**10.7 DIN EN ISO 898-1 |
DIN EN 20898-2
Strength values of
screws / nuts**

Strength values of screws

The identification of the tensile strength class for standard steel screws consists of two figures separated by a point:

• the first figure, called the strength index, is equal to $1/100$ of the tensile strength R_m in N/mm^2

• the second figure, known as the yield point ratio, is 10 times the ratio of the yield point R_e or the substitute yield point $R_{p\ 0.2}$ to the nominal tensile strength R_m. If the tensile strength R_m is multiplied by $1/10$ of the second figure, the result is the yield point R_e.

Example:

Screw of the strength class 5.8, strength index = 5, yield point ratio = 8

Tensile strength R_m = Strength index x 100 = 5 N/mm^2 x 100 = 500 N/mm^2

Yield point R_e = Tensile strength R_m x 0.8 = 500 N/mm^2 x 0.8 = 400 N/mm^2

Material characteristics	Strength class						
	4.6	5.6	5.8	6.8	8.8	10.9	12.9
Tensile strength R_m in N/mm^2	400	500	500	600	800	1000	1200
Yield point R_e in N/mm^2	240	300	400	480	640	900	1080
Elongation at break A in %	22	20	10	8	12	9	8

If, for standard elements, simply one figure is given, e.g. "strength class 5", it is equal to the strength index and must thus be correspondingly handled.

Strength values of nuts

The identification of the strength class for standard steel nuts consists of only one figure. It gives information about the test stress S_p on a hardened test mandrel and is expressed as the ratio $1/100$ The test stress S_p is equal in principle to the tensile strength R_m.

Example:

Nut of strength class 6

Tensile strength R_m = Strength index x 100 = 6 N/mm^2 x 100 = 600 N/mm^2

Test stress S_p in N/mm^2 for threading		Strength class				
		5	6	8	10	12
	... M 4	520	600	800	1040	1150
above M 4	... M 7	580	670	855	1040	1150
above M 7	... M 10	590	680	870	1040	1160
above M 10	... M 16	610	700	880	1050	1190
above M 16	... M 39	630	720	920	1060	1200

Nuts and screws of the same strength classes such as Nut 8 - Screw 8.8 can be loaded together up to the yield point of the screw without damaging the nut.

Technical Data