



INTEGRATING SPHERES

POLYMER INTEGRATING SPHERES

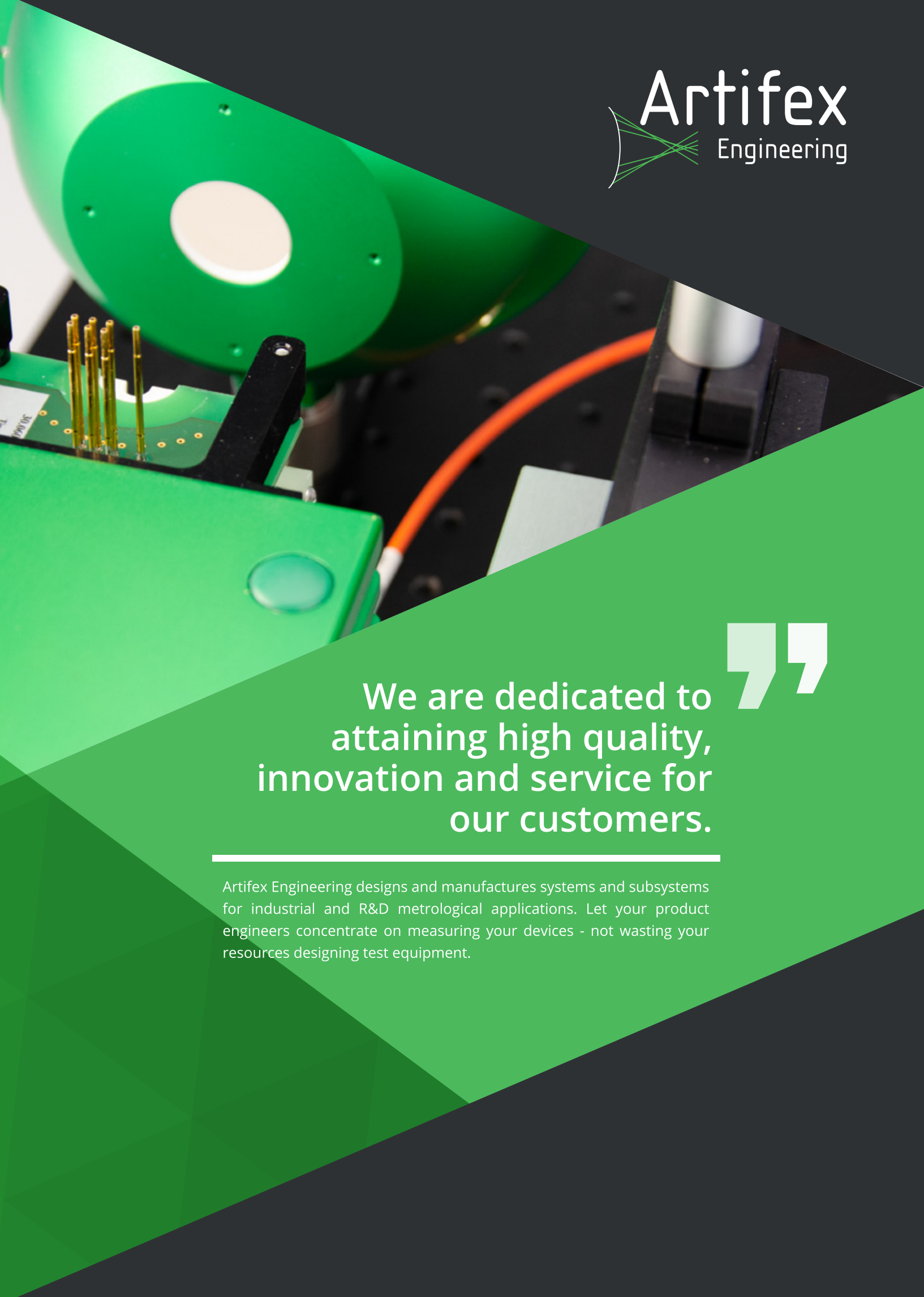
GOLD INTEGRATING SPHERES



Your Supplier
for Instruments & Optics



ISO 9001 CERTIFIED
www.artifex-engineering.com



“
We are dedicated to
attaining high quality,
innovation and service for
our customers.”

Artifex Engineering designs and manufactures systems and subsystems for industrial and R&D metrological applications. Let your product engineers concentrate on measuring your devices - not wasting your resources designing test equipment.

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OUR COMPANY

As an OEM supplier, we consider our customer relationship to be a valuable asset.

We see a major component of our products in the comprehensive pre and post sales support we provide. With more than 20 years experience in the field, we are well positioned to offer our customers advice and design consultation.



Our products form the basis of a wide range of industrial R&D metrological applications. At Artifex Engineering we strive to maintain a close relationship with our customers to ensure that the products we deliver meet your needs cost effectively. We understand that your application is not standard and so we offer customization of all of our products, even for single units. Our manufacturing infrastructure includes rapid prototyping machinery and a flexible manufacturing environment allowing us to customize quickly and efficiently – a definite pricing advantage.

Artifex Engineering is **ISO 9001 certified**. We are dedicated to attaining high quality, innovation and service for our customers.

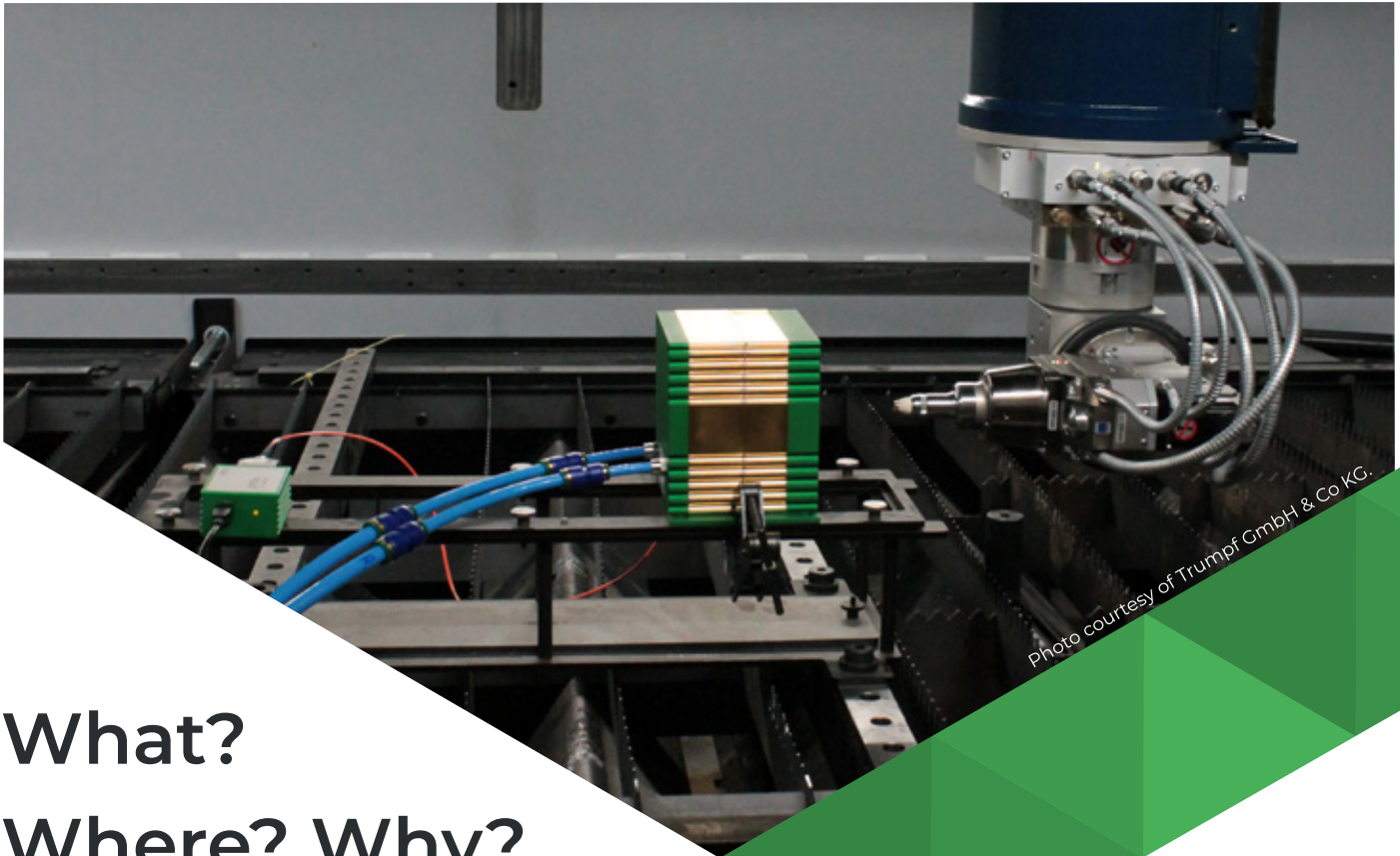


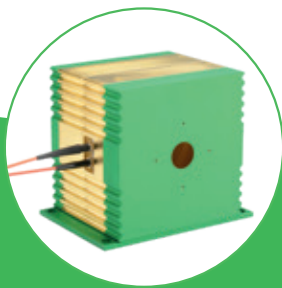
Photo courtesy of Trumpf GmbH & Co KG.

What? Where? Why?

High quality solid polymer
and gold integrating spheres!

Applications:

high speed power measurement | light source homogenization
Solid design and robust mounting for lab use and machine integration.
Compatible with OPM150 system



GOLD INTEGRATING SPHERES

High power handling
Multiple ports
Economical



POLYMER INTEGRATING SPHERES

High efficiency
Extreme positional independence
Excellent homogenization



Polymer Integrating Spheres

Artifex Engineering designs and manufactures a range of high quality polymer based integrating spheres for the visible and near infra-red. The larger spheres have standardized ports for modular configuration. The ports can be populated with either a photodiode or a fibre receptacle. The smaller sized spheres come with an integrated photodiode and an SMA fibre port. These spheres are compatible with our OPM 150 series of optical power meters. Just plug in to your USB port and start measuring! The polymer integrating spheres from Artifex Engineering are very efficient due to the high reflectivity of the quality material we use. These spheres are CNC machined from solid material - not just coated.

A stable instrument you can trust!

Options		Specifications	
Fibre ports	SMA and FC	Wavelength range	250-2500nm
Photodiodes	Si, Ge, VIS-enhanced In-GaAs, IR-extended InGaAs	Positional dependence	<1% (full aperture)
Sphere inner diameters	10mm, 20mm, 50mm, 100mm	Angular dependence	<2% ($\pm 30^\circ$)
		Power and energy density	1kW/cm ² , 2J/cm ²

The perfect match

The 10mm and 20mm P-series spheres feature an integrated photodiode (choice of Silicon, InGaAs or Germanium) for optical power measurement, as well as an SMA fibre port for auxiliary functions such as spectral analysis. Both outputs are located on the back side of the device. These spheres are calibrated and are compatible with our OPM150 series of optical power meter. The P-series is compatible with several market standard optomechanical cage systems.

Inner diameter: 10mm
Input port diameter: 3.5mm
Max. power: 150mW

Inner diameter: 20mm
Input port diameter: 7mm
Max. power: 500mW

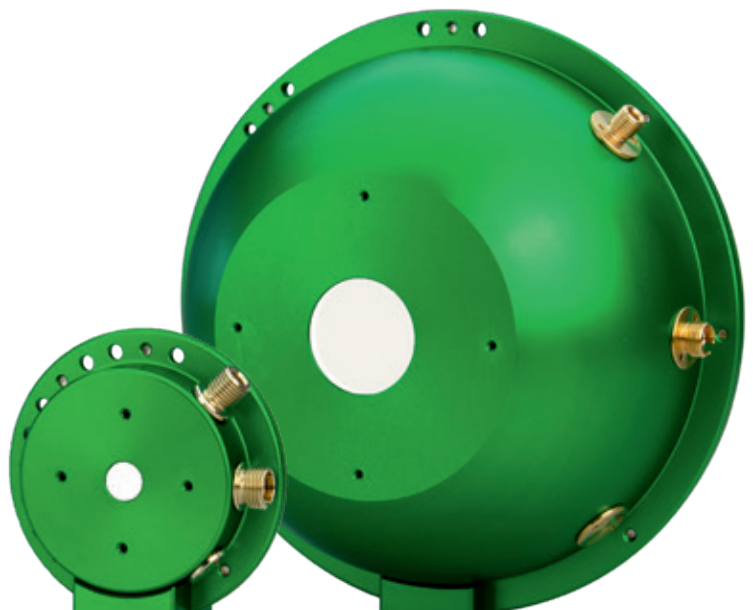


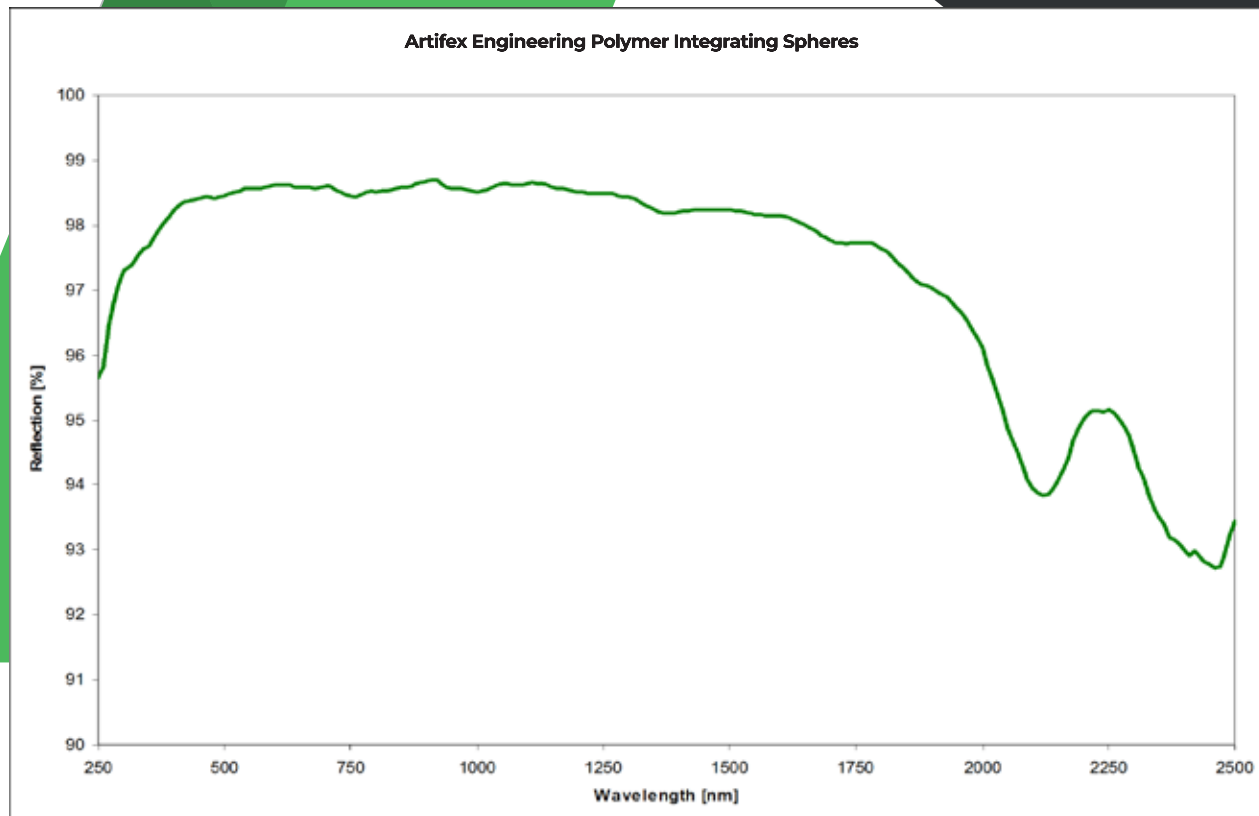
The 20mm, 50mm and 100mm SP-series spheres have modular ports with a choice of SMA and FC fibre receptacles or photodiodes. These spheres allow measurement of high power, when the sphere is configured with a fibre coupled, external detector. This ensures that the photodiode is not exposed to heat during the measurement which would disturb the calibration. In this manner, up to 100W of CW power can be measured on a μ s timescale.

Inner diameter: 20mm
Input port diameter: 7mm
Max. power: 500mW (internal Photodiode)
20 W (external Photodiode)

Inner diameter: 50mm
Input port diameter: 12.5mm
Max. power: 5W (internal Photodiode)
40W (external Photodiode)

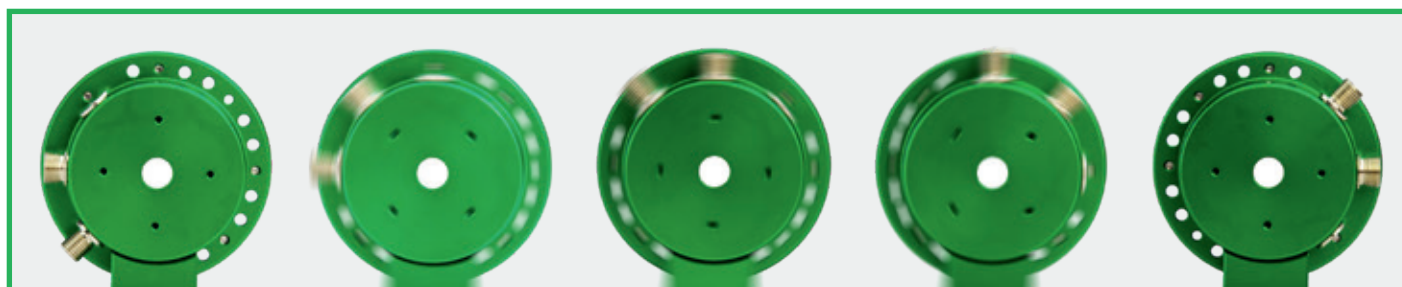
Inner diameter: 100mm
Input port diameter: 25mm
Max. power: 20W (internal Photodiode)
100W (external Photodiode)





Our polymer integrating spheres can be used for optical power measurement as well as beam homogenization for accurate spectral analysis or detector array calibration. The 100mm sphere exhibits a homogeneity of better than 1% at the 25mm port when illuminated through the side (fibre) ports.

The high reflectivity and lambertian diffusivity of the polymer we use ensures **wide band efficiency** over the **full range of 250-2500nm**.



SP-SERIES WITH ROTATABLE AZIMUTH



Gold Integrating Spheres

Our gold coated integrating spheres are designed for high power applications. We use SMA fibre ports to allow accurate measurement with our OPM series of optical power meters.

High power measurements are often performed using thermopile detectors. Thermopiles however, have the disadvantage of reacting very slowly - typical risetimes lead to measurement periods of 1 second at best. The combination of an integrating sphere and a photodiode based power meter allows measuring high power fluctuations on a μs time scale.

Specifications

SMA fibre ports

2 or 4 ports

Power density

5000W/cm²

Power handling

25mm: 20W (uncooled)

65mm: 40W (uncooled)
250W (water cooled)

100mm: 5kW (water cooled)

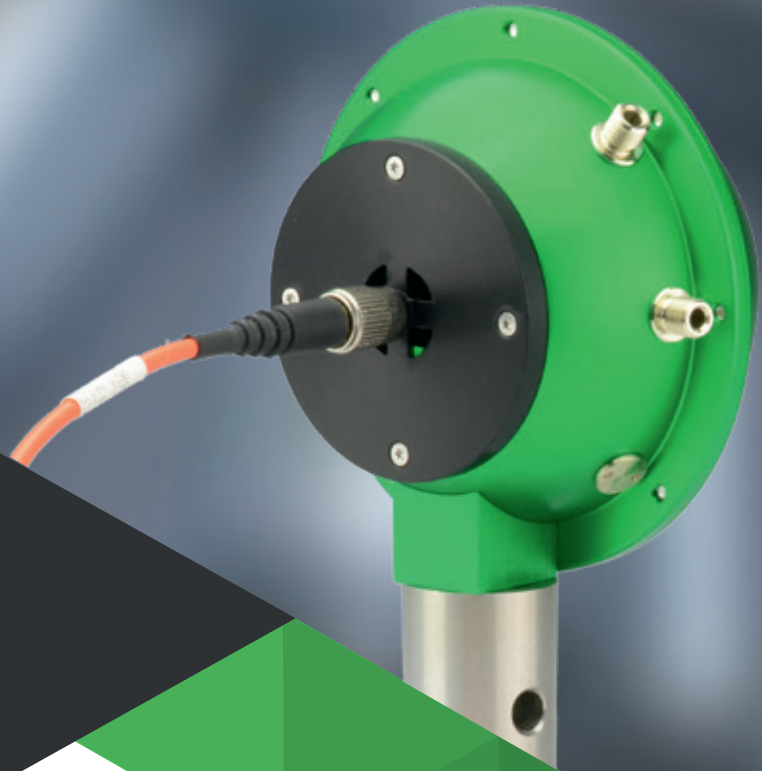
200mm: 12kW (water cooled)

Wavelength range

650nm - 20 μm

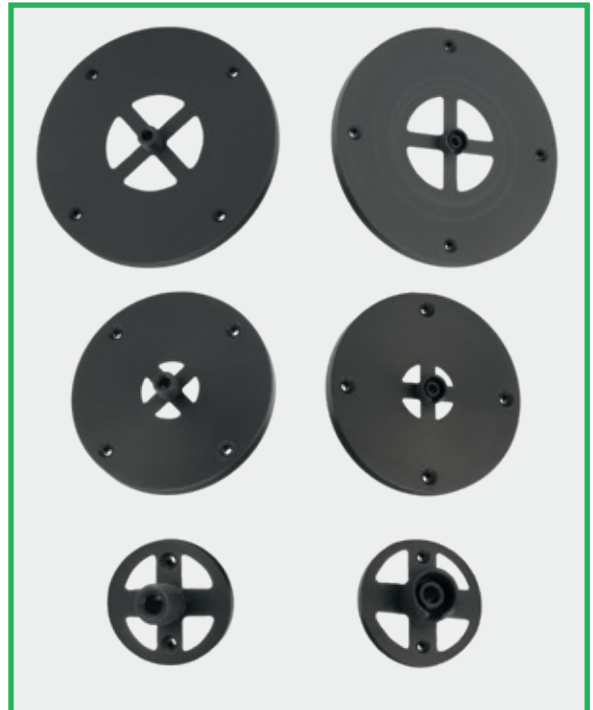
Accessories

for complete, turnkey solutions.

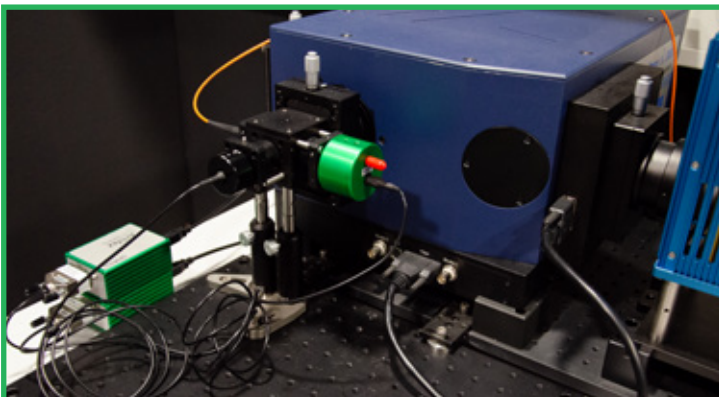


UNIVERSAL PORT ADAPTER

Our proprietary input port fibre adapter design influences calibration by $<1\%$.



FIBRE PORT ADAPTERS



CALIBRATION SERVICE

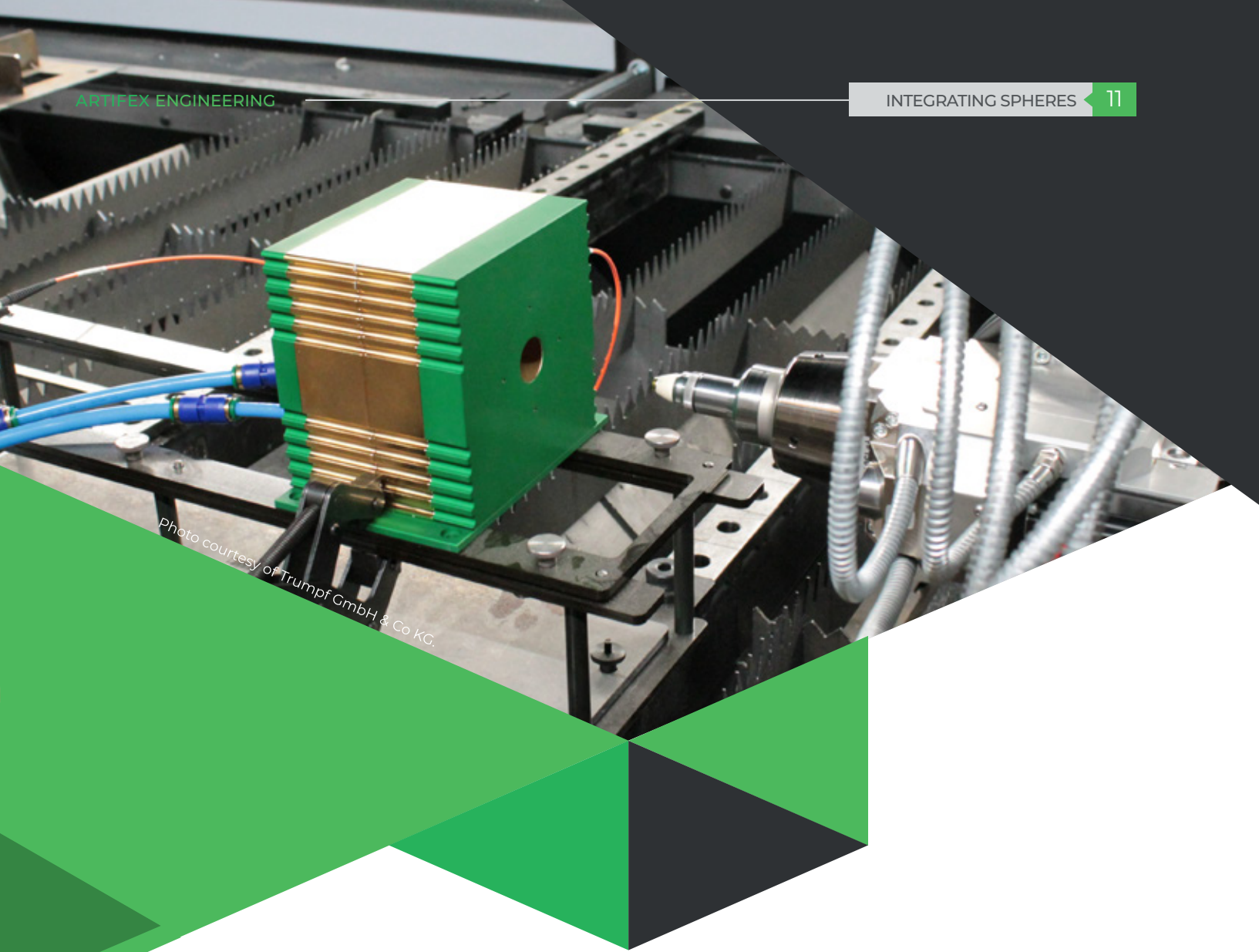


Photo courtesy of Trumpf GmbH & Co KG.

Summary

We offer high quality solid polymer and gold integrating spheres!

Applications:

high speed power measurement - even at high power
light source homogenization

Polymer: 250 - 2500nm

Gold: 650nm - 20 μ m (Power measurement with OPM150: 650 - 2500nm)

Positional dependence <1% (full aperture)

Angular dependence <2% ($\pm 30^\circ$)

Your problem is our challenge, flexibility is our standard!

We will gladly adapt, for example, the aperture or the sphere diameter to suit your application. Let us know your requirements.

Thank You

www.art-eng.de



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