

Integrating spheres



Integrating sphere (d = 500 mm)

Integrating spheres distribute incident light by diffusing reflection evenly over the inner surface of the sphere. They are used in a variety of measuring applications for the integration of light and radiation and as a source of uniform diffuse radiation.

The efficiency of the sphere is based on the diffused highly reflecting inner surface and the spherical shape. In addition to selection of the appropriate wavelength for the material, the proportion of the openings on the spherical surface plays a role in its function. Generally, the proportion of the openings should be less than 5% depending on the application requirements, but even much smaller openings are allowed. We will advise you on the selection of a sphere design suitable for your application.

We use barium sulfate, special PTFE (Teflon), and gold as sphere materials. Barium sulfate is suitable for coating very large spheres for the UV/VIS range. PTFE is especially advantageous for small and medium-sized spheres in the visible and UV range. Gold is preferred in the NIR and IR ranges. Our integrating spheres are manufactured individually. Thus, our offerings can range

from customer-specific geometries and multiple baffles to integrating spheres for luminous flux measurements with a diameter of 2.5 m. As an accessory, we offer stabilized light sources, auxiliary light sources, port adapters, and light conductors. We recommend our RM-22 radiometer for radiometric measurements.

HIGHLIGHTS

- Specialized in customer-specific production
- Diameter of 25 mm to 2.5 m
- Barium sulfate, gold, and PTFE coatings to choose from



TECHNICAL DATA

Diameter	see: part numbers customer-specific on request
Coating	Barium sulfat (BaSO ₄) PTFE Gold
Wavelengths	BaSO ₄ 300-2400 nm PTFE 200-2500 nm Gold 0,7 - 20 µm
Ports	2 (standard)
Baffles	1 (standard)
Options	internal illumination additional ports folding half-spheres
Accessories	Light traps Radiometer Spectrometer Port plug Port reducer

To avoid interfering fluorescence and measurement errors, especially at low luminous flux, our integrating spheres are made of gold or BaSO₄-coated metal spheres. The PTFE integrating spheres are manufactured as solid hollow spheres in a cylindrical aluminium housing.

Thus, we additionally ensure that for all integrating spheres no light comes from outside, as is possible with thin-walled plastic spheres. Integrating sphere that can be opened are available on request.



APPLICATIONS

- Measurement of Luminance and radiance of lamps
- Laser power measurement
- Measurement of LED, OLED, displays, light guides
- Detector calibration
- Measurement of diffuse reflection and transmission
- Uniform light source

PART NUMBERS BARIUMSULFAT

150 mm	850106
200 mm	850108
300 mm	850112
500 mm	850130
600 mm	850135
800 mm	850138
1000 mm	850140
1650 mm	850165
2500 mm	on request

PART NUMBERS GOLD

50 mm	850502
75 mm	850503
100 mm	850504
150 mm	850506
200 mm	850508
300 mm	850512
500 mm	850513
600 mm	850514
1000 mm	850516

PART NUMBERS PTFE

25 mm	850301
50 mm	850302
75 mm	850303
100 mm	850304
150 mm	850306

Since 1981, Opsytec Dr. Gröbel manufactures the UV-measurement equipment and integrating spheres. In 2003, we installed a 2500 mm integrating sphere at the PTB.

