

TECHNICAL DATA SHEET

CHEMSET™ MAXIMA™ SPIN CAPSULES

Date of Issue: August 11, 2003

Page 1 of 4

PRODUCT

Chemset Maxima Spin Capsules are heavy-duty peroxide initiated adhesive anchors.

DESCRIPTION

Chemset Maxima Spin Capsules contain acrylic resin and peroxide initiator that mix and cure during installation of *Chemset* Anchor Studs. The stud is installed into the hole by rotating it using a DynaDrill™ rotary hammer, which breaks the glass capsule and mixes the contents.

RECOMMENDED USES

- Fixing to solid concrete and solid brick.
- Structural beams and columns
- Holding down fixings.
- Stadium seating
- Timber bottom plates and cyclone rods
- Applications where a small number of fixings are required
- Securing stainless steel fixings into moderately corrosive environments or where medium chemical resistance is required (see chemical resistance in Chart 9).
- Suitable for fixing carbon steel, hot dip galvanised and stainless steel *Chemset* Anchor Studs.
- Suitable for situations where anchor is subjected to cyclic loading.
- Suitable for use in diamond cored holes

FEATURES & BENEFITS

- No mixing, no mess, no waste – pre-measured capsules
- Versatile
 - Install in wet or flooded holes and underwater
 - Works in vertical, horizontal and overhead applications.
- Fast installation – cures in 20 minutes (@20°C)
- Stress free anchoring allows for close to edge applications and close anchor spacings
- Secure – high bond strength – use grade 5.8 *Chemset* Anchor Studs to obtain maximum capacity

- Strong reliable bond - *Chemset Maxima* capsules are made from glass, which disintegrates during installation to ensure mixed resin contacts 100% of the hole surface
- Corrosion resistant – see chart 6 below

TYPICAL PROPERTIES

Typical properties after 7 days cure at 25°C and 50% RH

Appearance	Glass capsule containing honey coloured resin and quartz aggregate
Flammability	Flammable uncured
Service temp. (cured)	- 23°C to + 60°C
Minimum installation temperature	-5°C
Recommended maximum installation temperature	35°C
Chemical composition	Acrylic Resin

PRECAUTIONS

If these precautions are not observed the installed anchors will not achieve the load capacities stated in this document.

- **Do not** install anchor when the Capsule temperature is less than -5°C.
- **Do not** install anchor when substrate temperature is less than -5°C.
- For substrate temperatures **below -5°C** store *Chemset Maxima* capsules at 20-25°C to ensure resin cures after installation.
- **Always** ensure hole is properly cleaned.
- **Do not** install into uncured concrete.
- **Do not** hammer stud into hole. Use rotary hammer to install stud or alternatively use *Chemset* Hammer Capsules.

INSTALLATION INSTRUCTIONS:

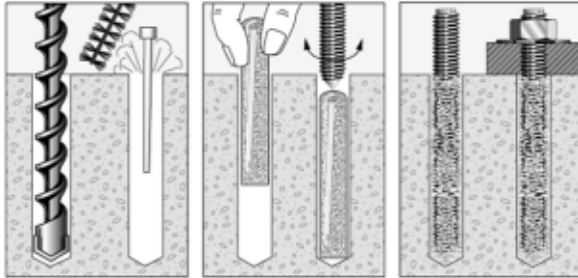
Read the “Precautions” section of these instructions prior to use.

Setting and technical data provided applies to:

- Holes drilled with Rotary Hammers using drill bits with tolerances in accordance with DIN8035, and where holes have been cleaned using a brush and air pump.

- Holes cored with diamond coring equipment that have been cleaned using a brush and air pump.
- Always wear safety glasses or goggles.

SOLID SUBSTRATES



1. Drill hole using correctly sized rotary hammer drill bit to the specified depth. (See Chart No.2).
2. Clean hole with correctly sized hole-cleaning brush (See Chart No. 2) with stiff nylon or wire bristles. Using a combination Push/Pull and twisting (rotation) motion, ensure the sides of the hole are scrubbed at least **3 times** for the full depth of the hole.
3. For holes not filled with water, remove debris, dust etc. using a hole cleaning blower with at least **4 swift** pumps, alternatively a strong blast of compressed air may be used
4. Threaded rods or studs to be used should be cleaned and free from oil, grease, flaking rust or debris. Threaded rods or studs should be chisel ended to prevent them unthreading from the cured mortar.
5. Ensure that holes are dry. If holes have been left for a prolonged period since drilling, re-cleaning in accordance with '2 & 3' above is recommended.
6. Insert capsule into hole. (Insert either end)
7. Exchange rotary hammer carbide tool holder for regular 3-jaw chuck and fit hex bar or socket driver into it. Dynadrill™ DD543 is recommended.
8. Fit driver bit to driver head of stud and insert in hole. Set rotary hammer to 'Rotation' and drive stud into hole. The rotation of the stud will mix the capsule contents.
9. Clean away excess material around stud but **Do not touch** anchor until mixture has gelled and **do**

not load anchor until curing is complete as per Chart No. 1.

10. Attach fixture and tighten nut in accordance with recommended tightening torque (see Chart No. 2)

OVERHEAD INSTALLATIONS

For overhead installation into solid substrate, prepare hole and cartridge as per installation instructions, solid substrate 1 to 5

6. Insert capsule into hole and insert correct retaining collar (see chart 3 for correct size and order number).
7. Continue per 7 above.

CLEAN UP

Clean up uncured resin with Acetone. Do not use solvent on skin, use soap and water.

CURE AND LOADING

CHART 1. LOADING TIMES

Temperature	Dry Concrete	Damp or Wet
≥ 20°C	20 minutes	40 minutes
10°C to 20°C	30 minutes	60 minutes
0°C to 10°C	1 hour	2 hours
-5°C to 0°C	5 hours	10 hours

CHEMSET MAXIMA CAPSULE ANCHOR STUD INSTALLATION DETAILS
CHART 2 – SOLID SUBSTRATE INSTALLATION DETAILS

Anchor Size	Thread Size	Drill Size (mm)	Hole Cleaning Brush Size (mm)	Hole Depth in Substrate (mm)	Recommended Fixture Clearance Ø (mm)	Maximum Fixture Thickness (mm)	Tightening Torque (Nm)	Minimum Edge Distance (mm)	Minimum Anchor Spacing (mm)	Minimum Structural Thickness (mm)
8	M8	10	13	80	10	15	10	30	50	100
10	M10	12	13	90	12	25	20	40	60	120
12	M12	14	13	110	14	30	40	50	70	140
16	M16	18	20	125	19	40	95	65	100	160
20	M20	24		150	24	80	180	80	120	190
20	M20			170		220				
24	M24	26	26	160	30	105	315	95	145	200
24	M24			210		55				270

CHART 3 – OVERHEAD INSTALLATION

Anchor Size	Thread Size (mm)	Retaining Collar Order No.
8	M8	ISR08
10	M10	ISR10
12	M12	ISR12
16	M16	ISR16


CHART 4 – RECOMMENDED WORKING LOADS WITH CHEMSET™ ANCHOR STUDS

Anchor Size	Thread Size	Hole Depth	Recommended Working Load (kN)				
			Shear*		Tensile		
			Grade 5.8	A4 - 316 SS	20MPa	32MPa	40MPa
8	M8	80	4.5	5.9	6.5	6.5	6.5
10	M10	90	7.1	9.3	9.3	10.3	10.3
12	M12	110	10.5	13.6	13.3	15.3	15.4
16	M16	125	19.9	25.3	19.4	22.3	23.9
20	M20	150	30.0	39.5	31.0	35.7	38.2
20	M20	170**			35.2	40.5	43.3
24	M24	160	42.2	56.9	35.9	41.3	44.1
24	M24	210**			47.1	54.2	57.9

*For shear loads acting towards an edge(s) of the concrete the above capacities are not applicable. Contact a Ramset technical consultant for advice.

Using lower strength steels such as grade 4.6 and AISI 304 stainless with *Chemset Maxima* capsules will result in a lower load capacity fixing. To get the maximum benefit of *Chemset Maxima* Spin Capsule's high bond strength use *Chemset* Anchor Studs.

STRENGTH LIMIT STATE DESIGN

For Strength Limit State Design consult the "Specifier's Resource Book", available from the Ramset Sales Engineer in your state.

CHART 5 – NUMBER OF CAPSULES AND PART NUMBERS

Anchor Size	Hole Depth	Number of Capsules	Capsule Part Number	Box Quantity
8	80	1	CHEM08	10
10	90	1	CHEM10	10
12	110	1	CHEM12	10
16	125	1	CHEM16	10
20	150	1	CHEM2024	6
20	170	2	CHEM2024 + CHEM08	6 and 10
24	160	1	CHEM2024	6
24	210	2	CHEM2024 + CHEM08	6 and 10

CHART 6 – CHEMICAL RESISTANCE TABLE

Resistance of *Chemset Maxima* Spin Capsule Adhesive exposed to:

Chemical/Liquid	Conc. %	Resistant	Not Resistant
Ethyl acetate	100		*
Acetone	100		*
Nitric Acid	<20	*	
Nitric Acid	20–70	*	
Butyl lactic acid	100		*
Phosphoric acid	<10	*	
Sulphurous acid	100	*	
Sulphuric acid	≤30	*	
Ethyl alcohol	≤15	*	
Ethyl alcohol	>15		*
Aniline	100		*
Benzene	100		*
Beer	100	*	
Carbon dioxide	100	*	
Petrol with benzene	100		*
Petrol without benzene	100	*	

Chemical/Liquid	Conc. %	Resistant	Not Resistant
Hydrogen fluoride	≤20	*	
Ammonia	100	*	
Ethylene glycol	100	*	
Heptane	100	*	
Hexane	100	*	
Methanol	≤15	*	
Methanol	>15		*
Carbon monoxide	100	*	
Washing powder	100	*	
Perchloroethylene	100	*	
Hydrogen peroxide	≤40	*	
Phenol	100		*
Caustic potash	100	*	
Cement in suspension	Sat.	*	
Toluene	100		*
Xylene	100		*

sat = saturated
% = % by weight**STORAGE & SHELF LIFE**

Shelf life is 12 months when stored in a cool, dry place under 25°C and out of direct sunlight.

Determine if capsules have expired by holding vertically. If resin in capsule flows freely it is fit for purpose. If resin does not flow the capsule has expired.

HEALTH AND SAFETY

Avoid contact with skin and eyes. Wear safety goggles when using. Contents are flammable. Keep away from sparks, flames and other sources of ignition.

For more detailed information refer to the Material Safety Data Sheet available from the Ramset call center or the web.

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