

**2023**

# **PICK YOUR COMPONENTS**

LIFE-SCIENCE RESEARCH AUTOMATION



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# AMGEL

## AutoMated GEneral Laboratory

AMGEL is an automation platform for everyday workflow procedures for any life-science laboratory, with the main focus being the fight of limitation of the reproducibility crisis.

Similarly, to its name, AMGEL is the angel that every life-science laboratory needs. AMGEL provides help to the researchers and enhances their abilities in inventing new ideas and accomplishing new challenging status quo.





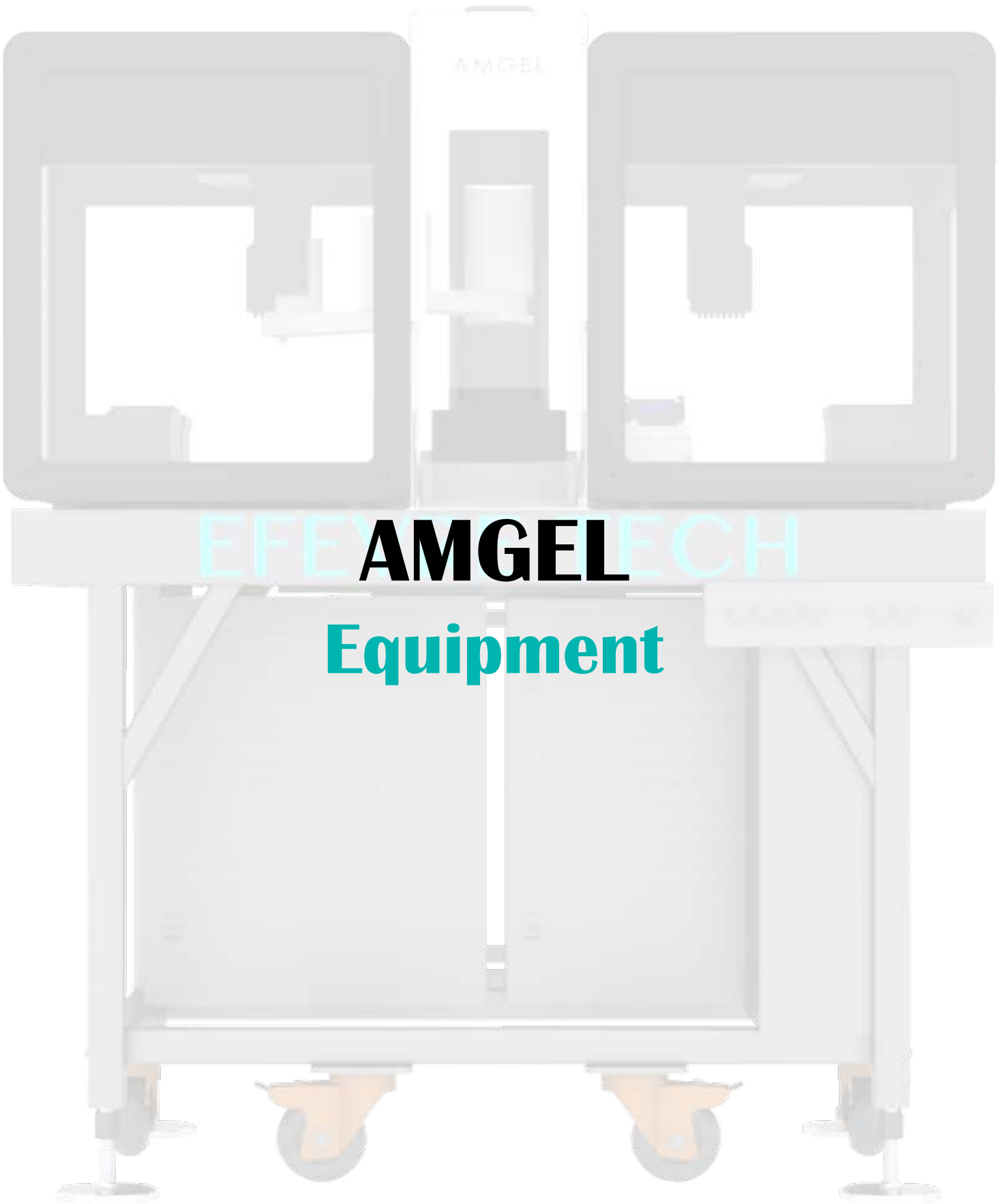
# AMGEL

## General Technical Features

- Free-standing to save bench space
- Two deck automation - vertical layout to save laboratory space
- Compact footprint: Appr. 85-115cm x 150cm x 200cm (W x L x H) depending on customization.
- 4 x Anti-vibration - hygienic-grade - leveling feet for limiting robotic-induced vibrations to be transferred to biological material
- Levelling feet for position optimization of the entire platform
- Easily movable: 4 x Heavy-duty wheels for easy relocation inside the lab
- AMGEL METALIC STRUCTURE: Dual-level free standing platform with metallic panel enclosure, leveling feet, wheels, and lights. Steel or aluminium enclosure panels for sterility and safety in use.
- Durability in laboratory conditions, antivibration, easy to move, compact.
- Access in front side and on the sides
- The back side can be placed against the wall
- High-durable PVC or/and steel or aluminium doors for access on equipment and control panels (for user and maintenance)
- Automation on two levels (upper and lower bench) to significantly save space
- Heavy duty 8mm Steel or aluminium plate for upper and lower bench for mounting equipment, wires, lights, and sensors on calibrated positions
- Mounting brackets and removable hatch for integration of new devices (e.g., automated centrifuge or PCR)
- Separate bases with wheels centrifuge, elevator, electrical boards etc.
- Robotic arm base
- Import and export ventilation ports
- Lights

Brand: *EFEVRE TECH LTD*

Model: *CUSTOM*



EFEVRE TECH  
**AMGEL**  
Equipment



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## LIQUID HANDLING ROBOT UNIT



- Compact footprint: 63cm x 57cm x 66cm / 25in x 22.5in x 26in (W, D, H)
- Pipette configurations: Single and 8-channel pipetting
- 2-pipette mounts, for a configuration of 1 or 2 single or 8-channel pipettes. Pipettes are easily interchangeable
- Deck: 11 deck slots enable countless configurations
- Deck slots are compatible with standard SBS dimensions. Deck also includes a removable trash bin
- Connectivity: Wi-Fi 2.4 GHz IEEE 802.11b/g/n, USB 2.0
- Weight: 48kg or 105.8 Lb
- Integrated video camera (Included for future or custom functionality)
- Audio: Integrated audio system (Included for future or custom functionality)
- Power Requirements
- Robot Power Input: 36VDC, 6.1A
- Power Adapter Input: 100-240VAC, 50/60Hz, 4.0A/115VAC, 2.0A/230VAC
- Frame composition: Rigid steel and CNC aluminium design
- Operating Temperature & Relative Humidity
- Recommended 20-24C Recommended 40-60% RH
- Interface: Windows 10, macOS 10.10 or later, Ubuntu 12.04 or later
- Tip compatibility: Use Opentrons Tips and Opentrons Filter Tips
- Opentrons guarantees the performance of Opentrons Tips which were specifically designed for the OT-2. The OT-2 was designed to accommodate all universal bore tip types, but tip quality and dimensions can vary significantly so third-party tip performance cannot be guaranteed by Opentrons.
- One-year warranty against manufacturer defects
- Return Policy: 60 days, 100% risk free
- Certifications: CE, FCC
- Tip Handling: Pick up tip, drop tip, Return tip, new tip (always, never, once)
- Liquid Control: Aspirate, Dispense, Aspirate speed, Dispense speed, Blowout, Touch tip, Mix, Air gap



- Utility: Move to (gantry and pipette movement control in deck), Delay, User-specified pause, Homing, Transfer (Basic transfer, Volumes > Pipette Volume, Distribute, Consolidate)
- Variable Pipetting Settings: Speed, Volume, Count, Dispose
- Synchronized and independent control of 2 robotic pipettes
- Trash Bin
- Calibration block
- Calibration marks on aluminium block
- Lights
- Camera
- Calibration health control system
- 0.1mm movement accuracy
- Anti-cross-contamination and anti-dropping technology

Brand: *OpenTrons Labworks Inc*

Model: *OT2*



## SINGLE-CHANNEL ROBOTIC PIPETTE P20



- Range 1-20ul
- Air-displacement technology to ensures fast procedure turnaround, high pipetting accuracy and precision and to diminish cross-contamination risks
- Suitable for all labware: **tubes, microplates, non-conventional or custom labware**
- Uses compatible dispensable filtered and unfiltered sterile DNase / RNase / Pyrogen free tips
- Dedicated range pipette to ensure accurate and precise pipetting
- Volumetric Test Data provided for each individual pipette
- Each pipette model is tested to 650+ hours of use: this equates to using 55,000 tips over 6 months with the robot pipetting 5 hours a day, 5 days a week
- Both have tip pickup and drop +/- 1mm of a successful seal when using Opentrons tips

### Time to fill 96-Well Plate:

PIPETTE	DISTRIBUTE	TRANSFER	TRANSFER
	ONE TIP	SAME TIP	CHANGE TIPS

Brand: *OpenTrons Labworks Inc*

Model: *P20*





## SINGLE-CHANNEL ROBOTIC PIPETTE P300



- Range 20-300ul
- Air-displacement technology to ensures fast procedure turnaround, high pipetting accuracy and precision and to diminish cross-contamination risks
- Suitable for all labware: **tubes, microplates, non-conventional or custom labware**
- Uses compatible dispensable filtered and unfiltered sterile DNase / RNase / Pyrogen free tips
- Dedicated range pipette to ensure accurate and precise pipetting
- Volumetric Test Data provided for each individual pipette
- Each pipette model is tested to 650+ hours of use: this equates to using 55,000 tips over 6 months with the robot pipetting 5 hours a day, 5 days a week
- Both have tip pickup and drop +/- 1mm of a successful seal when using Opentrons tips

### Time to Fill 96-Well Plate:

PIPETTE	DISTRIBUTE	TRANSFER	TRANSFER
	ONE TIP	SAME TIP	CHANGE TIPS
P300 SINGLE	4:01	13:39	41:31

Brand: *OpenTrons Labworks Inc*

Model: *P300*



# SINGLE-CHANNEL ROBOTIC PIPETTE P1000



- Range 100-1000ul
- Air-displacement technology to ensures fast procedure turnaround, high pipetting accuracy and precision and to diminish cross-contamination risks
- Suitable for all labware: **tubes, microplates, non-conventional or custom labware**
- Uses compatible dispensable filtered and unfiltered sterile DNase / RNase / Pyrogen free tips
- Dedicated range pipette to ensure accurate and precise pipetting
- Volumetric Test Data provided for each individual pipette
- Each pipette model is tested to 650+ hours of use: this equates to using 55,000 tips over 6 months with the robot pipetting 5 hours a day, 5 days a week
- Both have tip pickup and drop +/- 1mm of a successful seal when using Opentrons tips

## Time to Fill 96-Well Plate:

PIPETTE	DISTRIBUTE	TRANSFER	TRANSFER
	ONE TIP	SAME TIP	CHANGE TIPS
P1000 SINGLE	5:54	15:21	44:50

Brand: *OpenTrons Labworks Inc*

Model: *P1000*



## 8-CHANNEL ROBOTIC PIPETTE M20



- Range 1-20ul
- Air-displacement technology to ensures fast procedure turnaround, high pipetting accuracy and precision and to diminish cross-contamination risks
- Suitable for all labware: 96-well plates, 384-well plates, and 8-well strips.
- Uses compatible dispensable filtered and unfiltered sterile DNase / RNase / Pyrogen free tips
- Dedicated range pipette to ensure accurate and precise pipetting
- Volumetric Test Data provided for each individual pipette
- Each pipette model is tested to 650+ hours of use: this equates to using 55,000 tips over 6 months with the robot pipetting 5 hours a day, 5 days a week
- Both have tip pickup and drop +/- 1mm of a successful seal when using Opentrons tips

### Time to Fill 96-Well Plate:

PIPETTE	DISTRIBUTE	TRANSFER	TRANSFER
	ONE TIP	SAME TIP	CHANGE TIPS
P20 8-CHANNEL	0:22	1:35	4:19

Brand: *OpenTrons Labworks Inc*

Model: *M20*



# 8-CHANNEL ROBOTIC PIPETTE M300



- Range 20-300ul
- Air-displacement technology to ensures fast procedure turnaround, high pipetting accuracy and precision and to diminish cross-contamination risks
- Suitable for all labware: 96-well plates, 384-well plates, and 8-well strips
- Uses compatible dispensable filtered and unfiltered sterile DNase / RNase / Pyrogen free tips
- Dedicated range pipette to ensure accurate and precise pipetting
- Volumetric Test Data provided for each individual pipette
- Each pipette model is tested to 650+ hours of use: this equates to using 55,000 tips over 6 months with the robot pipetting 5 hours a day, 5 days a week
- Both have tip pickup and drop +/- 1mm of a successful seal when using Opentrons tips

## Time to Fill 96-Well Plate

PIPETTE	DISTRIBUTE	TRANSFER	TRANSFER
	ONE TIP	SAME TIP	CHANGE TIPS
P300 8-CHANNEL	0:26	1:38	4:24

Brand: *OpenTrons Labworks Inc*

Model: *M300*



## MAGNETIC MODULE



- High-strength N42 neodymium magnets
- Two adjustable plate brackets
- Compatible with standard and deep well labware from 22 mm to 44 mm, various magnetic bead products, and protocols with volumes from 10  $\mu$ L to 2 mL
- Dimensions (w/o bracket): 133mm x 90mm x 98mm (l/w/h)
- Weight: 3.3 lbs / 1.5 kg
- Module Power Input: 36VDC, 6.1A
- Power Adapter Input: 100-240VAC, 50/60Hz, 4.0A/115VAC, 2.0A/230VAC
- Standard or deep well 96 plates with volumes ranging from 10  $\mu$ L to 2 mL
- The standard plate bracket supports 0.2 mL plate sizes up to 22 mm in vertical height. The deep well bracket can support deep well trays up to 47 mm in vertical height.
- Accuracy Control magnet height in mm
- Magnets' position Outside the microplate wells

Brand: *OpenTrons Labworks Inc*

Model: *GEN2*



# TEMPERATURE MODULE

Standalone Temp Deck



Temp Deck with 1.5 – 2mL Thermal Block



Temp Deck with PCR Thermal Block



Temp Deck with Flat Plate Adapter



- For heating and cooling – temperature range 4-95 °C
- **Includes 3 different aluminium blocks to hold 1.5mL or 2ml tubes, PCR plates or strips, flat bottom microplates**
- Dimensions (w/block): 194 x 90 x 126mm (l/w/h)
- Weight: 3.3 lbs / 1.5kg
- Module Power Input: 36VDC, 6.1A
- Power Adapter Input: 100-240VAC, 50/60Hz, 4.0A/115VAC, 2.0A/230VAC

LCD Display Temperature (C)	Top Plate Accuracy (C)	Top Plate Uniformity (C)	Time-to-Temp from Ambient (minutes)
4	± 1	± 1	4:00
37	± 1	± 0.4	1:00
65	± 1	± 1	2:00
95	± 1.5	± 2	3:00

- Accuracy (C): +/-1 at 4-65 0C, +/-1.5 at 95 0C Accuracy indicates the maximum measured difference between the LCD temperature display and the average measured top plate temperature
- Uniformity +/-0.4-1 at 4-65 0C, +/-2 at 95 0C indicates the temperature variation (+/-) measured across the entirety of the top plate surface
- Time-to-Temp (1-4 min) indicates the total time for the temperature module top plate to reach the desired steady state temperature after starting from ambient conditions
- Environmental Test Conditions: Data shown was collected at 22°C and 37% relative humidity. Different test conditions may provide for different results.
- Temperature Sensor: KS103J2 Thermistor

Brand: *OpenTrons Labworks Inc*

Model: *GEN2*



## 4-IN-1 TUBE HOLDER SET

Tube Rack Stand with 1.5 - 2.0mL Tube Holder Top



Tube Rack Stand with 15mL Tube Holder Top



Tube Rack Stand with 15 & 50mL Tube Holder Top



Tube Rack Stand



Tube Rack Stand with 50mL Tube Holder Top



Example CNC Top Plate



- 2 Bases
- 4 Adaptors for:
  - 24x1.5ml or 2ml tubes
  - 6x15ml & 4x50ml
  - 15x15ml tubes
  - 6x50ml tubes
- The adaptor snaps securely on the base stand, which fits directly on the deck of OT-2
- The Tube Rack Set is not autoclavable

Brand: *OpenTrons Labworks Inc*

Model: 4-IN-1



## BIO SHAKE 3000-T ELM



- For heating RT-99 °C and/or orbital shaking 200-3000 rpm
- Price includes one adaptor for PCR plates
- Compatible with any labware by easily changing the adaptor
- Mixing frequency 200 to 3,000 rpm (microplates)
- Mixing orbit constant 2.0 mm diameter
- Speed setting resolution linear increments
- Mixing regulation accuracy  $\pm 25$  rpm
- Zero position
- Automatically controlled in the stopping process with final fixing
- Stopping time selectable from 3 sec (strong stopping) to 30 sec (soft stopping)
- Zero position accuracy  $\pm 0.1$  mm
- Temperature range ambient to 99°C
- Temperature setting 0.5°C or 1°C increment (adjustable in the setup)  
adjustable from 0°C to 99°C
- Temperature accuracy  $\pm 0.1$ °C
- Temperature uniformity:
  - $\pm 0.5$ °C at 45°C
  - $\pm 0.7$ °C at 75°C
  - $\pm 1.0$ °C at 95°C
- Heat-up time ca. 7°C/min (from ambient to 95°C in 10 min)
- Open modus: Ready for free handling with robot gripper
- Closed modus: Strong diagonal centered fixation
- ELM Position Accuracy:  $\pm 0.1$  mm
- Electronic control board: Completely accommodated in the smallest housing
- Non-external controller or components
- Controller: Micro controller (16-Bit-RISC-Prozessor)
- Operation control: Remote controlled





- User interface: RS232 interface (2.0 m connecting cable)
- Status & alarm LED in front (green = ok, red = alarm)
- Operating Voltages:
  - 24 VDC input
  - I<sub>max</sub>: 4.5 A
  - P<sub>eff</sub>: 85 Watt
  - P<sub>max</sub>: 108 Watt
- External power supply unit (CE/UL/CSA approved, 85-264 VAC, 47-63 Hz, 120W, IEC/EN60320-1 C14)
- Housing Material
- Aluminum anodized
- Environment operating range +5°C to 45°C (80 % max. relative humidity)
- Dimensions (W x D x H): 142 mm x 99 mm x 62 mm (5.59 x 3.89 x 2.44 inch)
- Weight: 1.5 kg (3.3 lbs).
- Ideal for 96 well microplates
- High-precision heating from ambient to 99°C
- Perfected thermo adapters
- Fast mixing from 200 up to 3,000 rpm
- Plate locking ELM
- Sensored zero-position

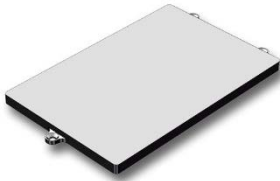
Brand: *Quantifoil Instruments GmbH*

Model: *BioShake 3000-T ELM*



## ADAPTOR FOR BIOSHAKE 3000-T ELM

1808 - 1021



1808 - 1022



1808 - 1024



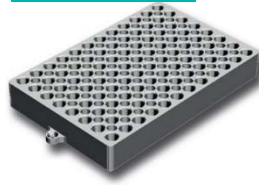
1808 - 1031



1808 - 1032



1808 - 1041



1808 - 1051



1808 - 1121



1808 - 1131



1808 - 1141



1808 - 1151



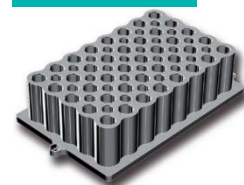
1808 - 1121



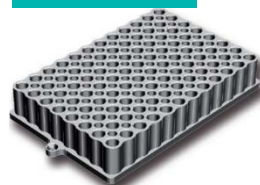
1808 - 1062



1808 - 1063



1808 - 1064



1808 - 1067



### This is valid for:

- PCR plates
- Microwell plates
- 384-well plates
- Deep-well plates
- Tubes (any size)
- Custom orders available (price will change)

### Standard:

- 2016-1021 | Microplate. Flat bottom standard
- 2016-1022 | Microplate. Flat bottom High Base
- 2016-1032 | Microplate. 96 well round bottom



**PCR Microplates:**

- 2016-1041 | PCR plate. Eppendorf® 96/150µl
- 2016-1042 | PCR plate. Bio-Rad® 96/150µl
- 2016-1051 | PCR plate. Eppendorf® 384/40µl

**Deep Well & Storage Plates:**

- 2016-1121 | Deep well. Eppendorf® 96/500-1000 µl
- 2016-1141 | Deep well. BRAND®/Trefflabs® 96/1.1 ml
- 2016-1151 | Deep well. NUNC®/Axygen® 96/2.0 ml
- 2016-1161 | Deep Well. Axygen® 96/0.6 ml
- 2016-1171 | Deep Well. Abgene® 96/2.2 ml
- 2016-1172 | Deep Well. Abgene®/HJ-Bio®/Greiner® 96/0.8-1.2 ml
- 2016-1181 | Deep Well. Sarstedt® 96/2.2 ml Megablock
- 2016-1201 | Deep well. Corning® 96/320 µl
- 2016-1214 | Deep well. Axygen®/Corning®/StarLab® 96/2.0 ml
- 2016-1215 | 24 well. Whatman® Uniplate
- 2016-1217 | Storage plate. NUNC® 96/450 µl
- 2016-1218 | Deep well. Apricot® 96/2.2 ml

**Conical Shape:**

- 2016-1060 | Tubes. 15x 5.0 ml
- 2016-1061 | Tubes. 24x 2.0 ml. 15x 0.5 ml
- 2016-1062 | Tubes. 24x 1.5 ml. 15x 0.5 ml
- 2016-1063 | Tubes. 40x 0.5 ml. 28x 0.2 ml
- 2016-1064 | PCR Tubes/Stripes/Plates. 96x 0.25 ml
- 2016-1093 | FALCON® tubes. 5x 50 ml
- 2016-1094 | FALCON® Tubes. 12x 15 ml

**Cylindrical Shape:**

- 2016-1069 | Vials. 35x 2.0 ml Ø 10.8 mm
- 2016-1071 | Vials. 35x 2.0 ml Ø 12 mm
- 2016-1080 | Vials. 35x 2.0 ml Ø 12.5 mm
- 2016-1078 | Vials. 24x 2.0 ml Ø 12.7 mm
- 2016-1081 | Vials. 30x 2.0 ml Ø 13 mm
- 2016-1072 | Vials. 24x 4.0 ml Ø 15 mm
- 2016-1073 | Vials. 20x 4.0 ml Ø 17 mm
- 2016-1074 | Vials. 20x 6.0 ml Ø 19 mm

Brand: *Quantifoil Instruments GmbH*

Model: *Adaptors*



## SCARA ROBOTIC ARM



- High-precision robotic arm type SCARA
- For labware transferring between different systems such as liquid handlers, modules, linear actuators, plate sealers and seal removers on upper and/or lower bench of AMGEL
- Pneumatic gripper with custom fingers for SBS labware
- Air pump system
- Access areas:
  - a) On both the right and the left side of both liquid handling platforms.
  - b) On all third-party integrated devices
  - c) **Outside the liquid handling robot to allow integration of devices without reducing SBS positions from the liquid-handler**
- Repeatability 0.02mm
- Adaptable-customizable gripper fingers for any labware
- Independent function of the robotic arm/gripper from liquid handling robot(s) to allow non-stop operation
- Custom labware racks e.g., for swabtubes, coverslips, madli-tof plates, petri dishes etc.
- Unlimited custom-made options compatible with gripper fingers
- Payload: 1.5kg
- Collaborative support sensor-free collision detection and teaching and playback Input
- Requirements of Power Adapter: 100 -240 V, 50/60 Hz
- Communication interface:
  - a) Ethernet
  - b) RS-232C
- System Linux
- Compatible with plate stackers/hotels and carousels



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- Mechanical limitation:
  - Rear arm -90°- 90°
  - Forearm -140°-140°
  - Z-axis screw 0mm- 250mm

Brand: *Shenzhen Yuejiang Technology Co., Ltd*

Model: *DOBOT M1*



## CELL-CULTURE INCUBATOR



- Maximum precision, by restraining human handling inconsistencies
- Great flexibility, while taking up minimal space in your automated deck
- Allow labs to create and maintain the ideal physiological conditions for cell growth, by controlling gas atmosphere, humidity and temperature.
- Powerful and scalable
- Controlled and protected
- Small and flexible
- Dimensions: 291 mm H x 250 mm W x 410 mm L
- 4 microplates (for 96 well plates less than 20 mm in height)
- 2 deep well options (up to 23 mm in height)
- Allows the use of microtiters and / or vials

Brand: *INHECO Industrial Heating & Cooling GmbH*

Model: *SCILA CO2 4-Position cell incubator*



## PHOTOMETER



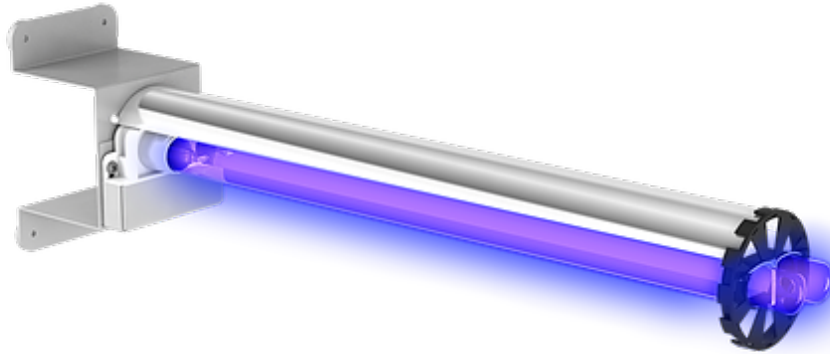
- High-speed absorbance measurements
- Measurements in up to 384-well plates
- Top and bottom reading
- Incubation up to 45 or 65 °C
- User-defined shaking
- Well scanning with up to 900 data points per well
- High-precision injectors with simultaneous reagent injection and detection
- Low-volume measurements
- Easily integrated into automated systems

Brand: *BMG LABTECH*

Model: *FLUOstar OMEGA*



## **UV-C GERMICIDAL DECONTAMINATION LED LIGHTS WITH TIMER**



- Focused LED beam minimized plasticware component tear.
- Timer for fixed 15 minutes.
- Timer for increments of 5 minutes up to 60 minutes total per run.

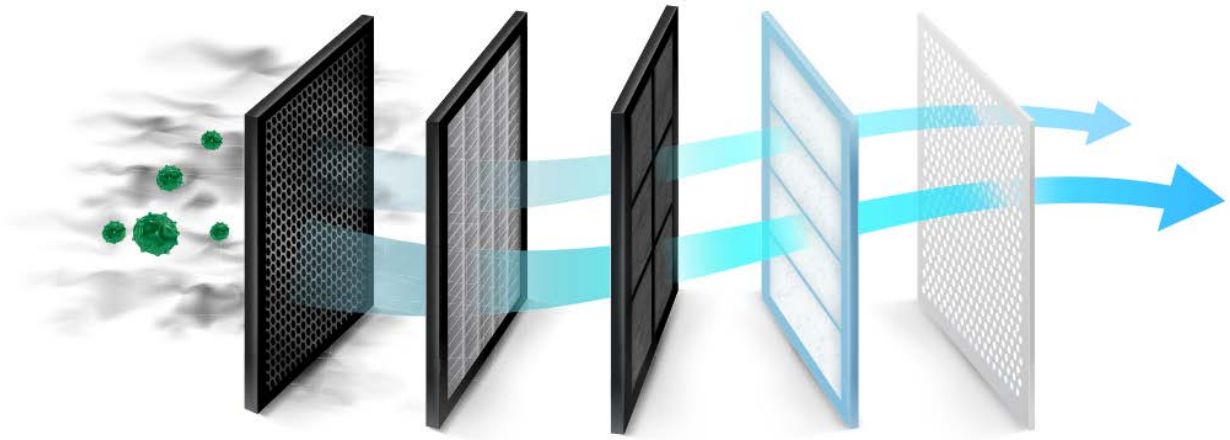
Brand: *EFEVRE TECH LTD*

Model: *UV-C LED STRIP WITH TIMERS*





## **FILTER SYSTEM**



**STEP 1:**  
Pre-Filter

**STEP 2:**  
Activated  
Carbon Filter

**STEP 3:**  
True HEPA Filter

- Pre-Filter – Remove large dust particles from the air
- HEPA Filter – High-Efficiency Particulate Absorbing (HEPA) filter, composed of a mat of randomly arranged fiberglass fibres
- Active Carbon Filter – Clean the air from toxic fumes

Brand: *OpenTrons Labworks Inc, Terra Universal Inc and TECAN*

Model: *CUSTOM*



# HIGH-END, INDUSTRIAL-GRADE ELECTRICAL AUTOMATION



Development by EFEVRE TECH LTD **for power management and safety**

- All essential electrical connectivity of each electronic component into the platform
- Capacity to add more devices
- Electrical boards
- Electronics and computers for robotic control
- Emergency stop system for safety of user
- Timers
- High-end Power supplies and relays
- Electrical wiring diagram signed by authorized electrician

Brand: EFEVRE TECH LTD

Model: CUSTOM



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## LAPTOP OR TABLET



- Windows Operating system
- Microsoft office
- Containing GUI (graphical user interface) for controlling AMGEL platform

Brand: ANY

Model: WINDOWS OPERATIONAL SYSTEM



## **CUSTOM RACKS**



- Suitable for microtiter plates and conventional tubes.
- Adaptable for non-conventional or custom labware.
- Compatible with robotic arm and liquid handlers.

Brand: *EFEVRE TECH LTD*

Model: *Universal, 80mm height, adaptor for labware.*



# Content

## AMGEL EXPANSION ADD-ONS

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## **ON-DECK THERMAL CYCLER-ODTC® 96 XL**



- Dimensions (H x W x L): 124.3 mm x 156.5 mm x 248 mm
- Weight: Approx. 7.5 kg
- 96 well plate format with Width: 156.5 mm, Length: 248 mm
- Free programmable temperature profiles and lid temperature
- Horizontally opening heated lid, no interference with gripper and pipetting head
- Automated adjustment of lid pressure for different disposables and sealing options
- Plate ejection: Automated plate ejection mechanism with exchangeable ejection bars
- ODTC® device DC input: 24 Vdc / 1200 W \*1)
- Protection class: III (according to DIN EN 61140)
- EMV device class: Group 1 / class A (industrial requirements)
- PCR plates: 96 and 384 well VCM® optimized for specific PCR plates (other PCR plate formats only on request)
- Maximum volume during PCR: 100µl/well for 96 well version
- ODTC® lid: Opens and closes by horizontal move and is heated to avoid condensation running temperature profiles with open ODTC® Lid possible
- Lid pressure: Automated adjustment of lid pressure for different disposable and sealing options
- Thermal specifications
- Temperature range thermal block: +4°C to +99°C
- Temperature range heated lid: +30°C to +115°C
- Maximum average heating rate: 4.4 K/sec
- Maximum average cooling rate: 2.2 K/sec
- 95°C, even with asymmetrical loading of the PCR plate
- Temperature range: +4 °C to +99 °C [+39 °F to +210 °F] \*2)



- Temperature accuracy:  $\pm 0.30$  K at  $+55$  °C ( $+131$  °F)
- Temperature uniformity:
  - $\pm 0.20$  K at  $+55$  °C ( $+131$  °F)
  - $\pm 0.20$  K at  $+72$  °C ( $+162$  °F)
  - $\pm 0.20$  K at  $+95$  °C ( $+203$  °F)
- Heating rate average (slope): Max. 4.4 K/sec
- Cooling rate average (slope): Max. 2.2 K/sec
- Adjustable heating & cooling rate: from 0.1 K to 4.4 K/sec
- Lid temperature: Adjustable between ambient temperature
- $+5.0$  K to  $+115$  °C ( $+5.0$  K to  $+239$  °F)
- Lid default temperature:  $+110$  °C ( $+230$  °F)

#### **Specifications - ODTC® Power & Control Unit (PCU):**

- Dimensions (W x D x H horizontally placed): 256.5 mm x 414.5 mm x 58 mm \*3)
- Interface: SiLA, Ethernet (RJ45 connector)
- Weight: Approx. 5.5 kg
- AC input: 100-240 V / 50/60 Hz (1250 W)
- DC output: 24 Vdc / 1200W
- Protection class: I (according to DIN EN 61140)
- Fuses: 2 x T12A / 250 V

#### **Environmental Conditions - ODTC® and ODTC® Power & Control Unit (PCU):**

- Tolerable relative humidity:
- Operation: 30-80% \*4)
- Transportation and storage: 30-80% \*4)
- Temperature:
  - Operation:  $+15$  °C to  $+32$  °C [ $+59$  °F to  $+90$  °F]
  - Transportation and storage:  $-10$  °C to  $+60$  °C [ $+14$  °F to  $+140$  °F]

Brand: *INHECO Industrial Heating & Cooling GmbH*

Model: *ODTC® 96*





## **ROBOTIC COOLING CENTRIFUGE**



**Sigma Laborzentrifugen GmbH, Germany, Sigma 4- 5KRL Refrigerated centrifuge, designed for use with laboratory robotic platform.**

- Cooling-Refrigerated centrifuge
- Multiple buckets - adaptable centrifuge for any labware (tubes, plates, custom)
- Centrifuge can be also manually used
- Simultaneous centrifugation of 4 microplates
- Maintenance free brush- less motor with a speed range of 4700 rpm
- Universal speed range for swing-out and angle rotors
- Microcontroller with automatic rotor identification
- LCD-Display and single knob control for the preselection of all centrifuge parameters e.g., rpm, gravitational field, rotor, bucket, time, temperature
- The patented bucket lifting device is one of its unique features, ensuring that after each centrifugation run, the buckets return to horizontally and vertically reproducible positions at the loading/ unloading port. This innovation makes a decisive contribution to boosting process reliability.
- Up to 10 user programs,10 each linear and quadrate curve of acceleration and deceleration
- Possibility to precool the rotors at standstill
- Simple starting of the actual program or repetition of the last run by only 1 button
- Cooling machine for temperatures deeper than 4°C at maximum speed (rotor dependent)
- Technical mechanism complying with German Safety Regulations (UVV)
- Meets the requirements of the equipment safety law according to the general requirements IEC 1010 part 1 and part 2-020
- Quality mark CE





**For use with robotic platform:**

- The centrifuge provides for positioning of the rotor at low speed in 2-4 positions which can be preselected via PC. The rotor would stop in these positions after every run
- The centrifuge provides for magnetic stopping of the rotor
- Motor driven lid locks
- The lid has an opening for the rotor arm which is electrically closed
- Serial interface for communication between PC and centrifuge
- Programming of the centrifuge occurs via IST electronic control or via a PC
- Control commands are coming from a PC:

Max. Capacity (ml)

Swing-bucket rotor: 140 blood collection tubes / 16 microtiter plates

Max. RZB: 4,470

Max. Speed (min<sup>-1</sup>): 4,700

Min. Speed (min<sup>-1</sup>): 100

Noise level at max. Speed (approx.) [Db (A)]:

Swing-out rotor 91318 with bucket 91319 ≤ 59

Max. Acceleration time [sec]:

Swing-out rotor 91318 with bucket 91319 ≤ 23

Min. Braking time [sec]:

Swing-out rotor 91318 with bucket 91319 ≤ 24

Power consumption (W): 2,200

Height x width x depth (mm): 406 x 677 x 680

Height with open cover (mm): 890

Weight without rotor (kg): 135

Brand: *Sigma Laborzentrifugen GmbH*

Model: *Sigma 4- 5KRL*



## **SWING-OUT ROTOR & 4 BUCKETS FOR MICROTITER PLATES**



An extensive selection of autoclavable and corrosion-free rotors with capacities from 1.5ml to 1,000ml and up to 16 microplates.

Coupled with these are accessories including bucket holders for both conical flasks and flat bottom tubes and sleeves.

### **Safety and robustness:**

- Sturdy construction, two to three layered lids for noise reduction and safe operation
- Lid drop protection for ease and safety when loading or unloading sample
- Emergency lid-lock release in case of mains power loss or sudden stoppage
- Key lock function to prevent unintentional parameter modification during operation
- Automatic rotor detection and warning for excess speed and over-heating
- Autoclavable and corrosion-free rotors
- Imbalance detection and warning with count of imbalance error

Brand: Sigma Laborzentrifugen GmbH

Model: *modified to be suitable for Sigma 4- 5KRL*



## **AUTOMATED PLATE SEALER**



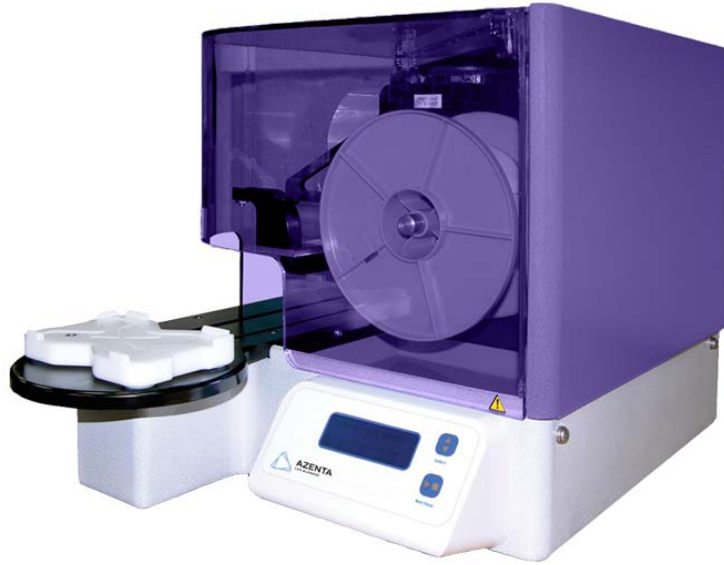
- Dimensions (W x L x H): 230 x 507 x 276mm
- Sealing temperature range: 100-195°C
- Sealing time range: 0.1-10 sec
- Weight (without roll): 27kg
- Power supply V in AC: 100-240V
- Power supply V out: DC 24V 320W
- Power consumption: 700W (max)
- Working temperature range: 10-30°C
- Operating humidity (RH): 0-85%
- Operating humidity (RH): 0-85%
- Connection: RS-232 serial port, USB port

Brand: *Azenta Life Sciences, formerly Brooks Life Sciences*

Model: *a4S (4ti-0665)*



## **AUTOMATED PLATE SEAL REMOVER**



- Seal removal capacity up to 400 per Tape® roll
- Seal verification sensor reflective with sensitivity adjustment
- Communication serial RS232
- Motion parameters XTape® adhere time, se-seal speed, plate output orientation, begin peel location
- General parameters auto XTape® advance, plate verification, menu language
- Weight: 35kg (76lbs)
- Power requirements:
  - 115VAC, 4A, 60Hz
  - 230VAC, 2A, 50Hz
- Throughput up to 200 plate seal removals per hour
- Automatically removes any plate seal minimizing cross contaminations. Avoid cross contamination from seal puncturing.

Brand: *Azenta Life Sciences, formerly Brooks Life Sciences*

Model: *Xpeel BROOKS Seal remover (XP-A\_230V)*



## **RAPID RACK SCANNER**



- Developed specifically for integration the FluidX Impression™ Rapid Rack Scanner offers fast identification of SBS-format racked, 2D-coded sample storage tubes, without the need to remove tubes from racks; backbone of many samples storage and tracking systems, for applications including biobanks, compound libraries and other high-throughput storage environments.
- Compact, bench top whole SBS rack scanner
- Integration friendly
- Small-footprint scanner-based solution
- No decoding attempt for empty tube positions

Brand: *Azenta Life Sciences, formerly Brooks Life Sciences*

Model: *FluidX Impression™ Rapid Rack Scanner*



## WHOLE RACK READER



- FluidX Perception™ HD offers fast identification of SBS-format racked, 2D-coded sample storage tubes, without the need to remove tubes from racks; backbone of many samples storage and tracking systems, for applications including biobanks, compound libraries and other high-throughput storage environments.
- Advanced camera-based imaging system
- Automation and robotics friendly
- Easy integration with IntelliCode™ software
- Additional sample security
- Seamless changing of rack format
- No decoding attempt for empty tube positions

Brand: *Azenta Life Sciences, formerly Brooks Life Sciences*

Model: *FluidX Perception™ HD Whole Rack Reader*



## **TUBE CAPPER / DECEPPER**



- FluidX IntelliXcap™ 96 is the next-generation capper and de-capper, engineered for increased throughput, ease of use and high system reliability, making the system ideal for any laboratory managing compound libraries or biological sample stores.
- Advanced automation for increased throughput
- Compact, modular design for ultimate flexibility
- Easy to use, easy to integrate
- For use with 96-format racked tubes

Brand: *Azenta Life Sciences, formerly Brooks Life Sciences*

Model: *FluidX IntelliXcap™ 24 or 48 or 96-Format Screw Cap Tube Rack  
Decapper/Capper*



## **UNINTERRUPTIBLE POWER SUPPLY (UPS)**



- Operation: On-line / VFI-SS-111
- True On-line Double Conversion
- Voltage Frequency Independent, three – level converters with Touch Screen
- Manufacturer: EATON
- Manufactured in: Finland
- User Interface: Smart Touch Screen
- Input: 3-phase 400/230V, 50Hz
- Rectifier: IGBT, THDi 4%
- Output: 3-phase 400/230V, 50Hz
- Output Total Voltage Harmonic Distortion
- Linear Load: 1%
- 100% Non-Linear Load: 5%
- Power: 20kVA / 20kW, pf. 1.0
- Input power factor: 0.99
- Bypass: Static (internal) and Maintenance (mechanic)
- Internal number of batteries: 64 x 12V/9Ah (2x strings)
- Dimensions (W x D x H): 335 x 750 x 1300 mm
- Weight: 253kg
- Battery Management: ABM (advanced battery management)
- Back-up time: 44 minutes at 5kW load & 19 minutes at 10kW load & 11 minutes at 15kW load
- SNMP / WEB Adaptor
- Gives the UPS an IP address and enables remote monitoring, control, and automated e-mail notification in case of alarms

Brand: *EATON*

Model: *93PS-20(20)-20-2x9Ah-MBS-6*





## **UNINTERRUPTIBLE POWER SUPPLY (UPS)**



- Operation: On-line / VFI-SS-111
- Generator Compatible
- Manufacturer: Powerwalker
- Power: 20kVA / 20kW (pf 1.0)
- Bypass: Static and manual (No-break)
- Rectifier: IGBT, THDi <3%
- Internal Batteries: 32x 12V/9Ah
- Battery runtime: 5 minutes at full load
- Input/Output: 415 VAC
- Dimensions W x D x H: 250x627x827 mm
- Weight: 139 Kg
- SNMP / WEB Adaptor
- Gives the UPS an IP address and enables remote monitoring, control and automated e-mail notification in case of alarms.

Brand: *Powerwalker*

Model: *VFI-CPG 20kW*



## **MULTI-AXES CONFIGURABLE CARTESIAN ROBOTS**



- For transferring labware to lower AMGEL bench
- For loading centrifuge, fridge or other addon device in the future.

Brand: *ZAPER and EFEVRE TECH LTD*

Model: *CUSTOM*



## **CUSTOM LABWARE STACKER AND/OR CAROUSEL**



- Custom built to your needs
- Increase walk-away time by stocking labware in room temperature
- 24-hour non-stop workflow programming
- 3-fold Increase of productivity of any procedure
- Automatic loading of labware by AMGEL's robotic arm
- Easy unloading of stacks by user

Brand: LICONIC and *EFEVRE TECH LTD*

Model: *CUSTOM*



## VACCUM MANIFOLD



- DNA / RNA / other extractions / purifications through columns
- Robotic Compatible Universal Vacuum Manifold, Acrylic, C/W Gauge
- Waste trap
- Vacuum pump with serial control
- Valves
- Electronics
- Automatic loading of labware by AMGEL's robotic arm

Brand: ARCTIC WHITE LLC and *EFEVRE TECH LTD*

Model: *CUSTOM*



## About our **Mission**

EFEVRE TECH LTD is a company based in Cyprus, focusing on the design, manufacture and retail of prototypes and innovative devices in the field of Health Science, Biology and Robotics.

Embracing natural sciences through a justifiable philosophic analogy and channelling our passion towards an anthropocentric approach EFEVRE TECH aims to empower life-science towards added value research and development. High Tech, autonomy, versatility and agility are fuelling our vision and mission towards the production of products and services that can add value and substance to an array of technological and scientific ecosystems.

## About our **Product**

AMGEL's key features are versatility, autonomy, its compact size and attractive price. AMGEL's magnitude offers the capacity to be fully adaptable and/or expandable by the following topics:

- Integration of third-party devices
- Custom Graphical User Interface (GUI) design
- Optimization of every protocol
- Reagent kits and consumable agnostic
- Unlimited custom protocol designing

## GET IN TOUCH!

**Location:**

104 Kyklikei Leoforos street  
6056 Larnaca, Cyprus

**Website:**

[www.efevre.com](http://www.efevre.com)

**Phone Number:**

+357 24366277

**Email:**

[info@efevretech.com](mailto:info@efevretech.com)



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[www.efevre.com](http://www.efevre.com)



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**Email:**  
[info@efevretech.com](mailto:info@efevretech.com)