

Technical product data sheet



Product: **Livenza**

Color: Light grey and dark grey

Nominal Size: 330x330x9

Norm: EN 14411:2012 an. G Bla GL

Product link :

Area: Passar utmärkt i offentliga utrymme

C2

Parameter	Norm used for LB parameters	Standard requirement EN 14411:2012 an.G, Bla, GL	Livenza
Length / width	ISO 10545-2	± 0.6%	± 0.4%
Thickness	ISO 10545-2	± 5%	± 5%
Straightness of casting edges	ISO 10545-2	± 0.5%	± 0.4%
Rectangularity	ISO 10545-2	± 0.5%	± 0.4%
Middle surface flatness	ISO 10545-2	± 0.5%	± 0.25%
Middle edge flatness	ISO 10545-2	± 0.5%	± 0.25%
Corner flatness	ISO 10545-2	± 0.5%	± 0.25%
Water absorption	ISO 10545-3	E ≤ 0.5%; individual max. 0,6%	E ≤ 0.2%; individual max. 0,2 %
Bending strength	ISO 10545-4	min. 35 N/mm ² individual min 32 N/mm ²	min. 35 N/mm ² individual min 32 N/mm ²
Breaking strength	ISO 10545-4	min. 1300 N	min. 1300 N
❄ Frost resistance	ISO 10545-12	resistant	resistant
Abrasion resistance	ISO 10545-7	not required	4
Coefficient of linear thermal expansion	ISO 10545-8	not required	max. 8 x 10 ⁻⁶ K ⁻¹
Thermal shock resistance	ISO 10545-9	not required	resistant
Resistance to low concentration of acid and alkalis	ISO 10545-13	manufacturer to state classification	GLA
Resistance to high concentration of acid and alkalis	ISO 10545-13	not required	GHB
Resistance to house and pools chemicals	ISO 10545-13	min. GB	GA
☑ Stain resistance	ISO 10545-14	-	class 5
Surface quality	ISO 10545-2	min. 95% without visible defects	min. 95% without visible defects
👤 Slip resistance water	DIN 51 097	-	-
👤 Slip resistance oil	DIN 51 130	-	R9

*Please read PDF Technical preference table

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3.5 ABRASION RESISTANCE (PEI)

Recommended use of glazed tiles according to the class of abrasion resistance:

Class PEI 1	Designed for floors unlikely to be scratched for soft sole use, e.g. bathrooms, bedrooms and toilets in apartments, as well as tiled swimming pools and walls.
Class PEI 2	Designed for floors occasionally exposed to risk of scratching and regular shoes, e.g. living areas, except for entrance and similar areas.
Class PEI 3	Designed for floors exposed to frequent pollution, e.g. in apartments and family houses, corridors, except entry areas. It is designed for entrance halls, enclosed balconies, balconies, offices, home kitchens, hotel rooms, sanitation and therapeutic rooms in hospitals.
Class PEI 4	Designed for busy foot traffic and stronger pollution, e.g. interiors of administrative buildings, hotel corridors, business rooms, and offices.
Class PEI 5	Designed for floors highly exposed to abrasion and pollution, e.g. shops, restaurants, and hotel staircases, shopping centres, airport and passenger halls.

3.6 SLIP RESISTANCE OF FLOORS



Slip angle Identification Use

6–10°	R9 Interior and relaxation surfaces, canteens, corridors of official buildings, schools and hospitals (Public use)
10 – 19°	R10 Warehouses, small kitchens, sanitary premises
19 – 27°	R11 School kitchens , washing lines, laundries, entrance areas, outdoor stairs
27 – 35°	R12 Large kitchens, working pits, dairies
Over 35°	R13 Fat refineries, leather works, and slaughter houses

For floors for barefoot walking, according to CEN/TS 16 165:2012, EN 13451-1,

DIN 51 097, GUV 26.18 and CSN 725191, following fields of application:



Slip angle Identification Use

>12° A	A Mainly dry corridors for barefoot walking, changing rooms, bottoms of pools from 80 to 135 cm
>18° B	Public showers, pool decks, paddling pools, stairs, bottoms of pools up to 80 cm
>24° C	Underwater stairs, inclined pool sides, starting blocks, inclined bottoms of pools

3.7 CHEMICAL PROPERTIES

Chemical properties, defining resistance of tiles against staining, exposure to household chemicals. Pool chemicals and strong acids and alkali, are other important aspects in selection of suitable tiles by architects or customers. Methods for determination of chemical resistance are described in EN ISO 10545-13, and the method for determination of resistance to staining is described in EN ISO 10545-14.



Resistance classes


Class 1	Stains cannot be removed
Class 2	Stains can be removed by long term application of cleaning agents
Class 3	Stains can be removed with strong concentrated cleaning agents
Class 4	Stains can be removed with weak concentrated cleaning agents
Class 5	Stains can be removed with running water

3.8 FROST RESISTENT



Frost resistant products.

3.9 RECTIFIED TILES

 Sawn edges, allow grout 2 mm

For more technical information, email info@hillnaturalstone.com