
BRILLIANT-ACTUANT

HYDRAULIC TOOLS

Hydraulic Bolt Tensioner Operating instructions

Please carefully read the instructions before use

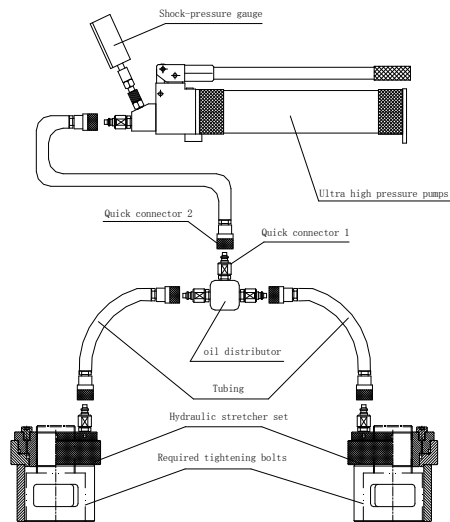
Summar

BA series hydraulic bolt tightening device SYB series liquid booster pump (high pressure oil pump) is combined with the BA series hydraulic bolt stretch. It has a tight interference fit is solid, remove the nut and the implementation of special features. Its working principle is provided with hydraulic booster pump ultra-high pressure hydraulic, bolt material allowed for tensile strength and yield number of pumps, hydraulic bolt pretension, hydraulic booster pump discharge pressure to tighten the nut if remove the nut, is natural after hydraulic tensile bolts loose. BA series hydraulic bolt tightening devices combined into hydraulic interference devices for various structural parts, transmission parts to implement key tie-free, its fastening axial force is imposed and no other tool can replace. Technology of hydraulic bolt tightening device as a special device, fastening to their uniform, reliable, effective, and many other advantages, has been fully affirmed by the majority of technicians.

BA series hydraulic bolt stretch Manager, SYB series liquid force boost pump, MX super high pressure tubing, three who combination and into of hydraulic bolt tighten device came out , has broad application Yu hydropower station, and ship diesel engine, and gas compressor, and fertilizer synthesis Tower, and separation Tower, and coal mine dug into machine, and belt machine, and system hydrogen electrolyzer, and steelmaking even cast machine, ship built, and oil chemical, and metallurgical coal mine, and heavy machine industry various medium equipment in the bolt of hydraulic stretch tight solid, and demolition and various Widget, and transmission pieces of no key tie, Many host plants as random tools supporting the factory. BA series hydraulic bolt tightening device, with its stable product quality and good after-sales service to win the trust of the users, win customers ' trust and love.

Product structure

BA series hydraulic bolt tightening device consisting of all the hydraulic components are standalone products, we take multiple configurations as needed to provide a user reference selection



NO.	NAME	QUARRY			
		A	B	C	D
1	SYB Hydraulic pump	1	1	1	1
2	BA Hydraulic bolt stretch	1	2	2	2
3	MX Ultra high pressure tubing	1	3	4	5
4	KJC Ultra high pressure connector	2	5	7	9
5	Oil dispenser	/	Three	Four	Five

Introduction to BA series hydraulic bolt tension machine



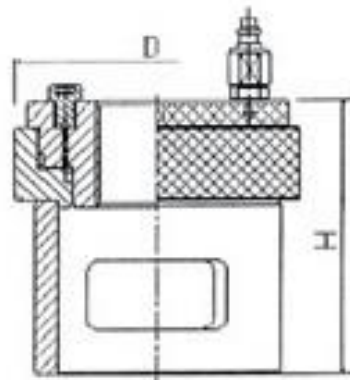
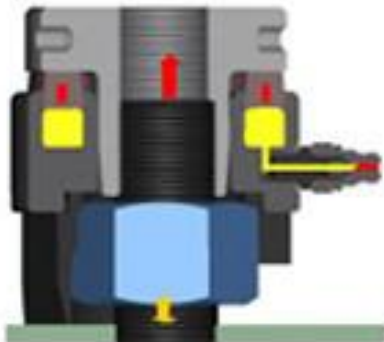
Hydraulic bolt tensile bolts for short stretches, it used hydraulic.Booster pump (ultra high pressure pumps) to provide hydraulic power supply, according to the material Tensile strength and elongation, yield coefficient decided to tensile, secure.And the best way to disassemble all kinds of bolts.

In actual operation, the user according to the design requirements of pulling force according to the following formula to calculate the hydraulic booster pump provides pressure required.

$$P = F / A$$

(Pressure) (Pulling force) (Fuel tank area)

BRILLIANT companies based on their use of different applications, BAL hydraulic bolt tensile machine, automatically reset bolt tensile machine, the BAS-BAZ-type two-stage hydraulic bolt tensile machine, BAR-type split-bolt stretch.



BAL-hydraulic bolt stretching

Product description:

1、 Features

Tensile bolts quickly and securely synchronize the best approach is to use the hydraulic Bolt tensile, durable stretch evenly in the function applied to each On the bolt, bolt without proper stretching, not working And failure. Connection combination, exact combinations of stretching a Key. Hydraulic bolt stretcher in the critical connection reduces this risk, stretch rapid, safe and accurate. Bolt stretch is the bolt Assembly and disassembly tools, synchronized tightening with bolt tensile technology, high strength bolt tightening and demolition (for contacts synchronized clamping or separation), can provide a variety of requirements of thrust and pull; multiple bolts fastening simultaneously can also greatly improve the efficiency of Assembly.



2、 Use

Stretcher-fixed and variable hydraulic bolt can be used in reactors, flanges, compressors, turbines, pressure containers, pipelines, crimp style fittings, operating under the sea and nuclear power.

The company also provide hydraulic nut and nuts drawing techniques, stretcher configuration and 2000Mpa oil pump. (Fixed stretcher variable type stretcher)

- Maximum working pressure: 1500bar
- Compact structure, easy to operate
- More than one stretcher can be used simultaneously, for more than one bolt, improve work efficiency
- Precise calculation of the preload avoids damaged bolts in the stretching process
- Pure tensile stress by tensile bolts, without distortion, or damaged fasteners surface
- Built-in spring piston can be achieved with automatic reset
- Provide non-standard bolt stretch according to customer demand, applied to different types of bolts

BAL-type hydraulic bolt tensile parameters table

Product model	Bolt diameter r (mm)	Bolt diameter (inch)	Outside diameter D (mm)	Height H (mm)	Fuel tank area (mm ²)	Maximum Pulling force (KN)	Stroke (mm)
BAL-20	M20	3/4	70	82	706	105.9	8
BAL-22	M22	7/8	75	86	1119	167.8	8
BAL-24	M24	1	78	100	1570	235.5	10
BAL-27	M27	1-1/8	90	100	2258	338.7	10
BAL-30	M30	1-1/5	100	100	3063	459.5	10
BAL-33	M33	1-1/4	100	100	3063	459.5	10
BAL-36	M36	1-3/8	110	115	3985	597.7	10
BAL-39	M39	1-1/2	116	120	4260	639	10
BAL-42	M42	1-5/8	139	125	7069	1060.3	10
BAL-45	M45	1-3/4	145	130	7461	1119.1	10
BAL-48	M48	1-7/8	152	140	7853	1178	10
BAL-52	M52	2	156	145	10367	1555	10
BAL-56	M56	2-1/4	175	150	10838	1625.7	10
BAL-60	M60	2-1/2	180	156	11309	1696.3	10
BAL-64	M64		185	156	11781	1767.1	10
BAL-68	M68	2-3/4	195	175	14293	2144	10
BAL-72	M72		205	195	16198	2429.8	10
BAL-76	M76	3	215	200	16787	2518	10
BAL-80	M80	3-1/4	226	225	17966	2694.9	10
BAL-85	M85	3-3/8	230	230	18555	2783.3	10
BAL-90	M90	3-1/2	236	240	19144	2871.6	10
BAL-95	M95		246	280	21362	3204.3	10
BAL-100	M100	4	255	310	21990	3398.5	10
BAL-105	M105	4-1/8	270	320	25034	3755	10
BAL-110	M110	4-3/8	280	330	27567	4135	10
BAL-115	M115	4-1/2	290	350	30218	4532.7	10
BAL-120	M120	4-3/4	300	360	32986	4948	10
BAL-125	M125	5	310	370	35874	5381.1	10
BAL-130	M130	5-1/8	320	380	38877	5831.5	10
BAL-140	M140	5-1/2	330	390	40605	6090.7	10
BAL-160	M160	6-1/3	360	400	42470	6370.5	10

BAZ-automatic reset bolt stretching

Product description:

Automatic reset bolt tension machine, at the end of each round of bolt tightening will, automatically pressure inside the cylinder in the fuel back to the fuel tank, the piston Complete the automatic reset. Saves both fuel and eliminate environmental pollution. Resolved through human excretion in the past, is laborious and time consuming

(Specific technical parameters references BAL hydraulic

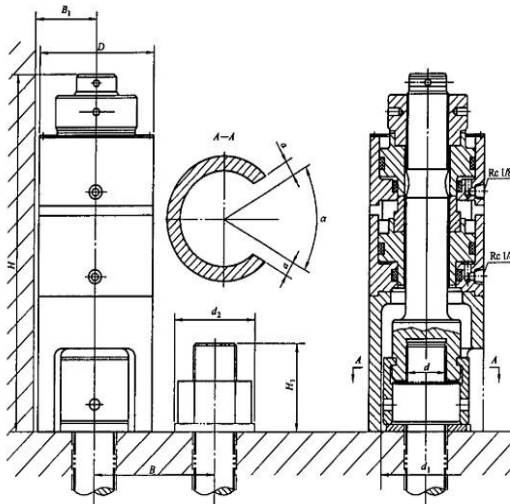


BAS-type two-stage hydraulic bolt stretch

Product description:

BAS double high-tensile (double bolt stretch) the smaller diameter than single level stretcher and greater tensile strength, pulling force is 80MPa determination. If using the highest pressure of 150Mpa get greater pulling force. Implementation of heavy machinery standards JB/T6390-2007.

If the parameters below do not meet your requirements can be customized according to actual working condition and special requirements.



BAS (dual-stage-high) form of hydraulic bolt stretch

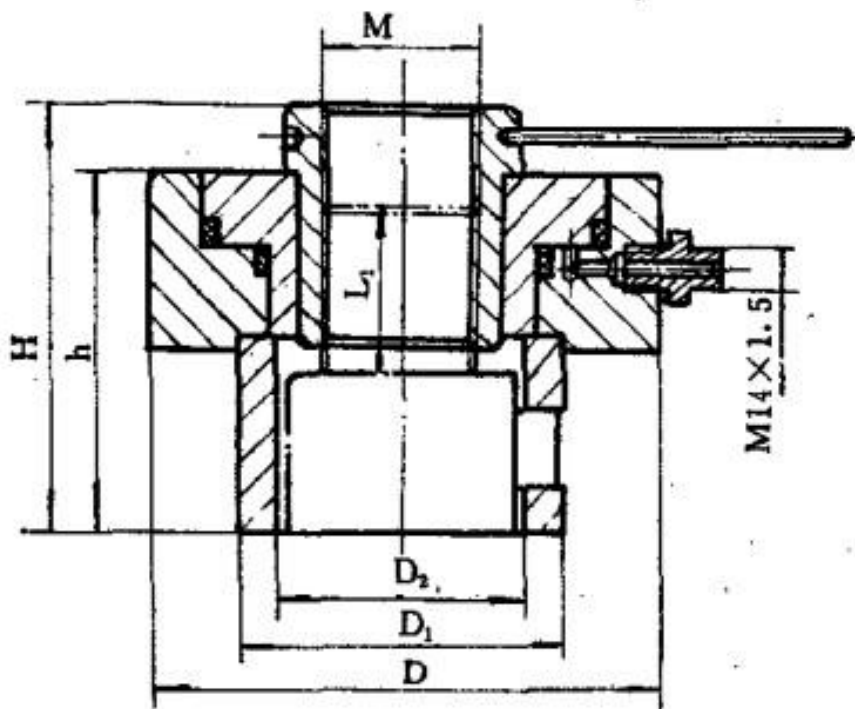
BAS hydraulic bolt tensile parameters of two-stage table

Product model	Bolt diameter d (mm)	d ₂	D	H	H ₁ min	B ₁ min	B min	d ₁	α	α (°)	Piston		Pressure max Mpa	Pulling force max KN	
		mm										Area cm ²			Stroke mm
BAS1	M20	35	65	226	38	34	34+d ₂ /2	53	10	60	34	6	150	510	
	M22	42													
	M24	46													
	M27	45			52										
BAS2	M24	55	80	243	46	41	41+d ₂ /2	66	10	60	48	6	150	720	
	M27				52										
	M30				57										
	M33				63										
BAS3	M27	45	97	206	52	50	50+d ₂ /2	76	12	60	74	6	150	1110	
	M30	55			57										
	M33	63													
	M36	65			69										
	M39	74													
BAS4	M36	75	114	308	69	58	58+d ₂ /2	95	12	60	110	7	150	1650	
	M39				74										
	M42				78										
	M45				86										
	M48				90										92
BAS5	M45	75	145	370	86	74	74+d ₂ /2	120	12	60	166	8	150	2490	
	M48	90			92										
	M52	99													
	M56	107													
	M60	100			114										
BAS6	M64	110	180	500	122	92	92+d ₂ /2	152	12	90	270	9	150	4050	
	M68	130													
	M72×6	120			137										
	M76×6	140			145										
	M80×6				152										
BAS7	M80×6	160	280	710	160	145	145+d ₂ /2	240	12	90	610	10	150	9150	
	M90×6				180										
	M100×6				175										200
	M110×6				185										215
	M120×6				210										235
BAS8	M125×6	220	325	695	250	170	170+d ₂ /2	275	12	90	830	12	150	12450	
	M140×6	240			275										
	M160×6	270			310										

BAR-type split-bolt stretch

1、 Product description

Split bolt stretch is versatile, by replacing the stretch head applicable specifications bolt stretch. A cost-effective, lightweight, precision high degree. The maximum working pressure of 150Mpa.



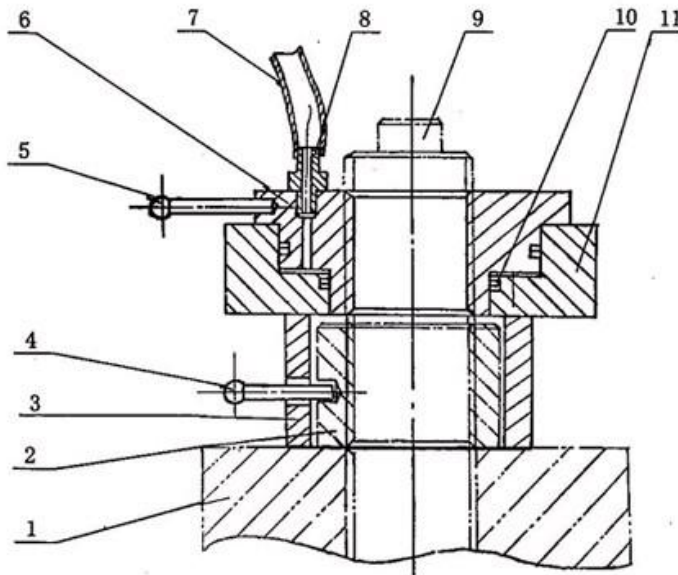
BAR series split-stretching is a form of diagram

BAR-type split-bolt stretch parameter table

Product model	Bolt diameter	Fuel tank area A m m ²	Pulling force MAX KN	D mm	D ₁ mm	D ₂ mm	h mm	H mm	L ₁ mm	Adjacent bolt Centre minimum spacing mm
BAR48	M48×4	10260	1100	205	150	120	145	180	70	130
BAR52	M52×4	10260	1100	205	150	120	145	180	70	135
BAR56	M56×4	10260	1100	205	150	120	145	180	70	135
BAR64	M64×4	10260	1100	205	150	120	145	180	70	140
BAR72	M72×4	16663	1800	260	195	160	170	205	90	170
BAR80	M80×4	16663	1800	260	195	160	170	205	90	175
BAR85	M85×4	16663	1800	260	195	160	170	205	90	175
BAR90	M90×4	16663	1800	260	195	160	170	205	90	180
BAR100	M100×4	14138	1300	260	205	170	190	225	110	185
BAR105	M105×4	14138	1300	260	205	170	190	225	110	185
BAR110	M110×4	14138	1300	260	205	170	190	225	110	190
BAR115	M115×4	16286	1500	295	235	200	205	240	120	210
BAR120	M120×4	16286	1500	295	235	200	205	240	120	210
BAR125	M125×4	16286	1500	295	235	200	205	240	120	215
BAR130	M130×4	18457	1700	320	260	225	220	255	130	230
BAR140	M140×4	18457	1700	320	260	225	220	255	130	240

Note: for chemical engineering machinery, mining machinery, metallurgy, power plant equipment and other industries to provide technical parameters of bolt stretch. If you have special requirements, please call the company, the company can provide customers with special design and production. (The above parameters for reference purposes only, such as slight changes are subject to change without notice)

Instructions for use



- 1、 Workpiece
- 2、 Nut
- 3、 Bearing ring
- 4、 Tighten remove pulling
- 5、 Resetting the pull rod
- 6、 Piston
- 7、 Metal hose
- 8、 Connector
- 9、 The main bolts
- 10、 Sealing ring
- 11、 Fuel tank

1、 Product working conditions

● Hydraulic source. BA series hydraulic bolt tightening device must have an SYB series liquid booster pump or compatible with working pressure of hydraulic bolt stretch ultra-high pressure pumps (electric pumps, pneumatic pumps) to provide ultra high-voltage source as an engine for driving hydraulic bolt (special attention to hydraulic booster pump refueling must be clean and without impurities, otherwise it will seriously affect the pump to work properly).

● Work space using. BA series hydraulic tighten device implementation accept hydraulic stretch pre-tight tie of bolt or no key tie of transmission pieces, and structure pieces around must left has is greater than hydraulic bolt stretch Manager support block ring diameter of work space (if space has will cannot change, is can and this company contact custom) and can for artificial call operation of location, and requirements support block ring contact benchmark surface must flat, otherwise difficult reached expected purpose, even has may on hydraulic bolt stretch Manager caused injury.

● Hydraulic pretension of bolt length. Reserved accept combined with top of the nut to the bolt length reserved (stretcher piston hydraulic bolt threaded into the effective length of the bolt) shall not be less than 0.8 times times the bolt diameter; otherwise, before you try to adjust the reserved or adapt to reduce the length of the bolt and nut height so as to ensure the normal use of BA-series hydraulic tightening device.

2、 Note of the use

● Non-General supporting of equipment selection BA series hydraulic bolt tighten device, user selection should according to bolt of material and the tensile strength, and yield coefficient and extends rate calculation hydraulic bolt stretch Manager of stretch force, then by manual provides of oil cylinder area calculation hydraulic bolt stretch Manager rated work pressure (that liquid force boost pump of rated output pressure) and in actual operation in the for effective control, prevent bolt stretch force super limited yield.

● Operating multiple bolts fastening workpieces simultaneously, when using the stretcher batches of hydraulic bolt tightening, should pay attention to hydraulic bolts stretching between the point of symmetry, if use four sets of hydraulic bolt tensile combined its interval is 90 degrees, two sets of hydraulic bolt tensile combined its interval is 180 degrees, and other cross-stretch. Always keeping a force balance, avoiding and minimizing the horizontal deviation of workpiece.

● Effect of stretching is best to achieve hydraulic bolts fastening, multiple bolts fastening workpieces simultaneously during the whole operation should be respectively after the first round of tightening, a second round of tightening procedures are completed.

3、 Product how-to (one-piece bolt stretch)

● Bolt action

● Ready to work

1、 According to the working condition and configuration method of hydraulic booster pump and hydraulic circuit all connections between bolt tension machine (ultra high pressure quick connector plug) ready;

2、 Nut all the screw bolt, pull the handle insert nut poked holes on either side, his hands firmly pull handle for hand, fastening nut individually will be to work with base-no gaps;

3、Hydraulic bolt tensile bearing ring by hydraulic tensile bolts into respectively, caps the round nut and hydraulic tensile body screw bolt bolt, pull the handle insert pull holes on both sides of the piston, his hands firmly pull handle a hand, which expands the hydraulic bolt fastened in place, bearing rings and base-no gaps;

4、 Hydraulic tensile body bolt (left) Rotary bearing seat, reserved 1.5mm-2mm tightening clearance to prevent hydraulic bolt nut tightness transfer stretcher to overcome after the nuts loose hydraulic tensile, hydraulic nut and bolt tensile "and bear", unable to rotate the bolt phenomenon occurs.

●Hydraulic booster pump pressure. Repeatedly press the hydraulic boost pumps operating handle, to the cylinder of hydraulic bolt tensile type high pressure oil, began operations after you fill the oil piston, hydraulic stretcher into the working state of bolt, bolts and start stretching, loose nuts gradually as the Pulling force grows.

Note: (1) Experience has confirmed that bolt pretension, for the first time, working pressure of hydraulic bolt tensile control around 80% the rated values. Operators must observe the hydro-boost pump pressure indication, is a working pressure of hydraulic bolt tensile, elongation control within the specified range, so as not to damage the o-rings and support rings of copper powder.

(2) The nut when tightening it manually may not, under the same pressures driving the hydraulic bolt tensile, elongation occurs mutual differences are normal.

●Bolt tightening Working pressure of hydraulic bolt tensile and tensile elongation when you reach the required value, hydraulic booster pumps shall be immediately stopped working. And then pressing the handle by separate bearing seat insert by using their mouth poked holes on nut side, the hands clockwise (right-handed) push pull hand handle, tighten nut to the base without gaps. Nut fastening workpieces simultaneously, stretching in batches when fastening, may also occur adjacent to the nut loose should be "ready to work" the 3rd method at any time additional

tightening.

● Hydraulic booster pump and pressure relief Slowly screwed opened liquid force boost pump placed valve handles (down) "pneumatic type liquid force boost pump unloading pressure should slowly screwed opened high pressure due valve (left Rotary)" unloading pressure, then with within six corner wrench screwed pine hydraulic bolt stretch Manager placed release screws (at this time operation workers should deviated from placed release screws parallel direction, so as not to oil cylinder within hydraulic oil spray out stained dirt clothes), again will poked handles insert piston side poked hole, hands forced poked handles (right Rotary), makes piston reset side-by-side do oil cylinder within of product oil; immediately de into oil connector, To insert pull handle on both sides of the piston poked holes, his hands firmly pull handle (left), Rotary hydraulic bolt tensile bolts, and finally remove the support washer, end nuts of the wheel hydraulic pretension to cope with the process.

● Bolt disassembly operations

● Ready to work

- 1、 Hydraulic bolt tensile bearing ring by hydraulic tensile bolts into respectively, covering the nut and hydraulic tensile body screw bolt bolt, pull the handle insert the piston poked holes, his hands pull handle, which expands the hydraulic bolt for fastening to the base surface without gaps, fixed supporting seat location;
- 2、 Hydraulic tensile body bolt (left) Rotary bearing seat, reserved 1.5mm-2mm tightening clearance to prevent hydraulic bolt nut tightness transfer stretcher to overcome after the nuts loose hydraulic tensile, hydraulic nut and bolt tensile "and bear", unable to rotate the bolt phenomenon.

● Hydraulic booster pump pressure Repeatedly press the hydraulic boost pumps operating handle, to the cylinder of hydraulic bolt tensile type high pressure oil, began operations after you fill the oil piston, hydraulic stretcher into the working state of bolt, bolts and start stretching.

● Nut removal Hydraulic bolt tension reaches a certain pressure, have a stretching force to the nut on bolt loose, liquid Lila litre pump should immediately

stop working and then struck by separate bearing seat pull the handle insert pull holes, his hands firmly counterclockwise (left) to pull hand handle, loosen the nut.

●Hydraulic bolt tension and pressure relief Screwed opened liquid force boost pump placed valve handles (down) unloading pressure, then with within six corner wrench screwed pine hydraulic bolt stretch Manager placed release screws, again will poked handles insert piston side poked hole, hands forced poked handles (right Rotary), makes piston reset side-by-side do oil cylinder within of product oil; immediately de into oil connector, will poked handles insert piston side poked hole, hands forced poked handles (left Rotary), to hydraulic bolt stretch Manager Rotary out bolt, remove supports block ring and screwed Xia nut

Note: the auto-reset-bolt stretch no more action, pump discharge pressure in the bolts stretch after automatically back to the fuel tank, cylinder and piston fully closed off after entering into oil connector.

4、 Product maintenance

●Hydraulic booster pump

- 1、 Oil pump and oil ministries maintain regular cleaning, dust all around the valve and piston shall not exist.
- 2、 Working liquid for viscosity 20-28, pool, such as mechanical oil or hydraulic oil, 46th, 20th, no alcohol, glycerin, water, sesame oil, brake fluid, normal engine oil for the working fluid.
- 3、 120-160 mesh strainer filter cleaning liquid must be used.
- 4、 Should handle with care when used, there must be no collisions.
- 5、 Non-painted surfaces when not industrial Vaseline-coated layer to prevent rusting.
- 6、 When not in use shall be packed in wooden boxes, in a dry, safe temperature for the room store.

●Hydraulic bolt stretch

- 1、 Hydraulic bolt end of the stretcher after demolition, should undertake a comprehensive maintenance and wiping clean and properly stored; disengaged

after the separation of ultra-high pressure quick coupler body wash and wipe to properly hold, prevent dust infiltration into effect oil hydraulic oil booster pump seal or damaged bolts stretch and the mating surfaces of the piston of the cylinder.

2、 Hydraulic bolt tension machine replacing the O-rings and copper powder when the support ring, should pay attention to match appropriate (support ring installed can be appropriate when boiling water heated Copper powder) and seal mating surfaces painted a small amount of butter and oil cylinder the piston sliding freely, ensure that the sealing effect; isolation and pressure loaded piston to note when a vertical smooth, not damage mating surfaces of cylinder and piston.

3、 Stainless steel pipe for super high pressure metal hose is wound into the shape of spring, to bore for oil channels, metal conduit as protective layer, use should be careful not to small to radians in a strong bend and avoid heavy accident impact, preventing metal hose disconnected and flattening, damage stainless steel pipe, hydraulic bolt tightening device for stretching work.

4、 Ultra high pressure quick coupler replacement O-ring and F4 ring to note that modest relevance, ensure that the sealing effect.

5、 Product ordering and product warranty

● Products ordering should attention specifications model and about technology parameter, random supporting needed plus Notes; user selection , should as possible of provides your company of thread specifications, and pulling force and configuration way and the adjacent bolt of distance (or bolt around space), to guarantee by procurement of products accurate, best while provides your company of bolt big trail and height to prevent design units by selected bolt standard different and brings of does not have to to loss. Otherwise requests can be made, we will try to meet the user's requirements.

● BA-series of hydraulic bolt tightening device accessories SYB series liquid booster pump, the BA series hydraulic bolt tensile machine the warranty period is

one year (does not contain error damaged seals and general damage).

- The company is responsible for the BA series hydraulic bolt tightening device correctly all configurations of hydraulic sealing parts, wearing parts of the device.

- Our products are manufactured according to HG/T21537-95 standard.

6、 Product is accessory

- Annex: 1 provide stretcher, hydraulic bolt each pull handle 2.

2 stretcher, hydraulic bolt each group provided Allen wrench 1.

- Technical paper: product specifications 1.

7、 Other required accessories

- Ultra high pressure tubing

- Ultra high pressure quick coupler

- Oil dispenser

8、 Notes to users

- BA series hydraulic bolt tightening device configuration of devices, are ultrahigh-pressure-level precision hydraulic devices. Apart from the design accurately, and manufacturing process has strict requirements, the precision machining and heat treatment, drew attention to the user all devices to use the company's products, not only easy maintenance and spare parts purchase, procurement costs and significant savings.