

M Sohail Wali
Resident Engineer-II, NESPAK (Pvt) Ltd. Lahore

Test Performed By: Dr. /Engr. S. Asad Ali Gillani

Client Reference: 3772/MB/MSW/019/003

Dated: 05-11-2019

SOM Lab Ref: CED/SOM/1686 (Page-1/2)

Dated: 05-11-2019

Test: Tension Test

Test Specification: ASTM-F-1554

Sample Type: J- Bolt

Gauge Length: 200 mm

S.No.	Weight	Dia.		Area		Yield Load	Ultimate Load	Yield Stress		Ult. Stress		Elongation	Gauge Length	%age Elongation	Remarks
		Nominal	Calculated	Nominal	Calculated			(according to nominal area)	(according to measured area)	(according to nominal area)	(according to measured area)				
	kg/m	mm	mm	mm ²	mm ²	kN	kN	MPa	MPa	MPa	MPa	mm	mm	%	
1	4.008	25	25.51	491	511	290.00	459.20	591	568	935	899	21.3	200	10.6	
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Witnessed By: Javaid Masood, Mechanical Eng.

BEND TEST:

--	No Bend test performed	Note:- Only One Sample Received and Tested

Note: Please always confirm the results of above report on web www.uet-civil.edu.pk

Test Performed By: Dr. S. Asad Ali Gillani

Engr. Muhammad Kaleem Sheikh
Chief Resident Engineer,
M-3, IC Industrial City, Faisalabad

Client Reference: CRE/M3IC/FIC-030/Lab/147

Dated: 11-09-2019

SOM Laboratory Reference: CED/SOM/1683(Page-1/4)

Dated: 05-11-2019

Test: Stiffness Test & Tensile Test,

Sample Type: GRP Pipe (1000mm Diameter)

Stiffness Test (Parallel Plate Loading Test as per ASTM-D-2412)

(GRP Pipe 1000mm)

Total Length = 310 mm, External Diameter = 1016 mm, Wall Thickness = 13.0 mm

Percentage Reduction in Diameter of Sample	Compression Load, P (kN)	Stiffness (Corrected)			Remarks
		Pipe Stiffness (kN/m ²)	Stiffness Factor (N-m)	Specific Tangential initial Stiffness (N/m ²)	
5%	4.27	293	5498	5666	No Crack Observed
10%	7.56	279	5242	5402	No Crack Observed

Tensile Test

Sample Type	Size of Sample (mm)	Ultimate Load (kN)	Ultimate Stress (MPa)
GRP Pipe (1000mm)	29.0 x 13.0	12.0	31.83

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Client Reference: CRE/M3IC/FIC-030/Lab/147

Dated: 11-09-2019

SOM Laboratory Reference: CED/SOM/1683(Page-2/4)

Dated: 05-11-2019

Test: Stiffness Test & Tensile Test,

Sample Type: GRP Pipe (800mm Diameter)

Stiffness Test (Parallel Plate Loading Test as per ASTM-D-2412)

(GRP Pipe 800mm)

Total Length = 310 mm, External Diameter = 822 mm, Wall Thickness = 12.8 mm

Percentage Reduction in Diameter of Sample	Compression Load, P (kN)	Stiffness (Corrected)			Remarks
		Pipe Stiffness (kN/m ²)	Stiffness Factor (N-m)	Specific Tangential initial Stiffness (N/m ²)	
5%	3.2	271	2675	5297	No Crack Observed
10.0%	5.3	242	2387	4726	No Crack Observed

Tensile Test

Sample Type	Size of Sample (mm)	Ultimate Load (kN)	Ultimate Stress (MPa)
GRP Pipe (800mm)	28.0 x 12.5	8.0	22.857

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Test Performed By: Dr. S. Asad Ali Gillani

Engr. Muhammad Kaleem Sheikh
Chief Resident Engineer,
M-3, IC Industrial City, Faisalabad

Client Reference: CRE/M3IC/FIC-030/Lab/147

Dated: 11-09-2019

SOM Laboratory Reference: CED/SOM/1683(Page-3/4)

Dated: 05-11-2019

Test: Stiffness Test & Tensile Test,

Sample Type: GRP Pipe (600mm Diameter)

Stiffness Test (Parallel Plate Loading Test as per ASTM-D-2412)

(GRP Pipe 600mm)

Total Length = 310 mm, External Diameter = 622 mm, Wall Thickness = 12.5. mm

Percentage Reduction in Diameter of Sample	Compression Load, P (kN)	Stiffness (Corrected)			Remarks
		Pipe Stiffness (kN/m ²)	Stiffness Factor (N-m)	Specific Tangential initial Stiffness (N/m ²)	
5.0%	5.8	650	2740	12880	No Crack Observed
10.0%	10.5	634	2674	12569	No Crack Observed

Tensile Test

Sample Type	Size of Sample (mm)	Ultimate Load (kN)	Ultimate Stress (MPa)
GRP Pipe (600mm)	27.5 x 12.6	8.2	23.665

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Test Performed By: Dr. S. Asad Ali Gillani

Engr. Muhammad Kaleem Sheikh
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M-3, IC Industrial City, Faisalabad

Client Reference: CRE/M3IC/FIC-030/Lab/147

Dated: 11-09-2019

SOM Laboratory Reference: CED/SOM/1683(Page-4/4)

Dated: 05-11-2019

Test: Stiffness Test & Tensile Test,

Sample Type: GRP Pipe (450mm Diameter)

Stiffness Test (Parallel Plate Loading Test as per ASTM-D-2412)

(GRP Pipe 450mm)

Total Length = 311 mm, External Diameter = 472 mm, Wall Thickness = 11.8 mm

Percentage Reduction in Diameter of Sample	Compression Load, P (kN)	Stiffness (Corrected)			Remarks
		Pipe Stiffness (kN/m ²)	Stiffness Factor (N-m)	Specific Tangential initial Stiffness (N/m ²)	
5%	8.25	1215	2206	24466	No Crack Observed
6.5%	9.40	1090	1978	21942	Crack Observed

Tensile Test

Sample Type	Size of Sample (mm)	Ultimate Load (kN)	Ultimate Stress (MPa)
GRP Pipe (450mm)	28.0 x 11.3	8.7	27.496

Note: Please always confirm the results of above report on web: www.uet-civil.edu.pk

Test Performed by: Dr. S. Asad Ali Gillani

Resident Engineer (Building)
DKC
NESPAK (Pvt) Ltd. Lahore

Client Reference No.: SA-394/DKC/SS-Pipe/Test/HB/124

Dated: 24-10-2019

SOM Lab Ref: CED/SOM/1687(Page-1/1)

Dated: 05-11-2019

Test Type: Tensile Test

Sample Type: Screw Bolt (Diameter: 8 x 60mm)

Tensile Test Results

Sample No.	Original Diameter of Bolt (mm)	Tested Diameter of Bolt (mm)	Ultimate Load (kN)	Ultimate Tensile Stress (MPa)	Remarks
1	8.0	4.8	2.5	138.16	Thread Failure

Note: Please always confirm the results on web www.uet-civil.edu.pk