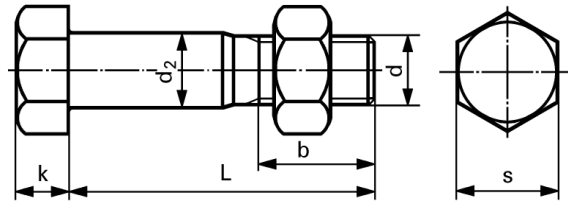


5.6 / 8.8*

Hex structural shoulder bolts
with hex nuts, steel

MU DIN 7968



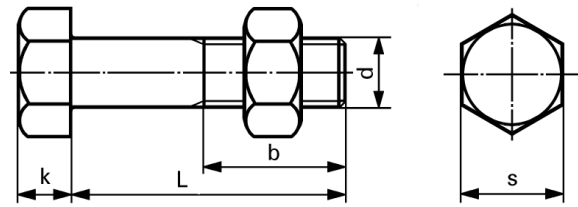
| d | M12 | M16 | M20 | M22 | M24 | |
|------------|-----------|-------|-------|-----------|--------|--|
| d2 | 13 | 17 | 21 | 23 | 25 | |
| b | 18,5 | 22 | 26 | 28 | 29,5 | |
| s | 19 ISO 18 | 24 | 30 | 32 ISO 34 | 36 | |
| k | 8 | 10 | 13 | 14 | 15 | |
| L quantity | 100 | 100 | 100 | 100 | 100 | |
| 35 | | 332.- | | | | |
| 40 | 228.- | 334.- | | | | |
| 45 | 235.- | 346.- | | 1060.- | | |
| 50 | | 360.- | | 1080.- | 790.- | |
| 55 | 254.- | | | 1100.- | | |
| 60 | 272.- | 384.- | 495.- | 1130.- | 815.- | |
| 65 | | 415.- | 665.- | | | |
| 70 | 470.- | 410.- | 525.- | 1170.- | 860.- | |
| 75 | 505.- | | | | | |
| 80 | 545.- | 430.- | 560.- | 1230.- | 895.- | |
| 85 | | | | 1300.- | | |
| 90 | 680.- | | 705.- | 1320.- | 945.- | |
| 100 | | | | 1420.- | 965.- | |
| 110 | | | | 1500.- | 1250.- | |
| 120 | | | | | 1310.- | |
| 130 | | | | | 1910.- | |
| 140 | | | | | 2020.- | |
| 150 | | | | | 2120.- | |

* at our option

5.6

Hex structural bolts
with hex nuts, steel

MU DIN 7990



Hot dip galvanized

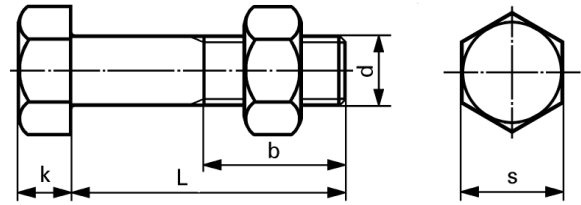
| d | M 12 | | M 16 | | M20 | | M22 | M24 |
|------------|-----------|-------|-------|-------|-------|-------|-------|--------|
| s | 19 ISO 18 | | 24 | | 30 | | 32 | 36 |
| k | 8 | | 10 | | 13 | | 14 | 15 |
| b | 19,5 | | 23 | | 26 | | 28 | 29,5 |
| L quantity | 100 | 1000 | 100 | 1000 | 100 | 1000 | 100 | 100 |
| 30 | 54.50 | 42.- | | | | | | |
| 35 | 59.50 | 46.- | 107.- | 81.- | | | | |
| 40 | 61.50 | 47.50 | 117.- | | 216.- | 186.- | 535.- | 346.- |
| 45 | 63.- | 49.- | 121.- | | 230.- | 179.- | | 332.- |
| 50 | 64.50 | 50.- | 129.- | 97.- | 232.- | 180.- | 490.- | 372.- |
| 55 | 76.- | 59.- | 131.- | 103.- | 238.- | 185.- | 495.- | 384.- |
| 60 | 75.50 | 58.50 | 134.- | 107.- | 244.- | 190.- | 510.- | 394.- |
| 65 | 92.- | 72.- | 151.- | 123.- | 246.- | 200.- | 525.- | 398.- |
| 70 | 98.50 | 80.50 | 162.- | 126.- | 254.- | 207.- | 530.- | 405.- |
| 75 | 103.- | 84.50 | 192.- | | 270.- | 214.- | 540.- | 445.- |
| 80 | 104.- | 85.- | 254.- | 199.- | 276.- | 220.- | 550.- | 465.- |
| 85 | 116.- | 95.- | | | 440.- | 350.- | | 690.- |
| 90 | 98.50 | 80.50 | 270.- | 212.- | 445.- | 354.- | 680.- | 720.- |
| 95 | 130.- | 107.- | | | 530.- | 460.- | | 785.- |
| 100 | | | | | 470.- | 374.- | 695.- | 790.- |
| 105 | | | | | 490.- | 395.- | | 810.- |
| 110 | | | 280.- | 220.- | 530.- | 430.- | 715.- | 830.- |
| 115 | | | | | | | | 910.- |
| 120 | | | 290.- | 231.- | 550.- | 450.- | 750.- | 915.- |
| 130 | | | | | 565.- | 465.- | 875.- | 965.- |
| 140 | | | | | 590.- | 496.- | | 1040.- |
| 150 | | | | | 610.- | 513.- | | 1100.- |
| 160 | | | | | | | | 1260.- |
| 180 | | | | | | | | 1350.- |
| 200 | | | | | | | | 1400.- |

Plain washers DIN 7989 see page F 20

5.6

Hex structural bolts
with hex nuts, steel

MU DIN 7990



Hot dip galvanized

| d | M 27 | M 30 | |
|------------|--------|--------|--|
| s | 41 | 46 | |
| k | 17 | 19 | |
| b | 32,5 | 35 | |
| L quantity | 100 | 100 | |
| 55 | 790.- | | |
| 60 | 915.- | | |
| 65 | 920.- | | |
| 70 | 935.- | | |
| 75 | 985.- | 1400.- | |
| 80 | 1000.- | 1590.- | |
| 85 | 1050.- | 1680.- | |
| 90 | 1100.- | 1760.- | |
| 95 | 1140.- | | |
| 100 | 1150.- | 1830.- | |
| 110 | 1200.- | | |
| 120 | 1280.- | 1930.- | |
| 130 | 1350.- | | |
| 135 | 1460.- | | |
| 140 | 1580.- | | |
| 150 | 1610.- | | |
| 160 | 1660.- | | |
| 170 | 1700.- | | |

Plain washers DIN 7989 see page F 20

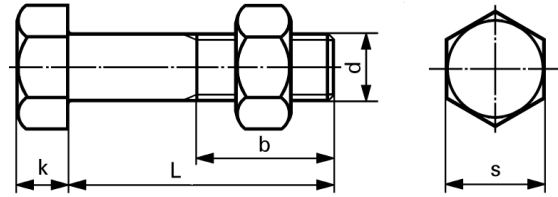
Maryland Metrics Fastener Catalog - Chapter A Owings Mills, MD 21117 USA

phones: (410)358-3130 (800)638-1830 faxes: (410)358-3142 (800)872-9329 e-mail: techinfo@mdmetric.com
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4.6

Hex structural bolts
with hex nuts, steel

MU DIN 7990



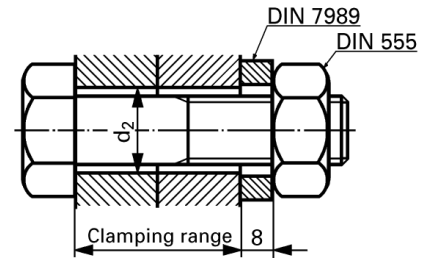
Hot dip galvanized

| d | M 12 | | M 16 | | M 20 | | M 24 | M 27 | M 30 |
|------------|-----------|-------|-------|-------|-------|-------|--------|--------|--------|
| s | 19 ISO 18 | | 24 | | 30 | | 36 | 41 | 46 |
| k | 8 | | 10 | | 13 | | 15 | 17 | 19 |
| b | 19,5 | | 23 | | 26 | | 29,5 | 32,5 | 35 |
| L quantity | 100 | 1000 | 100 | 1000 | 100 | 1000 | 100 | 100 | 100 |
| 30 | 54.50 | 40.50 | | | | | | | |
| 35 | 56.50 | 42.- | 98.50 | 76.50 | | | | | |
| 40 | 58.- | 43.- | 100.- | 83.- | 207.- | 163.- | | | |
| 45 | 62.50 | 47.- | 102.- | 85.50 | 209.- | 166.- | 322.- | | |
| 50 | 68.50 | 51.- | 105.- | 91.- | 211.- | 168.- | 354.- | | |
| 55 | 77.50 | 60.- | 120.- | 96.- | 217.- | 174.- | 368.- | | |
| 60 | 95.50 | 74.50 | 123.- | 100.- | 223.- | 178.- | 374.- | 895.- | |
| 65 | 138.- | 110.- | 145.- | 115.- | 234.- | 187.- | 378.- | 905.- | |
| 70 | 141.- | 112.- | 148.- | 118.- | 242.- | 193.- | 384.- | 920.- | 1260.- |
| 75 | 154.- | 122.- | 239.- | 192.- | 256.- | 205.- | 420.- | 930.- | 1280.- |
| 80 | 156.- | 125.- | 243.- | 194.- | 264.- | 210.- | 445.- | 950.- | 1280.- |
| 85 | 165.- | 132.- | 266.- | 213.- | 420.- | 332.- | 660.- | 965.- | |
| 90 | 170.- | 135.- | 270.- | 215.- | 420.- | 336.- | 685.- | 975.- | 1340.- |
| 95 | 184.- | 147.- | 284.- | 227.- | 440.- | 350.- | 750.- | 1030.- | |
| 100 | 196.- | 156.- | 290.- | 231.- | 445.- | 356.- | 755.- | 1040.- | 1400.- |
| 110 | 214.- | 171.- | 318.- | 266.- | 510.- | 435.- | 820.- | 1140.- | |
| 120 | | | 348.- | 296.- | 550.- | 465.- | 830.- | 1160.- | 1580.- |
| 130 | | | 386.- | 310.- | 605.- | 485.- | 915.- | 1250.- | |
| 140 | | | | | 620.- | 510.- | 950.- | 1270.- | |
| 150 | | | | | 655.- | 545.- | 995.- | 1580.- | |
| 160 | | | | | 735.- | 585.- | 1050.- | 1640.- | |
| 170 | | | | | | | | 1680.- | |
| 180 | | | | | | | | 1770.- | |

Plain washers DIN 7989 see page F 20

Clamping range
of hex structural bolts

MU DIN 7990



| d | M 12 | M 16 | M 20 | M 22 | M 24 | M 27 | M 30 | |
|-----|----------------|------------|------------|------------|------------|------------|------------|--|
| L | Clamping range | | | | | | | |
| 30 | 5 to 9 | | | | | | | |
| 35 | 10 to 14 | 6 to 10 | | | | | | |
| 40 | 15 to 19 | 11 to 15 | 8 to 12 | 6 to 10 | | | | |
| 45 | 20 to 24 | 16 to 20 | 13 to 17 | 11 to 15 | 9 to 13 | | | |
| 50 | 25 to 29 | 21 to 25 | 18 to 22 | 16 to 20 | 14 to 18 | | | |
| 55 | 30 to 34 | 26 to 30 | 23 to 27 | 21 to 25 | 19 to 23 | | | |
| 60 | 35 to 39 | 31 to 35 | 28 to 32 | 26 to 30 | 24 to 28 | 21 to 25 | | |
| 65 | 40 to 44 | 36 to 40 | 33 to 37 | 31 to 35 | 29 to 33 | 26 to 30 | | |
| 70 | 45 to 49 | 41 to 45 | 38 to 42 | 36 to 40 | 34 to 38 | 31 to 35 | | |
| 75 | 50 to 54 | 46 to 50 | 43 to 47 | 41 to 45 | 39 to 43 | 36 to 40 | | |
| 80 | 55 to 59 | 51 to 55 | 48 to 52 | 46 to 50 | 44 to 48 | 41 to 45 | 39 to 43 | |
| 85 | 60 to 64 | 56 to 60 | 53 to 57 | 51 to 55 | 49 to 53 | 46 to 50 | 44 to 48 | |
| 90 | 65 to 69 | 61 to 65 | 58 to 62 | 56 to 60 | 54 to 58 | 51 to 55 | 49 to 53 | |
| 95 | 70 to 74 | 66 to 70 | 63 to 67 | 61 to 65 | 59 to 63 | 56 to 60 | 54 to 58 | |
| 100 | 75 to 79 | 71 to 75 | 68 to 72 | 66 to 70 | 64 to 68 | 61 to 65 | 59 to 63 | |
| 105 | 80 to 84 | 76 to 80 | 73 to 77 | 71 to 75 | 69 to 73 | 66 to 70 | 64 to 68 | |
| 110 | 85 to 89 | 81 to 85 | 78 to 82 | 76 to 80 | 74 to 78 | 71 to 75 | 69 to 73 | |
| 115 | 90 to 94 | 86 to 90 | 83 to 87 | 81 to 85 | 79 to 83 | 76 to 80 | 74 to 78 | |
| 120 | 95 to 99 | 91 to 95 | 88 to 92 | 86 to 90 | 84 to 88 | 81 to 85 | 79 to 83 | |
| 125 | | 96 to 100 | 93 to 97 | 91 to 95 | 89 to 93 | 86 to 90 | 84 to 88 | |
| 130 | | 101 to 105 | 98 to 102 | 96 to 100 | 94 to 98 | 91 to 95 | 89 to 93 | |
| 135 | | 106 to 110 | 103 to 107 | 101 to 105 | 99 to 103 | 96 to 100 | 94 to 98 | |
| 140 | | 111 to 115 | 108 to 112 | 106 to 110 | 104 to 108 | 101 to 105 | 99 to 103 | |
| 145 | | 116 to 120 | 113 to 117 | 111 to 115 | 109 to 113 | 106 to 110 | 104 to 108 | |
| 150 | | 121 to 125 | 118 to 122 | 116 to 120 | 114 to 118 | 111 to 115 | 109 to 113 | |
| 155 | | | 123 to 127 | 121 to 125 | 119 to 123 | 116 to 120 | 114 to 118 | |
| 160 | | | 128 to 132 | 126 to 130 | 124 to 128 | 121 to 125 | 119 to 123 | |
| 165 | | | 133 to 137 | 131 to 135 | 129 to 133 | 126 to 130 | 124 to 128 | |
| 170 | | | 138 to 142 | 136 to 140 | 134 to 138 | 131 to 135 | 129 to 133 | |
| 175 | | | 143 to 147 | 141 to 145 | 139 to 143 | 136 to 140 | 134 to 138 | |
| 180 | | | | 146 to 150 | 144 to 148 | 141 to 145 | 139 to 143 | |
| 185 | | | | 151 to 155 | 149 to 153 | 146 to 150 | 144 to 148 | |
| 190 | | | | 156 to 160 | 154 to 158 | 151 to 155 | 149 to 153 | |
| 195 | | | | 161 to 165 | 159 to 163 | 156 to 160 | 154 to 158 | |
| 200 | | | | 166 to 170 | 164 to 168 | 161 to 165 | 159 to 163 | |

$d2 = d + 1\text{mm}$