ROBOTIC NOZZLES

AUTOMATIC
CONVEYOR BELT CLEANING
for mining operations

UNIFIRE

Advanced, Swedish Robotic Nozzle Technologies™

About Unifire

UNIFIRE is a Swedish, high-tech robotic nozzle technologies laboratory. We make the world's most advanced robotic nozzle systems, period. Unifire's Robotic Nozzles represent a paradigm shift in the old way of making remote control monitors and water cannons. Boasting cutting-edge, industrial robot-type brushless (BLDC) motors and state-of-the-art electronics and software, Unifire is alone in creating a whole new generation of remote controlled robotic nozzle solutions. Whether your application is firefighting, mining, water fountains, wash down, dust control or anything else requiring water control, you've come to the right place!

UNIFIRE AB
Bultgatan 40B
442-40 Kungälv
Sweden
Unifire.com
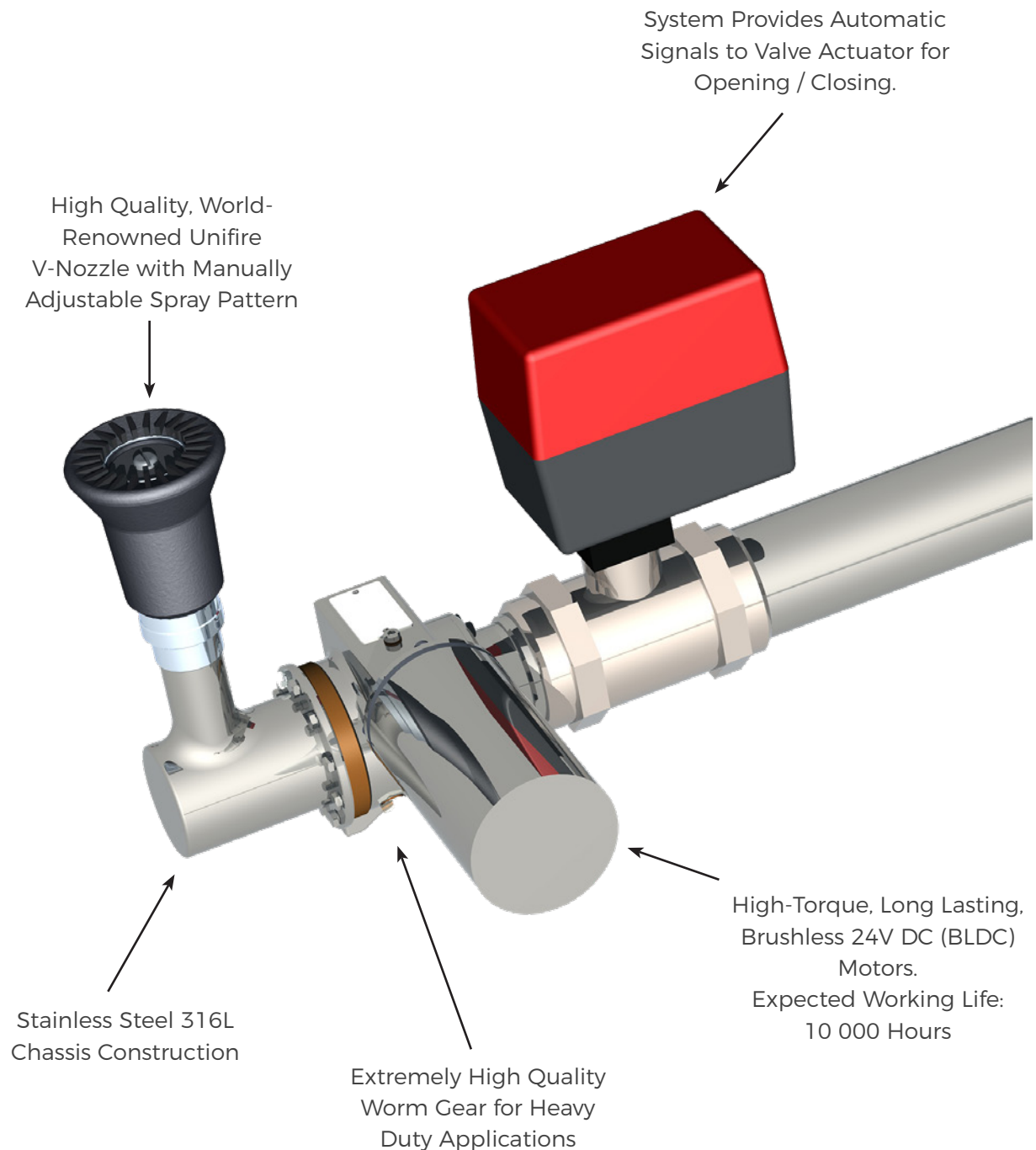+46 303 248 403
sales@unifire.com

Unifire's automatic conveyor belt cleaning nozzle system is a unique solution developed by Unifire specifically for mining operations.
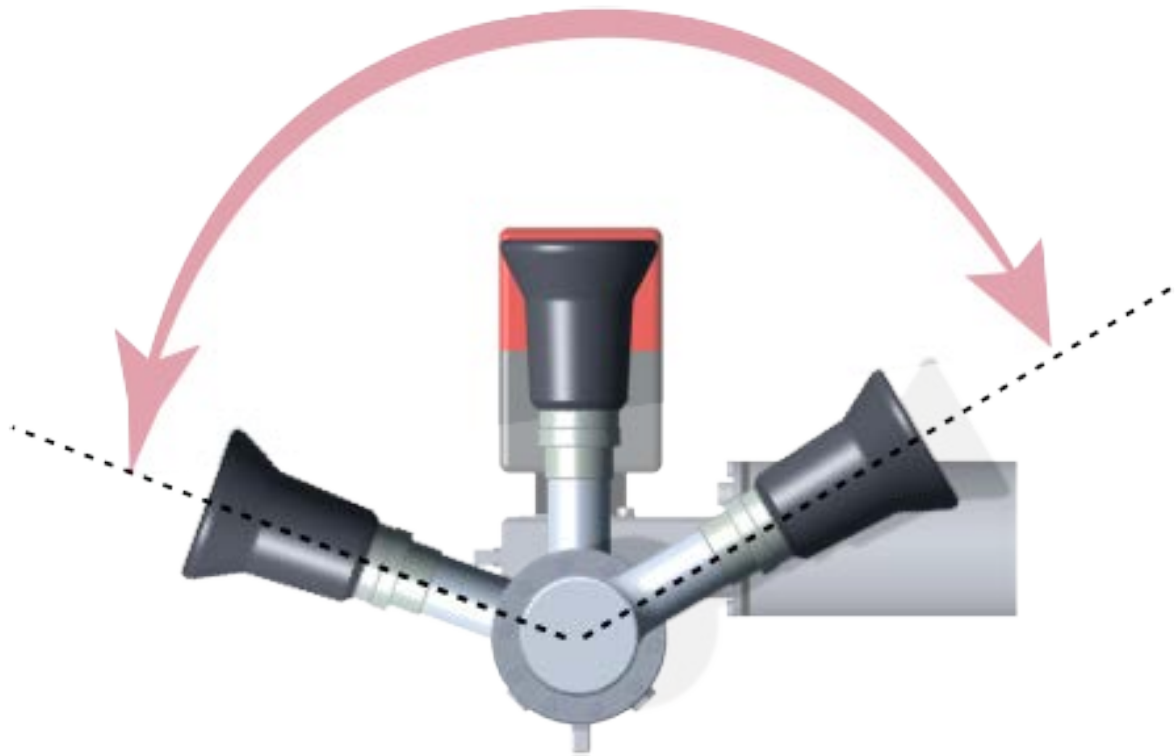
The system provides simple, wireless remote control and easy-to-program automatic functionality, speed and timing.

Made of the highest quality nozzles, gears and electronics--all designed by Unifire AB of Sweden, and manufactured in Sweden and Denmark at state-of-the-art ISO Certified facilities, and made for long-life, reliable operation in the harshest of conditions.

NOZZLE OVERVIEW

System Provides Automatic Signals to Valve Actuator for Opening / Closing.

High Quality, World-Renowned Unifire V-Nozzle with Manually Adjustable Spray Pattern

Stainless Steel 316L Chassis Construction

Extremely High Quality Worm Gear for Heavy Duty Applications

High-Torque, Long Lasting, Brushless 24V DC (BLDC) Motors.
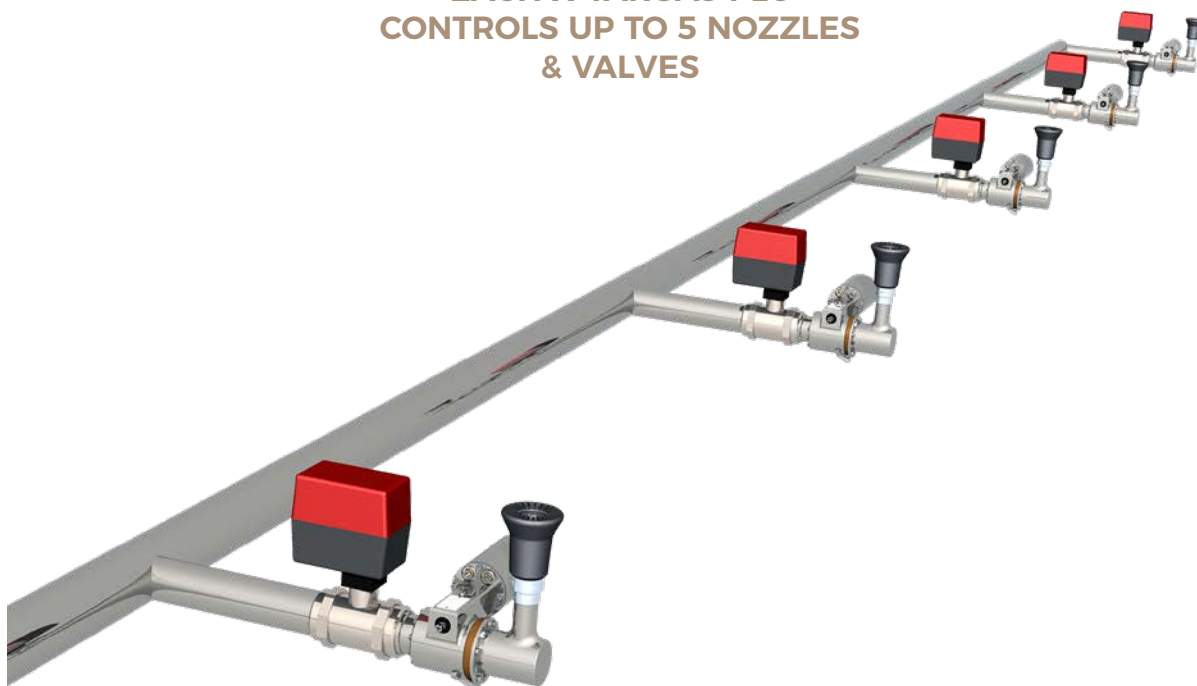Expected Working Life: 10 000 Hours

NOZZLE OVERVIEW

- Manually adjustable spray pattern from straight stream to a 90˚ spray

- Fully adjustable operating / oscillation range of motion

- Fully adjustable oscillation speed from 1˚ to 38˚ degrees per second

- Programmable time settings for automatic operation

- Definable number of repetitions before automatic shut-off

- Manually activate or deactivate at any time (includes valve open/close)

- Simple, wireless remote setup and remote control via any iOS or Android device
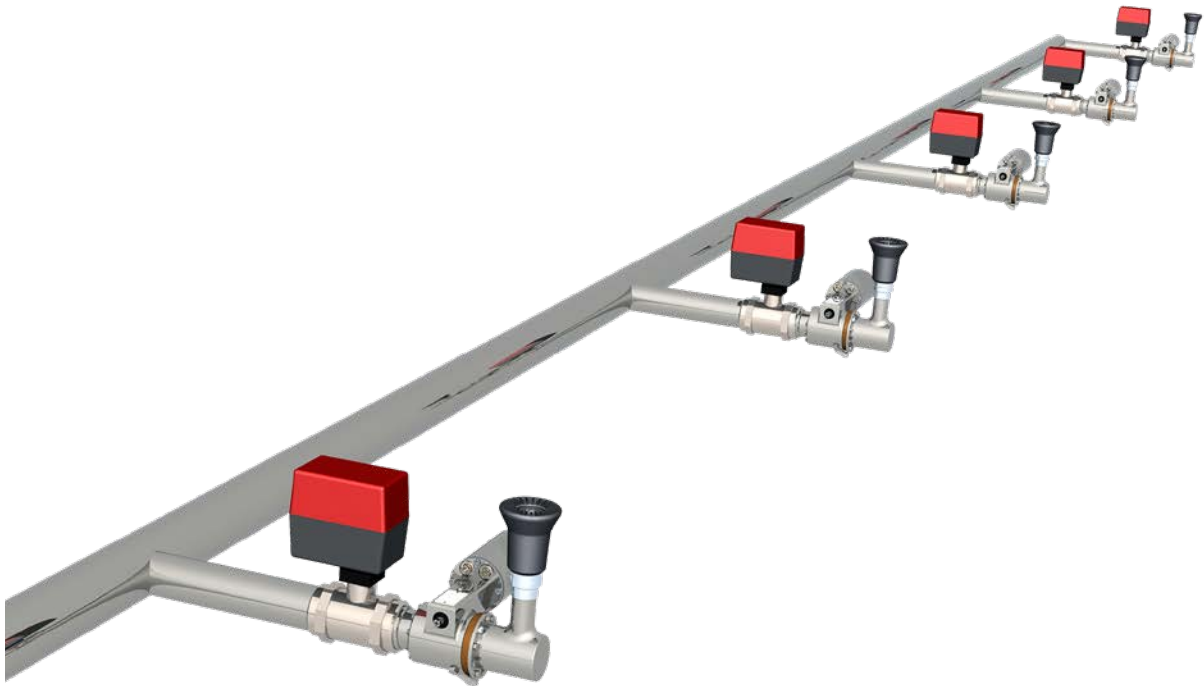
NOZZLE OVERVIEW

COMPLETE NOZZLE, GEAR & BLDC MOTOR ASSEMBLY

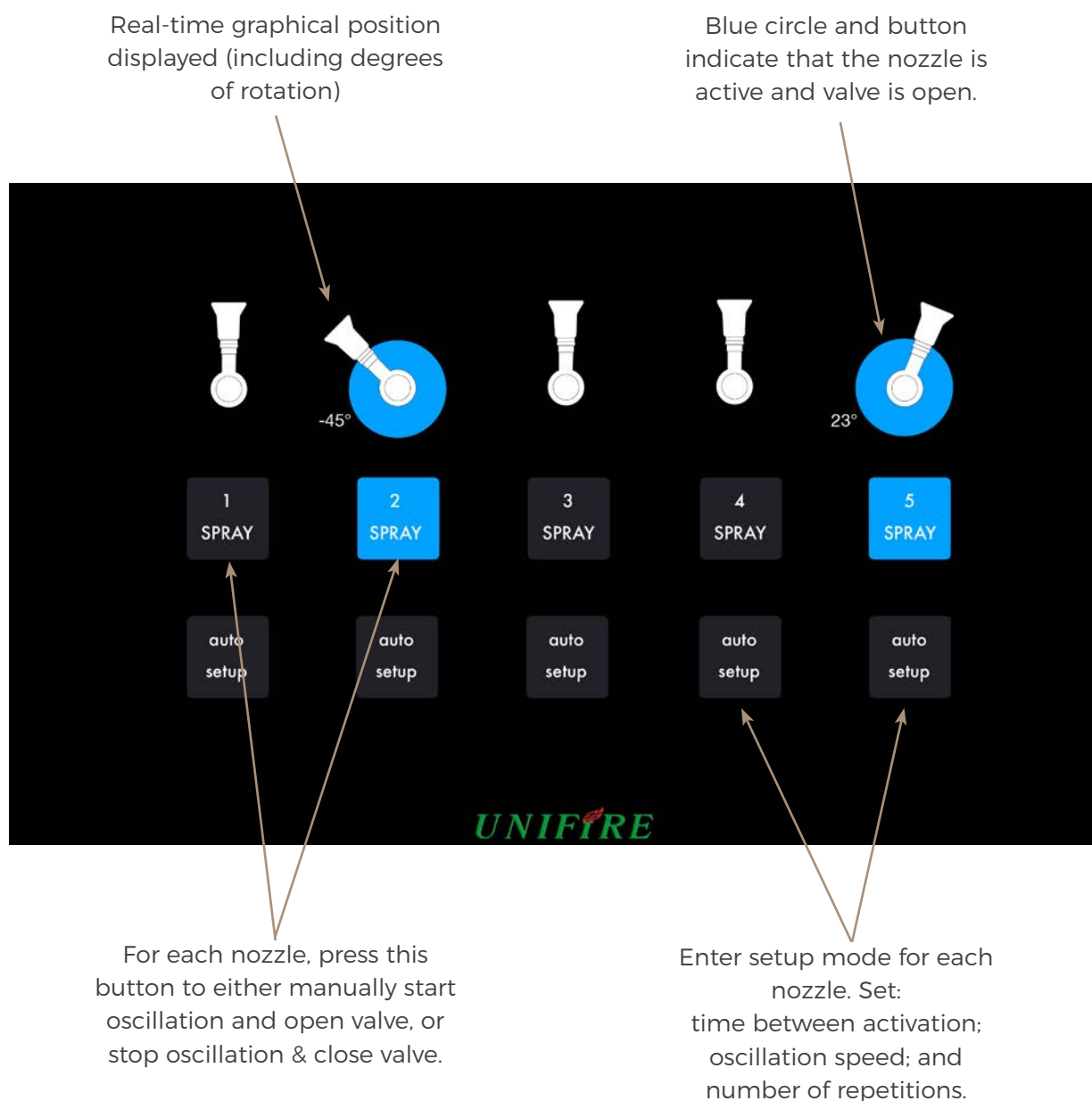## EACH X-TARGA5 PLC CONTROLS UP TO 5 NOZZLES & VALVES

CONTROL SYSTEM OVERVIEW

CONTROL SYSTEM OVERVIEW

The Graphical User Interface (GUI) is displayed and controlled on any iOS or Android device. Use your phone or tablet for complete control in the field to manually start or stop any nozzle, view the status of each nozzle and its real- time position, and program each nozzle to set its activation times, speed of oscillation and number of repetitions. The following GUI can be customized and is an example only.

Real-time graphical position displayed (including degrees of rotation)

Blue circle and button indicate that the nozzle is active and valve is open.

For each nozzle, press this button to either manually start oscillation and open valve, or stop oscillation & close valve.

Enter setup mode for each nozzle. Set:
time between activation; oscillation speed; and number of repetitions.

X-TARGA PLC

**RITTAL IP66 Steel
Plate Cabinet**

X-TARGA™

**Unifire's Revolutionary, Industrial & Marine
IP66 PLC for Total System Control**

The X-TARGA is Unifire's revolutionary TARGA PLC (Programmable Logic Controller), mounted in one of two choices of IP66 cabinets, both designed for the harshets envrionments. It has a built-in power converter from 110 to 230 V AC at 50 or 60 Hertz. The X-TARGA provides total, flexible control of Unifire's advanced robotic nozzle systems and a virtually-endless variety of other system peripherals and components. Our unique TARGA PLC allows users to simply and economically tailor water cannon systems to their individual needs. From basic, economical, stand alone installations, to highly sophisticated and integrated systems.

Both cabinet types are IP66 rated and designed for the harshets envrionments, both on- and off-shore. The X-TARGA comes standard with a builtin power converter from 110 to 230 V AC at 50 or 60 Hertz to TARGA's native 24VDC / 20 Amp requirement. The mounted TARGA (see TARGA section of this brochure) is a scaleable system platform that supports up to six BLDC motors and numerous analogue and digital inputs and outputs. The Unifire X-TARGA PLC controller for robotic nozzles, valves, lights, peripherals, automatic systems, system integration, and much more.

2019 technology allows our customers to control systems from their phone, tablet and computer, from anywhere in the world, when outfitted with Unifire's InterAct core technology. Network systems together and control from a central control station, and even monitor the system status, learn of any component failures, and upload system software updates or system function changes requested from Unifire.

X-TARGA PLC

X-TARGA PLC SPECIFICATIONS

Models:	X-TARGA & X-TARGA-S (each followed by a number 1-6. representing the quantity of installed BLDC driver cards)
Power Input:	110/230 V AC, 50/60 Hz (built-in converter to 24VDC / 20 Amps)
Approximate Weight:	15 kg / 33 lbs.
Cabinet Types:	**Model: X-TARGA**: RITTAL IP66 Steel Plate cabinet type: AE 1045.500, Dimensions: 500 x 400 x 210 mm / 19.7" x 15.8" x 8.3" inches, mass: 13 kg.
Communication Protocols:	2 x CAN 2.0 29-bit header (UniCAN) 125,250,500 kB/s, RS232, RS485 (Modbus, DMX, etc.)
Physical Layer Protocols:	USB, Ethernet (TCP/IP, web socket), others available per customer requirements
BLD Motor Driver Card Slots:	6 (each with 2 digital inputs)
Inputs:	4 digital inputs (NPT) + 2 per installed motor driver card, 6 analogue inputs (4-20 mA or 0-5V), expandable & customizable to customer requirements
Outputs:	8 digital outputs, of which 4 can be set to PWM, expandable to customer requirements
Connector Types:	M12 A/B coded, 4P, 5P, 8P, 12P
Certificates:	CE Marked, produced at ISO certified facilities

2" Valve & Actuator

Product Overview

The 2" Valve & Smart Electric Valve Actuator is a robust and proven valve and actuator with an outsanding track record with Unifire's robotic nozzle systems.
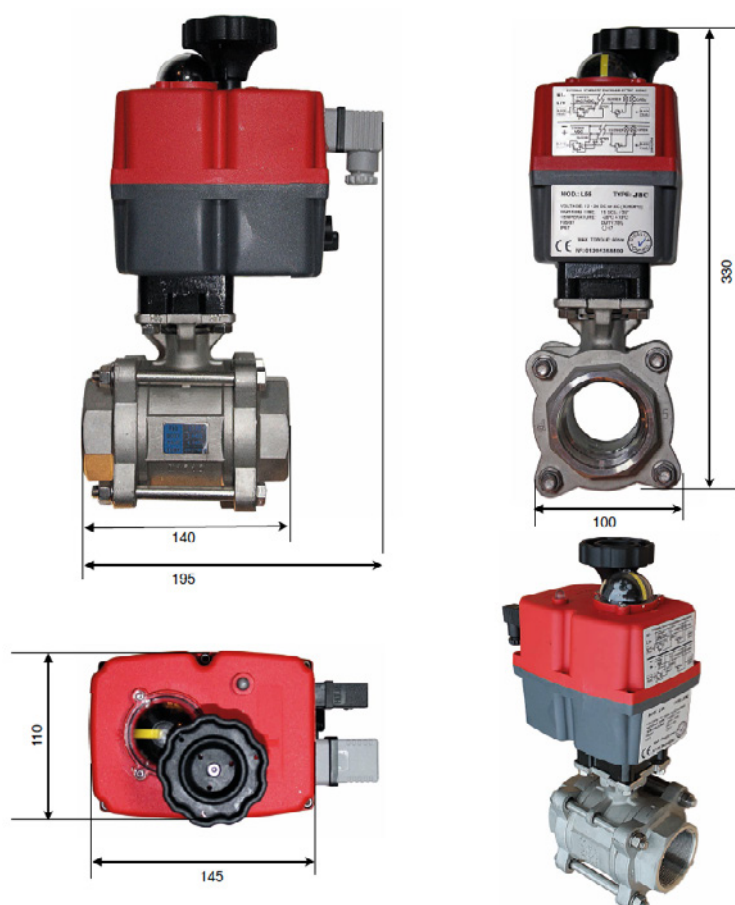
The IP67 weatherproof, corrosion resistant, low voltage electric valve actuator from electric actuator manufacturer J+J offers an impressive list of standard features that include protection against damage from over-torque or condensation, safety features, the ability to have it's standard on-off function changed with user friendly plug & play conversion kits.

The actuator features a highly visible LED light to offer users continual actuator operation-al status feedback. The LED light remains constantly lit if the actuator is able to respond to remote commands--if it can't, it flashes. The sequence of the flashes indicates what the reason may be for it being unable to respond.

2" Valve & Actuator (Continued)

Dimensions

Actuator Specifications:

Voltage Range - automatic sensing:	12-24 DC
Operating time (0-90°, no load):	13 seconds
Max. break torque:	60 Nm (531 lb.ins.)
Duty rating:	75%
IP Rating (IEC 60529):	IP67
Motor switches:	2 x SPDT micro switches
End of travel confirmation (volt free):	2 x SPDT micro switches
Heater:	3.5 W
Ambient temperature range:	-20° to +70°C (-4 to +158°F)
Electrical connecting plugs:	DIN 43650/ ISO4400 & C192
Weight:	2.4 kg
Consumption, 24V DC at max. torque:	1428mA

System Cables

with M12 Connectors

Cable Features

- M12 shielded cables for Unifire BLDC mMotors & joysticks
- Quick & simple installation
- Extremely well sealed when connected
- 5 meters (standard).
- Connect two or more joystick cables to extend to any length, in 5-meter increments
- Each BLDC motor requires 2 cables—one 5 pin (PN: M1255) & one 3 pin (PN: M1253)
- Unifire joysticks require a 5 pin M12 cable (PN: M1255)
- Spiral joystick cables available in 2 and 5 meter lengths
- Power cable: PN FOR00415 (inquire for price)

Unifire Part Numbers:
M1255 (5 pins, for motor sensor and joystick)
M1253 (3 pins, for motor phases)

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Bultgatan 40B | SE 442 45 Kungalv | Sweden
Unifire.com
+46 303 248 403
Sales@Unifire.com