



I N F O R M A T I O N G U I D E

# Socket Screws



SOCKET HEAD CAP SCREWS



FLAT SOCKET CAP SCREWS



BUTTON SOCKET CAP SCREWS



SOCKET SHOULDER SCREWS



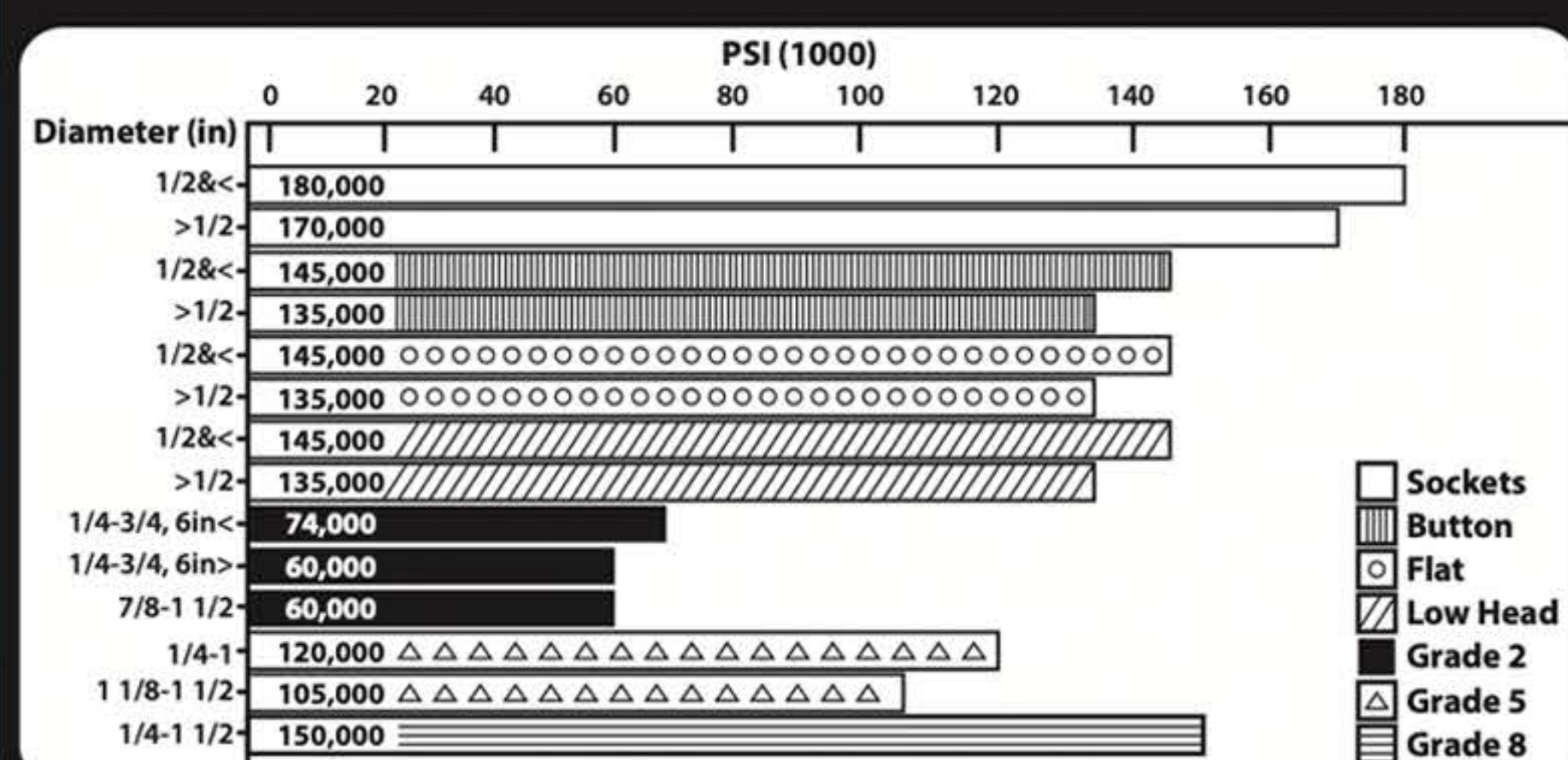
LOW HEAD SOCKET CAP SCREWS



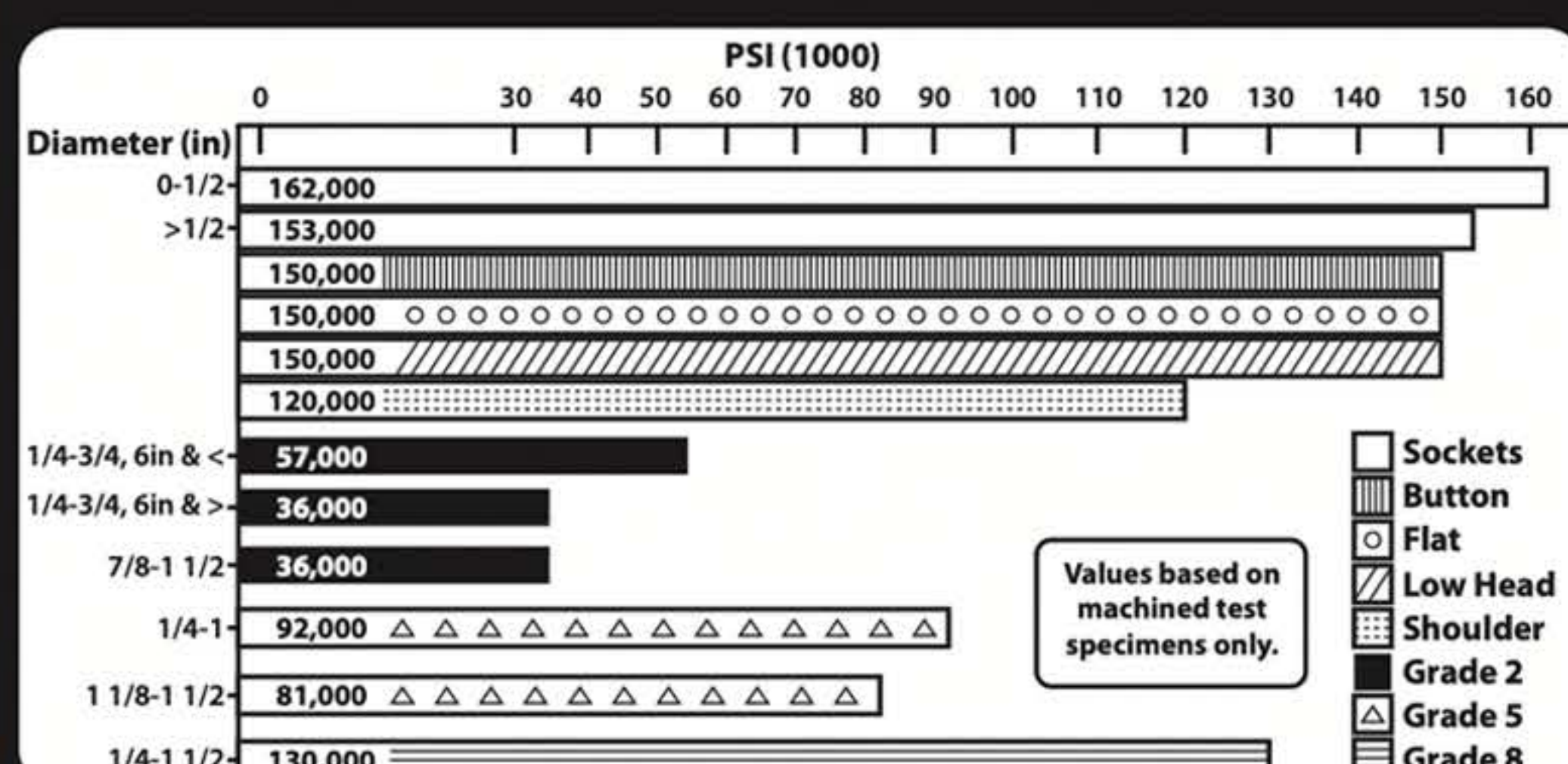
SOCKET SET SCREWS

Description	A cylindrical flat, chamfered top head, externally threaded with unified threads, cylindrical sides and a hexagonal recess.	A 82-degree countersunk flat top/head externally threaded with unified threads, cylindrical sides and a hexagonal recess.	Dome shaped head is wide with a low profile. Externally threaded with unified threads, cylindrical sides and a hexagonal recess.	Hex head Socket with large unthreaded cylindrical shoulder along threads. The diameter of the shoulder is the basis for deriving the nominal size.	A smaller cylindrical flat, chamfered top head, Externally threaded with unified threads. Cylindrical sides and hexagonal recess. Head height is 50% of a standard socket head.	Fully threaded, headless screw with a hexagonal drive at one end and a cup-shaped indentation, protruding tip, oval point, flat surface or cone point at the other.
Applications	Precision assembly work and applications requiring a well-tooled appearance. Internal wrenching with greater Tensile strength than same size Grade 5 or 8 Hex cap screws.	Used when a flush mount, high-strength screw is required. Often used for tools and dies where moving parts pass over an area.	Used for smooth finish appearance on wider bearing surface. Designed for Low strength/light fastening applications. DO NOT USE for critical, high-strength applications	Used in rotation and sliding applications. along with punch and die work.	Used for limited clearance situations. *DO NOT USE it like a standard cap screw. Smaller profile design, low head cap screws, cannot withstand the same preloads.	Designed for permanent or semi-permanent installation. Hardness dif of 10-15 Rockwell C points.
Material	Alloy steel with min 31% Carbon, max 0.040% Phosphorus, max 0.045% Sulfur and one or more of the following elements in sufficient quantity to meet strength requirements listed below: chromium, nickel, molybdenum or vanadium.	Alloy steel with min 0.28 to 0.50% Carbon, max 0.040% Phosphorus, max 0.045% Sulfur and one or more of the following elements in sufficient quantity to meet strength requirements listed below: chromium, nickel, molybdenum or vanadium.	Alloy steel with min 0.28 to 0.50% Carbon, max 0.040% Phosphorus, max 0.035% Sulfur and one or more of the following elements in sufficient quantity to meet strength requirements listed below: chromium, nickel, molybdenum or vanadium.	Made from alloy steel with a sufficient amount of chromium, nickel, molybdenum or vanadium to meet the strength requirements outlined below.	Alloy steel with min 31% Carbon, max 0.040% Phosphorus, max 0.045% Sulfur and one or more of the following elements in sufficient quantity to meet strength requirements listed below, Chromium, nickel, molybdenum or vanadium.	Made from alloy steel with a chemical composition of: 0.28 to 0.50% Carbon, 0.040% (max) Phosphorus, and 0.045% (max) Sulfur. Also, chromium, nickel, molybdenum or vanadium should be present in a quantity sufficient to meet the strength requirements.
Heat Treatment	Oil quenching from above the transformation temperature, tempered at a temperature not lower than 650 degrees F.	Oil quenching from above the transformation temperature, tempered at a temp. not lower than 650 degrees F.	Oil quenching from above the transformation temperature, tempered at a temp. not lower than 650 degrees F.	Set screws should be heat treated via oil quenching from above the transformation temperature and then tempered at a temperature that is not lower than 650-degrees F.	Oil quenching from above the transformation temperature, tempered at a temp. not lower than 650 degrees F.	Oil quenching from above the transformation temperature.
Hardness	0 - 1/2" D: Rockwell C39 min. 5/8" D & larger: Rockwell C37 min.	0 - 1/2" D: Rockwell C39 - 44 Over 1/2" D: Rockwell C37 - 44	Rockwell C38 - 44	Rockwell C33 - 43	0 - 1/2" D: Rockwell C39 min 5/8" D & Larger: Rockwell C37 min	Rockwell C45 - 53
Tensile Strength	0 - 1/2" D: 180,000 psi min. 5/8" D & larger: 170,000 psi min.	0 - 1/2" D: 145,000 psi min. Over 1/2" D: 135,000 psi min.	180,000 psi min. (material only)	140,000 psi min. (Material only)	0 - 1/2" D: 180,000 psi min. 5/8" D & Larger: 170,000 psi min.	N.A.
Yield Strength	0 - 1/2" D: 162,000 psi min. 5/8" D & larger: 153,000 psi min.	153,000 psi min. (over 1/2" diam.)	160,000 psi min.	120,000 psi min. (Material only)	0 - 1/2" D: 162,000 psi min. 5/8" D & Larger: 153,000 psi min.	N.A.
Elongation	10% min (Applies to machined specimens at least 4D in length where D equals the nominal diameter of the screw.)	8% min (Applies to machined specimens over 1/2" diameter at least 4D in length where D equals the nominal diameter of the screw.)	8% min (Applies to machined specimens at least 4D in length where D equals the nominal diameter of the screw.)	15% min (Applies to machined specimens at least 4D in length where D equals the nominal diameter of the screw.)	8% min (Applies to machined specimens over 1/2" diameter at least 4D in length where D equals the nominal diameter of the screw.)	N.A.
Reduction of Area	33% min (machined specimens)	35% min (machined specimens over 1/2" diameter)	35% min (machined specimens)	45% min (machined specimens)	35% min (machined specimens over 1/2" diameter)	N.A.

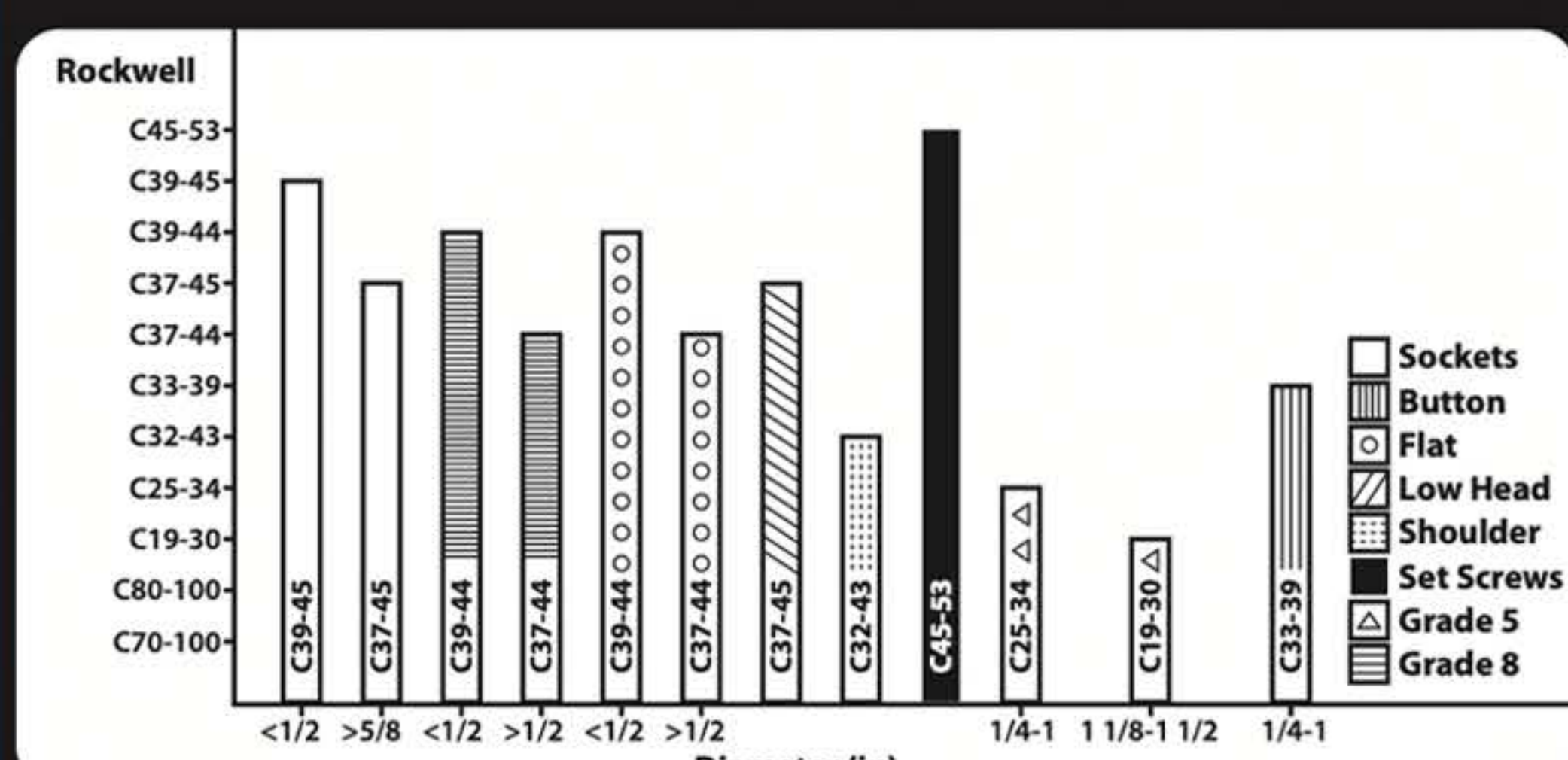
## TENSILE STRENGTH



## YIELD STRENGTH



## HARDNESS HRC



**DISCLAIMER:** Information for general purposes only

**BUTTONS & FLAT SPEC:** ANSI B18.3-1986 & ASTM F835 | **SOCKETS & SHOULDER SPEC:** Ansi B18.3-1986 & ASTM A574-92A  
**DOWEL PINS:** ASME B18.8.2 | **PIPE PLUGS:** ANSI B1.20.3-1976

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