

## 基本資訊 Basic Information

## SUNWAY SW-E10 Stainless Steel Expansion Bolt 新和不鏽鋼拉爆螺絲(SW-E10)

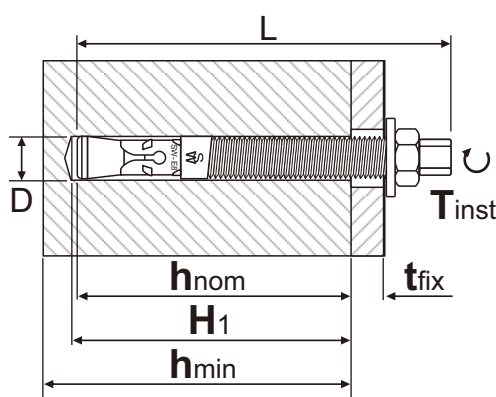


**MaterialLab**



Material: Stainless steel grade A2(304) / A4(316)

### Basic Installation Parameters



Item	Series		SW-E10	
	Model		x75	x100
<b>h<sub>min</sub></b>	(mm)	Min. Concrete Thickness	100	
<b>D</b>	(mm)	Drill Hole Diameter	10	
<b>H<sub>1</sub></b>	(mm)	Recommended Drill Hole Depth	60	
<b>h<sub>nom</sub></b>	(mm)	Depth before expand	50	
<b>t<sub>fix</sub></b>	(mm)	Max. Thickness of Installation Material	10	23
<b>L</b>	(mm)	Anchor Total Length	75	100
<b>T<sub>inst</sub></b>	(Nm)	Recommended Torque	35	

### Base Material

Concrete C20/25 to C50/60, cracked & non-cracked

### Characteristics

High corrosion resistance

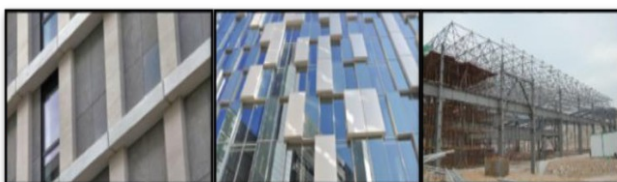
Highest quality mechanical fixing

Small edge distance and spacing between bolts

Excellent tensile and shear loading resistance

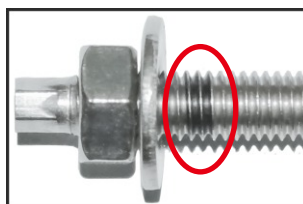
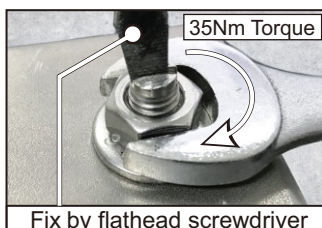
### Applications

- Structural Steel Channel
- Mechanical Equipment
- Barriers
- Facade
- Handrail
- Curtain Wall

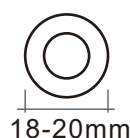


### Product Features

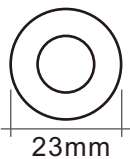
#### Slot Type Head Design 一字坑設計



Black Mark Line Design  
黑線標記設計



Thickness: 1.0-1.5mm  
The general size of washer accompanied with anchor bolt selling in the market.



Thickness: 2.0mm  
The size of SUNWAY's washer is larger and thicker, providing stronger friction.

新和的不鏽鋼介子尺寸較大，提供更強抓著力

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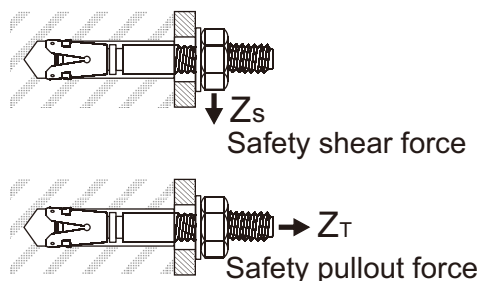
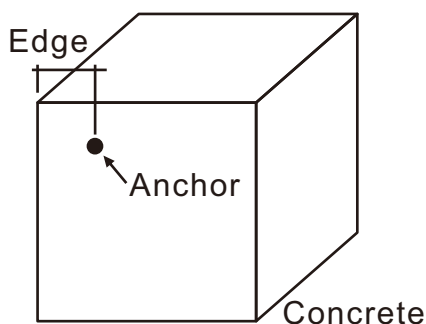
SW-E10 Series:

Non-cracked concrete

Tested by: **MaterialLab**



SW-E10



### Concrete Grade = C20

Loading Type	Working Angle	Edge = 75mm
$Z_T$ Recommended pullout(kN)	90°	6.82
$Z_s$ Recommended shear(kN)	0°	6.43

Recommended pullout(kN) = Maximum Applied Force / 3

Recommended shear(kN) = Maximum Applied Force / 3

### Concrete Grade = C30

Loading Type	Working Angle	Edge = 75mm
$Z_T$ Recommended pullout(kN)	90°	6.87
$Z_s$ Recommended shear(kN)	0°	6.44

Recommended pullout(kN) = Maximum Applied Force / 3

Recommended shear(kN) = Maximum Applied Force / 3

### Concrete Grade = C40

Loading Type	Working Angle	Edge = 75mm
$Z_T$ Recommended pullout(kN)	90°	6.93
$Z_s$ Recommended shear(kN)	0°	6.50

Recommended pullout(kN) = Maximum Applied Force / 3

Recommended shear(kN) = Maximum Applied Force / 3

\*以上資料根據Materiallab之B.S. 5080測試數據得出。

\*The data are conclude by Materiallab Test Report.

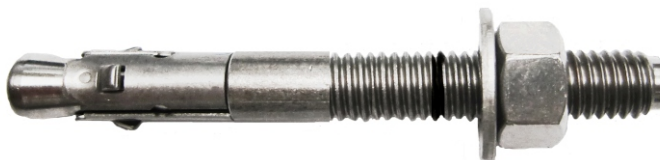
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## SUNWAY SW-E10 Stainless Steel Expansion Bolt 新和不鏽鋼拉爆螺絲(SW-E10)

### SW-E10 Series:

Cracked concrete

Tested by: **MaterialLab**



The relationship between cracked concrete and safety loading (concrete grade C20/C30)

Loading Type	Working Angle	C20	C30
Z <sub>T</sub> Recommended pullout(kN)	90°	5.35	6.60
Z <sub>s</sub> Recommended shear(kN)	0°	5.01	10.64

Recommended pullout(kN) = Maximum Applied Force / 3

Recommended shear(kN) = Maximum Applied Force / 3

### Things need to know when using SUNWAY SW-E10 in cracked concrete:

- 1) When install SW-E10 in cracked concrete, the tensile and shear load should relatively lower than non-cracked concrete.
  - Please refer to the test data.
  - The test is to simulate a 0.3mm-0.4mm width crack occur on the concrete block.
- 2) Things need to remind workers on site:
  - When workers find out any crack on the concrete, they should report to site officer to determine that location install SW-E10 or not.
  - If the crack is wider than 0.3mm-0.4mm (hairline crack) by visual inspection, please do not install SW-E10 on that crack.

Tested by **MaterialLab**



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## SUNWAY SW-E10 Stainless Steel Expansion Bolt 新和不鏽鋼拉爆螺絲(SW-E10)

### SW-E10 Series:

Cracked / Non-cracked concrete

Tested by: **MaterialLab**



SW-E10

$f_A$  : Pullout Anchor Spacing Influence Factor

If:  $A_{min} \leq A < A_0$

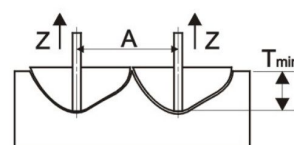
$$f_A = (0.2A / T_{min}) + 0.5$$

If:  $A \geq A_0$

$$f_A = 1.0$$

Anchor Type	SW-E10
$T_{min}$ Manufacturer's Recommended Embedment Depth	50mm
$A_{min}$ Min. Anchor Spacing	80mm
$A_0$ Recommend Anchor Spacing	120mm or above

Anchor space = A



$f_{RS}$  : Factor for Pullout Force

If:  $R_{min} \leq R < R_0$

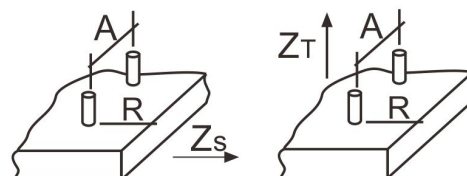
$$f_{RS} = (0.2R / T) + 0.68$$

If:  $R \geq R_0$

$$f_{RS} = 1.0$$

Anchor Type	SW-E10
$T_{min}$ Manufacturer's Recommended Embedment Depth	50mm
$R_{min}$ Min. Edge Distance	60mm
$R_0$ Recommend Anchor Edge	75mm or above

Edge distance = R



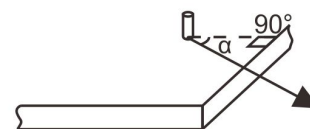
$f_{RQ}$  : Factor for Shear Force

Case 1:  $90^\circ \leq \alpha \leq 180^\circ$

$$f_{RQ} = 1.0$$

Case 2:  $0^\circ \leq \alpha \leq 90^\circ$

$$f_{RQ} = 0.53R / T_{min} \text{ (When } f_{RQ} \geq 1, \text{ adopt } f_{RQ} = 1.0)$$



### Tension Capacity

$$T = Z_S \times F_A \times F_{RS}$$

### Shear Capacity ( min. Spacing = 80mm)

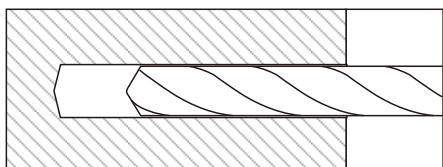
$$V = Z_Q \times F_{RQ}$$

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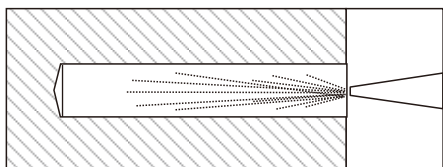
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Basic Information

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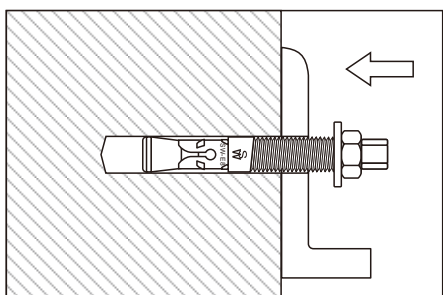
Installation Procedure and Instructions:



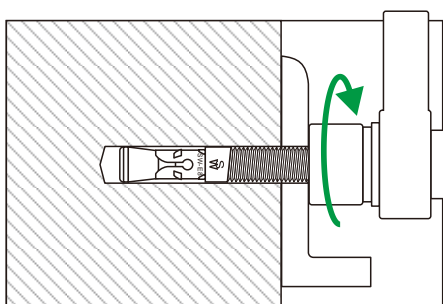
Step 1: Drill the hole with a hammer drill  
(the drill hole should be perpendicular to  
the surface of concrete)



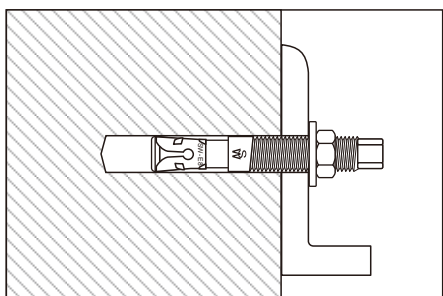
Step 2: Clean the drill hole



Step 3: Hammer in the expansion bolt  
(pay attention to the defined setting depth)



Step 4: Apply the required installation torque  $T_{inst}$   
by using a torque wrench. In case of self-rotation,  
the bolt should be fixed by a flathead screwdriver



Step 5: After installation