

# Kemgrout HD/HS

High Performance Expanding Non-Shrink Cementitious Grout

Description	A pourable cement base, non-shrink, hydraulic compound specially formulated for heavy-duty support under machine base plates, cranes, rails ...etc	
	The material is a blend of Portland cement, pre-graded fillers, and additives which impart controlled expansion in the plastic state whilst minimizing water demand. The low water requirements ensure high early strength and long-term durability. The filler grading is designed to aid uniform mixing and minimize segregation and bleeding	
	Standards: Complies with ASTM C1107 Grade B or C- ASTM C109,580,531,642 and CRD-C621	
	Thickness: minimum 10 mm/ maximum 75 mm	
Where to use	Kemgrout HD/ HS is used for general-purpose grouting over a wide range of applications, including heavy-duty support under machine base plates, cranes, rails, and stanchion bases. Also performed as anchoring for masts, anchor bolts... etc.	
Advantages	<ul style="list-style-type: none"><li>• It has a unique 2-stage shrinkage compensating system, with an excellent water reducing action</li><li>• Ready to use pre-packed material that eliminates the possibility of site batching variations</li><li>• No metallic filler used which causes staining or deterioration due to rust expansion</li><li>• Rapid gain of strength facilitating rapid installation and early operation of plant</li><li>• Excellent mechanical properties and low permeability ensures the long term performance of the grout</li></ul>	
Properties		
For flowable consistency @ 20 °C, ASTM C 580		
Age (days)	Flowable	
7	4 - 5 N/mm <sup>2</sup>	
28	12 - 13 N/mm <sup>2</sup>	
Setting Time @ 20 °C		
Liquid Mortar	Initial 5 hours	Final 8 hours
Elastic Mortar	Initial 90 minute	Final 180 minute
Compressive strength (ASTM C-109, BS 1881)		
Age (days)	Flowable	Trowable
1 Day	45 N/mm <sup>2</sup>	50 N/mm <sup>2</sup>
7 Days	61 N/mm <sup>2</sup>	67 N/mm <sup>2</sup>
28 Days	69 N/mm <sup>2</sup>	74 N/mm <sup>2</sup>
Ultimate anchorage bond strength	40 N/mm <sup>2</sup> for concrete after 24 hours	
Coefficient of thermal expansion	11X10 <sup>-6</sup> °C	
Thermal conductivity	1.5 w/m °C	
Density	2.0 ±0.5 Kg/lit	
% shrinkage	0.1% (ASTM C-531)	
Expansion properties	An expansion of 1 - 4%. Compensates for plastic settlement in the unset material	

Surface Preparation	<ul style="list-style-type: none"> <li>Concrete surface: Must be free from oil. Grease, or any loosely adhering material. If the concrete surface is defective or has laitance, it must be cut back to a sound base</li> <li>Bolt holes or fixing pockets must be blown clean of any dirt debris</li> <li>Steel base plate: All rust traces must be removed either by mechanical means (e.g. abrasives) or by a suitable rust remover</li> <li>The undersides and edges of the steel plate should then be cleaned from oil and dirt then protected with <b>Kemkleen</b> to prevent rust formation and ensure bonding with the <b>Kemgrout HD/HS</b></li> <li>Expansion Joints: Shall be installed in accordance with local building codes</li> <li>Never bridge an expansion, contraction, or construction joints</li> </ul>
Mixing	<p>The quantity of water required to achieve the desired consistency and volume used should be in accordance with the following:</p> <ul style="list-style-type: none"> <li>Flowable grout 3 – 3.25 lit/25 Kg Sack</li> <li>Trowable grout 2.25 – 2.75 lit/25 Kg. Sack</li> <li>For best results a mechanically powered grout mixer should be used</li> <li>The selected water content should be accurately measured in the mixer</li> <li>Slowly add the total contents of the <b>Kemgrout HD/HS</b> sack , add and mix continuously for 5 min. ensuring homogeneous consistency</li> </ul>
Application	<ul style="list-style-type: none"> <li>Saturate the concrete surfaces with clean water prior to applying <b>Kemgrout HD/HS</b></li> <li>Ensure that no free standing water is present on surfaces of foundations or in bolt holes</li> <li>Place the grout within 20 min. of mixing to gain benefit of the expansion process</li> <li><b>Kemgrout HD/ HS</b> may be placed in thickness up to 100 mm. in a single pour when used as an under plate grout</li> <li>For thicker sections it is necessary to fill out <b>Kemgrout HD/ HS</b> with well graded silt-free aggregates to minimize temperature rise</li> <li>High points must be adequately vented to allow entrapped air to escape</li> <li>Pouring should be from one side of the void to eliminate the entrapment of air or surplus pre-soaking water</li> <li>The grout head must be maintained at all times, so that a continuous grout front is achieved</li> <li>Where large volumes have to be placed <b>Kemgrout HD/ HS</b> may be pumped</li> <li>A heavy duty diaphragm pump is recommended for this purpose</li> <li>Screw feed and piston pumps are also suitable</li> </ul>
Specific application	<ul style="list-style-type: none"> <li>Grouting under base plates: Use flowable consistency</li> <li>Grouting anchor bolts: Use trowable consistency</li> <li>Grouting large volumes: For sections thicker than 100 mm. It is necessary to fill the <b>Kemgrout HD/HS</b> with graded 10 mm. silt-free aggregate to minimize temperature</li> <li>The quantity of aggregate should not exceed 1-part aggregate to one part <b>Kemgrout HD/HS</b> by weight</li> <li>For such mixes a conventional concrete mixer and pump should be used</li> <li>Unrestrained areas of width exceeding 50mm should be troweled after two hours from mixing</li> </ul>
Theoretical coverage	2 kg/ m <sup>2</sup> / 1mm thick
Packaging	<b>Kemgrout HD/HS</b> is supplied in 25 kg sacks
Shelf life & Storage	<b>Kemgrout HD/HS</b> has a shelf life of 12 months if kept in sealed bags in dry place
Curing	On completion of the grouting operation, exposed areas which are not to be cut back should be thoroughly cured by means of water application , <b>Kemcure</b> or wet hessian
Cleaning	<b>Kemgrout HD/ HS</b> should be removed from tools and equipment immediately after use with clean water

Health and Safety	<ul style="list-style-type: none"><li>• <b>Kemgrout HD /HS</b> is non-toxic if come in contact with skin</li><li>• Use gloves to avoid contact with skins</li><li>• If skin comes in contact, wash immediately with soap and water</li><li>• Eye contamination must be immediately washed with water</li><li>• Do not breath dust, Use a practical mask</li></ul>
Additional Information	<p><b>PROKEM</b> provides the construction industry with a comprehensive range of construction chemicals and specialty products answering the queries of modern engineers for trouble free durable structure</p> <p><b>PROKEM</b> designs tailor made products should there be critical application that requires specific properties rather than our main range. For our customer's satisfaction</p> <p><b>PROKEM</b> reserves the right to change the properties of its products</p> <p>All orders are accepted subject to our current term of sale &amp; delivery</p> <p>Users must always refer to the most recent issue of the local product data sheet for the product concerned, copies of which will be supplied on request</p> <p><b>PROKEM</b> extends technical services to include after-sales support to assist users in the proper handling of our products</p>