



OptoSystems

PRODUCT CATALOGUE

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OPTOSYSTEMS

Founded in 2000 with personal participation of nobel-awardedasr pioneer prof. Alexander Prokhorov and one of the refractive surgery's founding fathers prof. Svyatoslav Fyodorov.

More than 150 refractive and therapeutic surgery systems installed worldwide.

Optosystems는 2000년에 러시아 과학 아카데미 일반 물리학 연구소 (General Physics gnstitute)의 설립자인 노벨상 수상자인 A.M Prokhorov 박사와 안과 미세 수술 연구소의 창립자인 S.N Fedorov 박사의 참여로 설립된 레이저와 플라즈마 기술분야의 첨단 장비제조 기업입니다.

- 각종 레이저, 레이저 안과수술 시스템, MP-CVD 및 High Voltage power supply를 개발 공급하고 있습니다.
- 레이저 안과수술 시스템은 전세계적으로 150대 이상을 설치 공급하였습니다.



PRODUCT

LASER (레이저)

EXCIMER LASERS

Wide range of UV lasers at 193 nm, 248 nm, 308 nm

- CL 5000
- CLS 5000
- CL 7000
- CL 7308

CO₂ LASERS

Pulse repetition rate IR CO₂ laser at spectral range 9.2 – 10.8 μm

- InfraLight 100
- InfraLight 200
- InfraLight SP

ULTRASHORT PULSE LASERS

Ultrashort pulse lasers (300 fs - 10 ps)

- FL 300
- PL 50

DIODE PUMP SOLID STATE LASERS

Wide range of output power (10 - 100 W), small divergency, high beam stability

- Opto DP 50
- Opto DP 100

LASER OPHTHALMIC MICROSURGERY SYSTEM (레이저 안과 미세 수술 시스템)

The leading Russian manufacturer of lasers for medicine, science, technology and is the only Russian manufacturer of excimer and femtosecond laser systems for refractive surgery.

- Microscan visum laser system
- Femto visum laser system

MICROWAVE PLASMA(MP)-CVD (마이크로웨이브 플라즈마 CVD)

MP CVD diamond growing system series ARDIS for jeweller and electronics

HIGH VOLTAGE(HV) POWER SUPPLY (고전압 파워서플라이)

High voltage power supply for lasers, high voltage pulse technologies and medicine devices

- 700C / 700CW
- 700TC
- 730
- 741
- 750 CW

CL 5000

EXCIMER LASER



- Compact laser
- Power stabilization
- Built-in energy detector
- Premix gases
- Thyratron switch
- Computer Control

	ArF	KrF	XeCl
Wavelength (nm)	193	248	308
Max. pulse energy (mJ)	20	40	25
Max. repetition rate (Hz)			
CL 5100	100		
CL 5200	200		
CL 5300	300		
Max. average power (W)			
CL 5100	2	4	2.5
CL 5200	4	8	5
CL 5300	5	10	7
Energy stability (sigma, %)		< 2	
Beam dimension (VxH, mm)	12 x 3.5	12 x 4	
Divergency (FWHM, mrad, VxH)		2 x 1	
Pulse duration (FWHM, ns)		8 – 12	
Cooling			
CL 5100		air	
CL 5200 / 5300		water	
Weight (kg)		80	
Dimension (LxWxH, mm)		780 x 330 x 583	
Power		220 V, 50 Hz, < 1000 VA	

CLS 5000

EXCIMER LASER



- High beam pointing stability
- High beam position stability
- High repetition rate
- HV solid state switch
- Compact design
- Built-in energy oil-free vacuum pump with halogen filter
- Built-in energy detector
- Power stabilization
- Computer control

	ArF	KrF	XeCl
Wavelength (nm)	193	248	308
Max. pulse energy (mJ)	15	25	12
Max. repetition rate (Hz)		500	
Max. average power (W)	7.5	12.5	6
Energy stability (sigma, %)		< 2	
Beam dimension (VxH, mm)	12 x 3.5	12 x 4	12 x 4
Divergency (FWHM, mrad, VxH)		2 x 1	
Pulse duration (FWHM, ns)		10-12	
Cooling		water	
Weight (kg)		85	
Dimension (LxWxH, mm)		890 x 340 x 460	
Power		220 V, 50-60 Hz, < 1000 VA	

CL 7000

EXCIMER LASER



- Thyatron Switch
- Power stabilization
- Built-in energy detector
- Premix gases
- Computer control

	ArF	KrF	XeCl
Wavelength (nm)	193	248	308
Max. pulse energy (mJ)	250	400	300
Max. repetition rate (Hz)			
CL 7020	20		
CL 7050		50	
CL 7100			100
Max. average power (W)			
CL 7020	5	8	6
CL 7050	10	20	15
CL 7100	20	35	25
Energy stability (sigma, %)		< 2	
Beam dimension (VxH, mm)	21 x 6	21 x 6	22 x 6
Divergency (FWHM, mrad, VxH)		4.5 x 1.5	
Pulse duration (FWHM, ns)	17	20	20
Cooling			
CL 7020		air	
CL 7050 / CL 7100		water	
Weight (kg)		170	
Dimension (LxWxH, mm)		1430 x 380 x 760	
Power			
CL 7020	220 V, 50 Hz, < 1500 VA		
CL 7050/ CL 7100		3 phases, 220/380 V, 50 Hz, <3500 VA	

CL 7308

EXCIMER LASER



- Pulse duration > 180 ns
- Power stabilization
- Thyratron Switch
- Built-in energy detector
- Premix gases
- Computer control

XeCl	
Wavelength (nm)	308
Max. pulse energy (mJ)	280
Max. repetition rate (Hz)	30
Energy stability (sigma, %)	< 2
Beam dimension (VxH, mm)	22 x 14
Divergency (FWHM, mrad, VxH)	2.6 x 1.4
Pulse duration (FWHM, ns)	10-12
Control	PC, RS- 232 , Windows
Cooling	Air at short term, Water – long term operation
Weight (kg)	170
Dimension (LxWxH, mm)	1430 x 380 x 760
Power	single phase, 220V / 50Hz, 1.5 kW

CL 7500

EXCIMER LASER



- MOPA lasers system (MOPA – Master Oscillator Power Amplifier)
- Consist form two Lasers CL7020 or CL7050 based on single optical platform

	ArF	KrF
Wavelength (nm)	193	248
Max. pulse energy (mJ)	100	250
Max. repetition rate (Hz)		
CL 7520	20	
CL 7550	50	
Max. average power (W)		
CL 7520	2	5
CL 7550	5	12.5
Energy stability (sigma, %)	< 2	
Beam dimension (VxH, mm)	20 x 6	
Divergency (FWHM, mrad, VxH)	< 0.2 x 0.2	
Pulse duration (FWHM, ns)	20	
Bandwidth (pm)	< 3	
Special coherence (mm)	> 5	
Temporal coherence (mm)	> 10	
Cooling	water	
Weight (kg)	450	
Dimension (LxWxH, mm)	2000 x 800 x 750	
Power	220/380 V, 50 Hz, < 7000 VA	

CL 7700

EXCIMER LASER



- High pulse energy
- Thyratron Switch
- Power stabilization
- Built-in energy detector
- Premix gases
- Computer control

	ArF	KrF
Wavelength (nm)	193	248
Max. pulse energy (mJ)	400	750
Max. repetition rate (Hz)		
CL 7720	20	
CL 7750	50	
Max. average power (W)		
CL 7520	7	15
CL 7550	14	35
Energy stability (sigma, %)	< 2	
Beam dimension (VxH, mm)	28 x 10	
Divergency (FWHM, mrad, VxH)	4.5 x 2	
Pulse duration (FWHM, ns)	20	25
Cooling	water	
Weight (kg)	190	
Dimension (LxWxH, mm)	1430 x 380 x 760	
Power	220/380 V, 50 Hz, < 3500 VA	

7X200

EXCIMER LASER

- High pulse energy
- High average power
- HV Solid State Switch
- Power stabilization
- Built-in energy detector
- Built-in energy oil-free vacuum pump with halogen filter
- Premix gases
- Computer control

Wavelength (nm)	248
Max. pulse energy (mJ)	1000
Max. repetition rate (Hz)	200
Max. average power (W)	150
Energy stability (sigma, %)	< 1
Beam dimension (VxH, mm)	36 x 17 (\pm 2)
Divergency (FWHM, mrad, VxH)	< 3.5 x 1.10
Pulse duration (FWHM, ns)	30
Cooling	water, > 2 l/min, T \leq 20°C
Weight (kg)	750
Dimension (LxWxH, mm)	2300 x 750 x 1200
Power	3-phase, 380/220 V, 50/60 Hz, 1200 VA

DC 4000

EXCIMER LASER

- Very high repetition rate up to 6 kHz
- High average power up to 160 W
- HV Solid state switch
- Power stabilization
- Computer control

	ArF	KrF
Wavelength (nm)	193	248
Max. pulse energy (mJ)	20	40
Max. repetition rate (Hz)	4000	
Max. average power (W)	80	160
Energy stability (sigma, %)	< 2	
Beam dimension (VxH, mm)	14 x 2.5	
Divergency (FWHM, mrad, VxH)	3.5 x 1	
Pulse duration (FWHM, ns)	17 – 20	
Cooling	water	
Weight (kg)	360	
Dimension (LxWxH, mm)	1890 x 810 x 1840	
Power	220/380 V, 50 Hz, < 7000 VA	

FL 300

FEMTOSECOND LASER



- Compact all-fiber femtosecond laser
- Air cooling
- Wide temperature range of working conditions
- Remote laser control and state monitoring
- Maintenance free

	FL 300 +	FL 300	FL 300 HE
Wavelength		1035±5 nm	
Bandwidth		< 10 nm	
Average power		> 2 W	> 1 W
Pulse energy	>2 μ J	40-70 nJ	10 μ J
Repetition rate	1 MHz	30÷50 MHz	100 kHz
Pulse duration		<300 fs	
Power stability, RMS		<1.5%	
Beam diameter		<1.5 mm	
Divergency		<1.5 mrad	
Polarization		linear	
Modes		TEM ₀₀	
Cooling		water	
Power		220 W±10%, 50/60 Hz, 200 W	
Environment temperature, °C		20-28°C	
Dimensions			
Laser head		483 x 177 x 403 mm	
Compressor		235 x 103 x 440 mm	
Weight		30 kg	

PL 50

PICOSECOND LASER



- Compact all-fiber picosecond laser
- Air cooling
- Wide temperature range of working conditions
- Remote laser control and state monitoring
- Maintenance free

	PL 50	PL 10	PL
Wavelength, nm		1035±5 nm	
Bandwidth	< 10 nm	< 0,5 nm	
Average power	> 10 W	> 50 W	
Pulse energy	>10 µJ	>10 µJ	1÷2 nJ
Repetition rate	1 MHz		30÷50 MHz
Pulse duration	<50 ps	<10 ps	<50 ps
Power stability, RMS		<1.5% during 8 hours	
Beam diameter		<1.5 mm	
Divergency		<1.5 mrad	
Polarization		linear	
Modes		TEM ₀₀	
Cooling Beam		air	
Power	220 V±10%, 50/60 Hz, <200 W		
Environment temperature, °C		20-28°C	
Dimensions			
Laser head	483 x 177 x 403 mm		
Compressor		235 x 103 x 440 mm	
Weight	30 kg		

INFRALIGHT 100

CO₂ LASER



- Extended gas lifetime
- High repetition rate
- Single unit
- Computer control

Wavelength	10.6 μm
Pulse energy (multimode)	50 mJ
Max. repetition rate	300 Hz
Max. average power	15 W
Pulse duration	3 μs
Beam dimension	10 mm
Divergency	< 3 mrad
Computer Control	RS 232 or RS 422
Dimension, weight	780 x 330 x 560 mm, 80 kg

INFRALIGHT 200

CO₂ LASER



- High pulse energy
- High amplification gain
- Wavelength tuning
- Wide range of working pressure (200 – 1000 mbars)
- Computer control

Model	201	202	203
Wavelength		10.6 μm	
Pulse energy	1 J	2 J	3 J
Max. repetition rate	10, 30, 50 Hz (on request)		10 Hz
Max. average power	10-50 W	20 W	30 W
Pulse duration		3 μc	
Divergency		< 2 mrad	
Beam Dimension	15 x 15 mm	15 x 30 mm	
Power	380/220 or 208/110 V, 50/60 Hz, 3 phases		
Cooling	water, 1l/min	water, 2l/min	
Dimension (weight)	1360 x 382 x 720 mm (170 kg)		

INFRALIGHT SP

CO₂ LASER



- Short pulse duration
- High pulse energy
- High amplification gain
- Wavelength tuning
- Wide range of working pressure (200 – 1000 mbars)
- Computer control

Model	SP 10	SP 100
Max. repetition rate	10 Hz	100 Hz
Wavelength	9.2 – 10.8 μm	
Pulse energy (line P20)	700 mJ *	
Max. average power	7 W	60 W
Energy stability, RMS	2%	
Pulse duration	50 – 100 ns	
Divergency	M ² =5.6; E=700 mJ M ² =2.5; E>350 mJ	
Beam Dimension	11 x 11 mm	
Jitter	< 5± ns	
Cooling	air	water, < 3 l/min
Gas consumption at continuous operation	< 2 l/atm*hour	
Power	220 or 110 B, 50/60 H	380/220V, 50/60 Hz
Dimension (LxWxH, mm), (weight)	1360 x 382 x 720 mm (180 kg)	

* — pulse energy can be 1500 mJ (optional)

OPTO DP 50

DPSS LASER



- CW or Quasi-CW mode with active Q-switching and repetition rate control
- Build-in power detector
- Closed-loop air or water cooling system
- Compact and robust design with sealed case
- Maintenance-free

	OptoDP 50MM	OptoDP 50SM	OptoDP 50G
Wavelength , nm	1064	1064	532
Mode of operation	cw and quasi-cw	quasi-cw	
Repetition rate, kHz		5 - 20	
Average power, W (cw mode)	50	20	-
Average power at 10 kHz, W	45	18	16
Modes	multimode	TEM ₀₀	TEM ₀₀
Beam quality, M ²	< 10	< 1.5	
Beam diameter, mm	3.0	~ 1.0	
Pulse duration at 10 kHz, ns		100	
Energy stability, RMS, %	< 3	< 2	< 2
Polarization	no	linear	
Power	220 V±10%, 50/60 Hz, < 1 kW		
Environment temperature, °C		15 - 30	
Dimensions (L x W x H, mm)			
Laser head	590 x 186 x 127	700 x 330 x 113	
Power supply	520 x 483 x 178	520 x 483 x 178 (4U)	
Chiller	653 x 483 x 267	653 x 483 x 267 (6U)	

OPTO DP 100

DPSS LASER

- Perfect radiation quality due to "Master oscillator – Power amplifier" optical design
- CW or Quasi-cw mode with active Q-switching and repetition rate control
- Remote laser control
- Build-in power detector
- Closed-loop air or water cooling system
- Sealed thermostabilized case

	OptoDP 100 532	OptoDP 100 1064
Wavelength , nm	532	1064
Repetition rate, kHz	10 – 15	
Average power at 10 kHz, W	50	120
Modes	TEM ₀₀	
Beam quality, M ²	< 2	
Beam diameter, mm	1,5 – 2	
Pulse duration at 10 kHz, ns	100	
Energy stability, RMS, %	< 5	
Polarization	linear	
Power	220/380V, 50Hz, < 15 kW	
PC control	RS 232	
Environment temperature, °C	15 – 30	
Dimensions, (L x W x H, mm), (Weight, kg)		
Laser head	1300 x 570 x 190 mm (70 kg)	
Control unit	520 x 483 x 177 mm (15 kg)	
Power supply	440 x 440 x 132 mm (20 kg) – 3 units	
Chiller	600 x 600 x 1225 mm (130 kg)	

MICROSCAN VISUM

EXCIMER LASER FOR REFRACTIVE SURGERY



- Laser system Microscan Visum is worldwide highest repetition rate excimer lasers with 1100 Hz
- Treatment time is around 1 s per diopter. High speed tracking systems, wavefront and topography-guided ablation to ensure high efficiency, predictability and safety of vision correction

Supported applications

Topo-guided and wavefront-guided (WFG) treatments, wavefront-optimized (WFO) treatments, FemtoLASIK, LASIK, LASEK, PRK, topoPRK, transPRK, Presbyopia, PTK

Indications range

Myopia up to 13 D, hyperopia up to 7 D, astigmatism up to 10 D

Tracking

By pupil, limbal ring or scleral vessels

Aiming

By pupil, limbal ring or coaxial corneal light reflex

Ablation depth

From 12.5 um per D

Roughness

190 nm

Treatment time

From 1.19 sec per D

Laser repetition rate

1100 Hz or 500 Hz

Laser wavelength

193 nm

Laser beam diameter

0,9 mm

Laser beam profile

Super Gauss

Access card

Not required

Supported diagnostic instruments

Topcon KR-1W, Visionix VX 120, Tomey TMS-5

Cold start time

30 min

Footprint

72 x 135 cm (28 x 53 in)

FEMTO VISUM

FEMTOSECOND LASER FOR REFRACTIVE SURGERY



- Femtosecond laser system Femto Visum has extended set of laser treatment procedures for vision correction and keratoplasty
- Small pulse energy, high repetition rate fibre base femtosecond laser, high precision quartz patient interface and high speed laser scanning system to ensure safe treatment processes and high quality results

Supported applications

FemtoLASIK,
Lentex - lenticule extraction
Anterior, posterior and penetrating
keratoplasty,
Tunnel for corneal segments,
Pocket for 360-degree ring and
presbyopia inlay,
Corneal relaxing incisions and radial
keratotomy

Laser penetration depth	0 – 1200 um, with 1 um step
Distance between laser spots	2,5 um
Focused spot size	< 2 um
Laser repetition rate	1 MHz
Laser pulse duration	200 – 400 fs
Laser pulse energy	250 – 750 nJ
9,5 mm LASIK flap formation time	19 s
LASIK flap diameter	Up to 10 mm, with 0,1 mm step
Cold start time	25 min
Footprint	75 x 80 cm (30 x 31 in)
Compatibility with excimer laser	Yes, any laser using rotating table

ARDIS 300

CVD SYSTEM



- MP CVD system ARDIS 300 deliver the highest quality Gem and Electron grade Diamond.
- ARDIS 300 is multifunctional system with extended sets of options.
- 6 kW, 2.45 GHz
- Movable stage 50 mm
- Small leak < 10-9 torr·l/s
- High vacuum < 10-7 torr
- Very high purity

Microwave power source	6 kW at 2.45 GHz
Reaction gases	Up to 5: H ₂ — 1000 sccm O ₂ — 50 sccm CH ₄ — 200 sccm N ₂ — 1000 sccm Ar — 1000 sccm
Gas process pressure	20-500 Torr
Substrate diameter	до 100 (4") mm
Substrate temperature	до 1200 °C
Growth rate	up to 100 mkm/h /h (for single crystal diamonds) up to 6 mkm/h /h (for polycrystalline diamonds)
Visual control	5 diagnostic 70 mm CF quartz windows
Chamber and the substrate holder	water-cooled vacuum stainless steel chamber, a substrate holder made of molybdenum
Additional options	Z-shift, two-beam pyrometer, DC Bias
Management	Windows, Ardis Control software
Dimensions (L x W x H)	1660 x 880 x 1840mm

700C/700CW

POWER SUPPLY



- Output voltage from 0.1 to 50 kV
- Repeatability capacitors charging voltage up to 0.1%
- Input power single phase 220 V, 50/60 Hz or three phase 220/380 V, 50/60 Hz (options-110 V)
- Single-phase power supplies contain power factor corrector
- Remote control by TTL-signal or/and standard serial interface RS-232 in unit with the built-in microprocessor controller (option)
- Air cooling
- Protection against open circuit, short circuit, over temperature, over voltage

Model	700	701	702	703	704	706	708	7012	7024
Output power, W	500	1000	2000	3000	4000	6000	8000	12000	24000

700TC

POWER SUPPLY



- Output voltage from 1 to 3 kV
- Repeatability capacitors charging up to 0.1%
- Triggering and simmer modules for flash lamps ignition
- Power – single phase 220 V, 50/60 Hz or three phase 220/380 V, 50/60 Hz (options-110 V)
- Single-phase power supplies contain power factor corrector
- Remote control by TTL-signal or/and standard serial interface RS-232 in unit with the built-in microprocessor controller (option)
- Standard 19" housing
- Air cooling
- Protection against open circuit, short circuit, over temperature, over voltage

Model	700TC	701TC	702TC	703TC	704TC	706TC	708TC
Output power, W	500	1000	2000	3000	4000	6000	8000
Capacitor, μm	50, 100, 150, 200 or by order						

730

POWER SUPPLY



- Programmable pulse duration and pulse shape
- Input power – three phase 220/380 V, 50/60 Hz
- Computer control (from front panel – option)– remote control via standard parallel interface LPT from external computer or serial interface RS 422/RS 232– discharge pulse shape is determined by soft ware
- Standard 19" housing
- Equipment rack (option)

Model	730	731	732
Number of lamps	1	2	1
Maximum output power of one flash-lamp current controller, kW	7	4	
Maximum pulse energy (kJ)	1.5	0.8	
Maximum pulse duration (ms)		50	
Maximum output current (A)		до 600	
Output current (adjustable) (A)		50 ÷ 600	
Simmer current (A)		0.9 ± 0.1	

741

POWER SUPPLY



- Maximum output power up to 12 kw
- Discharge pulses of the rectangular shape with controlled duration and amplitude
- Adjustment range of current pulse duration 0.2 ÷ 5 ms
- Maximum amplitude of output current 1200A
- Air cooling
- Protection against open circuit, short circuit, over temperature, over voltage

750 CW

POWER SUPPLY



- Lamp Current from 10 up to 40 A
- Instability of current lamp < 0.2 %
- Power – 220 V/380 V, 50/60 Hz
- Standard 19" housing
- Air cooling
- Protection against open circuit, short circuit, over temperature, over voltage

OPTOSYSTEMS

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