

CONVEYOR CEMA C, D, E IDLERS

HEAVY-DUTY DRUM & WING PULLEYS ENGINEEDING CLASS DI **ENGINEERING CLASS PULLEYS** TROUGHING & IMPACT IDLERS, PULLEYS & IDLERS SELF-ALIGNER & RETURN IDLERS





Heavy-Duty Conveyor Pulleys

Whether you're moving light or extreme bulk materials, Martin has a vast inventory of reliable Conveyor Pulleys to fit your application needs. Martin Heavy-Duty Conveyor Pulleys are manufactured to deliver optimum performance and longevity in the harshest of environments.

- Extensive Inventories Stocked Nationwide
- Made-to-Order Pulleys in Days, Not Weeks
- · Drum Pulleys, Wing Pulleys, Clean Flight® Wing Pulleys & **Engineered Class Pulleys**
- Shafting, Take-Up Frames, Bushings, Lagging & Complete Assemblies Available
- Exceptional Delivery Times to Maximize Your Uptime

Drum Pulleys

Drum pulleys are manufactured from thick wall pipe or tubing, with a crowned face or flat face. Martin has standard duty, quarry duty, mine duty and machined Drum Pulleys.

Types:

- Machined
- Standard Duty
- Mine Duty
- Quarry Duty

Additional Options:

- Lagging
- Shafting
- · Bearing Assemblies
- Take-Up Systems

Machined Drum Pulley



- 4" to 10.75" Diameter
- .875" Minimum End-Disc
- Manufactured from heavy wall pipe or tubing
- Machined OD for better belt tracking and less vibration
- Several Hub/Bushing System **Options**
- Crowned Face, Flat Face Available **Upon Request**





Wing Pulleys

Martin Wing Pulleys are constructed from extremely heavy materials and are recognized in the industry as the most aggressive CEMA grade stock pulley on the shelf.

Types:

- Standard Duty
- Mine Duty
- Quarry Duty
- Quarry Duty AR

Additional Options:

- Wing Lagging
- Shafting
- Bearing Assemblies
- Take-Up Systems

Standard Duty Wing Pulley



- Available in 6" thru 60" Diameter
- Minimum .375" x 1.25" Contact **Bars**
- Minimum .25" Thick Wings
- Minimum 10 GA Gussets
- Unique End Pipe Design, Better Protection Against Wing Folding and Hub-Weld Fatigue
- Several Hub/Bushing System **Options**
- Crowned Face, Flat Face Available **Upon Request**

Standard Duty Drum Pulley



- 12" to 60" Diameter
- .375" Minimum End-Disc
- 25" Minimum Center Plates
- Rolled Rim, trimmed and hydraulically seated around end-discs
- Submerged Arc Weldment
- Several Hub/Bushing System
- Crowned Face, Flat Face Available **Upon Request**

Mine Duty Drum Pulley



- 10" to 60" Diameter
- .375" Minimum Rim Thickness
- 1", 1.25", and Heavier End-Discs
- .375" Center Plates
- Rolled Rim, trimmed and hydraulically seated around end-discs
- Several Hub/Bushing System
- Double Sub-Arc Weldment
- Crowned Face, Flat Face Available **Upon Request**

Quarry Duty Drum Pulley



- 12" to 60" Diameter
- .5" Minimum Rim Thickness
- 1.25" and Heavier End Discs
- .5" Center Plates
- Full Depth Key Bushings
- Rolled Rim, trimmed and hydraulically seated around end-discs
- Several Hub/Bushing System **Options**
- Double Sub-Arc Weldment
- Crowned Face, Flat Face Available **Upon Request**

Mine Duty **Wing Pulley**



- Available in 8" thru 60" Diameter
- Minimum .625" x 1.5" Contact Bars
- Minimum .375" Thick Wings
- Minimum.25" Gussets
- Unique End Pipe Design, Better Protection Against Wing Folding and Hub-Weld Fatigue
- Several Hub/Bushing System **Options**
- Crowned Face, Flat Face Available **Upon Request**

Quarry Duty Wing Pulley



- Available in 10" thru 60" Diameter
- Minimum .75" x 2" Contact Bars
- Minimum .375" Thick Wings
- Minimum .25" Gussets
- Full Depth Keyed Bushings for Higher Clamping to Shaft
- Unique End Pipe Design, Better Protection Against Wing Folding and Hub-Weld Fatigue
- Several Hub/Bushing System **Options**
- Crowned Face, Flat Face Available **Upon Request**

Quarry Duty AR Wing Pulley



- Available in 10" thru 60" Diameter
- Minimum .75" x 2" Contact Bars of "AR400" Abrasive Resistant Steel
- Minimum .5" Thick Wings
- Minimum .25" Gussets
- Full Depth Keyed Bushings for Higher Clamping to Shaft
- Unique End Pipe Design, Better Protection Against Wing Folding and Hub-Weld Fatigue
- Several Hub/Bushing System **Options**
- Crowned Face, Flat Face Available **Upon Request**

Special Construction Pulleys (MTO)

Martin provides pulleys for a wide variety of applications. Some special pulleys include dead shaft pulleys, roller bearing insert pulleys, elevator pulleys, and stainless steel pulleys.

Types:

- CFW Clean Flight[®] Wing **Pulleys**
- Spiral Pulleys
- Dead Shaft Pulleys (DSP)
- Gudgeon Rollers
- Cage Rollers
- V-Guide Drums
- Wide Drag and Drum Sprockets

CFW Clean Flight® Wing



- Innovative patented construction incorporates the material rejection technology of a screw conveyor
- Aggressive Construction
- · Offered in:
 - Standard Duty
 - Mine Duty
 - Quarry Duty
 - Engineered Class
- Also Available
 - Assembled Unit with Shaft and **Bearinas**
 - Dead Shaft Design

Spiral Drum & Wing Pulleys



- Reverse Helices wrapped around outer diameter
- Pulley Flat Bar is under the Spiral **Wrap** for added protection
- Larger welds provide a better bond between the wrap and pulley
- Designed to remove material from
- · Available in Wing or Drum Style:
 - Standard Duty
 - Mine Duty
 - Quarry Duty
 - Quarry Duty AR

Engineered Class Pulleys

The Martin Engineered Class Pulley (ECP) line can be used effectively in every industry to ensure optimum performance and pulley longevity.

Available as:

- EMD Engineered Mine Duty
- TD Turbo Disc Pulley
- TB T-Bottom Pulley
- · DSP Dead Shaft Engineered Class Pulley

All ECP are:

- Statically Balanced
- Machined Face is Available
- Two Year Warranty

EMD Engineered Mine Duty



- Solid Plate End-Discs with backing rings to support reaction forces of keyless locking elements
- Full Penetration Weld between end-disc and rim
- Full Penetration Longitudinal Weld in rim
- End-Discs are Welded Internally and Externally to the rim
- Single Engagement **Keyless Locking Device**

Turbo Disc Pulleys



- One Piece Machined and Profiled **End-Disc** with a custom engineered radius at the transition between the locking element and the rim
- Full Penetration Weld between end-disc and rim
- Full Penetration Longitudinal Weld in rim
- End-Discs are Welded Internally and Externally to the rim
- Single Engagement **Keyless Locking Device**

DSP Pulleys



- Aggressive Construction
- Piloted flange cartridge easily interchangeable with other brands
- Standard "off-the-shelf" Integral Bearing
- 3/4" Thick Fabricated Steel **Mounting Pedestals**
- Increased Diameter Shafting **Behind Bearings** to reduce deflection
- · Available in Standard Duty, Mine **Duty, Quarry Duty and Quarry Duty AR**
- Wing or Drum Style

Cage Rollers



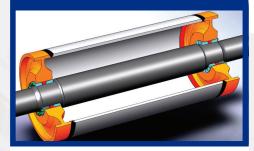
- Cage rollers are effective in allowing material to fall through the Pulley
- Cage Rollers for belt conveyors are available in almost any custom size

Gudgeon Rollers



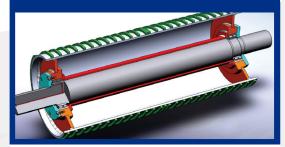
- Thick wall pipe or tube fabrication
- Special design & assembly eliminates shaft and end-disc weld fatigue
- Designed to convey bulk product without a conveyor belt
- Perfect for logging, lumber mills, steel mills and palletized product applications

DT-Bottom Pulleys

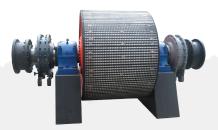


- Integral Rim and Double Profiled **End-Disc** with submerged arc weldment fusing T-Bottom end-discs with rim
- Full Penetration Weld between end-disc and rim
- Full Penetration Longitudinal Weld in rim
- End-Discs are Welded Internally and Externally to the rim
- Double Engagement **Keyless Locking Device**

DSPDead Shaft Pulleys



- Problem Solving Design for heavy contamination, space restrictions, reduced moment arm at bearings
- Double Lip Seal Spherical **Roller Bearings**
- Lubrication Through Shaft, sealed for life designs are available
- Inner Grease Tube in place of backside bearing seals
- Support Pedestals are sized to replace standard or existing pillow blocks with the same bolt pattern and shaft height. The shaft is held in pedestals with a keyless locking device.
- Drum Pulley Available









Martin's lagging is designed to meet the demands of your application. We offer Ceramic Lagging custom fit to your application, Vulcanized Rubber, Cold **Bond Lagging and Strip** Lagging.

Available Lagging Options:

- AR
- SOF
- Ceramic (Hot Vulcanized)
- MSHA
- Molded Urethane
- · Cold Bond
- Weld-On Strip



Abrasive Resistant Lagging

- Popular for rugged applications or conveying abrasive materials
- This lagging mimics the tires of giant "quarry loaders" that withstand the harshest environments



Static Conductive/ Oil Resistant/Flame Resistant

- · SOF lagging reduces the risk of explosion, and fire or oil related lagging failures
- The self-extinguishing characteristics of SOF make it ideal for use in grain and fertilizer applications.



Cost Saving Tips



Save up to 50 - 60% on Pulley replacement costs for Conveyor Pulleys with lagging.

Scan for more information

Cold Bond

- We stock full rolls of pre-cured rubber suitable for installation directly to the face of the Pulley. Can be applied when Pulleys are relagged while in operation to reduce downtime
- · Available in plain or diamond groove pattern
- Available in a "Cold Bond Kit"



Weld-On Strip

- · Weld-On Strip Lagging is available from stock and is easily installed on Drum Pulleys either in our facilities or in the field
- Stocked in 72" strips with retainers in diameters from 10" to 48"
- Available in 60 durometer SBR, 40 durometer rubber, EPDM & SOF



Mine and Safety Hazard Approved Lagging

- Should be used in all underground coal mining applications and any application where fire safety is imperative
- · Can be shipped as plain, herringbone or diamond groove patterns



Molded Urethane

- Molded Urethane is poured on a Pulley a liquid state, cured, hardened and then machined
- Urethane lagging can be altered to a herringbone or diamond groove pattern



Ceramic Hot Vulcanized

- Vulcanized Ceramic Lagging by has proven to be the best in the industry
- · Available in smooth, herringbone or diamond groove patterns

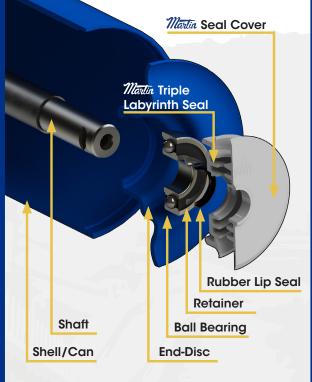
Matin Idlers are manufactured to meet or exceed CEMA standards. Martin uses sealedfor-life ball bearings that allow for trouble-free life even in the harshest applications. 9 gauge tubing is used for CEMA C & D Idlers and 7 gauge tubing is used for CEMA E Idlers.

Conveyors are a proven way to move bulk materials in practically every industry. Conveyors routinely operate at 90% capacity and can be operated 24/7, 365 days per year. Conveyors have a lower operating cost and can provide a higher return on investment than competitive methods. Maintenance is minimized and less labor is required. Material conveyed can range from very fine to large lumps of iron ore, stone, coal and pulpwood logs. The size of material is limited by the belt width used.



Martin Triple Labyrinth Seal design offers the following exclusive bearing protection

- External shield deters impurities from entering the bearing housing
- Flinger design removes contaminates away from the bearing housing by centrifugal force
- · *Martin* Triple Labyrinth **Seal** is grease filled that offers an additional level of protection from contaminants impacting the bearing
- The contact lip seal adds additional level of protection
- CEMA C, D & E Idlers have sealed for life ball bearings



- Wide range of belt size available product:
 - CEMA C: 18" to 60"
 - CEMA D: 24" to 72"
 - CEMA E: 36" to 94"
- Rapid response for **Made-to-Orders**
- **Extremely low rolling** resistance that allows for lower operating cost
- Roll gap meets CEMA standards
- Patent pending Idler end **welding** allows for protection against belt wear
- **Solid steel shaft** the entire length of the roll
- Exceptional low TIR runout
- 9 & 7 Standard Steel Tubing, 1/4" wall steel tubing is available upon request

Martin Idler and Triple Labyrinth Seal Design



Specifications & Features

- Idlers are maintenance-free. Matin Idlers use sealed-for-life ball bearings that allows for trouble-free life in the harshest applications
- Extremely low rolling resistance that allows for the lowest total operating cost
- Designed for low run-out (TIR), rotational torque and axial bearing
- Offered in a wide range of belt widths from 18" to 96" for excellent versatility
- 9 gauge tubing for CEMA C & D; 7 gauge tubing for CEMA E

Martin Idlers are stocked in a wide range of belt widths to meet customers' needs.

Request a Quote Online



Scan for more information

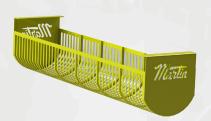
Martin Idler types:

- Flat Return Rolls
- Guide Rollers
- Impact Idlers
- Live Shaft Idlers
- Offset Idlers
- Return Roll Guarding
- Rubber Disc Idlers
- Self-Aligning Idlers
- Troughing Idlers
- Underground Idlers
- V-Returns

Specials Offered

- Garland / Catenary
- Belt Saver Brackets
- Scale Quality Rolls
- Plastic Rolls
- Return Rubber Rolls
- Return Roll Guard
- Impact Beds







Impact Idlers



- · Rubber discs are pressed onto a steel tube
- Each disc is made of resilient 60 durometer rubber
- · Each roll is designed to absorb the impact and protect the belt from sharp edged material
- · Rubber discs absorb impact
- **Impact Idler Frames are** reinforced to increase strength
- · Idlers are spaced as close together as possible to enable the load to be absorbed by a greater number of Idler rolls
- Impact Rollers need to be locked in tightly to avoid roller shafts bouncing and wearing of the middle bracket
- · Removable end-plates

Unequal **Troughing Idlers**



Unequal Troughing Idlers (Picking)

are used due to their lower profile design. Typically consist of one long roll in the center and two short inclined wing rollers. This design lays out the material and allows for easy sorting and separation. Unequal Troughing Idlers (Picking) are available with steel or impact rollers.

Troughing Idlers



- Support the conveyor belt and provide a trough to contain the material conveyed
- The trough configuration prevents spillage and increases the load carrying capacity of the conveyor
- Standard troughing Idler spacing is 3.5 to 5 feet apart
- *Martin* Troughing Idlers meet or exceed the load carrying limits created by CEMA (Conveyor Equipment Manufacturer's Association)
- Troughing Idlers typically contain **3 rolls** with wing roll inclinations of 20, 35 or 45 degrees
- 20 degree are transitioned closest to head & tail where belt transitions to or from flat
- Middle roll to accept 2/3 load

Self-Aligning Idlers



- Training Idlers assist in training the belt and protect belt edges
- Normal Troughing Idlers that are well designed and properly installed are the means of controlling belt alignment
- Transient conditions occur that may cause belts to become misaligned, such as build up on return rollers, poor Idler alignment, crooked structure
- On long conveyors, they are spaced around 100 to 150 feet apart
- The Idler frame is designed to allow the Idler to swivel on the crossmember when the belt touches either guide roll
- The belt passes the guide rolls before reaching the Idler rolls
- Center roll slightly higher to assist in pivoting assembly

Return **Idlers**



- Return idlers support and carry the empty belt on the return run
- Return Idlers are typically spaced every 8 to 10 feet
- Steel rolls are used in clean belt environments or can be urethanecoated to protect the roll in abrasive/corrosive environments
- Rubber tread rolls are used when wet or sticky materials cling to the belt and where corrosive or abrasive material will degrade the steel roll
- **Discs flex** and as the belt moves side to side it, cleans carryback off belt
- · Massed rubber on both ends to support edges of belt. You need enough flat surface in case belt mistracks and drops into spacer and cannot track back
- 1.5" and 4.5" drop brackets standard

Channel Inset **Troughing Idlers**



Channel Inset Troughing Idlers

mount down inside a channel frame or vertical mounting surface and bolt horizontally. The low profile design is often used on portable equipment where reducing height is critical. Channel Inset Troughing Idlers are available in steel and impact designs.

Flat Carrier **Idlers**



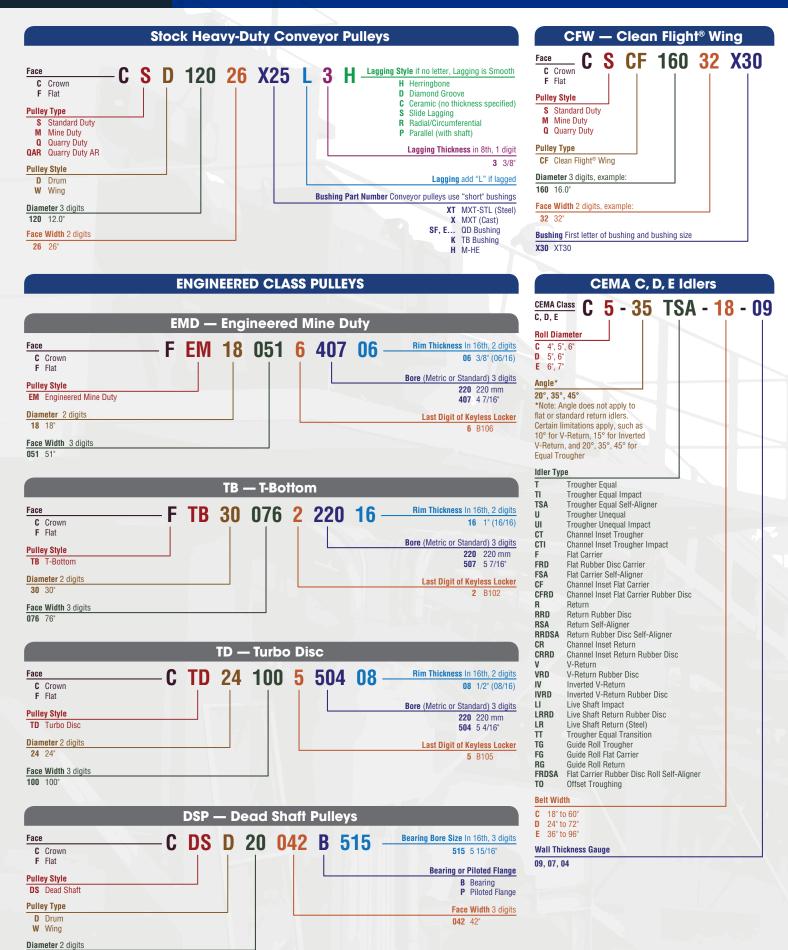
Flat Carrier Idlers are used with flat belts where a trough is not required to contain material. They are used for picking, sorting, feeding or plowing material from the belt.

Live Shaft Idlers



Live Shaft Idlers are provided with pillow block bearings. They are typically used in feeder applications or applications with higher belt tensions not suitable for conventional flat rollers with internal bearings. Live Shaft Idlers are available in impact, spaced rubber disc and steel configurations.

Conveyor Pulleys and Idler Nomenclature



Other Conveyor Components

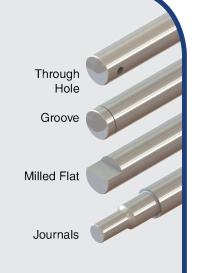




Shafting

Matin has the inventory and machining capabilities for quick turnarounds on Heavy-Duty Conveyor Pulley Shafts and custom Shaft detailing for a wide variety of applications. Stock Shafting is available for most applications on-the-shelf and ready to ship. For custom detailing, Martin offers on-site machining for customization, turn downs, customized keyways and

- Shafts up to 24" diameter
- Shafts up to 22' long
- Raw bar weights up to 22,000 lbs.
- Stock shafting material available in several grades 1144 —1045 — 4140 and Stainless Steel





Take-Up Frames

Martin's Take-Up frames are fabricated from steel, offering superior strength and durability in the most rugged conditions.

- Available in these styles:
 - Light Duty
 - Top Angle
 - Heavy Duty
 - Center Pull
 - Wide Slot
 - Tube Take-Up
- Accommodate bearing shafts sizes from 1" to 5.9375"
- Available in standard travel lenaths from 9" to 60"
- Stainless Steel, ACME thread & MTO lengths available
- Suitable for most manufacturers' housing styles including center pull wide slot, pillow block and top angle protected screw



Bearings

Martin offers a full line of roller bearings and stocks most common sizes. We can supply SAF, Type E, and Ball Bearing units in Pillow Block, Flange Block & Take-Up Housing styles.

- Type E Pillow Block Bearings
 - Bore Range from 1-7/16" to 4-15/16" Diameter
- Split Housed Spherical Pillow Block Bearings
 - Stocked from 1-7/16" to 8" Diameter



Martin's MXT[®] & MXT-STL[®] bushings are available from stock to fit all popular pulley sizes. Both styles are also available as Weld-On Hubs.

Both MXT® & MXT-STL® Bushings offer a 2" per foot taper, which reduces end disc pre-stressing, as well as increasing clamping force.



- MXT H - STL 45* Bore Max Size

Example:

MXT® Steel Option

Add -STL for Steel option, only for MXT (not for hub)

* NOTE: This part number does NOT reflect an actual part number, it includes all bushing/hub options only for instructional purpose.

Bushings & Weld-On Hubs

Bushing Style

MXT Martin XT

M-HE Martin HE

Add H if its a Weld-On Hub

Weld-On Hub



Transition 35° Troughing

Impact Idlers

Idler

Tail Pulley

Self-Cleaning

Clean Flight® Wing Pulley

35° Self-Alianina

Carrier Idlers

Typical Belt Conveyor

35° Troughing

Carrier Idlers

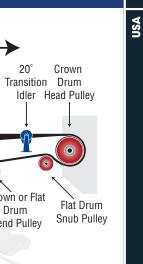
Return Idlers

Belt Travel

35° Self-Aligning

Carrier Idlers

Locations



Tail Pulley A Pulley at the tail of the belt conveyor opposite the normal discharge end; may be Drive Pulley or an Idler Pulley. 20° Transition Idler Transition Idlers are found at either end of the conveyor, adjacent to the head and tail Pulleys. These Idlers have a smaller troughing angle to that of the rest of the Troughing Idlers on the convevor. Wherever material is loaded onto 35° Troughing Impact Idlers a conveyor belt, Impact Idlers are installed beneath the troughed belt over the full loading length. These are usually spaced at smaller intervals to provide a support base for the belt. They have rubber discs pressed onto a steel tube to absorb impact efficiently. 35° Troughing Troughing Idlers are found on the **Carrier Idlers** carrying-side, along the length of the conveyor. On any particular conveyor these Idlers are identical, as are the bases.

It is common that even with correct

some belt misalignment. A solution

to correct or prevent this is to install

Self-Aligning Idlers which are able

to detect belt misalignment and

automatically re-align the belt.

conveyor alignment, there can be

Head Pulley The Pulley at the discharge end of a conveyor belt; may be either an Idler or a Drive Pulley. Usually it has a larger diameter than other Pullevs in the System and is often lagged to increase traction and Pulley life. Mounted close to the Drive Pulley on **Snub Pulley** the return side of the belt, the Snub Pulley's primary job is to increase the angle of wrap around the Drive Pulley, thereby increasing traction. Its secondary purpose is reducing belt tension, which is important in maximizing conveyor component life. The Snub Pulley may be lagged for longer wear life. **Bend Pulley** The Bend Pulley is used for changing the direction of the belt running to the gravity take-up. It may be lagged for longer wear life. Take-Up Pulley An adjustable Idler Pulley made to accommodate changes in the length of a conveyor belt to maintain proper tension. Return Idlers The Idlers on which the conveyor belt rides after the load it was carrying has been dumped. The mass of the return belt is the only load that Return Idlers are required to support.

35° Troughing

Carrier Idlers

Vertical Gravity

Take-Up

Crown or Flat

Drum

Bend Pulley

Take-Up

Wing Pulley

0

Crown or Flat

Drum

Bend Pulley

Martin Sales and Engineering will work with you to completely solve your belt conveying needs. Since there are infinite amounts of conveying possibilities and configurations our sales and engineering staff are prepared to assist you with a custom solution.

Call Matin, we will be happy to assist you!



Free Download **Maintenance and** Troubleshooting Guide Scan to download

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