

Greetings  
From  
**Doshi Inc.**

12-05-2018



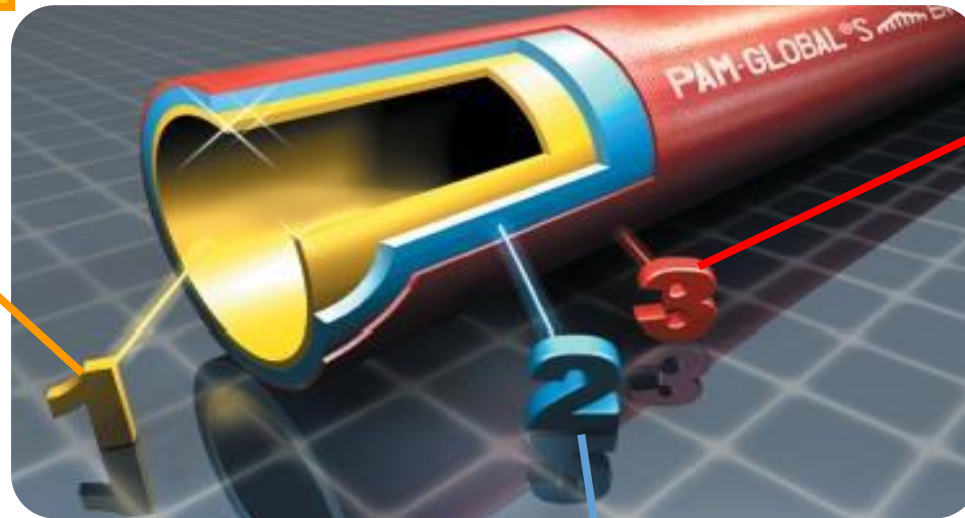
1. Saint Gobain Hubless Pipes are internally new Epoxy Resin coated(130  $\mu\text{m}$ ) and externally coated with Acrylic Enamel(40  $\mu\text{m}$ ).

**Inner lining: 1 layer**

Epoxy bi-compound  
Film thickness:  
130 $\mu\text{m}$

**Exterior coating : Acrylic Paint**

Anti corrosion  
Film thickness : 40 $\mu\text{m}$



**Cast Iron**  
Delavaud Process

Why Saint Gobain ? - Cause the pipes are halfway between Lamellar and Ductile iron.

2. After casting the pipes, they are Rotated, a Secondary Heat treatment at  $950^{\circ}\text{C}$  to produce a Rosette like shaped Graphite particles which gives improved mechanical tensile strength.

Matrix of the Pipe when Casted



Secondary Heat Treatment

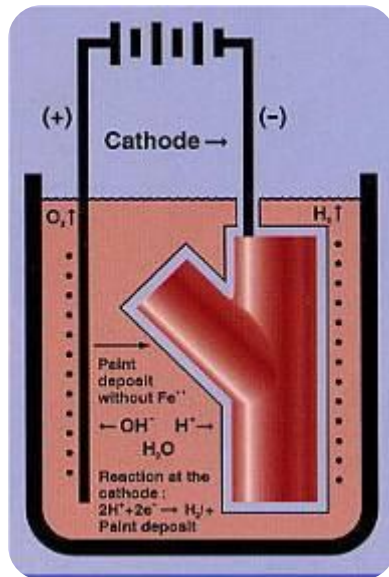


\* Results in a finer solidification Matrix.

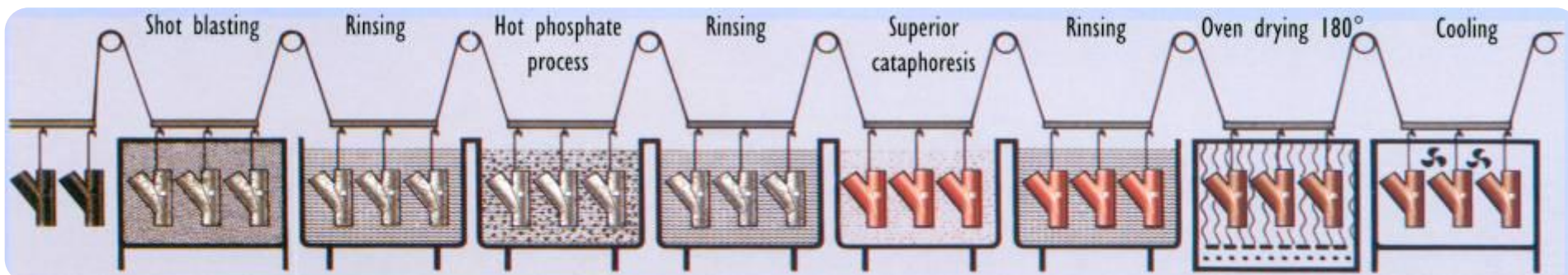
Thus you can properly slice the pipes in any axis.



Why Saint Gobain ? - Cause it has Impact Strength and Crush Resistance.



3. All fittings are internally and externally, uniformly epoxy coated by cathaphoretic Electro-Dipping Process, which offers excellent protection against mechanical effects.



**Why Saint Gobain ? - Cause it has highest Quality of Epoxy Surface Coating Method.**

## 4. The New PAM GLOBAL® Rapid NG Single bolt coupling.



### In accordance with EN 877

#### Angular deflection:

3° from DN 50 to DN 200

#### Standard version W2:

- Strap, clamps: 1.4510 / 11 in accordance with NF EN 10027-2 (AISI 430Ti / 439)
- Screw: coated steel class 8.8
- Nut: coated steel class 8

#### All stainless steel version W5:

- Strap, clamps: 1.4404 / 1.4571 in accordance with NF EN 10027-2 (AISI 316 L/316Ti)
- Screw and nut: austenitic stainless steel A4-70 or AISI 316

5. The Saint Gobain Pam cast iron pipes, fittings and couplings, as a system can withstand a pressure up to 10 bars.

## Couplings + grip collars: performance level

Couplings	Grip collars	DN	Address end thrust effort for a pressure of (In bars)									
					3b		5b					10b
<b>PAM RAPID-S NG</b> 	<b>PAM REKORD</b> 	40 to 100										10b
		125-200					5b					
	<b>PAM UNIVERSAL</b> 	50 to 125										10b
		150-200					5b					
	<b>SMU Rapid</b> 	50-125										10b
		150-200					5b					

Why Saint Gobain ? - Cause the couplings can take 3° Angular Deviation.

6. Saint Gobain cast iron pipes can be Embedded in concrete with a minimal expansion and temperature variation ( $0.01\text{mm/m}/^{\circ}\text{C}$ ) and behaves very similar to that of steel and concrete.



**Why Saint Gobain ? – Cause the Embedding Drainage pipes in concrete is possible.**

7. The PAM-GLOBAL pipes withstand pressure loading of upto 60 tonnes. No pipe damage on building sites through being run over by delivery or construction vehicles.



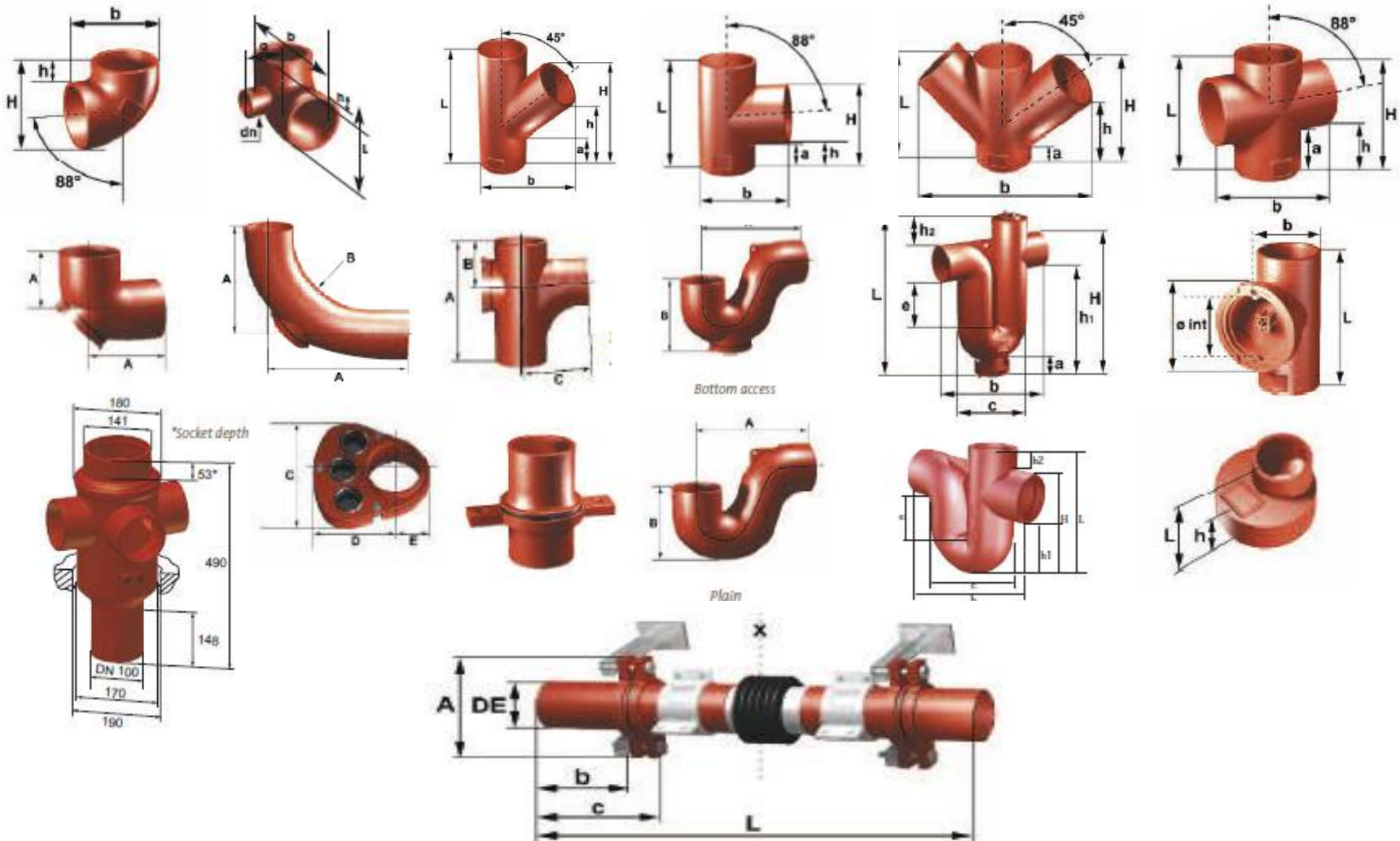
**Why Saint Gobain ? - Cause not only heavy impacts but can take 95 °C hot water inside.**

8. The Saint Gobain pipes are being assembled and encored, have successfully passed a high pressure jetting test : cleaning pressure of 120 bar from the pump, which means 100 bar at the nozzle outlet, without leakage or misalignment in accordance to the Swiss standard pressure test SN 592 012.



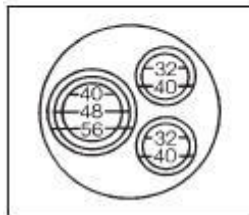
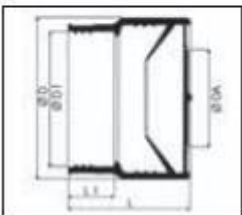
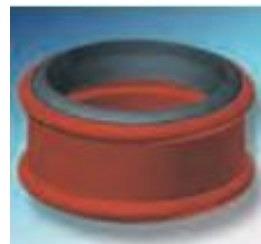
**Why Saint Gobain ? - Cause maintenance is so easy.**

## 9. Huge range of fittings for your selection.



**Why Saint Gobain ? - Cause our range starts from 50mm to 600mm in dia.**

## 10. Various couplings and connectors for Saint Gobain Pam Systems.



Universal plug 3 inlets



**Why Saint Gobain ? - Cause the system guarantees the optimum solution for any application.**

## 11. Variety of Wall and Ceiling Clamps.



**Why Saint Gobain ? - Cause pipelines fastened to Pendulums must be secured.**

## 12. Comparison of main processes

ACKERS		DE LAVAUD = PAM
= SPINNING ONTO WET SPRAY IN THE MOULD LOWER COOLING SPEED		SPINNING DIRECTLY ONTO THE COLD MOULD HIGHER COOLING SPEED
LARGER SOLIDIFICATION CELLS, PRESENCE OF STEADITE		FINER SOLIDIFICATION CELLS, HOMOGENEOUS STRUCTURE, NO STEADITE, LESS IMPURITIES
NO HEAT TREATMENT PRIMARY LAMELLAR GRAPHITE PEARLITE $\cong$ 50 - 90 %		+ HEAT TREATMENT GRAPHITIZATION FERRITIZATION
<u>STRUCTURE : HARDER AND MORE FRAGILE</u>		<u>STRUCTURE : RESISTANT AND MORE "DUCTILE"</u>

### MECHANICAL CHARACTERISTICS

250 MPA	● TENSILE STRENGTH (EN : 200 min)	300 MPA
350 MPA	● CRUSHING STRENGTH (EN : 350 min)	500 MPA
240 HB	● HARDNESS (EN : 260 max)	200 HB
++	● MODULUS OF ELASTICITY	+++
++	● RESISTANCE TO CORROSION	+++
+	● IMPACT RESISTANCE	++

**CAST IRON PRODUCED ACCORDING TO THE DE LAVAUD PAM PROCESS SHOW SIGNIFICANTLY IMPROVED MECHANICAL PROPERTIES.**

### 13. EN 877 and the new coatings

EN 877		New coating
Resistance	Requirements	
Salt spray	350 hours	1500 hours
Waste water	30 days at 23° C	30 days at 60° C
	30 days at 23° C	30 days at 60° C
Base NaOH pH 12	30 days at 23° C	30 days at 60° C
Hot Water	24h at 95° C	24h at 95° C
Temperature cycling	1500 cycles between 15 and 93°C over period of 1min	1500 cycles between 15 and 93°C over period of 1min

**Why Saint Gobain ? - Cause we cater waste water drainage for aggressive discharge.**

## 14. Saint Gobain Pam drainage system is No.1 in Environmental protection.

PAM-GLOBAL® cast pipes and fixings are 100 % recyclable, therefore no expensive disposal costs.



**Why Saint Gobain ? – Cause our Plant is certified ISO 14001 Since 2006.**

## 15. Quality material and it's Certification.

	International	Europe	France	Great-Britain	Germany	Australia
Standards Organisation						
Stamps and Marks of quality				 		
Control Organisation				 	 	
ISO 9001 certified quality control			 			
Accreditation committee						

Why Saint Gobain ? - Cause we testify to the efficiency of the quality organization.

# Projects Commenced in India



HOUSE OF INNOVATIVE PLUMBING



Thankyou for your attention

Dhanyavaad

Dhanyavaadagalu

Dhanyavaadamulu

Aabhari Aahe

Shukriya

Rumba Nandri

Aabhar

Valare Upakaram

Dhanyam Vadaami

Tawhaan Jee Mehrbani

Danna Waat Oromo

Dhannaba



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