

Healthy Cells Broad Capabilities Better Science

Gentle, customizable benchtop microfluidic cell sorting.



High cell integrity without compromise ●●●

The WOLF was originally created by a team of scientists and engineers who wanted to solve a classic challenge in biological research: how to sort cells effectively, easily, and of high quality. Now, as science continues to move forward into increasingly complex realms, the WOLF is moving forward with it. The WOLF G2 instrument has significantly expanded the capabilities of gentle benchtop microfluidic cell sorting with two lasers and up to nine colors, while maintaining simple workflows for either bulk sorting or single-cell dispensing. Single-cell sorting can be completed in 96- or 384-well plates when using the WOLF G2 in conjunction with the N1 Single-Cell Dispenser. This flexibility in performance, along with the additional abilities of the second laser, makes it ideal for use in many different research fields and application areas like single-cell genomics, cell line development, gene editing, antibody discovery, immunology, infectious disease, basic research, and more.

WOLF G2 Cell Sorter



Healthy Cells

At < 2 psi, the WOLF G2 are gentler than any conventional cell sorters, enabling healthier cells post-sort, especially for engineered lines, primary cells, and stem cells.



Contaminant- and Biohazard-Free

Disposable, aerosol-free microfluidic cartridge allows for sterile sorting that protects the sample from the environment and scientist from the sample.



High Sensitivity and Resolution

All laser configurations afford < 250 MESF sensitivity, along with forward and back scatter, providing as low as 1 μm resolution.



Compact

At under 2 cubic feet, NanoCollect's benchmark for access and performance allows every lab for the flexibility to do analysis and sorting into tubes or 96- and 384-well plates.



Simple and at your Bench

Intuitive software, fixed optics, no fluidics cart and less than one minute clean-up time.



Expanding the WOLF's Capabilities

With two lasers and up to nine fluorescent channels, the WOLF G2 aligns with a broad set of research applications and experiments. Three different laser configurations allows options specific to your needs.



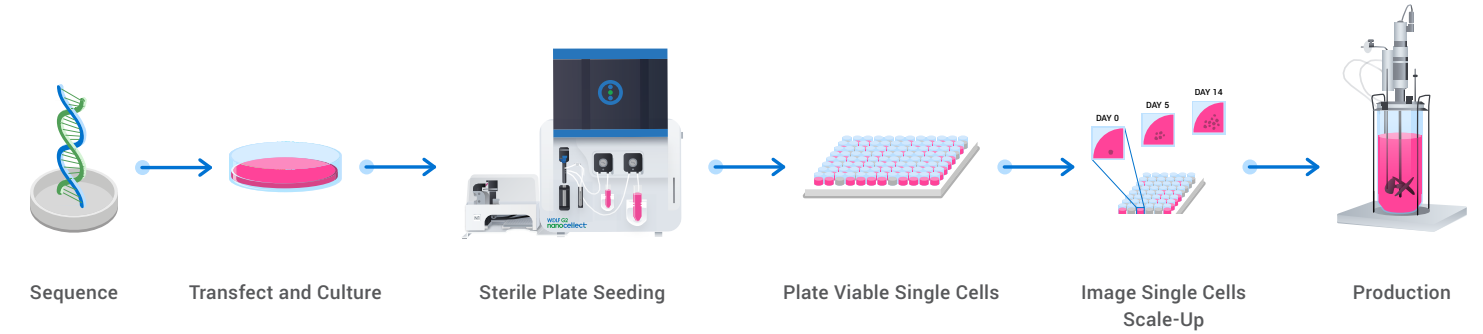
Applications ●●●

Gene Editing



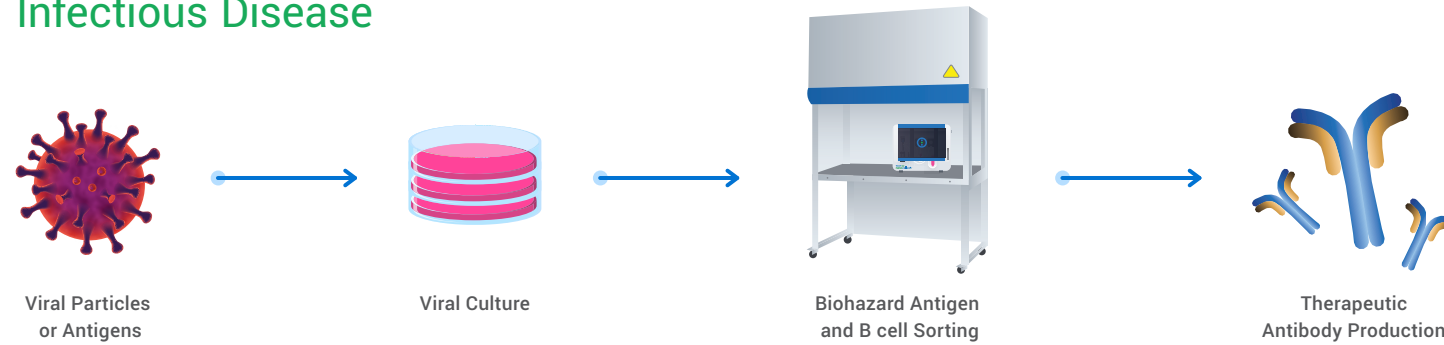
- With a sorting pressure of < 2 psi, gentle microfluidic cell sorting with the WOLF, along with single cell deposition using the N1 single-cell dispenser, eliminate the challenges that pluripotent stem cells face.
- Without decompression shock and shear stress, single-cell deposition results in high monoclonal outgrowth.
- This improved workflow will allow for higher throughput pluripotent stem cell research, which is valuable for both basic and clinical research.

Cell Line Development



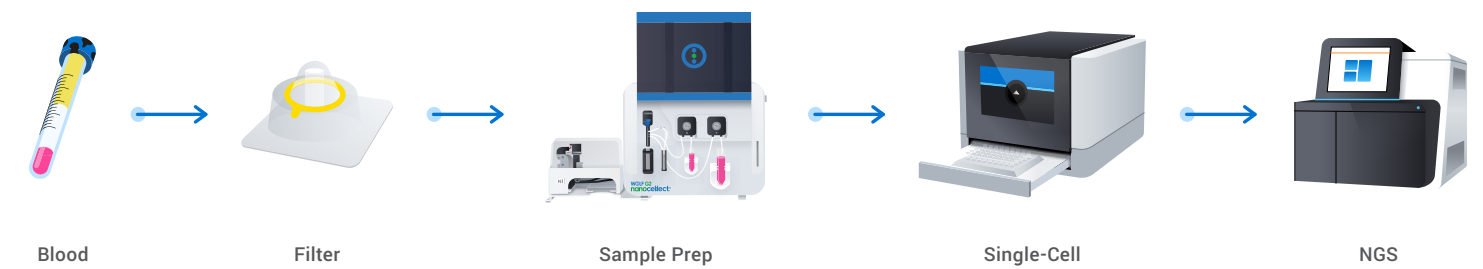
- The WOLF G2 Cell Sorter protects cell viability after sorting and improves sorting efficiency by increasing the number of viable clones growing per plate.
- Contaminant- and biohazard-free, the WOLF cell sorter's rapidly exchangeable cartridge and tubing set eliminates carryover between samples and allows for quick and easy cleanup.
- When paired with the N1 Single-Cell Dispenser, the WOLF can select viable single cells and plate them into 96- or 384-well plates.
- Low pressure microfluidics greatly improves cell integrity over conventional droplet sorters, resulting in high-outgrowth and high-titer monoclonal lines.

Infectious Disease



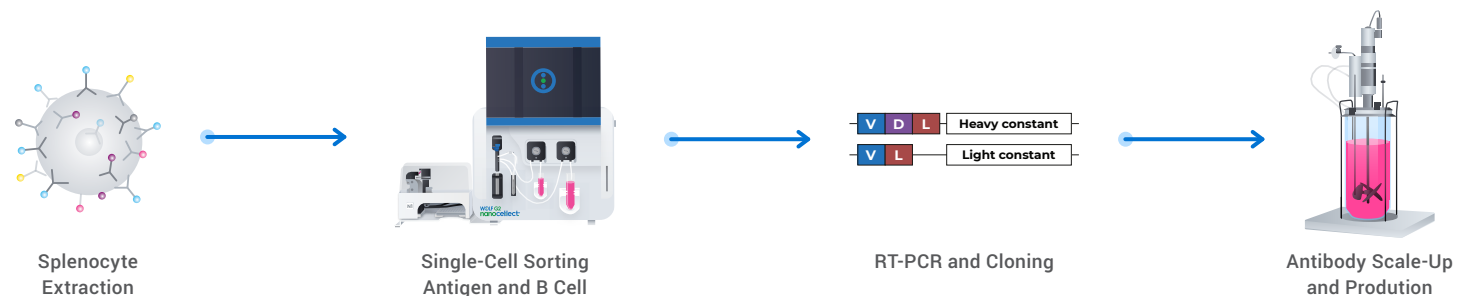
- The WOLF G2 microfluidic cell sorter is aerosol-free and compact enough to fit into standard biosafety hoods, making it ideal for infectious disease research.
- The WOLF G2's disposable cartridges also avoid cross-contamination and create a safe and effective workflow for the kind of speed and efficiency required to combat infectious disease threats.

Genomics



- The WOLF G2's gentle microfluidic system eliminates unintentional sequencing and analysis of dying or off-target cells or debris while maintaining cell integrity and avoiding stressing cells and affecting downstream data.
- Researchers can sort cells with a wide range of genome sizes, including human, plant, and animal cells or microorganisms like yeast and bacteria, providing insight on population genetics or disease.
- The WOLF G2 also allows labs to be completely flexible when it comes to sequencing research and eliminates carryover with a 100% disposable fluidic cartridge.

Immunology and Antibody Discovery

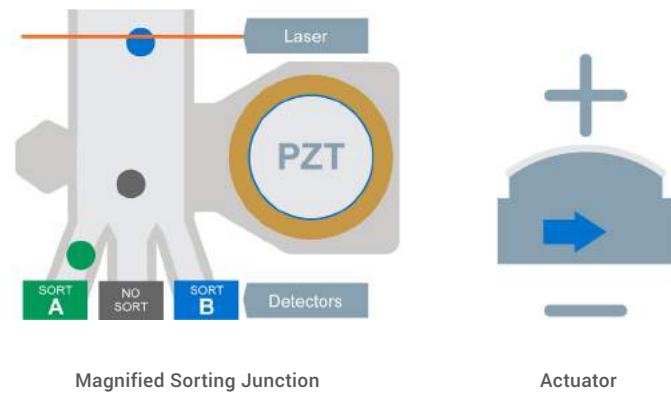


- The WOLF G2 Cell Sorter provides a simple cell sorting solution that gently sorts high antibody-producing clones and dispenses single cells for optimal clone outgrowth.
- With two lasers and up to nine fluorescent channels, the WOLF G2 provides the most comprehensive benchtop cell sorting solution.

Microfluidic Cartridge Technology ●●●

The WOLF Cell Sorter uses patented, microfluidic-based sorting with robust laser-excitation and sensitive PMT detectors to isolate mammalian cells, microbes, plant cells and more. A gentle and precise piezoelectric actuator directs cells into collection channels and allows analysis and sorting in a disposable format. This eliminates sample-to-sample contamination and biohazard exposure or cleanup.

- Unique to NanoCollect are our disposable cartridges that allow for bulk sorting or single-cell sorting.
- The sorting cartridges use a piezoelectric actuator that gently directs cells into collection channels; an embedded cell sorting verification system gives instant feedback of sorting accuracy.
- This technology allows the WOLF G2 to sort up to 200 cells per second with high accuracy and effective recovery.
- Sort two selected cell populations with bulk sorting while the remainder of cells collects in a third channel.
- Deposit 1 to 100 cells per well in a 96- or 384 well plate using a single-cell sorting cartridge along with the N1 Single-Cell Dispenser accessory.



Key Benefits



Sterile

Cartridges are individually wrapped in sterile packaging to avoid cross-contamination.



Disposable

Anything that the sample or sheath fluid touches is disposable.



Gentle Sorting

A gentle sorting mechanism results in improved viability of cells and higher outgrowth.



No aerosols

No dangerous aerosols are produced during sorting of hazardous samples.



Easy clean-up

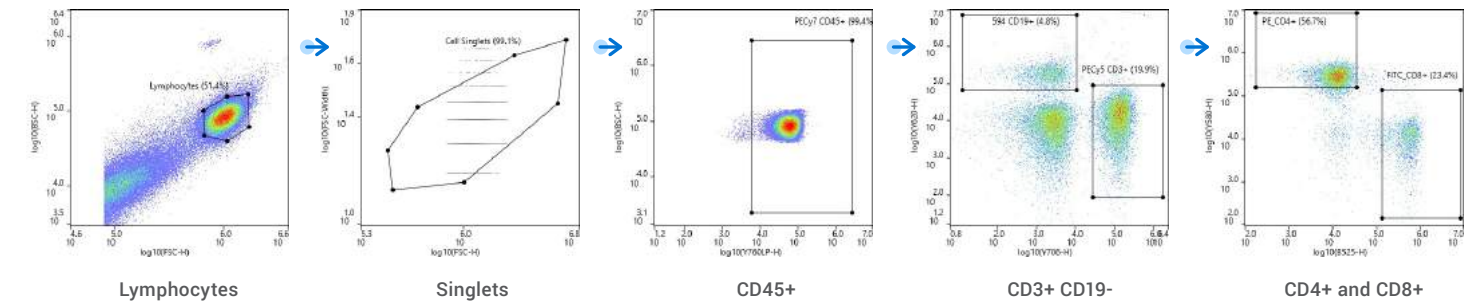
Clean-up in one minute and simply discard the cartridge.



WOLF G2 Cell Sorting ●●●

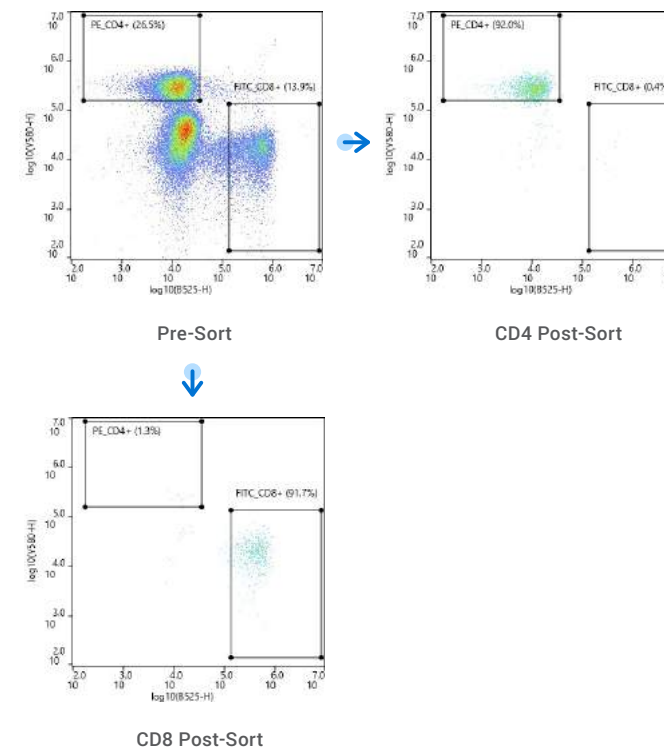
5-Color Immune Cell Sorting:

To verify sorting performance, CD4 and CD8 T Cells were sorted from BioLegend's PBMC Veri-Cells. They were gated from the CD3+CD19-CD45+ lymphocyte population.



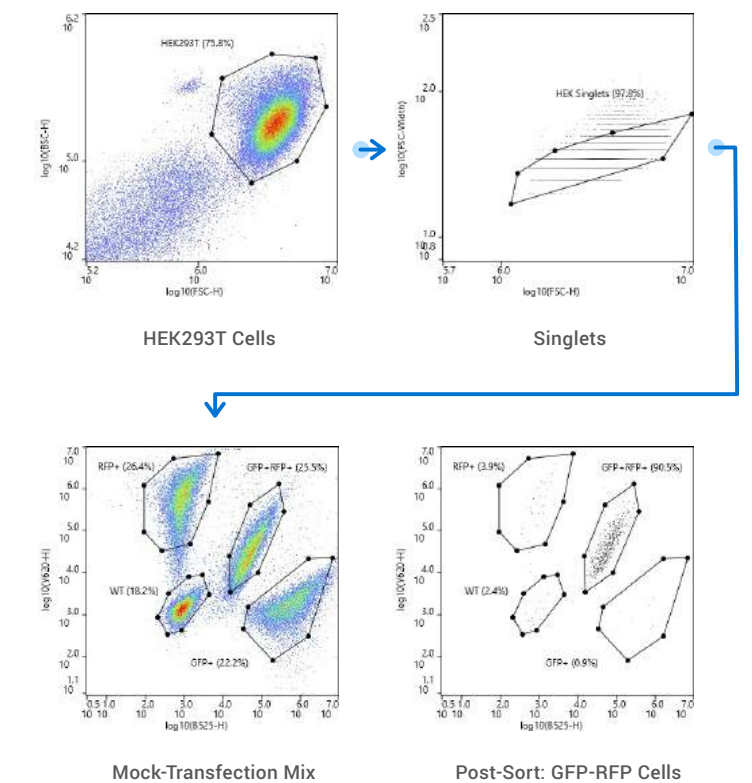
5-Color Sort Performance:

CD4 and CD8 T Cell populations were evaluated based on Cells and Singlets gates. CD4 T cells were enriched to 92.0% from a 26.5% target population. CD8 T cells were enriched to 91.7% from a 13.9% target population.



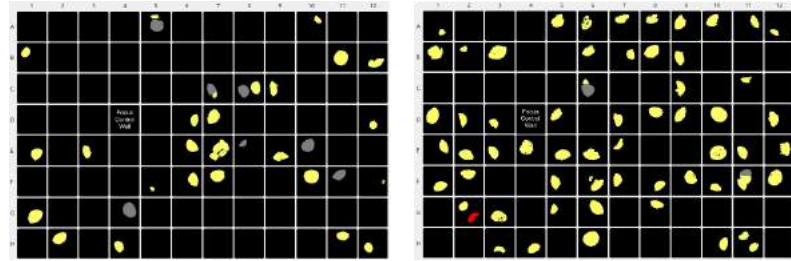
Transfected Cell Lines:

Four HEK293T cell lines were mixed to mimic a GFP+RFP+ dual-expressor transfection. To verify sorting performance, the GFP+RFP+ cells were sorted from the rest to result in 90.5% post-sort purity.



Monoclonal HEK Outgrowth

The same 25% GFP+RFP+ dual-expressor cell mix was also sorted for single cells into 96-well plates and incubated for 14 days. As a rigorous limiting dilution comparison, 100% GFP+RFP+ dual-expressor cells were dispensed at 1 cell/well. Even without the advantages of the limiting dilution plate, the G2 plate still yielded more than a 2-fold increase in targeted monoclonal colonies.



Limiting Dilution: 1 cell/well from 100% GFP+RFP+ HEK293T cell mix

G2 Single-cell Dispense: 1 cell/well from 25% GFP+RFP+ HEK293T cell mix

■ Little to no fluorescence ■ RFP+ only fluorescence ■ GFP+RFP+ fluorescence

N1 Single Cell Dispenser

Designed to sort and dispense into 96- and 384-well plates, the N1 provides higher rates of singlet detection compared to cell printers or limiting dilution. Users can perform simple, label-free dispensing or advanced multicolor panel single-cell dispensing.

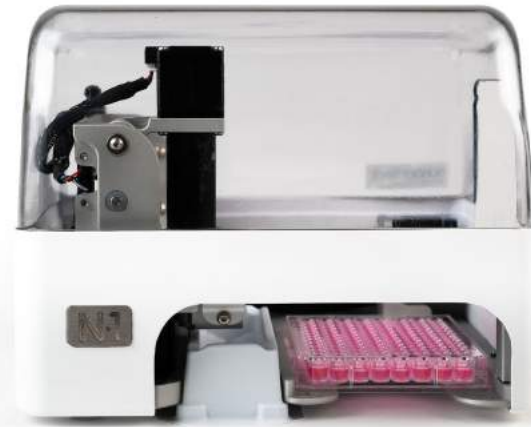


Plate sorting specifications

Time to plate (96 wells): 3 - 8 minutes

Time to plate (384 wells): 32 minutes

Droplet volume: 7-10 μ L

Sample plate options: 96 or 384 wells (flat bottom, V-bottom, U-bottom, PCR)

WOLFViewer Software

The WOLFViewer software has an intuitive workflow menu that walks users through their experimental process, and is designed for both novice and expert users. New users can be performing their first sorts in about 20 minutes and can be on their own on day one.

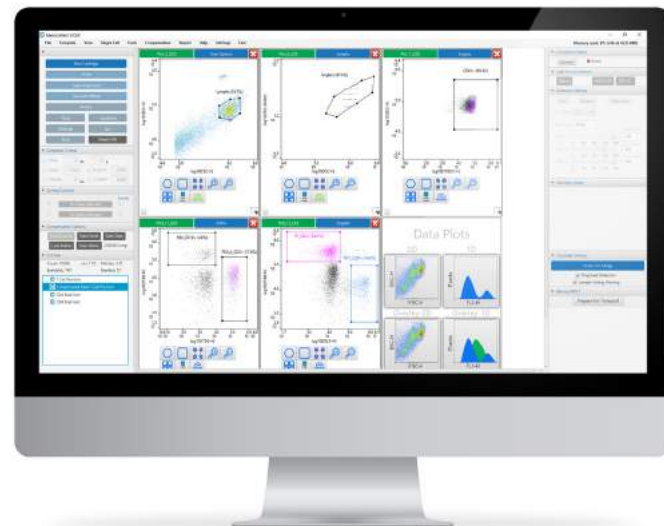
Plate sorting specifications

System power up: 3 minutes

System setup and calibration: 20 minutes

System shutdown: 3 minutes

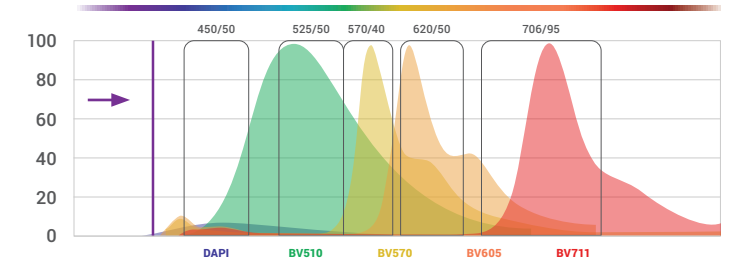
Additional features: Auto-alignment, intuitive compensation, advanced coloring and gating options, FSC files compatible with FlowJo



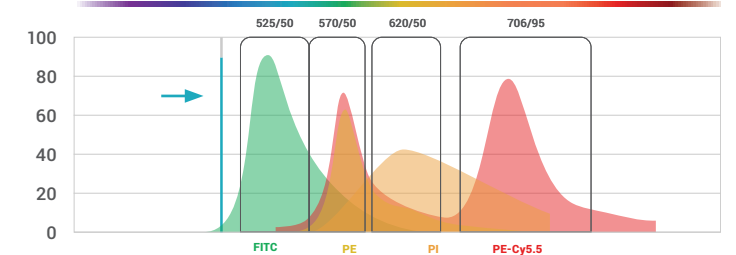
WOLF G2 Configuration Guide ●●●

The WOLF G2's three possible laser configurations significantly enhance the number of fluorescent markers that may be utilized.

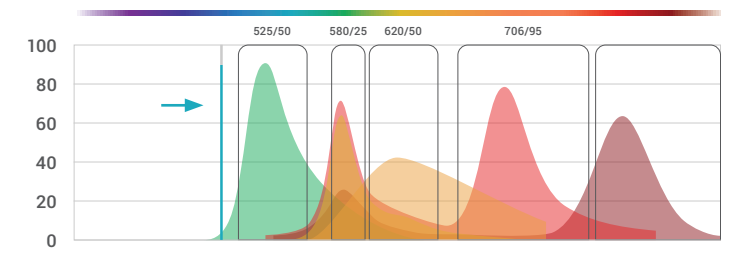
WOLF G2 405 nm	
Excitation Source	Emission Detection: Filters
405 nm diode laser	<ul style="list-style-type: none"> 450/50 (DAPI, BV421*) 525/50 (BV510*) 575/40 (BV570*) 620/50 (BV605*) 706/95 (BV711*)



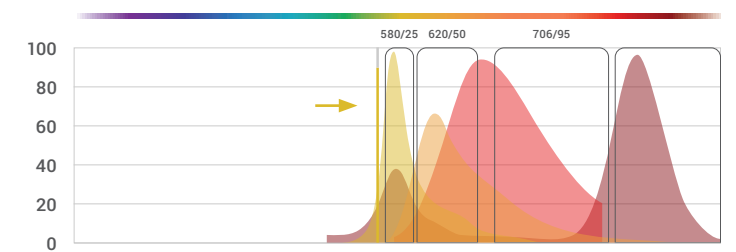
WOLF G2 488 nm	
Excitation Source	Emission Detection: Filters
488 nm, 55 mW diode laser	<ul style="list-style-type: none"> 525/50 (FITC, GFP) 575/40 (PE) 620/50 (PI) 706/95 (PE-CY5.5[®])



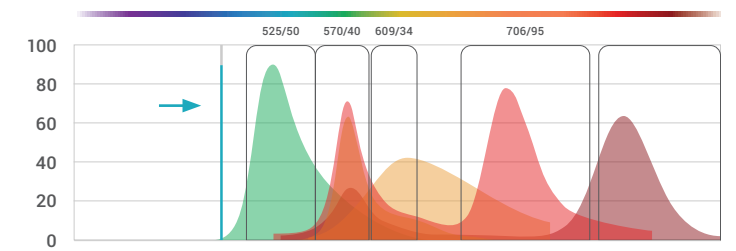
WOLF G2 488 nm	
Excitation Source	Emission Detection: Filters
488 nm, 55 mW diode laser	<ul style="list-style-type: none"> 525/50 (FITC, GFP) 580/25 (PE) 620/50 (PI) 706/95 (PE-CY5.5[®]) 760LP (PE-CY7[®])



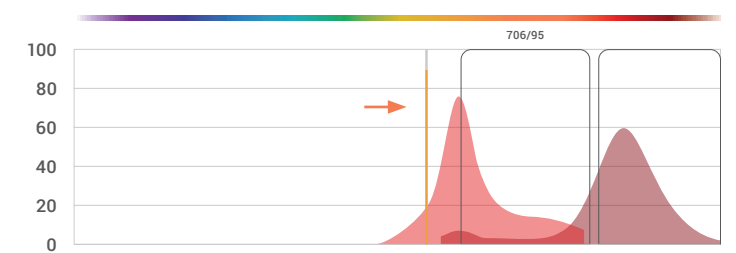
WOLF G2 561 nm	
Excitation Source	Emission Detection: Bandpass Filters
561 nm, 55 mW diode laser	<ul style="list-style-type: none"> 580/25 (PE) 620/50 (PI, mCherry) 706/95 (PE-CY5.5[®]) 760LP (PE-CY7[®])



WOLF G2 488 nm	
Excitation Source	Emission Detection: Bandpass Filters
488 nm, 55 mW diode laser	<ul style="list-style-type: none"> 525/50 (FITC, GFP) 575/40 (PE) 609/34 (PI) 706/95 (PE-CY5.5[®]) 760LP (PE-CY7[®])



WOLF G2 637 nm	
Excitation Source	Emission Detection: Bandpass Filters
637 nm, 55 mW diode laser	<ul style="list-style-type: none"> 706/95 (APC) 760LP (APC-CY7[®])



Fluorophore Guide ●●●

Instrument	Excitation Laser	Emission Filter	Fluorescent Dyes	Fluorescent Proteins
WOLF G2 405/488	405 nm	450/50	Alexa Fluor® 405, DAPI, Brilliant Violet™ 421, BD Horizon™ V450	eBFP, Cerulean
		525/50	Pacific Green, Qdot® 525, Brilliant Violet™ 510	AmCyan, CFP
		575/40	Pacific Orange, Brilliant Violet™ 570, Qdot® 565, Qdot® 585	
		620/50	Brilliant Violet™ 605, Qdot® 605, Qdot® 625	
		706/95	Qdot® 705, Brilliant Violet™650, Brilliant Violet™711	
	488 nm	525/50	Alexa Fluor® 488, FITC, SYTOX® Green, Brilliant Violet™ 515	eGFP, eYFP
		575/40	PE, PE-Texas Red®, ECD	eYFP, mCitrine
WOLF G2 488/561	488 nm	620/50	PE-Cy5.5®, PerCP	
		706/95	PE-Cy7®, Qdot® 800, PE-Vio770	
		525/50	Alexa Fluor® 488, FITC, Brilliant Violet™ 515	eGFP, eYFP, Emerald
		580/25	PE	mKate, mBeRFP
		620/50	PI, Texas Red®, PE-Texas Red®, PE-Alexa Fluor® 594, ECD	DsRED
	561 nm	706/95	PerCP, PE-Cy5.5®, PE-Cy5®, PerCP-Cy5®	
		760LP	PE-Cy7®, PE-Vio®770	
		580/25	PE	DsRED
		620/50	Texas Red®, PE-Texas Red®, Alexa Fluor® 594, PE-Alexa Fluor® 594, ECD	DsRED, mCherry, mStrawberry
		706/95	PE-Cy5.5®, PerCP, 7-AAD, DRAQ5	
WOLF G2 488/637	488 nm	760LP	PE-Cy7®, DRAQ5™, DRAQ7™	
		525/50	Alexa Fluor® 488, FITC, Brilliant Violet™ 515	eGFP, eYFP
		575/40	PE, PE-610	eYFP, mCitrine
		609/34	PI	
		706/95	PerCP, PE-Cy5®, PE-Cy5.5®	
		760LP	PE-Cy7®	
	637 nm	706/95	APC, Alexa Fluor® 633	
760LP	APC-Cy7®, APC-Horizon™7			

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Brilliant Violet™ is a trademark of Sirigen Group Ltd.

BD Horizon™ is a trademark of Becton, Dickinson and Company.

Vio® is a registered trademark of Miltenyi Biotec GmbH.

For more information on compatible fluorophores, visit nanocollect.com or email info@nanocollect.com

WOLF G2 Specifications ●●●

Fluidics	
Sample input	1.5 and 5.0 mL tubes
Sheath input	50 mL conical tubes
Sheath fluid	PBS or buffer of choice
Sheath fluid usage	7.5 mL/hour
Sample flow rate	24 µL/minute
Sheath flow rate	160 µL/minute
Dead volume	50 µL
Minimum sample volume	150 µL
Tubing diameter (inner)	200 to 500 µm
Flow cell	200 x 70 µm
Smaller channel diameter	50 µm
Sample pressure	< 2 psi
Sample output (bulk sorting)	1.5 mL or 5mL tubes
Sample output (single cell)	96- or 384-well plates (flat/U/V bottom or PCR)

Performance	
Scatter sensitivity	< 1.5 µm by FSC or BSC
Scatter resolution	Resolves lymphocytes, monocytes, and granulocytes
Fluorescence sensitivity	< 200 MESF FITC (using 488 nm laser) < 250 MESF PE (using 561 nm laser)
Fluorescence resolution	8 peak separation with SPHERO™ Rainbow Calibration Particles
Analysis speed	> 5,000 events/second
Sorting	1- and 2-way
Back-to-back sorting speed	200 events/second
Absolute counts	Yes
Volumetric counts	Yes
Warm-up time	Less than 1 minute
Sorting purity	Up to 99% purity

N1 Plate sorting specifications	
Time to plate (96 wells)	3 - 8 minutes
Time to plate (384 wells)	32 minutes
Droplet volume	7-10 µL
Sample plate options	96 or 384 well (flat bottom, V-bottom, U-bottom, PCR)

Optics	
Laser Profile	25 x 75 µm
25 x 75 µm	Forward (0 degrees, +/- 15)
Scatter detection	Back (180 degrees, +/- 15)
Excitation & emission detection	See WOLF G2 Configuration Guide
Optical alignment	Fixed alignment, no maintenance required

Instrument specifications	
WOLF Dimensions	14.8H x 18.0W x 13.6D inch (37.6H x 45.8W x 34.5D cm)
WOLF Weight	54 lbs / 24.5 kg
WOLF Electrical	AC Input: 100-240V, 50-60Hz, 3-1.5A
N1 Dimensions	8.42W x 6.5H x 8.34D in (21.4 x 16.5 x 20.9)
N1 Weight	5.5 lbs / 2.5 kg
N1 Electrical	DC Input: 24V, 1A

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NanoCollect Technical Support ●●●



Onboarding

NanoCollect is committed to provide you with the highest level of support and expertise for your cell sorting workflow. We are dedicated to delivering the very best solutions and assistance to help you improve the quality of your research.



Training

Our Sales and FAS teams will assist you during initial instrument installation and for additional training options. Online training videos and other material are always available and being updated on our website's dedicated Knowledge Center.



Technical Support

Our expert technical support, including dedicated Field Application Scientists and Customer Success teams respond quickly and are available for you when you need them. Additional support options include remote TeamViewer sessions, in-person training and repairs, and online educational resources.



Service Contract

Our service offerings have expanded to include two options, allowing you to pick the level that best fits the needs for your budget and lab. In addition to standard customer support, one-on-one TeamViewer sessions, enhanced software updates for greater analysis capability, and preventative instrument maintenance (once per year) and repairs are covered under both plans.

For more information, visit nanocollect.com
or email info@nanocollect.com

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