

BEAMLINE COMPONENTS

MIRROR BENDING SYSTEM

Purpose

The bending system offers elliptical longitudinal shaping to a flat or toroidal mirror installed into a vacuum chamber.

The bending system can be adapted to different types of mirrors :

- length 600 to 1400 mm
- material Si, SiC, SiO₂, Zerodur®.

Design features

It consists in applying two controlled bending moments, by means of two electrical actuators, at each extremity of a mirror.

The moments are controlled independently and enable to obtain elliptical curvatures as easily as cylindrical ones.

The bending system is an independent assembly.

It consists of a rigid frame, equipped at each end with bending rollers, controlled by means of one electrical actuator.

Each actuator consists of a stepper motor, associated to a screw-nut device which, by means of an elastic system, applies a strength on the bending rollers.

The whole assembly is contained in a vacuum-tight box.

Direct reading of the moment applied is available by means of a strain gauge located in this box.

Key features

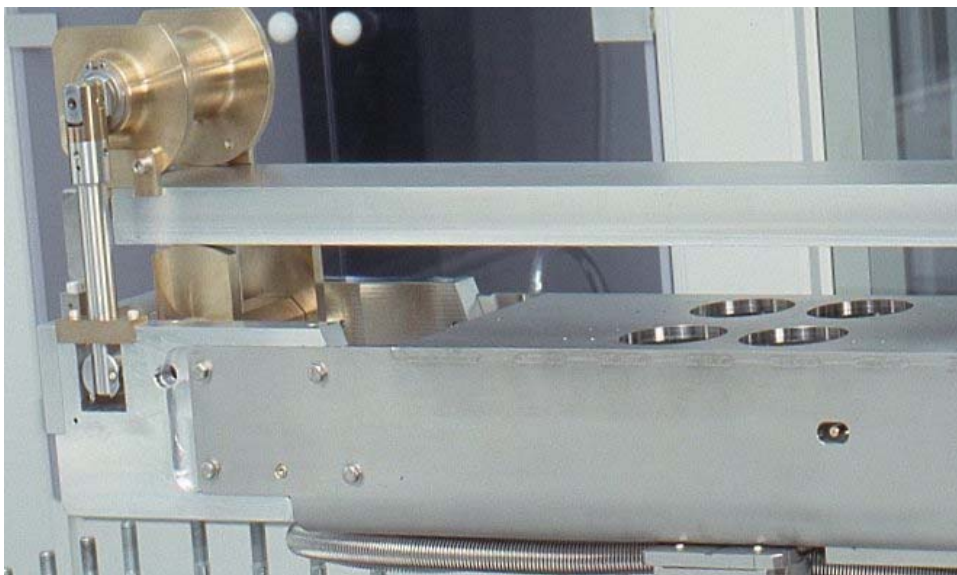
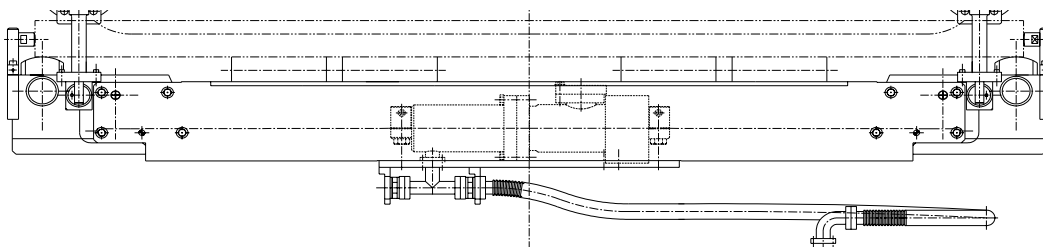
Type of motor	Stepper
Electrical actuator	
Reducer	1/200
Stiffness for 2 steps/motor	10 ⁻³ daN
Pick-up	
. gauge	0-125 daN
. error linearity + hysteresis	± 0.5 % full scale
Tightness	Welded connection and copper seal
Cable output	Flexible pipe onto CF35

Performances

Radius of curvature	≥ 1 km
Slope error	< 0.2 μrad rms
Resolution	< 0.1 μm on sag
Hysteresis around the working value	< 0.1 μm on sag
Maximum torque applied to the mirror	6000 daN.mm
HV compatible	< 10 ⁻⁹ mbar
Baking	up to 120°C

Options

- Supply of the whole system including mirror, bender, cooling system
- Cylindrical bender with only one actuator
- Two electrical actuators in a single frame for elliptical shape.



IRELEC is specialised in the supply of :

- components for beamlines (mirror-holders, bending systems, mirrors, control systems, ...) and complete beamlines
- scientific equipment

IRELEC reserves the right to change these specifications without prior advice in the scope of the improvement of the product

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