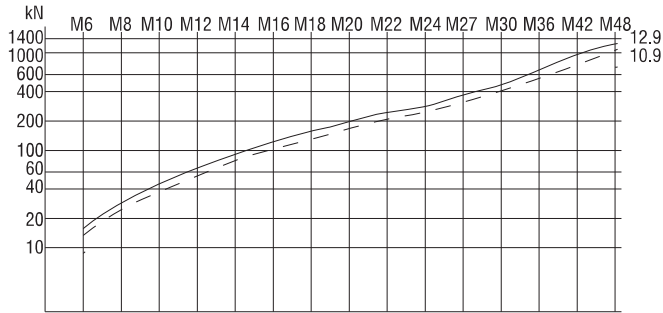


CİVATALAR

BOLTS



| | | Kalite Dayanım Sınıfları Quality Strength Classes | | |
|---|---|--|------|------|
| | | 10 | 10.9 | 12.9 |
| DIN 787 |  | - | - | X |
| DIN 6379 |  | - | X | - |
| DIN 6330B DIN 6331 Nr. 1830 |  | X | - | - |
| Sembol gerilme mukavemeti [N/mm ²] Nominal tensile strength [N/mm ²] | | 1000 | 1000 | 1200 |
| Minimum akma noktası [N/mm ²] Minimum yield point [N/mm ²] | | - | 900 | 1080 |



Standart Anahtar ile Öngerilme Kuvveti
Pre-stress Force With Standard Spanner

Çizelge Özelliklerinin Açıklanması:

- **İzin Verilen Civata Yüğü** : Maksimum gerilim yükü ve vida hesabı alınarak vurgu yapıldı. Aktif kuvvetler, akma noktası, sadece güvenlik için %80 kullanılır.
- **İzin Verilen Ön Gerilme Kuvveti** : Yük, vida ve somun uygulamasında, tablodaki rakamların sürtünmeye karşılık, itme yüzeyleri ve parçanın $\mu = 0,14$ sürtünme kat sayısı geçerlidir.
- **İzin Verilen Ön Gerilme Kuvveti Yağlı Hesaplama** : Yük, vida ve somun uygulamasında, parçanın $\mu = 0,1$ sürtünme kat sayısı hesaplanmalıdır.

Explanation Of Table Characteristics:

- **Permissible Bolt Load**: is the maximum tension load, the screw can be stressed with taking into account all active forces. The yield point is only utilized to 80% for safety.
- **Permissible Pre-stress Force**: is the load, the screw can be pre-stressed at most, when tightening the matching nut. Figures of table are valid for a friction of $\mu = 0,14$ in thrust faces and thread, corresponding to the friction of greased medium faces.
- **Allowed pretension with oil calculation**: At an application with screws and nuts, the load must be calculated with a $\mu = 0,1$ frictional factor of the workpiece.

Civata ve Somun İçin Mukavemet 10.9 ve 12.9 Kalite ve Momentleri / Strength Figures And Torques For Bolts And Nuts:

| Diş / Threads | Kalite Quality | M6 | M8 | M10 | M12 | M14 | M16 | M18 | M20 | M22 | M24 | M27 | M30 | M36 | M42 | M48 | |
|---|-------------------|---------|---------|--------|--------|-----|--------|------|--------|------|--------|-----|--------|--------|--------|--------|---|
| Hatve / Pitch of thread | mm | 1 | 1.25 | 1.50 | 1.75 | 2 | 2 | 2.50 | 2.50 | 2.50 | 3 | 3 | 3.50 | 4 | 4.50 | 5 | |
| Somun / Nuts | | | | | | | | | | | | | | | | | |
| Sertlik / Hardness DIN 6330 / 6331 / 6334 | HRC | 10 | 28-32 | | | | | | | | | | | | | | |
| Test Kuvveti (AS x Sp) Test force DIN EN 20898-2 | kN | 10 | 20.9 | 38.1 | 60 | 88 | 121 | 165 | 203 | 260 | 321 | 374 | 486 | 595 | 866 | - | - |
| "T" Pabuç DIN 508 / Nr. 1710 Nuts for T-Slots DIN 508 / Nr. 1710 | | | | | | | | | | | | | | | | | |
| Ölçü / Size | | M6x8 | M8x10 | M10x12 | M12x14 | - | M16x18 | - | M20x22 | - | M24x28 | - | M30x36 | M36x42 | M42x48 | M48x54 | |
| Sertlik / Hardness | HRC | 22 - 30 | | | | | | | | | | | | | | | |
| Test Kuvveti / Test Force | kN | 16 | 29 | 46 | 67 | - | 128 | - | 196 | - | 282 | - | 448 | 653 | 653 | 653 | |
| Civata / Bolts | | | | | | | | | | | | | | | | | |
| Sertlik / Hardness | HRC | 10.9 | 32 - 39 | | | | | | | | | | | | | | |
| | | 12.9 | 39 - 44 | | | | | | | | | | | | | | |



| Sıkma Verileri / Tightening Data | | | | | | | | | | | | | | | | | |
|--|----|------|---------------------|----|-----------------------|-----|--------------------------|-------|--|-------|-------|-------|-------|-------|-------|--------|--------|
| Minimum Kırılma Kuvveti Minimum Breaking Force (AS x Rm) | kN | 10.9 | 21 | 38 | 60 | 88 | (120) | (163) | (200) | (255) | (315) | (367) | (477) | (583) | (850) | (1165) | (1531) |
| İzin verilen civata yükü max. Verim noktası % 80 | kN | 10.9 | 14 | 27 | 43 | 63 | 86 | 118 | 144 | 184 | 228 | 265 | 345 | 421 | 614 | 843 | 1107 |
| (X Sp AS) Test kuvveti DIN EN ISO 898. bölüm 1 | kN | 10.9 | 17 | 30 | 48 | 70 | (96) | (130) | (159) | (203) | (252) | (293) | (381) | (466) | (678) | (930) | (1222) |
| İzin verilen ön gerilme kuvveti max. Verim % 90 Nokta ve sürtünme $\mu = 0,14$ | kN | 10.9 | 13 | 25 | 38 | 55 | 77 | 107 | 130 | 167 | 208 | 240 | 315 | 384 | 561 | 773 | 1018 |
| Gerilme öncesi midede edilen tork değeri Kuvvet ve sürtünme $\mu = 0,14$ | Nm | 10.9 | 14 | 36 | 67 | 120 | 191 | 302 | 405 | 580 | 772 | 994 | 1455 | 1930 | 3378 | 5415 | 8162 |
| Midede edilen kol uzunluğu ön gerilme kuvveti | mm | 10.9 | 42 | 90 | 175 | 300 | 450 | 700 | 920 | 1200 | 1560 | - | - | - | - | - | - |
| Standart anahtar ile tork değeri elde etmek mümkündür | Nm | - | 60 | 80 | 90 | 100 | 110 | 125 | 140 | 150 | 170 | 185 | 225 | 240 | 300 | 330 | 410 |
| Öngerilme kuvveti | kN | - | 54 | 53 | 48 | 43 | 43 | 43 | 43 | 42 | 42 | 43 | 45 | 43 | 45 | 46 | 50 |
| Bu öngerilme kuvveti ile tehlikesi var | | 10.9 | Kırılma breakage | | kalıcı deformasyon | | permanent deformation | | hareket kuvvetinin başlangıcında bağlama ünitesinin gevşemesi loosening of clamping unit at start of motive force | | | | | | | | |
| | | 12.9 | | | | | | | | | | | | | | | |



As = Sembolik kesit mm²
As = Nominal cross section in mm²

Sp = Min. N / mm² cinsinden sıkma kuvveti
Sp = min. Clamping force in N/mm²

Rm = Min. N/mm² yük faktörü
Rm = min. load factor in N/mm²

μ = sürtünme
 μ = friction

| Referans Nr. | dx  | x L | b | a | e | k | Sıkma Verileri | |  |
|--------------|--|------|-----|------|----|----|--------------------|-----|---|
| | | | | | | | Tightening Data Nm | kN | |
| 1590-0606025 | M6x6 | x25 | 15 | 5.7 | 10 | 4 | 17 | 17 | 8 |
| 1590-0606040 | | x40 | 28 | | | | | | 11 |
| 1590-0606063 | | x63 | 40 | | | | | | 15 |
| 1590-0808032 | M8x8 | x32 | 22 | 7.7 | 12 | 6 | 43 | 32 | 13 |
| 1590-0808050 | | x50 | 35 | | | | | | 16 |
| 1590-0808080 | | x80 | 50 | | | | | | 20 |
| 1590-1010040 | M10x10 | x40 | 23 | 9.7 | 15 | 6 | 79 | 51 | 35 |
| 1590-1010063 | | x63 | 45 | | | | | | 45 |
| 1590-1010080 | | x80 | 50 | | | | | | 60 |
| 1590-1010100 | x100 | 60 | 70 | | | | | | |
| 1590-1012050 | M10x12 | x50 | 35 | 11.7 | 18 | 7 | 79 | 51 | 50 |
| 1590-1012063 | | x63 | 40 | | | | | | 60 |
| 1590-1012080 | | x80 | 55 | | | | | | 65 |
| 1590-1012100 | | x100 | 60 | | | | | | 75 |
| 1590-1012125 | | x125 | 75 | | | | | | 90 |
| 1590-1012160 | | x160 | 90 | | | | | | 105 |
| 1590-1012200 | x200 | 120 | 120 | | | | | | |
| 1590-1212050 | M12x12 | x50 | 35 | 11.7 | 18 | 7 | 141 | 74 | 65 |
| 1590-1212063 | | x63 | 40 | | | | | | 70 |
| 1590-1212080 | | x80 | 55 | | | | | | 80 |
| 1590-1212100 | | x100 | 65 | | | | | | 100 |
| 1590-1212125 | | x125 | 75 | | | | | | 110 |
| 1590-1212160 | | x160 | 100 | | | | | | 140 |
| 1590-1212200 | x200 | 120 | 160 | | | | | | |
| 1590-1214050 | M12x14 | x50 | 35 | 13.7 | 22 | 8 | 141 | 74 | 80 |
| 1590-1214063 | | x63 | 45 | | | | | | 90 |
| 1590-1214080 | | x80 | 55 | | | | | | 100 |
| 1590-1214100 | | x100 | 65 | | | | | | 110 |
| 1590-1214125 | | x125 | 75 | | | | | | 135 |
| 1590-1214160 | | x160 | 100 | | | | | | 160 |
| 1590-1214200 | x200 | 120 | 180 | | | | | | |
| 1590-1416063 | M14x16 | x63 | 45 | 15.7 | 25 | 9 | 223 | 101 | 115 |
| 1590-1416080 | | x80 | 55 | | | | | | 140 |
| 1590-1416100 | | x100 | 65 | | | | | | 160 |
| 1590-1416125 | | x125 | 75 | | | | | | 180 |
| 1590-1416160 | | x160 | 100 | | | | | | 220 |
| 1590-1416200 | | x200 | 120 | | | | | | 255 |
| 1590-1416250 | x250 | 150 | 300 | | | | | | |
| 1590-1616063 | M16x16 | x63 | 45 | 15.7 | 25 | 9 | 354 | 138 | 140 |
| 1590-1616080 | | x80 | 55 | | | | | | 160 |
| 1590-1616100 | | x100 | 65 | | | | | | 190 |
| 1590-1616125 | | x125 | 85 | | | | | | 225 |
| 1590-1616160 | | x160 | 100 | | | | | | 270 |
| 1590-1616200 | | x200 | 120 | | | | | | 315 |
| 1590-1616250 | x250 | 150 | 380 | | | | | | |
| 1590-1618063 | M16x18 | x63 | 45 | 17.7 | 28 | 10 | 354 | 138 | 170 |
| 1590-1618080 | | x80 | 55 | | | | | | 185 |
| 1590-1618100 | | x100 | 65 | | | | | | 220 |
| 1590-1618125 | | x125 | 85 | | | | | | 245 |
| 1590-1618160 | | x160 | 100 | | | | | | 295 |
| 1590-1618200 | | x200 | 120 | | | | | | 340 |
| 1590-1618250 | x250 | 150 | 405 | | | | | | |
| 1590-1820080 | M18x20 | x80 | 55 | 19.7 | 32 | 12 | 474 | 169 | 260 |
| 1590-1820100 | | x100 | 65 | | | | | | 290 |
| 1590-1820125 | | x125 | 85 | | | | | | 340 |
| 1590-1820160 | | x160 | 110 | | | | | | 390 |
| 1590-1820200 | | x200 | 125 | | | | | | 455 |
| 1590-1820250 | | x250 | 150 | | | | | | 535 |
| 1590-1820315 | x315 | 190 | 650 | | | | | | |
| 1590-2020080 | M20x20 | x80 | 55 | 19.7 | 32 | 12 | 679 | 215 | 300 |
| 1590-2020100 | | x100 | 65 | | | | | | 330 |
| 1590-2020125 | | x125 | 85 | | | | | | 380 |
| 1590-2020160 | | x160 | 110 | | | | | | 450 |
| 1590-2020200 | | x200 | 125 | | | | | | 535 |
| 1590-2020250 | | x250 | 160 | | | | | | 635 |
| 1590-2020315 | x315 | 190 | 760 | | | | | | |
| 1590-2022080 | M20x22 | x80 | 55 | 21.7 | 35 | 14 | 679 | 215 | 345 |
| 1590-2022100 | | x100 | 65 | | | | | | 380 |
| 1590-2022125 | | x125 | 85 | | | | | | 435 |
| 1590-2022160 | | x160 | 110 | | | | | | 500 |
| 1590-2022200 | | x200 | 125 | | | | | | 590 |
| 1590-2022250 | | x250 | 150 | | | | | | 695 |
| 1590-2022315 | x315 | 190 | 820 | | | | | | |

| Referans Nr. | dx  | x L | b | a | e | k | Sıkma Verileri | |  |
|--------------|---|------|------|------|----|----|--------------------|-----|---|
| | | | | | | | Tightening Data Nm | kN | |
| 1590-2224080 | M22x24 | x80 | 55 | 23.7 | 40 | 16 | 903 | 266 | 465 |
| 1590-2224100 | | x100 | 65 | | | | | | 515 |
| 1590-2224125 | | x125 | 85 | | | | | | 580 |
| 1590-2224160 | | x160 | 110 | | | | | | 660 |
| 1590-2224200 | | x200 | 125 | | | | | | 775 |
| 1590-2224250 | | x250 | 150 | | | | | | 805 |
| 1590-2224315 | x315 | 190 | 1050 | | | | | | |
| 1590-2424100 | M24x24 | x100 | 70 | 23.7 | 40 | 16 | 1163 | 310 | 550 |
| 1590-2424125 | | x125 | 85 | | | | | | 630 |
| 1590-2424160 | | x160 | 110 | | | | | | 725 |
| 1590-2424200 | | x200 | 125 | | | | | | 850 |
| 1590-2424250 | | x250 | 150 | | | | | | 990 |
| 1590-2424315 | | x315 | 190 | | | | | | 1180 |
| 1590-2424400 | x400 | 240 | 1410 | | | | | | |
| 1590-2428100 | M24x28 | x100 | 70 | 27.7 | 44 | 18 | 1163 | 310 | 660 |
| 1590-2428125 | | x125 | 85 | | | | | | 730 |
| 1590-2428160 | | x160 | 110 | | | | | | 820 |
| 1590-2428200 | | x200 | 125 | | | | | | 950 |
| 1590-2428250 | | x250 | 150 | | | | | | 1090 |
| 1590-2428315 | | x315 | 190 | | | | | | 1300 |
| 1590-2428400 | x400 | 240 | 1530 | | | | | | |
| 1590-2428500 | x500 | 290 | 1800 | | | | | | |
| 1590-3036125 | M30x36 | x125 | 80 | 35.6 | 54 | 22 | 2258 | 493 | 1280 |
| 1590-3036160 | | x160 | 110 | | | | | | 1440 |
| 1590-3036200 | | x200 | 135 | | | | | | 1620 |
| 1590-3036250 | | x250 | 150 | | | | | | 1880 |
| 1590-3036315 | | x315 | 200 | | | | | | 2150 |
| 1590-3036500 | | x500 | 300 | | | | | | 3010 |
| 1590-3642160 | M36x42 | x160 | 100 | 41.6 | 65 | 26 | 3953 | 719 | 2260 |
| 1590-3642250 | | x250 | 175 | | | | | | 2890 |
| 1590-3642400 | | x400 | 250 | | | | | | 4010 |
| 1590-3642600 | | x600 | 340 | | | | | | 5900 |
| 1590-4248160 | M42x48 | x160 | 100 | 47.6 | 75 | 30 | 6337 | 986 | 3550 |
| 1590-4248250 | | x250 | 175 | | | | | | 4530 |
| 1590-4248400 | | x400 | 250 | | | | | | 6160 |

DIN 787
Ürün Nr. 1590 T-Ayaklı Saplama

- Kalite 12,9
- Siyah kaplama

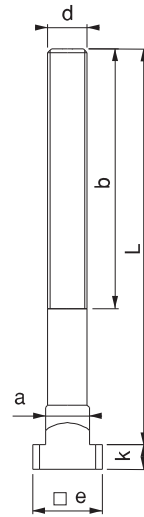
Product Nr. 1590 T-Slot Bolt



- Quality 12,9
- Black coating




 Loctite
8150

Not: 150 °C üzerindeki ortamlarda sıkma işlemi yapılırken dişlerin üzerine Loctite 8150 kullanılır.

Note: Environments on the 150 °C when clamping action on the thread Loctite 8150 is used.



| Referans Nr. | dx  | x L | b | a | e | k | Sıkma Verileri Tightening Data | |  |
|--------------|--|--------|------|------|----|----|-----------------------------------|-----|---|
| | | | | | | | Nm | kN | |
| 1610-0606025 | M6x6 | x25 | 15 | 5.7 | 10 | 4 | 17 | 17 | 19 |
| 1610-0606040 | | x40 | 28 | | | | | | 25 |
| 1610-0606063 | | x63 | 40 | | | | | | 36 |
| 1610-0808032 | M8x8 | x32 | 22 | 7.7 | 12 | 6 | 43 | 32 | 39 |
| 1610-0808050 | | x50 | 35 | | | | | | 45 |
| 1610-0808080 | | x80 | 50 | | | | | | 56 |
| 1610-1010040 | M10x10 | x40 | 23 | 9.7 | 15 | 6 | 79 | 51 | 65 |
| 1610-1010063 | | x63 | 45 | | | | | | 80 |
| 1610-1010080 | | x80 | 50 | | | | | | 90 |
| 1610-1010100 | x100 | 60 | 110 | | | | | | |
| 1610-1012050 | M10x12 | x50 | 35 | 11.7 | 18 | 7 | 79 | 51 | 85 |
| 1610-1012063 | | x63 | 40 | | | | | | 95 |
| 1610-1012080 | | x80 | 55 | | | | | | 100 |
| 1610-1012100 | | x100 | 60 | | | | | | 110 |
| 1610-1012125 | | x125 | 75 | | | | | | 125 |
| 1610-1012160 | | x160 | 90 | | | | | | 140 |
| 1610-1012200 | x200 | 120 | 160 | | | | | | |
| 1610-1212050 | M12x12 | x50 | 35 | 11.7 | 18 | 7 | 141 | 74 | 120 |
| 1610-1212063 | | x63 | 40 | | | | | | 128 |
| 1610-1212080 | | x80 | 55 | | | | | | 140 |
| 1610-1212100 | | x100 | 65 | | | | | | 160 |
| 1610-1212125 | | x125 | 75 | | | | | | 170 |
| 1610-1212160 | | x160 | 100 | | | | | | 195 |
| 1610-1212200 | | x200 | 120 | | | | | | 220 |
| 1610-1214050 | | M12x14 | x50 | | | | | | 35 |
| 1610-1214063 | x63 | | 45 | 150 | | | | | |
| 1610-1214080 | x80 | | 55 | 155 | | | | | |
| 1610-1214100 | x100 | | 65 | 175 | | | | | |
| 1610-1214125 | x125 | | 75 | 195 | | | | | |
| 1610-1214160 | x160 | | 100 | 220 | | | | | |
| 1610-1214200 | x200 | 120 | 240 | | | | | | |
| 1610-1416063 | M14x16 | x63 | 45 | 15.7 | 25 | 9 | 223 | 101 | 200 |
| 1610-1416080 | | x80 | 55 | | | | | | 230 |
| 1610-1416100 | | x100 | 65 | | | | | | 245 |
| 1610-1416125 | | x125 | 75 | | | | | | 270 |
| 1610-1416160 | | x160 | 100 | | | | | | 310 |
| 1610-1416200 | | x200 | 120 | | | | | | 340 |
| 1610-1416250 | | x250 | 150 | | | | | | 390 |
| 1610-1616063 | | M16x16 | x63 | | | | | | 45 |
| 1610-1616080 | x80 | | 55 | 285 | | | | | |
| 1610-1616100 | x100 | | 65 | 310 | | | | | |
| 1610-1616125 | x125 | | 85 | 345 | | | | | |
| 1610-1616160 | x160 | | 100 | 385 | | | | | |
| 1610-1616200 | x200 | | 120 | 435 | | | | | |
| 1610-1616250 | x250 | 150 | 505 | | | | | | |
| 1610-1618063 | M16x18 | x63 | 45 | 17.7 | 28 | 10 | 354 | 138 | 290 |
| 1610-1618080 | | x80 | 55 | | | | | | 305 |
| 1610-1618100 | | x100 | 65 | | | | | | 340 |
| 1610-1618125 | | x125 | 85 | | | | | | 370 |
| 1610-1618160 | | x160 | 100 | | | | | | 415 |
| 1610-1618200 | | x200 | 120 | | | | | | 460 |
| 1610-1618250 | x250 | 150 | 525 | | | | | | |
| 1610-1820080 | M18x20 | x80 | 55 | 19.7 | 32 | 12 | 474 | 169 | 405 |
| 1610-1820100 | | x100 | 65 | | | | | | 435 |
| 1610-1820125 | | x125 | 85 | | | | | | 480 |
| 1610-1820160 | | x160 | 110 | | | | | | 535 |
| 1610-1820200 | | x200 | 125 | | | | | | 610 |
| 1610-1820250 | | x250 | 150 | | | | | | 680 |
| 1610-1820315 | x315 | 190 | 790 | | | | | | |
| 1610-2020080 | M20x20 | x80 | 55 | 19.7 | 32 | 12 | 679 | 215 | 480 |
| 1610-2020100 | | x100 | 65 | | | | | | 515 |
| 1610-2020125 | | x125 | 85 | | | | | | 570 |
| 1610-2020160 | | x160 | 110 | | | | | | 635 |
| 1610-2020200 | | x200 | 125 | | | | | | 725 |
| 1610-2020250 | | x250 | 160 | | | | | | 820 |
| 1610-2020315 | x315 | 190 | 950 | | | | | | |
| 1610-2022080 | M20x22 | x80 | 55 | 21.7 | 35 | 14 | 679 | 215 | 530 |
| 1610-2022100 | | x100 | 65 | | | | | | 565 |
| 1610-2022125 | | x125 | 85 | | | | | | 620 |
| 1610-2022160 | | x160 | 110 | | | | | | 690 |
| 1610-2022200 | | x200 | 125 | | | | | | 775 |
| 1610-2022250 | | x250 | 150 | | | | | | 880 |
| 1610-2022315 | x315 | 190 | 1050 | | | | | | |

| Referans Nr. | dx  | x L | b | a | e | k | Sıkma Verileri Tightening Data | |  |
|--------------|---|------|------|------|----|----|-----------------------------------|-----|---|
| | | | | | | | Nm | kN | |
| 1610-2224080 | M22x24 | x80 | 55 | 23.7 | 40 | 16 | 903 | 266 | 700 |
| 1610-2224100 | | x100 | 65 | | | | | | 740 |
| 1610-2224125 | | x125 | 85 | | | | | | 805 |
| 1610-2224160 | | x160 | 110 | | | | | | 890 |
| 1610-2224200 | | x200 | 125 | | | | | | 1000 |
| 1610-2224250 | | x250 | 150 | | | | | | 1115 |
| 1610-2224315 | x315 | 190 | 1280 | | | | | | |
| 1610-2424100 | M24x24 | x100 | 70 | 23.7 | 40 | 16 | 1163 | 310 | 885 |
| 1610-2424125 | | x125 | 85 | | | | | | 970 |
| 1610-2424160 | | x160 | 110 | | | | | | 1060 |
| 1610-2424200 | | x200 | 125 | | | | | | 1180 |
| 1610-2424250 | | x250 | 150 | | | | | | 1320 |
| 1610-2424315 | | x315 | 190 | | | | | | 1515 |
| 1610-2424400 | x400 | 240 | 1750 | | | | | | |
| 1610-2428100 | M24x28 | x100 | 70 | 27.7 | 44 | 18 | 1163 | 310 | 1000 |
| 1610-2428125 | | x125 | 85 | | | | | | 1065 |
| 1610-2428160 | | x160 | 110 | | | | | | 1150 |
| 1610-2428200 | | x200 | 125 | | | | | | 1280 |
| 1610-2428250 | | x250 | 150 | | | | | | 1425 |
| 1610-2428315 | | x315 | 190 | | | | | | 1640 |
| 1610-2428400 | x400 | 240 | 1870 | | | | | | |
| 1610-2428500 | x500 | 290 | 2170 | | | | | | |
| 1610-3036125 | M30x36 | x125 | 80 | 35.6 | 54 | 22 | 2258 | 493 | 1900 |
| 1610-3036160 | | x160 | 110 | | | | | | 2065 |
| 1610-3036200 | | x200 | 135 | | | | | | 2250 |
| 1610-3036250 | | x250 | 150 | | | | | | 2500 |
| 1610-3036315 | | x315 | 200 | | | | | | 2770 |
| 1610-3036500 | | x500 | 300 | | | | | | 3630 |
| 1610-3642160 | M36x42 | x160 | 100 | 41.6 | 65 | 26 | 3953 | 719 | 3310 |
| 1610-3642250 | | x250 | 175 | | | | | | 3930 |
| 1610-3642400 | | x400 | 250 | | | | | | 5010 |
| 1610-3642600 | | x600 | 340 | | | | | | 6900 |
| 1610-4248160 | M42x48 | x160 | 100 | 47.6 | 75 | 30 | 6337 | 986 | 4600 |
| 1610-4248250 | | x250 | 175 | | | | | | 5600 |
| 1610-4248400 | | x400 | 250 | | | | | | 7200 |

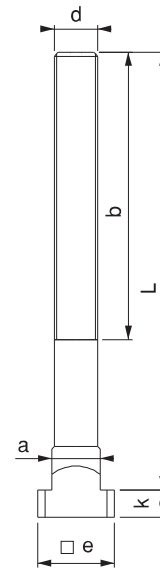
DIN 787

Ürün Nr. 1610 Somunlu Pullu T-Ayaklı Saplama

- Kalite 12,9
- Siyah kaplama

Product Nr. 1610 T-Slot Bolt with Nut and Washer

- Quality 12,9
- Black coating





Not: 150 °C üzerindeki ortamlarda sıkma işlemi yapılırken dişlerin üzerine Loctite 8150 kullanılır.



Loctite 8150

Note: Environments on the 150 °C when clamping action on the thread Loctite 8150 is used.

| Referans Nr. | dx  xL | a | e | k | h-H | e1 | e2 | c | s | f | sw | Sıkma Verileri Tightening Data | |  |
|--------------|---|------|----|----|--------|----|----|----|----|----|----|-----------------------------------|-----|---|
| | | | | | | | | | | | | Nm | kN | |
| 1630-2022200 | M20x22x200 | 21.7 | 35 | 14 | 25-75 | 49 | 69 | 92 | 12 | 30 | 30 | 679 | 215 | 1635 |
| 1630-2022250 | M20x22x250 | 21.7 | 35 | 14 | 70-120 | 49 | 69 | 92 | 12 | 30 | 30 | 679 | 215 | 1720 |
| 1630-2424200 | M24x24x200 | 23.7 | 40 | 16 | 25-75 | 53 | 74 | 92 | 12 | 30 | 36 | 1163 | 310 | 2075 |
| 1630-2424250 | M24x24x250 | 23.7 | 40 | 16 | 70-120 | 53 | 74 | 92 | 12 | 30 | 36 | 1163 | 310 | 2250 |
| 1630-2428200 | M24x28x200 | 27.7 | 44 | 18 | 25-75 | 53 | 74 | 92 | 12 | 30 | 36 | 1163 | 310 | 2180 |
| 1630-2428250 | M24x28x250 | 27.7 | 44 | 18 | 70-120 | 53 | 74 | 92 | 12 | 30 | 36 | 1163 | 310 | 2340 |
| 1630-3036200 | M30x36x200 | 35.6 | 54 | 22 | 25-75 | 68 | 88 | 94 | 14 | 30 | 46 | 2258 | 493 | 3660 |
| 1630-3036250 | M30x36x250 | 35.6 | 54 | 22 | 70-120 | 68 | 88 | 94 | 14 | 30 | 46 | 2258 | 493 | 3910 |

Ürün Nr. 1630 Kombine T-Ayaklı Saplama

- Ağır preslerde, büyük kalıplarda çalışma esnasında vibrasyondan kaynaklanan olabilecek gevşemeyi somunun kontra sıkma yapısından dolayı önler
- Kalite 12.9
- Siyah kaplama

Product Nr. 1630 Combined T-Slot Bolt

- Because of it's contra tightening structure, it prevents loosening which may be generated by the vibration during working with heavy presses and big moulds.
- Quality 12.9
- Black coating

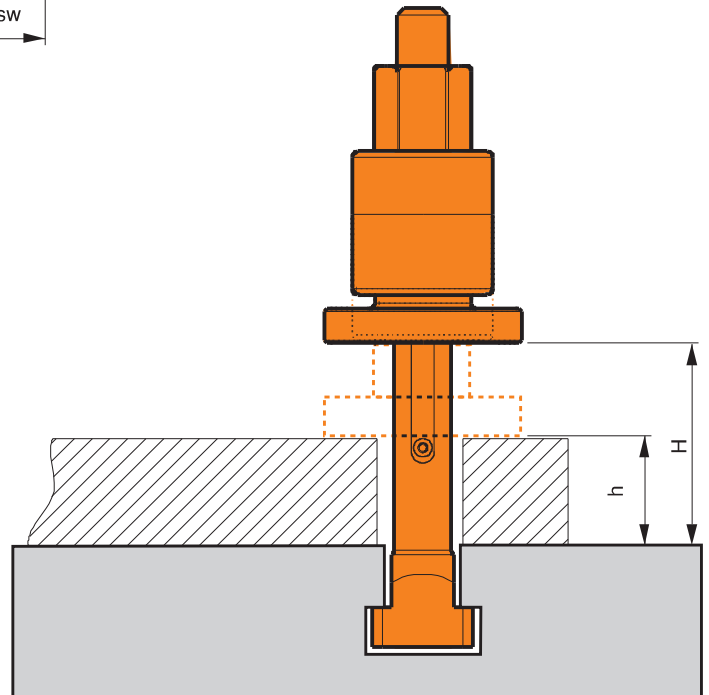
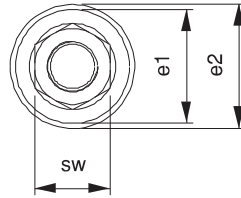
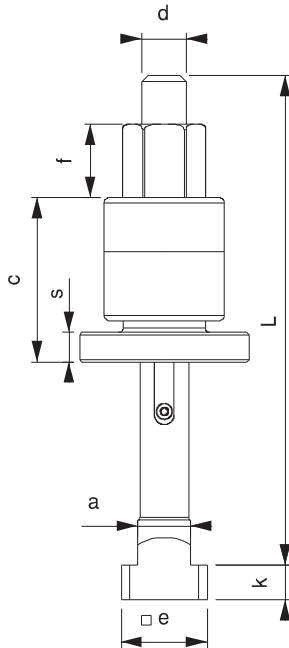



Not: 150 °C üzerindeki ortamlarda sıkma işlemi yapılırken dişlerin üzerine Loctite 8150 kullanılır.

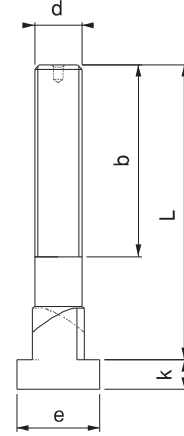
Note: Environments on the 150 °C when clamping action on the thread Loctite 8150 is used.



Loctite
8150



| Referans Nr. | dx | x L | b | a | e | k | Sıkma Verileri Tightening Data | |  |
|--------------|--------|------|-----|------|----|----|-----------------------------------|-----|---|
| | | | | | | | Nm | kN | |
| 1650-1214050 | M12x14 | x50 | 35 | 13.7 | 22 | 8 | 141 | 74 | 70 |
| 1650-1214080 | | x80 | 55 | | | | | | 100 |
| 1650-1214125 | | x125 | 75 | | | | | | 120 |
| 1650-1618063 | M16x18 | x63 | 45 | 17.7 | 28 | 10 | 354 | 138 | 160 |
| 1650-1618100 | | x100 | 65 | | | | | | 220 |
| 1650-1618160 | | x160 | 100 | | | | | | 280 |
| 1650-2022080 | M20x22 | x80 | 55 | 21.7 | 35 | 14 | 679 | 215 | 330 |
| 1650-2022125 | | x125 | 85 | | | | | | 430 |
| 1650-2022200 | | x200 | 120 | | | | | | 570 |
| 1650-2428100 | M24x28 | x100 | 70 | 27.7 | 44 | 18 | 1163 | 310 | 650 |
| 1650-2428125 | | x125 | 85 | | | | | | 770 |
| 1650-2428250 | | x250 | 150 | | | | | | 1150 |

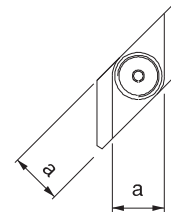


Ürün Nr. 1650 Dereceli T-Ayaklı Saplama

- T-Kanal pleytlerde üstten T-Kanala girip bağlama özelliği vardır
- Kalite 12,9
- Siyah kaplama

Product Nr. 1650 Graded T-Slot Bolt

- In T-Slot plates it has the feature of making the coupling by entering T-Slot the top.
- Quality 12,9
- Black coating




Not: 150 °C üzerindeki ortamlarda sıkma işlemi yapılırken dişlerin üzerine Loctite 8150 kullanılır.



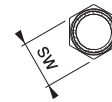
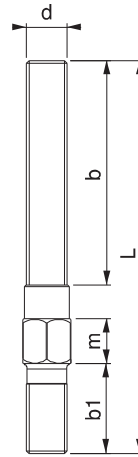
Loctite
8150

Note: Environments on the 150 °C when clamping action on the thread Loctite 8150 is used.

| Referans Nr. | d | L | b | b1 | m | sw | Sıkma Verileri Tightening Data | |  |
|--------------|-----|-----|-----|----|----|----|-----------------------------------|-----|---|
| | | | | | | | Nm | kN | |
| 1670-12130 | M12 | 130 | 65 | 24 | 14 | 14 | 120 | 63 | 160 |
| 1670-12160 | | 160 | 90 | | | | | | 185 |
| 1670-14130 | M14 | 130 | 65 | 28 | 15 | 15 | 191 | 86 | 216 |
| 1670-14160 | | 160 | 90 | | | | | | 246 |
| 1670-16140 | M16 | 140 | 70 | 32 | 16 | 17 | 302 | 118 | 310 |
| 1670-16160 | | 160 | 95 | | | | | | 340 |
| 1670-18150 | M18 | 150 | 70 | 35 | 19 | 19 | 405 | 144 | 395 |
| 1670-18180 | | 180 | 95 | | | | | | 450 |
| 1670-20150 | M20 | 150 | 70 | 40 | 22 | 22 | 580 | 184 | 520 |
| 1670-20180 | | 180 | 95 | | | | | | 575 |
| 1670-22150 | M22 | 150 | 70 | 40 | 22 | 24 | 772 | 228 | 610 |
| 1670-22180 | | 180 | 95 | | | | | | 705 |
| 1670-24170 | M24 | 170 | 75 | 47 | 22 | 27 | 994 | 265 | 875 |
| 1670-24205 | | 205 | 105 | | | | | | 990 |
| 1670-24250 | | 250 | 140 | | | | | | 1125 |
| 1670-30250 | M30 | 250 | 135 | 55 | 32 | 36 | 1930 | 421 | 1950 |
| 1670-30315 | | 315 | 195 | | | | | | 2260 |

Anahtar Ağızlı Saplama

Wrench Mouth Stud



Ürün Nr. 1670 Anahtar Ağızlı Saplama

- Kullanım alanı; Enjeksiyon makinalarında ve M12-14-16-18-20-22-24-30 diş açılmış pleytlerde kullanılır.
- Kalite 10,9
- Siyah kaplama

Product Nr. 1670 Wrench Mouth Stud

- Area of Use: This stud is used in injection machines and in plates with M12-14-16-18-20-22-24-30 threads
- Quality 10,9
- Black coating





Loctite
8150

Not: 150 °C üzerindeki ortamlarda sıkma işlemi yapılırken dişlerin üzerine Loctite 8150 kullanılır.

Note: Environments on the 150 °C when clamping action on the thread Loctite 8150 is used.



| Referans Nr. | d x L | b1 | b | Sıkma Verileri Tightening Data | |  |
|--|---|----|---|-----------------------------------|-----|---|
| | | | | Nm | kN | |
| 1690-08040 1690-08063 1690-08080 1690-08100 1690-08125 1690-08160 | M8 x40 x63 x80 x100 x125 x160 | 11 | 20 40 50 63 75 100 | 36 | 27 | 10 15 20 30 35 45 |
| 1690-10050 1690-10063 1690-10080 1690-10100 1690-10125 1690-10160 1690-10200 | M10 x50 x63 x80 x100 x125 x160 x200 | 13 | 25 32 50 63 75 100 125 | 67 | 43 | 20 25 35 45 55 70 95 |
| 1690-12050 1690-12063 1690-12080 1690-12100 1690-12125 1690-12160 1690-12200 | M12 x50 x63 x80 x100 x125 x160 x200 | 15 | 25 32 50 63 75 100 125 | 120 | 63 | 35 40 55 70 90 115 140 |
| 1690-14063 1690-14080 1690-14100 1690-14125 1690-14160 1690-14200 1690-14250 | M14 x63 x80 x100 x125 x160 x200 x250 | 17 | 32 50 63 75 100 125 160 | 191 | 86 | 60 75 95 120 150 195 240 |
| 1690-16063 1690-16080 1690-16100 1690-16125 1690-16160 1690-16200 1690-16250 1690-16315 1690-16500 | M16 x63 x80 x100 x125 x160 x200 x250 x315 x500 | 19 | 32 50 63 75 100 125 160 180 315 | 302 | 118 | 85 105 130 160 205 260 325 405 650 |
| 1690-18080 1690-18100 1690-18125 1690-18160 1690-18200 1690-18250 1690-18315 | M18 x80 x100 x125 x160 x200 x250 x315 | 23 | 50 60 75 100 125 150 180 | 405 | 144 | 130 160 200 260 320 400 510 |
| 1690-20080 1690-20100 1690-20125 1690-20160 1690-20200 1690-20250 1690-20315 1690-20400 1690-20500 | M20 x80 x100 x125 x160 x200 x250 x315 x400 x500 | 27 | 32 60 70 100 125 160 200 250 315 | 580 | 184 | 155 200 250 330 400 510 640 815 1020 |
| 1690-22100 1690-22125 1690-22160 1690-22200 1690-22250 1690-22315 1690-22400 | M22 x100 x125 x160 x200 x250 x315 x400 | 31 | 45 70 100 125 160 180 250 | 772 | 228 | 250 305 400 500 620 780 1010 |
| 1690-24100 1690-24125 1690-24160 1690-24200 1690-24250 1690-24315 1690-24400 1690-24500 1690-24630 | M24 x100 x125 x160 x200 x250 x315 x400 x500 x630 | 35 | 45 70 100 125 160 200 250 315 315 | 994 | 265 | 290 365 470 580 730 920 1170 1470 1860 |
| 1690-30125 1690-30200 1690-30250 1690-30315 1690-30500 1690-30700 1690-301000 | M30 x125 x200 x250 x315 x500 x700 x1000 | 43 | 56 125 160 200 315 400 400 | 1930 | 421 | 570 910 1150 1435 2315 3215 4700 |

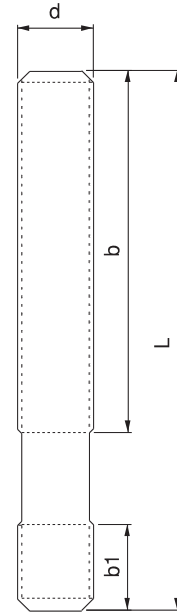
| Referans Nr. | d x L | b1 | b | Sıkma Verileri Tightening Data | |  |
|--|---|----|--|-----------------------------------|-----|---|
| | | | | Nm | kN | |
| 1690-36160 1690-36200 1690-36250 1690-36315 1690-36400 1690-36500 1690-36700 | M36 x160 x200 x250 x315 x400 x500 x700 | 51 | 80 125 160 200 250 315 400 | 3378 | 614 | 1100 1340 1710 2150 2700 3450 4750 |
| 1690-42315 1690-42400 1690-42500 | M42 x315 x400 x500 | 59 | 200 250 315 | 5415 | 843 | 2950 3750 4690 |

DIN 6379
Ürün Nr. 1690 Düz Saplama

- Kalite 10.9
- Siyah kaplama

Product Nr. 1690 Straight Stud

- Quality 10.9
- Black coating



Not: 150 °C üzerindeki ortamlarda sıkma işlemi yapılırken dişlerin üzerine Loctite 8150 kullanılır,

Note: Environments on the 150 °C when clamping action on the thread Loctite 8150 is used.



Loctite
8150