

Rapid strength-gain repair concrete for thin bonded pavement repairs

webercem pyratop



Uses

- High strength repairs to pavement concrete both thin-bed and full-depth
- Thin-bonded repairs 25 mm to 75 mm depth
- Industrial floors or failed floor slabs
- Parking decks and ramps
- Bridge deck repairs
- Jetty decks and slipways to coastal areas
- Loading bays
- Airport hardstandings
- Repairs to steps and joints

About this product

webercem pyratop is a two-part hydraulic cement based repair concrete consisting of a bag of the product and a smaller bag of special aggregate. When mixed together with the addition of water, it produces a rapid setting concrete with high early strength suitable for thin-bonded toppings or full-depth repairs up to 15m². It is dimensionally stable and has excellent abrasion resistance due to the use of hard granite aggregate.

Features and benefits

- ▲ Complies with Highways Agency Specification HD27/04
- ▲ 25–30 minute working time at 20°C
- ▲ 45 minute set time at 20°C.
- ▲ Traffickable in 6 hours at 20°C and 18 hours at 10°C
- ▲ Shrinkage compensated
- ▲ Resistant to freeze/thaw conditions
- ▲ Can be used for winter work down to 5°C
- ▲ Excellent abrasion resistance
- ▲ May be extended with non-reactive 10 mm granite aggregate for full depth repairs over 75 mm depth
- ▲ Excellent strength gain after 6 hours at low temperatures
- ▲ No special bonding agent required
- ▲ Requires only the addition of water

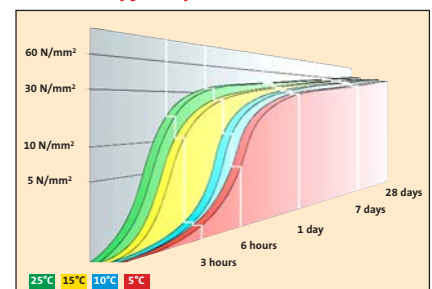
Technical data

webercem pyratop test results

Property	Test method	Temp (°C)	Age 3hr	Age					28 days
				6hr	12h	24 hrs	3 days	7 days	
Compressive strength (MPa)	BS 1881-108, -111 & -116 BS EN 12390:2002	5	0	6	18	30.5	32	39.5	57.5
		10	4	14	22	32	35	42	59.5
		15	9	20	27	34	38	43.5	61.5
		20	14	31	33.5	36	42	50	63
		25	15.5	35	38	42	45	55	65
Flexural strength (MPa)	BS 4551	15	2.3		6.4		7.7	8.7	
Tensile strength (MPa)	BS 1881-117	15	0.14		1.35		1.53	1.9	
Slant shear bond strength	ASTM C882 (MPa)	22					13.7	20.4	
Working time	ASTM C403/C403M	25 mins at 22.5°C							
Setting times	ASTM C403/C403M	Initial set 38 mins, final set 44 mins at 22.5°C							
Water absorption	ASTM C642	2.4% at 22°C							
Adhesion strength	BS 1542	1.73 MPa at 10°C and 1.95 MPa at 20°C at 28 days							
Tensile adhesion strength	CSA A23.2-2-6B	1.99 MPa at 28 days							
Modulus of elasticity	BS 1881-121	20 kN/mm ²							
Abrasion resistance	EN 13892-4	0.08 mm							
	Classification to EN 13813	AR 1							
	Classification to BS 8204	AR 1							
Screed test	BRE CP 72/78	1.5 mm							
Slip resistance (SRV)	BS 8204-3 & -4	51							
Freeze thaw resistance	BS 5075-2	45 µstrain							
Rapid freeze-thaw	ASTM C666 Procedure A	Relative durability factor 92.6; mean loss in mass 0.58%							
Resistance to salt scaling	MTO:LS-412	0.44 kg/m ² loss in weight after 50 cycles							
Rapid chloride permeability	ASTM C1202	2882 coulombs indicating moderate chloride permeability							
Drying shrinkage	EN 104-816-4	64 µstrain at 3 days, 106 µstrain at 7 days, 123 µstrain at 28 days all at 5°C							
Wetting expansion	EN 104-816-4	-35 µstrain at 3 days, -54 µstrain at 7 days, -113 µstrain at 28 days all at 5°C							
Drying shrinkage	EN 104-816-4	88 µstrain at 3 days, 127 µstrain at 7 days, 338 µstrain at 28 days all at 20°C							
Wetting expansion	EN 104-816-4	14 µstrain at 3 days, 98 µstrain at 7 days, 67 µstrain at 28 days all at 20°C							
Length change	ASTM C157	-90 µstrain at 3 days, -180 µstrain at 7 days, -360 µstrain at 28 days all at 20°C							
Early volume change	ASTM C827	-0.23%							
Air-void parameters	ASTM C457	Air content 4.4%, Specific surface 19.47, Spacing factor 0.269 mm							

Data based on water addition of 1.85 litres per 25 kg bag at 20°C. Further technical data is available. Please contact **Weber** Customer Services.

Compressive strength development of webercem pyratop



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Preparation

All concrete to be repaired should have a minimum characteristic strength of 25 N/mm² and a tensile bond strength of at least 1 N/mm². The surface preparation method should be carefully chosen so as to minimise the risk of micro-cracking in the parent concrete thus affecting the bond with the repair.

Mark out the area of concrete to be removed perpendicular and parallel to the axis of the concrete paving bay.

Saw cut around the perimeter of the repair about 25 mm deep, ensuring that the saw cut does not cut through any existing reinforcement. Saw cut in straight lines to provide a sound edge to work to. The edges of the saw cut area should be keyed to ensure good bond. For jointed slabs, saw full depth to provide a face for a new joint, avoid overcutting.

For more details on the design of patch repairs, refer to the Weber Technical Note : *Concrete repair patches on horizontal surfaces for flooring and external paving.*

Carefully break out the existing concrete without damaging the adjacent concrete. If the existing reinforcement is removed, leave sufficient rebar for a lap for tying in subsequent rebar and/or structural mesh a minimum of 450 mm or 35 bar diameters. Only cut back existing rebar where a dowelled joint is to be made.

Where a new dowelled joint is to be made, as specified by the structural Engineer, then drill holes of the appropriate size and depth for the dowels specified. Dowel bars shall be Grade 250 steel complying with BS 4449 and shall be free from any contamination, straight and with clean sawn ends, as approved by the engineer. The size and length of bar shall be specified by the engineer.

Prime and plug the holes with **webertec EP TAG** thixotropic resin anchor grout and insert the dowels/tie bars within the tolerances for alignment specified.

Where the full depth reinstatement adjoins a movement joint, install and fix expansion joint filler board. Reinstatement the sub-base layer with approved granular material and replace any separation membrane as necessary.

Lap and tie any new reinforcement to that removed with minimum 450 mm or 35 bar diameters, whichever is the greater for longitudinal bars and 300 mm for transverse bars.

For full depth repairs all exposed reinforcement steel should be cleaned to BS 7079-A1 (equivalent to Swedish Standard SA 2½) and then primed with **webercem bondcoat**.

Clean and remove all oil, grease, dirt and loose debris from the area to be repaired. Thoroughly wet the prepared surface with clean water for at least 30 minutes prior to the start of mixing. Remove surplus water to achieve saturated, surface-dry concrete substrate.

Mixing

Use only freshly opened **webercem pyratop** bags and a clean, forced-action mixer such as a twin screw mixer (shown here), a Creteangle or Baron mixer. The mixer capacity should be at least 30% greater than the quantity to be mixed ie minimum 50 litres for a single bag mix.

Locate the mixer close to the area to be repaired. Working time at 20°C is approximately 30 minutes. At lower temperatures, working time is increased, so it is advisable to keep material warm and use warm water in cold weather conditions. Charge the mixer with 2.5 litres of water, then add the whole bag of aggregate and stir for 30 seconds, followed by a gradual addition of **webercem pyratop**. Mix for 3 minutes. An additional 0.1 litres of water may be added if necessary and mix for a total of 5 minutes.

NB: do not exceed maximum water addition of 2.6 litres water per unit.

The resultant mix is not flowable but thixotropic and can easily be tamped down a spread.

Bulking-out

For repairs over 75 mm thick, use a bulked out mix of the repair concrete as follows : use 2 bags of **webercem pyratop** and 3 bags of the crushed granite aggregate. Mix with 5.7 litres of water to yield 35 litres of bulked out rapid concrete.



Priming

No other primer is used except for the **webercem pyratop** itself. However, it is important that a bond coat of the freshly mixed material is scrubbed well into the damp concrete surface using a stiff brush.

Alternatively, apply a thin 4 – 5mm layer of the mixed material pressing it well into the surface with a steel float. Do not add extra water as this would reduce adhesion strength.

When using the bulked-out mix in thicker sections, set aside one bag of the **webercem pyratop** and mix this with 1.9 litres water to make the bonder. For smaller quantities, mix 6.5 volumes of the **webercem pyratop** powder with 1 volume of water.



webercem pyratop

Application

The mixed material must be placed within 20 minutes of mixing and just after priming. Place, spread and compact **webercem pyratop**, ensuring full compaction at the edges by tamping.

Finish to the correct profile by steel or wooden trowel to seal the surface edges and saw cuts and finish to the required texture. The surface of slabs to be used as trafficked surfaces shall be brush-textured in a direction at right angles to the longitudinal axis of the carriageway. The texture shall be applied evenly across the slab in one direction by a brush not less than 450 mm wide. The texture shall be uniform both along and across the slab.



Setting time

Setting time at 20°C is approximately 45 minutes.

Winter working

webercem pyratop can be used down to 5°C provided cold weather working precautions are carried out.

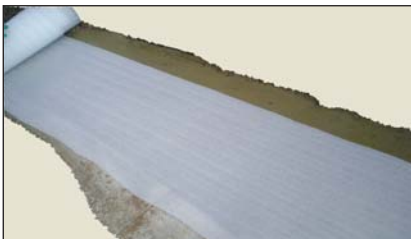
For applications below 5°C please contact Weber's Technical Services Department

Curing

Cure within 20 minutes of laying using an appropriate method such as wet hessian, polythene sheeting weighed down with flat boards or a proprietary sprayed-on curing membrane.

Insulation blankets shall be used during cold weather working to ensure the surface temperature of Pyratop is kept above + 5°C until the material has achieved final set.

Protect from frost.



Yield

Unbulked: yield per one unit of 33.3 kg **webercem pyratop** and aggregate is approximately 15.5litres.

Bulked: yield per 2 bags of **webercem pyratop** powder and 3 x 8.3kg bags of aggregate is 35 litres.

Packaging

webercem pyratop is now supplied in a two-part pack comprising a 25 kg bag of mortar and an 8.3kg bag of special granite aggregate.

Together they weigh 33.3kg and when mixed with 2.5 litres of water, yield 15.5 litres of rapid setting concrete.



Storage and shelf life

When stored unopened in a dry place at temperatures above 5°C, shelf life of the 25 kg **webercem pyratop** bags is 6 months from date of manufacture. The shelf life of the aggregate is not limited.

Health and safety

Contains cement (Contains chromium (VI). May produce an allergic reaction). Irritating to respiratory system and skin. Risk of serious damage to the eyes. May cause sensitisation by skin contact. Keep out of the reach of children. In case of contact with eyes, rinse immediately with plenty of water and seek medical help. After contact with skin, wash immediately with plenty of soap and water. Wear suitable protective clothing, gloves and eye/face protection.

For further information, please request the Material Safety Data Sheet for this product.

To the best of our knowledge and belief, this information is true and accurate, but as conditions of use and any labour involved are beyond our control, the end user must satisfy himself by prior testing that the product is suitable for his specific application, and no responsibility can be accepted, or any warranty given by our Representatives, Agents or Distributors. Products are sold subject to our Standard Conditions of Sale and the end user should ensure that he has consulted our latest literature.

Technical services

Weber's Customer Services Department has a team of experienced advisors available to provide on-site advice both at the specification stage and during application. Detailed specifications can be provided for specific projects or more general works. Site visits and on-site demonstrations can be arranged on request.

Technical helpline
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Sales enquiries

Weber products are distributed throughout the UK through selected stockists and distributors. Please contact the relevant Customer Services Team below for all product orders and enquiries.

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