

TP SHIELD ANCHOR

TP SH, TP SH-A4, TP SH-B, TP SH-TF, TP SH-EB & TP SH-H

■ Product Description

- Male thread metallic anchor, with functioning principle by expansion and installation by controlled torque
- Use in non-cracked concrete, use for high loads
- Easy assembly, anchor must be installed before the fixture

TP SH : TP Shield Anchor (Zinc Plated)

Item Number	Description	Size*
TP 6000	TP Shield Anchor (Zinc Plated)	M06 x 40 ø 10
TP 6001	TP Shield Anchor (Zinc Plated)	M08 x 50 ø 14
TP 6002	TP Shield Anchor (Zinc Plated)	M10 x 60 ø 16
TP 6003	TP Shield Anchor (Zinc Plated)	M12 x 80 ø 20
TP 6004	TP Shield Anchor (Zinc Plated)	M16 x 100 ø 25



* (Inner Diameter) x (Effective depth) ø (Drill diameter) - mm

TP SH-A4 : TP Shield Stainless steel A4

Item Number	Description	Size*
TP 11800	TP Shield Stainless steel A4	M06 x 40 ø 10
TP 6005	TP Shield Stainless steel A4	M08 x 50 ø 14
TP 6006	TP Shield Stainless steel A4	M10 x 60 ø 16
TP 6007	TP Shield Stainless steel A4	M12 x 80 ø 20



* (Inner Diameter) x (Effective depth) ø (Drill diameter) - mm

TP SH-B : TP Shield Loose Bolt 6.8 (Zinc Plated)

Item Number	Description	Size*
TP 11801	TP Shield Loose Bolt 6.8 (Zinc Plated)	M06 x 40 ø 10
TP 6008	TP Shield Loose Bolt 6.8 (Zinc Plated)	M08 x 50 ø 14
TP 6009	TP Shield Loose Bolt 6.8 (Zinc Plated)	M10 x 60 ø 16
TP 6010	TP Shield Loose Bolt 6.8 (Zinc Plated)	M12 x 80 ø 20
TP 6011	TP Shield Loose Bolt 6.8 (Zinc Plated)	M16 x 100 ø 25



* (Inner Diameter) x (Effective depth) ø (Drill diameter) - mm

TP SH-TF : TP Shield Projecting Bolt (Zinc Plated)

Item Number	Description	Size*
TP 11802	TP Shield Projecting Bolt (Zinc Plated)	M06 x 40 ø 10
TP 6012	TP Shield Projecting Bolt (Zinc Plated)	M08 x 50 ø 14
TP 6013	TP Shield Projecting Bolt (Zinc Plated)	M10 x 60 ø 16
TP 6014	TP Shield Projecting Bolt (Zinc Plated)	M12 x 80 ø 20



* (Inner Diameter) x (Effective depth) ø (Drill diameter) - mm

TP SH-EB : TP Shield Eye Bolt (Zinc Plated)

Item Number	Description	Size*
TP 11803	TP Shield Eye Bolt (Zinc Plated)	M06 x 40 ø 10
TP 6015	TP Shield Eye Bolt (Zinc Plated)	M08 x 50 ø 14
TP 6016	TP Shield Eye Bolt (Zinc Plated)	M10 x 60 ø 16
TP 6017	TP Shield Eye Bolt (Zinc Plated)	M12 x 80 ø 20



* (Inner Diameter) x (Effective depth) ø (Drill diameter) - mm

TP SH-H : TP Shield Hook Bolt (Zinc Plated)

Item Number	Description	Size*
TP 11804	TP Shield Hook Bolt (Zinc Plated)	M06 x 40 ø 10
TP 6018	TP Shield Hook Bolt (Zinc Plated)	M08 x 50 ø 14
TP 6019	TP Shield Hook Bolt (Zinc Plated)	M10 x 60 ø 16
TP 6020	TP Shield Hook Bolt (Zinc Plated)	M12 x 80 ø 20



* (Inner Diameter) x (Effective depth) ø (Drill diameter) - mm

■ Application

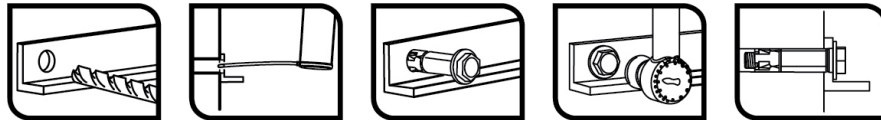
- Fixing signs, racks, panels, gates, handrails, street furniture and fence posts.

■ Anchor Material

No.	Name	Size	Component	Material
1	TP SH	M6 to M16	Capsule	Carbon steel, zinc plated $\geq 5 \mu\text{m}$
2	TP SH-A4	M6 to M12	Capsule	Stainless steel A4
3	TP SH-B	M6 to M16	Capsule / Screw / Washer	Carbon steel, zinc plated $\geq 5 \mu\text{m}$
4	TP SH-TF	M6 to M12	Capsule / Stud / Washer	Carbon steel, zinc plated $\geq 5 \mu\text{m}$
5	TP SH-EB	M6 to M12	Capsule / Eye / Washer	Carbon steel, zinc plated $\geq 5 \mu\text{m}$
6	TP SH-H	M6 to M12	Capsule / Hook / Washer	Carbon steel, zinc plated $\geq 5 \mu\text{m}$

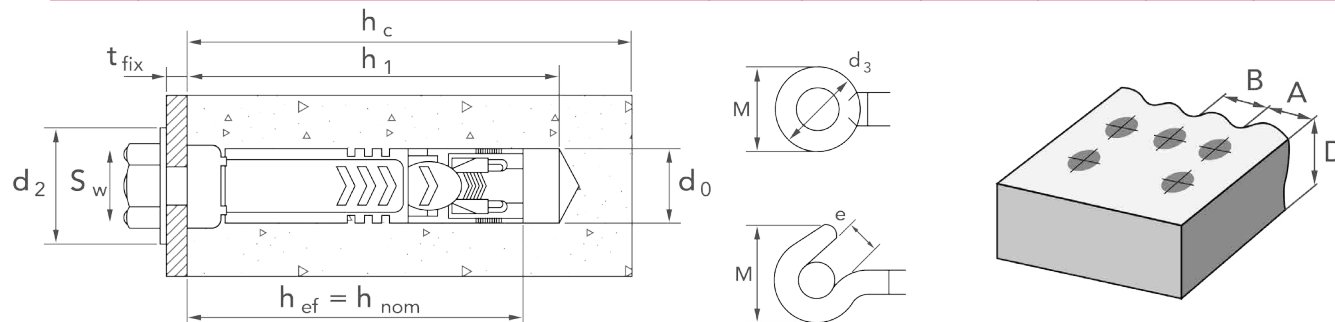
■ Installation Procedure

- Check the concrete base is well compacted and porosity insignificant. Dry, wet or flooded drills allowed. Drill at hammer position. Respect specified diameter and depth
- Blow and clean hole from dust and drill debris using air pump and brush
- Introduce the anchor in the hole completely, until the red ring mark is flat with concrete surface. Use hammer if necessary
- Put the material to be fixed and insert the bolt or stud through holes. Use a bolt with the correct length. Do not introduce any materials between the material to be fixed and the washer (sealants, etc.). Apply the nominal torque using dynamometric wrench



■ Installation Parameters

Installation parameters			M6	M8	M10	M12	M16
d_o	Drill diameter	mm	10	14	16	20	25
d_2	Washer diameter	mm	18	20	23.5	30	40
h_{nom}	Embedment depth	mm	40	50	60	80	100
h_{ef}	Effective depth	mm	40	50	60	80	100
h_1	Drill depth \leq	mm	45	60	70	90	110
h_c	Base material thickness \leq	mm	100	100	120	160	200
S_{sp}	Critical spacing (splitting)	mm	240	300	360	480	600
C_{sp}	Critical edge distance (splitting)	mm	120	150	180	240	300
S_{cr}	Critical spacing (concrete cone)	mm	120	150	180	240	300
C_{cr}	Critical edge distance (concrete cone)	mm	60	75	90	120	150
S_{min}	Minimum spacing	mm	60	75	90	120	150
C_{min}	Minimum edge distance	mm	60	75	90	120	150
T_{inst}	Installation torque	Nm	10	25	50	85	120
t_{fix}	Maximum fixture thickness	mm	8.5	8.5	8.0	17.5	17.0
d_3	Interior eye diameter	mm	10	12	14	17	-
e	Hook minimum gap	mm	10	11	14	18	-
S_w	Nut key	mm	10	13	17	19	24



■ Characteristic Resistance

Characteristic resistance in non-cracked concrete C20 / 25 for an isolated anchor (no effects edge distance or distances between anchors) is indicated in the following table:

Characteristic Resistance			M6	M8	M10	M12	M16
TP SH-B : TP Shield Loose bolt 6.8	$N_{R,K}$: tension	KN	3.43	3.92	12.57	14.75	20.65
	$V_{R,K}$: shear	KN	<u>6.00</u>	<u>11.00</u>	<u>17.40</u>	<u>25.30</u>	<u>47.10</u>
TP SH-A4 : TP Shield Stainless steel A4	$N_{R,K}$: tension	KN	3.43	3.92	8.82	10.78	-
	$V_{R,K}$: shear	KN	<u>7.00</u>	<u>12.80</u>	<u>20.30</u>	<u>29.50</u>	-
TP SH-TF : TP Shield Projecting Bolt	$N_{R,K}$: tension	KN	3.43	3.92	12.57	14.75	20.65
	$V_{R,K}$: shear	KN	<u>4.20</u>	<u>7.70</u>	<u>12.20</u>	<u>17.70</u>	-
TP SH-EB : TP Shield Eye Bolt	$N_{R,K}$: tension	KN	<u>4.20</u>	9.30	<u>15.80</u>	<u>16.90</u>	-
	$V_{R,K}$: shear	KN	-	-	-	-	-
TP SH-H : TP Shield Hook Bolt	$N_{R,K}$: tension	KN	<u>1.64</u>	<u>3.20</u>	<u>5.00</u>	<u>8.10</u>	-
	$V_{R,K}$: shear	KN	-	-	-	-	-

*Underline and cursive values correspond to steel failure.

■ Design Load

Design Load			M6	M8	M10	M12	M16
TP SH-B : TP Shield Loose bolt 6.8	N_{Rd} : tension	KN	1.91	2.18	6.98	8.19	11.47
	V_{Rd} : shear	KN	<u>4.80</u>	<u>8.80</u>	<u>13.92</u>	<u>20.24</u>	<u>37.68</u>
TP SH-A4 : TP Shield Stainless steel A4	N_{Rd} : tension	KN	1.91	2.18	4.90	5.99	-
	V_{Rd} : shear	KN	<u>4.49</u>	<u>8.21</u>	<u>13.01</u>	<u>18.91</u>	-
TP SH-TF : TP Shield Projecting Bolt	N_{Rd} : tension	KN	1.91	2.18	6.98	8.19	11.47
	V_{Rd} : shear	KN	<u>3.36</u>	<u>6.16</u>	<u>9.76</u>	<u>14.16</u>	-
TP SH-EB : TP Shield Eye Bolt	N_{Rd} : tension	KN	<u>2.80</u>	5.17	<u>10.53</u>	<u>11.27</u>	-
	V_{Rd} : shear	KN	-	-	-	-	-
TP SH-H : TP Shield Hook Bolt	N_{Rd} : tension	KN	<u>1.09</u>	<u>2.13</u>	<u>3.33</u>	<u>5.40</u>	-
	V_{Rd} : shear	KN	-	-	-	-	-

*Underline and cursive values correspond to steel failure.

■ Recommended Load

Recommended Load			M6	M8	M10	M12	M16
TP SH-B : TP Shield Loose bolt 6.8	N _{recom} : tension	KN	1.40	1.60	5.00	5.90	8.20
	V _{recom} : shear	KN	<u>3.40</u>	<u>6.30</u>	<u>9.90</u>	<u>14.50</u>	<u>26.90</u>
TP SH-A4 : TP Shield Stainless steel A4	N _{recom} : tension	KN	1.40	1.60	3.50	4.30	-
	V _{recom} : shear	KN	<u>3.20</u>	<u>5.90</u>	<u>9.30</u>	<u>13.50</u>	-
TP SH-TF : TP Shield Projecting Bolt	N _{recom} : tension	KN	1.40	1.60	5.00	5.90	8.20
	V _{recom} : shear	KN	<u>2.40</u>	<u>4.40</u>	<u>7.00</u>	<u>10.10</u>	-
TP SH-EB : TP Shield Eye Bolt	N _{recom} : tension	KN	<u>2.00</u>	3.70	<u>7.50</u>	<u>8.00</u>	-
	V _{recom} : shear	KN	-	-	-	-	-
TP SH-H : TP Shield Hook Bolt	N _{recom} : tension	KN	<u>0.78</u>	<u>1.50</u>	<u>2.38</u>	<u>3.90</u>	-
	V _{recom} : shear	KN	-	-	-	-	-

**Underline and cursive values correspond to steel failure.*