
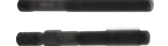

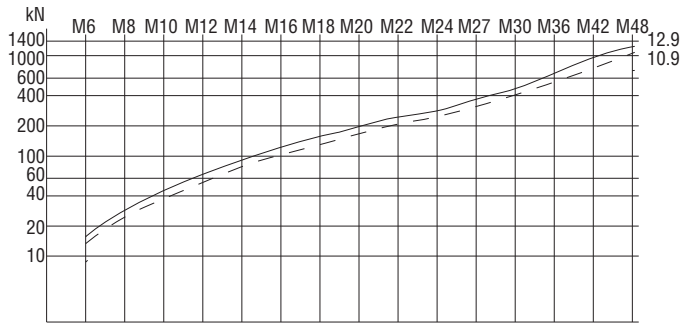


CİVATALAR

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 İle 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															
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 müsadde 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
Müsadde 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		permanent deformation		hareket kuvvetinin başlangıcında bağlama ünitesinin gevşemesi loosening of clamping unit at start of motive force										
		12.9	kalıcı deformasyon														

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		x25	15						8
1590-0606040	M6x6	x40	28	5.7	10	4	17	17	11
1590-0606063		x63	40						15
1590-0808032		x32	22						13
1590-0808050	M8x8	x50	35	7.7	12	6	43	32	16
1590-0808080		x80	50						20
1590-1010040		x40	23						35
1590-1010063	M10x10	x63	45	9.7	15	6	79	51	45
1590-1010080		x80	50						60
1590-1010100		x100	60						70
1590-1012050		x50	35						50
1590-1012063		x63	40						60
1590-1012080		x80	55						65
1590-1012100	M10x12	x100	60	11.7	18	7	79	51	75
1590-1012125		x125	75						90
1590-1012160		x160	90						105
1590-1012200		x200	120						120
1590-1212050		x50	35						65
1590-1212063		x63	40						70
1590-1212080		x80	55						80
1590-1212100	M12x12	x100	65	11.7	18	7	141	74	100
1590-1212125		x125	75						110
1590-1212160		x160	100						140
1590-1212200		x200	120						160
1590-1214050		x50	35						80
1590-1214063		x63	45						90
1590-1214080		x80	55						100
1590-1214100	M12x14	x100	65	13.7	22	8	141	74	110
1590-1214125		x125	75						135
1590-1214160		x160	100						160
1590-1214200		x200	120						180
1590-1416063		x63	45						115
1590-1416080		x80	55						140
1590-1416100		x100	65						160
1590-1416125	M14x16	x125	75	15.7	25	9	223	101	180
1590-1416160		x160	100						220
1590-1416200		x200	120						255
1590-1416250		x250	150						300
1590-1616063		x63	45						140
1590-1616080		x80	55						160
1590-1616100		x100	65						190
1590-1616125	M16x16	x125	85	15.7	25	9	354	138	225
1590-1616160		x160	100						270
1590-1616200		x200	120						315
1590-1616250		x250	150						380
1590-1618063		x63	45						170
1590-1618080		x80	55						185
1590-1618100		x100	65						220
1590-1618125	M16x18	x125	85	17.7	28	10	354	138	245
1590-1618160		x160	100						295
1590-1618200		x200	120						340
1590-1618250		x250	150						405
1590-1820080		x80	55						260
1590-1820100		x100	65						290
1590-1820125		x125	85						340
1590-1820160	M18x20	x160	110	19.7	32	12	474	169	390
1590-1820200		x200	125						455
1590-1820250		x250	150						535
1590-1820315		x315	190						650
1590-2020080		x80	55						300
1590-2020100		x100	65						330
1590-2020125		x125	85						380
1590-2020160	M20x20	x160	110	19.7	32	12	679	215	450
1590-2020200		x200	125						535
1590-2020250		x250	160						635
1590-2020315		x315	190						760
1590-2022080		x80	55						345
1590-2022100		x100	65						380
1590-2022125		x125	85						435
1590-2022160	M20x22	x160	110	21.7	35	14	679	215	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		x80	55						465
1590-2224100		x100	65						515
1590-2224125		x125	85						580
1590-2224160	M22x24	x160	110	23.7	40	16	903	266	660
1590-2224200		x200	125						775
1590-2224250		x250	150						805
1590-2224315		x315	190						1050
1590-2424100		x100	70						550
1590-2424125		x125	85						630
1590-2424160		x160	110						725
1590-2424200	M24x24	x200	125	23.7	40	16	1163	310	850
1590-2424250		x250	150						990
1590-2424315		x315	190						1180
1590-2424400		x400	240						1410
1590-2428100		x100	70						660
1590-2428125		x125	85						730
1590-2428160		x160	110						820
1590-2428200	M24x28	x200	125	27.7	44	18	1163	310	950
1590-2428250		x250	150						1090
1590-2428315		x315	190						1300
1590-2428400		x400	240						1530
1590-2428500		x500	290						1800
1590-3036125		x125	80						1280
1590-3036160		x160	110						1440
1590-3036200	M30x36	x200	135	35.6	54	22	2258	493	1620
1590-3036250		x250	150						1880
1590-3036315		x315	200						2150
1590-3036500		x500	300						3010
1590-3642160		x160	100						2260
1590-3642250		x250	175						2890
1590-3642400	M36x42	x400	250	41.6	65	26	3953	719	4010
1590-3642600		x600	340						5900
1590-4248160		x160	100						3550
1590-4248250	M42x48	x250	175	47.6	75	30	6337	986	4530
1590-4248400		x400	250						6160

DIN 787
Ürün Nr. 1590 T-Ayaklı Saplama

- Kalite 12.9
- Siyah kaplama

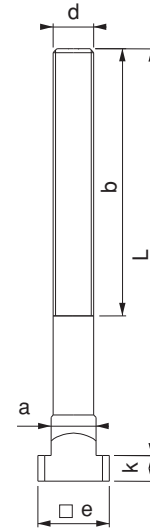
Product Nr. 1590 T-Slot Bolt

- Quality 12.9
- Black coating


 Loctite
8150

Note: 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	Tightening Data
							Nm	kN		
1610-0606025		x25	15							19
1610-0606040	M6x6	x40	28	5.7	10	4	17	17		25
1610-0606063		x63	40							36
1610-0808032		x32	22							39
1610-0808050	M8x8	x50	35	7.7	12	6	43	32		45
1610-0808080		x80	50							56
1610-1010040		x40	23							65
1610-1010063	M10x10	x63	45	9.7	15	6	79	51		80
1610-1010080		x80	50							90
1610-1010100		x100	60							110
1610-1012050		x50	35							85
1610-1012063	M10x12	x63	40							95
1610-1012080		x80	55							100
1610-1012100		x100	60	11.7	18	7	79	51		110
1610-1012125		x125	75							125
1610-1012160		x160	90							140
1610-1012200		x200	120							160
1610-1212050		x50	35							120
1610-1212063	M12x12	x63	40							128
1610-1212080		x80	55							140
1610-1212100		x100	65	11.7	18	7	141	74		160
1610-1212125		x125	75							170
1610-1212160		x160	100							195
1610-1212200		x200	120							220
1610-1214050		x50	35							140
1610-1214063	M12x14	x63	45							150
1610-1214080		x80	55							155
1610-1214100		x100	65	13.7	22	8	141	74		175
1610-1214125		x125	75							195
1610-1214160		x160	100							220
1610-1214200		x200	120							240
1610-1416063		x63	45							200
1610-1416080	M14x16	x80	55							230
1610-1416100		x100	65							245
1610-1416125		x125	75	15.7	25	9	223	101		270
1610-1416160		x160	100							310
1610-1416200		x200	120							340
1610-1416250		x250	150							390
1610-1616063		x63	45							260
1610-1616080	M16x16	x80	55							285
1610-1616100		x100	65							310
1610-1616125		x125	85	15.7	25	9	354	138		345
1610-1616160		x160	100							385
1610-1616200		x200	120							435
1610-1616250		x250	150							505
1610-1618063		x63	45							290
1610-1618080	M16x18	x80	55							305
1610-1618100		x100	65							340
1610-1618125		x125	85	17.7	28	10	354	138		370
1610-1618160		x160	100							415
1610-1618200		x200	120							460
1610-1618250		x250	150							525
1610-1820080		x80	55							405
1610-1820100	M18x20	x100	65							435
1610-1820125		x125	85							480
1610-1820160		x160	110	19.7	32	12	474	169		535
1610-1820200		x200	125							610
1610-1820250		x250	150							680
1610-1820315		x315	190							790
1610-2020080		x80	55							480
1610-2020100	M20x20	x100	65							515
1610-2020125		x125	85							570
1610-2020160		x160	110	19.7	32	12	679	215		635
1610-2020200		x200	125							725
1610-2020250		x250	160							820
1610-2020315		x315	190							950
1610-2022080		x80	55							530
1610-2022100	M20x22	x100	65							565
1610-2022125		x125	85							620
1610-2022160		x160	110	21.7	35	14	679	215		690
1610-2022200		x200	125							775
1610-2022250		x250	150							880
1610-2022315		x315	190							1050

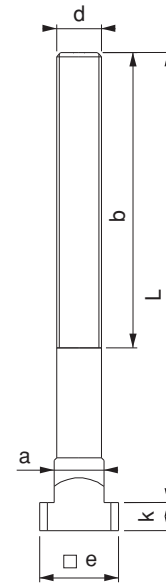
Referans Nr.	dx	x L	b	a	e	k	Sıkma Verileri		Tightening Data	Tightening Data
							Nm	kN		
1610-2224080		x80	55							700
1610-2224100		x100	65							740
1610-2224125	M22x24	x125	85							805
1610-2224160		x160	110	23.7	40	16	903	266		890
1610-2224200		x200	125							1000
1610-2224250		x250	150					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

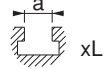



Not: 150 °C üzerindeki ortamlarda sıkma işlemi yapılırken dişlerin üzerine Loctite 8150 kullanılır.



Loctite 8150

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

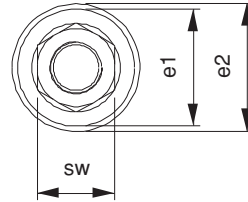
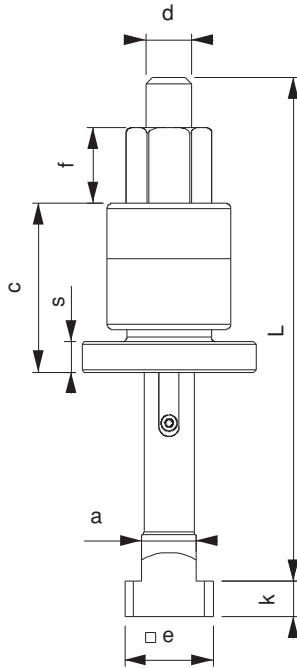
Referans Nr.	dx  xL	a	e	k	h-H	e1	e2	c	s	f	sw	Sıkma Verileri Tightening Data		
												Nm	kN	
1630-2022200	M20x22x200	21.7	35	14	25-75	49	69	92	12	30	30	679	215	1635
1630-2022250	M20x22x250	21.7	35	14	70-120	49	69	92	12	30	30	679	215	1720
1630-2424200	M24x24x200	23.7	40	16	25-75	53	74	92	12	30	36	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

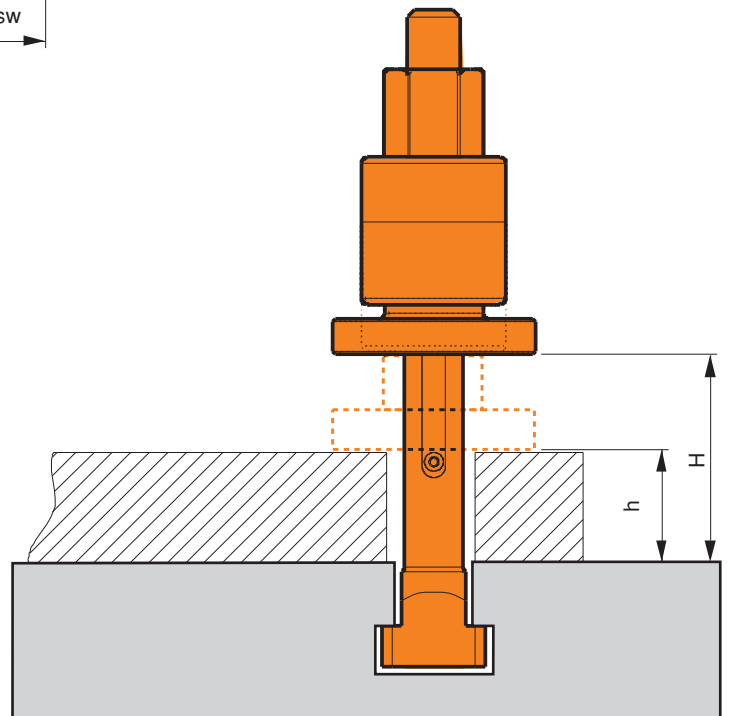
Product Nr. 1630 Combined T-Slot Bolt

- 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

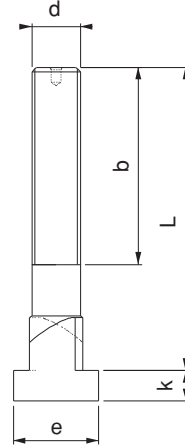

 Loctite
8150

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	
1650-1214050		x50	35						70
1650-1214080	M12x14	x80	55	13.7	22	8	141	74	100
1650-1214125		x125	75						120
1650-1618063		x63	45						160
1650-1618100	M16x18	x100	65	17.7	28	10	354	138	220
1650-1618160		x160	100						280
1650-2022080		x80	55						330
1650-2022125	M20x22	x125	85	21.7	35	14	679	215	430
1650-2022200		x200	120						570
1650-2428100		x100	70						650
1650-2428125	M24x28	x125	85	27.7	44	18	1163	310	770
1650-2428250		x250	150						1150

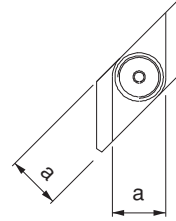


Ürün Nr. 1650 Dereceli T-Ayaklı Saplama

- 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.



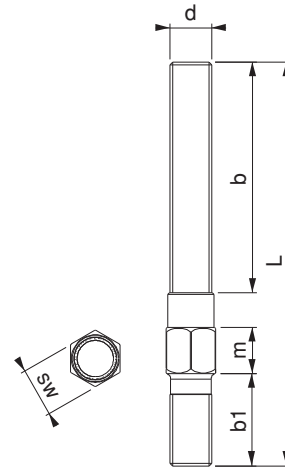
Loctite
8150

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

Anahtar Ağızlı Saplama

Wrench Mouth Stud



Ürün Nr. 1670 Anahtar Ağızlı Saplama

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

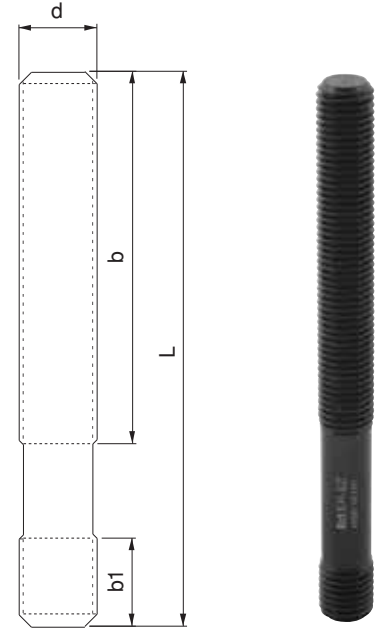
Referans Nr.	d x L	b1	b	Sıkma Verileri Tightening Data		 (g)
				Nm	kN	
1690-36160	M36	51	80	3378	614	1100
1690-36200			125			1340
1690-36250			160			1710
1690-36315			200			2150
1690-36400			250			2700
1690-36500			315			3450
1690-36700	400	4750				
1690-42315	M42	59	200	5415	843	2950
1690-42400			250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

