EMS Dubell® Chemical Anchor F.1311

General information

EMS Dubell® anchoring adhesives are high quality series of two component chemical anchoring injection system that offers wide range of benefits compared to mechanical anchoring techniques.

Product description

EMS Dubell® F.1311 Chemical anchor is a high quality general purpose polyester based two component that has been specially formulated for anchoring of wide variety of construction applications.
The product is recommended for use to anchor threaded rods into concrete, and for masonry and hollow wall installations. Used widely for medium loads in both horizontal and with its thixotropic feature even in vertical applications.

Main constituent	:	Polyester resin
Appearance (uncured)	:	Paste
Colour	:	Grey
Viscosity	:	Thixotropic, high

Typical applications: Anchoring and bonding concrete, marble, stone etc. on perforated-brick and briquette walls, machinery & system anchoring and installation works, installation of satellite dish and TV systems, fitting radiators and pipe systems, installation of lamps and lighting systems, installation of road signs, installation of handrails, fences and balcony parapets, installation of kitchen and bathroom cabinets, installation of bathroom fittings and accessories, installation of GSM base stations, and fixing decorative panels on walls & ceilings.

- Cost efficient
- Cures and sets rapidly
- High mechanical strength
- Consistency of non-sagging putty.
- Saves time and work force
- Can be applied even at low temperatures
- Compatible with several building materials including perforated brick.

Approvals and certificates

CE

Related standard: TSE EN 1504-3
Licence number: 1783-CPR-546

Physical properties of uncured adhesive

Specific gravity Conditions: 22°C	:	1.60 – 1.70
Non-volatile matter	:	87% (Resin) 95% (Hardener)

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Viscosity Conditions: 22°C	:	120000 – 200000 cP

Typical properties of cured adhesive

Service temperature	:	-40°C - +80°C* * +50°C for long term continuous conditions
Compressive strength Method: EN 12190	:	Class R2 82N/mm^2
Chloride ion content Method: EN 1015-17	:	0.0056%
Glass transition temperature (T_g) Method: EN 12614	:	74°C
Reaction to fire Method: EN 13501-1	:	Euroclass E

Performance and application table

Test parameters: +24°C / +40°C

Size		Application parameters				Admissable loads	
5.8 Grade Rod	Drill hole (d_0)	Embedment depth (h_{ef})	Edge distance (C_{cr})	Spacing (S_{cr})	Torque moment (T_{inst})	Concrete C20/25	Concrete C20/25
	mm	mm	mm	mm	N.m	Tensile (kN)	Shear (kN)
M8	10	80	80	160	10	8.7	5.4
M10	12	90	90	180	20	13.7	8.7
M12	14	110	110	220	40	16.9	12.5
M16	18	125	125	250	60	24.1	22.5
M20	24	170	170	340	120	35.8	35.0
M24	28	210	210	420	150	52.0	50.0

Working and loading time

The table given below represents the working and loading time of chemical anchor at different temperatures. Working time is the typical time to gel. Loading time is the typical time to reach full capacity.

Temperature of base material	+5°C	+10°C	+20°C	+30°C	+35°C
Working time (mins)	25	15	6	4	2
Loading time (mins)	120	80	45	25	15

Consumption

TDS

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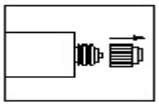
Consumption of chemical anchor depends on the dimensions of threaded bar and drilled hole. The table given below shows the theoretical consumption of chemical anchor with recommended application parameters.

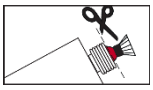
Threaded bar	M8	M10	M12	M16	M20	M24
Diameter of threaded bar (mm)	8	10	12	16	20	24
Diameter of hole in concrete (mm)	10	12	14	18	24	28
Anchoring depth (mm)	80	90	110	125	170	210
Consumption per hole (ml)	5	8	14	26	49	173
Number of holes with 300ml cartridge	55	35	21	11	5	1
Number of holes with 345ml cartridge	65	42	25	13	7	2
Number of holes with 410ml cartridge	75	50	30	15	8	2

Directions for use

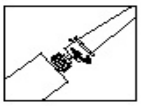
Cartridge preparation



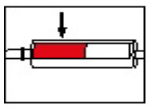
1) Open the cap at the tip of the cartridge.



2) Cut the foil below the metal clip. (required for 300ml cartridge)



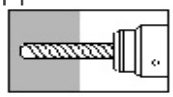
3) Place mixing nozzle to the cartridge (Screw down and tight)



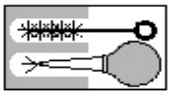
4) Place the cartridge into application gun.

5) Extrude the product by 10cm to ensure homogenous mixing.

Application of the product

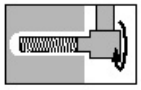


1) Choose the drill bit suitable for the diameter of the anchor showed in consumption table.



2) Clean inside of the hole with air pump or brush.

3) Fill 2/3 of the hole by injecting EMS Chemical Anchor.



4) Place anchoring bar by rotating. Spare resin must overflow out of the hole.

Packaging

Cartridge	Pieces in a box	Pieces on a wooden pallet
300ml	20	1600
345ml	12	1200
410ml	12	1200

- For each cartridge, there are two static mixers in the box.

Storage and shelf life

Keep product in its original container at 22°C and avoid to contact with direct sunlight. Storage below 5°C and above 25°C can negatively affect product properties.

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Material removed from its original container can be contaminated during usage which affects both adhesive performance and storage life. Therefore, do not return contaminated product to the original container.
METSAN cannot take any responsibility for product which has been contaminated or stored under conditions different than previously indicated.

Shelf life: 18 months at 22°C

Health and safety

The product contains styrene.
For further information, please consult Safety Data Sheet (SDS) before use.

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