

Important Notes for Tables 1.1, 1.2 and 1.3

- Nominal cross-sectional area is not based on designated diameter.
- Tensile properties is calculated using nominal cross-sectional areas.
- Guaranteed value: Average value - 3 × standard deviation (ACI 440.11-22)
- The designers should contact the bar manufacturer for the latest updates of this technical data sheet

Table 1.1 - SFT-Bar® G60 Grade III

Resin type: Vinylester

vs Steel W400 (High Quality)

Bar Size Imperial [Metric]	Nominal Cross Sectional Area mm ² [in. ²]	Min. Specified Tensile Strength MPa [ksi] Grade III	Min. Modulus of elasticity MPa [ksi] Grade III	Transverse Shear Strength MPa [ksi] Grade III	Ultimate Strain ε _μ (%)	Bond Strength MPa [ksi]	Transition temperature (°C)
#2 [6mm]	32 [0.049]	*	60,000 [8,702]	≥ 180 [26]	≥ 1.2%	≥ 10 [1.5]	≥ 100
#3 [10mm]	71 [0.11]	*					
#4 [13mm]	129 [0.20]	1,000 [145]					
#5 [16mm]	199 [0.31]	1,000 [145]					
#6 [20mm]	284 [0.44]	1,000 [145]					
#7 [22mm]	387 [0.60]	1,000 [145]					
#8 [25mm]	510 [0.79]	1,000 [145]					

*Minimum specified tensile strength to be provided by manufacturer; value to be determined from qualification tests

G60 SFT-Bar® are Concrete Reinforcing Bars that can be used in most Concrete applications (such reinforcing bars can be considered for most primary or secondary structural applications) as defined by the CSA S807 & ASTM D7957 standards.

Table 1.2 - SFT-Bar® G50 Grade II

Resin type: Vinylester

vs Black Steel (Low Quality)

Bar Size Imperial [Metric]	Nominal Cross Sectional Area mm ² [in. ²]	Min. Specified Tensile Strength MPa [ksi] Grade II	Min. Modulus of elasticity MPa [ksi] Grade II	Transverse Shear Strength MPa [ksi] Grade II	Ultimate Strain ε _μ (%)	Bond Strength MPa [ksi]	Glass Transition Temperature (°C)
#2 [6mm]	32 [0.049]	*	50,000 [7,252]	≥ 170 [25]	≥ 1.2%	≥ 10 [1.5]	≥ 80
#3 [10mm]	71 [0.11]	*					
#4 [13mm]	129 [0.20]	800 [116]					
#5 [16mm]	199 [0.31]	800 [116]					
#6 [20mm]	284 [0.44]	800 [116]					
#7 [22mm]	387 [0.60]	800 [116]					
#8 [25mm]	510 [0.79]	800 [116]					

*Minimum specified tensile strength to be provided by manufacturer; value to be determined from qualification tests

G50 SFT-Bar® are Concrete Reinforcing Bars that can be used in most Concrete applications (such reinforcing bars can be considered for most primary or secondary structural applications) as defined by the CSA S807 & ASTM D7957 standards.

Table 1.3 - SFT-Bar® G40 Grade I

Resin type: G40 Vinylester | Poly: Polyester

vs Steel (Lowest Quality) | For non-structural use only

Bar Size Imperial [Metric]	Nominal Cross Sectional Area mm ² [in. ²]	Min. Specified Tensile Strength MPa [ksi] Grade I	Min. Modulus of elasticity MPa [ksi] Grade I	Transverse Shear Strength MPa [ksi] Grade I	Ultimate Strain ε _μ (%)	Bond Strength MPa [ksi]	Glass Transition Temperature (°C)
#2 [6mm]	32 [0.049]	750 [109]	40,000 [5,802]	≥ 160 [23]	≥ 1.2%	≥ 10 [1.5]	≥ 80
#3 [10mm]	71 [0.11]	750 [109]					
#4 [13mm]	129 [0.20]	650 [94]					
#5 [16mm]	199 [0.31]	650 [94]					
#6 [20mm]	284 [0.44]	600 [87]					
#7 [22mm]	387 [0.60]	550 [80]					
#8 [25mm]	510 [0.79]	550 [80]					

Polyester and G40 SFT-Bar® are Concrete Reinforcing Bars that are meant to be used exclusively in non-structural Concrete Building applications (such reinforcing bars should not be considered for any primary or secondary structural applications) as defined by the CSA S807 & ASTM D7957 standards.

Important Notes for Tables 2.1, 2.2 and 2.3

- Nominal cross-sectional area is not based on designated diameter.
- Tensile properties is calculated using nominal cross-sectional areas.
- Guaranteed value: Average value - 3 × standard deviation (according to respective ASTM codes)
- The designers should contact the bar manufacturer for the latest updates of this technical data sheet

Table 2.1 - SFT-Bar® American Standards according to ASTM D7957/D7957M-22

Bar Size Imperial [Metric]	Nominal Cross Sectional Area mm ² [in. ²]	Min. Guaranteed Ultimate Tensile Force kN [kip]*	Min. Modulus of elasticity MPa [ksi]	Transverse Shear Strength MPa [ksi]	Ultimate Strain ε _f (%)	Bond Strength MPa [ksi]	Glass Transition Temperature (°C)
#2 [6mm]	32 [0.049]	27 [6.1]	44,800 [6,498]	≥ 131 [19]	≥ 1.1%	≥ 7.6 [1.1]	≥ 100
#3 [10mm]	71 [0.11]	59 [13.2]					
#4 [13mm]	129 [0.20]	96 [21.6]					
#5 [16mm]	199 [0.31]	130 [29.1]					
#6 [20mm]	284 [0.44]	182 [40.9]					
#7 [22mm]	387 [0.60]	241 [54.1]					
#8 [25mm]	510 [0.79]	297 [66.8]					

*Minimum specified tensile strength to be provided by manufacturer; value to be determined from qualification tests
 -According to ASTM D7957/D7957M-22 (American Code)

Table 2.2 - SFT-Bar® American Standards according to ASTM D8505/D8505M-23

Bar Size Imperial [Metric]	Nominal Cross Sectional Area mm ² [in. ²]	Min. Guaranteed Ultimate Tensile Force kN [kip]*	Min. Modulus of elasticity MPa [ksi]	Transverse Shear Strength MPa [ksi]	Ultimate Strain ε _f (%)	Bond Strength MPa [ksi]	Glass Transition Temperature (°C)
#2 [6mm]	32 [0.049]	33 [7.4]	60,000 [8,702]	≥ 152 [22]	≥ 1.1%	≥ 9.6 [1.4]	≥ 100
#3 [10mm]	71 [0.11]	71 [16.0]					
#4 [13mm]	129 [0.20]	124 [27.9]					
#5 [16mm]	199 [0.31]	181.5 [40.8]					
#6 [20mm]	284 [0.44]	254.9 [57.3]					
#7 [22mm]	387 [0.60]	337.2 [75.8]					
#8 [25mm]	510 [0.79]	422.1 [94.9]				≥ 7.6 [1.1]	

*Minimum specified tensile strength to be provided by manufacturer; value to be determined from qualification tests
 -According to ASTM D8505/D8505M-23 (American Code)

Table 2.3 - SFT-Bar® vs Steel Bar Comparative Properties

GFRP vs Steel | For structural and non-structural use

Rebar Type	Tensile Strength ^a (MPa)	Modulus of Elasticity (GPa)	Bond Strength (MPa)	Thermal Conductivity ^b W/(m.o C)	Density (kg/m ³)	Electrical Resistivity ^c (Ω . cm)	Concrete Cover ^c (mm)
SFT-Bar® (ASTM D7957)	850 - 1250	46 - 70	15	< 1	1,200-2,100	> 10 ¹¹	30
Stainless Steel (ASTM A955)	560	200	10	16	7,850-7,900	> 1x10 ⁻⁴	40-70
Steel (ASTM A615)	560	200	10	54	7,900	> 1.5 x 10 ⁻⁵	40-70

- ^a Guaranteed Tensile Strength for SFTec GFRP rebars, yield strength for Stainless & black Steel bars
- ^b Approximate values
- ^c According to ACI 440.5 and ACI 318 for exposure conditions

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Reference Codes

- CAN/CSA S807-19 (2019)
- CAN/CSA S806-12 (2021)
- CAN/CSA S6-19 (2019)
- ASTM D7957/D7957M-22 (2022)
- ASTM D8505/D8505M-23 (2023)
- ACI 440.11-22 (2022)
- AASHTO (2018)