



**Technical and Test Institute
for Construction Prague**

Prosecká 811/76a
190 00 Prague
Czech Republic
eota@tzus.cz



Member of



www.eota.eu

European Technical Assessment

ETA 13/0781 of 06/10/2018

Technical Assessment Body issuing the ETA: Technical and Test Institute
for Construction Prague

Trade name of the construction product

J-fix Polyester Resin

**Product family to which the construction
product belongs**

Product area code: 33
Bonded injection type anchor for use
in uncracked concrete

Manufacturer

Hexstone Ltd. T/A JCP Construction Products
Opal Way, Stone Business Park,
Stone, Staffordshire, ST15 0SW,
United Kingdom

Manufacturing plant

Plant 1

**This European Technical Assessment
contains**

13 pages including 10 Annexes which form
an integral part of this assessment

**This European Technical Assessment is
issued in accordance with regulation
(EU) No 305/2011, on the basis of**

EAD 330499-00-0601

This version replaces

ETA 13/0781 issued on 25/06/2013

Translations of this European Technical Assessment in other languages shall fully correspond to the original issued document and should be identified as such.

Communication of this European Technical Assessment, including transmission by electronic means, shall be in full (excepted the confidential Annex(es) referred to above). However, partial reproduction may be made, with the written consent of the issuing Technical Assessment Body - Technical and Test Institute for Construction Prague. Any partial reproduction has to be identified as such.

Supplied By

FFT
Fasteners, Fixings & Tools

01234 333949
FAX- 01234 211069
info@fasteners-ft.co.uk
www.fastenersfixingsandtools.co.uk

1. Technical description of the product

The J-fix Polyester Resin with steel elements is bonded anchor (injection type).

Steel elements can be galvanized or stainless steel.

Steel element is placed into a drilled hole filled with injection mortar. The steel element is anchored via the bond between metal part, injection mortar and concrete. The anchor is intended to be used with embedment depth from 8 diameters to 12 diameters.

The illustration and the description of the product are given in Annex A.

2. Specification of the intended use in accordance with the applicable EAD

The performances given in Section 3 are only valid if the anchor is used in compliance with the specifications and conditions given in Annex B.

The provisions made in this European Technical Assessment are based on an assumed working life of the anchor of 50 years. The indications given on the working life cannot be interpreted as a guarantee given by the producer, but are to be regarded only as a means for choosing the products in relation to the expected economically reasonable working life of the works.

3. Performance of the product and references to the methods used for its assessment

3.1 Mechanical resistance and stability (BWR 1)

Essential characteristic	Performance
Resistance to steel failure (tension)	See Annex C1
Resistance to combined pull-out and concrete failure	See Annex C1
Resistance to concrete cone failure	See Annex C1
Edge distance to prevent splitting under load	See Annex C1
Robustness	See Annex C1
Maximum setting torque moment	See Annex B4
Minimum edge distance and spacing	See Annex B4
Resistance to steel failure (shear)	See Annex C2
Resistance to pry-out failure	See Annex C2
Resistance to concrete edge failure	See Annex C2
Displacements under short term and long term loading	See Annex C3
Durability of metal parts	See Annex A3

3.2 Hygiene, health and environment (BWR 3)

No performance determined.

3.3 General aspects relating to fitness for use

Durability and serviceability are only ensured if the specifications of intended use according to Annex B 1 are kept.

4. Assessment and verification of constancy of performance (AVCP) system applied with reference to its legal base

According to the Decision 96/582/EC of the European Commission¹ the system of assessment verification of constancy of performance (see Annex V to Regulation (EU) No 305/2011) given in the following table apply.

Product	Intended use	Level or class	System
Metal anchors for use in concrete	For fixing and/or supporting to concrete, structural elements (which contributes to the stability of the works) or heavy units.	-	1

¹ Official Journal of the European Communities L 254 of 08.10.1996

5. Technical details necessary for the implementation of the AVCP system, as provided in the applicable EAD

5.1 Tasks of the manufacturer

The manufacturer may only use raw materials stated in the technical documentation of this European Technical Assessment.

The factory production control shall be in accordance with the control plan which is a part of the technical documentation of this European Technical Assessment. The control plan is laid down in the context of the factory production control system operated by the manufacturer and deposited at Technical and Test Institute for Construction Prague.² The results of factory production control shall be recorded and evaluated in accordance with the provisions of the control plan.

5.2 Tasks of the notified bodies

The notified body shall retain the essential points of its actions referred to above and state the results obtained and conclusions drawn in a written report.

The notified certification body involved by the manufacturer shall issue a certificate of constancy of performance of the product stating the conformity with the provisions of this European Technical Assessment.

In cases where the provisions of the European Technical Assessment and its control plan are no longer fulfilled the notified body shall withdraw the certificate of constancy of performance and inform Technical and Test Institute for Construction Prague without delay.

Issued in Prague on 06.10.2018

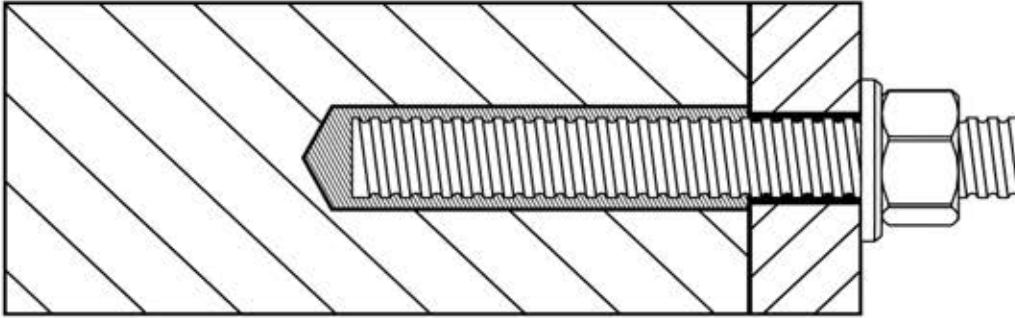
By

Ing. Mária Schaan

Head of the Technical Assessment Body

² The control plan is a confidential part of the documentation of the European Technical Assessment, but not published together with the ETA and only handed over to the approved body involved in the procedure of AVCP.

Threaded rod



J-fix Polyester Resin

Product description
Installed conditions

Annex A 1

Coaxial cartridge
J-fix Polyester Resin

150 ml
380 ml
400 ml
410 ml



Side by side cartridge
J-fix Polyester Resin

350 ml



Two part foil in a single piston component cartridge
J-fix Polyester Resin

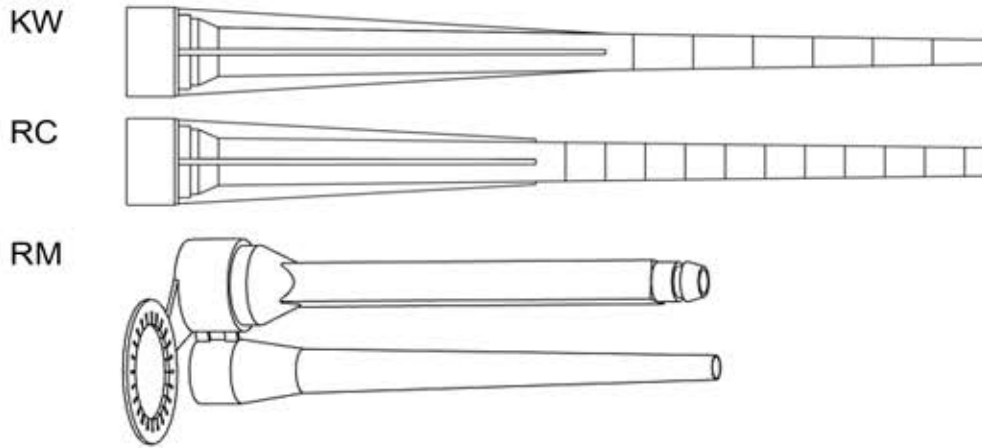
150 ml
170 ml
300 ml



Marking of the mortar cartridges

Identifying mark of the producer, Trade name, Charge code number, Storage life, Curing and processing time

Mixing nozzle

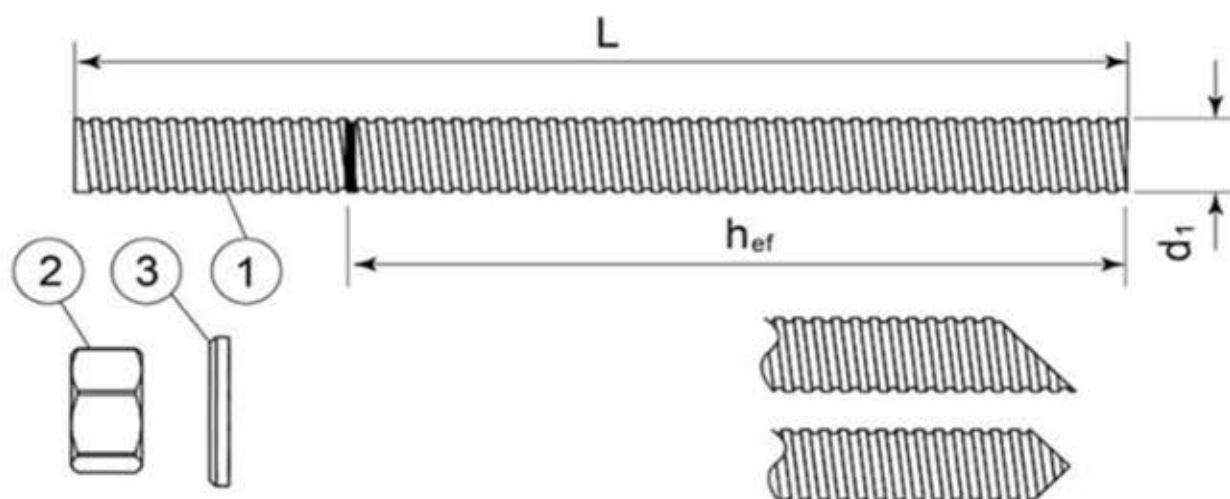


J-fix Polyester Resin

Product description
Injection system

Annex A 2

Threaded rod M8, M10, M12, M16, M20, M24



Standard commercial threaded rod with marked embedment depth

Part	Designation	Material
Steel, zinc plated $\geq 5 \mu\text{m}$ acc. to EN ISO 4042 or Steel, Hot-dip galvanized $\geq 40 \mu\text{m}$ acc. to EN ISO 1461 and EN ISO 10684		
1	Anchor rod	Steel, EN 10087 or EN 10263 Property class 5.8, 8.8, 10.9* EN ISO 898-1
2	Hexagon nut EN ISO 4032	According to threaded rod, EN 20898-2
3	Washer EN ISO 887, EN ISO 7089, EN ISO 7093 or EN ISO 7094	According to threaded rod
Stainless steel		
1	Anchor rod	Material: A2-70, A4-70, A4-80, EN ISO 3506
2	Hexagon nut EN ISO 4032	According to threaded rod
3	Washer EN ISO 887, EN ISO 7089, EN ISO 7093 or EN ISO 7094	According to threaded rod
High corrosion resistant steel 1.4529		
1	Anchor rod	Material: 1.4529, EN 10088-1
2	Hexagon nut EN ISO 4032	According to threaded rod
3	Washer EN ISO 887, EN ISO 7089, EN ISO 7093 or EN ISO 7094	According to threaded rod

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

J-fix Polyester Resin

Product description
Threaded rod and materials

Annex A 3

Specifications of intended use

Anchorage subject to:

- Static and quasi-static load.

Base materials

- Uncracked concrete.
- Reinforced or unreinforced normal weight concrete of strength class C20/25 at minimum and C50/60 at maximum according EN 206-1:2000-12.

Temperature range:

- -40°C to +80°C (max. short. term temperature +80°C and max. long term temperature +50°C)

Use conditions (Environmental conditions)

- (X1) Structures subject to dry internal conditions (zinc coated steel, stainless steel, high corrosion resistance steel).
- (X2) Structures subject to external atmospheric exposure (including industrial and marine environment) and to permanently damp internal condition, if no particular aggressive conditions exist (stainless steel A4, high corrosion resistant steel).
- (X3) Structures subject to external atmospheric exposure and to permanently damp internal condition, if other particular aggressive conditions exist (high corrosion resistant steel).

Note: Particular aggressive conditions are e.g. permanent, alternating immersion in seawater or the splash zone of seawater, chloride atmosphere of indoor swimming pools or atmosphere with extreme chemical pollution (e.g. in desulphurization plants or road tunnels where de-icing materials are used).

Concrete conditions:

- I1 – installation in dry or wet (water saturated) concrete or flooded hole.
- I2 – installation in water-filled (not sea water) and use in service in dry or wet concrete

Design:

- The anchorages are designed in accordance with the EN 1992-4 or EOTA Technical Report TR 055 under the responsibility of an engineer experienced in anchorages and concrete work.
- Verifiable calculation notes and drawings are prepared taking account of the loads to be anchored. The position of the anchor is indicated on the design drawings.

Installation:

- Hole drilling by hammer drill mode.
- Anchor installation carried out by appropriately qualified personnel and under the supervision of the person responsible for technical matters of the site.

Installation direction:

- D3 – downward and horizontal and upwards (e.g. overhead) installation

J-fix Polyester Resin

Intended use
Specifications

Annex B 1

Applicator gun

A



B



C



D

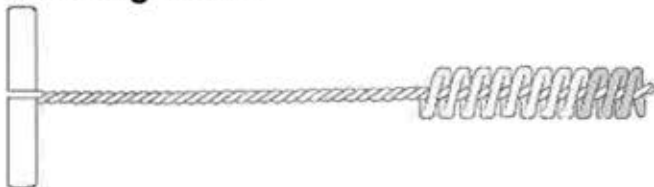


E



Applicator gun	A	B	C	D	E
Cartridge	Coaxial 380ml 400ml 410ml	Side by side 350ml	Foil capsule 150ml 300ml	Foil capsule 150ml 300ml	Coaxial 150ml

Cleaning brush



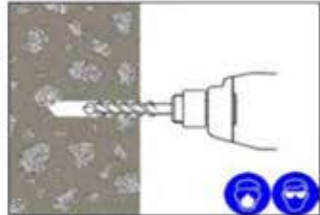
J-fix Polyester Resin

Intended use
Applicator guns
Cleaning brush

Annex B 2

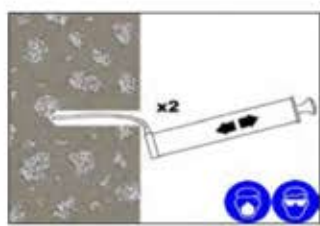
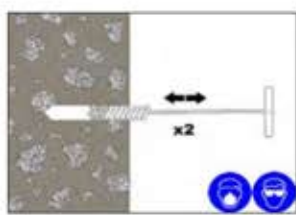
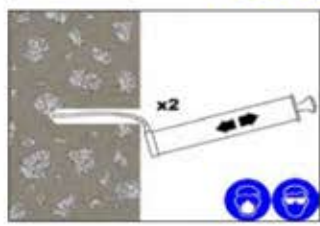
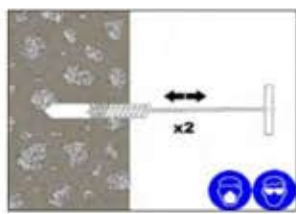
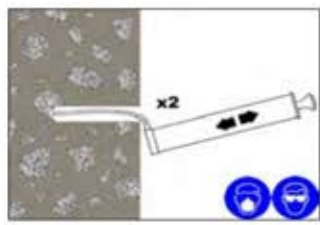
Installation procedure

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 the Brush with the required extensions and a Blow Pump.

Blow Clean x2.
Brush Clean x2.
Blow Clean x2.
Brush Clean x2.
Blow Clean x2.

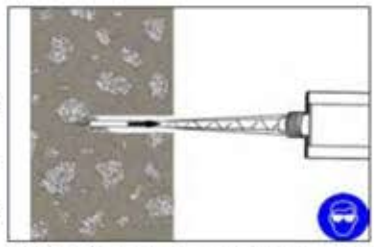


If the hole collects water after the initial cleaning this water must be removed before injecting the resin.

3. Select the appropriate static mixer nozzle for the installation, open the cartridge/foil and screw onto the mouth of the cartridge. Insert the cartridge into the correct applicator gun.
 4. Extrude the first part of the cartridge to waste until an even colour has been achieved without streaking in the resin.



5. If necessary, cut the extension tube to the depth of the hole and push onto the end of the mixer nozzle, and (for threaded bar 16mm dia. or more) fit the correct resin stopper to the other end. Attach extension tubing and resin stopper.



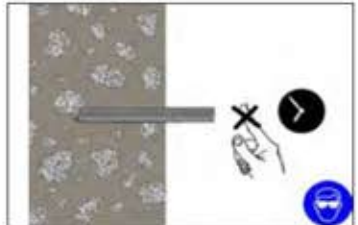
6. Insert the mixer nozzle (resin stopper / extension tube if applicable) to the bottom of the hole. Begin to extrude the resin and slowly withdraw the mixer nozzle from the hole ensuring that there are no air voids as the mixer nozzle is withdrawn. Fill the hole to approximately 1/2 to 3/4 full and remove the mixer 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.

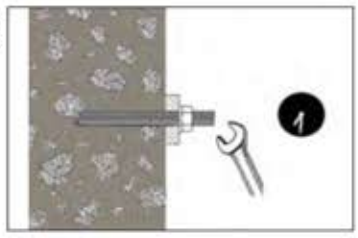


8. Any excess resin should be expelled from the hole evenly around the steel element showing that the hole is full. This excess resin should be removed from around the mouth of the hole before it sets.

9. Leave the anchor to cure. Do not disturb the anchor until the appropriate loading/curing 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.**



J-fix Polyester Resin

Intended use
 Installation procedure

Annex B 3

Table B1: Installation parameter

Size		M8	M10	M12	M16	M20	M24
Nominal drill hole diameter	$\varnothing d_0$ [mm]	10	12	14	18	22	26
Diameter of cleaning nylon brush	d_b [mm]	14	14	20	20	29	29
Torque moment	max T_{fix} [Nm]	10	20	40	80	150	200
Depth of drill hole for $h_{ef,min}$	$h_0 = h_{ef}$ [mm]	64	80	96	128	160	192
Depth of drill hole for $h_{ef,max}$	$h_0 = h_{ef}$ [mm]	96	120	144	192	240	288
Minimum edge distance	c_{min} [mm]	35	40	50	65	80	96
Minimum spacing	s_{min} [mm]	35	40	50	65	80	96
Minimum thickness of member	h_{min} [mm]	$h_{ef} + 30 \text{ mm} \geq 100 \text{ mm}$				$h_{ef} + 2d_0$	

Table B2: Cleaning

All diameters
- 2 x blowing
- 2 x brushing
- 2 x blowing
- 2 x brushing
- 2 x blowing

Table B3.1: Minimum curing time

Resin cartridge temperature [°C]	T Work [mins]	Base material Temperature [°C]	T Load [mins]
min +5	18	min +5	120
+5 to +10	12	+5 to +10	
+10 to +20	6	+10 to +20	80
+20 to +25	4	+20 to +25	40
+25 to +30	3	+25 to +30	30
+30 to +35	2	+30 to +35	20
+35 to +40	1,5	+35 to +40	15
+40		+40	10

T work is typical gel time at highest temperature

T load is set at the lowest temperature

J-fix Polyester Resin**Intended use**Installation parameters
Curing time**Annex B 4**

Table C1: Design method EN 1992-4
Characteristic values of resistance to tension load

Steel failure – Characteristic resistance								
Size			M8	M10	M12	M16	M20	M24
Steel grade 5.8	$N_{Rk,s}$	[kN]	18	29	42	79	123	177
Partial safety factor	γ_{Ms}	[-]	1,5					
Steel grade 8.8	$N_{Rk,s}$	[kN]	29	46	67	126	196	282
Partial safety factor	γ_{Ms}	[-]	1,5					
Steel grade 10.9	$N_{Rk,s}$	[kN]	37	58	84	157	245	353
Partial safety factor	γ_{Ms}	[-]	1,4					
Stainless steel grade A2-70, A4-70	$N_{Rk,s}$	[kN]	26	41	59	110	172	247
Partial safety factor	γ_{Ms}	[-]	1,9					
Stainless steel grade A4-80	$N_{Rk,s}$	[kN]	29	46	67	126	196	282
Partial safety factor	γ_{Ms}	[-]	1,6					
Stainless steel grade 1.4529	$N_{Rk,s}$	[kN]	26	41	59	110	172	247
Partial safety factor	γ_{Ms}	[-]	1,5					

Combined pullout and concrete cone failure in uncracked concrete C20/25									
Size			M8	M10	M12	M16	M20	M24	
Characteristic bond resistance in uncracked concrete									
Dry/wet concrete and flooded hole	$\tau_{Rk,ucr}$	[N/mm ²]	9,5	9	8,5	8	7,5	7	
Installation safety factor	$\gamma_2^{1)} = \gamma_{inst}^{2)}$	[-]	1,2						
Factor for concrete	C30/37	ψ_c	[-]	1,12					
	C35/45			1,19					
	C50/60			1,30					

Concrete cone failure								
Factor for concrete cone failure	$\frac{k_1^{1)}}{k_{ucr,N}^{2)}$	[-]	10,1					
Edge distance	$C_{cr,N}$	[mm]	1,5h _{ef}					

Splitting failure								
Size			M8	M10	M12	M16	M20	M24
Edge distance	$C_{cr,sp}$	[mm]	2,0h _{ef}			1,5h _{ef}		
Spacing	$S_{cr,sp}$	[mm]	4,0h _{ef}			3,0h _{ef}		
Partial safety factor	γ_{Msp}	[-]	1,8					

¹⁾ Design according EOTA Technical Report TR 055

²⁾ Design according EN 1992-4:2016

J-fix Polyester Resin

Performances

Characteristic resistance for tension loads

Annex C 1

Table C2: Design method EN 1992-4
Characteristic values of resistance to shear load

Steel failure without lever arm							
Size		M8	M10	M12	M16	M20	M24
Steel grade 5.8	$V_{Rk,s}$ [kN]	9	15	21	39	61	88
Partial safety factor	γ_{Ms} [-]	1,25					
Steel grade 8.8	$V_{Rk,s}$ [kN]	15	23	34	63	98	141
Partial safety factor	γ_{Ms} [-]	1,25					
Steel grade 10.9	$V_{Rk,s}$ [kN]	18	29	42	79	123	177
Partial safety factor	γ_{Ms} [-]	1,5					
Stainless steel grade A2-70, A4-70	$V_{Rk,s}$ [kN]	13	20	30	55	86	124
Partial safety factor	γ_{Ms} [-]	1,56					
Stainless steel grade A4-80	$V_{Rk,s}$ [kN]	15	23	34	63	98	141
Partial safety factor	γ_{Ms} [-]	1,33					
Stainless steel grade 1.4529	$V_{Rk,s}$ [kN]	13	20	30	55	86	124
Partial safety factor	γ_{Ms} [-]	1,25					
Characteristic resistance of group of fasteners							
Ductility factor $k_7 = 1,0$ for steel with rupture elongation $A_5 > 8\%$							

Steel failure with lever arm							
Size		M8	M10	M12	M16	M20	M24
Steel grade 5.8	$M^o_{Rk,s}$ [N.m]	19	37	66	166	325	561
Partial safety factor	γ_{Ms} [-]	1,25					
Steel grade 8.8	$M^o_{Rk,s}$ [N.m]	30	60	105	266	519	898
Partial safety factor	γ_{Ms} [-]	1,25					
Steel grade 10.9	$M^o_{Rk,s}$ [N.m]	37	75	131	333	649	1123
Partial safety factor	γ_{Ms} [-]	1,50					
Stainless steel grade A2-70, A4-70	$M^o_{Rk,s}$ [N.m]	26	52	92	233	454	786
Partial safety factor	γ_{Ms} [-]	1,56					
Stainless steel grade A4-80	$M^o_{Rk,s}$ [N.m]	30	60	105	266	519	898
Partial safety factor	γ_{Ms} [-]	1,33					
Stainless steel grade 1.4529	$M^o_{Rk,s}$ [N.m]	26	52	92	233	454	786
Partial safety factor	γ_{Ms} [-]	1,25					
Concrete pry-out failure							
Factor for resistance to pry-out failure	k_8 [-]	2					

Concrete edge failure							
Size		M8	M10	M12	M16	M20	M24
Outside diameter of fastener	d_{nom} [mm]	8	10	12	16	20	24
Effective length of fastener	l_f [mm]	min (h_{ef} , $8 d_{nom}$)					

J-fix Polyester Resin

Performances

Characteristic resistance for shear loads

Annex C 2

Table C3: Displacement under tension and shear load

Anchor size			M8	M10	M12	M16	M20	M24
Tension load	F	[kN]	6,3	9,9	15,9	23,8	29,8	37,7
Displacement	δ_{N0}	[mm]	0,1	0,2	0,3	0,5	0,7	0,9
	$\delta_{N\infty}$	[mm]	0,4	0,4	0,4	0,4	0,4	0,4
Shear load	F	[kN]	5,2	8,3	12,0	22,4	35,0	50,4
Displacement	δ_{V0}	[mm]	0,1	0,1	0,2	0,4	0,8	1,5
	$\delta_{V\infty}$	[mm]	0,2	0,2	0,3	0,6	1,2	2,3

J-fix Polyester Resin**Performances**
Displacement**Annex C 3**



TECHNICKÝ A ZKUŠEBNÍ ÚSTAV STAVEBNÍ PRAHA, s.p.
Technical and Test Institute for Construction Prague, SOE

Akreditovaná zkušební laboratoř, Autorizovaná osoba, Notifikovaná osoba, Oznámený subjekt, Subjekt pro technické posuzování, Certifikační orgán, Inspekční orgán · Accredited Testing Laboratory, Authorized Body, Notified Body, Technical Assessment Body, Certification Body, Inspection Body · Prosecká 811/76a, 190 00 Praha 9 - Prosek, Czech Republic

Notified Body 1020

CERTIFICATE OF CONSTANCY OF PERFORMANCE

No. 1020 – CPR – 090-042481

In compliance with Regulation (EU) No 305/2011 of the European Parliament and of the Council of 9 March 2011 (the Construction Products Regulation or CPR), this certificate applies to the construction product:

J-fix Polyester Resin

Bonded injection type anchor for use in uncracked concrete

placed on the market under the name or trade mark of

Hexstone Ltd. T/A JCP Construction Products

Opal Way, Stone Business Park, Stone, Staffordshire, ST15 0SW, United Kingdom

and produced in the manufacturing plant:

Plant 1

This certificate attests that all provisions concerning the assessment and verification of constancy of performance described in the

ETA 13/0781, issued on 06/10/2018

and

EAD 330499-00-0601

under system 1 for the performance set out in the ETA are applied and that the factory production control conducted by manufacturer is assessed to ensure the


constancy of performance of the construction product.

This certificate was first issued on 12th October 2018 and will remain valid as long as neither the ETA, the EAD, the construction product, the AVCP methods nor the manufacturing conditions in the plant are modified significantly, unless suspended or withdrawn by the notified product certification body.

The stamp of the Notified Body 1020

Prague, 12th October, 2018




Ing. Jozef Pôbiš
Manager of the Notified Body



SAFETY DATA SHEET

Polyester Injection Resin

Part A

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name Polyester Injection Resin
Product number JF380P

1.2. Relevant identified uses of the substance or mixture and uses advised against

Identified uses Resin.

1.3. Details of the supplier of the safety data sheet

Supplier JCP Construction Products
Unit 14 Teddington Business Park
Station Rd Teddington TW11 9BQ

Tel +44 208 943 1800

Fax +44 208 943 1140

Web www.jcpfixings.co.uk

Contact person jcpenquiries@owlett-jaton.com

1.4. Emergency telephone number

Emergency telephone Tel +44 208 943 1800 Monday to Friday 9.00 to 5.00

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (EC 1272/2008)

Physical hazards Flam. Liq. 3 - H226
Health hazards Repr. 2 - H361d STOT RE 2 - H373
Environmental hazards Not Classified

2.2. Label elements

Pictogram



Signal word Warning

Hazard statements
H226 Flammable liquid and vapour.
H361d Suspected of damaging the unborn child.
H373 May cause damage to organs through prolonged or repeated exposure if inhaled.

Polyester Injection Resin

Precautionary statements	<p>P260 Do not breathe vapours.</p> <p>P280 Wear protective gloves/ protective clothing/ eye protection/ face protection.</p> <p>P303+P361+P353 IF ON SKIN (or hair): Take off immediately all contaminated clothing. Rinse skin with water/ shower.</p> <p>P314 Get medical advice/ attention if you feel unwell.</p> <p>P370+P378 In case of fire: Use foam, carbon dioxide, dry powder or water fog to extinguish.</p> <p>P403+P235 Store in a well-ventilated place. Keep cool.</p>
Contains	STYRENE
Supplementary precautionary statements	<p>P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking.</p> <p>P233 Keep container tightly closed.</p> <p>P501 Dispose of contents/ container in accordance with national regulations.</p>

2.3. Other hazards

SECTION 3: Composition/information on ingredients

3.2. Mixtures

STYRENE			5-10%
CAS number: 100-42-5	EC number: 202-851-5	REACH registration number: 01-2119457861-32-XXXX	
Classification Flam. Liq. 3 - H226 Acute Tox. 4 - H332 Skin Irrit. 2 - H315 Eye Irrit. 2 - H319 Repr. 2 - H361d STOT SE 3 - H335 STOT RE 1 - H372 Asp. Tox. 1 - H304			

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

SECTION 4: First aid measures

4.1. Description of first aid measures

Inhalation	Move affected person to fresh air at once. Get medical attention if any discomfort continues.
Ingestion	Never give anything by mouth to an unconscious person. Do not induce vomiting. Rinse mouth thoroughly with water. Get medical attention if any discomfort continues.
Skin contact	Remove affected person from source of contamination. Remove contaminated clothing. Wash skin thoroughly with soap and water. Get medical attention if any discomfort continues.
Eye contact	Rinse immediately with plenty of water. Remove any contact lenses and open eyelids wide apart. Continue to rinse for at least 15 minutes. Get medical attention if irritation persists after washing. Show this Safety Data Sheet to the medical personnel.

4.2. Most important symptoms and effects, both acute and delayed

Inhalation	May cause respiratory irritation.
Ingestion	May cause discomfort if swallowed.
Skin contact	May cause skin irritation/eczema.
Eye contact	May irritate eyes.

Polyester Injection Resin

4.3. Indication of any immediate medical attention and special treatment needed

Notes for the doctor No specific recommendations. If in doubt, get medical attention promptly.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media Extinguish with foam, carbon dioxide or dry powder.

5.2. Special hazards arising from the substance or mixture

Specific hazards No unusual fire or explosion hazards noted.

Hazardous combustion products Oxides of carbon.

5.3. Advice for firefighters

Protective actions during firefighting Avoid breathing fire gases or vapours.

Special protective equipment for firefighters Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions Wear protective clothing as described in Section 8 of this safety data sheet.

6.2. Environmental precautions

Environmental precautions Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up Collect and place in suitable waste disposal containers and seal securely. For waste disposal, see Section 13.

6.4. Reference to other sections

Reference to other sections Wear protective clothing as described in Section 8 of this safety data sheet. For waste disposal, see Section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Usage precautions Do not use in confined spaces without adequate ventilation and/or respirator.

7.2. Conditions for safe storage, including any incompatibilities

Storage precautions Store in tightly closed original container in a dry, cool and well-ventilated place. Keep away from oxidising materials, heat and flames.

Storage class Chemical storage.

7.3. Specific end use(s)

Specific end use(s) The identified uses for this product are detailed in Section 1.2.

SECTION 8: Exposure Controls/personal protection

8.1. Control parameters

Occupational exposure limits

STYRENE

Polyester Injection Resin

Long-term exposure limit (8-hour TWA): WEL 100 ppm 430 mg/m³

Short-term exposure limit (15-minute): WEL 250 ppm 1080 mg/m³

WEL = Workplace Exposure Limit

STYRENE (CAS: 100-42-5)

DNEL	<p>Industry - Inhalation; Long term systemic effects: 85 mg/m³</p> <p>Industry - Inhalation; Short term systemic effects: 289 mg/m³</p> <p>Industry - Inhalation; Short term local effects: 306 mg/m³</p> <p>Industry - Dermal; Long term systemic effects: 406 mg/kg/day</p> <p>REACH dossier information</p>
PNEC	<p>- Fresh water; 0.028 mg/l</p> <p>- Marine water; 0.0028 mg/l</p> <p>- Intermittent release; 0.04 mg/l</p> <p>- STP; 4 mg/l</p> <p>- Sediment (Freshwater); 0.614 mg/kg</p> <p>- Sediment (Marinewater); 0.0614 mg/kg</p> <p>- Soil; 0.2 mg/kg</p> <p>REACH dossier information</p>

8.2. Exposure controls

Protective equipment



Appropriate engineering controls

Provide adequate ventilation. Avoid inhalation of vapours. Observe any occupational exposure limits for the product or ingredients.

Eye/face protection

The following protection should be worn: Chemical splash goggles.

Hand protection

It is recommended that chemical-resistant, impervious gloves are worn.

Other skin and body protection

Wear appropriate clothing to prevent any possibility of skin contact.

Hygiene measures

DO NOT SMOKE IN WORK AREA! Wash hands at the end of each work shift and before eating, smoking and using the toilet. Wash promptly if skin becomes contaminated. Promptly remove any clothing that becomes contaminated. Use appropriate skin cream to prevent drying of skin. Do not eat, drink or smoke when using this product.

Respiratory protection

Respiratory protection may be required if excessive airborne contamination occurs.

Environmental exposure controls

Keep container tightly sealed when not in use.

SECTION 9: Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Appearance	Liquid
Colour	Beige.
Odour	Aromatic.
Odour threshold	Not determined.
pH	Not applicable.

Polyester Injection Resin

Melting point	-30.4°C
Initial boiling point and range	>145°C @
Flash point	31°C
Evaporation rate	Not determined.
Evaporation factor	Not determined.
Flammability (solid, gas)	Not determined.
Upper/lower flammability or explosive limits	Not determined.
Other flammability	Not determined.
Vapour pressure	6 hPa @ 20°C
Vapour density	Not determined.
Relative density	1.65 - 1.75 @ 20°C
Bulk density	Not applicable.
Solubility(ies)	Insoluble in water
Partition coefficient	Not determined.
Auto-ignition temperature	490°C
Decomposition Temperature	Not determined.
Viscosity	> 60 S ISO2431
Explosive properties	No information available.
Oxidising properties	Does not meet the criteria for classification as oxidising.

9.2. Other information

SECTION 10: Stability and reactivity

10.1. Reactivity

Reactivity The following materials may react with the product: Organic peroxides/hydroperoxides.

10.2. Chemical stability

Stability Stable at normal ambient temperatures.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions Does not decompose when used and stored as recommended.

10.4. Conditions to avoid

Conditions to avoid Avoid excessive heat for prolonged periods of time.

10.5. Incompatible materials

Materials to avoid Organic peroxides/hydroperoxides.

10.6. Hazardous decomposition products

Hazardous decomposition products Oxides of carbon.

SECTION 11: Toxicological information

Polyester Injection Resin

11.1. Information on toxicological effects

Acute toxicity - inhalation

ATE inhalation (vapours mg/l) 110.17

Specific target organ toxicity - repeated exposure

Target organs	Causes damage to hearing organs through prolonged or repeated exposure via inhalation
Inhalation	Gas or vapour in high concentrations may irritate the respiratory system. Symptoms following overexposure may include the following: Coughing.
Ingestion	May cause discomfort if swallowed.
Skin contact	Liquid may irritate skin.
Eye contact	Irritating to eyes.
Acute and chronic health hazards	Irritating to skin. Irritating to eyes. Gas or vapour is harmful on prolonged exposure or in high concentrations. May cause damage to organs through prolonged or repeated exposure if inhaled.
Route of entry	Inhalation Skin and/or eye contact.
Medical symptoms	Skin irritation. Irritation of eyes and mucous membranes.

Toxicological information on ingredients.

STYRENE

Acute toxicity - oral

Acute toxicity oral (LD₅₀ mg/kg) 5,000.0

Species Rat

Acute toxicity - dermal

Acute toxicity dermal (LD₅₀ mg/kg) 2,000.0

Species Rat

Acute toxicity - inhalation

ATE inhalation (vapours mg/l) 11.0

Carcinogenicity

IARC carcinogenicity IARC Group 2B Possibly carcinogenic to humans.

NTP carcinogenicity Reasonably anticipated to be a human carcinogen.

SECTION 12: Ecological Information

Ecotoxicity Not regarded as dangerous for the environment. However, large or frequent spills may have hazardous effects on the environment.

12.1. Toxicity

Ecological information on ingredients.

Supplied By

Polyester Injection Resin

Acute toxicity - fish	LC50, 96 hours: 10 mg/l, Pimephales promelas (Fat-head Minnow)
Acute toxicity - aquatic invertebrates	EC ₅₀ , 48 hours: 4.7 mg/l, Daphnia magna
Acute toxicity - aquatic plants	EC ₅₀ , 72 hours: 4.9 mg/l, Selenastrum capricornutum

12.2. Persistence and degradability

12.3. Bioaccumulative potential

Bioaccumulative potential No data available on bioaccumulation.

Partition coefficient Not determined.

12.4. Mobility in soil

Mobility Not applicable.

12.5. Results of PBT and vPvB assessment

Results of PBT and vPvB assessment This product does not contain any substances classified as PBT or vPvB.

12.6. Other adverse effects

Other adverse effects Not applicable.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

General information Dispose of waste product or used containers in accordance with local regulations

Disposal methods Dispose of waste via a licensed waste disposal contractor.

SECTION 14: Transport information

14.1. UN number

UN No. (ICAO) 1866

14.2. UN proper shipping name

Proper shipping name (ADR/RID) RESIN SOLUTION

Proper shipping name (IMDG) RESIN SOLUTION

Proper shipping name (ICAO) RESIN SOLUTION

Proper shipping name (ADN) RESIN SOLUTION

14.3. Transport hazard class(es)

ADR/RID class Exempt C1 2.2.3.1.5

IMDG class Exempt. IMDG Code Clause 2.3.2.5

ICAO class/division 3

Transport labels



14.4. Packing group

Polyester Injection Resin

ICAO packing group III

14.5. Environmental hazards

Environmentally hazardous substance/marine pollutant

No.

14.6. Special precautions for user

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

SECTION 15: Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

EU legislation (EU) No 2015/830

Guidance Workplace Exposure Limits EH40.

15.2. Chemical safety assessment

No chemical safety assessment has been carried out.

Inventories

EU - EINECS/ELINCS

STYRENE

US - TSCA

All the ingredients are listed or exempt.

US - TSCA 12(b) Export Notification

None of the ingredients are listed or exempt.

SECTION 16: Other information

Revision comments	NOTE: Lines within the margin indicate significant changes from the previous revision.
Revision date	06/03/2017
Revision	3
Supersedes date	03/09/2015
SDS number	20346
Hazard statements in full	H226 Flammable liquid and vapour. H304 May be fatal if swallowed and enters airways. H315 Causes skin irritation. H319 Causes serious eye irritation. H332 Harmful if inhaled. H335 May cause respiratory irritation. H361d Suspected of damaging the unborn child. H372 Causes damage to organs (Hearing) through prolonged or repeated exposure if inhaled. H373 May cause damage to organs through prolonged or repeated exposure if inhaled.

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.



SAFETY DATA SHEET

Polyester Injection Resin

Part B

SECTION 1: Identification of the substance/mixture and of the company/undertaking

1.1. Product identifier

Product name Polyester Injection Resin

Product number JF380P

1.2. Relevant identified uses of the substance or mixture and uses advised against

Identified uses Catalyst.

1.3. Details of the supplier of the safety data sheet

Supplier JCP Construction Products
Unit 14 Teddington Business Park
Station Rd Teddington TW11 9BQ

Tel +44 208 943 1800

Fax +44 208 943 1140

Web www.jcpfixings.co.uk

Contact person jcpenquiries@owlett-jaton.com

1.4. Emergency telephone number

Emergency telephone Tel +44 208 943 1800 Monday to Friday 9.00 to 5.00

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Classification (EC 1272/2008)

Physical hazards Not Classified

Health hazards Eye Irrit. 2 - H319 Skin Sens. 1 - H317

Environmental hazards Aquatic Acute 1 - H400 Aquatic Chronic 3 - H412

Human health May cause skin disorders if contact is repeated or prolonged. The product is irritating to eyes and skin.

Environmental The product contains a substance which is very toxic to aquatic organisms and which may cause long-term adverse effects in the aquatic environment.

Physicochemical Not considered to be a significant hazard due to the small quantities used.

2.2. Label elements

Pictogram



SAFETY DATA SHEET

Polyester Injection Resin

Signal word	Warning
Hazard statements	H317 May cause an allergic skin reaction. H319 Causes serious eye irritation. H400 Very toxic to aquatic life. H412 Harmful to aquatic life with long lasting effects.
Precautionary statements	P273 Avoid release to the environment. P280 Wear protective gloves/ protective clothing/ eye protection/ face protection. P302+P352 IF ON SKIN: Wash with plenty of water. P305+P351+P338 IF IN EYES: Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing. P333+P313 If skin irritation or rash occurs: Get medical advice/ attention. P501 Dispose of contents/ container in accordance with national regulations.
Contains	BENZOYL PEROXIDE
Supplementary precautionary statements	P264 Wash contaminated skin thoroughly after handling. P337+P313 If eye irritation persists: Get medical advice/ attention. P362+P364 Take off contaminated clothing and wash it before reuse. P391 Collect spillage. P411 Store at temperatures not exceeding 25°C/77°F.

2.3. Other hazards

SECTION 3. Composition/information on ingredients

3.2. Mixtures

BENZOYL PEROXIDE		10-15%
CAS number: 94-36-0	EC number: 202-327-6	REACH registration number: 01-2119511472-50-XXXX
M factor (Acute) = 10		
Classification		
Org. Perox. B - H241 Eye Irrit. 2 - H319 Skin Sens. 1 - H317 Aquatic Acute 1 - H400		
BENZOIC ACID,NONYL ESTER,BRANCHED AND LINEAR		5-10%
CAS number: 670241-72-2	EC number: 447-010-5	REACH registration number: 01-0000018876-55-XXXX
Classification		
Aquatic Chronic 2 - H411		

The Full Text for all R-Phrases and Hazard Statements are Displayed in Section 16.

SECTION 4. First aid measures

4.1. Description of first aid measures

Inhalation	Move affected person to fresh air at once. Get medical attention if any discomfort continues.
Ingestion	Never give anything by mouth to an unconscious person. Do not induce vomiting. Rinse mouth thoroughly with water. Get medical attention if any discomfort continues.

SAFETY DATA SHEET

Polyester Injection Resin

Skin contact Remove affected person from source of contamination. Remove contaminated clothing. Wash skin thoroughly with soap and water. Get medical attention if any discomfort continues.

Eye contact Rinse immediately with plenty of water. Remove any contact lenses and open eyelids wide apart. Continue to rinse for at least 15 minutes. Get medical attention if irritation persists after washing. Show this Safety Data Sheet to the medical personnel.

4.2. Most important symptoms and effects, both acute and delayed

Ingestion May cause discomfort if swallowed.

Skin contact Causes skin irritation.

Eye contact Irritation of eyes and mucous membranes.

4.3. Indication of any immediate medical attention and special treatment needed

Notes for the doctor No specific recommendations. If in doubt, get medical attention promptly.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media Extinguish with foam, carbon dioxide or dry powder.

5.2. Special hazards arising from the substance or mixture

Specific hazards No specific precautions due to the small quantities handled.

Hazardous combustion products Oxides of carbon.

5.3. Advice for firefighters

Protective actions during firefighting Avoid breathing fire gases or vapours.

Special protective equipment for firefighters Wear positive-pressure self-contained breathing apparatus (SCBA) and appropriate protective clothing.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Personal precautions Wear protective clothing as described in Section 8 of this safety data sheet.

6.2. Environmental precautions

Environmental precautions Avoid release to the environment.

6.3. Methods and material for containment and cleaning up

Methods for cleaning up Collect and place in suitable waste disposal containers and seal securely. For waste disposal, see Section 13.

6.4. Reference to other sections

Reference to other sections Wear protective clothing as described in Section 8 of this safety data sheet. For waste disposal, see Section 13.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Usage precautions Keep away from heat, sparks and open flame.

SAFETY DATA SHEET

Polyester Injection Resin

Advice on general occupational hygiene Do not eat, drink or smoke when using this product. No specific hygiene procedures recommended but good personal hygiene practices should always be observed when working with chemical products.

7.2. Conditions for safe storage, including any incompatibilities

Storage precautions Keep away from flammable and combustible materials. Store in closed original container at temperatures between 5°C and 25°C.

Storage class Chemical storage.

7.3. Specific end use(s)

Specific end use(s) The identified uses for this product are detailed in Section 1.2.

SECTION 8: Exposure Controls/personal protection

8.1. Control parameters

Occupational exposure limits

BENZOYL PEROXIDE

Long-term exposure limit (8-hour TWA): WEL 5 mg/m³

WEL = Workplace Exposure Limit

BENZOYL PEROXIDE (CAS: 94-36-0)

DNEL	Industry - Dermal; Long term : 6.6 mg/kg/day Industry - Oral; Long term : 1.6 mg/kg/day Industry - Inhalation; Long term : 11.75 mg/m ³
PNEC	- Fresh water; 0.000602 mg/l - Sediment (Freshwater); 0.338 mg/kg - STP; 0.35 mg/l - Marine water; 0.0000602 mg/l - Sediment (Marinewater); 0.0338 mg/kg

8.2. Exposure controls

Protective equipment



Appropriate engineering controls

Provide adequate ventilation.

Eye/face protection

The following protection should be worn: Chemical splash goggles.

Hand protection

Wear protective gloves made of the following material: Nitrile rubber.

Other skin and body protection

Wear appropriate clothing to prevent any possibility of skin contact.

Hygiene measures

Wash hands at the end of each work shift and before eating, smoking and using the toilet. **DO NOT SMOKE IN WORK AREA!**

Respiratory protection

No specific recommendations.

SECTION 9: Physical and Chemical Properties

9.1. Information on basic physical and chemical properties

Appearance Liquid

SAFETY DATA SHEET

Polyester Injection Resin

Colour	Black.
Odour	Characteristic.
Odour threshold	Not determined.
pH	Not determined.
Melting point	Not applicable.
Initial boiling point and range	Not applicable.
Flash point	Not applicable.
Evaporation rate	Not determined.
Evaporation factor	Not determined.
Flammability (solid, gas)	Not determined.
Upper/lower flammability or explosive limits	Not determined.
Other flammability	Not determined.
Vapour pressure	Not determined.
Vapour density	Not determined.
Relative density	1.5 - 1.6
Bulk density	Not applicable.
Solubility(ies)	Not determined.
Partition coefficient	Not determined.
Auto-ignition temperature	Not determined.
Decomposition Temperature	>50°C
Viscosity	> 60 S ISO2431
Explosive properties	No information available.
Oxidising properties	Not determined.

9.2. Other information

SECTION 10. Stability and reactivity

10.1. Reactivity

Reactivity The following materials may react with the product: Acids. Alkalis. Amines. Strong reducing agents.

10.2. Chemical stability

Stability Stable at normal ambient temperatures and when used as recommended. Will decompose at temperatures exceeding 50°C.

10.3. Possibility of hazardous reactions

Possibility of hazardous reactions Will not polymerise.

10.4. Conditions to avoid

Conditions to avoid Avoid contact with strong reducing agents. Avoid heat. Avoid contact with acids and alkalis.

SAFETY DATA SHEET

Polyester Injection Resin

10.5. Incompatible materials

Materials to avoid Strong reducing agents. Acids, non-oxidising. Acids - organic. Alkalis - inorganic. Alkalis - organic. Amines.

10.6. Hazardous decomposition products

Hazardous decomposition products Oxides of carbon.

SECTION 11: Toxicological information

11.1. Information on toxicological effects

Skin sensitisation

Skin sensitisation Sensitising.

Inhalation No specific health hazards known.

Ingestion May cause discomfort if swallowed.

Skin contact Irritating to skin. May cause sensitisation by skin contact.

Eye contact Irritation of eyes and mucous membranes.

Route of entry Skin and/or eye contact.

Medical symptoms Skin irritation. Irritation of eyes and mucous membranes.

Medical considerations No information available.

Toxicological information on ingredients.

BENZOYL PEROXIDE

Acute toxicity - oral

Acute toxicity oral (LD₅₀ mg/kg) 950.0

Species Rat

Carcinogenicity

IARC carcinogenicity IARC Group 3 Not classifiable as to its carcinogenicity to humans.

SECTION 12: Ecological Information

12.1. Toxicity

Ecological information on ingredients.

BENZOYL PEROXIDE

Acute aquatic toxicity

LE(C)₅₀ 0.01 < L(E)C50 ≤ 0.1

M factor (Acute) 10

Acute toxicity - fish LC50, 96 hours: 0.06 mg/l, Onchorhynchus mykiss (Rainbow trout)

Acute toxicity - aquatic invertebrates EC₅₀, 48 hours: 0.11 mg/l, Daphnia magna

Acute toxicity - aquatic plants EC₅₀, 72 hours: 0.07 mg/l, Selenastrum capricornutum

SAFETY DATA SHEET

Polyester Injection Resin

BENZOIC ACID,NONYL ESTER,BRANCHED AND LINEAR

Acute toxicity - fish	LC ₅₀ , 24 hours: > 1.23 mg/l, Cyprinus carpio (Common carp) LC ₅₀ , 48 hours: > 1.23 mg/l, Cyprinus carpio (Common carp) LC ₅₀ , 72 hours: > 1.23 mg/l, Cyprinus carpio (Common carp) EC ₅₀ , 96 hours: > 1.23 mg/l, Cyprinus carpio (Common carp) EC ₁₀₀ , 96 hours: > 1.23 mg/l, Cyprinus carpio (Common carp) NOEC, 96 hours: > 1.23 mg/l, Cyprinus carpio (Common carp)
Acute toxicity - aquatic invertebrates	EC ₅₀ , 24 hours: > 2.2 mg/l, Daphnia magna EC ₅₀ , 48 hours: > 2.2 mg/l, Daphnia magna NOEC, 48 hours: > 2.2 mg/l, Daphnia magna
Acute toxicity - microorganisms	IC ₅₀ , 3 hours: > 1000 mg/l, Activated sludge NOEC, 3 hours: > 1000 mg/l, Activated sludge

12.2. Persistence and degradability

Persistence and degradability There are no data on the degradability of this product.

12.3. Bioaccumulative potential

Bioaccumulative potential No data available on bioaccumulation.

Partition coefficient Not determined.

12.4. Mobility in soil

Mobility Mobile. The product is partly miscible with water and may spread in the aquatic environment.

12.5. Results of PBT and vPvB assessment

Results of PBT and vPvB assessment This product does not contain any substances classified as PBT or vPvB.

12.6. Other adverse effects

SECTION 13 Disposal considerations

13.1. Waste treatment methods

General information Dispose of waste product or used containers in accordance with local regulations

Disposal methods Dispose of waste via a licensed waste disposal contractor.

SECTION 14 Transport information

14.1. UN number

UN No. (ADR/RID) 3082

UN No. (IMDG) 3082

UN No. (ICAO) 3082

UN No. (ADN) 3082

14.2. UN proper shipping name

Proper shipping name (ADR/RID) ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. BENZOYL PEROXIDE

Proper shipping name (IMDG) ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. BENZOYL PEROXIDE

Proper shipping name (ICAO) ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. BENZOYL PEROXIDE

Proper shipping name (ADN) ENVIRONMENTALLY HAZARDOUS SUBSTANCE, LIQUID, N.O.S. BENZOYL PEROXIDE

SAFETY DATA SHEET

Polyester Injection Resin

14.3. Transport hazard class(es)

ADR/RID class	9
ADR/RID classification code	M6
ADR/RID label	9
IMDG class	9
ICAO class/division	9
ADN class	9

Transport labels



14.4. Packing group

ADR/RID packing group	III
IMDG packing group	III
ADN packing group	III
ICAO packing group	III

14.5. Environmental hazards

Environmentally hazardous substance/marine pollutant



14.6. Special precautions for user

EmS	F-A, S-F
ADR transport category	3
Emergency Action Code	•3Z
Hazard Identification Number (ADR/RID)	90
Tunnel restriction code	(E)

14.7. Transport in bulk according to Annex II of MARPOL and the IBC Code

Transport in bulk according to Annex II of MARPOL 73/78 and the IBC Code Not applicable.

SECTION 15. Regulatory information

15.1. Safety, health and environmental regulations/legislation specific for the substance or mixture

EU legislation	(EU) No 2015/830
Guidance	Workplace Exposure Limits EH40.

15.2. Chemical safety assessment

No chemical safety assessment has been carried out.

SAFETY DATA SHEET

Polyester Injection Resin

Inventories

US - TSCA

All the ingredients are listed or exempt.

US - TSCA 12(b) Export Notification

None of the ingredients are listed or exempt.

SECTION 16 Other information

Revision comments	NOTE: Lines within the margin indicate significant changes from the previous revision.
Revision date	03/09/2015
Revision	5
Supersedes date	14/04/2015
SDS number	20486
Hazard statements in full	H241 Heating may cause a fire or explosion. H317 May cause an allergic skin reaction. H319 Causes serious eye irritation. H400 Very toxic to aquatic life. H411 Toxic to aquatic life with long lasting effects. H412 Harmful to aquatic life with long lasting effects.

This information relates only to the specific material designated and may not be valid for such material used in combination with any other materials or in any process. Such information is, to the best of the company's knowledge and belief, accurate and reliable as of the date indicated. However, no warranty guarantee or representation is made to its accuracy, reliability or completeness. It is the user's responsibility to satisfy himself as to the suitability of such information for his own particular use.



JF380P
Vol. 410ml

INFORMATION

Polyester Resin is a two part grey resin (10:1) suitable for use in the vast majority of base materials. It can be used for installing threaded studs, rebar or internal threaded sockets for structural applications such as:

- Columns
- Guard rails
- Façades
- Staircases
- Cantilever beams

BASE MATERIAL

- Concrete C20/25 To C50/60
- Non-Cracked Concrete
- Dry/Wet/Flooded Holes
- Solid Brickwork
- Concrete Block
- Hollow Base Materials
- Natural Stone

APPROVALS

European Technical Assessment
Option 7 Non-Cracked Concrete



ETA13/0781

FEATURES

- Expansion Free
- High Performance
- Close Spacing And Edge Distance

RELATED PRODUCTS



JTOOL380
(410ml tube)

Injection Resin Gun



Hole Cleaning Brushes and Pump



Mixer Nozzle
JMN130

Wire Mesh
Sleeve

Nylon Sleeve

Injection Accessories

WORKING/LOADING TIME

Note:

T_{work} = The highest temperature in the range

T_{load} = The lowest temperature in the range

Cartridge & Base Material Temperature °C	Usable Time T_{work} (mins)	Load Time T_{load} (mins)
Min. +5°C	18	120
+5°C to +10°C	12	120
+10°C to +20°C	6	80
+20°C to +25°C	4	40
+25°C to +30°C	3	30
+30°C to +35°C	2	20
+35°C to +40°C	1.5	15
+40°C	1.5	10

EMBEDDED THREADED ROD



- Stainless Steel Grade A4/316
- Chisel End Studs
- Setting Tool Included

- Stainless Steel Grade A4/316
- Chisel End Studs
- Plain Ended

- Zinc Plated and Clear Passivated (Min 5µm)
- Chisel End Studs
- Plain Ended

- Zinc Plated and Clear Passivated (Min 5µm)
- Chisel End Studs
- Setting Tool Included



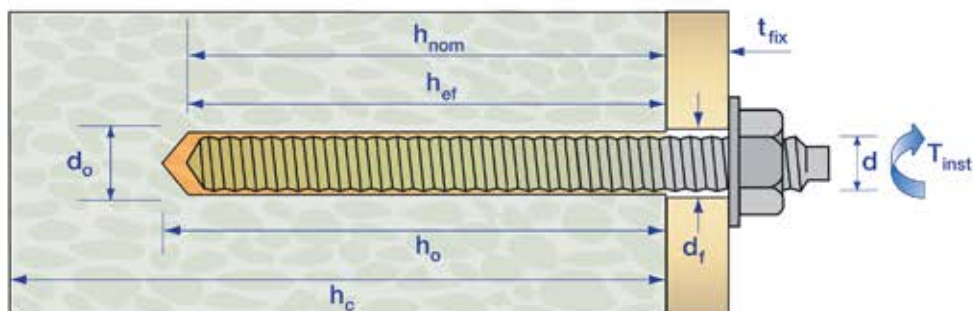


RANGE AND LOAD DATA

RANGE DATA											
Part Number	Thread Diam (d) mm	Stud Length (L) mm	Drill Hole Diam. (d _o) mm	Fixture Clearance Hole (d _i) mm	Standard Embedment		Shallow Embedment		Deep Embedment		Tightening Torque (T _{inst}) Nm
					Max. Fix. Thickness (t _{fix}) mm	Min. Hole Depth (h _o) mm**	Max. Fix. Thickness (t _{fix}) mm	Min. Hole Depth (h _o) mm	Max. Fix. Thickness (t _{fix}) mm	Min. Hole Depth (h _o) mm	
Stainless Steel Grade A4/316 Chisel End Studs											
JSTUD08110SSA4	M8	110	10	10	18	80	38	64	6	96	10
JSTUD10130SSA4	M10	130	12	12	25	90	40	80	*	120	20
JSTUD12160SSA4	M12	160	14	14	34	110	51	96	3	144	40
JSTUD16190SSA4	M16	190	18	18	42	128	44	128	*	192	80
JSTUD20260SSA4	M20	260	22	22	55	170	79	160	*	240	150
JSTUD24300SSA4	M24	300	26	26	55	210	82	192	*	288	200
Stainless Steel Grade A4/316 Plain Ended and Chisel End Studs											
JSTUD08150PESS	M8	150	10	10	62	80	78	64	46	96	10
JSTUD10105PESS	M10	105	12	12	5	90	15	80	*	120	20
JSTUD10150PESS		150			50		60		20		
JSTUD10200PESS		200			100		110		70		
JSTUD12110PESS	M12	110	14	14	*	110	1	96	*	144	40
JSTUD12150PESS		150			27		41		43		
JSTUD12200PESS		200			77		91		43		
JSTUD16110PESS	M16	110	18	18	*	128	*	128	*	192	80
JSTUD16250PESS		250			104		104		40		
JSTUD16350PESS		350			204		204		140		
JSTUD20200PESS	M20	200	22	22	9	170	19	160	*	240	150
JSTUD20400PESS		400			209		219		139		

* Deep Embedment Depth can be achieved by using suitable threaded rod cut to length: $L = h_o + (t_{fix} + t_{Nut+Washer})$

** For the Polyester Resin: $h_o = h_e$



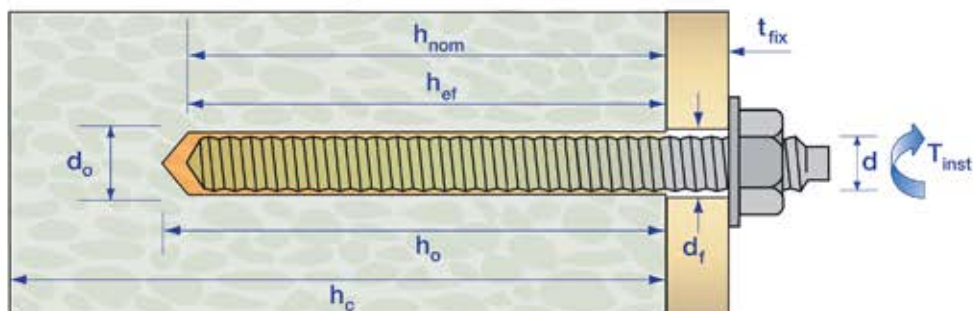


RANGE DATA

Part Number	Thread Diam (d) mm	Stud Length (L) mm	Drill Hole Diam. (d _o) mm	Fixture Clearance Hole (d _i) mm	Standard Embedment		Shallow Embedment		Deep Embedment		Tightening Torque (T _{inst}) Nm
					Max. Fix. Thickness (t _{fix}) mm	Min. Hole Depth (h _o) mm**	Max. Fix. Thickness (t _{fix}) mm	Min. Hole Depth (h _o) mm	Max. Fix. Thickness (t _{fix}) mm	Min. Hole Depth (h _o) mm	
Zinc Plated Steel Grade 5.8 - Clear Passivated Plain Ended and Chisel End Studs											
JSTUD08150PE	M8	150	10	10	62	80	78	64	46	96	10
JSTUD10105PE	M10	105	12	12	5	90	15	80	*	120	20
JSTUD10150PE		150			50		60		20		
JSTUD10200PE		200			100		110		70		
JSTUD12110PE	M12	110	14	14	*	110	1	96	*	144	40
JSTUD12150PE		150			27		41		43		
JSTUD12200PE		200			77		91		43		
JSTUD16110PE	M16	110	18	18	*	128	*	128	*	192	80
JSTUD16250PE		250			104		104		40		
JSTUD16350PE		350			204		204		140		
JSTUD20200PE	M20	200	22	22	9	170	19	160	*	240	150
JSTUD20400PE		400			209		219		139		
Zinc Plated Steel Grade 5.8 - Clear Passivated and Chisel End Studs											
JSTUD08110	M8	110	10	10	18	80	38	64	6	96	10
JSTUD10130	M10	130	12	12	25	90	40	80	*	120	20
JSTUD12160	M12	160	14	14	34	110	51	96	3	144	40
JSTUD16190	M16	190	18	18	42	128	44	128	*	192	80
JSTUD20260	M20	260	22	22	55	170	79	160	*	240	150
JSTUD24300	M24	300	26	26	55	210	82	192	*	288	200
JSTUD30380	M30	380	35	32	55	280	110	240	*	360	275

* Deep Embedment Depth can be achieved by using suitable threaded rod cut to length: $L = h_o + (t_{fix} + t_{Nut+Washer})$

** For the Polyester Resin: $h_o = h_e$





GRADE A4-70 STAINLESS STEEL STUDS - NON-CRACKED CONCRETE

SHALLOW EMBEDMENT

Grade A4-70 Stainless Steel Studs Performance Data (C20/25 non-cracked concrete)												
Thread Diam (d) mm	Minimum Hole Depth (h _o) mm	Minimum Concrete Thickness (h _{min}) mm	Characteristic Resistance kN		Design Resistance kN		Approved Resistance kN		Design Spacing (S) mm		Design Edge Distance (C) mm	
			Tensile (N _{st})	Shear (V _{st})	Tensile (N _{st})	Shear (V _{st})	Tensile (N _{st})	Shear (V _{st})	Tensile	Shear	Tensile	Shear
8	64	100	15.3	13.0	8.4	8.3	6.0	5.9	180	40	90	90
10	80	110	22.6	20.0	12.5	12.8	8.9	9.1	220	40	110	120
12	96	130	30.8	30.0	17.0	19.2	12.1	13.7	260	50	130	170
16	128	170	51.5	55.0	28.5	35.2	20.3	25.1	330	70	170	260
20	160	210	75.4	86.0	41.8	55.1	29.8	39.3	400	80	200	370
24	192	250	101.3	124.0	56.2	79.4	40.1	56.7	470	100	240	480

STANDARD EMBEDMENT

Grade A4-70 Stainless Steel Studs Performance Data (C20/25 non-cracked concrete)												
Thread Diam (d) mm	Minimum Hole Depth (h _o) mm	Minimum Concrete Thickness (h _{min}) mm	Characteristic Resistance kN		Design Resistance kN		Approved Resistance kN		Design Spacing (S) mm		Design Edge Distance (C) mm	
			Tensile (N _{st})	Shear (V _{st})	Tensile (N _{st})	Shear (V _{st})	Tensile (N _{st})	Shear (V _{st})	Tensile	Shear	Tensile	Shear
8	80	110	19.1	13.0	10.6	8.3	7.5	5.9	180	40	90	80
10	90	120	25.4	20.0	14.1	12.8	10.0	9.1	220	50	110	110
12	110	140	35.2	30.0	19.5	19.2	13.9	13.7	260	60	130	160
16	128	170	51.5	55.0	28.5	35.2	20.3	25.1	330	70	170	260
20	170	220	80.1	86.0	44.5	55.1	31.7	39.3	400	90	200	350
24	210	270	110.8	124.0	61.5	79.4	43.9	56.7	470	110	240	450

DEEP EMBEDMENT

Grade A4-70 Stainless Steel Studs Performance Data (C20/25 non-cracked concrete)												
Thread Diam (d) mm	Minimum Hole Depth (h _o) mm	Minimum Concrete Thickness (h _{min}) mm	Characteristic Resistance kN		Design Resistance kN		Approved Resistance kN		Design Spacing (S) mm		Design Edge Distance (C) mm	
			Tensile (N _{st})	Shear (V _{st})	Tensile (N _{st})	Shear (V _{st})	Tensile (N _{st})	Shear (V _{st})	Tensile	Shear	Tensile	Shear
8	96	130	22.9	13.0	12.7	8.3	9.0	5.9	180	50	90	80
10	120	150	33.9	20.0	18.8	12.8	13.4	9.1	220	60	110	100
12	144	175	46.1	30.0	25.6	19.2	18.2	13.7	260	80	130	130
16	192	230	77.2	55.0	42.8	35.2	30.5	25.1	330	100	170	200
20	240	290	113.1	86.0	62.8	55.1	44.8	39.3	400	120	200	280
24	288	350	152.0	124.0	84.4	79.4	60.2	56.7	470	150	240	360





GRADE 5.8 ZINC PLATED STUDS - NON-CRACKED CONCRETE

SHALLOW EMBEDMENT

Grade 5.8 Zinc Plated Studs Performance Data (C20/25 non-cracked concrete)													
Thread Diam (d) mm	Minimum Hole Depth (h _o) mm	Minimum Concrete Thickness (h _{min}) mm	Characteristic Resistance kN		Design Resistance kN		Approved Resistance kN		Design Spacing (S) mm		Design Edge Distance (C) mm		
			Tensile (N _{st})	Shear (V _{st})	Tensile (N _{st})	Shear (V _{st})	Tensile (N _{st})	Shear (V _{st})	Tensile	Shear	Tensile	Shear	
8	64	100	15.3	9.0	8.4	7.2	6.0	5.1	180	40	90	70	
10	80	110	22.6	15.0	12.5	12.0	8.9	8.5	220	40	110	110	
12	96	130	30.8	21.0	17.0	16.8	12.1	12.0	260	50	130	140	
16	128	170	51.5	39.0	28.5	31.2	20.3	22.2	330	70	170	230	
20	160	210	75.4	61.0	41.8	48.8	29.8	34.8	400	80	200	320	
24	192	250	101.3	88.0	56.2	70.4	40.1	50.2	470	100	240	420	

STANDARD EMBEDMENT

Grade 5.8 Zinc Plated Studs Performance Data (C20/25 non-cracked concrete)													
Thread Diam (d) mm	Minimum Hole Depth (h _o) mm	Minimum Concrete Thickness (h _{min}) mm	Characteristic Resistance kN		Design Resistance kN		Approved Resistance kN		Design Spacing (S) mm		Design Edge Distance (C) mm		
			Tensile (N _{st})	Shear (V _{st})	Tensile (N _{st})	Shear (V _{st})	Tensile (N _{st})	Shear (V _{st})	Tensile	Shear	Tensile	Shear	
8	80	110	19.1	9.0	10.6	7.2	7.5	5.1	180	40	90	70	
10	90	120	25.4	15.0	14.1	12.0	10.0	8.5	220	50	110	110	
12	110	140	35.2	21.0	19.5	16.8	13.9	12.0	260	60	130	130	
16	128	170	51.5	39.0	28.5	31.2	20.3	22.2	330	70	170	230	
20	170	220	80.1	61.0	44.5	48.8	31.7	34.8	400	90	200	310	
24	210	270	110.8	88.0	61.5	70.4	43.9	50.2	470	110	240	390	

DEEP EMBEDMENT

Grade 5.8 Zinc Plated Studs Performance Data (C20/25 non-cracked concrete)													
Thread Diam (d) mm	Minimum Hole Depth (h _o) mm	Minimum Concrete Thickness (h _{min}) mm	Characteristic Resistance kN		Design Resistance kN		Approved Resistance kN		Design Spacing (S) mm		Design Edge Distance (C) mm		
			Tensile (N _{st})	Shear (V _{st})	Tensile (N _{st})	Shear (V _{st})	Tensile (N _{st})	Shear (V _{st})	Tensile	Shear	Tensile	Shear	
8	96	130	22.9	9.0	12.7	7.2	9.0	5.1	180	50	90	70	
10	120	150	33.9	15.0	18.8	12.0	13.4	8.5	220	60	110	90	
12	144	175	46.1	21.0	25.6	16.8	18.2	12.0	260	80	130	110	
16	192	230	77.2	39.0	42.8	31.2	30.5	22.2	330	100	170	170	
20	240	290	113.1	61.0	62.8	48.8	44.8	34.8	400	120	200	240	
24	288	350	152.0	88.0	84.4	70.4	60.2	50.2	470	150	240	310	





SUPPLEMENTARY DATA

INFLUENCE OF CONCRETE STRENGTH					
Concrete strength		C20/25	C30/37	C35/45	C50/60
Cylinder	N/mm ²	20	30	40	50
Cube	N/mm ²	25	37	50	60
Factor		1.0	1.12	1.19	1.30

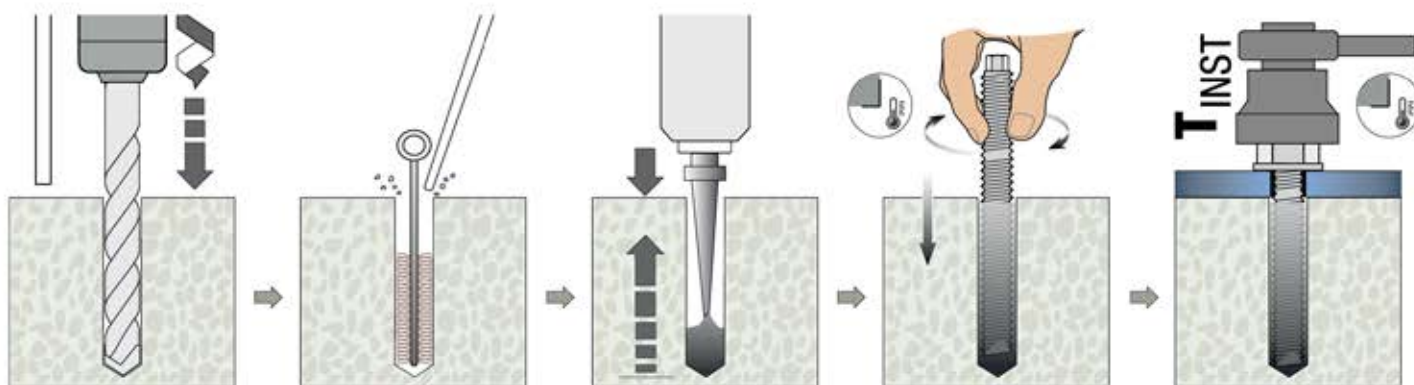
Important Note:

When using concrete factors ensure that loads do not exceed Steel Design Resistance.

STEEL DESIGN RESISTANCE FOR SINGLE ANCHOR							
Load Type	Steel Grade	Threaded Rod Size					
		M8	M10	M12	M16	M20	M24
Tensile (kN)	Stainless Steel Grade A4-70	13.7	21.6	31.1	57.9	90.5	130.0
	Grade 5.8	12.0	19.3	28.0	52.7	82.0	118.0
Shear (kN)	Stainless Steel Grade A4-70	8.3	12.8	19.2	35.3	55.1	79.5
	Grade 5.8	7.2	12.0	16.8	31.2	48.8	70.4

For variations in structure thickness, reduced spacing and edge calculations download the free **Anchor Calculation Program** from www.jcpfixings.co.uk

INSTALLATION INSTRUCTIONS



-Drill correct diameter hole to corresponding depth

-Clean hole by brushing, blowing to remove drilling debris and dust:
2xBlowing
2xBrushing
2xBlowing
2xBrushing
2xBlowing

-Attach nozzle to cartridge
-Extrude first part to waste until an even colour is achieved
-Fill hole 1/3 to 1/2 full starting from the bottom of the hole

-Insert stud into base material by hand using a twisting motion

-Allow resin to cure
-Attach fixture
-Tighten with torque wrench to recommended torque



Declaration of Performance No. 1020-CPD-030048



Injection Resin JF380P Polyester Resin
 JCP Construction Products,
 Unit 14 Teddington Business Park, Station Rd, Teddington, Middlesex TW11 9BQ
 Telephone +44 (0)208 943 1800

Intended use or uses of the products according to EAD 330499-00-0601								
Generic type			Bonded injection type anchor for use in uncracked concrete					
Base material			Non-cracked concrete C20/25 to C50/60 acc. EN 206-1:2000-12 The anchor may be installed in dry, wet and flooded holes					
Batch number			Marked on individual tubes					
Steel elements			1] Galvanised carbon steel Grade 5.8, 8.8 and 10.9 to EN ISO 891-1 2] Stainless Steel 1.4401, 1.4404 or 1.4571 Property class 70 or 80 to EN ISO 3506 3] High corrosion resistant stainless steel to 1.4529, 1.4565					
Durability			1] Dry internal conditions 2] Internal and external atmospheric exposure including industrial and marine environment or exposure in permanently damp internal conditions, if no particularly aggressive conditions exist 3] Internal and external atmospheric exposure including industrial and marine environments or exposure in permanently damp internal internal conditions and in other particularly aggressive conditions					
Loading			Static, quasi-static					
ETA 13/0781 issued by			ZUS					
On the basis of			EAD 330499-00-0601					
Certificate of Conformity 1020-CPR-090-042481 issued by			ZUS					
Under system			1					
Temperature range(s)			-40°C to +80°C (max. short term temperature +80°C and Max. long term temperature +50°C)					
Declared performances according to EAD 330499-00-0601								
Essential Characteristics			Performance					
			M08	M10	M12	M16	M20	M24
Installation parameters								
d_o	Nominal diameter of drill bit	[mm]	10	12	14	18	22	26
d_f	Fixture clearance hole	[mm]	10	12	14	18	22	26
d_b	Brush diameter	[mm]	14	14	20	20	29	29
T_{inst}	Nominal torque moment	[mm]	10	20	40	80	150	200
$h_{ef,min}$	Minimum effective anchorage depth = 8d							
h_o	Depth of drill hole	[mm]	64	80	96	128	160	192
h_{min}	Minimum thickness of concrete member	[mm]	100	110	126	158	200	240
S_{min}	Minimum spacing	[mm]	35	40	50	65	80	96
C_{min}	Minimum edged distance	[mm]	35	40	50	65	80	96
$h_{ef,max}$	Maximum effective anchorage depth = 12d							
h_o	Depth of drill hole	[mm]	96	120	144	192	240	288
h_{min}	Minimum thickness of concrete member	[mm]	126	150	174	222	280	336
S_{min}	Minimum spacing	[mm]	35	40	50	65	80	96
C_{min}	Minimum edged distance	[mm]	35	40	50	65	80	96
Tensile Steel failure								
NRk,s	Characteristic tensile resistance steel Grade 5.8	[kN]	18	29	42	79	123	177
NRk,s	Characteristic tensile resistance steel Grade 8.8	[kN]	29	46	67	126	196	282
$\gamma_{M,s}$	Partial safety factor	[-]	1.5					
NRk,s	Characteristic tensile resistance steel Grade 10.9	[kN]	37	58	84	157	245	353
$\gamma_{M,s}$	Partial safety factor	[-]	1.4					
NRk,s	Characteristic tensile resistance steel Grade A4-70	[kN]	26	41	59	110	172	247
$\gamma_{M,s}$	Partial safety factor	[-]	1.9					
NRk,s	Characteristic tensile resistance steel Grade A4-80	[kN]	29	46	67	126	196	282
$\gamma_{M,s}$	Partial safety factor	[-]	1.6					
NRk,s	Characteristic tensile resistance steel Grade 1.4529	[kN]	26	41	59	110	172	247
$\gamma_{M,s}$	Partial safety factor	[-]	1.5					

Essential Characteristics			Performance					
			M08	M10	M12	M16	M20	M24
Combined pull-out and concrete cone failure								
Characteristic bond resistance in non-cracked concrete C20/25								
τ_{Rk}	Dry and wet concrete	[N/mm ²]	9.5	9.0	8.5	8.0	7.5	7.0
$\gamma_{M,p}$	Partial safety factor	[-]	1.8					
τ_{Rk}	Flooded hole	[N/mm ²]	9.5	9.0	8.5	8.0	7.5	7.5
$\gamma_{M,p}$	Partial safety factor	[-]	1.8					
Ψ_c	Factor for C30/37 concrete	[-]	1.12					
Ψ_c	Factor for C40/45 concrete	[-]	1.19					
Ψ_c	Factor for C50/60 concrete	[-]	1.30					
Splitting failure								
$S_{cr,sp}$	Critical spacing (Splitting)	[mm]	4.0h _{ef}			3.0h _{ef}		
$C_{cr,sp}$	Critical edge distance (Splitting)	[mm]	2.0h _{ef}			1.5h _{ef}		
$\gamma_{M,p}$	Partial safety factor	[-]	1.8					
Displacement under tensile loading								
$N_{U,cr}$	Service tensile loads in non-cracked concrete	[kN]	6.3	9.9	15.9	23.8	29.8	37.7
δ_{N0}	Short term displacement under tensile loads	[mm]	0.1	0.2	0.3	0.5	0.7	0.9
$\delta_{N\infty}$	Long term displacement under tensile loads	[mm]	0.4	0.4	0.4	0.4	0.4	0.4
Shear steel failure without lever arm								
$V_{Rk,s}$	Characteristic shear steel failure Grade 5.8	[kN]	9	15	21	39	61	88
$V_{Rk,s}$	Characteristic shear steel failure Grade 8.8	[kN]	15	23	34	63	98	141
$\gamma_{m,sV}$	Partial safety factor	[-]	1.25					
$V_{Rk,s}$	Characteristic shear steel failure Grade 10.9	[kN]	18	29	42	79	123	177
$\gamma_{m,sV}$	Partial safety factor	[-]	1.5					
$V_{Rk,s}$	Characteristic shear steel failure Grade A4-70	[kN]	13	20	30	55	86	124
$\gamma_{m,sV}$	Partial safety factor	[-]	1.56					
$V_{Rk,s}$	Characteristic shear steel failure Grade A4-80	[kN]	15	23	34	63	98	141
$\gamma_{m,sV}$	Partial safety factor	[-]	1.33					
Shear steel failure with lever arm								
$M_{Rk,s}^0$	Characteristic bending moment Grade 5.8	[Nm]	19	37	66	166	325	561
$M_{Rk,s}^0$	Characteristic bending moment Grade 8.8	[Nm]	30	60	105	266	519	898
$\gamma_{m,sV}$	Partial safety factor	[-]	1.25					
$M_{Rk,s}^0$	Characteristic bending moment Grade 10.9	[Nm]	37	75	131	333	649	1123
$\gamma_{m,sV}$	Partial safety factor	[-]	1.5					
$M_{Rk,s}^0$	Characteristic bending moment Grade A4-70	[Nm]	26	52	92	233	454	786
$\gamma_{m,sV}$	Partial safety factor	[-]	1.56					
$M_{Rk,s}^0$	Characteristic bending moment Grade A4-80	[Nm]	30	60	105	266	519	898
$\gamma_{m,sV}$	Partial safety factor	[-]	1.33					
$M_{Rk,s}^0$	Characteristic bending moment 1.4529	[Nm]	26	52	92	233	454	786
$\gamma_{m,sV}$	Partial safety factor	[-]	1.25					
Concrete pryout failure								
k_0	Factor in EAD 330499-00-0601, para 2.2.8, Table 2.6	[-]	2.0					
$\gamma_{M,c}$	Partial safety factor	[-]	1.5					
Shear concrete edge failure								
l_{ef}	Effective anchorage length	[mm]	Effective Embedment Depth (h_{ef})					
Displacement under tension and shear load								
F	Tension load	[kN]	6.3	9.9	15.9	23.8	29.8	37.7
δ_{N0}	Short term displacement	[mm]	0.1	0.2	0.3	0.5	0.7	0.9
$\delta_{N\infty}$	Long term displacement	[mm]	0.4	0.4	0.4	0.4	0.4	0.4
F	Service shear load in concrete	[kN]	5.2	8.3	12.0	22.4	35.0	50.4
δ_{V0}	Short term displacement under shear load	[mm]	0.1	0.1	0.2	0.4	0.8	1.5
$\delta_{V\infty}$	Long term displacement under shear load	[mm]	0.2	0.2	0.3	0.6	1.2	2.3

Amendment	Date
ETAG changed to EAD	20/12/2017
Certificate of Conformity number changed	24/10/2018
Minimum Spacing and edge distance for maximum embedment changed	
Tensile displacement added	

The performances of the product identified by the above product codes are in conformity with the declared performance
This Declaration of performance is issued under the sole responsibility of JCP Construction Products

Signed for and on behalf of the manufacturers

Name and function	Place and date of issue	Signature
Brian Deluce	Teddington	
Technical Manager	23/10/2018	