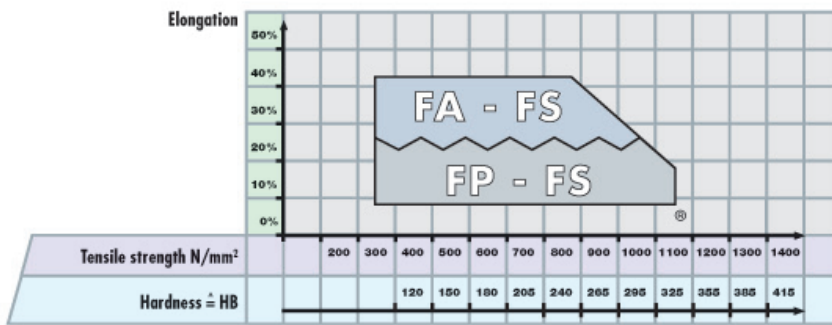


FS Thread former < Ø 3 mm with standard polygon form

FP Thread former with passive polygon form

FA Thread former with active polygon form



Material classification

Material groups	Material designation	Hardness (HB)	Tensile strength R _m (N/mm ²)	Elongation A (%)	V _c (m/min) < Ø 20 mm Guide line Coated VS + CN
10 Steels	11 Free-cutting steels	< 200	< 700	< 10	20 – 40
	12 Structural / cementation steels	< 200	< 700	< 30	20 – 40
	13 Carbon steels	< 300	< 1000	< 20	20 – 30
	14 Alloy steels < 850 N/mm ²	< 250	< 850	< 30	20 – 30
	15 Alloy steels hard. / temp. > 850 - < 1150 N/mm ²	> 250	> 850	< 30	10 – 15
	16 High tensile alloy steels	> 250	> 850	< 12	
20 Stainless Steels	21 Free machining stainless steels	< 250	< 850	< 25	10 – 20
	22 Austenitic stainless steels	< 250	< 850	> 20	10 – 15
	23 Ferritic and martensitic < 850 N/mm ²	< 250	< 850	> 20	6 – 12
	24 Ferritic and martens. > 850 - < 1150 N/mm ²	> 250	> 850	> 15	6 – 12
30 Cast iron	31 Cast iron	< 250	< 850	< 10	
	32 Spheroidal graphite + malleable cast iron	< 250	< 850	> 10	
40 Titanium	41 Pure titanium	< 250	< 850	> 20	10 – 20
	42 Titanium alloys	> 250	> 850	< 20	
50 Nickel	51 Nickel alloys 1 < 850 N/mm ²	< 250	< 850	> 25	10 – 15
	52 Nickel alloys 2 > 850 - < 1150 N/mm ²	> 250	> 850	< 25	
	53 Nickel alloys 3 > 1150 - ≤ 1600 N/mm ²	> 340	> 1150	< 20	
60 Copper	61 Pure copper (electrolytic copper)	< 120	< 400	> 12	10 – 20
	62 Short chip brass, phosphor bronze, gun metal	< 200	< 700	< 12	
	63 Long chip brass	< 200	< 700	> 12	20 – 30
70 Aluminium Magnesium	71 Al / Mg unalloyed	< 100	< 350	> 15	20 – 40
	72 Al alloyed Si < 1.5 %	< 150	< 500	> 15	20 – 40
	73 Al alloyed Si > 1.5 % - < 10 %	< 120	< 400	< 15	20 – 40
	74 Al alloyed Si > 10 %, Mg-Alloys	< 120	< 400	< 10	
80 Plastic compounds	81 Thermoplastics	-	-	-	
	82 Duroplastics	-	-	-	
	83 Glass fibre reinforced plastics	-	-	-	