



AFFIDAVIT OF NATHANIEL E FRANK-WHITE

1. I am a Records Request Processor at the Internet Archive. I make this declaration of my own personal knowledge.
2. The Internet Archive is a website that provides access to a digital library of Internet sites and other cultural artifacts in digital form. Like a paper library, we provide free access to researchers, historians, scholars, and the general public. The Internet Archive has partnered with and receives support from various institutions, including the Library of Congress.
3. The Internet Archive has created a service known as the Wayback Machine. The Wayback Machine makes it possible to browse more than 450 billion pages stored in the Internet Archive's web archive. Visitors to the Wayback Machine can search archives by URL (i.e., a website address). If archived records for a URL are available, the visitor will be presented with a display of available dates. The visitor may select one of those dates, and begin browsing an archived version of the Web. Links on archived files in the Wayback Machine point to other archived files (whether HTML pages or other file types), if any are found for the URL indicated by a given link. For instance, the Wayback Machine is designed such that when a visitor clicks on a hyperlink on an archived page that points to another URL, the visitor will be served the archived file found for the hyperlink's URL with the closest available date to the initial file containing the hyperlink.
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5. The Internet Archive assigns a URL on its site to the archived files in the format `http://web.archive.org/web/[Year in yyyy][Month in mm][Day in dd][Time code in hh:mm:ss]/[Archived URL]` aka an "extended URL". Thus, the extended URL `http://web.archive.org/web/19970126045828/http://www.archive.org/` would be the URL for the record of the Internet Archive home page HTML file (`http://www.archive.org/`) archived on January 26, 1997 at 4:58 a.m. and 28 seconds (1997/01/26 at 04:58:28). The date indicated by an extended URL applies to a preserved instance of a file for a given URL, but not necessarily to any other files linked therein. Thus, in the case of a page constituted by a primary HTML file and other separate files (e.g., files with images, audio, multimedia, design elements, or other embedded content) linked within that primary HTML file, the primary HTML file and the other files will each have their own respective extended URLs and may not have been archived on the same dates.
6. Attached hereto as Exhibit A are true and accurate copies of browser screenshots of the Internet Archive's records of the archived files for the URLs and the dates specified in the attached coversheet of each printout.





7. Attached hereto as Exhibit B are true and accurate copies of printouts of the Internet Archive's records of the archived files for the URLs and the dates specified in the attached coversheet of each printout.
8. I declare under penalty of perjury under the laws of the United States of America that the foregoing is true and correct.

DATE: 06/06/2024

Nathaniel Frank-White
Nathaniel E Frank-White

Please see attached
All Purpose
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for additional
Notary Events



JURAT ATTACHMENT

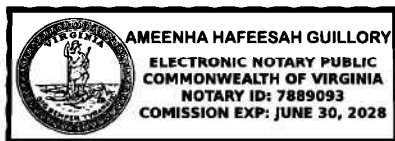
A notary public or other officer completing this certificate verifies only the identity of the individual who signed the document to which this certificate is attached, and not the truthfulness, accuracy, or validity of that document.

STATE OF Virginia }

COUNTY OF Alexandria }

The foregoing instrument was subscribed and sworn before me this date of 06/06/2024, by Nathaniel Frank-White

This notarial act was an online notarization.



Document Notarized using a Live Audio-Video Connection

(Notary Seal)

Notary's Signature Ameenha Guillory

Registration No.: 7889093

Commission Expiration Date: June 30, 2028



EXHIBIT A

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With successful truck, railcar and barge loader installations in place throughout North America, DYNATEK is currently seeking **Independent Sales Representatives** for many parts of the USA and Canada to help take its business and customer support to the next level. If you're currently calling on manufacturers and engineering firms in any of the industries listed below and would like to look closer at the revenue potential DYNATEK could offer you, [e-mail](#) or call Gary Kuehneman at (262) 370-4524.

Industries Served

- Grain
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- Chemical Processing
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- Fertilizer
- Plastics
- Power
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Territory: Michigan (Except U.P.) & Northern Indiana

Industries: All



BHE, Inc.
Billy Payne
Office 231.843.4775
E-Mail: bp@bhe4me.com
Web URL: www.bhe4me.com

Territory: Delaware, Maryland, New Jersey & Eastern Pennsylvania

Industries: All, except Agriculture



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Territory: Alabama, Connecticut, Delaware, Florida, Georgia, Kentucky, Maine, Maryland, Massachusetts, New Jersey, New York, Ohio, Pennsylvania, Tennessee, South Carolina, North Carolina, New Hampshire, Rhode Island, Vermont, Virginia, West Virginia, and the Canadian Provinces east of and including, Ontario

Industries: Agriculture Only

HANKINSON MARKETING



Tim Hankinson
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Web URL: www.hankinsonmarketing.com

Territory: Georgia, N. Carolina, S. Carolina, E. Tennessee & Virginia

Industries: All except Agriculture & Grain



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Territory: Central & Southern Indiana, Kentucky, Ohio, Western Pennsylvania & West Virginia

Industries: All except Agriculture & Grain



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Territory: Iowa, Kansas, Missouri & Nebraska

Industries: All



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Territory: Minnesota, North Dakota, South Dakota, & Western Wisconsin

Industries: All



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Territory: Florida

Industries: All except Agriculture & Grain



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Office Fax: 727.415.1865

Mark Bober soequip@aol.com

Territory: Arkansas, Louisiana, Oklahoma & Texas

Industries: All

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Go JUN APR MAY 10 2012 2013 2014 About this capture

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Solaris Oilfield, Ex. 1014, p. 10
Solaris Oilfield v. Masaba, IPR2024-01179

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Go

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SEP

MAY

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2012

2013

2014

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26 captures

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Home

About Us

Products

Applications

Contact Us

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Search

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EconoLoader™ - Air Slide Conveyor



OPTIONAL FEATURES

- Stainless steel frames and conveyor housings
- Air Slide conveyor sizes > 24 inches
- Loader reach radii > 27 feet
- Special infeed and discharge transitions
- Post, haunch or platform mounting
- Retractable loading spouts with 3 to 60 feet of vertical travel and dust recovery

DYNATEK's air slide conveyor-based EconoLoader uses gravity to convey materials that have been lubricated with low pressure air forced through a fabric conveying deck. Conveyor arms consisting of carbon steel structural box frames and conveyor housings, abrasion-resistant, polyester fabric conveying decks and blowers, are strong and versatile enough to convey everything from DDGS to abrasives like fly ash and cement at rates as high as 20,000 cubic feet per hour. And since air slides are totally enclosed and have no moving parts, they're quiet, dust free and require almost no maintenance.

Like all DYNATEK loading systems, air slide conveyor-based models feature articulated motion. Two slewing gear-based pivots, enable both conveyor arms to pivot separately, for nearly 330 degrees of rotation and a reach radius of up to 27 feet. Loading is fast and convenient because you position the loader, not the truck, railcar or barge being loaded.

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CORE SPECIFICATIONS

Construction:	Main and secondary conveyor arms consist of air slide conveyors mounted in carbon steel structural box frames
Loader Reach:	22 feet from inlet CL to discharge CL for truck loading, 27 feet from inlet CL to discharge CL for railcar and barge loading
Loading Rate:	8 to 24 inch wide air slide conveyors can load at rates up to 26,000 cubic feet / hour (material dependent)
Arm Positioning:	Hydraulic or electromechanically-driven slewing bearings rotate each arm up to 330 degrees horizontally at 1/4 RPM to provide articulated motion.
Control:	Fully wired NEMA 4 control panel with hand-held control pendant lets a single operator rotate arms 1 & 2, raise / lower the loading spout and start/stop conveyor operation
Finish:	White metal sand blast with gray epoxy primer and polyurethane final coat

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Solaris Oilfield, Ex. 1014, p. 12
Solaris Oilfield v. Masaba, IPR2024-01179

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Go

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SEP

JUN

03

2012

2013

2015

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33 captures

18 Jun 2012 - 27 Jun



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Home

About Us

Products

Applications

Contact Us

Rep Locator

Search

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Rep Login

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EconoLoader™ - Drag Conveyor



OPTIONAL FEATURES:

- Stainless steel frame and drag chain construction
- Drag conveyor sizes > 24 inches
- Loader reach radii > 27 feet
- Vertical position control of the 2nd conveyor arm
- Special infeed and discharge transitions
- Post, haunch or platform mounting
- Special control functions, interfaces and enclosure ratings
- Retractable loading spouts with 3 to 60 feet of vertical travel and dust recovery

DYNATEK's drag conveyor-based EconoLoader™ is preferred for the toughest materials and loading applications. Carbon steel box and structural truss frames, AR-grade steel bottoms and side plates and UHMW flights mounted on heavy duty steel chain results in loaders that are strong, yet versatile enough to handle everything from DDGS to abrasives like fly ash, fertilizer & cement. Drag conveyor-based loaders are also self-cleaning and fully enclosed so conveying is dust-free.

Like all DYNATEK loading systems, drag conveyor-based models are designed for articulated motion. Two slewing gear-based pivots enable both conveyor arms to pivot separately resulting in nearly 330 degrees of rotation and a loader reach of up to 27 feet. Loading is fast and convenient because you position the loader, not the truck, railcar or barge being loaded.

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CORE SPECIFICATIONS

Construction:	Main and second conveyor arms = Carbon steel structural truss frames with AR-grade bottoms and side plates; UHMW flights and heavy duty steel chain
Loader Reach:	22 ft. from inlet CL to discharge CL for truck loading; 27 ft. from inlet CL to discharge CL for railcar and barge loading
Loading Rate:	12", 18" and 24" wide conveyors can load at rates up to 26,400 cu. ft. / hr.
Arm Positioning:	Hydraulic or electromechanically-driven slewing bearings rotate each arm up to 330 degrees horizontally at 1/2 RPM to provide articulated motion.
Control:	Fully wired NEMA 4 control panel with hand-held control pendant allows a single operator to rotate arms 1 and 2, raise/lower the loading spout and start/stop conveyor operation
Finish:	White metal sand blast with gray epoxy primer and polyurethane final coat

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Solaris Oilfield, Ex. 1014, p. 14
Solaris Oilfield v. Masaba, IPR2024-01179

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Products

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EconoLoader™ - Screw Conveyor



OPTIONAL FEATURES

- Stainless steel frame and auger construction
- Special lighting, pitch and edge designs
- Loader reach radii > 27 feet
- Abrasion-resistant infeed and discharge transitions
- Post, haunch or platform mounting
- Special control functions, interfaces and enclosure ratings
- Retractable loading spouts with 3 to 60 feet of vertical travel and dust recovery

DYNATEK's auger or screw conveyor-based EconoLoader™ features the design versatility required to accommodate loading applications in almost any industry. Carbon or stainless steel construction, special trough designs, special flighting and pitch designs, hardened augers, augers finished with UHMW plastic or wire brush edge treatments and more. It's this design versatility which enables DYNATEK to create articulated load-out conveyors for almost any powder or uniformly-sized bulk material and we've been doing it for years.

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CORE SPECIFICATIONS

Construction:	Main conveying arm = Carbon steel structural tube housing and auger; 2nd conveying arm = Carbon steel structural truss frame, trough and auger
Loader Reach:	22 feet from inlet CL to discharge CL for truck loading; 27 feet from inlet CL to discharge CL for railcar and barge loading
Loading Rate:	8 Up to 2,500 cubic feet / hour (material dependent)
Arm Positioning:	Hydraulic or electromechanically-driven slewing bearings rotate each arm up to 330 degrees horizontally at 1/4 RPM to provide articulated motion.
Control:	Fully wired NEMA 4 control panel with hand-held control pendant lets a single operator rotate arms 1 & 2, raise / lower the loading spout and start/stop conveyor operation
Finish:	White metal sand blast with gray epoxy primer and polyurethane final coat

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Go

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2013

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25 captures

19 Jun 2012 - 1 Feb 2013



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Home

About Us

Products

Applications

Contact Us

Rep Locator

Search

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EconoLoader™ - Belt Design



OPTIONAL FEATURES:

- Stainless steel frame construction
- Belt widths > 24 inches
- Loader reach radii > 27 feet
- Vertical position control for the loading arm
- Hinged belt access doors
- Belt cleaners & scrapers
- Belt speed and/or tracking sensors
- Special control functions, interfaces and enclosures
- Retractable loading spouts with 3 to 60 feet of vertical travel and dust recovery

DYNATEK's Belt-based EconoLoader™ is the most versatile and economical articulated loader available. A variety of design configurations involving troughing idlers, corrugated sidewall belts and even air-guided belt conveying, make this version of EconoLoader™ the right choice for a broad range of granular, irregular, abrasive or sticky materials like coal, sand, gravel, minerals and fertilizer.

Belt-based EconoLoaders™ consist of (2) enclosed conveying arms, each containing its own belt conveyor. Material enters the loader through an inlet in arm 1 and discharges through the outlet or a dust recovery load-out spout at the end of arm 2 (loading arm). A reach radius of up to 30 feet and roughly 330 degrees of rotation enable the discharge point to be positioned quickly and precisely over each loading point or hatch in the transport vehicle. Once in position, sequenced conveyor start-up insures smooth, plug free loading at rates up to 13,000 cubic feet per hour.

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CORE SPECIFICATIONS

Construction:	Carbon steel, structural box or truss frame with lifetime lubricated idlers
Belts:	18 and 24 inch wide, 2-ply, 3/8" thick, oil & heat resistant EPDM
Drive:	Totally enclosed drum gear motor
Loader Reach:	22 feet from inlet CL to discharge CL for truck loading; 27 feet from inlet CL to discharge CL for railcar loading
Loading Rate:	Up to 13,000 cubic feet / hour (material dependent)
Arm Positioning:	Hydraulic or electromechanically-driven slewing bearings rotate each arm up to 330 degrees horizontally at 1/2 RPM to provide articulated motion.
Control:	Fully wired NEMA 4 control panel with hand-held control pendant allows a single operator to rotate arms 1 and 2, raise/lower the loading spout and start/stop conveyor operation
Finish:	White metal sand blast with gray epoxy primer and polyurethane final coat

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36 captures

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Home

About Us

Products

Applications

Contact Us

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Search

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Control Package



DYNATEK is fully equipped to provide control panels for its Loading systems. Working closely with each customer, motor starters, control voltage transformers, variable frequency drives, fusing, power disconnects, and control enclosure ratings are carefully selected for function, reliability and serviceability. Broader process integration and operational feedback can also be provided via PLCs and custom programming.

Products

Loader performance optimization begins with selecting the best conveying technology. DYNATEK makes that easy by offering articulated loaders to accomodate your specific requirements.

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EconoLoader - Belt Design
Belt-based loaders are often best for granular, irregular or sticky materials like coal, minerals, grain or fertilizer. DYNATEK designs can feature troughing idlers, corrugated sidewall belts, even...
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EconoLoader - Screw Conveyor
Auger-based loaders are often used for dry, free flowing materials like salt, flour or sulfur that have a uniform particle size. Custom fighting designs, surface treatments and hardening...
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EconoLoader - Drag Conveyor
Drag conveyor-based loaders are versatile enough to handle everything from grain to abrasive materials with large particle size variations. Drag conveyor-based loaders are also self-cleaning...
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EconoLoader - Air Slide Conveyor
Air slide-based loaders use gravity and low pressure low volume air to convey fluidized materials like aluminum powder, fly ash, silica and phosphates at rates as high as 26,000 cubic feet/hour...
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• Home

• About Us

History

Industries

Location

• Products

Overview

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Dynatek is pleased to introduce Dynequip as the newest member of its growing network of independent sales representatives.

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Mississippi River is Key to Grain Trade

The Mississippi River plays a vital role in the exporting of grains, including corn and soybeans. Last year American agricultural producers exported nearly \$136 billion in goods- roughly half of which flowed down the Mississippi River.

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Operating from offices in North

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Tough, Versatile Bulk Loading Systems - Saves Time and Money

Bulk solids loading systems are our passion at DYNATEK and it's been that way for well over 100 years. But not just any loading systems - we specialize in articulated loading systems. Why? Because cost effective, optimized loading depends on delivering product to very specific hatch locations or loading points in a stationary transport vehicle, quickly and easily. Articulated loading conveyors do just that. It's why DYNATEK's EconoLoaders™ have been selected time and time again by plant owners and designers for truck, rail car and barge loading applications in the biofuels, grain, chemical, plastics, fertilizer, minerals and power generation industries.

Optimized For Each Application- Choose application-proven screw, belt, drag, air slide or pneumatic conveying solutions and post, haunch or platform mountings that match the material and load-out location perfectly.

Built For Tough Duty- EconoLoaders™ are built to last. Operational lives routinely surpass 25 years in some of the most demanding environments with only minimal preventative maintenance.

Built For Maximum Versatility- Articulated EconoLoaders™ eliminate the need to move most transport vehicles, even when loading both trucks and rail cars in the same loading center. With nearly 360 degrees of pendant controlled, powered rotation and up to a 30 foot reach radius, EconoLoader can be horizontally and vertically positioned quickly and accurately over each loading hatch.

Over the years, DYNATEK has successfully handled a broad range of bulk solids loading requirements for companies like BASF, OMYA, Fagen Engineering, Akzo Nobel, Dupont, General Mills and Nucor Steel. So, challenge us with your loading needs and find out why DYNATEK Articulated Loading Systems are preferred by so many!



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Bulk solids loading systems are our passion at DYNATEK and it's been that way for well over 100 years. But not just any loading systems – we specialize in articulated loading systems. Why? Because cost effective, optimized loading depends on delivering product to very specific hatch locations or loading points in a stationary transport vehicle, quickly and easily. Articulated loading conveyors do just that. It's why DYNATEK's EconoLoaders™ have been selected time and time again by plant owners and designers for truck, rail car and barge loading applications in the biofuels, grain, chemical, plastics, fertilizer, minerals and power generation industries.

Optimized For Each Application-

Choose application-proven screw, belt, drag, air slide or pneumatic conveying solutions and post, haunch or platform mountings that match the material and load-out location perfectly.



Built For Tough Duty- EconoLoaders™

are built to last. Operational lives routinely surpass 25 years in some of the most demanding environments with only minimal preventative maintenance.



Built For Maximum Versatility-

Articulated EconoLoaders™ eliminate the need to move most transport vehicles, even when loading both trucks and rail cars in the same loading center. With nearly 360 degrees of pendant controlled, powered rotation and up to a 30 foot reach radius, EconoLoader can be horizontally and vertically positioned quickly and accurately over each loading hatch.



Over the years, DYNATEK has successfully handled a broad range of bulk solids loading requirements for companies like BASF, OMYA, Fagen Engineering, Akzo

Nobel, Dupont, General Mills and Nucor Steel. So, challenge us with your loading needs and find out why DYNATEK Articulated Loading Systems are preferred by so many!



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EXHIBIT B

<https://web.archive.org/web/20160819062313/http://mcschroeder.com/wp-content/uploads/2012/09/Product-Spec-Sheet-Air-Slide-EconoLoader.pdf>

EconoLoader™ - Air Slide Conveyor Design



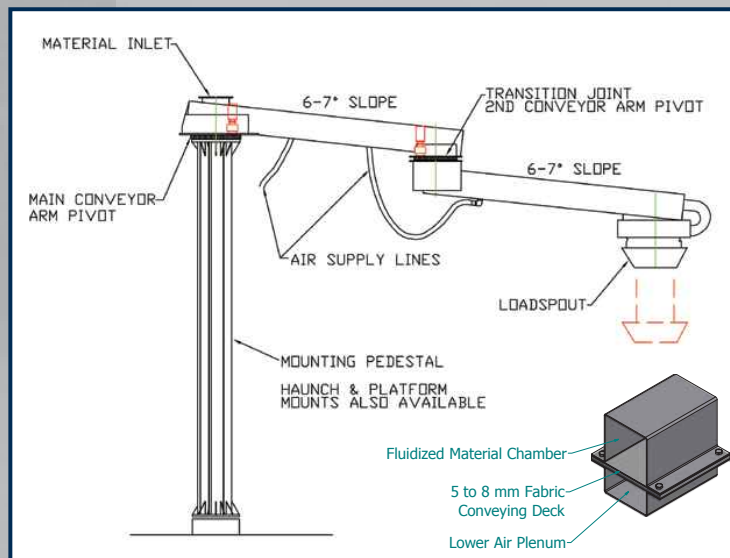
DYNATEK
ARTICULATED LOADING SYSTEMS

Air Slide Conveyor-based Loading Systems

DYNATEK's air slide conveyor-based EconoLoader™ uses a 6-7 degree slope and gravity to convey fine powders that have been fluidized with air forced through a porous fabric conveying deck. Carbon steel structural box frames and conveyor housings, abrasion-resistant polyester fabric conveying decks and high quality blowers, form loaders that are rugged, yet versatile enough to handle materials like alumina, hydrated lime, fly ash, plastic powders and semolina. Additionally, air slide-based loaders are fully enclosed, self-cleaning and have no moving parts so they're quiet, dust-free and require almost no maintenance, even when operating at loading rates over 20,000 cubic feet per hour.



Like all DYNATEK loading systems, air slide conveyor-based models feature articulated motion. Two slewing bearing-based pivots, enable both conveyor arms to pivot separately, for nearly 330 degrees of rotation and a reach radius of up to 27 feet. That makes loading fast and convenient because you position the loader, not the truck, railcar or barge being loaded.



EconoLoader™ Specifications

Loader Type	Articulated air slide conveyor
Construction	Main and secondary conveyor arms consist of air slide conveyors mounted in carbon steel structural box frames.
Loader Reach	22 feet from inlet CL to discharge CL for truck loading. 27 feet from inlet CL to discharge CL for railcar and barge loading.
Loading Rate	8 to 24 inch wide conveyors provide theoretical loading rates up to 26,000 cubic feet / hour. Actual rates are material dependent.
Arm Positioning	Hydraulic or electromechanically-driven slewing bearings with capacities between 80,000 and 443,000 ft-lbs, rotate each arm up to 330 degrees horizontally at ½ RPM to provide articulated motion.
Load-out	Retractable Loading spouts with 3 to 60 feet of vertical travel, make loading precise and nearly dust-free.
Loader Control:	Fully wired NEMA 4 control panel with hand-held control pendant allows a single operator to rotate both conveyor arms, raise / lower the loading spout and start/stop conveyor operation. Control voltage = 120 VAC, 60 HZ, 1 PH Motor voltage = 230 / 460 VAC, 60 HZ, 3 PH (other NEMA-rated enclosures and voltages are available)
Finish	White metal sand blast with gray epoxy primer and polyurethane final coat.

DYNATEK EconoLoader™ loading systems are designed for maximum reliability. Grade and gauge of steel, air slide conveying deck fabric, slewing bearings, pinion gears and drive motors are all carefully selected and the overall design is kept as simple as possible. The result – a loading system with a service life of 25 years or more.

EconoLoader™ - Air Slide Conveyor Design

Loader Moves – Not the Transport Vehicle

Slewing bearings allow both conveyor arms to rotate up to 330 degrees and reach up to 30 ft. This “articulated motion” lets you precisely position the discharge point without having to move the truck, railcar or barge.



Dust Containment & Recovery

Retractable loading spouts with or without dust collection, insure precise, clean loading.



Easy Pendant – based Operation

Operation of the EconoLoader™ couldn't be easier. A NEMA 4, hand-held pendant lets the operator drive the loader to the loading point, lower the loading spout into the hatch and start the loading process.

Design Flexibility

Every DYNATEK EconoLoader™ is custom-engineered for the application so filling special customer requests is easy. Here are some examples:

- Stainless steel box frame and conveyor housing construction
- Air slide conveyor widths > 24 inches
- Loader reach radii > 27 feet
- Post, haunch or platform mounting
- Abrasion-resistant in-feed and discharge transitions
- In-feed control gates
- Special control features and DCS interfaces
- NEMA 7 or 9 control housings

Conveying Rates For Air Slide Conveyor-based EconoLoaders™

CONVEYOR WIDTH (Inches)	CONVEYING RATE (Cubic Feet / Hour)	CONVEYING RATES (Short Tons / Hour)					
		Bulk Density (Lbs. / Cubic Foot)					
		20	40	60	80	100	
8	2000	20	40	60	80	100	
10	3000	30	60	90	120	150	
12	4500	45	90	135	180	225	
14	6500	65	130	195	260	325	
16	10000	100	200	300	400	500	
18	14500	145	290	435	580	725	
20	20000	200	400	600	800	1000	
24	26000	260	520	780	1040	1300	

All conveying rates shown are theoretical. Actual rates are material dependent.

Experienced and Tested

Over the years, DYNATEK has supplied a wide assortment of unique articulated loading solutions to customers like BASF, General Mills, Valero and Nucor Steel. Using screw, belt, drag and air slide conveyor based designs, DYNATEK Loaders are being used throughout the country to load materials like DDGS, calcium carbonate, silica, salt, soy meal, coffee and a host of other materials. So challenge us with your loading requirements, no matter how difficult and find out why so many companies prefer DYNATEK Articulated Loading Systems.



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EconoLoader™ - Screw Conveyor Design



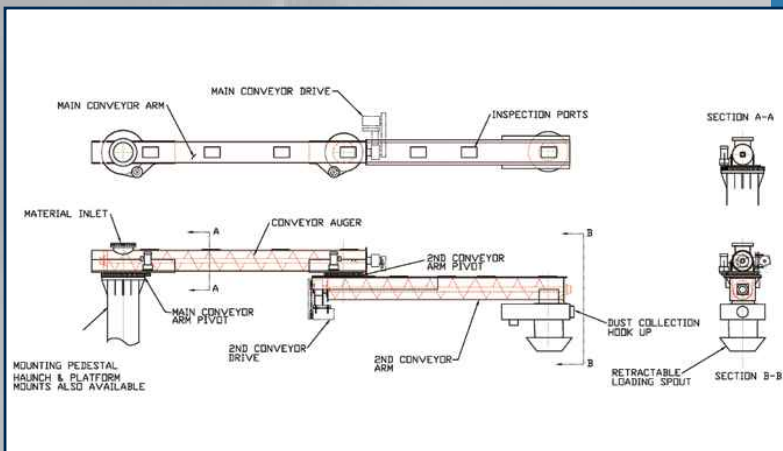
DYNATEK
ARTICULATED LOADING SYSTEMS

Screw Conveyor-based Loading Systems

DYNATEK's screw conveyor-based EconoLoader™ features the design versatility required to accommodate the broad range of dry bulk solids loading applications found in almost every industry; carbon or stainless steel construction - special trough designs - special flighting and pitch designs - hardened augers - augers with UHMW plastic or wire brush edge treatments. It's this design versatility which enables DYNATEK to engineer an articulated screw conveyor-based loading system for almost any powder or uniformly-sized bulk material. And it's what we've been doing for years.



DYNATEK EconoLoader™ Screw Conveyor loading systems are designed for maximum reliability. Materials of construction, slewing bearing ratings, pinion gears and drives are all carefully selected and the overall design is kept as simple as possible. The result - a service life of 25 years or more.



EconoLoader™ Specifications

Loader Type	Articulated screw conveyor
Construction	Main Conveyor Arm = Carbon steel structural conveying tube and screw 2nd Conveyor Arm = Carbon steel structural truss frame, trough and conveying screw
Loader Reach	22 feet from inlet CL to discharge CL for truck loading. 27 feet from inlet CL to discharge CL for railcar loading. (longer lengths are optionally available)
Loading Rate	Conveying screw diameters up to 16 inches can deliver material at rates up to 2500 cubic feet / hour (Actual rates are material dependent)
Arm Positioning	Hydraulic or electromechanically-driven slewing bearings with capacities between 80,000 and 443,000 ft-lbs, rotate each arm up to 330 degrees horizontally at ½ - 1 RPM to provide articulated motion.
Load-out	Retractable Loading spouts with 3 to 60 feet of vertical travel and dust recovery
Control	Fully wired NEMA 4 control panel with hand-held control pendant allows a single operator to rotate both conveyor arms, raise/lower the loading spout and start/stop conveyor operation. Control voltage = 120 VAC, 60 HZ, 1 PH Motor voltage = 230 / 460 VAC, 60 HZ, 3 PH (other NEMA-rated enclosures and voltages are available)
Finish	White metal sand blast with gray epoxy primer and polyurethane final coat.

EconoLoader™ - Screw Conveyor Design

Loader Moves – Not the Transport Vehicle

Slewing bearings allow both conveyor sections to rotate up to 330 degrees and reach up to 30 ft. This “articulated motion” lets you precisely position the discharge point without having to move the truck, railcar or barge.



Easy Pendant – based Operation

Operation of the EconoLoader couldn't be easier. A NEMA 4, hand-held pendant lets the operator drive the loader to the loading point, lower the loading spout into the hatch and start the screw conveyors.

SCREW DIAMETER (INCHES)	DEGREE OF TROUGH LOADING	MAXIMUM RPM	CONVEYING RATE (CU. FT. / HR. / RPM)
9	15	55	2.7
9	30	60-100*	5.5
9	45	155	8.2
12	15	50	6.5
12	30	50-90*	12.9
12	45	145	19.4
14	15	50	10.4
14	30	50-85*	20.8
14	45	140	31.2
16	15	45	15.6
16	30	45-80*	31.2
16	45	130	46.7

**Slower speeds recommended for abrasive materials*

Load Point Control & Dust Recovery



Retractable loading spouts with or without dust collection, insure precise, clean loading.

Design Flexibility

Every DYNATEK EconoLoader is custom-engineered for the application so filling special customer requests is the norm. Here are some examples:

- Stainless steel frame, trough and auger construction
- Special flighting designs, pitch and edge finishes
- Loader reach radii > 27 ft
- Post, haunch or platform mounting
- Abrasion-resistant in-feed and discharge transitions
- In-feed control gates
- Special control features and DCS interfaces
- NEMA 7 or 9 control housings

How to use the table:

The following example shows the conveying rate for a screw conveyor with a 12" diameter screw and 30% trough loading, rotating at 70 RPM.

70 RPM X 12.9 cu.ft. = 903 cu.ft. per hour

Experienced and Tested

Over the years, DYNATEK has supplied a wide assortment of unique articulated loading solutions to customers like BASF, General Mills, Valero and Nucor Steel. Using screw, belt, drag and air slide conveyor based designs, DYNATEK Loaders are being used throughout the country to load materials like DDGS, calcium carbonate, silica, salt, soy meal, coffee and a host of other materials. So challenge us with your loading requirements, no matter how difficult and find out why so many companies prefer DYNATEK Articulated Loading Systems.



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EconoLoader™ - Drag Conveyor Design



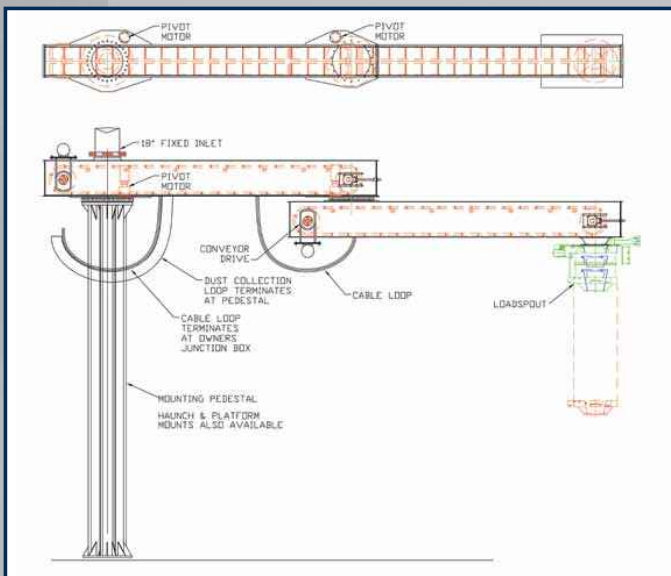
DYNATEK
ARTICULATED LOADING SYSTEMS

Drag Conveyor-based Loading Systems

DYNATEK's drag conveyor-based EconoLoader™ is preferred for the toughest materials and loading applications. Carbon steel box and structural truss frames, round or flat AR-grade steel bottoms and side plates and UHMW flights mounted on heavy duty steel chain result in loaders that are strong, yet versatile enough to handle everything from DDGS to abrasives like fly ash & cement – even hot materials. Drag conveyor-based loaders are also self-cleaning and fully enclosed so conveying is dust-free, even when loading at rates over 25,000 cubic feet per hour.



Like all DYNATEK loading systems, drag conveyor-based models are designed for articulated motion. Two slewing bearing-based pivots enable both conveyor arms to pivot separately resulting in nearly 330 degrees of rotation and loader reach of up to 27 feet. Loading is fast and convenient because you position the loader, not the truck, railcar or barge being loaded.



EconoLoader™ Specifications

Loader Type	Articulated drag conveyor
Construction	Main & 2nd Conveyor Arms = Carbon steel box or structural truss frames with AR-grade steel bottoms and side plates. UHMW flights mounted on heavy duty steel chain
Loader Reach	22 feet from inlet CL to discharge CL for truck loading. 27 feet from inlet CL to discharge CL for railcar loading. (longer lengths are optionally available)
Loading Rates (theoretical)	12" conveyor running 175 ft. / min. = 10,350 bushels or 12,900 cu. ft. / hr. 18" conveyor running 175 ft. / min. = 15,750 bushels or 19,650 cu. ft. / hr. 24" conveyor running 175 ft. / min. = 21,150 bushels or 26,400 cu. ft. / hr. Actual rates are material dependent. Conveyor widths wider than 24 inches are optionally available.
Arm Positioning	Hydraulic or electromechanically-driven slewing bearings with capacities between 80,000 and 443,000 ft-lbs, rotate each arm up to 330 degrees horizontally at ½ - 1 RPM to provide articulated motion. Vertical positioning of the 2nd conveying arm is also available as an option.
Load-out	Retractable Loading spouts with 3 to 60 feet of vertical travel and dust recovery
Loader Control:	Fully wired NEMA 4 control panel with hand-held control pendant allows a single operator to rotate both conveyor arms, raise / lower the loading spout and start/stop conveyor operation. Control voltage = 120 VAC, 60 HZ, 1 PH Motor voltage = 230 / 460 VAC, 60 HZ, 3 PH (Other NEMA-rated enclosures and voltages are available)
Finish	White metal sand blast with gray epoxy primer and polyurethane final coat.

EconoLoader™ - Drag Conveyor Design

Loader Moves – Not the Transport Vehicle

Slewing bearings allow both conveyor sections to rotate up to 330 degrees and reach up to 30 ft. This “articulated motion” lets you precisely position the discharge point without having to move the truck, railcar or barge.



Dust Containment & Recovery

Retractable loading spouts with or without dust collection, insure precise, clean loading.



Easy Pendant – based Operation

Operation of the EconoLoader™ couldn't be easier. A NEMA 4, hand-held pendant lets the operator drive the loader to the loading point, lower the loading spout into the hatch and start the loading process.

Design Flexibility

Every DYNATEK EconoLoader™ is custom-engineered for the application so filling special customer requests is no issue. Here are some examples:

- Stainless steel frame, drag chain and cleat construction
- Drag conveyor sizes > 24"
- Loader reach radii > 27 ft
- Post, haunch or platform mounting
- Abrasion-resistant in-feed and discharge transitions
- In-feed control gates
- Special control features and DCS interfaces
- NEMA 7 or 9 control housings

Conveying Rates Table For Drag Conveyor-based EconoLoaders™

SIZE	UNITS	SPEED FEET PER MINUTE									
		50	75	100	125	150	175	200	225	250	275
12"	BU/HR	69	3450	5150	6900	8600	10350	12050	13800	15500	18950
	CF/HR	86	4300	6450	8600	10750	12900	15050	17200	19350	21500
18"	BU/HR	105	5250	7850	10500	13100	15750	18350	21000	23600	26250
	CF/HR	131	6550	9800	13100	16350	19650	22900	26200	29450	32750
24"	BU/HR	141	7050	10550	14100	17600	21150	24650	28200	31700	35250
	CF/HR	176	880	13200	17600	22000	26400	30800	35200	39600	44000

Example:

The theoretical conveying rate for an 18 inch wide drag conveyor moving at 150 feet per minute is 16,350 cubic feet per hour or 13,100 bushels per hour

Experienced and Tested

Over the years, DYNATEK has supplied a wide assortment of unique articulated loading solutions to customers like BASF, General Mills, Valero and Nucor Steel. Using screw, belt, drag and air slide conveyor based designs, DYNATEK Loaders are being used throughout the country to load materials like DDGS, calcium carbonate, silica, salt, soy meal, coffee and a host of other materials. So challenge us with your loading requirements, no matter how difficult and find out why so many companies prefer DYNATEK Articulated Loading Systems.



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EconoLoader™ - Belt Conveyor Design

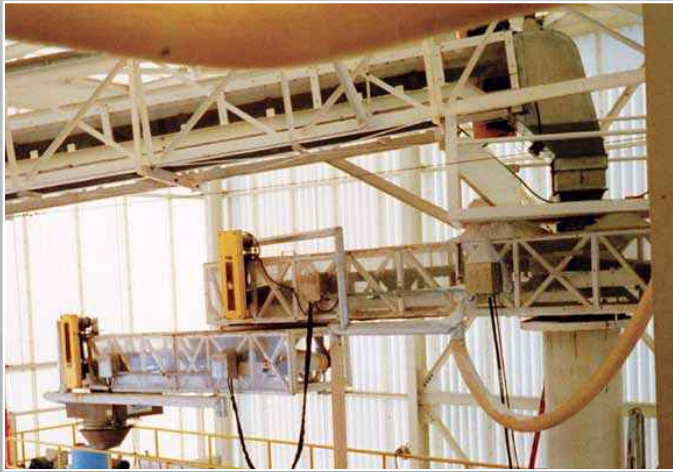


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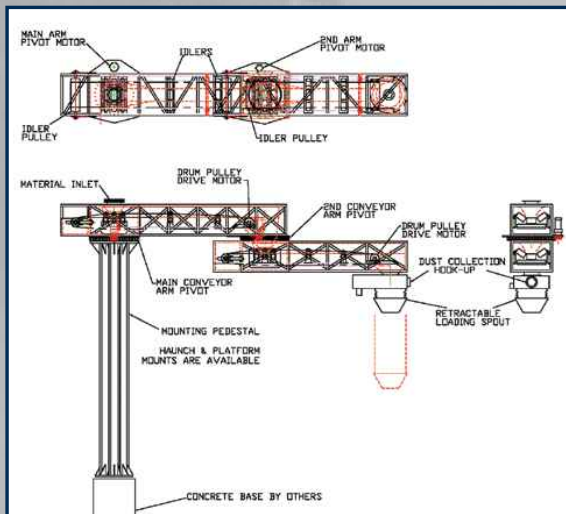
Belt Conveyor-based Loading Systems

DYNATEK's belt-based EconoLoader™ is the most versatile and economical articulated loader available. A variety of design configurations involving mild or stainless steel truss frame construction, troughing idlers, corrugated sidewall belts and even air-guided belt conveying, make this version of EconoLoader™ the right choice for loading applications involving granular, irregular, abrasive, sticky, even wet materials like coal, compost, sand, gravel, minerals and fertilizer.

Belt conveyor-based EconoLoaders™ consist of (2) open or enclosed conveying arms, each containing its own belt conveyor. Material enters the loader through an inlet in the main arm and discharges through the outlet or a dust recovery load-out spout at the end of the 2nd arm (loading arm).



Like all DYNATEK loading systems, belt conveyor-based models are designed for articulated motion. Two slewing bearing-based pivots, enable both conveyor arms to pivot separately resulting in nearly 330 degrees of rotation and loader reach of up to 27 feet. Loading is fast and convenient because you position the loader, not the truck, railcar or barge being loaded.



EconoLoader™ Specifications

Loader Type	Articulated belt conveyor
Construction	Two carbon steel structural truss frames with CEMA-C type, lifetime lubricated idlers.
Belts	Two, 2-ply, 3/8" thick, black, oil and heat resistant EPDM belts driven with totally enclosed drum motors. Exact Belt specifications are application and material dependent.
Loader Reach	22 feet from inlet CL to discharge CL for truck loading. 27 feet from inlet CL to discharge CL for railcar loading. (longer lengths are optionally available)
Loading Rate	Belt widths of 18" & 24" can convey material at theoretical rates of more than 26,400 cubic feet / hour (Actual rates are material dependent)
Arm Positioning	Hydraulic or electromechanically-driven slewing bearings with capacities between 80,000 and 443,000 ft-lbs, rotate the loading conveyor up to 330 degrees horizontally at 1/2 - 1 RPM to provide articulated motion.
Load-out	Retractable Loading spouts with 3 to 60 feet of vertical travel and dust recovery
Control	Fully wired NEMA 4 control panel with hand-held control pendant allows a single operator to rotate both conveyor arms, raise / lower the loading spout and start/stop conveyor operation. Control voltage = 120 VAC, 60 HZ, 1 PH Motor voltage = 230 / 460 VAC, 60 HZ, 3 PH (other NEMA-rated enclosures and voltage configurations are available)
Finish	White metal sand blast with gray epoxy primer and polyurethane final coat.

EconoLoader™ - Belt Conveyor Design

Loader Moves – Not the Transport Vehicle

Slewing bearings allow both conveyor sections to rotate up to 330 degrees and reach up to 30 ft. This “articulated motion” lets you precisely position the discharge point without having to move the truck, railcar or barge.



Easy Pendant – based Operation

Operation of the EconoLoader™ couldn't be easier. A NEMA 4, hand-held pendant lets the operator drive the loader to the loading point, lower the loading spout into the hatch and start the loading process.

Conveying Rates For Belt Conveyor-based EconoLoaders™

A surcharge angle of 20 degrees was assumed for the calculations reflected in this chart.

BELT WIDTH (INCHES)	TROUGH DEGREES	CROSS-SECTION AREA (Sq. Ft.)	CONVEYING RATES in Short Tons Per Hour Density of 100 Pounds Per Cubic Foot Assumed							
			BELT SPEED in Feet Per Minute							
			50	100	150	200	250	300	350	400
18	20	0.161	24	48	72	96	120	145	169	193
18	35	0.205	31	61	92	123	154	185	215	246
18	45	0.226	34	68	102	135	169	203	237	271
24	20	0.321	48	96	144	193	241	289	337	385
24	35	0.406	61	122	183	244	305	365	426	487
24	45	0.440	66	132	198	264	330	396	462	528

Experienced and Tested

Over the years, DYNATEK has supplied a wide assortment of unique articulated loading solutions to customers like BASF, General Mills, Valero and Nucor Steel. Using screw, belt, drag and air slide conveyor based designs, DYNATEK Loaders are being used throughout the country to load materials like DDGS, calcium carbonate, silica, salt, soy meal, coffee and a host of other materials. So challenge us with your loading requirements, no matter how difficult and find out why so many companies prefer DYNATEK Articulated Loading Systems.



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Load Point Control & Dust Recovery



Retractable loading spouts with or without dust collection, insure precise, clean loading.

Design Flexibility

Every DYNATEK EconoLoader™ is custom-engineered for the application so filling special customer requests is no issue. Here are some examples:

- Stainless steel frame construction
- Special conveying belts with/without corrugated sidewalls
- Loader reach radii > 27 ft
- Loading conveyor widths > 24 in
- Post, haunch or platform mounting
- Abrasion-resistant in-feed and discharge transitions
- In-feed control gates
- Special control features and DCS interfaces
- NEMA 7 or 9 control housings



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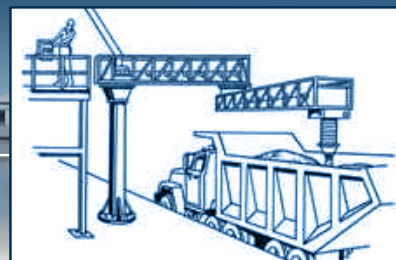
DYNATEK

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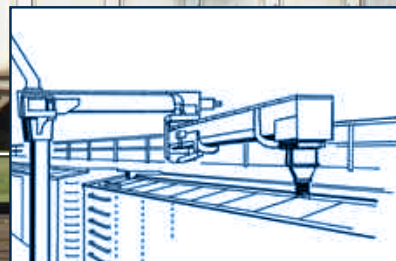
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- BELT CONVEYING
- DRAG CONVEYING
- PNEUMATIC CONVEYING



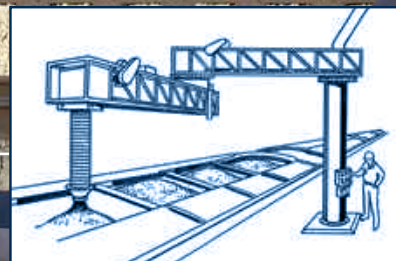
TRUCK



RAIL



BARGE



REDUCES LOAD TIME — FLEXIBLE • RELIABLE • ECONOMICAL

THE FAST, VERSATILE, ECONOMICAL WAY TO LOAD RAIL CARS, TRUCKS & BARGES

DYNATEK ARTICULATED LOADING SYSTEMS

Rugged, versatile dry bulk material loaders that will save you time and money!

- Railcar Loading
- Truck Loading
- Barge Loading

Cost effective loading depends on delivering product to very specific hatch locations and loading points in the transport vehicle quickly and easily. That's why DYNATEK's Articulated Loading Conveyors have been selected time and time again by plant owners and engineering companies for rail, truck and barge loading applications in the power generation, chemical, biofuels, plastics, food and grain industries.

DYNATEK's EconoLoader is built for tough duty.

Built for reliability and ease of operation by a single person, DYNATEK's EconoLoader efficiently and cleanly loads a wide variety of materials in the most demanding environments. Designed for a lifetime of trouble-free duty, our proven equipment is the result of decades of experience and can be custom tailored for your specific needs by our skilled engineers.

DYNATEK's EconoLoader is versatile.

The EconoLoader will reduce or eliminate the need to move the rail car, truck or barge during the loading process by allowing the loading conveyor and discharge spout to move instead. With nearly 330 degrees of remotely controlled powered rotation and up to a 30 foot reach radius, EconoLoader can be horizontally and vertically positioned quickly and accurately over each loading hatch as needed. Choose from screw, belt, drag, air slide or pneumatic conveying solutions designed to move the products and volumes you require in record time.

DYNATEK's EconoLoader will save you money!

We challenge other material-handling manufacturers to beat the purchase price, efficient installation, cost of operation, and after sales support associated with every DYNATEK EconoLoader Conveying System. EconoLoader is practically maintenance free and delivers superior, versatile and proven articulated loading day in and day out. Years of application-proven dry bulk material handling expertise assures you that DYNATEK's EconoLoader is optimally designed meet your loading needs while saving you time and money.



Single operator pendant control



Built tough for lifelong service



Installed in as little as two days



Efficient and versatile

Time proven technology combined with today's advancements.

Applications have evolved over the years, yet the functional design, combining articulated arms with conventional conveying methods, continues to stand the test of time. DYNATEK has taken this timeless concept and applied today's advancements in technology and automation to offer unique solutions for your loading applications. The innovative spirit and standard of excellence inherent in our founder, George Manierre, lives on and is fostered in the culture of our organization and every EconoLoader we design and build today.

Engineering capabilities.

Each EconoLoader is engineered to meet the optimal needs of your application. Structural design, method of conveying, conveying capacities, wind load, and site parameters are all carefully considered when designing a bulk loading installation.

You can rely on an outstanding level of applications expertise and engineering know-how behind all DYNATEK products. DYNATEK engineers provide fast and efficient designs and layouts using state-of-the-art CAD systems. Finite element analysis is used as required to assure maximum strength at all stress points for sound, strong, trouble-free operation. Stress analysis techniques combined with classical engineering mechanics assure a sound and safe loading system.

Power-driven arms.

Positioning the conveying arms of the EconoLoader is done using slewing rings which are externally gear-driven using pinion gears and cyclo-drive gearmotors. This configuration provides accurate, positive positioning of the loading conveyor discharge, while virtually assuring no damage is caused to the drive mechanism if inadvertently forced by hand or other manual means. All DYNATEK bulk loaders are fully assembled and factory tested prior to shipment. Additionally, our customers are encouraged to visit our plant to inspect and operate their new loading system prior to delivery.

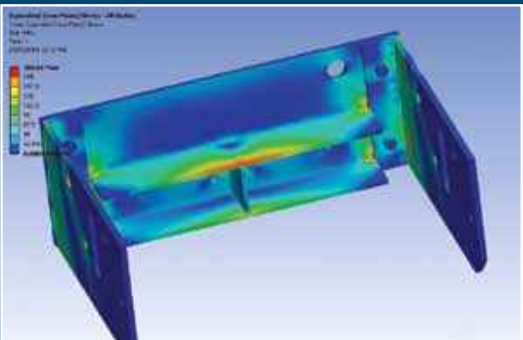
Mounting.

The EconoLoader can be mounted on a post, platform or haunch. We can work with your existing structure, propose a standard solution or adapt the mounting to your individual specifications.

Best of all, DYNATEK will have your EconoLoader up and running in as little as two days! Our material handling design experience, coupled with modern facilities and manufacturing techniques, plus in-stock materials and components, allows for rapid fabrication and delivery. Once on-site, DYNATEK's installation experts will support your personnel to ensure fast and easy installation - two days or less.



Tilting arm



Finite element analysis



Slewing bearing, pinion gear and cyclo-drive gearmotor



Post, platform or haunch mount (haunch mount shown)

EQUIPMENT FEATURES & OPTIONS

Choose from these conveying methods:

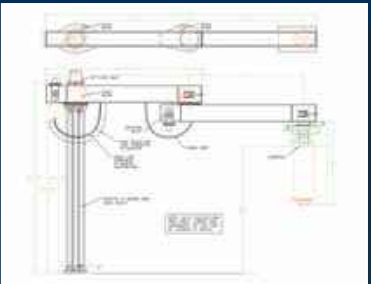
- Screw
- Belt
- Airslide
- Drag
- Pneumatic



Screw conveying



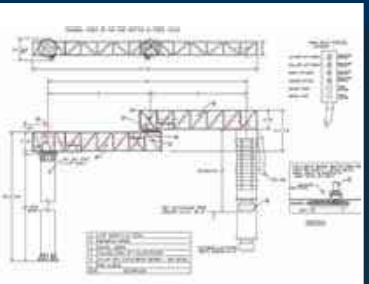
Belt conveying



Airslide conveying



Drag conveying



Pneumatic conveying

Articulated Conveyor Motion:

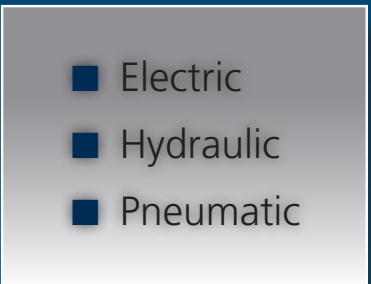
- Primary arm - 330 degrees of left / right rotation
- Loading arm - 330 degrees of left / right rotation
- Drive power versatility



Primary arm pivot



Loading arm pivot



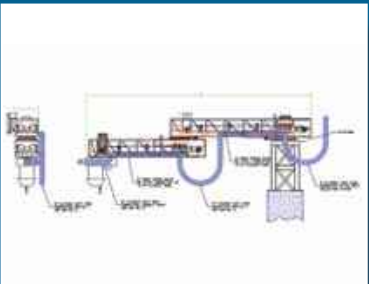
Drive choices

Mounting Options:

- Post
- Platform
- Haunch



Post mount



Platform mount



Haunch mount

Options include:

- Retractable loading spout with dust recovery
- Vertical positioning of discharge arm
- Service mezzanines
- Special control & control enclosure configurations
- Special purpose loader designs



Retractable loading spout with dust collection



Vertical positioning of discharge arm



Trolley-powered truck loader



Post-mounted drag conveyor loader for DDGS

STANDARD FEATURES

Controls.

DYNATEK is equipped to provide the motor control panel as well. The panel provides complete control of your bulk loader operations and can be interfaced with existing in-feed conveyors. The panel can be located wherever desired at time of installation. All panels house motor starters, control voltage transformers, fused motor controls and disconnects, and wiring terminal blocks. A programmable logic controller (PLC) and custom programming can be added to provide more comprehensive control of the material supply system and the bulk loading process.

Your DYNATEK bulk loader is operated using a NEMA 4 hand-held pendant control. The operator drives the bulk loader to the loading point, lowers the loading spout down to the vehicle, and starts the bulk loader and infeed conveyors. Optionally, control can be provided from either the hand-held pendant or from controls on the control panel door.

Dust recovery load-out.

Dust-free bulk products can be discharged straight from the EconoLoader outlet into the transport vehicle being loaded. For dusty materials, DYNATEK EconoLoaders are compatible with all types of retractable and dust recovery load-out spouts. When equipped with optional raise/lower drives, loading spouts can be provided that give you 3 to 60 feet of vertical travel.



Control panel



Dust recovery



Accurate positioning

Standard features for DYNATEK EconoLoaders include:

- Single person, pendant-based loading control
- Heavy duty structural frame construction
- Screw, belt, drag, air slide or pneumatic conveying solutions
- Loading rates of up to 25,000 cubic feet per hour
- Up to 30 ft. of reach radius
- Powered articulation at both pivot points
- Cyclo-drive type gear motors and pinion gear drives
- Slewing bearings with capacities between 80,000 and 443,000 ft-lbs (application dependent)
- Conveyor rotation speeds from 1/2 to 1 RPM
- NEMA 4 junction boxes, control enclosures and control pendants
- White metal sand blast with epoxy gray primer and polyurethane final coat

Experienced and Tested

Over the years, DYNATEK has provided a myriad of unique loading solutions to customers like BASF, Amoco Chemicals, Akzo Nobel, Dupont, General Mills, Valero and Nucor Steel. So challenge us with your unique or difficult bulk loading requirements and find out why DYNATEK is your best choice for articulated loading conveyors.

Remote control option

Safe, accurate vertical arm adjustment allows desired feed rates to a variety of loadout points.

Powered arm articulation

Nearly 330 degrees of arm rotation for easy pinpoint loading.

Available in screw, drag, belt or airslide conveying

to best load your particular product at the volume you require.

Vertical positioning available

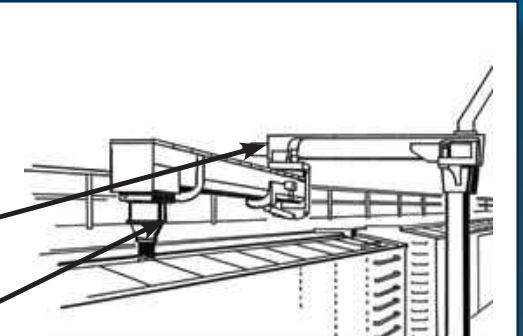
For accurate location of finished load-out point.

Dust collection/load-out spout option

Easily mounted to the loader.



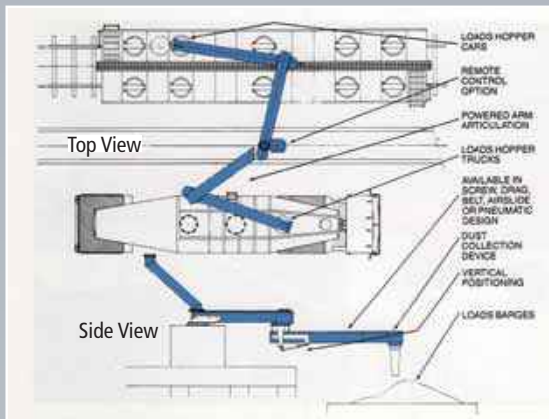
Truck



Rail



Barge



Load rail cars and trucks with the same loader



Dual bay rail car and truck loading terminal



DYNATEK headquarters & manufacturing facility, North Prairie, WI USA



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