



ARTICULATED ARMS

PROVIDING ADVANCED

SOLUTIONS FOR

LASER DELIVERY SYSTEMS

LASER MECH

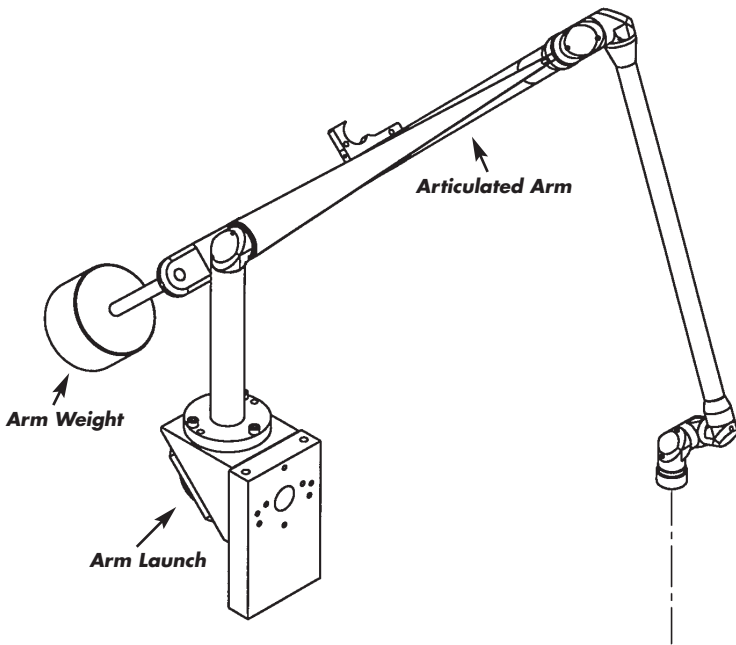
ARTICULATED ARMS

The Articulated Arm is used as a flexible delivery system where preserving the mode quality is essential or suitably transmitting optical fiber material is not readily available. Carefully engineered components provide the best combination of inertia, friction and rotation for precise hand-guided motions. Stainless steel ball bearings and connectors are used along with all-aluminum, anodized tubing and knuckle assemblies to withstand heavy-use environments.

All mirrors are removable and replaceable without realigning. Mirrors are retained in holders when removed for easy inspection. There is a greater than 92% transmission for the CO₂ laser at 10.6 microns, random polarization (greater than 80% for HeNe laser). Power up to 250 watts without cooling. Power density up to 1,000 W per square cm. Mirrors utilized in the arm are designed and manufactured to exacting specifications. When replacement is necessary, mirrors must be purchased directly from Laser Mechanisms.

Damped horizontal and vertical pivots retain arm in its last position when released. The arm is lightweight, with a total weight of 7 kg (less handpiece). The arm weight force is straight down through the flange which eliminates bending moments on mount. Handpiece weights are accepted from 0 to 4 ounces with optional threads available for all popular handpieces and manipulators.

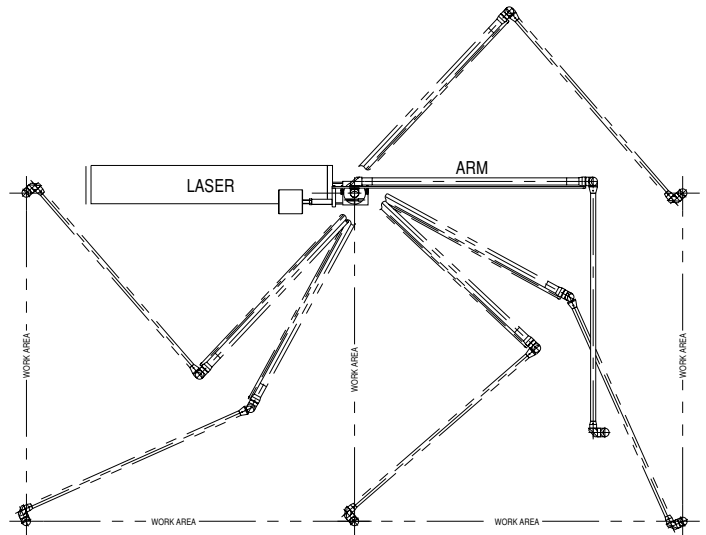
Near field error at end of arm within a 1 mm diameter circle at all arm positions with tubes unstrained. Within a 0.5 mm diameter circle when the vertical down tube is within ± 45 degrees of its normal hanging position. Far field error (angular divergence) is



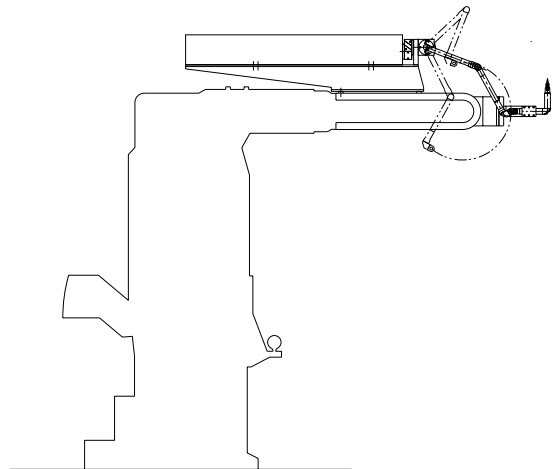
less than ± 1 milliradian to the axis of the last knuckle. Electric isolation arm to ground is $R = 5-10$ Megohm, class CF.

Arms have sealed ball bearings to prevent external contamination and allow internal pressurization. Optional mirrors with higher transmission values, polarization control, Excimer, Ruby, Erbium, Nd: YAG and other wavelengths are available. Custom designs in other lengths, fold-up configurations with collapsible low profile weights, custom colors and shapes, and apertures to 1.4" are available upon request.

Total arm lengths from .5 meter to 2 meters with offset or non offset hubs are available.



Arm Used To Connect A Laser To A Flat Bed Cutter



Arm Used To Connect A Laser To A Robot Arm



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