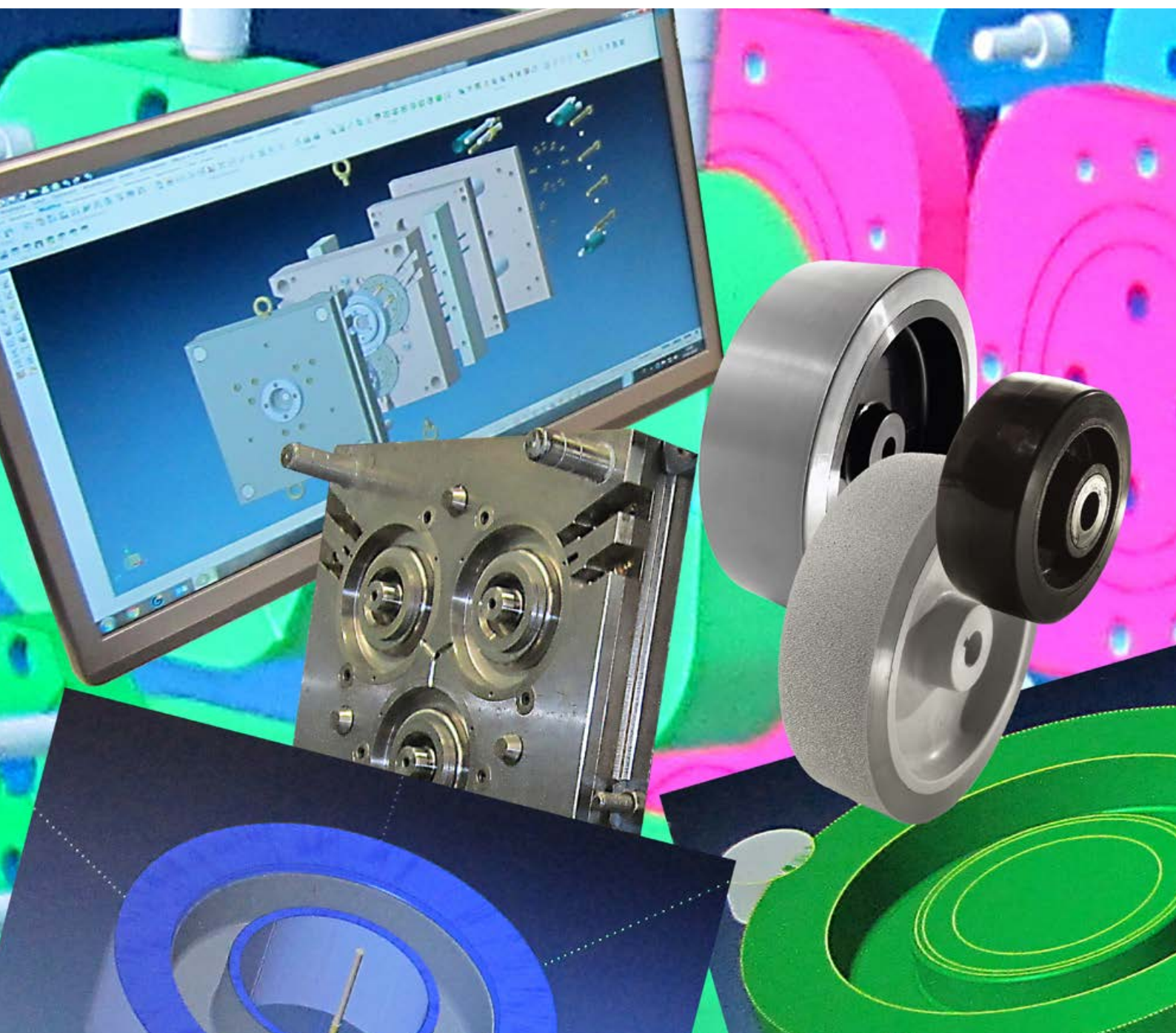




Fabbrica Italiana Ruote

[www.fir.it](http://www.fir.it)



# ELASTIC POLYURETHANE WHEELS

*YOUR IDEAS IN MOTION*



Wheel Diameter



Designed and made in Italy



Load capacity



Recyclable



Speed



Shock absorbing



Hardness



Non-marking



Temperature



Non-slip



Price



Noise-free



Plain bore



Resistant to chemicals and detergents



Ball bearings



Choice of colour



Key hole



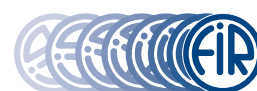
Custom-made



Flanged hub



Splined hub



# Create your wheel: Series Gamma

18

## **γ** TPE+PP, thermoplastic elastomer injected onto a polypropilene center

F.I.R.'s budget range, the Gamma series, features a combination of hub made in polypropylene and tread made from thermoplastic elastomer. These wheels have both mechanical and chemical interlocking systems. This series is best suited for low loads (up to 180 kg or 395 lb) and they are ideal for applications that require a speed of up to 4 km/h or 2.5 mph. The elastic elastomer, from 60 to 80 Shore A, allows excellent grip. The wheels are noiseless and do not vibrate. They are suited to mostly smooth surfaces.





from 150 mm to 300 mm  
from 6" to 12"



from 80 kg to 180 kg  
from 175 lb to 395 lb



maximum speed 4 km/h  
maximum speed 2,5 mph



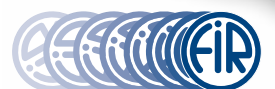
from 60 to 80 Shore A



from -20°C to +60°C  
from -4°F to 140°F

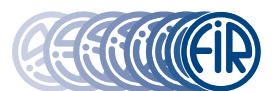


Available in different colors and size.  
Available with double ball bearings.

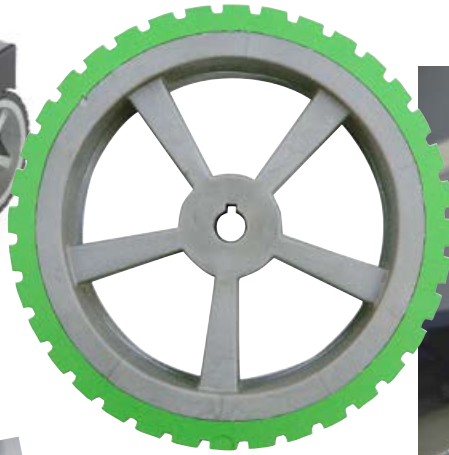


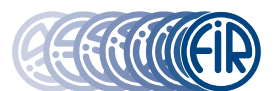
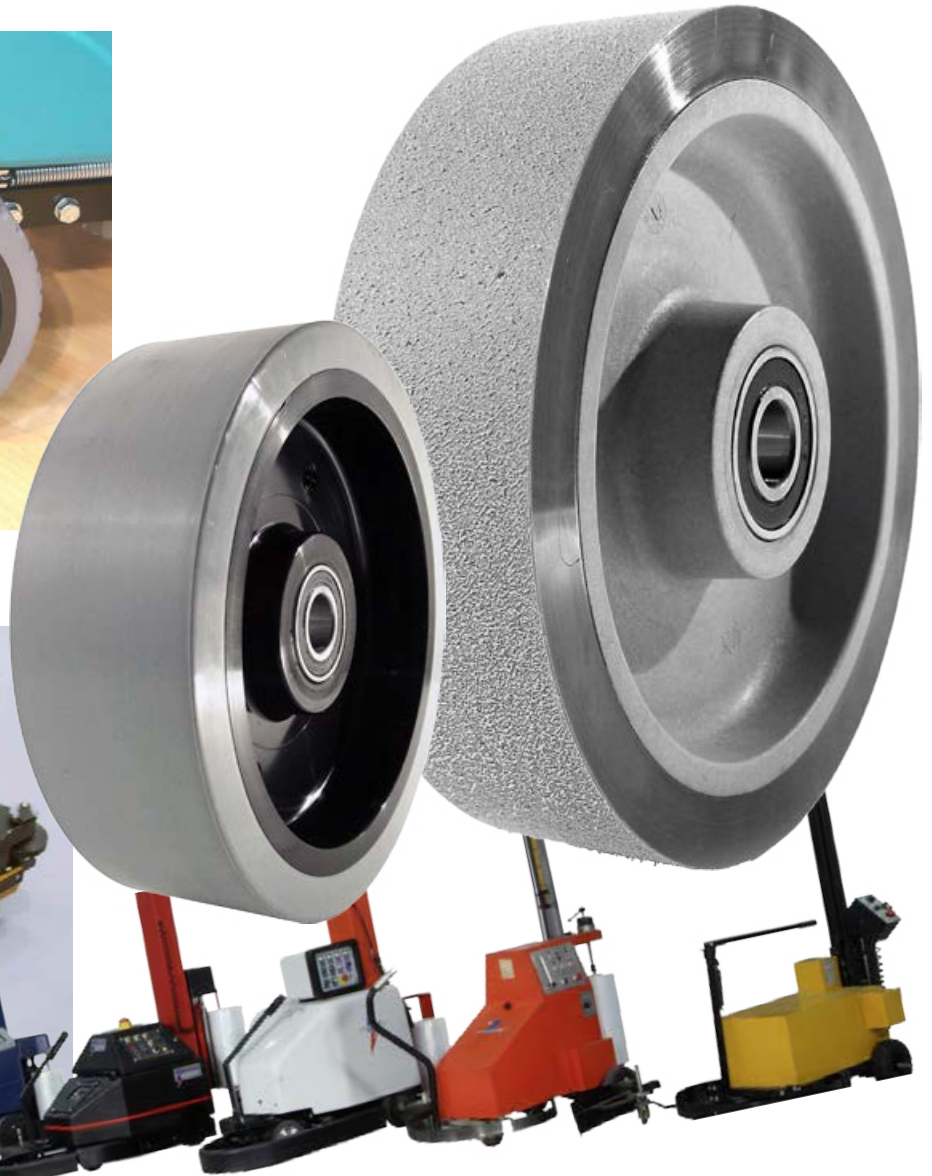
# Custom-made wheels and applications





# Custom-made wheels and applications

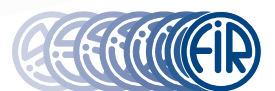
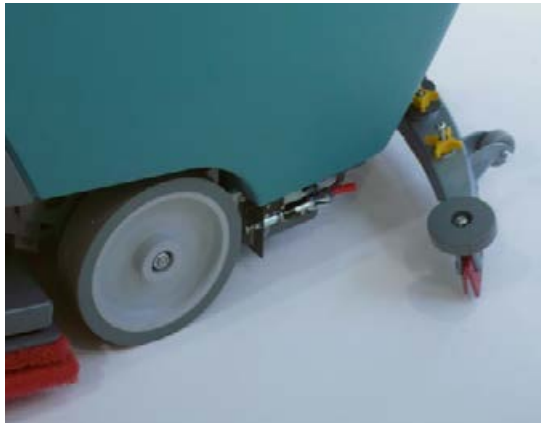




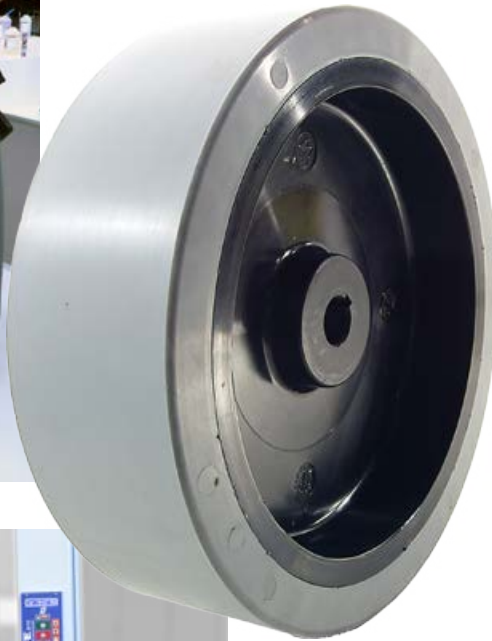


# Custom-made wheels and applications





# Custom-made wheels and applications



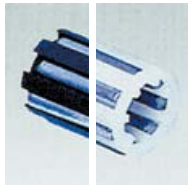


## AVAILABLE BEARINGS AND ACCESSORIES



### PLAIN BEARING

Suggested for intermittent wheel use. It will not require further lubrication. However axle tube wear and squeaking can be evident in dusty and gritty work conditions.



### ROLLER BEARING AND STAINLESS STEEL ROLLER BEARING

Suggested for frequent wheel use. It will not require further lubrication and it is ideal for applications involving high radial and low axial loads. Roller bearings are shielded to retain the bearing and to avoid penetration of dust and dirt. Low inertial force.



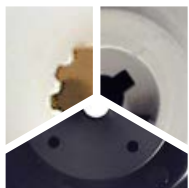
### BALL BEARINGS

Suggested for continuous wheel use. They do not require further lubrication. They are ideal for applications featuring high radial and axial loads. Ball bearings are shielded to avoid penetration of dust and dirt. Waterproof version also available. Very low inertial force.



### DOUBLE BALL BEARINGS

All the wheels shown in this catalogue have double ball bearings with spacer.



### KEY HOLE, FLANGED AND SPLINED HUB

These are suited for drive wheels and adapt to different traction devices.



F.I.R. products are manufactured in compliance with European Directive no. 1907/2006/CE, REACH "Registration, Evaluation, Authorisation and Restriction of Chemicals".



F.I.R. products are manufactured in compliance with European Directive 2011/65/UE, RoHS2 "Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment".



FIR combines quality, innovation and respect for the environment. To this end, we have identified those products that may be recycled or regenerated. We strongly encourage use of these products.

### ● ROLLING RESISTANCE

Rolling resistance is the force necessary to maintain the equipment at a constant speed. This force is inversely proportional to wheel diameter and depends on the type of bearing. It also depends upon the surface conditions and load.

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### ● SPEED

F.I.R. casters and wheels nominal load capacities relate to a maximum speed of 4 Km/h ( 1,1 m/s) - 249 mph (1,2 yds/s)

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### ● LOAD CAPACITY

F.I.R. recommends calculation of load capacity on a single caster by use of the formula (equipment weight + solid load)/3 and (equipment weight + liquid load)/2. Please ask our technical staff in relation to load requirements close to the maximum carrying capacities

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### ● TEST CONDITIONS

Load capacities and tests are determined according to the ISO 22884, UNI EN 12527, UNI EN 12532 Standards. They refer to use under normal conditions: 1) TEST LOAD = nominal load 2) TEST SPEED = 4Km/h  $\pm$ 50 m/h or 249 mph  $\pm$ 55 yds/h 3) TEST TEMPERATURE = 20°C  $\pm$  10°C or 68°F  $\pm$ 50°F 4) SURFACE in good conditions, hard and solid, with obstacles having the following characteristics: height equal to 5 % of wheel diameter in the case of soft tread (up to 90 Shore A); equal to 2.5% of wheel diameter, in the case of hard tread (beyond 90 Shore A). 5) CYCLE: sequence of cycles each 4 minutes maximum, included a maximum pause time of 25% of the cycle duration.

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### ● ENVIRONMENT CONDITION

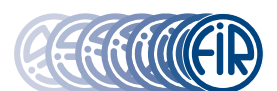
F.I.R. casters and wheels are manufactured in controlled production processes using the highest quality materials. The following standard conditions are considered as "normal working conditions": - temperature range: +5 °C to +30 °C +41°F to +86° F - relative humidity: 40% to 80% - no direct sunlight exposure - no aggressive physical or chemical agents

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### ● STORAGE

F.I.R. recommends that products are stored in a ventilated environment, with temperature between -10 °C -50° F and +30 °C - +86° F without high humidity and protected from dust. Do not store for long periods of time, and protect from direct sunlight.

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# Fabbrica Italiana Ruote

www.fir.it

## Why choose F.I.R.:



### EXPERIENCE

we have been producing wheels and casters for more than 30 years



### TOTAL QUALITY

F.I.R. Quality Management System is in compliance with UNI EN ISO 9001:2008 standard.



### INDUSTRY 4.0

we believe in smart manufacturing and we are committed to create a continually smarter factory



### INNOVATION

we are at the forefront of polyurethane injection processes. We are committed to continuous process and product innovation



### SUPPLY CHAIN

we choose the most reliable suppliers and the best performing materials



### LOGISTICS

we offer fast delivery from our factory in Modena, Italy and from USA logistics hub in Royersford, PA



### COLLABORATION

we create and supply value by interacting with our customers. Our slogan "your ideas in motion" summarizes our mission



### LEAN MANUFACTURING

we believe in continuous improvement and apply "lean manufacturing".



### CUSTOMER SATISFACTION

we provide prompt response, value for money and fast delivery to our customers



### FLEXIBILITY

we meet special and individual requests by designing and developing custom-made products



### CONVENIENCE

we provide a top class service by bringing together product quality and client convenience



### ENVIRONMENT

we comply with European standards for the protection of the environment



### MADE IN ITALY

we produce and sell "made in Italy"





To see the complete range of F.I.R. wheels and casters visit [www.fir.it](http://www.fir.it)

*YOUR IDEAS IN MOTION*



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[sales@fir.it](mailto:sales@fir.it)



Azienda con  
sistema di gestione  
UNI EN ISO 9001:2015  
certificato

Quality  
management  
system ISO 9001:2015  
certified company