



# PROPERTIES OF STRUCTURAL BOLT & NUT AS PER A320

| BOLT SIZE | PITCH | STRESS AREA MM2 | BOLT/STUD/SCREW<br>ASTM A320 B8M-1 |               |                      |               |               |                | NUT<br>ASTM A194 8M |               |               |
|-----------|-------|-----------------|------------------------------------|---------------|----------------------|---------------|---------------|----------------|---------------------|---------------|---------------|
|           |       |                 | PROOF STRESS N/MM2                 | PROOF LOAD KN | TENSILE STRESS N/MM2 | TOUR-QUE* N-m | HARD-NESS HRC | ELONGA-TION# % | PROOF STRESS N/MM2  | PROOF LOAD KN | HARD-NESS HRC |
| M6        | 1     | 20.1            | 205                                | 4.1           | 515.0                | 3.3           | -96           | 30.0           | 550                 | 11.1          | 60-105        |
| M8        | 1.25  | 36.6            | 205                                | 7.5           | 515.0                | 8.1           | -96           | 30.0           | 550                 | 20.1          | 60-105        |
| M10       | 1.5   | 58.8            | 205                                | 12.1          | 515.0                | 16.2          | -96           | 30.0           | 550                 | 32.3          | 60-105        |
| M12       | 1.75  | 84.3            | 205                                | 17.3          | 515.0                | 27.8          | -96           | 30.0           | 550                 | 46.4          | 60-105        |
| M14       | 2.0   | 115.0           | 205                                | 23.6          | 515.0                | 44.3          | -96           | 30.0           | 550                 | 63.3          | 60-105        |
| M16       | 2.0   | 157.0           | 205                                | 32.2          | 515.0                | 69.1          | -96           | 30.0           | 550                 | 86.4          | 60-105        |
| M18       | 2.5   | 192.0           | 205                                | 39.4          | 515.0                | 95.1          | -96           | 30.0           | 550                 | 105.6         | 60-105        |
| M20       | 2.5   | 245.0           | 205                                | 50.2          | 515.0                | 134.9         | -96           | 30.0           | 550                 | 134.8         | 60-105        |
| M22       | 2.5   | 303.0           | 205                                | 62.1          | 515.0                | 183.5         | -96           | 30.0           | 550                 | 166.7         | 60-105        |
| M24       | 3.0   | 353.0           | 205                                | 72.4          | 515.0                | 233.2         | -96           | 30.0           | 550                 | 194.2         | 60-105        |
| M27       | 3.0   | 459.0           | 205                                | 94.1          | 515.0                | 341.1         | -96           | 30.0           | 550                 | 252.5         | 60-105        |
| M30       | 3.5   | 561.0           | 205                                | 115.0         | 515.0                | 463           | -96           | 30.0           | 550                 | 308.6         | 60-105        |
| M33       | 3.5   | 694.0           | 205                                | 142.3         | 515.0                | 630           | -96           | 30.0           | 550                 | 381.7         | 60-105        |
| M36       | 4.0   | 817.0           | 205                                | 167.5         | 515.0                | 809           | -96           | 30.0           | 550                 | 449.4         | 60-105        |
| M39       | 4.0   | 976.0           | 205                                | 200.1         | 515.0                | 1,048         | -96           | 30.0           | 550                 | 536.8         | 60-105        |
| M42       | 4.5   | 1,120.0         | 205                                | 229.6         | 515.0                | 1,295         | -96           | 30.0           | 550                 | 616.0         | 60-105        |
| M45       | 4.5   | 1,310.0         |                                    |               |                      |               |               |                |                     |               |               |
| M48       | 5.0   | 1,470.0         |                                    |               |                      |               |               |                |                     |               |               |
| M52       | 5.0   | 1,760.0         |                                    |               |                      |               |               |                |                     |               |               |
| M56       | 5.5   | 2,030.0         |                                    |               |                      |               |               |                |                     |               |               |
| M60       | 5.5   | 2,360.0         |                                    |               |                      |               |               |                |                     |               |               |
| M64       | 6.0   | 2,680.0         |                                    |               |                      |               |               |                |                     |               |               |
| M68       | 6.0   | 3,060.0         |                                    |               |                      |               |               |                |                     |               |               |
| M72       | 6.0   | 3,460.0         |                                    |               |                      |               |               |                |                     |               |               |

| DIMENSIONS  | HEAVY HEX | HEAVY HEX |
|-------------|-----------|-----------|
| MARKINGS    | 'B8M'     | '8M'      |
| CARBON      | -0.08     | -0.08     |
| MANAGENESE  | -2.0      | -2.0      |
| SULPHUR     | -0.03     | -0.03     |
| SILICON     | -1.0      | -1.0      |
| CHROMIUM    | 16.0-18.0 | 16.0-18.0 |
| MOLYDENUM   | 2.0-3.0   | 2.0-3.0   |
| NICKLE      | 10.0-14.0 | 10.0-14.0 |
| VANADIUM    |           |           |
| BORON       |           |           |
| PHOSPHOROUS | -0.048    | -0.048    |
| MATERIAL    | AISI 316  | AISI 316  |

**NOTES:**

Left hand side of '-' is minimum value  
 Right hand side of '-' is maximum value  
 Eg. 0.5 - 0.7 min. is 0.5 and max is 0.7  
 Eg. -0.8 max is 0.8 no minimum value  
 Eg. 2.0- min. is 2.0 no maximum value

Carbide Solution Treated

\* Torque value based on 75% of proof load and finish as recieved steel