

BELT CONVEYORS

Optimal solution to connect mine site to beneficiation plant



Fakoor Meghnatis Spadana Co.

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GENERAL DESCRIPTION

Fakoor Meghnatis Spadana Co. (FMS) is comprised of a number of specialized and highly motivated groups which embarked on designing and manufacturing of magnetic and material handling equipment since 1992. Having engaged efficiently over two decades in designing and manufacturing of magnetic and vibrating equipment, FMS has been in close cooperation with various mines and industries nationwide. Considering experiences of Fakoor San'at Tehran Co. (FST), and enjoying specialized and qualified groups in design, quality control, planning, manufacturing, R&D, and extensive after-sales services, FMS has acted successfully in providing beneficiation facilities as well as iron ore concentrate essential equipment. Considering the mission of FMS in designing and supplying suitable equipment for industry and mining fields, this company has been involved in optimization of designing and manufacturing structures of material handling lines since 2016 and has achieved a great success in optimizing the design and production methods by creating innovations. Nowadays, by developing complete engineering, machining, fabrication, and manufacturing departments to design and manufacture customized conveyor project, we have been the Iranian leading manufacturer of high-strength conveyor belts to meet demanding conditions of use.



BELT CONVEYORS

Material handling is one of the major processes in factories and production lines. Among all material handling methods, belt conveyors are the most commonly used in transportation of bulk materials due to such inherent advantages as their economy, reliability and practically unlimited range of capacity.

Material handling equipment, despite the fact that, at first glance, is not considered as the main equipment of high-tech manufacturing process, plays a main roll in production process, and any form of damage to its operation results in heavy financial losses. So, it is necessary to apply cutting-edge technologies in designing and constructing processes. Our company is one of the leading specialist for constructing and producing conveyor belts of all types. Our conveyor belts are supplied in various types, textile insert and steel cord, and although most common belt widths are between 650 and 2000 mm, smaller and wider belt widths are also available depending on material and conveying capacity.

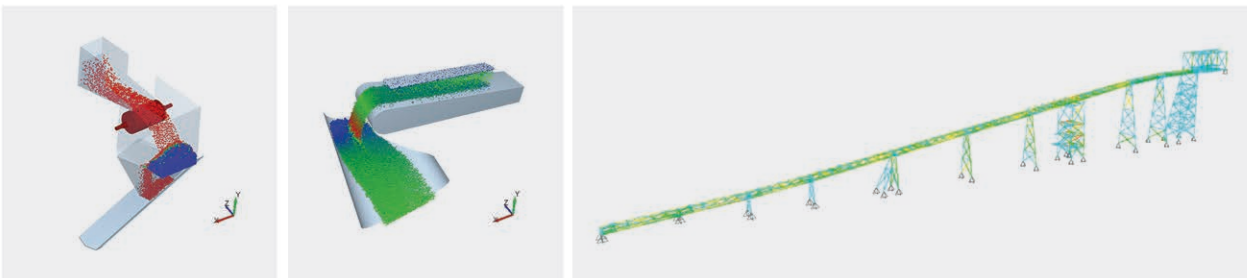
All conveyors' components such as drive units, rollers and pulleys are supplied and manufactured to handle the toughest applications and work environments, while maintaining high levels. Dust emission and spillage from conveyors are two major concern to many operations. Our conveyors are designed to eliminate these problems using high quality belt scrapers, robust skirt mountings and rubber skirting as well as properly engineered feed and encapsulated discharge chute work. Various types of sealing and belt cleaning systems can also be utilized in our customized conveyors lines.

Our covers of conveyors are produced with a special design for considerably lower weight and higher production rate in comparison with conventional ones. Furthermore, they have the advantage of easier erection and maintenance process. These conveyor covers can be manufactured in all conveyor widths and fitted easily to existing conveyor structures. Continuous production line is used for manufacturing conveyor parts which equipped with special machineries such as automated laser cutting and automated press brake. As a result, our belt conveyors are produced with high accuracy and minimum production time.

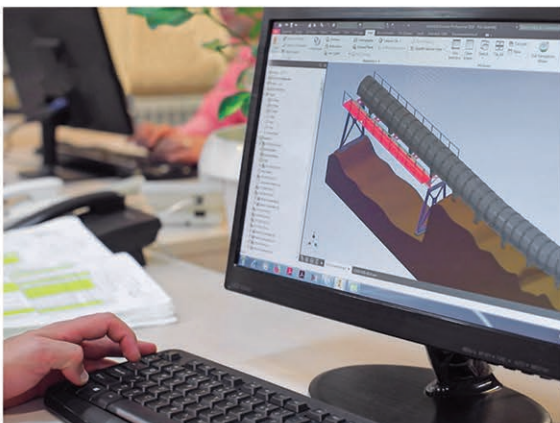
ENGINEERING

Our material handling team consists of mechanical, electrical, structural, mining and control engineers. This team turns us to one of the most reliable source of designing and manufacturing of handling systems.

All conveyor parts will be fully analyzed and optimized by state-of-the-art technical methods in our design department. These methods embrace finite elements methods for static and dynamic analysis and discrete elements methods for dynamically simulates application condition.



FMS design department experts are advising about detailed matters during the planning of conveyor belt systems. They thus contribute to ensuring that the belt complies with the operating conditions, that the belts technological aspects are considered, and that a customized belt construction is achieved for use.



Our design and analyses are done base on the following codes and standards:

- CEMA Universal 7th Edition
- ISO 5049: Mobile Equipment for Continues Handling of Bulk Material
- AWS D1.1: Structural Welding Code
- ACI 318: Building Code Requirements for Structural Concrete and Commentary
- MSHA: Mining Safety and Health Administration
- AISC: Manual of Steel Construction
- NFPA70: National Electrical Code
- DIN for General Parts Design

All kind of conveyor solution for every challenging situation

- Reversible Conveyor
- Vertical Belt Conveyor
- Shuttle Conveyor
- Bucket Elevator
- Tripper Conveyor
- Screw Conveyor

FMS CONVEYOR'S COMPONENTS

FRAMES

FMS conveyor frames are designed in various types to meet our valuable customer's needs

Truss Frame

Heavy-duty box truss frames are utilized when long spans are required between support points. In addition to span length, other load factors such as wind, snow, etc., are accounted for in proper truss selection.



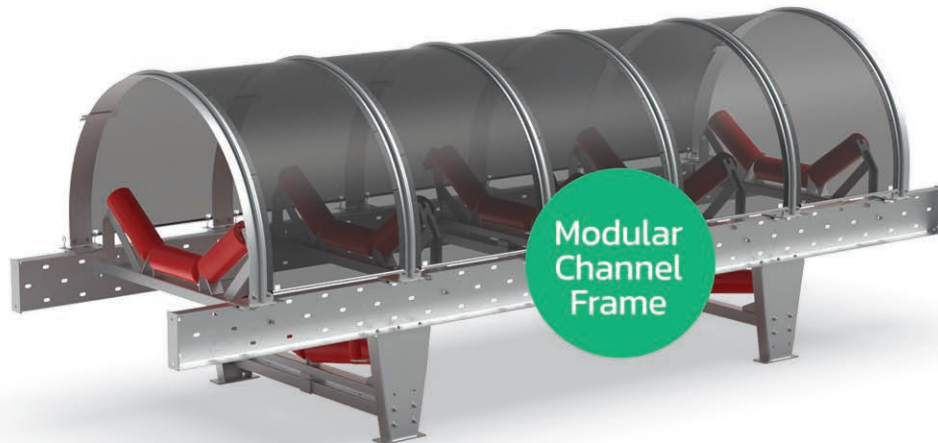
Channel Frame

The channel frame is typically utilized for conveyors that do not require long spans between supports. They are also often used when located close to ground, thus not requiring a cantilevered walkway. In these frames instead of using profiles with standard sections, all elements are formed by bended plates and bolt fasteners are used for connecting them.



Modular Channel Frame

FMS modular channel frames are made up of standard modules with lengths of 6 meters, 3 meters and 1 meter. In these modules, instead of using profiles with standard sections, all elements are formed by bended plates and bolt fasteners are used for connecting them instead of welding. Eliminating the drilling and deburring operations. Because of being bolted the modules' elements and painted separately, all of the modules' surfaces can be galvanized and as a result the quality and lifetime of frames could be increased accordingly. There are many holes on each module so auxiliary elements such as rain covers, electrical elements stand and eyebolts can be installed easily without extra cutting and welding at site even during conveyor operation.



Combination of Truss Frame and Channel Frame with Aligning Ability

In the lines designed by FMS, the combination of Channel Frame and truss frame is used to achieve structures with larger spans for easy and fast construction as well as eliminating the fracture angle in air frames. Due to this innovative design, it is possible to adjust the height of the frames and as a result, it is easier to adjust the rollers and also reduce the height of the frames, which makes it easier to build and carry the conveyor's parts.



- Hoppers, Bins & Silos
- Gates
- Transfer Towers
- Dust Collection
- Guards
- Mechanical or Gravity Take-up
- Concave or Convex Path
- Structural Platforms
- Walkways & Service Platforms
- Belt Cleaners/Scrapers
- Rain Covers
- Loading Skirt boards
- Transfer Chutes, Inspection Doors, Deflector Plate
- All Electrical & Control Equipment
Such as (Local Panel, Field Instruments, ...)
- Gallery Enclosure

FEATURES

Optimum designing

Each section and part are designed precisely based on their calculated safety factors. So over-designing can be prevented and optimal design of components can be developed.

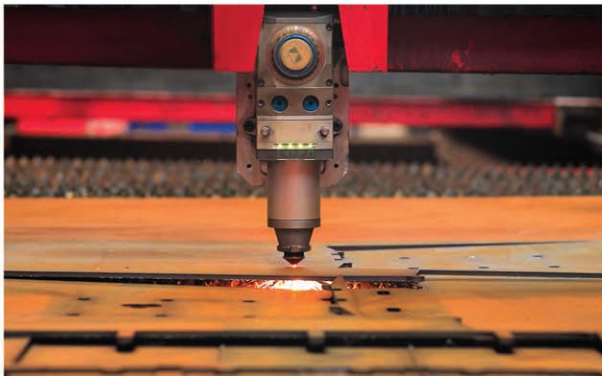
Reliability Increase

Using the automated precise CNC machineries in our continuous production line will lead to produce more reliable products. Likewise, frame's modules are made from high qualified plates, instead of conventional standard profiles and making use of bolting fasteners considerably reduces welding operations. Having considered all, the better mechanical properties and more reliability of FMS frames, in comparison with the conventional ones, will be firmly ensured.

Frames Weight Reduction

In view of the ability to design an optimal frame, as mentioned above, the FMS weight of conveyors' frames are reduced about 30 % to 50 % in comparison with conventional types.

As a result, in addition to material cost reduction, the costs of manufacturing, shipment and erection are also reduced. Likewise, the towers and relative structures and foundations are down-sized.



Production Time Reduction

Due to the following reason, FMS frames' production time is reduced by approximately 70 % comparing to conventional ones.

- Standardizing and uniformity of all frame modules
- Reducing shop drawing process
- Using high speed cutting and bending CNC machines
- Faster quality control Process
- Reducing welding process and welding inspection

Erection Cost and Time Reduction

Modularity and uniformity of frame's parts decrease the erection time. Also, they reduce the erection cost due to the reduced weight of the parts and enabling us to use smaller cranes. Faster storage, easily identifying the parts and eliminating touch up operation are the other reasons of erection cost and time reduction. According to our experiences, more than 100 meters conveyor frames could be erected easily by just 6 technicians.



Increase of Shipment Capacity

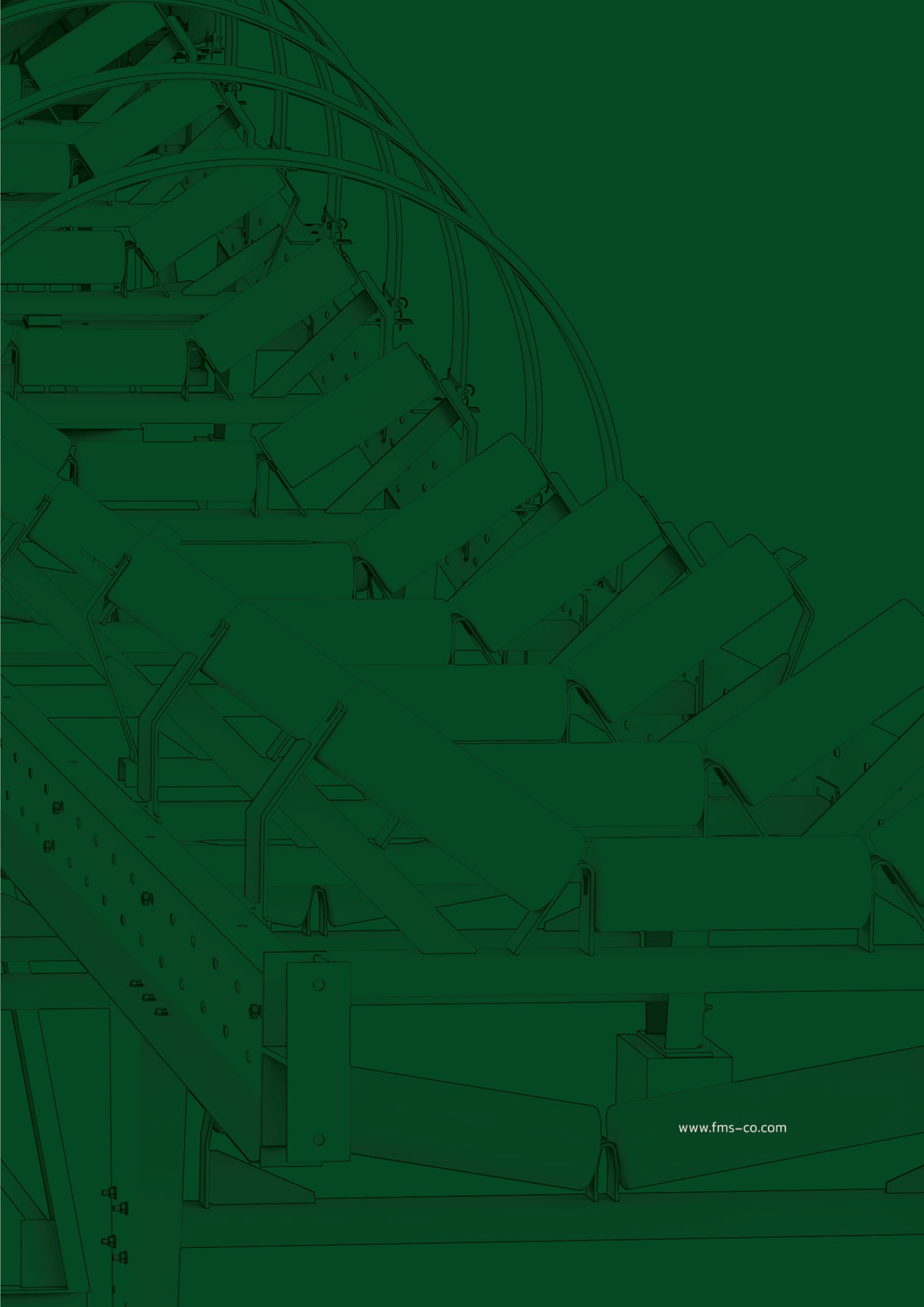
Since all of the modules' elements are transported separately and could be packed compactly, the Shipment capacity would be increased about 100% comparing with the conventional ones. Therefore, loading and unloading speed, transporting cost and unloading cost decrease significantly.



Easy installation

Utilizing up-to-date knowledge, optimal design, superior manufacturing technology and the use of precision machineries including CNC laser cutting, CNC plasma cutting, CNC bending etc ... has produced a high quality product that is easy to install.





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FMS Bldg., No. 12, Khabarnegar Alley, Sarafraz St., Beheshti Ave., Tehran – IRAN

 www.fms-co.com  info@fms-co.com  +98 21 91 21 22 33