pipes** or wastewater pipes running through several stories without outlets
3. **HP** ≥ 5 m
4. **epams®** – gripped collars or gripped couplings are mandatory until positive pressure is reached.

In these areas, the forces have to be addressed to avoid any risk of the pipe system disconnecting or slipping:

- Isolating the section suspected of having thrust forces between two fixed points, like stack support pipes as indicated in the drawing below.
- Adapting the joints (selection of couplings solutions) between these fixed points.

To address the thrust forces, other solutions can be used, like anchoring in concrete, or using dedicated bracketing systems.

Note: under end thrust forces, where a coupling is secured with a grip collar, the maximum performance of both is limited by the weakest performance of the two products.

Couplings & Grip collars performance

	PAM Rapid + GRIP collar 	GRIP HP couplings 
DN600		6 bar
DN500		
DN400		
DN300		
DN250	3 bar	10 bar
DN200	5 bar	
DN150		
DN125		
DN100	10 bar	
DN75		
DN50		

Note: under end thrust forces, where a coupling is secured with a grip collar, the maximum performance of both is limited by the weakest performance of the two products

A worker wearing a white hard hat, safety glasses, and a high-visibility yellow vest is working on a red fire hose assembly. The assembly is mounted within a metal frame. The worker is using a tool to adjust a component on the hose. The background shows a red plastic barrier and a concrete floor.

SELECTION GUIDE

Selection guide

How to select the right coupling?

Before deciding which type of coupling to use it is important to answer the following questions:

Wastewater or rainwater network?

Generally, the pressures that occur in wastewater drainage systems cannot exceed the pressure corresponding to the height of one storey, i.e. about 0.3 bar, as sanitary appliances on each floor serve as outlets in case of accidental overloading.

Diameter of the pipes?

Thrust forces will be significantly larger for large diameter pipes and will have to be addressed with grip collars and HP couplings. Pressure resistance of couplings are specific for a given diameter. For DN 400 and larger only HP couplings are available.

Height of the stack?

The higher the stack is, the higher the potential pressure build-up.

Location of the coupling along the system?

Recommendations will change between $0\text{ m} < H \leq 30\text{ m}$, $30\text{ m} < H \leq 50\text{ m}$, and $50\text{ m} < H \leq 100\text{ m}$ as the height of the water column will correspond to different pressure levels. Please note that 10m of water column corresponds to a pressure of 1 bar.

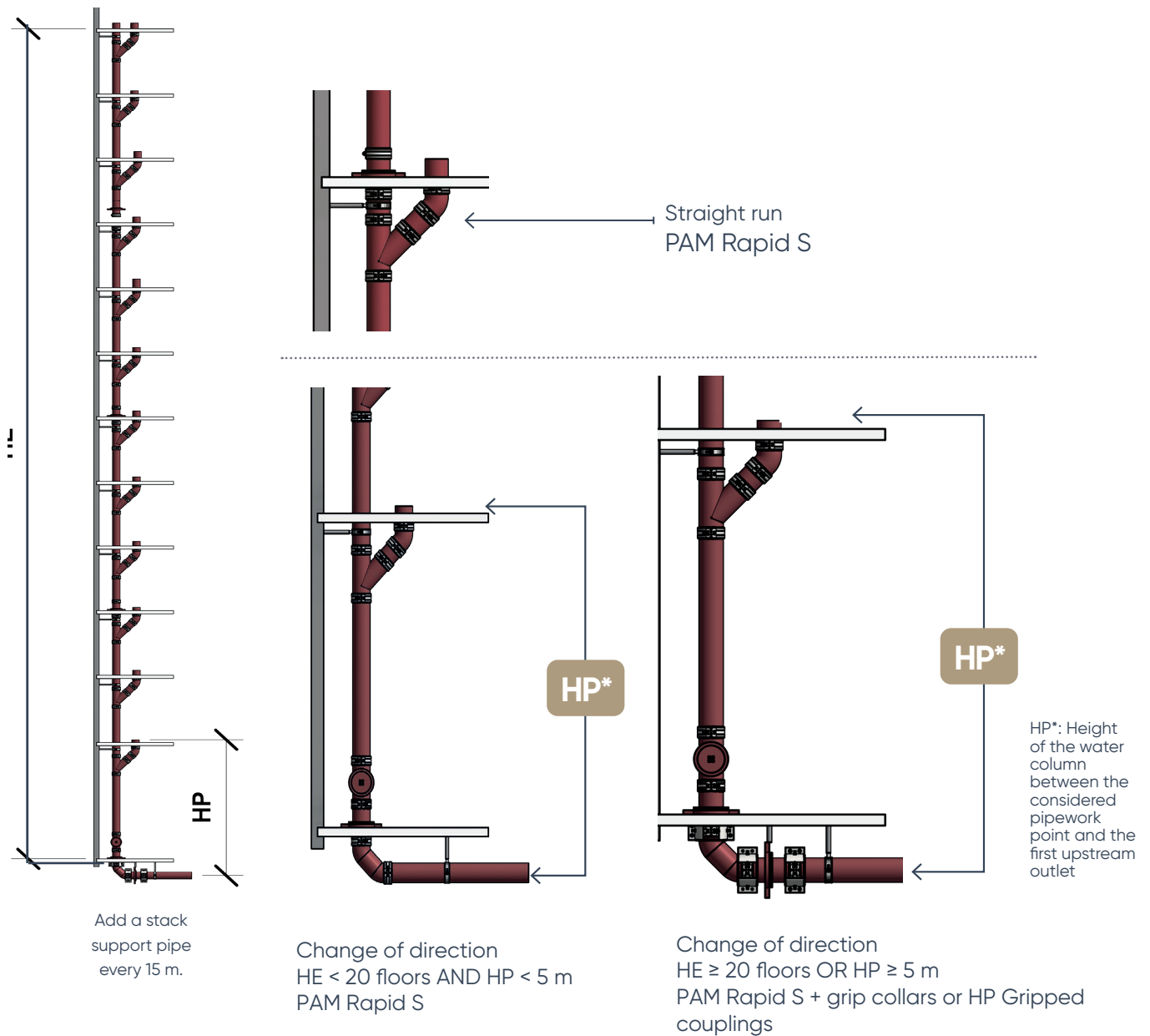
Straight run or change of direction?

Thrust effort will have to be addressed at change of directions.



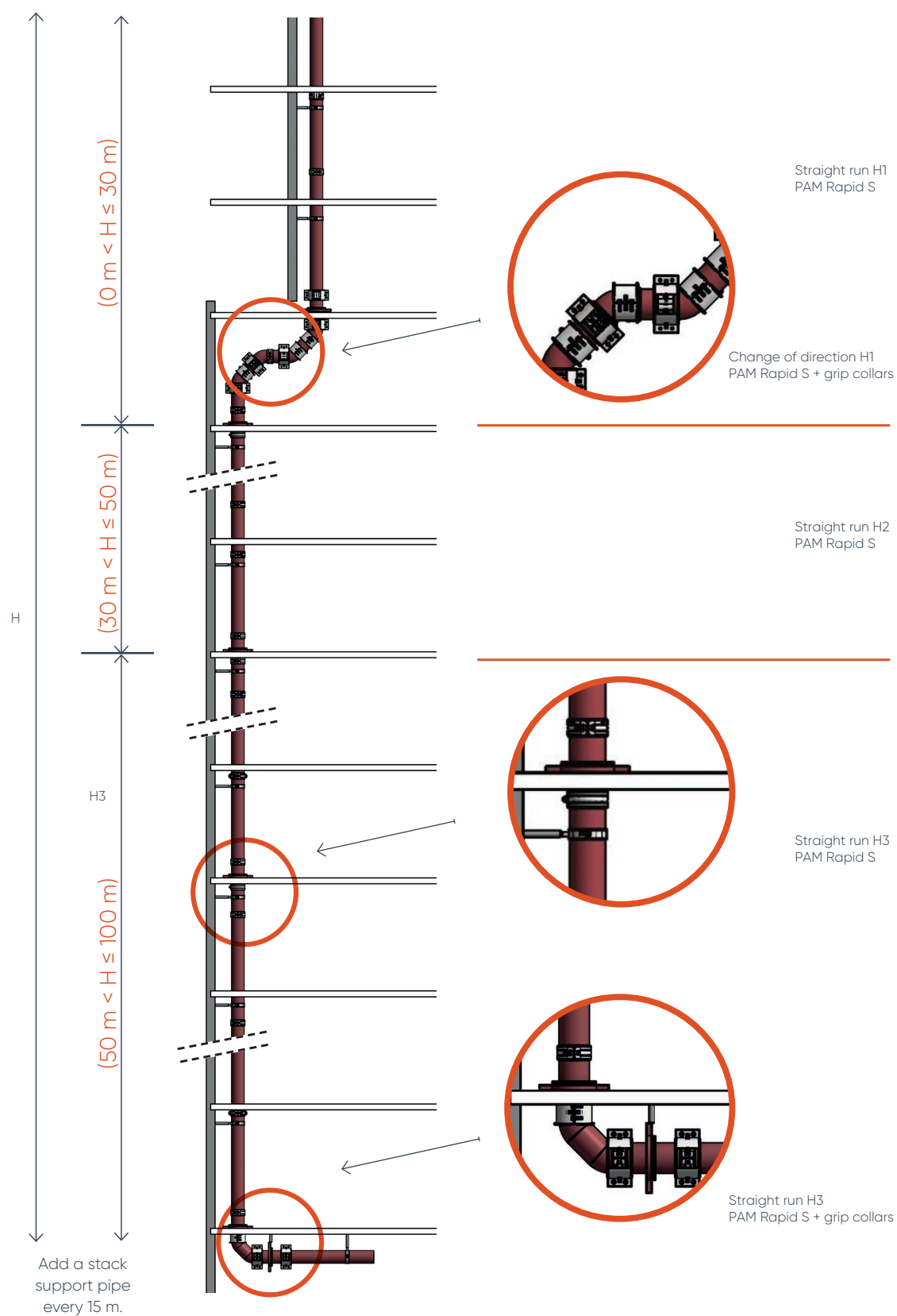
Wastewater network DN50 to DN300

Different coupling recommendations should be followed depending on the number of floors and the HP height. In case of several storeys without outlet, the installation must comply with the recommendations applicable to rainwater networks.

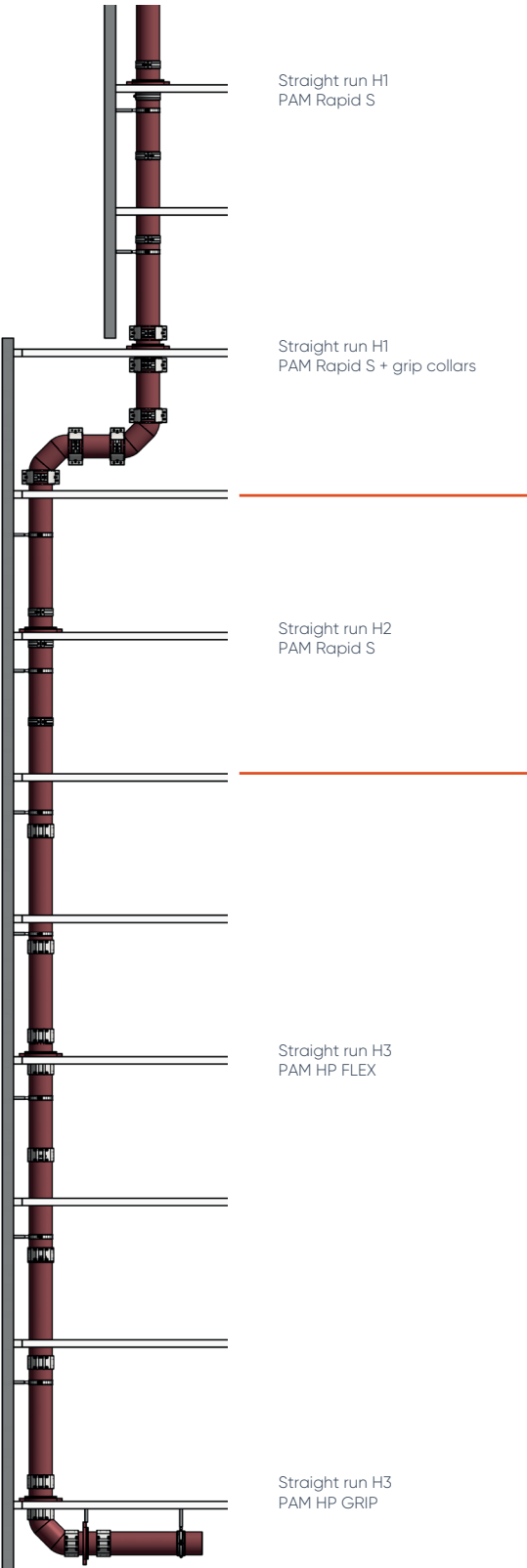


Rainwater network

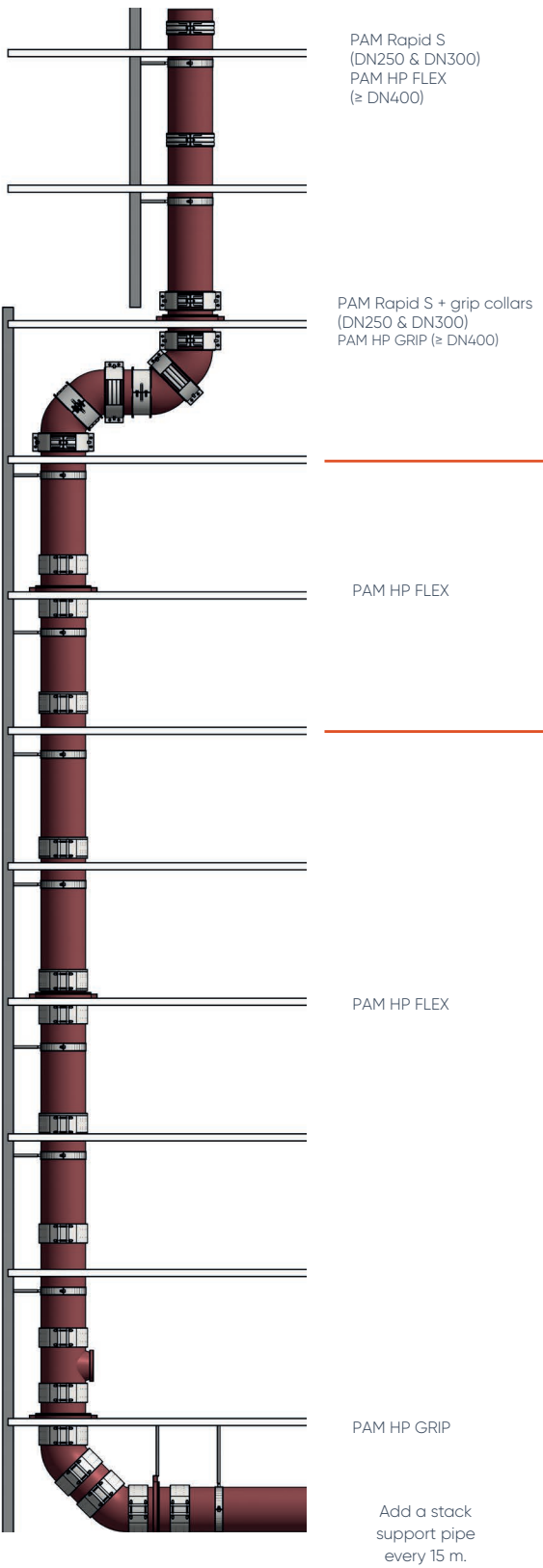
Rainwater network DN100 to DN125



Rainwater network DN150 to DN200



Rainwater network ≥ DN250



Coupling range

PAM R



"R" for Repair: this coupling is particularly suited to repairs and retrofits. It is installed in two separate parts.

Major benefits

- Compliant with EN 877
- Full opening strap particularly suited to renovation projects

Material

- Main material W5 (AISI 316L)
- Gasket EPDM.

Pressure resistance

Exceeds the EN 877 requirements:

- DN 50 to 125: 10 bar
- DN 150 to 200: 5 bar.

PAM Rapid



The single-bolt PAM Rapid coupling allows fast and reliable installation. It ensures optimized watertightness, pressure and corrosion resistance.

Major benefits

- Compliant with EN 877
- Ease of installation
- Suitable for projects with effluents containing solvents, hydrocarbons (i.e. car parks), due to the availability of the NBR version (nitrile gasket).

Material

- Main material W2 or W5 (AISI 316L)
- Gasket EPDM or NBR.

Pressure resistance

Exceeds the EN 877 requirements:

- DN 50 to 125: 10 bar
- DN 150 to 200: 5 bar
- DN 250 to 300: 3 bar.

PAM HP Flex



PAM HP FLEX couplings withstand up to 10 bar of hydrostatic pressure for most diameters. These couplings are used for straight runs where the pressures can occur.

Major benefits

- Compliant with standard EN 877
- The solution for large-diameter networks (>300 mm)

Material

- Main material: W4 (AISI 304) or W5 (AISI 316L)
- Gasket: EPDM or NBR.

Pressure resistance

Exceeds the EN 877 requirements:

- DN 100 to 400: 10 bar
- DN 500 and DN 600: 6 bar.

PAM HP Grip



In sections where end thrust efforts have to be addressed, the autogrip couplings are alternative solutions for securing junctions whilst addressing pressure. The PAM HP GRIP couplings are self-anchored couplings with built-in claw rings.

Major benefits

- Compliant with standard EN 877
- The 2-in-1 solution: coupling and grip collar with only one product
- Particularly suited to epams® installation.

Material

- Main material: W4 (AISI 304) or W5 (AISI 316L)
- Gasket: EPDM or NBR.

Pressure resistance

Exceeds the EN 877 requirements:

- DN 100 to 400: 10 bar
- DN 500 and DN 600: 6 bar.

Grip collar



The grip collar is an added device used in specific areas where end-thrust efforts have to be addressed to lock the coupling and ensure both water tightness and mechanical stability of the pipework. This range has been designed especially for one or two-bolt couplings.

Major benefits

- Compliant with standard EN 877
- Compatible with standard couplings.

Material

- Housing: galvanized steel
- Claw segments: stainless steel 1.4021 according to EN 10088-2

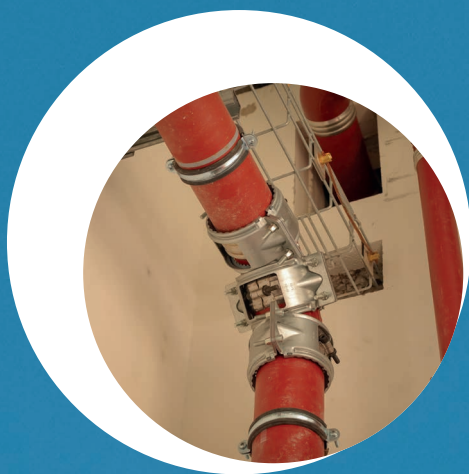
Pressure resistance

The clamp ensures the mechanical

locking between two consecutive elements of the network (pipe, fitting, accessory...) subjected to a bottom effect coming from an internal pressure* of:

- 10 bars from DN 50 to DN 125
- 5 bars from DN 150 to DN 200
- 3 bars from DN 250 to DN 300

* Subject to the sealing performance of the coupling



10 YEARS
SYSTEM WARRANTY

100% Guaranteed Performances

The exclusive combination of Pam Building products (pipes, fittings, couplings) and the respect of the implementation rules guarantees you results in accordance with the test reports from Pam Building and allows you to **benefit from the 10 years warranty.**



Technical Support

We have solutions for all your ideas, projects, and challenges

Contact our technical support at tc@pambuilding.com

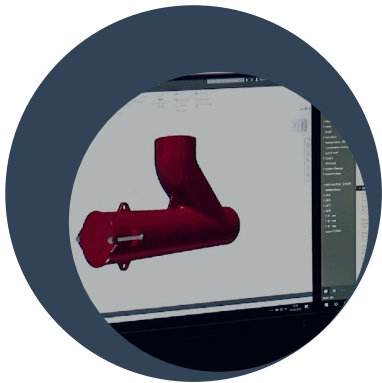


TECHNICAL SUPPORT

Our service portfolio is fully aligned with the new expectations of MEP consultants and contractors working on safe, comfortable and durable building projects.

If you have any questions, you can ask our experts on the following topics:

- [Acoustics](#)
- [Fire protection](#)
- [Technical and functional advice](#)
- [Environmental building certifications](#)



BIM LIBRARY

Pam Building helps you optimize your BIM workflow with two complementary libraries designed for different project stages.

- Our [EN 877 Generic Cast Iron Library](#) is ideal for early design phases. It includes a full range of parametric fittings with simplified geometry and essential data only. Lightweight files (under 500 KB) make early-stage modelling faster and easier, without overloading your system.
- For detailed design and execution, our [Pam Building Cast Iron Library](#) provides complete product data for our S, Plus, and epams® ranges. It includes real geometry, coupling zones, and full specifications to support precise planning and smooth coordination with contractors.

By combining these two libraries, you speed up design, improve accuracy, and simplify data sharing throughout your project.



For 150 years, we have been designing, manufacturing and supplying high-quality drainage systems for residential and commercial buildings and engineering structures.

We work exclusively with cast iron, a noble and durable material, of which we are a specialist and leader.

As a **leading manufacturer**, we claim excellence in our processes, products and services.

As a **responsible manufacturer**, we are at the forefront of sustainable performance to help reduce the carbon footprint of the construction sector.

As an **innovative manufacturer**, we put all our creative audacity into developing new, more specific and more efficient technologies, to deliver better products for your future needs.

Over **400**
employees

Sales in more than
50 countries

2 manufacturing sites
for our products:

- Bayard sur Marne in France
- Telford in England

1st business in the
cast iron industry to
have published a third-party
validated Environmental Product
Declaration (EPD)

+38 : our indicator
« Employee Net Promoter »
that reflects the number of staff
willing to become Ambassadors
of the company (on a scale of
-100 to +100)

35%
female managers

1/3
internships and work-
study contracts converted to
full employment contracts

COMMITTED TO REDUCING OUR IMPACT ON THE ENVIRONMENT



Our mission: the safety and durability of buildings

Our cast iron solutions and systems contribute to ensure the comfort, safety and durability of the most demanding residential and commercial buildings. Their characteristics allow them to contribute to HQE, BREEAM, LEED and other international environmental certifications.



Recycling of metal waste

Our products are made of 99% recycled materials (mainly scrap metal), which can be recycled indefinitely. Cast iron is a simple and sustainable material that allows a smart reuse of materials.

Resistant, reliable and durable, cast iron has a bright future ahead of it.

Each year, we recycle the equivalent of 18,000 cars on average.



Our ambitious goals for 2028-2030

Reducing carbon emissions directly linked to the cast iron pipe manufacturing process: a project for a electric furnace, a low-carbon energy source in France, was opened in 2024 for commissioning by 2028-2030 at our Bayard-sur-Marne site. A key step in pursuing the company's ambitions in terms of circular economy and environmental responsibility



Customer service

Opening hours : 8.30am -5.30pm (frenchtime)
commandes@pambuilding.com

Pam Building

130, Impasse du Chêne
54700 BOUXIERES-SOUS-FROIDMONT
FRANCE
www.pambuilding.com

Safe
& forever
circular



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