

RETANOL® INDESTRA 100 / PRO CONCENTRATE



FOR THE PRODUCTION OF HEAVY-DUTY SCREEDS ACCORDING TO
DIN 18560-7 IN THE STRENGTH CLASSES:

CT-C40-F6
CT-C50-F7
CT-C60-F8
CT-C70-F9

RETANOL® INDESTRA 100 / PRO CONCENTRATE HIGH-STRENGTH INDUSTRIAL FLOOR.

Extreme high demands are placed on an industrial screed in terms of stability and wear resistance. It must also be extremely abrasion-resistant and be durable enough to withstand strong mechanical and dynamic stresses, such as traffic from forklift trucks or delivery vehicles, impact and pressure loads from shelves carrying heavy loads, as well as chemical stresses from alkaline solutions, acids and salts, and temperature fluctuations.

Retanol® Indestra 100 / PRO Concentrate is suitable for the production of in-situ flooring of the strength classes CT-C40-F6, CT-C50-F7, CT-C60-F8, CT-C70-F9. Only use Retanol® bonding agent for bonded installation.

With the newly developed RETANOL® INDESTRA 100 PRO product, the screed is now ready for covering after the 2nd day for tiles and after the 3rd day for all other coverings. Heated constructions can be covered with all coverings after the 5th day.

1. APPLICATIONS

- Industrial screeds as in-situ floorings with direct usability.
- Unheated and heated **heavy-duty** screeds on insulation or separating layers in commercial and industrial construction for all common floor coverings.

2. BASE

For bonded screeds of quality CT-C40 concrete substrates of strength class C20/C25 are usually sufficient.

For higher strength classes (> CT-C50) and for bonded in-situ flooring, a strength class > C25/C30 must be maintained as base. The average tensile strength of the surface must be 1.5 N/mm² (smallest single value: 1.2 N/mm). The surface of cement-bonded substrates must be clean, absorptive, load-bearing and firm. Too soft and flaking layers and areas affecting the bond strength must be removed entirely by milling and/or shot peening.

Note: If the concrete base to be covered is milled, shot blasting to remove the concrete edge zone "damaged" by the milling should always be planned and used.

Any cracks in the substrate must then be durably closed and force-bonded with a suitable reaction resin and mechanical anchors in accordance with customary industry practices and standards (standard corrugated connectors and simple, thin steel bolts are insufficient).

The areas treated with reaction resin must be liberally scattered with quartz sand (grit size at least 0.8 – 1.2 mm!) in the fresh phase of the resin in full (in excess). Excessive, not firmly bonded sand must be entirely removed after the resin has cured and before applying the bonding course. To do this, after sweeping up the excess sand, the surfaces must either be swept off with a steel broom or brushed off with a single-disc grinding machine with a wire brush attachment. Then vacuum the surfaces thoroughly using an industrial vacuum cleaner.

A high-pressure cleaner must be used for precision cleaning. The dirty water must be removed with a suitable wet vacuum cleaner. Pre-wetting: The base must be matt and damp but must not be wet (glossy) when brushing in Bonding Course ZE! Pre-wet the base one day before applying the bonding course (!) so that the surface of the substrate can dry a little.

* According to DIN 18560-1, shrinkage class (SW2)

Initial test according to DIN EN 13813

The technical parameters of the screed must be determined by the screed layer in the initial test and monitored by regular production control. If the raw materials are changed (e.g. different aggregate), a new initial test is necessary.

Aggregate: Screed gravel according to DIN 1045-2 grading curve A/B 0-8 mm for the production of screed concrete of quality class greater than CT-C40-F6. For layer thicknesses < 20 mm, use aggregates with 0/4 mm.

3. MIXING

Only compressed air screed conveyors or compulsory and/or pan mixers are to be used for the production of the mixture.

Mixing with compressed air screed conveyors:

- Fill the mixing vessel about 2/3 full with screed sand while the machine is running.
- Add the total required amount of cement (amount of cement for screed quality CT-C40/CT-C45 = 62.5 kg, for screed quality > CT-C45 = 75 kg). These quantities refer to standard mixing vessels with a capacity of 250 litres (gross).
- Add 400 ml* Retanol® Indestra 100 / PRO Concentrate to the first bucket of added water (usually 10 litres), mix briefly and add to the sand-cement mixture in the screed machine. The total amount of water added at this time should be about ¾ of the total amount of water added.
- Fill the mixing vessel with the remaining amount of sand.
- Add the last part of the added water until the desired processing consistency is achieved. It should be noted that a W/C ratio of 0.6 must not be exceeded.
- Then a remixing time of 2 minutes must be observed at all times.
- After sufficient remixing time pumping can be started.

*Dosages of Retanol® Indestra 100 / PRO Concentrate according to screed quality:

up to CT-C50 = 400 ml/mixture; up to CT-C60 = 450 ml/mixture; up to CT-C70 = 500 ml/mixture

Mixing with compulsory and pan mixers

The following amounts of material, based on 1 m³ of finished mixed screed mortar and depending on the screed quality to be achieved in each case, must be complied with.

Depending on the filling capacity of the mixer used, the partial quantities of the raw materials are to be calculated on the basis of the quantities shown above and are to be complied with by weight for each individual mixture.



SCREED QUALITIES CT-C40/ CT-C45

Scree sand	= 1.500 kg
Cement	= 312,5 kg
RETANOL® INDESTRA 100 / PRO / (w/c ratio maximum 0,6)	= 2,0 Liter

SCREED QUALITIES CT-C50

Scree sand	= 1.500 kg
Cement	= 375,5 kg
RETANOL® INDESTRA 100 / PRO / (w/c ratio maximum 0,6)	= 2,0 Liter



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SCREED QUALITIES CT-C60

Screeed sand	= 1.500 kg
Cement	= 375,5 kg
RETANOL® INDESTRA 100 / PRO / (w/c ratio maximum 0,6)	= 2,25 Liter

SCREED QUALITIES CT-C70

Screeed sand	= 1.500 kg
Cement	= 375,5 kg
RETANOL® INDESTRA 100 / PRO / (w/c ratio maximum maximal 0,6)	= 2,5 Liter

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4. READINESS FOR FLOOR COVERING

RETANOL® INDESTRA 100 / PRO is ready for covering in unheated structures after 2 days* for tiles with 75 kg cement = 375 kg/m³ of class 42.5 R, after 3 days* for all other floor coverings. For heated structures, RETANOL® INDESTRA 100 / PRO is ready for covering after 5 days*.

Can be heated according to RETANOL® INDESTRA 100 / PRO heating protocol from day 2 after screed installation.

RETANOL® INDESTRA 100 / PRO does not accelerate the drying process.

Can be heated according to RETANOL® INDESTRA 100 / PRO heating protocol from day 5 after screed installation.

* This data refers to 50 mm application thickness for unheated and 65 mm maximum for heated floor screeds.

With screed thicknesses between 70 and 80 mm delays of 2 to 3 days and with screed thicknesses between 80 and 100 mm delays of 5 to 6 days are possible.

5. SPREADING OF HARD AGGREGATE

In principle, all hard aggregates regulated according to DIN 1100 can be used. The required amount of spreading (per m²) and the type of hard aggregate depend on the required wear resistance class. The respective information and instructions of the suppliers/manufacturers of the hard aggregate must be observed. When using ready-mixed hard aggregates (hard aggregate already mixed with binding agent in the factory), the workability and compatibility with Retanol® Indestra 100 / PRO Concentrate screed must be checked in sufficient time "prior to initial processing" by producing sample surfaces.

Important note:

Wear resistance classes between A22 and A9 (according to Böhme) are achieved when using Retanol® Indestra 100 / PRO Concentrate without additional spreading of hard aggregate. A prerequisite for this is the use of 75 kg of CEM-I cement (per standard screed mixture) of 42.5 R grade and mechanical abrasion. Wear resistances < A9 to A6 (according to Böhme) can be achieved by additionally finishing the concrete surface with a power trowel. However, this must be determined and proven by the screed specialist company in conjunction with sufficient independent initial inspections.

6. FOLLOW-UP TREATMENT

Protection against too rapid drying and extreme temperatures ensures sufficient and full development of the structural and surface strength and, in the case of bonded constructions, the permanent firm bonding to the base of newly laid industrial screeds. Mechanical stresses that occur too early and damaging vibrations cause cracks to form, damage to the structure and adhesive bond, and a significant reduction in any wear resistance that may be required. Chemical stresses in the hardening and setting phase of the cement also lead to irreparable damage to the young industrial screed.

Until sufficiently hardened, the freshly laid and young Retanol® Indestra 100 / PRO Concentrate screed must be protected against:

- drafts and exposure to direct sunlight
- premature drying
- extreme temperatures (too high or too low) or temperature changes
- mechanical stresses and harmful vibrations
- chemical attacks

Protective measures such as covering with foils for some of the aforementioned points must be taken immediately after the screed surfaces are ready to be walked on. Protection against currents of air (in this case preventing draughts) and direct sunlight (in this case darkening/covering windows) must be observed during screed installation. Depending on the building conditions (large air circulations for large areas with considerable room heights) or when laying Retanol® Indestra 100 / PRO Concentrate screeds outdoors, protective measures in the form of enclosures should be provided.

Important note: Post-treatment agents in the form of so-called curings must not be applied on industrial screeds produced with Retanol® Indestra 100 / PRO Concentrate, especially if floor coverings, coatings and floor paints or permanent protective layers are to be laid at a later date.

The following minimum protection periods should be observed after the installation of a Retanol® Indestra 100 / PRO Concentrate screed, based on the prevailing air temperatures in the building:

Protection against drying out too quickly, draughts at ambient temperatures of 5-10 °C	= 9 days
Protection against drying out too quickly, draughts at ambient temperatures of > 10 °C up to 28 °C	= 6 days
Protection against direct sunlight, excessive heating	= 7 days
Protection against extreme temperature changes (putting into service of cooled surfaces)	= 7 days
Protection against harmful vibrations	= 7 days

Readiness for the application of coatings, screed insulation and sealings at $\leq 4.5 \text{ CM\%}$.

7. PRACTICAL INFORMATION

Only single-disc smoothing machines should be used for rubbing and smoothing. Smoothing with ride-on smoothing machines (double-disc smoothing machines) is associated with high risks with regard to the subsequent surface finish. Among other things, layer separations may be possible in the upper edge zone of the screed.

Therefore, these machines are not to be used. The right timing for rubbing and finishing the concrete surface with a power trowel as well as the position of the trowel blades are crucial for a good surface quality and strength. Too early rubbing and troweling as well as too steeply placed trowel blades inevitably lead to blistering and layer separation. Flaking of the upper screed edge zone and insufficient wear resistance are the result.

When using hard aggregate spreading, the specifications and instructions of the hard aggregate manufacturer for the time of spreading or for rubbing and troweling must be observed.

The strength requirements are extremely important for heavy-duty screeds.

Here, the structural strength and the surface wear resistance are the top priorities. These in turn are significantly influenced by the grain compressive strength of the aggregate. Therefore, the grain compressive strength must be $> 40 \text{ N/mm}^2$.

The following grain compressive strengths must be achieved in accordance with the required screed quality:

$\leq \text{CT-C45}$ = $\geq 40 \text{ N/mm}^2$

CT-C50 = $\geq 45 \text{ N/mm}^2$

CT-C60/C70 = $\geq 50 \text{ N/mm}^2$

> The results of the grain compressive strength test(s) must be documented in the "Factory Production Control Manual".

An inspection of the aggregate should therefore be carried out at an early stage before the screed is installed. An alternative to testing the grain compressive strength is to test the strength class achieved with the raw materials available.

This must be checked before installation.

Surface protection in the form of sealings and coatings with regard to cleaning and against chemical attacks is possible with all systems adapted to cementitious bases. We recommend the early preparation of a cleaning and protection concept in cooperation with the system manufacturer, building contractor and building planner.

IT DOESN'T GET ANY MORE HIGH-STRENGTH THAN THIS.