Kawasaki
Powering your potential

FLOW DYNAMICS CONVEYOR

Air Floating Belt Conveyor

A SUSTAINABLE APPROACH

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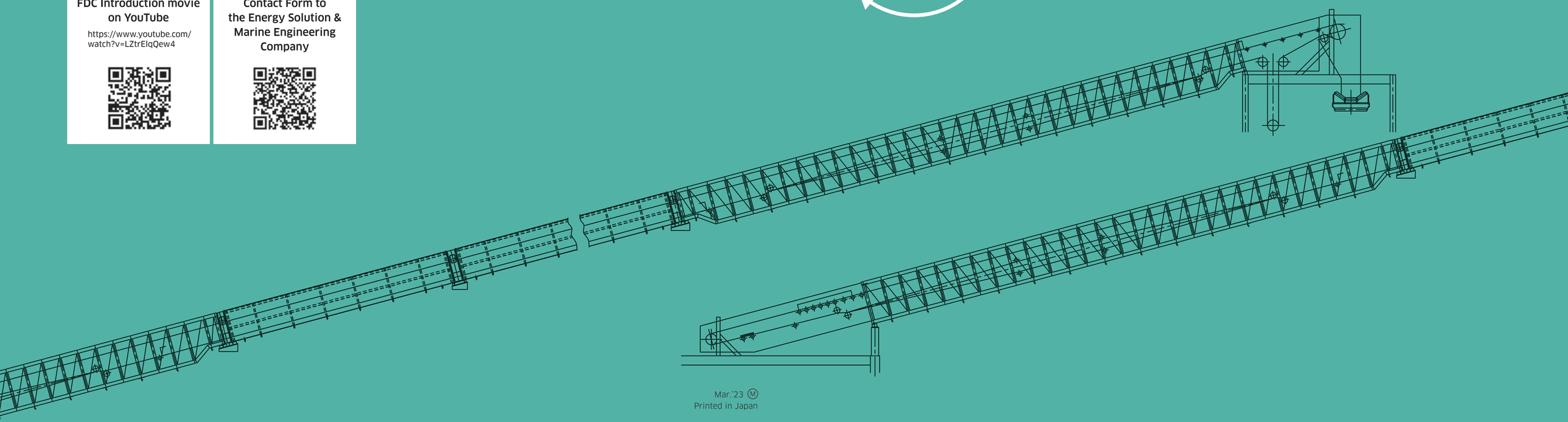
FDC Introduction movie on YouTube
https://www.youtube.com/watch?v=LZtrElqQew4

Contact Form to the Energy Solution & Marine Engineering Company



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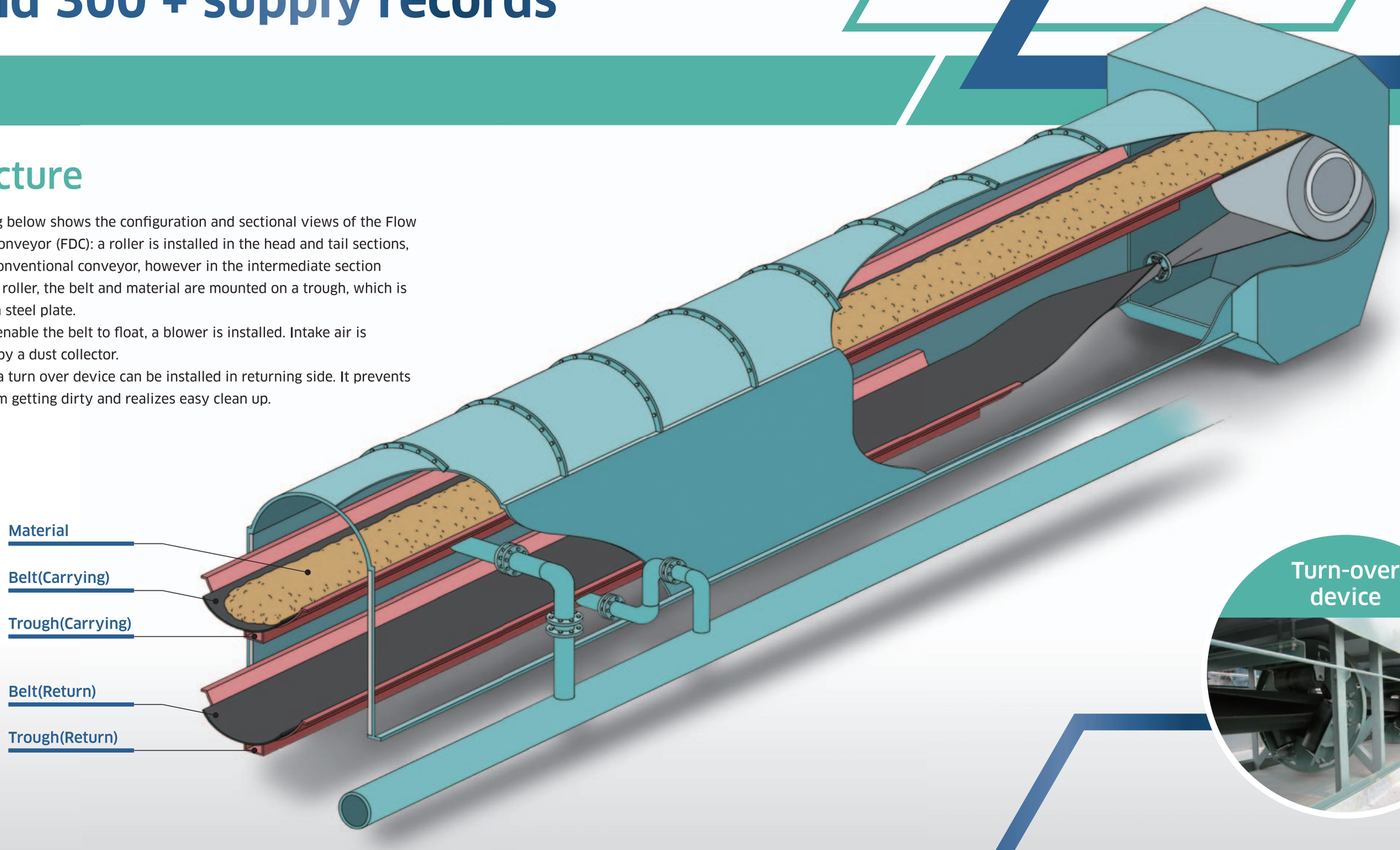
Printed in Japan

With 25+ years experiences and 300 + supply records

Structure

The drawing below shows the configuration and sectional views of the Flow Dynamics Conveyor (FDC): a roller is installed in the head and tail sections, same as a conventional conveyor, however in the intermediate section instead of a roller, the belt and material are mounted on a trough, which is formed by a steel plate.
In order to enable the belt to float, a blower is installed. Intake air is discharged by a dust collector.
In addition a turn over device can be installed in returning side. It prevents the belt from getting dirty and realizes easy clean up.



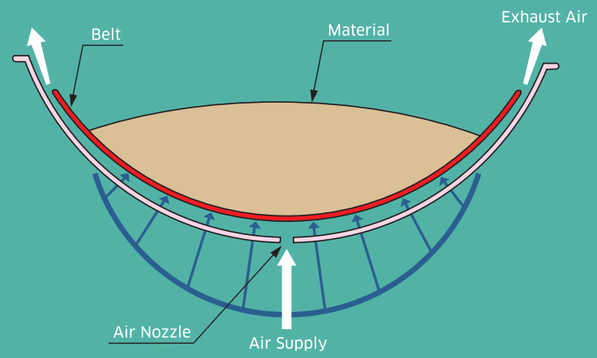
Turn-over device

An idlerless, high-speed belt conveyor system that uses air pressure to handle bulk materials in an enclosed system.

Main features

FDC is a totally enclosed system and an idelerless conveyor featuring an air floating belt that is especially environmentally friendly and energy-saving in its operation, including excellent low noise, low vibration and greatly reduced dust emission when compared to a conventional conveyor.

Principles of FDC

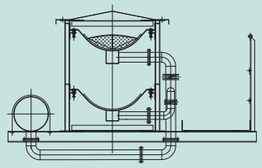
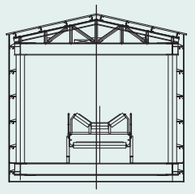
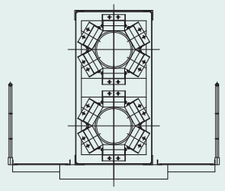


Air pressure, introduced from below and balanced with the load acting from above (the weight of the belt and the material), floats the belt in the manner of an air bearing.

Integral value of vertical components of air pressure = Load

FEATURES	EFFECTS
1 Closed Type	Safety-Conscious
2 Low Noise, Low Vibration	Friendly to Environment
3 High Speed	Reduction of Space & Capital Cost
4 Less Maintenance	Reduction in Operating Cost
5 Prefabrication	Short Construction Period

Comparison with Other Conventional Conveyors

Item	FDC	Conventional conveyor with gallery	Pipe Conveyor
Sectional View			
Structure			
(1) Intermediate Components			
Structure	Plate girder	Stringer frame	Arched frame
Idlers	Not required	Required	Required
Belts	Required	Required	Required
Galleries	Not required	Required	Not required
Anti-spillage plate	Not required	Required	Not required
Catwalk	One side	Both sides	Both sides
(2) Belt-floating fan	Required	Not required	Not required
(3) Belt/pulley widths	Small	Normal	Large
Maintenance			
Ideler replacing for intermediate parts	Not required	Required	Required
Cleaning	Not required	Required	Not required(reversible)
Environmental arrangement			
Soundproofing	Excellent	Good	Idler noise
Dustproofing	Excellent	Good	Good
Layout arrangement			
Curved	N/A	N/A	Adaptable
High speed	Possible	Limited	Limited
Sectional space	Small	Large	Medium
Appearance	Excellent	Normal	Normal

Variety of Conveyed Materials

Ash, Flux, Dry Mortar, Fly Ash, Blast Furnace Slag, Pet Coke, Wood Chip, Blast Furnace Dust, Fine Ore, Iron Ore, Coal, Nickel Ore, Urea, Limestone, Caustic Lime, Ammonium, Gypsum, Chip Tire, Sulphate, Alloy Steel, Refuse Paper/ Plastic Fuel(RPF) etc

Location	Coal-fired power station, Korea
Use	Receiving & discharge line
Material	Coal
Capacity (t/h)	5,280
Length	349/347 (2 lines)
Speed (m/min)	300
Belt width (mm)	1,800
Completed	2008

Location	Coal-fired power station, Japan
Use	Discharge line
Material	Wet Ash
Capacity (t/h)	800
Length	550/458/250 (3 lines)
Speed (m/min)	260
Belt width (mm)	800
Completed	2013

Location	Ironworks, Japan
Use	Discharging line to shiploading line
Material	Blast furnace slag
Capacity (t/h)	800
Length	226/262/401/458 (4 lines)
Speed (m/min)	185
Belt width (mm)	800
Completed	2016

Location	Coal-fired power station, Taiwan
Use	Discharge line
Material	Coal
Capacity (t/h)	4,400/2,200
Length	988×2/460×2/448 ×2 (6 lines)
Speed (m/min)	300/270
Belt width (mm)	1,600/1,200
Completed	2016

Location	Coal-fired power station, Korea
Use	Shiploading line
Material	Dry Ash
Capacity (t/h)	550
Length	380/159/149/138/133/86/77/74 (8 lines)
Speed (m/min)	250
Belt width (mm)	800
Completed	2008

Location	Oil refinery plant, Italy
Use	Discharge line
Material	Pet coke
Capacity (t/h)	400
Length	155
Speed (m/min)	250
Belt width (mm)	650
Completed	2007

Location	Cement plant, Korea
Use	Discharge line
Material	Limestone
Capacity (t/h)	2,000
Length	1,198/981/817/453 (4 lines)
Speed (m/min)	280
Belt width (mm)	1,000
Completed	2010

Location	Ironworks, China
Use	Charging line
Material	Coal
Capacity (t/h)	700
Length	428
Speed (m/min)	240
Belt width (mm)	800
Completed	2018