TOP PIPE Spray® – TPS® system

1.0 TECHNICAL DATA

Media analysis : checked and confirmed by Selip

2.0 FRP RECYCLE SPRAY BANKS - TOP PIPE Spray® - TPS® system

The spray banks will be properly designed, constructed, manufactured and selected by SELIP and shall represent the ultimate state-of-the-art technical level.
The technical characteristics of our TPS® system are:

TPS®-2.1 Manufacturing technology

The FRP spray banks are made all with technology HAND LAY UP.

	Technology	Fiber glass type	Resin type	Filler Type
Inner Barrier Liner	Hand lay up + post cure	-"C" Veil 33 gr/m² -"ECR" MAT 450 gr/m²	Resin vinyl ester DERAKANE D-411	Quarz Fluor Silane Treated
Mechanical Structure	Hand lay up + post cure	-"ECR" MAT 450 gr/m² -Woven Roving 500 gr/m²	Resin vinyl ester DERAKANE D-411	-
External Barrier Liner	Hand lay up + post cure	-"C" Veil 33 gr/m² - "ECR" MAT 450 gr/m²	Resin vinyl ester DERAKANE D-411	Quarz Fluor Silane Treated

TPS®-2.2 Main pipe

The main pipe is supported by flange, console and beams supplied by the customer.
The main pipe is made in one single piece.
Due to the big dimensions of the assembled spray bank, the unit will be supplied on parts suitable for transport and installation.

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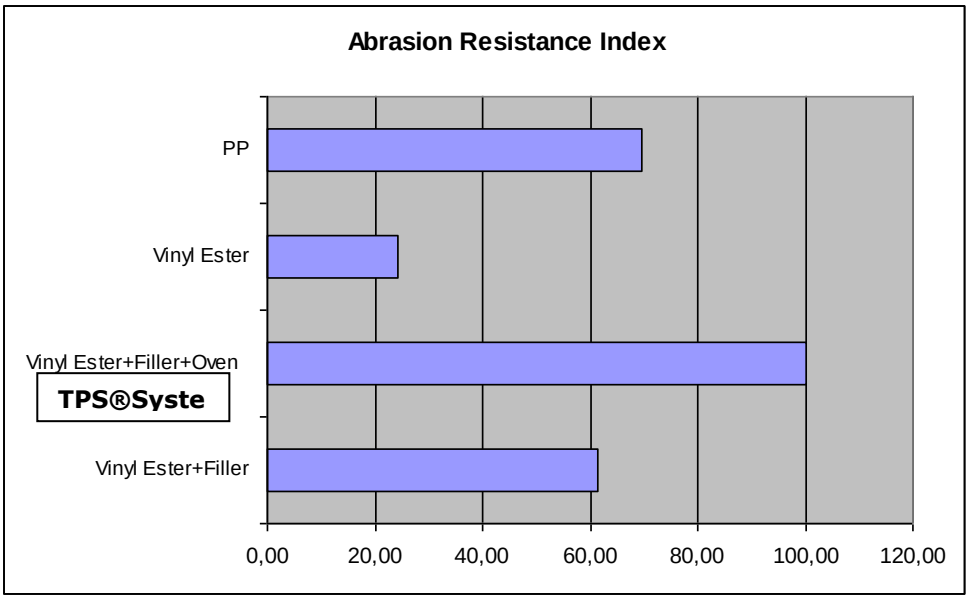
TPS®-2.3 **Branches pipes**

Branches consist of pipes with reducers (or conical pipes), pipes as branches.
The branches pipes are manufactured without welding connection and delivered in one piece.




TPS®-2.4 **Anti-Abrasion Barrier**

Corrosion/abrasion barrier on both the interior and exterior of the header.
This barrier contains a granular filler based “quartz fluor silanetreated” which produces an extremely hard surface that resists to erosion by abrasive slurries.
Interior and exterior thikness is = 3 mm (0,12 inch).



TPS®-2.5 **Anti-Corrosion Barrier**

TPS® system is manufactured with a corrosion-resistant vinyl ester resin: Derakane D-411 or equal.

TPS®-2.6 **Laminations on site**

The connections between main pipe and branches pipes will be made on site, following the instruction of our manual of laminations.




TPS®-2.7 **Branching - Main pipe**

The branching radius is from 10 to 40 mm

TPS®-2.8 **Branching – Branches pipes**

The branching radius is from 10 to 25 mm

TPS®-2.9 **Post-Polimerization**

The post-cure is guarantee thanks to the 3 ovens of the factory of Fontanellato (PR) and 1 oven of the factory of Ariccia (Roma) or in P.R. China.
The right post-cure guarantee the correct value of hardness Barcol.


TPS®-2.10 **FRP saddles**

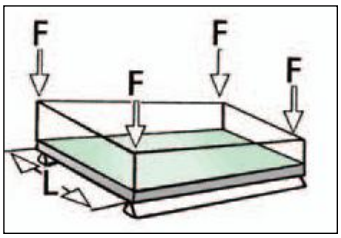
The FRP saddles are included in the basic scope of supply SELIP.
The saddles are laminated together with the pipes, following the design SELIP in agree with the customer outlook.


TPS®-2.11 **FRP flanges**

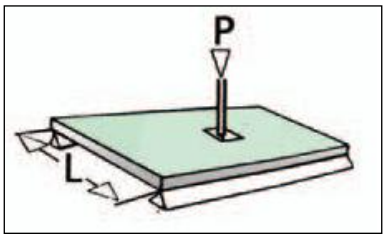
The FRP flanges are included in the basic scope of supply SELIP.
The flanges can have following standards: AWWA, ANSI, DIN, etc.


TPS®-2.12 **Loads**

Spray banks in absorber will be used during inspections as support for platforms.
The loads which should take the spray bank are the following :
F = 500 N/m² (10,4 pounds/feet²) with additional,
single moving load P = 2000 N (450 pounds).
The seismic loads are calculated on working conditions.



F = 500 N/m²



P = 2000 N

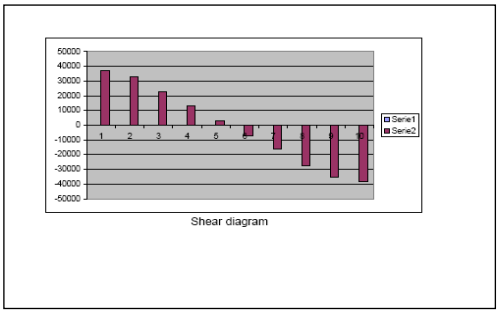
TPS®-2.13 **FRP mechanical structure**

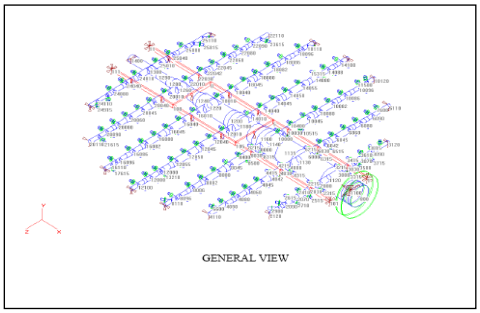
The thickness is calculated by our technical dept., function of the following parameters:

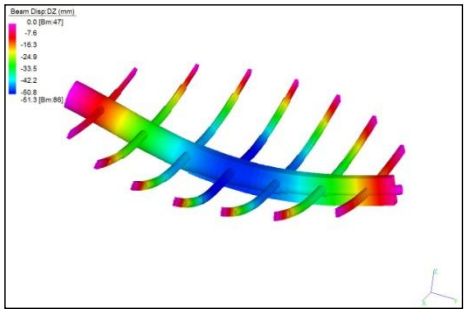
- temperature,
- pressure,
- SELIP laminate, elastic moulds,
- G factor,
- Standard of calculation,
- Safety factor.

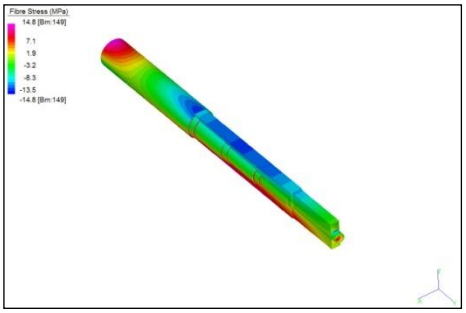
TPS®-2.14 **Software**

The stress analysis is made using software CAESAR II









TPS®-2.15 **More info about FRP spray banks SELIP**

See more info at SELIP channel: https://www.youtube.com/channel/UCyR03-Exi-vIJmrzi6pI4zA