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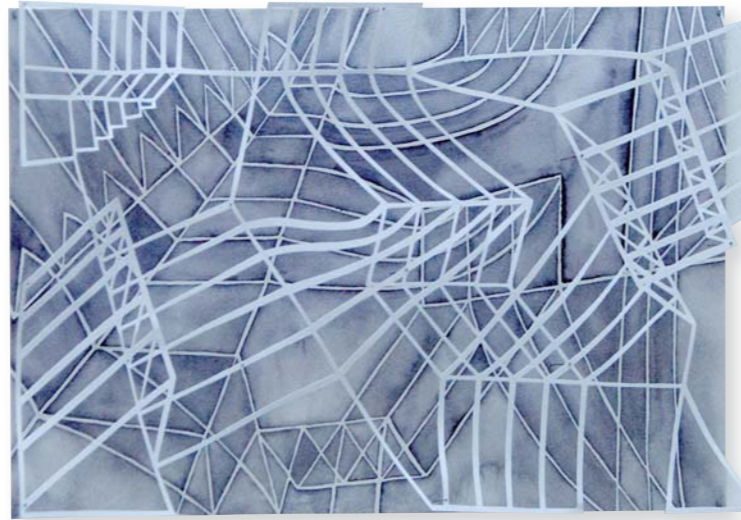
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INTERROLL
CORPORATE
ART

**INTERROLL
INTELLIVEYOR**

INTELLIGENT - FLEXIBLE - ZERO PRESSURE:
THE MODULE KIT FOR YOUR INTRALOGISTICS.



Untitled-3
Sarah Pontius

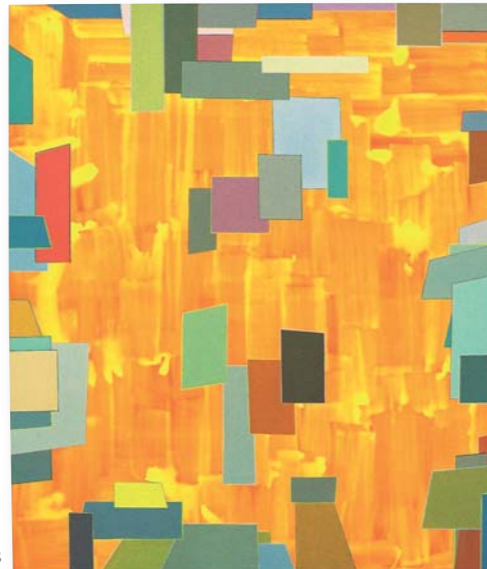
INTERROLL CORPORATE ART

At first glance, industrial products and works of art would appear to have little, if anything, in common. However, when one considers that creativity, optimisation, finetuning and the pursuit of perfection are qualities associated with both disciplines and that each project is driven initially by an idea, a moment of inspiration, a seed that requires nurturing, then one will recognise that artist and entrepreneur often share the same traits.

of staff and capturing the imagination of the public. Art has a positive influence on the work environment and the internal processes governing these structures. Each moment of interaction, even if controversial, generates dynamism, openness and creativity; it kindles a spark of innovation, rouses venturesome spirits and shows ways of breaking the shackles of convention and charting new territory.

In combination, inspired, provocative art and innovative, state-of-the-art products provide a company with those distinctive contours, that unique cultural identity that no balance sheet, no income statement can capture.

It is precisely these intangibles, however, that have the capacity to infuse all aspects of life, lingering in the minds



Cadenazzo
Franziska Goes

The declared purpose of Interroll Corporate Art is to channel this immense creative potential, to create a dialogue that embraces art and business as vehicles of communication and to establish an environment in which the spirit of thought is allowed to flourish.

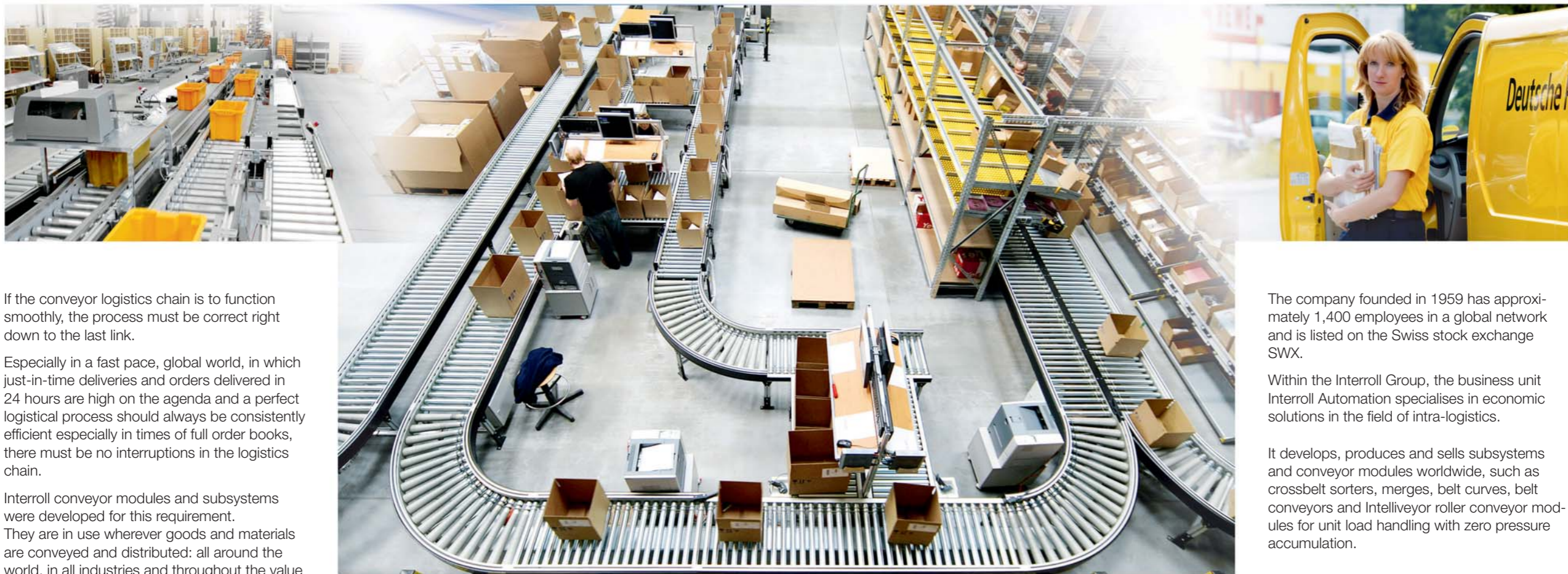
The mission: to accompany, advise and act.

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MARKETS MOVE WITHIN THE PULSE OF TIME.
 GLOBALLY CONNECTED WITH A FOCUS ON LOCAL MARKETS.



If the conveyor logistics chain is to function smoothly, the process must be correct right down to the last link.

Especially in a fast pace, global world, in which just-in-time deliveries and orders delivered in 24 hours are high on the agenda and a perfect logistical process should always be consistently efficient especially in times of full order books, there must be no interruptions in the logistics chain.

Interroll conveyor modules and subsystems were developed for this requirement. They are in use wherever goods and materials are conveyed and distributed: all around the world, in all industries and throughout the value added chain.

With selected products and solutions, Interroll aspires to become the world leader for intra-logistics.

The company founded in 1959 has approximately 1,400 employees in a global network and is listed on the Swiss stock exchange SWX.

Within the Interroll Group, the business unit Interroll Automation specialises in economic solutions in the field of intra-logistics.

It develops, produces and sells subsystems and conveyor modules worldwide, such as crossbelt sorters, merges, belt curves, belt conveyors and Intelliveyor roller conveyor modules for unit load handling with zero pressure accumulation.

Interroll Automation
 A business unit of the Interroll Group

www.interroll.com



INTELLIVEYOR MATCHES THE RHYTHMS OF MARKETS. A CENTRAL ORGANIZATION MEETS A MODULAR STRUCTURE.

Interroll Intelliveyor – the intelligent, well thought out modular system

As an intelligent conveyor with integrated accumulating conveyor technology, the Interroll Intelliveyor simplifies unit-load handling. Its internal control, the Z-Card, converts a roller track into a single space conveyor which allocates each material to be conveyed in its own zone along the material flow.

Unit loads can be buffered without contact and transported further as required to achieve an overall continual material flow. With its well developed, economic concept, the ready to connect roller track modules offer a complete range of customer advantages.

During the planning phase:

- Individual and flexible routing based on a complete modular system from straights to 45° high performance diverters
- Simple planning of conveyor lines from the modular system

- Simple connection to adjoining conveyor technology

During the implementation phase:

- Fast delivery
- Quick and easy installation
- Ready for installation and use thanks to pre-fabricated modules ("plug and play")

During operation:

- Approx. 50 % energy saving (depending on operating mode up to 70%) compared with conventional accumulating conveyors
- Extremely quiet operation (< 60 dBA without conveyor belt)
- Maximum safety thanks to 24 Volt low voltage
- High availability
- Low maintenance
- Extendable and adaptable to future growth

Connectable conveyor modules from Interroll round off the range of the Intelliveyor advantages, as track routing can be extended at any time with other Interroll products.

Roller conveyor modules, curves, diverters, merge modules, transfers and transpositioning modules for material handling of light to heavy cardboard boxes, crates and packages are available, depending on the drive, for loads of up to 175 lbs (80 kg per zone). (see page 12-15)

Interroll supports customers around the world as a strategic partner:

- System integrators
- System manufacturers
- OEMs
- Consulting and planning offices
- Operators of distribution centres
- Users



Visualization of the functional principle of an Intelliveyor conveyor line exemplifying one single zone.

Buildup of one zone:

- 1 RollerDrive
- 8 slave rolls
- 1 photo cell

INTERROLL INTELLIVEYOR – INTELLIGENT CONVEYING EXPLAINED IN AN UNCOMPLICATED WAY

Intelliveyor – this name stands for a complete conveyor system which enables unit loads to be conveyed and accumulated with zero pressure, i.e. without ever touching each other.

The fact that this is so easy to achieve lies in the Z-Card, a proven 24 Volt control PCB. It handles the control of the conveyor line divided into individual zones and communication along the material flow.

During the operation of the system each Z-Card controls its assigned zones according to control signals sent out by adjacent zones.

Up to four of these zones or alternatively a whole range of complex conveying functions are managed by one Z-Card. This includes, for example, a merge and diverter element with a 45° and 90° angle.

The Intelliveyor system is designed as a decentralised, intelligent control in such a way that with the modular principle a complete system can be constructed and also simply extended later if required. No higher order control is required for this thanks to the self sufficient Z-Card.

To keep the system simple, the Z-Card has a program switch to select 32 different standard functions of the control card.

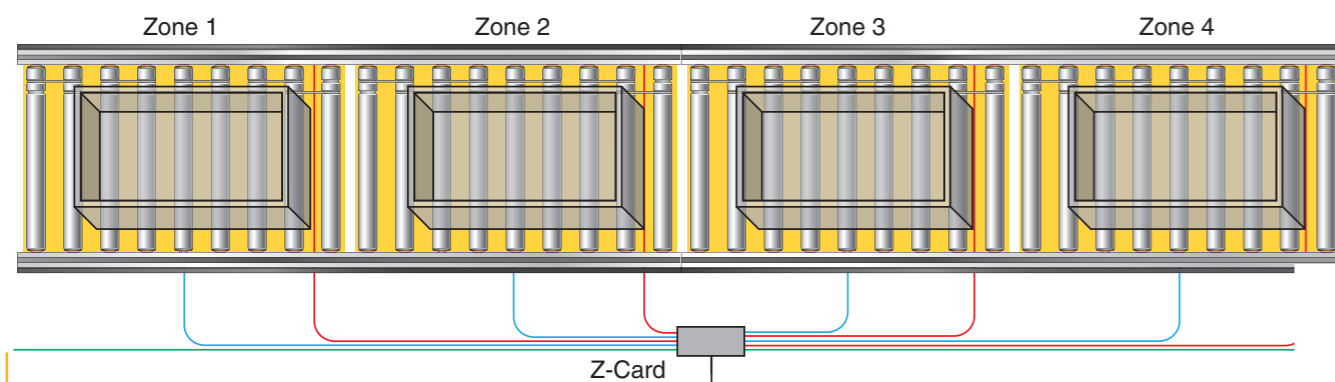
The programs stored cover all standard conveyor technology applications. For example, the same Z-card is used in all modules and the required program is only selected during actual installation. Given the large number of different variations, stocking of spare parts is therefore simplified and reduced.

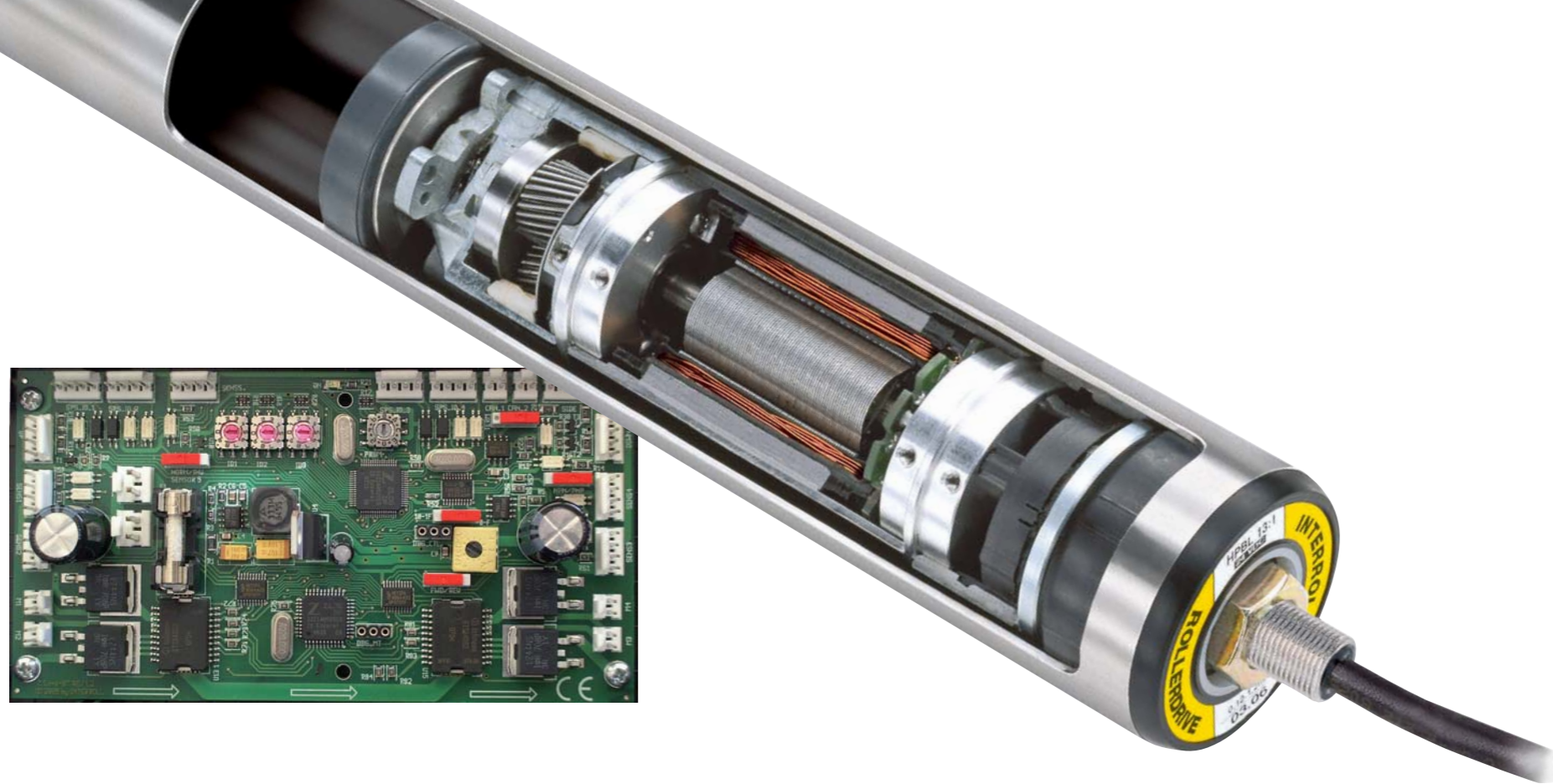
The great advantage in terms of economy is provided by its drive. Conveying really does only take place when a conveying movement is actually necessary. If there are no materials to be conveyed in the zone, the system switches off until the next pulse. Our customers notice this by the energy saving of up to 70 %,

low noise and significantly reduced wear compared with conventional 480 Volt systems.



- Connection with photo cell
- 4-wire data cable
- Connection with RollerDrive





Singulation release:

In the "Singulation release mode", a zone communicates with the upstream or downstream zone via a control PCB.

In this operating mode, a jam is converted into a marshalled material flow which enables, for example, simple removal or additional loading of the conveyor track.

Z-CARD AND ROLLERDRIVE – THE HEART OF THE INTELLIVEYOR

Each conveyor line of the Interroll Intelliveyor is divided into zones, which are adapted to the maximum length of the material to be conveyed.

Each zone has:

- 1 x RollerDrive
- Rollers driven by belts (O-rings or Poly-Vee belts)
- 1 x Intelliveyor control PCB Z-Card controls up to 4 zones simultaneously
- 1 x Photo cell

A pre-assembled conveyor unit (module) consists of 1-4 zones with complete wiring. This enables an easy plug and play connectivity with other modules.

Because less really can be more, the Interroll Intelliveyor does not use conventional external drive components but at the same time increases the safety of the operator thanks to a low power supply of 24 Volts.

At the beginning of a roller track section there is an additional photo cell to start the conveyor track.

The Intelliveyor has two operating modes: singulation release and train release (see photo below).

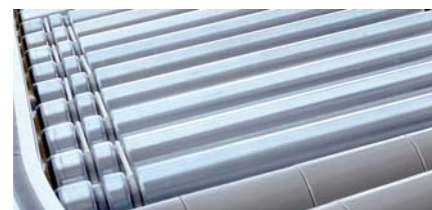


Train Release:

In the "Train release" mode, a Start/Jam signal can be passed through the whole chain of the Z-Card control PCBs and this enables the quasi simultaneous start or stop of all inter connected zones.

As the power requirement of an electric motor is increased temporarily when

started, the intelligent control of the Z-Card delays the start up of the RollerDrive from zone to zone. The power peaks which otherwise occur temporarily can thus be significantly reduced. The resulting lower level of power to be installed means lower investment costs and further energy savings.

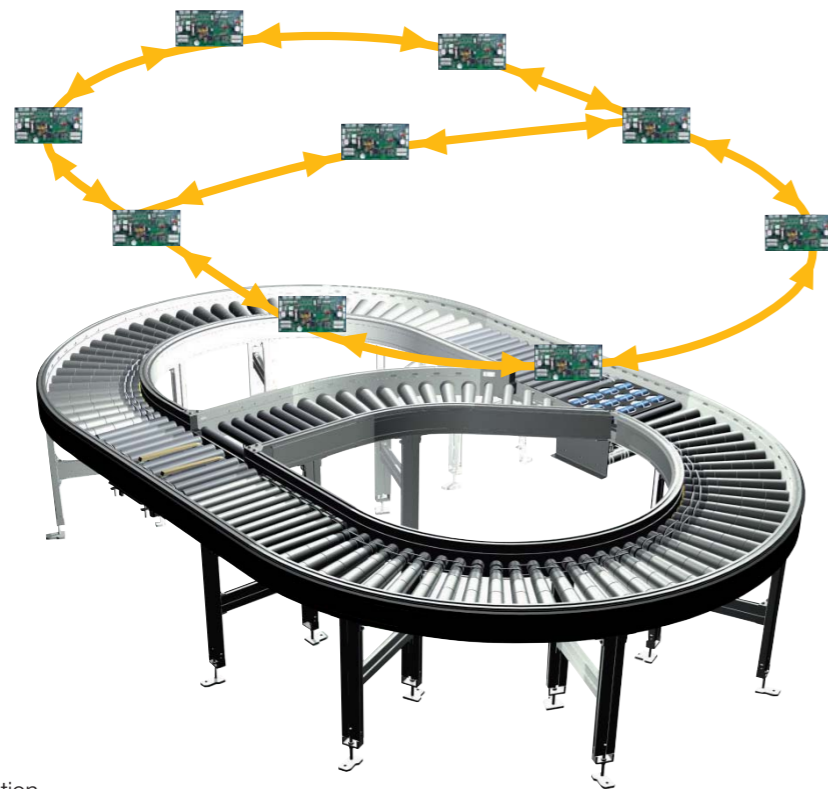


Slave rollers can be connected to the RollerDrive by different methods, for example with O-rings.



Poly-Vee belts are another variant and are used especially for conveying higher loads on straight and curved modules

COMMUNICATION WITHIN THE INTELLIVEYOR. PLUG AND PLAY.



Standard communication with EASY-Bus

All Z-Cards exchange information within the Intelliveyor via a pre-installed data cable.

Every Z-Card communicates with its adjacent zones via a 4-wire data cable.

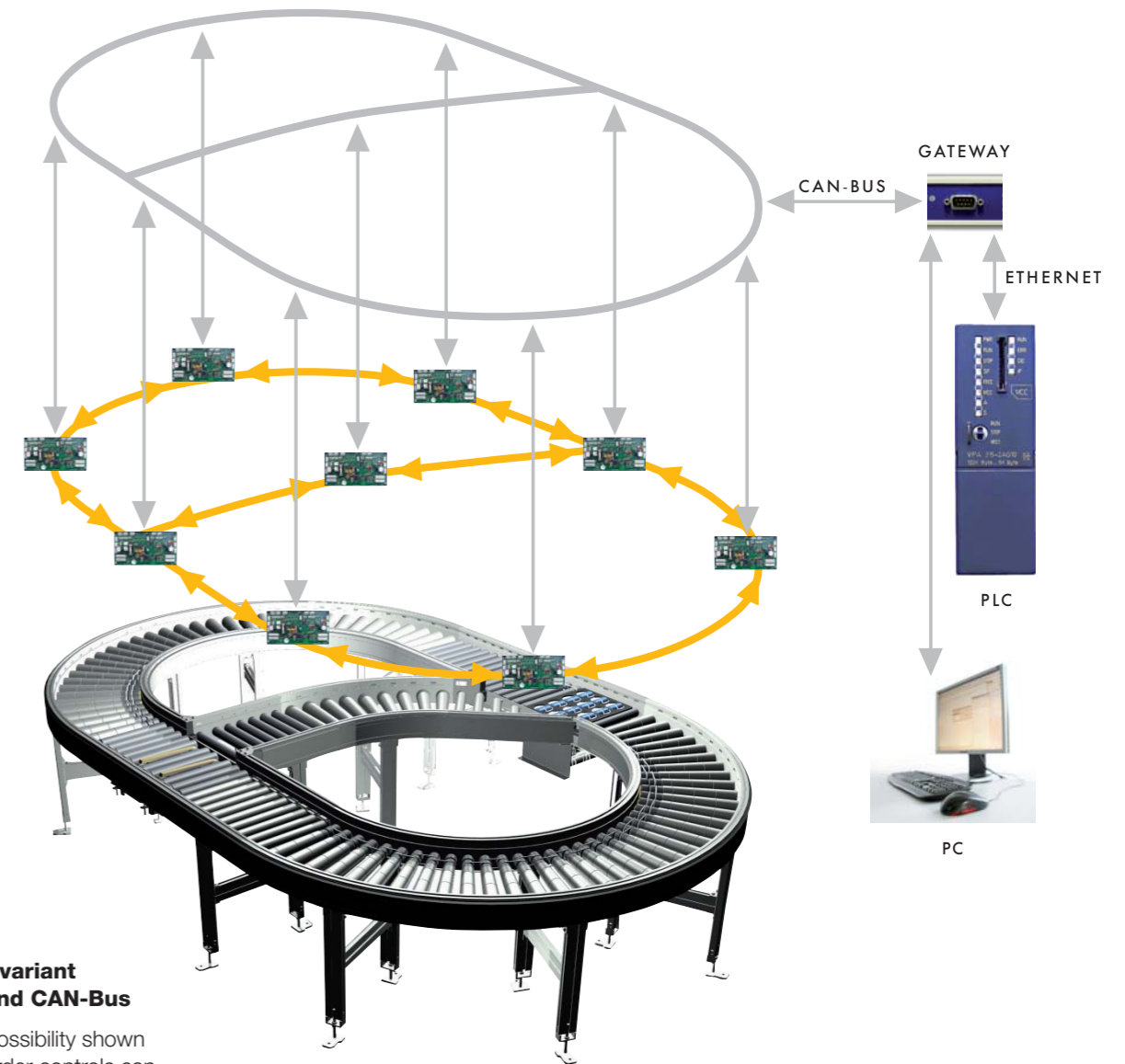
This cable transmits signals to start, stop, detect errors or conduct certain control procedures along the conveying system.

This connection is a real plug and play connection and therefore insures immediate function without specific addressing.

For connection to external systems, every Z-Card has four connections for incoming and outgoing signals.

Among others these are used for the following requirements:

- Transfer of materials to be conveyed to third-party systems
- Influencing the merging and diverting behaviour of the modules
- Issue of an error signal



Communication variant with Easy-Bus and CAN-Bus

Alternative to the possibility shown on the left higher order controls can be connected to the CAN-Bus.

In addition to the digital inputs and outputs, a CAN-Bus connection is available for connection to a higher order control.

A unique ID number is set on every Z-Card via a selection switch, which can be individually accessed via CAN-Bus.

Up to date information of a Z-Card can then be obtained (motor status, sensor

status etc.). It is also possible to influence the functions of the control here (e.g. merging and diverting behaviour).

To fulfil current requirements of the higher order control even better, Interroll provides the gateway AnaGate CAN, which implements the CAN-Bus on Ethernet with TCP/IP.

All functions available on the CAN-Bus can therefore also be implemented via today's standard network protocol TCP/IP.



ZERO PRESSURE FROM A TO B TO C: CASES, BOXES, CARTONS AND TRAYS

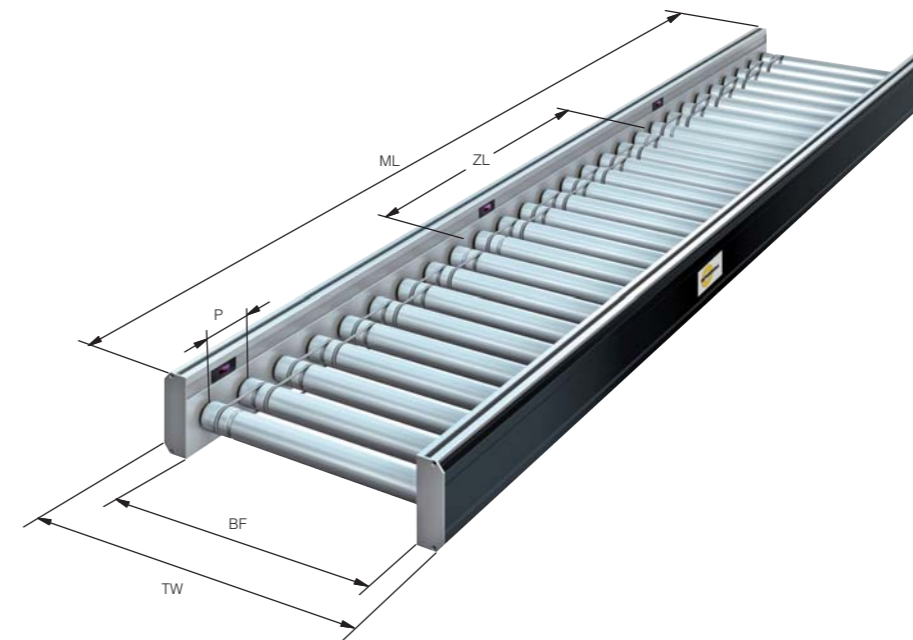
Whether in the automotive industry, postal logistics, mail order business or internal distribution – where cases, boxes, cartons and trays are conveyed, the Interroll Intelliveyor provides a solution.

All modules are well engineered with low energy consumption, flexible combinations and particularly low-noise.

The following outlines which characteristics are assigned to the various modules.

General properties of all modules

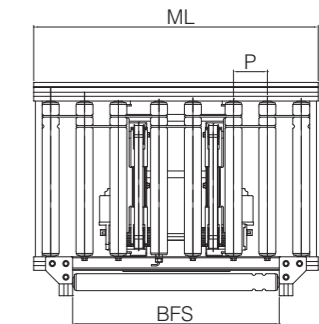
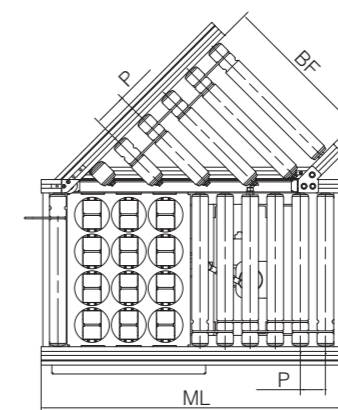
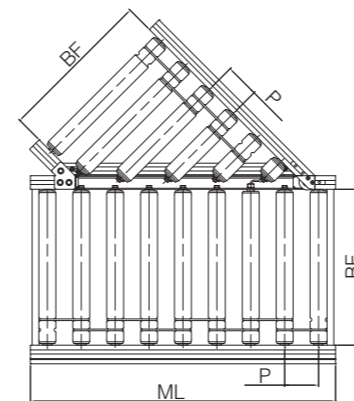
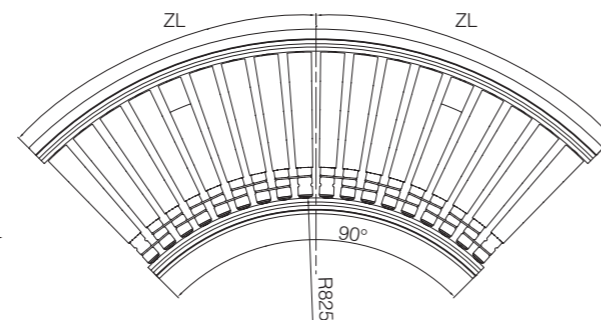
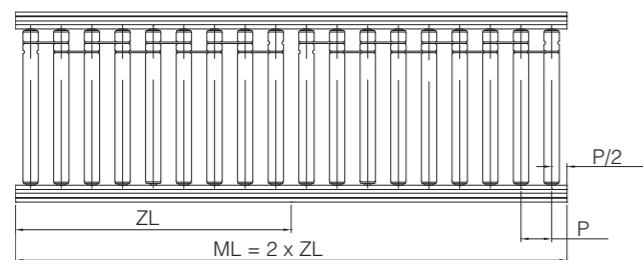
- Zero pressure (contactless) transport; the arriving unit load always switches the downstream zone when the photo cell is reached
- Flexible combination from the module, without programming
- Quiet operation
- Plug and Play
- Energy savings
- The functions of the Z-Card can be influenced with inputs and outputs
- Modules can be combined in any order



Technical specifications standard module

Zone length (ZL):	11.75" to 59" (300 to 1500 mm)
Module length (ML):	1 x ZL to 4 x ZL, max. 118" (3000 mm)
Between Frame (BF):	12.2" to 39.75" (310 to 1010 mm)
Roller pitch (P):	2.2", 3", 4", 5", 6" (55 mm, 75 mm, 125 mm, 100 mm, 150 mm)
Total Width (TW):	BF+4.3" (110 mm)
Between Frames Sidestream (BFS):	12.2" to 39.75" (310 to 1010 mm)
Velocity (v):	20 ft/min to 240 ft/min (0.1 m/s to 1.2 m/s)
Load range:	max 175 lbs/zone (max 80 kg/Zone) (depending on drive)
Drive:	24 Volt Interroll RollerDrive
Power transmission:	O-Ring round belt or Poly-Vee belt

OVERVIEW OF THE INTELLIVEYOR MODULES



Straight roller track

Task: Transport of unit loads (cardboard boxes, packages, containers).

Operating principle: Due to integrated controls goods are transported with zero pressure.

Roller track curve

Task: Whilst maintaining the alignment of the materials to be transported, the curve enables a change in direction of a conveyor line.

Operating principle: With the aid of tapered rollers, the alignment of the materials to be transported within the side walls is maintained.

Special advantage: The division into individual conveyor zones is also maintained in curves.

45° merge

Task: Merging of 2 conveyor lines.

Operating principle: Gaps in the material flow are used for merging via an angular roller track attached to the side.

Special advantage: Simple prioritisation of the merging behaviour via control input or bus.

45° diverter

Task: Division of one conveyor line into two conveyor lines.

Operating principle: Unit loads are diverted via rotating bearing rollers.

Special advantage: The material flow is not interrupted, so that throughput remains constant. Simple transmission of the divert command – via 24 Volt control line or the bus.

90° transfer module

Task: Merging or diverting perpendicular to direction of transport.

Operating principle: Toothed belts installed between the conveyor rollers transport the materials to be conveyed into or out of the conveyor track installed on the side at an angle of 90°.

Special advantage: Simple transmission of the merge/divert command via a 24 Volt control line or bus.

Pure 24 Volt operation, no pneumatic system required.

Low overall height from upper edge of roller to lower edge of transfer module



MARKETS ARE PACEMAKERS FOR THE FLOW OF GOODS. WE MAKE THEM MOVE.

Interroll Intelliveyor – total flexibility

Flexibility is the yardstick of our products. It must therefore be possible to extend and freely configure each module as the conveying task requires. For this reason we develop unlimited solutions with you which take the available space into consideration and ensure simple coordination of material flows, in line with the motto: everything is possible, without disregarding economy.

This is the way flexibility is expressed for our customers:

- The customer's own value added takes priority
The system's integrator determines the scope of the customer's own work (installation of switch cabinets, electrics, control, terminals, assembly etc.)

- Expert support
Interroll offers support for questions regarding projecting and engineering thanks to a wide range of user know-how from numerous applications worldwide.
- Fast commissioning
Precise pre assembly of Intelliveyor modules in the factory allows fast, fully functional plug-and-play installation on site.
- Tailor-made installation support
Interroll supports and supervises correct installation or handles complete installation – according to precise customer requirements.

- Long-term solid partnership
As a financially sound company with a long-term growth strategy, Interroll is at its customer's disposal at all times as a long-term partner.
- Worldwide availability
Top quality products, solutions, support and consulting are always close to the customer – thanks to the global network of Interroll.
- Outsourcing frees up resources
To concentrate on their own core competencies, systems integrators order a comprehensive package solution for fully functional sub-systems from Interroll.

Interroll Automation – best-in-class engineering and production worldwide:

The Interroll centre of excellence for conveyor modules and sub-systems, based in Sinsheim (D) is responsible for: global product management, research and development, production and production technology, strategic purchasing, logistics and technical support of local production and assembly companies of the worldwide Interroll network.

Products ranging from the Interroll Crossbelt Sorter, the Interroll Intelliveyor, the Interroll Belt Conveyor and Pallet Conveyor to the Interroll Belt Curves are produced at the 3 manufacturing units in Sinsheim (Germany), Jeffersonville (USA) and Suzhou (China).

Centre of excellence for conveyor modules and sub-systems

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