

EMS Dubell® Chemical Anchor F.1511



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.1511 Chemical anchor is a high quality general purpose vinyl ester 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 and high loads in both horizontal and with its thixotropic feature even in vertical applications.

Main constituent	:	Vinyl ester 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



Related standard: TSE EN 1504-6

Name of the standard: Products and systems for the protection and repair of concrete structures – Anchoring of reinforcing steel bar

Licence number: 1783-CPR-547



Physical properties of uncured adhesive

Specific gravity	:	1.55 (Resin)
Conditions: 22°C	:	1.46 (Hardener)

TDS

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Flash point Method: ASTM D56-05	:	33°C (Resin)	
Non-volatile matter	:	87% (Resin) 95% (Hardener)	
Viscosity Conditions: 22°C Device: Brookfield DV2TLV Spindle 7	:	Resin	Hardener
		120000 cP @20 rpm	198000 cP @20 rpm
		377000 cP @5 rpm	606000 cP @5 rpm



Typical properties of cured adhesive

Pull-out strength displacement Method: prEN 1881	:	0.33mm @75kN load
Chloride ion content Method: EN 1015-17	:	0.001%
Glass transition temperature (T _g) Method: EN 12614	:	74°C
Reaction to fire Method: EN 13501-1	:	Euroclass E
Dangerous substances	:	No performance determined

Performance and application table

Test parameters: +24°C / +40°C

Size		Application parameters				Admissible 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	115	220	10	9.2	5.5
M10	12	90	125	250	20	14.6	8.7
M12	14	110	150	300	40	21.2	12.5
M16	18	125	185	380	60	31.0	23.5
M20	24	170	220	450	120	38.0	37.0
M24	28	210	270	520	150	54.3	55.0



Working and loading time

The table given below represents the working and loading time of F.1511 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

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Consumption of F.1511 Chemical Anchor

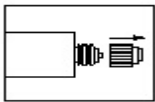
Consumption of Dubell chemical anchor depends on the dimensions of threaded bar and drilled hole. The table given below shows the theoretical consumption of chemical anchor with recommended application parameters.

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	22	26
Anchoring depth (mm)	80	90	110	125	170	210
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

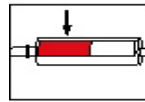


Directions for use

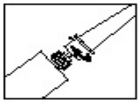
Cartridge preparation



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



- 2) Place the cartridge into application gun.

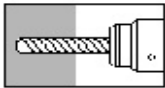


- 3) Place mixing nozzle to the cartridge (Screw down and tight)



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

Application of the product



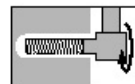
- 1) Choose the drill bit suitable for the diameter of the anchor showed in consumption table.



- 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.

TDS

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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.

Disclaimer

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