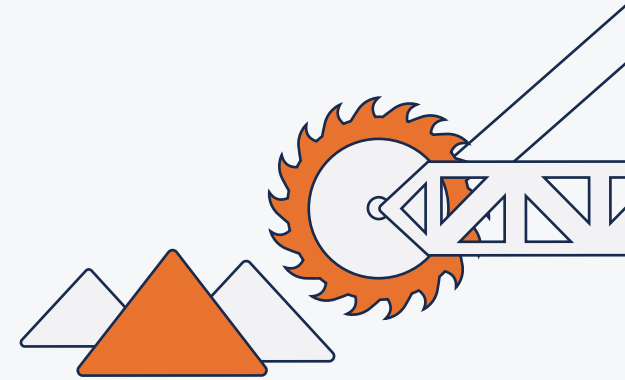


METAL INDUSTRY

# INSPECTION SOLUTIONS



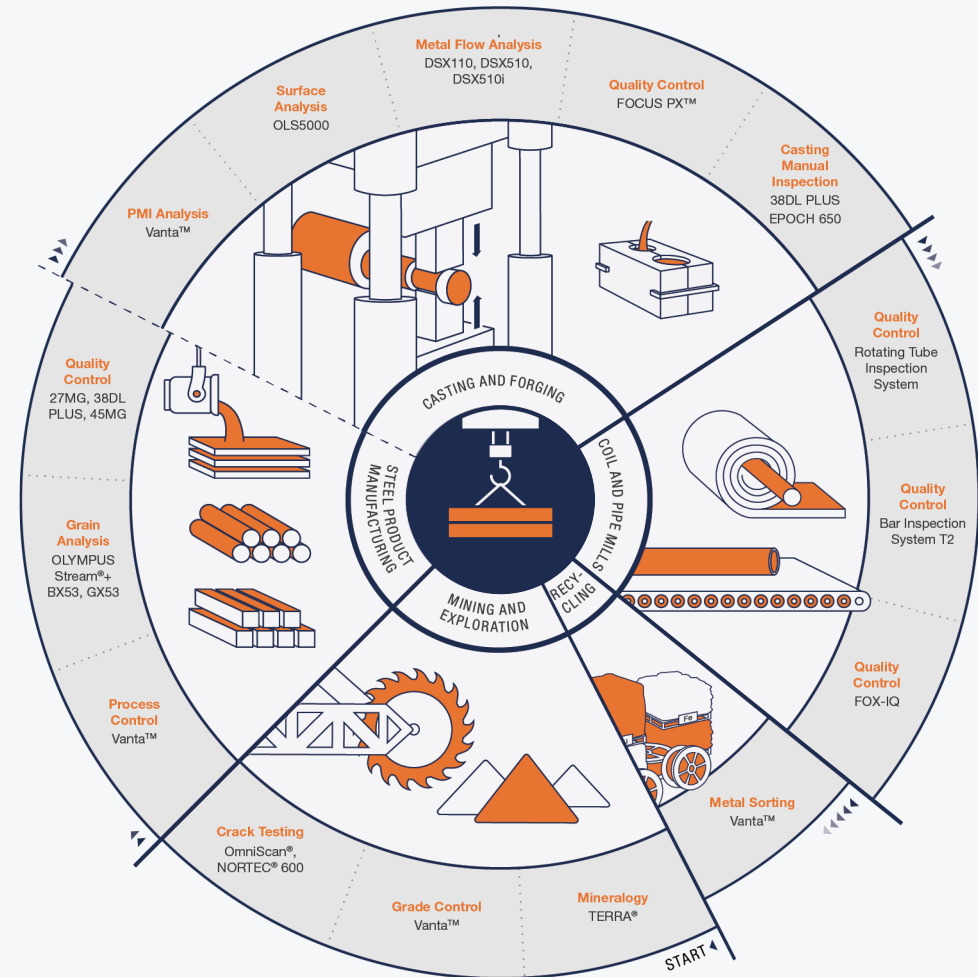
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**Olympus Scientific Solutions**  
[www.olympus-ims.com](http://www.olympus-ims.com)

## Olympus' Inspection Solutions for the metal industry

During the entire metal life cycle from ore mining to recycling, Olympus' solutions are being used to improve processes or to verify the quality of a large number of metallic products.

- ▲ MINING AND EXPLORATION
- ▲ STEEL PRODUCT MANUFACTURING
- ▲ CASTING AND FORGING
- ▲ COIL AND PIPE MILLS
- ▲ RECYCLING





# ONE MINING AND EXPLORATION

**Challenge** Mineralogy

**Solution** TERRA®



Olympus' TERRA® portable XRD analyzer can provide geologists, mining engineers, and metallurgists with quantitative mineralogy in near real-time. Understanding Fe mineralogy can help optimize exploration efforts, improve blending strategies, and improve mine plan. [More](#)

**Grade control**

Vanta™



Olympus' Vanta™ portable XRF analyzer can measure the Mg, Al, Si, Ti, Mn and Fe grade of a sample in seconds. Increasing sampling density in grade control allows the mine to have greater grade confidence, improve blending strategy and identify mine boundary horizons to prioritise production. [More](#)

**Crack testing**

OmniScan®, NORTEC® 600



Mining often entails the use of large trucks and shovels including massive dragline excavators. These equipments are often subject to high tension which can result in cracking and eventually severe damaging. [OmniScan®](#) and [NORTEC®](#) instruments can be used to identify both internal and surface cracks at the very early stage before they become too severe.



# TWO STEEL PRODUCT MANUFACTURING

**Challenge** Process control

**Solution** Vanta™



Metal extraction from sulfide or oxide ores is a complex multistep process during which Vanta™ portable XRF analyzer can be used to increase production efficiency. It can be achieved by providing fast, reliable, on-site analytical measurements of copper matte, steel matte compositions for process control and optimization. [More](#)

**Grain analysis**

OLYMPUS Stream®+BX53, GX53



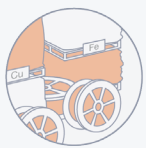
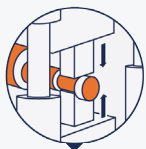
In the metallographic laboratory, analyzing grains in metallic and alloy samples, such as aluminum or steel, is important for quality control. Thanks to advancements in material-science microscopy specific software, operators can leverage image-analysis to analyze grains, in compliance with ASTM E112 as well as a wide variety of international standards. [More](#)

**Quality control**

27MG, 38DL PLUS, 45MG



During metal production, there may be circumstances where part thickness needs to be measured when the test piece cannot be cooled down. Ultrasonic testing presents the advantage of taking thickness measurements from only one side of the hot part. Moreover, measurements can be made instantly and with very brief contact with the hot surface. [More](#)



## THREE CASTING AND FORGING

**Challenge** PMI analysis

**Solution** Vanta™



High accurate measurements of low levels of Cr in carbon steel are critical for predicting the end of life in pipes. Vanta™ portable XRF analyzer can detect trace levels of Cr as low as 0.004% (40ppm) in alloys, and 0.01% (100ppm) in carbon steel for flow accelerated corrosion inspection. [More](#)

**Challenge** Quality control

**Solution** FOCUS PX™



The forging process is associated with the emergence of natural volumetric defects. These defects can be located anywhere in the part volume and must be reliably identified and characterized to ensure high quality parts. FOCUS PX™ data acquisition instrument uses the latest Olympus phased array technology to generate unprecedented signal-to-noise ratio. Four additional dedicated UT channels are available for added flexibility in heavy forging inspection configurations. [More](#)

**Surface analysis**

OLS5000



Steel's surface is treated differently depending on how it will be used. Measuring the post-treatment surface roughness of the stainless steel is important for evaluating the quality of the treatment. High-resolution inspection can be achieved using Olympus' OLS5000 3D scanning laser microscope to easily observe micron-sized three-dimensional surface irregularities. [More](#)

**Metal flow analysis**

DSX110, DSX510, DSX510i



The state of the metal flow is a critical factor in determining the quality of forging and it needs to be checked on the entire component using high definition imaging. In most cases, conventional microscope does not have a sufficient field of view to image the check the entire component. Olympus' DSX digital microscopes can acquire wide-area images in real time, making them the perfect tool for assessing metal flow. [More](#)

**Casting manual inspection**

38DL PLUS, EPOCH 650



In the course of the casting process, a variety of internal discontinuities can occur in the metal. These include voids, porosity, inclusions, and cracks. All of these conditions produce ultrasonic indications that can be identified by a trained operator using an ultrasonic flaw detector with appropriate transducers. [More](#)



# FOUR COIL AND PIPE MILLS

**Challenge**

Quality control

**Solution**

Rotating Tube Inspection System



In the tube manufacturing industry, full body inspection of the pipe is required during online production. Olympus' turnkey solutions are adaptable to fit varied needs. Our high quality inspection solutions comprise ultrasonic phased array probes integrated into fully automated testing systems to meet the most demanding requirements for volume and surface inspection.

[More](#)

Quality control

Bar Inspection System T2



In-line inspection of steel or aluminum round and square bars is required to track both sub-surface and internal indications. Our bar inspection system turnkey solution makes use of a unique floating head design with ultrasonic phased array probes to ensure a high acquisition point density, meeting the most stringent demands from the industry.

[More](#)

Quality control

FOX-IQ



In the aerospace, petrochemical and nuclear industries, the consequences of processing or fabricating with the wrong alloy material can be catastrophic, resulting in eventual business loss. To protect their business, high volume manufacturers need a fast, non-destructive method that checks each piece prior to shipping. The FOX-IQ tube and rod system offers these capabilities as an easy to integrate and use, and reliable solution. [More](#)



## FIVE RECYCLING

**Challenge** Metal sorting

**Solution** Vanta™



The new Olympus Vanta™ portable XRF analyzer for scrap is the state of the art XRF for quick alloy sorting and alloy identification, with fast return on investments and improved casing that makes it the highest IP-rated XRF available. Alloy identification takes one to two seconds, allowing for fast throughput. The analyzer is also compatible with wifi system and cloud-enabled software for ultimate usability. [More](#)

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