

# medium duty SHELVING

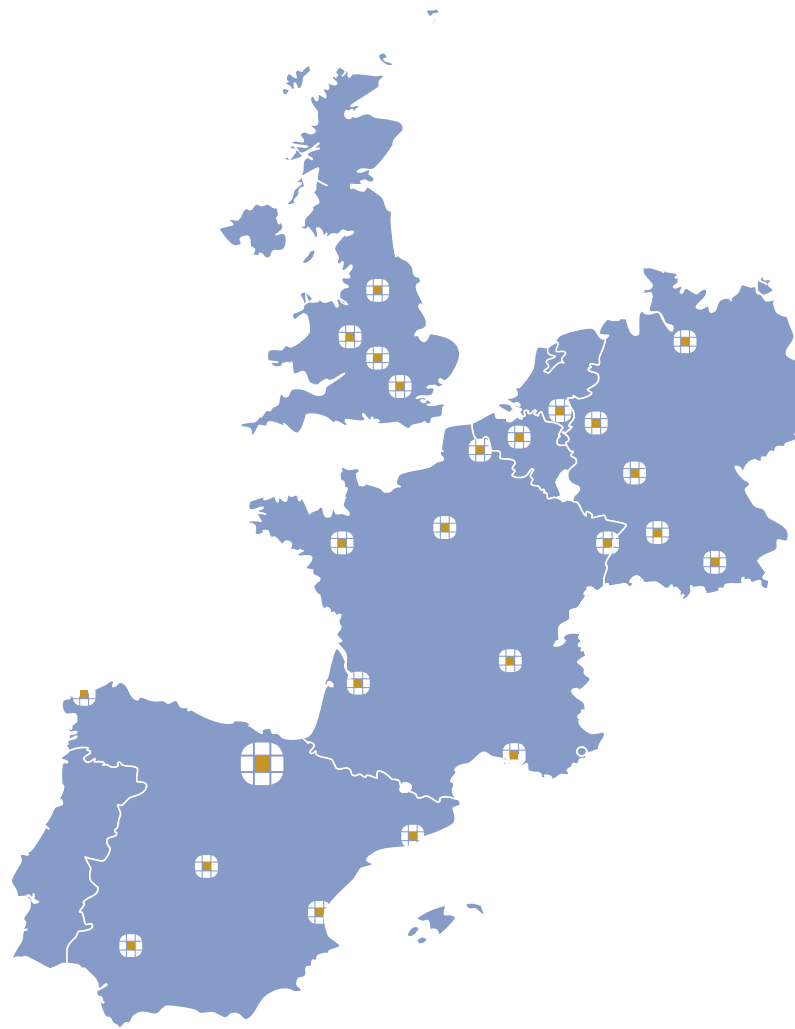


# The Whittan group

**POLYPAL** is a subsidiary of the Whittan Storage Systems Group, based in the UK, the leading European supplier of top-quality storage systems with customers in more than 30 countries. Whittan Group consists of a network of companies, which design, manufacture and install a wide range of storage solutions across Europe.



GROUP OF COMPANIES



Polypal factory in Iurreta (Biscay, Spain)

## Polypal

With more than 100 years of experience in this industrial sector, POLYPAL STORAGE SYSTEMS S.A. specialises in the design, manufacturing and installation of a wide range of storage solutions.

**POLYPAL** has subsidiaries in Germany, Belgium, France and the Netherlands, in addition to five offices in Spain.

POLYPAL's production facility is located in Iurreta (Biscay-Spain), only 30 km away from Bilbao, 25 km away from the international airport and 30 km away from the Port of Bilbao. The factory has a gross floor area of 10,000 m<sup>2</sup>, in which modern equipment and technical resources are used by a team with vast experience, under a strict quality system with certifications by the ISO 9001, ISO 3834 and UNE-EN 1090 standards.

POLYPAL and the Whittan Group are members of different maintenance organizations:





**POLYPAL storage system, manually handled** items. Perfect for the storage of different types of medium duty loads.

## medium duty

Goods are stored manually at ground level or, if needed, from the multitier raised aisles of the storage system. The system can be set up for its use in automated warehouses or with order pickers.

**UTILIZATION OF THE AVAILABLE SURFACE IS INCREASED WEITH** a simple system, based on:

- Side frames with various heights and depths.
- Beams with various lengths.
- Metal wire mesh or chipboard panels.
- Metal shelves.

### assembly

The system can be assembled **very easily and quickly, with no need for special tools**, allowing users to assemble and modify themselves. Future modifications or relocations, for which sreamsbly might be needed, are easily accomplished.



\*Optional: pre-galvanised finish.



# Advantages

- **Very simple system**, based on bolted frames and beams attached to the front of the upright.
- **Many different configuration options** for position of shelves.
- **High capacity**, adapting the shelving structure to any type of manual load, in terms of weight and volume.
- **The entire volume of the warehouse can be used**, employing mechanical operator lifting equipment or multitiers to access the top levels.

# Medium duty with beams



## structure

The basic structure of the system is designed according to the type of use, featuring **side frames**, various configurations of **beams and decking** which can be:

- Uncoated or melamine finish chipboard.
- Galvanised metal panels.
- Reinforced galvanised metal wire mesh shelves.

The safety between the beams and frames is guaranteed by the **especially shaped pins**.

## stability

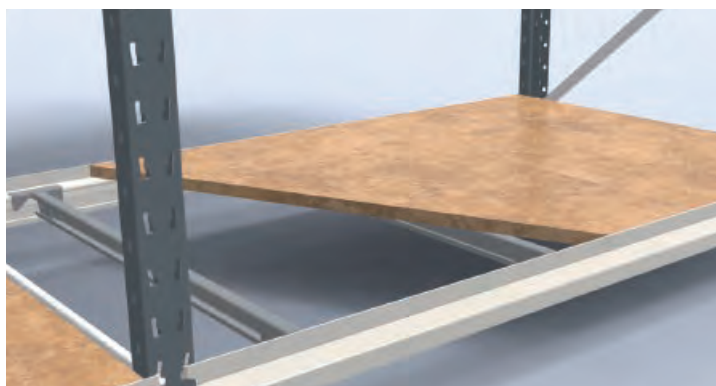
The stability of the system is **achieved by attaching the beams to the frames and creating a strong joint**. The safety of the joint is guaranteed by the safety pins that prevent the beams from being pushed out of their housings in the event of an accidental impact.



**On each level, the decking is supported on two beams, generating clear load levels that can be used to store:**

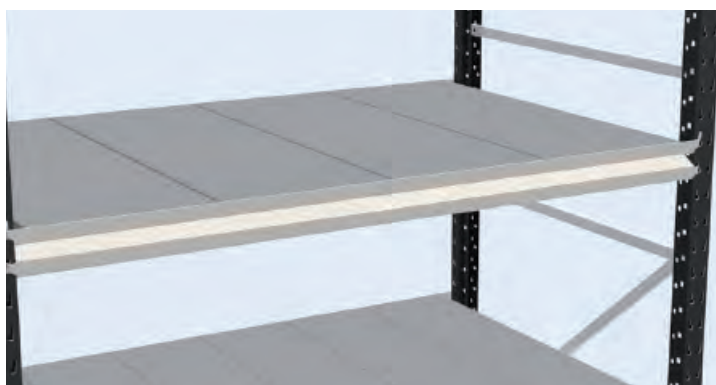
- Large, medium duty goods.
- Boxes or packages.
- Heavy duty goods on smaller levels.

# Decking options



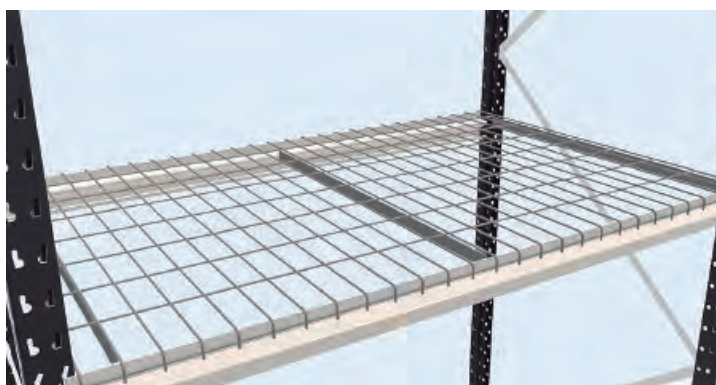
## chipboard panel

The chipboard panels are supported on MNE3 beams, the panels are protected by the vertical flange of the beam, preventing their deterioration during loading and unloading operations. **The use of MN reinforcements is recommended to increase the loading capacity of the chipboard panel.** Preferably, these should be used on greater depth levels.



## metal panel

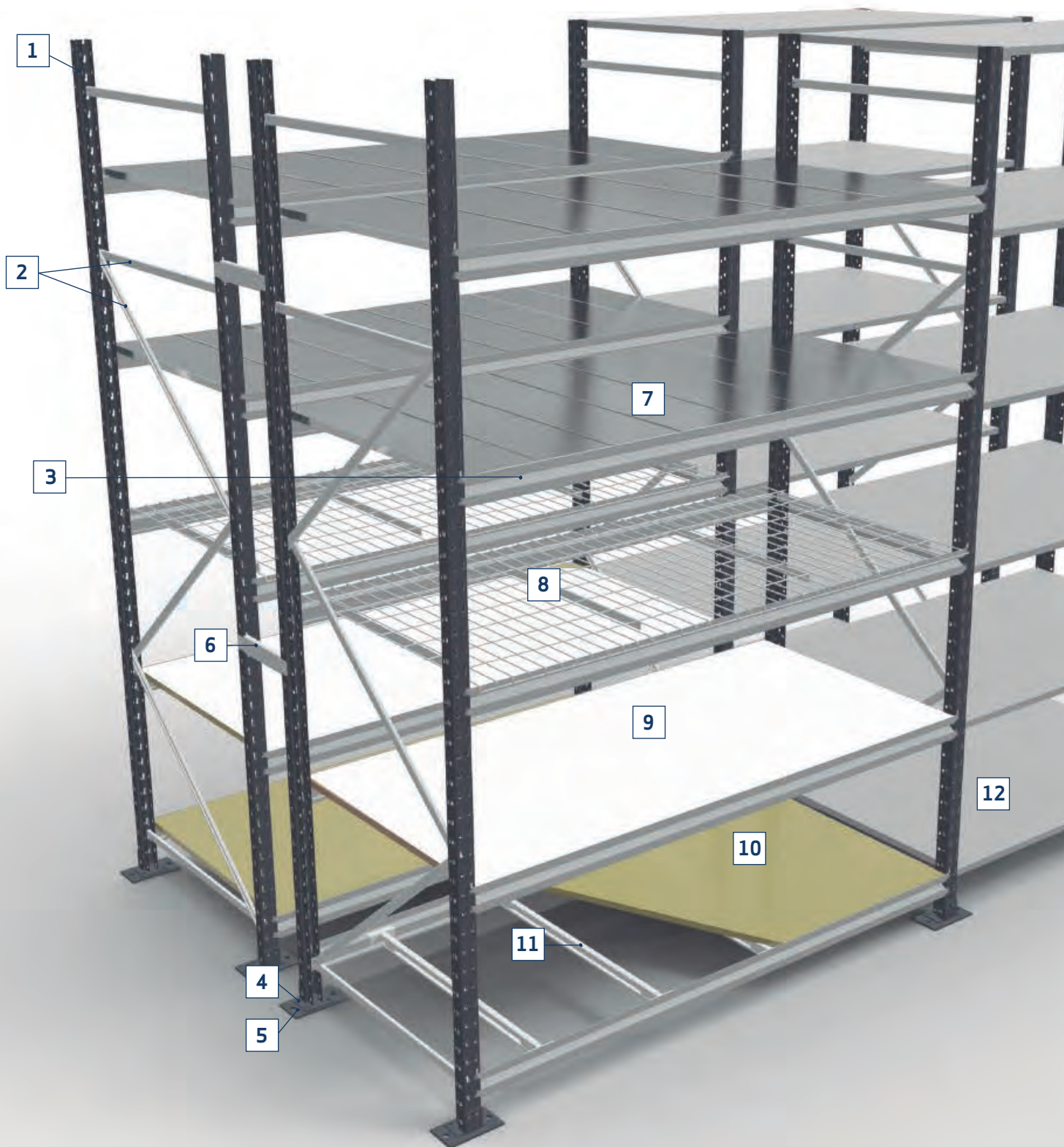
The metal galvanised panels are supported on MNE3 beams, so the panels are protected by the vertical flange of the beam. **The galvanised finish makes them remarkably resistant** to wear and to occasional spillages of non-corrosive liquids.



## mesh panel

The load levels built with the galvanised metal wire mesh panels are supported on MNE3 beams. They are designed with different "mesh" configurations and number of reinforcements, according to the load requirements. **They prevent the accumulation of dust and allow the water of fire protection systems to flow through.**

# Medium duty system







## standard colours



Graphite grey



RAL 7035

## components

- 1 Upright
- 2 Bracing
- 3 Beam
- 4 Footplate
- 5 Levelling shim
- 6 Row spacer
- 7 Metal panel
- 8 Mesh panel
- 9 Melamine panel
- 10 Chipboard panel
- 11 Chipboard reinforcement
- 12 Metal shelf

**POLYPAL's medium duty shelving solutions increase the available space.** The solution has a basic structure, made up of frames that define the height and depth of the shelving. The beams define the length of the module.

**The module can be assembled very easily and quickly.**

# Basic components



## standard frame

Frame made up of two upright (front and rear), joined with standard bracing.

**The bracing** used on the frame structure **is bolted to the uprights**, done so in narrow frames and light duty loads.



## upright and footplate

The upright of medium duty systems are perforated on the front and sides, allowing for **level height pitch every 50 mm**. The footplate secures the upright to the slab, **allowing the post to be secured with up to two points** of fixation with anchors, according to the applications and design needs.



## upright splicer

**The height of the upright is only limited by the load to be supported. Up to 10m** they are profiled in a single piece with a upright splicer to be used for greater heights.



## row spacer

**Double row shelving** spacer can be used to increase the stability of the shelving system.



## heavy duty frame

Frame made up of two upright (front and rear), joined with **heavy duty bracing**; the frame bracing is bolted independently to the adjoining positions. The bracing cross **section is twice the size of standard** frames. Its use is recommended in deep frames and for heavy duty loads.



## MNE3 stepped beam

The MNE3 beams **is the most commonly beam for supporting the shelves**, designed for manual loading system and profiled to receive the load from the chipboard shelves or metal panels.



## beam with a rectangular cross section

N type rectangular shaped tube beams are used for specific loads or utilization scenarios. The most standard dimensions are depending on loads: 60, 80 or 100 mm height and 50 mm depth. There is a type of beam for all loads.



## hanging garment rail beam

They are used in textile warehouses to store garments on hangers. Hung garments are stored on shelving structures made up of Ø33 hanger rails.

# Optional components

An additional option for this system is **the use steel shelves made out of reinforced panels.**



## structure

Each level is made up of a **single shelf**, which is reinforced on the front and rear with a folded and welded box section . As an option, metal wire mesh shelves can be supplied.

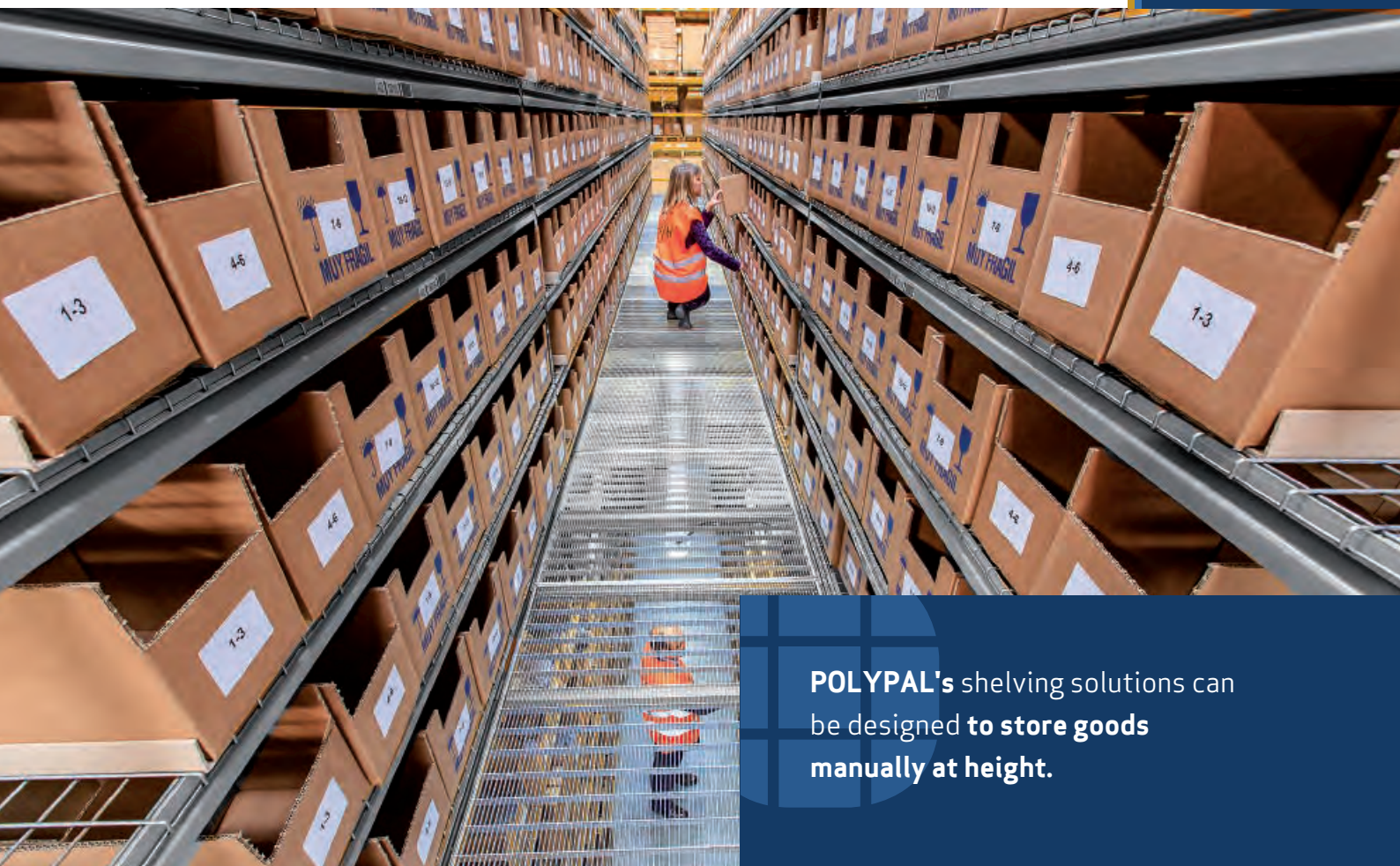
**These are recommended for the integration of specific modules, with a high compartment storage and division capacity, in medium duty warehouse structures that use beams.**

**This option of the MEDIUM DUTY system has the following applications::**

- Small, medium duty goods.
- Arrangement of small items using dividers or boxes of the light duty system.
- The shelf takes up very little space, so the frame height can be used up entirely.

## stability

The stability of the system is achieved by added rear bracing elements.



POLYPAL's shelving solutions can be designed **to store goods manually at height.**

## multitiers or walkways

Medium duty shelving with multitiers or walkways **allow operators to access the top levels of the shelving and handle products manually or with the help of manual trolleys.**

Staircases are installed throughout the facility to access these levels, according to the ergonomics and safety requirements.

In general, these facilities are used to store **medium and low rotation goods**, but they are sometimes used in high rotation e-commerce facilities that use computerised warehouse management systems for assistance.

## order processing units for orders prepared at height

POLYPAL's system has been designed for use with order processing units used to prepare orders at height; **this mechanical solution replaces multitiers.**

POLYPAL's manual loading shelving solutions can be designed and adapted to perform picking operations at **heights of up to 12 metres when using order processing units.**

**A guiding system** must be installed along with the shelving structure to use order processing units. This system must be **installed according to the specifications of the machine's supplier.** This guiding system will be based on either:

- Parallel U or L-shaped** profiles, anchored to the concrete slab for mechanical guiding purposes.
- Buried wire** used to guide the machine with a magnetic field.

This system features the accessories required to create different compartments in the positions and different shelf formats, **with the purpose of catering to the specific needs of each case.**

# Carton flow

**Manual picking FIFO and LIFO structures** are created with the use of inclined surfaces and mini-rails with rollers, for carton flow supported by POLYPAL's medium duty shelving solutions.

Loads are placed on the inclined reception channels, their downwards movement being, graduated by the roller systems, towards the dispatch and picking position. Benefits:

- A reduction in picking transit times of up to 40%.
- 35 %Less surface required for the same capacity.
- Reduction of picking errors.
- It can be adapted to the types of loads and systems, allowing manual or automated loading.

**POLYPAL's** dynamic manual loading shelving systems make stock control procedures **easier by following the "First-in-First-Out" principle and are compatible with "Pick to light" systems.**

The different configurations of **POLYPAL's** dynamic shelving solutions for picking **offer specific solutions for each order preparation scenario, with different box loading and unloading options.**



## with end stop

To load and handle whole boxes .



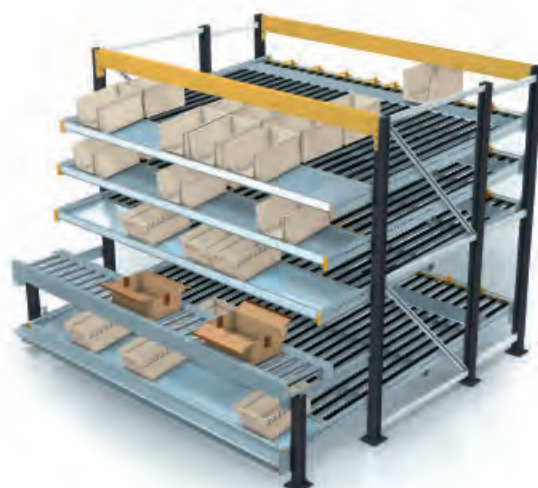
## with angled dispatch trays (5 to 15°)

For individual item picking from boxes, improving ergonomics and facilitating picking operations.



## with roller conveyors

Orders are prepared with roller guides, which move the order to the dispatch area.

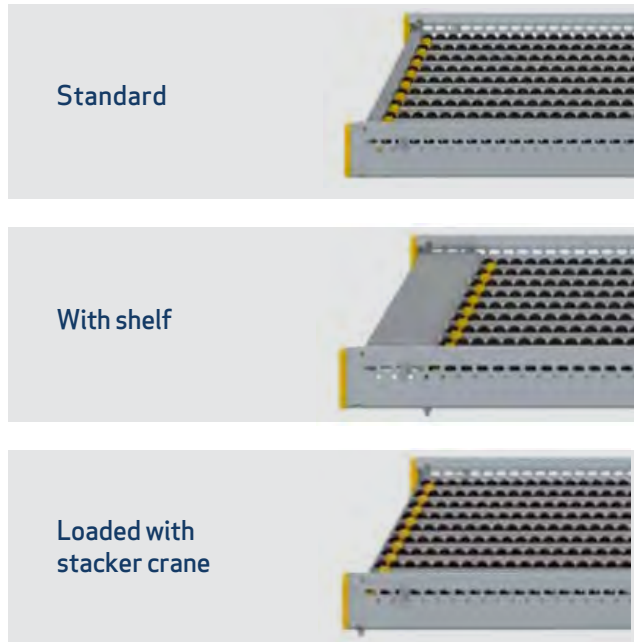


## with built-in gravity roller conveyor

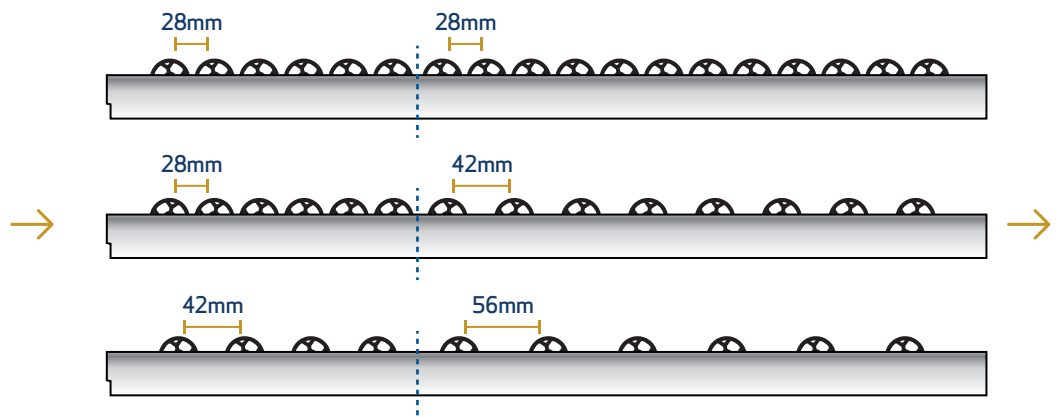
Perfect for small parts picking operations.

# Dynamic load system

## load side



Variable pitch between rollers of the same mini-rail to increase the resistance at the reception side, which usually receives most impacts. The distance between rollers is calculated according to the size and weight of the load.







## unloading side



Standard



With angled  
dispatch tray (5°)



With angled  
dispatch tray (15°)



With angled dispatch  
tray (adjustable  
inclination)



## entry guide

This guide helps the operator load boxes onto the correct channel.



## continuous guide or spacer

This element prevents boxes from falling onto the adjoining channel when moving down or during the picking operations.



## mini-rail

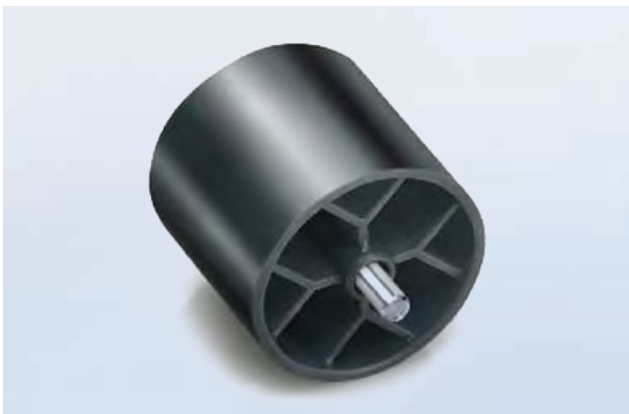
Mini-rail tracks are one of the base elements of the dynamic box handling system. **They are made of continuous profiles and a set of high-density polyethylene rollers with a metal shaft:**

- Manufactured in U-shaped pre-galvanised steel.
- High resistance to torsion.
- Variable pitch between rollers.
- Designed to ensure that the heavier the load the more the profile will close, making it impossible for the rollers to fall out.
- Operating temperature: -28°C to +40°C
- Loading capacity: up to 60 kg/ml
- Optional: brake clip and anti-return stop.

## track-stop



## bracking-clip



## rollers

The rollers act as the base on which the mini-rails used to transport goods or boxes slide:

- Manufactured in high-density polyethylene. 4 colours.
- 10 kg loading capacity of each roller.
- 3 mm steel shaft.
- Secured to the profile of the mini-rail with outer folded sections.



Pallet racking



Medium duty shelving



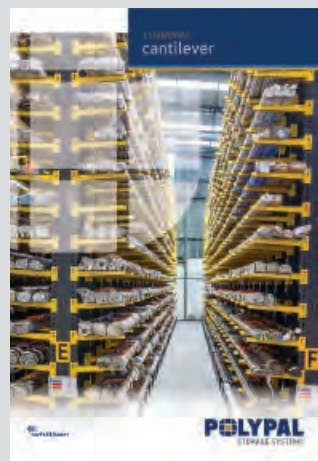
Light duty shelving



Mobile bases shelving



Mezzanine floors



Cantilever storage



Slotted angle



Racking technical inspection



Lockers

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