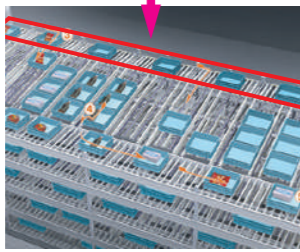


Storage diverter

170mm height from the bottom to the conveyor surface allows building the multi-layer line.

No pneumatic
Easy compact design

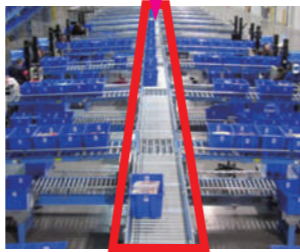
Flat-Right Angle Transfer (F-RAT)



Sorter (Sorting device)

Achieves high-speed sorting with roller conveyors.

Flat-Right Angle Transfer (F-RAT)



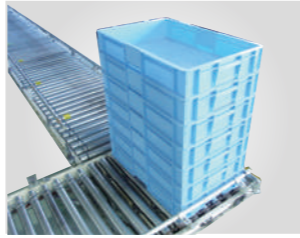
Gentle transfer of fragile goods

Smooth and safe transfer without pop up movement.

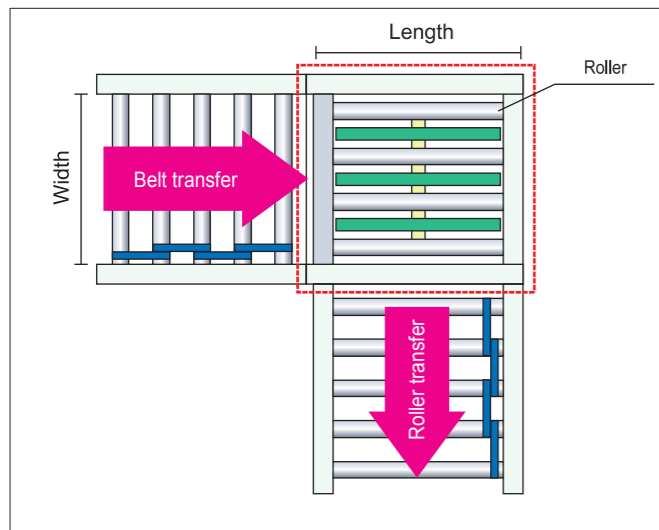


Divert of stacked empty trays

Stable divert of highly stacked trays.



Product specifications



Roller diameter	φ 50 mm (2.0")
Overall width	379 mm (14.9"), 497 mm (19.6") 597 mm (23.5"), 697 mm (27.4")
Overall length	758 mm (29.8")
Height	170 mm (6.7")
Belt / Roller transfer speed	17 . 60 . 90 m / min*
Belt / Roller switch stroke	10 mm (0.4")

※The speed changes can be done on depending on the sorting capacity.
Consult us for more information.

Technology for tomorrow



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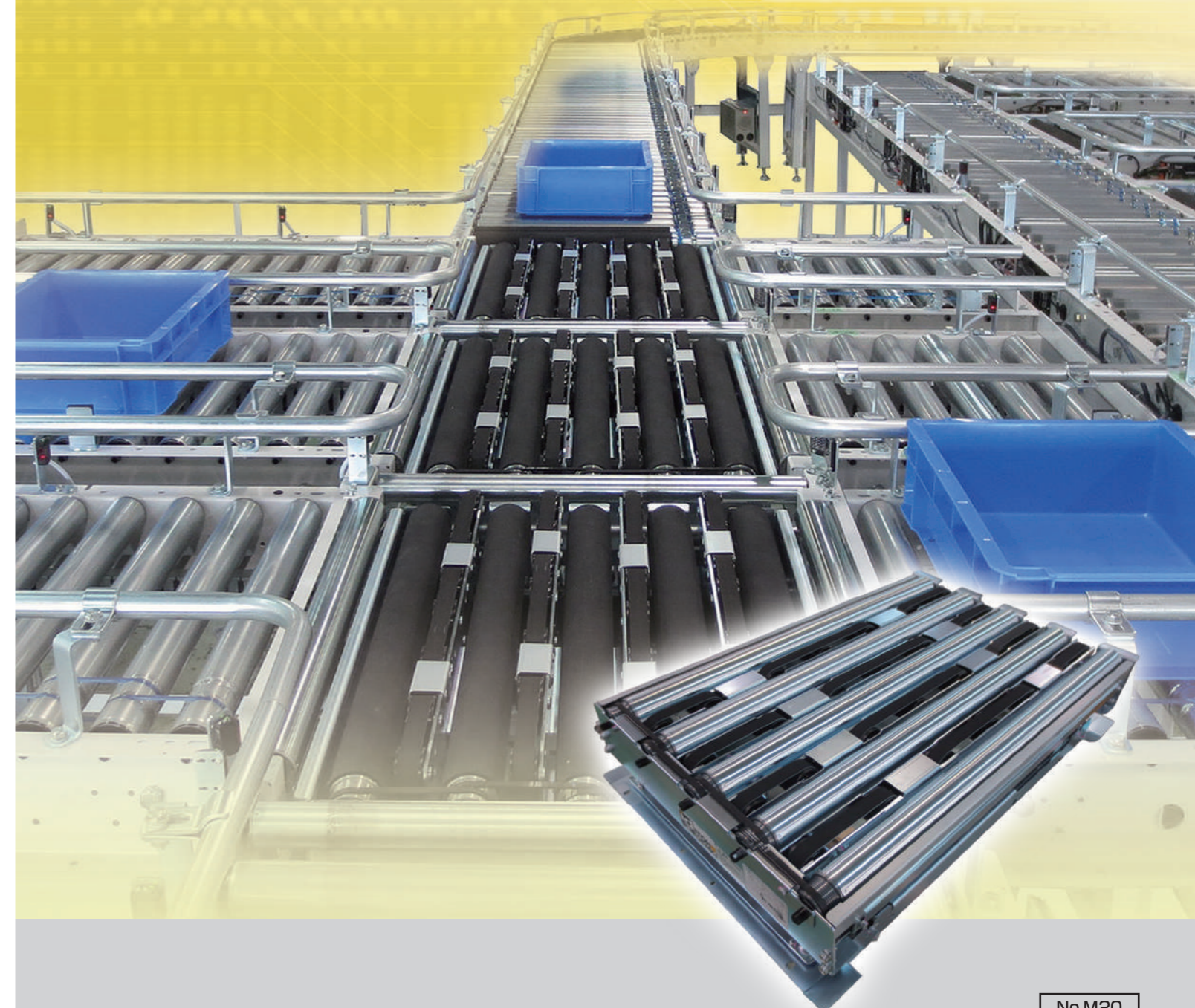
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F-RAT-S300

Flat-Right Angle Transfer

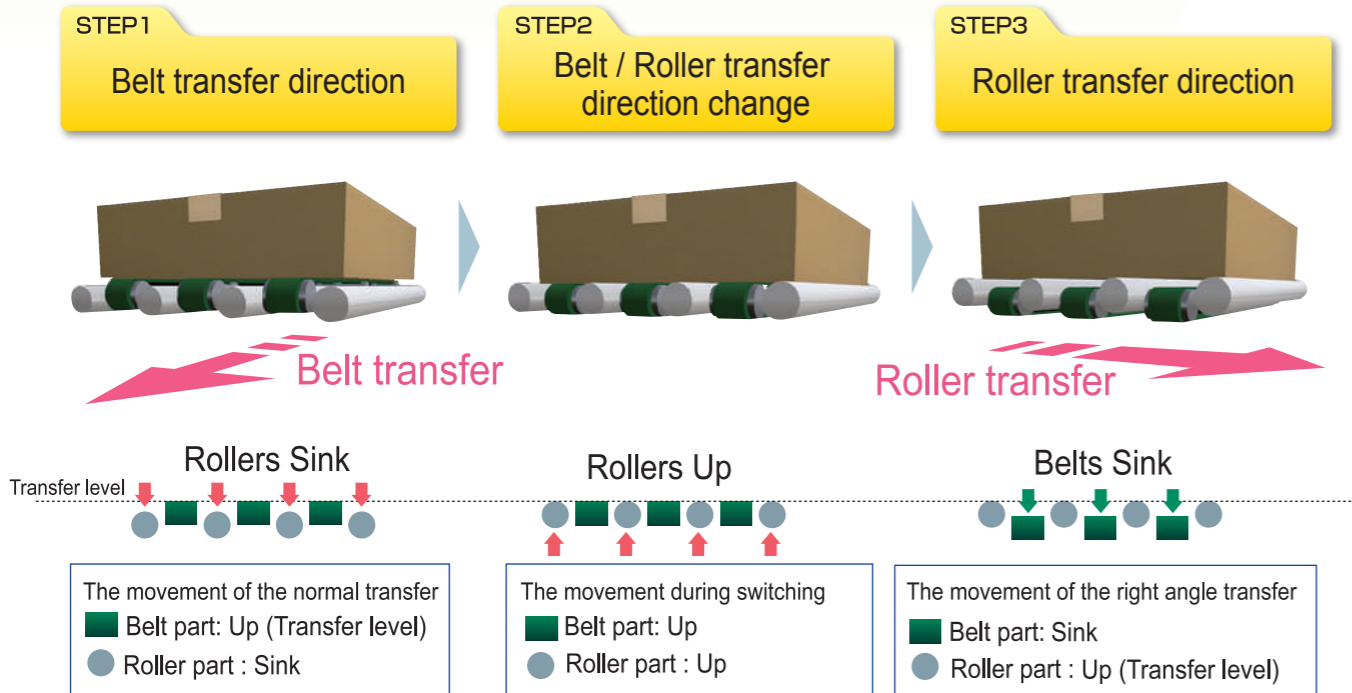


Flat-Right Angle Transfer that can transfer products without changing the conveying level.

F-RAT-S300

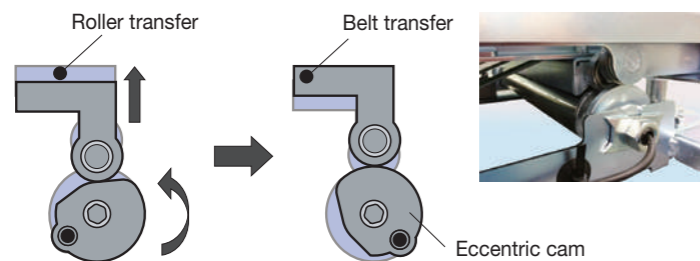
Flat-Right Angle Transfer

Transfer movement

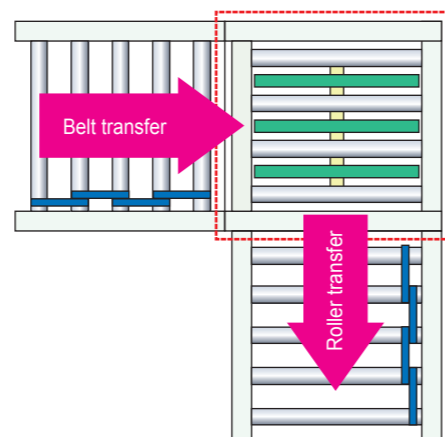


Direction change by cam drive

※ Roller or Belt transfer switching is done by eccentric cam rotation.



Transfer Direction



Advantages of using F-RAT

1. Energy Saving

"Run-On-Demand" operation of F-RAT and its unique design using no pneumatic saves energy.

3. Space Saving

Low profile (170mm from the bottom to the conveyor surface) design allows various applications, such as low floor line, the multi-layer line, and conveyance of stacked products, etc...



5. Easy Installation / Wiring

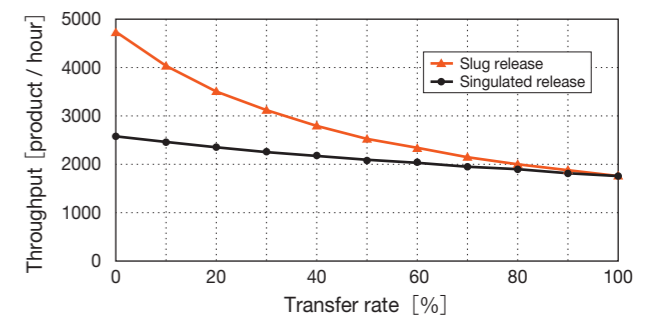
Eliminates the need of the level adjustment with the adjacent conveyors, thanks to unique design transferring products without changing the conveying level. Plug & play simplified wiring.

Throughput

● Conditions:

F-RAT : Size B : 758mm (29.8") × 497mm (19.6")
 Article : Carton box 350mm wide x 405mm long, 30kg

Throughput may vary depending on accumulation conditions in upstream zone of F-RAT.



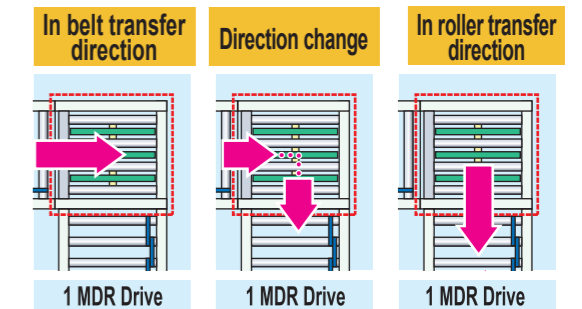
※ The throughput in the graph is only for reference, not guaranteed performance.
 ※ Stopping distance of the product and transfer throughput varies depending on product size, its materials and transfer speed.

2. Creating Comfortable Environment

24V DC operation with no pneumatic creates comfortable environment. (Silent and less vibration)

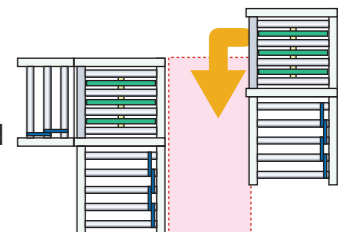
4. Simple Structure

Simple structure using only three MDRs. (Motor-Driven Roller)



6. Expandable

Easy to expand the line because one module performs both straight forwarding and diverting.



Quiet and Smooth diverting!

NEW

F-RAT



Flat-Right Angle Transfer U225 Type

- Transfer speed: 60m/min
- Max load weight: 50kg
- Load size: W225mm~×L225mm~

Under development. The specifications are subject to change without prior notice.

What is F-RAT?

Simple mechanical design having no pop up movement allows vibration or impact free right angle transfer of goods constantly on horizontal level.

No pneumatic

No air compressor required
All electric driven

Energy Saving

Deploys "Run-on-Demand" operation driving motors only when needed

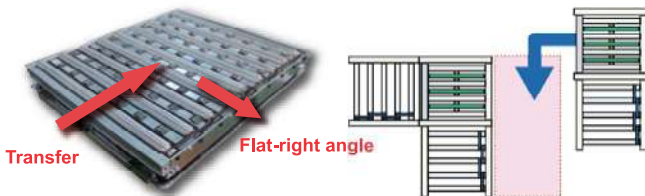
Ease of design

Simply combine with in feed and out feed conveyors to build systems. Facilitates control by dedicated controller

Simple structure

The low profile design allows building floor or multi level conveyor

Allows easy customization of line



- Easy to expand the line because one module performs both straight forwarding and diverting.
- Not only for new installation, but also for fitting into existing conveyors. Reduces cost for design and installation.

Transfers and diverts various sizes of items



75mm Roller pitch

• 75 mm roller center allows the handling of small articles. Both large and small items can be conveyed and diverted. No need to design conveyors depending on load size.

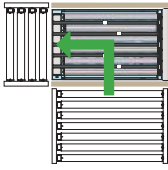


Different diverting scenarios

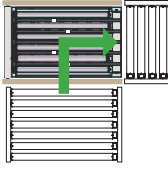
F-RAT is capable of transferring and diverting according to purposes.

■ Auto L-shaped mode (L/R)

[Divert to the left]



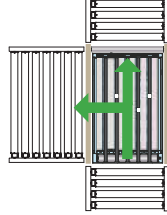
[Divert to the right]



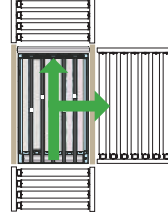
• Suitable for the application that transfers only to the right or left

■ Upper-level command / diverting mode

[Transfer to the left / straight]

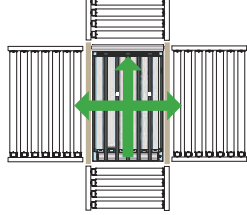


[Transfer to the right / straight]



• This mode allows both straight forwarding and diverting to either side
• Useful to divert non-conforming items

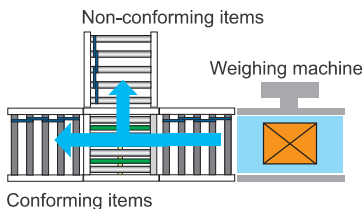
[Transfer to the left, right and straight]



• Possible to transfer all directions
• Capable of sorting out is accordance with process or destination

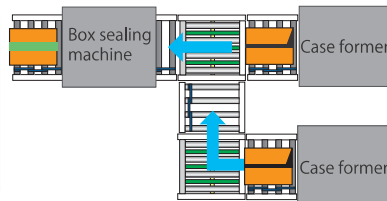
Applications

● Sort out after weighing



- The combining F-RAT with conveyor and weighing machine builds the system.

● Combination of case forming and box sealing machine



- The combination of case forming machine and box sealing machine systemizes a packaging line.

● Multi-layer conveyor line optimizes spaces

- Allows multi-layer conveyor design with minimum parts
- No pneumatic allows easy and compact design



● Sorter (Sorting device)

- Achieved high-speed sorting with roller conveyors
- Capable of sorting items by types, destinations, or purposes



● Gentle transfer of fragile goods

- Smooth and safe transfer without pop up movement
- Applicable to carry fragile products



● Divert of stacked empty trays without collapse

- Stable divert of highly stacked tray
- Easy to build low profile conveyor



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NEW

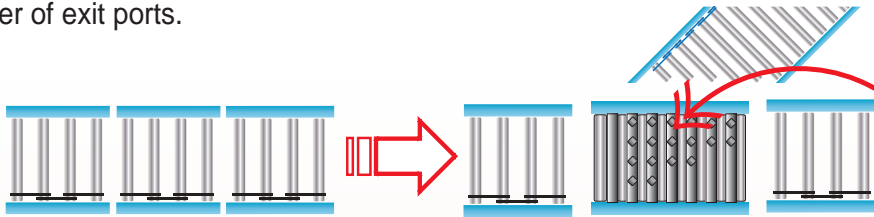
Pop-Up Diverter



Evolving new age of production and intralogistics
MDR Type Material Handling
ITOH DENKI's original technology combining its expertise in motor and control.

Ease of design × optimum cost × clean

Simplifies design: Just snap in the pop up diverter in the bridge between conveyors in accordance with required throughput and number of exit ports.



Modular design facilitates the installation without additional engineering.
Extremely low profile with no pneumatic structure creates clean, quiet environment.

Reduces the total cost of system deployment

«Diverting»



Scalable design meeting required throughput.

«Sorting»



Achieves sorting of multiple products by adding pop up diverters.

«Merging»



Achieves complex sorting by combining divert and merge applications.

«Multi-layer line»



Low profile design allows multi-layer lines.

POP-D- ① ② - ③ ④ - ⑤ ⑥

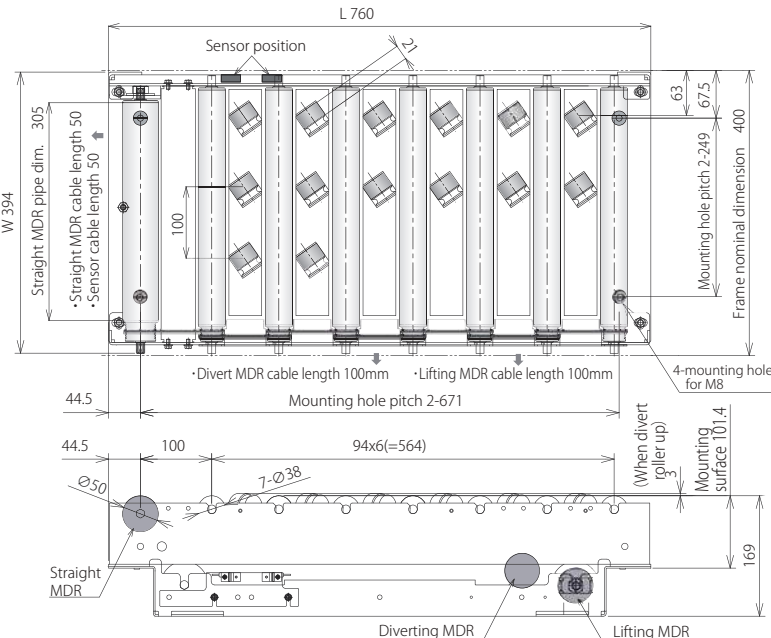
- ① Divert direction
L ... Divert left
R ... Divert right
- ② Divert angle
30D ... 30 degrees
45D ... 45 degrees
- ③ Speed(m/min)
60
- ④ Signal type selection
N ... NPN input/output *1
P ... PNP input/output *2
- ⑤ Size(mm)
A: 394mm wide x 760mm long
B: 494mm wide x 760mm long
C: 594mm wide x 760mm long
D: 694mm wide x 760mm long
- ⑥ Type
1

*1 NPN input/output driver card / up/down sensor included
*2 PNP input/output driver card / up/down sensor included

Load Size and Weight

Size	Min. size ~ Max. size	Max. Load Weight
A	W300 x L300mm ~ W300 x L650mm	30kg
B	W300 x L300mm ~ W400 x L650mm	
C	W300 x L300mm ~ W500 x L650mm	
D	W300 x L300mm ~ W600 x L650mm	

※Size and weight are for reference, as the load conditions vary
※Certain type of load may not be transferred properly depending on the bottom flatness.

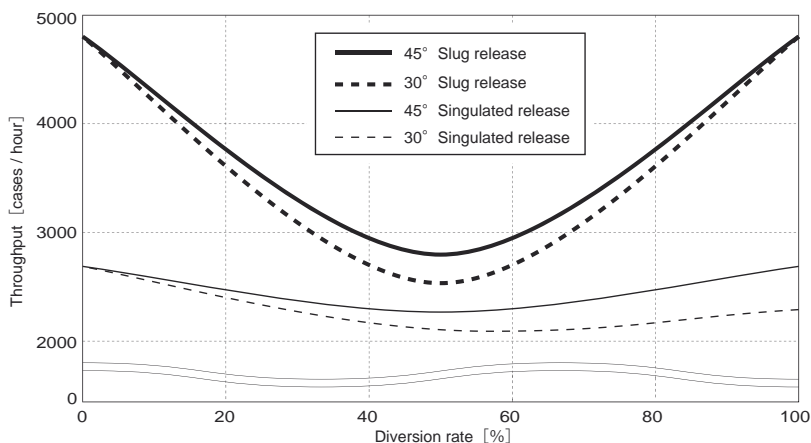


Standard accessories:

- Motor driver cards: 2 x CB 016 for MDR for straight transfer and divert
1 x CBR-306F for lifting MDR
- Proximity sensor detecting top and bottom end of wheels
- 4 sets of M8-20 bolt and M8 nut for mounting the pop up diverter and driver cards

Note: Dedicated stay to mount the pop up diverter to conveyor frame is optional.

Transfer Throughput



Operating conditions

- 60m/min transfer speed: Size D type
- 30kg corrugated board box 360mm wide x 360mm long
- Divert is done from the upstream conveyor, where multiple totes are accumulated.

※The data in the graph is for reference only and is not to guarantee.
※Slug release data is based on the control of up and downstream conveyors done by idLinX.
※Throughput may vary depending on load size, material, bottom flatness and transfer speed.

Specifications

Pop-up diverter unit specifications

Roller diameter	φ50mm	
Diverting roller	Size	φ39.5mm
	Material	Urethane 90SH
Size	Width(W)	394, 494, 594, 694mm
	Length (L) straight direction	760mm
Mechanism height	169mm (with diverting roller up : 172mm)	
Transfer speed	Straight	Approx 60m/min
	Diversion	Approx 90m/min
Lifting stroke	3mm	
Drive power	24VDC±10	
Ambient temperature	0 ~ 40°C (No freezing)	
Ambient humidity	< 90%RH (No condensation)	
Atmosphere	No corrosive gas	
Vibration	0.5G or below	
Installed location	Indoor	
Tilt of the mounting surface	5/1000 or below	
Lifting sensor	Current consumption	15mA or below
	Output	Maximum inrush current: 100mA Applied voltage: 30VDC or less (between output and 0V) Residual voltage: 2VDC or less (100mA inrush current)
(Roller btm sensor SN-S / Roller top sensor SN-R)	Output motion	ON when detecting the position
	Cable	Outer dia. φ 3mm 0.15m ² 3 wires

CB-016□6 / CBR-306F□ ※□=N (NPN in/out or P (PNP in/out)

Power voltage	24VDC±10%	
Rated voltage	24VDC	
Static current	0.03A	
Starting current	4.0A	
Wire dia.	Pwr connector (CN1)	0.50~1.5mm ² (AWG:20~14) Note
	Cntrl connector (CN2)	0.08~0.5mm ² (AWG:28~20) Note
Motor rotation from drive input	15msec or below	
Protection function	Miss-wiring protection / Integral 6.3A fuse	
Thermal protection	95°C for circuit board, 105°C for motor	
Current limit	4A	
Ambient temperature	0~40°C (No freezing)	
Ambient humidity	90%RH or below (No condensation)	
Atmosphere	No corrosive gas	
Vibration	0.5G or below	
Installed location	Indoor	

Note) Conforming wire to the included connectors

PCB side	Power connector	734-162 (WAGO)	(MAX:10A)
	Control connector	733-365 (WAGO)	(MAX: 4A)
Wiring side	Power conn. (CN1)	734-102 (WAGO)	(MAX:10A)
	Control conn. (CN2)	733-105 (WAGO)	(MAX: 4A)

Product Weight

Size	Weight
Size A	46kg
Size B	49kg
Size C	51kg
Size D	54kg



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短距離を賢く的確に 幅寄せモジュール

Aligner Module 过渡模块

NEW

■ 搬送物の位置決め、幅寄せが必要なラインに最適

Designed to align or position articles

最适合于输送物体位置确定, 需要过度的线体

■ ワークの大きさを判断するため、混在ワークが流れても自在に対応可能

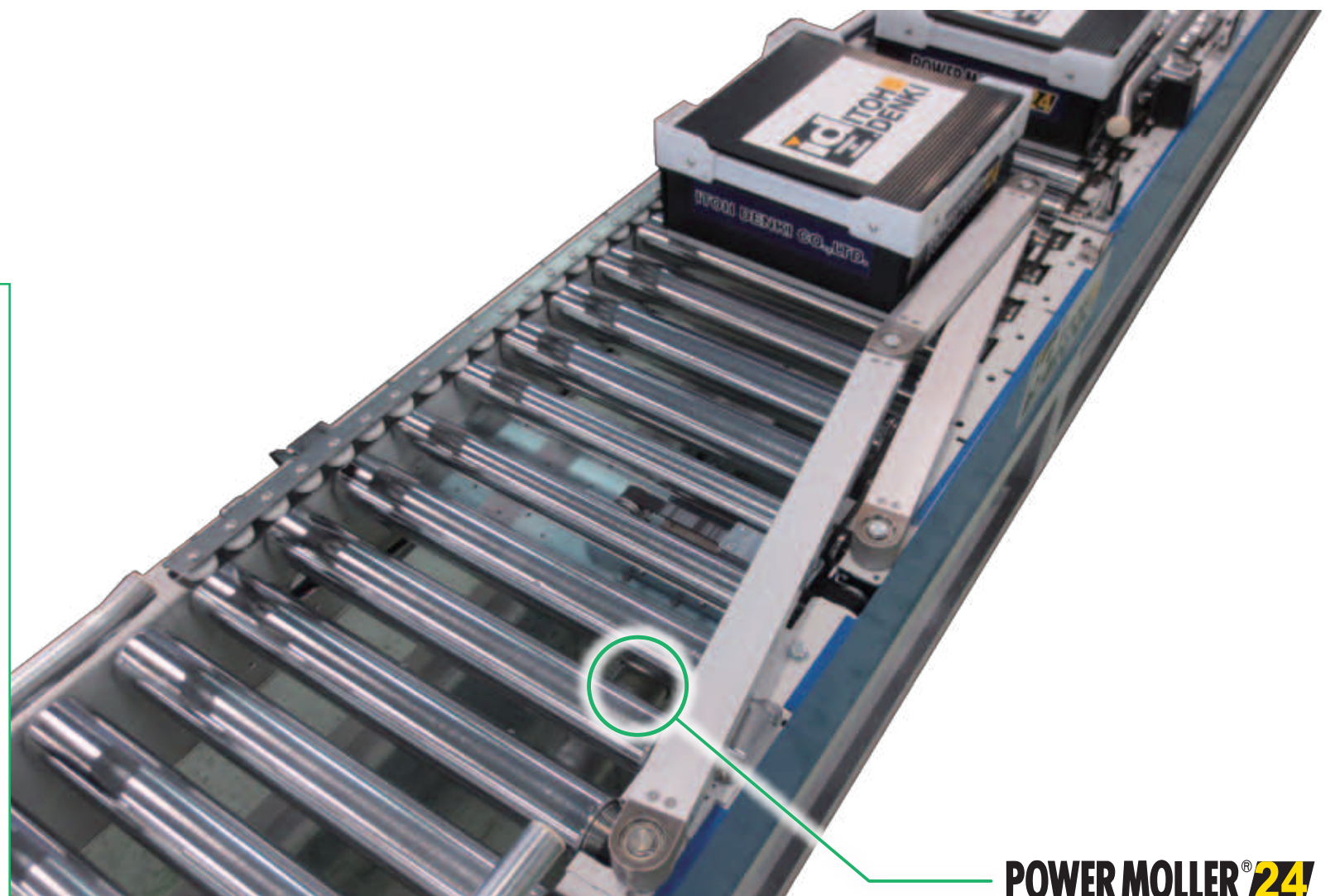
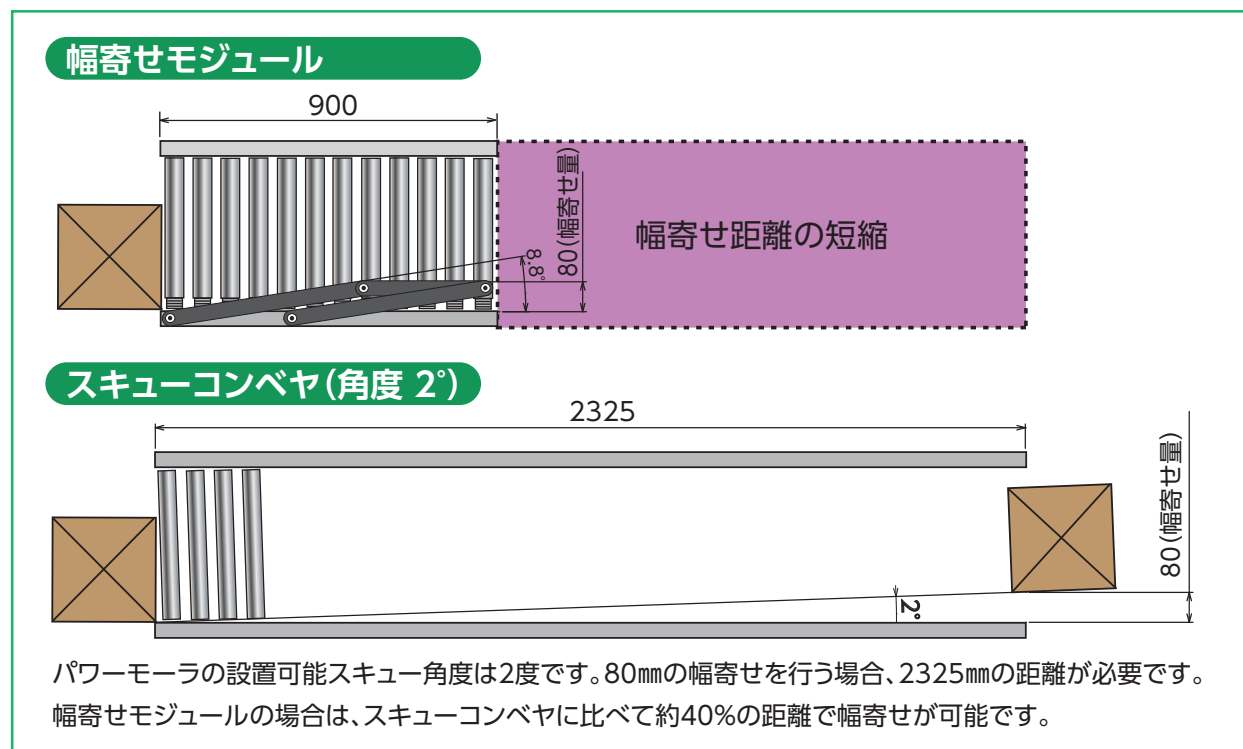
Flexibly handles different size of articles thanks to size identification capability

为判断箱体大小, 即使有混合箱体流过也能稳定对应

■ 短い距離で幅寄せ可能

Allows article aligning in short travel distance

可短距离过度



POWER MOLLER® 24

伸びるベルトで省エネ **ベルトコンベヤモジュール**

Belt Conveyor Module 皮带输送装置

NEW

■ ストレッチベルトを駆動することによりベルトテンション調整不要

No belt tensioning required by employing stretch belt

使用拉伸带驱动, 不需要调整皮带的张力

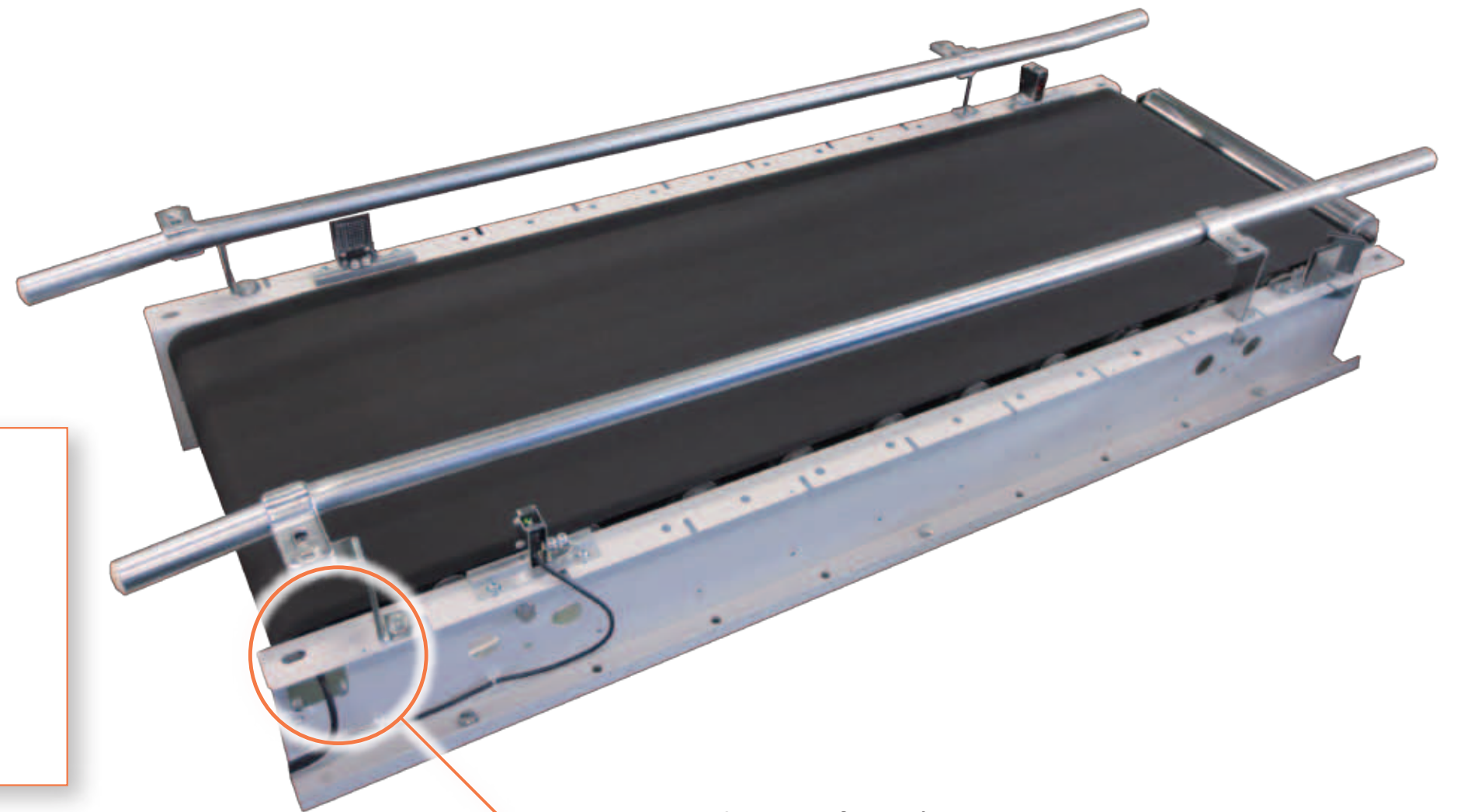
■ MDRを駆動源とする薄型ベルトコンベヤモジュール

MDR powered low profile conveyor

MDR为驱动源的薄型带式输送机模块

仕様

- 寸法: 1,250L×415W×51H
- 搬送速度: 45m/min
- 搬送可能重量: 30kg



POWER MOLLER® 24

発想の転換 ダブルレベルチェンジャー

Double Level Changer 往复式提升装置

NEW

■ 伊東電機独自の技術を駆使したMDR式レベルチェンジャー

MDR powered double level changer reflecting ITOH DENKI's cutting edge unique technology

利用伊东电机专利技术的MDR形式提升装置

■ 通路をまたぐライン等で活躍

Designed as deviator allowing human passage

被广泛用于跨越通道上

■ ソフトランディングシステム付き (リミットスイッチを使わない、伊東電機独自の停止システム)

Integral soft stop control technology

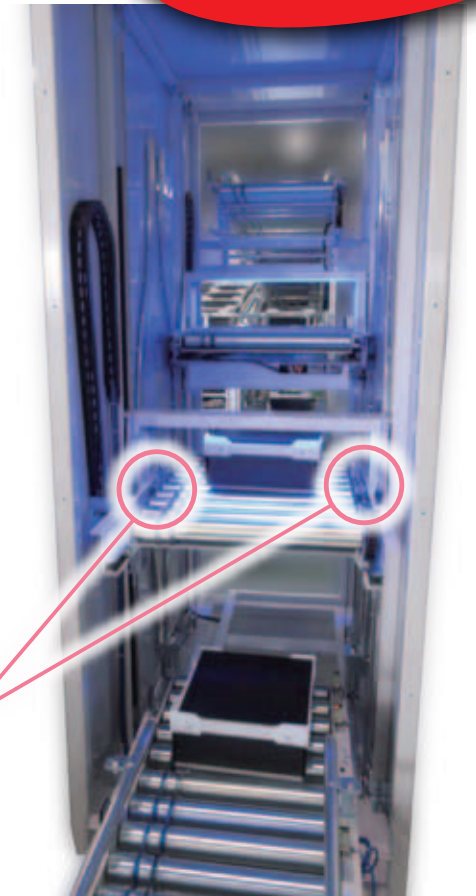
(Unique ITOH DENKI stopping technology without using limit switch)

■ 無線制御による省配線タイプ

Simplified wiring through wireless network control

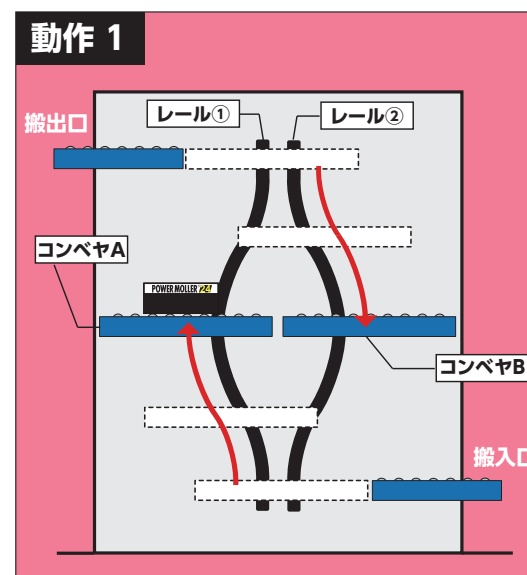
無線制御源於的省線路類型

POWER MOLLER® 24

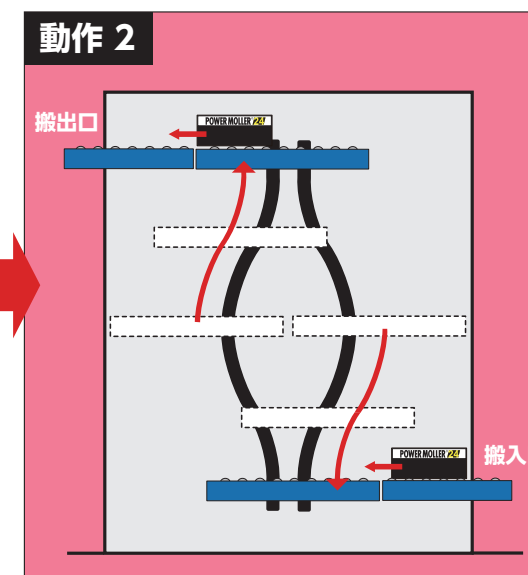


仕様

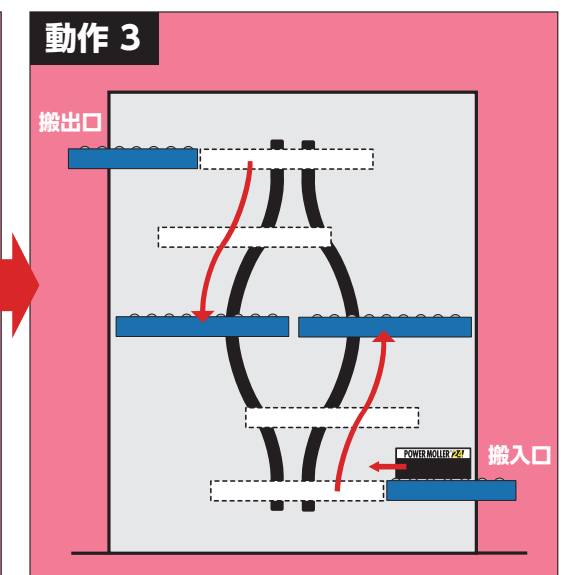
- 昇降速度: 60m/min
- 処理能力: 810c/h
- 通路またぎ高さ: 3,000mm
幅: 3,000mm
- 搬送可能重量: 30kg



搬入口からコンベヤAへワークが投入され、レール①に沿って上昇します。同時にコンベヤBがレール②に沿って下降します。



コンベヤAが搬出口まで上昇しワークを送り出します。コンベヤBは搬入口まで下降し次のワークを受け取ります。



コンベヤBが搬出口に向かって上昇し、同時にコンベヤAが搬入口へ下降します。レール①、②に沿ってコンベヤA、Bが上昇と下降を繰り返し、ワークを搬送します。

MDRで省エネ昇降 シングルレベルチェンジャー

Single Level Changer 単体提升装置

NEW

■ 多段式コンベヤのレベルチェンジとして活躍

Designed to work with multiple layer conveyors

被广泛使用在多层结构的输送机上

■ MDRを駆動源としておりコンパクト設計

MDR powered compact design

利用MDR驱动的简约设计

■ ソフトランディングシステム付き

(リミットスイッチを使わない、伊東電機独自の停止システム)

Integral soft stop control technology

(Unique ITOH DENKI stopping technology without using limit switch)

■ 無線制御による省配線タイプ

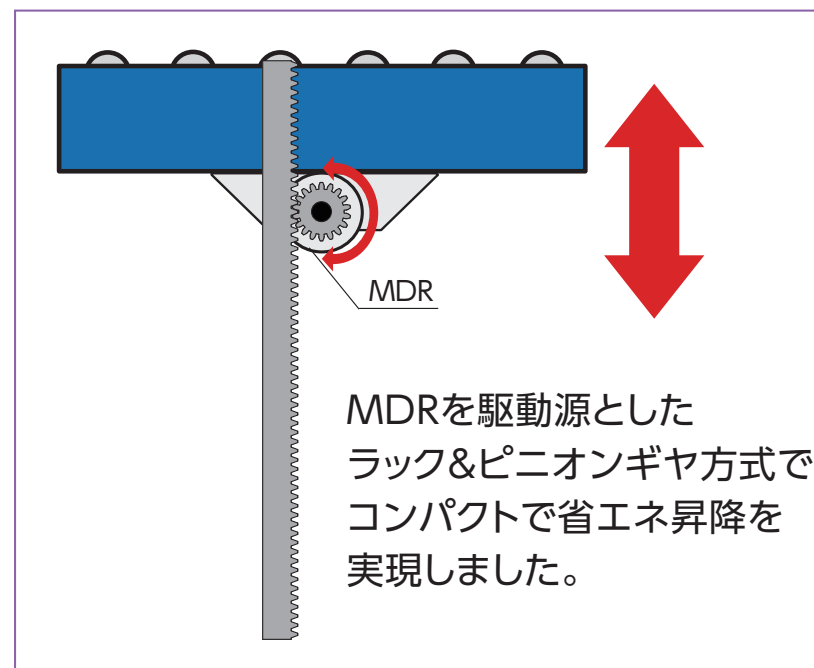
Simplified wiring through wireless network control

無線控制源於的省線路類型

仕様

- 昇降速度: 30m/min
- 搬送可能重量: 30kg
- 処理能力: 1,200c/h

POWER MOLLER® 24



スムーズな橋渡し 傾斜RAT

Tilt RAT 斜度RAT

NEW

■ 傾斜コンベヤやスパイラルコンベヤ等へ直角移載するRAT

Right angle transfer dedicated to work with incline/decline or spiral conveyer

通过斜度皮带输送和 等实现直角移栽RAT

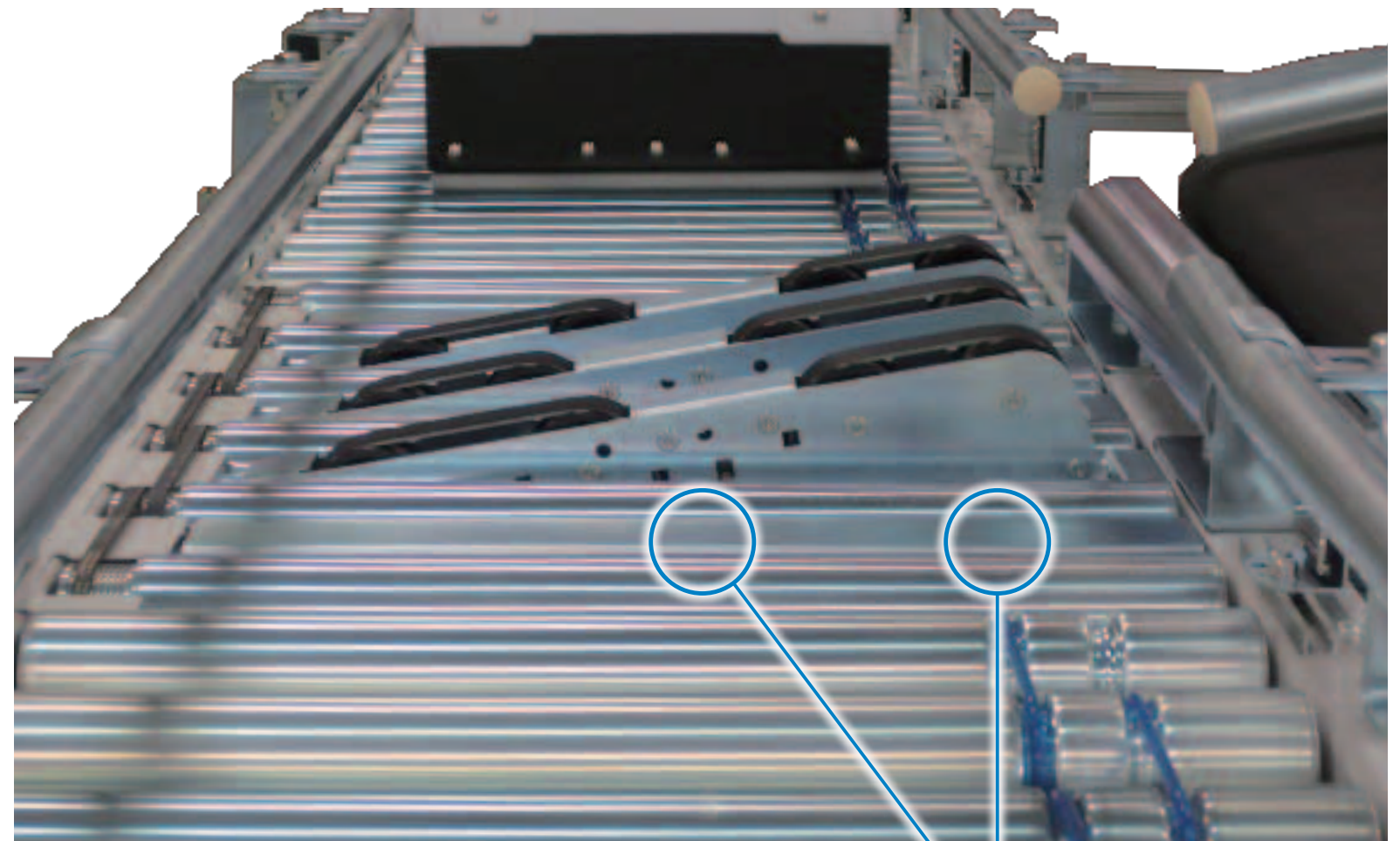
■ 傾斜角度は最大15度

15 degree maximum incline angle

斜度可达15度

仕様

- 寸法:475L×415W×162H
- 処理能力:最大1,500c/h
- 搬送可能重量:30kg



POWER MOLLER® 24

世界初の試み Uターンモジュール(円盤式)

U Turn Module (Disc Type) U型转弯装置(圆盘式)

NEW

■ 業界最小内Rのカーブコンベヤ

Curve conveyor with smallest inner radius

行业内最小R内径的皮带转弯装置

■ 省スペース搬送が可能

Allows space saving U turn transfer

可实现最小空间的输送



仕様

- 搬送速度: 50m/min
- 搬送可能重量: 50kg
- 内R50mm

POWER MOLLER® 24

究極のスペース効率アップ Uターンモジュール(ローラ式)

U Turn Module (Roller Type) U型转弯装置(滚筒式)

NEW

■ 業界最小内Rのカーブコンベヤ

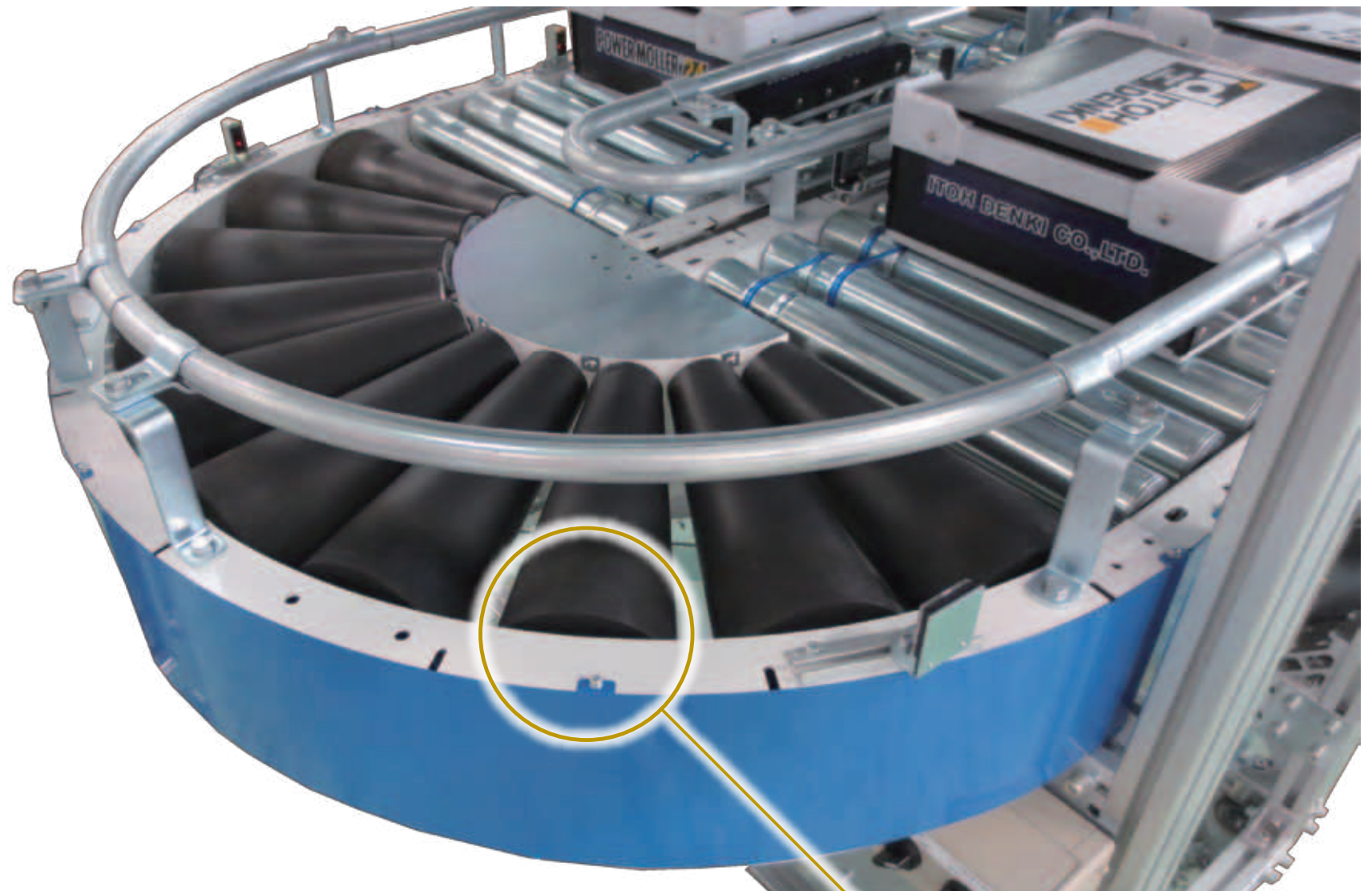
Curve conveyor with smallest inner radius

行业内最小R内径的皮带转弯装置

■ 省スペース搬送が可能

Allows space saving U turn transfer

可实现最小空间的输送



仕様

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