



# TechnoCem™ ConFlow® HES Grout

High Performance, high early strength, free flow, non-shrink engineering  
 Cementitious Grout for filling anchorages and Structural Repair.

## Description:

**TechnoCem™ ConFlow® HES Grout** is a high performance, pumpable, low bleed, cementitious grout that sets rapidly with high early strengths and durability is engineered for grouting for filling, anchorages and structural repair and other high flow grouting applications formulated from a blend of special cement, graded fillers and special chemical additives which imparts controlled expansion in the plastic state whilst minimising water demand to achieve high strengths in short time frame.

**TechnoCem™ ConFlow® HES Grout** is designed to allow uniform mixing and eliminates unwanted segregation and bleeding, supplied as a Factory pre packed ready to use in powder from requiring only the addition of a controlled amount of clean water at site. It is free from chlorides, making is suitable for application in contact with steel.

## Application Includes:

TechnoCem™ ConFlow® HES Grout is recommended for use in the following areas of application-

- Columns in precast construction
- Anchor bolts
- Quick installation of machineries
- Cavities and Gap filling
- It facilitates early commissioning of equipment involving high vibration and requiring high early strength.
- Crane rail soleplates
- DG Set and pumps
- Column bases
- Bridge bearing pads.

## Features & Benefits:

- Sand free pumping into areas with tight clearance requirements
- High flow properties even at low rate w/c ratio
- No expansive mechanism
- Low bleed even at high flow
- Rapid strength gain
- Does not segregate
- Rain and tear resistant PE bags reduce product loss from damaged packaging
- Ready to use, pre-mixed and requires only the addition of water
- Lower water/cement ratio reduces drying shrinkage, increases durability and reduces permeability
- Good impact and thermal resistance.
- Non-corrosive to steel or iron.

## Applications Instructions

### Substrate Preparation

Surface laitance and unsound concrete must be chipped away so that a reasonable rough, but strong sound surface is provided. All surfaces must be free from oil, grease and dust, this particularly applies to the underside of base plates, bolts, pipes or other materials which may have surface contact with the grout. After cleaning, saturate the concrete surfaces with clean water. Ensure that no free standing water is present on surfaces of foundations or in bolt holes before applying of **TechnoCem™ ConFlow® HES Grout**. Bolts or anchor holes must be clean and free from dust or loose material. This can be achieved by blowing clean the hole. Base plates must be cleared of all rust, oil or grease. It is essential to provide air pressure relief holes for venting.

### Typical Properties at 25°C:

|  |             |   |           |               |        |         |
|--|-------------|---|-----------|---------------|--------|---------|
| Appearance   |             | Free flowing grey powder  |           |               |        |         |
| Fresh Wet Density  |             | 2100-2200 Kg/m <sup>3</sup> approx.<br>(dependent on water addition rate) |           |               |        |         |
| Application thickness  |             | 20mm – 100mm  |           |               |        |         |
| Application temperature  |             | Minimum 5°C<br>Maximum 35°C   |           |               |        |         |
| Typical W/P Ratio  |             | 0.16-0.17 (for Free flow mix)   |           |               |        |         |
| Pot life @ 20°C  |             | 20 minutes approx.  |           |               |        |         |
| Compressive Strength, N/mm <sup>2</sup> (Typical) at 27°C, as per IS 4031 * 5cm cube   | Consistency | Unit  | W/P Ratio | 6 hrs.        | 12 hrs | 1 day   |
|  | Flowable    | 5cm cub   | 0.16-0.17 | 12            | 20     | 30      |
|  |             |   |           | 3 days        | 7 days | 28 days |
|  |             |   |           | 45            | 52     | 60      |
| Set Time(hrs : mins)   | Flowable    | Initial   |           | Final         |        |         |
|  |             | 20-25 minutes   |           | 25-35 minutes |        |         |
| Coefficient of Thermal Expansion, per °C   |             | -11-12x10 <sup>-6</sup> (Similar to Concrete)                             |           |               |        |         |
| Free Expansion % vol   |             | 0.2 – 1%  |           |               |        |         |
| Pull out Bond Strength, MPa  |             | 21 (at 28 days)   |           |               |        |         |
| Note: Compressive strength is determined by using 5cm cube specimen at laboratory controlled condition, Water demand may vary depending upon site condition. |             |   |           |               |        |         |

## Curing:

On completion of grouting the exposed area should be covered with wet hessian, plastic sheeting or **TechnoFinish® ConKure 101/102** to prevent excessive moisture loss. At ambient temperature, formwork should be removed no sooner than 24 hours after completion of grouting. The covering should stay in place for a further 6 days. Lack of sufficient curing could result in plastic cracking and drying shrinkage on the surface.

## Action

**TechnoCem™ ConFlow® HES Grout** begins to act as soon as water has been added to the mix effecting the controlled expansion characteristics. This reaction continues until firm contact is made with the confining surfaces or until the material sets. The controlled expansion of **TechnoCem™ ConFlow® HES Grout** will offset shrinkage due to settlement, hydration and evaporation

## Cleaning

All tools should be cleaned immediately after application on using fresh water. Hardened materials must be cleaned mechanically

## Packaging:

TechnoCem™ ConFlow® HES Grout is available in 30 kg bags.

## Storage & Shelf Life:

TechnoCem™ ConFlow® HES Grout has a shelf life of 12 months from date of manufacture if stored at temperatures between 5°C and 40°C in original unopened bags. If these conditions are exceeded, STIPL Technical representative should be contacted for advice.

## Placing

Grouting should be done continuously. Therefore make sure that sufficient grout is prepared before starting. While filling voids, grout should be poured from one end to avoid air pockets. The following measures shall be taken while placing the grout:

Grouting operations should be preferably carried out in a shaded condition.

Avoid grouting at the hottest time of the day. Place the grout within 15 minutes of mixing to obtain best results. Grouting should not be done in free & unrestrained areas as the gaseous expansion of the grout will lead to development of cracks.

**TechnoCem™ ConFlow® HES Grout** can be poured from minimum 20mm up to 100mm in one single pour. However, for depths greater than 100mm it is recommended to add well graded aggregates of 5 to 8mm (up to 40%) to the grout in order to reduce the heat generated during the exothermic reaction when the grout is mixed and poured for larger depths. Cover

## Formwork

It is essential that the formwork to be constructed is leak proof and water tight. In order to achieve this it is recommended that foam rubber strips or a suitable sealant such as polyurethane or silicone be used underneath the formwork. The formwork should be constructed, which will allow and ensure a grout head is maintained on the side above the level of the underside at the base plate. The formwork should allow for gravity flow of grout with a suitable grout head allowing for continuous flow between the base plate and the concrete substrate. To ensure ease of formwork removal, the formwork should be coated with form oil or release oil prior to grouting (consult STIPL's Technical representative for additional information).

It is recommended that **TechnoCem™ ConFlow® HES Grout** be kept in a cool environment and the use of cold water be used for mixing. It is recommended that in instances where the temperature is greater than 25°C, the grouting be conducted early in the day or late in the evening and sheltered from sunlight and direct heat.

## Unrestrained Surface

As **TechnoCem™ ConFlow® HES Grout** is an expanding grout, it is advisable not to have any unrestrained areas.

## Low Temperature Working

At temperatures below 5°C the cure rate and strength development rate will be dramatically reduced. If early strength is required, it is advisable to use heated water and condition **TechnoCem™ ConFlow® HES Grout** to 25°C. Do not exceed this temperature.

## High Temperature Working

At temperatures above 30°C, it is advisable to use water below 20°C when mixing grout. All materials must be kept cool and away from direct sunlight. If practical, the installation area should be shaded by erecting shade screens. If ambient temperatures are excessive, grouting should be scheduled for early morning or late afternoon.

## Mixing

Use mechanical mortar mixers, preferably of the slow speed (250-350 rpm) paddle mixer or revolving drum type mixer. Hand mixing rarely achieves the desired result. Allow approx. 5 minutes for mixing. Thorough mixing is essential for achieving maximum results. Add **TechnoCem™ ConFlow® HES Grout** slowly into recommended amount of clean water in a mixer. Use as little water as is required for ease of placement.

| Consistency      | TechnoCem™ ConFlow® HES Grout | Potable Water Addition (Litres) | W/P Ratio    |
|------------------|-------------------------------|---------------------------------|--------------|
| For Flowable Mix | 30 Kg                         | 4.80- 5.10 Litre                | 0.16 to 0.17 |
| For Plastic Mix  | 30 Kg                         | 3.90 -4.50 Litre                | 0.13 to 0.15 |
| For Stiff Mix    | 30 Kg                         | 3.60- 4.20 Litre                | 0.12 to 0.14 |

Caution: Unopened bags are to be kept in a shaded area water used for mixing should be below 25°C, particularly in high ambient temperature conditions. Do not mix by hand. Do not add additional water. Discard any unused grout that has stiffened or hardened. Do not retemper.

# STERLING TECHNO TRADE INDIA PRIVATE LIMITED

## The Specialist Construction Chemical Company®

Head Office: 109-111-112, 1st Floor, Vijaya Building, No. 17, Barakhamba Road, Connaught Place, New Delhi- 110001

Manufacturing Unit: Plot No-J-3, UPSIDC Site C, Surajpur Industrial Area, Greater Noida, Uttar Pradesh 201306

WEB: sterlingtechnotrade.com | EMAIL: support@sterlingtechnotrade.com | TEL: 01145084212

the exposed areas immediately after placing with a polythene sheet, to protect from drying winds.

## Health and Safety instructions

Read the product label and Material Safety Data Sheet (MSDS) before use. Users should acquaint themselves with all risk and safety phrases.

**Additional Information:** Techno Builders Solutions® By Sterling Technotrade India Pvt.Ltd -The Specialist Construction Chemicals Company® range of associated products includes high performance concrete Admixtures, Adhesives, Protective Coatings, Concrete Repairs, Industrial Flooring, Grouts & Anchors, Joint Sealants, Surface Treatments, curing compounds, repair mortars, release agents, Grinding Aids & Waterproofing.

\*Separate datasheet are available on these products.

**Disclaimer:** The product information & application details given by the company & its agents has been provided in good faith & meant to serve only as a general guideline during usage. Users are advised to carry out tests & take trials to ensure on the suitability of products meeting their requirement prior to full scale usage of our products. Since the correct identification of the problems, quality of other materials used and the on-site workmanship are factors beyond our control, there are no expressed or implied guarantee / warranty as to the results obtained. The company does not assume any liability or consequential damage for unsatisfactory results, arising from the use of our products.

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