



V-ROD STANDARD

Revision: July 2013

V-Rod standard straight bars only, does not apply to bent bars

| | | #2 GFRP | #3 GFRP | #4 GFRP | #5 GFRP | #6 GFRP | #7 GFRP | #8 GFRP |
|---------------------------------------|-----|-----------|---------|---------|---------|---------|---------|---------|
| | | V•ROD | V•ROD | V•ROD | V•ROD | V•ROD | V•ROD | V•ROD |
| Minimum guaranteed tensile strength * | MPa | 990 | 1100 | 1140 | 1130 | 1110 | 1100 | 800 |
| | ksi | 143 | 159 | 165 | 164 | 161 | 159 | 116 |
| Nominal tensile modulus | GPa | 52,5 ±2,5 | | | | | | |
| | ksi | 7609 ±363 | | | | | | |
| Tensile strain | % | 1,89 | 2,10 | 2,17 | 2,15 | 2,11 | 2,10 | 1,52 |
| Poisson's ratio | (-) | 0,25 | 0,21 | 0,26 | 0,25 | 0,25 | 0,25 | 0,28 |

| | | | | | | | | |
|---------------------------|-----|------|------|------|------|------|------|------|
| Nominal Flexural strength | MPa | 1200 | 1161 | 1005 | 930 | 882 | 811 | 776 |
| | ksi | 174 | 168 | 146 | 135 | 128 | 117 | 112 |
| Nominal Flexural modulus | GPa | 48,8 | 46,1 | 46,8 | 46,8 | 45,1 | 44,6 | 45,1 |
| | ksi | 7071 | 6685 | 6787 | 6786 | 6533 | 6466 | 6539 |
| Flexural strain | % | 2,46 | 2,52 | 2,15 | 1,99 | 1,96 | 1,82 | 1,72 |

| | | | | | | | | |
|----------------------------|-----|------|--|--|--|--|--|--|
| Nominal Bond strength | MPa | 14 | | | | | | |
| | psi | 2029 | | | | | | |
| Bond dependent coefficient | (-) | 0,8 | | | | | | |

| | | | | | | | | |
|--|-------------------|--------|--------|--------|--------|--------|--------|--------|
| Longitudinal coefficient of thermal expansion | xE-6/°C | 6,2 | | | | | | |
| | xE-6/°F | 3,5 | | | | | | |
| Transverse coefficient of thermal expansion | xE-6/°C | 23,8 | | | | | | |
| | xE-6/°F | 13,2 | | | | | | |
| Moisture absorption | % | 0,65 | 0,47 | 0,38 | 0,25 | 0,21 | 0,36 | 0,17 |
| Glass content | % vol | 65 | | | | | | |
| | % weight | 83 | | | | | | |
| Weight | g/m | 95 | 181 | 298 | 488 | 659 | 887 | 1132 |
| | lb/ft | 0,064 | 0,122 | 0,200 | 0,328 | 0,443 | 0,596 | 0,761 |
| Effective cross-sectional area (including sand coating) ** | mm ² | 47,0 | 95,0 | 149,0 | 234,0 | 302,0 | 396,0 | 546,0 |
| | inch ² | 0,0729 | 0,1473 | 0,2310 | 0,3627 | 0,4681 | 0,6138 | 0,8463 |
| Nominal cross-sectional area | mm ² | 31,7 | 71,3 | 126,7 | 197,9 | 285,0 | 387,9 | 506,7 |
| | inch ² | 0,0491 | 0,1104 | 0,1963 | 0,3068 | 0,4418 | 0,6013 | 0,7854 |

* the minimum guaranteed tensile strength must not be used to calculate the strength of the bent portion of a bent bar. Instead use the minimum guaranteed tensile strength found in the technical data sheet of bent V-Rod bars.

** Please contact the manufacturer for dowelling applications.

Development and splice lengths are available upon request but should be properly calculated by a design engineer.

Please refer to the bent bar data sheet for designs using bent V-Rod bars.

It is the responsibility of the design engineers to contact the bar manufacturer to get the latest updates of this technical data sheet (also available at www.pultrall.com).