

# Metric Hex Nuts Proof Load Properties



Learn about the different proof load properties of hex nuts of varying sizes. There are tables for proof load stresses and minimum proof loads for different metric hex nuts, from M3 to M64 and for different classes of steel (Classes 5-12). Proof loads give an indication of the loads the hex nuts can tolerate before they start to permanently deform. Use these values as a guide to ensure you are selecting the right type of hex nut and the right material for your application.

## Hex Nuts

### Stress Under Proof Load (MPa or N/mm<sup>2</sup>)

Nominal Size	Pitch, mm	Stress Area, mm <sup>2</sup>	Class 5	Class 8	Class 10	Class 12	AS1252
<b>M3</b>	0.50	5.03	520	800	1040	1140	-
<b>M4</b>	0.70	8.78	520	800	1040	1140	-
<b>M5</b>	0.80	14.20	580	855	1040	1140	-
<b>M6</b>	1.00	20.10	580	870	1040	1140	-
<b>M8</b>	1.25	36.60	590	870	1040	1140	-
<b>M10</b>	1.50	58.00	590	870	1040	1140	-
<b>M12</b>	1.75	84.30	610	880	1050	1170	1075
<b>M14</b>	2.00	115.00	610	880	1050	1170	-
<b>M16</b>	2.00	157.00	610	880	1050	1170	1075
<b>M18</b>	2.50	192.00	630	920	1060	1170	-
<b>M20</b>	2.50	245.00	630	920	1060	1170	1075
<b>M22</b>	2.50	303.00	630	920	1060	1170	1075
<b>M24</b>	3.00	353.00	630	920	1060	1170	1075
<b>M27</b>	3.00	459.00	630	920	1060	1170	1075
<b>M30</b>	3.50	561.00	630	920	1060	1170	1075
<b>M33</b>	3.50	694.00	630	920	1060	1170	1075
<b>M36</b>	4.00	817.00	630	920	1060	1170	1075
<b>M39</b>	4.00	976.00	630	920	1060	1170	-
<b>M42</b>	4.50	1121.00	630	920	1060	1170	-
<b>M48</b>	5.00	1473.00	630	920	1060	1170	-
<b>M52</b>	5.00	1758.00	630	920	1060	1170	-
<b>M64</b>	6.00	2676.00	630	920	1060	1170	-



## Hex Nuts Minimum Proof Load (KN)

Nominal Size	Pitch, mm	Stress Area, mm <sup>2</sup>	Class 5	Class 8	Class 10	Class 12	AS1252
<b>M3</b>	0.50	5.03	2.62	4.02	5.23	5.73	-
<b>M4</b>	0.70	8.78	4.57	7.02	9.13	10.01	-
<b>M5</b>	0.80	14.20	8.24	12.14	14.77	16.19	-
<b>M6</b>	1.00	20.10	11.66	17.49	20.90	22.91	-
<b>M8</b>	1.25	36.60	21.59	31.84	38.06	41.72	-
<b>M10</b>	1.50	58.00	34.22	50.46	60.90	66.12	-
<b>M12</b>	1.75	84.30	51.42	74.18	88.52	98.63	90.62
<b>M14</b>	2.00	115.00	70.15	101.20	120.75	134.55	-
<b>M16</b>	2.00	157.00	95.77	138.16	164.85	183.69	168.78
<b>M18</b>	2.50	192.00	120.96	176.64	203.52	224.64	-
<b>M20</b>	2.50	245.00	154.35	225.40	259.70	286.65	263.38
<b>M22</b>	2.50	303.00	190.89	278.76	321.18	354.51	325.73
<b>M24</b>	3.00	353.00	222.39	324.76	374.18	413.01	379.48
<b>M27</b>	3.00	459.00	289.17	422.28	486.54	537.03	493.43
<b>M30</b>	3.50	561.00	353.43	516.12	594.66	656.37	603.08
<b>M33</b>	3.50	694.00	437.22	638.48	735.64	811.98	746.05
<b>M36</b>	4.00	817.00	514.71	751.64	866.02	955.89	878.28
<b>M39</b>	4.00	976.00	614.88	897.92	1034.56	1141.92	-
<b>M42</b>	4.50	1121.00	706.23	1031.32	1188.26	1311.57	-
<b>M48</b>	5.00	1473.00	927.99	1355.16	1561.38	1723.41	-
<b>M52</b>	5.00	1758.00	1107.54	1617.36	1863.48	2056.86	-
<b>M64</b>	6.00	2676.00	1685.88	2461.92	2836.56	3130.92	-

ⓘ The data provided in this document is for general guidance only and should not be solely relied upon when working to stringent specifications. We recommend consulting with qualified experts regarding any technical queries. This information may change without written notice.