



# MARTINPLUS® SILO SOLUTIONS

STORAGE VESSEL CLEANING  
SERVICE AND PRODUCTS

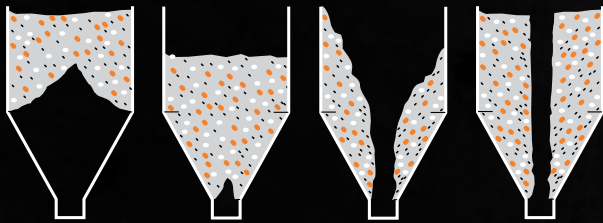
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# PROBLEM

Hazardous techniques used to improve storage flow and capacity—like explosives, water and air lances or putting personnel inside the vessel.



*arches*

*plugs*

*buildups*

*rat holes*





## **MARTINPLUS® SILO SOLUTIONS**

Remove buildups, reclaim lost material, restore flow rates and recover design capacity with MartinPLUS® Silo Solutions from Martin Engineering.

# **SOLVED**

MartinPLUS® Silo Solutions eliminates the need for confined space entry and enables material to be recaptured and used in most cases.

Martin® operators use remote control equipment from the top of the vessel to safely restore flow. These operators are highly trained and certified to current OSHA/MSHA standards.

Only Martin—with more than 60 years of experience in solving material flow problems—offers a full range of systems to improve your plant's storage efficiency.



# SERVICE SOLUTIONS

Most cleaning projects are performed with the Martin® Heavy Duty Whip. It has pneumatic controls which allow precise positioning of the cleaning head to remove materials without risk to the vessel.

The modular boom extends to 28 ft (8.5 m) and can clean vessels up to 60 ft (18 m) in diameter from a single central opening of 18 in. (450 mm). The air motor provides powerful whip action to remove buildup from walls. The cleaning flails come in urethane coated rope with knuckles, brass, or steel chains to match your stored materials.



## **PROBLEM**

Rat-holed, clinging or built-up material interferes with product quality and restricts material flow.

## **SOLUTION**

Martin® Heavy Duty Whip safely and quickly removes hardened, non-flowing material from silo walls and feeders.

Cleaning attachments are changed to match material characteristics.

## **REQUIRES**

Opening/access location: On top of vessel

Opening size: Minimum of 18"x18" (457mm x 457mm)

Compressed Air: 90psi@100 cfm (6.26 bar @0.05 cmls)





**PROBLEM**

Lumps of material block the discharge.

**SOLUTION**

Martin® Buster safely and effectively dislodges blockages using the powerful force of expanding CO<sub>2</sub> gas.

Martin® Buster uses non-explosive generators to cause rapid expansion of CO<sub>2</sub> gas to fracture lumps, chunks and compacted material, opening the discharge and restoring flow.

**REQUIRES**

Opening size: Minimum of 3.5" (89mm)

Compressed Air: 90psi@100 cfm (6.26 bar @0.05 cmls)



**PROBLEM**

Bridged or arched material creates a "no flow" condition.

**SOLUTION**

Martin® Drill opens a flow channel through tough clogs.

Powerful hydraulic action of the Martin® Drill bores through blockages, clearing a path at depths up to 150 ft (45 m).

**REQUIRES**

Opening/access location: On top of vessel

Opening size: Minimum of 18"x18" (457mm x 457mm)

Electricity: 230v/460v, 3 phase

*Silo cleaning projects are difficult to estimate due to variables in material compaction, discharge rate and accessibility to the vessel. Therefore, MartinPLUS® Silo Solutions work is based on "time and material."*

*For a detailed discussion of your project, complete the Silo Cleaning Application Data Sheet and a Martin representative will contact you.*

# PRODUCT SOLUTIONS

## MARTIN® STANDARD WHIP ASSEMBLY

The Martin® Standard Whip assembly is constructed primarily of aluminum and is pneumatically operated. The requirements and capabilities are as follows.

### Boom Reach

Min. of 7' (2.1 m) – Max. 21' (6.4 m)

### Bin Depth

Max. 150' (45.7 m)

### Bin Opening/Access

Min. 18" x 18" (457 mm x 457 mm)

### Compressed Air

Min. 90 psi @ 100 cfm (6.2 bar @ 0.05 cmls)



## MARTIN® POWER LANCE

The Martin® Power Lance creates the hole from the base of the storage container when completely blocked. Attacking the bridge from underneath allows material to fall away from the drill head as it cuts requirement less power than drilling from the top.

### Bin Opening/Access

Min. 6" (152.4 mm) diameter opening  
Floor to opening: 7'6" (2.86 m)

### Minimum Air Requirements

Pressure: 85 p.s.i. (6kp / cm<sup>2</sup>)  
Volume: 45 c.f.m. (1.3 m<sup>3</sup> / mn)

### Maximum Drilling Height

120 ft (36 m)





## **MARTINPLUS® SILO SOLUTIONS**

### **PREVENT HAZARDOUS CONFINED SPACE ENTRY**

Keep your personnel out of the vessel. MartinPLUS® Silo Solutions crews are OSHA and MSHA certified for Confined Space Entry.

### **RISK-FREE FOR YOUR VESSEL**

Effective system and experienced operators clean without damage to walls, or bottoms.

### **IMPROVED CLEANING TECHNOLOGY**

High-performance cleaning system removes more material per hour and reduces time on your job.

### **NO OUTAGE REQUIRED**

Many facilities stay in operation during vessel cleaning. Or we can work when your plant is shut down—even Sundays and holidays.

### **OPEN DOOR POLICY**

No hidden fees/costs.

### **TURNKEY SERVICE**

Your staff can get on to other duties; our fully equipped rigs bring all the personnel and equipment required.

### **SATISFACTION GUARANTEED**

If not satisfied after one full shift, our crew will return to headquarters and you will not be charged.

### **ON-GOING SOLUTION**

Cleaning frequency can be reduced with the addition of air cannons and/or vibration. Contact Martin Engineering for a custom solution to meet your needs.



#### GLOBAL LOCATIONS



UNITED STATES



GERMANY



SPAIN



AUSTRALIA



INDIA



SOUTH AFRICA



BRAZIL



INDONESIA



TURKEY



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