

## References for Neutron Beam Shaping Devices

MIRROTRON Ltd Company was founded by physicists and engineers of the former Central Research Institute for Physics (KFKI Budapest) in 1991. Its activities are centered on scientific instrumentation, primarily related to neutron scattering. The company has been in good position to take advantage of Hungary's rapid move to market economy and to draw on the experience as well as the achievements of the Hungarian school of neutron scattering. A good example is the installation of a new cold source and supermirror neutron guide system as well as a set of neutron beam experimental stations at the 10 MW Budapest Research Reactor (BRR) in the past few years.

At the moment, MIRROTRON is working with 30 full time employees and regularly helped by about the same number of scientific expert consultants (by case by case contracts).

<b>Title:</b>	<b>Nr.</b>	<b>Qualification profile:</b>
- Manager:	5 person	engineers
- Scientist:	1 person	PhD
- Mechanical Designer:	10 person	mechanical engineers
- Electrical Designer:	2 person	electrical engineers
- Technician:	12 person	technician

MR's personnel and associated partners have long experience in instrument development, since the Company was formed by those scientists at the Budapest Research Reactor (BRR) who had been involved in many important neutron instrumentation projects in Europe. Some of the Company's leading persons spent several years at various outstanding laboratories such as ILL Grenoble, HMI Berlin, LLB Saclay or FLNP Dubna. The successful reactor and neutron scattering instrumentation upgrading at BRR has been also partly lead by this team. MIRROTRON's scientists have had a dominant involvement in instrument construction for about 16-20 neutron scattering spectrometers at 6 different European laboratories. Concerning neutron guides, MR has delivered neutron optical components or entire systems to the following laboratories:












ANSTO - Australian Nuclear Science and Technology Organisation; SNS - Oak Ridge, US; Berlin Neutron Scattering Center; Budapest Neutron Centre; Frank Laboratory of Neutron Physics, Dubna; Helmholtz-Zentrum Berlin, ISIS T2 Rutherford Appleton Laboratory; Institut Laue Langevin, Grenoble; Laboratoire Léon Brillouin, Saclay; Los Alamos National Laboratory; Argonne National Laboratory; JAEA Japan; CARR Beijing; INPC Mianyang.

### Development and production of neutron beam shaping devices:

MIRROTRON prepare the custom design of the specified devices, fabrication and assembly of specific high-accuracy mechanics and provides the quality assurance procedure with neutron absorption and/or transmission measurement of the blades/diaphragms which are controlled, measured and certified by neutrons at BNC reactor.

In years 2000 - 2011 Mirrotron received awards for several contracts for delivery of devices/entire systems.

### References for Neutron Beam Shaping Devices

Institute - Instrument	Model-Device	Qty	Year of Order	Reference person
SNS 	Secondary Rotating Beam <b>Shutter</b> for FnPB beamline	1	2005	Dr. Geoffrey Green
INPC 	Beam <b>Shutter</b> ; Multi-beam <b>collimator</b> system for SANS; <b>Diaphragm changer</b> system	1 15m 3	2006	Dr. Chen Bo
ANSTO 	<b>Diaphragm changer</b> system for QUOKKA SANS	3	2006	Dr. Elliot Gilbert
INPC 	Secondary Beam <b>Shutter</b> <b>Double Slit System</b> for TOF	1 4	2007	Dr. Chen Bo
HMI 	Multi-pinhole <b>Collimator</b> system for V-SANS; <b>Diaphragm changer</b> system	30 3	2008	Dr. Daniel Clemens
CIAE/ICCAS 	Beam <b>Shutter</b> ; Multi-beam <b>collimator</b> system for SANS; <b>Diaphragm changer</b> system;	1 12m 4	2008	Prof. Charles Han
INPC 	Double Focusing Si <b>Monochromator</b> System for RSND	1	2008	Dr. Chen Bo
INPC 	<b>Double Slit System</b> with Optic alignment Laser System for RSND	2	2008	Dr. Chen Bo
SNS 	Secondary Rotating Beam <b>Shutter</b> for Hyspec beamline	1	2008	Dr. Mark Hagen
BNC 	Fast Beam <b>Shutter</b> System	1	2009	Dr. Zsolt Révay
INPC 	Vertical Focusing PG <b>Monochromator</b> System for TAS	1	2009	Dr. Chen Bo
HZB 	<b>Double Slit System</b> under vacuum operation; Beam <b>Shutter</b> ;	1 1	2009	Dr. Markus Strobl
CIAE 	<b>Double Slit System</b> with Optic alignment Laser System for Residual Stress	2	2010	Dr. Li Junhong
BNC 	Double Beam <b>Shutter</b> System for NAP Splitter	2	2010	Dr. László Rosta