Product: DENARIUS **Date:** 27/03/2023 **Inspection:** 1/1

Material:	Ceramic tile dry pressed	**Size:**	60 x 60
Clay:	White body porcelain	**Group:**	BIa
Recommended use:	Floors, walls and ceilings, interior and exterior		

Dimensions and surface appearance (ISO 10545-2)

Length:	600 ± 2,00 mm	**Straightness of Sides:**	600 ± 1,50 mm 600 ± 1,50 mm	**Orthogonality:**	600 ± 2,00 mm 600 ± 2,00 mm
Width:	600 ± 2,00 mm	**Thickness:**	9,1 mm. ±0.46 mm		

Surface flatness

Centre curvature:	**(Concave)**	- 2,00 mm	**(Convex)**	+ 2,00 mm
Edge curvature:	**(Concave)**	- 2,00 mm - 2,00 mm	**(Convex)**	+ 2,00 mm + 2,00 mm
Warpage:	**(Concave)**	- 2,00 mm	**(Convex)**	+ 2,00 mm

Surface appearance: Minimun 95% of the tiles have to be free of defects that could damage the superficial aspect of the tile. See criteria to determine quality: page 3

Physical properties

Water absorption (ISO 10545-3):	≤ 0,5 %	**Frost resistance (ISO 10545-12):**	According to standard
		Thermal shock resistance (ISO 10545-9):	According to standard
		Cracking resistance (ISO 10545-11):	According to standard
Breaking strength (ISO 10545-4):	> 1.300 N	**Bending strength (ISO 10545-4):**	> 35 N/mm²
Scratch resistance (UNE-67-101):		Mohs 7	
Abrasion resistance (ISO 10545-7):		Class 4	

Slip resistance

Not Applicable

Chemical properties

Stain resistance (ISO 10545-14): Class 5

Chemical products resistance (ISO 10545-13)

Acids and bases in low concentration:	GLA	Acids and bases in high concentration:	GHA
Household cleaning products and chemical products for swimming pools:	GA		

 The technical specs shown above are obtained following the regulation UNE-EN 14411 2004, with the exception of the slip resistance that follows the regulation UNE-ENV 12633: 2003.

DESCRIPTION OF SURFACE DEFECTS ON CERAMIC TILES

The following types of surface defects are described:

- **Crack:** fracture in the body of the tile visible on the seen side, on the unseen face or on both.
- **Breah:** fracture of the piece produced in the kiln during cooling, which appears in the enamel as a thin crack as a irregular stroke.
- **Lack of enamel:** small areas on the enameled face that do not contain enamel.
- **Raft:** unintended depression in the surface of the tile.
- **Pinhole:** tiny holes in the surface of the tile.
- **Devitrification:** unintentional crystallisations of the enamel visible to the naked eye.
- **Dotts and stains:** any unintentional visible point that contrasts with the enameled surface of the piece.
- **Press defects:** clay attached on the surface of biscuit or later covered by enamel.
- **Serigraphy defects:** areas where little sharpness is seen, or lack of silkscreen in the decoration of the piece.
- **Blunt:** broken fragments coming from the edges, corners or surface of the tile.
- **Scrubbing Defects:** unusual presence of enamel along the sides of the piece.
- **Burr:** excessive enamel accumulation along the edge of a tile.
- **Irregular edge:** unintentional irregularities in the edges of the piece.
- **Bubbles:** small superficial blisters resulting from the degassin process during fiering.
- **Wave and bell grating:** straight line or circular in the enamel of different tonality to it.
- **Off shade:** difference of shades between tiles of the same batch.
- **Decentering:** loss of sharpness of the drawing due to the poor layout between the different serigraphs that form the drawing of the tile.
- **Grazed:** superficial loss of the enamel and / or screen printing by contact of the tile with some object.
- **Failure of screenprinted by alternative screens:** error in the sequence of screens established in the design of th

RESULTS CRITERIA

The criteria for determining the quality of the piece are shown in the following table::

Defect	1st Quality
Cracking	Total absence
Crazing	Total absence
Breach	Total absence
Lack of enamel	Total absence
Raft	Total absence or presence of a single raft with a diameter less than 1 mm
Pinhole	Total absence or presence of fine pricking in a dispersed manner by the piece
Devitrification	Total absence
Dotts and Stains	Total absence or presence of a single defect without alteration of the roughness of the enameled surface
Press defects	Total absence or presence of a single defect without alteration of the planarity of the enameled surface
Serigraphy defects	Total absence or presence of the defect without altering the original design
Blunt	Total absence or presence on the surface without observing the sponge cake, and at most up to a distance of 0.5 mm. from the corner of the piece
Defects	Total absence or presence only detected by observing the piece by the alteral
Burr	Total absence or presence in a single localized area of the side of the piece, as long as this area is not greater than 1 cm, the burr does not protrude from the enameled alteral more than 1 mm.
Irregular edge	Total absence or presence without visually affecting the side of the enameled face of the piece
Bubbles	Total absence
Wave and grating of bell	Total absence
Off shade	Total absence
Off center	Absence of the defect
Grazed	Total absence
Serigraphic failure by alternative screens	Total absence