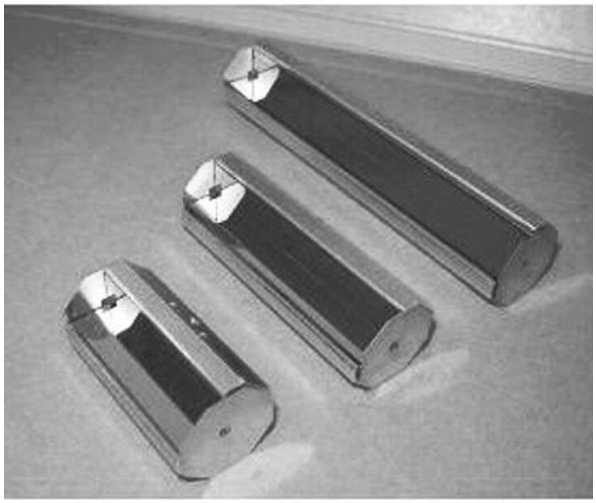


Beam conditioning optics

Elliptically or parabolically bent multilayer reflectors can monochromatise a divergent X-ray and focus respectively collimate (parallelise) it at the same time. Thus a small line source can be reproduced as a line or collimated in a parallel beam with a rectangular cross section.

Typical dimensions:

Typical length:	40 - 150mm
Typical width:	5 - 10mm
Typical heigth of a 2D-optic:	10mm
Typical dimensions (adjustment unit included):	7 x 20 x 20cm³

Typical parameters:

Spectral lines:	Cr, Co, Cu, Ga, Mo, Ag
Typical peak reflectivity:	R > 70% (depending on angle and energy)
Monochromaticity:	Kα1+Kα2 or Kβ
Divergency (parabolic optic):	typically ΔΦ < 0.03°
	(with a generator of 40µm)
Typical parallel beam width:	1.0mm (Mo-K, L = 100mm)
	1.5mm (Cu-K, L = 60mm)
Typical focus dimension:	< 30µm ... 500µm
Typical focal distance:	60 - 100mm (focal point/focus to reflection centre)
Focal distance relation:	f1:f2 ~ 1:1 .. 1:5 (elliptic reflector)
	others on request

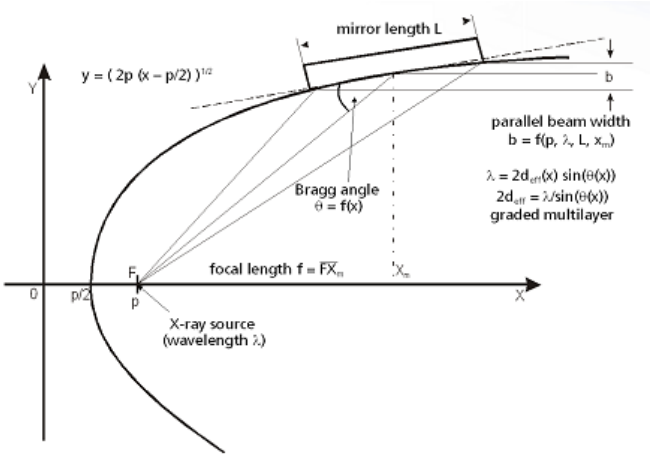
2-dimensional beam conditioning optics:

Two bent optics at right angles to one another (ASTIX geometry) make it possible to focus a dimple spring in one point (ASTIX-f) or to collimate it to a beam with a square cross section (ASTIX-c). A hybrid optic allows for a combination between focusing in one direction and collimating in the other (ASTIX-h).

Vacuum housing of a 2-dimensional ASTIX-optic:

[Translate to English:] Foto von ASTIX-Vakuumgehäusen mit Justiereinrichtung.

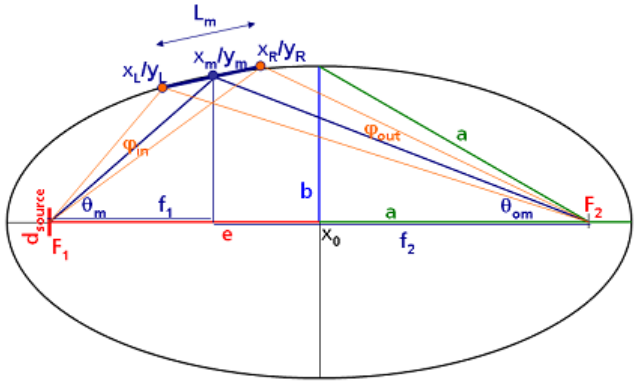
1-dimensional parabolic optic:



[Translate to English:] Funktionsprinzip einer Paraboloptik.

An optic which is bent parabolically in one dimension collimates a divergent beam of a dimple spring or a line source in a rectangular parallel beam or conversely focuses a parallel beam in one point.

1-dimensional elliptic optic:

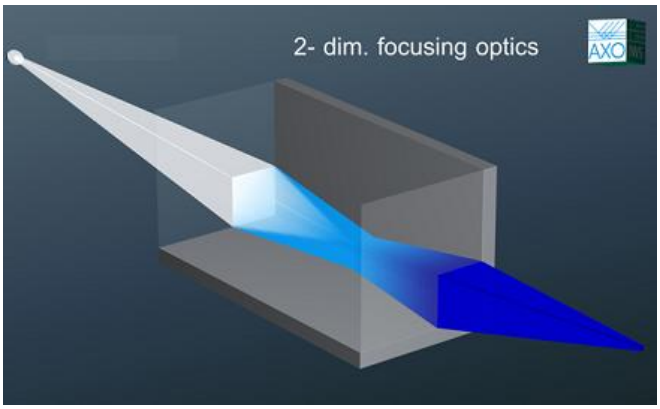


[Translate to English:] Funktionsprinzip einer elliptischen Optik.

An optic which is bent elliptically in one dimension focuses the beam of

a divergent dimple spring or line source in a line. The distances between source, reflector and focus can be set user-defined and cause a variable magnification or diminution of the focus.

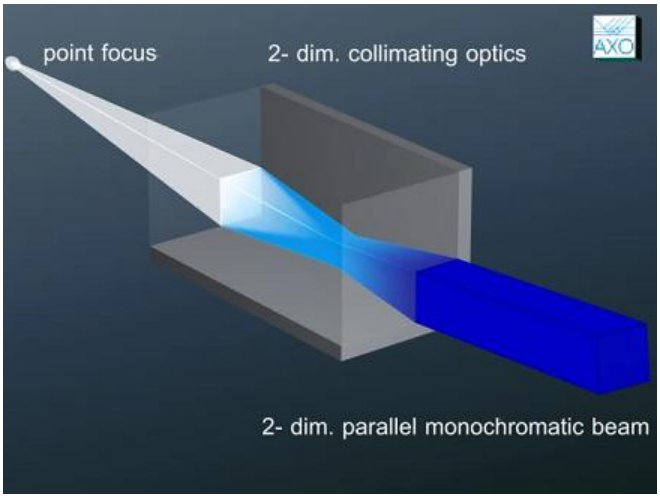
2-dimensional elliptic optic:



[Translate to English:] Funktionsprinzip einer 2-dimensionalen elliptischen Optik.

Two elliptic optics which are at right angles to one another focus the divergent beam of a dimple spring in one point (ASTIX-f). Its dimension can be regulated by choosing the distance between source, reflector and focus. Typical diameters are in the range of < 30µm and 500µm.

2-dimensional parabolic optic:



[Translate to English:] Funktionsprinzip einer 2-dimensionalen Paraboloptik.

Two parabolic optics which are at right angles to one another (ASTIX-c) collimate the divergent beam of a dimple spring to a parallel beam with square cross section (typical lateral length: 1.0 - 2.2mm) or focus a parallel beam in one point.