Declaration of Performance No. 07144-CPR-140233

Injection Resin JFEA380SF Epoxy Acrylate Resin Styrene Free
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 EAD330499-00-0601	
Generic type	Bonded Anchor
Base material	Non-cracked concrete C20/25 to C50/60 acc. EN 206-2:2003 The anchor may be installed in dry, wet and flooded holes
Batch number	Marked on individual tubes
Plating finish	Steel, zinc plated ≥ 5 µm acc. to EN ISO 4042 or Steel, Hot-dip galvanized ≥ 40 µm acc. to EN ISO 1461 and EN ISO 10684
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 1.4571Property class 70 or 80 to EN ISO 3506 3] High corrosion resistan stainless steel to 1.4529, EN 10088-1
Durability	1] Dry internal conditions 2] Internal and external atmospheric exposure including industrial and marine environment, or exposure in permenantly damp internal conditions, if no particularly aggressive conditions exist. 3] Internal and external atmospheric exposure including industrial and marine environment, or exposure in permenantly damp internal conditions, and in other particularly aggressive conditions.
Loading	Static, quasi-static
ETA 14/0233 issued by	ZUS
On the basis of	EAD 330499-00-0601
Certificate of Conformity 0714-CPR-140233 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
Reaction to fire	Anchorage satisfyes requirements for Class A1

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]	50	60	70	95	120	145	
C_{min}	Minimum edged distance	[mm]	50	60	70	95	120	145	

Essential Characteristics			Performance						
			M08	M10	M12	M16	M20	M24	
Steel failure- Characteristic resistance									
$N_{Rk,s}$	Characteristic tensile resistance steel **Grade 5.8**	[kN]	18	29	42	79	123	177	
$N_{Rk,s}$	Characteristic tensile resistance steel **Grade 8.8**	[kN]	29	46	67	126	196	282	
$\gamma_{M,s}$	Partial safety factor	[-]	1.5						
$N_{Rk,s}$	Characteristic tensile resistance steel **Grade 10.9**	[kN]	37	58	84	157	245	353	
$\gamma_{M,s}$	Partial safety factor	[-]	1.4						
$N_{Rk,s}$	Characteristic tensile resistance steel **Grade A4-70**	[kN]	26	41	59	110	172	247	
$\gamma_{M,s}$	Partial safety factor	[-]	1.9						
$N_{Rk,s}$	Characteristic tensile resistance steel **Grade A4-80**	[kN]	29	46	67	126	196	282	
$\gamma_{M,s}$	Partial safety factor	[-]	1.6						
$N_{Rk,s}$	Characteristic tensile resistance HRC steel **Grade 1.4529**	[kN]	26	41	59	110	172	247	
$\gamma_{M,s}$	Partial safety factor	[-]	1.5						
Combined pull-out and concrete cone failure									
Characteristic bond resistance in non-cracked concrete C20/25									
τ_{Rk}	Dry,wet and flooded holes concrete	[N/mm^2]	10.0	8.0	9.0	9.5	8.5	8.5	
$\gamma_{M,p}$	Partial safety factor	[-]	1.8						
Splitting failure									
$S_{cr,sp}$	Critical spacing (Splitting)	[mm]	$4.0h_{ef}$			$3.0h_{ef}$			
$C_{cr,sp}$	Critical edge distance (Splitting)	[mm]	$2.0h_{ef}$			$1.5h_{ef}$			
$\gamma_{M,sp}$	Partial safety factor	[-]	1.8						
Displacement under tensile loading									
Nu_{cr}	Service tensile loads in non-cracked concrete	[kN]	6.3	7.9	11.9	23.8	29.8	45.6	
$\delta N0$	Short term displacement under tensile loads	[mm]	0.2	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									
$M^0_{Rk,s}$	Characteristic bending moment **Grade 5.8**	[Nm]	19	37	66	166	325	561	
$M^0_{Rk,s}$	Characteristic bending moment **Grade 8.8**	[Nm]	30	60	105	266	519	898	
$\gamma_{M,sV}$	Partial safety factor	[-]	1.25						
$M^0_{Rk,s}$	Characteristic bending moment **Grade 10.9**	[Nm]	37	75	131	333	649	1123	
$\gamma_{M,sV}$	Partial safety factor	[-]	1.5						
$M^0_{Rk,s}$	Characteristic bending moment **Grade A4-70**	[Nm]	26	52	92	233	454	786	
$\gamma_{M,sV}$	Partial safety factor	[-]	1.56						
$M^0_{Rk,s}$	Characteristic bending moment **Grade A4-80**	[Nm]	30	60	105	266	519	898	
$\gamma_{M,sV}$	Partial safety factor	[-]	1.33						
$M^0_{Rk,s}$	Characteristic bending moment **1.4529**	[Nm]	26	52	92	233	454	786	
$\gamma_{M,sV}$	Partial safety factor	[-]	1.25						
Concrete pryout failure									
k_β	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})						

Essential Characteristics			Performance						
			M08	M10	M12	M16	M20	M24	
V	Service tensile load in concrete	[kN]	6.3	7.9	11.9	23.8	29.8	45.6	
δ_{N0}	Short term displacement under tensile load	[mm]	0.2	0.2	0.3	0.5	0.7	0.9	
$\delta_{N\infty}$	Long term displacement under tensile load	[mm]	0.4	0.4	0.4	0.4	0.4	0.4	
Displacement under shear load									
V	Service shear load in concrete	[kN]	5.2	8.3	12	22.4	35	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	19/12/2017
Platting added Temperature range added Fire restance added	07/09/2018

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	07/09/2018	

SAFETY DATA SHEET
Epoxy Acrylate Injection Resin

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

1.1. Product identifier

Product name Epoxy Acrylate Injection Resin

Product number JFEA380SF

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 Skin Irrit. 2 - H315 Eye Irrit. 2 - H319

Environmental hazards Not Classified

2.2. Label elements

Pictogram

Signal word Warning

Hazard statements
H226 Flammable liquid and vapour.
H315 Causes skin irritation.
H319 Causes serious eye irritation.

Epoxy Acrylate Injection Resin

Precautionary statements	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. P332+P313 If skin irritation occurs: Get medical advice/ attention. P337+P313 If eye irritation persists: Get medical advice/ attention. P403+P235 Store in a well-ventilated place. Keep cool.
Supplementary precautionary statements	P210 Keep away from heat, hot surfaces, sparks, open flames and other ignition sources. No smoking. P264 Wash contaminated skin thoroughly after handling. P362+P364 Take off contaminated clothing and wash it before reuse. P370+P378 In case of fire: Use foam, carbon dioxide, dry powder or water fog to extinguish. P501 Dispose of contents/ container in accordance with national regulations.

2.3. Other hazards

SECTION 3: Composition/information on ingredients

3.2. Mixtures

VINYL TOLUENE **10-20%**

CAS number: 25013-15-4 EC number: 246-562-2 REACH registration number: 01-2119622074-50-XXXX

Classification
Flam. Liq. 3 - H226
Acute Tox. 4 - H332
Skin Irrit. 2 - H315
Eye Irrit. 2 - H319
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	Irritation of nose, throat and airway.
Ingestion	May cause discomfort if swallowed.
Skin contact	May cause skin irritation/eczema.
Eye contact	Irritation of eyes and mucous membranes.

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

Epoxy Acrylate Injection Resin

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

VINYL TOLUENE (CAS: 25013-15-4)

Epoxy Acrylate Injection Resin

DNEL	Industry - Inhalation; Long term systemic effects: 37 mg/m³ Industry - Inhalation; Long term local effects: 37 mg/m³ REACH dossier information
PNEC	- Fresh water; 0.0498 mg/l - Marine water; 0.002 mg/l - Intermittent release; 0.013 mg/l - STP; 1 mg/l - Sediment (Freshwater); 0.684 mg/kg - Sediment (Marinewater); 0.0684 mg/kg - Soil; 0.133 mg/kg REACH dossier information

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. When using do not eat, drink or smoke.
Respiratory protection	No specific recommendations. 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.
Melting point	Not determined.
Initial boiling point and range	>165°C @
Flash point	53°C
Evaporation rate	Not determined.
Evaporation factor	Not determined.

Epoxy Acrylate Injection Resin

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	Not determined.
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

11.1. Information on toxicological effects

Acute toxicity - inhalation

ATE inhalation (vapours mg/l) 79.09

Inhalation Gas or vapour in high concentrations may irritate the respiratory system. Symptoms following overexposure may include the following: Coughing.

Epoxy Acrylate Injection Resin

Ingestion	May cause discomfort if swallowed.
Skin contact	Causes skin irritation.
Eye contact	Irritating to eyes.
Acute and chronic health hazards	Irritating to skin. Irritating to eyes.
Route of entry	Skin and/or eye contact.
Medical symptoms	Irritation of eyes and mucous membranes. Irritation of nose, throat and airway. Skin irritation.
Medical considerations	Skin disorders and allergies.

Toxicological information on ingredients.

VINYL TOLUENE

Acute toxicity - inhalation

ATE inhalation (vapours mg/l)	11.0

Carcinogenicity

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

SECTION 12: Ecological Information

Ecotoxicity Not regarded as dangerous for the environment.

12.1. Toxicity

Ecological information on ingredients.

VINYL TOLUENE

Acute toxicity - fish	LC50, 96 hours: 23.4 mg/l, Pimephales promelas (Fat-head Minnow)

12.2. Persistence and degradability

12.3. Bioaccumulative potential

Bioaccumulative potential	No data available on bioaccumulation.
Partition coefficient	Not determined.

Ecological information on ingredients.

VINYL TOLUENE

Partition coefficient	log Pow: 3.36

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

Epoxy Acrylate Injection Resin

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

Road transport notes Not regulated.

Rail transport notes Not regulated.

14.1. UN number

UN No. (IMDG) 1866

UN No. (ICAO) 1866

14.2. UN proper shipping name

Proper shipping name (IMDG) RESIN SOLUTION

Proper shipping name (ICAO) RESIN SOLUTION

14.3. Transport hazard class(es)

IMDG class 3

ICAO class/division 3

Transport labels

14.4. Packing group

IMDG packing group III

ICAO packing group III

14.5. Environmental hazards

Environmentally hazardous substance/marine pollutant
No.

14.6. Special precautions for user

EmS F-E, S-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 relevant.

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.

Epoxy Acrylate 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	05/04/2016
Revision	4
Supersedes date	24/03/2016
SDS number	20440
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.

SAFETY DATA SHEET
Epoxy Acrylate Injection Resin

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

1.1. Product identifier

Product name Epoxy Acrylate Injection Resin

Product number JFEA380SF

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

Epoxy Acrylate 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.

Epoxy Acrylate 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.

Epoxy Acrylate 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/m³
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

Epoxy Acrylate 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.

Epoxy Acrylate 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 (LD_{50} 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

$LE(C)_{50}$ $0.01 < L(E)C50 \leq 0.1$

M factor (Acute) 10

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

Acute toxicity - aquatic invertebrates EC_{50}, 48 hours: 0.11 mg/l, Daphnia magna

Acute toxicity - aquatic plants EC_{50}, 72 hours: 0.07 mg/l, Selenastrum capricornutum

Epoxy Acrylate 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

Epoxy Acrylate 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.

Epoxy Acrylate 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	10/11/2015
Revision	6
Supersedes date	17/09/2015
SDS number	20492
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.

Epoxy Acrylate

JFEA380SF
Vol. 410ml

INFORMATION

Epoxy Acrylate 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

FEATURES

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

APPROVALS

European Technical Assessment
Option 7 Non-Cracked Concrete

ETA14/0233

RELATED PRODUCTS

Injection Resin Gun

Hole Cleaning Brushes and Pump

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	145
+5°C to +10°C	10	145
+10°C to +20°C	6	85
+20°C to +25°C	5	50
+25°C to +30°C	4	40
+30°C to +35°C	4	35
Ensure Cartridge Temperature is > 5°C		

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

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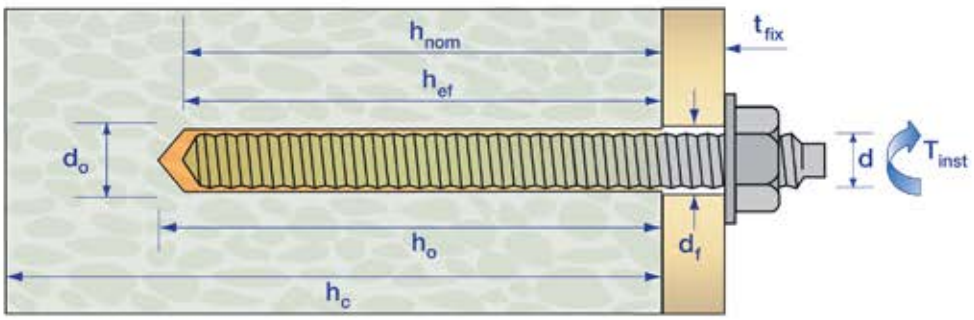
RANGE AND LOAD DATA

RANGE DATA											
Part Number	Thread Diam (d) mm	Stud Length (L) mm	Drill Hole Diam. (d_0) mm	Fixture Clearance Hole (d_f) mm	Standard Embedment		Shallow Embedment		Deep Embedment		Tightening Torque (T_{inst}) Nm
					Max. Fix. Thickness (t_{fix}) mm	Min. Hole Depth (h_0) mm**	Max. Fix. Thickness (t_{fix}) mm	Min. Hole Depth (h_0) mm	Max. Fix. Thickness (t_{fix}) mm	Min. Hole Depth (h_0) 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		*		
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: $L = h_0 + (t_{fix} + t_{Nut+Washer})$

** *For the Epoxy Acrylate Resin:* $h_0 = h_{ef}$



Technical Data Sheet

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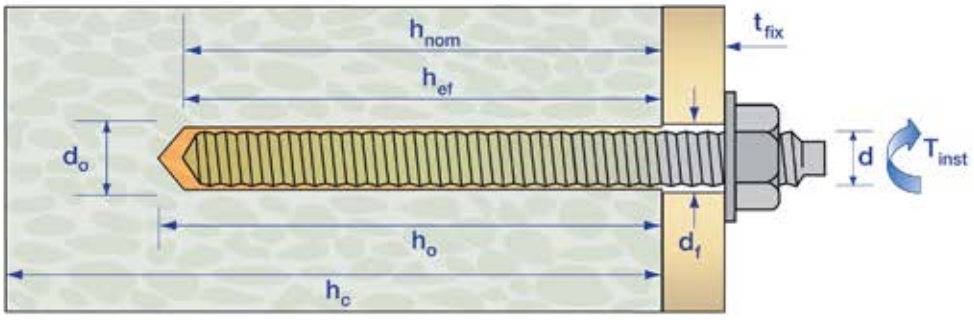
RANGE DATA											
Part Number	Thread Diam (d) mm	Stud Length (L) mm	Drill Hole Diam. (d_0) mm	Fixture Clearance Hole (d_f) mm	Standard Embedment		Shallow Embedment		Deep Embedment		Tightening Torque (T_{inst}) Nm
					Max. Fix. Thickness (t_{fix}) mm	Min. Hole Depth (h_0) mm**	Max. Fix. Thickness (t_{fix}) mm	Min. Hole Depth (h_0) mm	Max. Fix. Thickness (t_{fix}) mm	Min. Hole Depth (h_0) 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		*		
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: $L = h_0 + (t_{fix} + t_{Nut+Washer})$

** *For the Epoxy Acrylate Resin:* $h_0 = h_{ef}$



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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_{Rk})	Shear (V_{Rk})	Tensile (N_{Rd})	Shear (V_{Rd})	Tensile (N_{Ra})	Shear (V_{Ra})	Tensile	Shear	Tensile	Shear
8	64	100	16.1	13.0	8.9	8.3	6.3	5.9	190	40	100	90
10	80	110	20.1	20.0	11.1	12.8	7.9	9.1	210	40	110	120
12	96	130	32.6	30.0	18.1	19.2	12.9	13.7	270	50	140	170
16	128	170	61.1	55.0	33.9	35.2	24.2	25.1	370	70	190	260
20	160	205	85.5	86.0	47.4	55.1	33.8	39.3	430	80	220	370
24	192	245	123.1	124.0	68.3	79.4	48.8	56.7	520	100	260	480
30*	240	310	124.4	196.0	69.1	125.6	49.3	89.7	520	220	260	670

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_{Rk})	Shear (V_{Rk})	Tensile (N_{Rd})	Shear (V_{Rd})	Tensile (N_{Ra})	Shear (V_{Ra})	Tensile	Shear	Tensile	Shear
8	80	110	20.1	13.0	11.1	8.3	7.9	5.9	190	40	100	80
10	90	120	22.6	20.0	12.5	12.8	8.9	9.1	210	50	110	110
12	110	140	37.3	30.0	20.7	19.2	14.8	13.7	270	60	140	160
16	128	170	61.1	55.0	33.9	35.2	24.2	25.1	370	70	190	260
20	170	215	90.7	86.0	50.4	55.1	36.0	39.3	430	90	220	350
24	210	270	134.5	124.0	74.7	79.4	53.3	56.7	520	110	270	450
30*	280	350	145.1	196.0	69.1	125.6	49.3	89.7	520	140	270	600

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_{Rk})	Shear (V_{Rk})	Tensile (N_{Rd})	Shear (V_{Rd})	Tensile (N_{Ra})	Shear (V_{Ra})	Tensile	Shear	Tensile	Shear
8	96	130	24.1	13.0	13.4	8.3	9.5	5.9	190	50	100	80
10	120	150	30.2	20.0	16.7	12.8	11.9	9.1	210	60	110	100
12	144	175	48.9	30.0	27.1	19.2	19.3	13.7	270	80	140	130
16	192	230	91.7	55.0	50.9	35.2	36.3	25.1	370	100	190	200
20	240	285	128.2	86.0	71.2	55.1	50.8	39.3	430	120	220	280
24	288	340	184.5	124.0	102.5	79.4	73.2	56.7	520	150	290	360
30*	360	430	186.6	196.0	103.6	125.6	74.0	89.7	520	180	290	500

* Not included in the ETA.

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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_{Rk})	Shear (V_{Rk})	Tensile (N_{Rd})	Shear (V_{Rd})	Tensile (N_{Ra})	Shear (V_{Ra})	Tensile	Shear	Tensile	Shear
8	64	100	16.1	9.0	8.9	7.2	6.3	5.1	190	40	100	70
10	80	110	20.1	15.0	11.1	12.0	7.9	8.5	210	40	110	110
12	96	130	32.6	21.0	18.1	16.8	12.9	12.0	270	50	140	140
16	128	170	61.1	39.0	33.9	31.2	24.2	22.2	370	70	190	230
20	160	205	85.5	61.0	47.4	48.8	33.8	34.8	430	80	220	320
24	192	245	123.1	88.0	68.4	70.4	48.8	50.2	520	100	260	420
30*	240	310	124.4	140.0	59.2	112.0	42.3	80.0	520	120	260	580

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_{Rk})	Shear (V_{Rk})	Tensile (N_{Rd})	Shear (V_{Rd})	Tensile (N_{Ra})	Shear (V_{Ra})	Tensile	Shear	Tensile	Shear
8	80	110	20.1	9.0	11.1	7.2	7.9	5.1	190	40	100	70
10	90	120	22.6	15.0	12.5	12.0	8.9	8.5	210	50	110	110
12	110	140	37.3	21.0	20.7	16.8	14.7	12.0	270	60	140	130
16	128	170	61.1	39.0	33.9	31.2	24.2	22.2	370	70	190	230
20	170	215	90.8	61.0	50.4	48.8	36.0	34.8	430	90	220	310
24	210	270	134.6	88.0	74.7	70.4	53.3	50.2	520	110	270	390
30*	280	350	145.1	140.0	69.1	112.0	49.3	80.0	520	140	270	520

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_{Rk})	Shear (V_{Rk})	Tensile (N_{Rd})	Shear (V_{Rd})	Tensile (N_{Ra})	Shear (V_{Ra})	Tensile	Shear	Tensile	Shear
8	96	130	18.0	9.0	12.0	7.2	8.5	5.1	140	50	80	70
10	120	150	30.2	15.0	16.7	12.0	11.9	8.5	210	60	110	90
12	144	175	48.9	21.0	27.1	16.8	19.3	12.0	270	80	140	110
16	192	230	91.7	39.0	50.9	31.2	36.3	22.2	370	100	190	170
20	240	285	128.2	61.0	71.2	48.8	50.8	34.8	430	120	220	240
24	288	340	184.6	88.0	102.5	70.4	73.2	50.2	520	150	290	310
30*	360	430	186.6	140.0	88.8	112.0	63.4	80.0	520	180	290	430

* Not included in the ETA.

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Epoxy Acrylate

SUPPLEMENTARY DATA

INFLUENCE OF CONCRETE STRENGTH					
Concrete strength		C20/25	C30/37	C40/45	C50/60
Cylinder	N/mm²	20	30	40	50
Cube	N/mm²	25	37	50	60
Factor	Cracked	1.0	1.12	1.19	1.30

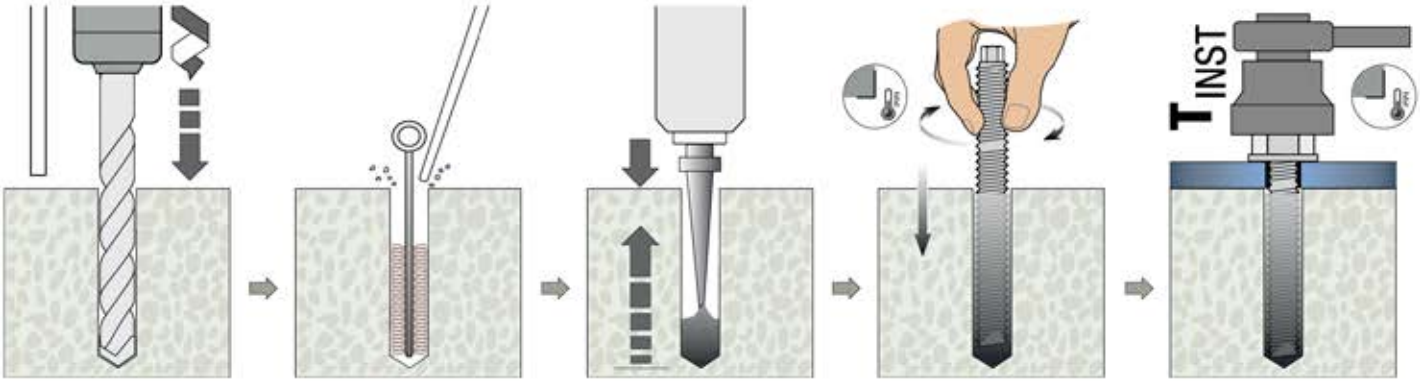
Important Note:

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	M30
Tensile (kN)	Stainless Steel Grade A4-70	13.7	21.6	31.1	57.9	90.5	130.0	206.8
	Grade 5.8	12.0	19.3	28.0	52.7	82.0	118.0	187.3
Shear (kN)	Stainless Steel Grade A4-70	8.3	12.8	19.2	35.3	55.1	79.5	125.6
	Grade 5.8	7.2	12.0	16.8	31.2	48.8	70.4	112.0

For variations in structure thickness, reduced spacing and edge calculations download the free **A**nchor **C**alculation **P**rogram 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:

2×Blowing

2×Brushing

2×Blowing

2×Brushing

2×Blowing

-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

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European Technical Assessment

ETA 14/0233 of 27/06/2014

Technical Assessment Body issuing the ETA and designated according to Article 29 of the Regulation (EU) No 305/2011	Technical and Test Institute for Construction Prague
Trade name of the construction product	J-Fix Epoxy Acrylate JFEA-SF galvanized or stainless steel bonded anchor
Product family to which the construction product belongs	Product area code: 33 Bonded injection type anchor for use in non-cracked concrete
Manufacturer	JCP Owlett-Jaton. Opal Way, Stone Business Park, Stone, Staffordshire, ST15 0SW. United Kingdom
Manufacturing plant	JCP Plant 1 United Kingdom
This European Technical Assessment contains	14 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	ETAG 001-Part 1 and Part 5, edition 2013, used as European Assessment Document (EAD)

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

1. Technical description of the product

The J-Fix Epoxy Acrylate JFEA-SF 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
Characteristic resistance for tension loads	See Annex C 1
Characteristic resistance for shear loads	See Annex C 2
Displacement	See Annex C 3

3.2 Safety in case of fire (BWR 2)

Essential characteristic	Performance
Reaction to fire	Anchorages satisfy requirements for Class A1
Resistance to fire	No performance determined

3.3 Hygiene, health and environment (BWR 3)

Regarding dangerous substances contained in this European Technical Assessment, there may be requirements applicable to the products falling within its scope (e.g. transposed European legislation and national laws, regulations and administrative provisions). In order to meet the provisions of the Regulation (EU) No 305/2011, these requirements need also to be complied with, when and where they apply.

3.4 Safety in use (BWR 4)

For basic requirement safety in use the same criteria are valid as for Basic Requirement Mechanical resistance and stability.

3.5 Protection against noise (BWR 5)

Not relevant.

3.6 Energy economy and heat retention (BWR 6)

Not relevant.

3.7 Sustainable use of natural resources (BWR 7)

For the sustainable use of natural resources no performance was determined for this product.

3.8 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 Commission[1] 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

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 shall exercise permanent internal control of production. All the elements, requirements and provisions adopted by the manufacturer shall be documented in a systematic manner in the form of written policies and procedures, including records of results performed. This production control system shall ensure that the product is in conformity with this European Technical Assessment.

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 Technický a zkušební ústav stavební Praha, s.p.[2] The results of factory production control shall be recorded and evaluated in accordance with the provisions of the control plan.

The manufacturer shall, on the basis of a contract, involve a body which is notified for the tasks referred to in section 4 in the field of anchors in order to undertake the actions laid down in section 5.2. For this purpose, the control plan referred to in this section and section 5.2 shall be handed over by the manufacturer to the notified body involved.

The manufacturer shall make a declaration of performance, stating that the construction product is in conformity with the provisions of this European Technical Assessment.

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1 Official Journal of the European Communities L 254 of 08.10.1996

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.

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.

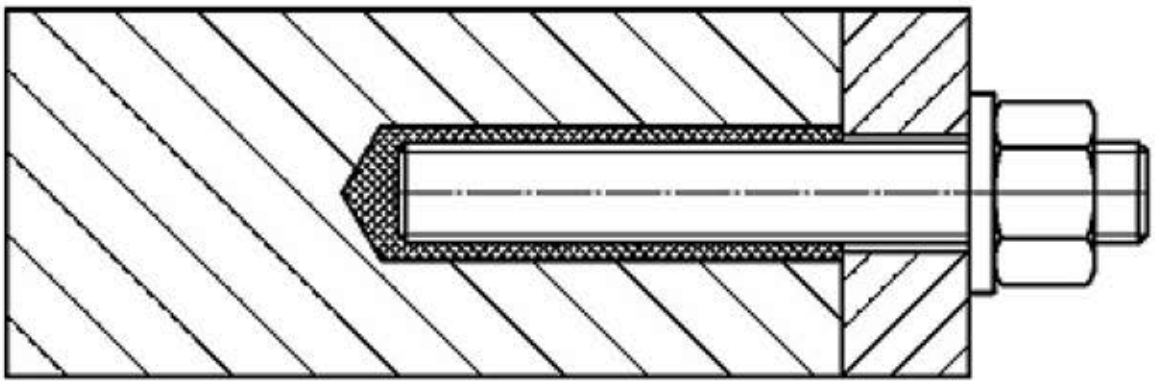
The notified certification body involved by the manufacturer shall issue an certificate of constancy of performance of the product stating the conformity with the provisions of this European Technical Assessment.

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 Technický a zkušební ústav stavební Praha, s.p without delay.

Issued in Prague on 27.06.2014

signed by
Ing. Václav Hadrava
Head of the department Technical Assessment Body

Threaded rod



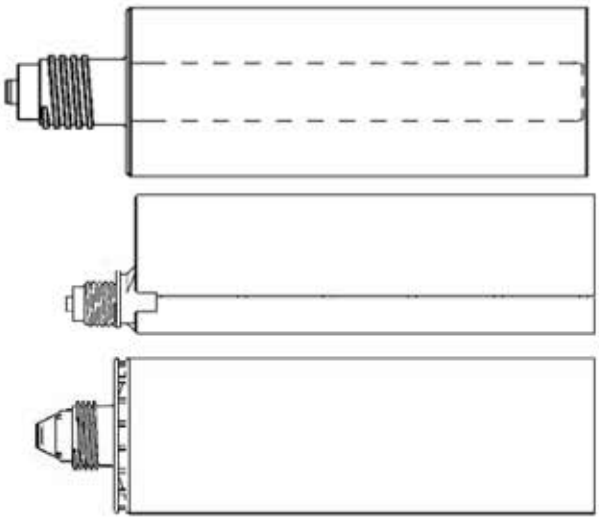
J-Fix Epoxy Acrylate JFEA-SF	**Annex A 1**
Product description Installed conditions	

Coaxial cartridge

JFEA-SF	150 ml
JFEA-SF	380 ml
JFEA-SF	400 ml
JFEA-SF	410 ml

Side by side cartridge

JFEA-SF	350 ml



Two part foil capsule within in a single component cartridge

JFEA-SF	150 ml
JFEA-SF	170 ml
JFEA-SF	300 ml

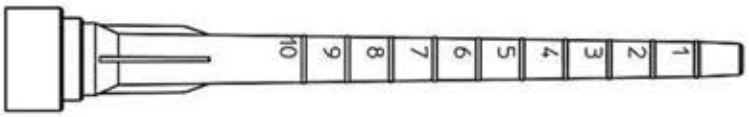
Marking of the mortar cartridges

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

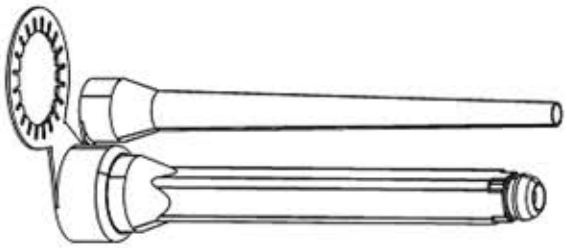
Mixing nozzle

JMN

RC

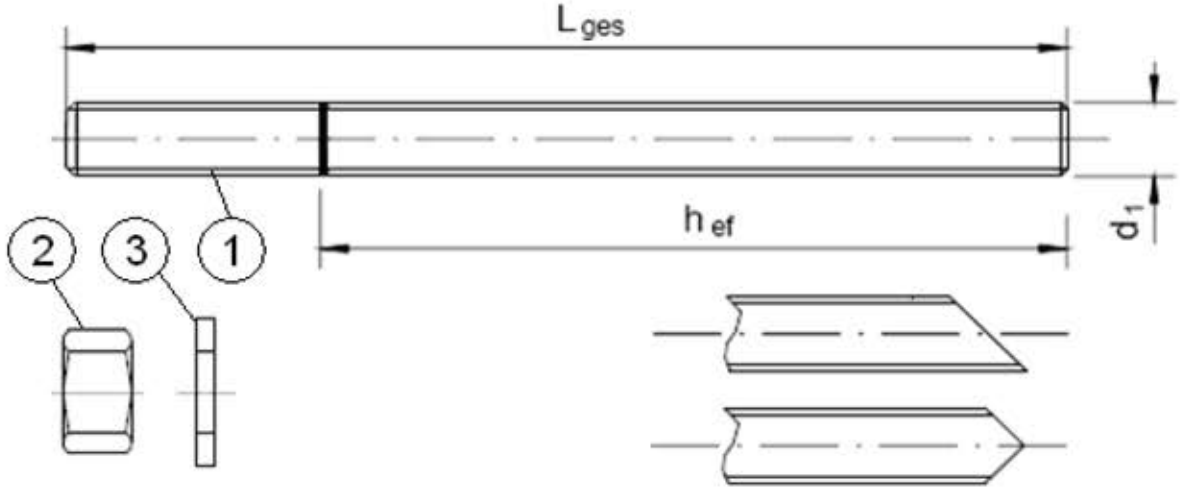


RM



J-Fix Epoxy Acrylate JFEA-SF	**Annex A 2**
Product description Injection system	

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



Standard commercial threaded rod with marked embedment depth

Part	Designation	Material
Steel, zinc plated ≥ 5 µm acc. to EN ISO 4042 or Steel, Hot-dip galvanized ≥ 40 µm 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: 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 Epoxy Acrylate JFEA-SF	
Product description Threaded rod and materials	**Annex A 3**

Specifications of intended use

Anchorages subject to:

- Static and quasi-static load.

Base materials

- Non-cracked 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)

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

Use categories:

- Category 2 – installation in dry, wet concrete or flooded hole.

Design:

- The anchorages are designed in accordance with the EOTA Technical Report TR 029 “Design of bonded anchors” 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:

- Dry or wet concrete or flooded hole.
- Hole drilling by rotary drill mode.
- Anchor installation carried out by appropriately qualified personnel and under the supervision of the person responsible for technical matters of the site.

J-Fix Epoxy Acrylate JFEA-SF	**Annex B 1**
Intended use Specifications	

Applicator gun

A

B

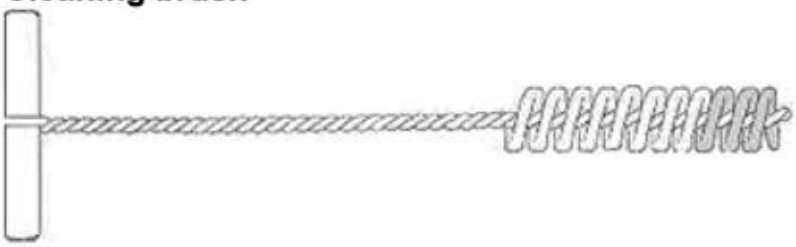
C

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



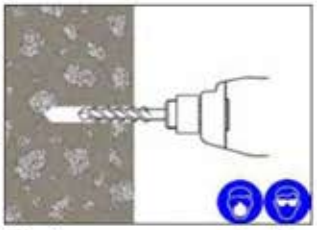
J-Fix Epoxy Acrylate JFEA-SF

Intended use
Applicator guns
Cleaning brush

Annex B 2

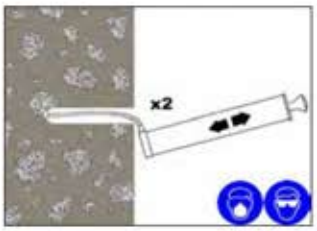
Installation procedure

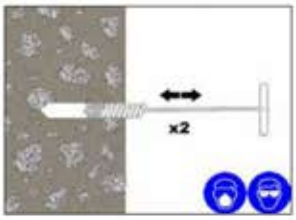
1. Drill the hole to the correct diameter and depth. This can be done with either a rotary percussion or rotary hammer drilling machine depending upon the substrate.

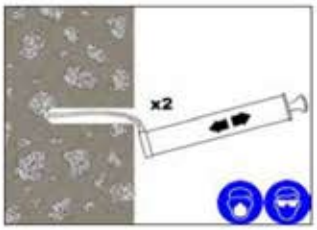


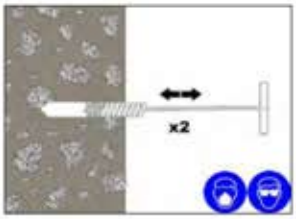
2. Thoroughly clean the hole in the following sequence using the JCP Brush with the required extensions and a JCP blow Pump.

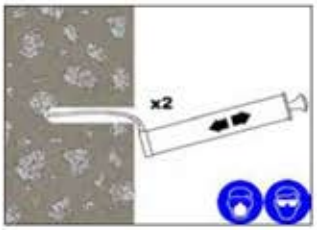
Blow Clean x2.
Brush Clean x2.
Blow Clean x2.
Brush Clean x2.
Blow Clean x2.





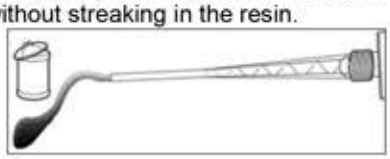






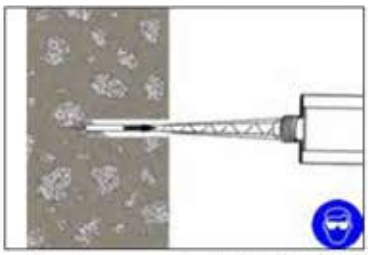
If the hole collects water after the initial cleaning this water must be removed before injecting the resin.

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 ½ to ¾ full and remove the mixer nozzle completely.



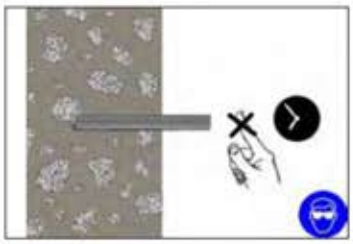
7. Insert the clean threaded bar, free from oil or other release agents, to the bottom of the hole using a back and forth twisting motion ensuring all the threads are thoroughly coated. Adjust to the correct position within the stated working time.

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.

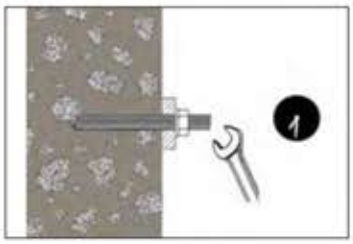
9. Leave the anchor to cure.

   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 Epoxy Acrylate JFEA-SF	
Intended use Installation procedure	**Annex B 3**

Table B1: Installation parameter

Size			M8	M10	M12	M16	M20	M24
Nominal drill hole diameter	$Ød_0$	[mm]	10	12	14	18	22	26
Diameter of cleaning brush	d_b	[mm]	14	14	20	20	29	29
Torque moment	T_{inst}	[Nm]	10	20	40	80	150	200
$h_{ef,min} = 8d$								
Depth of drill hole	h_0	[mm]	64	80	96	128	160	192
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 mm ≥ 100 mm				h_{ef} + $2d_0$	
$h_{ef,max} = 12d$								
Depth of drill hole	h_0	[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 thickness of member	h_{min}	[mm]	h_{ef} + 30 mm ≥ 100 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 J-Fix Epoxy Acrylate JFEA-SF

Resin cartridge temperature [°C]	T Work [mins]	Base material Temperature [°C]	T Load [mins]
min +5	18	min +5	145
+5 to +10	10	+5 to +10	
+10 to +20	6	+10 to +20	85
+20 to +25	5	+20 to +25	50
+25 to +30	4	+25 to +30	40
+30		+30	35

T work is typical gel time at highest temperature T load is set at the lowest temperature

J-Fix Epoxy Acrylate JFEA-SF

Intended use
Installation parameters
Curing time

Annex B 4

Table C1: Design method TR 029
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)]	[-]	1,5					
Steel grade **8.8**	$N_{Rk,s}$	[kN]	29	46	67	126	196	282
Partial safety factor	γ_{Ms} [1)]	[-]	1,5					
Steel grade **10.9**	$N_{Rk,s}$	[kN]	37	58	84	157	245	353
Partial safety factor	γ_{Ms} [1)]	[-]	1,4					
Stainless steel grade **A4-70**	$N_{Rk,s}$	[kN]	26	41	59	110	172	247
Partial safety factor	γ_{Ms} [1)]	[-]	1,9					
Stainless steel grade **A4-80**	$N_{Rk,s}$	[kN]	29	46	67	126	196	282
Partial safety factor	γ_{Ms} [1)]	[-]	1,6					
Stainless steel grade **1.4529**	$N_{Rk,s}$	[kN]	26	41	59	110	172	247
Partial safety factor	γ_{Ms} [1)]	[-]	1,5					

Combined pullout and concrete cone failure in non-cracked concrete C20/25									
Size				**M8**	**M10**	**M12**	**M16**	**M20**	**M24**
Characteristic bond resistance in non-cracked concrete									
Characteristic bond resistance Dry/wet concrete and flooded hole		τ_{Rk}	[N/mm²]	10	8	9	9,5	8,5	8,5
Partial safety factor		γ_{Mc} [1)]	[-]	1,8 [2)]					
Factor for concrete	C30/37	ψ_c	[-]	1,12					
	C40/45			1,19					
	C50/60			1,30					

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)]	[-]	1,8					

[1)] In absence of national regulations
[2)] The partial safety factor γ_2=1,2 is included

Table C2: Design method TR 029
Characteristic values of resistance to shear load

Steel failure without lever arm								
Size			**M8**	**M10**	**M12**	**M16**	**M20**	**M24**
Steel grade **5.8**	$V^0_{Rk,s}$	[kN]	9	15	21	39	61	88
Partial safety factor	γ_{Ms} [1)]	[-]	1,25					
Steel grade **8.8**	$V^0_{Rk,s}$	[kN]	15	23	34	63	98	141
Partial safety factor	γ_{Ms} [1)]	[-]	1,25					
Steel grade **10.9**	$V^0_{Rk,s}$	[kN]	18	29	42	79	123	177
Partial safety factor	γ_{Ms} [1)]	[-]	1,5					
Stainless steel grade **A4-70**	$V^0_{Rk,s}$	[kN]	13	20	30	55	86	124
Partial safety factor	γ_{Ms} [1)]	[-]	1,56					
Stainless steel grade **A4-80**	$V^0_{Rk,s}$	[kN]	15	23	34	63	98	141
Partial safety factor	γ_{Ms} [1)]	[-]	1,33					
Stainless steel grade **1.4529**	$V^0_{Rk,s}$	[kN]	13	20	30	55	86	124
Partial safety factor	γ_{Ms} [1)]	[-]	1,25					

Steel failure with lever arm								
Size			**M8**	**M10**	**M12**	**M16**	**M20**	**M24**
Steel grade **5.8**	$M^0_{Rk,s}$	[N.m]	19	37	66	166	325	561
Partial safety factor	γ_{Ms} [1)]	[-]	1,25					
Steel grade **8.8**	$M^0_{Rk,s}$	[N.m]	30	60	105	266	519	898
Partial safety factor	γ_{Ms} [1)]	[-]	1,25					
Steel grade **10.9**	$M^0_{Rk,s}$	[N.m]	37	75	131	333	649	1123
Partial safety factor	γ_{Ms} [1)]	[-]	1,50					
Stainless steel grade **A4-70**	$M^0_{Rk,s}$	[N.m]	26	52	92	233	454	786
Partial safety factor	γ_{Ms} [1)]	[-]	1,56					
Stainless steel grade **A4-80**	$M^0_{Rk,s}$	[N.m]	30	60	105	266	519	898
Partial safety factor	γ_{Ms} [1)]	[-]	1,33					
Stainless steel grade **1.4529**	$M^0_{Rk,s}$	[N.m]	26	52	92	233	454	786
Partial safety factor	γ_{Ms} [1)]	[-]	1,25					
Concrete pryout failure								
Factor *k* from TR 029 Design of bonded anchors, Part 5.2.3.3			2					
Partial safety factor	γ_{Mp} [1)]	[-]	1,5					

Concrete edge failure								
Size			**M8**	**M10**	**M12**	**M16**	**M20**	**M24**
See section 5.2.3.4 of Technical Report TR 029 for the Design of Bonded Anchors								
Partial safety factor	γ_{Mc} [1)]	[-]	1,5					

[1)] In absence of national regulations

J-Fix Epoxy Acrylate JFEA-SF

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	7,9	11,9	23,8	29,8	45,6
Displacement	δ_{N0}	[mm]	0,2	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 Epoxy Acrylate JFEA-SF

Performances
Displacement

Annex C 3