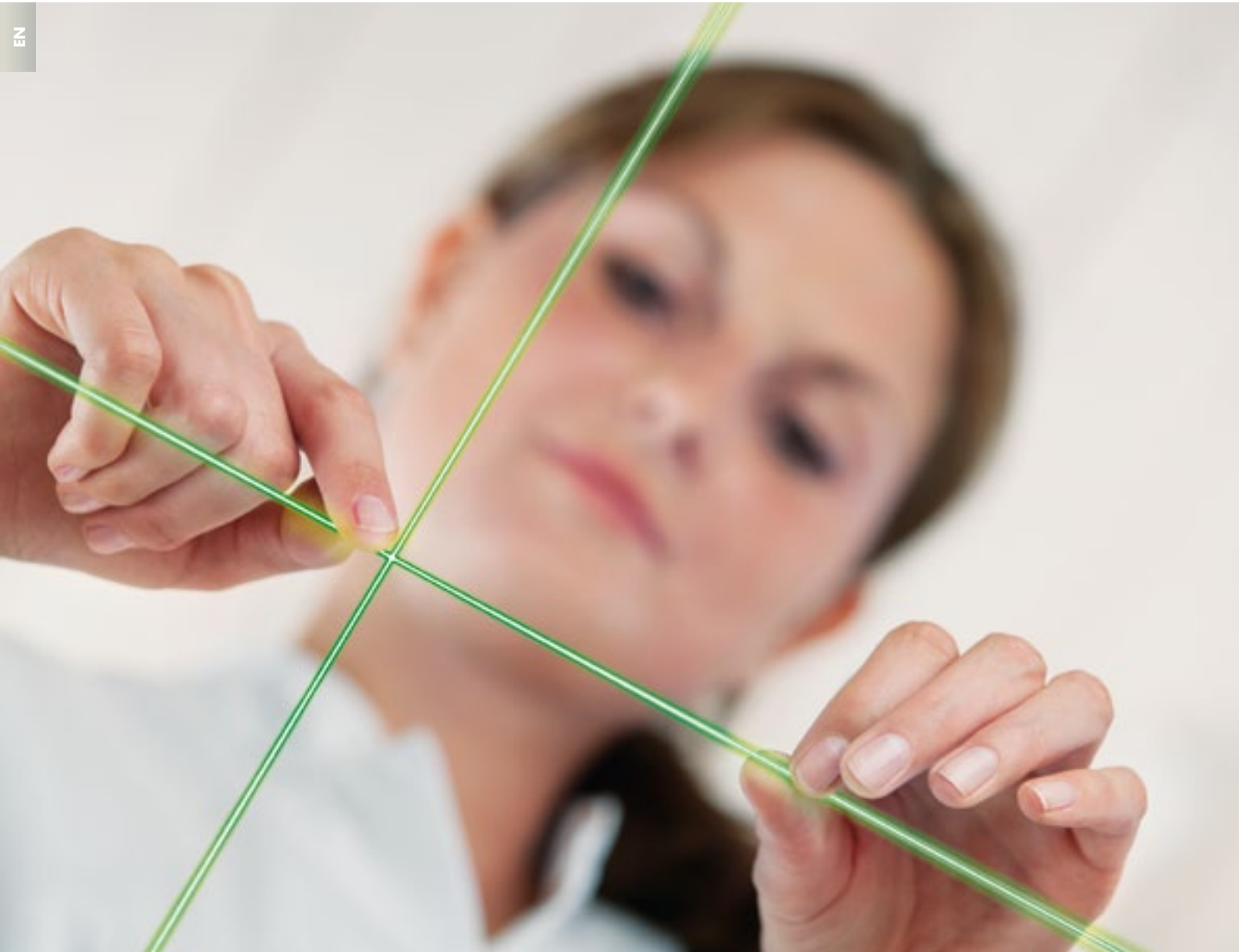


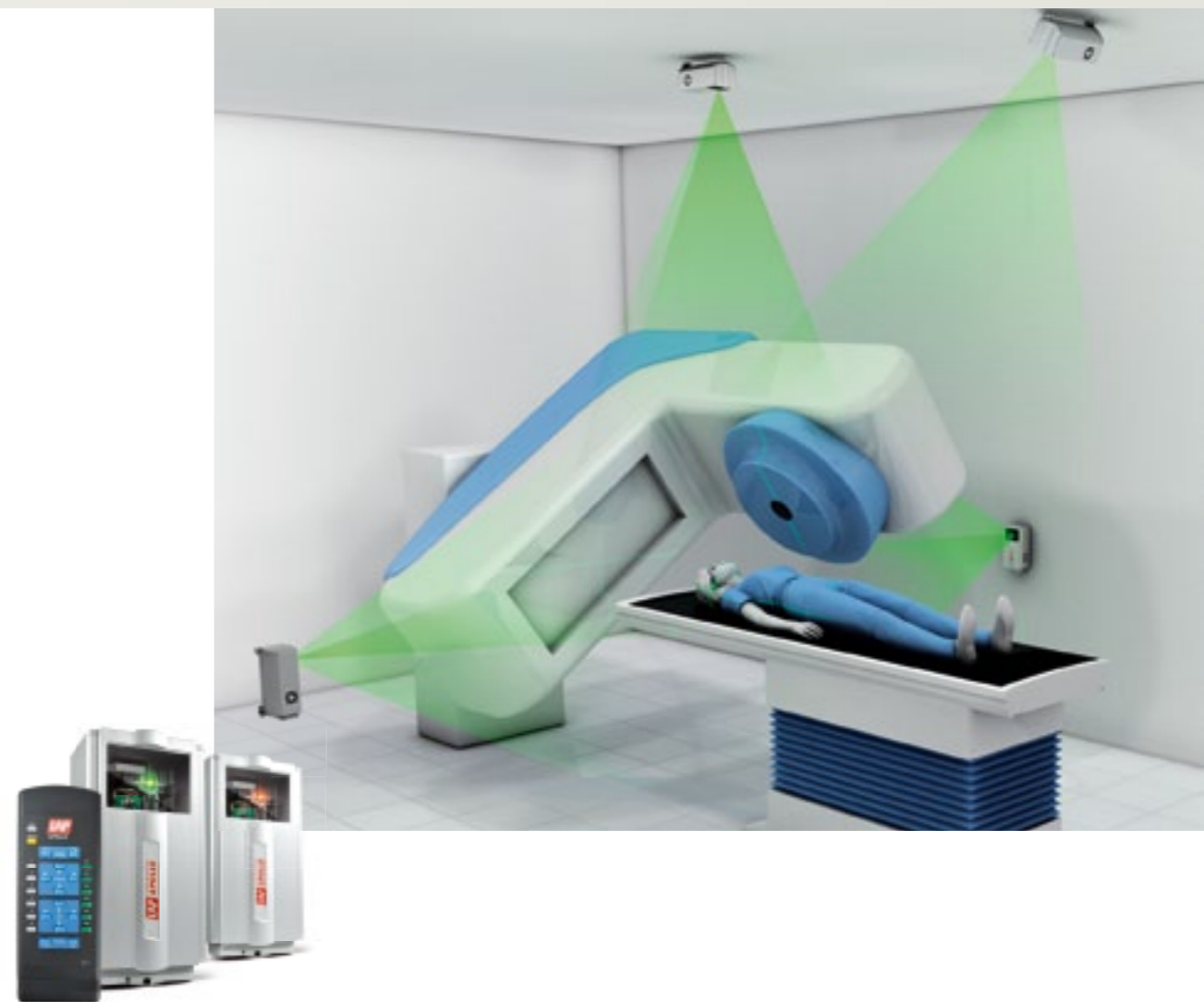
APOLLO

ADVANCED LASER SYSTEM FOR PATIENT ALIGNMENT



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APOLLO ROOM LASERS - HIGH PRECISION TOOLS FOR PATIENT SETUP AND IMPROVED TREATMENT QUALITY

Precise, accurate and reproducible patient positioning is paramount to the success of radiation therapy treatments. Combined with on board imaging systems the patient positioning lasers provide an interface between the patient and the treatment delivery system. Room lasers are necessary tools for aligning the patient, daily reference isocenter adjustments, and assuring optimized isocenter accuracy for your linear accelerator. The LAP APOLLO lasers deliver the highest precision, accuracy and reproducibility: with their long lines and 6 degrees of remote controlled freedom they are ideally suited for today's advanced treatments.

LONGER LASER LINES
FOR IMPROVED PATIENT
POSITIONING

CLOCKWORK
PRECISION MOTORS
AND GEARS FOR
REMOTE LASER LINE
ADJUSTMENT

FULL 6 DEGREES
OF FREEDOM
ADJUSTMENT VIA
WIRELESS INFRARED
REMOTE CONTROL

EXTREMELY STABLE, NON-REFLECTIVE
EXTRA PLANED GLASS WINDOW

UNIQUE OPTICS PROJECT
LINES EQUAL IN WIDTH AND
BRIGHTNESS

COMPACT DESIGN COMBINED WITH
THE FINEST OPTOELECTRONICS

SUPERIOR ALUMINIUM
CONSTRUCTION, EXTRUDED AND
CAM MACHINED, TO WITHSTAND
PHYSICAL DAMAGES

REMOVABLE IR-RECEIVER TO
ASSURE PROPER FUNCTION IN
SPITE OF RADIATION

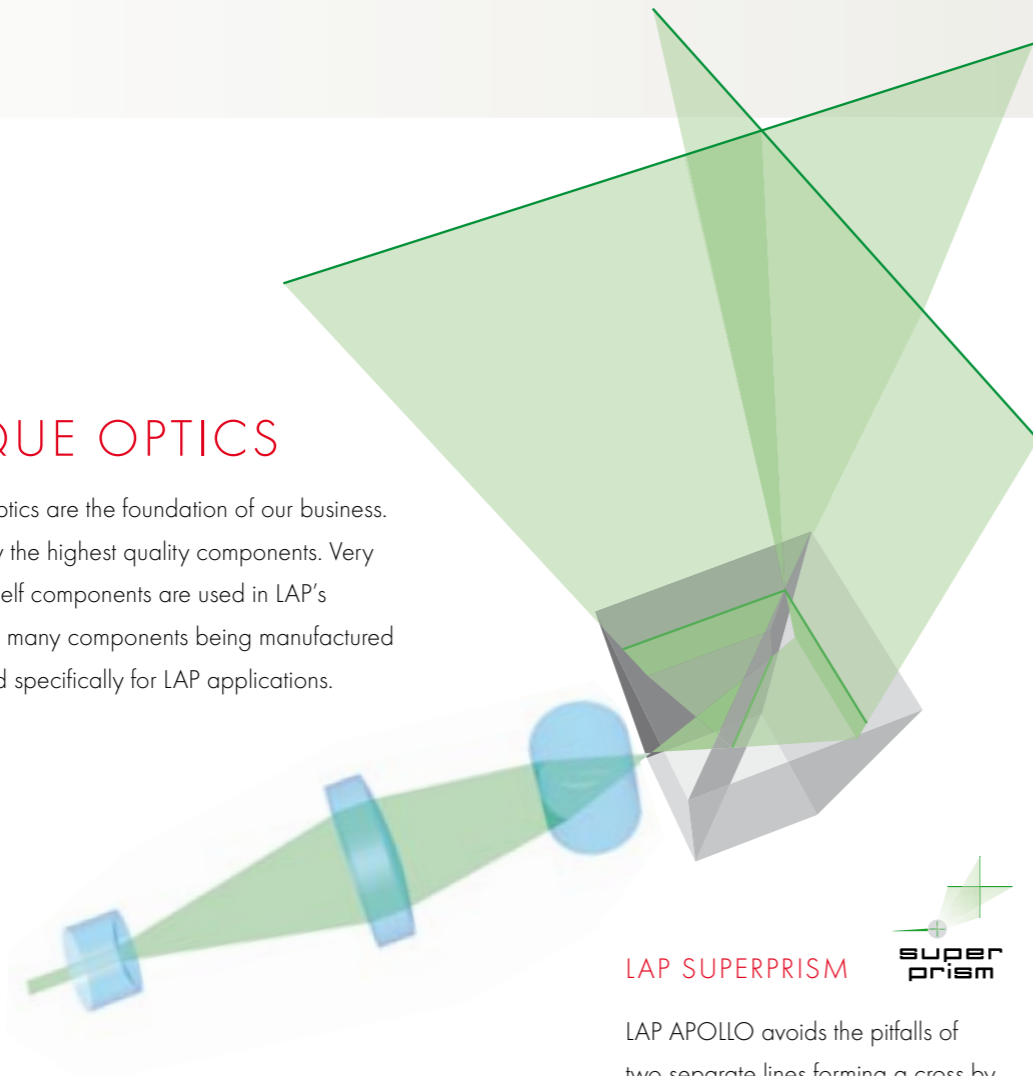
QUALITY ENGINEERED BY LAP LASER IN GERMANY

LAP engineering and manufacturing make APOLLO the state of the art laser system for patient alignment. The optimal fusing of advanced optics, clockwork precision mechanics and the most advanced electronics ensure the highest level of stability and reliability.



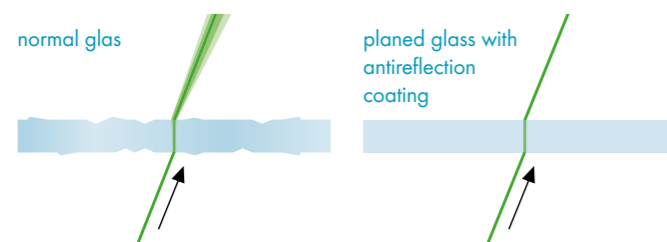
UNIQUE OPTICS

Lasers and optics are the foundation of our business. LAP uses only the highest quality components. Very few off the shelf components are used in LAP's products with many components being manufactured and designed specifically for LAP applications.



HIGHLY POLISHED ANTI-REFLECTIVE GLASS

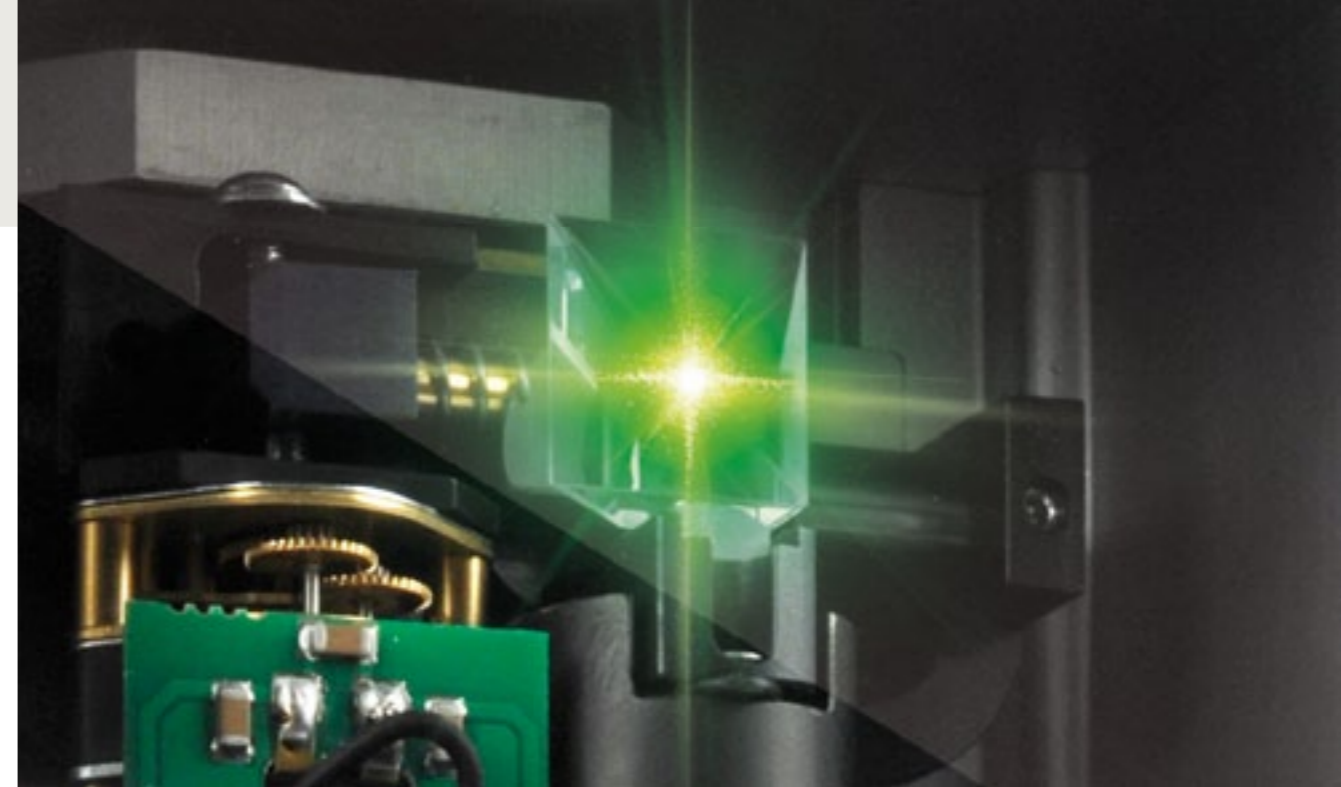
LAP roomlasers are equipped with extremely stable highly polished and extra flattened plane glass windows. They have a very low and constant dispersion to assure a fine and sharply edged laser line. The glass is anti-reflective to avoid interference from the beam.



LAP SUPERPRISM



LAP APOLLO avoids the pitfalls of two separate lines forming a cross by using one singular element: a prism, manufactured to split one beam into two perpendicular lines. This configuration allows LAP APOLLO room lasers to use one window only, making them the most compact systems. As the beam forming takes place before the prism, and its surface antireflection coating is selected for the laser's wavelength, focussing of the crosshair has virtually no influence on rectangularity or brightness distribution - a real superprism.



LAP SINGLE FOCUS

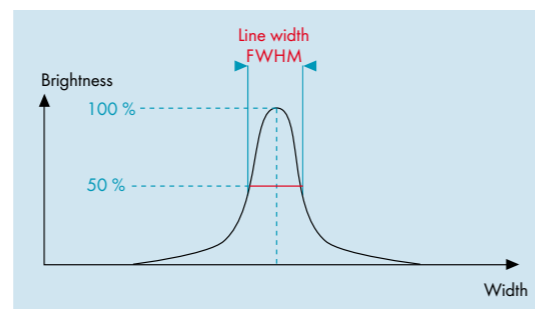
Due to the singular prism, focussing of both lines of the laser cross is handled by a single adjustment drive.

LINE QUALITY MAKING THE DIFFERENCE

When using a treatment or imaging system the isocenter must be precisely verified. The LAP APOLLO positioning lasers project ultra-fine laser lines denoting the isocenter of these systems so that the patient can be quickly and accurately placed on the treatment couch in a reproducible position. LAP APOLLO lasers set the highest standard when it comes to line quality, stability, reliability and ease of use.

LINE WIDTH - FWHM

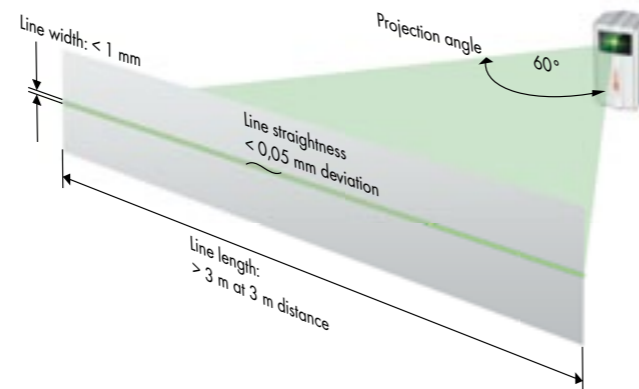
Full-Width Half-Maximum is defined as the width across the brightness profile when it drops to half its peak value. This is how the line width for LAP lasers is measured. It is a simple and well-defined scientific method which can be used to compare the quality of lasers lines obtained from different sources and under different conditions.



LAP ULTRALINE®



LAP UltraLine® is the result of the advanced mechanical systems and the unique optoelectronics used to generate and align laser lines for medical and industrial applications.

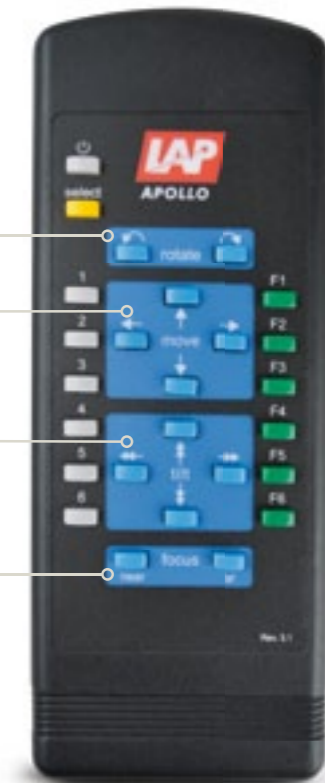


EASE OF ADJUSTMENT

During the installation of the treatment machine the APOLLO lasers are adjusted so that their respective laser lines precisely intersect the isocenter. If over time further adjustments are required to achieve accuracy and performance related to the true isocenter of the treatment machine, the APOLLO lasers offer an advanced remote controlled system that provides fast and simple adjustments from a convenient handheld remote control.

FULL FUNCTION REMOTE CONTROL

- Line rotation clockwise and counterclockwise
- Parallel line translation right/left and up/down
- Plane tilt horizontal and vertical
- Single setting focus control



CUSTOMIZED SOLUTIONS

The isocenter of the treatment or imaging system is identified by a set of fan beam room lasers, each of which defines an orthogonal plane. These planes intersect the isocenter to define the room coordinate system. The most common installation

consists of four lasers: two wall lasers, which project either side of the patient, and two ceiling lasers (one of which being directly over the gantry to avoid shadowing).



FREE STANDING COLUMN

The APOLLO lasers may also be housed in a free standing column for applications where suitable wall mounts are not available.



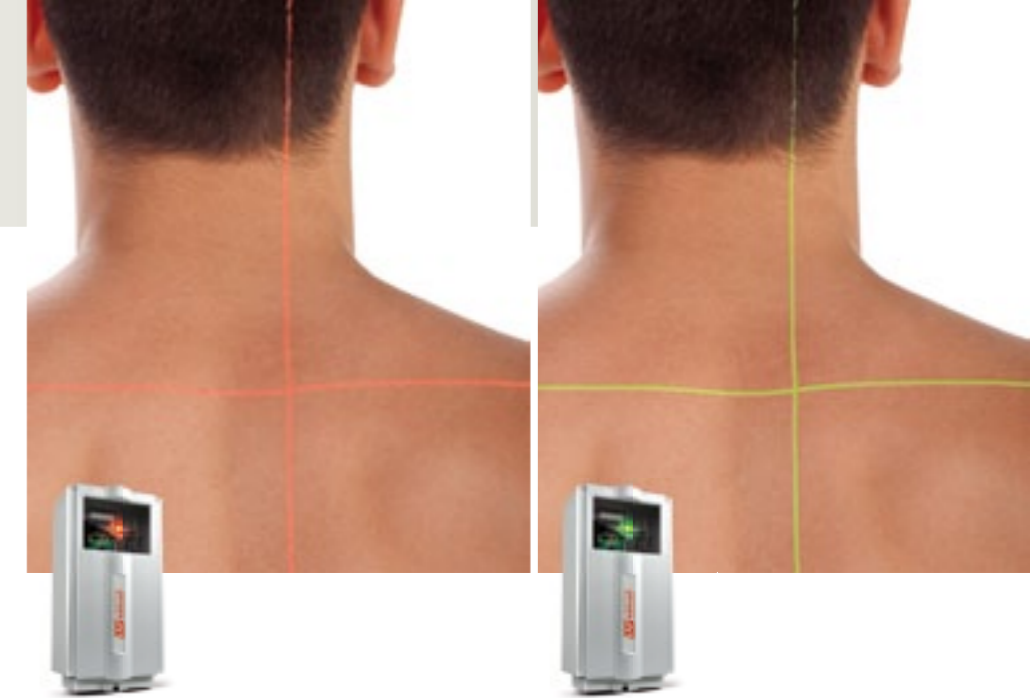
BRACKETS FOR FALSE CEILINGS

Also available are custom mounting brackets for large distances between the mounting plates and the false ceiling or wall recess.



TILT BRACKET

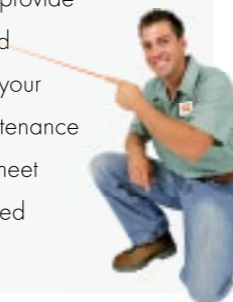
APOLLO lasers come standard with adjustable tilting brackets allowing for rotation up to 45°. Due to its very small size LAP lasers are ideal for mounting in small and hard to reach places.



SERVICE

SERVICE OPTIONS

LAP remains right by your side before, during and after installation of the APOLLO laser system. Built on extensive worldwide experience in the installation and maintenance of lasers systems LAP makes the most competent and reliable service partner. We have a wealth of information to provide our customers during their purchasing process including both the possibilities and limitations of advanced laser technology. We provide continuous support during the onsite planning and installation phase and post commissioning support to ensure you are completely satisfied with your product. We understand that every customer has their own unique maintenance schedule, reaction time, and preventative maintenance procedures. To meet your unique requirements LAP offers each customer an individually tailored service package. Let us find the right solution to meet your needs today.



TECHNICAL DATA

	APOLLO RED	APOLLO GREEN
Options		
Line width (up to 4 m distance)	< 1 mm	< 1 mm
Line length (at 3 m distance)	4 m	3 m
Laser type	Diode	Diode Pumped Solid State
Wavelength	635 nm	532 nm
Output power	< 1 mW	< 1 mW
Laser class	2	2
Supply voltage	110/230 VAC, 5 VDC	110/230 VAC, 5 VDC
Internal voltage	5 VDC	5 VDC
Power consumption	1 W	10 W
Operating temperature	0-40°C	15-30°C
Dimensions (H x W x D)	221 x 110 x 100 mm	221 x 110 x 100 mm
Weight	2.6 kg	2.6 kg
Adjustment accuracy at isocentre	± 0.5 mm	± 0.5 mm



LAP QUALITY ASSURANCE SYSTEMS

LAP has been developing and producing lasers for the medical industry for more than 25 years. LAP is consistently on the forefront of the latest developments in research and manufacturing.

LAP's worldwide installation base demonstrates the quality and reliability of LAP systems. Whether you choose red,

green or multicolour systems, or whether you choose stationary or moving lasers, every laser system is of the highest accuracy and reliability. Quality has always been an integral part of our philosophy.

It is our continuous effort to maintain the highest level of quality and to meet our customers high expectations. For all our

products we are offering a detailed service, warranty and training programs. LAP has been certified in accordance with the DIN EN ISO 9001 guidelines for industrial products and the EN ISO 13485 guideline for medical products.

LAP. Quality For Life.

www.lap-laser.com/medical



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