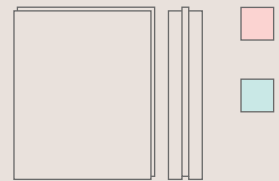


MultiGips

Technical data sheet

Solid gypsum blocks **D100-R50/DH100-R50**

Sound insulation board EN 12859



MAIN FEATURES

Building material Factory-made building element that is produced basically from calcium sulphate with smooth surfaces for the construction of non-load bearing partitions, independent wall linings and fire protection of columns, shafts and the like.

Also available as hydrophobic gypsum blocks EN 12859 MultiGips DH100-R50, water absorption class H2, with $\leq 5\%$ water absorption after 2h complete immersion in water, with bluish colour, preferred for use in domestic kitchens and bathrooms.

Properties Mineral
High dimensional stability
Tongue and groove profile for positively locking partitions
Basically dry processing with gypsum-based adhesive
Smooth, flat visible surfaces for rapid final treatment; no plaster required
EPD Environmental Product Declaration

Performance as building element Non-load bearing partitions somewhat similar to drywall construction but without the need for substructure framing
Identical properties in cross-section and surface
Less thickness required to satisfy stability, which could result in more usable area
Low weight per unit area for optimum ceiling dimensions
Reduction of structure-borne noise due to elastic connection to adjacent building components (decoupling)
Fire resistance class EI 120, E 120
Good thermal insulation for greater thermal comfort
High resistance to mechanical stresses, and hence less maintenance required

Special features Certified low level of hazardous substances for improved interior air quality helps eliminate health risks.
Fulfils the requirements for use in interiors according to the Federal Environmental Agency in the Federal Ministry for the Environment, Nature Conservation and Nuclear Safety in the Federal Republic of Germany. Extremely low emissions.

TECHNICAL FEATURES

Performance feature	Building material	Water repellent
European standard	EN 12859	EN 12859
Building element thickness	100	100
Length x height (mm)	400 x 500	400 x 500
Block requirement (blocks/m²)	5	5
Colour	Reddish	Bluish
Density class	D (dense) high density	D (dense) high density
Density [kg/m³]	approx. 1,400	approx. 1,400
Unit weight (kg)	approx. 28	approx. 28
Weight per unit area (kg/m²) of building element, incl. its component	approx. 142	approx. 142
Strength class	Type R	Type R
Bending strength (kN) Minimum average breaking load	9.4	9.4
Moisture content (% by weight) at time of delivery	≤ 8	≤ 8
pH level	7 – 9 (normal)	7 – 9 (normal)
Water absorption class	H3	H2
Water absorption	No requirement	≤ 5% ¹⁾
Reaction to fire EN 13501-1, Euroclass	A1, no contribution to fire	A1, no contribution to fire
Areal thermal resistance R	0.2	0.2
Thermal conductivity λ_{23-50} (W/mK)	0.51	0.51
Water vapour diffusion resistance (μ)	5 – 10	5 – 10
Storage	Dry on Euro pallets	Dry on Euro pallets

1) After two hours of complete immersion in water

BUILDING PHYSICS DATA

Performance feature	Component
Fire resistance class EN 13501-2	EI 120 ¹⁾
Weighted sound reduction index R_w (dB) EN ISO 717-1	50 ²⁾

1) Classification of a wall construction consisting of gypsum blocks without mounting parts, with mineral wool interlayer according to EN 13162 (melting point $\geq 1,000$ °C, thickness ≤ 13 mm, compressibility ≤ 3 mm) with maximum permissible wall height ≤ 3.00 m; with maximum permissible wall height ≤ 4.00 m as EI 90. For walls with fire protection requirements, wall heights according to DIN 4103-2 and EN 15318 must be considered as a priority.

2) With MultiGips AkustikBit 1000; without longitudinal transmission via adjacent building elements.

ORDER INFORMATION

Performance feature	Building material	
Material number (D) (DH)	760 (D)	761 (DH)
Format (mm)	400 x 500 x 100	400 x 500 x 100
Weight (kg/unit) (kg/pallet), approx.	28 kg/unit, 672 kg/pallet	28 kg/unit, 672 kg/pallet
Packaging unit/pallet (unit) (package)	24 pcs., 2 pack.	24 pcs., 2 pack.
Area (m²/pallet)	4.80	4.80

DOCUMENTATION

EN multigips.com

EU ce.multigips.de

EPD ibu-epd.com

ENVIRONMENTAL DATA

Performance feature	Building material, building element
Composition	Hardened gypsum ($\text{CaSO}_4 \cdot 2\text{H}_2\text{O}$)
Emission of hazardous substances [Regulation (EC) No. 1272/2008 (materials)] (preparations 1999/45/EC)	Not liable to marking
Performance	
Emissions of volatile organic compounds (mg/m³ TVOC after 28 days)	0.086 ¹⁾
Emissions of very volatile organic compounds (mg/m³ VVOC after 28 days)	0 ¹⁾
Carcinogenic substances (mg/m³ after 28 days)	0 ¹⁾
Natural radioactivity (mSv/a)	< 0.02 ²⁾
Persistence, bio-accumulation potential, toxicity	No PBT characteristics
Toxicity	Non-toxic, non-irritant, non-sensitising
Carcinogenicity, mutagenicity and toxicity to reproduction	No CMR properties
Bio-accumulation potential	No potential (inorganic, mineral)
Ecology	Safe in air, water and soil
Duration of use ³⁾ (y)	> 50

1) Fraunhofer Institute for Building Physics, 05.2014, certified gypsum blocks, thickness 100 mm, high density approx. 1,400 kg/m³

2) Evaluation according to Radiation Protection 112 of the European Commission, source: MultiGips Environmental Product Declaration for gypsum blocks

3) Table Duration of Use of Building Components for Life Cycle Analyses according to the Nachhaltiges Bauen (Sustainable Building) (BNB) evaluation system, source: Bundesinstitut für Bau-, Stadt- und Raumforschung (Federal Institute for Research on Building, Urban Affairs and Spatial Development)(BBSR)

DIMENSIONS ACCORDING TO DIN 4103-2 AND EN 15318

Max. permissible dimensions ¹⁾ of a building element of gypsum block D100-R50 according to DIN 4103-2 (2017-09)

Connection location/ characteristic	Installation area ²⁾	Wall height (m)		Wall length (m)
		Single-leaf		
Double-sided support: Closed at least at the top and bottom, large openings possible	1	≤ 7.00		Any
	2	≤ 5.50		Any
Four-sided support: No large openings possible	1	≤ 7.50		Any
	2	≤ 6.00		≤ 16.50
3-sided connection: attached at bottom and sides, no large openings possible	1	≤ 7.00		≤ 8.00
	2	≤ 5.00		≤ 5.00

1) In case of fire protection requirements, the wall height is limited to ≤ 3 m (classification EI 120, E 120); increase of permissible wall height to max 4 m (classification EI 90, E 90).

2) Horizontal load (0.5 kN/m): Areas with low numbers of people, e.g. in homes, hotels, office buildings, hospitals, including corridors

Installation area 2: Areas with large numbers of people, e.g. large auditoriums, assembly halls, school rooms, exhibition halls and sales rooms.

Max. permissible dimensions ¹⁾ single-leaf walls or wall sections with normal load levels for gypsum blocks with medium to high density without cavities according to EN 15318 (2008-01)

Gypsum blocks (Density class)		Partition wall without wall openings			Partition wall with wall openings			Partition wall without attachment to ceiling		
D ²⁾	M ³⁾	Area ⁴⁾ (m ²)	Height (m)	Length (m)	Area (m ²)	Height (m)	Length (m)	Area (m ²)	Height (m)	Length (m)
	60	32	4.00	8.00					1.50	1.50
60	70	55	5.00	11.00		2.75			2.50	2.50
70	80	77	5.50	14.00		3.50			3.50	3.50
80	100		5.50	16.50		5.00			4.00	4.00

1) Dimensions apply for gypsum blocks and hydrophobic gypsum blocks

2) High gross density (D) according to EN 12859: $1,100 \text{ kg/m}^3 \leq \rho \leq 1,500 \text{ kg/m}^3$

3) Medium gross density (M) according to EN 12859: $800 \text{ kg/m}^3 \leq \rho < 1,100 \text{ kg/m}^3$

4) The main selection criterion is the maximum wall area

APPLICATION PRINCIPLES

Application Join gypsum blocks with gypsum adhesive for gypsum blocks EN 12860 in a staggered pattern (optional water repellent gypsum adhesive MultiGips Hydro 90). Wherever possible, the joints of subsequent blocks should not meet. For staggering of the joints, a minimum of 1/4 to 1/2 of the block length is recommended, similar to a masonry construction. In the joint area, or over the full surface, the partitions are smoothed with MultiGips adhesive for gypsum blocks or with the special MultiGips SG 90 Uni surface smoothing plaster. Joints and wall surfaces to which cladding is to be attached need not be smoothed.

Cut the gypsum blocks by handsaw or with a chainsaw. Sawdust must be removed from the cut edges. Cut-outs, e.g. for electrical installations, or small wall openings may not be chiselled out; they must be made with a power tool. Large openings, e.g. for doors, are created via placement of the blocks or are sawed out after the partition has been built. Metal installations such as doorframes or heating circuit distributors must be protected against corrosion. Fill doorframes with the specially-formulated filling plaster MultiGips FG 700. Mortar which contains cement may not be used (efflorescence).

During construction, the site air temperature and the temperature of the building elements may not fall below +5 °C. Work must be suspended if night frost is expected. If possible, the top floor ceiling should be sealed in order to greatly reduce the effects of moisture during the construction phase. Construction can be carried out regardless of the effects of weather through the use of hydrophobic gypsum blocks at the base of the partition and/or MultiGips Hydro-Sockel (damp course) to prevent rising damp. If screed is to be subsequently installed, the covering of the insulation layer must be properly continued up the walls. In particular with poured asphalt screed, adequate cross-ventilation must be ensured.

Joints Gypsum blocks are connected to adjacent building components by the use of elastic interlayer. In particular for the construction of ceiling connections, care must be taken that the elastic interlayer form a sealed joint without cavities. The edges of the top-blocks can be either horizontal or bevelled. Bevelled edges increase the bonding area for the filling plaster. Dust must be removed from the cut edges, and the edges must be moistened before filling the ceiling joint. The ceiling joint must be completely filled in accord with the intended sound insulation, fire protection and structural engineering requirements.

Sound insulation In case of sound insulation requirements the connections of the partitions have to be designed with elastic interlayer. If there are no sound insulation requirements and negligible bearing forces, the connections may be rigid (without elastic interlayer).

NOTE: For partitions with certified sound insulation characteristics, the joints must be made with elastic interlayer as stated in the table "Building Physics Data".

Fire protection If the walls are to meet fire protection requirements, the joints must be made according to the national regulations. For example, elastic joints may be made if insulating material according to EN 13162 is incorporated in the form of rock wool strips.

NOTE: An assessment report by Exova Warringtonfire is available which presents a considered opinion regarding the expected fire resistance performance of a non-load bearing partition wall assembly as previously tested to German DIN 4102-2 at iBMB MPA Braunschweig. It can be concluded that the proposed partition wall assembly should be capable of providing 120 or 240 minutes integrity and insulation performance (dependent upon thickness).

SAFETY AND DISPOSAL

Possible risks The material is categorised as non-hazardous according to Regulation (EC) No. 1272/2008

Disposal Recommendation Disposal according to official regulations.

European List of Waste 17 08 02 Gypsum-based construction materials other than those mentioned in 17 08 01. Disposal as landfill, landfill category 1 and 2 according the German ordinance on the list of waste.

Packaging Bags or other packaging material must be optimally emptied and can be recycled after appropriate cleaning.

Transport Non-hazardous within the sense of international transport regulations.

Safety data sheet The information in the current safety data sheet at ce.multigips.de applies.

CALCULATION AND DELIVERY INFORMATION

On the basis of practical experience. Deviations due to changes to general conditions such as wall dimensions, room layout, type of construction, transport routes, etc. must be taken into account.

System components	Unit	Material requirement	Delivery units Form of packaging	Packaging unit
Gypsum blocks MultiGips D100-R50 sound insulation board	m ² /m ²	1	2.4 m ² /package (= 12 pcs.) 4.8 m ² /pallet (= 24 pcs.)	1 pallet (2 packages/pallet)
Elastic interlayer AkustikPro 120-3/120-3 sk AkustikBit 1000	m/m ²	1.3	25 m roll 1 m strips	4x 25 m rolls 50 m/package
Gypsum-based adhesive for gypsum blocks Adhesive ClassicWeiss 90 Adhesive SuperWeiss 120/SuperWeiss 200 Adhesive Hydro 90	kg/m ²	approx. 1.0 – 1.5	25 kg bag	40 pcs./pallet
Fill ceiling joint, close electrical slots FG 700 Füllgips Spezial	kg/m ²	approx. 2 – 3	30 kg bag	40 pcs./pallet
Gypsum filler (backfilling doorframes) FG 700 Füllgips Spezial	kg/doorframe	approx. 17	30 kg bag	40 pcs./pallet
Gypsum smoother (smoothing partition surface) SG 90 Uni	kg/mm/m ²	approx. 0.8	25 kg bag	42 pcs./pallet

LITERATURE

EN 12859 (2011-05) Gypsum blocks – Definitions, requirements and test methods

EN 12860 (2002-07) Gypsum based adhesives for gypsum blocks – Definitions, requirements and test methods

DIN 4103-2 (2017-09) Internal non-load bearing partitions – Part 2: Partitions made of gypsum blocks

EN 15318 (2008-01) Design and application of gypsum blocks

NOTE: In Germany gypsum blocks according to EN 12859 are used for non-load bearing partitions on the basis of German standard DIN 4103-2. The European standard EN 15318 for design and application of gypsum blocks is not applicable in Germany as it contradicts national building authority requirements.

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