

基本資訊 Basic Information

SUNWAY SW-E12 Stainless Steel Expansion Bolt 新和不鏽鋼拉爆螺絲(SW-E12)

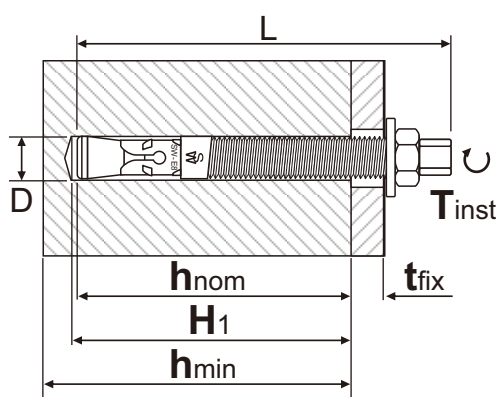


MaterialLab



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

Basic Installation Parameters



Item	Series		SW-E12	
	Model		x80	x120
h_{min}	(mm)	Min. Concrete Thickness	100	
D	(mm)	Drill Hole Diameter	12	
H₁	(mm)	Recommended Drill Hole Depth	60	
h_{nom}	(mm)	Depth before expand	50	
t_{fix}	(mm)	Max. Thickness of Installation Material	13	23
L	(mm)	Anchor Total Length	80	100
T_{inst}	(Nm)	Recommended Torque	42	

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

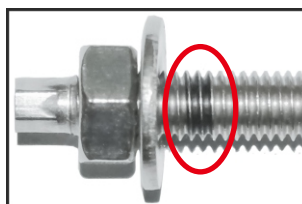
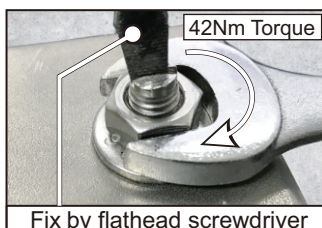
Applications

- 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

May 2021

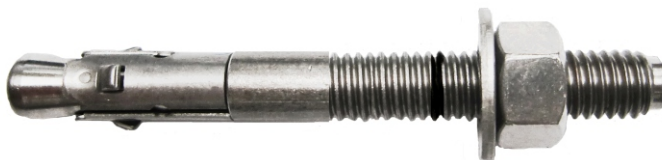
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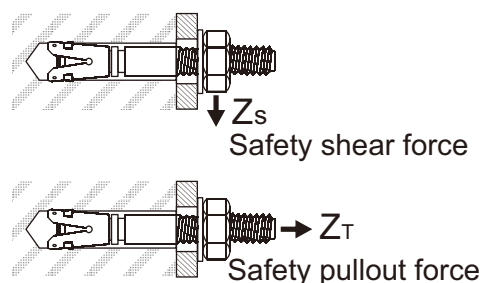
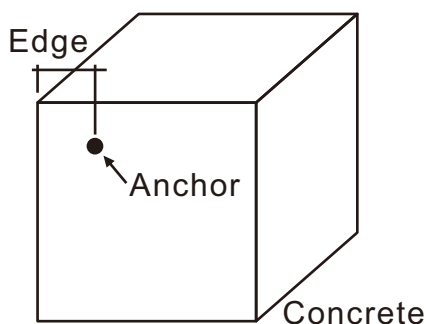
SW-E12 Series:

Non-cracked concrete

Tested by: **MaterialLab**



SW-E12



Concrete Grade = C20

Loading Type	Working Angle	Edge = 75mm
Z_T Recommended pullout(kN)	90°	8.16
Z_s Recommended shear(kN)	0°	11.37

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°	8.30
Z_s Recommended shear(kN)	0°	11.40

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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基本資訊 Basic Information

SUNWAY SW-E12 Stainless Steel Expansion Bolt 新和不鏽鋼拉爆螺絲(SW-E12)

SW-E12 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 _T Recommended pullout(kN)	90°	6.44	7.87
Z _s Recommended shear(kN)	0°	9.11	10.39

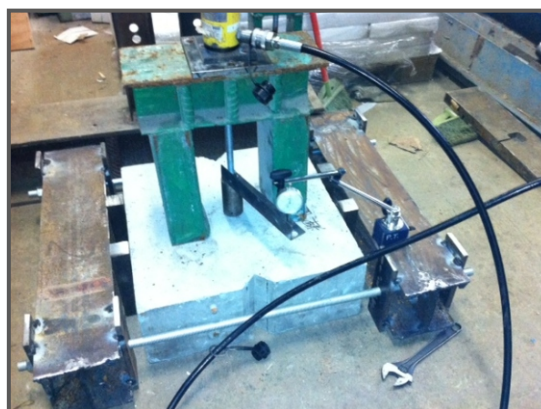
Recommended pullout(kN) = Maximum Applied Force / 3

Recommended shear(kN) = Maximum Applied Force / 3

Things need to know when using SUNWAY SW-E12 in cracked concrete:

- 1) When install SW-E12 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-E12 or not.
 - If the crack is wider than 0.3mm-0.4mm (hairline crack) by visual inspection, please do not install SW-E12 on that crack.

Tested by **MaterialLab**



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SW-E12 Series:

Cracked / Non-cracked concrete

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SW-E12

f_A : Pullout Anchor Spacing Influence Factor

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

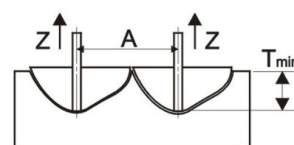
$$f_A = (0.2A / T_{min}) + 0.5$$

If: $A \geq A_0$

$$f_A = 1.0$$

Anchor Type	SW-E12
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: $R_{min} \leq R < R_0$

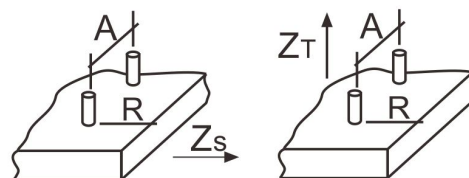
$$f_{RS} = (0.2R / T) + 0.68$$

If: $R \geq R_0$

$$f_{RS} = 1.0$$

Anchor Type	SW-E12
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



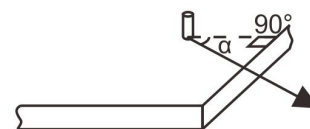
f_{RQ} : Factor for Shear Force

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)

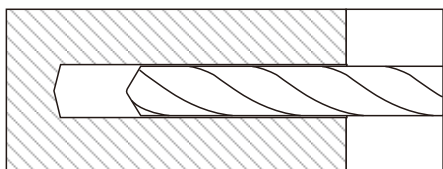
$$V = Z_Q \times F_{RQ}$$

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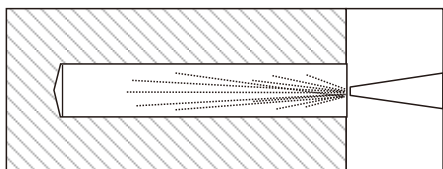
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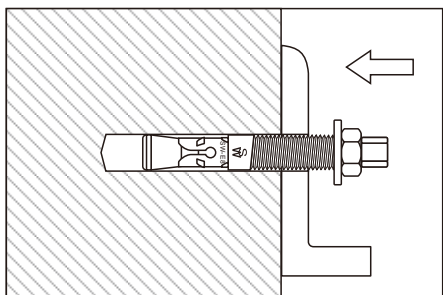
Installation Procedure and Instructions:



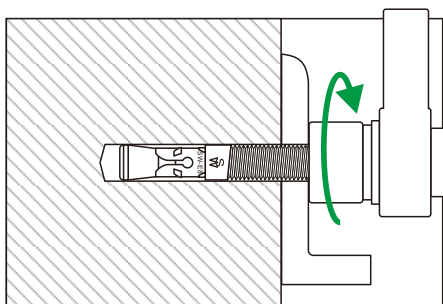
Step 1: Drill the hole with a hammer drill
(the drill hole should be perpendicular to
the surface of concrete)



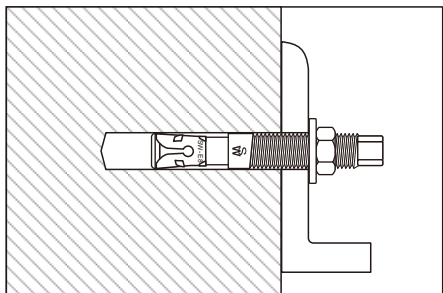
Step 2: Clean the drill hole



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