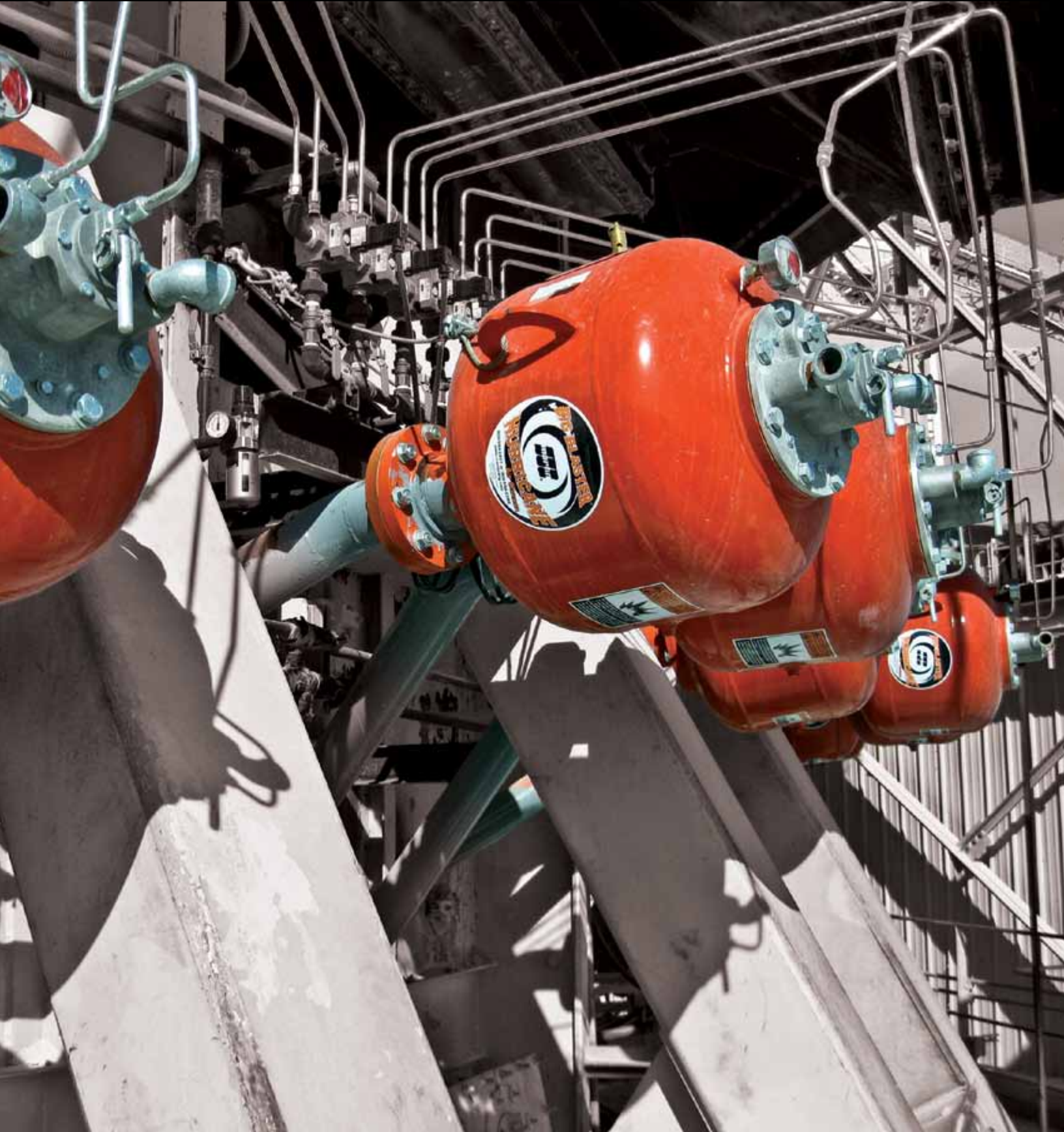




AIR CANNONS

POWERFUL, SAFE & EFFICIENT POWER
TO PUT MATERIALS IN MOTION

L3748





**CONSEQUENCES OF POOR
MATERIAL FLOW**

CHOKED PRODUCTION

REDUCED OUTPUT

STRANGLING EFFICIENCY

MISSING MATERIAL

INCREASED MAINTENANCE

MISSED OPPORTUNITIES

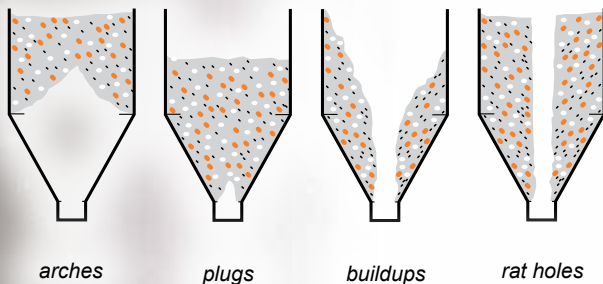
LOST PROFITS



SOLVING PROBLEMS IN MATERIAL FLOW



Hammering on the bin or chute wall leads to damage to the wall surface, often called "hammer rash."



Problems in material flow can bring an operation's efficiency and productivity to a halt. Hang-ups in storage systems and accumulations in process vessels choke material flow while bottlenecks create costly reductions in equipment and process performance. Poor material flow raises maintenance expenses and drags profits down.

Martin® Air Cannons supply a quiet but powerful eruption of compressed air that dislodges buildups and enhances the flow of bulk materials, to improve efficiency and maintain profitability.

Since 1974, Martin® Air Cannons have been used around the world to prevent buildups and improve material flow. Martin Engineering remains the leader in the application of air cannon technology to overcome bottlenecks and boost the movement of material through high-capacity vessels.

Problem Solved™

UNDERSTANDING VALVE DESIGN

Martin Engineering offers a full line of air cannon technologies; representing both established traditional designs and the latest leading-edge innovations in valve design, as well as hybrid and multiple-valve technologies.


This matrix provides an overview of the range of valve designs and air cannons available from Martin Engineering.



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POSITIVE-PRESSURE FIRING

Requires pulse of air to trigger discharge, eliminating unintentional firings due to drops in pressure.



CENTRAL VALVE DESIGN

Compact, powerful and efficient, the complete valve assembly is centrally housed within the tank.



MARTIN® HURRICANE

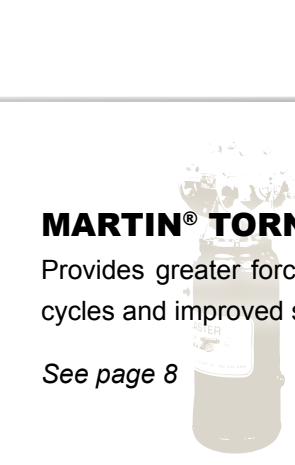
Most direct air path, maximum force output, minimal air consumption, smallest footprint, simplest installation and one-step maintenance.

See page 6



EXTERNAL VALVE DESIGN

Proven traditional valve design delivers reliable performance.



MARTIN® TORNADO

Provides greater force, faster cycles and improved safety.

See page 8



NEGATIVE-PRESSURE FIRING

Minimal plumbing requires only one line of air to fill tank and trigger valve.

MARTIN® TYPHOON

Hybrid design combines minimal plumbing with most direct air path and maximum force output of centrally-located Hurricane valve technology.

See page 7

MARTIN® XHV

Premium performance with an established technology. Available in three valve sizes; ten tank sizes.

See page 9





MARTIN® HURRICANE

MARTIN® HURRICANE AIR CANNON

Positive-acting, centrally-located valve design represents state-of-the-art engineering, with most direct air path, maximum force output, minimal air consumption, smallest footprint and simplest installation.

- **Positive Action, High Output:** Maximum discharge strength from high velocity output with half the air volume, for highly effective discharge and reduced operating costs.
- **Improved Safety:** Discharge requires positive signal from solenoid, eliminating the risk of accidental firing.
- **Allows Longer Air Lines:** Positive-acting valve allows control solenoid to be positioned as far as 200 feet (60 m) from the tank, keeping solenoids away from harsh conditions and difficult service.



ONE-STEP MAINTENANCE

The design of the Martin® Hurricane Air Cannon allows for simple maintenance. The complete valve assembly can be removed in one easy step, working from one side of the tank.

It can be replaced within minutes to keep your process running. There is no need to ever remove the tank from the vessel for service.





MARTIN® TYPHOON

TECHNOLOGICAL HYBRID

The hybrid design of the Martin® Typhoon Air Cannon offers an improvement on negative-pressure firing systems by combining the simple one-line plumbing of traditional valve design with the power, efficiency and ease of maintenance of advanced internal valve design.

MARTIN® TYPHOON AIR CANNON

Hybrid design combines minimal one-line plumbing with compact, powerful and efficient centrally-located valve.

- **Minimal Plumbing:** Requires only one air line to fill tank and trigger valve.
- **Outstanding Performance, Modest Price:** Negative-pressure firing and the most direct air path provides effective performance in challenging applications with limited budgets.
- **One-Step Maintenance:** The complete valve assembly can be removed in one easy step, working from one side of the tank and replaced within minutes to keep your process running. There is no need to ever remove the tank from the vessel for service.





MARTIN® TORNADO

POSITIVELY SAFER

The Martin® Tornado's positive-pressure firing valve requires a pulse of air delivered through a second line to trigger its discharge. This prevents unintentional firings due to drops in pressure as seen with negative-pressure firing valves. Eliminating accidental firings creates a safer work environment.

MARTIN® TORNADO AIR CANNON

Positive action takes a big step up the evolutionary ladder for air cannon design to provide greater force, faster cycles and improved safety.

- **Amplify Your Output:** Positive-acting valve amplifies discharge force for up to 20% more power from the same size XHV Air Cannon.
- **A Safer System:** Positive action means air cannon will not fire when source pressure is removed.
- **Easier Installation and Maintenance:** Positive action allows solenoid valves to be up to 200 feet (60 m) from air cannon.





MARTIN® XHV

PROVEN RELIABILITY

Established as the standard air cannon design, the Martin® XHV Air Cannon has a proven record of reliable and effective performance in a broad range of applications and industries.

MARTIN® XHV AIR CANNON

Premium performance with established technology. Available in three valve sizes; ten tank sizes.

- **Outstanding Performance, Modest Price:** Negative pressure firing provides effective performance in challenging applications with limited budgets.
- **Engineered for Long Life:** Cast aluminum “short stroke” piston and high-temperature polymer seal provide extended service with low maintenance requirements.





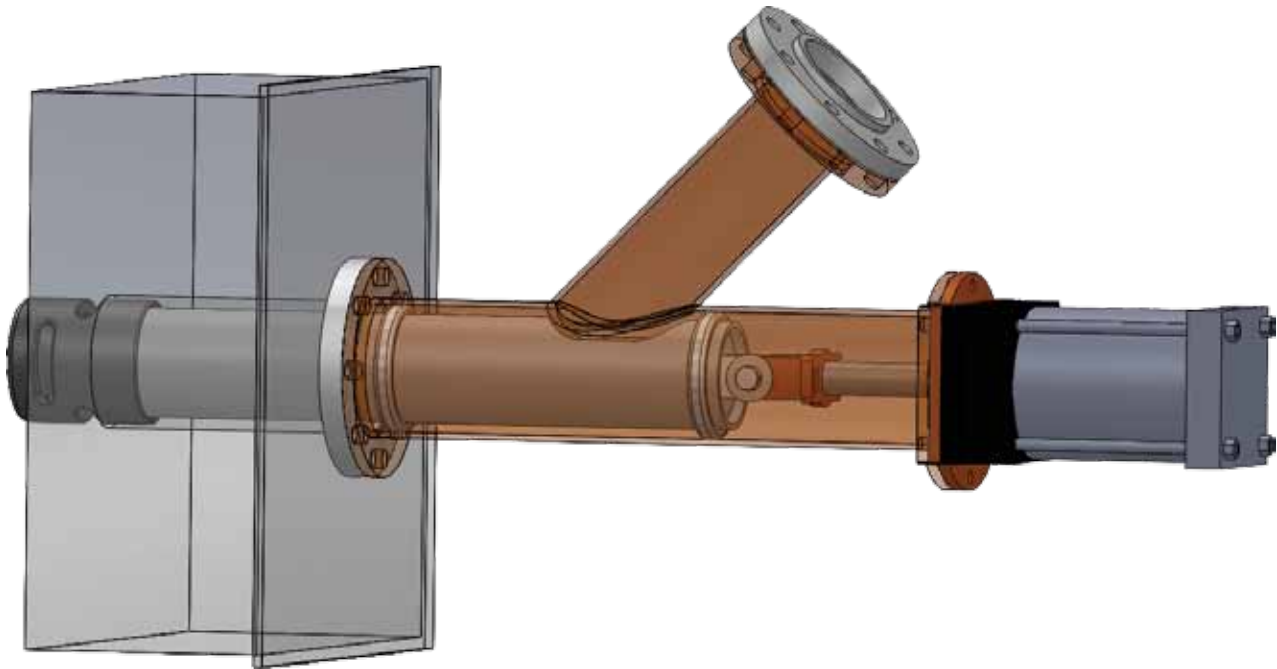
MARTIN® MULTI VALVE AIR CANNON

EFFICIENCY MULTIPLIED

The latest innovation in air cannon systems, the Martin® Multi Valve Air Cannon incorporates Martin's advanced Hurricane Valve design with multiple-port application technology. The multiple-port system incorporates one air reservoir to provide the air to improve flow at a number of points in a process vessel.

- **Service for Five:** One installation supplies up to 5 individual discharge points through flexible stainless steel hose.
- **Shelters the Moving Parts:** Centralized location removes working components from exposure to high temperatures and process dust.
- **Improved Service and Access:** All the accessibility benefits of multiple port system for convenient installation and service.
- **Improved Reliability:** Even if one valve requires service, the multiple valve air cannon continues to function, with low maintenance requirements.





MARTIN® RETRACTABLE NOZZLE

360-DEGREE CLEANING

The Martin® Retractable Nozzle is used for hard to reach locations in cement towers and other high-temp applications. The 360-degree nozzle makes cleaning on the center of the wall possible. Servicable from the outside of the tower/ vessel, so no waiting until the next scheduled outage for nozzle assembly replacement.

- 360-degree effective cleaning area
- Nozzle extends to fire then retracts to protect exposed tip from extreme heat
- Works with standard air cannons (150L Martin® Hurricane is recommended)
- 360 degree nozzle weldment is serviceable for the outside of the riser duct
- Controlled by one solenoid (110 volt / 220 volt / 24 volt)
- Used in place of compressed CO2
- 360-degree nozzle eliminates damage to refractory from improper use of compressed CO2



VALVES



MARTIN® TORNADO RETROFIT VALVE

Upgrade performance of existing air cannons to positive-firing systems

- **Simple to Install:** Eight-bolt retrofit kit converts XHV Valve to more responsive, more efficient and safer positive-acting system.
- **Amplify Your Output:** Positive-acting valve amplifies discharge force for up to 20% more power from the same size air cannon.
- **A Safer System:** Positive action means air cannon will not fire when source pressure is removed, making system safer.
- **Upgrade:** Available to fit 2-, 4- and 6-inch discharge air cannons from ANY manufacturer.



MARTIN® XHV RETROFIT VALVE

Enhance existing air cannons with high-performance XHV valves

- **Easy Installation:** Simple 8-bolt retrofit kit provides effective method to improve air cannon performance.
- **Upgrades Your System:** Upgrades existing systems for improved output and reduced service with proven XHV technology. Available to fit 2-, 4- and 6-inch discharge air cannons from ANY manufacturer.



MARTIN® TORNADO EXHAUST UPGRADE

Upgrade performance of XHV Valves to positive-firing systems

- **Simple to Install:** Eight-bolt retrofit kit converts XHV Valve to more responsive, more efficient and safer positive acting system.



ACCESSORIES



MARTIN® REMOVABLE NOZZLE

Engineered for high temperature applications, just install the collar in the vessel wall and then replace only the nozzle without dismounting the air cannon itself.

- **Shorten Outages for Nozzle Replacement:** Faster nozzle replacement means plant goes back on-line quicker.
- **Protect Employees:** Reduces risks for workers when handling heavy air cannon tanks at nozzle replacement time.
- **Fits Any Make Air Cannon:** Available for any 4-inch discharge air cannon.



MARTIN® RETURN RESERVOIR

Shortens duration of blast, without reducing force, so air cannon system stays effective while consuming less air.

- **Cut Consumption, Maintain Force:** Air cannons stay powerful and effective while consuming less air, and shortening the refill cycle time.
- **Saving Air Means Saving Money:** Cut air cannon use of plant air by 50%, with resulting savings on plant efficiency and air cost.
- **Simple Upgrade:** Retrofits onto Martin® Tornado Air Cannon valves.

ACCESSORIES



MARTIN® AIR CANNON CONTROLLER

Energizes the solenoid valves to control the discharge for a system of up to six Martin® Air Cannons.

- **Precision Flow Management:** Provides automatic sequencing of the discharge of up to six air cannons.
- **Easy to Program:** Integral keypad and LCD make it simple to set or adjust firing schedule.
- **Indoor or Outdoor Installation:** NEMA-4X Enclosure is water-tight/dust-tight/corrosion-resistant.



MARTIN® THERMO SAFETY SHIELD

Slide gate safety valve allows timely maintenance on air cannons in high temperature processes without requiring the tank to be dismantled.

- **Improve Employee Safety:** Shelters workers from exposure to severe heat, gases and high temperature material.
- **Simple to Install:** Sliding shield bolts between air cannon valve and mounting flange.
- **Secure, Yet Simple to Operate:** Sliding shield operates under tough conditions, yet can be locked out to prevent intrusion.



AIR CANNONS

MARTIN® HURRICANE

35L Assembly P/N	38005-35
70L Assembly P/N	38005-70
150L Assembly P/N	38005-150
Technical Data Sheet P/N	L3800

MARTIN® TYPHOON

35L Assembly P/N	38005-35FD
70L Assembly P/N	38005-70FD
150L Assembly P/N	38005-150FD
Technical Data Sheet P/N	L3809

MARTIN® MULTI VALVE AIR CANNON

Hurricane Assembly P/N	38625
Technical Data Sheet P/N	L3821

RETROFIT VALVES

MARTIN® TORNADO RETROFIT VALVE

2-inch Valve Assembly P/N	37862
4-inch Valve Assembly P/N	37797
Operator Manual P/N	M3405-T

MARTIN® TORNADO

2-inch Valve	
8x12-in. Tank Assembly P/N	37864-0812
8x20-in. Tank Assembly P/N	37864-0820
Technical Data Sheet P/N	L3723
4-inch Valve	
12x28-in. Tank Assembly P/N	37798-1228
20x30-in. Tank Assembly P/N	37798-2030
24x48-in. Tank Assembly P/N	37798-2448
30x60-in. Tank Assembly P/N	37798-3060
Technical Data Sheet P/N	L3705

MARTIN® XHV

2-inch Valve	
8x12-in. Tank Assembly P/N	35859-0812
8x20-in. Tank Assembly P/N	35859-0820
Technical Data Sheet P/N	L3545
4-inch Valve	
12x28-in. Tank Assembly P/N	35132-1228
20x30-in. Tank Assembly P/N	35132-2030
24x48-in. Tank Assembly P/N	35132-2448
30x60-in. Tank Assembly P/N	35132-3060
Technical Data Sheet P/N	L3544

NOZZLES

MARTIN® REMOVABLE NOZZLE

Nozzle Assembly P/N	38385
Replacement Nozzle P/N	38387
Technical Data Sheet P/N	L3865

MARTIN® RETRACTABLE NOZZLE

Nozzle Assembly P/N	38984
Replacement Nozzle P/N	38983-NW
Technical Data Sheet P/N	L3935

ACCESSORIES

MARTIN® AIR CANNON CONTROLLER

Single Circuit	
Assembly P/N	38902
w/20 Amp output relay	38902-20
Technical Data Sheet P/N	L3880
Multiple Circuit	
Assembly P/N	38901
Technical Data Sheet P/N	L3873

MARTIN® THERMO SAFETY SHIELD

4-in. Threaded Assembly P/N	38189-4
6-in. Threaded Assembly P/N	38189-6
4-in. Plain Assembly P/N	38189-4PE
6-in. Plain Assembly P/N	38189-6PE
Technical Data Sheet P/N	L3622

MARTIN® RETURN RESERVOIR

Canister w/Tornado Exhaust Valve P/N	37733-C
Canister Only P/N	L38351
Technical Data Sheet P/N	L3864



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