

Instruments for Physical Testing of Iron Ore

RDI Test System



RDI Test Systems for **Iron Ore testing**. The same oven and control systems, equipped with appropriate gas flow meters and used with specific reaction tubes and temperature programs, allows to perform tests either on iron raw material as ore pellets, lumps, sinter etc. according to the following Standards.

International Standard	Test
ISO 4696-1	Disintegration
ISO 4695	Reducibility
ISO 7215	Relative reducibility
ISO 4696-2	Reduction Disintegration
ISO 4698	Free swelling
ISO 8371	Decrepitation
ISO 11258	Reducibility for direct reduction

Vertical ovens are based of 5 separate heating zones with individual temperature control systems and are driven by means of solid state power units and temperature controllers and programmers.

Reaction tubes, made in high temperature alloys, include multiple thermocouples and gas inlet and outlet fittings, providing Standard test conditions.

Gas flow control systems with precision mass flow controls and meters. Complete automation of the tests is obtained by automatic timed gas supply to the reaction tube.

The Vertical oven can be equipped with a continuous monitoring weighing device with digital display and recording of weight change of the sample.

A digital **videographic recorder and data logger** provides recording of temperature, weight and gas flow values during the tests. An Ethernet connection it's also available for full on-line monitoring on the process conditions.

Reliability of results greatly depends on temperature and reaction gas flow rate accuracy in terms of:

- **Accuracy of test temperature during all reaction time.**
- **Isothermal temperature distribution in the sample.**
- **Accuracy of reacting gases flow rate.**

To obtain best test reproducibility, the RB Automazione systems are designed according to the ASTM and ISO Standards and provide:

- **High accuracy temperature programmers and controllers.**
- **Multizone ovens with temperature independent controls for best sample isothermal distribution.**
- **High accuracy automatic mass flow meter and control device for gases.**

With the **RDI Test System** it is possible to test iron ores, pellets, sinters and agglomerates for the calculation of the several indexes as RDI, RI, Swelling, Decrepitation as well as the CRI for the Coke. All these tests procedure can be included in one System according to client requirements.

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