Strength values of screws

The property class identification 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/mm²
- The second fi gure, called the yield point ratio, indicates 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 property class 5.8, strength index = 5, yield point ratio = 8

Tensile strength R_m = Strength index x 100 = 5 N/mm² x 100 = 500 N/mm²

Yield point R_e = Tensile strength R_m x 0.8 = 500 N/mm² x 0.8 = 400 N/mm²

Material characteristics	**Property class**						
	4.6	**5.6**	**5.8**	**6.8**	**8.8**	**10.9**	**12.9**
Tensile strength R_m in N/mm²	400	500	500	600	800	1000	1200
Yield point R_e in N/mm²	240	300	400	480	640	900	1080
Elongation at break A in %	22	20	10	8	12	9	8

If simply one figure is given for standard parts, e.g. “property class 5”, it is equal to the strength index and must be handled correspondingly.

Strength values of nuts

The property class identification for standard steel nuts consists of only one figure. It provides information on the test stress S_p related to a hardened test mandrel and is specified in the ratio $^1/_{100}$. The test stress S_p is equal to the tensile strength R_m.

Example:

Nut of property class 6

Tensile strength R_m = Strength index x 100 = 6 N/mm² x 100 = 600 N/mm²

Test stress S_p in N/mm² **for threads**	**Property 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 property classes in combination, e.g. nut 8 - screw 8.8, can be loaded up to the yield point of the screw without damaging the nut.