

SBT 螺栓拉伸器

- 通用ANSI, API 法蘭均可適用。
- 質輕易攜帶。
- 可快速取出架橋、六角筒，便於工作替換。
- 鍍銀保護，延長使用壽命。
- 強化油封設計增強可靠性。
- 維修簡易、方便。

Hydraulic Bolt Tensioner

- ※Fit all Standard flanges including ANSI and API Flanges.
- ※Lightweight and easily handled design.
- ※Quick-Release bridge and Hex. Socket design-for fast change over.
- ※Electro-less nickel plating prolongs tool life and reduces on-the-job maintenance.
- ※Improved seal design offer increased reliability.
- ※Simple and easy to maintain.

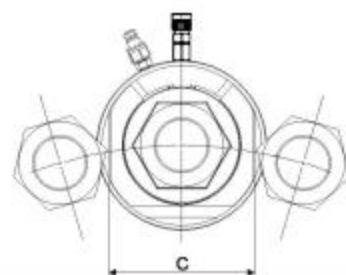
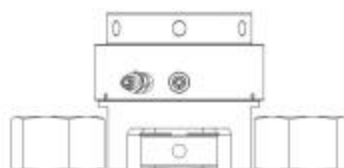
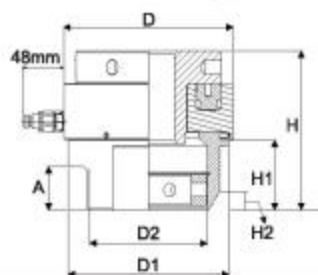
SBT Series

Capacity:
30-465 ton

Stroke:
8-10mm

Bolt Range:
M20-M150
3/4"-5-3/4"

Maximum Operating Pressure:
1500 bar



型號 Model	SBT-20	SBT-35	SBT-50	SBT-60	SBT-90	SBT-130	SBT-160	SBT-200	SBT-250	SBT-310
螺栓尺寸 Bolt dimension (ϕ *pitch)	M20*2.5	M27*3	M36*4	M42*4.5	M45*4.5	M60*5.5	M72*6	M80*6	M100*6	M125*6
	M22*2.5	M30*3.5	M39*4	M45*4.5	M48*5	M64*6	M76*6	M85*6	M110*6	M130*6
	M24*3	M33*3.5	M42*4.5	M48*5	M52*5	M68*6	M80*6	M90*6	M120*6	M140*6
	M27*3	M36*4	M45*4.5	M52*5	M56*5.5	M72*6		M95*6	M125*6	M150*6
螺牙尺寸 Threads (ϕ in-)	3/4"-10	1"-8	1-3/8"-6	1-1/2"-6	1-3/4"-5	2-1/2"-4	2-3/4"-4	3-1/4"-4	3-3/4"-4	5"-4
	7/8"-9	1-1/8"-7	1-1/2"-6	1-3/4"-5	2"-4-1/2	2-3/4"-4	3"-4	3-1/2"-4	4"-4	5-1/4"-4
	1"-8	1-1/4"-7	1-3/4"-5	2"-4-1/2	2-1/4"-4-1/2			3-3/4"-4	4-1/4"-4	5-1/2"-4
		1-3/8"-6							4-1/2"-4	5-3/4"-4
最大壓力 Max. Pressure	(bar)	1500	1500	1500	1500	1500	1500	1500	1500	1500
	(psi)	21756	21756	21756	21756	21756	21756	21756	21756	21756
油壓面積 Hydraulic area	(cm ²)	20	35	50	60	90	130	160	200	310
	(in ²)	3.1	5.43	7.75	9.3	13.95	20.15	24.8	31	48.05
最大油壓荷重 Max hydraulic load	(kN)	300	525	750	900	1350	1950	2400	3000	4650
	(lbf)	67443	118025	168606	202328	303492	438377	539541	674426	1045360
揚程 Piston stroke	(mm)	8	8	8	8	8	10	10	10	10
D (mm)	86	109	128	144	170	198	220	244	300	340
H (mm)	105	116	128	140	154	185	190	203	235	268
H1 (mm)	30	40	49	54	65	82	86	106	131	156
H2 (mm)	5.2	5.2	10.39	10.39	13.86	22.52	22.52	22.52	22.52	32.52
D1 (mm)	74	97	116	133	154	187	203	232	272	313
D2 (mm)	56	73	90	102	114	137	145	180	223	260
A (mm)	26	31	38	40	42	50	50	60	73	86
C (mm)	66	83	100	118	134	167	175	210	253	293
重量 Weight	(kg)	3	4.8	7.5	11	17.3	25	33	39	77

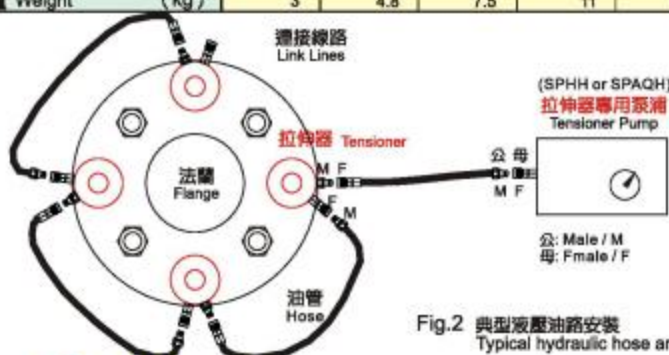


Fig.2 典型液壓油路安裝
Typical hydraulic hose arrangement



型 號 Model	SBT-20		SBT-35		SBT-50		SBT-60		SBT-90		SBT-130		SBT-160		SBT-200		SBT-250		SBT-310		
換算表 Chart																					
psi	bar	lbf	kN	lbf	kN	lbf	kN	lbf	kN	lbf	kN	lbf	kN	lbf	kN	lbf	kN	lbf	kN	lbf	kN
1000	69	3100	14	5425	24	7750	34	9300	41	13950	62	20150	90	24800	110	31000	138	38750	172	48050	214
2000	138	6200	28	10850	48	15500	69	18600	83	27900	124	40300	179	49600	221	62000	276	77500	345	96100	427
3000	207	9300	41	16275	72	23250	103	27900	124	41850	186	60450	269	74400	331	93000	414	116250	517	144150	641
4000	276	12400	55	21700	97	31000	138	37200	165	55800	248	80600	359	99200	441	124000	552	155000	689	192200	855
5000	345	15500	69	27125	121	38750	172	46500	207	69750	310	100750	448	124000	552	155000	689	193750	862	240250	1069
6000	414	18600	83	32550	145	46500	207	55800	248	83700	372	120900	538	148800	662	186000	827	232500	1034	288300	1282
7000	483	21700	97	37975	169	54250	241	65100	290	97650	434	141050	627	173600	772	217000	965	271250	1207	336350	1496
8000	552	24800	110	43400	193	62000	276	74400	331	111600	496	161200	717	198400	883	248000	1103	310000	1379	384400	1710
9000	621	27900	124	48825	217	69750	310	83700	372	125550	558	181350	807	223200	993	279000	1241	348750	1551	432450	1924
10000	689	31000	138	54250	241	77500	345	93000	414	139500	621	201500	896	248000	1103	310000	1379	387500	1724	480500	2137
11000	758	34100	152	59675	265	85250	379	102300	455	153450	683	221650	986	272800	1213	341000	1517	426250	1896	528550	2351
12000	827	37200	165	65100	290	93000	414	111600	496	167400	745	241800	1076	297600	1324	372000	1655	465000	2068	576600	2565
13000	896	40300	179	70525	314	100750	448	120900	538	181350	807	261950	1165	322400	1434	403000	1793	503750	2241	624650	2779
14000	965	43400	193	75950	338	108500	483	130200	579	195300	869	282100	1255	347200	1544	434000	1931	542500	2413	672700	2992
15000	1034	46500	207	81375	362	116250	517	139500	621	209250	931	302250	1344	372000	1655	465000	2068	581250	2586	720750	3208
16000	1103	49600	221	86800	386	124000	552	148800	662	223200	993	322400	1434	396800	1765	496000	2206	620000	2758	768800	3420
17000	1172	52700	234	92225	410	131750	586	158100	703	237150	1055	342550	1524	421600	1875	527000	2344	658750	2930	816850	3634
18000	1241	55800	248	97650	434	139500	621	167400	745	251100	1117	362700	1613	446400	1986	558000	2482	697500	3103	864900	3847
19000	1310	58900	262	103075	459	147250	655	176700	786	265050	1179	382850	1703	471200	2096	589000	2620	736250	3275	912950	4061
20000	1379	62000	276	108500	483	155000	689	186000	827	279000	1241	403000	1793	496000	2206	620000	2758	775000	3447	961000	4275
21000	1448	65100	290	113925	507	162750	724	195300	869	292950	1303	423150	1882	520800	2317	651000	2896	813750	3620	1009050	4488
22000	1517	68200	303	119350	531	170500	758	204600	910	306900	1365	443300	1972	545600	2427	682000	3034	852500	3792	1057100	4702

公制螺栓及六角對邊對照 Metric Bolt

螺紋 Bolt	M	6	8	10	12	14	16	18	20	22	24	27	30	33	36	39	42	45	48	52	56	60	64	68
六角對邊 Hexagon	mm	10	13	17	19	22	24	27	30	32	36	41	46	50	55	60	65	70	75	80	85	90	95	100
厚度 Thickness	mm	5	6.5	8	10	11	13	15	16	18	19	22	24	26	29	31	34	36	38	42	45	48	51	54

螺紋 Bolt	M	72	76	80	85	90	95	100	105	110	115	120	125	130	140	150
六角對邊 Hexagon	mm	105	110	115	120	130	135	145	150	155	165	170	180	185	200	210
厚度 Thickness	mm	58	61	64		72		84								

英制螺栓及六角對邊對照 Imperial Bolt

螺紋 Bolt		3/8	1/2	5/8	3/4	7/8	1	1 1/8	1 1/4	1 3/8	1 1/2	1 5/8	1 3/4	1 7/8	2
六角對邊 hexagon	mm	17	22	27	32	36	41	46	50	55	60	65	70	75	80
厚度 Thickness	mm	9.5	12.5	15.8	19	22	25	28	32	35	38	41	44	47	50
六角對邊 Hexagon	in	11/16	7/8	1-1/16	1 1/4	1 7/16	1 5/8	1 13/16	2	2 3/16	2 3/8	2 9/16	2 3/4	2 15/16	3 1/8
厚度 Thickness	in	3/8	1/2	5/8	3/4	7/8	1	1 1/8	1 1/4	1 3/8	1 1/2	1 5/8	1 3/4	1 7/8	2

螺紋 Bolt		2 1/4	2 1/2	2 3/4	3	3 1/4	3 1/2	3 3/4	4	4 1/4	4 1/2	4 3/4	5	5 1/4	5 1/2
六角對邊 Hexagon	mm	90	100	108	118	127	137	146	156	165	175	184	194	203	213
厚度 Thickness	mm	57	63	70	76										
六角對邊 Hexagon	in	3 1/2	3 7/8	4 1/4	4 5/8	5	5 3/8	5 3/4	6 1/8	6 1/2	6 7/8	7 1/4	7 5/8	8	8 3/8
厚度 Thickness	in	2 1/4	2 1/2	2 3/4	3										

螺紋 Bolt		5 3/4	6
六角對邊 Hexagon	mm	222	232
厚度 Thickness	mm		
六角對邊 Hexagon	in	8 3/4	9 1/8
厚度 Thickness	in		



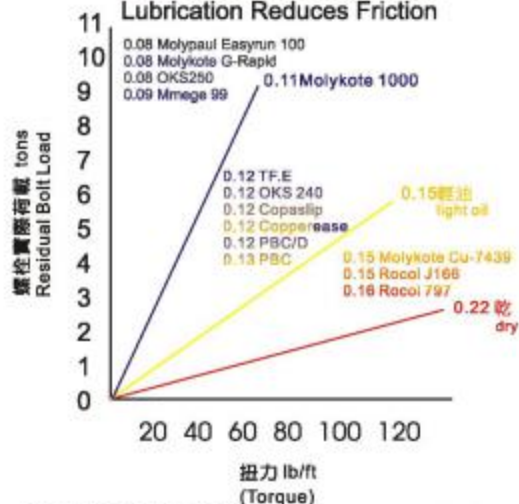


型號 Model Number	螺絲尺寸 Bolt dimension	油壓缸型號 Cylinder Model	架橋型號 Bridge Model	螺牙帽型號 Thread adaptor Model	六角筒型號 Hex. Socket Model
SBT-20 M20-2.5	M20*2.5	SBT-20C	SBT-20J	SBT-20T M20-2.5	SBT-20H 30
SBT-20 M22-2.5	M22*2.5			SBT-20T M22-2.5	SBT-20H 32
SBT-20 M24-3	M24*3			SBT-20T M24-3	SBT-20H 36
SBT-20 M27-3	M27*3			SBT-20T M27-3	SBT-20H 41
SBT-20 3/4"-10	3/4"-10			SBT-20T 3/4"-10	SBT-20H 32
SBT-20 7/8"-9	7/8"-9			SBT-20T 7/8"-9	SBT-20H 36
SBT-20 1"-8	1"-8			SBT-20T 1"-8	SBT-20H 41
SBT-35 M27-3	M27*3	SBT-35C	SBT-35J	SBT-35T M27-3	SBT-35H 41
SBT-35 M30-3.5	30*3.5			SBT-35T M30-3.5	SBT-35H 46
SBT-35 M33-3.5	M33*3.5			SBT-35T M33-3.5	SBT-35H 50
SBT-35 M36-4	M36*4			SBT-35T M36-4	SBT-35H 55
SBT-35 1"-8	1"-8			SBT-35T 1"-8	SBT-35H 41
SBT-35 1-1/8"-7	1-1/8"-7			SBT-35T 1-1/8"-7	SBT-35H 46
SBT-35 1-1/4"-7	1-1/4"-7			SBT-35T 1-1/4"-7	SBT-35H 50
SBT-35 1-3/8"-6	1-3/8"-6			SBT-35T 1-3/8"-6	SBT-35H 55
SBT-50 M36-4	M36*4	SBT-50C	SBT-50J	SBT-50T M36-4	SBT-50H 55
SBT-50 M39-4	M39*4			SBT-50T M39-4	SBT-50H 60
SBT-50 M42-4.5	M42*4.5			SBT-50T M42-4.5	SBT-50H 65
SBT-50 M45-4.5	M45*4.5			SBT-50T M45-4.5	SBT-50H 70
SBT-50 1-3/8"-6	1-3/8"-6			SBT-50T 1-3/8"-6	SBT-50H 55
SBT-50 1-1/2"-6	1-1/2"-6			SBT-50T 1-1/2"-6	SBT-50H 60
SBT-50 1-3/4"-5	1-3/4"-5			SBT-50T 1-3/4"-5	SBT-50H 70
SBT-60 M42-4.5	M42*4.5	SBT-60C	SBT-60J	SBT-60T M42-4.5	SBT-60H 65
SBT-60 M45-4.5	M45*4.5			SBT-60T M45-4.5	SBT-60H 70
SBT-60 M48-5	M48*5			SBT-60T M48-5	SBT-60H 75
SBT-60 M52-5	M52*5			SBT-60T M52-5	SBT-60H 80
SBT-60 1-1/2"-6	1-1/2"-6			SBT-60T 1-1/2"-6	SBT-60H 60
SBT-60 1-3/4"-5	1-3/4"-5			SBT-60T 1-3/4"-5	SBT-60H 70
SBT-60 2"-4.5	2"-4.5			SBT-60T 2"-4.5	SBT-60H 80
SBT-90 M45-4.5	M45*4.5	SBT-90C	SBT-90C	SBT-90T M45-4.5	SBT-90H 70
SBT-90 M48-5	M48*5			SBT-90T M48-5	SBT-90H 75
SBT-90 M52-5	M52*5			SBT-90T M52-5	SBT-90H 80
SBT-90 M56-5.5	M56*5.5			SBT-90T M56-5.5	SBT-90H 85
SBT-90 M60-5.5	M60*5.5			SBT-90T M60-5.5	SBT-90H 90
SBT-90 1-3/4"-5	1-3/4"-5			SBT-90T 1-3/4"-5	SBT-90H 70
SBT-90 2"-4.5	2"-4.5			SBT-90T 2"-4.5	SBT-90H 80
SBT-90 2-1/4"-4.5	2-1/4"-4.5	SBT-130C	SBT-130J	SBT-90T 2-1/4"-4.5	SBT-90H 90
SBT-130 M60-5.5	M60*5.5			SBT-130T M60-5.5	SBT-130H 90
SBT-130 M64-6	M64*6			SBT-130T M64-6	SBT-130H 95
SBT-130 M68-6	M68*6			SBT-130T M68-6	SBT-130H 100
SBT-130 M72-6	M72*6			SBT-130T M72-6	SBT-130H 105
SBT-130 M76-6	M76*6			SBT-130T M76-6	SBT-130H 110
SBT-130 2-1/2"-4	2-1/2"-4			SBT-130T 2-1/2"-4	SBT-130H 100
SBT-130 2-3/4"-4	2-3/4"-4	SBT-160C	SBT-160J	SBT-130T 2-3/4"-4	SBT-130H 108
SBT-160 M72-6	M72*6			SBT-160T M72-6	SBT-160H 105
SBT-160 M76-6	M76*6			SBT-160T M76-6	SBT-160H 110
SBT-160 M80-6	M80*6			SBT-160T M80-6	SBT-160H 115
SBT-160 2-3/4"-4	2-3/4"-4			SBT-160T 2-3/4"-4	SBT-160H 108
SBT-160 3"-4	3"-4			SBT-160T 3"-4	SBT-160H 118



型號 Model Number	螺栓尺寸 Bolt dimension	油壓缸型號 Cylinder Model	架橋型號 Bridge Model	螺牙帽型號 Thread adaptor Model	六角筒型號 Hex. Socket Model
SBT-200 M80-6	M80*6	SBT-200C	SBT-200J	SBT-200T M80-6	SBT-200H 115
SBT-200 M85-6	M85*6			SBT-200T M85-6	SBT-200H 120
SBT-200 M90-6	M90*6			SBT-200T M90-6	SBT-200H 130
SBT-200 M95-6	M95*6			SBT-200T M95-6	SBT-200H 135
SBT-200 M100-6	M100*6			SBT-200T M100-6	SBT-200H 145
SBT-200 3-1/4"-4	3-1/4"-4			SBT-200T 3-1/4"-4	SBT-200H 127
SBT-200 3-1/2"-4	3-1/2"-4			SBT-200T 3-1/2"-4	SBT-200H 137
SBT-200 3-3/4"-4	3-3/4"-4			SBT-200T 3-3/4"-4	SBT-200H 146
SBT-250 M100-6	M100*6	SBT-250C	SBT-250J	SBT-250T M100-6	SBT-250H 145
SBT-250 M110-6	M110*6			SBT-250T M110-6	SBT-250H 155
SBT-250 M120-6	M120*6			SBT-250T M120-6	SBT-250H 170
SBT-250 M125-6	M125*6			SBT-250T M125-6	SBT-250H 180
SBT-250 3-3/4"-4	3-3/4"-4			SBT-250T 3-3/4"-4	SBT-250H 146
SBT-250 4"-4	4"-4			SBT-250T 4"-4	SBT-250H 156
SBT-250 4-1/4"-4	4-1/4"-4			SBT-250T 4-1/4"-4	SBT-250H 165
SBT-250 4-1/2"-4	4-1/2"-4			SBT-250T 4-1/2"-4	SBT-250H 175
SBT-250 4-3/4"-4	4-3/4"-4	SBT-310C	SBT-310J	SBT-250T 4-3/4"-4	SBT-250H 184
SBT-310 M125-6	M125*6			SBT-310T M125-6	SBT-310H 180
SBT-310 M130-6	M130*6			SBT-310T M130-6	SBT-310H 185
SBT-310 M140-6	M140*6			SBT-310T M140-6	SBT-310H 200
SBT-310 M150-6	M150*6			SBT-310T M150-6	SBT-310H 210
SBT-310 5"-4	5"-4			SBT-310T 5"-4	SBT-310H 194
SBT-310 5-1/4"-4	5-1/4"-4			SBT-310T 5-1/4"-4	SBT-310H 203
SBT-310 5-1/2"-4	5-1/2"-4			SBT-310T 5-1/2"-4	SBT-310H 213
SBT-310 5-3/4"-4	5-3/4"-4			SBT-310T 5-3/4"-4	SBT-310H 222

加上潤滑劑能減少摩擦的產生
Lubrication Reduces Friction

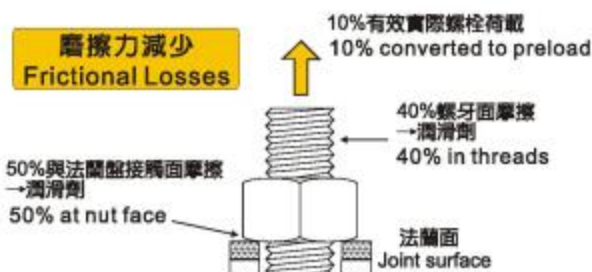


加潤滑劑的優點

1. 減少摩擦力。
2. 增加螺栓使用壽命。
3. 裝置螺栓的成功率提高。
4. 提高扭矩轉換率。

Advantages of Lubrication

1. Reduces the friction during tightening.
2. Increases bolt service life.
3. Decreases bolt failure during installation.
4. Higher friction results in less conversion of torque to preload.



摩擦點 Friction Point



須加潤滑劑
Lubricated

當將扭矩鎖緊時，接觸的摩擦點（螺牙面和法蘭接觸的面）都需使用潤滑劑。
Friction points should always be lubricated when using the torque tightening method.

扭力順序

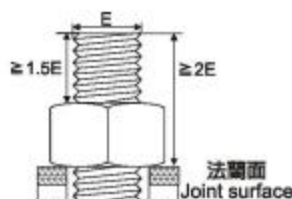
一般使用一個扳手鎖一個螺栓，這樣容易造成“單點負荷”和“荷載分散”。為避免這些情況發生建議依下列圖示使用：

Torque Procedure

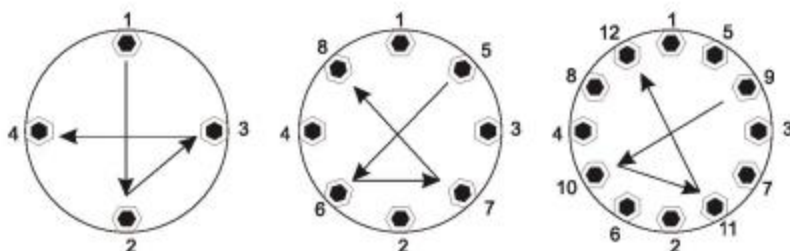
When torque it is common to tighten only one bolt at a time, this can result in Point Loading and Load Scatter. To avoid this, torques applied in stages following a prescribed pattern:

製造者所提供的使用壓力和扭力值範圍即最大安全限度。最佳的操作範圍即此數值的80%。

Manufacturer's rating of pressure and torque are maximum safe limits. Good practice encourages using only 80% of these ratings!



螺栓最少突出1.5個螺栓直徑高度
Min. protrusion 1.5 x Bolt Diameter



步驟1：用螺絲扳手將螺帽鎖緊至法蘭面並確認螺栓至少突出直徑1.5倍，以供螺栓和拉伸器咬合。

步驟2：如上圖所示依序鎖緊1/3的螺栓。

步驟3：再依圖示鎖緊剩下的2/3螺栓。

步驟4：最後如上圖最後鎖緊剩下所有的螺栓。

步驟5：所有螺栓運行方式皆以順時針方向來操作。

Step1: Spanner tight the nut firmly seated against the joint surface and check minimum protruding length 1.5 bolt diameter extend above nut to engage the tensioner.

Step2: Tighten each bolt to one-third of the final required torque following the pattern as shown above.

Step3: Increase the torque to two-thirds following the pattern shown above.

Step4: Increase the torque to full torque following the pattern shown above.

Step5: Perform one final pass on each bolt working clockwise from bolt 1, at the full final torque.

拉伸操作

並聯的螺栓允許同步拉伸工具透過一個高壓油管和單泵系統依序連接。如此可確保每座拉伸器都是精準相同的荷載並提供相對的法蘭面均勻相同的夾持力。

Tension Operation

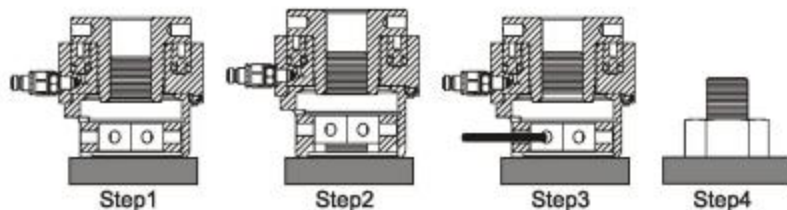
Tensioning permits the simultaneous tightening of multiple bolts; the tools are connected in sequence via a high-pressure hose assembly to a single pump unit. This ensure tool develops the exact same load and provides a uniform clamping force across the joint.

小於100%的拉伸

不是所有情況都適合使用同步方式連接；如此一來至少需使用兩階段壓力。當已拉伸的螺栓再次被鎖緊時，螺栓的荷載力會減少。

Less than 100% Tensioning

Not all applications allow for the simultaneous fit of a tensioning device on each bolt, in these cases at least two tensioning pressure are applied. This is to account for a load loss in those bolts already tensioned as the next sets are tightened.



步驟1：先將拉伸器安裝在螺栓上。

步驟2：操作適當的油壓。

步驟3：將螺帽轉下接近法蘭節表面。

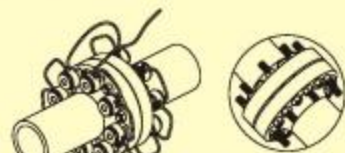
步驟4：洩壓並移除油壓工具。

Step1: The bolt Tensioner is fitted over the stud.

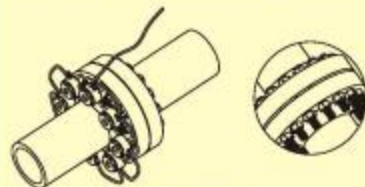
Step2: Hydraulic pressure is applied to the tensioner which then stretches the stud.

Step3: The stud's nut is wound down against the joint face.

Step4: Pressure is released and the tool removed.

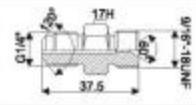
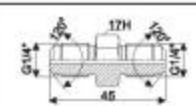
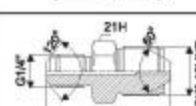
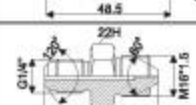

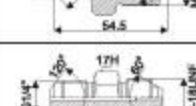
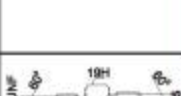
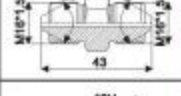
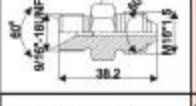
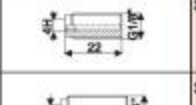
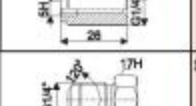










100%拉伸安裝
Set-up using a 100% tensioning procedure



50%拉伸安裝
Set-up using a 50% tensioning procedure

編號 Item	品名 Product	型號 Model	規範&尺寸 Description & Dimension (mm)				
			A Male	B Female	C	D	
1	手動泵浦 Hand Pump	請參閱頁109 (see page 109)	—	—	—	—	
2	錶接頭 Gauge Adapter	GSAH-M22A	M22*1.5	G1/4"	G1/2"	—	最大工作壓力 : 3000 bar Max. W.P : 3000 bar
3	充油式壓力錶 Gauge	XHO4LM4G1B XHO4LM4G1.6B XHO4LM4G2.5B	G1/2"	—	100	30	範圍 Press. Range 1000bar 1600bar 2500bar
4	立布 Nipple		兩端尺寸 Dimension				
	最大工作壓力: Max. W.P. : 3000bar		End one		End two		
	SBTN-G146G146I		G1/4"外螺紋 60°內錐面		G1/4"外螺紋 60°內錐面 G1/4" male thread with 60° internal cone		
	SBTN-G146N14M				NPT 1/4"外螺紋 NPT 1/4" male thread		
	SBTN-G146R14M				R1/4"外螺紋 R1/4" male thread		
	SBTN-G146N38M				NPT 3/8" 外螺紋 NPT 3/8" male thread		
	SBTN-G146R38M				R 3/8" 外螺紋 R 3/8" male thread		
	SBTN-G146G1412E				G1/4" 外螺紋 120°外錐面 G1/4" male thread with 120° external cone		
	SBTN-G1469166E				9/16"-18UNF 外螺紋 60°外錐面 9/16"-18UNF male thread with 60° external cone		
	SBTN-G146346E				3/4"-16UNF 外螺紋 60°外錐面 3/4"-16UNF male thread with 60° external cone		
	SBTN-G146M166E				M16*1.5 外螺紋 60°外錐面 M16*1.5 male thread with 60° external cone		
	SBTN-G146M226E		G1/4" male thread with 60° internal cone		M22*1.5 外螺紋 60°外錐面 M22*1.5 male thread with 60° external cone		

編號 Item	品名 Product	型號 Model	兩端尺寸 Dimension (mm)		
				End one	End two
4	立布 Nipple 新、舊品號變更表 Old model change to new model 舊 Old model SBT-14BSPMM SBT-14BSPMMT SBT-916-14BSPMM 新 New model SBTN-G1412G1412E SBTN-G14129166I SBTN-G14129166E	SBTN-G14129166I		G1/4" 外螺紋 120° 外錐面	9/16"-18UNF 外螺紋 60° 內錐面 9/16"-18UNF male thread with 60° internal cone
		SBTN-G1412G1412E			G1/4" 外螺紋 120° 外錐面 G1/4" male thread with 120° external cone
		SBTN-G1412346E			3/4"-16UNF 外螺紋 60° 外錐面 3/4"-16UNF male thread with 60° external cone
		SBTN-G1412M166E			M16*1.5 外螺紋 60° 外錐面 M16*1.5 male thread with 60° external cone
		SBTN-G1412M226E			M22*1.5 外螺紋 60° 外錐面 M22*1.5 male thread with 60° external cone
		SBTN-G14129166E		G1/4" male thread with 120° external cone	9/16"-18UNF 外螺紋 60° 外錐面 9/16"-18UNF male thread with 60° external cone
		SBTN-9166M166E		9/16"-18UNF 外螺紋 60° 外錐面 9/16"-18UNF male thread with 60° external cone	M16*1.5 外螺紋 60° 外錐面 M16*1.5 male thread with 60° external cone
		SBTN-M16M166E		M16*1.5 外螺紋 60° 外錐面 M16*1.5 male thread with 60° external cone	M16*1.5 外螺紋 60° 外錐面 M16*1.5 male thread with 60° external cone
		SBTN-9166IM166E		9/16"-18UNF 外螺紋 60° 內錐面 9/16"-18UNF male thread with 60° internal cone	M16*1.5 外螺紋 60° 外錐面 M16*1.5 male thread with 60° external cone
		SBTN-G18M		G1/8" 外全牙 G1/8" male, fully thread	
		SBTN-G14M		G1/4" 外全牙 G1/4" male, fully thread	
		SBTN-G1412		G1/4" 外螺紋 120° 外錐面 G1/4" male thread with 120° external cone	

編號 Item	品名 Product	型號 Model	規範&尺寸 Description & Dimension (mm)						
			Connect	Length	Diam.	Hexagon key handle	Wgt. (g)	Rec. Torque (N.m)	
5	快速立布 Quick Nipple	 SBT-CE116-M	G1/4"	38.0	25.4	22	60	40-50	材質：高強度、鍍鉍鋼 最大工作壓：150MPa 最小爆破壓：300MPa 流量(0.4Mpa壓力)：6.0L/min Material：Hardened, zinc chromate plated steel Max. W.P：150MPa Min. B.P：300MPa Flow at 0.4Mpa pressure：6.0L/min
		 SBT-CE125-M	G1/4"	38.0	25.4	22	60	40-50	材質：高強度、鍍鉍鋼 最大工作壓：200MPa 最小爆破壓：400MPa 流量(0.4Mpa壓力)：5.8L/min Material：Hardened, zinc chromate plated steel Max. W.P：200MPa Min. B.P：400MPa Flow at 0.4Mpa pressure：5.8L/min
		 SBT-CE135-M	M16*1.5	55.3	25.0	22	125	40-50	材質：高強度、染黑處理 最大工作壓：300MPa 最小爆破壓：600MPa 流量(0.4Mpa壓力)：4.6L/min Material：Hardened black finish steel Max. W.P：300MPa Min. B.P：600MPa Flow at 0.4Mpa pressure：4.6L/min
		 SQB-4H	M22*1.5	75.0	39.0		400	40-50	材質：高強度、鍍鉍處理 最大工作壓：200MPa 最小爆破壓：400MPa 流量(0.4Mpa壓力)：5.8L/min Material：Hardened, nickel chromate plated steel Max. W.P：200MPa Min. B.P：400MPa Flow at 0.4Mpa pressure：5.8L/min
6	母接頭 Coupler	 SBT-CE116-F	G1/4"	61.3	28.0	24	165	40-50	材質：高強度、鍍鉍鋼 最大工作壓：150MPa 最小爆破壓：300MPa 流量(0.4Mpa壓力)：6.0L/min Material：Hardened, zinc chromate plated steel Max. W.P：150MPa Min. B.P：300MPa Flow at 0.4Mpa pressure：6.0L/min
		 SBT-CE125-F	G1/4"	64.3	30.0	24	210	40-50	材質：高強度、鍍鉍鋼 最大工作壓：200MPa 最小爆破壓：400MPa 流量(0.4Mpa壓力)：5.8L/min Material：Hardened, zinc chromate plated steel Max. W.P：200MPa Min. B.P：400MPa Flow at 0.4Mpa pressure：5.8L/min
		 SBT-CE135-F	M16*1.5	64.0	30.0	22	210	40-50	材質：高強度、染黑處理 最大工作壓：300MPa 最小爆破壓：600MPa 流量(0.4Mpa壓力)：4.6L/min Material：Hardened black finish steel Max. W.P：300MPa Min. B.P：600MPa Flow at 0.4Mpa pressure：4.6L/min
		 SQB-4R	M22*1.5	80.0	43.0	22	350	40-50	材質：高強度、鍍鉍處理 最大工作壓：200MPa 最小爆破壓：400MPa 流量(0.4Mpa壓力)：5.8L/min Material：Hardened, nickel chromate plated steel Max. W.P：200MPa Min. B.P：400MPa Flow at 0.4Mpa pressure：5.8L/min

編號 Item	品名 Product	型號 Model	規範&尺寸 Description & Dimension (mm)			
7	油管 Hose		兩端尺寸 End one End two		內部材質：聚氧化亞甲基(POM) 外罩透明PA	Inner core: Polyoxymethylene (POM) Outer cover Polyamide (PA)
		HSBT-5/4	G1/4" Male 公	G1/4" Male 公	4層高張力金屬網 內徑:5.0mm, 外徑:11.2mm 工作壓力:1800bar,爆破壓力:4500bar 最小彎曲半徑:150mm 重量:0.26 kg/m	4layers of high-tensile steel wire ID:5.0mm, OD:11.2mm W.P.:1800bar, B.P.:4500bar Min. Bend: 150mm Wgt.:0.26 kg/m
		HSBT-5/6	G1/4" Male 公	G1/4" Male 公	6層高張力金屬網 內徑:4.8mm, 外徑:13.2mm 工作壓力:2500bar,爆破壓力:6250bar 最小彎曲半徑:200mm 重量:0.45 kg/m	6layers of high-tensile steel wire ID:4.8mm, OD:13.2mm W.P.:2500bar, B.P.:6250bar Min. Bend: 200mm Wgt.:0.45 kg/m
		HSBT-4/8	G1/4" Male 公	G1/4" Male 公	8層高張力金屬網 內徑:4.0mm, 外徑:12.8mm 工作壓力:3200bar,爆破壓力:8000bar 最小彎曲半徑:175mm 重量:0.54 kg/m	8layers of high-tensile steel wire ID:4.0mm, OD:12.8mm W.P.:3200bar, B.P.:8000bar Min. Bend: 175mm Wgt.:0.54 kg/m
8	轉接頭 Adapter	SBTA-M16G14	公端 Male Thread M16*1.5	母端 Female Connect G1/4"	工作壓力：3000 bar Max. W.P: 3000bar	
9	T型墊塊/十字墊塊 Tee Block / Cross Block	SBT-14BSP3W	3 孔G1/4"三通塊 3-G1/4"-Female port		尺寸Dimension (mm) 50 X 38 (L X W)	最大工作壓力：3000 bar Max. W.P: 3000bar
		SBT-14BSP4W	4 孔G1/4"四通塊 4-G1/4"-Female port		尺寸Dimension (mm) 50 X 50 (L X W)	最大工作壓力：3000 bar Max. W.P: 3000bar
10	華司 Washer	SBT-XW14	外徑：20.57mm 內徑：13.74mm 厚度：2mm(以黑色尼龍為準) O.D: 20.57mm, I.D: 13.74mm Depth: 2mm(measure by black nylon)		最大工作壓力：3000 bar 材質：內圈尼龍， 外圈S45C鋼表面鍍鉍 Max. W.P: 3000 bar Material: Nylon inside + Outer zinc plated S45C steel.	
		SBT-XW38	外徑：23.8mm 內徑：17.28mm 厚度：2mm(以黑色尼龍為準) O.D: 23.8mm, I.D: 17.28mm Depth: 2mm(measure by black nylon)			
		SBT-XWM8	外徑：28.58mm 內徑：21.54mm 厚度：2.5mm(以黑色尼龍為準) O.D: 28.58mm, I.D: 21.54mm Depth: 2.5mm(measure by black nylon)			
11	手控分流閥 Premounted Manifold	SBT-V82 手控雙分流閥 2 control bars	其功能為分流閥，可同步控制2-6個單動油缸缸，所有通孔均為 G1/4"-19 最大工作壓力：2500 bar Functions as split-flow valve to control 2-6 single-acting cylinders simultaneously. All ports G1/4"-19. Max. W.P: 2500bar			
		SBT-V83 手控雙分流閥 3 control bars				
		SBT-V84 手控雙分流閥 4 control bars				
		SBT-V86 手控雙分流閥 6 control bars				
		SBT-V810 手控雙分流閥 10 control bars				
12	針閥 Needle Valve	SV-86	9/16"-18UNF母接頭 可控制油壓，亦可當作 暫時維持的開閉閥 最大工作壓力： 60000psi/ 4135 bar 9/16"-18UNF female ports. To control hydraulic speed and also be used as shut-off valve for temporary holding. Max. W.P: 60000psi/ 4135bar			

