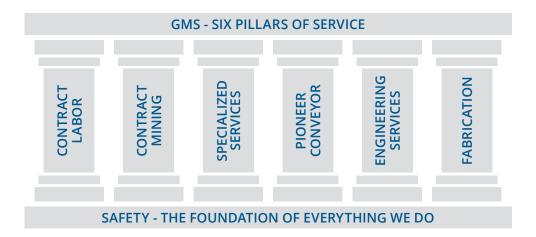


SELECTED

Services & Products



OUR SIX PILLARS OF SERVICE



Contract Labor

With nearly 40 years of experience in the field, GMS is the largest and most successful underground and surface mining labor provider in the US and Canada. Through the use of our proprietary Employee Development Programs and the outreach of our internal recruiters, GMS maintains an active pool of available skilled labor. We simultaneously source, vet and onboard hundreds of new recruits annually, for deployment into multiple industries throughout the world.

Contract Mining

In addition to providing an experienced labor force, GMS can handle every aspect of production mining operations, whether surface or undergound, including materials handling, equipment maintenance, mine design, drilling, blasting, cutting/excavating, scheduling and budgeting.

Specialized Services

GMS offers leading-edge underground and surface technical services. We are experienced and proficient in many areas, including: Ground Control, Ventilation, Belt Terminal Services, Concrete, Slope/Drift Excavation, Shaft Work, Blasting, Longwall Services, and Surface Construction. Each of these technical service disciplines has its own dedicated managers and labor teams providing rapid response and effective resolution to our customers most critical and technically demanding applications.

Pioneer Conveyor

Our affiliate company, Pioneer Conveyor is a leading, bulk material, conveyor manufacturer with complete engineering, machining, and fabrication capabilities to design and manufacture even the most complicated conveyor systems.

Engineering Services

Our technical sales reps work closely with you, and with our engineers and fabrication experts, to create the most appropriate customized solutions for your specific situation. We utilize state-of-the-art software and manufacturing equipment to minimize lead time and maximize efficiency, while operating three strategically-located fabrication facilities to simplify production and transportation logistics.

Fabrication

Utilizing modeling and design software that is compatible with our customers, we provide seamless communication and quick turn solutions to meet any demand. Our Engineering department, in collaboration with our Fabrication team can custom design, engineer and manufacture everything from obscure replacement parts to large scale capital projects.

Safety

Safety is the foundation of everything we do! Our staff includes Safety Supervisors and Safety Foremen providing training, compliance and safety oversite at customer locations throughout the world. We have vigorous training, certification, continuous education, and drug enforcement protocols in place to ensure compliance of our entire workforce.





MISSION STATEMENT

To be the premier provider of contract mining services, products and technical support with an emphasis on safety and innovation.

We build long-term relationships that help make you successful!

For nearly 40 years, GMS has played a pivotal role in the support of customers in the **Mining and Tunneling/Civil** sectors. Using strategically located facilities throughout North America, we are able to deploy a vast array of services and products from a site nearest to the customer, quickly, economically and consistently throughout the term of the engagement.

GMS is built on a platform of Six Pillars of Service: Contract Labor, Contract Mining, Specialized Services, Pioneer Conveyor, Engineering Services, Fabrication – with Safety being the foundation of everything we do! GMS is a Partner who can deliver turnkey solutions to the most challenging issues and complex projects worldwide!

CORE VALUES

INTEGRITY

All stakeholder relationships are built on a foundation of moral and ethical integrity.

FAMILY

GMS gets its strength through the experience, professionalism and character of our employees.

COMMITMENT

GMS is committed to be the safest, most productive and innovative contractor in the industries we serve.



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exclusively by GMS crews, giving GMS an advantage over competitors! • Badger • ROSA (Remote Oscillating Shotcrete Arm) • Equipment Rental Non-Proprietary GMS equipment that can be rented with or without GMS operators - Underground Scoops - Fletcher Bolters - Drills - Pumps	
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PRODUCTS
PIONEER CONVEYOR
FABRICATION & DISTRIBUTION • Custom
 Rebuilds & Refurbishments Ground Control
 Screen Ventilation
 GMS Airtight Wrap Ambient Air Movement/Fume Removal Products Hard Hat Lamps Conveyor Belt Drying Racks
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CONTRACT LABOR

Employee Development Program

With more than twenty experienced recruiters, GMS actively recruits safe and reliable professionals to work in the field, using a variety of means including television, radio, newspaper, social media, billboards, job fairs, and more.

GMS contract professionals are thoroughly screened, given complete, up-to-date training, and arrive ready-to-work with all necessary PPE gear. They continue to be vetted collaboratively throughout a three month probationary period, afterwhich they are eligible to be hired.

SAFETY FIRST. GMS employees log nearly 3 million man hours annually and boast the lowest incident rate in our sector!

RECRUITING

We Find the Best!

 Television, Radio, Newspaper, Social Media, Billboards, Job Fairs, and more.

VETTING PROCESS

- · Drug and Alcohol Testing
 - Pre-Employment
 - Reasonable
 - Accident/Suspicion
- Complete Background Check
- Monthly Employee Reviews during probationary period
- Post Probationary
 - Due Diligence Review and Spot Task Observation
 - Continuous Training

BENEFITS

- Safety and Attendance Bonus
- Paid Vacation
- Health Care
- · Dental Care
- Vision Care
- RSP
- Retention Bonus

READY TO WORK

- Up-To-Date Training
 - First Aid/CPR
 - Common Core

PPE PROVIDED

Hard Hat

301-334-8186

- Reflective Clothes
- Metacarpal Gloves
- Safety Glasses
- Metatarsal Boots
- Methane Detector (If needed)
- Self Rescuer (If needed)







CONTRACT LABOR



American Mining Academy

American Mining Academy is dedicated to teaching fundamental principles and technical training involved in mining operations, as well as *advancing a culture of safety* to inexperienced students and experienced miners alike.

We Know Mining

For nearly 40 years, GMS Mine Repair & Maintenance has been North America's premier mining contractor. As such, GMS knows something about what it takes to become a professional miner and enjoy the rewarding career opportunities that await those who are properly trained and ready to work. That's why GMS began the American Mining Academy. A state-of-the-art facility in southwestern Pennsylvania that includes a *simulated underground mine* and brings together some of the best instructors and experienced field personnel to prepare students for an exciting career in mining, or to provide quality refresher training to seasoned veterans.

Industrial Safety Training

AMA also provides both standard and customized industrial safety training and instruction for a broad range of workplace requirements.

Template will be replicated in Canada





CONTRACT MINING

Underground Mining

- Experienced Production Crews
- Hard Rock Mining Crews
- Continuous Mining
- · Raise Mining
- Sub Level Stopping
- Professional Consulting









CONTRACT MINING

Surface Mining

- Production Mining
- Training
- · Drill & Blasting
- Overburden Removal
- · Screening and Crushing
- Professional Consulting
- Softrock Mining Crews
- Underground Construction Crews











Mine Rehabilitation Bolting



Installing 15m Cable Bolts



We can operate any equipment and install any support!

Skilled ground control specialists can be mobilized quickly and can operate a variety bolters, drills, lifts and other heavy equipment to install any ground support mechanism.



Installing 2.4m Rock Bolts



Highwall Stabilization



- · Highwall bolt-mesh
- Shotcrete
- Glue/grout injection





Square Sets, Arches & Tunnel Rings

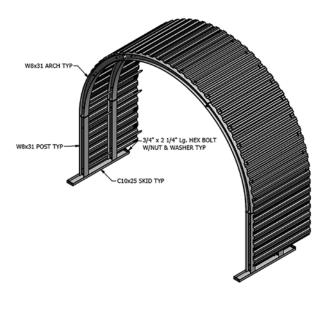








Custom designed and precisely fabricated to fit your specific needs, our talented and innovative engineers can work with you to create the perfect solution to your ground support challenges.







Cans & Steel Props





Quick Install Props

Heavy duty, up to 60T capacity, these props can be carried easily and installed quickly by one person. Height range adjustability and alternative plates to suit surface conditions.

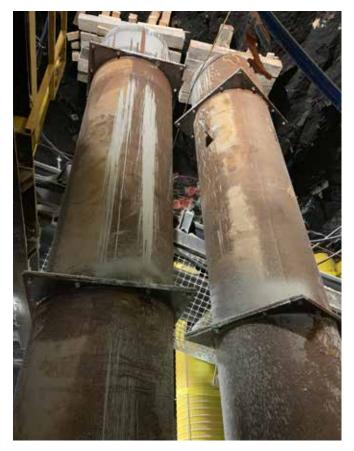




Can Supports

The can support is a yieldable secondary roof support made from a confined core of cementitious composite, encased in a cylindrical steel canister, which resembles a can.

Steel Pumpable Cans







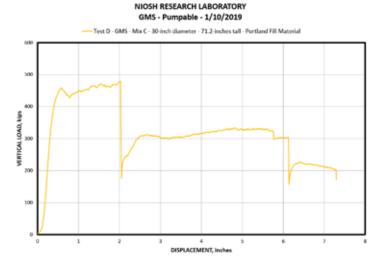
Pumpable Can Supports

- Steel casing offers substantial initial strength
- Greater strength than pumpable tower cribs, more than 2,500 tons
- Used in high back applications up to 15m
- Requires assisted material handling in transport and setup.

Pumpable Cribs







Pumpable Cribs

- Long pumping distance, up to 4500m
- Can be pumped from the surface
- · Efficient material handling
- · Rapid installation
- Rapid strength gain provides quick support
- Yieldable support

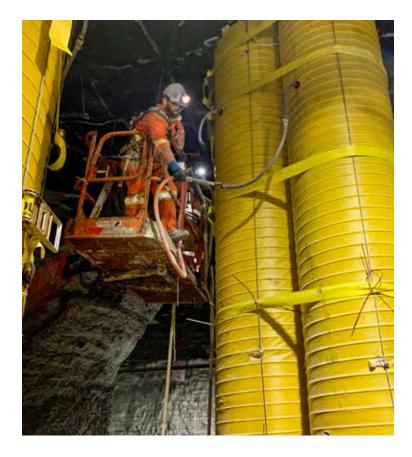
Peak Loads

30 in.	240 tons
27 in.	218 tons
24 in.	172 tons



NIOSH RESEARCH LABORATORY GMS - Pumpable - 1/10/2019

Pumpable Tower Cribs





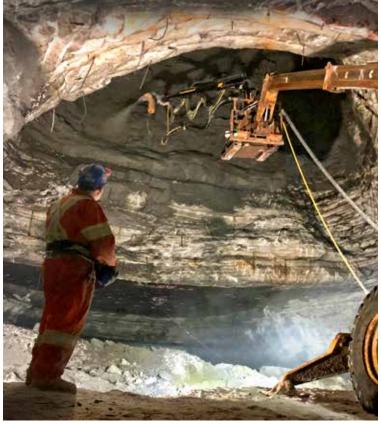


Pumpable Tower Cribs

- Cribs are securely tethered together in a three-crib cluster to provide stability when pumping high areas
- Used in applications from 5m to 15m
- Long pumping distance, up to 4500m
- Can be pumped from the surface
- · Efficient material handling
- · Rapid installation
- · Rapid strength gain provides quick support
- · Yieldable support



Shotcrete



ROSA (Remote Oscillating Shotcrete Arm) is a versatile attachment that mounts on most hydraulic equipment to allow GMS miners to remotely apply shotcrete from a safe location using any dry or wet shotcrete pump.







- · Applied wet from underground or surface
- Ability to work inby when spraying (minimal dust)
- · Quick application
- · Minimal material rebound
- Can be pumped up to 1350m
- Can be pumped from the surface
- Applied manually or with Remote Oscillating Shotcrete Arm (ROSA)

Dry Shotcrete

- · Applied with low profile Baby Reed pump
- · Sprayed dry requires less water GPM
- · Quick and easy mobilization
- Applied manually or with Remote Oscillating Shotcrete Arm (ROSA)







Glue Injection

For Mining, Construction and Environmental applications.

- Roof Consolidation
- Water Stoppage
- · Rock Stabilization
- Ring Grouting
- · Void Filling





301-334-8186

Cementitious Grouting

For Mining, Construction and Environmental applications.

- Water Stoppage
- Ground Consolidation





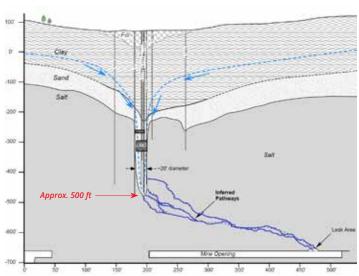
Surface Grouting



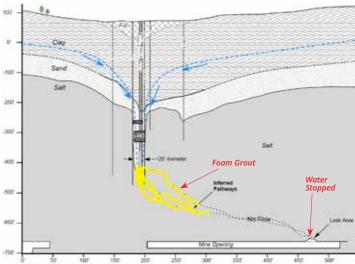
Down-hole Grouting:

- Insert 2-part packer down into borehole followed by an Injection of 2-part grout
- Can stop even substantial water ingress
- High volume application





Before Grout: Water was leaking into the mine at approximately 45m³/hr



After Grout: The grout sealed up the pathways eliminating any further water ingress.

Void Filling & Back Filling



- Pumped from surface or underground
- · Expands 30X original volume
- Strong adhesion properties to surrounding strata

Expansion Foam



Shield Tips



QC= 30X Expansion Rate



Form Shield Tips to Face

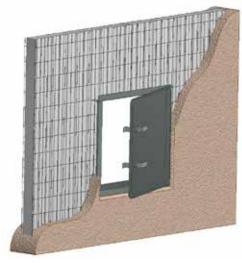
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Overcasts/Undercasts

High Pressure Overcasts

- Overcast panels are cut to fit any application
- Panels are dialed into the mine roof, rib, and floor
- Panels are sprayed with shotcrete on both sides
- · Can withstand up to 20 in. wg

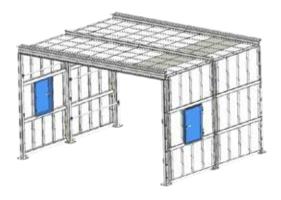


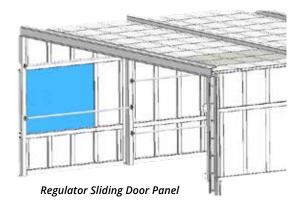




Low Pressure Overcasts

- Overcast panels are engineered to customer specifications
- · Modular, mobile and reusable
- Available with a variety of customized options, such as doors, ramps, steps, etc.





Stoppings/Curtain Walls



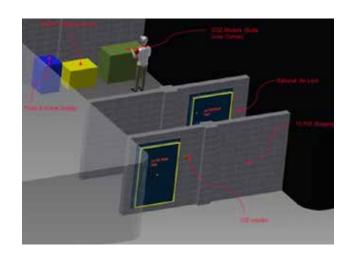


Sprayed Shotcrete high-pressure stoppings can withstand 22 in. wg

Refuge Shelters

MSHA Approved Refuge Chamber

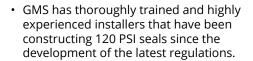
- Breathable air can be provided from:
 - Borehole from the surface
 - Compressed air from the mine filtration system
 - Oxygen cylinders
- 15 PSI Stopping with thin spray-on liner sprayed on roof and rib
- Storage for communication devices
- · Water and food
- Fire extinguisher
- · Gas detectors

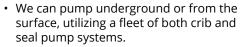


Mine Seals



120 PSI MSHA approved mine seals.









Thin Spray-On Liners





Customized application, underground training room.

Elastic polymer-based thin spray-on liner (TSL) for surface reinforcement and weathering protection of soil, rock and coal strata

- Water- and air-tight
- For preventive measures on ventilation and seals
- Protects from atmosphere deterioration
- Product expands and flexes with roof or rib changes
- Unique waterproof membranes
- Prevents weathering in newly mined entries
- Sprayed on white for a brighter reflection
- Approved for ventilation controls
- Fireproof and can be used in charging stations
- One-component polymer powder, applied with baby reed pump
- Dry spray application, mixed with water in the spraying nozzle
- Sets within 5-10 minutes; generates tensile strength over the next hours, days, months
- · Good bond and high elasticity
- Application thickness of 2-10 mm, average 4 mm
- No toxic components and virtually dust free, enhancing mine health and safety

FAST

- Can be applied at one square foot per second
- Rapid set-up; allows stop and start at any time
- Only needs compressed air

SAFE

- Improves visibility in mine due to white color
- Neither methane nor radon can pass through it
- Improves ventilation by creating smooth surface to the strata
- Impermeable

LOW MAINTENANCE

- Easily washed and readily accepts rock dust
- Will stop the symptoms of weathering and prevent small rocks from falling
- Will not corrode. Forty-year life expectancy
- · Not affected by Mine Acid Water

COST EFFECTIVE

- · No rebound or waste of material
- Takes less man power and cost to spray five times more than gunite or shotcrete
- One pallet of TSL can replace 14 pallets of shotcrete or gunite to do same area
- Requires a small, low cost machine that is permissible to use anywhere in the mine (Baby Reed SOVA, Allentown, Blastcrete Picolla or equivalent)

Man Doors & Specialty Mine Doors











Man doors and large-scale, specialty equipment doors, custom designed, professionally and efficiently installed.



Belt Terminal







Drive Installations
Take-Up Units
Head Frames
Chute Work/Replacement
Conveyor Structure Installation
Tunnel Reclaims





Mill Site/Plant Maintenance Solutions



GMS can help keep your operation running smoothly with qualified support crews to make repairs and complete dozens of mechanical services at your site. We have fully equipped service trucks, complete with tooling, welders, compressors, and cranes. We can also provide underground- and surface-qualified mill employees to supplement your workforce.

Services include:

- Chute and loading zone installation, repair, and replacement
- Rubber, lagging, and ceramic installation, repair and replacement
- Screen replacement and repair
- · Pulley and bearing replacement
- · On-site welding and fabrication
- · Process analysis
- Outage work
- · Complete conveyor maintenance
- Maintenance service contracts
- · Structural steel; design, build, repair
- Complete concrete and construction services
- Contract labor MSHA

Complete engineering, on-site fabrication, installation, and on-going maintenance!





Concrete









GMS Concrete Services can design, form and pour foundations or structures, underground or above!

GMS can pump concrete from the surface to underground 5,500- 6,000 feet. While pumping from underground, we can pump from 800-1,000 feet away.

- Bunkers
- Sumps
- Training, Maintenance, Break Rooms
- Diesel Stations
- Slopes
- Cellular Concrete
 Void Fills
- Silo foundations
- Belt tunnel travel ways

IFMS

301-334-8186

Slope/Drift Excavation





Concrete and gunited entries



Innovative slope drop car and platform





Track installed with heat tubes

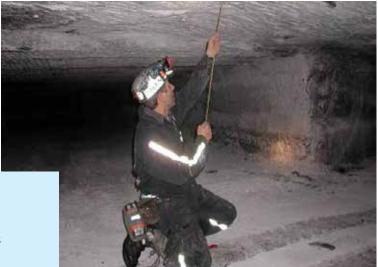


Drill and Blast Excavation

Blasting

Licensed and equipped to handle blasting needs at any operation







Blasting Crews

- · Certified Shot Firers
- · Blasting Capabilities
 - Overcasts
 - Undercasts
 - Sumps
 - Manholes
 - Belt Trenches
 - Bunkers
 - Slopes
 - Any problem rock
 - Production
 - Shaft Excavation
- Production
 - Pre-SplitSmooth
- Development
 - Ramp
 - Overburden





Longwall Services



Longwall Moves Longwall Maintenance

- Turnkey Longwall Moves
- Longwall Setup an Recovery Crews
- Outby Utility Crews
- Glue Injection Crews
- Pumpable Crib Crews
- Consultancy Services
- · Shield Technicians
- Maintenance Services
- Pre-Driven Extraction Faces
- Mule Operators
- · Certified Foremen
- · Rental Equipment

GMS crews specialize in specific skill sets directly related to Longwall recovery and installation services. Current GMS Longwall core group has an average of 4.5 years of continuous longwall install and recovery experience with an average of 6 to 9 longwall moves per year, in various coal mines with varied geological conditions and recovery methods.

This experience allows GMS crews to minimize exposure to workplace hazards, and develop cost-saving efficiencies in longwall relocations.

Surface Construction

GMS Construction offers complete construction services, from residential renovations to designing and building commercial or industrial facilities, we have the resources and experience to do the job efficiently and cost-effectively.

General Contracting/ Project Management

Concrete

Industrial Construction

Masonary

Utilities

Pipeline

Excavation

Industrial Maintenance

- Millwrights
- Electricians













GMS ADVANTAGE

The GMS Advantage is a proprietary product like the Badger, developed by GMS and used exclusively by GMS crews, giving GMS an advantage over competitors!

The GMS electric- or diesel-powered Badger is a robust, remote-operated, excavation and utility machine, that is nimble and compact enough to access areas too precarious or difficult to reach for a traditional skid steer or dozer. Underground examples include excavation in narrow or low areas, and under conveyors. Above ground, typical uses include highwall bench cleaning and remediation, or culvert and confined space cleaning.

With optional attachments that allow you to drill, hammer, spray, cut or carry, the Badger is also extremely versatile!

A single operator remains at a safe distance with enhanced sight lines, and an exhaust catalyst reduces emissions (diesel), making the Badger as safe as it is efficient!

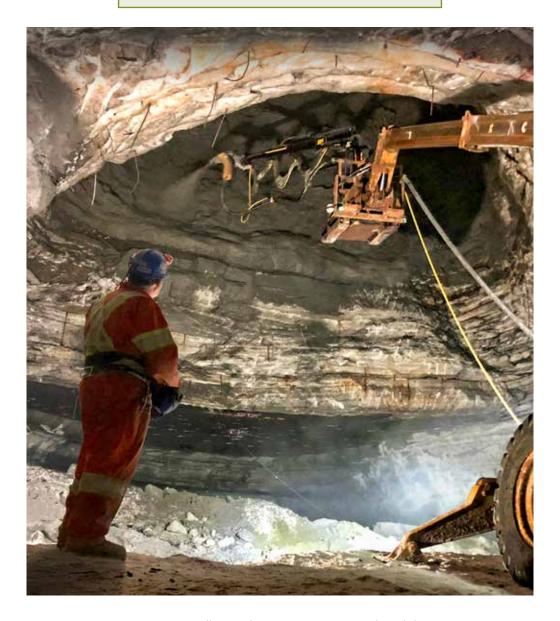




ROSA (Remote Oscillating Shotcrete Arm)

GMS ADVANTAGE

The GMS Advantage is a proprietary product like the ROSA, developed by GMS and used exclusively by GMS crews, giving GMS an advantage over competitors!



ROSA (Remote Oscillating Shotcrete Arm) is a quick mobilization, highly versatile attachment that mounts on most hydraulic equipment to allow GMS miners to remotely apply shotcrete from a safe location using any dry or wet shotcrete pump.

301-334-8186

Equipment Rental

GMS ADVANTAGE

The GMS Advantage is an inventory of commonly-used rental equipment that can be rented with or without GMS operators, giving you extraordinary convenience!

GMS offers reliable and well-serviced equipment rentals that can be rented with or without GMS operators.

Equipment includes:

- Underground Scoops
- Bolters
- Drills
- Pumps











GMS engineering services provides value to our customers by designing solutions for newly proposed projects and for existing areas and systems that may not be performing up to expectations. We perform analysis of structural issues, beltlines and equipment and recommend solutions while working closely with our clients to meet their financial goals.

We cover surface and underground projects and provide all phases of design services from layouts and proposals on through complete detailing. We prepare specs for our customers or will work directly in adherence to their supplied scope. Engineering performs various forms of necessary virtual and real-world analysis and integrates the solutions into our designs. All modelling and detailing is handled inhouse and the engineers finish projects by working closely with the fab shops and field crews ensuring success.

Typical projects include:

- Square Sets
- Overcasts
- Roof Support
- Fall Remediation
- Seals
- Foundations
- Retaining and Containment
- Magnet Installations
- Transfer Points
- Chutes and a wide array of machinery and custom equipment for both beltlines and support functions.



PIONEER CONVEYOR





Pioneer Conveyor, an affiliate of GMS Mine Repair & Maintenance, is a leading bulk material conveyor manufacturing firm serving customers throughout North America. Pioneer has designed and manufactured thousands of standard and custom conveyor systems for a multitude of applications. Pioneer has complete engineering, machining, and fabrication capabilities on-site to design and manufacture even the most complicated conveyor systems. All Pioneer Conveyor components are rated well above CEMA specifications allowing Pioneer to offer customers the most attractive warranty in the industry.



301-334-8186





Large & Specialty Doors

Equipment Doors

- · Channel frame construction
- Changeable bottom sweep
- Easy installation
- · Custom sizes and variations available



Engineered Doors

- · Measurement is Passable Opening
- Adjustable Frame Height at 6 in. increments
- · Sliding Pressure Relief Door
- Designed for 11 in. Water Gauge
- · Custom sizes and variations available



Drive-Thru Doors

- Bolt-together channel or heavy beam construction
- Changable bottom sweep
- Various latching mechanisms available
- Custom sizes and variations available



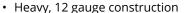
Combination Doors

Designed with opposable, slide-away doors with 84 in. maximum pass-through and for 8 in. block wall construction.

- 8 in. sight glass windows
- 30 in. x30 in. spring loaded mandoor
- Draw latch, 4400 lbs work load
- Available in custom sizes per mine requirements

Heavy Duty Man Doors

Designed for block wall installation with 60 in. maximum pass-through.



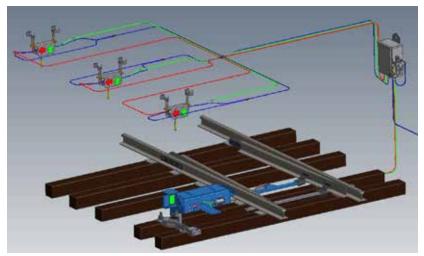
- 8 in. sight glass windows
- 30 in. x30 in. spring loaded mandoor
- 60 in. removable door
- Draw latch, 1100 lbs work load
- · Available in custom sizes per mine requirements







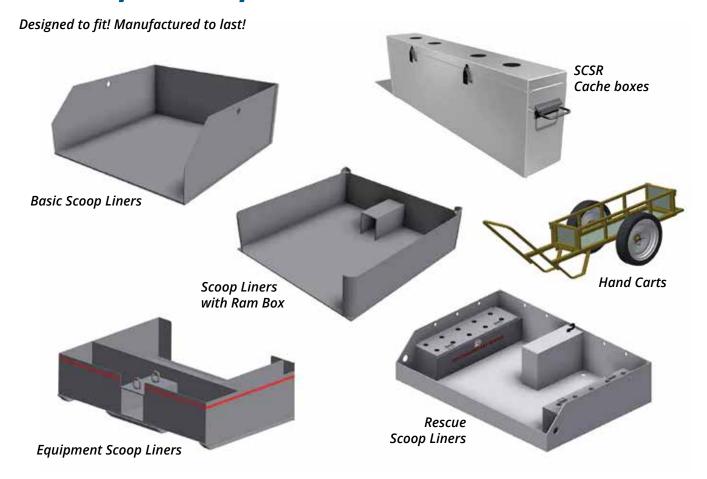
Remote Track Switch





Remote Track Switch, complete system.

Boxes, Liners, Carts



Sleds, Trailers, Hauling Equipment



Available for safety and rescue equipment, structure moves and belt hauling, and various other transport needs. Drag behind, tow behind, fork and scoop mobile.

Custom designed and manufactured sleds, trailers and hauling equipment includes:

- Belt and Structure Sled
- · Glue and Mesh Sled
- Fire Suppression Sled
- Spray Trailer
- · High Voltage Sled
- Belt Sled
- · Mesh Sled
- Supply and Engineered Trailers
- · Structure and Flat Haulers



Rebuilds & Refurbishments

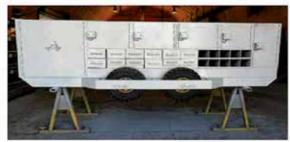
Complete rebuilds and restorations or custom parts replacement.



BEFORE AFTER





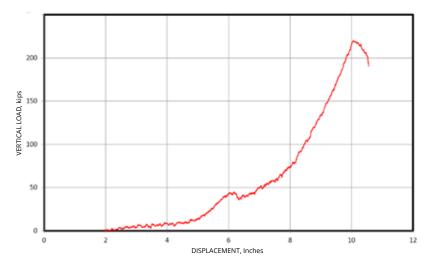


AFTER

Quick Install Sand Props

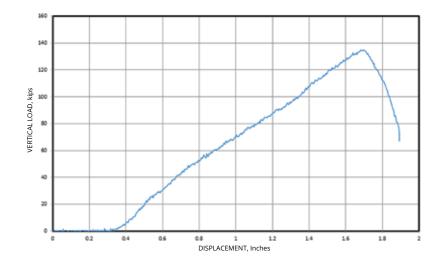
100T QIP Sand Prop

- · Heavy duty, 100T capacity
- · Quick installation
- · One person can install
- Material handling efficiency
- · 24 in. adjustability
- · Carry handles
- Change top and bottom plates to adapt to surface control conditions



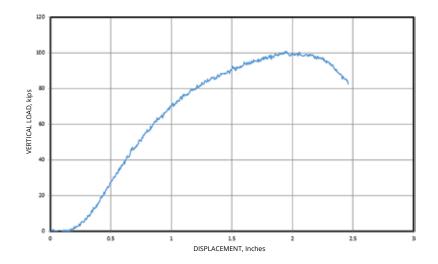
60T QIP Sand Prop

- · Heavy duty, 60T capacity
- · Quick installation
- One person can install
- Material handling efficiency
- · 24 in. adjustability
- · Carry handles
- Change top and bottom plates to adapt to surface control conditions



50T QIP Sand Prop

- Heavy duty, 50T capacity
- · Quick installation
- One person can install
- Material handling efficiency
- · 24 in. adjustability
- Carry handles
- Change top and bottom plates to adapt to surface control conditions

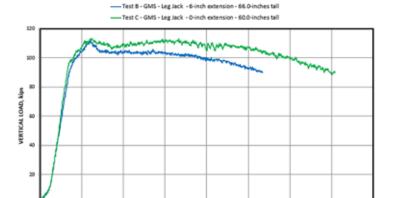


IFMS

100T RAM Jack Prop

100T RAM Screw Jack Prop

- Reuseable
- Heavy duty, 100T capacity
- · Quick installation
- One person can install
- Material handling efficiency
- 12 in. adjustability
- Carry handles
- Change top and bottom plates to adapt to surface control conditions



NIOSH RESEARCH LABORATORY GMS - Jack - 9/28/2016







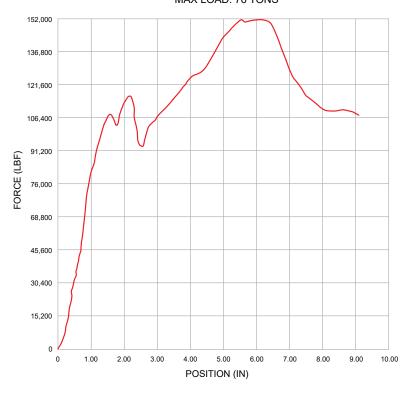
NIOSH Failure Analysis

Yield Prop

Standing Yielding Support

- 10 inch diameter post withstands up to 70 tons load
- Easy to transport and quick to install
- Efficiently bundled for your application with specifications to optimize material handling and transportation

TEST 2-8 (10 IN. DIA, 8 FT HEIGHT MAX LOAD: 76 TONS





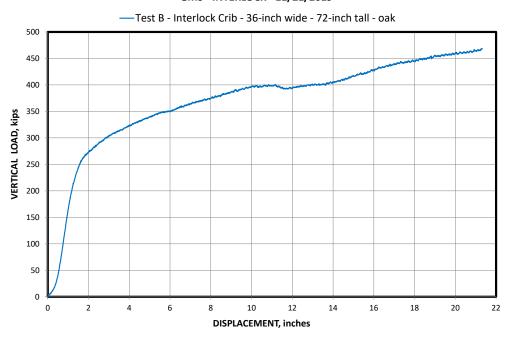
Interlocking Timber Cribs



Interlocking Timber Cribs are designed to replace four and ninepoint cribs in mine ceiling heights up to sixteen feet. The support system consists of interlocking timber blocks stacked in layers. Their interlocking capabilities create 100% contact between the layers, increasing strength and stability as the unit length increases.

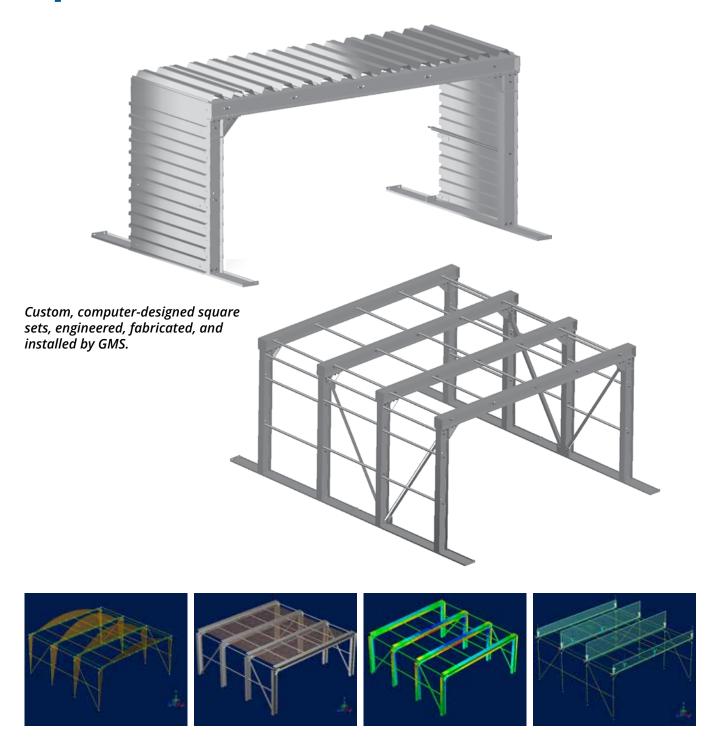
GMS Interlocking Timbers Crib undergoing failure analysis at a NIOSH testing facility.

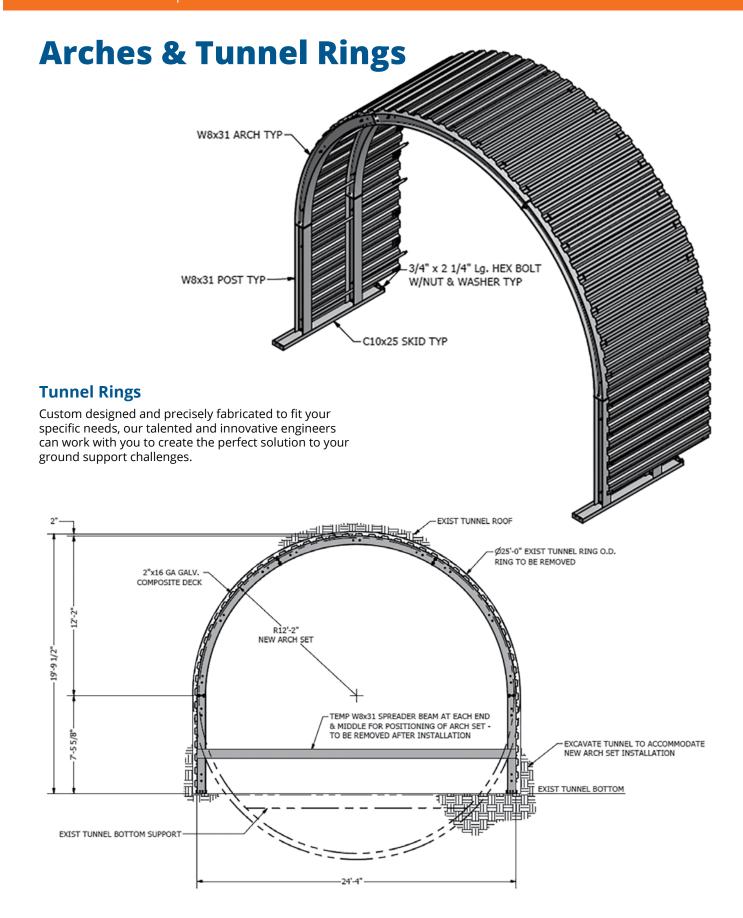
NIOSH RESEARCH LABORATORY GMS - INTERLOCK - 11/21/2019



IFMS

Square Sets





Expandable Rock Bolts

The Expandable Rock Bolt meets the most demanding roof support applications. The high load-bearing capacity combined with excellent elongation properties, ensures safer working conditions and faster excavation cycles for lower costs.

There are three products available; Standard for lighter applications with a load capacity of 12 metric tons, Midi (16 metric tons), and the robust Super (24 metric tons).

Benefits

- Immediate full length support for faster excavation cycles and safer working conditions
- · Simple and clean installation
- · Adjusts to borehole irregularities
- Excellent elongation properties add to application flexibility
- · Flexible to variations in drill hole diameter
- Versatile bolting solution for variable ground conditions
- No grouting or use of chemicals needed to avoid contamination



Case at top of bolt, with hole to inflate bolt with pressurized water.



Face plate at top of the bolt, no nut necessary.







Water is pumped into the bolt under high pressure expanding the steel tube. The water is removed and the bolt is pressed against the rock providing immediate high-load friction capacity.

Expandable Rock Bolts

SPECIFICATIONS	STANDARD	MIDI	SUPER
Length (up to), ft (m)	26.25 (8000)	26.25 (8000)	26.25 (8000)
Tube Thickness, in. (mm)	.08 (2)	.08 (2)	.12 (3)
Bolt Dia, in. (mm)	1.02 (26)	1.42 (36)	1.42 (36)
Original Tube, in. (mm)	1.61 (41)	2.13 (54)	2.13 (54)
Hole Dia, in. (mm)	1.3-1.5 (32-39)	1.7-2.0 (43-52)	1.7-2.0 (43-52)
Optimal Hole, in. (mm)	1.4-1.5 (35-38)	1.8-2.0 (45-51)	1.8-2.0 (45-51)
Min Breaking Load, t (kN)	12.2 (120)	16.3 (160)	24.5 (240)
Minimum Elongation, %	10	10	10
Yield Strength, %	80	80	80
Face Plate	150x150x6(x)	200x200x6(x)	200x200x8(x)
Face Plate Hole, in. (mm)	1.18 (30)	1.58 (40)	1.58 (40)
Weight, lb/ft (kg/m)	14.47 (2.0)	20.25 (2.8)	27.12 (3.75)



301-334-8186

Friction Bolts

The friction bolts are an easy fortification system that works by friction and offers immediate support. They are formed by a longitudinally grooved tube with a conical end to be easily inserted into the hole. The bolt is inserted into the hole, which has a slightly smaller diameter than the bolt. When the bolt is inserted into the hole, the impact forces the bolt against the walls generating a frictional resistance along the entire length of the bolt.



Friction Bolts

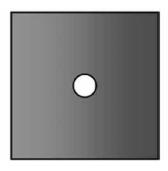
	BOLT DIAMETER				
SPECIFICATIONS	FS33	FS35	FS39	FS46	
Mass, lb/ft (kg/m)	1.1 (1.64)	1.1 (1.64)	1.26 (1.88)	1.88 (2.8)	
Ultimate Tensile Strength, Min, lb (kN)	20,000 (89)	20,000 (89)	23,000 (102)	32,500 (145)	
Recommended Initial Load, t (kN)	3-6 (27-54)	3-6 (27-54)	3-6 (27-54)	6-10 (54-89)	
Recommended Bit Diameter Range, in. (mm)	1.19-1.25 (31-33)	1.19-1.31 (32-33)	1.38-1.5 (35-38)	1.63-1.75 (41-45)	
Bolt Length, in. (m)	18-96 (.45-2.4)	18-96 (.45-2.4)	18-120 (.45-3)	36-120 (.9-3.7)	
Elongation	Minimum 21%				



Advantages

- · Process automation
- Easy and fast installation
- Very simple process automation
- Simple, safe installation provides immediate support
- Low sensitivity to ground movements
- Low manufacturing cost

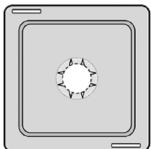
Washer Plates



Flat Washer

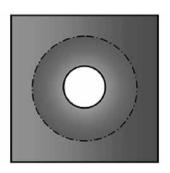
Flat Washers are available in the following standard sizes:

- 0.25 (1/4) in. x 4 in. x 4 in. (6.4 mm x 100 mm x 100 mm)
- 0.25 (1/4) in. x 5 in. x 5 in. (6.4 mm x 125 mm x 125 mm)
- 0.25 (1/4) in. x 6 in. x 6 in. (6.4 mm x 150 mm x 150 mm)
- 0.25 (1/4) in. x 8 in. x 8 in. (6.4 mm x 200 mm x 200 mm)
- 0.25 (1/4) in. x 5 in. x 5 in. (9.5 mm x 125 mm x 125 mm)
- · Other sizes avaialable on request.



Push On Plate

The Push On Plate is *pushed* on the .625 (5/8) in. mechanical bolt. The tabs hold the plate on the dolly for ease of installation. It is a quick, economical method of double-plating when starting a new row of screen.



Dome Washer

- 0.25 (1/4) in. x 4 in. x 4 in. (6.4 mm x 100 mm x 100 mm)
- 0.25 (1/4) in. x 5 in. x 5 in. (6.4 mm x 125 mm x 125 mm)
- 0.25 (1/4) in. x 6 in. x 6 in. (6.4 mm x 150 mm x 150 mm)
- 0.25 (1/4) in. x 8 in. x 8 in. (6.4 mm x 200 mm x 200 mm)
- · Hole size as required
- The standard dome is designed to collapse at 8 tons (+/- .5 ton) giving operators a good visual reference for changing



Butterfly Plate

- Galvanized or Standard
- Controlled edge shearing to eliminate jagged edges
- Ideal for added surface coverage with added strength
- Lightweight with large (12 in. x12 in.) surface area



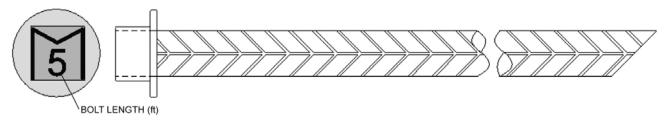
Friction-Set Waher Plate

- .19 (3/16) in. x 6 in. x 6 in. (4.8 mm x 150 mm x 150 mm)
- Available for both the FS33 or FS39
- Galvanized or Standard
- 14 Ga thickness

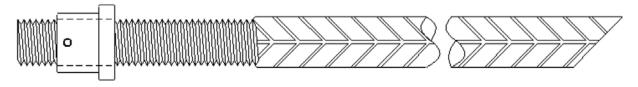


Rebar Bolts

Forgerd Head Rebar



Threaded Rebar



Rebar Bolts

STEEL	YIELD STRENGTH (MIN)	TENSILE STRENGTH (MIN)	ELONGATION %
Grade 400 W, psi (MPa)	58,016 (400)	78,312 (540)	13

	400 MPA STEEL			
THREADED SECTION	5/8 IN 11 UNC	3/4 IN 10 UNC	7/8 IN 9 UNC	1 IN 8 UNC
Yield Strength, Min, lbs (kN)	13,112 (58)	19,377 (86)	26,803 (119)	35,158 (156)
Tensile Strength, Min, lbs (kN)	17,700 (79)	26,159 (116)	36,184 (161)	47,462 (211)

	400 MPA STEEL			
BAR SECTION	5/8 IN 11 UNC	3/4 IN 10 UNC	7/8 IN 9 UNC	1 IN 8 UNC
Yield Strength, Min, lbs (kN)	15,890 (71)	28,250 (126)	34,183 (152)	44,141 (196)
Tensile Strength, Min, lbs (kN)	21,453 (95)	38,138 (170)	46,147 (205)	59,590 (265)
Elongation, Min, %	13			

Advantages

- Drill hole diameter can fluctuate
- Well-proven and effective system
- Grouting ensures adherence to strata
- High tensile strength



Mechanical Anchors

Advantages

- Simple handling and optimized installation time
- Immediate load-bearing capacity
- · Field-proven and reliable anchors
- Unproblematic installation in aquiferous boreholes
- Optimized ratio of anchor force vs. borehole diameter

System Components

Steel Expansion Shell

- · Different versions available on request
- Optimized with regards to the given borehole diameter

Anchor Shaft (tendon): threaded or rebar version

Plate

- Mechanical Anchor: Flat plate with conical through-hole
- Mechanical Rebar Anchor: Domed plate with round or long hole

Nut

- One-sided convex hexagonal nut, self-locking nut, or domed nut
- Spherical washers and driver tools available on request

Other dimensions, steel grades, and galvanized versions are available on request



Mechanical Anchor

- Continuous threaded anchor bars allow flexible length adjustments and posterior extension on site
- Expansion sleeves are available for different borehole diameters

Mechanical Rebar Anchor

- · Smooth or ribbed reinforcing steel
- · Forged or threaded head versions
- In accordance with ASTM F432 or CSA M430 specifications. Steel grade B 500 B according to DIN 488-1 or OENORM B 4700; alternative steel grades available on request
- Standard bar sizes: 5/8 in., 3/4 in., and 7/8 in. (16 mm and 20 mm)
- Different expansion shell types and diameters available on request

Mechanical Anchors

SPECIFICATIONS	KS-145	KS-190	KS-220
Nominal Diameter, in. (mm)	.64 (16.2)	.71 (18)	79 (20)
Nominal Weight, lb/ft (kg/m)	11.72 (1.62)	14.47 (2.00)	17.79 (2.46)
Nominal Cross Section, in ² . (mm ²)	.32 (207)	.39 (254)	.49 (314)
Yield Strength ¹ , psi (N/mm)	65267 (450)	97175 (670)	72519 (500)
Tensile Strength ¹ , psi (N/mm)	101526 (700)	116030 (800)	101526 (700)
Ultimate Load², t (kN)	14.55 (145)	19.07 (190)	22.08 (220)
Ultimate Elongation, %	15	15	15
Nut Version ^{3,}	S, H	К	К
Borehole Diameter ⁴ , in. (mm)	1.34-1.42 (34-36)	1.73-1.85 (44-47)	1.73-1.85 (44-47)

¹⁾ Steel tendon (anchor shaft)

⁴⁾ Standard version expansion shell



²⁾ Anchor system: anchor bar, plate and nut

³⁾ H=hex nut, one-sided convex seat; S=stop nut; K=domed nut

Cable Bolts

Effective ground control suited for various fields of application. Appropriate for bolting in limited space conditions, reinforcement of roadways and gateways, or bolting in the hanging wall of longwall T-junctions

Advantages

- · Long cable bolts are easily displaceable in limited space
- High load-bearing capacity at a low weight per meter
- · Flexible bolt lengths
- Installation using cement cartridges, resin cartridges, cement grout, or injection resin
- Various types of cable tensioners available on request



- End Holding Devices
 - Single strand fish hook
- · Seven wire prestressing strand
 - Uncoated, low relaxation strand - One center wire and six outer wires
 - Plain or bulbed version
 - Different customer-specific lengths
 - Greased strands with free lengths available on request

Plate

- Different designs and dimensions available on request

Domed Cable Grip

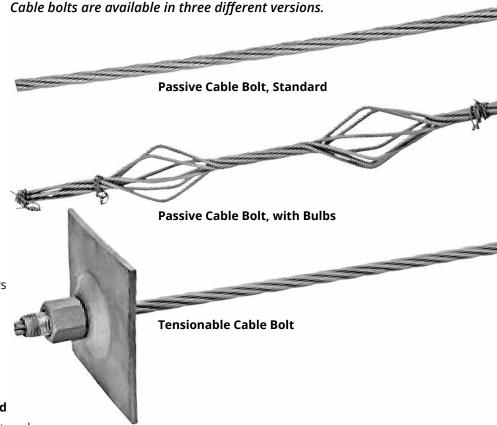
- Domed barrel
- Three pieces wedge
- Optional plastic cap

• Tensionable Cable Bolt

- Press sleeve
- Metric, UNC, or DYWI® Drill thread
- Tension nut

Injection and Breather Tubes

- Standard versions 13 x 2 mm (0.5 x 0.08 in.) and 16 x 2 mm (0.6 x 0.08 in.)
- Alternative designs and dimensions available on request



Cable Bolts

SPECIFICATIONS ¹	.6 DIA
Nominal Diameter, in. (mm)	0.62 (15.2)
Cross Section, in. (mm)	.28 (7.1)
Weight, lbs/ft (kg/m)	.74 (1.1)
Tensile Strength, ksi (N/mm²)	270 (1862)
Yield Load, lbs (kg)	52740 (23922)
Ultimate Load, lb (kg)	58600 (26580)
Elongation ³ , %	≥ 3.5

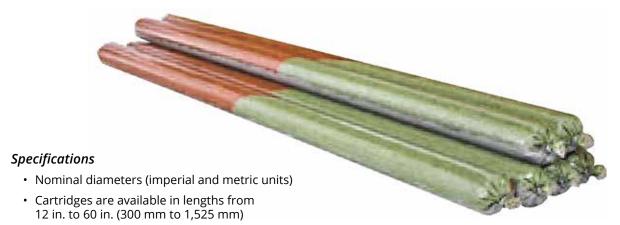
- 1) According to ASTM A416 2) 0.5 in., 0.7 in., and galvanized version available on request 3) Measuring length: 24 in.



Resin Cartridges

Resin cartridges are used to bond bolts to the surrounding ground. Cartridge diameter and length must be optimized to bolt length as well as borehole and bolt diameter. Bonding can either be accomplished using resin cartridges with the same setting (gel) time, or cartridges with different gel times allowing pretensioning of a bolt.

Resin cartridges consist of two compartments: one containing resin, the other one a catalyst. Separation of those two compartments is accomplished by a head-sealed polyester film tube clipped at both ends. This chemical resistant film tube prevents migration between the resin and the catalyst, and features an optimum shelf life. Hence, the film shreds quickly during the installation process. Resin cartridges are thixotropic and fast setting, allowing a low installation force and torque.



- Deviating dimensions available on request
- Standard Gel Times: 15 400 seconds
- Alternative gel times available on request
- Spin times depending on resin cartridge type
- Storage temperature must be lower than 30 °C (86 °F), default shelf life one year
- Standard Diameters: 1 in., 1-1/8 in., 1-1/4 in. (25 mm, 28 mm, 32 mm)

Advantages

- Maximum bonding capacity due to optimized components
- · Optimized installation times
- · Durable and sound resin grouting
- Constant and customized gel times
- Water-based resin cartridge system
- · High catalyst/resin ratio
- Suitable for all ground types with stable boreholes

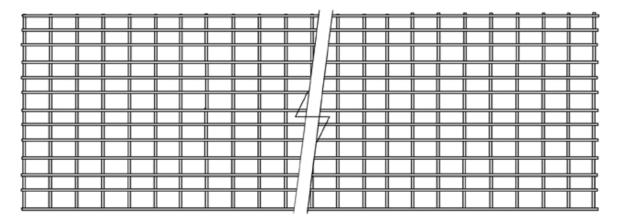
Standard Cartridge Diameters

IN.	MM
.9	23
1	25
.125	28
.141	29
1.181	30
1.259	32
1.377	35
1.574	40

Screen

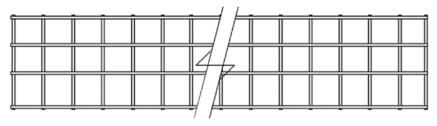
Made of straight steel bars that are joined by fusion welding at their intersections. *Flush cut for added safety!* Available in black, galvanized, straight and corrugated.

- Rolls from 48 in. (1.2 m) wide to 82 ft (25 m) long
- Sheets from 48 in. (1.2 m) wide to 19.7 ft (6 m) long



Rectangle Screen

- 4 in. (0.10 m) x 10 in. (0.25 m) openings
- 48 in. (1.2 m) width x any length
- 9 gauge



Screen Strap

- 4 in. x 4 in.
- · Available in any length
- Width: 12 in. (305mm)
- Length: 7 ft, 10 ft (2.1 m, 3.0m)
- 0/0 gauge (.305 in. nominal)
- Overhang (flush): 3/8 in. max
- Minimum Weld Shear: 5,180 lbs min
- 7 ft Weight: 12.5 lbs (5.7kg)
- 10 ft Weight: 17.9 1bs (8.1 kg)



Man Doors

Gravity Close Doors

- Available in galvanized or painted versions
- Bar latch or self-latching available
- · Single flanged for easy installation
- · Flat gasket seal
- · Custom sizes available upon request



Gravity Close Doors

W (in.)	H (in.)	D (in.)	Material (Ga)
30	30	6, 8	12, 14
32	34	6, 8	12, 14
36	36	6, 8	10, 12, 14

Reversible Doors

- Door can be utilized on either side of frame
- Available in galvanized or painted versions
- · Single or double latching
- · Flat or bulb gasket seal
- · Custom sizes available upon request



Reversible Doors

W (in.)	H (in.)	D (in.)	Material (Ga)
30	30	6, 8	12, 14
32	34	6, 8	12, 14
36	36	6, 8	10, 12, 14

Spring Loaded Doors

- Available in galvanized or painted versions
- Self latching or bar latching
- · Flat or bulb gasket seal
- · Custom sizes available upon request



Spring Loaded Doors

W (in.)	H (in.)	D (in.)	Material (Ga)
30	30	6, 8	12, 14
34	34	6, 8	12, 14
36	36	6, 8	12, 14
30	60	6, 8	12
36	60	6, 8	10, 12

Spring Loaded, Double Latch Doors

- Available in galvanized or painted versions
- Heavy gasket and double latching for a tighter seal
- · Custom sizes available upon request

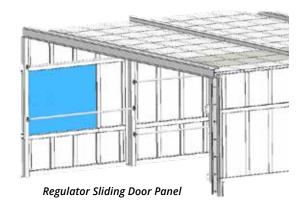


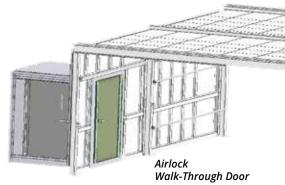
Spring Loaded, Double Latch Doors

W (in.)	H (in.)	D (in.)	Material (Ga)
30	30	6, 8	12, 14
34	34	6, 8	12, 14
36	36	6, 8	12, 14
48	48	6, 8	12
30	60	6, 8	12



Overcasts, Belt Crossovers, Stairs



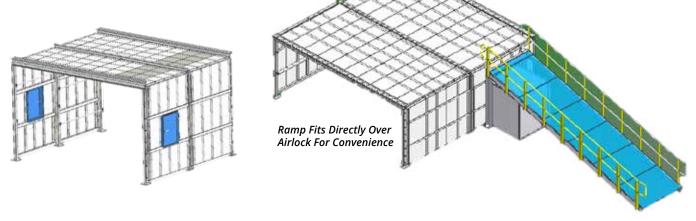


Standard Overcasts/Undercasts

- · Easy to install
- Modular (low pressure) and Permanent (high pressure)
- · Can be reused
- For low pressure applications (< 8 in. of wg)
- · Adjustability:
 - 1.5m to 3m high in 15cm increments
 - 4.8m to 7.3m wall side in 1.8m increments
 - 4.2m to 8m beam side in 30cm increments
- Can be conformed to fit angled entries
- Small, compact packaging for easier handling at mine site
- · Kept in inventory for quick mobilization
- Design can be sprayed with gunite or finished with sealant
- Patent Pending

Pre-Fabricated Modular Overcast

- Fully engineered and designed to customer specifications
- · Overcast is mobile and reuseable
- · Quick installation
- Available with:
 - Man Hole for haulage entries
 - Man Door panels
 - Airlock Walk-thru Door
 - Regulator Sliding Door Panel
 - 1.8m Prefabricated Ramps for Safer Escape Way Travel



GMS Airtight Wrap



Non-Strength Mine Air Sealant - Suitability Number MSHA-S42/01

Features

- Each 5 ft x100 ft roll can cover 2-1/2 stoppings (8 ft x 16 ft)
- GMS AIRTIGHT WRAP has passed the MSHA suitability test for use as a ventilation sealant on both CMU and Steel Stoppings
- Each roll sells for \$100

Benefits

- Reduces overall ventilation costs
- Does not deteriorate over time
- · Install on Kennedy, block, or Omega stoppings
- Superior water resistance. Protects walls from damaging bulk water and air infiltration
- Enables water vapor behind the wrap to escape.
 Stopping wall dries from the inside out
- · Clings to the stopping wall
- Fire Resistant

GMS AIRTIGHT WRAP PHYSICAL PROPERTIES

TEST METHODS	PROPERTY	VALUE	REQUIREMENT	UNITS
TAPPI T 460 Gurley Method	Air Resistance	1800 min	-	sec/100cc
ASTM E2178	Air Resistance	0.02 max	0.02 max	L/s-m ²
ASTM E96 Method A	Water Vapor Permeance	5 min	>5	perms
AATCC 127 Hydrostatic Pressure Test	Water Resistance (55 cm Water Pressure)	>5	5 hr No Leakage	hrs
ASTM D5587	TEAR STRENGTH Machine Direction Cross Direction	13 min 13 min	-	lbs lbs
ASTM D5034 ASTM D5034	GRAB BREAKING FORCE Machine Direction Cross Direction	40 min 35 min	-	lbs/in lbs/in
ASTM E84	Flame Spread	<25 ¹	25	-
ASTM E84	Smoke Developed	<450¹	450	-

Hard Hat Cordless Mine Lamp

Wisdom WiseLite2 MSHA Certified Version







Designed for underground mine use, this MSHA approved mine lamp is extremely durable! It is also light weight (less than 1/2 lb) and waterproof. High/Low light modes.

INCLUDES: One Wisdom Wiselite2 lamp with stainless steel/ nickel adjustable bracket. Charger sold separately.

- High-Light 8,500 Lux / 167 Lumens / 16 Hour Run Time
- Low-Light 1,800 Lux / 50 Lumens / 60 Hour Run Time
- Four Hour Charge Time (2A)
- IP68 Certified Water Resistant
- Battery Lifecycle 1,200 Cycles
- LED Light Life 100,000 Hours
- Adjustable Mounting Bracket
- Battery Charge State Indicator
- Includes SOS Flashing Mode
- Wisdom NWB-30 Charger Required (Not Included)

WiseLite2 AND Charger COMBINE AND SAVE!



Charging Racks Available!



Racks available with 12, 24, 36, 60, 120, or 204 charging Ports. Each lamp charges independently with its own LED charge indicator.

IFMS

Conveyor Belt, New & Used

New & used conveyor belt for mining, agricultural and industrial applications. Standard and MSHA Underground Part 14, agricultural baler belt, industrial specialty belt and more!

Call for pricing and availability!

MSHA Underground Part 14 Flame-Resistant Belt

Rubber Belt

- 91cm in. to 182cm width
- 2-Ply, 400 PIW
- 3-Ply, 600 PIW
- 4-Ply, 800 PIW
- Top Covers vary from 1/16 in. to 3/8 in.

PVC Belt

- 91cm to 122cm width
- 400 PIW
- 600 PIW
- 800 PIW

PVG Belt

PVC Core with rubber compund top.

- 91cm to 122cm width
- 350 PIW
- 600 PIW

Agricultural Baler Belt

Cut to specifications for haybalers and other uses. Comes complete with splices applied.

- MRT (Mini Rough Top)
- Smooth
- MRT-IMP
- · Continuous V-Cleat (Chevron)
- Diamond

Horse & Cow Stall Mats

- · Surplus rolls or cut to length
- · By the piece or by the truckload

Specialty Belt

- MOR (Moderate Oil Resistant)
- Bareback
- · Continuous V-Cleat (Chevron)
- Single Cleat
- Rough Top
- Hot Belt (400° 700° in stock)
- U-Cleat



Huge Inventory of Used Belt! Used Conveyor Structure and Idlers also available!

Call for Specific Availability.





CONTACT
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wshreve@gmsminerepair.com
301-616-0589



OUR AFFILIATES



Pioneer Conveyor is a leading, bulk material, conveyor manufacturing firm serving customers throughout North America. We have complete engineering, machining, and fabrication capabilities to design and manufacture even the most complicated conveyor systems.



GMS Construction offers complete construction services, from residential additions to designing and building commercial or industrial facilities, we have the resources and experience to do the job efficiently and cost-effectively.



GMS Oil & Gas specializes in providing qualified, safe and responsible oil & gas professionals for all areas of operation, from Rig Hands to Cleaning/Wash Down Crews, to Equipment Operators. We can even provide Security personnel to monitor and protect your sites.



GMS Land Design & Waterscapes is your one-stop location for all of your outdoor, decorative desires. Servicing the Morgantown and Greater Pittsburgh area, we offer a wide variety of products and services from complete outdoor kitchenettes to customized swimming pools.



American Mining Academy is dedicated to teaching fundamental principles and technical training involved in mining operations, as well as advancing a culture of safety to inexperienced students and experienced miners alike.

Template coming to Canada



GMS Geotechnical is a complete turnkey provider of geotechnical services with regional offices throughout the United States and Canada.



Garrett Industrial Supply is a premier supplier of industrial hoses and equipment for demanding industries like Mining, Shale Gas, Timber, Trucking, Construction, and Manufacturing.



301-334-8186

LOCATIONS

United States Locations

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GMS South Regional Annex 3120 McFarland Blvd, Suite 14 Northport, AL 35476

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GMS Florida Office 2054 Vista Parkway Suite 400 West Palm Beach, FL 33411

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GMS Midwest - Illinois Office 3307 Broadway Suite 160 Mt Vernon, IL 62864 TEL 618-316-7222

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GMS Midwest Regional Office 1651 Progress Dr Madisonville, KY 42431 TEL 270-821-1820

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Global Headquarters 32 Enterprise Drive Oakland, MD 21550 United States TEL 301-334-8186

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Elko Office 450 West Silver Street Suite 105 Elko, NV 89801 TEL 775-397-7194

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GMS West - Utah Office 92 North 4th East, Suite 2 Price, Utah 84501 TEL 970-312-7404

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Chapmanville Office 125 Hurricane Branch Rd Chapmanville, WV 25508 TEL 304-855-3503

Morgantown Office (GMS Land Design & Waterscapes) 3016 Earl L Core Rd Morgantown, WV 26508 TEL 304-241-1780

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