ITEM NUMBER: **20.307** **TECHNICAL DATA SHEET**

KNOPP

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CONTOPP®

DUREMIT X70

CHARACTERISTICS

PRODUCT DESCRIPTION

- Admixture for the production of high-strength sand/cement screeds for industrial applications up to strength class CT-C70-F9.
- Particularly wear-resistant and designed for high mechanical and dynamic loads.
- Resistant to dynamic torsional loads caused by vehicle traffic and static compressive stresses, e.g. from heavily loaded shelving systems.
- Improves resistance to bases and salts compared to a standard screed.
- Insensitive to temperature fluctuations.
- Reduced shrinkage – shrinkage class SW2 following DIN 18560-1.
- Average surface tensile strength 1.5 N/mm² (lowest individual value 1.2 N/mm²).
- Low-emission certified - EMICODE EC1^{plus}

APPLICATION AREA

- For the production of heavy-duty, cementitious wearing screeds
- For the production of high-strength industrial screeds
- For the production of screeds with hard aggregate topping
- For the production of underfloor heating screeds

TECHNICAL DATA

CHARACTERISTICS

Colour:	orange-brownish
Form:	liquid
Density (at 20 °C):	1.06 ± 0.02 g/ml
Application temperature:	above +5 °C
Shelf life:	approx. 12 months – protect from frost and direct sunlight
Packaging:	**Disposable containers:** PE-HD can: 20 kg net **Reusable containers:** Container: 1000 kg net

MIXING MODEL

Formulation per 200 L	Mix 1:5	Mix 1:4	Unit
Cement	63	75	kg
Sand 0/8[1,2]	315	300	kg
Duremit X70	0.50	0.65	l
w/c ratio	0.50	0.45	

STRENGTH

Criterion	Mix 1:5	Mix 1:4	Unit
Flexural bending strength (28 days)	F8	F9	N/mm²
Compressive strength (28 days)	C60	C70	N/mm²

FLOOR FINISH

Criterion	Mix 1:5	Mix 1:4	Unit
Receive final floor finish	9	7	days

[1] Aggregate following DIN EN 13139 – sieve line A/B

[2] Grain-strength following DIN EN 1097-2

This ideal screed mortar can only be produced if the preparation instructions listed below are followed. The specifications refer to a thickness of 50 mm for unheated screeds and 65 mm for heated screeds, under normal climatic conditions at +20 °C and a relative humidity of 65 per cent. When varying the mixing ratios of a reference mix without additives and a However, when using the CONTOPP® mix, the quality of the screed mortar enhanced with CONTOPP® will generally be higher than that of the reference mix.

PROCESSING INFORMATION

RAW MATERIALS

- CEM I 42.5 R in accordance with DIN EN 197-1.
- Aggregate in accordance with DIN EN 13139, sieve curve A/B, grain size group 0/8 mm.
- For industrial screeds subject to heavy loads, high grain strength is advisable to ensure that the aggregates do not fracture under load and thereby limit the strength of the screed. To this end, DIN EN 1097-2 describes the test method for determining resistance to crushing using the Los Angeles test (LA value). When using Duremit X70, the following grain strengths are recommended:
    - LA20 = very high grain strength (e.g. basalt, diabase or gabbro)
    - LA25 to LA30 = high-quality hard rocks

RECIPE

- Stir the Duremit X70 before use and regularly during use in order to prevent segregation!
- Adhere to the dosage (0.8–0.9 per cent of the cement weight).
- The admixture should be incorporated into the moistened mix.
- w/c ratio < 0.50 – Note: significant water reduction!
- Mix for at least 2 minutes after adding all components.

CONSTRUCTION SITE CONDITIONS

- Protect from draughts and direct sunlight during curing for at least 7 days after the screed has been laid.
- Avoid any draughts, particularly those caused by the chimney effect in stairwells.
- Draughts, high temperatures or sudden temperature changes (e.g. due to heating systems) lead to premature drying of the screed surface. This significantly reduces the strength of the screed surface.
- Construction method and site preparation in accordance with DIN 18560.

SPECIAL INFORMATION

MINIMUM SCREED THICKNESS [1]

Mix 1:5

Flexural strength	Bonded	Unbonded	Floating	on underfloor heating [2, 3]
8 N/mm²	Standard: 15 mm Heavy duty: 20 mm	Standard: 25 mm Heavy duty: 35 mm	Standard: 25 mm Heavy duty: 40 mm	Standard: 25 mm Heavy duty: 40 mm

Mix 1:4

Flexural strength	Bonded	Unbonded	Floating	on underfloor heating [2, 3]
9 N/mm²	Standard: 15 mm Heavy duty: 15 mm	Standard: 25 mm Heavy duty: 35 mm	Standard: 25 mm Heavy duty: 35 mm	Standard: 25 mm Heavy duty: 35 mm

[1] Working load: Standard ≤ 2.0 kN/m²; Heavy duty: ≤ 3.5 kN/m²
[2] In the case of screeds on underfloor heating thickness above the pipes
[3] No steel reinforcement required
[4] Maximum diameter of the biggest grain size must be less than 1/3 of the total thickness of screed

DRYING TIME [1, 2]

Mix 1:5

Screed thickness	20 mm	30 mm	40 mm	50 mm	60 mm	70 mm
≤ 3.0 CM-% residual humidity [2]	2 days	3 days	6 days	9 days	13 days	18 days

Mix 1:4

Screed thickness	20 mm	30 mm	40 mm	50 mm	60 mm	70 mm
≤ 3.0 CM-% residual humidity [2]	2 days	3 days	5 days	7 days	10 days	14 days

[1] Normal climatic conditions at + 20 °C and a relative humidity of 65 % without under floor heating.
[2] The residual moisture content must be tested prior to the application of the final floor finish (CM-method).

SCREED ON UNDERFLOOR HEATING – START-UP HEATING PROTOCOL [1, 2]

Mix 1:5

Heating process [3]	3rd day	4th day	5th day	6th day	7th day	8th day	9th day
Temperature	25°C	35°C	55°C	55°C	45°C	35°C	25°C

Mix 1:4

Heating process [3]	2nd day	3rd day	4th day	5th day	6th day	7th day
Temperature	25°C	35°C	55°C	45°C	35°C	25°C

[1)] It can be useful to lengthen the heating procedure for screed thicknesses of > 50mm above the pipes to achieve sufficient drying.
[2)] The residual moisture content must be tested prior to the application of the final floor finish (CM-method).
[3)] Under floor heating must be switched off during the laying of the screed.

MEASURING RESIDUAL MOISTURE CONTENT

- Prior to laying the top flooring, the residual moisture of the screed must be measured by the person laying the floor.

MEASUREMENT OF SURFACE BOND STRENGTH

- Measurements of surface bond strength must be carried out before any further preparatory work for laying the floor covering.
- Substrate preparation works such as milling or shot blasting can affect the surface layer of the screed. These measures may therefore cause structural disturbances in the area close to the surface. This can lead to a reduction in surface bond strength.
- Carrying out a test of the surface bond strength prior to mechanical processing enables an objective assessment of the original screed quality.

HARD GRAIN DISTRIBUTION

- Use hard materials in accordance with DIN 1100.
- The selection of the appropriate hard aggregate is based on the intended load or wear resistance class. The manufacturer's specifications must be observed in this regard.
- The application rate per square metre depends on the required wear resistance class. The manufacturer's instructions for application must be followed. We recommend that the screed installer carry out specific suitability tests for this purpose.

SAFETY

- General occupational health and safety guidelines must be observed when using our products.
- Duremit X70 is solvent-free, chloride-free and poses no health risks in building applications.
- When stored correctly, our products do not degrade. Consequently, their stability and reactivity are not affected by storage for up to 12 months.
- For further information on handling CONTOPP® additives, please refer to our safety data sheets.

GENERAL INFORMATION

STANDARDS AND TESTING REGULATIONS

- DIN EN 13139: Aggregates for mortar.
- DIN EN 1097-2: Test methods for the mechanical and physical properties of aggregates – Part 2: Method for determining resistance to crushing
- DIN EN 197-1: Cement – Part 1: Composition, requirements and conformity criteria for ordinary cement.
- DIN 18560: Screeds in building construction, Parts 1–7
- DIN 1100-1: Aggregates for screed mortars and screed mixes in accordance with DIN EN 13813 – Part 1: Requirements and test methods

COMMENT

The raw materials we process and the products we produce are subject to strict factory inspections. Do not use products from other manufacturers when using this product. It is stressed that our products and the procedure must be tested for suitability for the expected construction site conditions. The quality of screeds is essentially influenced by the quality of sand and cement, the mixing rates and the processing in accordance with approved screeding technology. Since we have no control over site conditions or construction practices, no legal liability can be derived from this technical data sheet. Upon the publication all other previous copies shall become invalid.

Last updated: 24.11.2026