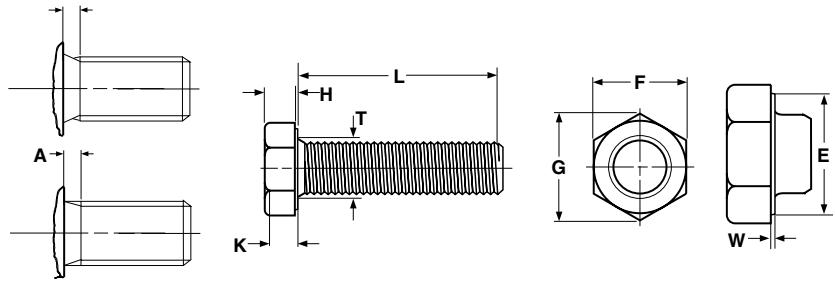


# Metric Products

## Fully Threaded Hex Bolts



| Nominal Size        | Thread Pitch | A              |      | W                     |      | T                          | E                    | H           |        | F                  |       | G                    | K                |
|---------------------|--------------|----------------|------|-----------------------|------|----------------------------|----------------------|-------------|--------|--------------------|-------|----------------------|------------------|
|                     |              | Thread Run-Out |      | Washer Face Thickness |      | Fillet Transition Diameter | Washer Face Diameter | Head Height |        | Width Across Flats |       | Width Across Corners | Wrenching Height |
|                     |              | Max            | Min  | Max                   | Min  | Max                        | Min                  | Max         | Min    | Max                | Min   | Min                  | Min              |
| M1.6                | 0.35         | 1.05           | 0.35 | 0.25                  | 0.1  | 2                          | 2.27                 | 1.225       | 0.975  | 3.2                | 3.02  | 3.41                 | 0.68             |
| M2                  | 0.4          | 1.2            | 0.4  | 0.25                  | 0.1  | 2.6                        | 3.07                 | 1.525       | 1.275  | 4                  | 3.82  | 4.32                 | 0.89             |
| M2.5                | 0.45         | 1.35           | 0.45 | 0.25                  | 0.1  | 3.1                        | 4.07                 | 1.825       | 1.575  | 5                  | 4.82  | 5.45                 | 1.1              |
| M3                  | 0.5          | 1.5            | 0.5  | 0.4                   | 0.15 | 3.6                        | 4.57                 | 2.125       | 1.875  | 5.5                | 5.32  | 6.01                 | 1.31             |
| M4                  | 0.7          | 2.1            | 0.7  | 0.4                   | 0.15 | 4.7                        | 6.03                 | 2.925       | 2.675  | 7                  | 6.78  | 7.66                 | 1.87             |
| M5                  | 0.8          | 2.4            | 0.8  | 0.5                   | 0.15 | 5.7                        | 6.88                 | 3.65        | 3.35   | 8                  | 7.78  | 8.79                 | 2.35             |
| M6                  | 1            | 3              | 1    | 0.5                   | 0.15 | 6.8                        | 8.88                 | 4.15        | 3.85   | 10                 | 9.78  | 11.05                | 2.7              |
| M8                  | 1.25         | 4              | 1.25 | 0.6                   | 0.15 | 9.2                        | 11.63                | 5.45        | 5.15   | 13                 | 12.73 | 14.38                | 3.61             |
| M10                 | 1.5          | 4.5            | 1.5  | 0.6                   | 0.15 | 11.2                       | 14.63                | 6.58        | 6.22   | 16*                | 15.73 | 17.77                | 4.35             |
| M12                 | 1.75         | 5.3            | 1.75 | 0.6                   | 0.15 | 13.7                       | 16.63                | 7.68        | 7.32   | 18*                | 17.73 | 20.03                | 5.12             |
| M14                 | 2            | 6              | 2    | 0.6                   | 0.15 | 15.7                       | 19.37                | 8.98        | 8.62   | 21*                | 20.67 | 23.36                | 6.03             |
| M16                 | 2            | 6              | 2    | 0.8                   | 0.2  | 17.7                       | 22.49                | 10.18       | 9.82   | 24                 | 23.67 | 26.75                | 6.87             |
| M20                 | 2.5          | 7.5            | 2.5  | 0.8                   | 0.2  | 22.4                       | 28.19                | 12.715      | 12.285 | 30                 | 29.67 | 33.53                | 8.6              |
| M24                 | 3            | 9              | 3    | 0.8                   | 0.2  | 26.4                       | 33.61                | 15.215      | 14.785 | 36                 | 35.38 | 39.98                | 10.35            |
| Tolerance on Length |              | 2-3mm: ±0.2    |      |                       |      | 4-6mm: ±0.24               |                      |             |        | 8-10mm: ±0.29      |       |                      |                  |
|                     |              | 12-16mm: ±0.35 |      |                       |      | 20-30mm: ±0.42             |                      |             |        | 35-50mm: ±0.5      |       |                      |                  |
|                     |              | 55-80mm: ±0.6  |      |                       |      | 90-120: ±0.7               |                      |             |        | 130-150mm: ±0.8    |       |                      |                  |

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\*DIN 933 spec for maximum width across flats on these three diameters are 17, 19 & 22 mm, respectively

| Nominal Size        | Thread Pitch | A              |     | W                     |     | T                          | E                    | H           |       | F                  |       | G                    | K                |
|---------------------|--------------|----------------|-----|-----------------------|-----|----------------------------|----------------------|-------------|-------|--------------------|-------|----------------------|------------------|
|                     |              | Thread Run-Out |     | Washer Face Thickness |     | Fillet Transition Diameter | Washer Face Diameter | Head Height |       | Width Across Flats |       | Width Across Corners | Wrenching Height |
|                     |              | Max            | Min | Max                   | Min | Max                        | Min                  | Max         | Min   | Max                | Min   | Min                  | Min              |
| M16                 | 2            | 6              | 2   | 0.8                   | 0.2 | 17.7                       | 22                   | 10.29       | 9.71  | 24                 | 23.16 | 26.17                | 6.8              |
| M20                 | 2.5          | 7.5            | 2.5 | 0.8                   | 0.2 | 22.4                       | 27.7                 | 12.85       | 12.15 | 30                 | 29.16 | 32.95                | 8.51             |
| M24                 | 3            | 9              | 3   | 0.8                   | 0.2 | 26.4                       | 33.25                | 15.35       | 14.65 | 36                 | 35    | 39.55                | 10.26            |
| M30                 | 3.5          | 10.5           | 3.5 | 0.8                   | 0.2 | 33.4                       | 42.75                | 19.12       | 18.28 | 46                 | 45    | 50.85                | 12.8             |
| M36                 | 4            | 12             | 4   | 0.8                   | 0.2 | 39.4                       | 51.11                | 22.92       | 22.08 | 55                 | 53.8  | 60.79                | 15.46            |
| M42                 | 4.5          | 13.5           | 4.5 | 1                     | 0.3 | 45.6                       | 59.95                | 26.42       | 25.58 | 65                 | 63.1  | 71.3                 | 17.91            |
| M48                 | 5            | 15             | 5   | 1                     | 0.3 | 52.6                       | 69.45                | 30.42       | 29.58 | 75                 | 73.1  | 82.6                 | 20.71            |
| M56                 | 5.5          | 16.5           | 5.5 | 1                     | 0.3 | 63                         | 78.66                | 35.5        | 34.5  | 85                 | 82.8  | 93.56                | 24.15            |
| M64                 | 6            | 18             | 6   | 1                     | 0.3 | 71                         | 88.16                | 40.5        | 39.5  | 95                 | 92.8  | 104.86               | 27.65            |
| Tolerance on Length |              | 60-80mm: ±1.5  |     |                       |     | 90-120mm: ±1.75            |                      |             |       | 130-180mm: ±2.0    |       | 200mm: ±2.3          |                  |

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