

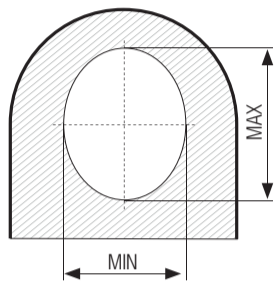
INSTRUCTIONS FOR ALL EXPANDER BOLTS HJO BULTEN

You should equip your machine with an expander bolt from **Hjo Bulten**. To be able to guarantee correct installation and permanent tightening of the expander bolt **Hjo Bulten**, please read and observe the following instructions carefully.

Questions? Contact your retailer or **Hjo Bulten** Phone: +46 142 42 200

An expander bolt **Hjo Bulten** consist of a shaft body that is threaded (inside/outside) in both ends, conical bushings and fasteners (fastening bolts, bar, nuts, washers)

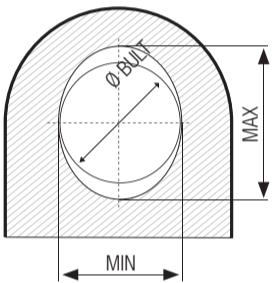
PREPARATIONS



1. Remove eventual bushings in the fixing lugs.

2. File away eventual burr and scores on the fixing lugs before the new bolt is installed. Good preparations give better result.

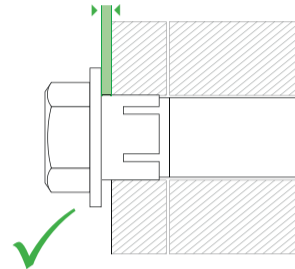
3. Check that the difference between largest and smallest diameter (ovality) in the worn holes do not exceed 1.5 mm.
Dia max – dia min < 1.5 mm



4. Check that the wear – difference between the bolts diameter and bearings diameter in the worn hole – do not exceed 2 mm*. In other cases you must use oversized bushings.
Hole dia max – bolt dia < 2 mm

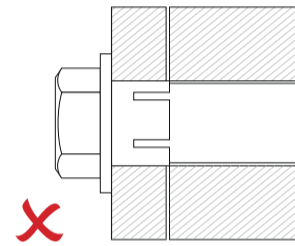
* **NOTE:** Max expansion in certain bolts, designed for thin fixing lugs, (less than 22 mm) can be 1 mm. The max hole diameter – bolt diameter shall then be < 1 mm.

INSTALLATION



1. Lubricate the shaft body and the conical bushings with grease prior to installation. Don't lubricate the threads as these are already lubricated with Molykote.

2. The coaster washer must **NEVER** contact the outer side of the fixing lug. The coaster washers are either recessed in the joint or placed on a certain distance from the fixing lugs.

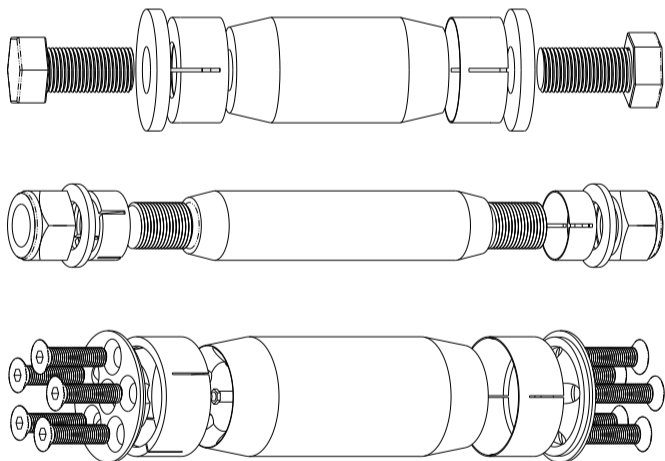


If the coaster washer contacts the fixing lug, the conical bushing is not correctly matched. You must then use an oversized conical bushing. Contact your retailer or **Hjo Bulten** Phone: +46 142 42 200.

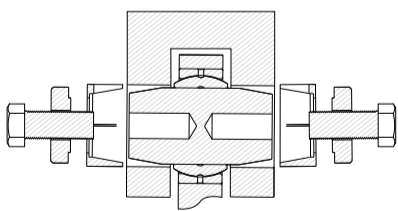
3. To guarantee correct installation it is very **IMPORTANT** to observe recommended tightening torque and to re-tighten during the first hours of operation.

Check the tightening torque during regular service stops of the machine.

Hjo Bulten Standard



INSTALLATION

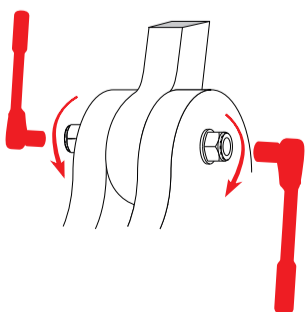


1. Install the **Hjo Bulten** expander bolt in the correct position, centered in the bearing part.

Be extra particular that the lubrication slots are exactly opposite eventual lubrication holes in the bolt. Fit the bushings and tighten the fastening bolts / nuts by hand.

2. Then tighten the fastening bolts / nuts step by step and in cross pattern as else the bolt may move from its position. Tighten until correct torque according to the above table is reached.

3. Post control! It is very important to re-tighten during the first hours operation and later during regular service stops of the machine.



RECOMMENDED TIGHTENING TORQUE

Fastening bolts and special fasteners

	1/2"	9/16"	5/8"	3/4"	7/8"	1"	1 1/4"	M36
Torque Nm	100	150	200	350	400	500	800	2000

Nuts

Thread	M10	M12	M16	M20	M24	M30	M36	M42	M48
Torque Nm	47	60	175	340	500	550	1000	1500	2000

Countersunk

Thread	M12	M16
Torque Nm	60	175

Low Nut

Thread	M12	M16	M20	M24	M30
Torque Nm	60	125	200	275	350

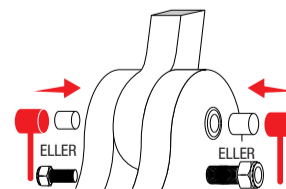
Notched nut

KM3	KM4	KM5	KM6	KM7	KM8	KM9	KM10
30	50	90	140	195	230	265	300

KM11	KM12	KM13	KM14	KM15	KM16	KM17
340	390	460	550	630	690	740

DISMANTLING

1. Screw out the fastening bolts or nuts and remove the coaster washers on both sides.



2. Tap alternately on the shaft body until the conical bushings are loose. Use a tool between the hammer and shaft body. Don't damage the threads.

For **Hjo Bulten** expander bolts with externally threaded expander you can use a pipe as tool. Make sure the the pipe does not contact the conical bushing and that the pipe diameter is slightly larger than the thread diameter. The fastening bolt can be used as tool for **Hjo Bulten** with internally threaded expander bolts.

NOTE: Some **Hjo Bulten** shaft bodies are internally threaded in both ends (7/8 UNF, M30x2, 1 1/2"). Screw in an extractor bar in one end and tap on the bar.

Pull **Hjo Bulten** conical bushing out using the flange.

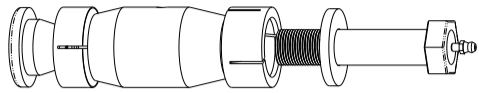
Dismantle the shaft body.

Hjo Bulten with through screw or drawbar

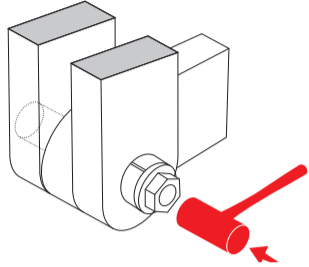
This type of **Hjo Bulten expander bolt** is used on joints with a limited space where tightening cannot be done on both sides.

Hjo Bulten expander bolt is tightened on one side with either a through screw or a nut on a drawbar.

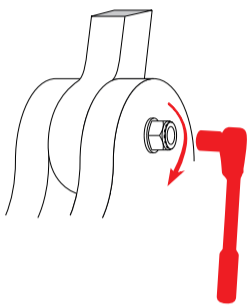
Hjo Bulten with trough screw



INSTALLATION



1. Assemble all parts of the **Hjo Bulten**, tighten by hand and install the whole **Hjo Bulten** in the joint.
2. Place the bolt in correct position and make sure that the end of the bolt is aligned with the outer side of the fixing lug. Make sure that the lubrication slots are exactly opposite eventual lubrication holes in the bolt.



3. Tighten the through screw with the torque wrench until correct torque according to the table is reached. For certain types of fastening bolts you must use the wrench that is supplied with the bolt (for example an hook wrench).

4. Post control! It is very important to re-tighten during the first hours operation and later during regular service stops of the machine.

RECOMMENDED TIGHTENING TORQUE

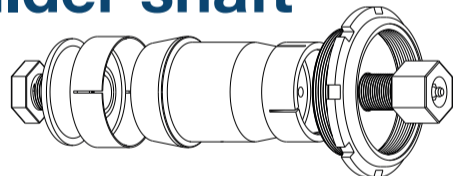
FASTENING BOLTS AND SPECIAL FASTENERS

	1/2"	9/16"	5/8"	3/4"	7/8"	1"	1 1/4"	M36
Torque Nm	100	150	200	350	400	500	800	2000

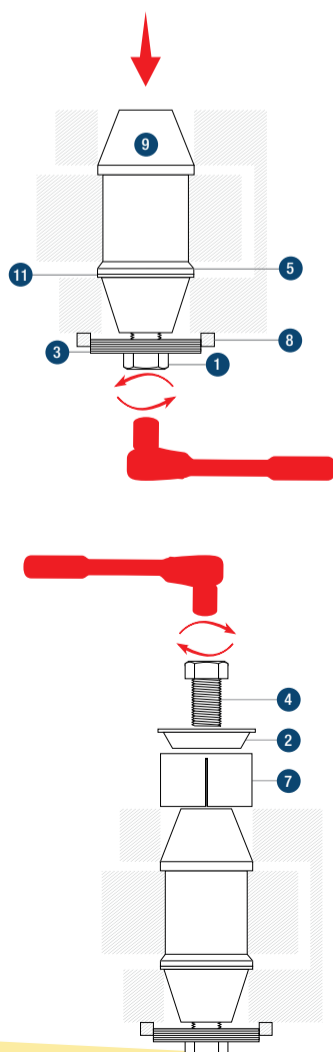
DISMANTLING

Loosen the set screw. Dismantle the through screw and washer. **Hjo Bultens shaft body is internally threaded in both ends (7/8 UNF, M30x2, 1 1/2").** Screw in an extractor bar in one and tap the bar until the conical bushing on the tightening side comes loose. Pull the conical bushing out using the flange and then the shaft body on the tightening side.

Hjo Bulten shoulder shaft



INSTALLATION



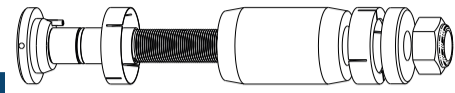
1. Retain the spacer ring of the joint if present. If a spacer ring (5) is supplied with the **Hjo Bultens expander bolt**, place this on the shoulders opposite side between the bearing inner track and the fixing lug. Make sure that the beveled side of the ring is facing the bearing. Also fit shims (11).

Install the shaft body (9) in correct position through the fixing lug on the shoulder side. Make sure that the shaft end on the shoulder side is aligned with the outer side of the fixing lug. Be extra particular that the lubrication slots are exactly opposite eventual lubrication holes in the bolt.

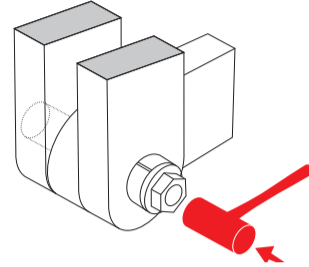
2. Screw the washer (3) into the notched nut (8) to half the thread length. In this way a play is created between the washer (3) and the fixing lug to facilitate eliminating of the shaft play. Install the fastener bolt (1) together with the washer (3) and notched nut (8) on the shaft body. Tighten to the recommended torque according to the workshop manual to eliminate the play.

3. Install conical bushing (7), washer (2) and fastener bolt (4) on the shoulder side. Tighten the fastener bolt (4) with the torque wrench until correct torque is reached according to the table in the right hand column.

Hjo Bulten with drawbar and nut



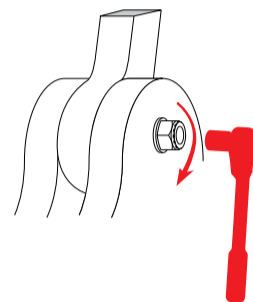
INSTALLATION



1. Assemble all parts of the **Hjo Bulten**, tighten by hand and install the whole **Hjo Bulten** in the joint.

2. Let the end of the bolt protrude a little to make it possible to reach the set screw in the inner nut/drawbar. Check that the set screw is tightened.

3. Pay extra attention to that the lubrication slots are exactly opposite eventual lubrication holes in the bolt.



4. Tighten the fastener bolt on the drawbar with the torque wrench until correct torque according to the table below is reached.

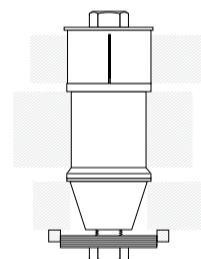
5. Post control! It is very important to re-tighten during the first hours operation and later during regular service stops of the machine.

RECOMMENDED TIGHTENING TORQUE

Nuts	Tread			
	M16	M20	M24	M30
Torque Nm	175	340	400	500

DISMANTLING

Loosen the set screw. Dismantle the through screw and washer. **Hjo Bultens shaft body is internally threaded in both ends (7/8 UNF, M30x2, 1 1/2").** Screw in an extractor bar in one and tap the bar until the conical bushing on the tightening side comes loose. Pull the conical bushing out using the flange and then the shaft body on the tightening side.



4. Dismantle the washer (3), notched nut (8) and the fastener bolt (1). Now install the conical bushing (6), washer (3), notched nut (8) and fastener bolt (1). Tighten the fastener bolt (1) with the torque wrench until correct torque is reached according to the table below. Reinstall the notched nut (8) and tighten it to 50 Nm.

DISMANTLING



THEN.....

INSTALLING WITH



TIGHTENING



5. Post control! It is very important to re-tighten during the first hours operation and later during regular service stops of the machine.

RECOMMENDED TIGHTENING TORQUE

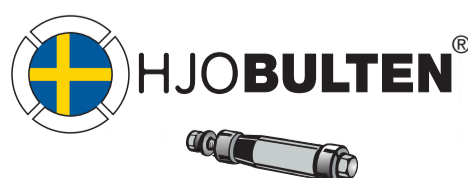
FASTENING BOLTS AND SPECIAL FASTENERS

	1/2"	9/16"	5/8"	3/4"	7/8"	1"	1 1/4"	M36
Torque Nm	100	150	200	350	400	500	800	2000

DISMANTLING

Screw first out fastener (1, 3, 4, 8) on the side without shoulder. Tap the shaft body (9) inward until the conical bushing comes loose. Remove the conical bushing (6) using the flange and repeat on the other side. Pull the shaft body (9) out through the fastening lug on the shoulder side.

NOTE: Some **Hjo Bultens** shaft bodies are internally threaded in both ends (7/8 UNF, M30x2, 1 1/2"). Screw an extractor bar into the end to make it easier to drive the shaft body inward.



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