

Threaded Rods - Characteristic Values for Steel Failure (Tension)

Size			M8	M10	M12	M16	M20	M24	M27	M30
Steel Grade 4.6	$N_{Rk,s}$	kN	15	23	34	63	98	141	184	224
Partial Safety Factor	γ_{Ms}	[-]	2							
Steel Grade 5.8	$N_{Rk,s}$	kN	18	29	42	79	123	177	230	281
Partial Safety Factor	γ_{Ms}	[-]	1.50							
Steel Grade 8.8	$N_{Rk,s}$	kN	29	46	67	126	196	282	367	449
Partial Safety Factor	γ_{Ms}	[-]	1.50							
Steel Grade 10.9*	$N_{Rk,s}$	kN	37	58	84	157	245	353	459	561
Partial Safety Factor	γ_{Ms}	[-]	1.33							
Stainless Steel Grade A4 - 70	$N_{Rk,s}$	kN	26	41	59	110	172	247	321	393
Partial Safety Factor	γ_{Ms}	[-]	1.87							
Stainless Steel Grade A4 - 80	$N_{Rk,s}$	kN	29	46	67	126	196	282	367	449
Partial Safety Factor	γ_{Ms}	[-]	1.60							
Stainless Steel Grade 1.4529	$N_{Rk,s}$	kN	26	41	59	110	172	247	321	393
Partial Safety Factor	γ_{Ms}	[-]	1.50							

Threaded Rods - Characteristic values for Steel Failure (Shear – without lever arm)

Size			M8	M10	M12	M16	M20	M24	M27	M30
Steel Grade 4.6	$V_{Rk,s}$	kN	7	12	17	31	49	71	92	112
Partial Safety Factor	γ_{Ms}	[-]	1.67							
Steel Grade 5.8	$V_{Rk,s}$	kN	9	15	21	39	61	88	115	140
Partial Safety Factor	γ_{Ms}	[-]	1.25							
Steel Grade 8.8	$V_{Rk,s}$	kN	15	23	34	63	98	141	184	224
Partial Safety Factor	γ_{Ms}	[-]	1.25							
Steel Grade 8.8	$V_{Rk,s}$	kN	15	23	34	63	98	141	184	224
Partial Safety Factor	γ_{Ms}	[-]	1.25							
Steel Grade 10.9*	$V_{Rk,s}$	kN	18	29	42	79	123	177	230	281
Partial Safety Factor	γ_{Ms}	[-]	1.50							
Stainless Steel Grade A4-70	$V_{Rk,s}$	kN	13	20	30	55	86	124	161	196
Partial Safety Factor	γ_{Ms}	[-]	1.56							
Stainless Steel Grade A4-80	$V_{Rk,s}$	kN	15	23	34	63	98	141	184	224
Partial Safety Factor	γ_{Ms}	[-]	1.33							
Stainless Steel Grade 1.4529	$V_{Rk,s}$	kN	13	20	30	55	86	124	161	196
Partial Safety Factor	γ_{Ms}	[-]	1.25							

Installation Parameters - Rebar

Size			8	10	12	16	20	25	32
Nominal Drill Hole Diameter	d_o	mm	12	14	16	20	25	32	40
Diameter of Cleaning Brush	d_b	mm	14	14	19	22	29	40	42
Minimum Embedment Depth	h_{ef}	mm	64	80	96	128	160	200	256
Maximum Embedment Depth	h_{ef}	mm	160	200	240	320	400	500	640
Minimum Edge Distance	c_{min}	mm	35	40	50	65	80	100	130
Minimum Spacing	s_{min}	mm	35	40	50	65	80	100	130
Minimum Member Thickness	h_{min}	mm	$h_{ef} + 30 \text{ mm} \geq 100 \text{ mm}$				$h_{ef} + 2d_o$		

Characteristic Resistance - Combined Pull out & Concrete Cone Failure Using Threaded Rods

Rebar Diameter (mm)				8	10	12	16	20	25	32
Characteristic Bond Resistance in Uncracked Concrete For a Working Life of 50 and 100 Years Dry/Wet Concrete and Flooded Holes -40 to 80		$\tau_{Rk,uncr}$	N/mm ²	12.0	10.0	10.0	9.0	9.0	9.0	5.5
Installation Factor	Dry/saturated Concrete Flooded Holes	γ_{inst}	[-]	1.2						
				1.4						
Factor for Concrete		ψ_c	C 50/60	1.00						
Factor for Influence of Sustained Load with working life of 50 years		ψ_{sus}	T2 : 50/80	0.73						

GEL & CURE TIME TABLE

Cartridge Temperature  °C	T Work	Base Material Temperature	T Load
5°C	10 Minutes	5°C to 10°C	145 Minutes
	8 Minutes	10°C to 15°C	85 Minutes
	6 Minutes	15°C to 20°C	75 Minutes
	5 Minutes	20°C to 25°C	50 Minutes
	4 Minutes	25°C to 30°C	40 Minutes