

# TDS

## For GFRP Rockbolt

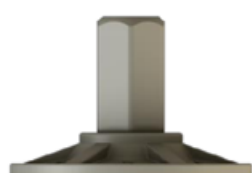
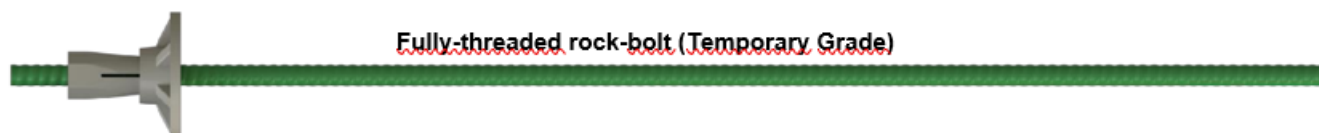
2019

Solid Bar								
Dia.	Physical Properties				Mechanical Properties (Grade T)		Mechanical Properties (Grade P)	
					Fiber: ECR	Resin: PE	Fiber: ECR	Resin: VE
	Nominal Dia. (mm)	Nominal CSA (mm <sup>2</sup> )	Thread Direction	Pitch (mm)	Ultimate Tensile Load (kN)	Ultimate Tensile Strength (MPa)	Ultimate Tensile Load (kN)	Ultimate Tensile Strength (MPa)
20	16	200	Left	10	200	1000	200	1000
22	18	250	Left	10	250	1000	250	1000
25	21	350	Left	10	350	1000	350	1000
32	27	580	Left	10	560	960	560	960

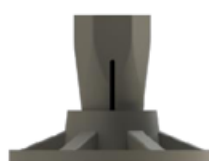
Solid Bar System Performance				
Dia.	Head Breaking Load (kN)			Loading (kN)
	Steel Flat Plate & Nut	FRP Domed Plate & Nut	FRP Swivel Plate & Nut	Steel Connection Coupler
20	70	70	80	70
22	80	80	90	80
25	120	90	100	120
32	150	100	150	150

Hollow Bar								
Dia.	Physical Properties				Mechanical Properties (Grade T)		Mechanical Properties (Grade P)	
					Fiber: ECR	Resin: PE	Fiber: ECR	Resin: VE
	Internal Dia. (mm)	Nominal CSA (mm <sup>2</sup> )	Thread Direction	Pitch (mm)	Ultimate Tensile Load (kN)	Ultimate Tensile Strength (MPa)	Ultimate Tensile Load (kN)	Ultimate Tensile Strength (MPa)
25	12	250	Left	10	180	720	220	880
28	12	350	Left	10	260	740	320	900
32	15	365	Left	10	280	765	350	1000
38	20	500	Left	10	400	800	500	1000

Hollow Bar System Performance				
Dia.	Head Breaking Load (kN)			Loading (kN)
	Steel Flat Plate & Nut	FRP Domed Plate & Nut	FRP Swivel Plate & Nut	Steel Connection Coupler
25	90	90	100	90
28	110	100	120	110
32	120	100	150	120
38	150	100	180	150



GFRP  
Domed plate + nut



GFRP  
Swivel plate + nut



Steel  
Flat plate + nut