

# UNITEC

Assembly instruction-01 Rev.06\_en



**Dextra**

## Installation procedure

01



Insert the Unitec coupler over the end of the first bar until contact with the centre pin. Strongly hand tighten the screws from centre to outside with a wrench to pre-position the coupler progressively in order to maintain its alignment with the bar.

02



Tighten the screws, from centre to outside, with an impact wrench until their heads shear off. (A manual wrench can be sufficient for small quantities).

03



Insert the second bar into the coupler until contact with the center pin and repeat the operation. Check the bar alignment when tightening the screws with a wrench : at a distance of 25cm the misalignment should not exceed 5mm (or not more than 1/4" at a distance of 1ft).

**Safety tip:** Wear goggles and ear plugs when using the impact wrench.  
**General instruction:** Grease shall not be used.

## Alternative Installation procedure

01



Remove the center pin with a punch.

02



Mark the bar engagement length on each bar end, using the data in the table.

Bar size			Coupler Product code	Minimum bar engagement length	
USA & Mecico	Canada	Europe		in	mm
#4		12, 12.5	FPUS0400002	2 $\frac{21}{32}$ "	68
#5	15M	14, 16	FPUS0500002	2 $\frac{21}{32}$ "	68
#6	20M	18, 20	FPUS0600002	3 $\frac{27}{32}$ "	98
#7	20M	20, 22	FPUS0700003	4 $\frac{9}{16}$ "	116
#8	25M	24, 25, 26	FPUS0800002	4 $\frac{9}{16}$ "	116
#9		28	FPUS0900002	4 $\frac{1}{8}$ "	105
#10	30M	30, 32	FPUS1000002	5 $\frac{5}{16}$ "	135
#11	35M	34, 36	FPUS1100002	6 $\frac{7}{8}$ "	174
#12		38, 40	FPUS1200002	8 $\frac{5}{32}$ "	207
#14	45M	43	FPUS1400002	10 $\frac{23}{32}$ "	272
		50	FPUS5000002	12 "	304
#18	55M		FPUS1800002	12 $\frac{11}{32}$ "	313

03



Slide the Unitec coupler all over the first bar. Bring the continuation bar in front of it and slide the Unitec coupler back over it. Position the coupler between the marks and hand tighten the screws.

04



Tighten all screws, from centre to outside, with an impact wrench until their heads shear off. (A manual wrench can be sufficient for small quantities).

## Equipment needed

Either pneumatic impact wrench or electric impact wrench can be applied. The recommended pneumatic impact wrenches and electric impact are listed below. Other brands/model with specification equivalent to those indicated in the list can also be used and the tensile performance of Unitec splices should be determined before starting the job.



Unless an impact wrench is available, a hand wrench can be used instead.

### Pneumatic impact wrench

Bar size	Brand	Model	Square drive	Weight		Air consumption under load		Air inlet thread	Manufacturer's Speed setting	Max Torque (N.m)
			in	lbs	kg	cfm	(L/min)	in		
#4 to #8 12 to 25	Toku *	MI-20P	¾"	8.6	3.9	39	1,104	¾"	4	390-785
#4 to #18 12 to 50	Toku *	MI-5000GS	1"	31.2	14.2	66	1,868	½"	4	490-2150



The requirement for air flow is 100 psig (7 bar) of operating pressure and 70 cfm (2m3/min) of delivered air to the pneumatic impact wrench through a ¾" (Unitec 12 to 25) or 1" (Unitec 12 to 50) hose.

### Electric impact wrench

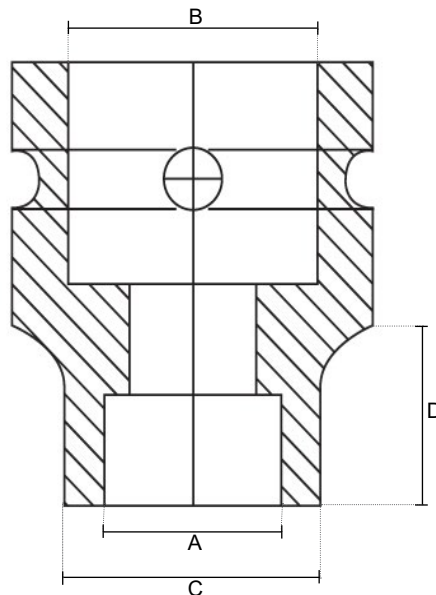
Bar size	Brand	Model	Square drive	Weight		Max Torque	Power Supply
			in	lbs	kg	(N.m)	
#4 to #8 12 to 25	Makita *	6906	¾"	12.3	5.6	588	110 - 240 V
#9 to #14 32 to 40	Hitachi *	WR 25 SE	1"	16.9	7.7	1,000	110 - 240 V



(\*) Remark: Dextra is not the owner of the brands mentioned here. Any protected trademark rights remain entirely exclusive to their respective owners and are only mentioned here as a reference in relation to Dextra products.

## Tooling settings

Bar size			Coupler Product code	Coupler weight		Length mm	Total number of screws per coupler	Screw size	Average torque to shear screw heads		Air gun socket size			
USA & Mexico	Canada	Europe		lbs	kg				ft - lb	Nm	A (mm)	B (mm)	C (mm)	D (mm)
#4		12, 12.5	FPUS0400002	2.9	1.3	140	6	M12	100	140	13	19	26	22
#5	15M	14, 16	FPUS0500002	2.8	1.3	140	6							
#6	20M	18, 20	FPUS0600002	4.4	2.0	200	8							
#7	20M	20, 22	FPUS0700003	6.7	3.0	240	8	M16	185	250	15	26	26	22
#8	25M	24, 25, 26	FPUS0800002	7.5	3.4	240	8							
#9		28	FPUS0900002	12.5	5.7	220	6							
#10	30M	30, 32	FPUS1000002	17.3	7.9	280	8	M20	500	680	19	36	36	24
#11	35M	34, 36	FPUS1100002	24.8	11.3	360	10							
#12		38, 40	FPUS1200002	31.4	14.3	425	12							
#14	45M	43	FPUS1400002	41.1	18.6	555	16							
		50	FPUS5000002	52.0	23.6	620	18	M24	730	990	24	38	38	24
#18	55M		FPUS1800002	80.9	36.7	640	16							



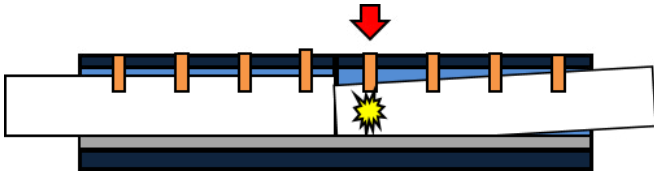
- A - Hexagonal socket dimension
- B - Square drive socket dimension
- C - Socket end max outside diameter
- D - Socket end min outside length



## Treatment of non-conformities

### The Problem:

Final assembly is not straight !



### Possible causes

You did not pre-tighten the screws

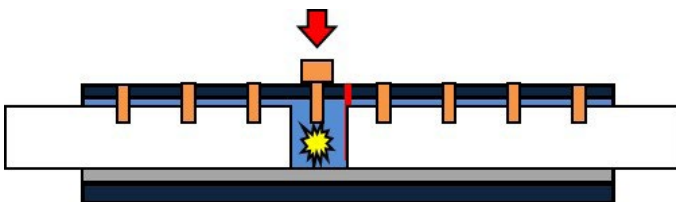
You did not follow the proper tightening sequence (from centre to outside).

### Remedial action

Gas-cut the bar and replace the coupler

### The Problem:

The head of the innermost screw does not shear off!!



### Possible causes

The bar was not inserted deep enough

*(This should have been noticed during pre-tightening)*

### Remedial action

Gas-cut the bar and replace the coupler

## Treatment of non-conformities

# The Problem:

The head of most screws does not shear off!

**NOTE:** In case some heads does not shear off, but the average torque specified on page 5 is reached, it is acceptable to install the coupler.

### Possible causes

Your wrench doesn't deliver enough torque.

### Remedial action

Compare its datasheet to the specifications in our installation instructions, you may need to adjust its speed!

### Possible causes

Your wrench doesn't deliver enough torque.

### Remedial action

Use a hand wrench to tighten until the head of screw shears off.

### Possible causes

Your air compressor doesn't deliver enough air flow : the compressor may not be powerful enough, its tank may be too small, or the air hose may be too small.

### Remedial action

Compare these to those specified in our installation instructions]

### Possible causes

The air pressure is too low : the compressor may not be powerful enough, the air hose may be too long, or there may be too much moisture in the air.

### Remedial action

Compare these to those specified in our installation instructions]

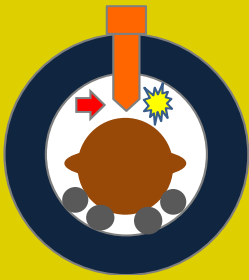
More causes and remedial actions for "head of most screws did not shear off" next page...

## Treatment of non-conformities

### The Problem:

The head of most screws does not shear off!

#### Possible causes



You use the wrong coupler (Too big) for the size of the bar : if the bar is too small, the screw will be too short, so its head will reach the coupler before its tip touches the bar;

#### Remedial action

Refer to our product datasheet to choose the coupler model matching your rebar size.

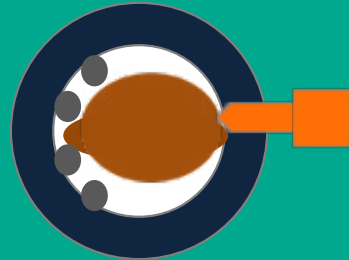
#### Possible causes



The bar is oval, and the screws are in front of its smallest side, so their tips don't touch the bar.

#### Remedial action

Try turning the coupler so that the screws are facing the largest side of the bar.





## Treatment of non-conformities

# The Problem:

The screw turns freely, without penetrating inside the coupler!

## Possible causes

The female thread in the coupler has been damaged. It could be because of:

- excessive rotary speed
- the screwing tool was not held straight.

## Remedial action

- If that was the first screw, just remove the coupler and use another one.
- If the coupler cannot be removed, there is no other choice than cutting the bar.

## The Other Problem?

Something else?

## Remedial action

Please fill up the inquiry form on next page and send it to [quality@dextragroup.com](mailto:quality@dextragroup.com)

# UNITEC QUALITY ASSESSMENT FORM

Where did it occur?

Date:

Company name :

Plant :

Problem observed &amp; Reported by :

Project for which the production was done :

## Details of Production Parameters

Rebar info	Bar use when the problem occurred :					
	Dia :		Grade :		Mill :	
			Actual Bar Diameter Measured :	#1	#2	#3
			A			
			B			
			C			
D						
E						
Operation tools info	Air compressor		Pneumatic impact wrench			
	Air flow	CFM	Brand			
	Operating pressure	bar	Model			
	Air hose size	inch	Speed use			
Coupler Info	Coupler on which the problem occurred :		Product's appearance			
	Marking :		Stud's welding			
	Outside diameter of coupler	mm.	Rebar's alignment after assembly			
	Wall thickness of coupler	mm.				
Assembly info	Incase of screw did not shear off :					
	Position A :	mm				
	Position B :	mm				
	Location of screws that did not shear off (indicate with X) :					
	Position C :					
	Position D :					
	Position E :					

## Mechanical steel testing report

Samples length :		mm		Operator name who prepared the sample :		
	Item	Tensile test		Failure mode		
		Load (kN)	Strength (MPa)	Bar		
				Bar break	Bar break inside coupler	Bar Slipped
Control bar	-					
Unitec sample	1					
	2					
	3					