



BO-SF | Processing optics with stable focal position up to 30 kW

The BO-SF is an industry-standard high-power processing optics that is a leader in its field. It provides a stable focus position over the entire processing period. Beam-shaping mirrors with high-quality coatings are used to minimize the influence of contamination and aging. The design of the BO-SF high-power optics is based on the scapacs® modular system. This modularity provides the flexibility for integrating future innovations while permitting a variety of configurations and options.

FUNCTION DESCRIPTION

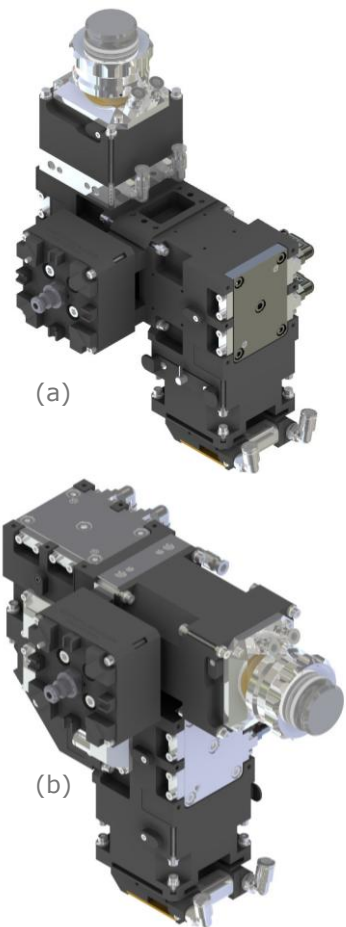
This system is designed to work in very harsh conditions. The system's specifications – high image quality with minimal focus shift and a power dissipation of less than 2 % – set a benchmark for the field of high-power applications. Compatibility with fiber couplings from all major manufacturers is supported. Various optical ratios allow you to configure a precise match between the fiber diameter required for the spot and the required clearance to the workpiece.

AREAS OF APPLICATION

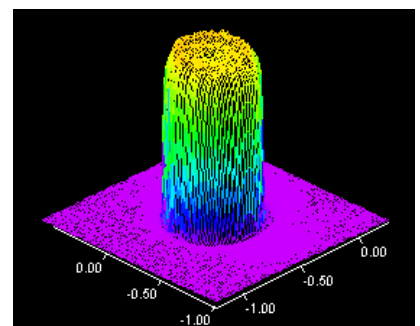
- High-power applications in the multi-kilowatt range
- Used in conjunction with conventional welding processes under harsh operating conditions
- Steel construction, steel sheet: 10 mm and thicker
- Pipeline construction used in combination with orbital technology
- Shipbuilding

PROPERTIES

- Practically shift-free optics: for high performance applications and single-mode applications
- Efficient cooling of the mirror and apertures: for safe, long-lasting operations
- Triple-angled version: for monitoring or quality sensors



BO-SF (a) double angled
(b) triple angled



Intensity distribution in the focus

ADVANTAGES

- Durable optical processing system that features a beam-shaping mirror
- Efficient cooling for the mirrors, bezels and heat protection plates
- High-quality coatings help minimize power loss

TECHNICAL DATA

Wavelength	1030 – 1080 nm
Laser power	max. 30 kW
Guideline value for the focus shift	± 0.02 mm/kW (at M 1:3, 250 mm focus, 6 kW)
Power loss in the optics system	less than 2 %
Collimation focal distances and total angle of acceptance	80 mm @ 520 mrad 120 mm @ 360 mrad 175 mm @ 260 mrad
Focal distance (in mm)	175, 250, 350, 500
IP protection degree	IP64 (with fiber optics cable plugged in)
Dimensions (L x W x H), in mm	250 x 120 x 300

FEATURES

- Fiber couplings for the following types of fiber optic cables: Trumpf-D, Trumpf-B, Optoskand QBH, Optoskand QD, IPG HLC-8, LCA

OPTIONS

- Camera attachment
- Attachment for quality-control system
- Cooling and protective measures (such as cross-jets, ring-jets and heat protection plates)
- Various tool interfaces and mounting options are supported for third-party components

Note: If these features do not meet your requirements exactly, contact us regarding individual solutions.

