PROPERTY CLASS DATA

Threaded Fasteners not under Tensile Stresses
Ref: ISO 898/5-1980

This International Standard concerning the mechanical properties of set screws and similar fasteners not under tensile stresses, does not apply to screws requiring special properties such as: -Specified tensile stresses -Weldability -Corrosion resistance -Ability to withstand temperatures above plus 300ºC (572ºF) or below minus 50ºC (58ºF)

*Please note: Screws made of free-cutting steel should not be used above plus 250ºC (482ºF)

DESIGNATION SYSTEM:

14 H, 17 H, 22 H, 33 H, 45 H

The numerical part of the symbol represents 1/10 of the minimum Vickers hardness. The letter H of the symbol refers to Vickers hardness.

PROPERTY CLASS	**14 H**	**17 H**	**22 H**	**33 H**	**45 H**
VICKERS HARDNESS HV min.	140	170	220	330	450

MATERIAL SPECIFICATIONS:

PROPERTY CLASS	MATERIAL	HEAT TREATMENT	CHEMICAL COMPOSITIONS %			
			C		P	S
			max.	min.	max.	max.
14 H	Carbon Steel 1, 2	-	0.50	-	0.11	0.15
17 H	Carbon Steel	-	0.58	-	0.06	0.15
17 H	Free Machine Steel	-	0.50	-	0.12	0.34
22 H	Carbon Steel 3	Quenched and Tempered	0.50	-	0.05	0.05
33 H	Carbon Steel 3	Quenched and Tempered	0.50	-	0.05	0.05
45 H	Alloy Steel 3, 4	Quenched and Tempered	0.50	0.19	0.05	0.05

1. Free Cutting Steel may be used with lead content 0.35% max., phosphorous content 0.11% and sulphur content 0.34% max.
2. Case hardening is allowed in the case of square-head set screws.
3. Steel with lead content 0.35% max. may be used.
4. Shall contain one or more of alloying elements: chromium, nickel, molybdenum, vanadium or boron.

MECHANICAL PROPERTIES:

MECHANICAL PROPERTIES			PROPERTY CLASS*				
			14 H	**17 H**	**22 H**	**33 H**	**45 H**
Vickers Hardness HV		min.	140	170	220	330	450
		max.	290	245	300	440	560
Brinell Hardness HB, F = 30 D²		min.	133	162	209	314	428
		max.	276	233	285	418	532
Rockwell Hardness	HRB	min.	75	85	95	-	-
		max.	105	-	-	-	-
	HRC	min.	-	-	-	33	45
		max.	-	-	30	44	53

*Classes 14 H, 17 H, 22 H AND 33 H are not for hexagon socket set screws.

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PROPERTY CLASS	
OLD	NEW
4 D	**11 H**
5 D 5 S	**14 H**
6 G 6 S	**17 H**
8 G	**22 H**

HARDNESS TESTS:
Hardness reading for the surface hardness shall be taken on the end of the screw, which will be prepared by slightly grinding or polishing to ensure reproducible readings. In case of doubt, the Vickers hardness test is decisive for acceptance.