

## EMS Dubell® Chemical Anchor F.1311-SF



### 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-SF Chemical anchor is a styrene-free, 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.



### Physical properties of uncured adhesive

Specific gravity Conditions: 22°C	:	1.72 (Resin) 1.50 (Hardener)
Flash point Method: ASTM D56-05	:	33°C (Resin)
Non-volatile matter	:	87% (Resin) 95% (Hardener)
Viscosity	:	Resin   Hardener

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Conditions: 22°C

Device: Brookfield DV2TLV Spindle 95

110000 cP @12 rpm

120000 cP @12 rpm



## Typical properties of cured adhesive

Service temperature	:	-40°C - +80°C* *maximum long term temperature is 50°C
Compressive strength Method: EN 12190	:	Class R2
Chloride ion content Method: EN 1015-17	:	0.0056%

## Performance and application table

Test parameters: +24°C / +40°C

Size		Application parameters				Admissable loads	
5.8 Grade Rod	Drill hole (d <sub>0</sub> )	Embedment depth (h <sub>ef</sub> )	Edge distance (C <sub>cr</sub> )	Spacing (S <sub>cr</sub> )	Torque moment (T <sub>inst</sub> )	Concrete C20/25	Concrete C20/25
	mm	mm	mm	mm	N.m	Tensile (kN)	Shear (kN)
M8	10	80	90	180	10	9.0	5.4
M10	12	90	105	210	20	13.0	8.7
M12	14	110	120	240	40	17.5	12.5
M16	18	125	140	300	60	24.0	22.5
M20	24	170	170	350	120	29.0	35.0
M24	28	210	210	430	150	39.0	53.0



## Working and loading time

The table given below represents the working and loading time of F.1311-SF 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 of F.1311-SF Chemical Anchor

Consumption of Dubell 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

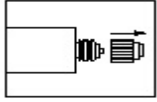
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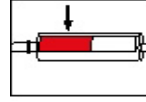
Consumption per hole (ml)	5	8	14	26	49	173
Number of holes with 345ml cartridge	65	42	25	13	7	2
Number of holes with 410ml cartridge	75	50	30	15	8	2

## Directions for use

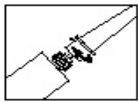
### Cartridge preparation



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



2) Place the cartridge into application gun.

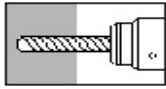


3) Place mixing nozzle to the cartridge (Screw down and tight)

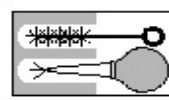


4) Extrude the product by 10cm to ensure homogenous mixing.

### Application of the product



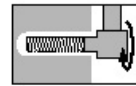
1) Choose the drill bit suitable for the diameter of the anchor showed in consumption table.



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
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.

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

For further information, please consult Safety Data Sheet (SDS) before use.

### Disclaimer

The data contained herein are furnished for informational purposes only and are believed to be reliable. However, Metsan does not assume responsibility for any results obtained by persons over whose

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methods Metsan has no control. It is the user's responsibility to determine the suitability of Metsan products or any production methods mentioned herein for a particular purpose, and to adopt such precautions as may be advisable for the protection of property and persons against any hazards that may be involved in the handling and use of any Metsan products. Metsan specifically disclaims all warranties express or implied, including warranties of saleability and suitability for a particular purpose arising from sale or use of Metsan products. Metsan further disclaims any liability for consequential or incremental damages of any kind including lost profits.

### Metsan Endüstriyel Yapıştırıcılar Ticaret Anonim Şirketi

Birlik Organize Sanayi Bölgesi Batı Caddesi 1. Sokak No:1 Tuzla İstanbul / Turkey

Telephone: +90 444 0 649

Telefax: +90 212 253 42 12

[www.metsan.gen.tr](http://www.metsan.gen.tr)