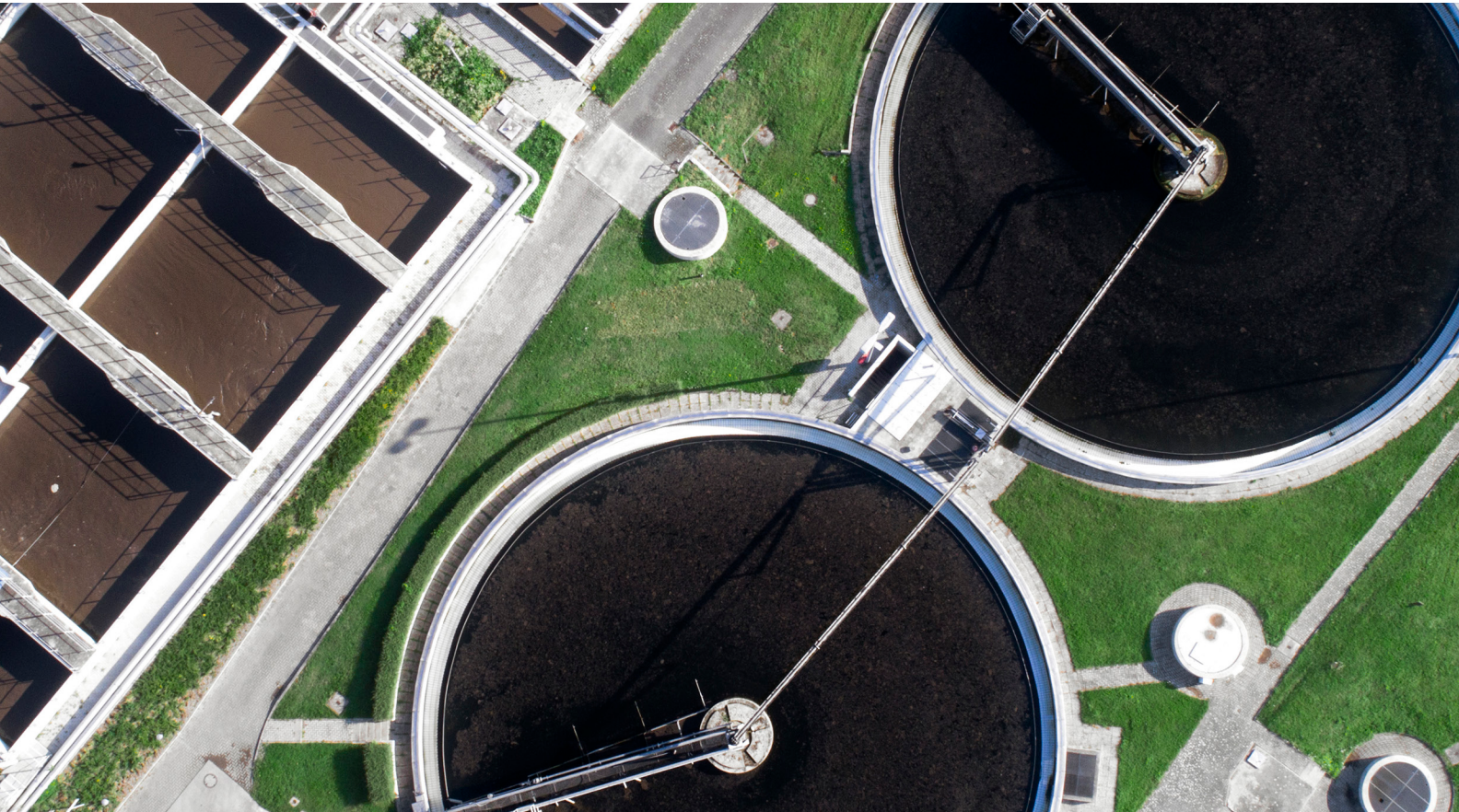




Fixed Gas and Flame Detection for the Water & Wastewater Industries



There are various standards that guide safety in the operation of water and wastewater treatment plants. MSA products are engineered to meet these standards as they specifically apply to fixed gas and flame detection (FGFD) applications.

The NFPA 820 Standard for Fire Protection in Wastewater Treatment and Collection Facilities establishes minimum requirements for protection against fire and explosion hazards. Specifically the standard applies to:

- | | |
|-------------------------|----------------------------------|
| (1) Collection sewers | (7) Wastewater treatment plants |
| (2) Trunk sewers | (8) Sludge-handling facilities |
| (3) Intercepting sewers | (9) Chemical-handling facilities |
| (4) Combined sewers | (10) Treatment facilities |
| (5) Storm sewers | (11) Ancillary structures |
| (6) Pumping stations | |

MSA FGFD products comply with NFPA 820 standards when required.

In addition, MSA FGFD products meet the needs for atmospheric gas monitoring in water and wastewater treatment plants as associated with oxygen deficiency in permitted spaces and commonly found toxic gases such as hydrogen sulfide (H_2S), carbon monoxide (CO), sulfur dioxide (SO_2) and chlorine (Cl_2). MSA FGFD products can be used to comply with OSHA: Standard 1910.148 Appendix E Sewer System Entry guidelines when fixed gas monitoring is required.

...Atmospheric monitoring. Entrants should be trained in the use of, and be equipped with, atmospheric monitoring equipment which sounds an audible alarm, in addition to its visual readout, whenever one of the following conditions are encountered: Oxygen concentration less than 19.5 percent; flammable gas or vapor at 10 percent or more of the lower flammable limit (LFL); or hydrogen sulfide or carbon monoxide at or above 10 ppm or 35 ppm, respectively, measured as an 8-hour time-weighted average.

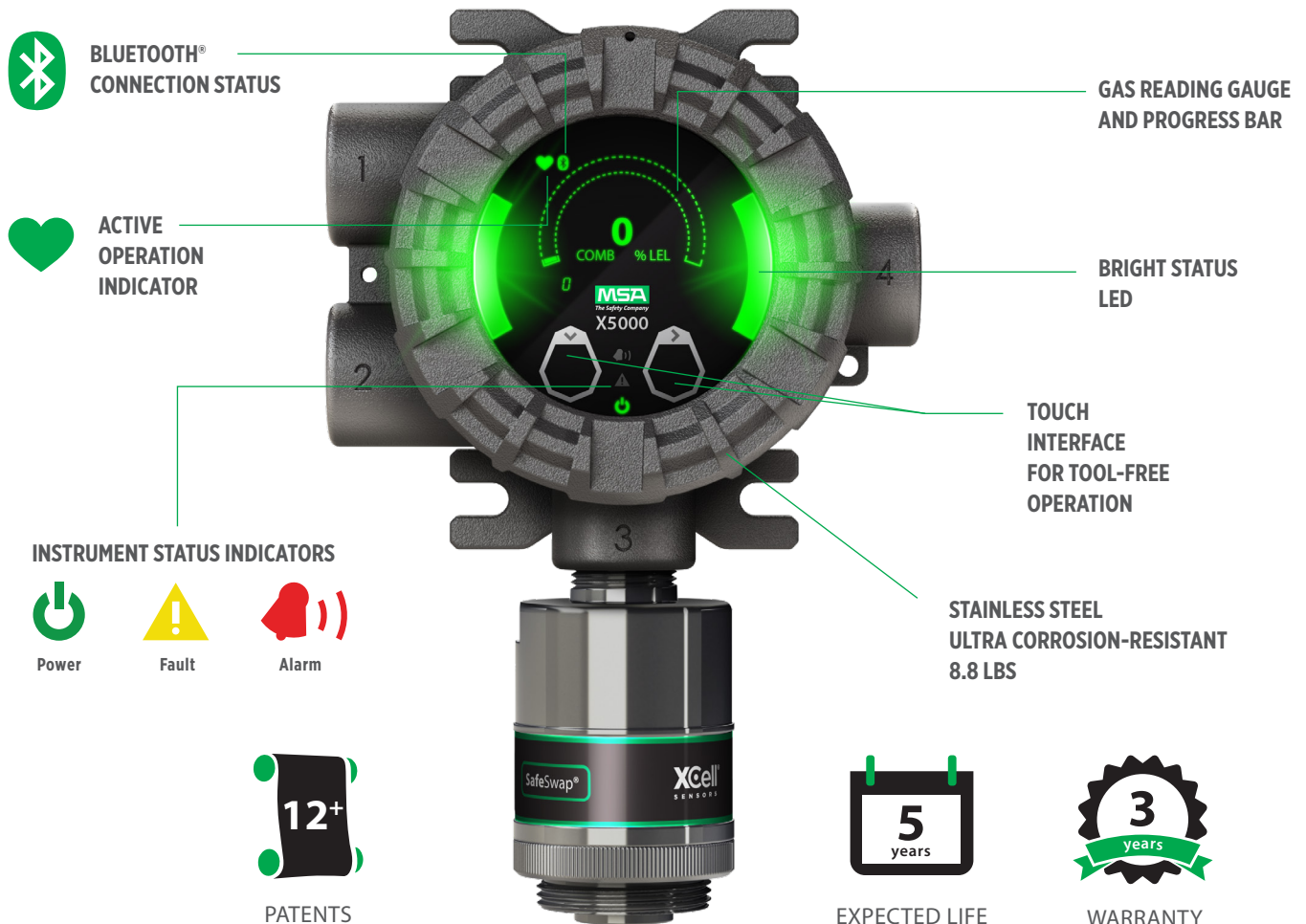
SAFEGUARDING
PEOPLE, PLACES & THE PLANET

Fixed Gas and Flame Detection for the Water & Wastewater Industries

ULTIMA® X5000 Gas Transmitter

The **ULTIMA X5000 Monitor** takes gas detection to a whole new level.

- Featuring an Organic LED (OLED) display and bright status LEDs for extreme visibility
- An industry first—a touch-button interface for an intuitive user experience and tool-free operation
- TruCal® technology actively monitors the sensor integrity and compensates for environmental factors that cause regular electrochemical sensors to drift
- Automatically self-checks 4x/day
- Reduces downtime
- Three year warranty on XCell® sensors
- SafeSwap enables safe and quick replacement of gas sensors without turning off the instrument
- Dual sensor capability doubles the sensing power with half of the footprint of a single gas transmitter
- Bluetooth wireless technology allows mobile device to act as an HMI screen and controller. The X/S Connect App is designed with high security standards and provides real-time information to your mobile device.
 - Check status and get alerts up to 75 ft. (23 m) away
 - Reduce set-up time by at least 50%
- Identical footprint and wiring as the ULTIMA X series makes retrofits simple using the existing conduit and wiring as well as an integral mounting bracket



POWERED BY
XCell
SENSORS

WITH
TruCal
PLATFORM



(XIR PLUS SENSOR SHOWN)
DUAL SENSING CAPABILITY FOR
ANY COMBINATION OF SENSORS

SafeSwap[®]

Safely and quickly replace
sensors without turning off
the instrument

TG5000 Gas Monitor

The TG5000 Gas Monitor detects hydrogen sulfide (H₂S), carbon monoxide (CO), chlorine (Cl₂), other toxic gases, combustible gases, and oxygen deficiency or enrichment. The TG5000 Gas Monitor offers affordable monitoring solutions for a variety of needs.

- Multiple sensor mounting options to include sensor placement in classified areas
- AC- or DC-powered
- Two (2) on-board relays for alarms
- LED display with highly visible LED indicators
- Piezo horn with horn silence button
- Simple push-button calibration
- Available as single-point or 2-point unit
- Utilizes Ultima X5000 technology and sensors
- Battery backup (optional)

Advanced features include sensor disconnect under power, interchangeable smart sensors and onboard LEDs and relays.



Chemgard Photoacoustic Infrared Gas Monitor

The stable, durable Chemgard Photoacoustic Infrared Gas Monitor is purpose-built and detects ppm levels of gases for a wide variety of applications in water & wastewater treatment processes.

- Precise, efficient, high-performance monitoring for many compounds such as methanol, VOC hydrocarbons to monitor for fuel leaks in stormwater and wastewater collection systems, carcinogenic solvents and other toxic gases
- Ability to monitor in hazardous electrical class locations: NEC Class I, Div. 1 and 2
- Sampling handling module with pump can expand to monitor up to 8 locations with 3 levels of alarms
- Easy-to-read display



Fixed Gas and Flame Detection for the Water & Wastewater Industries

SENTRY io® Controller

The SENTRY io brings control and reliability into the hands of operators with an easily-configurable, wall-mounted controller that supports up to sixteen gas and flame detection channels. Designed to meet the demanding and increasingly complex needs of industrial processes, the SENTRY io Controller delivers a unique, streamlined user experience with total control. The SmartStart Configuration Wizard guides users through the setup process during commissioning, saving valuable time.

- Integrated CPU and 7" (178 mm) HMI touchscreen
- 8 or 16 analog input channels
- Configurable with 6 user-assignable discrete inputs
- Options of up to 56 relays
- 3 common relays: fault, alarm, and panel horn
- Internal buzzer (85 dB)
- Modbus TCP/IP
- EtherNet/IP™ for Allen-Bradley® DLR
- NEMA 4X, Fiberglass housing



SUPREMATouch Controller

The SUPREMATouch Controller is a SIL 2 rated, wall-mounted gas and fire warning system for large area building monitoring throughout wastewater treatment plants. It can be used with a wide range of detectors including flammable and toxic gas, oxygen, smoke, fire and heat and manual call points.

The SUPREMATouch includes a large color touchscreen display for easier and user-friendly operation, enhanced processing power and addressable fire and detector capability. Latest hardware and software technology permits simple planning, installation, configuration, integration and operation.

The compact, modular design of the SUPREMATouch allows it to be economically tailored for each application and be extended and adapted any time to meet changing sensor and alarm requirements. Designed around standard industrial 19" racks, SUPREMATouch provides signal processing for up to 256 inputs and 512 outputs and the ability to distribute the system over up to 8 racks using satellites to minimize installation cost.



9010/9020 Controller

The 9010/9020 SIL controller comes with advanced design and innovative features. The 9010 controller operates with one independent sensor, while the 9020 operates with two independent sensors per control module. Each module comes with an independent AC/DC power supply for increased system reliability. Both units feature full internal diagnostics, which minimize false alarms and unexpected down time. The controller powers up the remote gas detectors, while its large four-digit LCD and LED provide crucial information such as gas concentration, alarm status and more. SIL 2 certified.



Custom Products and Accessories

Customized systems for your specific application.

Achieving NFPA 820 Compliance with MSA Custom Product Solutions:

TriGas X5000 Monitoring System

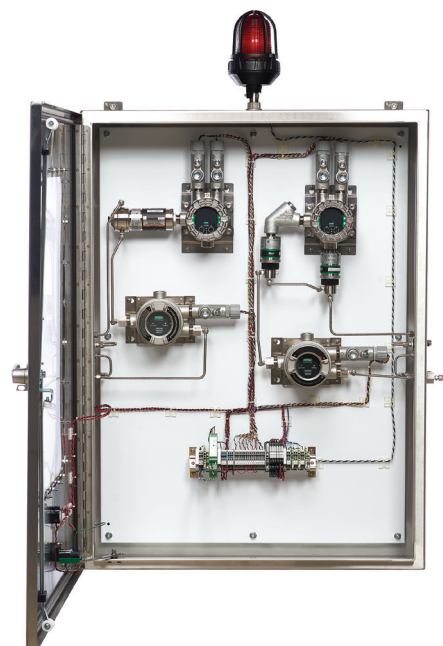
The MSA TriGas X5000 Monitoring System is an integrated combustible gas monitoring product solution to meet compliance to NFPA 820: Standard for Fire Protection in Wastewater Treatment and Collection Facilities. With additional features this product also takes into consideration placement in both NEC Class I, Div. 1 and 2 hazardous classification areas to comply with NFPA 70: National Electric Code and NFPA 497: Recommended Practice for the Classification of Flammable Liquids, Gases, or Vapors and of Hazardous (Classified) Locations for Electrical Installations in Chemical Process Area when standard practice dictates separation of electronics from sources of gas leaks.

Areas of wastewater treatment plants that are subject to flooding such as wet wells and influent headworks, are ideal for the TriGas X5000 System. The system monitors for oxygen, hydrogen sulfide and combustible gases (methane or petroleum vapors). In addition, the system is specifically designed for optimum performance in harsh high-moisture environments.

The TriGas X5000 Monitoring System with expanded features is built on the basic TriGas design used with the successful Ultima X product. The system is mounted in a wall-mounted NEMA 4X fiberglass or stainless steel enclosure to include combustibles, H_2S and O_2 gas monitors, sample pump and end-line filter, power supply and alarming system to include buzzer and strobe light.

Additional optional features include:

- (1) The capability to handle both single or dual zone for two sample inlets for non-classified and NEC Class I, Division 2 areas and added protection to handle NEC Class I, Division 1 applications where combustible gas is always present .
- (2) Integral heater option for freeze protection.
- (3) PLC used to control all alarming functions and capability to add additional discrete dry-contact alarm relays when required.



Fixed Gas and Flame Detection for the Water & Wastewater Industries

TriGas X5000 Flow Panel Monitoring System

In pumping station applications where the end-user does not have the need to house TriGas system components within a wall-mounted enclosure and only require minimal features, then the TriGas X5000 Flow Panel Monitoring System can be used to meet NFPA 820 compliance.

The basic TriGas X5000 Flow Panel consists of up to three sensors with the Ultima X5000 gas monitors and sample pump mounted on a plate, with onboard relays to provide local alarms. The flow panel design can be configured for either a single or dual zone design for monitoring two sample points independently.

The TriGas X5000 Flow Panel Monitoring System can also be used where workers will enter and work within confined spaces for extended time periods. With additional mounting feet and handle, the unit can be placed near the confined space entrance, alerting workers as to the confined space's atmospheric conditions. This solution can be used to comply with OSHA: Standard 1910.148 Appendix E Sewer System Entry guidelines when fixed gas monitoring is required.

For dry wells and applications where a gas monitoring station is required with use of remote sensors, mounting the Ultima X5000 on a MSA plate assembly with power supply, horns and strobes is an ideal solution to meet site compliance to NFPA 820 standards. The dual remote sensor option of the Ultima X5000, whether mounted in ambient air or ducts, can extend to 328 feet away from the transmitter. A complete assembly pre-wired supplied with engineered drawings saves contractor installation costs.



Achieving Environmental Compliance with MSA Custom Product Solutions: Odor Scrubber Monitoring System

With the increased concern about clean air, many wastewater treatment plants have added scrubber systems and biofilters to control odors and pollution from hydrogen sulfide (H_2S) and other waste biogases. Known for its rotten egg smell, H_2S is a colorless, clear toxic gas that is a potential danger to employees and frequently is the source of obnoxious odor complaints from nearby downwind residents and businesses.

The MSA Scrubber Monitoring System is a pre-engineered solution for monitoring H_2S at strategic points before and after both wet or dry scrubbers or biofilter system. The system provides the user valuable real-time H_2S removal efficiency data that provides plant operations critical information for optimum control.

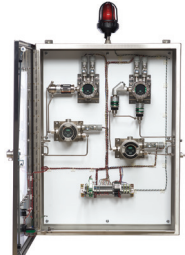
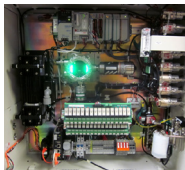
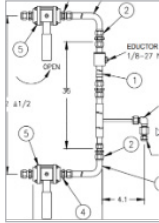
Built to withstand harsh outdoor environments and high-moisture samples, the Scrubber Monitoring System is housed in a heated NEMA 4X enclosure and includes an Ultima X5000 gas monitor, pump, filter, calibration port and 3-way valve. Maintenance and calibration are simple procedures. If an obstruction occurs in the sample line, the unit provides a flow failure indication.



Benefits:

- Ensures that your scrubber functions and meets EPA requirements
- Indicates breakthrough for carbon bed scrubbers
- Controls chemical feeds for wet scrubbers
- Conserves expensive chemicals
- Eliminates odor complaints from the community

MSA Custom Products Solutions for the Municipal Market

Application/Gases	Product	Features
Pumping Stations: Wet Wells and Lift Stations • 0-100% LEL methane • 0-50 ppm H₂S • 0-25% O₂	Trigas X5000 Flow Panel • Meets NFPA 820 • Wall-mounted panel with pump • Single or dual zone • NEC Class 1, Div. 1 and 2 sample and install location	 
	Trigas X5000 System • Meets NFPA 820 • Wall-mounted enclosure with pump • Single or dual zone • NEC Class 1, Div. 2 sample and install location • Alarming: strobe and buzzer • Optional heater for freeze protection	 
Headworks Buildings and Pumping Station Dry Wells • 0-100% LEL methane • 0-50 ppm H₂S • 0-25% O₂	X5000 Alarming Panel • Meets NFPA 820 • Wall-mounted panel • Remote Sensors	
Plant Holding Tanks • 0-100% LEL methane	X5000 Alarming Flow Panel • Meets NFPA 820 • Wall-mounted enclosure with pumps • Dual zone with optional remote sensor	 
	Multigard 5000 • Meets NFPA 820 • 8-pt; 16-pt; 32-pt system • Equipped with methane cabinet monitor • NEC Class 1, Div. 2 sample in GP install location	 
Sludge Dryer • 0-100 ppm CO	X5000 Flow Panel (ES105) with Inertial Filter • Wall-mounted flow panel • Inertial filter for high particulate sampling supplied loose	 
Odor Scrubbers and Biofilters • 0-50; 0-500 ppm H₂S	X5000 Odor Scrubber Monitoring System • Wall-mounted or flange-mounted enclosure with pump • Heater	 



MSA Fixed Gas & Flame Detection Systems are designed to help our customers meet NFPA Standard 820 as indicated below.

Hazard Location	Flame Detection	Methane	Oxygen	Hydrocarbon	Chlorine	Hydrogen Sulfide	Carbon Monoxide	Carbon Dioxide	Sulfur Dioxide	Ammonia
ANAEROBIC DIGESTERS, BOTH FIXED & FLOATING COVER*		■	■			■		■		
DIGESTER CONTROL BUILDING		■	■			■				
DIGESTER GAS PROCESSING ROOMS		■	■			■				
UNDERGROUND (PIPING) TUNNELS CONTAINING NATURAL OR SLUDGE GAS PIPING	■	■	■			■				
IN-VESSEL COMPOSITING*	■	■								
ALCOHOL STORAGE	■	■	■							
INCINERATORS		■	■	■			■			
CHLORINATION ROOM					■					
CHLORINE STORAGE TANKS & ROOM					■					
AMMONIA STORAGE TANKS & PIPES										■
DE-CHLORINATION PROCESSES			■						■	
SULFUR DIOXIDE STORAGE TANKS									■	
WET WELLS (STORM WATER, RESIDENTIAL WASTEWATER)		■	■			■				
PUMPING STATIONS		■	■			■				
COURSE & FINE* SCREEN FACILITIES		■	■			■				
FLOW EQUALIZATION TANKS*		■				■				
GRIT REMOVAL TANKS*		■	■			■				
PRE-AERATION TANKS*		■				■				
PRIMARY SEDIMENTATION TANKS*		■	■			■				
OXYGEN AERATION TANKS		■								
SCUM HANDLING BUILDING*		■	■			■				
SCUM PITS*		■	■			■				
SCUM PUMPING AREAS* WET & DRY SIDE		■	■			■				
SLUDGE THICKENER*		■	■			■				
SLUDGE STORAGE AREAS*		■	■			■	■			
SLUDGE BLENDING TANKS* AND HOLDING WELLS		■	■			■				
ODOR CONTROL SYSTEM ACCESS	■	■				■				
COMPOSTING PILES	■									
DEWATERING BUILDINGS	■									
ANAEROBIC DIGESTION GAS STORAGE		■								
UNDERGROUND (PIPING) TUNNELS NOT CONTAINING NATURAL OR SLUDGE GAS PIPING	■									

*If building is enclosed.

Note: This Bulletin contains only a general description of the products shown. While product uses and performance capabilities are generally described, the products shall not, under any circumstances, be used by untrained or unqualified individuals. The products shall not be used until the product instructions/user manual, which contains detailed information concerning the proper use and care of the products, including any warnings or cautions, have been thoroughly read and understood. Specifications are subject to change without prior notice. MSA is a registered trademark of MSA Technology, LLC in the US, Europe, and other Countries. For all other trademarks visit <https://us.msasafety.com/Trademarks>.

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