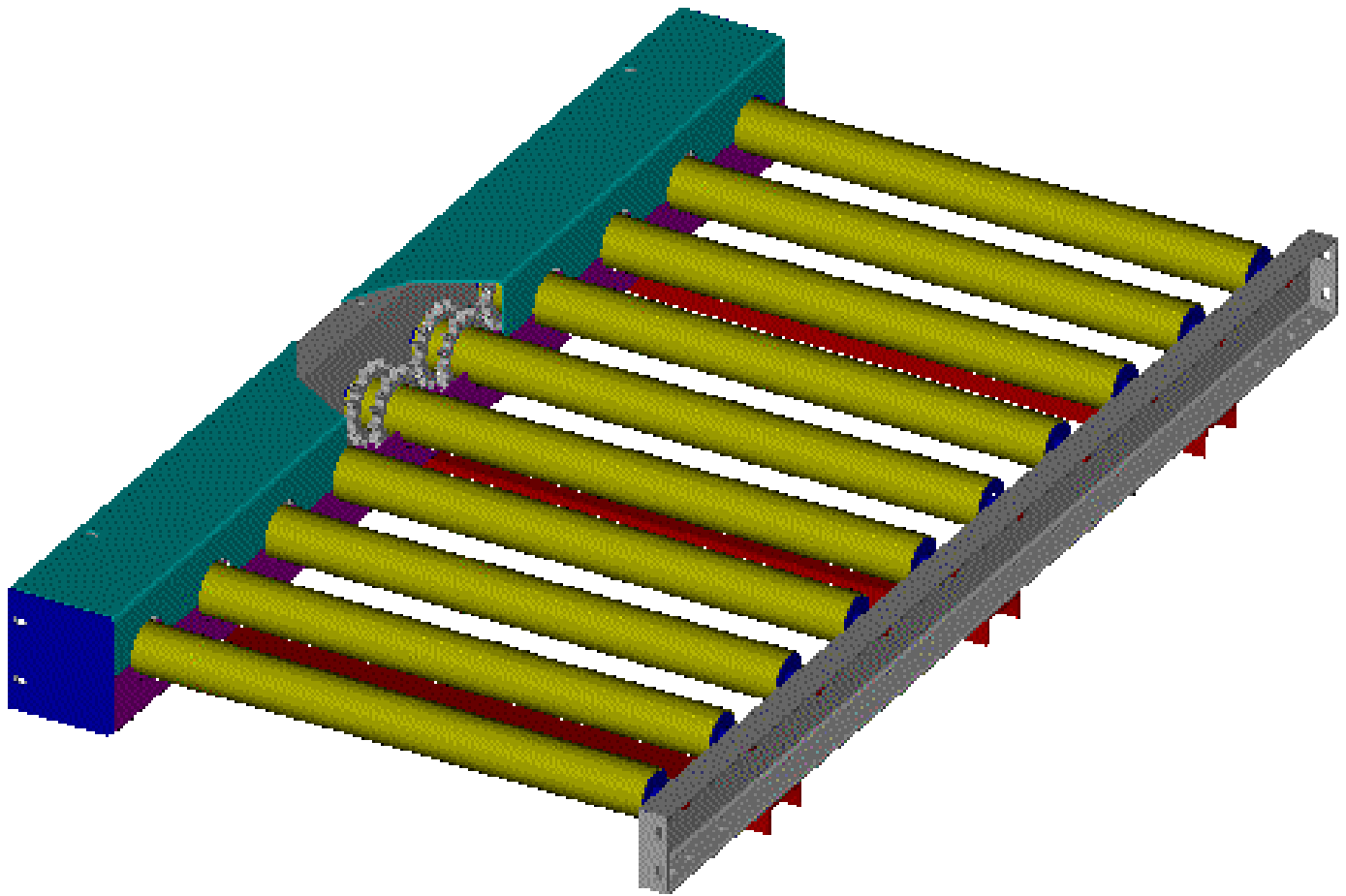




METZGAR
CONVEYORS

470,480 & 490 Series Chain Driven Live Roller Conveyor Installation and Maintenance Manual



METZGAR CONVEYORS

SAFETY PRECAUTIONS

WARNING: DO NOT ATTEMPT MAINTENANCE ON ANY CONVEYORS WHILE IN OPERATION.

BEFORE STARTING MAINTENANCE:

1. Maintenance functions are to be performed while the conveyor is off. The main power switch to the conveyor should be locked in the off position. This will prevent anyone from applying power to the system while maintenance personnel are at work.
2. Never work on a conveyor while it is running, unless maintenance procedure requires operation. When a conveyor must be operating to perform the maintenance; allow only properly trained maintenance personnel to work on the conveyor.

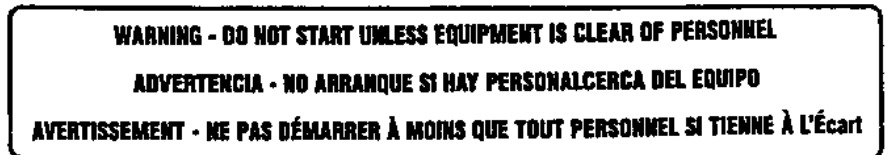
DURING MAINTENANCE:

1. Do not wear loose clothing while performing maintenance on operating equipment.
2. Be aware of hazardous conditions, such as sharp edges and protruding parts.
3. When using hoists, cables or other mechanical equipment to perform maintenance, use care to not damage conveyor components. Mis-aligned parts are dangerous as conveyor is started after maintenance is completed.
4. Keep area clean. Clean up lubricants and other materials before starting conveyor.

AFTER MAINTENANCE:

1. Before starting any conveyor after maintenance is completed, walk around the equipment and make certain all safety devices and guards are in place, pick up tools, maintenance equipment and clear any foreign objects from equipment-
2. Make certain all personnel are clear of the conveyor and made aware that the conveyor is about to be started.
3. Only authorized personnel should be allowed to start any conveyor following maintenance or emergency shut-off.

**PLEASE RECOGNIZE ALL WARNING STICKERS AND OBEY ANY SAFETY INSTRUCTIONS
WARNING STICKERS ARE PLACED FOR YOUR SAFETY – PLEASE DO NOT REMOVE**



CONDITIONS DO EXIST ON ANY CONVEYOR THAT CAN CAUSE INJURY TO PERSONNEL. NO MANUAL CAN COVER ALL THE HAZARDOUS CONDITIONS THAT MIGHT DEVELOP. THEREFORE, PERSONNEL INVOLVED SHOULD BE CONSTANTLY ON THE ALERT FOR UNSAFE CONDITIONS AND USE ALL POSSIBLE CARE, ALONG WITH COMMON SENSE AND STRICT ADHERENCE TO ACCEPTED SAFETY STANDARDS TO ESCAPE INJURY.

It is hereby understood and agreed that _____

Agrees to hold Metzgar Conveyors, Employees, Leased Contractors, Affiliates, Officers, Directors, Agents and Insurance Carriers harmless against all claims, action and demands of any third persons, just or unjust, for all personal and/or bodily injuries and/or property damage due to the Customer or Customer's employees negligence/alteration of equipment.



Chain Driven Live Roller Specifications:

470 Series Specifications

Rollers: 1.9" dia. x 13 gage electric welded tube with 7/16" hex bore flanged ball bearings with Hardened steel raceways, cones and balls.
Load rating per roller is 260 lbs.
Standard Roller Centers are 4", 6" and 6/6.
6/6 Rollers are on 3" Centers with every other roller driven.

Sprockets: Two #40ASA18 tooth sprockets are welded to the roller at the drive end.

Axles: Roller axles are 7/16" hex stock spring loaded for easy removal and assembly.

The roller mounting location is 5/16" above the top flange of the idler side frame.

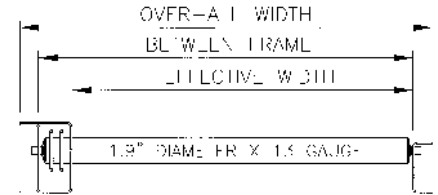
Frame: Idler side is 4 1/4" high channel with 1 1/4" flanges x 10 gage formed steel.

Drive side is 5 3/4" high channel with 1 1/4" flanges x 10 gage formed steel.

10 gage steel top and bottom scalloped guard

Crossmembers: 3" x 1 1/2" x 10 gage formed steel channel.

Frame Capacity: 1,500 lbs with supports on 10'-0" centers, 3,000 lbs with supports on 5'-0" centers.



480 Series Specifications

Rollers: 2 1/2" dia. x 11 gage electric welded tube with 11/16" hex bore flanged ball bearings with Hardened steel raceways, cones and balls outer teflon seal and inner shield.

Load rating per roller is 650 lbs.

Standard Roller Centers are 4 1/2", 6" and 6/6.

6/6 Rollers are on 3" Centers with every other roller driven.

Sprockets: Two #60ASA15 tooth sprockets are welded to the tube at the drive end.

Axles: Roller axles are 11/16" hex stock spring loaded for easy removal and assembly.

The roller mounting location is 5/16" above the top flange of the idler side frame.

Frame: Idler side is 4" high x 5.4# structural steel channel.

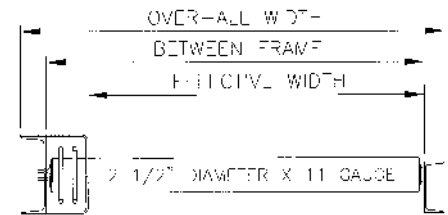
Drive side is 6" high x 8.2# structural steel channel.

10 gage steel top and bottom scalloped guard

Crossmembers: 3" x 4.1# structural channel.

Frame capacity: 6,000 lbs with supports on 10'-0" centers

15,000 lbs with supports on 5'-0" centers.



490 Series Specifications

Rollers: 3 1/2" dia. x 0.300 wall electric welded tube with 1-1/16" hex bore flanged ball bearings with Hardened steel raceways, cones and balls sealed.

Load rating per roller is 1040 lbs.

Standard Roller Center is 6 1/2".

Sprockets: Two #80A16 tooth sprockets are welded to the tube at the drive end.

Axles: Roller axles are 1-1/16" hex stock, cotter pin retained.

The roller mounting location is 3/8" above the top flange of the idler side frame.

Frame: Idler side is 6" high x 8.2# structural steel channel.

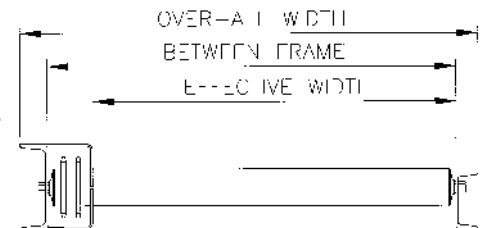
Drive side is 8" high x 11.5# structural steel channel.

7 gage steel top and bottom scalloped guard

Crossmembers: 4" x 5.4# structural channel.

Frame capacity: 8,000 lbs with supports on 10'-0" centers

20,000 lbs with supports on 5'-0" centers.



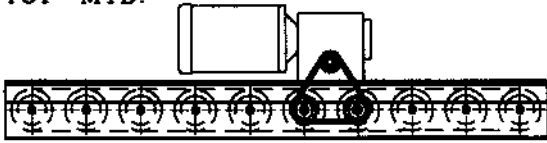


ETZGAR CONVEYOR COMPANY
EQUIPMENT ASSEMBLIES:

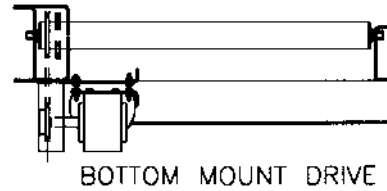
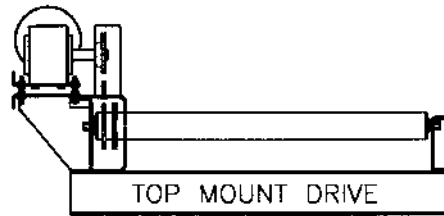
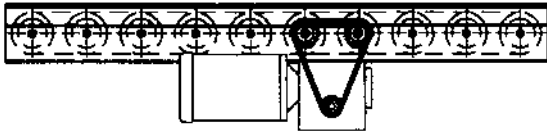
470,480&490 Series Installation and Maintenance

Chain Driven Live Roller Drives:

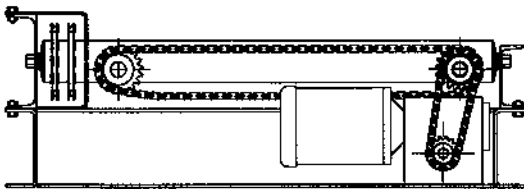
TOP MTD.



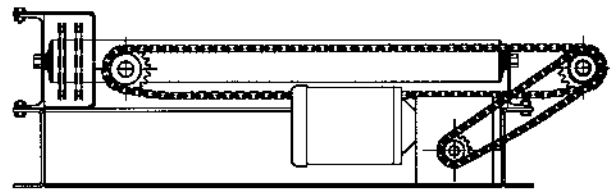
BOTTOM MTD.



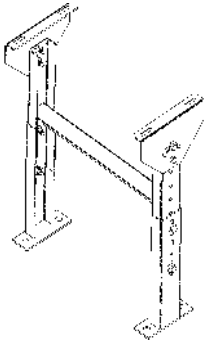
Chain Driven Live Roller Transfers:
Internal to Frame Transfer



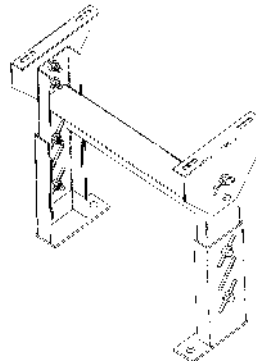
External to Frame Transfer



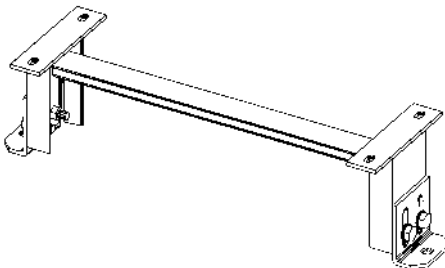
C700 Standard Support:



A2004 Heavy Duty Support:



A2016 Structural Channel Support:



**SUPPORT ASSEMBLY**

Fasten supports to the bottom flange holes designed into each bed section.

Supports are installed directly under a bed joint to assist in the support of both bed sections. Install a support in the first available set of holes at both the charge end and the discharge end of the conveyor unit.

Mounting a support can be accomplished by either lifting the bed section into position onto a supporting member or attach the support directly to a bed section prior to lifting it into position.

Anchor supports after the conveyor has been aligned

Mounting diagonal braces at each end of a conveyor will increase stability. Heavy-duty applications or high elevations may require additional bracing located on closer centers.

Roller to Roller Chain Drive:

When the roller drive powers more than one bed section the roller to roller chain needs to be installed at the bed joints.

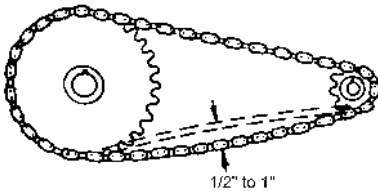
The chainbox guards will need to be removed. The chain will need to be connected using a master link and if necessary a half link. Replace all guards before running the conveyor. A maximum of 80 rollers can be driven on each side of the drive.

Drive Chain Tension And Alignment:

Chain Tension should be adjusted to allow $\frac{1}{2}$ " to 1" of movement between the sprockets.

Replace Chain Guard after adjusting chain tension.

Use a straightedge to align sprockets. Make sure the setscrews are tight when finished.

**Transfer Adjustment:**

There are three adjustments locations on a chain transfer for proper alignment.

1) The cylinder mount bracket.

This will adjust the overall travel up and down of the transfer. If the transfer is level from side to side and front to back but is not raising the chains high enough or is raising the chains too high. Loosen the bolts on the side plate and move the cylinder mount either forward or back. If the transfer is a heavy duty model shims may be required behind the cylinder(s) to adjust the cylinder mounting location.

2) The second is the tie rods.

The tie rods should be set to equal lengths. The tie rods adjust the elevation of the transfer opposite the side with the cylinder.

3) The third is the bearings holding the pivot shaft mechanism.

The four hole flange bearings on the side plates have slotted mounting holes. Loosen the bolts and manually locate the pivot mechanism to be in level and in proper elevation with relation to the rollers. Repeat for the other side.

Check the sprocket alignment and tension of the transfer chain after final adjustments are complete.

**Mechanical Maintenance:**

Item	Schedule	Service
Motors and Gear Reducer	At Start-up and 100 Hours	Check Oil
	After 100 Hours	Change Oil and Check Oil Level at Regular Intervals
	After 2000 Hours	Change Oil
Roller Chain	200 Hours	Check Tension at Regular Intervals
	2000 Hours	Clean and Lubricate with Brush or Spray
Flange Bearing	2000 Hours	Lubricate
Sealed for Life Bearing Roller Bearings	Monthly	Check for Unusual Noise or Excessive Wear, Replace as Required

Note:

Gear Reduction Drives Supplied With Metzgar CDLR Units Are Filled With Lubricant Prior To Shipping. The Lubricant Level Should Be Checked Prior To Start-Up and the Breather Plug Installed in the Proper Location (See Reducer Manual Supplied With Unit)
 Only Refill Reducers With The Approved Lubricant (Synthetic Compound)
 Standard Service Only - If Service Is More Severe, The Oil Should Be Changed More Frequently.
 Consult The Reducer Manufacturer For A More Specific Lubrication Schedule.

Electrical Maintenance:

WARNING: DISCONNECT ALL POWER BEFORE PERFORMING THE FOLLOWING MAINTENANCE. ONLY A QUALIFIED ELECTRICIAN OR AN ELECTRICAL TECHNICIAN SHOULD PERFORM THE FOLLOWING MAINTENANCE.

Item	Schedule	Service
Control Panels and Pushbutton Enclosures	Always	Enclosures should be Clean and Dry
	100 Hours and 2000 Hours	Check if components have Vibrated Loose Check Door/Power interlocks and Latches
	At Start-up, Monthly or if any problems Occur.	Check for Loose or Discolored Wires (Discolored Wires Indicate an Excessive Current Draw)
Photoeyes	At Start-up and 2000 Hours	Dust, Oil and Foreign Objects should be wiped from lens and Reflectors
Limit Switches	100 Hours and 2000 Hours	Check Arms for Adjustment and Tightness
Pushbuttons	100 Hours and 2000 Hours	Check Wires and Terminals for Tightness
Emergency Stop Devices	100 Hours and 2000 Hours	Check for Proper Operation
Conduit and Conduit Hangers	2000 Hours	Check for alignment and Damage, Exposed Wiring
Wiring	At Start-up, Monthly or if any problems Occur.	Check for Exposed Cords and Wires for Damage, Replace as Necessary

Note:

A Qualified Electrician Or Electrical Technician Should Keep A Log Book Of The Following Readings with any Excessive Deviation from Normal, Signals a Problem Area.

1. Measure Voltages And Current Of Incoming Power To Enclosure
2. Measure Current Readings Of All Motors
3. Measure Current Readings On Primary And Secondary Of Control Transformer To Insure Proper Infeed And Outfeed Voltage

Review Spare Parts:

Review Usage - Excessive Use of Fuses Or Replacing The Same Part Several Times Indicates an Excessive Current Draw, Faulty Components, or Exceeding The Capacity of the Conveyor Unit.



Trouble Shooting Guide:

Motor and Gear Reducer:

Hard To Start, Stalling Out Or Running Hot	Drag On Conveyor	Inspect For Obstruction Causing Drag And Remove
	Lack Of Lubricant	Check Oil Level In GearBox, Verify Vent Plug Is Open
	Overloaded	Remove Load And Possibly Increase Horsepower
	Electrical	Check Wiring, Circuits And Take Amp Readings
Excessive Noise	Lack Of Lubricant	Check Oil Level In Reducer & Add If Needed
	Damaged Gears	Replace Unit
	Faulty Bearing	Replace Bearings

Chain and Sprockets:

Abnormal Wear	Excessive Chain Tension	Reduce the Chain Tension
	Mis-Aligned Sprockets	Align Sprocket Faces with Straight Edge
	Chain not Lubricated	Lubricate with Proper Lubricant
	Damaged Chain or Sprocket	Replace Damaged Component
	Mis-Aligned Chain Guard	Adjust as Required
Excessive Noise	Loose Chain	Adjust Chain Tension
	Chain not Lubricated	Lubricate with Proper Lubricant
	Mis-Aligned Sprockets	Align Sprocket Faces with Straight Edge
Pulsating Chain	Improper Chain Tension	Adjust Chain Tension
	Overload	Inspect for obstruction causing drag and remove
Broken Chain	Frozen Pulley, Sprocket or Shaft	Inspect and Replace Damaged Items
	Worn or Damaged Chain	Replace Damaged Chain
	Obstruction	Inspect Conveyor for Obstruction and Remove
Sprocket Loose on Shaft	Loose Set Screws	Align Sprocket Faces with Straight Edge and Tighten Set Screws
	Worn or Damaged Key	Replace Key and Inspect Shaft Keyway for Damage
Chain Slack	Normal Wear	Adjust Chain to Proper Tension

Electrical:

Motor Not Operating	Emergency Stop Activated	Reset Pull Cord, Air Pressure Switch or Pushbuttons
	Blown Fuses	If Resistance From Hot To Ground Is Ok Replace Fuse
	Overload Relay Tripped	Reset Relay, Measure Current Draw Amprobe
	Check For Wiring Problems	Check Wiring Diagram For Correct Connections
Rollers Running Wrong Direction	3 Phase Motor – Switch 2 wires	Check Proper Voltage Wiring Diagram
	1 Phase Motor Wired Incorrectly	Check Proper Voltage Wiring Diagram
	DC Motor Wired Incorrectly	Check Proper Voltage Wiring Diagram
Overload Relay Trips	Check Setting On Overload Relay With Full Load Amps On Motor Nameplate	If Incorrect Reset Overload Relay To Motor Full Load Amps
	Check For Mechanical Binding Or Jams	Remove Item Creating Drag Load On Unit
	Additional Load Is Too Much For Motor	Decrease The Amount Of Product Load On Unit
	Check If Motor Current Draw Is High	Drive May Require More Horsepower-Consult Factory
Unit Operates Sporadically	Check Photoeyes	Clean Lens and Check for Proper Alignment
	Check Reflectors	Clean and Check for Proper Alignment
	Limit Switches	Check Arm Location and Tightness
	Solenoids	Check Pressure at the Valve
	Loose Connections	Check Wire Nuts and Terminal Strip

DO NOT ATTEMPT MAINTENANCE ON ANY CONVEYOR WHILE IT IS IN OPERATION



470,480 and 490 Replacement Parts:

470 Rollers 1.9" x 13 gage with (2) 40A18 Sprockets welded

Effective Frame Width	1.9" Diameter 13 Ga. Steel Rollers 7/16" Hex Axle
12	470-12-RS
15	470-15-RS
18	470-18-RS
21	470-21-RS
24	470-24-RS
27	470-27-RS
30	470-30-RS
33	470-33-RS
36	470-36-RS
42	470-42-RS
45	470-45-RS

480 Rollers 2 1/2" x 11 gage with (2) 60A15 Sprockets welded

Effective Frame Width	2.5" Diameter 11 Ga. Steel Rollers 1 1/16" Hex Axle
21	480-21-RS
27	480-27-RS
33	480-33-RS
39	480-39-RS
45	480-45-RS
51	480-51-RS
57	480-57-RS
63	480-63-RS

490 Rollers 3 1/2" x 0.300 wall with (2) 80A16 Sprockets welded

Effective Frame Width	3.5" Diameter x 0.300 Steel Rollers 1-1/16" Hex Axle
30	490-30-RS
40	490-40-RS
50	490-50-RS
60	490-60-RS
70	490-70-RS
80	490-80-RS

Chain Parts:

40B12T to 40B17T	Standard Sprockets for #40 Chain
40-Chain	Feet of #40 Roller Chain
60B12T to 60B17T	Standard Sprockets for #60 Chain
60-Chain	Feet of #60 Roller Chain
80B13T to 80B16T	Standard Sprockets for #80 Chain
80-Chain	Feet of #80 Roller Chain

Touch-Up Paint

MB-SPaint	Spray Can of Metzgar Blue Touch-up Paint
MB-1gCPaint	One Gallon Can of Metzgar Blue Touch-up Paint
VG-SPaint	Spray Can of Vista Green Touch-up Paint
VG-1gCPaint	One Gallon Can of Vista Green Touch-up Paint