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What is TOP-LOCK® Multi-jackbolt tensioners

Multi-jackbolt tensioners also called superbolt or supernut, according to the structure of commonly usage which is an innovative technology for directly replace conventional nuts and bolts. Multi-jackbolt tensioners can be threaded onto a new or existing bolt, stud, threaded rod or shaft. The main thread serves to position the tensioner on the bolt or stud against the hardened washer and the load bearing surface. By tightening the jackbolts, transfer the preload evenly into the main thread and, consequently, onto the joint. The main thread is tightened in pure tension.

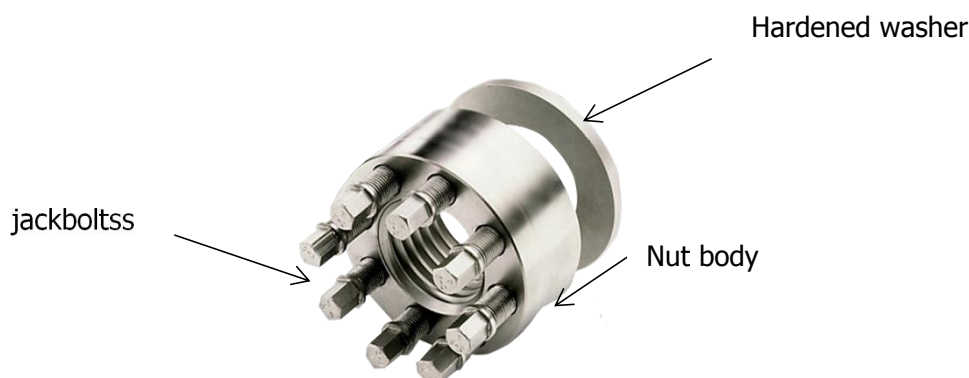


Why popularize TOP-LOCK® Multi-jackbolt tensioners

The strength of the bolt (fastening force) is increased by the bolt diameter square, the required torque is increase by its diameter cubic. Bolt is greater than 1 inch in diameter, use manual wrench is difficult to effectively achieve its pre-tightening force. To achieve higher pre-tightening force, rely on other means, blow wrench, lifting wrench provide pre-tightening force is very dangerous, heating rod requires a lot of time. Inaccurate prestressing force exerting often leads to thread lock. Hydraulic stretching has the same problem as mentioned. Besides, also increased the trouble for apply different location of the bolts to retrofit.



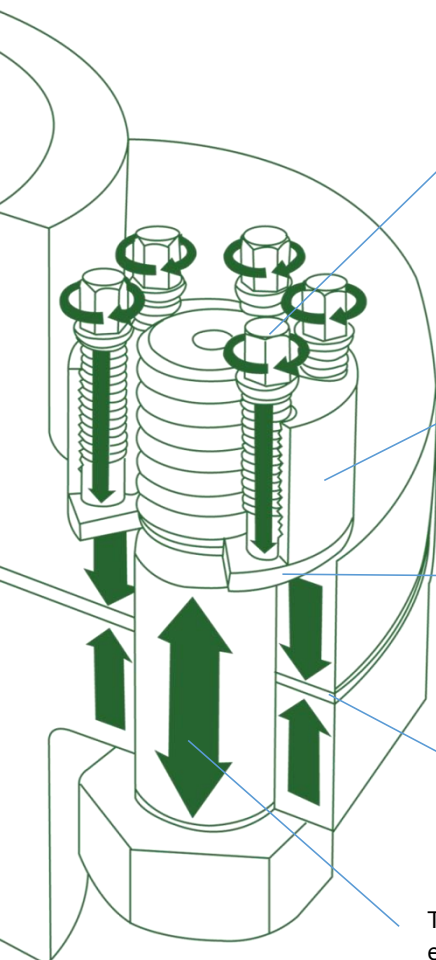
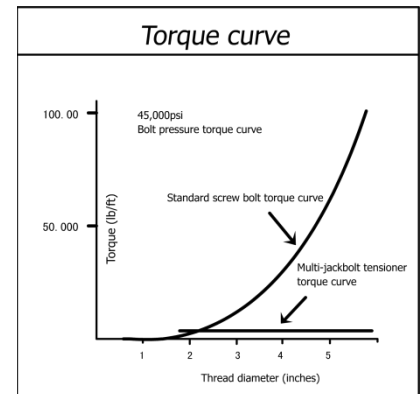
The structure of TOP-LOCK® Multi-jackbolt tensioners



How TOP-LOCK® Multi-jackbolt tensioners work

Multi-jackbolt tensioner and hydraulic wrench torque comparison table			
Thread size inches	Bolt load (pounds)	Hydraulic wrench required torque Pounds per foot torque	Tensioner MTX series required Pounds per foot
1	48,600	716	14
1-1/2	98,400	2,173	25
2	175,200	5,160	57
3	428,400	18,925	114
4	806,400	47,497	114
5	1,008,000	74,214	189
6	1,209,600	106,868	189

E.g.: Make the 3 inches bolt fastening force to 428400 pounds with hexagon nut, the required torque is 18925 pounds per foot. Relatively, with Multi-jackbolt tensioner MTX torque required for only 114 pounds/feet, can achieve the same load.



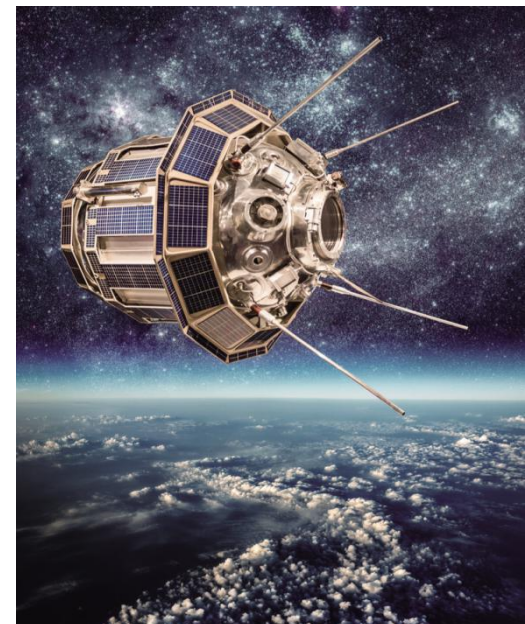
By tightening the jackbolts, a strong thrust (axial) force is generated. This thrust force is directed against a hardened washer. Jackbolts have a small friction diameter and can therefore create a high thrust force with relatively little torque input.

The loads are transferred through the nut body which is positioned on the main thread by hand.

A hardened washer is used to transfer the force while protecting the flange face.

The thrust (axial) force of many jackbolts and the opposite reaction force of the main bolt head create a strong clamping force on the flange.

The thrust (axial) force from the jackbolt creates an equally strong reaction force in the main bolt.



Characters of TOP-LOCK® Multi-jackbolt tensioners

Character1, Small torque generated big pre-tightening force.

Bolt level: 8.8

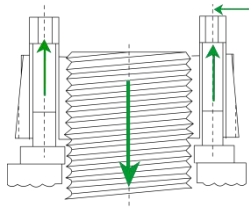
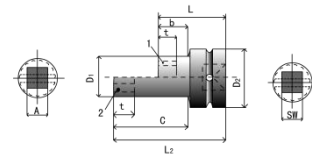
M64 * 6

Regular hexagonal nut

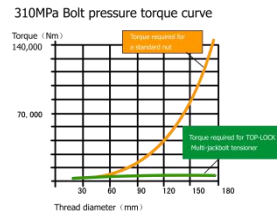
14 '300 nm

TOP-LOCK® Multi-jackbolt tensioner

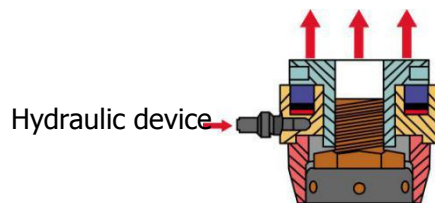
315 nm



Relatively small torque
generated load enough



Character2, small installation space

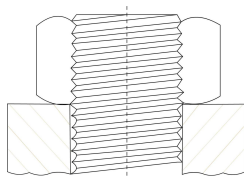


Hydraulic device

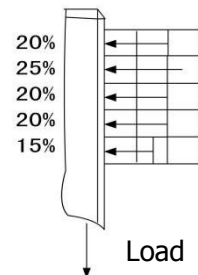
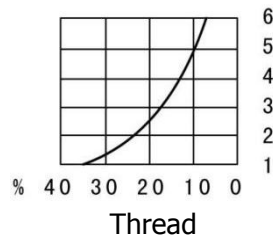
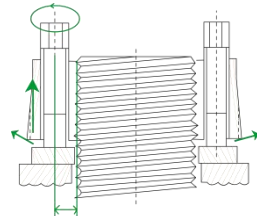
TOP-LOCK® Multi-jackbolt tensioner



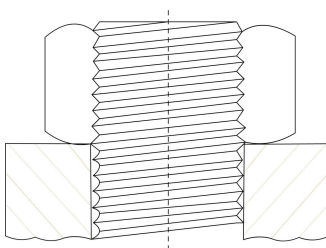
Character3, load distribution is more homogeneous for nut body



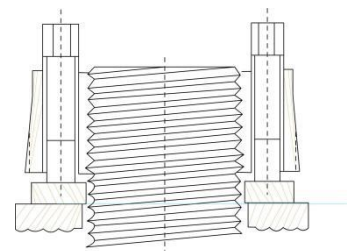
Regular hexagonal nut



Character4, radial deflection are smaller



The main thread deformation or fracture



The axial load is average
distribute in the main thread

Characters of TOP-LOCK® Multi-jackbolt tensioners

Preload simple, time-saving and efficient

Only ordinary hand wrenches or pneumatic wrenches are required to preload or remove large parts. The operation is very convenient, fast, save time (can save more than 60% time than using traditional bolt fastening preload method) and efficient.

Reliable for preloaded and lock

The unique locking design completely solve the disadvantages of the traditional locking reliability, relying on its own special locking structure, even under the condition of high temperature, high pressure and strong high-frequency vibration can effectively prevent the preloaded artifacts losing.

Safe

Effectively avoid many accidents which from the traditional preloaded method. Can be operated and installed in unfavorable pre-tightening places, such as: Overhead, high altitude and bad environment nuclear island, etc.

Economic and practical

TOP-LOCK® Multi-jackbolt tensioners can be used repeatedly, meanwhile no traditional or special preloaded tools are needed for installation, thus greatly reduces the cost of preloaded, the truly energy consumption.

Tightening in pure tension

Multi-jackbolt tensioner preload artifact with pure tension, no torque twisted to each other from the load of nuts and bolts, effectively prevent the occurrence of undesirable phenomenon, such as the thread wear, buckles and locked. Also can eliminate the possibility that the nut mush into bearing surface caused by the nut with the main bolts not completely vertical. Centerline of main bolt within five degrees may be offset to compensate.

High precision preloaded and uniform tension

The accuracy of the Multi-jackbolt tensioner pre-tightening force are much more accurate than any traditional and special preloaded tools, can reach 90-95%, at the same time prestressing tension change is small (only 4-5%), which for the bolt pre-tightening tension between uniform interface is especially important for sealing flange or pressure vessel, it can keep the flange interface uniform pressure, effectively prevent leakage.

Rich preloaded elastic

Multi-jackbolt tensioner pre-tightening artifacts, can increase the elasticity of preloaded bolt connection system of four bolt diameter equivalent, for general bolt connection system, the equivalent elastic increased by 50-100%, due to the increase of the elastic greatly prolong the service life of the connecting bolts.

Flexible preload enhances bolt bearing capacity

When Multi-jackbolt tensioner preloaded artifacts, between Multi-jackbolt tensioner and the main bolt generated relative force, forming a circumferential stress. Under the stress effect, bottom diameter expanding,

the upper diameter narrower, the micro deformation increased of number of the stress threads meanwhile made the stress release in the main bolt and the nut effective thread uniformly, avoiding stress concentration, enhancing the bearing capacity of bolts, eliminating the possibility of a screw fracture.

Operation suitable for small space

The space for application of Multi-jackbolt tensioner preloaded is smaller than the space for traditional or special tools for preloaded operation. Some special space and equipments which special tools can't operate, such as: compact structure, narrow space, special operating position, Multi-jackbolt tensioner can be used widely.

Detect preloaded parameter convenient, read data intuitive and accurate

Intuitive rapid detection of bolt pre-tightening force, pre-tightening torque and preloaded elongation by taking ultrasonic bolt detector in the bolt on test interface. Synchronous read, more accurate, more efficient than liquid distribution test preloaded system pressure value of the parameter. Greatly improving the comprehensive technical performance of large-scale mechanical parts assembly preload and preloaded detection efficiency.

Classifications of TOP-LOCK® Multi-jackbolt tensioners



Bolt-style tensioners

Bolt-style tensioners are used in a wide variety of applications where a nut-style tensioner and stud combination does not fit or is not the preferred solution.

Advantages:

- Has all of the preload and low torque advantages.

- Requires less head diameter and therefore less space than nut-style tensioner.

- Requires smaller installation space.

- Reduces the number of parts versus stud and nuts.

- Small head dimensions can fit into tight countersinks or space restrictions.



Nut-style multi-jackbolt tensioners

Nut-style multi-jackbolt tensioner suitable for mechanical fastening applications, according to their own strength condition can be used for the high strength bolt or screw, according to their own material and structure can be used in different working condition of the environment, it is a nut type tensioner which suitable for large hexagonal nut usage for all places.



Flexnuts

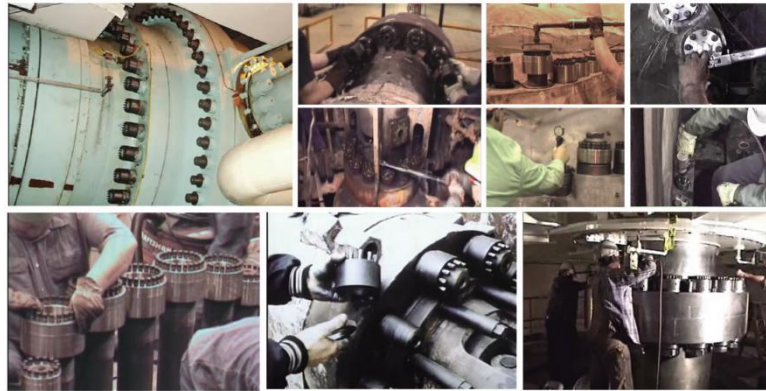
Flexnuts are suitable for through hole applications, which is a reactive nut that is able to flex elastically. Under certain load, Flexnuts can flex at the bottom and at the top. This helps relieve stress concentrations and increases the fatigue life of the stud/bolt. Since Flexnuts are reactive nuts to be used opposite tensioners, they never torqued directly to achieve preload.












Advantages:






- Under load, they ensure an equal load distribution on the thread of the bolt / stud.
- Adds elasticity in the joint, increases the fatigue life of the bolt / stud.

Applications of TOP-LOCK® Multi-jackbolt tensioners

The nuclear industry
Aerospace engineering
Wind power generation
Hydroelectric power
Petrochemical
Steam turbine
Shipbuilding
Transportation



Selection table for TOP-LOCK® Multi-jackbolt tensioners								
Type	Name	Application	Example	Size range	Suitable temperature	Bolt strength depends on size	Surface treatment	Note
MSB 	TOP-LOCK® nut-style tensioners (Standard)	Alternative to a standard nut	Applied in industries in need of bolt connection	M16-M160	-50°F to 500°F	450 to 700N/m ² 60 to 100Ksi	According to requirements	Corresponding SB8 series bolt -type tensioner
MSG 	TOP-LOCK® nut-style tensioners (High strength)	Used for 8grade bolt/screw	Same using environment with MSB, but higher intensity	M16-M160	-50°F to 500°F*	500 to 900N/m ² 70 to 130Ksi	According to requirements	Corresponding SB12 series bolt -type tensioner
MTSX 	TOP-LOCK® nut-style tensioners (super High strength)	Used in high load	—	M16-M160	-50°F to 500°F	—	According to requirements	—
SJX 	TOP-LOCK® nut-style tensioners (Compact)	Applicable to the highly constrained environment	Highly restricted a. hydraulic cylinder b. shaft bracket c. piston connection d. the base	M16-M160	-50°F to 500°F	250 to 400N/m ² 35 to 60Ksi	According to requirements	—
SMX 	TOP-LOCK® nut-style tensioners (Rolling machine)	Applies to 600 or 800 series rolling motor shaft coupling and brake wheel	—	M16-M160	-50°F to 500°F	—	According to requirements	—
NI 	TOP-LOCK® nut-style tensioners (Bearing locking)	Apply to directly replace the AN series bearing lock nut	—	AN6-AN950 Metric size available	-50°F to 500°F	—	According to requirements	—
MTA 	TOP-LOCK® nut-style tensioners (Counter nut)	Suitable for jacking bolts need to protect the environment	—	M16-M160	-50°F to 500°F	—	According to requirements	—
STUDS 	TOP-LOCK® screw	Can provide all kinds of materials	—	Specially made as required	-423°F to 1400F	—	According to requirements	—
CN 	TOP-LOCK® cross lock nut	Reciprocating compressor cross connection	—	Specially made as required	-50°F to 500°F	—	According to requirements	—
SP 	TOP-LOCK® piston lock nut	The piston rod connected to the piston	—	M16-M160	According to material	—	According to requirements	—
MLC 	TOP-LOCK® force-measuring device	Testing bolt load	—	Specially made as required	According to material	—	According to requirements	—
SB8 	TOP-LOCK® bolt-style tensioners	Instead of 5 grade and B7grade bolt	Bolt connection in demanding industry	M16-M160	-50°F to 500°F	400 to 650N/m ² 60 to 95Ksi	According to requirements	Corresponding MSB series nut -type tensioner
SB12 	TOP-LOCK® bolt-style tensioners (High strength)	Instead of 8 grade high strength bolts	Similar to SB8, but strength stronger	M20-M90	-50°F to 500°F	500 to 850N/m ² 70 to 125Ksi	According to requirements	Corresponding MSG series nut -type tensioner
SBU 	TOP-LOCK® bolt-style tensioners (super high strength)	The highest intensity bolt with rare materials in the world at present	—	Specially made as required	According to material	—	According to requirements	—
SSJX 	TOP-LOCK® bolt-style tensioners (Flush bolt)	Used for sink hole	Use occasions: a. gear box b. the blast furnace c. mining machinery d. the gear rack/stand e. sealing flange f. wind tunnel g. Machine h. weight machine	M16-M160	-50°F to 500°F	—	According to requirements	—
SX8 	TOP-LOCK® nut-style tensioners (Flexible nut)	Release stress , avoid stress concentration, solve the problem of nut locked	Flexible nut applied in hole.Increase the flexibility of bolt connection.Strong application in clamping length short condition.	M20-M160	-50°F to 500°F	450 to 700N/m ² 60 to 100Ksi	According to requirements	Application with the MSB series nut type tensioner or SB8 Series bolt type tensioner
SX12 	TOP-LOCK® high strength Flexible nut	Suitable for high stress level	Similar to SX8, but strength stronger	M20-M160	-150°F to 500°F*	500 to 900N/m ² 70 to 130Ksi	According to requirements	Application with the MSG series nut type tensioner or SB8 Series bolt type tensioner
H650 	TOP-LOCK® nut-style tensioners (Medium temperature)	Replace grade B7 bolt or nut	Big stud: such as a. boiler feed pump b. boiler circulating pump c. reactor heat d.exchanger	M20-M125	-50°F to 650°F	310N/m ² 45kis based on the walls and the AS	According to requirements	

H650X 	TOP-LOCK® nut-style tensioners (Medium temperature)	Medium temperature super nut, feature: jackbolts amount small		M24-M160	-50°F to 650°F		According to requirements	
H650T H650TX 	TOP-LOCK® nut-style tensioners (Medium temperature)	Tall type medium temperature super nut for limited installation space location	A.points situation B.the steam turbine C.Engine D.Pump E. compressor	M24-M100	-50°F to 650°F	310N/m ㎡ 45kis based on the walls and the AS	According to requirements	Applied to the diameter of limited space
H1215 	TOP-LOCK® high temperature anti-corrosion type	Suitable for limited space	—	M16-M160	-423°F to 1200F*	—	According to requirements	—
H1216 	TOP-LOCK® high temperature anti-corrosion type	Suitable for high temperature environment	—	M24-M160	-423°F to 1200F*	—	According to requirements	—
H1218 	TOP-LOCK® stainless steel anti-corrosion type	Suitable for high temperature, corrosion, anti magnetic environment	—	M16-M160	-423°F to 1200F*	—	According to requirements	—
High temperature bolt system	TOP-LOCK® power plant only	Applicable the connection for the valve, steam, the steam turbine flange	—	Specially made as required	to1.200°F	—	According to requirements	—
Nuclear power series	TOP-LOCK® nuclear power only	Applicable the connection for valve, pump, heater, flange	—	Specially made as required	to650°F	—	According to requirements	—
Nickel copper alloy	TOP-LOCK® admiralty only	Apply to ships and the sea water environment	—	Specially made as required		—	According to requirements	—
Anti-corrosion type	TOP-LOCK® special materials	Apply to wet and chemical corrosion environment	—	Specially made as required	Suitable material	—	According to requirements	—
EB type	TOP-LOCK® expansion bolt	Direct replacement coupling fitting bolt	—	Specially made as required	Suitable material	—	According to requirements	—
Tool	TOP-LOCK® special tools	Special torque wrench and socket	—	Specially made as required	N/A	—	According to requirements	—
lubricant	TOP-LOCK® special lubricants	JL - G and JL - M lubricant	—	N/A	1200°F,650°F	—	According to requirements	—
The end cap	TOP-LOCK® end cap	Plastic end cap	—	Specially made as required		—	According to requirements	—

Note: the above are nomal models.In addition, TOP - LOCK ® provides more widely design and locking solutions, including other special material and design.They can be applied to more harsh conditions of the special working environment, if necessary, please consult our TOP - LOCK ® China technical services office. TOP -LOCK ® China technical support: 0411-86800996.

MSB-M16x

TOP-LOCK® nut-style tensioners (Standard)

Model	Nut body (MM)						Nut body (MM)					Hardened washer G (MM)		High total (MM)	Quality of the standard product (kg)	Preload nom M (NM)	torque nom F (KN)	Preload capacity max (KN)	
	Thread diameter d	Commonly pitch			Outer diameter	Thickness	Center distance	Pitch*diameter	Quantity	Opposite side	Length	Clearance	Outer diameter						Thickness
		P ₁	P ₂	P ₃										D _i	H	D _t	D _j	n	
MSB-M16x.../W	M16	2.0	1.5	1.0	34	16	25	M6×0.75	4	5	30.00	6	32	3	33	0.11	14	73	94
MSB-M20x.../W	M20	2.5	1.5	1.0	38	16	29	M6×0.75	6	5	30.00	6	38	4	34	0.14	14	110	140
MSB-M22x.../W	M22	2.5	1.5	1.0	41	16	31	M6×0.75	6	5	30.00	6	41	4	34	0.16	14	110	140
MSB-M24x.../W	M24	3.0	2.0	1.5	44	16	33	M6×0.75	8	5	30.00	6	43	4	34	0.19	14	145	185
MSB-M27x.../W	M27	3.0	2.0	1.5	50	24	39	M8×1.00	6	6	40.00	6	50	5	45	0.35	36	215	285
MSB-M30x.../W	M30	3.5	2.0	1.5	53	24	42	M8×1.00	6	6	40.00	6	53	5	45	0.37	36	215	285
MSB-M33x.../W	M33	3.5	2.0	1.5	59	24	45	M8×1.00	8	6	40.00	6	59	5	45	0.48	36	285	380
MSB-M36x.../W	M36	4.0	3.0	1.5	66	32	51	M10×1.25	6	8	52.00	8	66	5	57	0.76	72	345	460
MSB-M39x.../W	M39	4.0	3.0	1.5	70	32	54	M10×1.25	8	8	52.00	8	70	5	57	0.90	72	455	610
MSB-M42x.../W	M42	4.5	3.0	1.5	75	32	57	M10×1.25	8	8	52.00	8	73	5	57	1.01	72	455	610
MSB-M45x.../W	M45	4.5	3.0	1.5	83	38	63	M12×1.25	8	10	62.00	10	81	6	68	1.48	131	700	935
MSB-M48x.../W	M48	5.0	3.0	1.5	85	38	66	M12×1.25	8	10	62.00	10	85	6	68	1.50	131	700	935
MSB-M52x.../W	M52	5.0	3.0	2.0	94	38	70	M12×1.25	8	10	62.00	10	89	6	68	1.80	131	700	935
MSB-M56x.../W	M56	5.5	4.0	2.0	100	38	76	M12×1.25	8	10	62.00	10	95	6	68	2.00	131	700	935
MSB-M60x.../W	M60	5.5	4.0	2.0	107	38	78	M12×1.25	10	10	62.00	10	100	6	68	2.30	131	875	1170
MSB-M64x.../W	M64	6.0	4.0	2.0	113	53	87	M16×1.50	8	14	84.00	12	112	8	92	3.65	315	1270	1690
MSB-M68x.../W	M68	6.0	4.0	2.0	117	53	91	M16×1.50	8	14	84.00	12	117	8	92	3.85	315	1270	1690
MSB-M72x.../W	M72	6.0	4.0	2.0	120	56	95	M16×1.50	8	14	84.00	9	120	8	92	4.00	315	1270	1690
MSB-M76x.../W	M76	6.0	4.0	2.0	132	56	100	M16×1.50	12	14	84.00	9	127	8	92	5.10	315	1900	2530
MSB-M80x.../W	M80	6.0	4.0	2.0	132	56	103	M16×1.50	12	14	84.00	9	127	8	92	4.80	315	1900	2530
MSB-M85x.../W	M85	6.0	4.0	2.0	137	56	108	M16×1.50	12	14	84.00	9	137	8	92	5.10	315	1900	2530
MSB-M90x.../W	M90	6.0	4.0	2.0	145	59	113	M16×1.50	16	14	91.00	13	140	8	99	6.00	315	2530	3380
MSB-M100x.../W	M100	6.0	4.0	2.0	164	61	123	M16×1.50	16	14	91.00	11	152	8	99	7.80	315	2530	3380
MSB-M110x.../W	M110	6.0	4.0	2.0	177	79	139	M20×1.50	12	17	115.00	16	172	10	125	11.40	645	3150	4200
MSB-M120x.../W	M120	6.0	4.0	2.0	189	81	149	M20×1.50	16	17	115.00	14	179	10	125	13.00	645	4200	5600
MSB-M125x.../W	M125	6.0	4.0	2.0	194	81	154	M20×1.50	16	17	115.00	14	190	10	125	13.50	645	4200	5600
MSB-M130x.../W	M130	6.0	4.0	2.0	205	94	159	M20×1.50	18	17	130.00	16	202	10	140	17.50	645	4700	6300
MSB-M140x.../W	M140	6.0	4.0	2.0	215	94	169	M20×1.50	20	17	130.00	16	215	10	140	18.70	645	5250	7700
MSB-M150x.../W	M150	6.0	4.0	2.0	225	94	179	M20×1.50	20	17	130.00	16	225	12	142	20.00	645	5250	7700
MSB-M160x.../W	M160	6.0	4.0	—	234	107	189	M20×1.50	24	17	150.00	23	234	12	162	24.10	645	6300	8400

Used for general mechanical artifacts and can be used for medium and high strength bolt or screw.

Such as: mining equipment, anchor bolt, gear box, platform, crusher, engine, compressor, extrusion machine, etc.

MSB-075

Model	Nut body(in)							Nut body(in)					Hardened washer G(in)		High total (in)	Qualit y of the standa rd produc t (Lb)	Preload nom M (Lbft)	torque nom F (LBf)	Preload capacit y max (LBf)
	Threa d diameterD	Commonly pitch			Out diameter	Thickens s	Center distance	Pitch*diameter	Quanti ty	Oppos ite side	Length	Clearan ce	Outer diamete r	Thic knes s					
		P ₁	P ₂	P ₃															
MSB-075-.../W	3/4	10.0	16	—	1.47	0.70	1.32	1/4-28	4	3/16	1.25	0.24	1.50	0.13	1.38	0.31	14	20400	27200
MSB-087-.../W	7/8	9.0	14	—	1.60	0.70	1.26	1/4-28	6	3/16	1.25	0.24	1.63	0.13	1.38	0.34	14	30600	40800
MSB-100-.../W	1	8.0	12	14	1.90	0.93	1.46	5/16-24	6	1/4	1.52	0.20	2.00	0.19	1.71	0.68	27	48600	64800
MSB-112-.../W	1-1/8	7.0	8	12	2.08	0.93	1.59	5/16-24	6	1/4	1.52	0.20	2.13	0.19	1.71	0.79	27	48600	64800
MSB-125-.../W	1-1/4	7.0	8	12	2.25	0.94	1.75	5/16-24	8	1/4	1.52	0.19	2.38	0.19	1.71	0.92	27	64800	86400
MSB-137-.../W	1-3/8	6.0	8	12	2.46	1.20	1.94	3-8/24	6	5/16	1.93	0.25	2.50	0.19	2.12	1.40	49	73800	98400
MSB-150-.../W	1-1/2	6.0	8	12	2.70	1.20	2.01	3-8/24	8	5/16	1.93	0.25	2.75	0.19	2.12	1.70	49	98400	131200
MSB-162-.../W	1-5/8	6.0	8	12	2.96	1.20	2.20	3-8/24	8	5/16	1.93	0.25	2.88	0.19	2.12	2.01	49	98400	131200
MSB-175-.../W	1-3/4	5.0	8	12	3.08	1.42	2.38	3-8/24	8	3/8	2.24	0.28	3.13	0.25	2.49	2.53	75	129600	172800
MSB-187-.../W	1-7/8	6.0	8	12	3.59	1.60	2.74	1/2-20	8	7/16	2.60	0.40	3.50	0.25	2.85	4.07	114	175200	233600
MSB-200-.../W	2	4.5	8	12	3.59	1.60	2.74	1/2-20	8	7/16	2.60	0.40	3.50	0.25	2.85	3.87	114	175200	233600
MSB-225-.../W	2-1/4	4.5	8	12	3.95	1.60	3.00	1/2-20	8	7/16	2.60	0.40	3.75	0.25	2.85	4.51	114	175200	233600
MSB-250-.../W	2-1/2	4.0	8	12	4.45	2.10	3.43	5/8-18	8	9/16	3.30	0.45	4.50	0.31	3.61	7.82	233	285600	380800
MSB-275-.../W	2-3/4	4.0	8	12	4.70	2.10	3.69	5/8-18	8	9/16	3.30	0.45	4.75	0.31	3.61	8.36	233	285600	380800
MSB-300-.../W	3	4.0	6	8	5.20	2.10	3.95	5/8-18	12	9/16	3.30	0.45	5.00	0.31	3.61	10.30	233	428400	571200
MSB-325-.../W	3-1/4	4.0	6	8	5.45	2.20	4.15	5/8-18	12	9/16	3.56	0.35	5.00	0.31	3.61	11.04	233	428400	571200
MSB-350-.../W	3-1/2	4.0	6	8	5.70	2.30	4.40	5/8-18	16	9/16	3.56	0.51	5.50	0.31	3.87	12.62	233	571200	761600
MSB-375-.../W	3-3/4	4.0	6	8	6.20	2.40	4.65	5/8-18	16	9/16	3.56	0.41	5.50	0.31	3.87	15.08	233	571200	761600
MSB-400-.../W	4	4.0	6	8	6.45	2.60	4.90	5/8-18	18	9/16	3.88	0.53	6.00	0.31	4.19	17.31	233	642600	856800
MSB-425-.../W	4-1/4	4.0	6	8	6.95	3.00	5.33	3/4-16	16	5/8	4.38	0.50	6.40	0.38	4.76	23.41	390	806400	1075200
MSB-450-.../W	4-1/2	4.0	6	8	7.20	3.00	5.58	3/4-16	16	5/8	4.38	0.50	6.65	0.38	4.76	24.44	390	806400	1075200
MSB-475-.../W	4-3/4	4.0	6	8	7.45	3.20	5.83	3/4-16	18	5/8	4.68	0.60	6.90	0.38	5.06	27.13	390	907200	1209600
MSB-500-.../W	5	4.0	6	8	7.70	3.30	6.08	3/4-16	20	5/8	4.68	0.50	7.15	0.38	5.06	28.83	390	1008000	1344000
MSB-525-.../W	5-1/4	4.0	6	8	8.45	3.70	6.58	3/4-16	22	5/8	4.98	0.40	7.65	0.38	5.36	40.06	390	1108800	1478400
MSB-550-.../W	5-1/2	4.0	6	8	8.45	3.70	6.58	3/4-16	22	5/8	4.98	0.40	7.65	0.38	5.36	37.56	390	1108800	1478400
MSB-575-.../W	5-3/4	4.0	6	8	8.95	4.00	7.11	3/4-16	24	5/8	5.38	0.50	8.15	0.38	5.76	46.26	390	1209600	1612800
MSB-600-.../W	6	4.0	6	8	8.95	4.00	7.11	3/4-16	24	5/8	5.38	0.50	8.15	0.38	5.76	43.32	390	1209600	1612800

MSG-M16X

TOP-LOCK® nut-style tensioners (High strength)

Model	Nut body (MM)							Nut body (MM)					Hardened washer G (MM)		High total (MM)	Quality of the standard product (kg)	Preload nom M (NM)	torque nom F (KN)	Preload capacity max (KN)
	Thread diameterD	Commonly pitch			Out diameter	Thickens	Center distance	Pitch*dia meter	Quantity	Opposite side	Length	Clearance	Outer diameter	Thickness					
		P ₁	P ₂	P ₃											D ₁				
MSG-M16x.../W	M16	2.0	1.5	1.0	34	16	25	M6×0.75	6	5	30.00	6	32	3	33	0.12	14	110	140
MSG-M20x.../W	M20	2.5	1.5	1.0	38	17	29	M6×0.75	8	5	30.00	5	38	4	34	0.15	14	145	185
MSG-M22x.../W	M22	2.5	1.5	1.0	41	17	31	M6×0.75	8	5	40.00	5	41	4	34	0.17	14	145	185
MSG-M24x.../W	M24	3.0	2.0	1.5	47	24	36	M8×1.00	6	6	40.00	6	47	4	44	0.30	36	215	285
MSG-M27x.../W	M27	3.0	2.0	1.5	51	24	39	M8×1.00	8	6	40.00	6	50	5	45	0.37	36	285	380
MSG-M30x.../W	M30	3.5	2.0	1.5	54	24	42	M8×1.00	8	6	40.00	6	53	5	45	0.38	36	285	380
MSG-M33x.../W	M33	3.5	2.0	1.5	62	32	48	M10×1.25	6	8	52.00	8	61	5	57	0.70	72	345	460
MSG-M36x.../W	M36	4.0	3.0	1.5	66	32	51	M10×1.25	8	8	52.00	8	66	5	57	0.79	72	455	610
MSG-M39x.../W	M39	4.0	3.0	1.5	72	32	54	M10×1.25	10	8	52.00	8	70	5	57	0.97	72	570	760
MSG-M42x.../W	M42	4.5	3.0	1.5	76	32	57	M10×1.25	12	8	52.00	8	73	5	57	1.10	72	685	915
MSG-M45x.../W	M45	4.5	3.0	1.5	81	38	62	M12×1.25	8	10	62.00	10	80	6	68	1.40	131	700	935
MSG-M48x.../W	M48	5.0	3.0	1.5	85	38	66	M12×1.25	10	10	62.00	10	85	6	68	1.54	131	875	1170
MSG-M52x.../W	M52	5.0	3.0	2.0	94	38	70	M12×1.25	12	10	62.00	10	90	6	68	1.80	131	1050	1400
MSG-M56x.../W	M56	5.5	4.0	2.0	98	38	74	M12×1.25	12	10	62.00	10	94	6	68	1.93	131	1050	1400
MSG-M60x.../W	M60	5.5	4.0	2.0	107	59	83	M16×1.50	8	14	91.00	13	106	8	99	3.70	315	1270	1690
MSG-M64x.../W	M64	6.0	4.0	2.0	113	59	87	M16×1.50	10	14	91.00	13	112	8	99	4.10	315	1580	2100
MSG-M68x.../W	M68	6.0	4.0	2.0	117	59	91	M16×1.50	12	14	91.00	13	117	8	99	4.30	315	1900	2530
MSG-M72x.../W	M72	6.0	4.0	2.0	121	59	95	M16×1.50	12	14	91.00	13	120	8	99	4.50	315	1900	2530
MSG-M76x.../W	M76	6.0	4.0	2.0	132	61	102	M16×1.50	16	14	91.00	11	127	8	99	5.60	315	2530	3380
MSG-M80x.../W	M80	6.0	4.0	2.0	133	61	103	M16×1.50	16	14	91.00	11	127	8	99	5.40	315	2530	3380
MSG-M85x.../W	M85	6.0	4.0	2.0	139	61	108	M16×1.50	16	14	91.00	11	137	8	99	5.80	315	2530	3380
MSG-M90x.../W	M90	6.0	4.0	2.0	145	61	113	M16×1.50	16	14	91.00	11	140	8	99	6.30	315	2530	3380
MSG-M100x.../W	M100	6.0	4.0	2.0	157	61	123	M16×1.50	16	14	91.00	11	152	8	99	7.00	315	2530	3380
MSG-M110x.../W	M110	6.0	4.0	2.0	177	61	133	M16×1.50	20	14	91.00	11	163	8	99	9.00	315	3150	4200
MSG-M120x.../W	M120	6.0	4.0	2.0	189	81	149	M20×1.50	18	17	115.00	14	179	10	125	13.10	645	4700	6300
MSG-M125x.../W	M125	6.0	4.0	2.0	194	81	154	M20×1.50	18	17	115.00	14	190	10	125	13.70	645	4700	6300
MSG-M130x.../W	M130	6.0	4.0	2.0	205	94	159	M20×1.50	20	17	130.00	16	202	10	140	17.60	645	5250	7000
MSG-M140x.../W	M140	6.0	4.0	2.0	215	94	169	M20×1.50	22	17	130.00	16	215	10	140	18.89	645	5750	7700
MSG-M150x.../W	M150	6.0	4.0	2.0	225	94	179	M20×1.50	22	17	130.00	16	225	12	142	20.10	645	5750	7700
MSG-M160x.../W	M160	6.0	4.0	—	226	107	189	M20×1.50	24	17	150.00	23	220	10	160	20.80	645	6300	8400

Used for high mechanical artifacts and can be used for large hexagonal nut environment.

Such as: low temperature bolt, compressor, high pressure centrifuge, excavator walking bracket, pump, high pressure flange, reducer, gear box, gear, crusher, military equipment working etc.

MSG-075

Model	Nut body(in)						Nut body(in)					Hardened washer G(in)		High total (in)	Quality of the standard product (Lb)	Preload nom M (Lbft)	torque nom F (LBf)	Preload capacity max (LBf)	
	Thre ad diam eter D	Commonly pitch			Out dia met er	Thicke nss	Center distan ce	Pitch*di ameter	Quant ity	Opposi te side	Length	Clearanc e	Outer diamet er						Thic knes s
		P ₁	P ₂	P ₃															
MSG-075-.../W	3/4	10.0	16	–	1.47	0.70	1.13	1/4-28	6	3/16	1.25	0.24	1.50	0.13	1.38	0.31	14	30600	40800
MSG-087-.../W	7/8	9.0	14	–	1.70	0.70	1.26	1/4-28	8	3/16	1.25	0.24	1.63	0.13	1.38	0.39	14	40800	54400
MSG-100-.../W	1	8.0	12	14	1.90	0.93	1.46	5/16-24	6	1/4	1.52	0.20	2.00	0.19	1.71	0.68	27	48600	64800
MSG-112-.../W	1-1/8	7.0	8	12	2.08	0.93	1.59	5/16-24	8	1/4	1.52	0.20	2.13	0.19	1.71	0.78	27	64800	86400
MSG-125-.../W	1-1/4	7.0	8	12	2.32	1.20	1.81	3/8/24	6	5/16	1.52	0.25	2.38	0.19	2.12	1.30	49	73800	98400
MSG-137-.../W	1-3/8	6.0	8	12	2.46	1.20	1.92	3-8/24	8	5/16	1.93	0.25	2.50	0.19	2.12	1.42	49	98400	131200
MSG-150-.../W	1-1/2	6.0	8	12	2.80	1.42	2.13	7/16/20	8	3/8	1.93	0.28	2.75	0.19	2.43	2.11	75	129600	172800
MSG-162-.../W	1-5/8	6.0	8	12	2.96	1.42	2.26	7/16/20	8	3/8	1.93	0.28	2.88	0.19	2.43	2.29	75	129600	172800
MSG-175-.../W	1-3/4	5.0	8	12	3.20	1.42	2.38	7/16/20	12	3/8	2.24	0.28	3.13	0.25	2.49	2.80	75	194400	259200
MSG-187-.../W	1-7/8	6.0	8	12	3.59	1.60	2.74	1/2-20	8	7/16	2.60	0.40	3.50	0.25	2.85	4.07	114	175200	233600
MSG-200-.../W	2	4.5	8	12	3.70	1.60	2.74	1/2-20	12	7/16	2.60	0.40	3.50	0.25	2.85	4.24	114	262800	350400
MSG-225-.../W	2-1/4	4.5	8	12	3.95	1.60	3.00	1/2-20	12	7/16	2.60	0.40	3.75	0.25	2.85	4.59	114	262800	350400
MSG-250-.../W	2-1/2	4.0	8	12	4.45	2.30	3.43	5/8-18	12	9/16	3.30	0.51	4.50	0.31	3.87	8.64	233	428400	571200
MSG-275-.../W	2-3/4	4.0	8	12	4.70	2.40	3.69	5/8-18	12	9/16	3.30	0.41	4.75	0.31	3.87	9.45	233	428400	571200
MSG-300-.../W	3	4.0	6	8	5.20	2.30	3.95	5/8-18	16	9/16	3.30	0.51	5.00	0.31	3.87	11.33	233	571200	761600
MSG-325-.../W	3-1/4	4.0	6	8	5.45	2.30	4.15	5/8-18	16	9/16	3.56	0.51	5.00	0.31	3.87	11.79	233	571200	761600
MSG-350-.../W	3-1/2	4.0	6	8	5.70	2.40	4.40	5/8-18	18	9/16	3.56	0.41	5.50	0.31	3.87	13.02	233	642600	856800
MSG-375-.../W	3-3/4	4.0	6	8	5.95	2.40	4.65	5/8-18	18	9/16	3.56	0.41	5.50	0.31	3.87	13.49	233	642600	856800
MSG-400-.../W	4	4.0	6	8	6.20	2.60	4.90	5/8-18	20	9/16	3.88	0.53	6.00	0.31	4.19	15.50	233	714000	952000
MSG-425-.../W	4-1/4	4.0	6	8	6.95	3.00	5.33	3/4-16	18	5/8	4.38	0.50	6.40	0.38	4.76	23.50	390	907200	1209600
MSG-450-.../W	4-1/2	4.0	6	8	7.20	3.00	5.58	3/4-16	18	5/8	4.38	0.50	6.65	0.38	4.76	24.53	390	907200	1209600
MSG-475-.../W	4-3/4	4.0	6	8	7.45	3.20	5.83	3/4-16	20	5/8	4.68	0.60	6.90	0.38	5.06	29.90	390	1008000	1344000
MSG-500-.../W	5	4.0	6	8	7.70	3.30	6.08	3/4-16	20	5/8	4.68	0.50	7.15	0.38	5.06	28.83	390	1008000	1344000
MSG-525-.../W	5-1/4	4.0	6	8	7.95	3.70	6.58	3/4-16	22	5/8	4.98	0.40	7.65	0.38	5.36	33.12	390	1108800	1478400
MSG-550-.../W	5-1/2	4.0	6	8	7.95	3.70	6.58	3/4-16	22	5/8	4.98	0.40	7.65	0.38	5.36	30.62	390	1108800	1478400
MSG-575-.../W	5-3/4	4.0	6	8	8.45	4.00	7.08	3/4-16	24	5/8	5.38	0.50	8.15	0.38	5.76	38.31	390	1209600	1612800
MSG-600-.../W	6	4.0	6	8	8.45	4.00	7.08	3/4-16	24	5/8	5.38	0.50	8.15	0.38	5.76	35.36	390	1209600	1612800

H650-M20x

TOP-LOCK® nut-style tensioners (Medium temperature)

Model	Nut body (MM)							Nut body (MM)					Hardened washer G (MM)		High total (MM)	Quality of the standard product (kg)	Preload nom M (NM)	torque nom F (KN)
	Thread diameterD	Commonly pitch			Out diameter	Thick enss	Center distance	Pitch*diameter	Quantity	Opposite side	Length	Clearance	Outer diameter	Thickness				
		P ₁	P ₂	P ₃														
H650-M20x.../W	M20	2.5	1.5	1.0	38	16	29	M6×0.75	6	5	30.00	6	38	4	34	0.14	10	75
H650-M22x.../W	M22	2.5	1.5	1.0	41	16	31	M6×0.75	6	5	30.00	6	41	4	34	0.16	12	94
H650-M24x.../W	M24	3.0	2.0	1.5	44	16	33	M6×0.75	8	5	30.00	6	43	4	34	0.19	11	110
H650-M27x.../W	M27	3.0	2.0	1.5	50	24	39	M8×1.00	6	6	40.00	6	50	5	45	0.35	24	140
H650-M30x.../W	M30	3.5	2.0	1.5	53	24	42	M8×1.00	6	6	40.00	6	53	5	45	0.37	30	175
H650-M33x.../W	M33	3.5	2.0	1.5	59	24	45	M8×1.00	8	6	40.00	6	59	5	45	0.48	27	215
H650-M36x.../W	M36	4.0	3.0	1.5	66	32	51	M10×1.25	6	8	52.00	8	66	5	57	0.76	53	255
H650-M39x.../W	M39	4.0	3.0	1.5	70	32	54	M10×1.25	8	8	52.00	8	70	5	57	0.90	47	300
H650-M42x.../W	M42	4.5	3.0	1.5	75	32	57	M10×1.25	8	8	52.00	8	73	5	57	1.01	55	350
H650-M45x.../W	M45	4.5	3.0	1.5	83	38	63	M10×1.25	8	10	62.00	10	81	6	68	1.48	75	405
H650-M48x.../W	M48	5.0	3.0	1.5	85	38	66	M12×1.25	8	10	62.00	10	85	6	68	1.50	85	455
H650-M52x.../W	M52	5.0	3.0	2.0	94	38	70	M12×1.25	8	10	62.00	10	89	6	68	1.80	100	540
H650-M56x.../W	M56	5.5	4.0	2.0	100	38	76	M12×1.25	8	10	62.00	10	95	6	68	2.00	120	630
H650-M60x.../W	M60	5.5	4.0	2.0	107	38	78	M12×1.25	10	10	62.00	10	100	6	68	2.30	110	740
H650-M64x.../W	M64	6.0	4.0	2.0	113	53	87	M16×1.50	8	14	84.00	12	112	8	92	3.65	205	830
H650-M72x.../W	M72	6.0	4.0	2.0	120	56	95	M16×1.50	8	14	84.00	9	120	8	92	4.00	265	1070
H650-M76x.../W	M76	6.0	4.0	2.0	132	56	100	M16×1.50	12	14	84.00	9	127	8	92	5.10	200	1200
H650-M80x.../W	M80	6.0	4.0	2.0	132	56	103	M16×1.50	12	14	84.00	9	127	8	92	4.80	220	1330
H650-M90x.../W	M90	6.0	4.0	2.0	145	59	113	M16×1.50	16	14	91.00	13	140	8	99	6.00	215	1730
H650-M100x.../W	M100	6.0	4.0	2.0	164	61	123	M16×150	16	14	91.00	11	152	8	99	7.80	270	2170
H650-M110x.../W	M110	6.0	4.0	2.0	177	79	139	M20×1.50	12	17	115.00	16	172	10	125	11.40	550	2650
H650-M120x.../W	M120	6.0	4.0	2.0	189	81	149	M20×1.50	16	17	115.00	14	179	10	125	13.00	500	3210
H650-M125x.../W	M125	6.0	4.0	2.0	194	81	154	M20×1.50	16	17	115.00	14	190	10	125	13.50	540	3470

H650-075

Model	Nut body(in)							Nut body(in)					Hardened washer G(in)		High total (in)	Quality of the standard product (lb)	Preload nom M (Lbft)	torque nom F (LBf)
	Thread diamet erD	Commonly pitch			Out diame ter	Thicken ss	Center distan ce	Pitch*diameter	Quant ity	Oppos ite side	Length	Clear ance	Outer diamet er	Thickne ss				
		P ₁	P ₂	P ₃														
H650-075-.../W	3/4	10.0	16	—	1.47	0.70	1.132	1/4-28	4	3/16	1.25	0.24	1.50	0.13	1.38	0.31	9	13950
H650-087-.../W	7/8	9.0	14	—	1.60	0.70	1.262	1/4-28	6	3/16	1.25	0.24	1.63	0.13	1.38	0.34	9	19790
H650-100-.../W	1	8.0	12	14	1.90	0.93	1.456	5/16-24	6	1/4	1.52	0.20	2.00	0.19	1.71	0.68	15	27260
H650-112-.../W	1-1/8	7.0	8	12	2.08	0.93	1.585	5/16-24	6	1/4	1.52	0.20	2.13	0.19	1.71	0.79	20	35570
H650-125-.../W	1-1/4	7.0	8	12	2.25	0.94	1.747	5/16-24	8	1/4	1.52	0.19	2.38	0.19	1.71	0.92	19	44990
H650-137-.../W	1-3/8	6.0	8	12	2.46	1.20	1.941	3/8-24	6	5/16	1.93	0.25	2.50	0.19	2.12	1.40	37	55510
H650-150-.../W	1-1/2	6.0	8	12	2.70	1.20	2.070	3/8-24	8	5/16	1.93	0.25	2.75	0.19	2.12	1.70	33	67130
H650-162-.../W	1-5/8	6.0	8	12	2.96	1.20	2.000	3/8-24	8	5/16	1.93	0.25	2.88	0.19	2.12	2.01	40	79860
H650-175-.../W	1-3/4	5.0	8	12	3.08	1.42	2.381	7/16-20	8	3/8	2.24	0.28	3.13	0.25	2.49	2.53	54	93700
H650-187-.../W	1-7/8	6.0	8	12	3.59	1.60	2.743	1/2-20	8	7/16	2.60	0.40	3.50	0.25	2.85	4.07	71	108600
H650-200-.../W	2	4.5	8	12	3.59	1.60	2.743	1/2-20	8	7/16	2.60	0.40	3.50	0.25	2.85	3.87	81	124700
H650-225-.../W	2-1/4	4.5	8	12	3.95	1.60	3.003	1/2-20	8	7/16	2.60	0.40	3.75	0.25	2.85	4.51	104	160100
H650-250-.../W	2-1/2	4.0	8	12	4.45	2.10	3.429	5/8-18	8	9/16	3.30	0.45	4.50	0.31	3.61	7.82	163	199900
H650-275-.../W	2-3/4	4.0	8	12	4.70	2.10	3.688	5/8-18	8	9/16	3.30	0.45	4.75	0.31	3.61	8.36	199	244100
H650-300-.../W	3	4.0	6	8	5.20	2.10	3.947	5/8-18	12	9/16	3.30	0.45	5.00	0.31	3.61	10.3	159	292800
H650-325-.../W	3-1/4	4.0	6	8	5.45	2.20	4.150	5/8-18	12	9/16	3.56	0.35	5.00	0.31	3.61	11.04	188	345900
H650-350-.../W	3-1/2	4.0	6	8	5.70	2.30	4.400	5/8-18	16	9/16	3.56	0.51	5.50	0.31	3.87	12.62	164	403300
H650-375-.../W	3-3/4	4.0	6	8	6.20	2.40	4.650	5/8-18	16	9/16	3.56	0.41	5.50	0.31	3.87	15.08	189	465300
H650-400-.../W	4	4.0	6	8	6.45	2.60	4.900	5/8-18	18	9/16	3.88	0.53	6.00	0.31	4.19	17.31	192	531600
H650-425-.../W	4-1/4	4.0	6	8	6.95	3.00	5.330	3/4-16	16	5/8	4.38	0.50	6.40	0.38	4.76	23.41	291	602300
H650-450-.../W	4-1/2	4.0	6	8	7.20	3.00	5.580	3/4-16	16	5/8	4.38	0.50	6.65	0.38	4.76	24.44	328	677500
H650-475-.../W	4-3/4	4.0	6	8	7.45	3.20	5.830	3/4-16	18	5/8	4.68	0.60	6.90	0.38	5.06	27.13	326	757100
H650-500-.../W	5	4.0	6	8	7.70	3.30	6.080	3/4-16	20	5/8	4.68	0.50	7.15	0.38	5.06	28.83	325	841100

H650T-M24x

TOP-LOCK® nut-style tensioners (Medium temperature)

Model	Nut body (MM)							Nut body (MM)					Hardened washer G (MM)		High total (MM)	Quality of the standard product (kg)	Preload nom M (NM)	torque nom F (KN)
	Threa d diam eterD	Commonly pitch			Out diam eter	Thic kens s	Cent er dist ance	Pitch*diam eter	Quant ity	Opposi te side	Length	Clear ance	Outer diam eter	Thick ness				
		P ₁	P ₂	P ₃														
H650T-M24x... /W	M24	3.0	2	1.5	41	28	32	M6×0.75	8	5	1.25	4	40	3	43	0.20	11	110
H650T-M27x... /W	M27	3.0	2	1.5	43	28	35	M6×0.75	10	5	1.25	4	43	3	43	0.25	11	140
H650T-M30x... /W	M30	3.5	2	1.5	46	28	38	M6×0.75	12	5	1.52	4	46	3	43	0.25	11	175
H650T-M33x... /W	M33	3.5	2	1.5	49	28	41	M6×0.75	14	5	1.52	4	49	3	43	0.30	12	215
H650T-M36x... /W	M36	4.0	3	1.5	53	28	44	M6×0.75	16	5	1.52	4	53	6	46	0.35	12	255
H650T-M39x... /W	M39	4.0	3	1.5	61	38	50	M8×1.00	10	6	1.93	5	61	4	57	0.60	30	300
H650T-M42x... /W	M42	4.5	3	1.5	64	38	53	M8×1.00	12	6	1.93	5	64	4	57	0.65	30	350
H650T-M45x... /W	M45	4.5	3	1.5	67	38	56	M8×1.00	14	6	1.93	5	67	6	59	0.75	29	405
H650T-M48x... /W	M48	5.0	3	1.5	72	38	59	M8×1.00	14	6	2.24	5	70	10	63	0.90	33	455
H650T-M52x... /W	M52	5.0	3	2.0	79	46	66	M10×1.25	12	8	2.60	6	78	5	69	1.25	56	540
H650T-M56x... /W	M56	5.5	4	2.0	84	46	70	M10×1.25	14	8	2.60	6	82	10	74	1.45	57	630
H650T-M60x... /W	M60	5.5	4	2.0	90	46	74	M10×1.25	16	8	2.60	6	86	14	78	1.75	58	740
H650T-M64x... /W	M64	6.0	4	2.0	96	62	80	M12×1.25	12	10	3.30	8	96	18	102	2.75	105	830
H650T-M72x... /W	M72	6.0	4	2.0	106	62	88	M12×1.25	16	10	3.30	8	105	6	90	2.80	100	1070
H650T-M76x... /W	M76	6.0	4	2.0	114	62	96	M12×1.25	16	10	3.30	8	112	12	96	3.50	110	1200
H650T-M80x... /W	M80	6.0	4	2.0	118	62	96	M12×1.25	18	10	3.30	8	112	15	99	3.70	110	1330
H650T-M90x... /W	M90	6.0	4	2.0	135	80	111	M16×1.50	14	14	3.56	9	135	9	117	6.10	245	1730
H650T-M100x... /W	M100	6.0	4	2.0	149	80	121	M16×1.50	16	14		9	144	19	127	7.85	270	2170

Used for medium temperature high pressure vessel, bolt or stud material for A193- B7

H650T-100

Model	Nut body(in)							Nut body(in)					Hardened washer G(in)		High total (in)	Quality of the standard product (Lb)	Preload nom M (Lbft)	torque nom F (LBf)
	Thread diameterD	Commonly pitch			Out diameter	Thickens	Center distance	Pitch*diameter	Quantity	Opposite side	Length	Clearance	Outer diameter	Thicknes				
		P ₁	P ₂	P ₃	D ₁	H	D _T	D _J	n	SW	L ₁	a	D _s	s	L			
H650T-100-... /W	1	8.0	12	14	1.67	1.1	1.34	1/4-28	8	3/16	1.59	0.18	1.67	0.13	1.72	0.53	9	27260
H650T-112-... /W	1-1/8	7.0	8	12	1.80	1.1	1.46	1/4-28	8	3/16	1.59	0.18	1.75	0.13	1.72	0.58	12	35570
H650T-125-... /W	1-1/4	7.0	8	12	1.92	1.1	1.59	1/4-28	12	3/16	1.59	0.18	1.88	0.13	1.72	0.64	10	44990
H650T-137-... /W	1-3/8	6.0	8	12	2.08	1.1	1.71	1/4-28	14	3/16	1.59	0.18	2.05	0.25	1.84	0.80	11	55510
H650T-150-... /W	1-1/2	6.0	8	12	2.34	1.5	1.92	5/6-24	10	1/4	2.09	0.20	2.29	0.15	2.24	1.17	22	67130
H650T-162-... /W	1-5/8	6.0	8	12	2.47	1.5	2.05	5/6-24	12	1/4	2.09	0.20	2.47	0.15	2.24	1.26	22	79860
H650T-175-... /W	1-3/4	5.0	8	12	2.62	1.5	2.17	5/6-24-	14	1/4	1.99	0.20	2.60	0.25	2.34	1.46	22	93700
H650T-187-... /W	1-7/8	6.0	8	12	2.79	1.5	2.3	5/6-24	16	1/4	2.09	0.20	2.75	0.38	2.47	1.75	22	108600
H650T-200-... /W	2	4.5	8	12	3.06	1.8	2.51	3/8-24	12	5/16	2.53	0.25	3.00	0.20	2.73	2.45	41	124700
H650T-225-... /W	2-1/4	4.5	8	12	3.37	1.8	2.76	3/8-24	16	5/16	2.89	0.25	3.26	0.40	2.93	3.12	40	160100
H650T-250-... /W	2-1/2	4.0	8	12	3.75	2.1	3.09	7/16-20	16	3/8	3.40	0.25	3.68	0.40	3.29	4.38	58	199900
H650T-275-... /W	2-3/4	4.0	8	12	4.13	2.5	3.43	1/2-20	14	7/16	3.40	0.30	4.12	0.25	3.65	5.92	91	244100
H650T-300-... /W	3	4.0	6	8	4.49	2.5	3.68	1/2-20	16	7/16	3.40	0.30	4.40	0.50	3.90	7.50	95	292800
H650T-325-... /W	3-1/4	4.0	6	8	4.87	2.5	3.93	1/2-20	18	7/16	3.40	0.30	4.65	0.70	4.10	9.21	100	345900
H650T-350-... /W	3-1/2	4.0	6	8	5.30	3.15	4.34	5/8-18	14	9/16	4.25	0.35	5.19	0.35	4.60	12.69	188	403300
H650T-375-... /W	3-3/4	4.0	6	8	5.62	3.15	4.59	5/8-18	16	9/16	4.25	0.35	5.60	0.60	4.85	15.11	189	465300
H650T-400-... /W	4	4.0	6	8	5.97	3.15	4.84	5/8-18	18	9/16	4.25	0.35	5.69	0.80	5.05	17.26	192	531600

Used to replace cap nut and castle nut, suitable for the limited space

SJ-M20x

TOP-LOCK®nut-style tensioners(Compact)

Model	Nut body (MM)							Nut body (MM)				Hardened washer G (MM)		High total (MM)	Quality of the standard product (kg)	Preload nom M (NM)	torque nom F (KN)	Preload capacity max (KN)
	Thread diameter D	Commonly pitch			Out diameter	Thick enss	Cente r distance	Pitch*dia meter	Quanti ty	Opposit e side	Lengt h	Outer diameter	Thick ness					
		P ₁	P ₂	P ₃														
SJ-M20x.../W	M20	2.5	1.5	1.0	43	15	32	M8×1.00	6	4	15.00	43	4	19	0.15	11	67	91
SJ-M22x.../W	M22	2.5	1.5	1.0	47	16	34	M8×1.00	8	4	16.00	45	5	21	0.20	10	81	105
SJ-M24x.../W	M24	3.0	2.0	1.5	50	16	36	M8×1.00	8	4	16.00	48	5	21	0.20	11	89	120
SJ-M27x.../W	M27	3.0	2.0	1.5	53	16	39	M8×1.00	10	4	16.00	50	5	21	0.25	10	100	130
SJ-M30x.../W	M30	3.5	2.0	1.5	60	21	45	M10×1.25	8	5	21.00	59	5	26	0.40	21	135	180
SJ-M33x.../W	M33	3.5	2.0	1.5	63	22	48	M10×1.25	10	5	22.00	63	5	27	0.40	19	155	200
SJ-M36x.../W	M36	4.0	3.0	1.5	69	28	54	M12×1.25	8	6	28.00	69	5	33	0.65	35	190	245
SJ-M39x.../W	M39	4.0	3.0	1.5	75	28	57	M12×1.25	10	6	28.00	75	5	33	0.80	38	255	335
SJ-M42x.../W	M42	4.5	3.0	1.5	81	28	60	M12×1.25	12	6	28.00	78	5	33	0.90	39	315	420
SJ-M45x.../W	M45	4.5	3.0	1.5	88	28	63	M12×1.25	12	6	28.00	81	6	34	1.00	39	315	420
SJ-M48x.../W	M48	5.0	3.0	1.5	101	31	71	M16×1.50	8	8	31.00	94	6	37	1.65	94	380	500
SJ-M52x.../W	M52	5.0	3.0	2.0	101	33	75	M16×1.50	8	8	33.00	94	6	39	1.65	94	380	500
SJ-M56x.../W	M56	5.5	4.0	2.0	113	33	79	M16×1.50	12	8	33.00	100	6	39	2.05	94	570	760
SJ-M60x.../W	M60	5.5	4.0	2.0	117	33	83	M16×1.50	12	8	33.00	106	6	39	2.15	94	570	760
SJ-M64x.../W	M64	6.0	4.0	2.0	119	33	87	M16×1.50	12	8	33.00	120	8	41	2.45	94	570	760
SJ-M68x.../W	M68	6.0	4.0	2.0	138	38	97	M20×1.50	12	10	38.00	125	8	46	3.60	145	710	950
SJ-M72x.../W	M72	6.0	4.0	2.0	151	38	101	M20×1.50	12	10	38.00	125	8	46	4.50	185	910	1200
SJ-M76x.../W	M76	6.0	4.0	2.0	151	38	105	M20×1.50	12	10	38.00	138	8	46	4.35	175	860	1130
SJ-M80x.../W	M80	6.0	4.0	2.0	158	38	109	M20×1.50	12	10	38.00	145	10	48	4.95	185	910	1200
SJ-M90x.../W	M90	6.0	4.0	2.0	170	51	125	M24×2.00	12	12	51.00	160	10	61	7.20	280	1160	1530
SJ-M100x.../W	M100	6.0	4.0	2.0	177	53	135	M24×2.00	12	12	53.00	180	10	63	7.75	280	1160	1530
SJ-M110x.../W	M110	6.0	4.0	2.0	190	59	145	M24×2.00	16	12	59.00	190	10	69	9.25	280	1550	2040
SJ-M120x.../W	M120	6.0	4.0	2.0	202	59	455	M24×2.00	16	12	59.00	202	10	69	10.25	280	1550	2040
SJ-M125x.../W	M125	6.0	4.0	2.0	205	59	160	M24×2.00	16	12	59.00	202	10	69	10.25	280	1550	2040
SJ-M130x.../W	M130	6.0	4.0	2.0	210	59	165	M24×2.00	16	12	59.00	202	10	69	10.50	280	1550	2040
SJ-M140x.../W	M140	6.0	4.0	2.0	221	59	175	M24×2.00	16	12	59.00	215	12	71	11.75	280	1550	2040
SJ-M150x.../W	M150	6.0	4.0	2.0	230	59	185	M24×2.00	16	12	59.00	225	12	71	12.25	280	1550	2040
SJ-M160x.../W	M160	6.0	4.0	—	240	59	195	M24×2.00	16	12	59.00	240	12	71	13.25	280	1550	2040

SJ-075

Model	Nut body(in)							Nut body(in)				Hardened washer G(in)		High total (in)	Quality of the standard product (Lb)	Preload nom M (Lbft)	torque nom F (LbF)	Preload capacity max (LBf)
	Thread diameter D	Commonly pitch			Out diameter	Thick enss	Center distance	Pitch*diameter	Quantity	Opposite side	Length	Outer diameter	Thickne ss					
		P ₁	P ₂	P ₃										D ₁				
SJ-075.../W	3/4	10.0	16	—	1.70	0.55	1.19	5/16-24	6	5/32	0.55	1.63	0.13	0.68	0.34	9	16300	21700
SJ-087.../W	7/8	9.0	14	—	1.84	0.60	1.31	5/16-24	8	5/32	0.60	1.75	0.13	0.73	0.40	9	21700	28900
SJ-100.../W	1	8.0	12	14	1.95	0.60	1.44	5/16-24	8	5/32	0.60	2.00	0.19	0.79	0.49	9	21700	28900
SJ-112.../W	1-1/8	7.0	8	12	2.20	0.80	1.65	3/8-24	8	3/16	0.80	2.13	0.19	0.99	0.67	15	30000	40000
SJ-125.../W	1-1/4	7.0	8	12	2.34	0.80	1.78	3/8-24	8	3/16	0.80	2.38	0.19	0.99	0.85	15	30000	40000
SJ-137.../W	1-3/8	6.0	8	12	2.45	0.92	1.90	3/8-24	10	3/16	0.92	2.50	0.19	1.11	0.96	15	37500	50000
SJ-150.../W	1-1/2	6.0	8	12	2.95	1.10	2.20	1/2-20	8	1/4	1.10	2.75	0.19	1.29	1.67	37	56900	75900
SJ-162.../W	1-5/8	6.0	8	12	3.20	1.10	2.33	1/2-20	10	1/4	1.10	2.88	0.19	1.29	1.92	37	71200	94900
SJ-175.../W	1-3/4	5.0	8	12	3.45	1.10	2.45	1/2-20	12	1/4	1.10	3.45	0.25	1.35	2.33	37	85400	113900
SJ-187.../W	1-7/8	6.0	8	12	3.59	1.10	2.58	1/2-20	12	1/4	1.10	3.59	0.25	1.35	2.57	37	85400	113900
SJ-200.../W	2	4.5	8	12	3.95	1.30	2.88	5/8-11	8	5/16	1.30	3.50	0.25	1.55	3.63	75	91400	121900
SJ-225.../W	2-1/4	4.5	8	12	4.45	1.30	3.13	5/8-11	12	5/16	1.30	4.00	0.25	1.55	4.57	75	137100	182800
SJ-250.../W	2-1/2	4.0	8	12	4.70	1.30	3.38	5/8-11	12	5/16	1.30	4.50	0.31	1.61	5.25	75	137100	182800
SJ-275.../W	2-3/4	4.0	8	12	5.45	1.50	3.80	3/4-10	12	3/8	1.30	4.75	0.31	1.81	7.65	108	165800	221100
SJ-300.../W	3	4.0	6	8	5.95	1.90	4.23	7/8-9	12	1/2	1.90	5.25	0.38	2.28	12.55	179	226300	301700
SJ-325.../W	3-1/4	4.0	6	8	6.20	1.90	4.48	7/8-9	12	1/2	1.90	5.50	0.38	2.28	12.10	179	226300	301700
SJ-350.../W	3-1/2	4.0	6	8	6.45	1.90	4.73	7/8-9	12	1/2	1.90	5.75	0.38	2.28	12.72	179	226300	301700
SJ-375.../W	3-3/4	4.0	6	8	6.70	2.00	4.98	7/8-9	12	1/2	1.90	6.00	0.38	2.38	15.02	179	226300	301700
SJ-400.../W	4	4.0	6	8	6.95	2.00	5.23	7/8-9	12	1/2	1.90	6.65	0.38	2.38	15.89	179	226300	301700
SJ-425.../W	4-1/4	4.0	6	8	7.20	2.30	5.48	7/8-9	16	1/2	1.90	6.90	0.38	2.68	16.63	179	301700	402200
SJ-450.../W	4-1/2	4.0	6	8	7.45	2.30	5.73	7/8-9	16	1/2	1.90	7.40	0.38	2.68	19.07	179	301700	402200
SJ-475.../W	4-3/4	4.0	6	8	7.70	2.30	5.98	7/8-9	16	1/2	1.90	7.90	0.38	2.68	20.63	179	301700	402200
SJ-500.../W	5	4.0	6	8	7.95	2.30	6.23	7/8-9	16	1/2	1.90	7.90	0.38	2.68	21.19	179	301700	402200
SJ-525.../W	5-1/4	4.0	6	8	8.70	2.40	6.65	1-8	16	9/16	2.40	8.40	0.50	2.90	28.11	269	396700	529000
SJ-550.../W	5-1/2	4.0	6	8	8.95	2.40	6.9	1-8	16	9/16	2.40	8.40	0.50	2.90	28.75	269	396700	529000
SJ-575.../W	5-3/4	4.0	6	8	9.20	2.40	7.15	1-8	16	9/16	2.40	9.40	0.50	2.90	31.41	269	396700	529000
SJ-600.../W	6	4.0	6	8	9.45	2.40	7.40	1-8	16	9/16	2.40	9.40	0.50	2.90	31.38	269	396700	529000

SB8-M16x

Model	Nut body (MM)							Nut body (MM)					Hardened washer G (MM)		High total (MM)	Preload nom M (NM)	torque nom F (KN)	Preload capacity max (KN)
	Thread diameterD	Commonly pitch			Out diameter	Thick enss	Center distance	Pitch*diameter	Quantity	Opposite side	Length	Clearance	Outer diameter	Thickness				
		P ₁	P ₂	P ₃														
SB8-M16x...x.../w	M16	2.0	1.5	1.0	31	18	22	M6×0.75	4	5	29.00	4	30	3	32	14	73	94
SB8-M20x...x.../w	M20	2.5	1.5	1.0	35	18	26	M6×0.75	6	5	29.00	4	35	4	33	14	109	40
SB8-M24x...x.../w	M24	3.0	2.0	1.5	41	18	30	M6×0.75	8	5	29.00	4	41	4	33	14	146	187
SB8-M27x...x.../w	M27	3.0	2.0	1.5	45	23	35	M8×1.00	6	6	40.00	7	45	5	45	32	190	250
SB8-M30x...x.../w	M30	3.5	2.0	1.5	50	23	38	M8×1.00	6	6	40.00	7	50	5	45	36	214	286
SB8-M33x...x.../w	M33	3.5	2.0	1.5	57	28	43	M10×1.25	6	8	47.00	7	57	5	52	60	285	380
SB8-M36x...x.../w	M36	4.0	3.0	1.5	60	28	46	M10×1.25	6	8	47.00	7	60	5	52	70	333	443
SB8-M39x...x.../w	M39	4.0	3.0	1.5	63	28	49	M10×1.25	8	8	47.00	7	63	5	52	64	406	540
SB8-M42x...x.../w	M42	4.5	3.0	1.5	66	28	52	M10×1.25	8	8	47.00	7	66	5	52	72	457	610
SB8-M45x...x.../w	M45	4.5	3.0	1.5	75	37	57	M12×1.25	8	10	58.00	7	75	6	64	100	535	720
SB8-M48x...x.../w	M48	5.0	3.0	1.5	78	37	60	M12×1.25	8	10	58.00	7	78	6	64	113	605	800
SB8-M52x...x.../w	M52	5.0	3.0	2.0	82	37	64	M12×1.25	10	10	58.00	7	82	6	64	110	735	970
SB8-M56x...x.../w	M56	5.5	4.0	2.0	86	37	68	M12×1.25	10	10	58.00	7	86	6	64	125	835	1120
SB8-M60x...x.../w	M60	5.5	4.0	2.0	90	37	72	M12×1.25	12	10	58.00	7	90	6	64	123	985	1310
SB8-M64x...x.../w	M64	6.0	4.0	2.0	103	46	80	M16×1.50	8	14	75.00	10	103	8	83	235	950	1270
SB8-M68x...x.../w	M68	6.0	4.0	2.0	107	46	84	M16×1.50	8	14	75.00	10	107	8	83	270	1090	1450
SB8-M72x...x.../w	M72	6.0	4.0	2.0	111	46	88	M16×1.50	10	14	75.00	10	111	8	83	245	1230	1640
SB8-M76x...x.../w	M76	6.0	4.0	2.0	116	46	92	M16×1.50	12	14	75.00	10	116	8	83	230	1390	1870
SB8-M80x...x.../w	M80	6.0	4.0	2.0	120	56	96	M16×1.50	12	14	84.00	9	120	8	92	260	1570	2080
SB8-M90x...x.../w	M90	6.0	4.0	2.0	130	56	106	M16×1.50	16	14	84.00	9	130	8	92	250	2010	2700
SB8-M100x...x.../	M100	6.0	4.0	2.0	148	60	120	M20×1.50	12	17	89.00	10	148	10	99	520	2540	3370
SB8-M110x...x.../	M110	6.0	4.0	2.0	158	60	130	M20×1.50	14	17	89.00	10	158	10	99	500	2850	3570
SB8-M120x...x.../	M120	6.0	4.0	2.0	170	64	140	M20×1.50	16	17	95.00	12	170	10	105	520	3380	4500
SB8-M125x...x.../	M125	6.0	4.0	2.0	175	64	145	M20×1.50	16	17	95.00	12	175	10	105	560	3650	4880
SB8-M130x...x.../	M130	6.0	4.0	2.0	180	76	150	M20×1.50	18	17	108.00	12	180	10	118	540	3950	5270
SB8-M140x...x.../	M140	6.0	4.0	2.0	190	76	160	M20×1.50	20	17	108.00	12	190	10	118	560	4550	6100
SB8-M150x...x.../	M150	6.0	4.0	2.0	200	76	170	M20×1.50	20	17	108.00	12	200	10	118	600	4880	6500
SB8-M160x...x.../	M160	6.0	4.0	—	210	76	180	M20×1.50	20	17	108.00	12	210	10	118	650	5280	7000

Used for cone hole connection.The head of bolt -type tensioner generally smaller than the nut- type tensioner, suitable for small space.

SB8-075

Model	Nut body(in)							Nut body(in)					Hardened washer G(in)		High total (in)	Preload nom M (Lbft)	torque nom F (LBf)	Preload capacity max (LBf)
	Thread diameter d	Commonly pitch			Out diameter	Thick enss	Center distance	Pitch*diameter	Quantity	Opposite side	Length	Clearance	Outer diameter	Thickness				
		P ₁	P ₂	P ₃											D ₁	H	D ₁	D _j
SB8-075-...x.../w	3/4	10.0	16	–	1.35	0.70	1.00	1/4-28	4	3/16	1.25	0.24	1.35	0.13	1.38	14	20400	27100
SB8-087-...x.../w	7/8	9.0	14	–	1.48	0.70	1.13	1/4-28	6	3/16	1.25	0.24	1.48	0.13	1.38	14	30600	40700
SB8-100-...x.../w	1	8.0	12	14	1.59	0.70	1.25	1/4-28	8	3/16	1.25	0.24	1.59	0.13	1.38	14	40800	54200
SB8-112-...x.../w	1-1/8	7.0	8	12	1.83	0.90	1.44	5/16-24	6	1/4	1.52	0.23	1.83	0.16	1.68	27	48600	63600
SB8-125-...x.../w	1-1/4	7.0	8	12	1.98	0.90	1.56	5/16-24	8	1/4	1.52	0.23	1.98	0.16	1.68	27	64800	86100
SB8-137-...x.../w	1-3/8	6.0	8	12	2.23	1.10	1.75	3/8-24	6	5/16	1.83	0.25	2.23	0.20	2.03	49	73800	98100
SB8-150-...x.../w	1-1/2	6.0	8	12	2.35	1.10	1.88	3/8-24	8	5/16	1.83	0.25	2.35	0.20	2.03	44	88500	117700
SB8-162-...x.../w	1-5/8	6.0	8	12	2.47	1.10	2.00	3/8-24	10	5/16	1.83	0.30	2.47	0.20	2.03	42	106100	141100
SB8-175-...x.../w	1-3/4	5.0	8	12	2.73	1.40	2.19	7/16-20	8	3/8	2.24	0.30	2.73	0.25	2.49	69	119200	158500
SB8-187-...x.../w	1-7/8	6.0	8	12	2.98	1.45	2.38	1/2-20	8	7/16	2.35	0.30	2.98	0.25	2.60	95	145900	194000
SB8-200-...x.../w	2	4.5	8	12	3.20	1.45	2.50	1/2-20	8	7/16	2.35	0.30	3.20	0.25	2.60	102	157300	209200
SB8-225-...x.../w	2-1/4	4.5	8	12	3.45	1.45	2.75	1/2-20	10	7/16	2.35	0.40	3.45	0.25	2.60	108	207100	275400
SB8-250-...x.../w	2-1/2	4.0	8	12	3.94	1.80	3.13	5/8-18	8	9/16	2.95	0.40	3.94	0.31	3.26	180	220200	292800
SB8-275-...x.../w	2-3/4	4.0	8	12	4.20	1.80	3.38	5/8-18	10	9/16	2.95	0.40	4.20	0.31	3.26	178	272600	362500
SB8-300-...x.../w	3	4.0	6	8	4.47	1.80	3.63	5/8-18	12	9/16	2.95	0.35	4.45	0.31	3.26	182	333700	443800
SB8-325-...x.../w	3-1/4	4.0	6	8	4.70	2.20	3.88	5/8-18	14	9/16	3.30	0.35	4.70	0.31	3.61	188	403000	535900
SB8-350-...x.../w	3-1/2	4.0	6	8	4.95	2.20	4.13	5/8-18	16	9/16	3.30	0.40	4.95	0.31	3.61	196	479500	637700
SB8-375-...x.../w	3-3/4	4.0	6	8	5.44	2.35	4.50	3/4-16	14	5/8	3.63	0.40	5.44	0.38	4.01	302	545700	725700
SB8-400-...x.../w	4	4.0	6	8	5.70	2.35	4.75	3/4-16	16	5/8	3.63	0.40	5.70	0.38	4.01	305	630900	839000
SB8-425-...x.../w	4-1/4	4.0	6	8	5.94	2.35	5.00	3/4-16	16	5/8	3.63	0.40	5.94	0.38	4.01	359	741800	986500
SB8-450-...x.../w	4-1/2	4.0	6	8	6.22	2.35	5.25	3/4-16	18	5/8	3.63	0.50	6.22	0.38	4.01	361	839600	1116600
SB8-475-...x.../w	4-3/4	4.0	6	8	6.44	3.00	5.50	3/4-16	18	5/8	4.38	0.50	6.44	0.38	4.76	390	907200	1206500
SB8-500-...x.../w	5	4.0	6	8	6.70	3.00	5.75	3/4-16	20	5/8	4.38	0.50	6.70	0.38	4.76	390	1008000	1340600
SB8-525-...x.../w	5-1/4	4.0	6	8	6.94	3.00	6.00	3/4-16	20	5/8	4.38	0.50	6.94	0.38	4.76	390	1008000	1340600
SB8-550-...x.../w	5-1/2	4.0	6	8	7.20	3.00	6.25	3/4-16	20	5/8	4.38	0.50	7.20	0.38	4.76	390	1008000	1340600
SB8-575-...x.../w	5-3/4	4.0	6	8	7.44	3.00	6.50	3/4-16	20	5/8	4.38	0.50	7.44	0.38	4.76	390	1008000	1340600
SB8-600-...x.../w	6	4.0	6	8	7.69	3.00	6.75	3/4-16	20	5/8	4.38	0.50	7.69	0.38	4.76	390	1008000	1340600

SB12-M20x

TOP-LOCK® bolt-style tensioners (high strength)

Model	Nut body (MM)							Nut body (MM)					Hardened washer G (MM)		High total (MM)	Prel oad nom M (NM)	torque nom F (KN)	Preload capacity max (KN)
	Thread diamet erD	Commonly pitch			Out diamet er	Thicke nss	Cente r dista nce	Pitch*diam eter	Quant ity	Oppos ite side	Length	Cleara nce	Oute r diam eter	Thi ckn ess				
		P ₁	P ₂	P ₃				D _j	n	SW	L ₁	a	D _s	s				
SB12-M20x...x.../w	M20	2.5	1.5	1.0	35	18	26	M6×0.75	8	5	29.00	4	35	4	33	14	146	187
SB12-M24x...x.../w	M24	3.0	2.0	1.5	43	24	32	M8×1.00	6	6	40.00	6	43	4	44	34	202	268
SB12-M27x...x.../w	M27	3.0	2.0	1.5	47	24	35	M8×1.00	8	6	40.00	6	47	5	45	34	270	357
SB12-M30x...x.../w	M30	3.5	2.0	1.5	50	24	38	M8×1.00	10	6	40.00	6	50	5	45	32	317	427
SB12-M33x...x.../w	M33	3.5	2.0	1.5	57	28	43	M10×1.25	8	8	47.00	7	57	5	52	64	406	539
SB12-M36x...x.../w	M36	4.0	3.0	1.5	60	28	46	M10×1.25	10	8	47.00	7	60	5	52	60	480	635
SB12-M39x...x.../w	M39	4.0	3.0	1.5	63	28	49	M10×1.25	12	8	47.00	7	63	5	52	60	570	760
SB12-M42x...x.../w	M42	4.5	3.0	1.5	66	28	52	M10×1.25	12	8	47.00	7	66	5	52	68	645	855
SB12-M45x...x.../w	M45	4.5	3.0	1.5	75	37	57	M12×1.25	10	10	58.00	7	75	6	64	114	760	1020
SB12-M48x...x.../w	M48	5.0	3.0	1.5	78	37	60	M12×1.25	10	10	58.00	7	78	6	64	128	855	1140
SB12-M52x...x.../w	M52	5.0	3.0	2.0	82	37	64	M12×1.25	12	10	58.00	7	82	6	64	124	995	1320
SB12-M56x...x.../w	M56	5.5	4.0	2.0	86	37	68	M12×1.25	12	10	58.00	7	86	6	64	124	995	1320
SB12-M60x...x.../w	M60	5.5	4.0	2.0	90	37	72	M12×1.25	14	10	58.00	7	90	6	64	124	1160	1540
SB12-M64x...x.../w	M64	6.0	4.0	2.0	103	46	80	M16×1.50	10	14	75.00	10	103	8	83	260	1310	1740
SB12-M68x...x.../w	M68	6.0	4.0	2.0	137	46	84	M16×1.50	10	14	75.00	10	107	8	83	295	1480	1990
SB12-M72x...x.../w	M72	6.0	4.0	2.0	111	56	88	M16×1.50	12	14	84.00	9	111	8	92	280	1690	2260
SB12-M76x...x.../w	M76	6.0	4.0	2.0	116	56	92	M16×1.50	14	14	84.00	9	116	8	92	270	1900	2540
SB12-M80x...x.../w	M80	6.0	4.0	2.0	120	56	96	M16×1.50	14	14	84.00	9	120	8	92	300	2110	2820
SB12-M90x...x.../w	M90	6.0	4.0	2.0	139	61	110	M20×1.50	12	17	84.00	9	139	10	99	560	2740	3660

Working environment same with SB8, but more suitable for low temperature environment than SB8.Such as: gear box, high light, mining machinery, the gear rack/stand, the sealing flange,wind tunnel etc.

SB12-075

Model	Nut body(in)							Nut body(in)					Hardened washer G(in)		High total (in)	Preload nom M (Lbft)	torque nom F (LBf)	Preload capacity max (LBf)
	Thread diamete rD	Commonly pitch			Out diam eter	Thicken ss	Center distan ce	Pitch*di ameter	Quan tity	Oppos ite side	Lengt h	Clear ance	Outer diamet er	Thickn ess				
		P ₁	P ₂	P ₃														
SB12-075-...x.../w	3/4	10.0	16	—	1.35	0.70	1.00	1/4-28	6	3/16	1.25	0.24	1.35	0.13	1.38	12	26200	34800
SB12-087-...x.../w	7/8	9.0	14	—	1.48	0.70	1.13	1/4-28	8	3/16	1.25	0.24	1.48	0.13	1.38	13	36300	48200
SB12-100-...x.../w	1	8.0	12	14	1.73	0.90	1.31	5/6-24	6	1/4	1.52	0.24	1.73	0.16	1.68	27	47700	63400
SB12-112-...x.../w	1-1/8	7.0	8	12	1.85	0.90	1.44	5/6-24	8	1/4	1.52	0.23	1.83	0.16	1.68	25	60000	79800
SB12-125-...x.../w	1-1/4	7.0	8	12	1.98	0.90	1.56	5/6-24	12	1/4	1.52	0.23	1.98	0.16	1.68	21	77000	102400
SB12-137-...x.../w	1-3/8	6.0	8	12	2.23	1.10	1.75	3/8-24	10	5/16	1.83	0.25	2.23	0.20	2.03	36	90700	120600
SB12-150-...x.../w	1-1/2	6.0	8	12	2.35	1.10	1.88	3/8-24	12	5/16	1.83	0.25	2.35	0.20	2.03	33	100000	133000
SB12-162-...x.../w	1-5/8	6.0	8	12	2.47	1.10	2.00	3/8-24	12	5/16	1.83	0.25	2.47	0.20	2.03	40	120700	160500
SB12-175-...x.../w	1-3/4	5.0	8	12	2.73	1.40	2.19	7/16-20	12	3/8	2.24	0.30	2.73	0.25	2.49	51	131200	174400
SB12-187-...x.../w	1-7/8	6.0	8	12	2.98	1.50	2.38	1/2-20	10	7/16	2.35	0.30	2.98	0.25	2.60	88	167900	223300
SB12-200-...x.../w	2	4.5	8	12	3.20	1.50	2.50	1/2-20	12	7/16	2.35	0.30	3.20	0.25	2.60	74	172100	228800
SB12-225-...x.../w	2-1/4	4.5	8	12	3.45	1.60	2.75	1/2-20	12	7/16	2.60	0.30	3.45	0.25	2.85	104	239800	318900
SB12-250-...x.../w	2-1/2	4.0	8	12	3.95	1.80	3.13	5/8-18	10	9/16	2.95	0.40	3.94	0.31	3.26	183	280000	372400
SB12-275-...x.../w	2-3/4	4.0	8	12	4.20	2.20	3.38	5/8-18	12	9/16	3.30	0.40	4.20	0.31	3.61	189	348500	463500
SB12-300-...x.../w	3	4.0	6	8	4.45	2.20	3.63	5/8-18	14	9/16	3.30	0.40	4.45	0.31	3.61	197	424700	564800
SB12-325-...x.../w	3-1/4	4.0	6	8	4.95	2.35	4.00	3/4-16	12	5/8	3.63	0.35	4.95	0.38	4.01	328	508300	676000
SB12-350-...x.../w	3-1/2	4.0	6	8	5.20	2.35	4.25	3/4-16	14	5/8	3.63	0.35	5.20	0.38	4.01	332	599500	797300

SX8-M20x

TOP-LOCK®Multi-jackbolt tensioners--- elastic adjustable nut (standard)

Model	Nut body (MM)									Hardened washer G (MM)		High total (MM)	Quality of the standard product (kg)	Preload capacity max (KN)	
	Thread diameter D	Commonly pitch			Out diameter	Thicken ss	Hexagon o pposite s ide	Hexagon height	Opposite side	Length	Outer diameter				Thickne ss
		P1	P2	P3											
SX8-M20x.../w	M20	2.5	1.5	1.0	35	17	30	8	27	17.00	38	4	21	0.10	140
SX8-M24x.../w	M24	3.0	2.0	1.5	42	20	37	10	33	20.00	45	4	24	0.15	187
SX8-M27x.../w	M27	3.0	2.0	1.5	47	23	40	11	36	23.00	50	5	28	0.20	285
SX8-M30x.../w	M30	3.5	2.0	1.5	52	25	43	12	39	25.00	56	5	30	0.25	286
SX8-M33x.../w	M33	3.5	2.0	1.5	57	28	47	13	42	28.00	63	6	34	0.40	380
SX8-M36x.../w	M36	4.0	3.0	1.5	62	31	53	14	48	31.00	69	6	37	0.50	460
SX8-M39x.../w	M39	4.0	3.0	1.5	66	33	56	15	51	33.00	72	6	39	0.60	610
SX8-M42x.../w	M42	4.5	3.0	1.5	73	36	62	17	56	36.00	76	6	42	0.75	610
SX8-M45x.../w	M45	4.5	3.0	1.5	77	38	64	18	57	38.00	81	6	44	0.85	935
SX8-M48x.../w	M48	5.0	3.0	1.5	83	41	71	19	64	41.00	86	6	47	1.10	935
SX8-M52x.../w	M52	5.0	3.0	2.0	88	44	74	21	67	44.00	94	6	50	1.25	970
SX8-M56x.../w	M56	5.5	4.0	2.0	97	48	80	22	72	48.00	100	6	54	1.60	1120
SX8-M60x.../w	M60	5.5	4.0	2.0	105	51	84	23	76	51.00	110	8	59	2.05	1310
SX8-M64x.../w	M64	6.0	4.0	2.0	111	54	88	26	80	54.00	120	8	62	2.35	1690
SX8-M72x.../w	M72	6.0	4.0	2.0	125	61	98	29	90	61.00	130	8	69	3.15	1690
SX8-M76x.../w	M76	6.0	4.0	2.0	132	64	109	30	*	64.00	138	10	74	4.20	2530
SX8-M80x.../w	M80	6.0	4.0	2.0	139	68	120	32	*	68.00	145	10	78	5.20	2530
SX8-M90x.../w	M90	6.0	4.0	2.0	156	76	135	36	*	76.00	160	10	86	7.10	3380
SX8-M100x.../w	M100	6.0	4.0	2.0	173	85	150	40	*	85.00	180	10	95	9.00	3380
SX8-M110x.../w	M110	6.0	4.0	2.0	191	94	165	44	*	94.00	202	10	104	13.00	4200
SX8-M120x.../w	M120	6.0	4.0	2.0	208	102	180	48	*	102.00	215	12	114	16.75	5600
SX8-M125x.../w	M125	6.0	4.0	2.0	218	108	188	51	*	108.00	227	12	120	19.50	5600
SX8-M130x.../w	M130	6.0	4.0	2.0	226	111	195	52	*	111.00	234	12	123	21.25	6300
SX8-M140x.../w	M140	6.0	4.0	2.0	243	119	210	56	*	119.00	253	12	131	26.25	7000
SX8-M150x.../w	M150	6.0	4.0	2.0	260	127	225	60	*	127.00	271	12	139	31.75	7000
SX8-M160x.../w	M160	6.0	4.0	—	278	136	240	64	*	136.00	290	12	148	38.75	8400

SX8-075

Model	Nut body(in)										Hardened washer G(in)		High total (in)	Quality of the standard product (Lb)	Preload capacity max (LBf)
	Thread diameter D	Commonly pitch			Out diameter D1	Thickenss H	Hexagon opposite side D2	Hexagon height h	Opposite side SW	Length L1	Outer diameter DS	Thickness s			
		P1	P2	P3											
SX8-075-.../w	3/4	10.0	16	—	1.30	0.64	1.11	0.30	1	0.64	1.50	0.13	0.77	0.17	27200
SX8-087-.../w	7/8	9.0	14	—	1.52	0.74	1.25	0.35	1-1/8	0.74	1.62	0.13	0.87	0.23	40800
SX8-100-.../w	1	8.0	12	14	1.73	0.85	1.46	0.40	1-5/16	0.41	2.00	0.16	1.01	0.38	64800
SX8-112-.../w	1-1/8	7.0	8	12	1.95	0.96	1.67	0.45	1-1/2	0.96	2.12	0.16	1.12	0.52	64800
SX8-125-.../w	1-1/4	7.0	8	12	2.17	1.06	1.81	0.50	1-5/8	1.06	2.50	0.19	1.25	0.73	86400
SX8-137-.../w	1-3/8	6.0	8	12	2.38	1.17	1.94	0.55	1-3/4	1.94	2.50	0.19	1.36	0.87	98400
SX8-150-.../w	1-1/2	6.0	8	12	2.60	1.28	2.22	0.60	2	1.28	3.00	0.25	1.53	1.33	131200
SX8-162-.../w	1-5/8	6.0	8	12	2.81	1.38	2.36	0.65	2-1/8	1.38	3.00	0.25	1.63	1.54	141100
SX8-175-.../w	1-3/4	5.0	8	12	3.03	1.49	2.50	0.70	2-1/4	1.49	3.25	0.25	1.74	1.85	172800
SX8-187-.../w	1-7/8	6.0	8	12	3.25	1.59	2.78	0.75	2-1/2	1.59	3.50	0.25	1.84	2.54	233600
SX8-200-.../w	2	4.5	8	12	3.46	1.70	2.92	0.80	2-5/8	1.70	3.75	0.25	1.95	2.76	233600
SX8-225-.../w	2-1/4	4.5	8	12	3.90	1.91	3.30	0.90	3	1.91	4.22	0.31	2.22	4.07	275400
SX8-250-.../w	2-1/2	4.0	8	12	4.33	2.13	3.55	1.00	3-1/4	2.13	4.70	0.31	2.44	5.31	380800
SX8-275-.../w	2-3/4	4.0	8	12	4.76	2.34	3.93	1.10	3-5/8	2.34	4.95	0.31	2.65	7.46	380800
SX8-300-.../w	3	4.0	6	8	5.23	2.55	4.30	1.20	4	2.55	5.45	0.38	2.93	9.18	571200
SX8-325-.../w	3-1/4	4.0	6	8	5.63	2.76	4.88	1.30	*	2.76	5.95	0.38	3.14	12.08	571200
SX8-350-.../w	3-1/2	4.0	6	8	6.06	2.98	5.25	1.40	*	2.98	6.45	0.38	3.36	14.98	761600
SX8-375-.../w	3-3/4	4.0	6	8	6.50	3.19	5.63	1.50	*	3.19	6.94	0.38	3.57	18.36	761600
SX8-400-.../w	4	4.0	6	8	6.93	3.40	6.00	1.60	*	3.40	7.45	0.43	3.83	22.55	856800
SX8-425-.../w	4-1/4	4.0	6	8	7.36	3.61	6.38	1.70	*	0.64	7.95	0.43	4.04	28.55	1075200
SX8-450-.../w	4-1/2	4.0	6	8	7.79	3.83	6.75	1.80	*	0.74	8.20	0.43	4.26	30.98	1116600
SX8-475-.../w	4-3/4	4.0	6	8	8.23	4.04	7.13	1.90	*	0.41	8.70	0.43	4.47	38.95	1209600
SX8-500-.../w	5	4.0	6	8	8.66	4.25	7.50	2.00	*	0.96	9.45	0.50	4.75	46.80	1344000
SX8-525-.../w	5-1/4	4.0	6	8	9.09	4.46	7.88	2.10	*	1.06	9.45	0.50	4.96	52.48	1478400
SX8-550-.../w	5-1/2	4.0	6	8	9.53	4.68	8.25	2.20	*	1.94	9.95	0.50	5.18	56.03	1478400
SX8-575-.../w	5-3/4	4.0	6	8	9.96	4.89	8.63	2.30	*	1.28	10.45	0.50	5.39	65.49	1612800
SX8-600-.../w	6	4.0	6	8	10.39	5.10	9.00	2.40	*	1.38	10.95	0.50	5.60	72.84	1612800

SX12-M20x

TOP-LOCK®Multi-jackbolt tensioners--- elastic adjustable nut (high strength)

Model	Nut body (MM)										Hardened washer G (MM)		High total (MM)	Quality of the standard product (kg)	Preload capacity max (KN)
	Thread diameter D	Commonly pitch			Out diameter	Thicke nss	Hexago n oppo site s ide	Hexagon height	Opposite side	Length	Outer dia me ter	Thickness			
		P1	P2	P3											
SX12-M20x.../w	M20	2.5	1.5	1.0	35	20	30	8	27	20.00	38	4	24	0.10	187
SX12-M24x.../w	M24	3.0	2.0	1.5	42	24	37	10	33	24.00	45	4	28	0.20	285
SX12-M27x.../w	M27	3.0	2.0	1.5	47	27	40	11	36	27.00	50	5	32	0.25	380
SX12-M30x.../w	M30	3.5	2.0	1.5	52	30	43	12	39	30.00	56	5	35	0.35	427
SX12-M33x.../w	M33	3.5	2.0	1.5	57	33	47	13	42	33.00	63	6	39	0.45	610
SX12-M36x.../w	M36	4.0	3.0	1.5	62	36	53	14	48	36.00	69	6	42	0.60	675
SX12-M39x.../w	M39	4.0	3.0	1.5	66	39	56	15	51	39.00	72	6	45	0.70	760
SX12-M42x.../w	M42	4.5	3.0	1.5	73	42	62	17	56	42.00	76	6	48	0.90	915
SX12-M45x.../w	M45	4.5	3.0	1.5	77	45	64	18	57	45.00	81	6	51	1.00	1170
SX12-M48x.../w	M48	5.0	3.0	1.5	83	48	71	19	64	48.00	86	6	54	1.30	1170
SX12-M52x.../w	M52	5.0	3.0	2.0	88	52	74	21	67	52.00	94	6	58	1.50	1400
SX12-M56x.../w	M56	5.5	4.0	2.0	97	56	80	22	72	56.00	100	6	62	1.95	1400
SX12-M60x.../w	M60	5.5	4.0	2.0	105	60	84	23	76	60.00	106	8	68	2.45	2100
SX12-M64x.../w	M64	6.0	4.0	2.0	111	64	88	26	80	64.00	120	8	72	2.85	2100
SX12-M72x.../w	M72	6.0	4.0	2.0	125	72	98	29	90	72.00	130	8	80	3.90	2530
SX12-M76x.../w	M76	6.0	4.0	2.0	132	76	109	30	*	76.00	138	10	86	5.05	3380
SX12-M80x.../w	M80	6.0	4.0	2.0	139	80	120	32	*	80.00	145	10	90	6.15	3380
SX12-M90x.../w	M90	6.0	4.0	2.0	156	90	135	36	*	90.00	160	10	100	8.50	4200
SX12-M100x.../w	M100	6.0	4.0	2.0	173	100	150	40	*	100.00	180	10	110	12.50	4900
SX12-M110x.../w	M110	6.0	4.0	2.0	191	110	165	44	*	110.00	202	10	120	15.50	5600
SX12-M120x.../w	M120	6.0	4.0	2.0	208	120	180	48	*	120.00	215	12	132	20.00	6300
SX12-M125x.../w	M125	6.0	4.0	2.0	218	125	188	51	*	125.00	227	12	137	22.75	6300
SX12-M130x.../w	M130	6.0	4.0	2.0	226	111	195	52	*	111.00	234	12	123	21.25	7000
SX12-M140x.../w	M140	6.0	4.0	2.0	243	119	210	56	*	119.00	253	12	131	26.25	7700
SX12-M150x.../w	M150	6.0	4.0	2.0	260	127	225	60	*	127.00	271	12	139	31.75	7700
SX12-M160x.../w	M160	6.0	4.0	–	278	136	240	64	*	136.00	290	12	148	38.75	8400

SX12-075

Model	Nut body(in)										Hardened washer G(in)		High total (in)	Quality of the standard product (Lb)	Preload capacity max (LBf)
	Thread diameter D	Commonly pitch			Out diameter	Thickenss	Hexagon opp osite side	Hexagon height	Opposite side	Length	Outer diameter	Thickness			
		P1	P2	P3									D1	H	D2
SX12-075-.../w	3/4	10.0	16	—	1.30	0.75	1.11	0.3	1	0.88	1.50	0.13	0.88	0.15	40800
SX12-087-.../w	7/8	9.0	14	—	1.52	0.88	1.25	0.35	1-1/8	1.01	1.62	0.13	1.01	0.29	54400
SX12-100-.../w	1	8.0	12	14	1.73	1.00	1.46	0.4	1-5/16	1.16	2.00	0.16	1.16	0.47	64800
SX12-112-.../w	1-1/8	7.0	8	12	1.95	1.13	1.67	0.45	1-1/2	1.29	2.12	0.16	1.29	0.64	86400
SX12-125-.../w	1-1/4	7.0	8	12	2.17	1.25	1.81	0.5	1-5/8	1.44	2.50	0.19	1.44	0.90	102410
SX12-137-.../w	1-3/8	6.0	8	12	2.38	1.38	1.94	0.55	1-3/4	1.57	2.50	0.19	1.57	1.08	131200
SX12-150-.../w	1-1/2	6.0	8	12	2.60	1.50	2.22	0.6	2	1.75	3.00	0.25	1.75	1.59	172800
SX12-162-.../w	1-5/8	6.0	8	12	2.81	1.63	2.36	0.65	2-1/8	1.88	3.00	0.25	1.88	1.90	172800
SX12-175-.../w	1-3/4	5.0	8	12	3.03	1.75	2.5	0.7	2-1/4	2.00	3.25	0.25	2.00	2.28	259200
SX12-187-.../w	1-7/8	6.0	8	12	3.25	1.88	2.78	0.75	2-1/2	2.13	3.50	0.25	2.13	2.91	233600
SX12-200-.../w	2	4.5	8	12	3.46	2.00	2.92	0.8	2-5/8	2.25	3.75	0.25	2.25	3.43	350400
SX12-225-.../w	2-1/4	4.5	8	12	3.90	2.25	3.3	0.9	3	2.56	4.22	0.31	2.56	5.01	350400
SX12-250-.../w	2-1/2	4.0	8	12	4.33	2.50	3.55	1	3-1/4	2.81	4.70	0.31	2.81	6.51	571200
SX12-275-.../w	2-3/4	4.0	8	12	4.76	2.75	3.93	1.1	3-5/8	3.06	4.95	0.31	3.06	8.42	571200
SX12-300-.../w	3	4.0	6	8	5.20	3.00	4.3	1.2	4	3.38	5.45	0.38	3.38	11.33	761600
SX12-325-.../w	3-1/4	4.0	6	8	5.63	3.25	4.88	1.3	*	3.63	5.94	0.38	3.63	14.93	761600
SX12-350-.../w	3-1/2	4.0	6	8	6.06	3.50	5.25	1.4	*	3.88	6.45	0.38	3.88	18.27	856800
SX12-375-.../w	3-3/4	4.0	6	8	6.50	3.75	5.63	1.5	*	4.13	6.95	0.38	4.13	22.61	856800
SX12-400-.../w	4	4.0	6	8	6.93	4.00	6	1.6	*	4.43	7.45	0.43	4.43	27.65	952000
SX12-425-.../w	4-1/4	4.0	6	8	7.36	4.25	6.38	1.7	*	4.68	7.95	0.43	4.68	32.97	1209600
SX12-450-.../w	4-1/2	4.0	6	8	7.79	4.50	6.75	1.8	*	4.93	8.20	0.43	4.93	38.42	1209600
SX12-475-.../w	4-3/4	4.0	6	8	8.23	4.75	7.13	1.9	*	5.18	8.70	0.43	5.18	45.09	1344000
SX12-500-.../w	5	4.0	6	8	8.66	5.00	7.5	2	*	6.50	9.45	0.50	5.50	53.75	1344000
SX12-525-.../w	5-1/4	4.0	6	8	9.09	5.25	7.88	2.1	*	5.75	9.45	0.50	5.75	60.81	1478400
SX12-550-.../w	5-1/2	4.0	6	8	9.53	5.50	8.25	2.2	*	6.00	9.95	0.50	6.00	69.67	1478400
SX12-575-.../w	5-3/4	4.0	6	8	9.96	5.75	8.63	2.3	*	6.25	10.45	0.50	6.25	79.37	1612800
SX12-600-.../w	6	4.0	6	8	10.39	6.00	9	2.4	*	6.50	10.95	0.50	6.50	89.75	1612800