

SIMPLIFY WITH CPS®

CPS®TECH - Featuring Fastener Academy:
 Facilitated by Würth Engineers highlighting fastener fundamentals, manufacturing processes, mechanical basics, industry standards, and other fastener modules. Enroll today!



NUTS

| | | | | | | | | | | |
|-------------|------------|--------|---------|-------------|----------|--------------|-----------------|------------------|------------------|----------------|
| 2H | 2 WAY LOCK | ACORN | ALLEN | CASTLE | COUPLING | FIBER LOCK | FINISHED HEX | FLANGE | FLEXILOC | FORGED WING |
| FORMED WING | HEAVY HEX | HEX | HEX JAM | HEX SLOTTED | KEPS | METAL LOCK | NE NYLON INSERT | NTE NYLON INSERT | PAL | REGULAR SQUARE |
| RIV | SLAB WELD | SQUARE | STRUX | TEE | U NUT | UNTORUE LOCK | WELD | WHEEL | WHIZ LOCK FLANGE | WIRE |

POINTS

| | | | | |
|--------|--------|---------|---------------|---------------|
| TYPE A | TYPE B | TYPE AB | TYPE C | TYPE F |
| TYPE U | TYPE 1 | TYPE 17 | TYPE 23 | TYPE 25 |
| CONE | CUPPED | DIE | HALF DOG | NAIL |
| PINCH | ROLLED | ROUND | SELF DRILLING | SELF PIERCING |

HEADS

| | | | | |
|--------------|------------------|-----------------|-------------|---------------|
| GRADE 2 HEX | GRADE 5 HEX | GRADE 8 HEX | ACORN | BINDING |
| FILLISTER | FLAT | HEX | INDENT. HEX | OVAL |
| PAN | PHIL. PLUS DRIVE | PHIL. FIN WASH. | ROUND | SLOTTED DRIVE |
| SOCKET DRIVE | SQ. SHOULDER | TORX DRIVE | TRIMMED HEX | TRUSS |

PROTECTIVE FINISHES

| Finish | Finish Color | Corrosion Resistance | Suggested Material |
|--------------------------|----------------------------------------|----------------------|--------------------|
| Black Zinc | Black | Very Good | All |
| Brass | Brass | Fair | Steel |
| Bronze | Varied | Fair | Steel |
| Cadmium | Silver Gray | Very Good | Steel |
| Copper | Copper | Fair | Steel |
| Iridite | Olive, Green, Black, Red, Blue, Bronze | Good | Ferrous Metals |
| Nickel | Silver | Very Good | Steel |
| Oxide (Black) | Lustre Black | Fair | All |
| Painted | Any | Good | All |
| Parkerized | Dull Gray, Black | Fair | Steel |
| Phos & Oil | Black | Very Good | Steel |
| Stalgard | Dull Silver | Excellent | All |
| Tinning (electro) | Silver, Gray | Good | Steel |
| Trivalent Zinc | Varied | Good | Steel |
| Zinc (electrogalvanized) | Gray | Good | Steel |

NOMINAL SIZE & THREAD / INCH SERIES DESIGNATION

| Size | Basic | Thread | Size | Basic | Thread |
|---------|--------|--------|----------|--------|----------|
| 0-80 | 0.0600 | UNF | 7/16-20 | 0.4375 | UNF |
| 1-64 | 0.0730 | UNC | 1/2-13 | 0.5000 | UNC |
| 1-72 | 0.0730 | UNF | 1/2-20 | 0.5000 | UNF |
| 2-56 | 0.0860 | UNC | 9/16-12 | 0.5625 | UNC |
| 2-64 | 0.0860 | UNF | 9/16-18 | 0.5625 | UNF |
| 3-48 | 0.0990 | UNC | 5/8-11 | 0.6250 | UNC |
| 3-56 | 0.0990 | UNF | 5/8-18 | 0.6250 | UNF |
| 4-40 | 0.1120 | UNC | 3/4-10 | 0.7500 | UNC |
| 4-48 | 0.1120 | UNF | 3/4-16 | 0.7500 | UNF |
| 5-40 | 0.1250 | UNC | 7/8-9 | 0.8750 | UNC |
| 5-44 | 0.1250 | UNF | 7/8-14 | 0.8750 | UNF |
| 6-32 | 0.1380 | UNC | 1-8 | 1.0000 | UNC |
| 6-40 | 0.1380 | UNF | 1-12 | 1.0000 | UNF |
| 8-32 | 0.1640 | UNC | 1-14 | 1.0000 | UNS |
| 8-36 | 0.1640 | UNF | 1 1/8-7 | 1.1250 | UNC |
| 10-24 | 0.1900 | UNC | 1 1/8-8 | 1.1250 | 8 SERIES |
| 10-32 | 0.1900 | UNF | 1 1/8-12 | 1.1250 | UNF |
| 12-24 | 0.2160 | UNC | 1 1/4-7 | 1.2500 | UNC |
| 12-28 | 0.2160 | UNF | 1 1/4-8 | 1.2500 | 8 SERIES |
| 1/4-20 | 0.2500 | UNC | 1 1/4-12 | 1.2500 | UNF |
| 1/4-28 | 0.2500 | UNF | 1 3/8-6 | 1.3750 | UNC |
| 5/16-18 | 0.3125 | UNC | 1 3/8-8 | 1.3750 | 8 SERIES |
| 5/16-24 | 0.3125 | UNF | 1 3/8-12 | 1.3750 | UNF |
| 3/8-16 | 0.3750 | UNC | 1 1/2-6 | 1.5000 | UNC |
| 3/8-24 | 0.3750 | UNF | 1 1/2-8 | 1.5000 | 8 SERIES |
| 7/16-14 | 0.4375 | UNC | 1 1/2-12 | 1.5000 | UNF |

HOW TO SPECIFY

**1/4 - 20 x 4 Hex Head Cap Screw
Grade 8 with Zinc & Yellow**

Grade 8 (steel) Hex Head Zinc & Yellow (plated finish)

Made from Steel 20 Threads per Inch

4" 1/4"

STEPS

| Step | Action | Example |
|------|-------------------|--------------------|
| 1 | Nominal Size | 1/4" |
| 2 | Threads per Inch | 20 |
| 3 | Product Length | 4" |
| 4 | Product Name | Hex Head Cap Screw |
| 5 | Material | Grade 8 |
| 6 | Protective Finish | Zinc & Yellow |

CONVERSION

| Inch | | Metric | | Inch | | Metric | |
|----------|----------|-----------|----------|----------|-----------|----------|----|
| Fraction | Decimal | MM | Fraction | Decimal | MM | Fraction | MM |
| 1/128 | 0.007813 | 0.198438 | 31/64 | 0.484375 | 12.303125 | | |
| 1/64 | 0.015625 | 0.396875 | 1/2 | 0.500000 | 12.700000 | | |
| 1/32 | 0.031250 | 0.793750 | 33/64 | 0.515625 | 13.096875 | | |
| 3/64 | 0.046875 | 1.190625 | 17/32 | 0.531250 | 13.493750 | | |
| 1/16 | 0.062500 | 1.587500 | 35/64 | 0.546875 | 13.890625 | | |
| 5/64 | 0.078125 | 1.984375 | 9/16 | 0.562500 | 14.287500 | | |
| 3/32 | 0.093750 | 2.381250 | 37/64 | 0.578125 | 14.684375 | | |
| 7/64 | 0.109375 | 2.778125 | 19/32 | 0.593750 | 15.081250 | | |
| 1/8 | 0.125000 | 3.175000 | 39/64 | 0.609375 | 15.478125 | | |
| 9/64 | 0.140625 | 3.571875 | 5/8 | 0.625000 | 15.875000 | | |
| 5/32 | 0.156250 | 3.968750 | 41/64 | 0.640625 | 16.271875 | | |
| 11/64 | 0.171875 | 4.365625 | 21/32 | 0.656250 | 16.668750 | | |
| 3/16 | 0.187500 | 4.762500 | 43/64 | 0.671875 | 17.065625 | | |
| 13/64 | 0.203125 | 5.159375 | 3/4 | 0.750000 | 19.050000 | | |
| 7/32 | 0.218750 | 5.556250 | 49/64 | 0.765625 | 19.446875 | | |
| 15/64 | 0.234375 | 5.953125 | 25/32 | 0.781250 | 19.837500 | | |
| 1/4 | 0.250000 | 6.350000 | 51/64 | 0.796875 | 20.240625 | | |
| 17/64 | 0.265625 | 6.746875 | 13/16 | 0.812500 | 20.637500 | | |
| 9/32 | 0.281250 | 7.143750 | 53/64 | 0.828125 | 21.034375 | | |
| 19/64 | 0.296875 | 7.540625 | 7/8 | 0.875000 | 22.225000 | | |
| 5/16 | 0.312500 | 7.937500 | 57/64 | 0.890625 | 22.621875 | | |
| 21/64 | 0.328125 | 8.334375 | 29/32 | 0.906250 | 23.018750 | | |
| 11/32 | 0.343750 | 8.731250 | 59/64 | 0.921875 | 23.415625 | | |
| 23/64 | 0.359375 | 9.128125 | 15/16 | 0.937500 | 23.812500 | | |
| 3/8 | 0.375000 | 9.525000 | 61/64 | 0.953125 | 24.209375 | | |
| 25/64 | 0.390625 | 9.921875 | 31/32 | 0.968750 | 24.606250 | | |
| 7/16 | 0.437500 | 11.112500 | 63/64 | 0.984375 | 25.003125 | | |
| 29/64 | .453125 | 11.509375 | 1 | 1.000000 | 25.400000 | | |
| 15/32 | .468750 | 11.906250 | | | | | |

WASHERS

| | | | |
|-----------------|------------|-----------------|----------------|
| BEARING LOCK | BELLEVILLE | EXT. TOOTH LOCK | FENDER |
| FLAT | HEX | INT. TOOTH LOCK | LOAD INDICATOR |
| ROUND MALLEABLE | SPLIT LOCK | SQUARE BEVEL | T-SLOT |

HEAD MARKINGS

| Property Class | Strength Grade |
|----------------|---------------------------------|
| 5.8 | Grade 2 |
| 8.8 | Grade 5 |
| 10.9 | Grade 8 |
| 12.9 | ASTM A574 Socket Head Cap Screw |

TENSILE STRENGTH

| MPa | PSI |
|-------|--------------------------------------|
| 520 | 75,420 (PC 5.8) |
| 830 | 120,381 (PC 8.8) 120,000 Grade 5 |
| 1,040 | 150,839 (PC 10.9) 150,000 Grade 8 |
| 1,220 | 176,946 (PC 12.9) 180,000 A574 |

YIELD STRENGTH

| MPa | PSI |
|-------|--------------------------------------|
| 420 | 55,114 (PC 5.8) 55,000 Grade 2 |
| 660 | 87,023 (PC 8.8) 85,000 Grade 5 |
| 940 | 120,381 (PC 10.9) 120,000 Grade 8 |
| 1,110 | 159,541 (PC 12.9) 162,000 A574 |