

MATERIAL HANDLING SOLUTIONS











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About us

Our team nearly 10 years of experience behind them, advise and support technically the Lean Manufacturing committed companies.

Our profiles

- Production of lean pipe systems
- Industrial manipulators
- Automated guided vehicle
- Lean consulting
- Planning

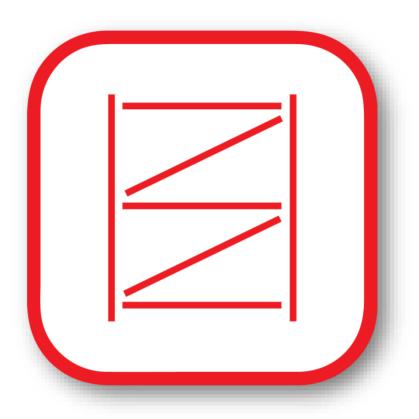




System component and their use

Lean Technology product range is built around three basic principles:

- The **FORCE** required for the industrial environment
- The **MULTIFUNCTIONALITY** that ensures compatibility
- The **DURABILITY**, which provides surface treatment of pipes and joints.



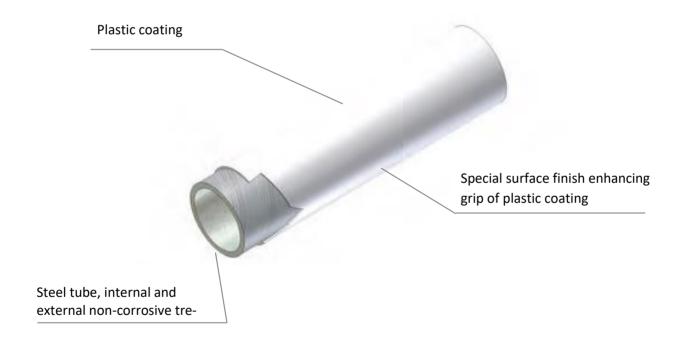


Technical specifications

The INDEVA Lean System® tube is a steel tube with a plastic coated outer surface. The steel tube is treated internally and externally with non-corrosive treatment.

The plastic coating could be in different colours, standard colours deliverable from stock. Colours according to customer specifications can be manufactured only in quantity. A special transparent coloured plastic finishing is also available.

The external surface of the tube is specially treated to ensure an enhanced grip of the plastic coating on the steel tube.



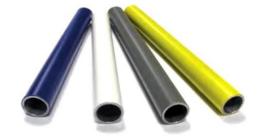
Dimensions and specifications

Steel tube: external diameter 27mm, thickness: 1mm or 2mm

Finished tube: external diameter 28,6mm (+0-0,2)

Standard length: 4000mm

Temperature range: 0°C - +40°C



Steel – plastic coated

TP 20 W ESD TP ВК **ESD** 20 **TP:** Plastic coated tubes 10: thickness 1,0mm W: White ESD: ESD certified 20: thickness 2,0mm BK: Black **GY:** Grey RAL 9022 **LG:** Grey RAL 7035 BL: Blue YE: Yellow IV: Ivory RD: Red Special colours on request

Aluminium - anodized

TA 15 BK	TA	15	ВК
	TA : Aluminium tube	15: thickness 1,5mm 25: thickness 2,5mm	BK: Black SI: Silver

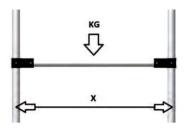
Stainless steel - KO33

TKO 12	ТКО	12
	TKO : KO33	12: thickness 1,2mm

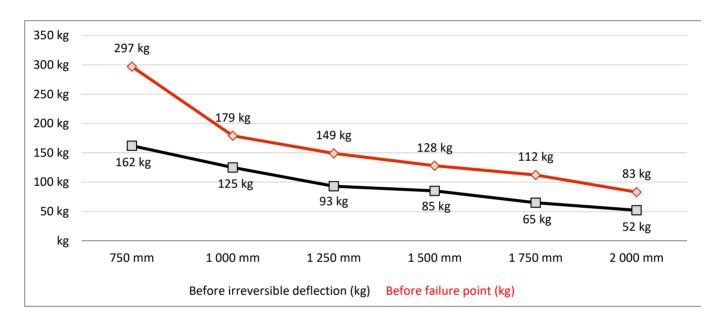
Classification		Coated	Coated tubes		Aluminium tubes		
Item	Colour		28,6 x 1mm	28,6 x 2mm	28,6 x 1,5mm	28,6 x 2,5mm	
	33.33	620 gr/m	1239 gr/m	340 gr/m	540 gr/m		
	White						
	Grey		✓	/			
10	Light grey		✓	/			
Coated tubes	Blue		■	/			4m
	Ivory		─	/			
	Yellow		✓	/			
	Red		■	/			
	Black		—	/			
	Black anodized				/	/	
	Grey anodized				/	/	
	RAL colour on request		■	✓			
ESD 🔝	Black		✓				
Antistatic	Light grey						

Bending strength of tube

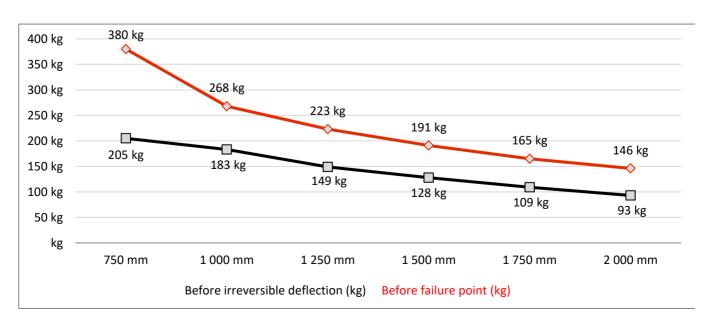
Load capacity tests have been run on an H shaped structure



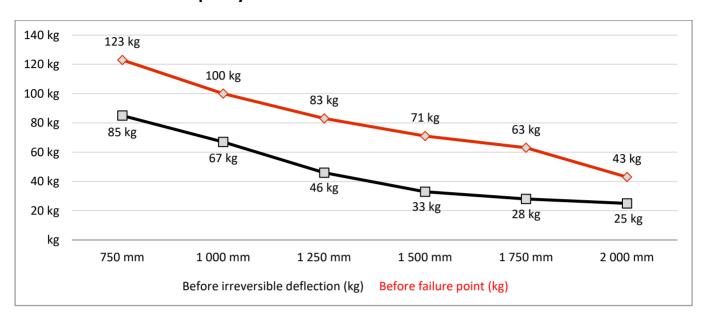
Max concentrated load capacity of a tube with 2mm wall thickness



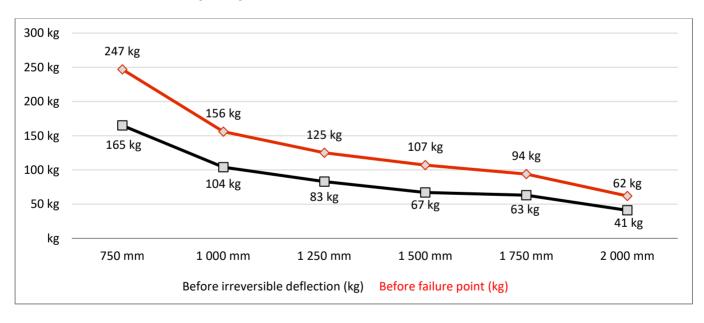
Max distributed load capacity of a tube with 2mm wall thickness



Max distributed load capacity of a tube with 1mm wall thickness



Max distributed load capacity of a tube with 1mm wall thickness



Technical specifications

INDEVA Lean System® metal joints are made of steel 2.5 mm thickness. Non-corrosive coating (standard black colour) is applied. To ensure maximum holding strength, the joints are shaped with a special gripping profile.

A hole facilitates the possible application of holding screws.

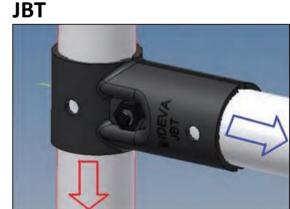




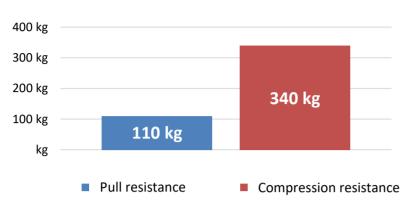
Joints holding strength

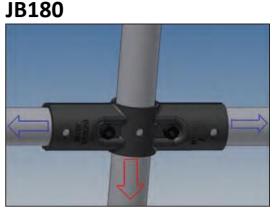
Tests have been run using a special traction/compression testing machine in our factory. Joints are routinely tested to ensure constant quality and results.



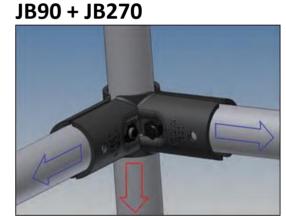












Assuming a safety factor equal to 2, use of INDEVA Lean System® Joints is recommended with a maximum load of 150 kg (compression). The use of joints with a load applied as traction is improper and not recommended.

Reusability of metal joints

Experimental conditions

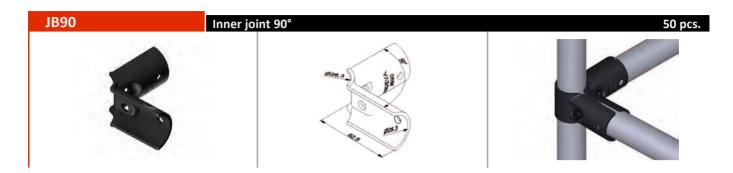
A compression force has been applied until when the joints slide along the tube. The same couple of joints have been reused on a new tube and with new screw and bolt. Again a force has been applied until sliding. The test has been conducted for different typology of joints.

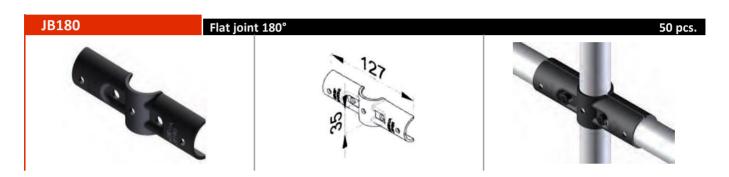
Result

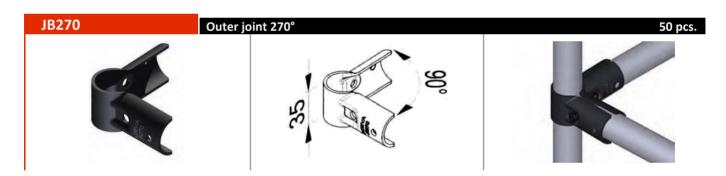
Until 10 times no significant changes of the holding strength has been registered. After 10 trials the test has been stopped. It can be said that INDEVA Lean System® joints can be reutilized at least 10 times without changes in the holding strength.

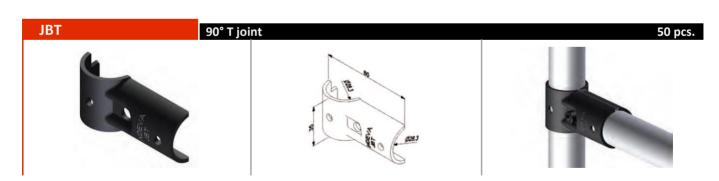
Standard joints

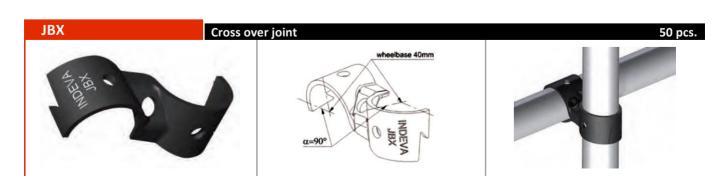






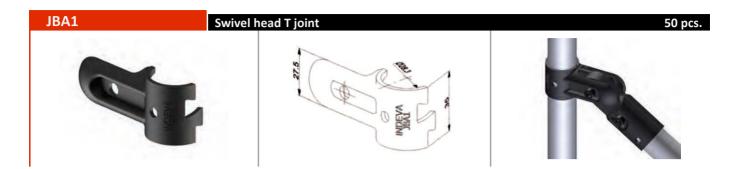


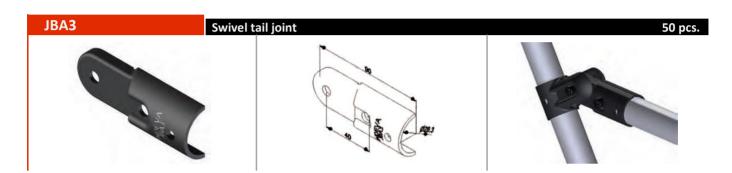


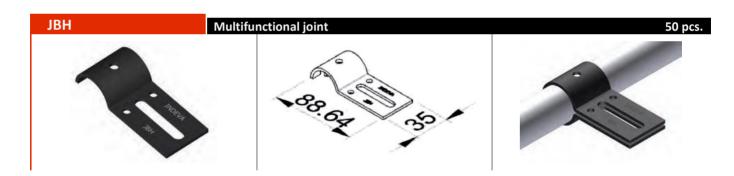


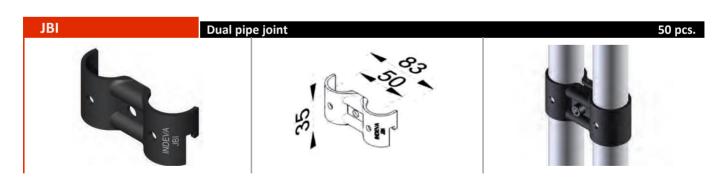
Standard joints

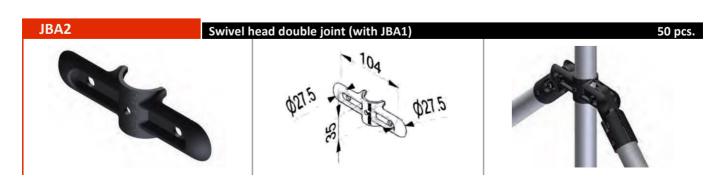






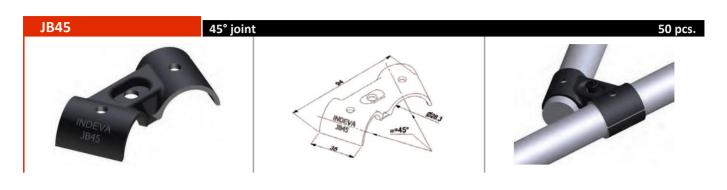


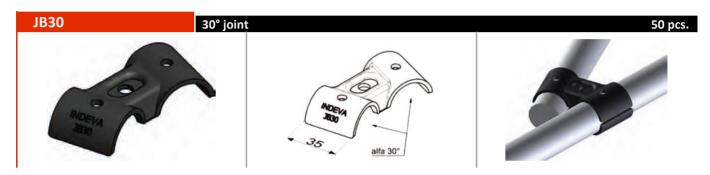


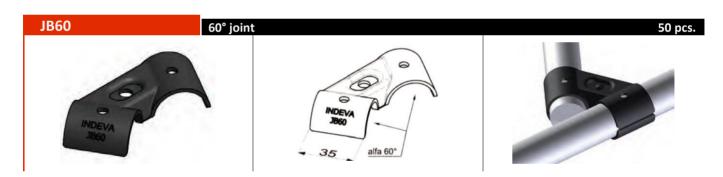


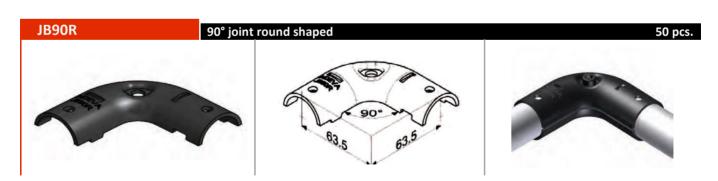
Standard joints

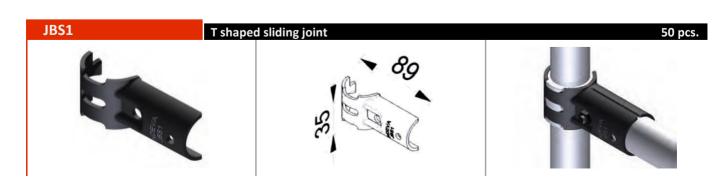






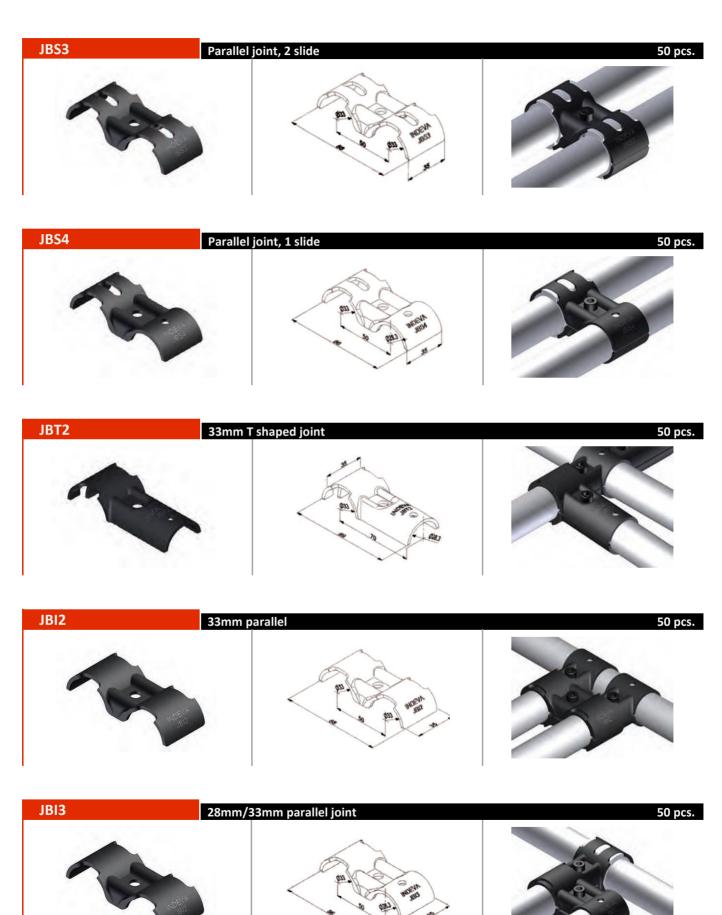






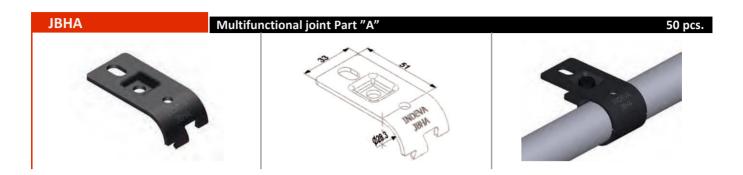
Standard joints

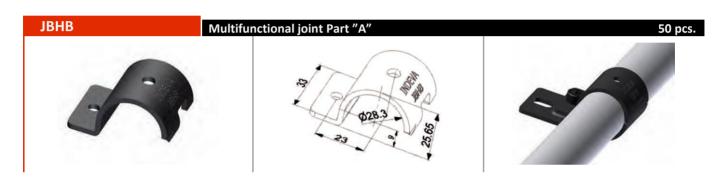




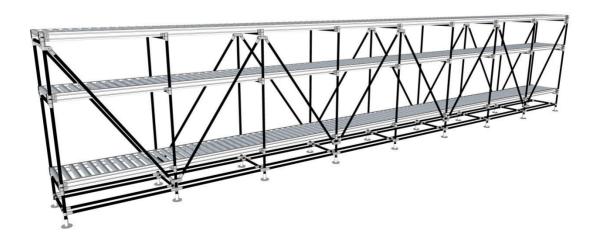
Standard joints







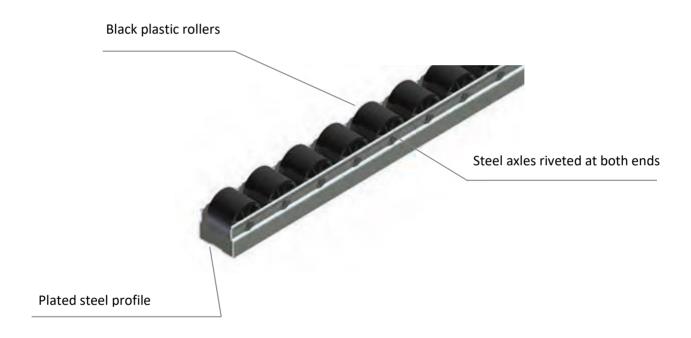




Roller Tracks

Technical specifications

The INDEVA conveyor track is used for the assembly of flow racks and gravity conveyors for the handling of boxes and packages in a reliable and maintenance-freeway. The INDEVA conveyor track is made of a plated steel profile with rollers mounted by means of steel axles riveted at both ends for higher resistance.



Dimensions and specifications

Plated steel profile: thickness 1,25mm, height 26,5mm, width 35mm

Total height: 35mm

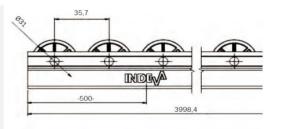
Roller: diameter 31mm, high load capacity max. 150kg

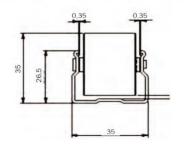
Centre of Rollers distance: 35,7mm

Steel axle: diameter 3,75mm

Standard length: 4000mm

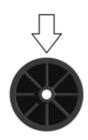
Use within the temperature range: °C - +40°C





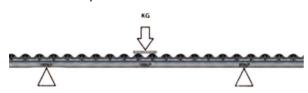
Roller load capacity

The test has been run applying a load on the roller until permanent deformation of the roller itself. Permanent deformation has been experienced at 150 kg. The sliding smoothness has no changes up until a load of 30 kg.



Bending strength of roller track

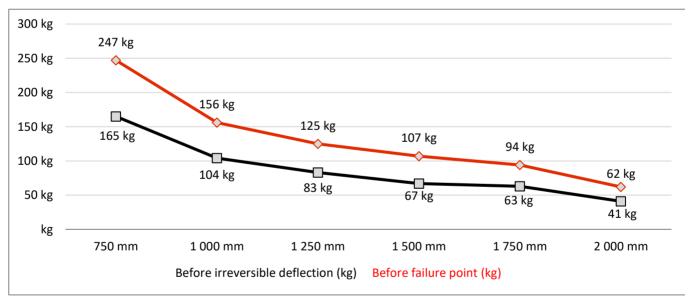
Experimental conditions



A force has been centrally applied on two rollers of a track resting on two supports positioned at different distance. The value of the load that would permanently deform the track and that would break the track has been measured.

Results are in following table.

Max load capacity on two rollers centrally applied



Sliding smoothness test

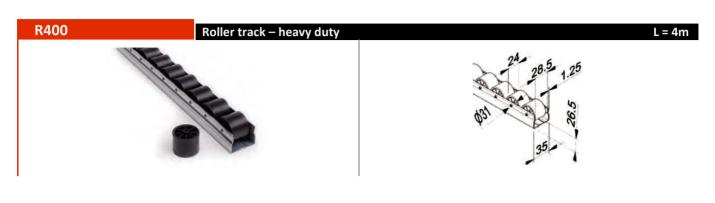
Test has been run measuring the minimum angle at which a box (weight 1 kg) with rigid bottom (dimensions 40x40mm) starts sliding on a roller track. From the horizontal position the roller track has been progressively inclined up until when the box starts moving.



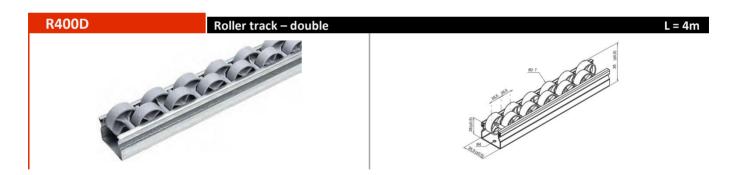
Result

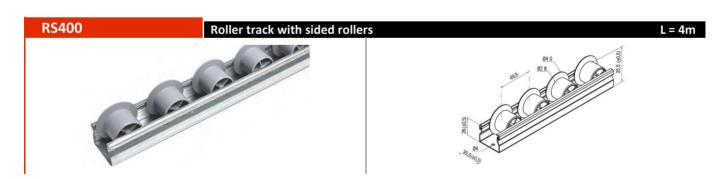
The box starts moving: α =1,5° High speed reached: α =2,5°

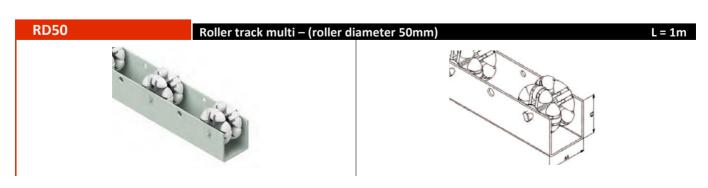
Roller tracks and guides



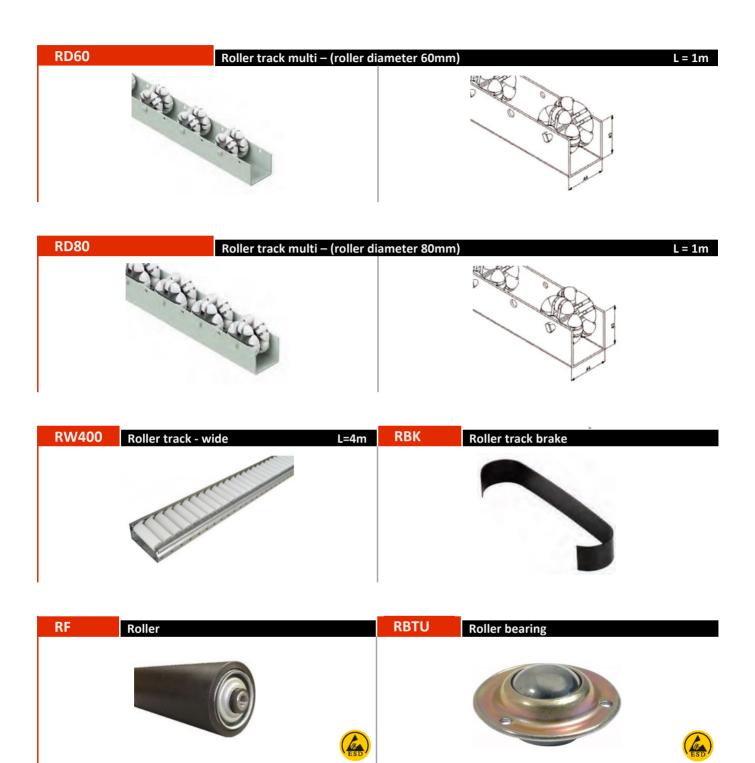








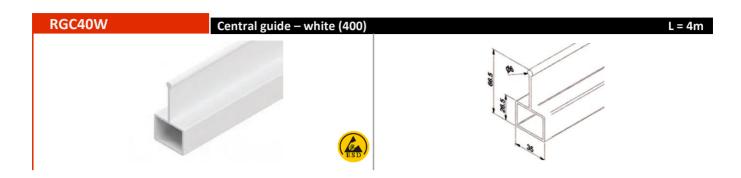
Roller track and guides

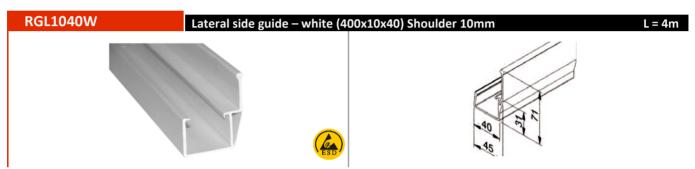


Roller track and guides

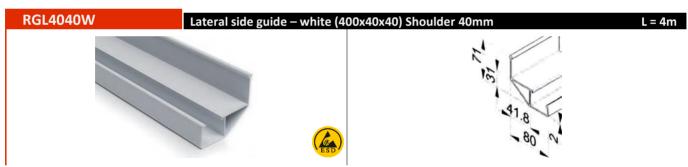
Standard guides

Standard colour – White and Light Grey. ESD - Black. RAL colour on request. Available in Aluminium!

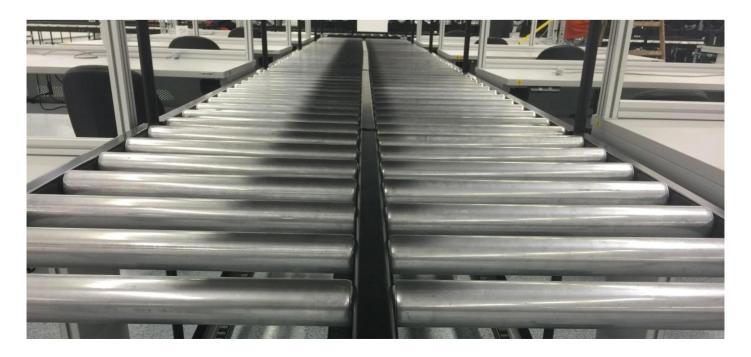




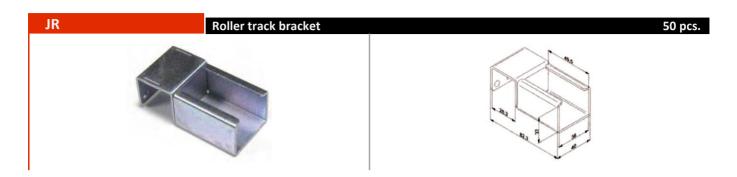
Available in Aluminium! - RGL1040AL

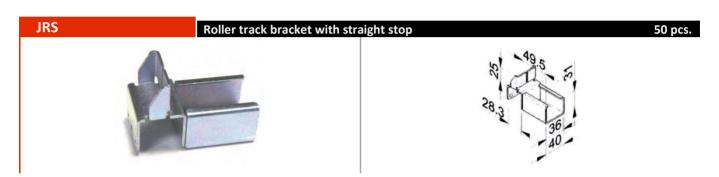


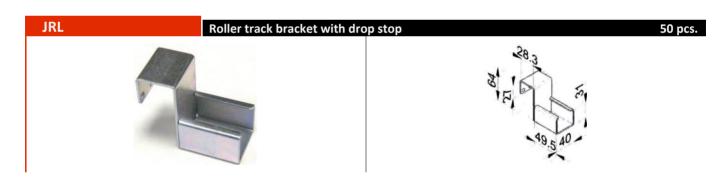
Available in Aluminium! - RG4040AL

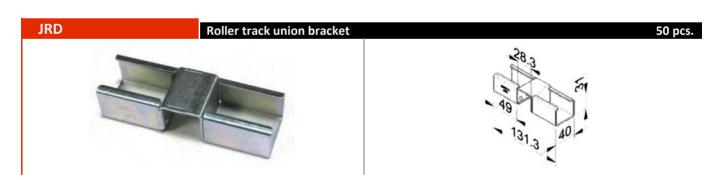


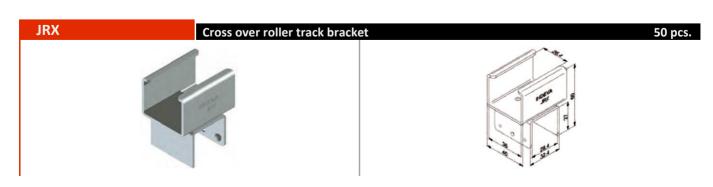
Roller track support accessories



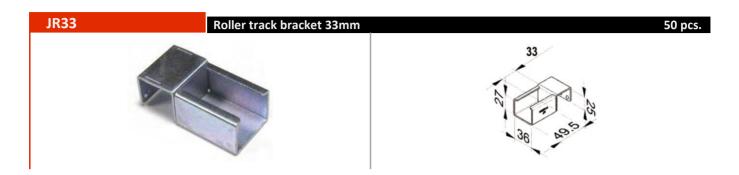


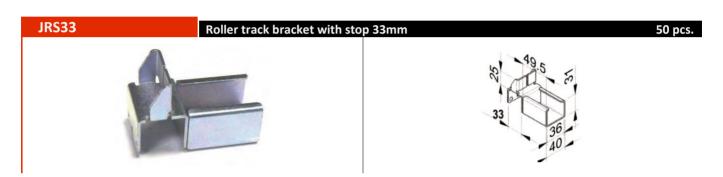




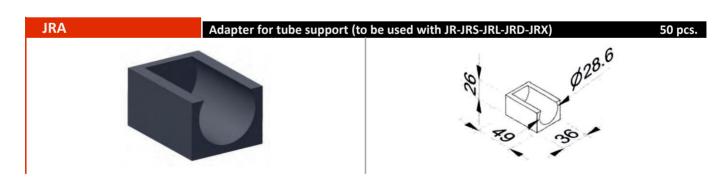


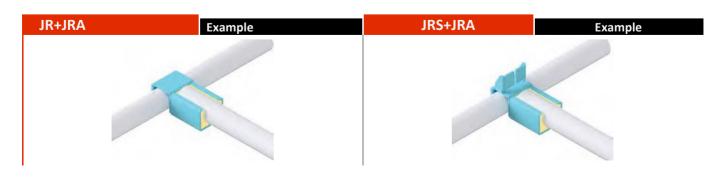
Roller track support accessories













Plastic accessories

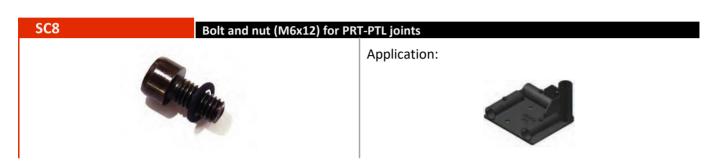


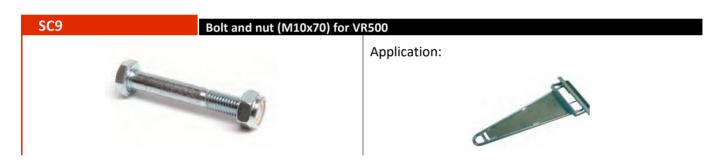
Screews and bolts

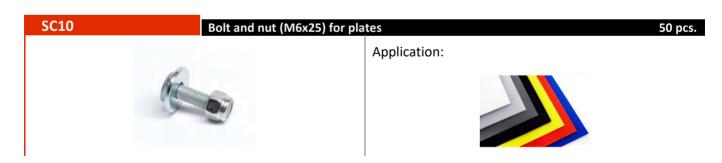


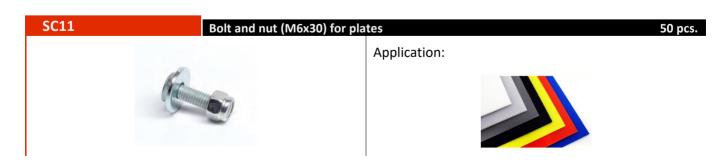
Screews and bolts











Feet and accessories



Feet and accessories



Feet and accessories



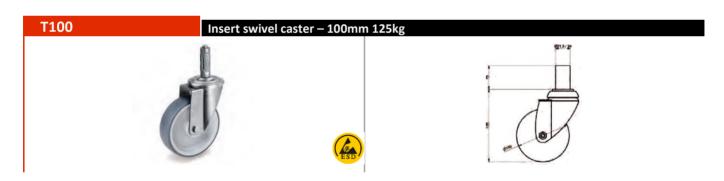
Wheels

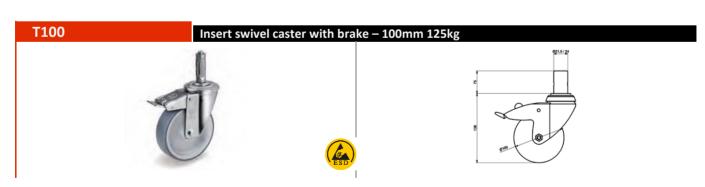
Standard wheels

Special wheels on request. Wheels available in ESD.





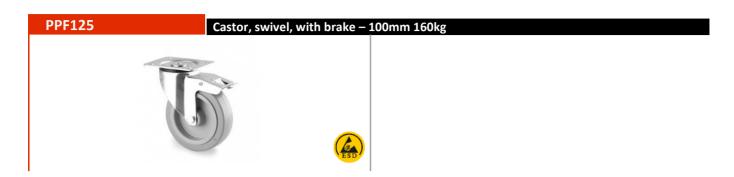


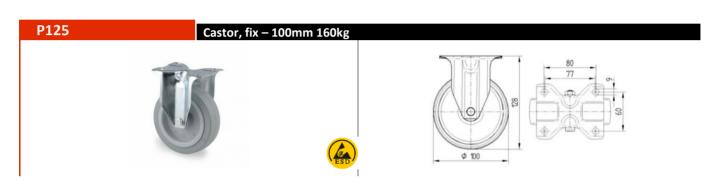


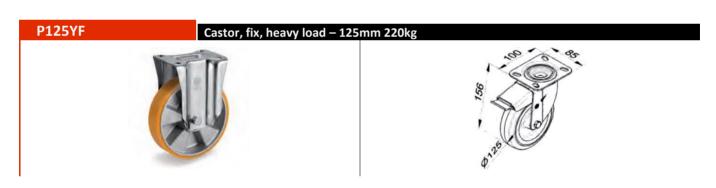


Standard wheels

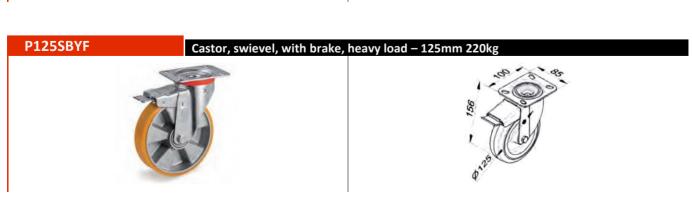
Special wheels on request. Wheels available in ESD.



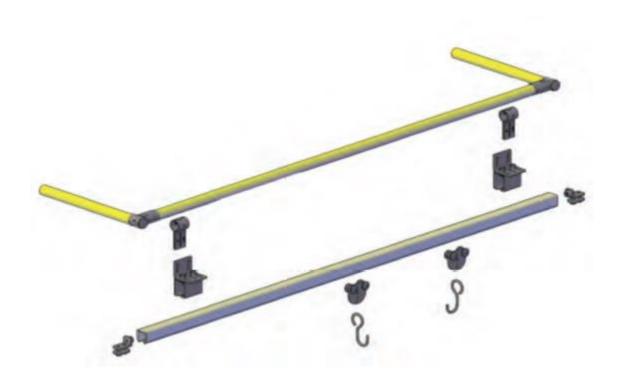




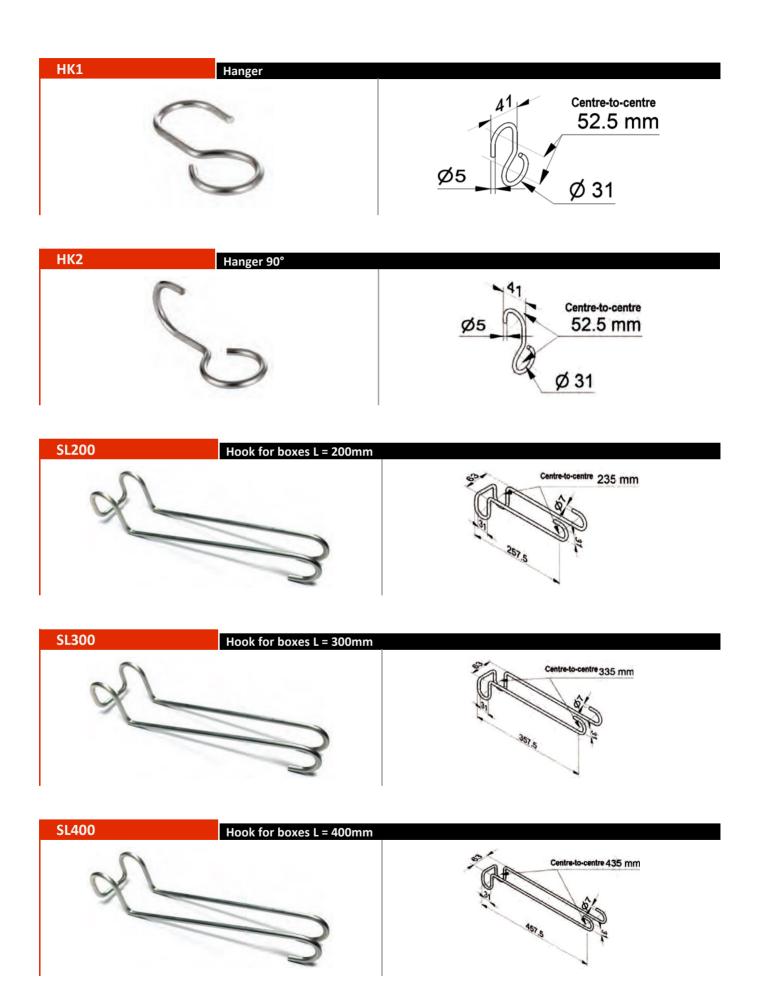




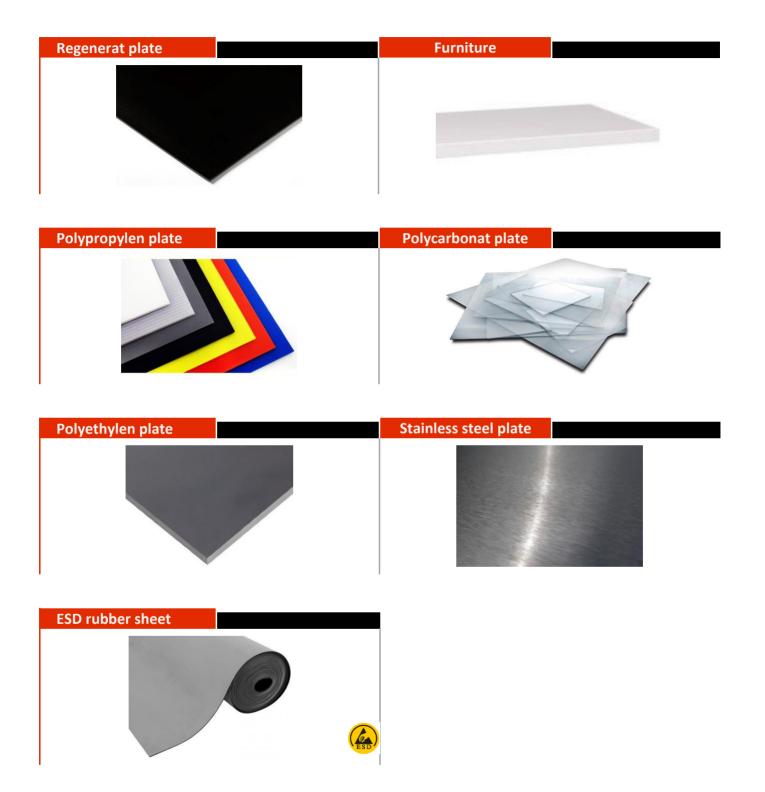
Monorail





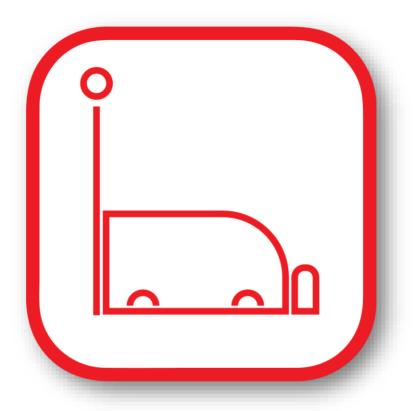


Plates











Automated Guided Vehicle

Very definite logistic flow with fixed route. Operation 24/7 with no human intervention required. Elimination of the risks associated with use of forklift trucks. No damage caused by AGVs to goods, machinery or permanent structures.

Advanced programming interface

Quick and easy programming by means of a touch panel or PC interfaces. Possibility to introduce interfaces with external input/output signals.

Flexibility

No conventional materials-handling infrastructures required. The number of AGVs can be increased as business grows. Updates are possible without shutting down the entire system. Work flow shared efficiently and dynamically between AGVs in use. Routes are easy to reconfigure if needed, new AGVs easily added. Compatibility with any type of automation. Traffic management system guaranteed to avoid collisions.

Efficient, reliable and flexible transport

Just-in-time delivery. No destination errors. More precise inventory management. Elimination of material stocked on the production floor.

Optimum quality to price ratio

Low running and maintenance costs.



Automated Guided Vehicle (AGV)

STANDARD models

INDEVA® Tugger AGV and INDEVA® Tunnel AGV

INDEVA® AGV standard models

TUGGER AGV 750kg – 1500kg TUNNEL AGV 750kg.

Main features:

The AGVs follow a magnetic tape which is quickly and easily laid along the required route. Each standard AGV can be configured for different functions and can be upgraded from a range of optional accessories.

An INDEVA AGV is programmed for automatic start by means of either a preset timing or reception of a signal from customer's line.

Comes complete with standard interfaces. Customer can use these to perform special functions or to control external devices.



INDEVA TUGGER AGV 750kg - 1500kg

INDEVA TUGGER AGV is typically a standard product used to tow a train of trolleys. We can supply trolleys designed according to the materials to be moved.



Automated Guided Vehicle (AGV)

STANDARD models

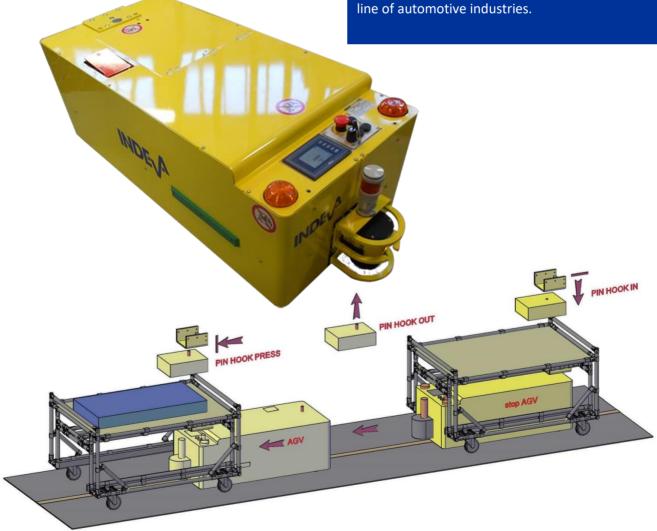
INDEVA® Tugger AGV and INDEVA® Tunnel AGV



INDEVA TUNNEL AGV

INDEVA TUNNEL AGV is used to move trolleys through the workshop and warehouse. This AGV positions itself beneath a trolley or cart that, using a fully automated pin hook system, is then guided to the destination. At the destination, the AGV moves forward, automatically releasing the full trolley and hooking the empty trolley for return to the warehouse. Towing capacity up to 750 kg.

This AGV model is largely used to transport accessory kits from warehouse to the assembly line of automotive industries



Automated Guided Vehicle (AGV)

CUSTOM solutions

A custom built INDEVA AGV is designed specifically to meet special site and operational requirements regarding structure, layout, size and program. Custom AGVs can be constructed to your exact specifications using either modular pipes and joints from our INDEVA Lean System range of components or a steel base structure.



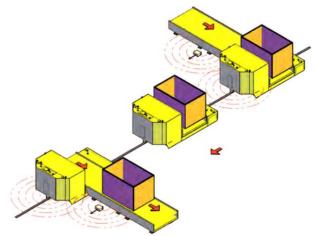


These AGVs are equipped with custom made power driven conveyors, matched by similar conveyors at the load and offload positions. On arrival at correct location, the AGV establishes contact with the conveyor using WI-FI. This sets both powered conveyors rotating at the same speeds so providing a smooth, controlled transfer of product. Potential applications are the transfer of heavy loads and fragile materials.

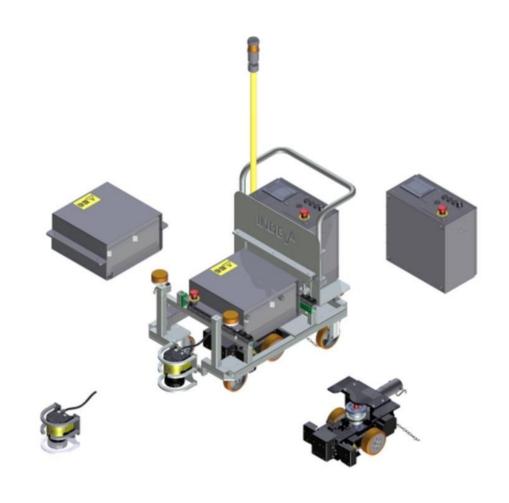
Samples of custom solutions

The INDEVA AGV shown below is complete with power driven rollers for uploading large containers from the conveyor line that carries material between the warehouse and assembly line. It can carry loads up to 1500 kg.

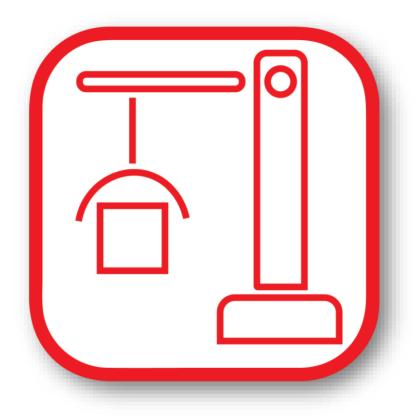
An INDEVA custom gravity AGV is used to transport boxes and small containers in both directions between the warehouse and assembly line. The loading/unloading of the boxes from/to the AGV is carried out with a completely automatic and simple mechanism using gravity to slide boxes from the AGV to the rack and vice-versa. The dimensions of the roller tracks are designed according to the size and the number of boxes to be carried













The industrial manipulators Liftronic® Series better referred to as INDEVA®s (Intelligent Devices for handling) belong to the class of manipulators worldwide known as "Intelligent assist devices (IADs)". Compared to the traditional pneumatic manipulators offer significant advantages related to Ergonomics, Safety and Productivity.

LIFTRONIC® - INTELLIGENS AND SENSITIVE

The LIFTRONIC® series zero gravity balancers named Intelligent Devices for Handling or simply INDEVA are an evolution of the traditional manipulators. Equipped with advanced microprocessor based logic instead of the traditional pneumatic logic, the INDEVA are not affected the typical technological limitations of pneumatic manipulators and can achieve a far better performance. The LIFTRONIC® series INDEVA are more compact and lighter compared to traditional manipulators and allow operators to handle greater speed and precision. Thanks to their advanced control system the INDEVA instantaneously adjust to changes in load mass and operator intent with no manual adjustment required. By simply grasping the inline handle or the load itself (flat mode) and gently applying force in the desired direction, the operator can handle loads as if they weighed only a few grams.



PN - PRACTICAL AND STRONG

The PN series manipulators are completely pneumatic balancers to lift, move, turn and position loads up to 250kg as if they were almost weightless. Reliable, robust and versatile, they are suitable for handling offset loads. All the PN series balancers can be designed according to the ATEX regulations.



Liftronic® Easy

Intelligent Device for Handling

Liftronic® Easy is an INDEVA® - Intelligent Device for Handling. Suitable for rapid and repetitive work cycles with **simple gripping tools**.

Main features

- · Auto-weight sense and auto-balancing
- Can be integrated with App-Indeva and INDEVA® Gateway
- Unparalleled safety
- Ergonomic design
- Simple gripping devices
- Compact and light
- Fast, responsive and precise
- Low carbon footprint



TECHNICAL DATA

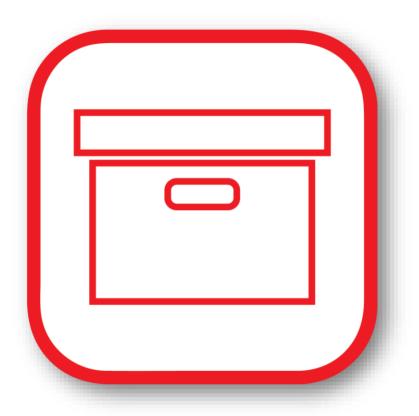
Max. gross capacity: from 80 to 320kg (weight of lifting tool included) Power supply: 110/230 V-AC - 50/60 Hz Power consumption: max 700 VA Enclosure protection: 54 IP Vertical stroke: up to 2.80m













WORK IN PROCESS CARTS

INDEVA Lean System® is the ideal solution for the design and assembly of in-house material handling carts. A work in process cart built with an INDEVA Lean System® modular structure offer following advantages compared to fixed structure carts.

- Safe support for delicate, high value parts
- Effortless material handling alongside production lines
- Very easy to manoeuvre
- Quick to adapt for different parts and processes
- Easy to build for temporary demand
- Reusable components





Other intralogistic accessories

WELDED STRUCTURES, CHASSIS, FRAMES

- E/H/C/Z frames
- 2/4 wheel steering





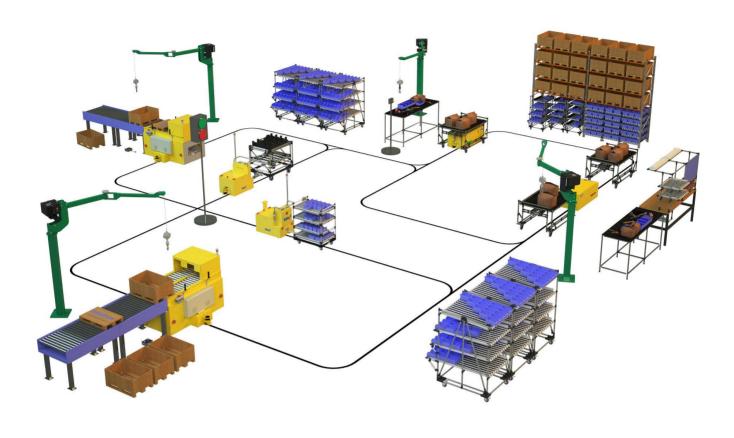


BOXES, INSETRS

- Conductive or
- Non Conductive









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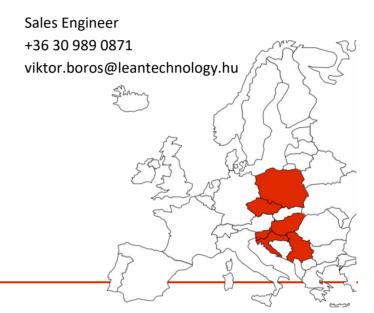
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MATERIAL HANDLING SOLUTIONS

Lear

