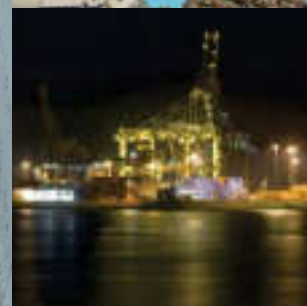
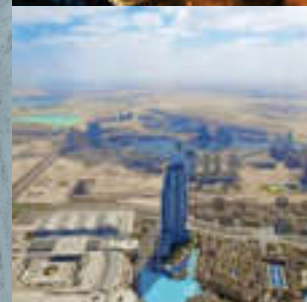


INDUSTRY & APPLICATIONS



Comprehensive pipe solutions

PAm
SAINT-GOBAIN

INDUSTRY & APPLICATIONS

PAM within the Saint-Gobain group

Saint-Gobain, a unique world brand

Saint-Gobain PAM, with a unique world brand, is part of the Construction Products Division of Saint-Gobain, one of the world's leading industrial groups, specialised in the production, conversion and distribution of materials for industry and construction.

Saint-Gobain's skills are organised around four areas of activity: Building Distribution, Construction Products, Packing and Innovative Materials. In addition to glass, Saint-Gobain also excels with many other materials such as plastics, mortars, gypsum and cast iron.



Innovation as driving force

Since 1665, Saint-Gobain has always been characterised by its ability to invent products which improve its contemporaries' quality of life.

The Group, which is one of the hundred largest industrial companies world-wide, continues to deploy its technological know-how, often in partnership with the most prestigious universities and laboratories.



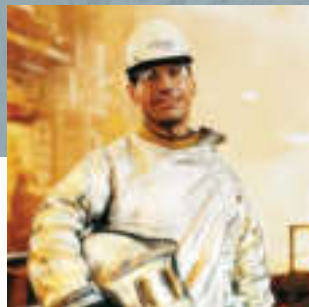
Saint-Gobain is one of the 100 most innovative companies in the world

PAM, the world leader in ductile iron pipeline systems

The PAM brand has become the global reference in the pipeline world thanks to innovations and the quality of technical solutions. Each year, the Research and Development Centre files more than 50 inventions with INPI, the French National Industrial Property Institute, for products and processes.

- PAM is the largest ductile iron manufacturer in the world (pipes, fittings and accessories).
- For over 150 years, its reputation in the pipe professions has been based on its skills, the reliability and performance of its products.
- With its widespread network, commercial and technical support is available anywhere in the world. PAM's relationship with its clients is based on a true partnership.
- Reputed for the quality of its products, PAM increases the value of its solutions by adding a range of services and undertaking to be responsive in its operations, whether developing projects, during delivery or maintenance.
- A complete range of solutions dedicated to potable water supply, sewerage and evacuation of waste water is available.
- You have the guarantee that European and international standards are respected (SMQ ISO 9001 and ISO 14001 certification and ISO 2531 product certification).

PAM is an expert in equipment for hydraulic networks



30 % of the products sold by PAM did not exist 5 years ago

more than **150** years of experience present in more than **126** countries

Turnover of
€1.7 B

40 000
kilometres of pipeline
delivered each year

50 000
catalogue references



Ductile iron, an innovative material

Ductile iron pipelines, with their linings and joints adapted and adaptable to the various ground configurations withstand all the challenges of transport, handling, installation and operation.

Exceptional mechanical properties

Yield stress, Rp 0.2	300 MPa
Tensile strength Rm	420 MPa
Elongation at break, E	10 % for DN 60 to 1000 7 % for DN 1200 to 2000
Modulus of elasticity	170 000 MPa
Thermal coefficient of expansion	11x10 ⁻³ mm / m °C
Density	7.05g / cm ³

These characteristics give the pipes the ability to withstand the most demanding mechanical conditions and environmental constraints.



The junctions are made by inserting one pipe into the next. Watertightness is produced by compression of the elastomer joint gasket between two metal walls. The contact pressure on the elastomer joints increases as the internal pressure increases making the system highly reliable in operation.



The innovation of the Zinalium lining: life expectancy multiplied by 3 compared with a traditional lining.



Junctions allow an angular deflection permitting improved resistance to ground movements, more freedom during installation and fewer fittings.

High safety factors

- For a DN 800 pipe, allowable operating pressure (AOP*) reaches 30 bar with a safety factor of 3 (the pipeline withstands up to 3 times this pressure)
- The maximum allowable operating pressure (MAOP **) is 36 bar
- The safety factor is 1.5 for the pipelines (buried pressure pipes) subject to various stresses: earth loads, traffic loads, settlement or small ground movements, accidental overload, etc.

*AOP: the maximum hydrostatic pressure which a component is able to withstand permanently in service.

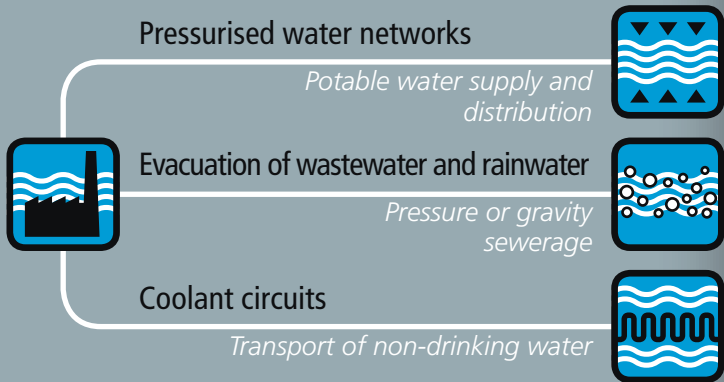
**MAOP: the maximum pressure that a component is capable of withstanding when subjected intermittently to it in service, including water hammer



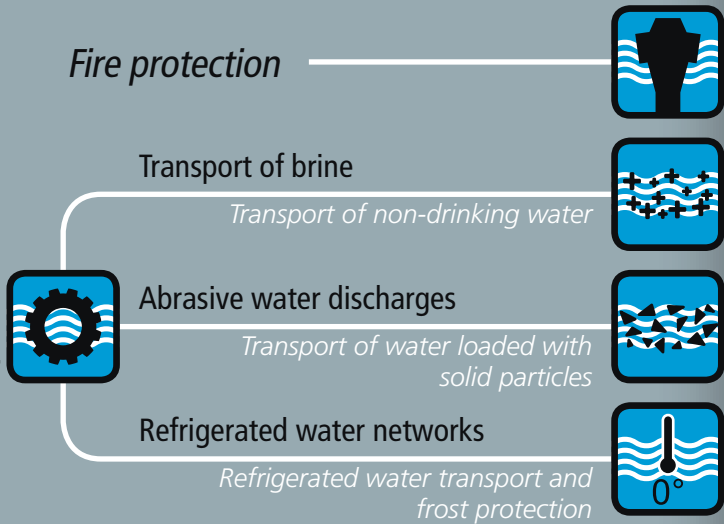
Ranges

Applications

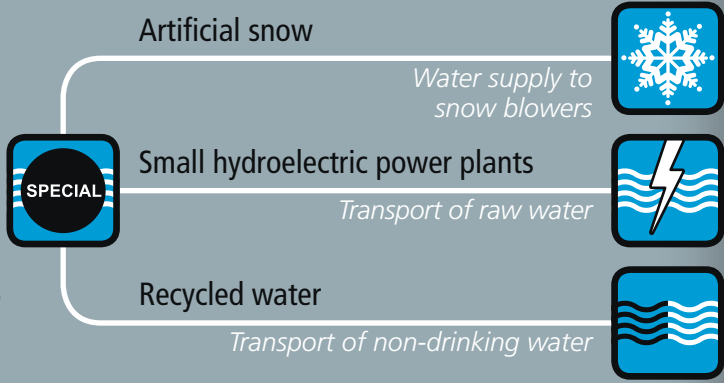
Main circuits



Industrial process circuits



Specific networks



	Flanged parts Pipes, fittings, joints and accessories	NATURAL Pipes, fittings, valves, joints and accessories	INTEGRAL Pipes, fittings, valves and joints	TAG Pipes, fittings and joints	CLASSIC Pipes, fittings, valves, joints and accessories	PLUVIAL Pipes, fittings and joints	FM Pipes, fittings, gate valves, and accessories	ISOPAM Pipes, fittings, joints and accessories	ALPINAL Pipes, fittings, joints and accessories	HYDROPAM Pipes, fittings, valves and joints	URBITAL Pipes, fittings, joints and accessories
	DN 40 to 2000	DN 60 to 600			DN 700 to 2000						
	DN 40 to 2000		DN 80 to 2000	DN 150 to 300		DN 350 to 2000					
		DN 60 to 600			DN 700 to 2000						
		DN 60 to 600					DN 100 to 300				
			DN 80 to 2000								
			DN 80 to 2000			DN 350 to 2000					
					DN 700 to 2000			DN 100 to 600			
									DN 80 to 500		
										DN 60 to 2000	
											DN 100 to 1000
Type of junctions	Flanged joint	Standard joint Express joint Universal joint	Standard joint Express joint Universal joint	IM joint	Standard joint Universal joint	Standard joint	Standard joint	Standard joint	Universal joint	Standard joint	Standard joint
Locking/self-anchoring system	-	Standard Vi joint Express Vi joint Universal Vi & Ve joint	ViLoK joint Standard Ve joint		Standard Ve joint Universal Ve joint Pamlock joint		Standard Vi joint	Universal Vi joint	Universal Vi & Ve joint	Universal Vi & Ve joint	Standard joint
External pipe coating	metallic zinc (1) + bituminous paint	ZINALIUM (2) + blue epoxy	DN 80 to 600: ZINALIUM (2) DN 700 to 2000: metallic zinc (1) + brown/red epoxy	metallic zinc (1) + Aquacoat	metallic zinc (1) + bituminous paint	metallic zinc (3) + black epoxy paint	metallic zinc (3) + bituminous paint	Zinalium + poly-urethane foam	metallic zinc (1) + bituminous paint	metallic zinc (1) + bituminous paint	metallic zinc (1) + mauve epoxy
Pipe internal lining	PUR or cement mortar	centrifuged cement mortar	centrifuged high alumina cement mortar	epoxy resin	centrifuged cement mortar	centrifuged high alumina cement mortar	centrifuged cement mortar	centrifuged cement mortar	centrifuged cement mortar	centrifuged cement mortar	centrifuged cement mortar
Compliance	Standards EN 545, ISO 2531 and EN 598	Standards EN 545 and ISO 2531	Standards EN 598 and ISO 7186	Standards EN 598 and ISO 7186	Standards EN 545 and ISO 2531	Standards EN 598 and ISO 7186	Standards EN 545 and ISO 2531	Standards EN 545, ISO 9349 and ISO 2531	Standards EN 545 and ISO 2531	Standard EN 545	Standard EN 545
	EN 545: ductile cast iron pipes, fittings and accessories and their assemblies for water pipelines. Requirements and test methods		EN 598: ductile cast iron pipes, fittings and accessories and their assemblies for sewerage. Requirements and test methods		ISO 2531: ductile iron pipes, fittings, accessories and their joints for the construction of pipelines.		ISO 7186: Ductile iron products for sewerage applications.		ISO 9349: Preinsulated ductile iron pipes, fittings, accessories and their joints for the construction of pipelines.		

(1) 200 g/m²
(2) 400 g/m² ZnAl
(3) 130 g/m²

Customer benefits



No maintenance

Zero maintenance (watertight)

The average leakage rate from existing European networks is more than 20 %. After installation, years of experience have shown a very low need for maintenance throughout the life cycle of PAM ductile iron pipelines.



Ease and speed of installation

Speed: construction sites, even with large diameter pipes, proceed more quickly with the automatic joint.

Ease: no welding or cathodic protection

Adaptable to all types of environment: installation on a slope, across a river, over a bridge, above ground (pipe rack), buried installation and on piles.

Trenchless pipe laying:

With for example, the installation of a PAM DIREXIONAL pipeline using horizontal directional drilling over a distance of more than 1500 m in Germany.



Reliability

High mechanical strength: sustainable solutions, strengthened by our new linings. PAM ductile iron pipes have a life expectancy greater than 100 years with no changes to the mechanical characteristics.



Energy and operating cost savings

Reduced pumping energy:

by reducing head loss, the high hydraulic section of PAM pipelines contributes to lower pumping costs.



PAM services

Technical support on site. Upstream technical expertise:

a team of engineers and technicians provides technical support during design (hydraulic calculations, mechanical calculations, water analyses, soil surveys)

Responsiveness: hundreds of employees offer a personalised service to design offices, private operators, pipelaying companies and traders.

Logistical support: transport and logistics service to the site

Proximity: logistics platforms close to you and our sales and technical network located in 16 European countries and represented throughout the European Union.



Complete systems

Not only pipes, but a complete range of connections, valves, municipal castings and accessories.



Sustainable development

Responsible production: all plants are certified ISO 14001.

Simplified pipelaying with PAM ECOPOSE:

54 % less material required on a wastewater discharge building site.

Eco-design: energy requirements reduced by 30 % over 15 years.

Recycling: ductile iron is 100 % and infinitely recyclable.



Pages

Industries

Applications

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Mines



Pressurised water networks
Abrasive water discharges

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Petrochemical & chemical industry



Pressurised water networks
Fire protection
Abrasive water discharges
Municipal castings

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Iron and steel industry



Pressurised water networks
Fire protection
Evacuation of wastewater and rainwater
Recycled water
Abrasive water discharges
Municipal castings

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Automotive industry



Pressurised water networks
Fire protection
Evacuation of wastewater and rainwater
Municipal castings

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Power plants



Pressurised water networks
Fire protection
Evacuation of wastewater and rainwater
Recycled water
Coolant circuits
Municipal castings

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Small hydroelectric power plants



Pressurised water or penstock pipes
Municipal castings

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Paper mill & cellulose



Pressurised water networks
Fire protection
Evacuation of wastewater and rainwater
Municipal castings

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Water treatment plants
Sewage treatment plants
Pumping stations



Evacuation of wastewater
Pressurised water networks
Municipal castings

18

Beverage manufacturing
Distillation
alcoholic beverages
soft drinks



Fire protection
Municipal castings

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Sugar refineries & ethanol production



Pressurised water networks
Fire protection
Evacuation of wastewater and rainwater
Municipal castings

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Winter sports resorts



Artificial snow

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Desalination plants & brine production



Brine transport
Fire protection

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Aerodromes & airports



Pressurised water networks
Fire protection
Evacuation of wastewater and rainwater
Refrigerated water networks
Municipal castings

23

Logistics platforms & port areas



Pressurised water networks
Fire protection
Evacuation of wastewater and rainwater
Municipal castings

24

Leisure zones
Amusement parks
Leisure parks
Golf courses
Sports centres



Pressurised water networks
Fire protection
Evacuation of wastewater and rainwater
Recycled water
Municipal castings

25

Activity centres:
hospitals
university campuses
cultural centres
science parks
shopping centres



Fire protection
Refrigerated water networks
Evacuation of wastewater and rainwater
Pressurised water networks
Municipal castings



Petrochemical & chemical industry.....

We work with

-  **RIO TINTO, iron mine**
Australia
Potable water supply network
-  **VALE, iron and potash mine**
Brazil
Water supply network
-  **ANGLO AMERICAN, nickel mine**
Brazil
Water supply network
-  **BHP Billington, copper mine**
Chile
Water supply network
-  **URAMIN AREVA, uranium mine**
Namibia
Raw water supply network
-  **RAG, coal and hard coal mine**
Herne, Germany
Evacuation of minewater
-  **SNIM, iron mine**
Mauritania
Raw water supply network
-  **SICHUAN MINE, coal mine**
China
Raw water supply network
-  **OCP, phosphate mine**
Morocco
Reinforced air valves
-  **VALEINCO (ERAMET), nickel mine**
New Caledonia
-  **LULEÅ, iron mine**
Sweden

More than **4500** km of ductile iron pipelines installed worldwide

Mines

- Mineral deposit operations
- Quarries

Applications



Pressurised water networks
Potable and raw water supply and distribution

Ranges

NATURAL CLASSIC



Abrasive and mine water discharges
Transport of water loaded with solid particles

INTEGRAL

Applications



Pressurised water networks
Potable water supply and distribution

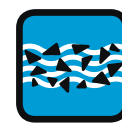
Ranges

NATURAL CLASSIC



Fire protection

FM



Abrasive water discharges
Transport of water loaded with solid particles

INTEGRAL



Municipal castings

PAMETIC duct covers
PAMETANCHE manhole cover
PAMREX manhole cover
TRANSLINEA gratings

We work with

-  **ELF**
Donges, Loire-Atlantique, France
Industrial sewerage and water supply network
-  **TOTAL**
Gonfreville (76) and Grandpuits (77), France
Fire network
-  **DUPONT DE NEMOURS**
Haut-Rhin, France
Water supply network
-  **ATOCHER**
Carling, Moselle, France
Fire network
-  **SHELL**
Petit-Couronne, Seine-Maritime, France
-  **EXXON CHEMICAL**
France
-  **SOLVAY**
Bernburg, Germany
Alkaline water network
-  **AKZO / HENGLO**
Netherlands
Fire network and salt water pumping network
-  **STATOIL**
Denmark
Fire network and wastewater network
-  **BRASKEM**
Camaçari, Brazil
Industrial process water evacuation
-  **PETROBRAS refineries**
Brazil
-  **POINTE NOIRE refinery**
Congo
Fire network
-  **BAYER Chemical**
Shanghai, China
Raw and fire water supply network
-  **China Shenhua Coal to Liquid and Chemical Co**
Yulin, China
Evacuation of wastewater










Iron and steel industry



We work with






-  **VALLOUREC & SUMITOMO**
Brazil
Water supply network
-  **COSIGUA**
Brazil
Water supply network
-  **GERDAU**
Brazil
Water supply network
-  **HERCESA**
Polígono Industrial, S.I.-20, Spain
Water supply network

Applications	Ranges
 Pressurised water networks <i>Potable water supply and distribution</i>	CLASSIC
 Evacuation of wastewater and rainwater <i>Pressure or gravity sewerage</i>	INTEGRAL TAG PLUVIAL
 Coolant circuits <i>Transport of non-drinking water</i>	NATURAL CLASSIC
 Fire protection	FM
 Abrasive water discharges <i>Transport of water loaded with solid particles</i>	INTEGRAL
 Recycled water <i>Transport of non-drinking water</i>	URBITAL
 Municipal castings	PAMREX manhole cover PARXESS manhole cover SQUADRA PMR grating



Automotive industry

- Manufacturers
- Equipment manufacturers

Applications	Ranges
 Pressurised water networks <i>Potable water supply and distribution</i>	NATURAL
 Evacuation of wastewater and rainwater <i>Pressure or gravity sewerage</i>	INTEGRAL TAG PLUVIAL
 Coolant circuits <i>Transport of non-drinking water</i>	NATURAL CLASSIC
 Fire protection	FM
 Municipal castings	PAMREX manhole cover PARXESS manhole cover TRANSLINEA gratings PAMETIC duct covers

We work with

-  **SMART**
Hambach, France
-  **RENAULT**
Flins / Lardy Test Centre/
Guyancourt Technocentre, France
-  **PEUGEOT**
Poissy / Aulnay, France
-  **TOYOTA**
Valenciennes, France
-  **CITROEN**
Valenciennes, France
Fire network
-  **FORD**
Cologne, Germany
Fire network
-  **BMW**
Dingolfing / Regensburg / Munich, Germany
Fire networks, potable water supply network,
rainwater evacuation
-  **VOLKSWAGEN**
Wolfsburg, Germany
Potable and fire water supply network
-  **DAIMLER BENZ**
Sindelfingen / Rastatt, Germany
Industrial process water network,
coolant circuits, fire network and potable water network
-  **PORSCHE**
Leipzig, Germany
Fire network
-  **AUDI**
Ingolstadt, Germany
Industrial process water network
fire network
-  **JOHN DEERE**
Madrid, Spain
Fire network
-  **HYUNDAI**
Brazil
Fire network
-  **RENAULT**
São José dos Pinhais, Brazil
-  **PEUGEOT**
Porto Real, Brazil
-  **VOLKSWAGEN**
São Bernardo do Campo, Brazil
Fire network
-  **DONGFENG MOTOR CORPORATION**
Shiyan, China
Water supply network
-  **MICHELIN**
Clermont-Ferrand, France
Fire networks
-  **VALEO**
France
-  **GOODYEAR**
Germany
Water supply network
-  **ZF SACHS**
Schweinfurt, Germany
Coolant circuit
-  **MICHELIN**
Itatiaia and Resende, Brazil
Fire networks





Hydroelectric power stations and small power stations

We work with

-  **EDF - La BATHIE SALLESTET** hydroelectric power station
Isère, France
-  **LAPPVIK** micro power station
Norway
-  **URKE KRAFTVERK** and **DITTIELVA KRAFTVERK** micro power station
Norway
-  **MARQUARTSTEIN** hydroelectric power station
Germany
Pressure pipe
-  **EGO Elektrizitäts-gesellschaft**
Ohlstadt, Germany
Pressure pipe
-  **RIBEIRA DA PRAIA** hydroelectric power station
Portugal
-  **THISSAVROS** hydroelectric power station
Greece
-  **Bocaina** micro power station
Brazil









Applications	Ranges
 Small hydroelectric power plants <i>Transport of raw water</i>	HYDROPAM
 Municipal castings	PAMETIC duct covers PAMETANCHE manhole cover PAMREX manhole cover

More than **100** projects are designed by Saint-Gobain PAM for hydroelectric power stations each year and delivered worldwide.



Solar and traditional power plants

Applications	Ranges
 Pressurised water networks <i>Potable water supply and distribution</i>	NATURAL CLASSIC
 Evacuation of wastewater and rainwater <i>Pressure or gravity sewerage</i>	INTEGRAL PLUVIAL
 Coolant circuits <i>Transport of non-drinking water</i>	NATURAL CLASSIC
 Fire protection	FM
 Recycled water <i>Transport of non-drinking water</i>	URBITAL
 Municipal castings	PAMETIC duct covers PAMREX manhole cover PARXESS manhole cover TRANSLINEA gratings

We work with

-  **CHINON** nuclear power station
Indre-et-Loire, France
Fire network
-  **BUGET** nuclear power station
Ain, France
Fire network
-  **CATTENOM** nuclear power station
Moselle, France
Coolant circuits
-  **SAINT-LAURENT-DES-EAUX** nuclear power station
Loir-et-Cher, France
Fire network
-  **TAJI Power Plant**
Iraq
Fire network
-  **TERMOSOLAR - EXTRESOL** solar power station
Badajoz, Spain
Water supply network
-  **SOLUCAR** solar power station
Seville, Spain
Water supply network
-  **UTE PARNAIBA II** thermal power station
Geração, Brazil
Water supply network



Paper and cellulose industry

We work with

LA CELLULOSE DES ARDENNES
Belgium
Fire network
Raw and potable water supply network
Industrial discharges

KIMBERLY CLARK INDUSTRIES
Villey, Meurthe-et-Moselle, France
Raw water network
Industrial discharges
Fire network

NORSKE SKOG
Golbey, Vosges, France
Fire network

AUSSEDAT-REY paper mill
Saillat, Haute-Vienne, France
Fire network and industrial network

ELDORADO BRASIL
Três Lagoas, Brazil
Fire network

VOTORANTIM CELULOSE E PAPEL
Três Lagoas, Brazil
Fire network



Applications



Pressurised water networks
Potable water supply and distribution



Evacuation of wastewater and rainwater
Pressure or gravity sewerage



Fire protection



Municipal castings

Ranges

**NATURAL
CLASSIC**
Flanged parts

**INTEGRAL
TAG**
PLUVIAL

FM

PAMREX manhole cover
PARXESS manhole cover
TRANSLINEA gratings
PAMETIC duct covers



Water treatment

- Sewage treatment plants
- Pumping stations
- Slide valve chambers



Applications



Pressurised water networks
Potable water supply and distribution



Evacuation of wastewater and rainwater
Pressure or gravity sewerage



Municipal castings

Ranges

**NATURAL
CLASSIC**
Flanged parts

**INTEGRAL
TAG**
Flanged parts

PAMETIC duct covers
PAMETANCHE manhole cover
PAMREX manhole cover

We work with

STEP, Vesoul
France

Greater Nancy drinking water production facility
Nancy, France

Shuheiwat slide valve chambers
United Arab Emirates

STEP, Oupeye
Liège, Belgium

Warsaw pumping station
Poland

North Doha STEP and slide valve chambers
Qatar





Beverage manufacturing

- Distillation
- Alcoholic beverages
- Soft drinks



We work with

- COCA-COLA**
Paris region, France
Fire network
- NESTLÉ**
France
Refrigerated water network
- COGNAC MARTEL distillery**
Paris region, France
Fire network
- NESTLÉ**
Germany
- Adelholzer Mineralbrunnen**
Bad Adelholzen, Germany
Mineral water transport
- WARSTEINER Brewery**
Germany
Water supply network
- STELLA ARTOIS Brewery**
Belgium
Fire reservoir
- AMBEV - Brahma brewery and Passo Fundo brewery**
Brazil
Water supply network

Applications



Pressurised water networks
Potable water supply and distribution



Evacuation of wastewater and rainwater
Pressure or gravity sewerage



Refrigerated water networks
Refrigerated water transport and frost protection



Fire protection



Municipal castings

Ranges

NATURAL
CLASSIC
Flanged parts

INTEGRAL
TAG
PLUVIAL

CLASSIC
ISOPAM

FM

PAMREX manhole cover
PARXESS manhole cover
TRANSLINEA gratings
PAMETIC duct covers



Ethanol & Sugar refineries



Applications



Pressurised water networks
Potable water supply and distribution



Evacuation of wastewater and rainwater
Pressure or gravity sewerage



Fire protection



Municipal castings

Ranges

NATURAL

INTEGRAL
PLUVIAL

FM

PAMREX manhole cover
PARXESS manhole cover
TRANSLINEA gratings
PAMETIC duct covers

We work with

- CONNANTRE sugar refinery**
Marne, France
Beet washing water network
- BAZANCOURT sugar refinery**
Marne, France
Beet washing water network
- SILLERY sugar refinery**
Marne, France
Beet washing water network
- SAINT-ÉMILIE sugar refinery**
Somme, France
- A.V.E.B.E starch works**
Haussimont, Marne, France
- SOUPPES-SUR-LOING sugar refinery**
Seine-et-Marne, France
- ARCIS-SUR-AUBE sugar refinery**
Aube, France
Beet washing water network
- BRIE CHAMPAGNE ETHANOL**
Nangis, Seine-et-Marne, France
Beet washing water network
- COSAN**
Brazil
Water supply network
- USINA CONQUISTA DO PONTAL**
Mirante do Paranapanema, Brazil
Water supply network
- AGRO ENERGIA SANTA LUZIA**
Nova Alvorada do Sul, Brazil
Water supply network



Winter sports resorts

We work with

-  **COURCHEVEL**
-  **SERRE-CHEVALIER**
-  **MEGEVE**
-  **LES ROUSSES**
-  **TIGNES**
-  **LES ARCS**
-  **VAL D'ISÈRE**
-  **VAL THORENS**
-  **HOCHZILLERTAL**
Austria
-  **BESCHN. GERLOS**
Austria
-  **VSETIN**
Czech Republic
-  **GSTAAD ROUGEMONT**
Switzerland
-  **FORMIGAL**
Spain



Applications



Artificial snow
Water supply to
snow blowers

Ranges

ALPINAL



Desalination plants and brine production

Applications



Brine transport
Transport of non-drinking water



Municipal castings


Ranges

INTEGRAL

PAMETIC duct covers
PAMETANCHE manhole cover
PAMREX manhole cover



We work with

-  **RHONE POULENC**
La Madeleine, Meurthe-et-Moselle, France
Discharge of soda ash and brine transport
-  **SOLVAY**
Dombasle, Meurthe-et-Moselle, France
Brine transport
-  **SÜDSALZ**
Berchtesgaden, Germany
Salt water transport
-  **UMM AL NAR WEST**
desalination station
United Arab Emirates
Sea water network
-  **NOUAKCHOTT**
desalination plant
Mauritania
Sea water transport
-  **FUERTEVENTURA**
desalination plant
Canary Islands, Spain
Sea water transport
-  **SOLVAY TORRELAVEGA**
Spain
Brine evacuation network



Aerodromes & airports

Logistics platforms

- Port areas
- Road platforms

We work with

- AVON (Cosmetics)**
Logistics platform, Brazil
Fire network
- PECÉM - Harbour complex**
Brazil
- GADIS - Logistics centre**
Valladolid, Spain
Water supply network
- ASTILLEROS**
Shipyard, Spain
Transport of crude oil and sea water
- BREST - Commercial port**
Finistère, France
- Grand Port Maritime du Havre**
Seine-Maritime, France
Sewerage and rainwater network
- M.I.N., RUNGIS**
Val-de-Marne, France
Fire network
- HMNB**
Portsmouth, United Kingdom
PAMETIC duct covers
- CHANGI Naval Base**
Singapore
PAMETIC duct covers

Applications

Ranges



Pressurised water networks
Potable water supply and distribution

NATURAL



Evacuation of wastewater and rainwater
Pressure or gravity sewerage

**INTEGRAL
TAG
PLUVIAL**



Fire protection

FM



Municipal castings

PAMREX manhole cover
URBAMAX manhole cover
SQUADRA grating
TRANSLINEA gratings
PAMETIC duct covers

Applications

Ranges



Pressurised water networks
Potable water supply and distribution

NATURAL



Evacuation of wastewater and rainwater
Pressure or gravity sewerage

**INTEGRAL
TAG
PLUVIAL**



Fire protection

FM



Refrigerated water networks
Refrigerated water transport and frost protection

ISOPAM



Municipal castings

PAMETIC duct covers
TRANSLINEA gratings
URBAMAX manhole cover

We work with

- ADP (Aéroports de Paris)**
Roissy / Orly, France
Fire network, evacuation of wastewater
- AIRBUS (EADS group)**
Blagnac, Haute-Garonne, France
- Service Spécial Bases Aériennes Ile-de-France (SSBAIF)**
Paris, France
- CEPr (Propulsion test centre)**
Saclay, Essonne, France
- Brétigny-sur-Orge air base**
Essonne, France
Water supply network, evacuation of wastewater
- LUXEMBOURG-FINDEL airport**
Grand Duchy of Luxembourg
Evacuation of wastewater and rainwater
- NATO airport**
Ramstein, Germany
Potable water network, evacuation of wastewater
- Hamburg airport**
Germany
PAMETIC duct covers
- LONDON Heathrow airport (T5)**
United Kingdom
PAMETIC duct covers
- CONGONHAS airport**
São Paulo, Brazil
- BAIYUN airport**
Guangzhou, China
Fire network



Leisure zones

- Golf courses
- Amusement parks
- Sports complexes
- Hippodromes



We work with

- Disneyland Paris and Parc Walt Disney Studio**
Marne-la-Vallée, Seine-et-Marne, France
Fire network
- CENTER PARCS**
Moselle, France
Sewerage network
- INSEP**
Institut National du Sport, de l'Expertise et de la Performance, Paris, France
Fire network
- STADE DE FRANCE**
Paris, France
Water supply network
- UNIVERSAL STUDIOS**
PortAventura, Spain
Water supply network
- LA DEHESA, VILLANUEVA DE LA CAÑADA golf club**
Madrid, Spain
- BENALMÁDENA golf club**
Málaga, Spain

Applications	Ranges
Pressurised water networks <i>Potable water supply and distribution</i>	NATURAL CLASSIC Flanged parts
Evacuation of wastewater and rainwater <i>Pressure or gravity sewerage</i>	INTEGRAL TAG PLUVIAL
Fire protection	FM Fire hydrants
Recycled water <i>Transport of non-drinking water</i>	URBITAL
Municipal castings	REXEL2 manhole cover T-MAX duct covers PARXESS manhole cover SQUADRA PMR grating Tree gratings



Activity centres

- University campuses
- Shopping centres
- Cultural centres
- Science parks
- Hospitals

Applications	Ranges
Pressurised water networks <i>Potable water supply and distribution</i>	NATURAL
Evacuation of wastewater and rainwater <i>Pressure or gravity sewerage</i>	INTEGRAL TAG PLUVIAL
Coolant circuits <i>Transport of non-drinking water</i>	NATURAL CLASSIC
Fire protection	FM
Municipal castings	PAMETIC duct covers T-MAX duct covers PAMREX manhole cover PARXESS manhole cover SQUADRA PMR grating Tree gratings

We work with

- The Max Planck Institute for Astrophysics**
Garching, Germany
Coolant circuit in a computing centre
- AMD (electronic components)**
Dresden, Germany
Industrial process water network
- HEC campus**
Paris, France
Sewerage network
- Polytechnique**
Paris, France
Water network
- ORSAY faculty**
Paris, France
Water network
- Villepinte exhibition site**
Seine-Saint-Denis, France
Municipal castings
- Aéroville shopping centre**
Roissy, France
Fire network
- Tung Chung Shopping Center**
Hong Kong
PAMETIC duct covers
- Banque de France**
Paris, France
Fire prevention
- NUEVO Hospital**
Burgos, Spain
Fire prevention
- BENITO MENI hospital**
Valladolid, Spain
- TENON hospital**
Paris, France
Fire network
- SAINT-ANNE hospital**
Paris, France

Applications

Main circuits

Pressurised water networks

Potable water supply and distribution

Evacuation of wastewater and rainwater

Pressure or gravity sewerage

Coolant circuits

Transport of non-drinking water

Fire protection

Industrial process circuits

Brine transport

Transport of non-drinking water

Abrasive water discharges

Transport of water loaded with solid particles

Refrigerated water networks

Refrigerated water transport and frost protection

Specific networks

Small hydroelectric power plants

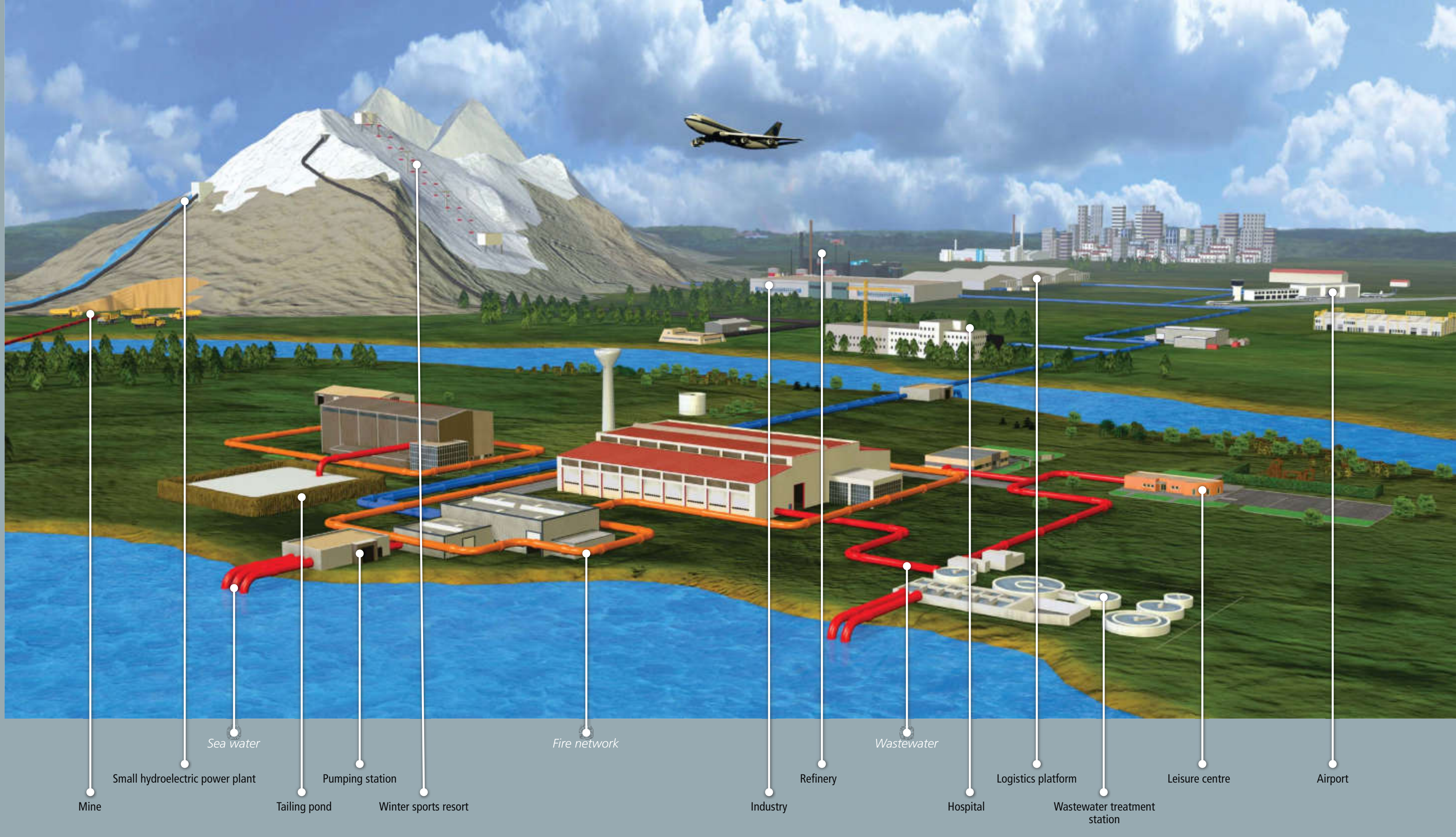
Transport of raw water

Artificial snow

Water supply to snow blowers

Recycled water

Transport of non-drinking water



Mine

Small hydroelectric power plant

Tailing pond

Pumping station

Winter sports resort

Fire network

Industry

Refinery

Wastewater

Hospital

Logistics platform





Wastewater treatment station

Leisure centre

Airport

Pipes and fittings ranges

DN








	FLANGED PARTS potable water and raw water fresh and mineral (PUR) water wastewater pH 1 to 12	40 to 2000	
	NATURAL potable water raw water soft and mineral water (PUR)	60 to 600	
	INTEGRAL wastewater sandy and abrasive effluents pH 1 to 12	80 to 2000	
	TAG wastewater pH 4 to 12	150 to 300	
	CLASSIC potable water raw water soft and mineral water (PUR)	700 to 2000	
	PLUVIAL sandy and abrasive effluents pH 4 to 12	350 to 2000	
	FM raw and potable water	100 to 300	
	ISOPAM raw and potable water wastewater pH 4 to 12	100 to 600	
	ALPINAL pipeline system for artificial snow	80 to 500	
	HYDROPAM raw water	60 to 2000	
	URBITAL recycled water	100 to 1000	

Note 1: For special soil types (marine, acidic, polluted, stray currents), PAM offers suitable protection systems

Note 2: For very soft or mineral water, PAM offers a specific range (PUR)

Valve ranges

DN

WAFER butterfly valve PN10, 16 and 25 bar Manual and motorised	32 to 1200	
LUG butterfly valve PN10, 16 and 25 bar Manual and motorised	32 to 600	
Penstock Stainless steel 316-L Size: 150x2000 mm	150 to 2000	
End valve Stainless steel 304-L	80 to 2000	
Euro 20 FM APPROVED	40 to 300	
Eurostop isolation butterfly valve AOP 10, 16 bar	150 to 2000	
ATLAS fire hydrant AOP 16 bar reversible and non reversible	100	

Municipal castings range

Class

Duct covers  Watertight and modular duct covers with multiple covers	B 125 C 250 D 400 E 600 F 900	
PAMREX Heavy traffic, elastomer joint Hinged	D 400	
URBAMAX Heavy traffic elastomer joint	F 900 E 600	
PAMETANCHE High watertightness Locked with 6 bolts and clamps	D 400	
TRANSLINEA For transverse gutters Mechanical linking	E 600 D 400	
PARXESS For busy pavements Cover pressing and locking system	C 250	
SQUADRA Square frame Automatic locking	C 250	

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