

<b>1. Description</b>					
SWENN Expansion Bolts also known as Through Bolts or Wedge anchor are torque-controlled expansion type anchors for use in concrete.					
<b>2. Materials and Marking</b>					
SWENN Expansion bolts are available in Zinc Plated Carbon Steel, Corrosion Resistance Stainless Steel Grade SS304 and SS316. "SW" for Zinc Plated Carbon Steel, "SW-A2" for Stainless Steel Grade 304, "SW-A4" for Stainless Steel Grade 316.					
<b>3. Application</b>					
SWENN Expansion Bolts are used to perform through fixings with high load bearing capacity in non-cracked concrete where medium to heavy duty fixings with high tensile & shear loads are essential. Zinc Plated Though Bolts are recommended for indoor use only, while Stainless Steel A2 & A4 can be used for indoor & outdoor.					
<b>4. Installation Details for 'SW', 'SW-A2' and 'SW-A4' (Refer section 8 for drawings)</b>					
Anchor Dia x Length	Drill hole Dia, mm ( d )	Insertion Depth, mm (T <sub>2</sub> )	Thread Length, mm	Fixture Thickness, mm ( h )	Fixing Depth, mm (T <sub>1</sub> )
6 X 40	6	30	19	5	20
6 X 55	6	40	30	10	29
6 X 85	6	45	30	37	32
8 X 50	8	36	25	6	24
8 X 65	8	48	25	9	36
8 X 75	8	52	40	15	40
8 X 95	8	52	40	35	40
8 X 115	8	52	40	55	40
8 X 135	8	52	40	75	40
10 X 75	10	55	35	10	41
10 X 90	10	60	45	20	46
10 X 100	10	60	45	30	46
10 X 120	10	60	45	50	46
10 X 140	10	60	45	70	46
12 X 70	12	54	36	5	39
12 X 80	12	60	40	7	45



12 X 100	12	72	50	10	57
12 X 110	12	78	50	19	63
12 X 130	12	78	50	39	63
12 X 150	12	78	50	59	63
12 X 160	12	78	50	69	63
12 X 180	12	78	50	89	63
16 X 90	16	64	45	10	44
16 X 110	16	80	55	15	60
16 X 125	16	88	60	21	68
16 X 145	16	96	60	33	76
16 X 180	16	96	60	68	76
16 X 200	16	105	80	80	76
20 X 120	20	100	50	5	86
20 X 140	20	110	50	11	86
20 X 160	20	120	50	21	96
20 X 180	20	120	50	41	96
20 X 200	20	120	50	61	96
20 X 220	20	120	50	81	96

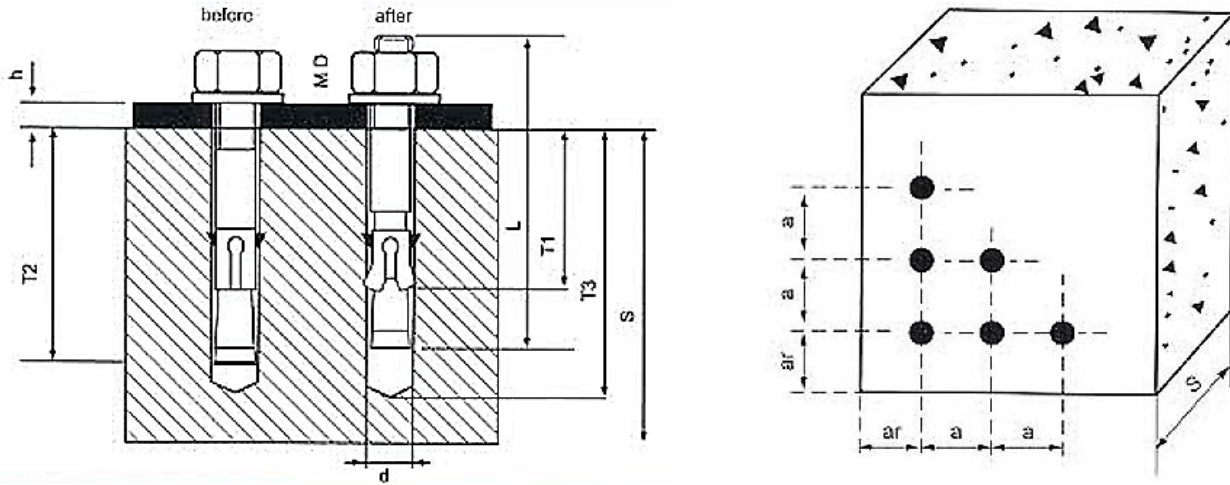
### 5. Technical Data – Zinc Plated Expansion Bolts – Zinc Coating min. 10 microns (concrete C 25/30)

	M6	M8	M10	M12	M16	M20
Tension loads [kN]	3.8	5.2	7.6	11.4	16.8	19.6
Shear loads [kN]	2.8	6.00	8.9	14.5	24.1	33.00
Bending moment [Nm]	5.4	12.9	25.4	44.7	98.7	195.1
Spacing (a) [mm]	120	130	152	195	240	300
Edge distance (a <sub>r</sub> ) [mm]	60	75	90	95	125	150
Minimum spacing (A <sub>min</sub> ) [mm]	40	50	60	75	100	200
Minimum edge distance (AR <sub>min</sub> ) [mm]	40	50	60	90	130	300
Minimum thickness of concrete slab (S <sub>min</sub> ) [mm] (S)	100	100	120	130	160	200
Diameter of clearance hole in the fixture [mm]	7	9	12	14	18	22
Depth of drill hole (T <sub>3</sub> )	55	65	70	88	106	130
Installation torque (MD) [Nm]	6	15	25	50	100	200

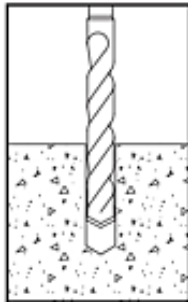
Partial Safety factor of 1.4 are considered for the resistances as well for the load. The technical data is based on single fixing without consideration of edge and anchor distances. Refer section 8 for drawings. 1 kN ≈ 100 kg

6. Technical Data – Stainless Steel Grade 304 (A2) – (concrete C 25/30)						
	M6	M8	M10	M12	M16	M20
Tension loads [kN]	3.8	5.2	7.6	11.4	16.8	19.6
Shear loads [kN]	2.8	6.00	8.9	14.5	24.1	33.00
Bending moment [Nm]	5.4	12.9	25.4	44.7	98.7	195.1
Spacing (a) [mm]	120	130	152	195	240	300
Edge distance ( a <sub>r</sub> ) [mm]	60	75	90	95	125	150
Minimum spacing (A <sub>min</sub> ) [mm]	40	50	60	75	100	200
Minimum edge distance (AR <sub>min</sub> ) [mm]	40	50	60	90	130	300
Minimum thickness of concrete slab (S <sub>min</sub> ) [mm] (S)	100	100	120	130	160	200
Diameter of clearance hole in the fixture [mm]	7	9	12	14	18	22
Depth of drill hole (T <sub>3</sub> )	55	65	70	88	106	130
Installation torque (MD) [Nm]	6	15	25	50	100	200
<small>Partial Safety factor of 1.4 are considered for the resistances as well for the load. The technical data is based on single fixing without consideration of edge and anchor distances. Refer section 8 for drawings. 1 kN ≈ 100 kg</small>						
7. Technical Data – Stainless Steel Grade 316 (A4) – (concrete C 25/30)						
	M6	M8	M10	M12	M16	M20
Tension loads [kN]	3.8	5.2	7.6	11.4	16.8	19.6
Shear loads [kN]	2.8	6.00	8.9	14.5	24.1	33.00
Bending moment [Nm]	5.4	12.9	25.4	44.7	98.7	195.1
Spacing (a) [mm]	120	130	152	195	240	300
Edge distance ( a <sub>r</sub> ) [mm]	60	75	90	95	125	150
Minimum spacing (A <sub>min</sub> ) [mm]	40	50	60	75	100	200
Minimum edge distance (AR <sub>min</sub> ) [mm]	40	50	60	90	130	300
Minimum thickness of concrete slab (S <sub>min</sub> ) [mm] (S)	100	100	120	130	160	200
Diameter of clearance hole in the fixture [mm]	7	9	12	14	18	22
Depth of drill hole (T <sub>3</sub> )	55	65	70	88	106	130
Installation torque (MD) [Nm]	6	15	25	50	100	200
<small>Partial Safety factor of 1.4 are considered for the resistances as well for the load. The technical data is based on single fixing without consideration of edge and anchor distances. Refer section 8 for drawings. 1 kN ≈ 100 kg</small>						

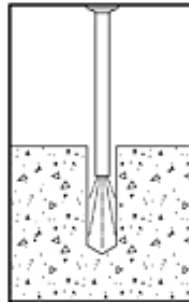
## 8. Drawings



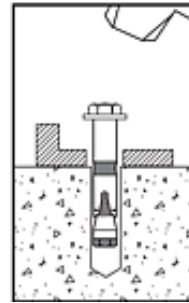
## 9. Installation



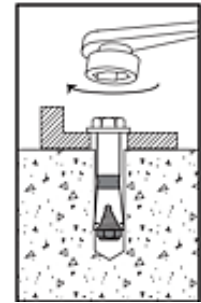
Drill Hole



Blow hole to clean



Insert Expansion bolt through fixture



Apply recommended tightening torque