

NOVIN COMPOSITE



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GRE PIPE FOR CORING WITH METALIC CONECTIONS (FIBERGLASS INNER TUBE)

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1. Scope

Many reasons, as well as that demand of the petroleum geologists for undisturbed core samples and safe transportation from the rig site to the laboratory, that leading coring service company wanted to use specific epoxy pipes as inner core barrel for this purpose.

This catalog contains the advantages of fiberglass inner core barrel, production method, Dimension and specification of these pipes manufactured by NOVIN COMPOSITE Co.



2. Advantages of fiberglass coring inner tubes

- Corrosion free material, so no special protection necessary, also not during storage.
- Chemical resistant to additives in the drilling fluids.
- Specific gravity only 1850 Kg/m³, so light in weight and easy to handle and transport.
- Fiber tubes are easy to cut with no risk of dangerous sparks.
- Fiber tubes are non-toxic, so they can be used for storage of the core and therefore saving wooden crates.
- They have low friction coefficient so:
 - Core penetration is easy and more core footage per run saving expensive rig-time
 - Less core jamming
 - Faster penetration rates
 - Disturbing of the core sample is avoided
- Fiber tube inner core barrels can be used for hard and unconsolidated cores, while the soft core can also be frozen inside the fiber tube.

All these advantages help reducing coring cost.



3. Raw materials

No.	Material	Type
1	Resin	Epoxy resin
2	Fiberglass	C glass veil/ C Glass Chop strand mat/EDR Glass Direct roving/ EDR Glass

4. Method of production

The product has consist of filament wound glass fiber epoxy pipe with two special threaded steel couplings (box & pin).

The grate strength of these pipes is due to its method of manufacturing.

Fiberglass strand rovings are impregnated with epoxy resin and helical wound under tension onto polished mandrill.

They are then heat cured to transform the liquid resin into a solid, infusible material, a so-called thermoset material.



5. Dimension and specification

Dimensions					
Core barrel size(barrel×core)		$4\frac{3}{4} \times 2\frac{5}{8}$ (in × in)		$6\frac{3}{4} \times 4$ (in × in)	
Parameter		Imperial	metric	Imperial	metric
Outer barrel	Outside	$4\frac{3}{4}$ in	120.7 mm	$6\frac{3}{4}$ in	171.5mm
	Inside	$3\frac{3}{4}$ in	95.3 mm	$5\frac{3}{8}$ in	136.5 mm
Fiberglass inner barrel	Outside	$3\frac{1}{4}$ in	82.6 mm	$4\frac{3}{4}$ in	120.7 mm
	Inside	$2\frac{7}{8}$ in	73 mm	$4\frac{1}{4}$ in	108 mm
Maximum OD (Fiberglass inner barrel)		–	89 mm	–	134 mm
Core size		$2\frac{5}{8}$ in	67 mm	4 in	101.6 mm
Length (ft.)		30 ft.	9.14 m	30 ft.	9.14 m
Nominal wall thickness (mm)		–	4.9 mm	–	6.2 mm
Weight per 30 ft.		–	29 Kg	–	49 Kg

Mechanical Properties		
property	unit	value
Axial tensile strength	Tons	8.7, 16.5
Axial tensile modulus	MPa	12500
Axial bending strength (beam)	MPa	100
Hoop tensile strength	MPa	480
Hoop tensile modulus	MPa	23250

Physical Properties		
property	unit	value
Thermal conductivity	W/mK	0.3
Thermal expansion coefficient	mm/mmC	2×10^{-5}
Flow coefficient	Hazen-williams	150
Density	Kg/m ³	1850
Passion's ratio	-	0.4
Barcol hardness	Barcol	50

6. Product feature

- Low temperature:

An advantage of these pipes is that it does not become brittle at extremely low temperature. Freezing of a soft core with liquid nitrogen at -196°C (-320°F) is possible.

- High temperature:

Fiberglass inner core barrels can withstand contact temperatures at high as 120°C (248°F).

- Color coding line:

All pipes have color coding lines over the full length of fiber tubes to understand the direction.

The red and blue lines are in-erasable providing the following advantages:

- Handmade color coding on site can be eliminated.
- Mistakes in color coding cannot occur.
- Disappearing of marking is impossible.







Novin Composite Sadra

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