

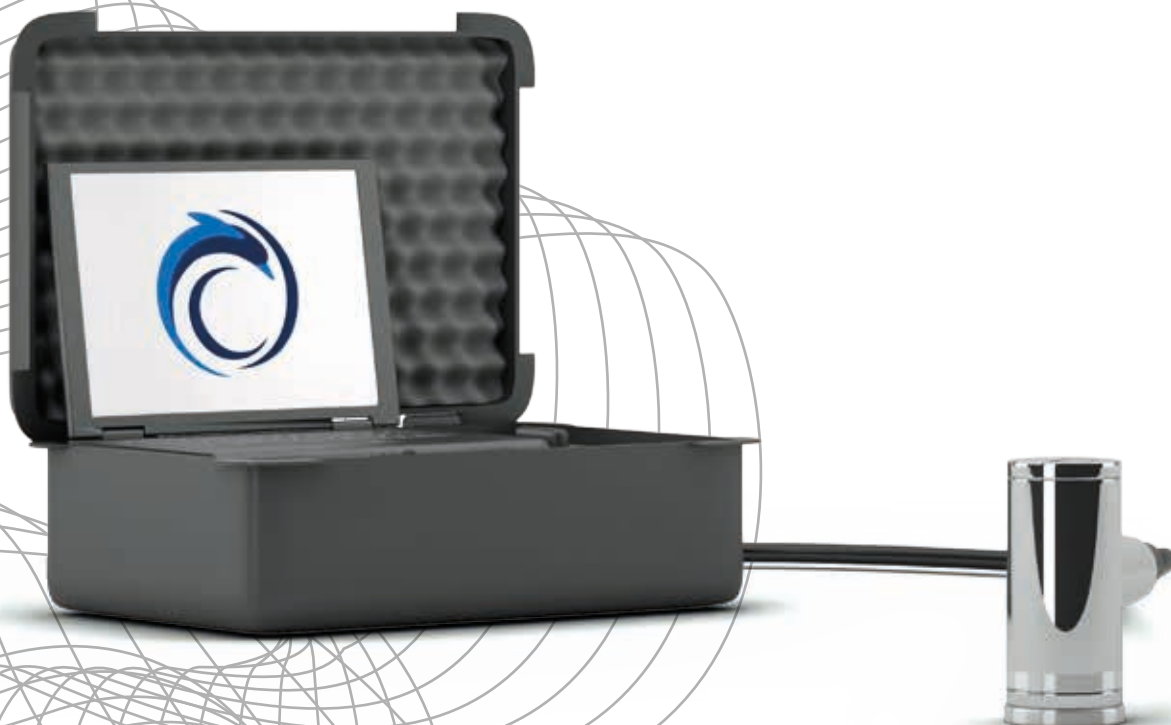


ergolines
INNOVATION PARTNER

OPI – OSCILLATION CHECKER INSTRUMENT FOR BILLET, BLOOM AND SLAB CASTERS.

OPI measures and reconstructs the trajectory of the mould on three orthogonal axes, by means of 3D accelerometers fixed to the oscillation table structure.

Accurate measuring of the spatial trajectory of the mould is of great help in anticipating situations where the oscillation table requires maintenance. It is also useful for monitoring and preventing abnormal caster behaviour and analysing this unusual behaviour in order to obtain the best quality in the cast product.



INSTRUMENT MAIN FEATURES

This system can be used to compare the actual oscillation of the table with the set value. In combination with the casting speed data, **OPI can also estimate the strip time.**

MAIN ADVANTAGES

- › you can assess the stability of the mechanical components of the oscillation table
- › allows you to perform preventive maintenance
- › you can prevent any sticking situations.

VARIABLES MEASURED AND RECORDED

- › speed on the vertical axis
 - › displacements on the z axis
 - › transversal displacements on the x and y axes
 - › expected oscillation curves and measurements can be compared.
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SYSTEM COMPONENTS

OPI is available in the 1 accelerometer, typically used in billet casters, and 2- or 4-accelerometer versions, which are used in bloom and slab casters. All versions can be supplied as permanent and mobile installations.

Permanent installation envisages the supply of:

- › OPI sensors
 - › connecting cables with dynamic laying
 - › field junction box with acquisition electronics (SPUe)
 - › panel containing the PC processing unit and the interface with the PLC of the line
 - › PC-HMI.
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HOW IT WORKS

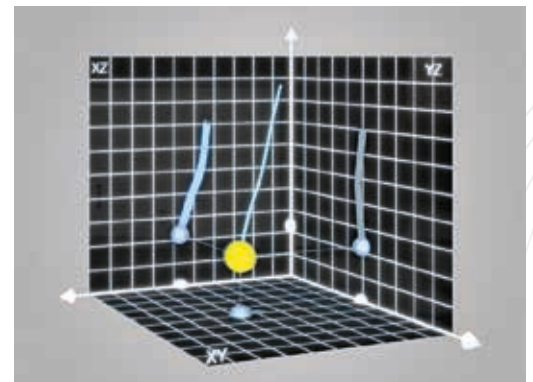
STEP 01

The OPI sensor detects the mould movements on the three axes, X-Y-Z, analyses the planar movements (2D diagram X-Y, X-Z and Y-Z) and reconstructs the complete spatial 3D trajectory of the mould.



STEP 02

All the data acquired is processed through a Fourier analysis in order to determine the oscillation frequency; this enables the user to reliably diagnose the system composed of oscillation table and mould assembly.



INSTALLATION

Installation can be permanent or mobile. In the mobile version both the sensor and the laptop are contained in a special instrument transportation case equipped with USB port and an Ethernet connection for data transfer. The data is displayed in real-time on the PC-HMI screen and saved for later analyses.

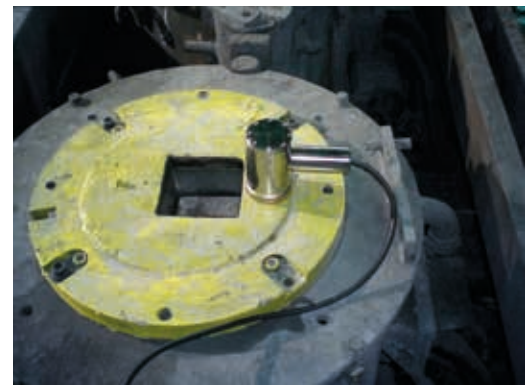
PERMANENT INSTALLATION

All strands are permanently equipped with an OPI sensor to constantly monitor mould oscillations during casting.



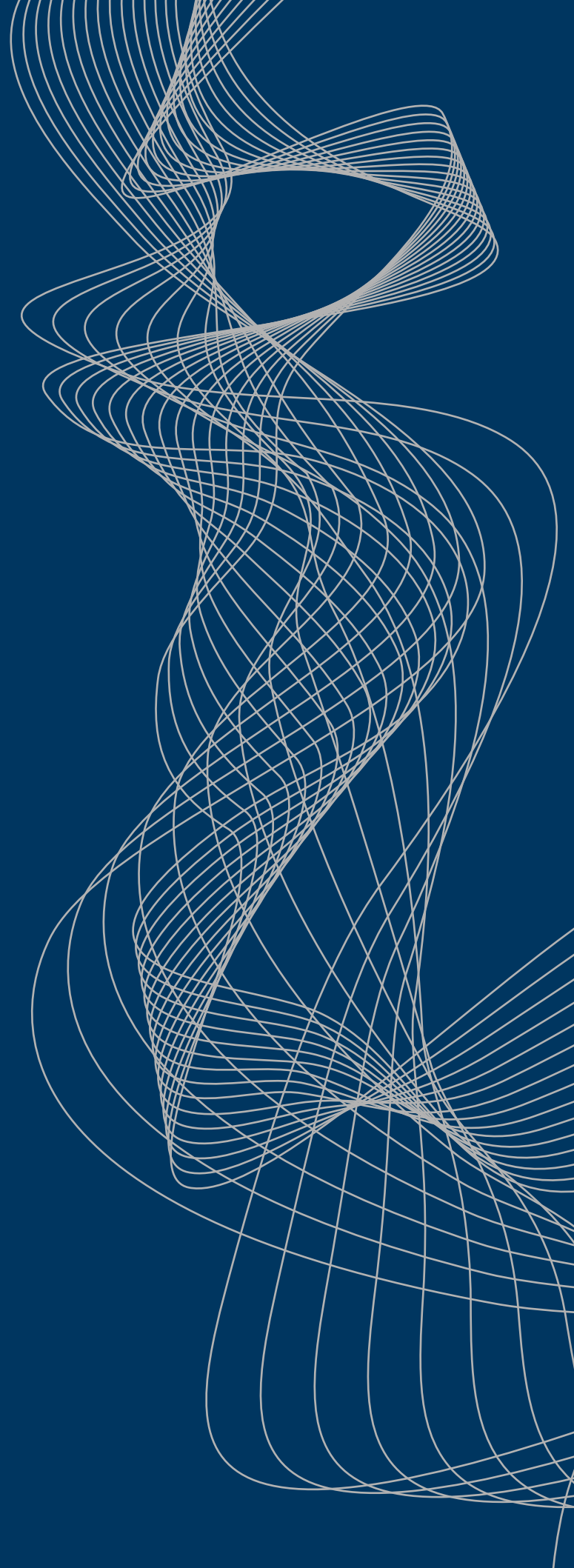
MOBILE INSTALLATION

The OPI system is supplied as a portable instrument, equipped with a transportation case, for strand by strand periodic control of the oscillation unit.



TECHNICAL DATA

Frequency range	1 ÷ 10 Hz (60-600 strokes/min)
Oscillation amplitude range	± 10 mm
Operating temperature	0 ÷ 80 °C
Degree of protection	IP 67
Dimensions	ϕ=80 mm, h=150 mm
Weight of sensor	2.5 Kg



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