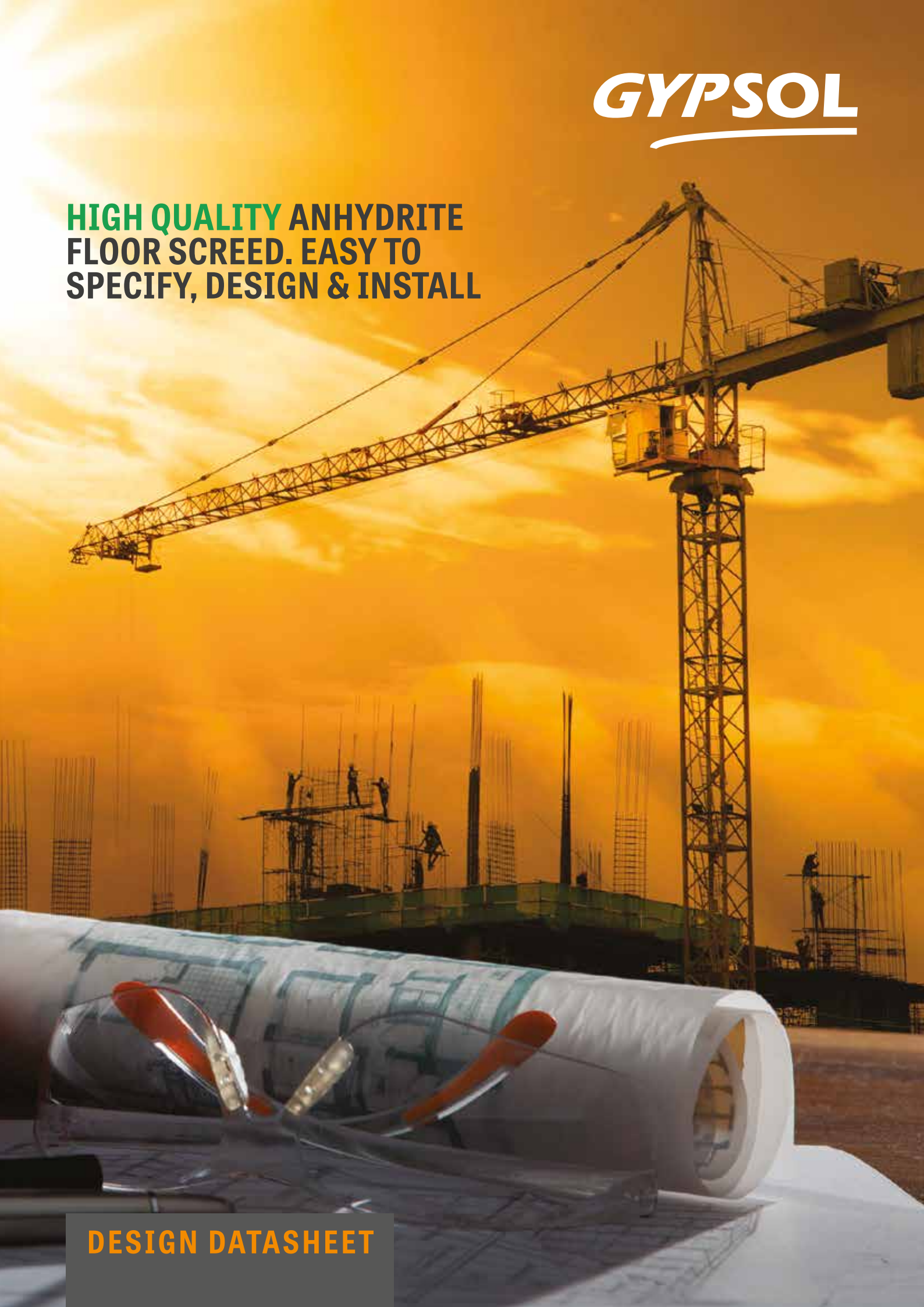


A large construction site at sunset. A tall tower crane stands on the right, its arm extending across the sky. In the background, several vertical rebar structures are visible, with workers silhouetted against the bright orange and yellow sky. In the foreground, a large roll of white material, likely floor screed, is unrolled on a surface, with a pair of glasses and a pen resting on it.

***GYP*SOL**

**HIGH QUALITY ANHYDRITE
FLOOR SCREED. EASY TO
SPECIFY, DESIGN & INSTALL**

DESIGN DATASHEET

DESCRIPTION

Gypsol screed is a high quality, free flowing, self compacting anhydrite floor screed. **Gypsol** offers huge benefits to all aspects of a construction project, including to screed installers, builders, underfloor heating designers, main contractors and clients.

Our aim is to make it easy for specifiers to select **Gypsol** screed as their flooring screed of choice. In order to ensure that your design utilises screed in the optimum manner it is important for designers to have relevant design information available.

This datasheet goes through the simple steps to ensure that **Gypsol** screed is specified, designed and installed correctly for the application in which it is being used. For further assistance with design and to obtain a NBS Specification please contact our Technical and Specifications team.

MINIMUM DEPTH^[1]

Floating	Domestic	35mm
	Commercial	40mm
Unbonded		30mm
Bonded		25mm
Underfloor heating		25mm cover to pipes

In all cases the nominal depth should be as close to the minimum depth as possible to avoid excessive drying times. Suitable insulation can be used as a void filler where deeper floor sections are required.

[1] **Gypsol** HTC, TS-15 and TS-20 may be applied to thinner depths. See relevant datasheet for further details

MAXIMUM BAY SIZES

Underfloor Heated	All Cases	300m ²	Aspect Ratio 6:1
Unheated	Floating	1000m ²	Aspect Ratio 8:1
	Unbonded	1000m ²	Aspect Ratio 8:1
	Bonded	1000m ²	Aspect Ratio 8:1

As with all screeds, joints should reflect structural joints in the substrate. Care should be taken to ensure that joints within the screed are suitably placed to take account of joint requirements in finished floor coverings.

BAY LENGTH

Floating	Domestic	40m
	Commercial	40m
Unbonded		40m
Bonded		40m
Underfloor heating		20m

Consideration should be given to take account of maximum bay length, maximum bay size and aspect ratio. For example a corridor 2m wide will require a joint frequency of 1 joint per 16m if unheated where as a room of 20m x 25m is likely to need no joints.

EDGE DETAILING

In common with all screeds, **Gypsol** screed should be isolated at all edges, abutments and columns. This is to ensure adequate allowance is given for the screed to undergo the maximum positive movement under the application or removal of thermal loadings.

Edge Strip Width

Heated Screed	8mm (typically 10mm)
Unheated Screed	5mm

Linear Co-Efficient of Thermal Expansion (typical) = 12×10^{-6} m/mK

ADDITIONAL INFORMATION

Edge strips should be of an extruded polyethylene type with a laminated polythene skirt attached.

The shape of the room and the aesthetic effect on the subsequent floor coverings should be taken into account when designing joint configurations and bay sizes.

Additional joints must be placed between independently controlled heating circuits, between heated and unheated screed areas and in areas of high thermal gain.

Bay joints should be formed using rigid joint formers where possible, which can be placed during the preparation phase and will remain in place during operation. Ideally the joint former should be 5mm lower than the finished **Gypsol** screed depth to allow a smooth transition in height between bays. Where joints are saw cut, beware of any embedded pipes or cables within the screed.

See our additional data sheet entitled "Forming Joints" for further information on creating suitable joints within screeds.

GYPSOL

PERFECTLY COMPLEMENTS
ANY **UNDERFLOOR HEATING**
WATER OR ELECTRIC SYSTEM

UNDERFLOOR HEATING

DESCRIPTION

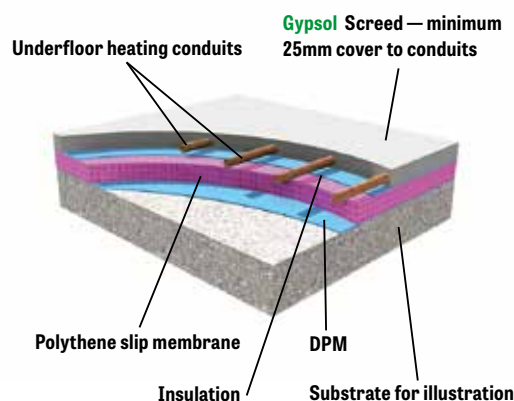
Gypsol screed is a high quality free flowing, self compacting anhydrite floor screed which offers huge benefits to all aspects of a construction project including to screed installers, builders, underfloor heating designers, main contractors and clients alike.

Gypsol screed is a perfect complement to any underfloor heating system whether warm water or electric. **Gypsol** screed has a high thermal conductivity and a high thermal capacity which means that the response time from any system is excellent.

Additionally, **Gypsol** screed has great thermal performance meaning that the efficiency of a heat source is improved.

As the screed is installed to a much thinner depth than traditional screed more sub screed insulation can be used offering the ultimate levels of comfort and controllability to your underfloor heating system whilst minimising environmental impact and cost.

TYPICAL SCHEMATIC



DESIGN DATA

Thermal Conductivity up to **2.5w/m²K** (for calculations use the average figure 2.3w/m²K based on norm sand independent tests allowing for testing variance of 4%).

Minimum EPS100 Polystyrene insulation should be used.

Pipe spacing to be in accordance with the designers requirements.

Pipes should be secured using clips at minimum 0.5m intervals.

Movement control joints should be placed at spacing no greater than 20m and bay sizes should have an aspect ratio no more than 6:1 and a size no greater than 300m². No reinforcement is required.

Movement joints should be placed across door thresholds and between independently controlled heating zones and between heated and unheated areas of screed.

Additional joints should be considered in areas of high thermal gain e.g. large conservatories or glass atria.

INSTALLATION DATA

The Building envelope should be watertight prior to installation.

Underfloor heating pipes/cables should be properly secured to avoid flotation during installation of the flowing **Gypsol** screed.

An operational Damp Proof Membrane should be placed under any insulation and a secondary slip membrane underneath the heating conduits.

Warm Water Pipes should be pressurised with water in accordance with BS EN 1264-4:2009

Minimum cover to the tops of the pipes/cables should be 25mm (20mm for Gypsol HTC).

ADDITIONAL PERFORMANCE DATA

Can increase the coefficient of performance of an underfloor heating system.

Self compacts and fully encapsulates heating conduits eliminating voids and improving thermal transfer.

Offers rapid and controllable heating system optimising efficiency, response and reducing running costs.

Reduced screed depth allows for thicker insulation.

Assists in meeting environmental accreditation for your project.

POST INSTALLATION

If required any loose or friable skin should be removed by lightly sanding using a 60 grit or medium sand paper. The underfloor heating should be commissioned and run in accordance with the following:

Once the screed is at least 7 days old

1. Switch on the heating system to run at a flow temperature of 25°C, or the minimum allowable by the system, and leave for three days
2. Increase the flow temperature in 5°C increments per day up to a maximum of 55°C. Leave at this temperature for a minimum of 3 days (typically 7 days if force drying)
3. Reduce the flow temperature by 5°C per day down to 25°C before switching off and allowing to cool (typically for 48 hours) prior to moisture testing

Test the screed for residual moisture using an approved test method - independent tests have concluded that the Carbide Bomb Test is the most accurate test method.

Once dry protect the screed from moisture ingress prior to applying suitable floor coverings.

Bonded floor coverings should be applied using a suitably flexible and thermally stable adhesive in accordance with the manufacturers instructions.

See also our "Post Installation" data sheet for additional information

GYP SOL

**COMPARE GYP SOL FLOOR
SCREEDS WITH TRADITIONAL
SYSTEMS IN THE MARKET.**

WHY CHOOSE GYP SOL?

WHY CHOOSE GYPSOL



DESCRIPTION

Gypsol self compacting, free flowing floor screeds are available in a number of different formats from a range of quality assured readymix suppliers throughout the United Kingdom.

The **Gypsol** team can offer a screed to suit almost any application:

Gypsol Classic - the most popular of our screeds for general purpose domestic or commercial screed applications.

Gypsol HTC - specially formulated for optimum thermal performance with underfloor heating. Independently tested by Warwick University.

Gypsol Rustique - a unique fast track system for a rustic or industrial architectural finish which does not require a subsequent floor covering.

Gypsol TS-15 - ultra thin high strength screed for bonded or unbonded applications to a minimum of 15mm.

Gypsol TS-20 - Thin screed for unbonded or bonded applications to a minimum of 20mm.

Gypsol XS - for high strength and higher than usual loadings.

Gypsol Modular - high early strength for modular construction.

Gypsol TimBRE - for timber flooring and SoundBar applications.

Gypsol Summit - for high rise projects.

Gypsol Diamond - a unique polished system which does not require a subsequent floor covering.

The Solida System - a whole-house heating system designed for single or mass house builders using underfloor heating at all floor levels. Uses minimum 220mm deep joists at 600mm centres and 4.8m clear spans.

Gypsol Sureflo - Bagged preblended screed for smaller projects and when a readymix service is not possible.

It is useful to compare **Gypsol** floor screeds with traditional systems in the market. This table helps to ensure that you are selecting **Gypsol** floor screeds for sound commercial and technical reasons.



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Issue 7 :
27 June
2017

DATA TABLE

Consideration	Gypsol	1:4 Cement:Sand Screed
Productivity	✓ Up to 2000m ² per day	✗ Typically 100 to 150m ² per day
Quality	✓ BS EN 13454 ✓ BS EN 13813 ✓ BS EN 8204:7:2003	✗ Often site-mixed with poor and erratic quality control ✗ No specific manufacturing standard if site mixed
Traffic	✓ No curing required ✓ Can be walked on after 24–48 hours ✓ Can be loaded after 7 days	✗ Should be cured under polythene for 7 days ✗ Foot traffic after 7 days ✗ Loading after 28 days
Health & Safety	✓ Little manual handling ✓ Ergonomically advantageous installation ✓ Reduced risk of burns & dermatitis ✓ Self compacting	✗ High level of manual handling, lifting and twisting ✗ High level of joint wear and tear for installers ✗ Portland cement can lead to burns and dermatitis ✗ Requires thorough compaction
Cost	✓ Lower material costs ✓ High productivity ✓ Most installations will offer cost and time savings	✗ Higher material cost ✗ Low productivity
Installation	✓ By trained and approved installers	✗ By anyone, regardless of skill level or training
Floating on insulation	✓ Minimum depth 35mm (see technical data sheet) ✓ Requires no reinforcement	✗ Minimum depth 65mm ✗ D49 mesh or PP fibres required
Unbonded construction	✓ Minimum depth 30mm ✓ Requires no reinforcement (see TS-15 and TS-20 data sheets)	✗ Minimum depth 50mm ✗ D49 mesh or PP fibres required
Bonded construction	✓ Minimum 25mm (see TS-15 and TS-20 data sheets)	✗ Minimum 40mm
Surface Finish	✓ Easily achieves SR2 ✓ Can achieve SR1 with care (less need for smoothing compounds) ✓ Does not curl and resistant to cracking ✓ Requires few joints	✗ Dependent on installing contractor. ✗ Shrinks, cracks and curls ✗ Requires many joints
Drying Rate (dependent on site conditions)	✓ 1mm per day up to first ✓ 40mm in excess of 1mm per day. See relevant product data sheets ✓ Can be force dried as early as 7 days	✗ 1mm per day (1 week curing + 11 weeks drying at 75mm) ✗ Cannot be force dried
Environmental	✓ Low CO ₂ emissions ✓ Reduced materials so reduced embodied energy ✓ High recycled content	✗ High CO ₂ emissions ✗ Higher embodied energy
Underfloor Heating	✓ Thinner screed allows: ✓ Thicker Insulation ✓ Reduced cover to heating pipes means reduced thermal lag and rapid response times Self compacting and full pipe encapsulation, so void free	✗ Thicker screed means: ✗ Thicker floor section ✗ Greater thermal lag up to 8 hours heat up time ✗ Difficult to compact under pipes leading to voids
Uses	✓ Available for use in all construction types including timber frame, lightweight steel frame, traditional masonry, modular construction, concrete and steel frame	✗ Only available for limited construction types
Acoustics	✓ 80kg/m ² at just 40mm ✓ Uniform density across floor section ✓ Few joints	✗ Minimum 65mm required in most systems ✗ Variable density leads to non uniform performance ✗ Many joints lead to sound transmission pathways

GYPSOL

GYPSOL SCREED OFFERS
BENEFITS TO ALL TYPES OF
CONSTRUCTION PROJECT



POST INSTALLATION

DESCRIPTION

Gypsol screed is a high quality free flowing, self compacting anhydrite floor screed which offers huge benefits to all aspects of a construction project, including screed installers, builders, underfloor heating designers, main contractors and clients. Our aim is to make it easy for specifiers to select **Gypsol** screed as their flooring screed of choice.

It is important to pay attention to the treatment of the **Gypsol** screed after it has been installed in order to ensure that the maximum benefits can be extracted. It is equally important that follow-on trades understand the material and how it should be treated in order to ensure that subsequent floor coverings remain trouble free.

POST INSTALLATION UP TO 48 HOURS

Gypsol screed, having been installed into a suitably sealed building envelope, should be protected from ingress of water and extremes of temperature. External windows and door openings should remain closed in order to allow the screed to set. The screed may be trafficked by light foot traffic after 24 to 48 hours from installation. **Gypsol** screed is self curing and therefore does not require a curing membrane. The finished screed should not be excessively heated during this period, although keeping the environment at or around 20°C is beneficial. Significant air movement across the screed should be avoided in order to reduce the risk of plastic shrinkage cracking.

48 HOURS TO 7 DAYS

After 48 hours the **Gypsol** screed is ready to begin drying. It is of significant benefit at this stage to provide as much ventilation as is reasonably practicable, whilst maintaining protection for the screed from ingress of external water. Windows and doors can remain open for as long as possible, assuming conditions allow, during the working day. This will help to provide good air exchange to remove moisture from the air above the screed, and allow the residual moisture to escape. After 72 hours dehumidifiers may be introduced to assist the drying process if desired. Between 72 hours and 7 days any loose or friable surface laitance may be removed by lightly sanding with a rotary floor sander and a medium grit sanding disc or other suitable means of removal. Foot traffic can continue during this period.

AFTER 7 DAYS

The **Gypsol** screed can now be loaded and the work area returned to full service. Underfloor heating can be commissioned and run and unlike cement based screeds which cannot be heated for 28 days or force dried at all, **Gypsol** screeds can be force dried either using the underfloor heating, or using space heaters and fans. In either case it is important to remove the moisture from the air above the screed either by ventilation, extraction or dehumidification in order to allow the screed to dry properly. This assists greatly with early preparation for floor coverings. If space heaters are used these should not be of the fossil fuel variety e.g. gas burners as the burning of gas emits moisture back into the air reducing the benefit of heating significantly. Electrical or forced air movement heaters are suitable. Protection during the remainder of the construction period should continue in order to protect the **Gypsol** screed from re-wetting which could delay the drying period. It is not however desirable that the screed should be covered with impervious sheeting during construction.

PRIOR TO FLOOR COVERING INSTALLATION

In accordance with the relevant national standards for floor coverings the surface of the screed should be inspected and should satisfy the following:

1. It should be clean and free from chemicals likely to interfere with adhesion
2. It should be sound, hard and free from fractures other than planned joints
3. It should be free from loose friable laitance, dust, construction debris and loose surface contamination e.g. mud, building adhesive and bricklaying mortar
4. It should be suitably dry or an approved method of moisture management such as a damp proof membrane or uncoupling technology employed (see additional notes)
5. Any underfloor heating must have been commissioned and run

ADDITIONAL NOTES

Moisture testing is carried out using a suitable approved method such as a flooring hygrometer or carbide bomb test. Once dry the floor should be cleared of any gross debris and then thoroughly vacuumed to remove any small loose dust and debris. Damp proof membranes can be used on **Gypsol** screeds subject to them being unheated, below 1.5% moisture and them having achieved sufficient strength to satisfy the mechanical requirements of the application (minimum 28 days old). Due to the potential inaccuracies of using hygrometers at high humidity levels a direct measurement should be used such as Carbide Bomb or oven dried sample.

Where surface moisture levels are below 95% relative humidity and at least seven days old, the Norcross Pro-Gyp Fast Track System may be used in accordance with manufacturers instructions.

If the floor requires priming any primer should be selected for its suitability for use with calcium sulphate or anhydrite screeds. If a smoothing compound is to be used it should ideally be one made using calcium sulphate although subject to suitable priming one based on Portland cement could be used. If a cement based smoothing compound is to be used it is often beneficial to select a water dispersible epoxy primer.

If the floor is to be tiled a flexible adhesive based on calcium sulphate is likely to offer the most robust combination. Again, subject to suitable priming, it is possible to use an adhesive based on Portland cement. **Gypsol** screeds are also suitable to receive epoxy resin toppings subject to suitable preparation and priming.

Alternatively it may be desirable to use a proprietary uncoupling membrane. These are available for both soft flooring such as vinyl or for tile surfaces. It is a recommendation of BS 5385 that natural stone tiles should be uncoupled from heated screeds.

The manufacturers of **Gypsol** screeds do not generally manufacture or supply primers, adhesives, damp proofing membranes or uncoupling technology. Whilst advice is based on sound principals and qualified expertise it is recommended that in all instances the relevant manufacturer's advice should be followed in order to ensure suitable warranties are in place.

GYP SOL

A GUIDE TO EFFECTIVELY PREPARING GYP SOL SCREEDS



FLOORING FLOWCHART

DESCRIPTION

This datasheet provides a guide to the steps required with to ensure that **Gypsol** screeds are properly prepared to receive floor coverings. It may not cover all eventualities, and should be used in conjunction with our other data sheets where appropriate, and where manufacturers of other products are used the relevant manufacturers advice should be followed.

- 1 All screeds and concretes produce a laitance. Low Laitance screeds are available from some manufacturers. Whilst these screeds often produce less friable laitance they should not be considered laitance free and may still require some sanding to remove this.
- 2 It should be noted that best practice dictates that all screeds require lightly abrading as part of the preparation to receive bonded floor coverings. This helps to remove surface contamination and promotes a key for primers and adhesives.

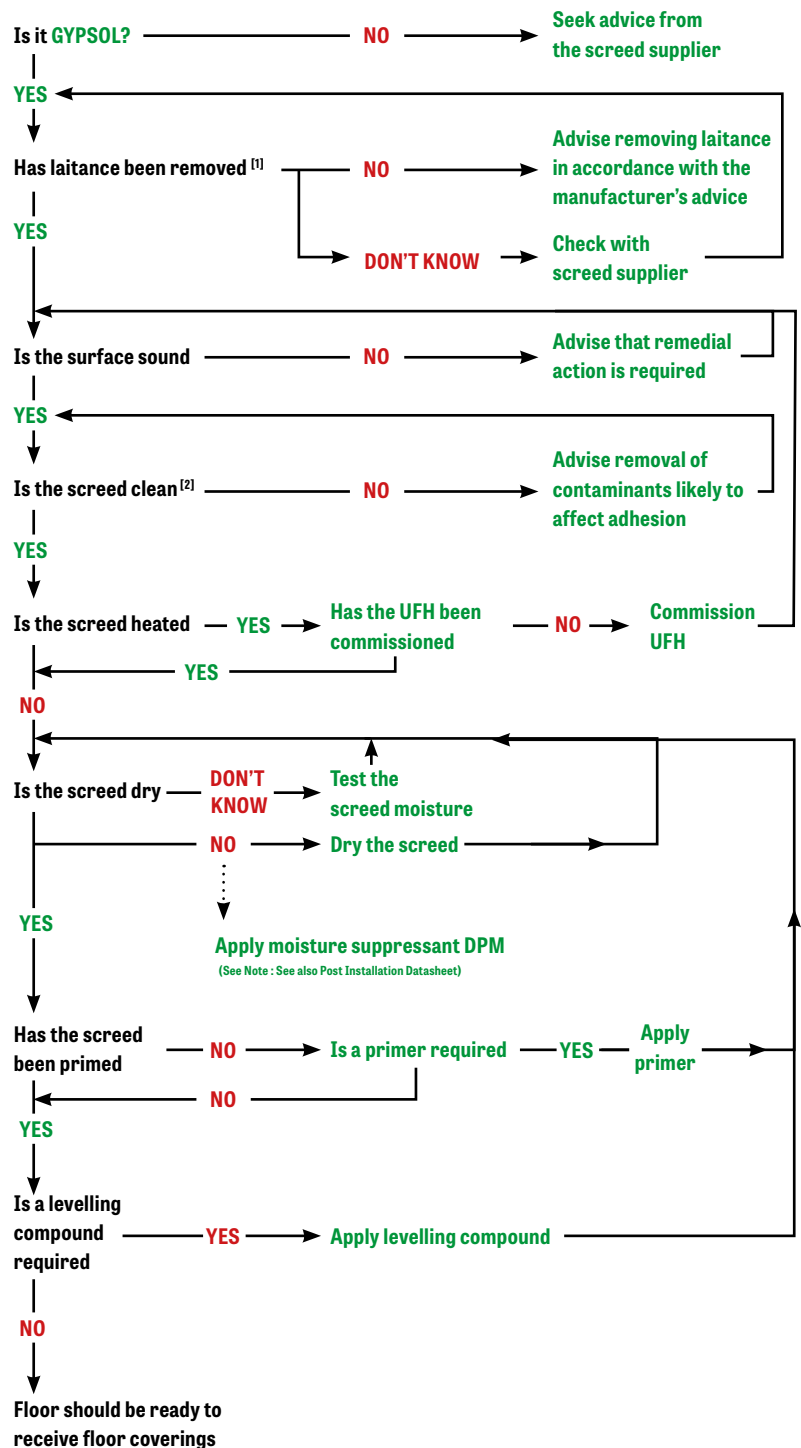
Gypsol Screeds are suitable to receive all types of floor coverings including tiles, carpets, vinyl, timber and epoxy resin screeds.

Damp proof membranes may be used on **Gypsol** screeds subject to them being unheated, below 1.5% moisture and them having achieved sufficient strength to satisfy the mechanical requirements of the application (minimum 28days old). Due to the potential inaccuracies of using hygrometers at high humidity levels a direct measurement should be used such as carbide bomb or oven dried sample. An indicative survey to determine the wettest area and thus suitable test points may be carried out with a simple electronic meter.

The requirements for primers and primer types will be dependent on the nature and type of floor coverings and/or smoothing compounds to be used.

Preparation for floor coverings should remain part of the floor coverings contract.

FLOORING FLOWCHART





GYPSOL

**CREATING JOINTS
WITH THE GYPSOL
SCREED RANGE**

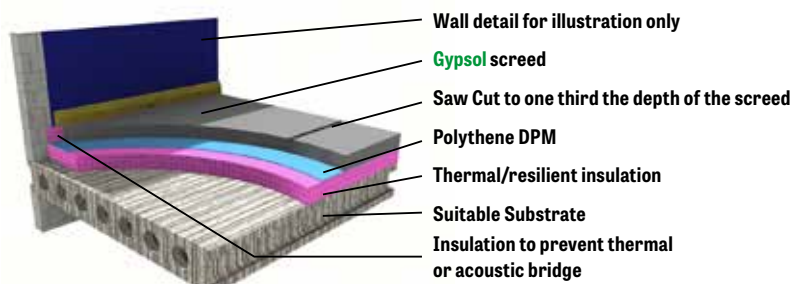
CREATING JOINTS

DESCRIPTION

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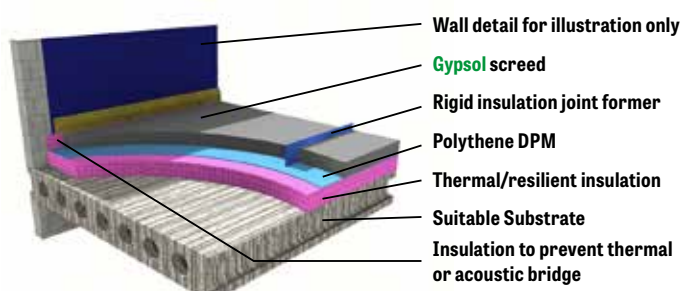
Our aim is to make it easy for specifiers to select **Gypsol** screed as their flooring screed of choice. It is important to pay attention to the design of the screed in order to ensure a trouble free installation that meets the performance expectations of the end user. In common with all screeds and concretes, **Gypsol** screeds should have joints at certain locations (see our "Design" data sheet for additional details). This data sheet gives information on how suitable joints can be created.

OPTION 1 : SAW CUT JOINTS



This option is likely to be unsuitable for use for screeds containing underfloor heating. However where appropriate the joint should be dry saw cut within the first 72 hours of the screed having been laid in order to minimise the risk of early age movement cracking. Saw cuts should be made at suitable positions using a 5mm disk cutter or other suitable equipment. Saw cuts should be made to a depth of one third of the depth of the screed, taking care to avoid damage to any under screed damp proof membranes or acoustic membranes. Where there is a risk of damage to conduits within the screed or any other critical design elements as a result of saw cuts then we suggest option 2 be adopted in preference. When dry saw cutting, appropriate PPE should be worn to prevent dust inhalation during the cutting phase

OPTION 2 : PREFORMED JOINTS



This option is considered suitable for use with all screeds. Preformed rigid insulation joint formers should be placed as part of the preparation phase at pre-specified locations ensuring that minimum bay sizes and maximum bay lengths are observed. The joint formers should ideally be cut to a depth of 5mm below the finished level of the screed to reduce the risk of lipping and meniscus. However, provided care is taken to measure the finished depth of the screed either side of the joint, standard depths can be used. Where underfloor heating pipes or other conduits are present and transfer across the joint, the rigid strip should be cut over the conduits using a suitable cutting tool. Any resultant void should be filled with a flexible filler prior to screeding, to ensure the screed is fully isolated across the joint. The conduits should be sleeved to allow pipe movement independently of the screed.

ADDITIONAL NOTES

1. Francis Flower (Northern) Ltd cannot guarantee any installation against cracking. However it is rare for **Gypsol** screeds to fracture due to movement cracking when correctly designed and installed
2. For information on where to source preformed rigid joint formers contact our technical and specification team on **01928 574574**
3. Joints should generally be between 5mm and 12mm in width. If placed to take account of expansion, the joints should extend through the full depth of the **Gypsol** screed
4. All joints in the screed should reflect through any subsequent bonded floor covering
5. Joint positions should be specified prior to the installation of the **Gypsol** screed and full consultation between all parties including the main contractor, underfloor heating installer, finished flooring installer and the **Gypsol** screed installer should take place to determine appropriate



**ANCILLARY PRODUCTS
STOCKISTS
AND SUPPLIERS**

ANCILLARY PRODUCTS

DESCRIPTION

Gypsol screed is a high quality, free flowing, self compacting anhydrite floor screed which offers huge benefits to all aspects of a construction project, including screed installers, builders, underfloor heating designers, main contractors and clients. Our aim is to make it easy for specifiers to select **Gypsol** screed as their flooring screed of choice. From time to time we are also asked for recommendations for products and materials that are suitable to be used in conjunction with the **Gypsol** screed.

Whilst we are not in a position to make specific recommendations for products which are not manufactured or tested by Francis Flower (Northern) Ltd, we are able to offer the names of companies who have products and systems which have been successfully used with **Gypsol** screeds. It is essential that suitable advice is sought from the manufacturers of such products in order to ensure their suitability for the application. We recommend that wherever possible materials based on gypsum are used on top of **Gypsol** screeds, although subject to correct preparation and adequate workmanship, products based on Portland cement may also be successfully used

These lists are not exhaustive and other suppliers of suitable products may be available. Francis Flower cannot offer any warranty for the performance or suitability of products outside of its direct control, and relevant manufacturers advice should be sought where appropriate.



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Issue 9 :
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SUPPLIERS OF GYPSUM COMPATIBLE SMOOTHING COMPOUNDS INCLUDE

Uzin Ltd.	+44 (0) 1788 530080	info@uzin.co.uk	www.uzin.co.uk
Weber Ltd.	+44 (0) 8703 330070	mail@netweber.co.uk	www.netweber.co.uk
F Ball and Co Ltd.	+44 (0) 1538 361633	mail@f-ball.co.uk	www.f-ball.co.uk
Tilemaster Adhesives Ltd.	+44 (0) 8452 080040	technical@tilemaster.co.uk	www.tilemasteradhesives.co.uk
Sika Ltd.	+44 (0) 1707 394444	sales@uk.sika.com	www.gbr.sika.com
Thomsit UK Ltd.	+44(0) 1234 355811	ian.guest@thomsit.co.uk	www.thomsit.com

SUPPLIERS OF GYPSUM COMPATIBLE TILE ADHESIVES INCLUDE

Norcross Ltd.	+44 (0) 1782 524140	sales@norcross-adhesives.com	www.norcross-adhesives.com
N&C Nicobond Ltd.	+44 (0) 2072 475432	head-office@nichollsandclarke.com	www.nichollsandclarke.com
Granfix Ltd.	+44 (0) 1773 607778	sales@granfix.co.uk	www.tileadhesive.co.uk
Kerakoll Ltd.	+44 (0) 1527 578000	info@kerakoll.co.uk	www.kerakoll.co.uk
Tilemaster Adhesives Ltd.	+44 (0) 8452 080040	technical@tilemaster.co.uk	www.tilemasteradhesives.co.uk
Sika Ltd.	+44 (0) 1707 394444	sales@uk.sika.com	www.gbr.sika.com
Thomsit UK Ltd.	+44(0) 1234 355811	ian.guest@thomsit.co.uk	www.thomsit.com

As there is no risk of ettringite reaction with gypsum based smoothing compounds and tile adhesives, it is generally acceptable to use an acrylic dispersion type primer. Some adhesives may not require a primer in all cases. For details on suitable primers consult the relevant manufacturers. Our recommendation is that where possible, the same manufacturer should be used to supply the primer as the selected smoothing compound.

It is the recommendation of BS 5385, the British standard code of practice for tiling to floors, that natural stone tiles e.g. travertine, marble and granite and limestone should be uncoupled from heated screeds regardless of screed type. Uncoupling can be achieved by using an uncoupling membrane, which is adhered to the prepared screed surface prior to the application of the tiles using a suitable adhesive.

Any underfloor heating within the screed MUST be commissioned and run prior to the application of bonded floor coverings including smoothing compounds and uncoupling membranes (see our data sheet "Underfloor Heating" for information on commissioning).

SUPPLIERS OF UNCOUPLING MEMBRANES INCLUDE

Schluter Systems Ltd.	+44 (0) 1530 813396	technical@schluter.co.uk	www.schluter.co.uk
Dural Ltd.	+44 (0) 1924 360110	duralukitd@netscape.net	www.dural.com
Genesis Systems Ltd.	+44 (0) 1642 713000	Unavailable	www.genesis-aps.com
Norcross Ltd.	+44 (0) 1782 524140	sales@norcross-adhesives.com	www.norcross-adhesives.com
Tilemaster Adhesives Ltd.	+44 (0) 8452 080040	technical@tilemaster.co.uk	www.tilemasteradhesives.co.uk

SUPPLIERS OF WOOD FLOORING ADHESIVES INCLUDE

Kerakoll Ltd.	+44 (0) 1527 578000	info@kerakoll.co.uk	www.kerakoll.co.uk
Sika Ltd.	+44 (0) 1707 394444	sales@uk.sika.com	www.gbr.sika.com
Bostik Laybond Ltd.	+44 (0) 1785 272625	Unavailable	www.bostik.co.uk



GYPSOL

**PRACTICAL ADVICE
ON GYPSOL SCREED
FLOOR PREPARATION**

PREPARATION GUIDE

DESCRIPTION

At Francis Flower Ltd, we pride ourselves on the quality and accuracy of information and advice we offer to not only our direct customers, but also to associated trades and stakeholders. Unfortunately there is a considerable amount of misinformation or misunderstanding about the preparation of floor screeds to receive floor coverings. This is particularly true of calcium sulphate screeds.

It is true to say that some calcium sulphate screeds leave an obvious, friable and loose laitance on the surface which needs to be removed. This is usually achieved by means of light sanding using an STR floor sander with a medium, or 60grit paper, prior to the application of floor covering. The amount of laitance will depend on the mix design at a local level (available sands etc) and it is generally accepted say that this laitance is only an issue from an aesthetic point of view.

To complicate matters, "Low Laitance" option calcium sulphate screeds are available from some screed producers. It is interesting that these are "Low Laitance" not "No Laitance" products. Additionally, some "Low Laitance" formulations result in a very tight closed screed surface, which can make it more difficult for primers and adhesives to find a key. It is therefore just as important that these screeds are sanded. Even the manufacturers of such screeds acknowledge the need for sanding prior to the application of floor coverings.



Good practice dictates that all flooring substrates should receive a light sanding, and vacuuming to remove dust and debris, as part of floor preparation prior to the installation of floor covering. Indeed, page 66 of the guide to contract flooring, produced by the Contract Flooring Association states: "All substrates will require a degree of mechanical cleaning or preparation and a visual inspection or manual sweeping is not adequate under any circumstances...".

Furthermore, most adhesive manufacturers will recommend sanding or abrading the surface of all substrates before the application of their adhesives. These recommendations also include sand/cement screeds and even concrete. For Example Sika Floor 81 datasheet states: "Concrete substrates must be prepared mechanically using abrasive blast cleaning or scarifying equipment to remove cement laitance and achieve an open textured surface." Similarly, F Ball and Co's subfloor preparation datasheet states: "Laitance is always present on new concrete bases and screeds and should be removed."

It is said that sanding the surface of the screed (or other substrate), not only cleans the floor of dirt and debris from the build process, but opens up the surface to allow the penetration of primers. It also provides a "key" for the adhesive to grip onto.

It can be seen from the above that regardless of the presence of any laitance, sanding and vacuuming, is part of the floor preparation process in order to receive floor coverings. Therefore it is wrong to state that calcium sulfate screeds require sanding when other screeds do not. It is however correct to say that any laitance on the screed will be removed during the floor preparation process, and since the floor is to be sanded anyway, this laitance is not an issue.

The floor coverings contractor in general, will have the necessary expertise to determine the level and nature of substrate preparation required for any given floor covering. Additionally, the suitability of the preparation is likely to affect the floor layers ability to offer a warranty. As sanding of the screed is considered by the relevant trade bodies as part of the general floor preparation requirements, it is extremely important to consider carefully who takes contractual responsibility for the sanding operation.

For complete information this guide can be used in conjunction with Francis Flower Ltd Data sheets regarding "Post Installation", "Ancillary Products" and our useful "Floor Coverings Flow Chart" found at <http://www.gypsol.co.uk/Technical/technical.html>

Following installation, Gyvlon screeds should be provided with adequate protection from rapid drying or draughts for the first 48-72 hours. Thereafter the building should be kept warm and as well ventilated as possible to encourage the screeds drying process.

Four factors should be considered with drying,

Room temperature

Elevating the room temperature will assist the screed to dry through improved evaporation

Relative humidity

It is important to provide good ventilation (dehumidification) to ensure a low RH is achieved as a high RH can slow the drying performance of the screed.

Screed temperature

UFH can be commissioned at 7 days, this raises the vapour pressure greatly improving the drying characteristics of the screed. This should be combined with ventilation (dehumidification)

Moisture ingress

Gyvlon should be protected from moisture ingress to prevent rehydration which will delay the drying process

SCREED DRYING TIME

Under good drying conditions (a warm, well ventilated room) Gyvlon Screed dries at a rate of 1mm/day up to a thickness of 40mm and then at a rate of ½ mm/day for thicknesses above this up to 70mm, the rate may further increase to ¾ mm/day at >70mm:

Example: The example is for guidance only and will be site condition dependent.

75mm Gyvlon Screed Drying time: (40mm*1 day) + (30mm*2days) +(5mm*4days) = 10 Days (120 Days)

It is important therefore to ensure the screed performance is optimised through correctly specifying the depth of screed installed, following advice from the screed installer /Gyvlon Technical.

Drying times can be reduced by the provision of good ventilation (dehumidifiers), removal of laitance as recommended and by force drying of the screed using underfloor heating.

ASSISTED DRYING

Dehumidifiers:

Dehumidifiers can be used as early as 72 hours after the installation of Gyvlon screed to assist with drying. It is important that a closed system is employed to ensure that any moisture extracted from the environment during operation is removed. Any water collected should be removed regularly, any screed will only dry as fast as the environmental conditions allow.

FORCE DRYING

- Force drying of a Gyvlon screed can begin as early as 7 days following installation of the screed by various methods.
- Commissioning (heating & cooling procedure) of under floor heating systems.
 - Commissioned at ambient floor temperatures, approx. 20 degrees (or lowest manifold temperature).
 - This temperature should be maintained for 24 hours then raised by up to 5 degrees per 24 hours thereafter until the optimum maximum commissioning temperature is reached (Maximum 45-50 degrees).
 - This should then be maintained for 7 days prior to the temperature being reduced by 5 degrees per day back to the starting point.
 - The system should be turned off and allowed to cool for 48 hours prior to moisture testing by digital hygrometer
- Space Heaters & Dehumidifiers in combination.
Fossil fuel fired heaters (E.g. Gas heaters) must be avoided as they will raise humidity and may impede drying.

IMPORTANT

After drying the screed, the residual moisture content must be determined using either digital/hair hygrometer, carbide bomb, or an oven drying test.

NB: Drying of screeds can be greatly influenced by individual site conditions.

- Reduced CO2 footprint
- Faster application
- Less labour intensive
- Superior surface finish
- Reduction in curing time
- Reduced thickness and weight
- Elimination/reduction of joints

GYVLON is the ultimate screed solution and is at the forefront of screed technology. It is an eco-friendly, cost effective building solution that offers our customers a self-compacting, self-levelling, flowing product which can be placed at up to 10 times the rate of a traditional concrete screed, generating significant labour and time cost-savings for our customers

	GYVLON	Conventional Sand Cement
Productivity	Easily up to 2000 m ² per day	Only 100 to 150 m ² per day
How quickly can you walk on the floor?	Within 24 to 48 hours Self-curing	Should not be walked on for 7 days Requires covering and curing
Joints	30—40 linear meters. Following building construction joints	Can be laid in small bays of between 5-7 linear meters
Performance	Very low shrinkage Minimal cracking Will not curl	Shrinks Cracks Curls
Surface Finish	Easily achieves SR2 under BS 8204	Dependant on contractor Curls and cracks at joints
On Insulation	No reinforcement required 40mm minimum thickness in commercial buildings 35mm minimum thickness in domestic buildings	D49 or fibre reinforcement 65mm minimum thickness
Average Drying Times	40 days at 40mm Dependant on site conditions Can be force dried after 7 days	9 weeks at 65mm thickness Dependant on site conditions Must dry naturally
Unbonded Floor Construction	Polythene laid directly to substrate minimal preparation No reinforcement 30mm minimum thickness	D49 or fibre reinforcement 50mm minimum thickness
Quality Control	Produced under BS EN 13454	Often mixed on site by hand with poor quality control Inconsistent quality
Installation	Self-compacting	Requires thorough compaction, one of main reasons of failure
Environmentally Friendly	Contains 98% recycled material	Cement manufacture uses 1.5 tonnes/ton of cement
Health & Safety	Ergonomically friendly installation No cement burns	Very labour intensive
Underfloor Heating	High thermal conductivity Reduced cover to heating elements	Low thermal conductivity
Cost	In most applications Gyvlon gives cost/time savings over traditional hand applied sand and cement screed.	

Productivity

Typical daily productivity of Gyvlon versus conventional screeds.

Screed Type	Typical number of operatives	Volume Tonnage	Achievable installed area @ thickness per day
Traditional site mixed cement sand screed	3-4	11 tonnes	100m ² @ 60mm
Factory produced semi dry cement sand screed	3-4	15 – 18 tonnes	140 -170m ² @ 60mm
Gyvlon	2	40m ³	1000m ² @ 40mm

Compliance & Testing

Gyvlon has been designed to comply with the requirements of:

- European standard BS EN 13813:2002 screed material and floor screeds, Screed Material – Properties and Requirements
- Code of Practice for Floor Screeds, BS 8204:Part 7
- All British and European Standards in relation to all constituent materials
- The calcium sulphate used in Gyvlon binders is produced under ISO 9001 stringently controlled conditions
- Building Research Establishment Screed Test and indentation requirements BS 8204 class A
- Gyvlon Eco / Thermio are third party accredited BBA Certified systems

Every load of Gyvlon based screed is tested prior to site delivery. An acceptance test is also carried out by the approved contractor before it is installed.

Characteristics

Compaction – The flow characteristics of Gyvlon means that voids and poor compaction are virtually eliminated. The material self-compacts as it flows into position.

Shrinkage – Gyvlon has virtually no drying shrinkage, reducing the need for joints.

Fire Protection – Gyvlon is non-combustible as defined by BSEN 13501-1.

Acoustic performance Gyvlon is superior to that of conventional screeds (Part E regulations).

Durability – Gyvlon, as with virtually all screeds, is not a wearing surface and requires covering with a suitable surface finish.

Wet Areas – Gyvlon should not be used in permanently wet areas.

Protein Free – Cannot harbour harmful bacteria

Thickness & Area

The natural flexural strength of Gyvlon and the lack of voids, means it may be laid substantially thinner than conventional materials

If Gyvlon is a replacement screed the thickness may be reduced and the overall thickness of 75 mm made up with appropriate floor grade insulation material. Drying time will be significantly reduced allowing the wearing surface to be laid sooner.

The minimum thickness of application is shown in the table below:

Type of Construction	Minimum Application Thickness (mm)
Bonded	>12mm Excelio 25 mm
In Contact with Substrate	30 mm
Unbonded	25mm Excelio 30 mm
Floating Commercial	40 mm
Floating Domestic	35 mm
Underfloor Heating	20mm minimum (Thermio) (25mm nominal) cover to heating elements

It is recommended that Gyvlon is laid on a minimum 500 - gauge polyethylene de-bonding membrane in all cases. Where a DPM gauge is required this must be utilised.

Site work

Gyvlon is delivered to site ready to use and pumped directly to the point of use; this means no site mixing, only placing.

Takes 25 minutes to pump 5m³ of Gyvlon.

It is preferable during construction to ensure a steady supply throughout the placement with no break in continuity that exceeds one hour.

Temporary stop ends should be formed where there is a break in supply greater than 1 hour.

Stop ends can be constructed using timber, scaffold battens or dense concrete blocks.

The material should be pump placed onto a prepared membrane with minimum 8mm compressible plastic strips on all perimeter edges.

The membrane may be plastic with taped joints or paper either heat sealed or taped.

Under floor heating may be used 7 days after placing the screed however the temperature should be increased from ambient by no more than 5° a day until full operating temperature is reached.

Curing

Care should be taken to avoid excessive water loss in the first 24hours.

Any unglazed or missing windows or doors should be temporarily blocked using plastic sheeting to avoid excessive drying for the first 24 hours.

After 48 hours, all windows and doors should be opened to allow circulation or de-humidifiers may be used to force dry the material.

Direct sun must also be avoided during early life.

Gyvlon can be lightly trafficked after 1 to 2 days, depending on drying conditions.

Contractors

GYVLON screeds are usually only supplied via contractors approved by Gyvlon customers.

The preparation of Gyvlon screeds ready for floor coverings can be split into four areas:

- **Sanding**
- **Drying and moisture testing**
- **UFH Commissioning**
- **Priming**

Sanding

Gyvlon screeds are available in both a traditional mix which can produce a surface laitance and a Low Laitance which uses a special additive to prevent laitance forming.

Gyvlon screeds will require a surface sanding prior to any adhered floor coverings, this is to be carried out immediately prior to the floor finish application. This is to remove any surface contamination that may have occurred and create a surface key prior to priming and bonding.

NB If using a traditional mix it is advisable to either surface sand or stiff bristle brush after 4-10 days to remove loose surface laitance, this will improve drying performance, the screed will then be sanded prior to cover if required.

Sanding should be carried out using an orbital sanding machine with integrated vacuum. This should be fitted with a suitable grit sanding medium. "60 Grit or similar" carborundum disc for example.

NB. Sanding is to remove laitance/surface contamination and create a surface key it is not to remove screed depth.

Moisture Testing

As with all screeds, in good conditions Gyvlon has a natural drying time of 1mm per day up to 40mm and 0.5mm after that, drying times can be greatly affected by site conditions so it is advised that the atmosphere is kept as warm and dry as possible. Commissioning the UFH and/or using dehumidifiers can greatly improve the figures above, prior to coverings the screed moisture must be tested using either a hair hygrometer, carbide bomb or oven test and be below 75% RH (0.5% Moisture).

NB: It may be possible to use Gypsum based products at 87% RH (1.5% Moisture), manufacturers must be consulted. *(Please refer to the Gyvlon 'Moisture Testing' Datasheet)*

Underfloor Heating Commissioning

Where under floor heating is used it must be commissioned and run prior to floor coverings regardless of how dry the screed maybe, this is in line with CFA, TTA, Vinyl/Tile Manufacturers and UHMA guidelines.

This process forces additional moisture from the screed and conditions it to thermal movement prior to coverings, typically the commissioning cycle is 21 days and can be started as early as 7 days with Gyvlon screeds.

The guidelines state that the underfloor heating should be: -

- Commissioned at ambient floor temperatures, approx. 20 degrees (or lowest manifold temperature).
- This temperature should be maintained for 24 hours, then raised by up to 5 degrees per 24 hours thereafter until the optimum running temperature is reached (Maximum 50 degrees).
- This should then be maintained for 7 days prior to the temperature being reduced by 5 degrees per day back to the starting point.
- The system can be turned off and allowed to cool for 48 hours prior to moisture testing by digital hygrometer.

DESCRIPTION

Gyvlon SoundBar screed is a blend of Gyvlon Binder, selected aggregates and clean potable water, to produce a pumpable self-smoothing, flowing screed (manufactured to BSEN 13813:2002 and to the specific requirements of the SoundBar system).

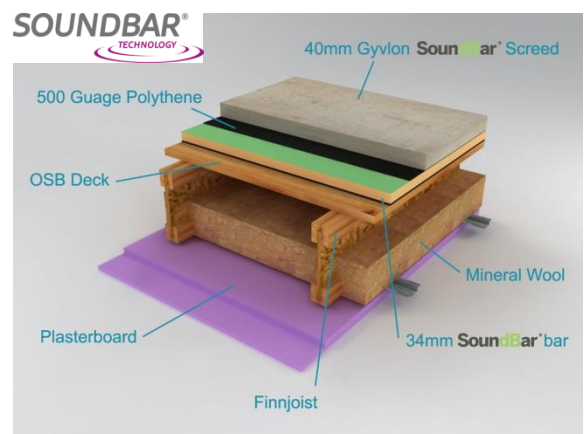
USES

Gyvlon SoundBar screed is designed specifically to be used as part of the Soundbar system, for use over timber joists both in masonry and timber framed designs. The system can be used in both commercial and residential projects and is ideally suited where improved acoustic, loading and durability are required.

For advice on specifications and proprietary systems please contact the Gyvlon Technical and Specification team

SYSTEM SPECIFIC FEATURES

- Increased productivity compared to floating floor treatments
- Improved loading compared to floating floor treatments
- Can easily accommodate UFH within the screed zone
- Ideal for use with UFH
- No need for loading out prior to flooring
- Easily achieves SR2 as described in BS8204:7
- Protein Free – cannot harbour bacteria
- Minimum thermal expansion (0.012mm/mK)
- Dries at a rate of 1mm per day up to 40mm in good conditions
- Excellent UFH performance compared to floating floors
- Environmentally friendly



TECHNICAL DATA

Appearance/Colour:	Off-white fluid mortar
Water demand:	13-18 % b.w
pH:	> 10
Wet Density:	2230 kg/m ³
Dry Density:	2000 kg/m ³

Typical Screed Properties:

Compressive Strength:	C35 N/mm ²
Flexural Strength:	7 N/mm ²

MINIMUM APPLICATION THICKNESS

Soundbar System

Without UFH: 40mm

Soundbar System

With UFH: Minimum 45mm
(25mm minimum, 30mm nominal) cover to
pipes, heating elements.

DELIVERY

GYVLON SoundBar is supplied via a concrete plant in truck mixers, Transmix trucks or as pre blended bags.

ENVIRONMENTAL

Gyvlon Soundbar is produced using Gyvlon binder, which is manufactured from an industry by product.

Gyvlon Binder – 98% Recycled Content

Gyvlon Screed – Average 36% Recycled Content

Recyclability – 100% Recyclable

VOC Content – VOC Free

HEALTH & SAFETY

Please consult the relevant Health & Safety Data Sheets, available from the screed manufacturer on request and provided with each delivery.

DESCRIPTION

Gyvlon SteelDeck screed is a blend of Gyvlon Binder, selected aggregates and clean potable water, to produce a pumpable self-smoothing, flowing screed (manufactured to BSEN 13813:2002 and to the specific requirements of Lewis Deck dovetail sheeting).

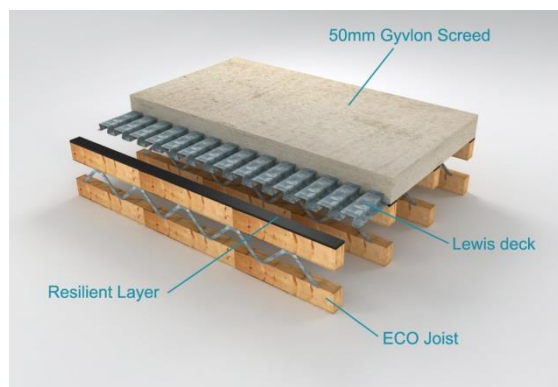
USES

Gyvlon SteelDeck screed is designed specifically to be used with the Lewis Deck dovetail sheeting, for use with timber, metal web or steel joists in masonry, timber or light weight steel structures. To form either ground, separating or mezzanine floor constructions

For advice on specifications and proprietary systems please contact the Gyvlon Technical and Specification team

SYSTEM SPECIFIC FEATURES

- Increased productivity compared to floating floor treatments
- Improved loading compared to floating floor treatments
- Can easily accommodate UFH within the screed zone
- Ideal for use with UFH
- No need for loading out prior to flooring
- Easily achieves SR2 as described in BS8204:7
- Protein Free – cannot harbour bacteria
- Minimum thermal expansion (0.012mm/mK)
- Dries at a rate of 1mm per day up to 40mm in good conditions
- Excellent UFH performance compared to floating floors
- Environmentally friendly



TECHNICAL DATA

Appearance/Colour:	Off-white fluid mortar
Water demand:	13-18 % b.w
pH:	> 10
Wet Density:	2200 kg/m ³
Dry Density:	2000 kg/m ³

Typical Screed Properties:

Compressive Strength:	>C25 N/mm ²
Flexural Strength:	>F4 N/mm ²

MINIMUM APPLICATION THICKNESS

Application thickness of **Gyvlon SteelDeck** over Lewis Deck varies between 36mm and 75mm depending on loading, joist spacing and use of UFH. Please consult the Lewis Deck data sheet for confirmation

Typical Thickness: 50mm (Minimum 20mm cover to heating pipes)

DELIVERY

Gyvlon SteelDeck is supplied via a concrete plant in truck mixers, Transmix trucks or as pre blended bags.

ENVIRONMENTAL

Gyvlon SteelDeck is produced using Gyvlon binder, which is manufactured from an industry by product.

Gyvlon Binder – 98% Recycled Content

Gyvlon Screed – Average 36% Recycled Content

Recyclability – 100% Recyclable

VOC Content – VOC Free

HEALTH & SAFETY

Please consult the relevant Health & Safety Data Sheets, available from the screed manufacturer on request and provided with each delivery.



Gypsol ancillary products stockists and suppliers



Gypsol screed is a high quality, free flowing, self compacting anhydrite floor screed which offers huge benefits to all aspects of a construction project, including screed installers, builders, underfloor heating designers, main contractors and clients. Our aim is to make it easy for specifiers to select Gypsol screed as their flooring screed of choice. From time to time we are also asked for recommendations for products and materials that are suitable to be used in conjunction with the Gypsol screed.

Whilst we are not in a position to make specific recommendations for products which are not manufactured or tested by us, we are able to offer the names of companies who have products and systems which have been successfully used with Gypsol screeds. It is essential that suitable advice is sought from the manufacturers of such products in order to ensure their suitability for the application. We recommend that wherever possible materials based on gypsum are used on top of Gypsol screeds, although subject to correct preparation and adequate workmanship, products based on Portland cement may also be successfully used.



ADHESIVES & PRIMER

As there is no risk of ettringite reaction with gypsum based smoothing compounds and tile adhesives, it is generally acceptable to use an acrylic dispersion type primer. Some adhesives may not require a primer in all cases. For details on suitable primers consult the relevant manufacturers. Our recommendation is that where possible, the same manufacturer should be used to supply the primer as the selected smoothing compound.

It is the recommendation of BS 5385, the British standard code of practice for tiling to floors, that natural stone tiles e.g. travertine, marble and granite and limestone should be uncoupled from heated screeds regardless of screed type. Uncoupling can be achieved by using an uncoupling membrane, which is adhered to the prepared screed surface prior to the application of the tiles using a suitable adhesive.

Any underfloor heating within the screed MUST be commissioned and run prior to the application of bonded floor coverings including smoothing compounds and uncoupling membranes. See our data sheet "Underfloor Heating" for information on commissioning.

These lists are not exhaustive and other suppliers of suitable products may be available. LKAB Minerals cannot offer any warranty for the performance or suitability of products outside of its direct control, and relevant manufacturers advice should be sought where appropriate.

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www.gypsol.co.uk
www.lkabminerals.com

SUPPLIERS OF GYPSUM COMPATIBLE SMOOTHING COMPOUNDS INCLUDE

Uzin Ltd.	+44 (0) 1788 530080	info@uzin.co.uk	www.uzin.co.uk
Weber Ltd.	+44 (0) 8703 330070	mail@netweber.co.uk	www.netweber.co.uk
F Ball and Co Ltd.	+44 (0) 1538 361633	mail@f-ball.co.uk	www.f-ball.co.uk
Tilemaster Adhesives Ltd.	+44 (0) 8452 080040	technical@tilemaster.co.uk	www.tilemasteradhesives.co.uk
Sika Ltd.	+44 (0) 1707 394444	sales@uk.sika.com	www.gbr.sika.com
Thomsit UK Ltd.	+44(0) 1234 355811	ian.guest@thomsit.co.uk	www.thomsit.com

SUPPLIERS OF GYPSUM COMPATIBLE TILE ADHESIVES INCLUDE

Norcros Ltd.	+44 (0) 1782 524140	sales@norcros-adhesives.com	www.norcros-adhesives.com
N&C Nicobond Ltd.	+44 (0) 2072 475432	head-office@nichollsand-clarke.com	www.nichollsand-clarke.com
Granfix Ltd.	+44 (0) 1773 607778	sales@granfix.co.uk	www.tileadhesive.co.uk
Kerakoll Ltd.	+44 (0) 1527 578000	info@kerakoll.co.uk	www.kerakoll.co.uk
Tilemaster Adhesives Ltd.	+44 (0) 8452 080040	technical@tilemaster.co.uk	www.tilemasteradhesives.co.uk
Sika Ltd.	+44 (0) 1707 394444	sales@uk.sika.com	www.gbr.sika.com
Thomsit UK Ltd.	+44(0) 1234 355811	ian.guest@thomsit.co.uk	www.thomsit.com

SUPPLIERS OF UNCOUPLING MEMBRANES INCLUDE

Schluter Systems Ltd.	+44 (0) 1530 813396	technical@schluter.co.uk	www.schluter.co.uk
Dural Ltd.	+44 (0) 1924 360110	duralukltd@netscape.net	www.dural.com
Genesis Systems Ltd.	+44 (0) 1642 713000	Unavailable	www.genesis-aps.com
Norcros Ltd.	+44 (0) 1782 524140	sales@norcros-adhesives.com	www.norcros-adhesives.com
Tilemaster Adhesives Ltd.	+44 (0) 8452 080040	technical@tilemaster.co.uk	www.tilemasteradhesives.co.uk

SUPPLIERS OF WOOD FLOORING ADHESIVES INCLUDE

Kerakoll Ltd.	+44 (0) 1527 578000	info@kerakoll.co.uk	www.kerakoll.co.uk
Sika Ltd.	+44 (0) 1707 394444	sales@uk.sika.com	www.gbr.sika.com
Bostik Laybond Ltd.	+44 (0)1785 272625	Unavailable	www.bostik.co.uk



Gypsol Classic

A self compacting flowing anhydrite screed made to exacting standards



Gypsol Classic self compacting flowing screed is made to exacting standards by quality assured manufacturers to BS EN 13813:2002. It is a combination of high quality Gypsol binder, specially selected sands, water and special additives where required.

Case Study - The Maltings Care Home

For this 50-bedroom care home project the main contractor identified flowing screed as the right product to use. The project had several special screed requirements; the screed was to be placed on insulation for both ground and first floor underfloor heating systems; it needed to be as thin as possible as time scales were tight; and finally it needed to offer a rapid drying time to allow completion of floor coverings. Our advice was that Gypsol Classic would be the most appropriate and cost effective solution

to meet all the requirements. An NBS specification was completed by our Technical and Specifications Manager and once approved by the architect screeding began. Once installed, the screed was dried using the underfloor heating as a means of force drying the screed accompanied by dehumidifiers to remove moisture from the air above the screed, ensuring good drying conditions and a quick drying phase.



Gypsol Classic is designed to offer a smooth flat and level surface for use in the vast majority of interior non wearing applications where a subsequent floor covering is to be used. Gypsol Classic screed is perfectly suited to use in floating, bonded or unbonded construction and can easily incorporate electric or warm water underfloor heating systems.

This data sheet offers key technical information to help your selection of Gypsol Classic as your screed of choice. For project specific advice on design and for a Model NBS Specification Template contact our technical and specifications team.

HEALTH AND SAFETY DATA:

- Gypsol screeds are delivered to site ready to use via offsite mixing plants, removing the need for labour intensive site mixing and associated mixing equipment.
- Gypsol screeds are pumped directly to where they are needed, removing much of the manual handling operations required to install other screeds.
- Gypsol screeds are generally pumped using equipment with closed or gridded dispensing hoppers, removing risk of contact with moving machinery.
- Gypsol screeds are finished using a lightweight dappling bar requiring no secondary compaction, thus removing most of the physical work needed to lay other screeds. This significantly reduces the negative impact on the musculoskeletal system of installing contractors.
- For material safety information please see the relevant health and safety data sheets.
- Noise and vibration dampening.
- Thermal energy storage.

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www.gypsol.co.uk
www.lkabminerals.com

Physical data

Appearance	Off white fluid mortar
Density	Wet 2200kg/m ³ Dry 2000kg/m ³
Minimum Strength	C25-F4
Required Flow (EN 13454-2)	230mm to 270mm
Reaction to Fire	Class A1fl Non Combustible

Performance data

Working Time	Place and finish within 3 hours of batching
Foot	Traffic 24 to 48 hours
Loading	5 to 7 days
Drying (50mm depth)	At 20°C and 60% RH - 28 days ^[1] Active force drying - 13 days ^[1]
	Drying times vary dependent on screed depth, ambient conditions and suitability of the building envelope.
	^[1] Independently tested and verified by Action Dry Ltd. Full report available on request.
Force Drying	Can be force dried after 7 days

Application data

Minimum Depth	Bonded	25mm
	Unbonded	30mm
	Floating	35mm Domestic 40mm Commercial
	Acoustic	80kg @ 40mm
	Cover to conduits	25mm

Gypsol screeds are suitable for use on most substrate types

Environmental data

Recycled Content	Binder 98%
	Mortar up to 40%
Carbon Emissions	Binder 10 to 30kg/tonne
	Mortar 30 to 50kg/m ³
VOC	Virtually zero
Recyclability	100%



Gypsol Rapide

A self-compacting, self-smoothing, fast-drying floor screed



Gypsol Rapide is a unique and highly innovative faster drying screed which uses high quality Gypsol anhydrite, specially graded sands and selected additives to create a free flowing self-compacting and self-smoothing floor screed which dries in a fraction of the time taken for more traditional anhydrite or cementitious screeds. This allows the user to install floor coverings in significantly less time than for competing screed systems.

Gypsol Rapide is self-curing and requires no artificial curing membrane after installation. The dimensional stability of Gypsol Rapide, whether heated or unheated, significantly reduces the risk of cracking without the need for reinforcement and with much larger bay sizes when compared to cement based materials. Gypsol Rapide can be used in all construction types including traditional masonry, lightweight steel frame, timber frame and in high strength applications. Gypsol Rapide can be used with or without underfloor heating to create a highly energy efficient heating system.



Gypsol Rapide offers many major advantages over other screeds including:

RAPID installation – up to 2000m² per day. Allows reduced programme time

RAPID finishing – NO spray on curing membranes reducing airborne contamination and eliminating associated safety issues

RAPID strength gain – No reinforcement or fibres required and fewer joints with much larger bay sizes

RAPID setting – allows early foot traffic

RAPID return to full service – can be loaded after just 7 days

RAPID thermal response – greater efficiency of underfloor heating

RAPID completion – allows early floor covering application, e.g. as little as half the time when compared to other standard anhydrite screeds

HEALTH AND SAFETY DATA:

- Gypsol Rapide screed is delivered to site ready to use via offsite mixing plants eliminating the need for labour intensive site mixing and associated mixing equipment.
- Gypsol Rapide screed is pumped directly to where it is needed, eliminating much of the manual handling operations required to install other screeds.
- Gypsol Rapide screed is generally pumped using equipment with closed or gridded dispensing hoppers, removing risk of contact with moving machinery.
- Gypsol Rapide screed is finished using a lightweight dappling bar requiring no secondary compaction, removing most of the physical work needed to lay other screeds. This significantly reduces the negative impact on the musculoskeletal system of installing contractors. For material safety information please see the relevant safety data sheets.

0800 6226023

www.lkabminerals.com/gypsol

Physical data

Appearance	Off white fluid mortar
Density	Wet 2200kg/m ³ Dry 2000kg/m ³
Minimum Strength (28 days)	C25-F5 ^[1]
Required Flow (EN13454-2)	230mm to 250mm
Reaction to Fire	Class A1 _{fl} Non Combustible

^[1] Stronger mix designs may be available on request to allow for alternative applications

Performance data

Working Time	Place and finish within 2.5 hours of batching ^[2]
Foot Traffic	24 to 48 hours
Loading	7 days
Drying Time (@ 20°C/60% RH)	Anticipate 14 days (in ideal condition) ^[3]
Minimum Depth	40mm floating commercial; 35mm floating domestic; 25mm bonded ^[4] 30mm un-bonded; 20mm cover to heating conduits

^[2] Ensure account is taken of travel time from plant to site

^[3] Tests are based on 50mm depth of screed and indicate that it can take as little as 14 days to achieve 75% surface RH measured using calibrated hygrometer to BS8204:7:2003. A Carbide Bomb test may be used and must measure below 0.5% b/w. Moisture tests should always be carried out prior to application of finished floor covering. Note that drying rates are affected by site conditions, screed depth and added water whether pre or post installation.

^[4] Prepare the substrate in accordance with BS8204:7:2003 using a gritted two coat epoxy resin DPM or similar

Environmental data

Recycled Content	Binder 98% Mortar up to 40%
Carbon Emissions	Binder 20 to 40kg per tonne Mortar 30 to 50kg/m ³
VOC	Virtually zero
Recyclability	100%

Application of coverings

Underfloor Heating must be commissioned and run prior to laying bonded coverings. Once moisture testing is complete in line with BS8204:7:2003 and the screed is confirmed dry, the surface should be treated in line with the Contract Flooring Association requirements, the relevant British Standards and the advice of the adhesive manufacturers. Preparations remain the responsibility of the floor covering contractor and include lightly abrading the surface. This helps promote primer penetration, provides a key for adhesives and removes extraneous debris e.g. mortar, plaster and mud, and removes loose friable laitance. It is generally unnecessary to remove the top surface of the screed to expose an aggregated finish.



Gypsol ancillary products stockists and suppliers



Gypsol screed is a high quality, free flowing, self compacting anhydrite floor screed which offers huge benefits to all aspects of a construction project, including screed installers, builders, underfloor heating designers, main contractors and clients. Our aim is to make it easy for specifiers to select Gypsol screed as their flooring screed of choice. From time to time we are also asked for recommendations for products and materials that are suitable to be used in conjunction with the Gypsol screed.

Whilst we are not in a position to make specific recommendations for products which are not manufactured or tested by us, we are able to offer the names of companies who have products and systems which have been successfully used with Gypsol screeds. It is essential that suitable advice is sought from the manufacturers of such products in order to ensure their suitability for the application. We recommend that wherever possible materials based on gypsum are used on top of Gypsol screeds, although subject to correct preparation and adequate workmanship, products based on Portland cement may also be successfully used.



ADHESIVES & PRIMER

As there is no risk of ettringite reaction with gypsum based smoothing compounds and tile adhesives, it is generally acceptable to use an acrylic dispersion type primer. Some adhesives may not require a primer in all cases. For details on suitable primers consult the relevant manufacturers. Our recommendation is that where possible, the same manufacturer should be used to supply the primer as the selected smoothing compound.

It is the recommendation of BS 5385, the British standard code of practice for tiling to floors, that natural stone tiles e.g. travertine, marble and granite and limestone should be uncoupled from heated screeds regardless of screed type. Uncoupling can be achieved by using an uncoupling membrane, which is adhered to the prepared screed surface prior to the application of the tiles using a suitable adhesive.

Any underfloor heating within the screed MUST be commissioned and run prior to the application of bonded floor coverings including smoothing compounds and uncoupling membranes. See our data sheet "Underfloor Heating" for information on commissioning.

These lists are not exhaustive and other suppliers of suitable products may be available. LKAB Minerals cannot offer any warranty for the performance or suitability of products outside of its direct control, and relevant manufacturers advice should be sought where appropriate.

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SUPPLIERS OF GYPSUM COMPATIBLE SMOOTHING COMPOUNDS INCLUDE

Uzin Ltd.	+44 (0) 1788 530080	info@uzin.co.uk	www.uzin.co.uk
Weber Ltd.	+44 (0) 8703 330070	mail@netweber.co.uk	www.netweber.co.uk
F Ball and Co Ltd.	+44 (0) 1538 361633	mail@f-ball.co.uk	www.f-ball.co.uk
Tilemaster Adhesives Ltd.	+44 (0) 8452 080040	technical@tilemaster.co.uk	www.tilemasteradhesives.co.uk
Sika Ltd.	+44 (0) 1707 394444	sales@uk.sika.com	www.gbr.sika.com
Thomsit UK Ltd.	+44(0) 1234 355811	ian.guest@thomsit.co.uk	www.thomsit.com

SUPPLIERS OF GYPSUM COMPATIBLE TILE ADHESIVES INCLUDE

Norcros Ltd.	+44 (0) 1782 524140	sales@norcros-adhesives.com	www.norcros-adhesives.com
N&C Nicobond Ltd.	+44 (0) 2072 475432	head-office@nichollsand-clarke.com	www.nichollsand-clarke.com
Granfix Ltd.	+44 (0) 1773 607778	sales@granfix.co.uk	www.tileadhesive.co.uk
Kerakoll Ltd.	+44 (0) 1527 578000	info@kerakoll.co.uk	www.kerakoll.co.uk
Tilemaster Adhesives Ltd.	+44 (0) 8452 080040	technical@tilemaster.co.uk	www.tilemasteradhesives.co.uk
Sika Ltd.	+44 (0) 1707 394444	sales@uk.sika.com	www.gbr.sika.com
Thomsit UK Ltd.	+44(0) 1234 355811	ian.guest@thomsit.co.uk	www.thomsit.com

SUPPLIERS OF UNCOUPLING MEMBRANES INCLUDE

Schluter Systems Ltd.	+44 (0) 1530 813396	technical@schluter.co.uk	www.schluter.co.uk
Dural Ltd.	+44 (0) 1924 360110	duralukltd@netscape.net	www.dural.com
Genesis Systems Ltd.	+44 (0) 1642 713000	Unavailable	www.genesis-aps.com
Norcros Ltd.	+44 (0) 1782 524140	sales@norcros-adhesives.com	www.norcros-adhesives.com
Tilemaster Adhesives Ltd.	+44 (0) 8452 080040	technical@tilemaster.co.uk	www.tilemasteradhesives.co.uk

SUPPLIERS OF WOOD FLOORING ADHESIVES INCLUDE

Kerakoll Ltd.	+44 (0) 1527 578000	info@kerakoll.co.uk	www.kerakoll.co.uk
Sika Ltd.	+44 (0) 1707 394444	sales@uk.sika.com	www.gbr.sika.com
Bostik Laybond Ltd.	+44 (0)1785 272625	Unavailable	www.bostik.co.uk



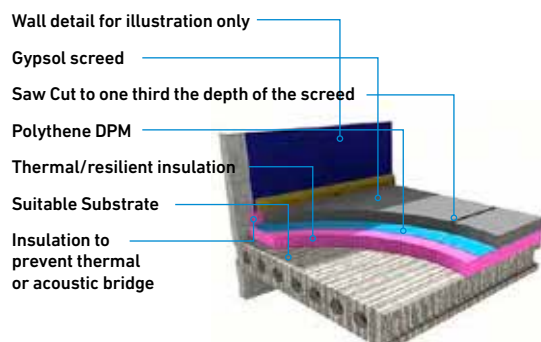
Gypsol Creating joints with the screed range



Gypsol screed is a high quality, free flowing, self compacting anhydrite floor screed, which offers huge benefits to all aspects of a construction project including screed installers, builders, underfloor heating designers, main contractors and clients.

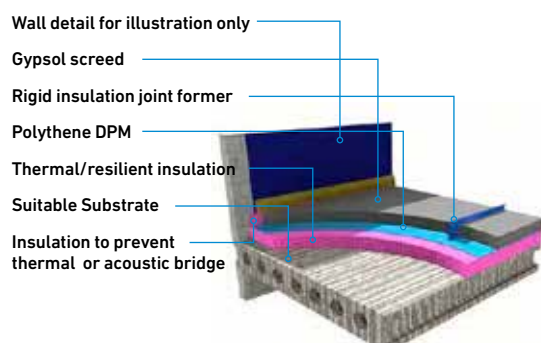
Our aim is to make it easy for specifiers to select Gypsol screed as their flooring screed of choice. It is important to pay attention to the design of the screed in order to ensure a trouble free installation that meets the performance expectations of the end user. In common with all screeds and concretes, Gypsol screeds should have joints at certain locations (see our "Design" data sheet for additional details). This data sheet gives information on how suitable joints can be created.





OPTION 1 : SAW CUT JOINTS

This option is likely to be unsuitable for use for screeds containing underfloor heating. However where appropriate the joint should be dry saw cut within the first 72 hours of the screed having been laid in order to minimise the risk of early age movement cracking. Saw cuts should be made at suitable positions using a 5mm disk cutter or other suitable equipment. Saw cuts should be made to a depth of one third of the depth of the screed, taking care to avoid damage to any under screed damp proof membranes or acoustic membranes. Where there is a risk of damage to conduits within the screed or any other critical design elements as a result of saw cuts then we suggest option 2 be adopted in preference. When dry saw cutting, appropriate PPE should be worn to prevent dust inhalation during the cutting phase



OPTION 2 : PREFORMED JOINTS

This option is considered suitable for use with all screeds. Preformed rigid insulation joint formers should be placed as part of the preparation phase at pre-specified locations ensuring that minimum bay sizes and maximum bay lengths are observed. The joint formers should ideally be cut to a depth of 5mm below the finished level of the screed to reduce the risk of lipping and meniscus. However, provided care is taken to measure the finished depth of the screed either side of the joint, standard depths can be used. Where underfloor heating pipes or other conduits are present and transfer across the joint, the rigid strip should be cut over the conduits using a suitable cutting tool. Any resultant void should be filled with a flexible filler prior to screeding, to ensure the screed is fully isolated across the joint. The conduits should be sleeved to allow pipe movement independently of the screed.

Additional notes

1. LKAB Minerals cannot guarantee any installation against cracking. However it is rare for Gypsol screeds to fracture due to movement cracking when correctly designed and installed
2. For information on where to source preformed rigid joint formers contact our technical and specification team on 0800 6226023
3. Joints should generally be between 5mm and 12mm in width. If placed to take account of expansion, the joints should extend through the full depth of the Gypsol screed
4. All joints in the screed should reflect through any subsequent bonded floor covering
5. Joint positions should be specified prior to the installation of the Gypsol screed and full consultation between all parties including the main contractor, underfloor heating installer, finished flooring installer and the Gypsol screed installer should take place to determine appropriate

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Gypsol high quality anhydrite floor screed. Easy to specify, design & install.



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This datasheet goes through the simple steps to ensure that Gypsol screed is specified, designed and installed correctly for the application in which it is being used.

For further assistance with design and to obtain a NBS Specification please contact our Technical and Specifications team.



Additional information

Edge strips should be of an extruded polyethylene type with a laminated polythene skirt attached. The shape of the room and the aesthetic effect on the subsequent floor coverings should be taken into account when designing joint configurations and bay sizes. Additional joints must be placed between independently controlled heating circuits, between heated and unheated screed areas and in areas of high thermal gain.

Bay joints should be formed using rigid joint formers where possible, which can be placed during the preparation phase and will remain in place during operation. Ideally the joint former should be 5mm lower than the finished Gypsol screed depth to allow a smooth transition in height between bays. Where joints are saw cut, beware of any embedded pipes or cables within the screed. See our additional data sheet entitled "Forming Joints" for further information on creating suitable joints within screeds.

Minimum depth ^[1]

Floating	Domestic	35 mm
	Commercial	40 mm
Unbonded		30 mm
Bonded		25 mm
Underfloor heating		25 mm cover to pipes

In all cases the nominal depth should be as close to the minimum depth as possible to avoid excessive drying times. Suitable insulation can be used as a void filler where deeper floor sections are required. [1] Gypsol HTC, TS-15 and TS-20 may be applied to thinner depths. See relevant datasheet for further details.

Maximum bay sizes

Underfloor heated	All cases	300 m ²	Aspect ratio 6:1
Unheated	Floating	1 000 m ²	Aspect ratio 8:1
	Unbonded	1 000 m ²	Aspect ratio 8:1
	Bonded	1 000 m ²	Aspect ratio 8:1

As with all screeds, joints should reflect structural joints in the substrate. Care should be taken to ensure that joints within the screed are suitably placed to take account of joint requirements in finished floor coverings.

Bay length

Floating	Domestic	40 mm
	Commercial	40 mm
Unbonded		40 mm
Bonded		40 mm
Underfloor heating		20 mm

Consideration should be given to take account of maximum bay length, maximum bay size and aspect ratio. For example a corridor 2m wide will require a joint frequency of 1 joint per 16m if unheated where as a room of 20m x 25m is likely to need no joints.

Edge detailing

In common with all screeds, Gypsol screed should be isolated at all edges, abutments and columns. This is to ensure adequate allowance is given for the screed to undergo the maximum positive movement under the application or removal of thermal loadings.

Edge strip width

Heated screed	8 mm (typically 10 mm)
Unheated screed	5 mm

Linear Co-Efficient of Thermal Expansion (typical) = 12×10^{-6} m/mK

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Gypsol A guide to effectively preparing screeds



This datasheet provides a guide to the steps required to ensure that Gypsol screeds are properly prepared to receive floor coverings. It may not cover all eventualities, and should be used in conjunction with our other data sheets where appropriate, and where manufacturers of other products are used the relevant manufacturer's advice should be followed.



Gypsol Screeds are suitable to receive all types of floor coverings including tiles, carpets, vinyl, timber and epoxy resin screeds.

Damp proof membranes may be used on Gypsol screeds subject to them being unheated, below 1.5% moisture and them having achieved sufficient strength to satisfy the mechanical requirements of the application (minimum 28 days old). Due to the potential inaccuracies of using hygrometers at high humidity levels a direct measurement should be used such as carbide bomb or oven dried sample. An indicative survey to determine the wettest area and thus suitable test points may be carried out with a simple electronic meter.

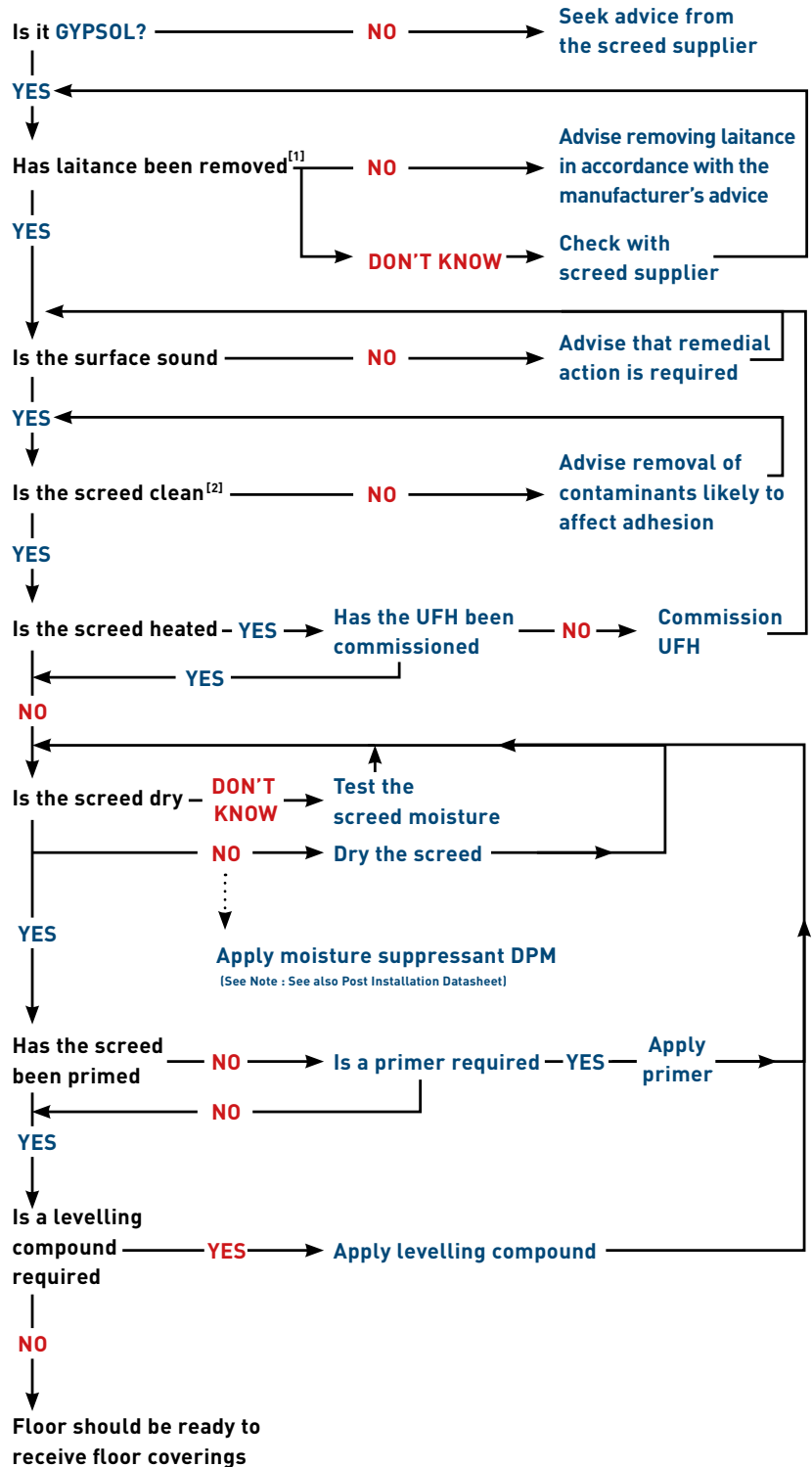
The requirements for primers and primer types will be dependent on the nature and type of floor coverings and/or smoothing compounds to be used. Preparation for floor coverings should remain part of the floor coverings contract.

[1] All screeds and concretes produce a laitance. Low Laitance screeds are available from some manufacturers. Whilst these screeds often produce less friable laitance they should not be considered laitance free and may still require some sanding to remove this.

[2] It should be noted that best practice dictates that all screeds require lightly abrading as part of the preparation to receive bonded floor coverings. This helps to remove surface contamination and promotes a key for primers and adhesives.

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Flooring flowchart



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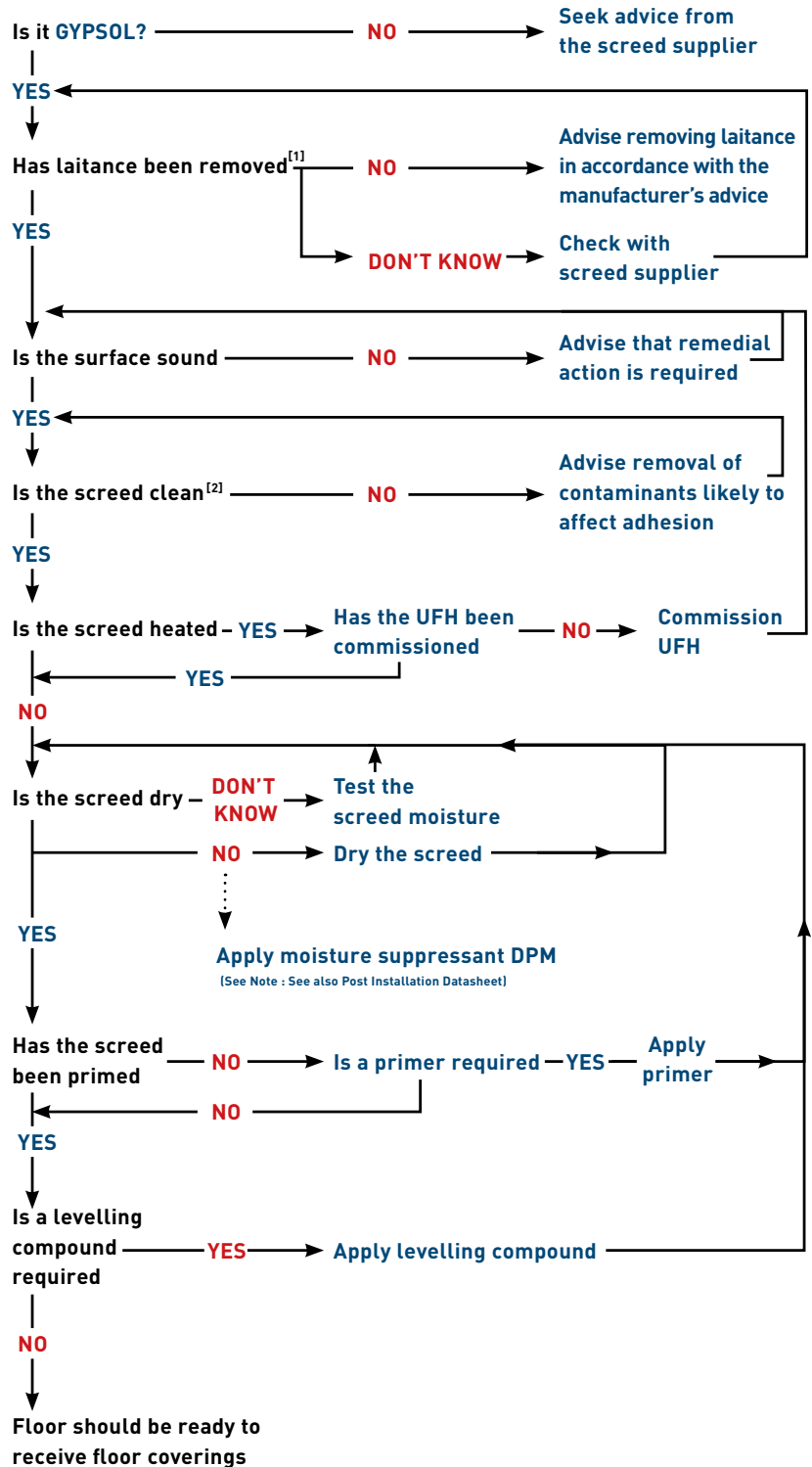
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Flooring flowchart



Gypsol

For use with underfloor heating and cooling systems



Gypsol High Thermal Conductivity (HTC) is one of many great innovations in flowing screed technology from LKAB Minerals. Gypsol HTC is a screed specifically designed for use with underfloor heating and cooling systems. It may be used with conventional heat sources as well as with renewable technologies. It is not pipe specific and is suitable for use with any underfloor heating system and in any type of construction, subject to suitable engineering. It is suitable for use over timber floors, Lewis decking, and more traditional concrete and masonry systems.

Suitable for both new build and refurbishment projects, Gypsol HTC offers an environmentally friendly screed to help improve the sustainability criteria of your project. Gypsol HTC is available from our manufacturing partners, and may be installed by any of their approved installers. It can be used to thinner depths than conventional screeds, requiring just 20mm minimum cover to pipes, subject to substrate suitability. Gypsol HTC is suitable for use with all types of floor covering, and is compatible with the Gypsol Rustique Sealer (see Rustique datasheet), and offers the ultimate in underfloor heating efficiency and comfort.



Case study - Energy efficient self-build house

This energy efficiency home was built to achieve level 6 under the Code for Sustainable Homes. Features include photovoltaic roof tiles, solar panels and a low temperature ground source heat pump. Underfloor heating was specified at both ground and first floor levels.

The designer needed a screed which could respond quickly to changes in air temperature within the house, both in terms of heating and cooling. A thin section of screed was required to reduce material use and help reduce the amount of screed to be warmed. It also needed to be easy to place at both floor levels, as well as fully encapsulate the underfloor heating pipes.

Gypsol HTC was able to meet all of the requirements of the specification and offer additional benefits. Gypsol screed can be laid thinner than traditional screeds, and in this project the depth on both floors was reduced from 75mm to 50mm. Gypsol HTC achieves high levels of energy efficiency at very low flow temperatures -fitting perfectly with the ground source heat pump in this project. An increase in the depth of insulation was also possible due to the reduction of screed depth, improving the overall performance of the floor. The raw material in Gypsol is a by-product of the chemical industry and requires no high energy processing. This reduces the product's carbon foot print considerably when compared to traditional sand and cement.



WHAT'S SPECIAL ABOUT GYPSOL HTC?

In addition to all of the usual benefits available with Gypsol screeds ^[1] Gypsol HTC also offers:

- Designed specifically for use with underfloor heating/cooling systems
Suitable for both warm water and electric underfloor heating
- High Thermal Conductivity
Independent tests achieved 2.5W/mK ^[2]
For UK calculations use 2.3W/mK ^[3]
- Reduced depth
Minimum 20mm cover required to underfloor heating conduits ^[4]
- High Strength
Minimum C30-F5
- Complete versatility of design
Suitable for all types of underfloor heating pipe or cable
Can be installed by any suitability trained Gypsol installer ^[5]
- Better heating performance
Complete pipe encapsulation allows easy heat transfer
Suitable for any heating system and pipe size
- Low flow temperatures
Reduced energy consumption and CO2 emissions
Reduced heating costs
- Low thermal inertia and rapid response
Heats up quickly and cools quickly allowing greater system control
Improved comfort level and reduced thermal "overshoot"

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[1] See "Gypsol Range of Screeds" Data sheet

[2] Tested to ASTM 1530 by Warwick University using normative sample.

[3] Allows for testing tolerances

[4] Some cosmetic pipe mapping may be observed

[5] For installers contact your local Gypsol technical and specification manager on 0800 6226023



Gypsol

Designed specifically for use in modular construction systems



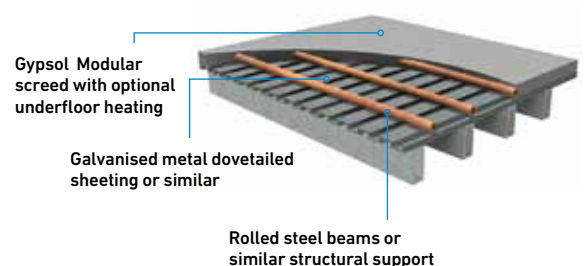
Gypsol Modular self compacting flowing screed is made to exacting standards by quality assured manufacturers to BS EN 13813:2002. It is a combination of high quality Gypsol binder, specially selected sands, water and special additives where required. It is designed specifically for use in Modular construction systems and screed is suitable for the encapsulation of an underfloor heating system, either electric or warm water.

Gypsol Modular is suitable for use in both residential and commercial property, including apartments, schools, prison units, hospitals and single dwellings where light weight and durable modular floors are required. Gypsol Modular

screed also improves the environmental and durability characteristics and gives a concrete feel to a light weight steel floor.

For project specific advice on design and for a Model NBS Specification Template, contact our technical and specifications team on 0800 6226023.

Typical application schematic



Case study - Hillingdon Hospital Medical Unit

All Gypsol screeds are protein free, meaning they don't harbour harmful bacteria such as C-Difficile and E-Coli, and making them the perfect choice for use in hospitals. This project, a new medical unit, required 3,500m² of floor area to be installed. The project was constructed off-site in small units by Carlton-on-Trent based modular specialist, Caledonian Modular. A timber floor was considered as an alternative to concrete, but in order to make it functional the client required a concrete covering, or similar. Traditional concrete proved to be expensive, labour intensive and gave problems with transport due to weight issues.

Caledonian Modular contacted our technical team and Gypsol Modular screed was suggested as an alternative. Gypsol Modular is a high strength material with ingredients that help with strength gain and moisture loss. It can be laid thinner than traditional concrete, saving weight and making transportation easier. Gypsol Modular also offers environmental benefits as it is made using a bi-product of the chemical industry and is classed as a recycled product. Gypsol Modular helped the builder to overcome a number of other challenges including fast setting and hardening to allow modules to be moved within the factory, quick drying to allow the application of floor coverings soon after delivery onto the final site, achieving the strength criteria appropriate for a hospital project, and finally it was very cost effective.



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Physical data

Appearance	Off white fluid mortar	
Density	Wet	2200kg/m ³
Unbonded	Dry	2000kg/m ³
Minimum Strength	C30-F6	
Required Flow (EN 13454-2)	230mm to 270mm	
Reaction to Fire	Class A1 _{fl} non combustible	

Performance data

Working Time	Place and finish within 3 hours of batching	
Foot Traffic	24 to 48 hours	
Loading	5 to 7 days	
Drying (50mm depth)	At 20°C and 60% RH - 28 days ^[1] Active force drying - 13 days ^[1] Drying times vary dependent on screed depth, ambient conditions and suitability of the building envelope. ^[1] Independently tested and verified by Action Dry Ltd. Full report available on request. C30-F6	
Force Drying	Can be force dried after 7 days	

Environmental data

Recycled Content	Binder	98%
	Mortar up to	40%
Carbon Emissions	Binder	10 to 30kg/tonne
Minimum Strength	Mortar	30 to 50kg/m ³
VOC	Virtually zero	
Recyclability	100%	

Health and safety data

Gypsol Modular screeds are delivered to site ready-to-use via offsite mixing plants, removing the need for labour intensive site mixing and associated mixing equipment. **Gypsol Modular** screeds are pumped directly to where they are needed, removing much of the manual handling operations required to install other screeds. **Gypsol Modular** screeds are generally pumped using equipment with closed or gridded dispensing hoppers, removing risk of contact with moving machinery. **Gypsol Modular** screeds are finished using a lightweight dappling bar requiring no secondary compaction, thus removing most of the physical work needed to lay other screeds. This significantly reduces the negative impact on the musculo-skeletal system of installing contractors. For material safety information please see the relevant health and safety data sheets.

Gypsol screed offers benefits to all types of construction project



Gypsol screed is a high quality free flowing, self compacting anhydrite floor screed which offers huge benefits to all aspects of a construction project, including screed installers, builders, underfloor heating designers, main contractors and clients. Our aim is to make it easy for specifiers to select Gypsol screed as their flooring screed of choice.

It is important to pay attention to the treatment of the Gypsol screed after it has been installed in order to ensure that the maximum benefits can be extracted. It is equally important that follow-on trades understand the material and how it should be treated in order to ensure that subsequent floor coverings remain trouble free.



Post installation up to 48 hours

Gypsol screed, having been installed into a suitably sealed building envelope, should be protected from ingress of water and extremes of temperature. External windows and door openings should remain closed in order to allow the screed to set. The screed may be trafficked by light foot traffic after 24 to 48 hours from installation. Gypsol screed is self curing and therefore does not require a curing membrane. The finished screed should not be excessively heated during this period, although keeping the environment at or around 20°C is beneficial. Significant air movement across the screed should be avoided in order to reduce the risk of plastic shrinkage cracking.

48 hours to 7 days

After 48 hours the Gypsol screed is ready to begin drying. It is of significant benefit at this stage to provide as much ventilation as is reasonably practicable, whilst maintaining protection for the screed from ingress of external water. Windows and doors can remain open for as long as possible, assuming conditions allow, during the working day. This will help to provide good air exchange to remove moisture from the air above the screed, and allow the residual moisture to escape. After 72 hours dehumidifiers may be introduced to assist the drying process if desired. Between 72 hours and 7 days any loose or friable surface laitance may be removed by lightly sanding with a rotary floor sander and a medium grit sanding disc or other suitable means of removal. Foot traffic can continue during this period.

After 7 days

The Gypsol screed can now be loaded and the work area returned to full service. Underfloor heating can be commissioned and run and unlike cement based screeds which cannot be heated for 28 days or force dried at all, Gypsol screeds can be force dried either using the underfloor heating, or using space heaters and fans. In either case it is important to remove the moisture from the air above the screed either by ventilation, extraction or dehumidification in order to allow the screed to dry properly. This assists greatly with early preparation for floor coverings. If space heaters are used these should not be of the fossil fuel variety e.g. gas burners as the burning of gas emits moisture back into the air reducing the benefit of heating significantly. Electrical or forced air movement heaters are suitable. Protection during the remainder of the construction period should continue in order to protect the Gypsol screed from re-wetting which could delay the drying period. It is not however desirable that the screed should be covered with impervious sheeting during construction.

Prior to floor covering installation

In accordance with the relevant national standards for floor coverings the surface of the screed should be inspected and should satisfy the following:

1. It should be clean and free from chemicals likely to interfere with adhesion
2. It should be sound, hard and free from fractures other than planned joints
3. It should be free from loose friable laitance, dust, construction debris and loose surface contamination e.g. mud, building adhesive and bricklaying mortar
4. It should be suitably dry or an approved method of moisture management such as a damp proof membrane or uncoupling technology employed (see additional notes)
5. Any underfloor heating must have been commissioned and run

Additional notes

Moisture testing is carried out using a suitable approved method such as a flooring hygrometer or carbide bomb test. Once dry the floor should be cleared of any gross debris and then thoroughly vacuumed to remove any small loose dust and debris. Damp proof membranes can be used on Gypsol screeds subject to them being unheated, below 1.5% moisture and them having achieved sufficient strength to satisfy the mechanical requirements of the application (minimum 28 days old). Due to the potential inaccuracies of using hygrometers at high humidity levels a direct measurement should be used such as Carbide Bomb or oven dried sample.

Where surface moisture levels are below 95% relative humidity and at least seven days old, the Norcross Pro-Gyp Fast Track System may be used in accordance with manufacturers instructions. If the floor requires priming any primer should be selected for its suitability for use with calcium sulphate or anhydrite screeds. If a smoothing compound is to be used it should ideally be one made using calcium sulphate although subject to suitable priming one based on Portland cement could be used. If a cement based smoothing compound is to be used it is often beneficial to select a water dispersible epoxy primer.

If the floor is to be tiled a flexible adhesive based on calcium sulphate is likely to offer the most robust combination. Again, subject to suitable priming, it is possible to use an adhesive based on Portland cement. Gypsol screeds are also suitable to receive epoxy resin toppings subject to suitable preparation and priming.

Alternatively it may be desirable to use a proprietary uncoupling membrane. These are available for both soft flooring such as vinyl or for tile surfaces. It is a recommendation of BS 5385 that natural stone tiles should be uncoupled from heated screeds. The manufacturers of Gypsol screeds do not generally manufacture or supply primers, adhesives, damp proofing membranes or uncoupling technology. Whilst advice is based on sound principals and qualified expertise it is recommended that in all instances the relevant manufacturer's advice should be followed in order to ensure suitable warranties are in place.

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Gypsol screed offers benefits to all types of construction project



Gypsol screed is a high quality free flowing, self compacting anhydrite floor screed which offers huge benefits to all aspects of a construction project, including screed installers, builders, underfloor heating designers, main contractors and clients. Our aim is to make it easy for specifiers to select Gypsol screed as their flooring screed of choice.

It is important to pay attention to the treatment of the Gypsol screed after it has been installed in order to ensure that the maximum benefits can be extracted. It is equally important that follow-on trades understand the material and how it should be treated in order to ensure that subsequent floor coverings remain trouble free.



Post installation up to 48 hours

Gypsol screed, having been installed into a suitably sealed building envelope, should be protected from ingress of water and extremes of temperature. External windows and door openings should remain closed in order to allow the screed to set. The screed may be trafficked by light foot traffic after 24 to 48 hours from installation. Gypsol screed is self curing and therefore does not require a curing membrane. The finished screed should not be excessively heated during this period, although keeping the environment at or around 20°C is beneficial. Significant air movement across the screed should be avoided in order to reduce the risk of plastic shrinkage cracking.

48 hours to 7 days

After 48 hours the Gypsol screed is ready to begin drying. It is of significant benefit at this stage to provide as much ventilation as is reasonably practicable, whilst maintaining protection for the screed from ingress of external water. Windows and doors can remain open for as long as possible, assuming conditions allow, during the working day. This will help to provide good air exchange to remove moisture from the air above the screed, and allow the residual moisture to escape. After 72 hours dehumidifiers may be introduced to assist the drying process if desired. Between 72 hours and 7 days any loose or friable surface laitance may be removed by lightly sanding with a rotary floor sander and a medium grit sanding disc or other suitable means of removal. Foot traffic can continue during this period.

After 7 days

The Gypsol screed can now be loaded and the work area returned to full service. Underfloor heating can be commissioned and run and unlike cement based screeds which cannot be heated for 28 days or force dried at all, Gypsol screeds can be force dried either using the underfloor heating, or using space heaters and fans. In either case it is important to remove the moisture from the air above the screed either by ventilation, extraction or dehumidification in order to allow the screed to dry properly. This assists greatly with early preparation for floor coverings. If space heaters are used these should not be of the fossil fuel variety e.g. gas burners as the burning of gas emits moisture back into the air reducing the benefit of heating significantly. Electrical or forced air movement heaters are suitable. Protection during the remainder of the construction period should continue in order to protect the Gypsol screed from re-wetting which could delay the drying period. It is not however desirable that the screed should be covered with impervious sheeting during construction.

Prior to floor covering installation

In accordance with the relevant national standards for floor coverings the surface of the screed should be inspected and should satisfy the following:

1. It should be clean and free from chemicals likely to interfere with adhesion
2. It should be sound, hard and free from fractures other than planned joints
3. It should be free from loose friable laitance, dust, construction debris and loose surface contamination e.g. mud, building adhesive and bricklaying mortar
4. It should be suitably dry or an approved method of moisture management such as a damp proof membrane or uncoupling technology employed (see additional notes)
5. Any underfloor heating must have been commissioned and run

Additional notes

Moisture testing is carried out using a suitable approved method such as a flooring hygrometer or carbide bomb test. Once dry the floor should be cleared of any gross debris and then thoroughly vacuumed to remove any small loose dust and debris. Damp proof membranes can be used on Gypsol screeds subject to them being unheated, below 1.5% moisture and then having achieved sufficient strength to satisfy the mechanical requirements of the application (minimum 28 days old). Due to the potential inaccuracies of using hygrometers at high humidity levels a direct measurement should be used such as Carbide Bomb or oven dried sample.

Where surface moisture levels are below 95% relative humidity and at least seven days old, the Norcross Pro-Gyp Fast Track System may be used in accordance with manufacturers instructions. If the floor requires priming any primer should be selected for its suitability for use with calcium sulphate or anhydrite screeds. If a smoothing compound is to be used it should ideally be one made using calcium sulphate although subject to suitable priming one based on Portland cement could be used. If a cement based smoothing compound is to be used it is often beneficial to select a water dispersible epoxy primer.

If the floor is to be tiled a flexible adhesive based on calcium sulphate is likely to offer the most robust combination. Again, subject to suitable priming, it is possible to use an adhesive based on Portland cement. Gypsol screeds are also suitable to receive epoxy resin toppings subject to suitable preparation and priming.

Alternatively it may be desirable to use a proprietary uncoupling membrane. These are available for both soft flooring such as vinyl or for tile surfaces. It is a recommendation of BS 5385 that natural stone tiles should be uncoupled from heated screeds. The manufacturers of Gypsol screeds do not generally manufacture or supply primers, adhesives, damp proofing membranes or uncoupling technology. Whilst advice is based on sound principals and qualified expertise it is recommended that in all instances the relevant manufacturer's advice should be followed in order to ensure suitable warranties are in place.

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Gypsol Practical advice on screed floor preparation



At LKAB Minerals, we pride ourselves on the quality and accuracy of information and advice we offer to not only our direct customers, but also to associated trades and stakeholders. Unfortunately there is a considerable amount of misinformation or misunderstanding about the preparation of floor screeds to receive floor coverings. This is particularly true of calcium sulphate screeds.



It is true to say that some calcium sulphate screeds leave an obvious, friable and loose laitance on the surface which needs to be removed. This is usually achieved by means of light sanding using an STR floor sander with a medium, or 60grit paper, prior to the application of floor covering. The amount of laitance will depend on the mix design at a local level (available sands etc) and it is generally accepted say that this laitance is only an issue from an aesthetic point of view.

To complicate matters, "Low Laitance" option calcium sulphate screeds are available from some screed producers. It is interesting that these are "Low Laitance" not "No Laitance" products. Additionally, some "Low Laitance" formulations result in a very tight closed screed surface, which can make it more difficult for primers and adhesives to find a key. It is therefore just as important that these screeds are sanded. Even the manufacturers of such screeds acknowledge the need for sanding prior to the application of floor coverings.



Good practice dictates that all flooring substrates should receive a light sanding, and vacuuming to remove dust and debris, as part of floor preparation prior to the installation of floor covering. Indeed, page 66 of the guide to contract flooring, produced by the Contract Flooring Association states: "All substrates will require a degree of mechanical cleaning or preparation and a visual inspection or manual sweeping is not adequate under any circumstances..."

Furthermore, most adhesive manufacturers will recommend sanding or abrading the surface of all substrates before the application of their adhesives. These recommendations also include sand/cement screeds and even concrete. For Example Sika Floor 81 datasheet states: "Concrete substrates must be prepared mechanically using abrasive blast cleaning or scarifying equipment to remove cement laitance and achieve an open textured surface." Similarly, F Ball and Co's subfloor preparation datasheet states: "Laitance is always present on new concrete bases and screeds and should be removed."

It is said that sanding the surface of the screed (or other substrate), not only cleans the floor of dirt and debris from the build process, but opens up the surface to allow the penetration of primers. It also provides a "key" for the adhesive to grip onto.

It can be seen from the above that regardless of the presence of any laitance, sanding and vacuuming, is part of the floor preparation process in order to receive floor coverings. Therefore it is wrong to state that calcium sulfate screeds require sanding when other screeds do not. It is however correct to say that any laitance on the screed will be removed during the floor preparation process, and since the floor is to be sanded anyway, this laitance is not an issue.

The floor coverings contractor in general, will have the necessary expertise to determine the level and nature of substrate preparation required for any given floor covering. Additionally, the suitability of the preparation is likely to affect the floor layers ability to offer a warranty. As sanding of the screed is considered by the relevant trade bodies as part of the general floor preparation requirements, it is extremely important to consider carefully who takes contractual responsibility for the sanding operation.

For complete information this guide can be used in conjunction with LKAB Minerals Data sheets regarding "Post Installation", "Ancillary Products" and our useful "Floor Coverings Flow Chart" found at <http://www.gypsol.co.uk/Technical/technical.html>

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For complete information this guide can be used in conjunction with LKAB Minerals Data sheets regarding "Post Installation", "Ancillary Products" and our useful "Floor Coverings Flow Chart" found at <http://www.gypsol.co.uk/Technical/technical.html>

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Gypsol Summit

A screed specifically designed for use in high rise applications



Gypsol Summit self compacting flowing screed is made to exacting standards by quality assured manufacturers to BS EN 13813:2002. It is a combination of high quality Gypsol binder, specially selected sands, water and special additives where required. It is designed specifically for use in high rise applications where the screed needs to be pumped to ten stories and above without the danger of segregation. Care must be taken to ensure that the pump used is suitable for the application e.g. a multi cylinder piston pump. The screed is suitable for the encapsulation of an underfloor heating system, either electric or warm water.

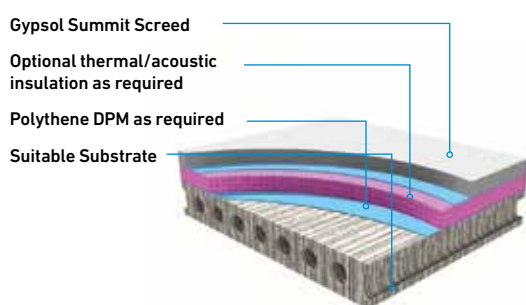
Gypsol Summit is suitable for most construction types including steel frame, concrete frame, lightweight steel and traditional masonry construction. It is suitable for residential and commercial properties, and where required can be used to improve the acoustic performance of the floor to meet or exceed Part E of building regulations. Gypsol Summit screed also improves a floor's environmental and durability characteristics, and gives a concrete feel to a timber floor. For project specific advice on design and for a Model NBS Specification Template contact our technical and specifications team on 0800 6226023.



Case study - Apartments for Barratt Homes

Gypsol Summit is suitable for high rise applications where the screed needs to be pumped above 10 stories. For this project screed needed to be pumped to 26 floors had to be guaranteed to achieve a minimum of 80kg/m². In addition each apartment required a resilient acoustic membrane to ensure that the building met the relevant building regulations with regard to sound transmission. The screed needed to be manufactured off site before delivery and installation to minimise disruption to the surrounding area. Gypsol Summit not only exhibited the right density criteria, but also allowed the screed to be pumped from a single ground level pump directly to the part of the building it was required. The in-situ concrete slab, used to form the structural floor slab at intermediate floor level, was cleaned prior to the installation of the resilient acoustic membrane. Underfloor heating and 50mm of Gypsol Summit screed were installed. Like other screeds and concretes, and to meet the standards of the contract flooring association's guide, the screed surface was fully sanded to remove laitance and other extraneous construction debris prior to the installation of loose lay carpets, tiles and vinyl floor coverings.

Typical application schematic



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Physical data

Appearance	Off white fluid mortar	
Density	Wet	2200kg/m ³
	Dry	2000kg/m ³
Minimum Strength	(28 days)	C25-F4
Required Flow	(EN 13454-2)	230mm to 270mm
Reaction to Fire	Class A1 _{fl} non combustible	

Performance data

Working time	place and finish within 3 hours of batching
Foot traffic	24 to 48 hours
Loading	5 to 7 days
Drying (50mm depth)	At 20oC and 60% RH - 28 days ^[1] Active force drying - 13 days ^[1]
	Drying times vary dependent on screed depth, ambient conditions and suitability of the building envelope.
	^[1] Independently tested and verified by Action Dry Ltd. Full report available on request.
Force drying	Can be force dried after 7 days

Environmental data

Recycled content	Binder	98%
	Mortar	Up to 40%
Carbon emissions	Binder	10 to 30kg/tonne
	Mortar	30 to 50kg/m ³
VOC	Virtually zero	
Recyclability	100%	

Health and safety data

Gypsol Summit screeds are delivered to site ready to use via offsite mixing plants, removing the need for labour intensive site mixing and associated mixing equipment.

Gypsol Summit screeds are pumped directly to where they are needed, removing much of the manual handling operations required to install other screeds.

Gypsol Summit screeds can be pumped to height, removing need for cranes and skips and other lifting equipment.

Gypsol Summit screeds are finished using a lightweight dappling bar, requiring no secondary compaction and thus removing most of the physical work needed to lay other screeds. This significantly reduces the negative impact on the musculoskeletal system of installing contractors. For material safety information please see the relevant health and safety data sheets.

Gypsol

A complete bagged Gypsol based floor screed from CCF



When added to the requisite amount of water, Gypsol SureFlo produces a flowing screed that requires minimal dappling for a smooth and level surface. Designed with a combination of high quality Gypsol binder and specially selected aggregates.

Gypsol SureFlo can be used to prepare a wide variety of sub-floors to receive tile, carpet, resilient flooring, wood flooring, as well as many other surface finishes.



Key features

- Trafficable in 24 – 48 hours
- Thinner sections compared to traditional screeds, saving weight on the building
- Readily pumpable for larger installations, without separation
- Easily hand mixed using a mechanical stirrer for small batches
- Protein free – does not encourage bacterial growth
- Low shrinkage
- Larger floor area without control joints
- High strength – class C30-F5
- VOC free and non toxic
- Odourless and non-flammable
- Environmentally friendly
- Does not curl
- Crack resistant

Approximate coverage

Area	Depth (No. of 25kg bags required)		
	30mm	35mm	40mm
5m ²	12	14	16
10m ²	23	27	31
15m ²	35	40	46
20m ²	46	54	61

Application

- Bonded construction for minimal depth in new and refurbished floors
- Un-bonded to exclude rising moisture by uncoupling from unsuitable bases
- Floating floors for thermal or acoustic insulation
- Under-floor heating pipe encapsulation

Mixing

- Product should be mechanically mixed using slow speed drill with mixing paddle (250 rpm) to avoid requirement for excessive water. Alternatively a pump with a forced action mixing system may be used
- Avoid whipping excessive air in to mixes
- Add Gypsol SureFlo powder to water (approximately 3.75-4.25 litres per bag) and mix for 2-4 minutes to achieve a homogeneous, flowable, fluid mortar consistency
- Be consistent from batch to batch once optimum ratio for job has been determined

Placement

- Pour or pump Gypsol SureFlo in place and spread with screed float or squeegee
- No trowelling is required. Do not re-temper material which has begun to set
- Any material not used within 1 hour of mixing should be discarded
- Gypsol SureFlo does not require curing or covering
- Avoid product drying too quickly when working in hot, dry and/or windy conditions
- Do not apply if ambient temperature is above or likely to exceed 30°C during the first 3 hours after application. After this initial period, the product should be allowed to dry cure
- Gypsol SureFlo must be kept from freezing for 12 hours after installation. Do not apply at temperatures below 5°C or when temperatures will drop below 5°C within 8 hours of application

Storage and handling

- Store Gypsol SureFlo in unopened bags in a dry area off the floor
- Avoid skin and eye contact and avoid breathing dust
- Keep packages closed when not in use

Technical data

Colour	Off white		Typical strengths at 28 days:	
Density	Wet	2200kg/m ³	Flexural	>5 N/mm ²
	Dry	2000kg/m ³	Compressive	>30 N/mm ²
Minimum Strength	Bonded	25mm	Flow	250 +/- 20mm
	Unbonded	30mm	Setting time	Initial >240 min
	Floating	40mm	Drying shrinkage	<0.02%
	Cover to heating conduits	25mm	Light foot traffic	Minimum 24 to 48 hours @ 20°C
	Reaction to fire		Class A1 _f	

Drying (50mm depth)

At 20°C and 60% RH - 28 days^[1]. Active force drying - 13 days^[1]
Drying times vary dependent on screed depth, ambient conditions and suitability of the building envelope.

^[1] Independently tested and verified by Action Dry Ltd. Full report available on request.

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Gypsol

High quality anhydrite floor screed for timber joisted structures



Gypsol TimBRE self compacting flowing screed is made to exacting standards by quality assured manufacturers to BS EN 13813:2002. It is a combination of high quality Gypsol binder, specially selected sands, water and special additives where required. It is designed specifically for use in acoustic and non acoustic flooring systems which use timber joists as their primary supporting structure.

Gypsol TimBRE screed is suitable for the encapsulation of an underfloor heating system, either electric or warm water. Gypsol TimBRE is suited to both residential and commercial properties, and will help to improve the acoustic performance of the floor to meet or exceed Part E of the building regulations. Gypsol TimBRE screed also improves the environmental, fire resistance and durability characteristics and gives a concrete feel to a timber supported floor.

Where Gypsol TimBRE screed is designed to be used in conjunction with a compressible, or an acoustic resilient insulation, an acoustician should be consulted to approve the design prior to installation where acoustic performance is required. For project specific advice on design and for a Model NBS Specification Template, contact our technical and specifications team on 0800 6226023



It is essential that the timber supporting structure is suitably engineered to accommodate the increased loading associated with the screed.

Health and safety data

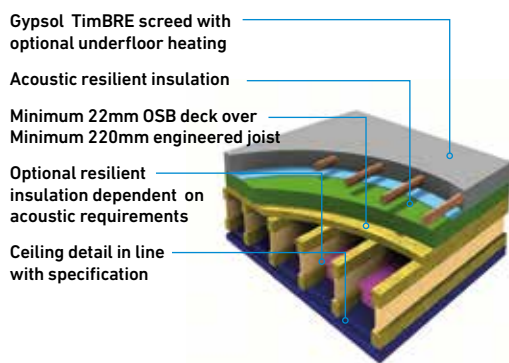
Gypsol TimBRE screeds are delivered to site ready to use via offsite mixing plants, removing the need for labour intensive site mixing and associated mixing equipment.

Gypsol TimBRE screeds are pumped directly to where they are needed, removing much of the manual handling operations required to install other screeds.

Gypsol TimBRE screeds are generally pumped using equipment with closed or gridded dispensing hoppers, removing risk of contact with moving machinery.

Gypsol TimBRE screeds are finished using a lightweight dappling bar requiring no secondary compaction, thus removing most of the physical work needed to lay other screeds. This significantly reduces the negative impact on the musculo-skeletal system of installing contractors. For material safety information please see the relevant health and safety data sheets.

Typical application schematic



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Physical data

Appearance	Off white fluid mortar	
Density	Wet	2200kg/m ³
	Dry	2000kg/m ³
Minimum Strength	(28 days) kN/m ²	C35-F6
Required Flow	(EN 13454-2)	230mm to 270mm
Reaction to Fire	Class A1 _{fl} non combustibile	

Performance data

Working time	place and finish within 3 hours of batching	
Foot traffic	24 to 48 hours	
Loading	5 to 7 days	
Drying (50mm depth)	At 20°C and 60% RH - 28 days ^[1]	
	Active force drying - 13 days ^[1]	
	Drying times vary dependent on screed depth, ambient conditions and suitability of the building envelope. ^[1] Independently tested and verified by Action Dry Ltd. Full report available on request.	
Force drying	Can be force dried after 7 days	

Environmental data

Recycled content	Binder	98%
	Mortar	Up to 40%
Carbon emissions	Binder	10 to 30kg/tonne
	Mortar	30 to 50kg/m ³
VOC	Virtually zero	
Recyclability	100%	

Gypsol

High quality ultra thin screed for bonded and unbonded applications



Gypsol TS-15 screed is a revolutionary new anhydrite screed material. It is specially formulated to offer a strong and durable ultra-thin topping to a solid interior substrate, for example, in situ concrete or beam and block or precast concrete plank. Tested to BS 8204:1:2003 it meets the requirements for class A for impact resistance. Due to its ultra-thin depth, just 15mm minimum, TS-15 can be dried quickly allowing rapid return to service and application of finished floor coverings.

Gypsol TS-15 is perfectly suited to flooring applications where height is extremely restricted and offers a lightweight cost effective alternative to smoothing compounds. It can be installed extremely quickly to at least 2000m² per day. This represents a significant saving in time when compared to bagged, site mixed smoothing compounds and levelling screeds.

Gypsol TS-15 screed is designed to be laid to a minimum of 15mm depth and can be used either bonded directly to a solid substrate prepared in accordance with BS 8204:7:2003 or un-bonded on a polythene membrane.



For project specific advice on design and for a model specification, contact our technical and specifications team on 0800 6226023

Some typical applications include:

- Refurbishment of old uneven floors.
- Remediation or correction for out of level concrete slabs
- As a levelling screed over floors where floor to ceiling height is very restricted.
- Sub floor levelling in preparation to receive finished floor coverings.
- Overlay for poorly levelled screeds
- As an alternative to light weight screeds

Case study - Retail refurbishment

This project was a 4,500m² retail refurbishment. National screed installation specialist, Screedfloor Ltd, was asked to install a thin screed over an existing 4500m² rough concrete floor. The options available were limited by the fact that the screed had to be as thin as possible, as little as 15mm in places, but had to be able to vary in depth up to as much as 45mm. It also had to be fast to install, quick to dry and cost effective.

Gypsol TS-15 screed was the most appropriate material for the project. Requiring no reinforcement, TS-15 is designed and tested for applications that are bonded or un-bonded at just a 15mm depth, making it unique in the industry. An M13 NBS specification was drawn up which allowed the screed to be laid un-bonded over a simple polythene membrane, and offering huge reductions in the level of subfloor preparation that would have been required for a bonded alternative.

As TS-15 can be laid to a minimum of 15mm, each m³ yields more than 65m², so the speed of installation can be very rapid. In this project the first pour saw over 1,000m² installed in little more than six hours, and with the whole project being completed in just four visits.

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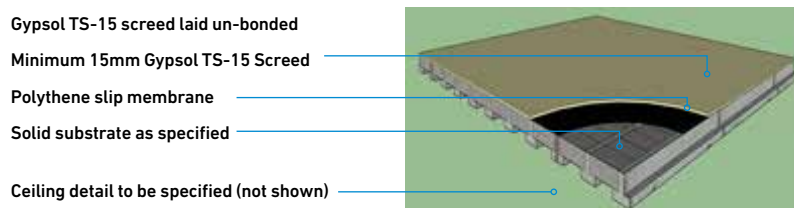
Physical data

Appearance		Off white fluid mortar
Density	Wet	2200kg/m ³
	Dry	2000kg/m ³
Minimum Strength		C35-F6
Required Flow (EN 13454-2)		230mm to 270mm
Reaction to Fire		Class A1 _{fl} non combustible

Performance data

Working Time	Place and finish within 2 hours of batching.
	Finish within 1 hour of placing.
Foot Traffic	24 to 48 hours
Loading	5 to 7 days
Drying (50mm depth)	At 20°C and 60% RH - In excess of 1mm/day
Force Drying	Can be force dried after 7 days
Minimum depth	15mm

Typical application schematic



Environmental data

Recycled Content	Binder	98%
	Mortar up to	40%
Carbon Emissions	Binder	10 to 30kg/tonne
Minimum Strength	Mortar	30 to 50kg/m ³
VOC		Virtually zero
Recyclability		100%

Health and safety data

Gypsol TS-15 screed is delivered to site ready to use via offsite mixing plants removing the need for labour intensive site mixing and associated mixing equipment.

Gypsol TS-15 screed is pumped directly to where they are needed removing much of the manual handling operations required to install other screeds.

Gypsol TS-15 screed is generally pumped using equipment with closed or gridded dispensing hoppers removing risk of contact with moving machinery.

Gypsol TS-15 screed is finished using a lightweight dappling bar requiring no secondary compaction thus removing most of the physical work needed to lay other screeds. This significantly reduces the negative impact on the musculo-skeletal system of installing contractors. For material safety information please see the relevant health and safety data sheets.

Gypsol

High quality thin screed for bonded and unbonded applications



Gypsol TS-20 screed is a revolutionary new anhydrite screed material. It is specially formulated to offer a strong and durable thin topping to a solid interior substrate, for example, in situ concrete or beam and block or precast concrete plank. Tested to BS 8204:1:2003 it meets the requirements for class A for impact resistance. Due to its thin depth, just 20mm minimum, TS-20 can be dried quickly allowing rapid return to service and application of finished floor coverings.

Gypsol TS-20 is perfectly suited to flooring applications where height is extremely restricted and offers a lightweight cost effective alternative to smoothing compounds. It can be installed extremely quickly to at least 2000m² per day. This represents a significant saving in time when compared to bagged, site mixed smoothing compounds and levelling screeds.

Gypsol TS-20 screed is designed to be laid to a minimum of 20mm depth and can be used either bonded directly to a solid substrate prepared in accordance with BS 8204:7:2003 or un-bonded on a polythene membrane.



For project specific advice on design and for a model specification, contact our technical and specifications team on 0800 6226023

Some typical applications include:

- Refurbishment of old uneven floors
- Remediation or correction for out of level concrete slabs
- As a levelling screed over floors where floor to ceiling height is very restricted
- Sub floor levelling in preparation to receive finished floor coverings
- Overlay for poorly levelled screeds
- As an alternative to light weight screeds

Case study - Print room refurbishment

Label Craft is a manufacturer of self-adhesive labels in Dublin, Ireland, and Gypsol's thin TS-20 screed was chosen to provide the solution to their print room floor refurbishment. Due to the replacement of steel floor cassettes, and a restructure of their print press area, the client needed a solution to the resulting change of floor levels in their print room. Unless they are level the business's printing machines simply won't work.

Gypsol TS-20 screed was applied and provided a flat, level and very thin layer to the existing uneven surface. Due to the physical strengths and drying rates of Gypsol's TS-20 screed, along with the very fast un-bonded installation, the client was able to minimise production delays and re-mount their 6 tonne press onto the freshly screeded floor after just two weeks.



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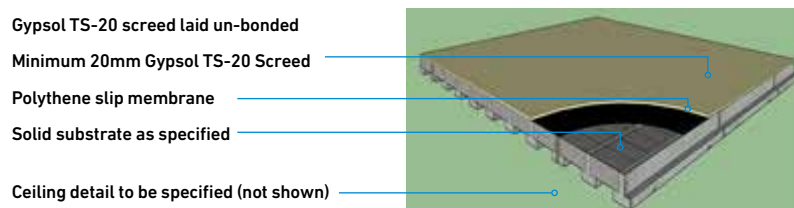
Physical data

Appearance	Off white fluid mortar	
Density	Wet	2200kg/m ³
	Dry	2000kg/m ³
Minimum Strength	C30-F5	
Required Flow (EN 13454-2)	230mm to 270mm	
Reaction to Fire	Class A1 _{fl} non combustible	

Performance data

Working Time	Place and finish within 2 hours of batching.	
	Finish within 1 hour of placing.	
Foot Traffic	24 to 48 hours	
Loading	5 to 7 days	
Drying (50mm depth)	At 20°C and 60% RH - In excess of 1mm/day	
Force Drying	Can be force dried after 7 days	
Minimum depth	20mm	

Typical application schematic



Environmental data

Recycled Content	Binder	98%
	Mortar up to	40%
Carbon Emissions	Binder	10 to 30kg/tonne
Minimum Strength	Mortar	30 to 50kg/m ³
VOC	Virtually zero	
Recyclability	100%	

Health and safety data

Gypsol TS-20 screed is delivered to site ready to use via offsite mixing plants removing the need for labour intensive site mixing and associated mixing equipment.

Gypsol TS-20 screed is pumped directly to where they are needed removing much of the manual handling operations required to install other screeds.

Gypsol TS-20 screed is generally pumped using equipment with closed or gridded dispensing hoppers removing risk of contact with moving machinery.

Gypsol TS-20 screed is finished using a lightweight dappling bar requiring no secondary compaction thus removing most of the physical work needed to lay other screeds. This significantly reduces the negative impact on the musculo-skeletal system of installing contractors. For material safety information please see the relevant health and safety data sheets.

Gypsol perfectly complements any underfloor heating water or electric system



Gypsol screed is a high quality free flowing, self compacting anhydrite floor screed which offers huge benefits to all aspects of a construction project including to screed installers, builders, underfloor heating designers, main contractors and clients alike.

Gypsol screed is a perfect complement to any underfloor heating system whether warm water or electric. Gypsol screed has a high thermal conductivity and a high thermal capacity which means that the response time from any system is excellent.

Additionally, Gypsol screed has great thermal performance meaning that the efficiency of a heat source is improved.

As the screed is installed to a much thinner depth than traditional screed more sub screed insulation can be used offering the ultimate levels of comfort and controllability to your underfloor heating system whilst minimising environmental impact and cost.



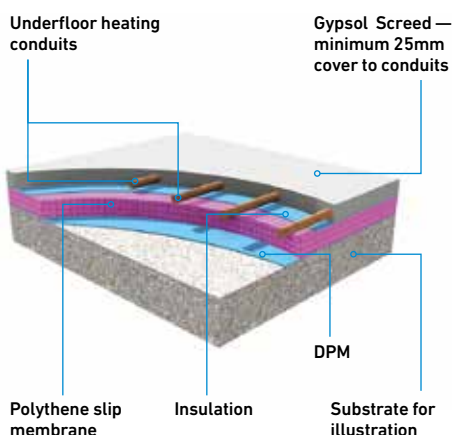
Design data

Thermal Conductivity up to $2.5\text{w/m}^2\text{K}$ (for calculations use the average figure $2.3\text{w/m}^2\text{K}$ based on norm sand independent tests allowing for testing variance of 4%). Minimum EPS100 Polystyrene insulation should be used.

Pipe spacing to be in accordance with the designers requirements. Pipes should be secured using clips at minimum 0.5m intervals. Movement control joints should be placed at spacing no greater than 20m and bay sizes should have an aspect ratio no more than 6:1 and a size no greater than 300m^2 . No reinforcement is required.

Movement joints should be placed across door thresholds and between independently controlled heating zones and between heated and unheated areas of screed.

Additional joints should be considered in areas of high thermal gain e.g. large conservatories or glass atria.



Installation data

The Building envelope should be watertight prior to installation. Underfloor heating pipes/cables should be properly secured to avoid flotation during installation of the flowing Gypsol screed. An operational Damp Proof Membrane should be placed under any insulation and a secondary slip membrane underneath the heating conduits. Warm Water Pipes should be pressurised with water in accordance with BS EN 1264-4:2009 Minimum cover to the tops of the pipes/cables should be 25mm (20mm for Gypsol HTC).

Additional performance data

Can increase the coefficient of performance of an underfloor heating system. Self compacts and fully encapsulates heating conduits eliminating voids and improving thermal transfer. Offers rapid and controllable heating system optimising efficiency, response and reducing running costs. Reduced screed depth allows for thicker insulation. Assists in meeting environmental accreditation for your project.

Post installation

If required any loose or friable skin should be removed by lightly sanding using a 60 grit or medium sand paper. The underfloor heating should be commissioned and run in accordance with the following:

Once the screed is at least 7 days old

1. Switch on the heating system to run at a flow temperature of 25°C , or the minimum allowable by the system, and leave for three days
2. Increase the flow temperature in 5°C increments per day up to a maximum of 55°C . Leave at this temperature for a minimum of 3 days (typically 7 days if force drying)
3. Reduce the flow temperature by 5°C per day down to 25°C before switching off and allowing to cool (typically for 48hours) prior to moisture testing

Test the screed for residual moisture using an approved test method - independent tests have concluded that the Carbide Bomb Test is the most accurate test method. Once dry protect the screed from moisture ingress prior to applying suitable floor coverings.

Bonded floor coverings should be applied using a suitably flexible and thermally stable adhesive in accordance with the manufacturers instructions. See also our "Post Installation" data sheet for additional information

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Gypsol Range of Screeds

The Gypsol team can offer floor screeds with traditional systems in the market



Gypsol self compacting, free flowing floor screeds are available in a number of different formats from a range of quality assured ready-mix suppliers throughout the United Kingdom.



The Gypsol team can offer a screed to suit almost any application:

Gypsol Classic - the most popular of our screeds for general purpose domestic or commercial screed applications.

Gypsol HTC - specially formulated for optimum thermal performance with underfloor heating. Independently tested by Warwick University.

Gypsol Rustique - a unique fast track system for a rustic or industrial architectural finish which does not require a subsequent floor covering.

Gypsol TS-15 - ultra thin high strength screed for bonded or unbonded applications to a minimum of 15mm.

Gypsol TS-20 - Thin screed for unbonded or bonded applications to a minimum of 20mm.

Gypsol XS - for high strength and higher than usual loadings.

Gypsol Modular - high early strength for modular construction.

Gypsol TimBRE - for timber flooring and SoundBar applications.

Gypsol Summit - for high rise projects.

Gypsol Diamond - a unique polished system which does not require a subsequent floor covering.

The Solida System - a whole-house heating system designed for single or mass house builders using underfloor heating at all floor levels. Uses minimum 220mm deep joists at 600mm centres and 4.8m clear spans.

Gypsol Sureflo - Bagged preblended screed for smaller projects and when a readymix service is not possible.

It is useful to compare Gypsol floor screeds with traditional systems in the market. This table helps to ensure that you are selecting Gypsol floor screeds for sound commercial and technical reasons.

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Data table

Consideration	Gypsol	1:4 Cement:Sand Screed
Productivity	Up to 2000m ² per day	Typically 100 to 150m ² per day
Quality	BS EN 13454 BS EN 13813 BS EN 8204:7:2003	Often site-mixed with poor and erratic quality control. No specific manufacturing standard if site mixed.
Traffic	No curing required Can be walked on after 24—48 hours Can be loaded after 7 days	Should be cured under polythene for 7 days. Foot traffic after 7 days. Loading after 28 days.
Health & Safety	Little manual handling Ergonomically advantageous installation Reduced risk of burns & dermatitis Self compacting	High level of manual handling, lifting and twisting High level of joint wear and tear for installers Portland cement can lead to burns and dermatitis Requires thorough compaction
Cost	Lower material costs High productivity Most installations will offer cost and time savings	Higher material cost Low productivity
Installation	By trained and approved installers	By anyone, regardless of skill level or training
Floating on insulation	Minimum depth 35mm (see technical data sheet) Requires no reinforcement	Minimum depth 65mm D49 mesh or PP fibres required
Unbonded construction	Minimum depth 30mm Requires no reinforcement (see TS-15 and TS-20 data sheets)	Minimum depth 50mm D49 mesh or PP fibres required
Bonded construction	Minimum 25mm (see TS-15 and TS-20 data sheets)	Minimum 40mm
Surface Finish	Easily achieves SR2 Can achieve SR1 with care (less need for smoothing compounds) Does not curl and resistant to cracking Requires few joints	Dependent on installing contractor. Shrinks, cracks and curls Requires many joints
Drying Rate (dependent on site conditions)	1mm per day up to first 40mm in excess of 1mm per day. See relevant product data sheets Can be force dried as early as 7 days	1mm per day (1 week curing + 11 weeks drying at 75mm) Cannot be force dried
Environmental	Low CO ₂ emissions Reduced materials so reduced embodied energy High recycled content	High CO ₂ emissions Higher embodied energy
Underfloor Heating	Thinner screed allows: Thicker Insulation Reduced cover to heating pipes means reduced thermal lag and rapid response times Self compacting and full pipe encapsulation, so void free	Thicker screed means: Thicker floor section Greater thermal lag up to 8 hours heat up time Difficult to compact under pipes leading to voids
Uses	Available for use in all construction types including timber frame, lightweight steel frame, traditional masonry, modular construction, concrete and steel frame	Only available for limited construction types
Acoustics	80kg/m ² at just 40mm Uniform density across floor section Few joints	Minimum 65mm required in most systems Variable density leads to non uniform performance Many joints lead to sound transmission pathways



Gypsol XS

A heavy duty Gypsol screed



Gypsol XS self compacting flowing screed is made to exacting standards by quality assured manufacturers to BS EN 13813:2002. It is a combination of high quality Gypsol binder, specially selected sands, water and special additives where required. It is an enhanced strength mix, which offers a minimum CA-C30-F6. Gypsol XS is suitable for the encapsulation of underfloor heating systems, either electric or warm water.

Gypsol XS is suitable for use in both residential and commercial properties, including apartments, schools, prisons, hospitals and single dwellings where higher loadings and more durable screeded floors are required. In common with all Gypsol screeds, Gypsol XS screed also improves the environmental characteristics of the floor. For project specific advice on design and for a Model NBS Specification Template contact our technical and specifications team on 0800 6226023.



Health and safety data

Gypsol XS screeds are delivered to site ready to use via offsite mixing plants removing the need for labour intensive site mixing and associated mixing equipment.

Gypsol XS screeds are pumped directly to where they are needed removing much of the manual handling operations required to install other screeds.

Gypsol XS screeds are generally pumped using equipment with closed or gridded dispensing hoppers removing risk of contact with moving machinery.

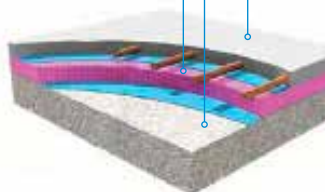
Gypsol XS screeds are finished using a lightweight dappling bar requiring no secondary compaction thus removing most of the physical work needed to lay other screeds. This significantly reduces the negative impact on the musculo-skeletal system of installing contractors. For material safety information please see the relevant health and safety data sheets.

Typical application schematic

Optional insulation dependent on thermal and acoustic requirements

Gypsol XS screed with optional underfloor heating

Structural substrate as specified



Physical data

Appearance	Off white fluid mortar	
Density	Wet	2200kg/m ³
	Dry	2000kg/m ³
Minimum Strength	C30-F6	
Required Flow	(EN 13454-2)	230mm to 270mm
Reaction to Fire	Class A1 _{fl} non combustible	

Performance data

Working time	Place and finish within 3 hours of batching	
Foot traffic	24 to 48 hours	
Loading	5 to 7 days	
Drying (50mm depth)	At 20°C and 60% RH - 28 days ^[1]	
	Active force drying - 13 days ^[1]	
	Drying times vary dependent on screed depth, ambient conditions and suitability of the building envelope. ^[1] Independently tested and verified by Action Dry Ltd. Full report available on request.	
Force drying	Can be force dried after 7 days	

Environmental data

Recycled content	Binder	98%
	Mortar	Up to 40%
Carbon emissions	Binder	10 to 30kg/tonne
	Mortar	30 to 50kg/m ³
VOC	Virtually zero	
Recyclability	100%	

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