Technical Data Sheet
Anchorfix PSC

Section 1: General Information

Description
Anchorfix PSC is an economical chemical anchoring system formulated to cure quickly and is suitable for medium load applications in masonry and medium to high load applications in concrete.

Features
- Fixings close to free edges
- Anchoring without expansion pressure
- Versatile
- High load capacities

Base materials
- Concrete
- Voided stone or rock
- Solid masonry
- Hollow masonry
- Solid rock
- Hard natural stone

Uses/Applications
- Machinery
- Boilers
- Masonry supports
- Signs
- Canopies
- Safety barriers
- Hand rails
- Balcony fences
- Bicycle racks
- Racking
- Satellite dishes

Accessories
- Applicators
- Mixing nozzles
- High flow mixing nozzles
- Cleaning brushes
- Extension tubes
- Air lance
- Resin stoppers

Storage
Cartridges should be stored in their original packaging, the correct way up, in cool conditions (+5°C to +25°C) out of direct sunlight. When stored correctly, the product shelf life will be 12 months from the date of manufacture.

Safety
For health and safety information, please refer to the relevant Material Safety Data Sheet.

Section 2: Working and load times

Cartridge Temperature	T Work	Base Material Temperature	T Load
+5°C to +10°C	12 minutes	+5°C to +10°C	120 minutes
+10°C to +20°C	6 minutes	+10°C to +20°C	80 minutes
+20°C to +25°C	4 minutes	+20°C to +25°C	40 minutes
+25°C to +30°C	3 minutes	+25°C to +30°C	30 minutes
+30°C to +35°C	2 minutes	+30°C to +35°C	20 minutes
+35°C to +40°C	1.5 minutes	+35°C to +40°C	15 minutes
+40°C	1.5 minutes	+40°C	10 minutes

Note: T Work is typical gel time at highest base material temperature in the range. T Load is minimum set time required until load can be applied at the lowest base material temperature in the range.

Section 3: Installation Parameters - Threaded Rods

Size			M8	M10	M12	M16	M20	M24
Nominal Drill Hole Diameter	d_o	mm	10	12	14	16	22	26
Diameter of Cleaning Brush	d_b	mm	H14	H14	H20	H20	H29	H29
Torque Moment	T_{inst}	Nm	10	20	40	80	150	200

Minimum Embedment Depth			M8	M10	M12	M16	M20	M24
Embedment Depth	h_{ef}	mm	64	80	96	128	160	192
Minimum Edge Distance	c_{min}	mm	40	40	40	60	80	95
Minimum Spacing	s_{min}	mm	40	40	40	60	80	95
Minimum Member Thickness	h_{min}	mm	h_{ef} + 30 mm ≥ 100mm			h_{ef} + 2do		

Maximum Embedment Depth			M8	M10	M12	M16	M20	M24
Embedment Depth	h_{ef}	mm	96	120	144	192	240	288
Minimum Edge Distance	c_{min}	mm	50	60	70	95	120	145
Minimum Spacing	s_{min}	mm	50	60	70	95	120	145
Minimum Member Thickness	h_{min}	mm	h_{ef} + 30 mm ≥ 100mm			h_{ef} + 2do		

Section 4: Using Anchorfix PSC with Threaded Rods in Uncracked Concrete

Combined pullout and concrete cone failure in uncracked concrete C20/25 (Temperature Range: -40°C to +80°C)

Size			M8	M10	M12	M16	M20	M24
Characteristic Bond Resistance in Dry/Wet Concrete	$\tau_{Rk,uncr}$	N/mm²	6.5	6.5	5.5	4.0	4.0	3.5
Partial Safety Factor	γ_{Mp}	-	1.8	1.8	1.8	1.8	1.8	1.8
Factor for Concrete	Ψ_c	C25/30	1.02					
		C30/37	1.04					
		C40/50	1.07					
		C50/60	1.09					

Splitting Failure

Size			M8	M10	M12	M16	M20	M24
Edge Distance	$c_{cr,sp}$	mm	$2h_{ef}$					
Spacing	$s_{cr,sp}$	mm	$2 * c_{cr,sp}$					
Partial Safety Factor	g_{Msp}	-	1.8					

Tension load calculations for combined pullout and concrete cone failure at various embedment depths using threaded rods in dry/wet, C20/25 uncracked concrete (Temperature Range: -40°C to +80°C)

Property	Symbol	Unit	Anchor Size					
			M8	M10	M12	M16	M20	M24
Effective embedment Depth = 8d	h_{ef}	mm	64	80	96	128	160	192
Characteristic Load	$N_{0Rk,p}$	kN	10.46	16.34	19.91	25.74	40.21	50.67
Partial Safety Factor	g_{Mp}	-	1.80	1.80	1.80	1.80	1.80	1.80
Effective embedment Depth = 10d	h_{ef}	mm	80	100	120	160	200	240
Characteristic Load	$N_{0Rk,p}$	kN	13.07	20.42	24.88	32.17	50.27	63.33
Partial Safety Factor	g_{Mp}	-	1.80	1.80	1.80	1.80	1.80	1.80
Effective embedment Depth = STD	h_{ef}	mm	80	90	110	128	170	210
Characteristic Load	$N_{0Rk,p}$	kN	13.07	18.38	22.81	25.74	42.23	55.42
Partial Safety Factor	g_{Mp}	-	1.80	1.80	1.80	1.80	1.80	1.80
Effective embedment Depth = 12d	h_{ef}	mm	96	120	144	192	240	288
Characteristic Load	$N_{0Rk,p}$	kN	15.68	24.50	29.86	38.60	60.32	76.00
Partial Safety Factor	g_{Mp}	-	1.80	1.80	1.80	1.80	1.80	1.80

1. Characteristic loads are valid for combined concrete cone and pullout failure as defined by TR029 only. All other failure modes, including steel failure, detailed in TR029 as well as including combined effects of tension and shear, must be considered in accordance with TR029.
2. Characteristic loads are valid for single anchors without close edge, anchor spacing or eccentric loading considerations.
3. Tabulated values are valid for temperature range -40°C to +80°C (Max LTT = +50°C; Max STT = +80°C).
4. Tabulated values are only valid for the installation conditions stated. Other conditions, such as different temperature ranges, may affect the performance of the product.
5. Long term temperatures are those that remain roughly constant over prolonged periods. Short term temperatures occur over brief intervals, eg: diurnal cycling.
6. The compressive strength of the concrete ($f_{ck,cube}$) is assumed to be 25 N/mm2 for C20/25 concrete.
7. Tabulated values assume that the geometry of the anchor(s) and concrete member is sufficient to avoid splitting failure.

Section 5: Threaded Rods - Characteristic Values for Steel Failure

Size	M8	M10	M12	M16	M20	M24
Steel Grade 4.6	**15**	**23**	**34**	**63**	**98**	**141**
Partial Safety Factor			**2.00**			
Steel Grade 5.8	**18**	**29**	**42**	**79**	**123**	**177**
Partial Safety Factor			**1.50**			
Steel Grade 8.8	**29**	**46**	**67**	**126**	**196**	**282**
Partial Safety Factor			**1.50**			
Steel Grade 10.9*	**37**	**58**	**84**	**157**	**245**	**353**
Partial Safety Factor	**1.33**					
Stainless Steel Grade A2-70, A4-70	**26**	**41**	**59**	**110**	**172**	**247**
Partial Safety Factor			**1.87**			
Stainless Steel Grade A4-80	**29**	**46**	**67**	**126**	**196**	**282**
Partial Safety Factor			**1.60**			
Stainless Steel Grade 1.4529	**26**	**41**	**59**	**110**	**172**	**247**
Partial Safety Factor			**1.50**			
Stainless Steel Grade 1.4565	**26**	**41**	**59**	**110**	**172**	**247**
Partial Safety Factor			**1.87**			

*Galvanized rod of high strength are sensitive to hydrogen induced brittle failure.

Section 6: Solid Substrate Installation Method

1. Drill the hole to the correct diameter and depth. This can be done with either a rotary percussion or rotary hammer drilling machine depending upon the substrate.
2. Thoroughly clean the hole in the following sequence using a brush with the required extensions and a source of clean compressed air. For holes of 400mm or less deep, a blow pump may be used: Blow Clean x2 → Brush Clean x2 → Blow Clean x2 → Brush Clean x2 → Blow Clean x2.
3. If the hole collects water, the current best practice is to remove standing water before cleaning the hole and injecting the resin. Ideally, the resin should be injected into a properly cleaned, dry hole.
4. Select the appropriate static mixer nozzle for the installation, open the cartridge/foil pack and screw nozzle onto the mouth of the cartridge. Insert the cartridge into a good quality applicator.
5. Extrude first part of the cartridge to waste until an even colour has been achieved without streaking in the resin.
6. If necessary, cut the extension tube to the depth of the hole and push onto the end of the mixer nozzle, and (for rebars 16mm dia. or more) fit the correct resin stopper to the other end. Attach extension tubing and resin stopper.
7. Insert the mixer nozzle (resin stopper / extension tube if applicable) to the bottom of the hole. Begin to extrude the resin and slowly withdraw the mixer nozzle from the hole ensuring that there are no air voids as the mixer nozzle is withdrawn. Fill the hole to approximately ½ to ¾ full and withdraw the nozzle completely.
8. Insert a clean threaded bar, free from oil or any release agents, to the bottom of the hole using a back and forth twisting motion ensuring all threads are fully coated. Adjust to the correct position within the stated working time.
9. Any excess resin will be expelled from the hole evenly around the steel element showing that the hole is full.
10. This excess resin should be removed from around the mouth of the hole before it sets.
11. Leave the anchor to cure. Do not disturb the anchor until the appropriate loading time, has elapsed depending on the substrate conditions and ambient temperature.
12. Attach the fixture and tighten the nut to the recommended torque. Do not overtighten.

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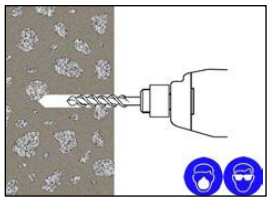

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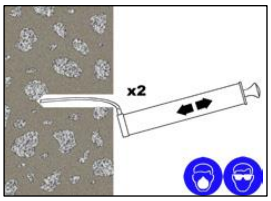

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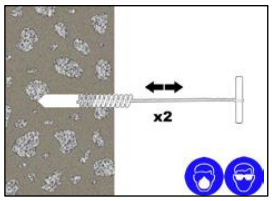

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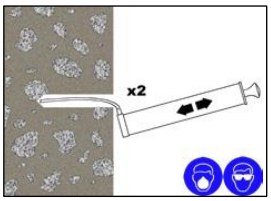

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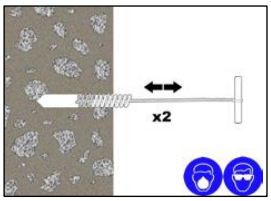

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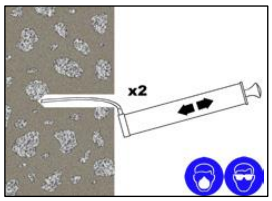

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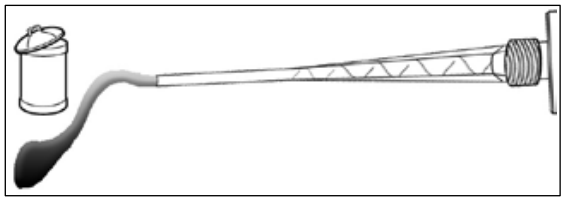

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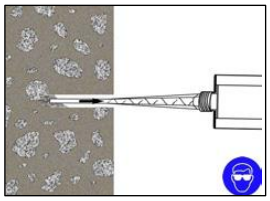

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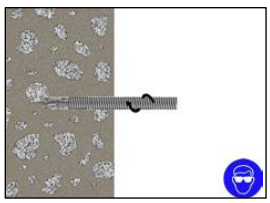

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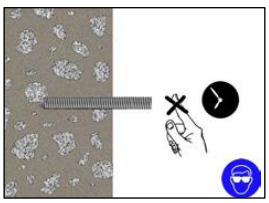

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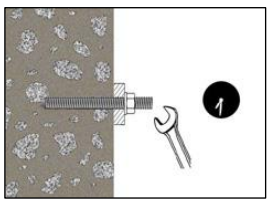

Section 7: Hollow Substrate Installation Method

1. Drill the hole to the correct diameter and depth. This should be done with a rotary percussion drilling machine to reduce spalling.
2. Thoroughly clean the hole in the following sequence using the Anchorfix Brush with the required extensions and a source of clean compressed air. For holes of 400mm or less deep, an Anchorfix Pump may be used: Brush Clean x1. Blow Clean x1.
3. Select the appropriate static mixer nozzle for the installation, open the cartridge/foil pack and screw nozzle onto the mouth of the cartridge. Insert the cartridge into a good quality applicator.
4. Extrude the first part of the cartridge to waste until an even colour has been achieved without streaking in the resin.
5. Select the appropriate perforated sleeve and insert into the hole.
6. Insert the mixer nozzle to the bottom of the perforated sleeve, withdraw 2-3mm then begin to extrude the resin and slowly withdraw the mixer nozzle from the hole ensuring that there are no air voids as the mixer nozzle is withdrawn. Fill the perforated sleeve and withdraw the nozzle completely.
7. Insert the clean threaded bar, free from oil or other release agents, to the bottom of the hole using a back and forth twisting motion ensuring all the threads are thoroughly coated. Adjust to the correct position within the stated working time.
8. Any excess resin will be expelled from the hole evenly around the steel element showing that the hole is full. This excess resin should be removed from around the mouth of the hole before it sets.
9. Leave the anchor to cure. Do not disturb the anchor until the appropriate loading time, has elapsed depending on the substrate conditions and ambient temperature.
10. Attach the fixture and tighten the nut to the recommended torque. Do not overtighten.

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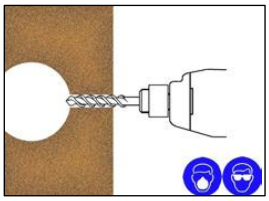

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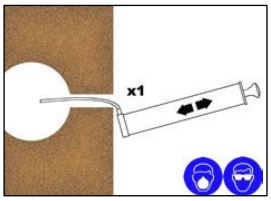

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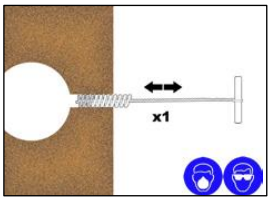

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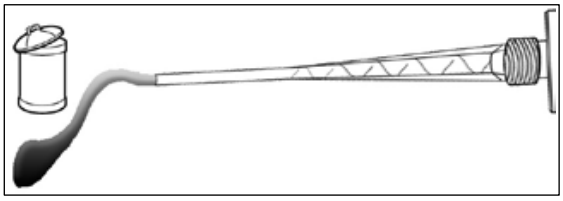

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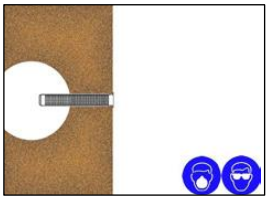

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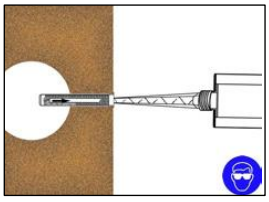

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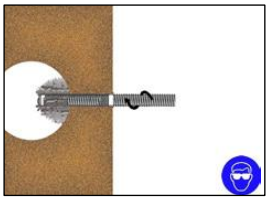

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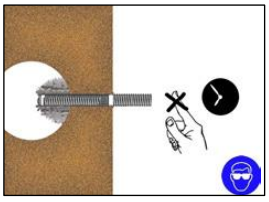

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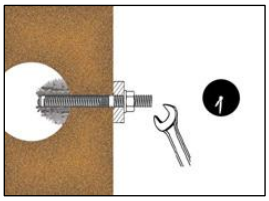

Section 8: Important Notes

Use in Porous Substrates

This bonded anchor is not intended for use as a cosmetic or decorative product. When anchoring into porous or reconstituted stone it is recommended that technical assistance is sought. Due to the nature of the product, migration of the monomer in the resin may cause staining in certain materials. If you are still uncertain, it is advisable to test the resin by applying it in a small, discrete area and testing before using the resin on the project.

Important Note

Whilst all reasonable care is taken in compiling technical data on the Company's products, all recommendations or suggestions regarding the use of such products are made without guarantee, since the conditions of use are beyond the control of the Company. It is the customer's responsibility to satisfy himself that each product is fit for the purpose for which he intends to use it, that the actual conditions of use are suitable and that, in the light of our continual research and development programme the information relating to each product has not been superseded.