



WAFERS DESCRIPTION NOMENCLATURE

**ADVANCED TECHNOLOGY FOR
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SHEET**

- SCOPE: This article explains the nomenclature used to identify wafer types and specification, along with the key descriptive criteria to consider when choosing wafers.

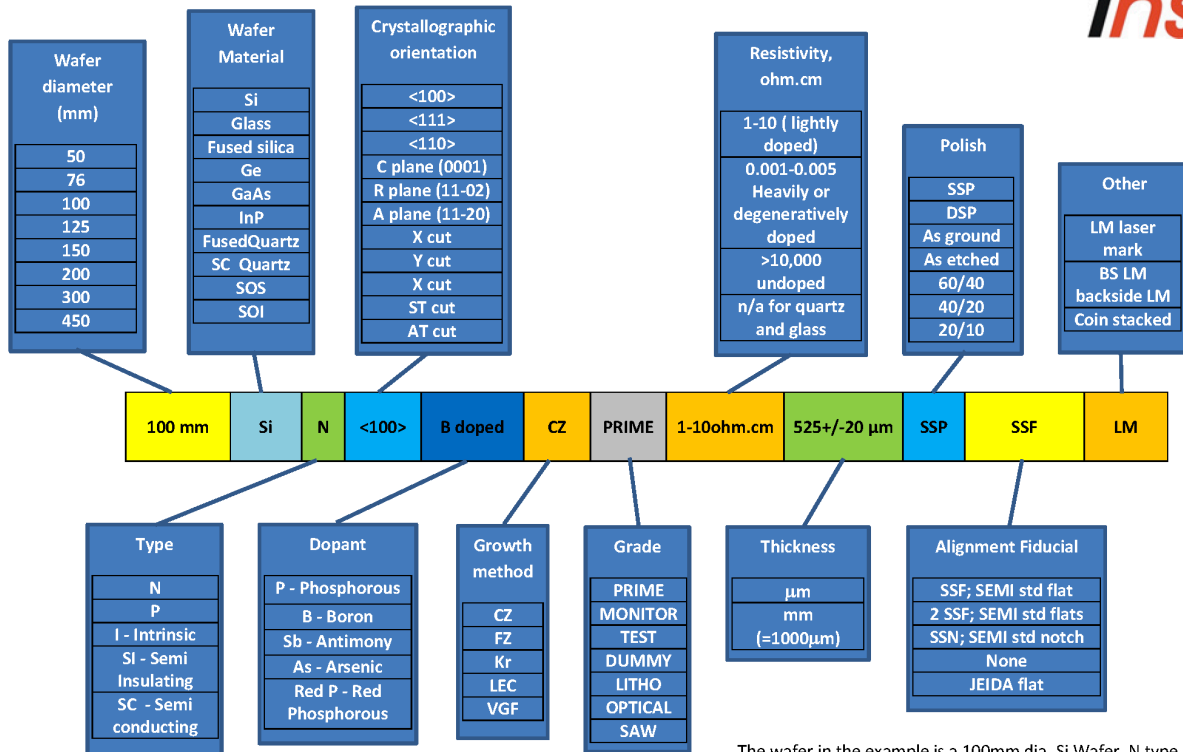
Wafer selection is key to a successful use of wafers and substrates for your process. Wafers are manufactured with very high precision, with attributes specific to the electronic and mechanical properties and any coatings applied after manufacture.

Wafers are manufactured from three main materials:

- Silicon
- Glass and fused quartz
- 3-5 or 2-6 and Compound semiconductors, and Sapphire

The figure below describes Inseto's nomenclature chart for Silicon wafers:

Inseto - Silicon Selection Nomenclatures Chart



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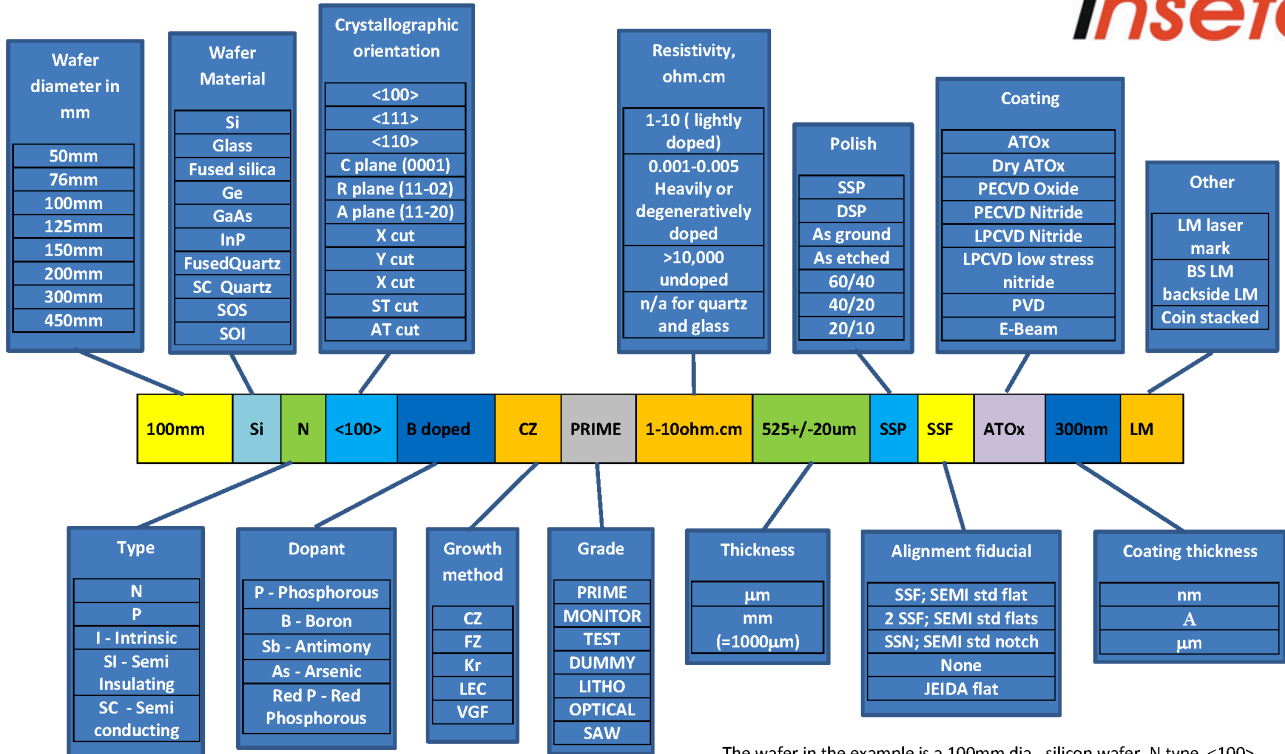
The wafer in the example is a 100mm dia, Si Wafer, N type, <100> orientation, B doped, CZ grown, PRIME grade with resistivity of 1-10ohm.cm, thickness is 525+/-20um and it is single side polished with SEMI std flat.

The wafer also has a Laser mark for identification.

The second category of wafers we classify are coated wafers. These are wafers with an added layer either on both the top and bottom surfaces of the silicon or just one of the surfaces – usually the top.

The figure below shows Inseto's nomenclature chart for Coated Wafers:

Inseto – Coated Wafers Selection Nomenclatures Chart



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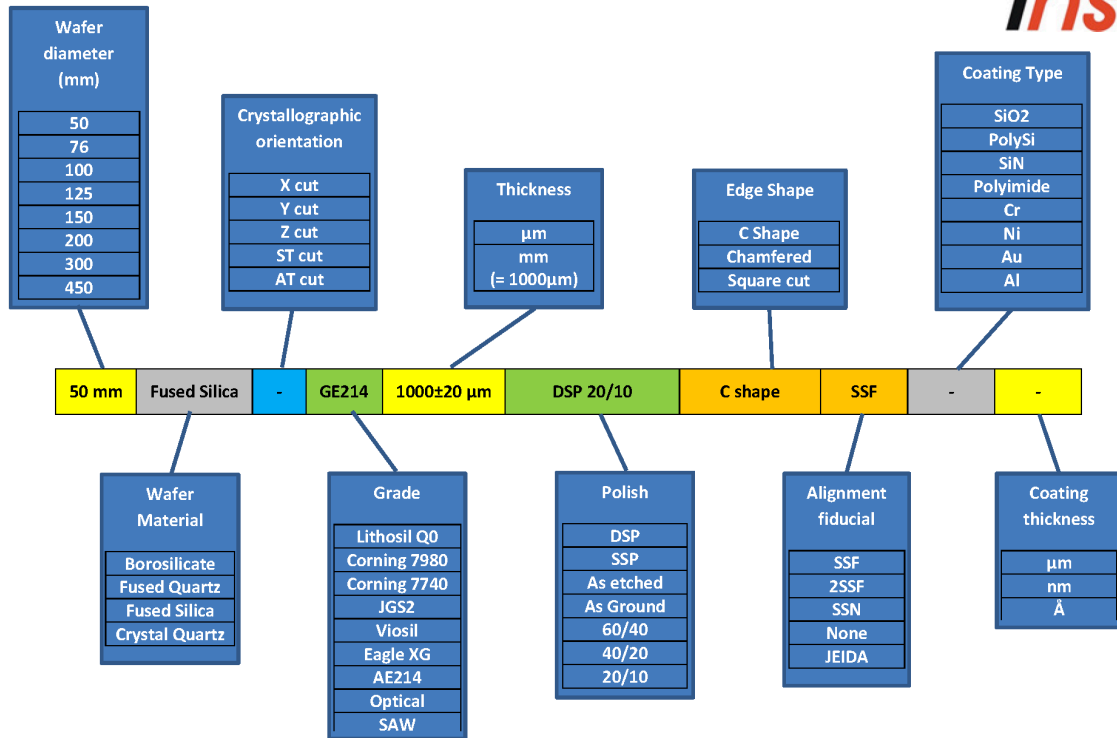
The wafer in the example is a 100mm dia, silicon wafer, N type, <100> orientation, B doped, CZ grown, PRIME grade with resistivity of 1-10ohm.cm, thickness is 525+/-20um and it is single side polished with SEMI std flat.

The wafer has Atmospheric thermal oxide of thickness 300nm on both sides and has a Laser mark

The third category of wafers we classify are glass wafers. These are used when a transparent substrate is required and are categorised by a different set of parameters.

The figure below shows Inseto’s nomenclature chart for Glass Wafers:

Inseto - Glass Selection Nomenclatures Chart



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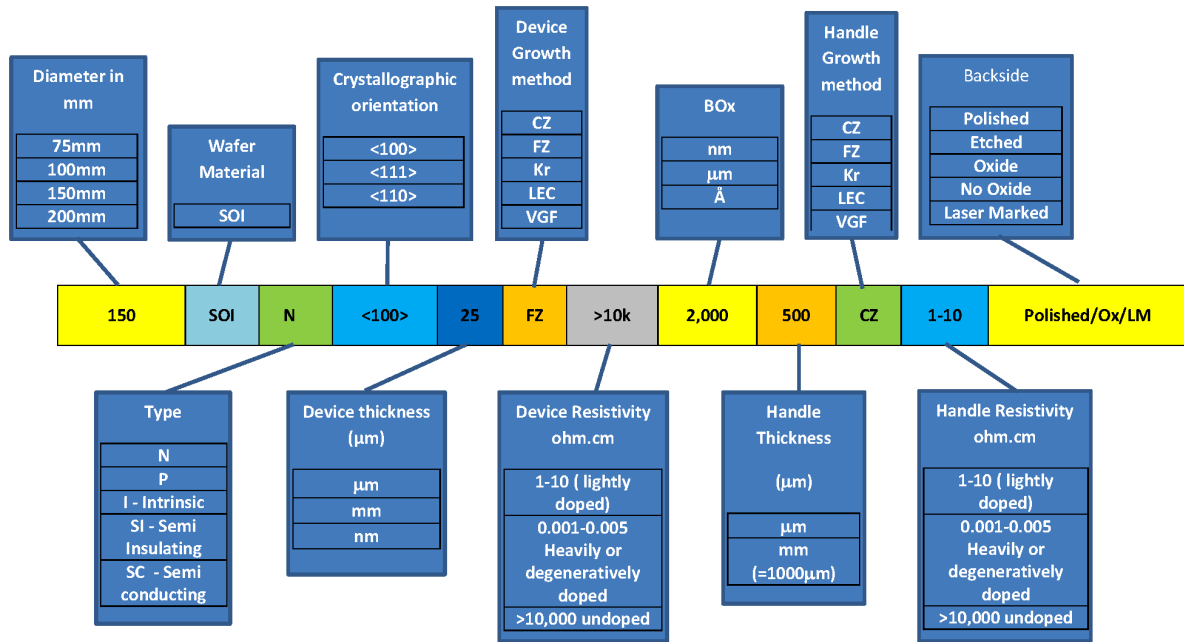
The wafer in the example is a 50 mm diameter, Fused Silica wafer, GE214 grade, 1000±20 µm, it is double side polished 20/10 with a C shape edge profile and a SEMI standard flat.

The final category we use to classify our wafers is as SOI wafers or Silicon on Insulator.

These wafers are a sandwich of silicon-insulator-silicon. The insulator is typically silicon oxide or sapphire and the make-up of these is highly specific to the end application.

The figure below shows Inseto's nomenclature chart for SOI Wafers:

Inseto - SOI Wafer Selection Nomenclatures Chart



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The wafer in the example is a 150mm, SOI, N type, <100> orientation, 25 μ m thick, FZ grown >10Kohm.cm device. With a 2000 nm buried oxide layer, handle thickness of 500 μ m, CZ grown 1-10ohm.cm.

The backside of the wafer is polished oxide that has been laser marked.

For further information about Inseto's Wafers: <https://www.inseto.co.uk/consumables/semiconductor-wafers-and-substrates-by-inseto/>