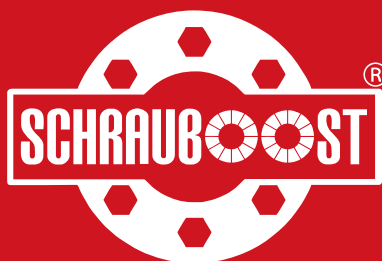


ETN/ETNS

High performance tensioning
Multi Jackbolt Pretensioner



Designed in Europe

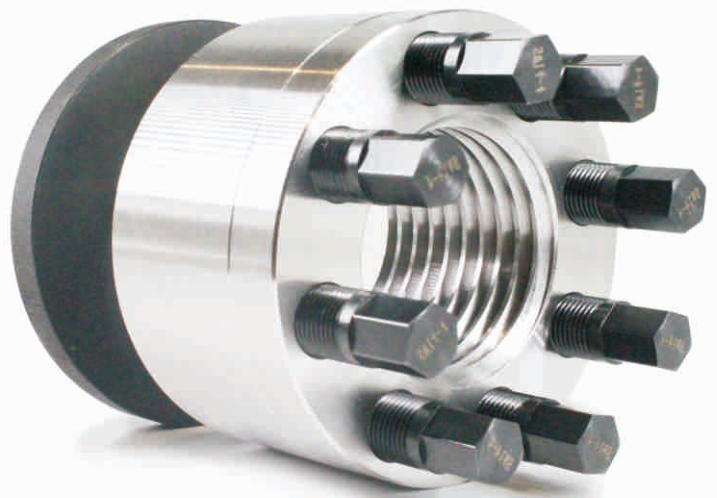
Bolting Solutions Co.,Ltd.

ETN/ETNS

High performance tensioning
Multi Jackbolt Pretensioner



COMPANY INTRODUCTION



Our team is made up of talents who can make your bolting system reliable and secure, from experienced design and service engineers in bolting analysis and field support, to sales managers who understand the complexity in the bolting market. Our mission is to provide our clients with a reliable and secure bolting system based on Multi Jackbolt Pretensioner technology.

SCHRAUBOOST[®] has a global presence. From the first enquiry, our team of engineers would analyse and optimise your bolting system, and propose the most cost effective solution to meet your needs.



SCHRAUBOOST[®]



SCHRAUBOOST[®]

High performance tensioning

Cutting Edge Bolting Solution

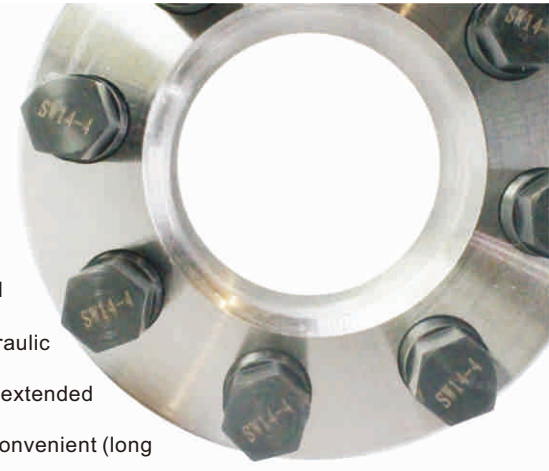
SCHRAUBOOST[®] Multi Jackbolt Pretensioner is designed and improved upon, based on European Norm, which is adopted from German Institute for Norm (DIN EN) and Association of German Engineers (VDI Guidelines). It can be used to replace standard bolting methods that covers huge array of applications.

Installation is simple and fast, especially for large sizes. With our clear and concise instruction, installation can be done quickly with a small torque wrench to tighten the Jackbolts. Due to the sequential tightening of the small bolts, pure axial tensioning on the main thread is built up evenly and gradually. This allows SCHRAUBOOST[®] tensioner to eliminate loss of preload due to surface imperfection (surface settlement) and drastically increase preload accuracy.

SCHRAUBOOST[®]

Challenges of bolted joints

As tightening torque for bolts varies to the cubic power ($\sim x^3$) of bolt size, tightening with hand tools become increasingly difficult from M24 onwards. Therefore, special tools, such as Hydraulic Tensioning, Hydraulic Torque Wrench, Induction Heated Bolts, and improvised methods like extended wrench, lifting crane assist, and hammering are used. These methods can be expensive, inconvenient (long preparation/tightening cycle) prone to safety violation (even injury) with poor preload accuracy and thread damage. SCHRAUBOOST[®] Multi Jackbolt Pretensioner eliminates all these disadvantages and risks, providing customer with huge convenience in their bolting systems.



SCHRAUBOOST[®]

The SCHRAUBOOST Advantage

Compared to traditional bolting and installation, SCHRAUBOOST[®] provides the following advantages:



Cost effective

SCHRAUBOOST[®] is purely mechanical and simple to use. Using only simple hand tools, cost of ownership is drastically reduced.



Reliable

By analyzing the correct preload required based on individual application, and providing more consistent torque-preload conversion, SCHRAUBOOST[®] ensures the bolted joint stay safe under all working conditions. Therefore, we provide Limited Warranty within the first installation.



Fast and safe installation and maintenance

Schraubost only requires small torque wrench for installation & maintenance. It is easy to handle and simple to operate.



Accurate preload

Preload can be controlled accurately. In certain applications such as flange connections using gaskets, pressure vessels, accurate preload is paramount. With accurate preload, up to 90% yield strength can be achieved, maximizing the bolts mechanical capability.



Pure axial loading

Since the main thread only experiences pure axial loading, thread galling is avoided, leading to longer product life, and remains secured in static and dynamic conditions. This reduces the need for maintenance and eliminate premature failure.



Elastic joint

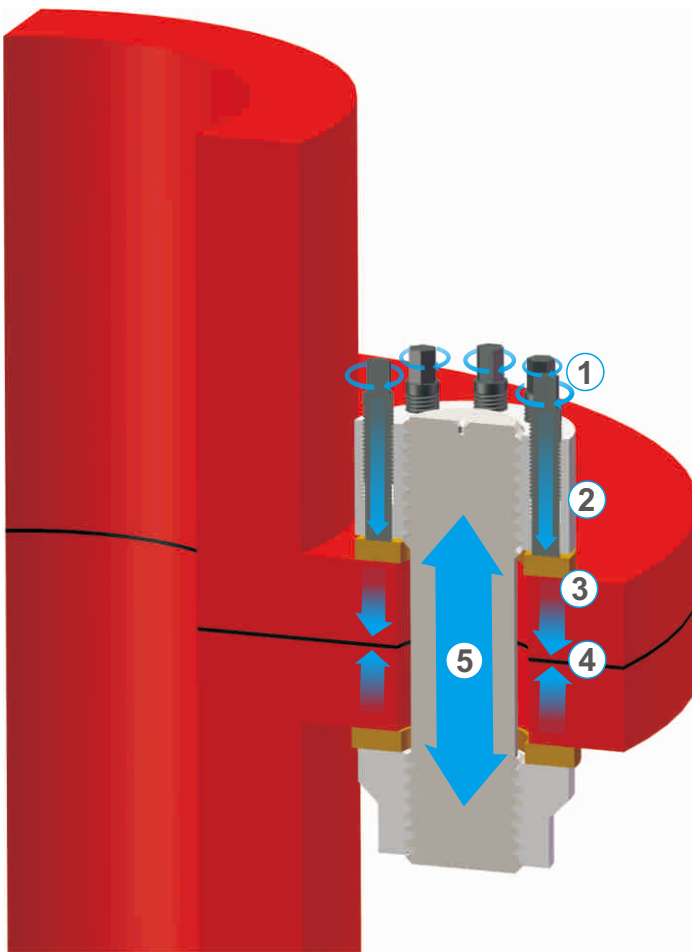
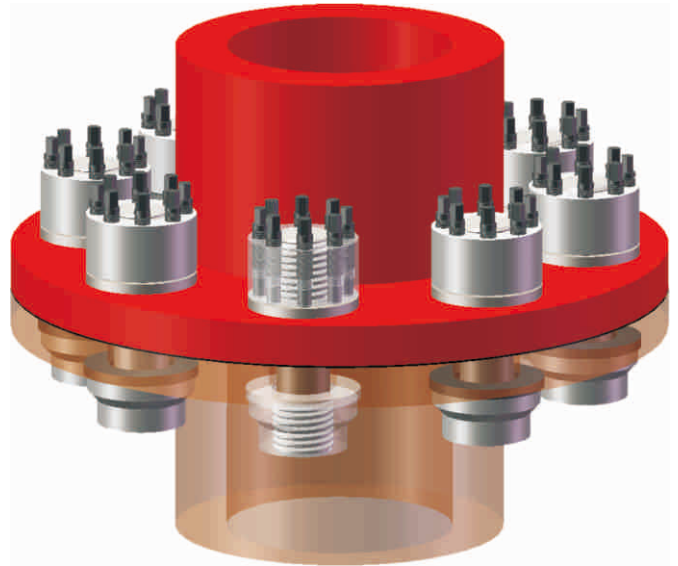
Elasticity (stretch or compression) is good for bolted joints. Small bolts provide a lot of elasticity to the joint, giving better fatigue performance, preventing loosening and further extend bolt life.

Replacement of conventional bolts/nuts

SCHRAUBOOST[®] can directly replace traditional nuts (and bolts).

Install the hardened washer, and spin the Schraubost onto the main thread just like a hex nut until it rests on the hardened washer.

Next, use a torque wrench to tighten the round of small bolts. As the small bolts tighten, preload is built up on the main thread gradually, and this securely clamps the joint, only in pure tension, no galling.



SCHRAUBOOST's Principle:

- ① As the Jackbolts are being tightened, they thrust against the hardened washer. With small friction diameter, high thrust force can be generated with extremely small torque.
- ② Threads on Jackbolts lift the nut body, that lifting force is transferred to the main thread of the main bolt. The bolt head at the bottom compress one side of the flange.
- ③ The hardened washer is to transfer load from the Jackbolts to the other side of the flange, while protecting the flange surface from the high pressure generated by the small thrust bolt tip.
- ④ The thrust from the Jackbolts and the equal reaction force generated on the main bolt head act on the 2 halves of flanges to create a strong clamping force.
- ⑤ Thrust force from the Jackbolts create a pure axial tension on the main bolt.

APPLICATION



General Industrial Equipment

compressors, pumps, structural connections

Metal Works

coupling bolts, anchor bolts, tie rods,
housing closures, forging presses

Aviation

cryogenic, extreme gravity and
weightless environments

Rail Transportation

braking systems, shaft
connections, railway switches

Energy & Generation

Nuclear, Wind, Hydro,
Thermal and Renewables

Oil & Gas

reciprocating compressors,
heat exchangers

Mining Machinery

excavators, dump trucks,
cranes, TBM

Marine & Shipbuilding

surface and subsurface propellers,
engine shafts, offshore platforms

PRODUCT INTRODUCTION

Series	Name	Range	Approx. bolt stress*	Temperature	surface treatment
MB	Standard Nut	M27-M160	400-650 N/mm ²	-10 to 250°C	Optional
MG	High Strength Nut	M27-M150	500-850 N/mm ²	-40 to 250°C	Optional
MJ	Compact Nut	M27-M160	100-450 N/mm ²	-10 to 250°C	Optional
SB	Standard Bolt	M27-M160	400-650 N/mm ²	-10 to 250°C	Optional
SG	High strength Nut	M27-M90	500-850 N/mm ²	-40 to 250°C	Optional
TB	Standard Elastic Nut	M27-M160	400-650 N/mm ²	-10 to 250°C	Optional
TG	High Strength Elastic Nut	M27-M150	500-850 N/mm ²	-40 to 250°C	Optional

* Depends on the smallest cross section of the bolt.



SCHRAUBOST®



Model name description

Length, Metric

ETN-M 100x6 x... - BB

Product Type

- ETN** High Performance Clamping Nut
- ETNS** High Performance Clamping Bolt
- BTN** Passive Elastic Nut

Thread Standard

- M** Metric

Thread Size

- D x P** Nominal diameter x Pitch

ETNS Bolt Length "L", (see page 11, 12 for detail)

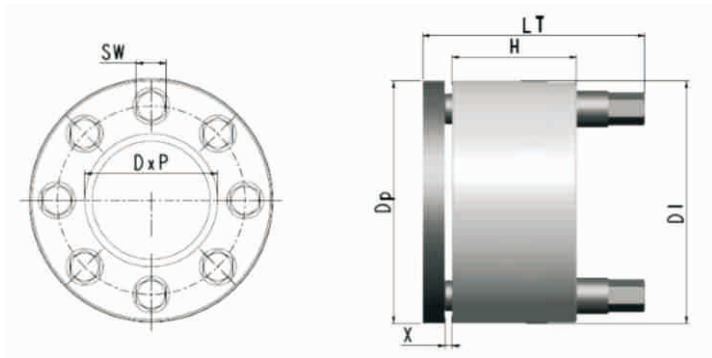
Product Name

- BB** Standard model
- GB** High strength model
- JB** Compact model

ETN

High Performance Nut-Style Tensioner

Standard **BB**



Order No.	Part No.	Nut Body						Thrust Bolt			Hardened Washer	Overall Height	Overall Weight	Preload		Torque/Thrust Bolt			
		Thread Diameter	Available Pitch			Outer Diameter	Height	Quantity	Socket Size	Stroke				Outer Diameter	Nominal Preload	Maximum* Preload	Nominal Torque	Maximum Torque	
			D	P1	P2														P3
		[mm]						[mm]						[mm]	[kg]	[kN]		[Nm]	
MB01	ETN-M27x...-BB	M27	3	2	1.5	51	26	6	6	0-8	51	49.5	0.42	215	285	36	48		
MB02	ETN-M30x...-BB	M30	3.5	2	1.5	54	28	8	6	0-6	54	49.5	0.49	255	340	32	43		
MB03	ETN-M33x...-BB	M33	3.5	2	1.5	59	28	10	6	0-6	59	49.5	0.58	320	425	32	43		
MB04	ETN-M36x...-BB	M36	4	3	1.5	66	34	7	8	0-8	66	60.5	0.89	380	505	68	90		
MB05	ETN-M39x...-BB	M39	4	3	1.5	72	34	8	8	0-8	72	60.5	1.06	457	610	72	96		
MB06	ETN-M42x...-BB	M42	4.5	3	1.5	75	34	9	8	0-8	75	60.5	1.11	505	670	70	94		
MB07	ETN-M45x...-BB	M45	4.5	3	1.5	83	40	7	10	0-10	83	72.5	1.68	615	820	131	175		
MB08	ETN-M48x...-BB	M48	5	3	1.5	88	40	8	10	0-10	88	72.5	1.87	700	935	131	175		
MB09	ETN-M52x...-BB	M52	5	3	2	94	40	9	10	0-10	94	72.5	2.10	790	1055	131	175		
MB10	ETN-M56x...-BB	M56	5.5	4	2	100	50	8	12	0-10	100	85	2.90	940	1260	205	275		
MB11	ETN-M60x...-BB	M60	5.5	4	2	108	50	10	12	0-10	108	85	3.50	1170	1545	205	270		
MB12	ETN-M64x...-BB	M64	6	4	2	113	60	8	14	0-12	113	101	4.40	1280	1700	315	420		
MB13	ETN-M68x...-BB	M68	6	4	2	119	60	9	14	0-12	119	101	4.85	1395	1860	305	408		
MB14	ETN-M72x...-BB	M72	6	4	2	124	62	10	14	0-10	124	101	5.25	1550	2065	305	408		
MB15	ETN-M76x...-BB	M76	6	4	2	132	62	12	14	0-10	132	101	6.05	1870	2495	307	410		
MB16	ETN-M80x...-BB	M80	6	4	2	136	78	10	16	0-12	136	121	7.70	2020	2700	445	595		
MB17	ETN-M85x...-BB	M85	6	4	2	142	78	11	16	0-12	142	121	8.30	2220	2960	445	595		
MB18	ETN-M90x...-BB	M90	6	4	2	148	78	12	16	0-12	148	121	8.90	2420	3230	445	595		
MB19	ETN-M100x...-BB	M100	6	4	2	158	82	14	16	0-8	158	121	10.0	2695	3590	425	565		
MB20	ETN-M110x...-BB	M110	6	4	2	174	96	14	17	0-14	174	142	13.0	3675	4900	645	860		
MB21	ETN-M120x...-BB	M120	6	4	2	188	96	16	17	0-14	188	142	16.0	4200	5600	645	860		
MB22	ETN-M125x...-BB	M125	6	4	2	197	96	18	17	0-14	197	142	17.7	4725	6300	645	860		
MB23	ETN-M130x...-BB	M130	6	4	2	203	110	20	17	0-14	203	156	20.8	5250	7000	645	860		
MB24	ETN-M140x...-BB	M140	6	4	2	212	110	21	17	0-14	212	156	21.8	5510	7350	645	860		
MB25	ETN-M150x...-BB	M150	6	4	2	223	110	22	17	0-14	223	156	23.3	5750	7700	645	860		
MB26	ETN-M160x...-BB	M160	6	4	-	234	110	24	17	0-14	234	156	25.0	6300	8400	645	860		

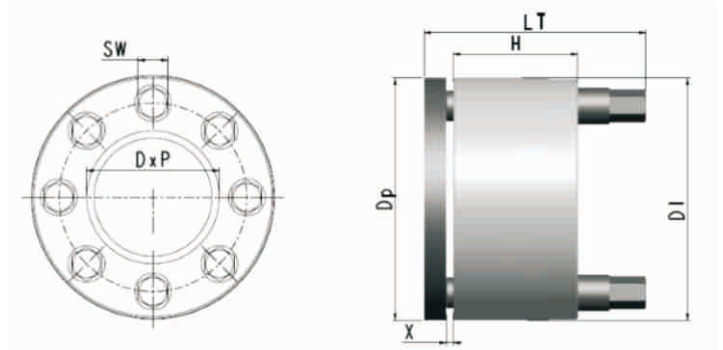
* This is maximum load applicable (Preload + Work Load).

SCHRAUBOST®

ETN

High Performance Nut-Style Tensioner

High strength **GB**



Order No.	Part No.	Nut Body						Thrust Bolt			Hardened Washer	Overall Height	Overall Weight	Preload		Torque/ Thrust Bolt			
		Thread Diameter	Available Pitch			Outer Diameter	Height	Quantity	Socket Size	Stroke				Outer Diameter	Nominal Preload	Maximum* Preload	Nominal Torque	Maximum Torque	
			D	P1	P2														P3
		[mm]						[mm]						[mm]	[kg]	[kN]		[Nm]	
MG01	ETN-M27x...-GB	M27	3	2	1.5	52	26	8	6	0-8	52	49.5	0.46	285	380	36	48		
MG02	ETN-M30x...-GB	M30	3.5	2	1.5	55	28	10	6	0-6	55	49.5	0.53	360	480	36	48		
MG03	ETN-M33x...-GB	M33	3.5	2	1.5	60	28	12	6	0-6	60	49.5	0.62	435	580	36	48		
MG04	ETN-M36x...-GB	M36	4	3	1.5	66	34	8	8	0-8	66	60.5	0.95	457	610	72	96		
MG05	ETN-M39x...-GB	M39	4	3	1.5	72	34	10	8	0-8	72	60.5	1.09	572	763	72	96		
MG06	ETN-M42x...-GB	M42	4.5	3	1.5	77	34	12	8	0-8	77	60.5	1.25	685	915	72	96		
MG07	ETN-M45x...-GB	M45	4.5	3	1.5	84	40	9	10	0-10	84	72.5	1.73	790	1050	131	175		
MG08	ETN-M48x...-GB	M48	5	3	1.5	88	40	10	10	0-10	88	72.5	1.92	875	1170	131	175		
MG09	ETN-M52x...-GB	M52	5	3	2	96	40	12	10	0-10	96	72.5	2.30	1055	1405	131	175		
MG10	ETN-M56x...-GB	M56	5.5	4	2	101	50	10	12	0-10	101	85	3.05	1210	1610	212	282		
MG11	ETN-M60x...-GB	M60	5.5	4	2	108	50	12	12	0-10	108	85	3.50	1450	1935	212	282		
MG12	ETN-M64x...-GB	M64	6	4	2	113	60	10	14	0-12	113	101	4.50	1550	2080	305	410		
MG13	ETN-M68x...-GB	M68	6	4	2	120	60	12	14	0-12	120	101	5.10	1860	2500	305	410		
MG14	ETN-M72x...-GB	M72	6	4	2	127	62	14	14	0-10	127	101	5.80	2170	2910	305	410		
MG15	ETN-M76x...-GB	M76	6	4	2	136	62	16	14	0-10	136	101	6.70	2470	3325	305	410		
MG16	ETN-M80x...-GB	M80	6	4	2	137	78	13	16	0-12	137	121	8.10	2620	3500	445	595		
MG17	ETN-M85x...-GB	M85	6	4	2	142	78	14	16	0-12	142	121	8.50	2825	3770	445	595		
MG18	ETN-M90x...-GB	M90	6	4	2	150	78	16	16	0-12	150	121	9.45	3230	4310	445	595		
MG19	ETN-M100x...-GB	M100	6	4	2	162	82	18	16	0-8	162	121	11.0	3630	4850	445	595		
MG20	ETN-M110x...-GB	M110	6	4	2	172	96	16	17	0-14	172	142	13.7	4200	5600	645	860		
MG21	ETN-M120x...-GB	M120	6	4	2	188	96	19	17	0-14	188	142	16.3	5010	6680	645	860		
MG22	ETN-M125x...-GB	M125	6	4	2	199	96	20	17	0-14	199	142	18.8	5250	7000	645	860		
MG23	ETN-M130x...-GB	M130	6	4	2	208	110	22	17	0-14	208	156	22.5	5750	7700	645	860		
MG24	ETN-M140x...-GB	M140	6	4	2	218	110	23	17	0-14	218	156	23.9	6075	8100	645	860		
MG25	ETN-M150x...-GB	M150	6	4	2	228	110	24	17	0-14	228	156	25.2	6300	8400	645	860		

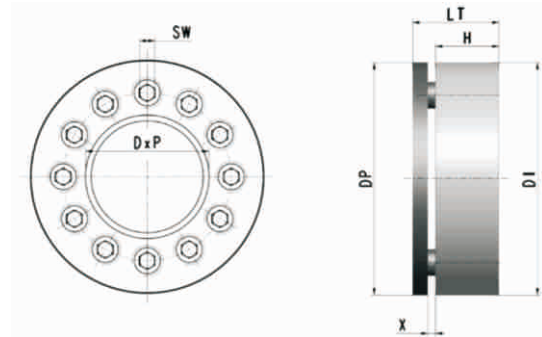
* This is maximum load applicable (Preload + Work Load).

SCHRAUBOST®

ETN

High Performance Nut-Style Tensioner

Compact JB



Order No.	Part No.	Nut Body						Thrust Bolt			Hardened Washer Outer Diameter	Overall Height LT	Overall Weight [kg]	Preload		Torque/ Thrust Bolt	
		Thread Diameter	Available Pitch			Outer Diameter D1	Height H	Quantity n	Socket Size SW	Stroke X				Nominal Preload FR	Maximum* Preload FM	Nominal Torque MR	Maximum Torque MM
			D	P1	P2												
		[mm]						[mm]						[kN]		[Nm]	
MJ01	ETN-M27x...-JB	M27	3	2	1.5	53	16	10	4	0-4	53	21	0.28	100	130	10	13
MJ02	ETN-M30x...-JB	M30	3.5	2	1.5	60	21	8	5	0-6	60	26	0.46	135	180	21	28
MJ03	ETN-M33x...-JB	M33	3.5	2	1.5	63	22	10	5	0-6	63	27	0.50	155	200	19	25
MJ04	ETN-M36x...-JB	M36	4	3	1.5	69	28	8	6	0-8	69	33	0.74	190	245	35	46
MJ05	ETN-M39x...-JB	M39	4	3	1.5	75	28	10	6	0-8	75	33	0.87	255	335	38	50
MJ06	ETN-M42x...-JB	M42	4.5	3	1.5	81	28	12	6	0-8	81	33	1.01	315	420	39	52
MJ07	ETN-M45x...-JB	M45	4.5	3	1.5	84	28	12	6	0-8	84	33	1.07	315	420	39	52
MJ08	ETN-M48x...-JB	M48	5	3	1.5	101	31	8	8	0-8	101	37	1.93	380	500	94	125
MJ09	ETN-M52x...-JB	M52	5	3	2	105	33	10	8	0-8	105	39	2.15	475	625	94	125
MJ10	ETN-M56x...-JB	M56	5.5	4	2	113	33	12	8	0-8	113	39	2.40	570	760	94	125
MJ11	ETN-M60x...-JB	M60	5.5	4	2	117	33	12	8	0-8	117	39	2.60	570	760	94	125
MJ12	ETN-M64x...-JB	M64	6	4	2	121	33	12	8	0-8	121	39	2.75	570	760	94	125
MJ13	ETN-M68x...-JB	M68	6	4	2	138	38	12	10	0-8	138	46	4.25	710	950	145	195
MJ14	ETN-M72x...-JB	M72	6	4	2	151	38	12	10	0-8	151	46	5.15	910	1200	185	245
MJ15	ETN-M76x...-JB	M76	6	4	2	154	38	12	10	0-8	154	46	5.25	910	1200	185	245
MJ16	ETN-M80x...-JB	M80	6	4	2	158	38	12	10	0-8	158	46	5.45	910	1200	185	245
MJ17	ETN-M90x...-JB	M90	6	4	2	170	51	12	12	0-12	170	61	8.20	1160	1530	280	370
MJ18	ETN-M100x...-JB	M100	6	4	2	180	53	13	12	0-12	180	63	9.05	1260	1650	280	370
MJ19	ETN-M110x...-JB	M110	6	4	2	190	59	16	12	0-12	190	69	10.8	1550	2040	280	370
MJ20	ETN-M120x...-JB	M120	6	4	2	202	59	17	12	0-12	202	69	11.8	1650	2170	280	370
MJ21	ETN-M125x...-JB	M125	6	4	2	207	59	17	12	0-12	207	69	12.2	1650	2170	280	370
MJ22	ETN-M130x...-JB	M130	6	4	2	214	59	18	12	0-12	214	69	12.9	1745	2295	280	370
MJ23	ETN-M140x...-JB	M140	6	4	2	224	59	18	12	0-12	224	71	14.1	1745	2295	280	370
MJ24	ETN-M150x...-JB	M150	6	4	2	235	60	19	12	0-12	235	72	15.2	1830	2410	280	370
MJ25	ETN-M160x...-JB	M160	6	4	-	247	60	20	12	0-12	247	72	16.5	1935	2550	280	370

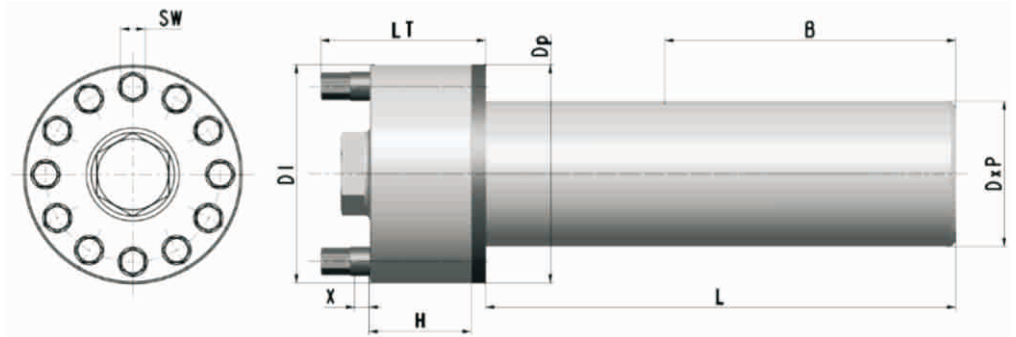
* This is maximum load applicable (Preload + Work Load).

SCHRAUBOST®

ETNS

High Performance Bolt-Style Tensioner

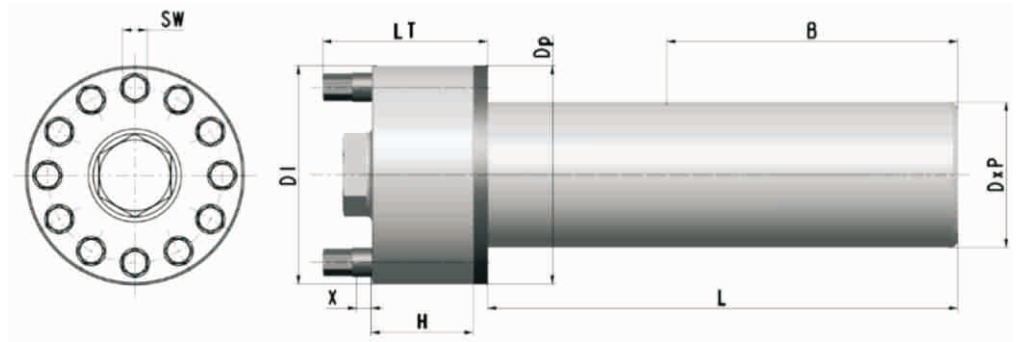
Standard **BB**



Order No.	Part No.	Bolt Body							Thrust Bolt			Hardened Washer	Overall Height	Preload		Torque/Thrust Bolt		
		Thread Diameter	Available Pitch			Outer Diameter	Height	Thread Length	Quantity	Socket Size	Stroke			Outer Diameter	Nominal Preload	Maximum* Preload	Nominal Torque	Maximum Torque
			P1	P2	P3													
		[mm]							[mm]					[mm]		[kN]		[Nm]
SB01	ETNS-M27x...-BB	M27	3	2	1.5	45	25	66	6	6	0-9	45	49	190	250	32	42	
SB02	ETNS-M30x...-BB	M30	3.5	2	1.5	50	25	72	6	6	0-9	50	49	215	285	36	48	
SB03	ETNS-M33x...-BB	M33	3.5	2	1.5	57	30	78	6	8	0-12	57	60	285	380	60	80	
SB04	ETNS-M36x...-BB	M36	4	3	1.5	60	32	84	6	8	0-10	60	60	335	445	70	93	
SB05	ETNS-M39x...-BB	M39	4	3	1.5	63	33	90	8	8	0-9	63	60	410	540	64	85	
SB06	ETNS-M42x...-BB	M42	4.5	3	1.5	66	35	96	8	8	0-7	66	60	457	610	72	96	
SB07	ETNS-M45x...-BB	M45	4.5	3	1.5	75	40	102	8	10	0-10	75	70	535	720	100	135	
SB08	ETNS-M48x...-BB	M48	5	3	1.5	78	42	108	8	10	0-8	78	70	605	800	113	150	
SB09	ETNS-M52x...-BB	M52	5	3	2	82	42	116	10	10	0-8	82	70	735	970	110	145	
SB10	ETNS-M56x...-BB	M56	5.5	4	2	86	42	124	10	10	0-8	86	70	835	1120	125	167	
SB11	ETNS-M60x...-BB	M60	5.5	4	2	90	42	132	12	10	0-8	90	70	985	1310	123	163	
SB12	ETNS-M64x...-BB	M64	6	4	2	103	46	140	8	14	0-10	103	83	950	1270	235	315	
SB13	ETNS-M68x...-BB	M68	6	4	2	107	46	148	8	14	0-10	107	83	1090	1450	270	360	
SB14	ETNS-M72x...-BB	M72	6	4	2	111	46	156	10	14	0-10	111	83	1230	1640	245	325	
SB15	ETNS-M76x...-BB	M76	6	4	2	116	46	164	12	14	0-10	116	83	1390	1870	230	310	
SB16	ETNS-M80x...-BB	M80	6	4	2	120	56	172	12	14	0-9	120	92	1570	2080	260	345	
SB17	ETNS-M90x...-BB	M90	6	4	2	130	56	192	16	14	0-9	130	92	2010	2700	250	335	
SB18	ETNS-M100x...-BB	M100	6	4	2	148	60	212	12	17	0-10	148	99	2540	3370	520	690	
SB19	ETNS-M110x...-BB	M110	6	4	2	158	60	232	14	17	0-10	158	99	2850	3750	500	660	
SB20	ETNS-M120x...-BB	M120	6	4	2	170	64	252	16	17	0-12	170	105	3380	4500	520	690	
SB21	ETNS-M125x...-BB	M125	6	4	2	175	64	262	16	17	0-12	175	105	3650	4880	560	750	
SB22	ETNS-M130x...-BB	M130	6	4	2	180	76	272	18	17	0-12	180	118	3950	5270	540	720	
SB23	ETNS-M140x...-BB	M140	6	4	2	190	76	292	20	17	0-12	190	118	4550	6100	560	750	
SB24	ETNS-M150x...-BB	M150	6	4	2	200	76	312	20	17	0-12	200	118	4880	6500	600	800	
SB25	ETNS-M160x...-BB	M160	6	4	-	210	76	332	20	17	0-12	210	118	5250	7000	645	860	

* This is maximum load applicable (Preload + Work Load).

** Bolt length "L", can be adjust to application.



Order No.	Part No.	Bolt Body							Thrust Bolt			Hardened Washer	Overall Height	Preload		Torque/Thrust Bolt	
		Thread Diameter	Available Pitch			Outer Diameter	Height	Thread Length	Quantity	Socket Size	Stroke			Outer Diameter	Nominal Preload	Maximum* Preload	Nominal Torque
		D	P1	P2	P3	D1	H	B	n	SW	X	Dp	LT	FR	FM	MR	MM
		[mm]							[mm]			[mm]	[kN]		[Nm]		
SG01	ETNS-M27x...-GB	M27	3	2	1.5	47	26	66	8	6	0-8	47	49	270	357	34	45
SG02	ETNS-M30x...-GB	M30	3.5	2	1.5	50	26	72	10	6	0-8	50	49	317	427	32	43
SG03	ETNS-M33x...-GB	M33	3.5	2	1.5	57	30	78	8	8	0-12	57	60	406	539	64	85
SG04	ETNS-M36x...-GB	M36	4	3	1.5	60	32	84	10	8	0-10	60	60	508	675	64	85
SG05	ETNS-M39x...-GB	M39	4	3	1.5	63	33	90	12	8	0-9	63	60	570	760	60	80
SG06	ETNS-M42x...-GB	M42	4.5	3	1.5	66	35	96	12	8	0-7	66	60	645	855	68	90
SG07	ETNS-M45x...-GB	M45	4.5	3	1.5	75	40	102	10	10	0-10	75	70	760	1020	114	152
SG08	ETNS-M48x...-GB	M48	5	3	1.5	78	42	108	10	10	0-8	78	70	855	1140	128	170
SG09	ETNS-M52x...-GB	M52	5	3	2	82	42	116	12	10	0-8	82	70	995	1320	124	165
SG10	ETNS-M56x...-GB	M56	5.5	4	2	86	42	124	12	10	0-8	86	70	995	1320	124	165
SG11	ETNS-M60x...-GB	M60	5.5	4	2	90	42	132	14	10	0-8	90	70	1160	1540	124	165
SG12	ETNS-M64x...-GB	M64	6	4	2	103	46	140	10	14	0-10	103	83	1310	1740	260	345
SG13	ETNS-M68x...-GB	M68	6	4	2	107	46	148	10	14	0-10	107	83	1480	1990	295	395
SG14	ETNS-M72x...-GB	M72	6	4	2	111	60	156	12	14	0-12	111	99	1690	2260	280	375
SG15	ETNS-M76x...-GB	M76	6	4	2	116	62	164	14	14	0-10	116	99	1390	1870	230	310
SG16	ETNS-M80x...-GB	M80	6	4	2	120	64	172	14	14	0-8	120	99	1570	2080	260	345
SG17	ETNS-M90x...-GB	M90	6	4	2	139	61	192	12	17	0-9	139	99	2740	3660	560	750

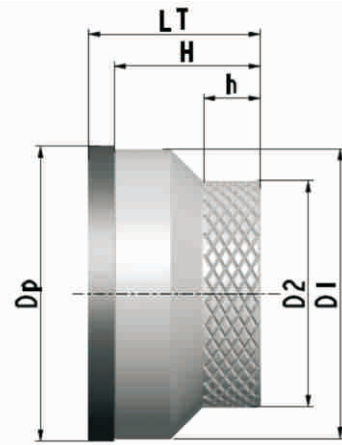
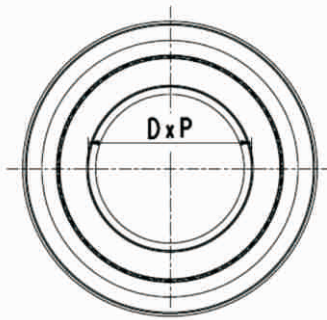
* This is maximum load applicable (Preload + Work Load).

** Bolt length "L", can be adjust to application.

BTN

Reactive Elastic Nut

Standard **BB**



Order No.	Part No.	Nut Body								Hardened Washer	Overall Height	Overall Weight	Preload	
		Thread Diameter	Available Pitch			Outer Diameter	Height	Knurl Outer Diameter	Knurl Height				Outer Diameter	Nominal Preload
		D	P1	P2	P3	D1	H	D2	h	Dp	LT		FR	FM
		[mm]								[mm]		[kg]	[kN]	
TB01	BTN-M27x...-BB	M27	3	2	1.5	48	23	41	11	51	28	0.25	215	285
TB02	BTN-M30x...-BB	M30	3.5	2	1.5	53	25	43	12	56	30	0.30	255	340
TB03	BTN-M33x...-BB	M33	3.5	2	1.5	57	27	47	13	60	32	0.36	320	425
TB04	BTN-M36x...-BB	M36	4	3	1.5	62	30	53	14	66	36	0.51	380	505
TB05	BTN-M39x...-BB	M39	4	3	1.5	68	33	58	16	72	39	0.66	457	610
TB06	BTN-M42x...-BB	M42	4.5	3	1.5	73	35	62	17	77	41	0.79	505	670
TB07	BTN-M45x...-BB	M45	4.5	3	1.5	77	37	64	18	82	45	0.94	615	820
TB08	BTN-M48x...-BB	M48	5	3	1.5	86	41	73	20	91	49	1.31	700	935
TB09	BTN-M52x...-BB	M52	5	3	2	88	42	74	20	93	50	1.35	790	1054
TB10	BTN-M56x...-BB	M56	5.5	4	2	97	47	80	22	102	55	1.75	940	1260
TB11	BTN-M60x...-BB	M60	5.5	4	2	106	51	84	24	111	59	2.20	1170	1545
TB12	BTN-M64x...-BB	M64	6	4	2	111	53	88	26	117	63	2.55	1280	1700
TB13	BTN-M68x...-BB	M68	6	4	2	115	55	95	26	121	65	2.90	1395	1860
TB14	BTN-M72x...-BB	M72	6	4	2	130	62	102	30	136	72	4.05	1550	2065
TB15	BTN-M76x...-BB	M76	6	4	2	132	63	109	30	138	73	4.35	1870	2495
TB16	BTN-M80x...-BB	M80	6	4	2	139	67	120	32	146	79	5.55	2020	2700
TB17	BTN-M85x...-BB	M85	6	4	2	145	70	125	33	152	82	6.10	2220	2960
TB18	BTN-M90x...-BB	M90	6	4	2	156	75	135	36	163	87	7.60	2420	3230
TB19	BTN-M100x...-BB	M100	6	4	2	168	81	146	39	176	93	9.10	2695	3590
TB20	BTN-M110x...-BB	M110	6	4	2	188	90	162	43	196	102	12.55	3675	4900
TB21	BTN-M120x...-BB	M120	6	4	2	205	98	180	47	213	110	16.50	4200	5600
TB22	BTN-M125x...-BB	M125	6	4	2	218	105	188	50	226	117	19.45	4725	6300
TB23	BTN-M130x...-BB	M130	6	4	2	226	108	195	52	234	120	21.50	5250	7000
TB24	BTN-M140x...-BB	M140	6	4	2	245	118	210	56	253	130	27.05	5510	7350
TB25	BTN-M150x...-BB	M150	6	4	2	260	125	225	60	268	137	32.00	5750	7700
TB26	BTN-M160x...-BB	M160	6	4	-	275	132	240	63	283	144	37.85	6300	8400

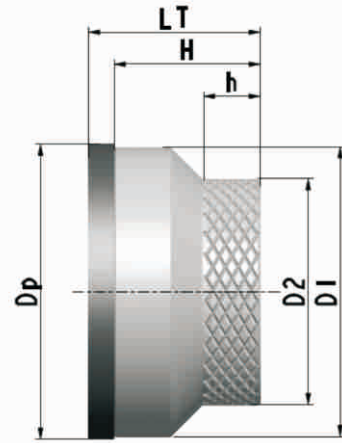
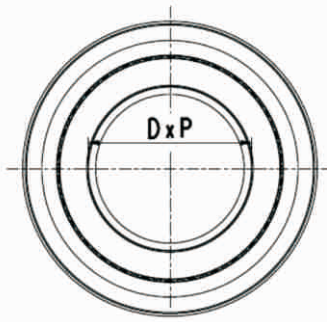
* This is maximum load applicable (Preload + Work Load).

SCHRAUBOOST®

BTN

Reactive Elastic Nut

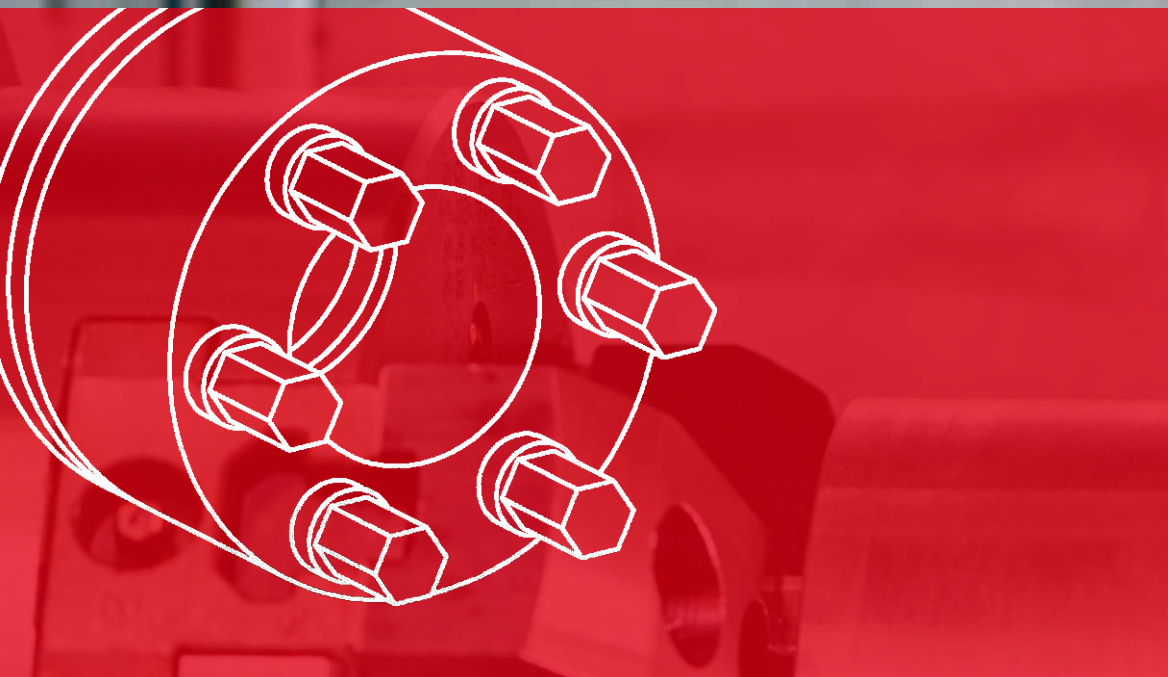
High strength **GB**



Order No.	Part No.	Nut Body								Hardened Washer	Overall Height	Overall Weight	Preload		
		Thread Diameter	Available Pitch			Outer Diameter	Height	Knurl Outer Diameter	Knurl Height				Outer Diameter	Nominal Preload	Maximum* Preload
			D	P1	P2										
[mm]										[mm]	[kg]	[kN]			
TG01	BTN-M27x...-GB	M27	3	2	1.5	52	26	42	13	55	31	0.31	285	380	
TG02	BTN-M30x...-GB	M30	3.5	2	1.5	55	28	45	14	58	33	0.36	360	480	
TG03	BTN-M33x...-GB	M33	3.5	2	1.5	60	30	50	15	63	35	0.46	435	575	
TG04	BTN-M36x...-GB	M36	4	3	1.5	66	33	56	17	70	39	0.64	457	610	
TG05	BTN-M39x...-GB	M39	4	3	1.5	72	36	62	18	76	42	0.84	572	763	
TG06	BTN-M42x...-GB	M42	4.5	3	1.5	77	39	66	19	81	45	1.02	685	915	
TG07	BTN-M45x...-GB	M45	4.5	3	1.5	83	42	71	21	88	50	1.33	790	1050	
TG08	BTN-M48x...-GB	M48	5	3	1.5	88	44	76	22	93	52	1.56	875	1170	
TG09	BTN-M52x...-GB	M52	5	3	2	96	48	82	24	101	56	1.96	1055	1405	
TG10	BTN-M56x...-GB	M56	5.5	4	2	101	51	80	25	106	59	2.05	1210	1610	
TG11	BTN-M60x...-GB	M60	5.5	4	2	108	54	84	27	113	62	2.35	1450	1935	
TG12	BTN-M64x...-GB	M64	6	4	2	113	57	88	28	119	67	2.75	1550	2080	
TG13	BTN-M68x...-GB	M68	6	4	2	120	60	95	30	126	70	3.25	1860	2500	
TG14	BTN-M72x...-GB	M72	6	4	2	127	64	100	32	133	74	3.80	2170	2910	
TG15	BTN-M76x...-GB	M76	6	4	2	136	68	116	34	142	78	5.20	2470	3325	
TG16	BTN-M80x...-GB	M80	6	4	2	140	70	120	35	147	82	5.75	2620	3500	
TG17	BTN-M85x...-GB	M85	6	4	2	148	74	130	37	155	86	6.90	2825	3770	
TG18	BTN-M90x...-GB	M90	6	4	2	156	78	135	39	163	90	7.80	3230	4310	
TG19	BTN-M100x...-GB	M100	6	4	2	175	88	150	44	183	100	10.75	3630	4850	
TG20	BTN-M110x...-GB	M110	6	4	2	192	96	165	48	200	108	13.90	4200	5600	
TG21	BTN-M120x...-GB	M120	6	4	2	208	104	180	52	216	116	17.45	5010	6680	
TG22	BTN-M125x...-GB	M125	6	4	2	220	110	190	55	228	122	20.75	5250	7000	
TG23	BTN-M130x...-GB	M130	6	4	2	226	113	195	57	234	125	22.00	5750	7700	
TG24	BTN-M140x...-GB	M140	6	4	2	245	123	210	61	253	135	27.80	6075	8100	
TG25	BTN-M150x...-GB	M150	6	4	2	260	130	225	65	268	142	32.90	6300	8400	

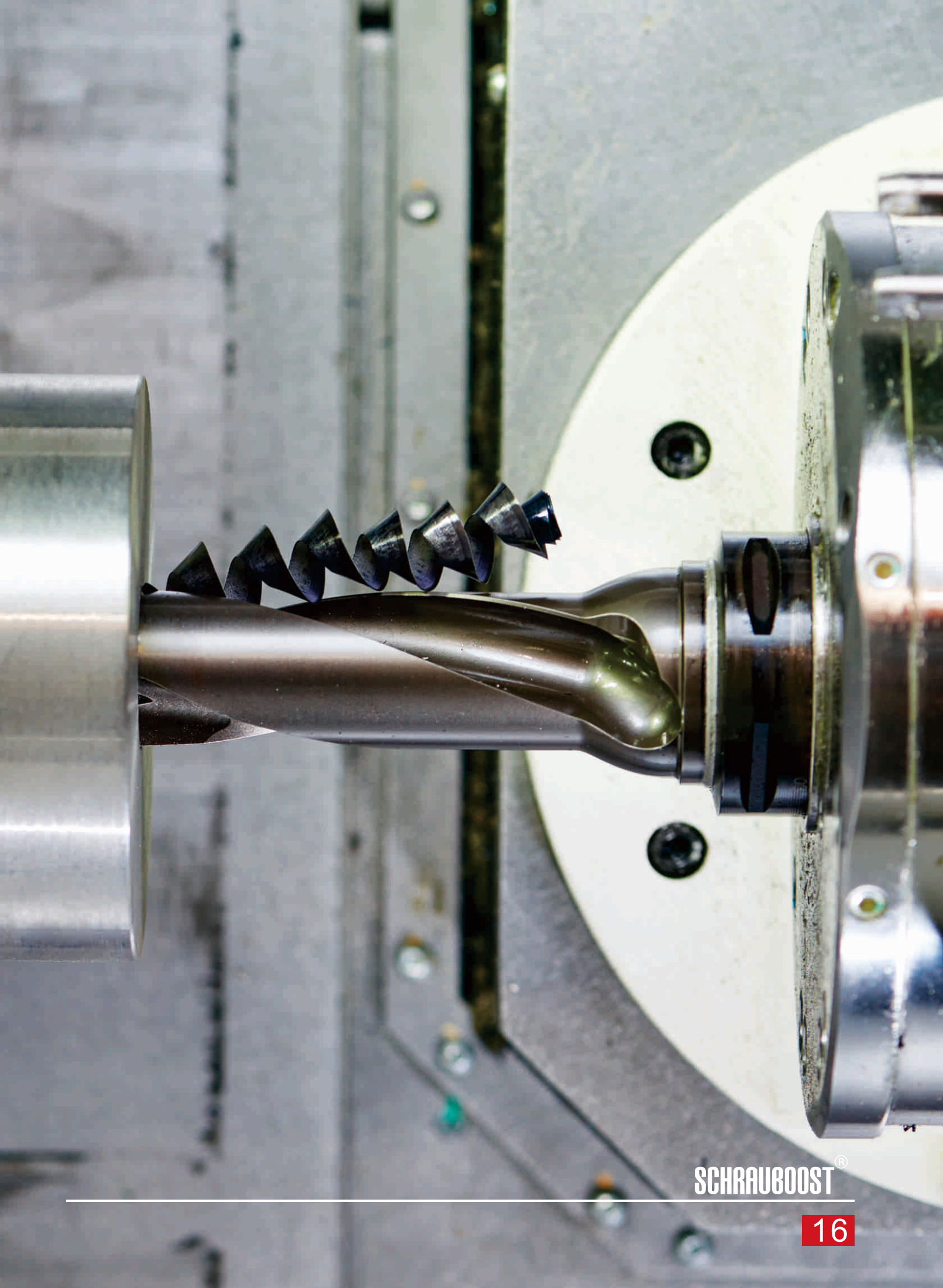
* This is maximum load applicable (Preload + Work Load).

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Solution tailored to your exact needs

While pushing boundaries, modern applications bring along new challenges, from extreme temperatures, specialized material combination, corrosive environment and compact sizes. When situations call for, we can design a product from scratch with consideration on working conditions, and process workflows. Our team of engineers had been through vigorous application scenarios, from space to deep sea, bringing you breakthrough technologies in bolting. OEMs all over the world can be benefitted from SCHRAUBOST[®], improving efficiency and reduce costs.



SCHRAUBOST®

Using the product

We provide detailed instructions on products. If needed, our experience field engineers are more than happy to conduct site trainings at your convenience.



Quality products start from quality raw materials

All raw materials for SCHRAUBOST® products are chosen and checked based on ISO Standards. Only materials that meet our stringent chemical and mechanical properties requirement are put into production.



Impact Test



Tensile Test



Fatigue Test



Chemical Composition Test

Quality products that pass strict inspections

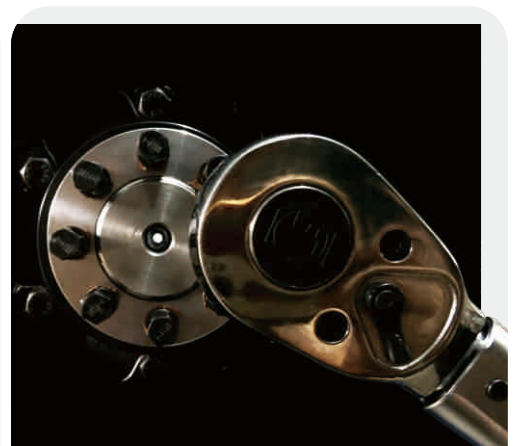
We perform strict process control in all manufacturing stages, we inspect dimensional tolerances and mechanical properties on finished products. Each product is marked for complete traceability. Test and technical documents are included upon delivery.



Preload Measurement



Product Marking



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Bolting Solutions Co.,Ltd.

Room 246, Floor 1, Building 1, No. 838 Jinfeng Road
710061, Qujiang New District, Xi'an City, China

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