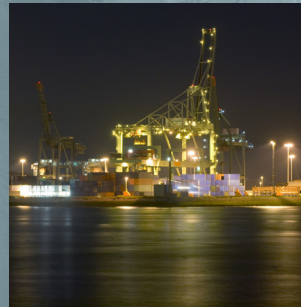




INDUSTRY & APPLICATIONS



INDUSTRY & APPLICATIONS



PAM at the heart of the Saint-Gobain group

Saint-Gobain, a unique worldwide brand

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

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



Innovation as a driving force

Since 1665, Saint-Gobain has been characterised by its ability to invent products which have improved and continue to improve our quality of life.

The Group, which is one of the hundred largest industrial companies worldwide, 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 its 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 business has been based on its skills, the reliability and performance of its products.
- With its worldwide infrastructure, commercial and technical support is available anywhere in the world. PAM's relationship with its clients is based on a true partnership.
- With a reputation for the quality of its products, PAM adds value to its solutions by adding a range of services and promises 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 adhered to (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

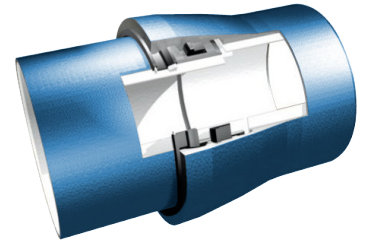
Ductile iron, an innovative material

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.

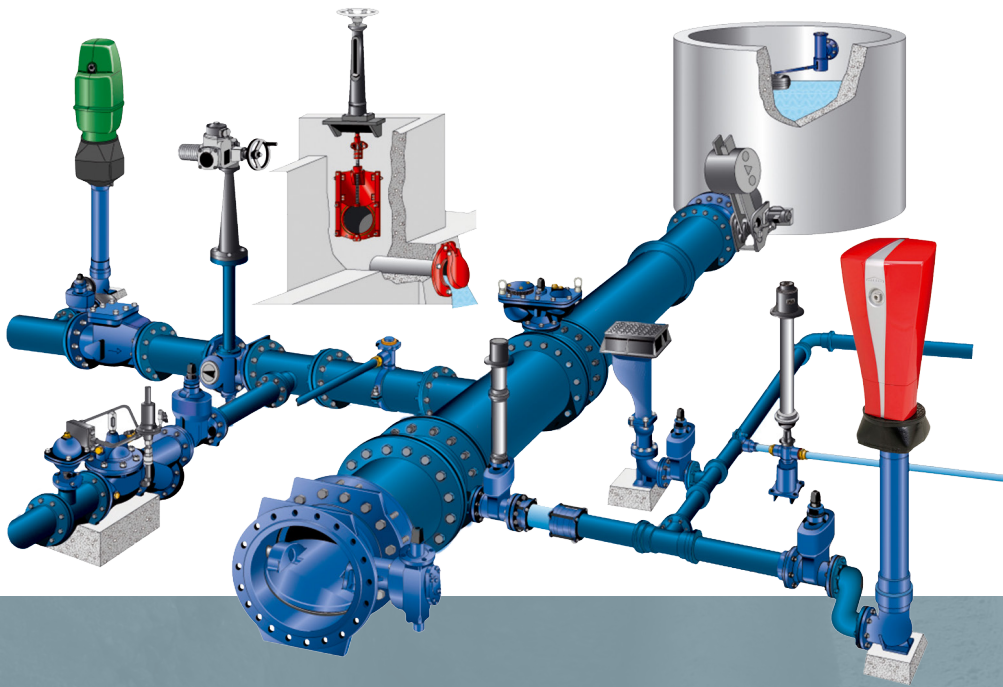
Exceptional mechanical properties

| | |
|----------------------------------|--|
| Yield stress, Rp 0.2 | 300 MPa |
| Tensile strength Rm | 420 MPa |
| Elongation at break, A | 10% for DN 60 to 1 000 7% for DN 1 200 to 2 000 |
| Modulus of elasticity | 170 000 MPa |
| Thermal coefficient of expansion | 11×10^{-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

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

Transport of brine

Transport of non-drinking water



Abrasive water discharges

Transport of water loaded with solid particles



Refrigerated water networks

Refrigerated water transport and frost protection



Artificial snow

Water supply to snow blowers



Specific networks

Small hydropower stations

Transport of raw water



Recycled water

Transport of non-drinking water



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

DN 40 to 2000

DN 60 to 600

DN 40 to 2000

DN 80 to 2000

DN 150 to 300

DN 60 to 600

DN 60 to 600

DN 80 to 2000

DN 80 to 2000

Type of junctions

Flanged joint

Standard joint
Express joint
Universal Joint

Standard joint
Express joint
Universal Joint

IM Joint

Locking/self-anchoring system

-

Standard Vi joint
Express Vi Joint
Universal Vi & Ve Joint

ViLoK Joint
Standard Ve 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

Pipe internal lining

PUR or cement
mortar

centrifuged cement
mortar

centrifuged high alu-
mina cement mortar

epoxy resin

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

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



| 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 700 to 2000 | | | | | | |
| | ● DN 350 to 2000 | | | | | |
| ● DN 700 to 2000 | | | | | | |
| | | ● DN 100 to 300 | | | | |
| | ● DN 350 to 2000 | | | | | |
| ● DN 700 to 2000 | | | ● DN 100 to 600 | | | |
| | | | | ● DN 80 to 500 | | |
| | | | | | ● DN 60 to 2000 | |
| | | | | | | ● DN 100 to 1000 |
| Standard joint Universal Joint | Standard joint | Standard joint | Standard joint | Universal Joint | Standard joint | Standard 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 |
| metallic zinc (1) + bituminous paint | metallic zinc (3) + black epoxy paint | metallic zinc (3) + bituminous paint | Zinalium + polyurethane foam | metallic zinc (1) + bituminous paint | metallic zinc (1) + bituminous paint | metallic zinc (1) + mauve epoxy |
| centrifuged cement mortar | centrifuged high alu- mina cement mortar | centrifuged cement mortar | centrifuged cement mortar | centrifuged cement mortar | centrifuged cement mortar | centrifuged cement mortar |
| 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 |

ISO 2531: ductile iron pipes, fittings, accessories and their joints for the construction of pipelines.

ISO7186: Ductile iron products for sewerage applications.

ISO 9349: Preinsulated ductile iron pipes, fittings, accessories and their joints for the construction of pipelines.

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

Customer benefits

PAM

SAINT-GOBAIN



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 much reduced 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.



Complete systems

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



PAM services

Technical support on site. Up-front 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 located near you and our sales and technical network located in 16 European countries and represented throughout the European Union.



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.



| | | | |
|----|---|--|--|
| 10 | Mines |   | Pressurised water networks Abrasive water discharges |
| 11 | Petrochemical & chemical industry |     | Pressurised water networks Abrasive water discharges Fire protection Municipal castings |
| 12 | Iron and steel industry |        | Pressurised water networks Evacuation of wastewater and rainwater Coolant circuits Fire protection Abrasive water discharges Recycled water Municipal castings |
| 13 | Automotive industry |      | Pressurised water networks Evacuation of wastewater and rainwater Coolant circuits Fire protection Municipal castings |
| 14 | Small hydropower stations |   | Raw water supply network Municipal castings |
| 15 | Power plants |       | Pressurised water networks Evacuation of wastewater and rainwater Coolant circuits Fire protection Recycled water Municipal castings |
| 16 | Paper mill & cellulose |     | Pressurised water networks Evacuation of wastewater and rainwater Fire protection Municipal castings |
| 17 | Water treatment plants <i>Sewage treatment plants</i> <i>Pumping stations</i> <i>Slide valve chambers</i> |    | Pressurised water networks Evacuation of wastewater and rainwater Municipal castings |
| 18 | Beverage manufacturing <i>Distillation</i> <i>Alcoholic beverages</i> <i>Soft drinks</i> |      | Pressurised water networks Evacuation of wastewater and rainwater Refrigerated water networks Fire protection Municipal castings |
| 19 | Sugar refineries & ethanol production |     | Pressurised water networks Evacuation of wastewater and rainwater Fire protection Municipal castings |
| 20 | Winter sports resorts |  | Artificial snow |
| 21 | Desalination plants & brine production |   | Brine transport Municipal castings |
| 22 | Logistics platforms & port areas |     | Pressurised water networks Evacuation of wastewater and rainwater Fire protection Municipal castings |
| 23 | Aerodromes & airports |      | Pressurised water networks Evacuation of wastewater and rainwater Refrigerated water networks Fire protection Municipal castings |
| 24 | Leisure zones <i>Amusement parks</i> <i>Leisure parks</i> <i>Golf courses</i> <i>Sports centres</i> |      | Pressurised water networks Evacuation of wastewater and rainwater Fire protection Recycled water Municipal castings |
| 25 | Activity centres: <i>Hospitals</i> <i>University Campuses</i> <i>Cultural Centres</i> <i>Science Parks</i> <i>Shopping Centres</i> |      | Pressurised water networks Evacuation of wastewater and rainwater Coolant circuits Fire protection Municipal castings |



We work with

- 
RIO TINTO, iron mine
 Australie
 Potable water supply network
- 
VALE, iron and potash mine
 Brazil
 Water supply network
- 
ANGLO AMERICAN, nickel mine nickel
 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
 Abrasive water discharges
- 
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



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

Ranges

NATURAL[®]
CLASSIC

INTEGRAL[®]



Petrochemical & chemical industry



Applications



Pressurised water networks
Potable water supply and distribution



Fire protection



Abrasive water discharges
Transport of water loaded with solid particles



Municipal castings

Ranges

NATURAL[®] CLASSIC

FM

INTEGRAL[®]

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) et Grandpuits (77), France
Fire network
-  **DUPONT DE NEMOURS**
Haut-Rhin, France
Water supply network
-  **ATOCHEM**
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
-  **Raffineries PETROBRAS**
Brazil
-  **Raffinerie de POINTE NOIRE**
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

Potable water supply and distribution

CLASSIC



Evacuation of wastewater and rainwater

Pressure or gravity sewerage

INTEGRAL®
TAG®
PLUVIAL®



Coolant circuits

Transport of non-drinking water

NATURAL®
CLASSIC



Fire protection

FM



Abrasive water discharges

Transport of water loaded with solid particles

INTEGRAL®



Recycled water

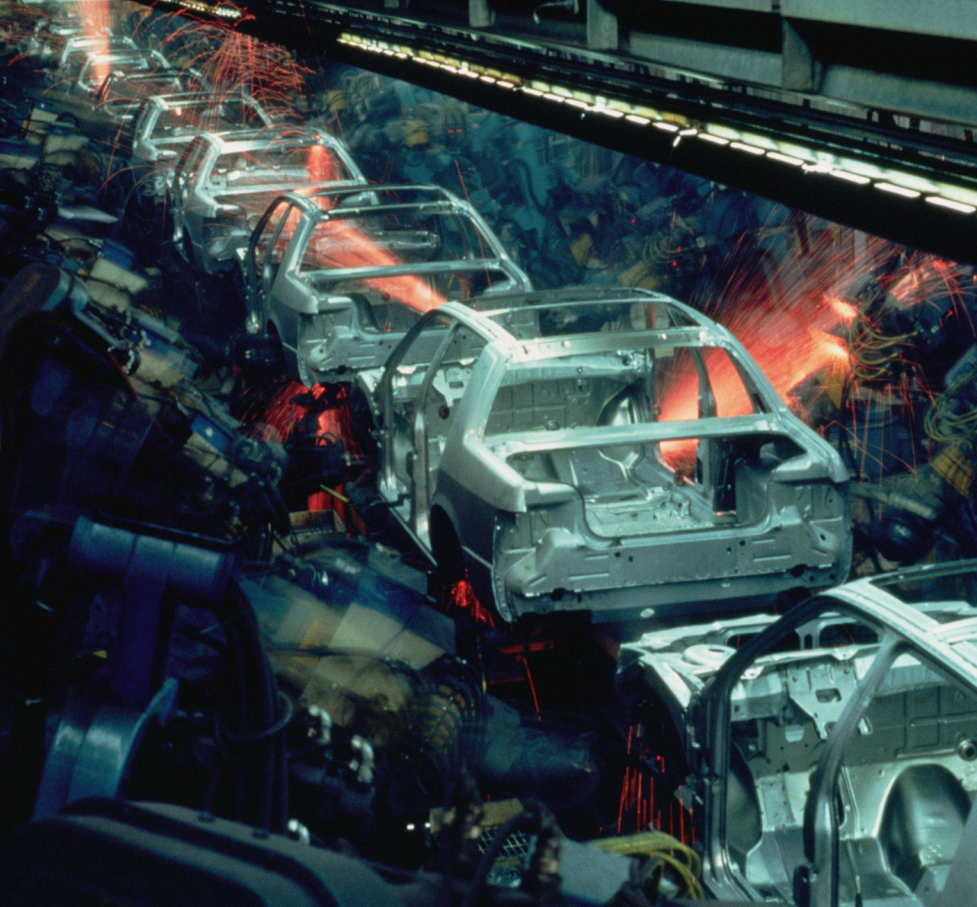
Transport of non-drinking water

URBITAL®



Municipal castings

PAMREX® manhole cover
PARXESS® manhole cover
SQUADRA® PMR grating



Automotive industry

- Manufacturers
- Equipment manufacturers

Applications

Ranges



Pressurised water networks
Potable water supply and distribution

NATURAL®



Evacuation of wastewater and rainwater
Pressure or gravity sewerage

INTEGRAL®
TAG®
PLUVIAL®



Coolant circuits
Transport of non-drinking water

NATURAL®
CLASSIC



Fire protection

FM



Municipal castings

PAMREX® manhole cover
PARXESS® manhole cover
TRANSLINEA grating
PAMETIC® duct cover

We work with

-  **SMART**
Hambach, France
-  **RENAULT**
Flins / Lardy Test Centre /
Guyancourt Technocentre /
Centre technique d'Aubevoye, France
-  **PEUGEOT**
Poissy / Aulnay, France
-  **TOYOTA**
Valenciennes, France
-  **CITROEN**
Valenciennes, France
Fire network
-  **FORD**
Köln, Germany
Fire network
-  **BMW**
Dingolfing / Regensburg / München,
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 network
-  **VALEO**
France
-  **GOODYEAR**
Germany
Water supply network
-  **ZF SACHS**
Schweinfurt, Germany
Coolant circuit
-  **MICHELIN**
Itatiaia et Resende, Brazil
Fire network



Hydropower stations and small hydropower stations

We work with

-  **EDF - La BATHIE SALLETET
hydropower station**
Isère, France
-  **LAPPVIK MICRO power station**
Norway
-  **URKE KRAFTVERK and DITTIELVA
KRAFTVERK hydropower station**
Norway
-  **MARQUARTSTEIN hydropower
station**
Germany
Pressure pipe
-  **EGO Elektrizitätsgenossen-schaft**
Ohlstadt, Germany
Pressure pipe
-  **RIBEIRA DA PRAIA hydropower
station**
Portugal
-  **THISSAVROS hydropower station**
Greece
-  **BOCÂINA micro power station**
Brazil



More than **100** projects
are designed by
PAM for
hydropower stations
each year and delivered
worldwide.

Applications



Small hydropower plants
Transport of raw water



Municipal castings

Ranges

HYDROPAM®

PAMETIC® duct cover
PAMETANCHE® manhole cover
PAMREX® manhole cover



Power plants

Applications

Ranges



Pressurised water networks
Potable raw water supply and distribution

**NATURAL®
CLASSIC**



Evacuation of wastewater and rainwater
Pressure or gravity sewerage

**INTEGRAL®
PLUVIAL®**



Coolant circuits
Transport of non-drinking water

**NATURAL®
CLASSIC**



Fire protection

FM



Recycled water
Transport of non-drinking water

URBITAL®



Municipal castings

PAMETIC® duct cover
PAMREX® manhole cover
PARXESS® manhole cover
TRANSLINEA grating

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**
Irak
Fire network
-  **TERMOSOLAR - EXTRESOL solar power station**
Badajoz, Spain
Water supply network
-  **SOLUCAR solar power station**
Séville, Spain
Water supply network
-  **UTE PARNAIBA II thermal power station**
Geração, Brazil
Water supply network



Paper and cellulose industry

We work with

- 
NORSKE SKOG
 Golbey, Vosges, France
 Fire network
- 
KIMBERLY CLARK INDUSTRIES
 Villey, Meurthe-et-Moselle, France
 Raw water network
 Industrial discharges
 Fire network
- 
Papeterie AUSSEDAT-REY
 Saillat, Haute-Vienne, France
 Fire network and industrial network
- 
LA CELLULOSE DES ARDENNES
 Belgium
 Fire network
 Raw and potable water supply network
 Industrial discharges
- 
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 cover





Water treatment

- Sewage treatment plants
- Pumping stations
- Slide valve chambers



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

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 cover
PAMETANCHE® manhole cover
PAMREX® manhole cover





Beverage manufacturing

- Distillation
- Alcoholic beverages
- Soft drinks



We work with

-  **COCA-COLA**
Région parisienne, France
Fire network
-  **NESTLÉ**
France
Refrigerated water network
-  **Distillerie COGNAC MARTEL**
Région parisienne, France
Fire network
-  **NESTLÉ**
Germany
-  **Adelholzener Mineralbrunnen**
Bad Adelholzen, Germany
Mineral water transport
-  **BRASSERIE WARSTEINER**
Germany
Water supply network
-  **Brasserie STELLA ARTOIS**
Belgium
Fire reservoir
-  **AMBEV - Brasserie Brahma et brasserie de Passo Fundo**
Brazil
Water supply network

Applications

Ranges



Pressurised water networks
Potable water supply and distribution

NATURAL[®]
CLASSIC
Flanged parts



Evacuation of wastewater and rainwater
Pressure or gravity sewerage

INTEGRAL[®]
TAG[®]
PLUVIAL[®]



Refrigerated water networks
Refrigerated water transport and frost protection

CLASSIC
ISOPAM[®]



Fire protection

FM



Municipal castings

PAMREX[®] manhole cover
PARXESS[®] manhole cover
TRANSLINEA gratings
PAMETIC[®] duct cover



Ethanol & Sugar refineries



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
-  **SAINTE-ÉMILIE sugar refinery**
Somme, France
-  **A.V.E.B.E starch works**
Haussimont, Marne, France
-  **SOUPPE-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

Applications

Ranges



Pressurised water networks
Potable water supply and distribution

NATURAL®



Evacuation of wastewater and rainwater
Pressure or gravity sewerage

**INTEGRAL®
PLUVIAL®**



Fire protection

FM



Municipal castings

PAMREX® manhole cover
PARXESS® manhole cover
TRANSLINEA gratings
PAMETIC® duct cover



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 cover
 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 plant
 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





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**
Shipyards, 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
Fire network
-  **M.I.N. de RUNGIS**
Val-de-Marne, France
Fire network
-  **HMNB**
Portsmouth, United Kingdom
PAMETIC duct cover
-  **CHANGI Naval Base**
Singapore
PAMETIC duct cover

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 grating
PAMETIC® duct cover



Aerodromes & airports

Applications



Pressurised water networks
Potable water supply and distribution



Evacuation of wastewater and rainwater
Pressure or gravity sewerage



Fire protection



Refrigerated water networks
Refrigerated water transport and frost protection



Municipal castings

Ranges

NATURAL®

INTEGRAL®
TAG®
PLUVIAL®

FM

ISOPAM®

PAMETIC® duct cover
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
-  **OTAN airport**
Ramstein, Germany
Potable water network, evacuation of wastewater
-  **HAMBURG airport**
Germany
PAMETIC duct cover
-  **LONDON Heathrow (T5) airport**
United Kingdom
PAMETIC duct cover
-  **CONGONHAS airport**
São Paulo, Brazil
-  **BAIYUN airport**
Guangzhou, China
Fire network



Leisure resorts

- Golf courses
- Amusement parks
- Sports complexes
- Hippodromes



We work with

-  **Disneyland Paris et 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**
Port Ventura, Spain
Water supply network
-  **Golf de LA DEHESA, VILLANUEVA DE LA CAÑADA**
Madrid, Spain
-  **Golf de BENALMÁDENA**
Málaga, Spain

Applications



Pressurised water networks
Potable water supply and distribution



Evacuation of wastewater and rainwater
Pressure or gravity sewerage



Fire protection



Recycled water
Transport of non-drinking water



Municipal castings

Ranges

NATURAL[®]
CLASSIC
Flanged parts

INTEGRAL[®]
TAG[®]
PLUVIAL[®]

FM
Poteaux Incendie

URBITAL[®]

REXEL2[®] manhole cover
T-MAX[®] manhole cover
SQUADRA[®] PMR grating
Tree gratings



Activity centres

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

Applications

Ranges



Pressurised water networks
Potable water supply and distribution

NATURAL®



Evacuation of wastewater and rainwater
Pressure or gravity sewerage

INTEGRAL®
TAG®
PLUVIAL®



Coolant circuits
Transport of non-drinking water

NATURAL®
CLASSIC



Fire protection

FM



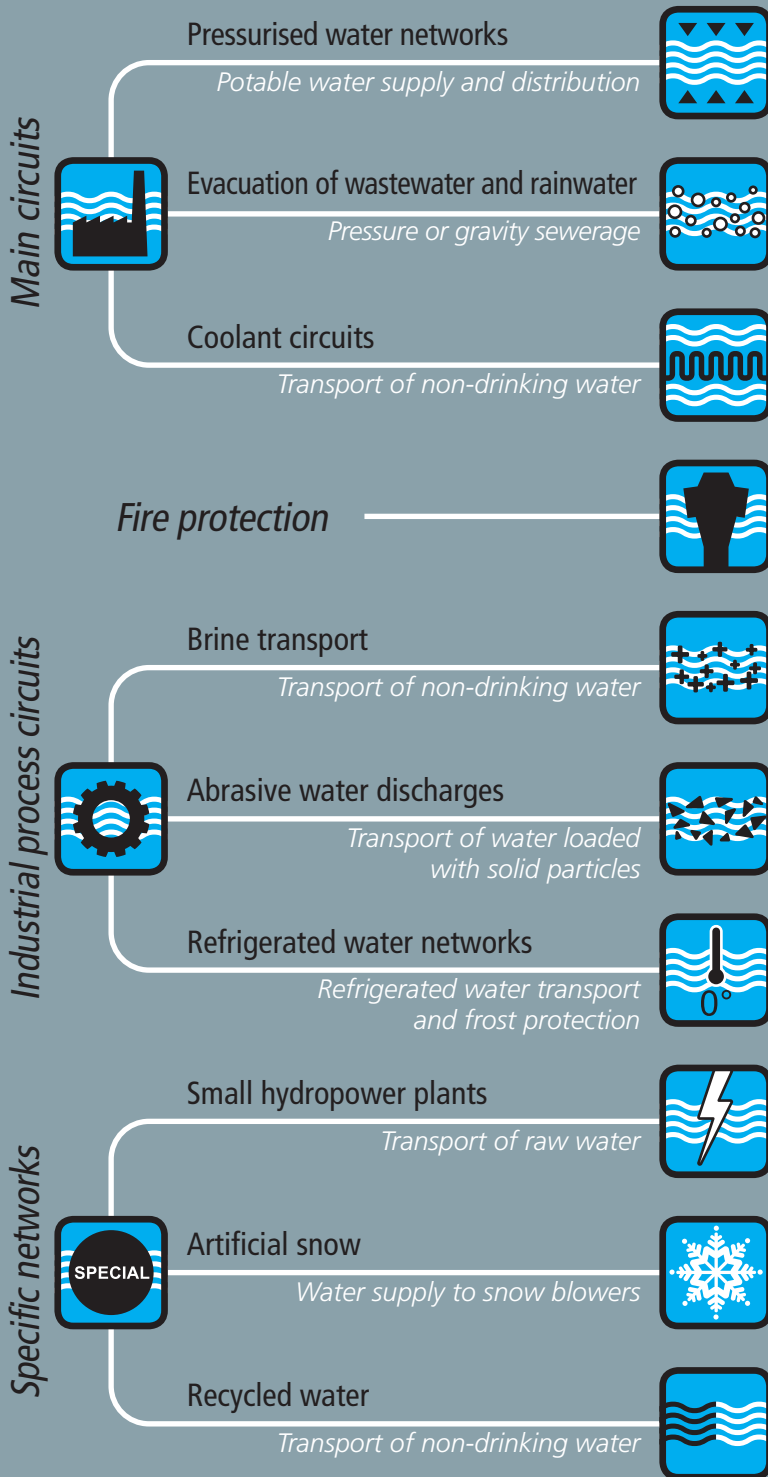
Municipal castings

PAMETIC® duct cover
Trappe T-MAX®
PAMREX® manhole cover
PARXESS® manhole cover
SQUADRA® PMR gratings
Tree gratings

We work with

-  **The Max Planck Institute for Astrophysic**
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
-  **SAINTE-ANNE hospital**
Paris, France

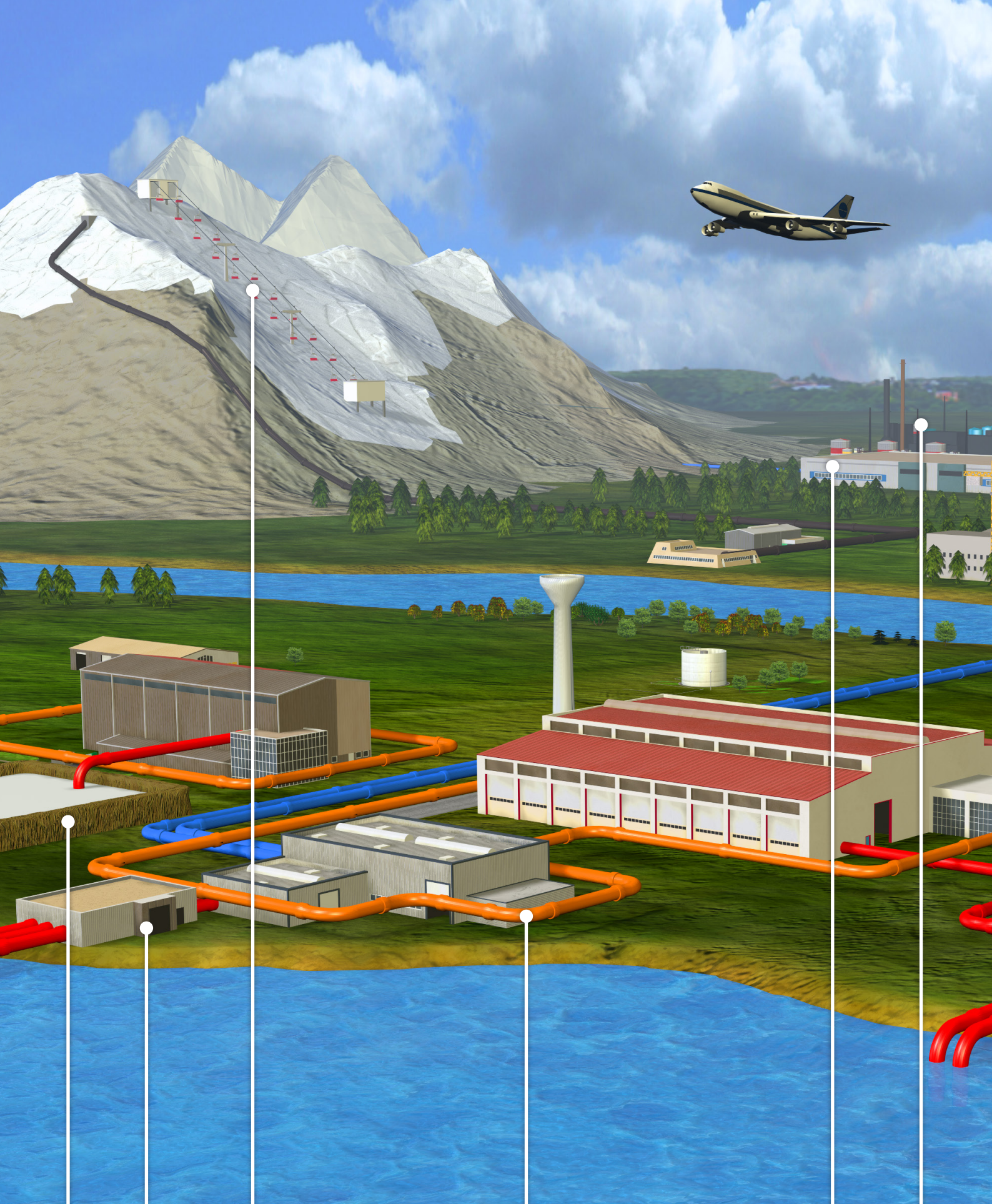
Applications



Mine

Small hydropower plant

Sea water



Tailing pond

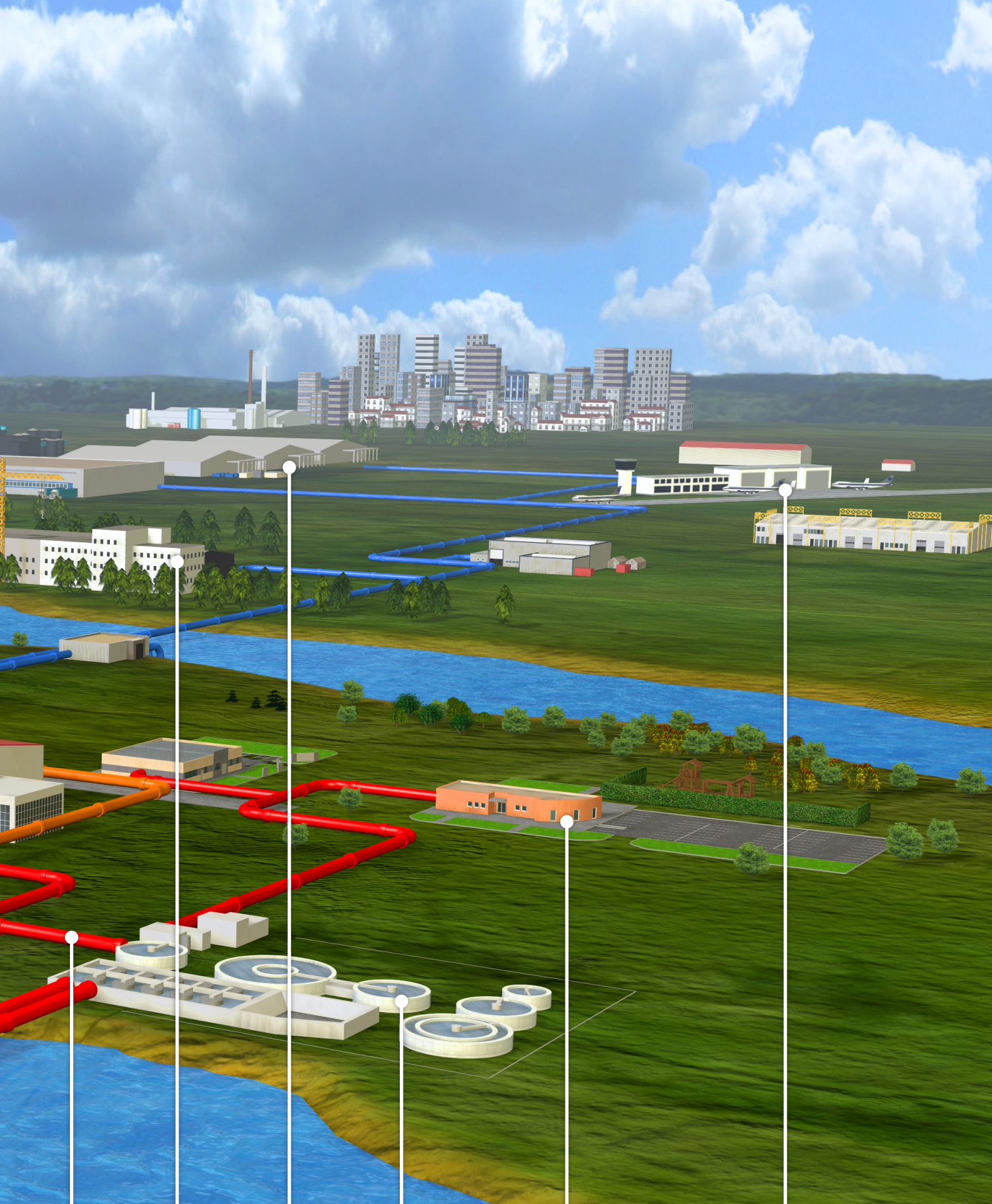
Pumping station

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 à 2000 |  |
|  NATURAL® potable water raw water soft and mineral water (PUR) | 60 à 600 |  |
|  INTEGRAL® wastewater sandy and abrasive effluents pH 1 to 12 | 80 à 2000 |  |
|  TAG® wastewater pH 4 to 12 | 150 à 300 |  |
|  CLASSIC potable water raw water soft and mineral water (PUR) | 700 à 2000 |  |
|  PLUVIAL® sandy and abrasive effluents pH 4 to 12 | 350 à 2000 |  |
|  FM raw and potable water | 100 à 300 |  |
|  ISOPAM® raw and potable water wastewater pH 4 to 12 | 100 à 600 |  |
|  ALPINAL® pipeline system for artificial snow | 80 à 500 |  |
|  HYDROPAM® raw water | 60 à 2000 |  |
|  URBITAL® recycled water | 100 à 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 à 1200 |  |
| LUG butterfly valve PN10, 16 and 25 bar Manual and motorised | 32 à 600 |  |
| Penstock Stainless steel 316-L Size: 150x2000 mm | 150 à 2000 |  |
| End valve Stainless steel 304-L | 80 à 2000 |  |
| Euro 20® FM APPROVED | 40 à 300 |   |
| Eurostop isolation butterfly valve AOP 10, 16 bar | 150 à 2000 |  |
| ATLAS fire hydrant AOP 16 bar reversible and non reversible | 100 |  |

| Municipal castings | Classe | |
|--|---|---|
| Trappes PAMETIC 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® PFor busy pavements Cover pressing and locking system | C 250 |  |
| SQUADRA® Square frame Automatic locking | C 250 |  |

HOW TO CONTACT PAM

AUSTRIA

Saint-Gobain Rigips AUSTRIA GesmbH
Vertriebsbüro PAM
Archenweg 52
6020 Innsbruck
Tel: + 43 512 34 17 17 -0

BELGIUM

Saint-Gobain PAM BELGIUM
Raatshovenstraat, n°2
3400 – LANDEN
Tel: + 32 11 88 01 00

FINLAND

Saint-Gobain PAM FINLAND
Strömberginkuja 2
00380 HELSINKI
Tel: +358 207 424 600

GREECE

Saint-Gobain HELLAS
5 KLEISOURAS STR,
14452 METAMORGOSI ,ATHENS GREECE
Tel: +30 210 2831804

NORWAY

Saint-Gobain BYGGEVARER
Nils Hansens vei 13,
0667 OSLO
Tel: + 47 23 17 58 60

THE NETHERLANDS

Saint-Gobain PAM Netherlands
Markerkant 10-17
1316 AB ALMERE
Tel: + 31 36 53 333 44

POLAND

Saint-Gobain Construction Products POLSKA SP Z O.O.
Ul. Cybernetyki 9
PL - 02-677 WARSZAWA
Tel: + 48 22 751 41 72

PORTUGAL

Saint-Gobain PAM PORTUGAL, S.A.
Rua das Marinhas do Tejo , n° 15
2690-361 SANTA IRIA DE AZÓIA
Tel: + 351 218 925 000

CZECH REPUBLIC

Saint-Gobain PAM CZ
Budova DOCK II,
Smrčková ulice,
Praha 8 – Libeň
Tel: + 420 311 712 611

ROMANIA

Saint-Gobain Construction Products Romania S.r.l.
SGCPRo SRL
Soseaua Pipera nr.43, Cladirea Floreasca Park,
corpul A, etajul 3, birourile 25-41, cod 014254,
sector 2, Bucuresti, Romania
Tel: + 40 21 207 57 29

SLOVAKIA

Saint-Gobain Construction Products, s.r.o.
Dlha 1780/6
90031 Stupava
Tel: +421 (0) 2 654 569 61

Enquiries from other EU and overseas countries:
please consult Saint-Gobain PAM Canalisation



**Saint-Gobain PAM Canalisation •
Head office**

21, avenue Camille Cavallier
54705 Pont-à-Mousson Cedex • FRANCE
Phone : +33 (0) 383 807 350
www.pamline.com