



**EMES**<sup>®</sup>



**EDUCATION  
BOOKLET**

# History

First Wheel  
Production  
“EM SERIES”

1998



Started to  
Production of  
Medical Wheel  
Production  
“EC SERIES”

2010



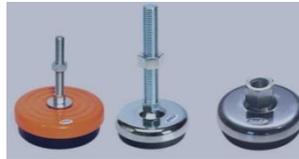
Moved to Our  
New Facilities  
and  
New Production  
Line

2012



Started to Sell  
Standard Machine  
Equipment  
Elements

2018



Dtarded to  
Produce Material  
Handling and  
Forklift Wheel

2019

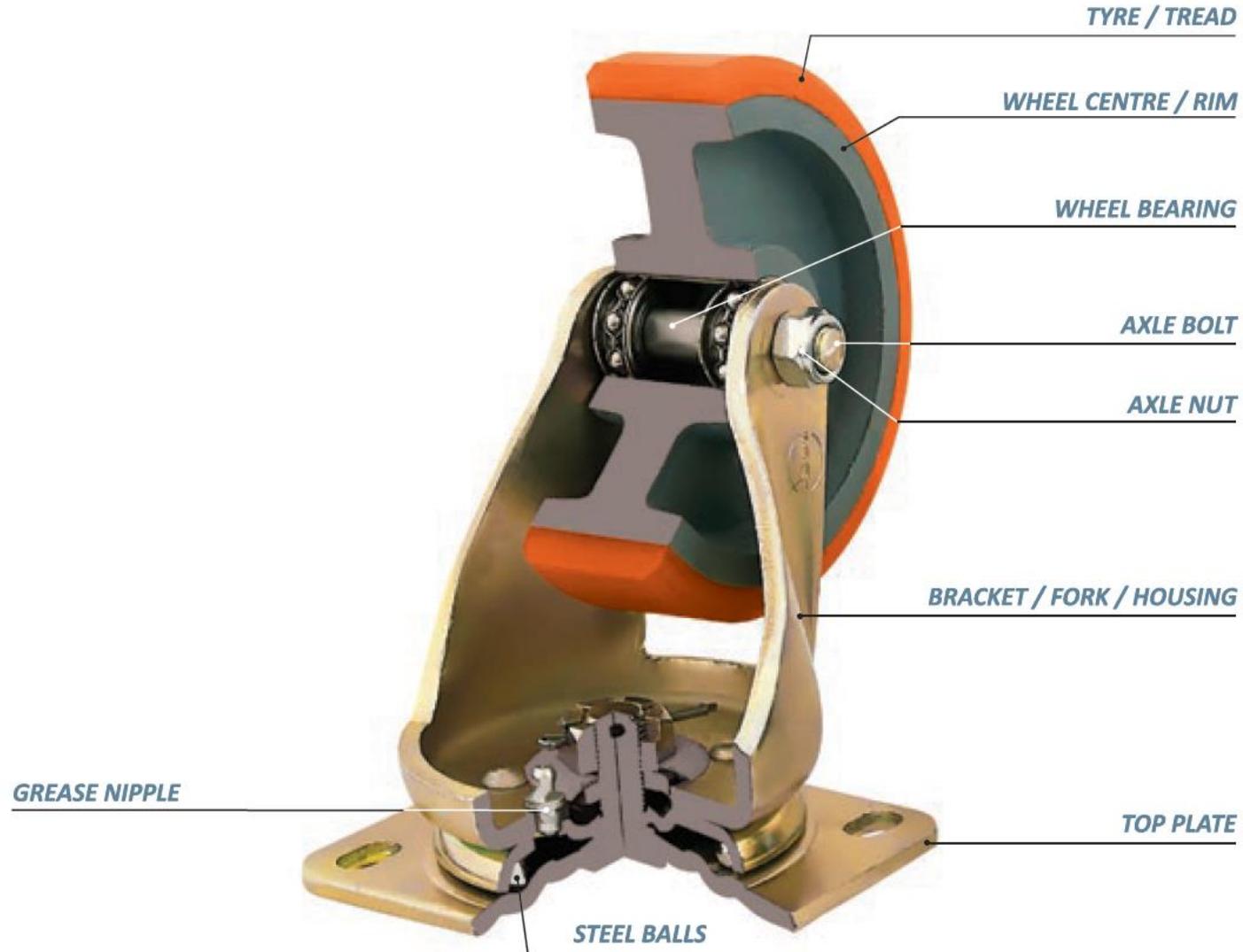


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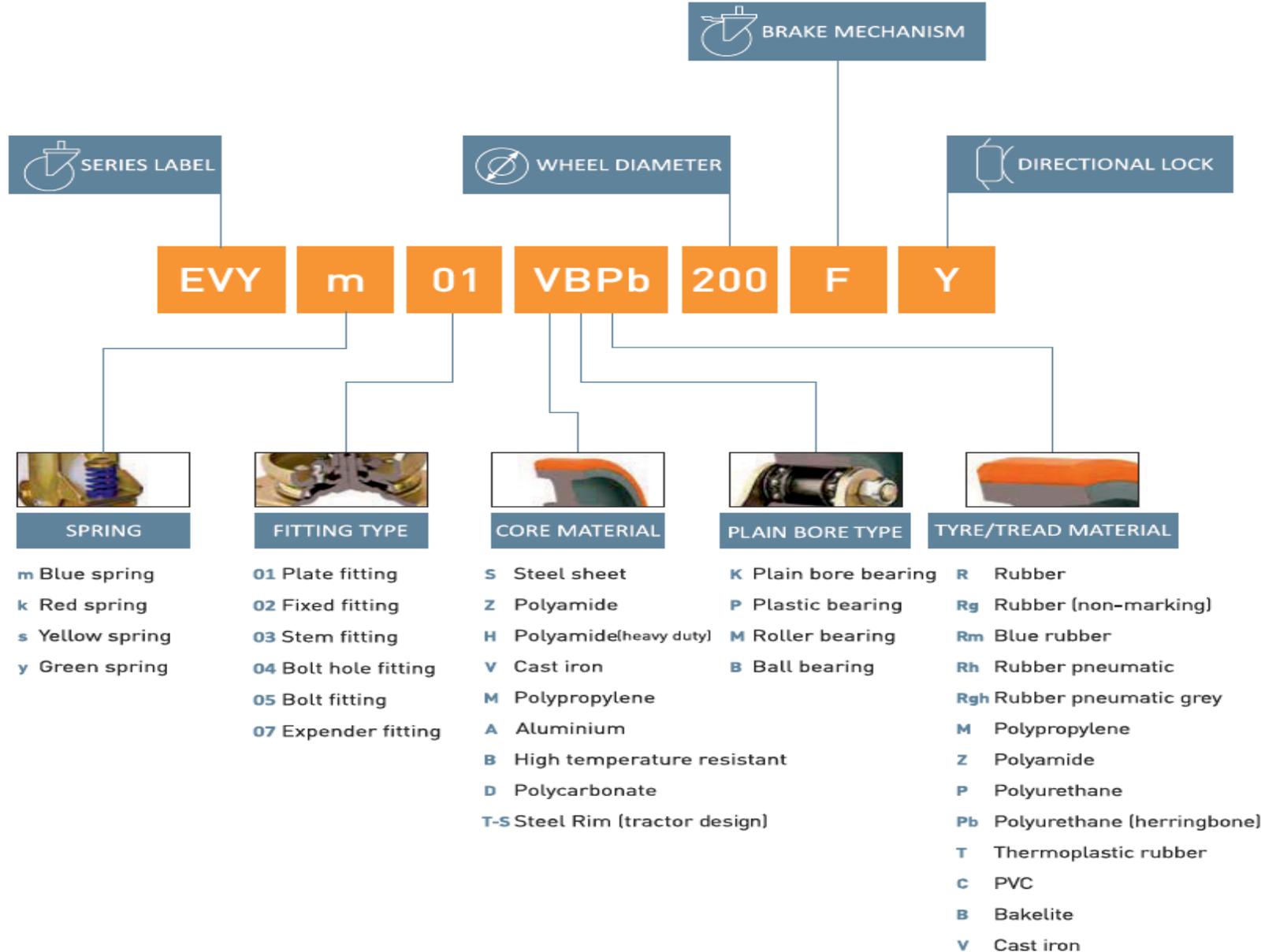
2021



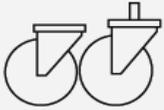
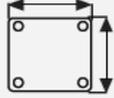
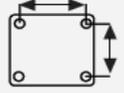
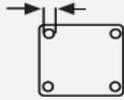
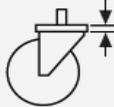
# Product Structure



# Product Coding System



# Wheel Symbols

				
Product code	Stem/bolt diameter	Plate size	Threadguard	Fork thickness
				
Wheel diameter	Hole diameter	Plate hole diameter	Bearing	Load capacity
				
Wheel width	Stem/bolt length	Plate hole diameter	Wheel weight gr	Axle bore diameter
				
Offset	Plate thickness	Hub length	Total weight gr	Steel thickness

(-): Without threadguard

(+): Optional

(S): Standard

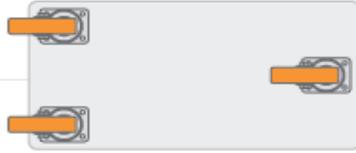
All length : (mm)

Product weight : (gr)

Load capacity : (kg)

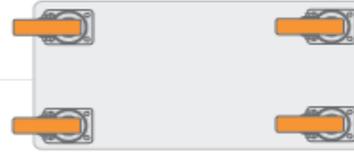
# Wheel Fitting Types

Carrying capacity and uses determined by considering the appropriate link format



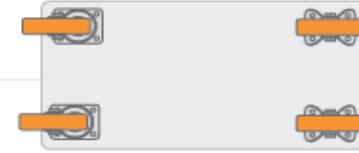
### Three swivel castors:

For small loads and confined areas. The appliance is easily manoeuvrable in all directions. When traveling straight, the appliance is relatively hard to control. With this arrangement, the appliance tends to tilt.



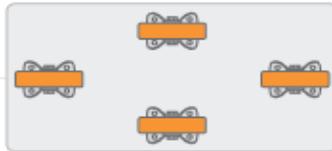
### Four swivel castors:

For medium heavy loads and confined areas. The appliance is easily manoeuvrable in all directions. When travelling straight the appliance is relatively hard to control. This can be improved by fitting directional locks to two of the swivel castors.



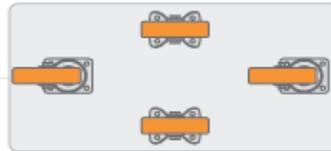
### Two swivel two fixed castors:

For medium and heavy loads in confined areas, the appliance is hard to manoeuvrable. When travelling straight the appliance is relatively good to control.



### Four fixed castors:

Straight travelling can be handled very well. By a load arrangement over the central fixed castors, the appliance can be steered relatively easy and turned on the spot. With this castor arrangement the appliance has a tendency to tilt and bounce.



### Two fixed and two swivel castors:

Straight line travelling as well as cornering can be handled very well and turned on the spot easily. With this castor arrangement the appliance has a tendency to tilt and bounce.



### Four swivel and two fixed castors:

Straight line travelling as well as cornering can be handled very well, turned on the spot easily and in particular suitable for heavy loads and long appliances.

# Determining Carrying Capacity



## Determine the required load capacity

The required load capacity of a wheel or castor is calculated from the weight of the unit and its maximum load, divided by the number of wheels or castors used.

### Appropriate castor

Load capacity with the necessary load capacity can be found by using the formula below.

$$C = \frac{E+L}{N} \times S$$

C: Minimum load capacity of the castor

E: Weight of the unit (tare)

L: Maximum load

N: Number of wheels or castor used

S: Safety factor (1,5<E<2,0)

A much more simple method to obtain the minimum load capacity can be applied by dividing the weight of the loaded device to one less of the number of castors. For this purpose the following formula can be used.

$$C = \frac{\text{Total weight}}{\text{Number of castors}-1}$$

## Select the required wheel bearing type

To select a suitable bearing, the load, speed, environmental influences and the amount of force need to bring the transport unit into motion need to be considered.

# Chemical Resistance Table

Chemical stability of the various materials are shown in the following table

Chemical Resistance	Rubber	Polyamide	Polypropylene	Thermoplastic rubber	Polyurethane	PVC	Cast iron	High temperature resistant
Alcohol	+	++	+	+	++	-	--	+
Ammonia	-	++	+	-	++	-	-	+
Vegetable Oils	-	++	++	+	+	+	++	++
Mineral Oils	--	++	+	+	+	+	++	++
Petroleum Products	--	++	++	+	+	+	++	+
Solvents	-	++	-	-	--	-	++	-
Water	++	++	++	++	++	++	-	++
Sulphuric Acid (%10)	-	--	++	+	-	--	--	-
Milk	-	++	++	+	++	-	--	++
Sea Water	+	++	++	+	++	+	--	++
Temperature	-20°C +60°C	-20°C +70°C	-20°C +60°C	-20°C +60°C	-20°C +70°C	-20°C +60°C	-40°C +600°C	-40°C +280°C

## Thermoplastic Polyurethane (TPU) Wheels

**Areas:** Thermoplastic Polyurethane is suitable at temperatures between  $-20^{\circ}\text{C}$  and  $+70^{\circ}\text{C}$

**Properties:** It is vibration absorbing, floor preserving, non-marking, elastic, very abrasion-resistant. It has also a low rolling resistance

Colour: Red / Dark Orange



## Polyamide Wheels

**Areas:** Polyamide is suitable at temperatures between  $-20^{\circ}\text{C}$  and  $+80^{\circ}\text{C}$

**Properties:** It is very abrasion-resistant, floor preserving, non-staining, corrosion resistant. Also odourless, tasteless, hygienic and resistant to many aggressive chemicals except mineral acids, oxidants, chlorinated hydrocarbons and heavy-metal saline solutions

Colour: White



## Cast Iron Wheels

**Areas:** Cast Iron is suitable at temperature  $-40^{\circ}\text{C}$  and  $+600^{\circ}\text{C}$

**Properties:** It is extremely wear resistant, very high load capacity, resistant to oils.

Colour: Grey



## Polypropylene Wheels

**Areas:** Polypropylene is suitable at temperatures between  $-20^{\circ}\text{C}$  and  $+60^{\circ}\text{C}$ .

**Properties:** It is impact-resistant, harmless, non-marking, resistant to many aggressive substances except strong oxidants and halogenated hydrocarbons.

Colour: Black



## Cast Iron Polyurethane (Elastomer) Wheels

**Areas:** Cast Iron Polyurethane is suitable at temperatures between  $-20^{\circ}\text{C}$  and  $+70^{\circ}\text{C}$

**Properties:** It is vibration-absorbing, abrasion resistant, floor-preserving, non-marking, resistant to many chemicals but not resistant to petroleum products and mineral oils.

Colour: Orange



## Rubber Wheels

**Areas:** Rubber is suitable at temperatures between -20°C and +60°C

**Properties:** It is vibration-absorbing, shock-resistant, floor-preserving, non-marking (gray), resistant to many chemicals except oils.

Colour: Black / Gray

Hardness: 82 ± 3 Shore A



## Thermoplastic Rubber (TPR) Wheels

**Areas:** Thermoplastic rubber is suitable at temperatures between  $-20^{\circ}\text{C}$  and  $+60^{\circ}\text{C}$

**Properties:** Thermoplastic rubber is floor-preserving, vibration-absorbing, low rolling resistance on uneven surfaces, non marking, resistant to many chemicals.

Colour: Grey

Hardness:  $90 \pm 2$  Shore A



## Elastic Rubber Wheels

**Areas:** Elastic rubber is suitable at temperatures -20°C and +60°C

**Properties:** These tyres are floor-preserving, vibration-absorbing, offer a particularly high load capacity, high optional comfort and are resistant to many chemicals except oils. Also they are characterized by a special rubber compound.

Colour: Blue

Hardness: 75 ± 5 Shore A



## Pneumatic Tyres

**Areas:** Pneumatic tyre is suitable at temperatures  $-20^{\circ}\text{C}$  and  $+40^{\circ}\text{C}$

**Properties:** Pneumatic tyres are made of rubber, floor-preserving, non-marking, vibration-absorbing. These tyres also offer highest operational comfort and a low Rolling resistance on uneven surfaces, and resistant to many chemicals except oils.

Colour: Black





## Plate Fitting:

Plate fitting is generally used for light duty, transport equipment and heavy duty castors. The castors are fitted to any equipment with a flat base by means of bolts and nuts.

**The following specifications have to be considered when selecting plate fitting:** plate size, hole spacing, hole diameter.



## Stem Fitting:

Stem fitting is generally used for light duty and transport equipment castors. These castors are fitted by means of a plug-in.

**The following specifications have to be considered when selecting stem fitting:** stem diameter, stem length.



## **Bolt Hole Fitting**

Bolt hole fitting is generally used for light duty and transport equipment castors. Bolt hole fitting, a connection element is pushed through the bolt of the swivel head.

**The following specifications have to be considered when selecting bolt hole fitting:**  
hole diameter



## **Bolt Fitting:**

Bolt fitting is generally used for light duty castors. These castors are fitted to the transport unit by means of a threaded pin which is tightened to thread or cylindrical hole and a nut.

**The following specifications have to be considered when selecting bolt fitting:** screw diameter, screw length.



## Expander Fitting:

Expander fitting is generally used for light duty castors. The castor is fitted by means of a synthetic expander which is inserted in to a hole or a round square tube.

**The following specifications have to be considered when selecting expander fitting:** tube shape (round or square), internal tube diameter.

# Expander Types

1	20-25	Square
2	26-30	Square
3	20-25	Round
4	25-30	Round
5	35-40	Square



## Ball Bearing:

The ball bearing is generally used for heavy duty castors and transport ball bearing equipment castors. It is resistant to shocks easy and silent rolling. It has the smallest bearing play, lubricated with long-life grease and is maintenance-free under standard conditions. In addition to the standard type ball bearing is also available in stainless steel type.



## Roller Bearing:

The roller bearing is generally used for light duty castors and short distances transport equipment. It is resistant to shocks, strong, lubricated with long-life grease and is maintenance-free under standard conditions. In addition to the standard type roller bearing is also available in stainless steel type.



## Plain Bore Bearing:

The roller bearing is generally used for light duty castors and short distances transport equipment. It is resistant to shocks, strong, lubricated with long-life grease and is maintenance-free under standard conditions. In addition to the standard type roller bearing is also available in stainless steel type.

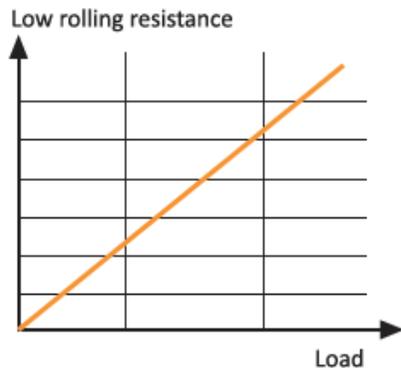
## Product Selection

Depending on type of application, wheels, swivel and fixed castors can be used.

The castors can be fitted with a plate, bolt hole, screw and expander.

## Manoeuvrability

The manoeuvrability of the tread depends on the wheel diameter and bearing type of the castors.



### Low rolling resistance

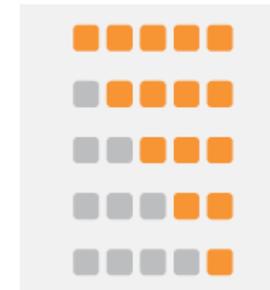
- Wheel diameter (large)
- Tread (hard)
- Bearing type (ball bearing)
- Floor (even floor)

## Tread/Tyre Material

The hardness of softness have a considerable influence on the comfort of castors and wheels used.

### Operating noise

Hard → Soft

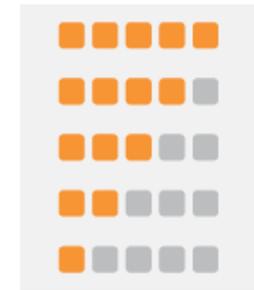


### Material of the tread/tyre

- Pneumatic wheels
- Elastic rubber
- Rubber
- Polyurethane (elastomer)
- Cast iron, Polyamide, Polypropylene

### Tread/tyre hardness

Noisy → Silent



- **Top Table:** Horizontal table that can be attached to the vehicle
- **Table Bolt:** It can be fixed or mobile. It provides the assembly of the complete swivel bracket. Precision threaded table bolts also integrate with the nut, helping to fine-tune the swivel fork construction
- **Swivel Bracket:** It is the state of the tongs and the table, or in other cases, the lower and upper bowls that come out as a result of the assembly of the brackets. The bracket coupler is the spare coupled part that is stocked before the complete wheel assembly. It is the distance from the table bolt to the outside of the wheel. With this measurement, the place occupied by the swivel fork in 360° movements is indicated
- **Upper Ball Bowl:** The bowl in which the balls at the top of the complete bracket move
- **Lower Ball Bowl:** The bowl in which the balls at the bottom of the complete bracket move
- **Tapered Bearing:** Precision ball bearing used instead of lower precision ball and cup in heavy series
- **Bute Bearing:** Precision ball bearing used instead of upper precision ball bowl in heavy series
- **Mounting Bolt:** The bolt used to assembly the wheel to the bracket

- **Overall Height:** It is the vertical distance between the roulette table and the place where the wheels step.
- **Offset:** It is the vertical distance between the wheels pressing.
- **Dynamic Load:** It is the load that the moving wheel is exposed to.
- **Static Load:** It is the load that the wheel is exposed to in stationary situations.
- **Impact Load:** Sudden impacts that may occur when loading the vehicle.
- **Wheel Width:** It is the width of the base of the wheel in contact with the ground.
- **Maneuver:** Maneuverability of the swivel bracket. Offset is the main theme of maneuverability. Small distance offset reduces maneuverability. Large distance offset reduces the load capacity. Large distance it reduces the load capacity and can cause wobble.

- **Assembly Nut:** The nut used to assembly the wheel to the fork
- **Spacer:** The tube used to keep the bearing gaps in wheels with bearings
- **Bearing Plug:** Ring used to fix the bearing inner ring on wheels with bearings
- **Lubricator:** Provides lubrication of the balls in the upper and lower bowls

Running Resistance on wheels in places where arm power is used, wheel selection should be made by taking into account the force (effort) of the human being. It is generally accepted that 18 kg of force must be used to move the vehicle.

However, this decreases to 12 kg during execution. This situation is a short time. It is valid for distance. In long distances, this decreases up to 6 kg. It is necessary to consider the above determinations when choosing wheels.

Walking resistance may vary in every application. In general, it can be expressed as; wheels with a hard base have low running resistance. It is necessary to enlarge the wheel diameter to make it easier to turn wheels with soft soles have high running resistance.

Soft-Based Wheels, flexible and soft-bottomed wheels run silently and have the highest floor protection.

But three times the driving power (effort) is required compared to a hard-bottomed wheel.

Polyurethane provides great comfort in carrying. Its carrying capacity also approaches iron. Tear and breaking strength is several times that of rubber. At the same time, the running resistance is lower than the tire and oil etc.

It has high resistance to minerals. Polyurethane-based wheels are preferred for heavy load carrying and when a soft base is required, although the running resistance is higher than iron. Especially in attractive applications, it is preferred that the polyurethane works silently and does not harm the floor. Rubber and Derivatives(Grey –Blue-Black),Thermoplastic Polyurethane

Hard-Based Wheels, casting wheels should be the first thing to come to mind when a long-lasting wheel is desired. Because they are the wheels with the lowest running resistance and can be driven with the least effort.

However, it loses its advantage as it works noisy and does a lot of damage to the ground. As an alternative to these, a polyamide wheel is recommended. Polyamide is not damaged by water. In this case, less lubrication is required. Polyamide load capacity is close to casting. They also run quieter compared to casting. Polyurethane, Cast and Polyamide Wheels

INDUSTRIAL AREA	AREAS OF USE	SERIES NAME
LIGHT INDUSTRY	LIGHT SHOW STANDS, LIGHT GOODS AND TEAM TROLLEYS, KITCHEN SERVICE EQUIPMENT, TECHNOLOGICAL EQUIPMENT, OVEN TROLLEYS, CONTAINERS, MARKET TROLLEYS	EM, EK
MEDIUM INDUSTRY	SHOW STANDS, HEAVY GOODS AND EQUIPMENT CABINETS, OVEN TROLLEYS, MATERIAL RACKS	EZ, EI, EG
HEAVY INDUSTRY	HEAVY INDUSTRY EQUIPMENT	ED, EX, EH
EXTRA HEAVY INDUSTRY	HEAVY INDUSTRY LIFTING EQUIPMENT, AUTOMOTIVE SECTOR	EA, EAY, EV, EVY, EJ, EW
HOSPITAL EQUIPMENT	HOSPITAL BEDS AND FURNITURE, SUPERMARKET TROLLEYS, SERVICE CARTS, COMPUTER EQUIPMENT AND SHOW STANDS	ER, EC, ECH ,ESP, EQ
SUPERMARKET EQUIPMENT	SUPERMARKET TROLLEYS, SERVICE TROLLEYS	EY, ES, ESP, ER
FURNITURE	LIGHT FURNITURE, CHAIRS, LIGHT SHOW TABLES, TEXTILE TROLLEYS	EP, EU, ET, EB, EL,EF, EN



EM 01 SPR 100



EM 01 SPR 100 F



EM 02 SPR 100



EM 03 SPR 100



EM 03 SPR 100 F



EM 04 SPR 100



EM 04 SPR 100 F



EM 05 SPR 100



EM 05 SPR 100 F



EM 07 SPR 100



EM 07 SPR 100 F



EM 01 SPRG 100



EM 01 SPRG 100  
F



EM 02 SPRG 100



EM 03 SPRG 100



EM 03 SPRG 100  
F



EM 04 SPRG 100



EM 04 SPRG 100  
F



EM 05 SPRG 100



EM 05 SPRG 100  
F



EM 07 SPRG 100



EM 07 SPRG 100  
F



EM 01 MKR 100



EM 01 MKR 100 F



EM 02 MKR 100



EM 03 MKR 100



EM 03 MKR 100 F



EM 04 MKR 100



EM 04 MKR 100 F



EM 05 MKR 100



EM 05 MKR 100 F



EM 07 MKR 100



EM 07 MKR 100 F



EM 01 MKRG 100



EM 01 MKRG 100 F



EM 02 MKRG 100



EM 03 MKRG 100



EM 03 MKRG 100 F



EM 04 MKRG 100



EM 04 MKRG 100  
F



EM 05 MKRG 100



EM 05 MKRG 100  
F



EM 07 MKRG 100



EM 07 MKRG 100  
F



EM 01 ZKZ 100



EM 01 ZKZ 100 F



EM 02 ZKZ 100



EM 03 ZKZ 100



EM 03 ZKZ 100 F



EM 04 ZKZ 100



EM 04 ZKZ 100 F



EM 05 ZKZ 100



EM 05 ZKZ 100 F



EM 07 ZKZ 100



EM 07 ZKZ 100 F



EM 01 ZKP 100



EM 01 ZKP 100 F



EM 02 ZKP 100



EM 03 ZKP 100



EM 03 ZKP 100 F



EM 04 ZKP 100



EM 04 ZKP 100 F



EM 05 ZKP 100



EM 05 ZKP 100 F



EM 07 ZKP 100



EM 07 ZKP 100 F



EM 01 MBT 100



EM 01 MBT 100 F



EM 02 MBT 100



EM 03 MBT 100



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EM 05 ZBP 100



EM 05 ZBP 100 F



EM 07 ZBP 100



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EM 01 ZMRM 100



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EM 07 ZMRM 100



EM 07 ZMRM 100 F



EM 01 BKB 100



EM 01 BKB 100 F



EM 02 BKB 100



EM 03 BKB 100



EM 03 BKB 100 F



EM 04 BKB 100



EM 04 BKB 100 F



EM 05 BKB 100





EM 01 VKV 100



EM 01 VKV 100 F



EM 02 VKV 100



EM 03 VKV 100



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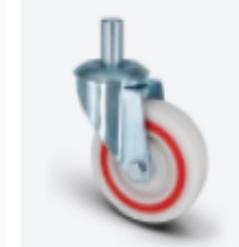
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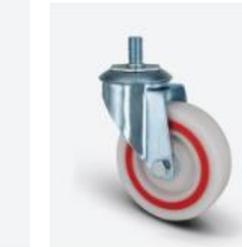
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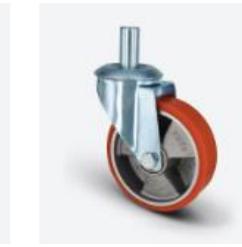
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EM 07 ABP 100



EM 07 ABP 100 F



EM 01 MKT 100



EM 01 MKT 100 F



EM 02 MKT 100



EM 03 MKT 100



EM 03 MKT 100 F



EM 04 MKT 100



EM 04 MKT 100 F



EM 05 MKT 100



EM 05 MKT 100 F



EM 07 MKT 100



EM 07 MKT 100 F



EK 01 SPR 100



EK 01 SPR 100 F



EK 02 SPR 100



EK 03 SPR 100



EK 03 SPR 100 F



EK 04 SPR 100



EK 05 SPR 100



EK 05 SPR 100 F



EK 01 SPRG 100



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**EK 03 BKB 100 F**



**EK 04 BKB 100 F**



**EK 05 BKB 100**



**EK 05 BKB 100 F**



EG 01 SPR 150



EG 01 SPR 150 F



EG 02 SPR 150



EG 01 SPRG 150



EG 01 SPRG 150 F



EG 02 SPRG 150



EG 01 ZKZ 150



EG 01 ZKZ 150 F



EG 02 ZKZ 150



EG 01 ZKP 150



EG 01 ZKP 150 F



EG 02 ZKP 150



EG 01 SBR 250



EG 01 SBR 250 F



EG 02 SBR 250



EG 01 SBRH 260



EG 01 SBRH 260 F



EG 02 SBRH 260



EG 01 MBRH 260



EG 01 MBRH 260  
F



EG 02 MBRH 260



EZ 01 SPR 100



EZ 01 SPR 100 F



EZ 02 SPR 100



EZ 03 SPR 100



EZ 03 SPR 100 F



EZ 04 SPR 100



**EZ 04 SPR 100 F**



**EZ 05 SPR 100**



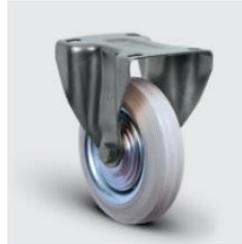
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**EZ 01 SPRG 100**



**EZ 01 SPRG 100 F**



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**EZ 04 SPRG 100**



**EZ 04 SPRG 100 F**



**EZ 05 SPRG 100**



**EZ 05 SPRG 100 F**



**EZ 01 MKR 100**



**EZ 01 MKR 100 F**



**EZ 02 MKR 100**



**EZ 03 MKR 100**



**EZ 03 MKR 100 F**



**EZ 04 MKR 100**



**EZ 04 MKR 100 F**



**EZ 05 MKR 100**



**EZ 05 MKR 100 F**



**EZ 01 MKRG 100**



**EZ 01 MKRG 100 F**



**EZ 02 MKRG 100**



**EZ 03 MKRG 100**



**EZ 03 MKRG 100 F**



**EZ 04 MKRG 100**



**EZ 04 MKRG 100  
F**



**EZ 05 MKRG 100**



**EZ 05 MKRG 100  
F**



**EZ 01 HKZ 100**



**EZ 01 HKZ 100 F**



**EZ 02 HKZ 100**



**EZ 03 HKZ 100**



**EZ 03 HKZ 100 F**



**EZ 04 HKZ 100**



**EZ 04 HKZ 100 F**



**EZ 05 HKZ 100**



**EZ 05 HKZ 100 F**



**EZ 01 ZKP 100**



**EZ 01 ZKP 100 F**



**EZ 02 ZKP 100**



**EZ 03 ZKP 100**



**EZ 03 ZKP 100 F**



**EZ 04 ZKP 100**



**EZ 04 ZKP 100 F**



**EZ 05 ZKP 100**



**EZ 05 ZKP 100 F**



**EZ 01 ABP 100**



**EZ 01 ABP 100 F**



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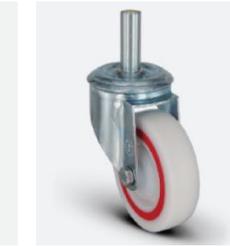
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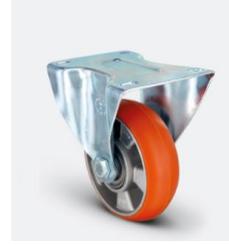
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**EZ 04 ABPB 125**



**EZ 04 ABPB 125 F**



**EZ 05 ABPB 125**



**EZ 05 ABPB 125 F**



**EZ 01 BKB 100**



**EZ 01 BKB 100 F**



**EZ 02 BKB 100**



**EZ 01 VKV 100**



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ED 01 HKZ 100 F



ED 02 HKZ 100



ED 05 HKZ 55



ED 05 HKZ 55 F



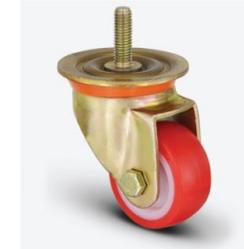
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ED 01 ZKP 100 F



ED 02 ZKP 100



ED 05 ZKP 55



ED 05 ZKP 55 F



ED 01 VKV 100



ED 01 VKV 100 F



ED 02 VKV 100



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ED 01 VKR 100



ED 01 VKR 100 F



ED 02 VKR 100



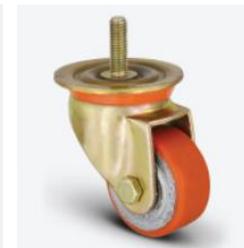
ED 01 VKP 100



ED 01 VKP 100 F



ED 02 VKP 100



ED 05 VKP 55



ED 05 VKP 55 F



ED 01 VBPb 100



ED 01 VBPb 100 F



ED 02 VBPb 100



ED 01 ABP 100


**ED 01 ABP 100 F**

**ED 02 ABP 100**

**ED 01 BKB 100**

**ED 01 BKB 100 F**

**ED 02 BKB 100**

**ED 01 ABPB 125**

**ED 01 ABPB 125 F**

**ED 02 ABPB 125**

**EH 01 VBR 170**

**EH 01 VBR 170 F**

**EH 02 VBR 170**

**EH 01 VBV 125**

**EH 01 VBV 125 F**

**EH 02 VBV 125**

**EH 01 VBP 125**

**EH 01 VBP 125 F**

**EH 02 VBP 125**

**EH 01 VBPB 125**

**EH 01 VBPB 125 F**

**EH 02 VBPB 125**

**EX 01 VBR 150**

**EX 01 VBR 150 F**

**EX 02 VBR 150**

**EX 01 VBP 150**

**EX 01 VBP 150 F**

**EX 02 VBP 150**

**EX 01 VBPB 150**



**EX 01 VBPB 150 F**



**EX 02 VBPB 150**



**EX 01 HBZ 150**



**EX 01 HBZ 150 F**



**EX 02 HBZ 150**



**Eï 01 HKZ 100**



**Eï 01 HKZ 100 F**



**Eï 02 HKZ 100**



**Eï 01 ZBP 100**



**Eï 01 ZBP 100 F**



**Eï 02 ZBP 100**



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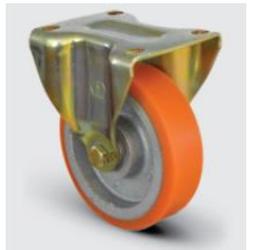
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**Eï 01 ABP 100**



**Eï 01 ABP 100 F**



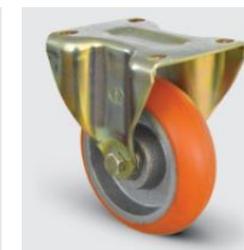
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**Eï 01 VBPB 100**



**Eï 01 VBPB 100 F**



**Eï 02 VBPB 100**



**Eï 01 BKB 100**



Ei 01 BKB 100 F



Ei 02 BKB 100



Ei 01 ABPB 125



Ei 01 ABPB 125 F



Ei 02 ABPB 125


**EJ 01 VBP 125**

**EJ 01 VBP 125 F**

**EJ 01 VBP 125 Y**

**EJ 02 VBP 125**

**EJ 01 VBV 125**

**EJ 01 VBV 125 F**

**EJ 01 VBV 125 Y**

**EJ 02 VBV 125**

**EJ 01 HBZ 125**

**EJ 01 HBZ 125 F**

**EJ 01 HBZ 125 Y**

**EJ 02 HBZ 125**

**EJ 01 VBPB 125**

**EJ 01 VBPB 125 F**

**EJ 01 VBPB 125 Y**

**EJ 02 VBPB 125**

**EJ 01 ABP 125**

**EJ 01 ABP 125 F**

**EJ 01 ABP 125 Y**

**EJ 02 ABP 125**

**EJ 01 ABPB 125**

**EJ 01 ABPB 125 F**

**EJ 01 ABPB 125 Y**

**EJ 02 ABPB 125**

**EW 01 VBP 150**

**EW 01 VBP 150 F**

**EW 01 VBP 200 Y**

**EMES**® Extra Heavy Duty Industrial Wheels Up to 4.8 Tons 80 kg - 950 kg  140x175



EW 02 VBP 150



EW 01 VBV 200



EW 01 VBV 200 F



EW 01 VBV 200 Y



EW 02 VBV 200



EW 01 HBZ 200



EW 01 HBZ 200 F



EW 01 HBZ 200 Y



EW 02 HBZ 200



EW 01 VBPB 200



EW 01 VBPB 200  
F



EW 01 VBPB 200  
Y



EW 02 VBPB 200



EAY 01 VBP 100



EAY 01 VBP 100 F



EAY 01 VBP 100 Y



EAY 02 VBP 100



EAY 01 VBPB 100



EAY 01 VBPB 100 F



EAY 01 VBPB 100 Y



EAY 02 VBPB 100



EAY 01 VBV 100



EAY 01 VBV 100 F



EAY 01 VBV 100 Y



EAY 02 VBV 100



EAY 01 HBZ 100



EAY 01 HBZ 100 F

**EMES**® Extra Heavy Duty Industrial Wheels Up to 4.8 Tons 80 kg - 950 kg  140x175



EAY 01 HBZ 100 Y



EAY 02 HBZ 100



EAY 01 ZBP 100



EAY 01 ZBP 100 F



EAY 01 ZBP 100 Y



EAY 02 ZBP 100



EAY 01 ABP 100



EAY 01 ABP 100 F



EAY 01 ABP 100 Y



EAY 02 ABP 100



EAY 01 VBR 100



EAY 01 VBR 100 F



EAY 01 VBR 100 Y



EAY 02 VBR 100



EA 01 VBP 150



EA 01 VBP 150 F



EA 02 VBP 150



EA 01 VBP 150 Y



EA 01 VBPB 150



EA 01 VBPB 150 F



EA 02 VBPB 150



EA 01 VBPB 150 Y



EA 01 VBV 150



EA 01 VBV 150 F



EA 02 VBV 150



EA 01 VBV 150 Y



EA 01 HBZ 150



EA 01 HBZ 150 F



EA 02 HBZ 150



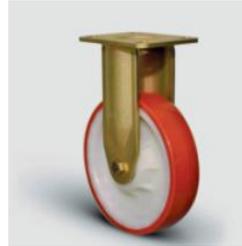
EA 01 HBZ 150 Y



EA 01 ZBP 150



EA 01 ZBP 150 F



EA 02 ZBP 150



EA 01 ZBP 150 Y



EA 01 ABP 150



EA 01 ABP 150 F



EA 02 ABP 150



EA 01 ABP 150 Y



EA 01 VBR 150



EA 01 VBR 150 F



EA 02 VBR 150



EA 01 VBR 150 Y



EV 01 VBP 150



EV 01 VBP 150 F



EV 01 VBP 150 Y



EV 02 VBP 150



EV 01 VBV 150



EV 01 VBV 150 F



EV 02 VBV 150



EV 01 VBV 150 Y



EV 01 HBZ 150



EV 01 HBZ 150 F



EV 02 HBZ 150



EV 01 HBZ 150 Y

**EMES**® Extra Heavy Duty Industrial Wheels Up to 4.8 Tons 80 kg - 950 kg  140x175



EV 01 VBPB 150



EV 01 VBPB 150 F



EV 01 VBPB 150 Y



EV 02 VBPB 150



EVY 01 VBP 200



EVY 01 VBP 200 F



EVY 02 VBP 200



EVY 01 VBV 200



EVY 01 VBV 200 F



EVY 02 VBV 200



EVY 01 HBZ 200



EVY 01 HBZ 200 F



EVY 02 HBZ 200



EVY 01 VBPB 200



EVY 01 VBPB 200  
F



EVY 02 VBPB 200



EY 04 PBP 125 F



EY 04 ZBPr 125 F



ER 01 SBRG 200



ER 01 SBRG 200 F



ER 02 SBRG 200



ER 03 SBRG 200



ER 03 SBRG 200 F



ER 04 SBRG 200



ER 04 SBRG 200 F



ER 05 SBRG 200



ER 05 SBRG 200 F



ER 01 ZBP 100



ER 01 ZBP 100 F



ER 02 ZBP 100



ER 03 ZBP 100



ER 03 ZBP 100 F



ER 04 ZBP 100



ER 04 ZBP 100 F



ER 05 ZBP 100



ER 05 ZBP 100 F



ER 07 ZBP 100



ER 07 ZBP 100 F



ER 01 MBR 100



ER 01 MBR 100 F



ER 02 MBR 100



ER 03 MBR 100





ER 04 MBR 100



ER 04 MBR 100 F



ER 05 MBR 100



ER 05 MBR 100 F



ER 07 MBR 100



ER 07 MBR 100 F



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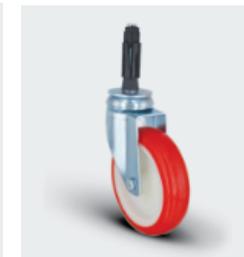
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ER 05 ZKP 100



ER 05 ZKP 100 F



ER 07 ZKP 100



ER 07 ZKP 100 F



ER 01 MBTM 100



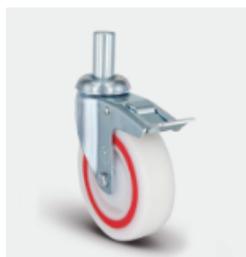
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ER 07 MBTM 100



ER 07 MBTM 100 F



ER 01 MKT 100



ER 01 MKT 100 F



ER 02 MKT 100



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ER 07 MKT 100 F



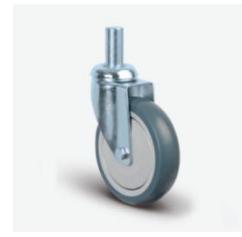
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ER 01 MBT 100 F



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ER 07 MBT 100



ER 07 MBT 100 F



ECH 03 MBT 125 F



ECH 03 MBT 125 F



ECH 03 MBT 125



ECH 03 MBT 125 F



ECH 03 MBT 125 F



EC 01 MBT 100



EC 01 MBT 100 F



EC 03 MBT 100



EC 03 MBT 100 F



EC 04 MBT 100



EC 04 MBT 100 F



EC 05 MBT 100



EC 05 MBT 100 F



ER 01 SBRG 200



ER 01 SBRG 200 F



ER 02 SBRG 200



ER 03 SBRG 200



ER 03 SBRG 200 F



ER 04 SBRG 200



ER 04 SBRG 200 F



ER 05 SBRG 200



ER 05 SBRG 200 F



ER 01 ZBP 100



ER 01 ZBP 100 F



ER 02 ZBP 100



ER 03 ZBP 100



ER 03 ZBP 100 F



ER 04 ZBP 100



ER 04 ZBP 100 F



ER 05 ZBP 100



ER 05 ZBP 100 F



ER 07 ZBP 100



ER 07 ZBP 100 F



ER 01 MBR 100



ER 01 MBR 100 F



ER 02 MBR 100



ER 03 MBR 100



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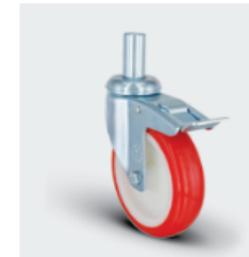
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ER 02 ZKP 100



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ER 07 ZKP 100 F



ER 01 MBTM 100



ER 01 MBTM 100 F



ER 02 MBTM 100



ER 03 MBTM 100



ER 03 MBTM 100 F



ER 04 MBTM 100



ER 04 MBTM 100 F



ER 05 MBTM 100



ER 05 MBTM 100 F



ER 07 MBTM 100



ER 07 MBTM 100 F



ER 01 MKT 100



ER 01 MKT 100 F



ER 02 MKT 100



ER 03 MKT 100



ER 03 MKT 100 F



ER 04 MKT 100



ER 04 MKT 100 F



ER 05 MKT 100



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ER 07 MKT 100



ER 07 MKT 100 F



ER 01 MBT 100



ER 01 MBT 100 F



ER 02 MBT 100



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ER 07 MBT 100



ER 07 MBT 100 F



ESP 01 MBT 100



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ESP 03 MBT 100



ESP 03 MBT 100 F



ESP 04 MBT 100



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ESP 05 MBT 100



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EQ 01 ZKP 50



EQ 01 ZKP 50 F



EQ 03 ZKP 50



EQ 03 ZKP 50 F



EQ 05 ZKP 50



EQ 05 ZKP 50 F



EP 01 SPRG 100



EP 01 SPRG 100 F



EP 02 SPRG 100



EP 03 SPRG 100



EP 03 SPRG 100 F



EP 04 SPRG 100



EP 04 SPRG 100 F



EP 05 SPRG 100



EP 05 SPRG 100 F



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EP 02 ZKC 50



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EP 02 ZKZ 50



EP 03 ZKZ 50



EP 03 ZKZ 50 F



EP 04 ZKZ 50



EP 04 ZKZ 50 F



EP 05 ZKZ 50



EP 05 ZKZ 50 F



EP 07 ZKZ 75



EP 07 ZKZ 75 F



EP 01 MKT 50



EP 01 MKT 50 F



EP 02 MKT 50



EP 03 MKT 50



EP 03 MKT 50 F



EP 04 MKT 50



EP 04 MKT 50 F



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EP 07 MKT 75



EP 07 MKT 75 F



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EP 02 MKM 50



EP 03 MKM 50



EP 03 MKM 50 F



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EP 07 MKM 75



EP 07 MKM 75 F



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EP 05 ZKZ 50 F



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EP 02 MKT 50



EP 03 MKT 50



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EB 01 ZKZ 50



EB 03 ZKZ 50



EB 05 ZKZ 50



EB 01 MKT 50



EB 03 MKM 50



EB 05 MKM 50



EL 01 MKM 28



EL 02 MKM 28



EF 01 MKC 40



EF 05 MKC 40

# Wheels



**MBRH**



**MMRH**



**SBRH**



**TSKRH**



**T-SBRH**



**SPR**



**SPRG**



**MBTM**



**SPR**



**SPRG**



**MKR**



**MKRG**



**MKR**



**MKRG**



**ZKZ**



**ZMZ**



**ZBZ**



**HBZ**



**SBR**



**ZKP**



**ZMP**



**ZKP**



**ZBP**



**ZMRM**



**ZBRM**



**MKT**



**MKT**



**MBT**



**MBR**



**SPRG-SMRG**



**MBR-MBRG**



**BKB**



**MKC**



**ZKZ**



**MKM**



**MKT**



**ZBP**



**ZKC**



**DKP**



**VKV**



**VBV**



**VKR**



**VBR**



**VBR**



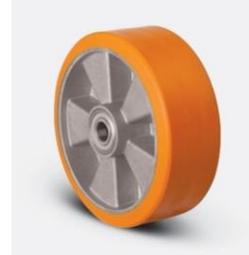
**VKP**



**VBP**



**VBPB**



**ABP**



**VBP**



**ABP**



**ZBZ**

# Wheels



ZBZD



VBP



ZKR



MKR



MKR



VBPD



ABPB





# STANDARD MACHINE ELEMENTS



- Machine Feet
- Handles
- Impellers
- Profile Pipes
- Profile Feet
- Rubber Soles and Feet



- Machine Handles
- Hinges
- Locks and Keys
- Latches and strikes
- Wedges
- Greasers
- Telescopic Rail



# MACHINE EQUIPMENT USAGE AREAS

Machine Balance Feet	Vibration Mounts	Hinge Group	Telescopic Rails	Greasing	Connecting Fork and Spherical Trunnion Joint	Spring Loaded Panel Lock Group
MACHINE TOOLS	MACHINE TOOLS	ELECTRIC PANELS	HEAVY INDUSTRY SECTOR	GREASE FITTINGS	MACHINERY MANUFACTURING SECTOR	ELECTRIC PANELS
TEXTILE MACHINERY	TEXTILE MACHINERY	MACHINE COVERS	HEALTH SECTOR	HEAVY INDUSTRY SECTOR	HEAVY INDUSTRY SECTOR	MACHINE COVERS
FOOD AND PACKAGING MACHINERY	FOOD AND PACKAGING MACHINERY	GENERATORS	IT INDUSTRY	HEAVY CONSTRUCTION MACHINERY	FORKLIFT MANUFACTURERS	GENERATORS
INDUSTRIAL MACHINERY	INDUSTRIAL MACHINERY	FIRE CABINETS	RESCUE SERVICES EMERGENCY VEHICLES	AGRICULTURAL MACHINERY	VEHICLE REPAIR SERVICES	PANEL SECTOR
METAL AND INJECTION MOLDING MACHINES	GENERATORS		SPECIAL MACHINE	HEAVY GOODS VEHICLES	MACHINERY MANUFACTURING SECTOR	FIRE CABINETS
LATHE, DRILL, MILLING AND SAWING MACHINES	HVAC SYSTEMS		PRIVATE CABIN			
PACKAGING MACHINES	AUTOMOTIVE SECTOR		SPECIAL CABINETS			
WOOD AND MARBLE MACHINERY	WHITE GOODS		CARAVAN SECTOR			
ETC. IT CAN BE USED IN MANY MACHINES.	RAIL SYSTEMS					
KITCHEN EQUIPMENT						

# MACHINE EQUIPMENT USAGE AREAS

Bakelite Group	Handle Group	Aluminum Impeller Group	Cable Gripper	Plastic and Aluminum Arm	Plastic Clover Bolted Group
MACHINE TOOLS	MACHINE TOOLS	MACHINE TOOLS	MACHINERY MANUFACTURING SECTOR	MACHINE TOOLS	MACHINE TOOLS
TEXTILE MACHINERY	TEXTILE MACHINERY	TEXTILE MACHINERY	AUTOMATION SECTOR	TEXTILE MACHINERY	TEXTILE MACHINERY
FOOD AND PACKAGING MACHINERY	FOOD AND PACKAGING MACHINERY	FOOD AND PACKAGING MACHINERY	CONSTRUCTION SECTOR	FOOD AND PACKAGING MACHINERY	FOOD AND PACKAGING MACHINERY
INDUSTRIAL MACHINERY	INDUSTRIAL MACHINERY	INDUSTRIAL MACHINERY	AUTOMOTIVE SECTOR	INDUSTRIAL MACHINERY	INDUSTRIAL MACHINERY
METAL AND INJECTION MOLDING MACHINES	METAL AND INJECTION MOLDING MACHINES	METAL AND INJECTION MOLDING MACHINES	PANEL SECTOR	METAL AND INJECTION MOLDING MACHINES	METAL AND INJECTION MOLDING MACHINES
LATHE, DRILL, MILLING AND SAWING MACHINES	LATHE, DRILL, MILLING AND SAWING MACHINES	LATHE, DRILL, MILLING AND SAWING MACHINES	TELECOM SECTOR	LATHE, DRILL, MILLING AND SAWING MACHINES	LATHE, DRILL, MILLING AND SAWING MACHINES
PACKAGING MACHINES	PACKAGING MACHINES	PACKAGING MACHINES		PACKAGING MACHINES	PACKAGING MACHINES
WOOD AND MARBLE MACHINERY	WOOD AND MARBLE MACHINERY	WOOD AND MARBLE MACHINERY		WOOD AND MARBLE MACHINERY	WOOD AND MARBLE MACHINERY
ETC. IT CAN BE USED IN MANY MACHINES.	ETC. IT CAN BE USED IN MANY MACHINES.	ETC. IT CAN BE USED IN MANY MACHINES.		ETC. IT CAN BE USED IN MANY MACHINES.	ETC. IT CAN BE USED IN MANY MACHINES.
INDUSTRIAL FURNACES					



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