

## Installation Instructions for "OS0" Stop Collars

### Background

The function of the Stop Collar within the borehole is considered vital for the effective installation of the Centralizer and hence subsequent cementation. Therefore, it is strongly advised to use the correct equipment and installation methods.

Centek Stop Collars are generally supplied with 'Cup point socket head set screws' which are M12 dia. X 1.5mm pitch thread, with a 6 mm A/F female hex socket. (See datasheet for specific set screw size)

Centek supplied screws are specially selected for thread form and pitch commensurate with design and axial holding loads – the use of non Centek supplied screws is not permitted.

### Clearance of Stop Collars either side of a centralizer

Should the Centralizer be fully compressed, its developed length must not be greater than the distance between inner edges of the Stop Collars.

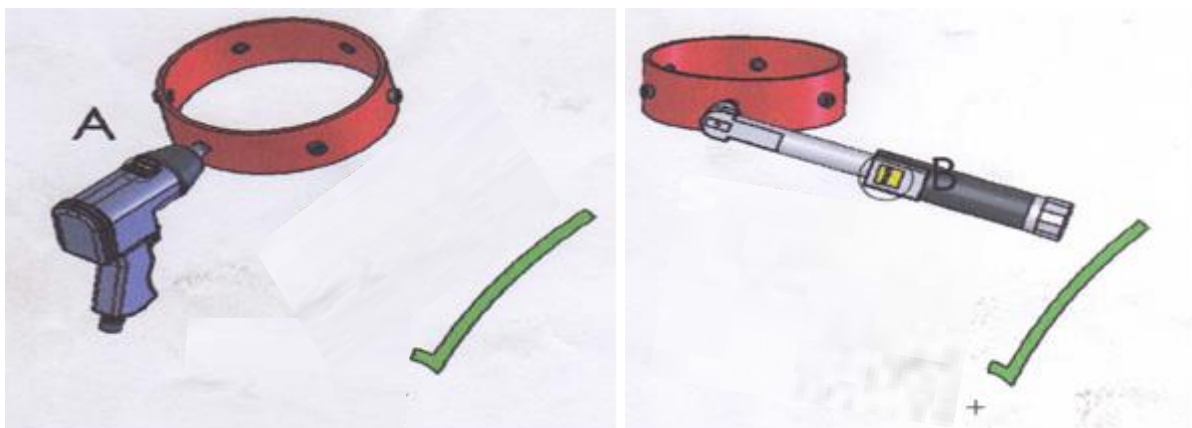
#### Sizes up to and including 11-3/4" casing

It is recommended to have 3" of clearance (with a minimum of at least 1" clearance) either side of the Centralizer to the inner edges of the Stop Collar.

#### Sizes larger than 11-3/4" casing

It is recommended to have 3" of clearance (with a minimum of at least 2" clearance) either side of the Centralizer to the inner edges of the Stop Collar.

### Applying torque to 20 lb.ft. - correct tooling alternatives



(Products / suppliers are given below in good faith as a form of assistance and example. Ultimate choice will be purchaser's responsibility).

## Pneumatic Tools

This is the preferred method of installation, following Centek Engineering investigations. We recommend that the latest generation pneumatic tool be used with positive, accurate mechanical torque control built in. Suppliers and outlets are available Worldwide and which may carry out calibration services as required.

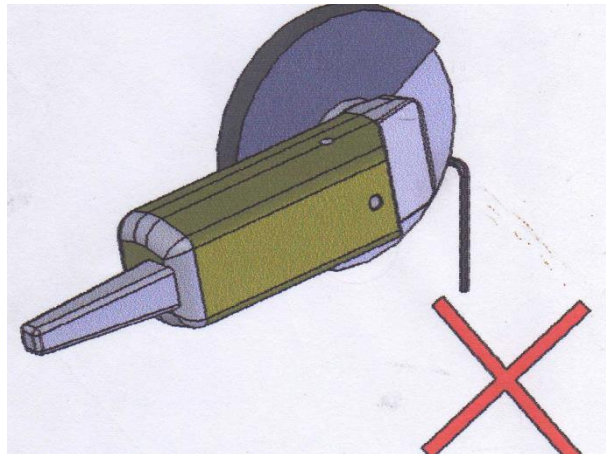
### Hand operated Torque wrenches. (Must be calibrated)

Typically 'Snap' type with clear sight window for setting of desired torque.

### Example - typical UK Supplier

*Norbar Torque Wrench Pt. No. 2202-183196. 0 to 45 lb.ft. (0 to 60 Nm) 1/2" A/F Square drive*

**A 6 mm A/F drive key must be used with either of above options. Do not 'cut down' regular allen keys for use in a torque wrench or pneumatic tool.**



**The preferred drive is the Centek Pt. No. SA12-HTLL special high performance hex key tool**

The 'HEX PLUS' precision form on the hex flats allows higher torques and substantially reduced rounding of corners with resultant longer life.

**DO NOT** use cut of lengths from conventional hand 'Allen' keys that have been obtained by grinding or cutting wheel methods. This method generates sufficient heat to de-temper the key hardness

Use pre-made key lengths of suitable length to fit securely into socket head of the torque wrench tool etc., ensuring sufficient length protrudes for full depth location in the female hex socket of the set screws

Typically, the keys are made from an impact resistant ‘Sintered Carbide’ approximately 1/2" to 5/8" long.

Some grades may not tolerate side loading through misalignment to the socket screw – Centek uses a high quality tough Chrome Vanadium hex key that gives good torque transmission and excellent life of tooling.

**Correct sequence of tightening and collar placement**

It is necessary to ensure uniform tightening of the screws so that the Stop Collar ring body is central to the pipe center.

Common practice is to spin the screws in all round with a very low torque, establishing central to pipe condition and then apply final torque in a suggested radial sequence:

Number of screws per collar:

<u>5</u>	<u>6</u>	<u>8</u>	<u>10</u>	<u>12</u>	<u>14</u>
1 & 3	1 & 4	1 & 5	1 & 6	1 & 7	1 & 8
5 & 2	6 & 3	3 & 7	9 & 4	4 & 10	5 & 12
4	5 & 2	4 & 8	8 & 2	2 & 8	4 & 11
		6 & 2	5 & 10	12 & 5	7 & 14
			3 & 7	9 & 3	6 & 13
				11 & 6	10 & 3
					9 & 2

**Final torque to be applied 20 lb.ft. (27 Nm)**

**Correct sequence of tightening and collar placement (cont.)**

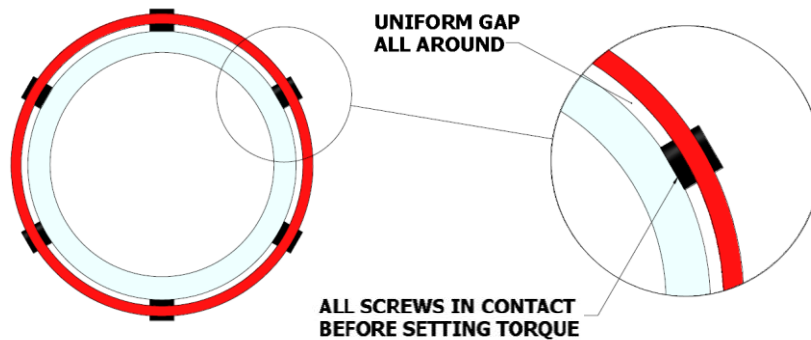
**Step 1.**

Inner edge of Stop Collars placed approx. 3" distance from centralizer.



**Step 2.**

Set screw depth to be adjusted so collar is equal distant from casing on all sides.



**Step 3.**

Apply **20 LB.FT. (27 Nm)** according to the following patterns similar to wheel lug pattern tightening. Calibrated torque wrench is advised.

