

Grade of Screws following DIN EN ISO 898-1

mechanical or physical property		Strength class									
		4.6	4.8	5.6	5.8	6.8	8.8		9.8	10.9	12.9
							dia ≤ 16mm ^a	dia > 16mm ^b	d ≤ 16mm		
Tensile strength R_m in N/mm ²	nom. ^c	400		500		600	800		900	1000	1200
	min.	400	420	500	520	600	800	830	900	1040	1220
Lower yield strength R_{eL}^d in N/mm ²	nom. ^c	240	-	300	-	-	-	-	-	-	-
	min.	240	-	300	-	-	-	-	-	-	-
0,2%-yield point $R_{p0,2}$ in N/mm	nom. ^c	-	-	-	-	-	640	640	720	900	1080
	min.	-	-	-	-	-	640	660	720	940	110
Percentage elongation at break of a sample A in %	min.	22	-	20	-	-	12	12	10	9	8
Percentage elongation at rupture of a sample Z in %	min.	-					52		48	48	44
Head impact toughness		no breakage									
Vickers hardness HV F ≥ 98N	min.	120	130	155	160	190	250	255	290	320	385
	max.	220 ^e				250	320	335	360	380	435
Brinell hardness HBW F = 30D ²	min.	114	124	147	152	181	238	242	276	304	366
	max.	209 ^e				238	304	318	342	361	414
Rockwell hardness HRB	min.	67	71	79	82	89	-				
	max.	95,0 ^e				99,5	-				
Rockwell hardness HRC	min.	-					22	23	28	32	39
	max.	-					32	34	37	39	44
Notch impact energy $K_V^{g,h}$ in J	min.	-		27	-		27	27	27	27	f

a Values aren't valid for steel construction screws

b for steel construction screws dia ≥ M12

c Values are just valid for the labeling system of the strength classes.

d If the lower yield strength R_{eL} can't be specified, ascertaining of the 0,2%-yield point is permitted.

e The hardness at the end of a screw can be a maximum of 250 HV, 238 HB or 99,5 HRB.

f Values for K_V are analyzed.

g Values are determined at a test temperature of -20 °C.

h valid for d ≤ 16 mm