

Previous  
Screen

Specialty  
Fasteners

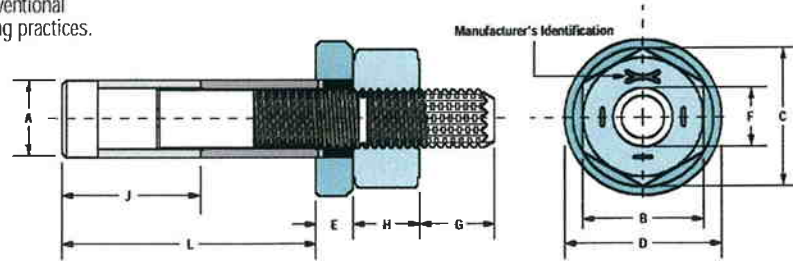
Tooling  
Options

Table of  
Contents

Ultra-Twist™ Specialty Fastener

## Ultra-Twist™ Specialty Fastener

Precision multi-piece Ultra-Twist™ metric fasteners are the first structural blind bolts for joining tubular steel sections, whether column-to-beam or column-to-column. This advanced fastening system allows for simple, consistent installation throughout its entire 5 mm grip range. The Ultra-Twist™ meets stringent strength requirements and is easy to install, making it an attractive alternative for conventional welding and bolting practices.



### Fastener Dimensions (millimeters)

Ultra-Twist	A Body Diameter		B Width Across Flats			C Width Across Corners		D Washer Outside Dia.	
	max	min	basic	max	min	max	min	max	min
<b>20</b>	20.8	20.4	32.0	32.0	30.8	37.0	36.2	37.9	37.5
<b>24</b>	24.7	24.3	41.0	41.0	40.2	47.3	46.5	47.6	47.0
<b>27</b>	28.7	28.3	46.0	46.0	45.1	53.1	52.3	50.9	50.3

Ultra-Twist	E Washer Thickness		F Drive Spline Dia. reference	G Drive Spline Height reference	H Nut Height		J Length reference
	max	min			max	min	
<b>20</b>	13.5	13.2	13.5	18.0	19.8	19.5	48.0
<b>24</b>	13.8	13.4	15.0	18.0	21.8	21.4	55.0
<b>27</b>	14.2	13.7	18.0	18.0	25.9	25.5	60.0

### Grip Data

Grip Dash Number	Grip Range (millimeters)	L Length ± 1 mm		
		20 mm	24 mm	27 mm
<b>-20</b>	15.0 - 20.0	62.9	69.1	N/A
<b>-25</b>	20.0 - 25.0	67.9	74.1	N/A
<b>-30</b>	25.0 - 30.0	72.9	79.1	82.9
<b>-35</b>	30.0 - 35.0	77.9	84.1	87.9
<b>-40</b>	35.0 - 40.0	82.9	89.1	92.9
<b>-45</b>	40.0 - 45.0	87.9	94.1	97.9
<b>-50</b>	45.0 - 50.0	92.9	99.1	102.9
<b>-55</b>	50.0 - 55.0	97.9	104.1	107.9
<b>-60</b>	55.0 - 60.0	102.9	109.1	112.9
<b>-65</b>	60.0 - 65.0	107.9	114.1	117.9
<b>-70</b>	65.0 - 70.0	112.9	119.1	122.9
<b>-75</b>	70.0 - 75.0	117.9	124.1	127.9



Previous  
Screen

Specialty  
Fasteners

Tooling  
Options

Table of  
Contents

Ultra-Twist™ Specialty Fastener

### Material, and Finish

	Core Pin	Nut	Bearing Washer	Shear Washer	Grip Sleeve	Bulb Sleeve
<b>Material</b>	Alloy Steel	Alloy Steel	Alloy Steel	Alloy Steel	Alloy Steel	Carbon Steel
<b>Finish</b>	*	Electro-Zinc: ASTM B633	*	None	None	None

\* Components are selectively lubed as needed for function, do not modify.

### Mechanical Properties

Ultra-Twist Size	Bolt Stress Area* mm <sup>2</sup>	Minimum Clamp, kgf	Tensile Strength min, kgf	Shear Strength min, kgf
<b>20</b>	169.0	13100	19200	20800
<b>24</b>	235.0	17500	25700	29800
<b>27</b>	321.0	24600	36200	40300

\* Based on 98% of thread pitch diameter

### Installation Hole Sizes

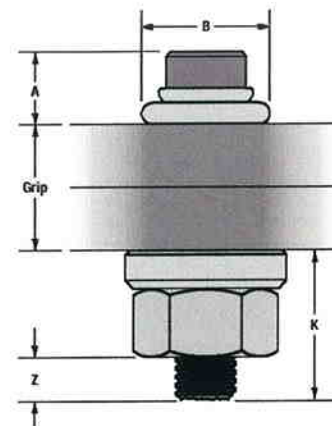
Ultra-Twist Size	Recommended Drill Size (mm)	Hole Diameter (mm)*	
		min	max
20	21.5	20.9	21.6
24	26.0	24.8	26.1
27	30.0	28.8	30.1

\* In drilling holes, care must be taken so that the back side is free of large burrs

### Installed Fastener Dimensions

Ultra-Twist blind bolt is a "flagging" fastener meaning that upon completion of the installation, pin protrusion "Z" must be within designated limits listed in the table below. Generally, any protrusion outside of these limits is a sign of wrong grip thickness for the fastener. Installed bulb dimensions are also listed in order to establish backside joint clearances.

Ultra-Twist	A ± .06	B ± .03	Z	K max
<b>24</b>	.62	1.22	.443 - .693	2.00
<b>28</b>	.79	1.44	.497 - .747	2.35
<b>32</b>	.94	1.55	.600 - .850	2.57



Previous  
Screen

Specialty  
Fasteners

Tooling  
Options

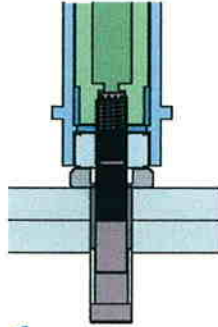
Table of  
Contents

Ultra-Twist™ Specialty Fastener

### Installation Tooling (Electric)

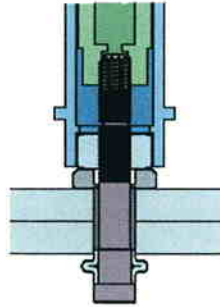
Installation Tool	Ultra-Twist Sizes
S60EZ	20mm
S90EZ	24mm
S170EZ	27mm

### Installation Sequence



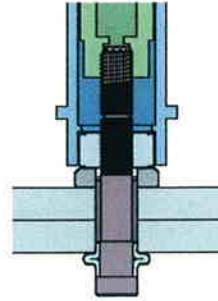
**1**

The ULTRA-TWIST blind bolt is installed from one side of the structure by a single operator. The installation tool is the standard electric shear wrench tooling used for installation of Twist-Off Control (T-C) type fasteners. The fastener is inserted and the tool engaged.



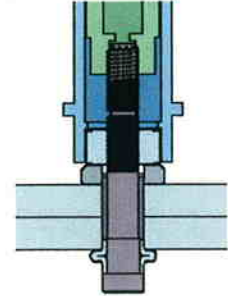
**2**

The backside bulb is fully formed in the air to a uniform diameter regardless of grip.



**3**

As the installation load increases, a special internal washer shears allowing the backside bulb to come into contact with the work surface and for all clamp load to go into the work structure.

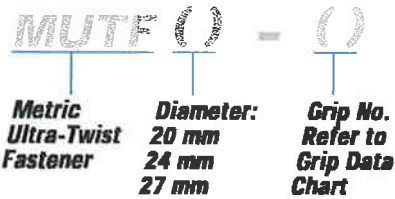


**4**

Continued torquing of the unit develops the required clamp and the torque pintail shears off, completing the installation. Using a standard S60EZ shear wrench, installation time for a 20mm fastener is approximately 30 seconds.

### Part Number Identification

#### Ultra-Twist



Previous  
Screen

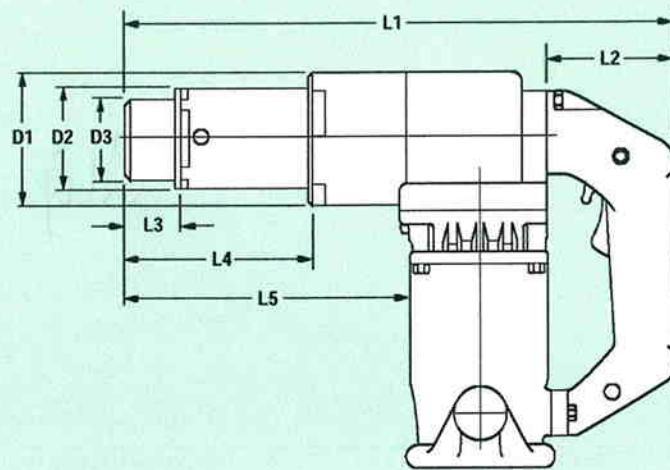
## Ultra-Twist™ Tool

### Hydraulic Construction Tool

#### Specifications

**Weight:**  
13.5-32.1 lbs.

**Power:**  
110 VAC or 220 VAC



#### Model Specifications (in.)

Model	D1	D2	D3	L1	L2	L3	L4	L5
S60EZ	73.0	54.0	47.0	255.0	25.0	39.0	92.0	135.0
S90EZ	85.0	62.0	57.0	276.0	80.0	35.0	124.0	180.0
S170EZ	121.0	87.0	70.0	383.0	80.0	24.0	113.0	215.0

#### Compatible Fastener

Type	Diameter	Tool
ULTRA-TWIST (metric)	20mm	S60EZ
	24mm	S90EZ
	27mm	S170EZ



This tooling is designed to be 100% compatible with electric shear wrenches used for the installation of twist-off bolts. An operator can use the same tool to drive the same size of Ultra-Twist fastener without changing the drive wrench socket.

Ultra-Twist™ Tool

