



Fabbrica Italiana Ruote

www.fir.it



**WHEELS FOR PROFESSIONAL
CLEANING EQUIPMENT**

YOUR IDEAS IN MOTION

Modena is famous throughout the world for high quality engineering and excellent design. F.I.R. is one of the leading manufacturers of wheels and casters for the industrial and service sectors and is proud to be a part of the Modena engineering tradition.

F.I.R. was founded by Enrico Rota who pioneered the technologies and use of advanced materials that have made the company very successful. Today, F.I.R. is a leading manufacturer of stainless steel casters and wheels in polyamide and polyurethane.

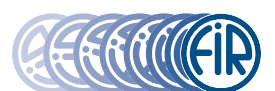
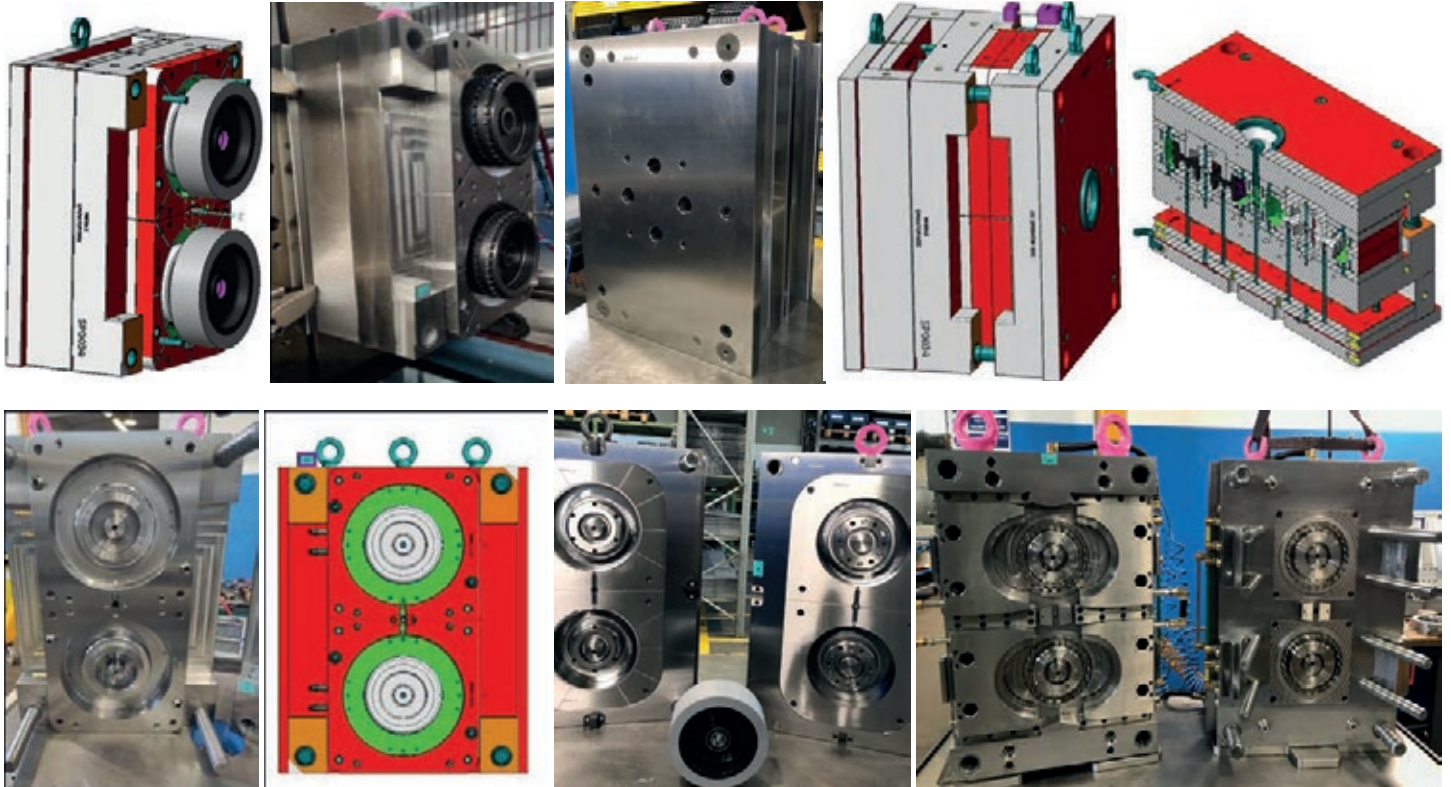
In recent years, the F.I.R. success story has been the result of injection molding of elastic polyurethane. Our wheels are perfect for electric vehicles, robots, scrubber-driers, AGV and indoor mobility systems. In 2014 has developed an enegeneering division that has made possible the design and building of molds for the production of new wheels and for modifying existing ones. The result is very flexible production and the capacity to design and produce customized products. Our wheels are highly versatile. You can choose color, size, mix of raw materials, bearings and design. The wheels are durable, resistant to chemicals, have an excellent grip and are cheaper than wheels in coated polyurethane.



F.I.R. Engineering Division is part of F.I.R. Fabbrica Italiana Ruote. It was created to allow the product flexibility required by the market. F.I.R. produces wheels and casters for the industrial sector. In recent years, F.I.R. has specialised in customized wheels obtained through injection molding. This type of product requires modifications of existing molds or building of new ones. In a very short time, F.I.R. Engineering Division has become a highly specialized Division, in continuous expansion, dedicated to research and innovation.



F.I.R. Engineering Division provides an integrated service of design, modelling, execution and testing of molds for the injection molding of plastic materials and molds for metal molding. In addition to the design and manufacture of molds, F.I.R. Engineering is also specialized in cleaning and maintenance of molds for third parties, including the reconstruction of damaged parts and productivity improvement.



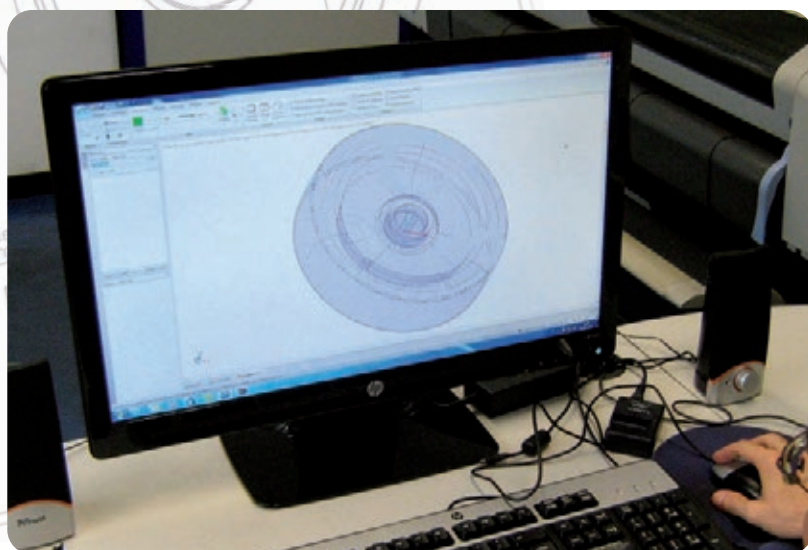
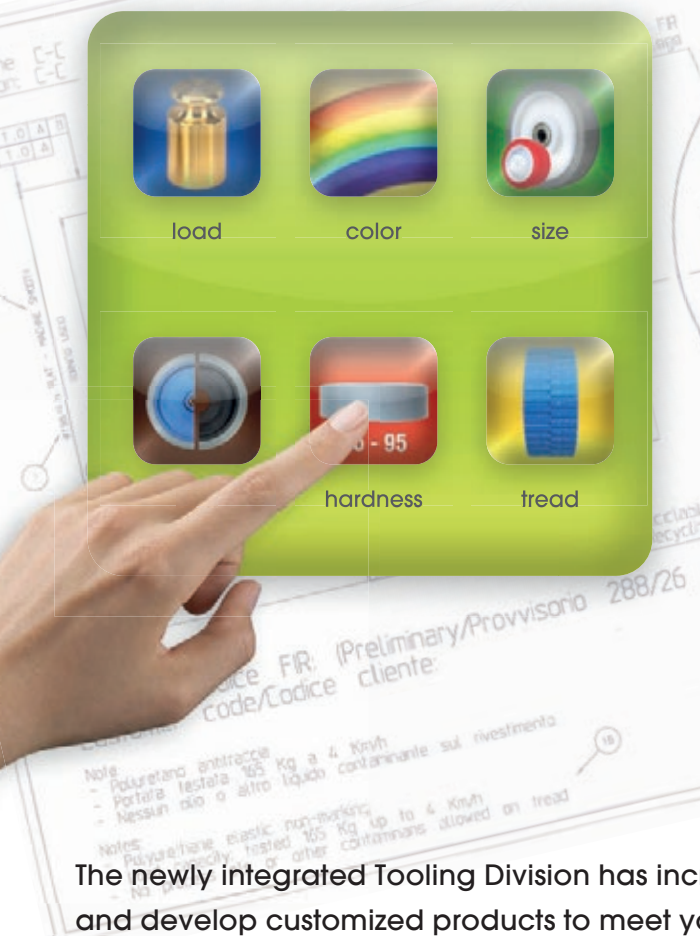
Your Wheel

Wheel and mold design

4

You choose the specifications to meet your requirements. We design, produce and deliver your wheels.

The F.I.R. Technical Department designs innovative products and creates personalized solutions to satisfy all customer needs.

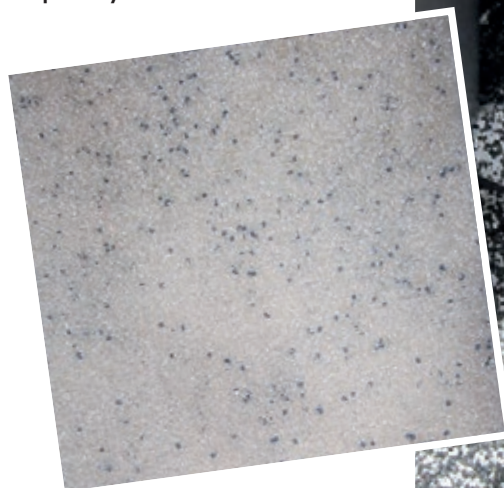


The newly integrated Tooling Division has increased flexibility and has enhanced our ability to design and develop customized products to meet your specific requirements.





We only choose top quality materials.



Fabbrica Italiana Ruote

YOUR IDEAS IN MOTION

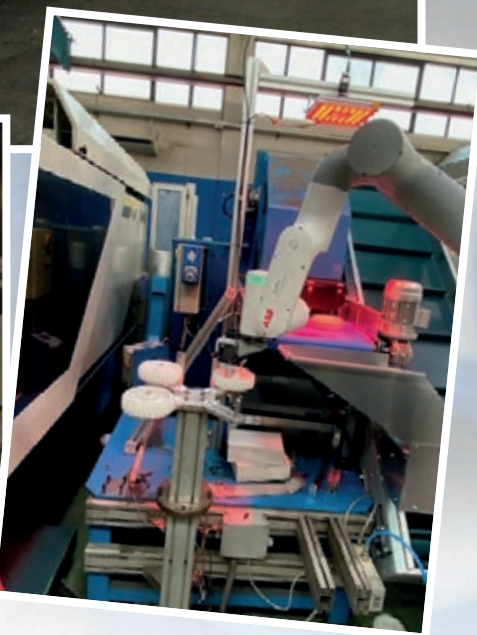
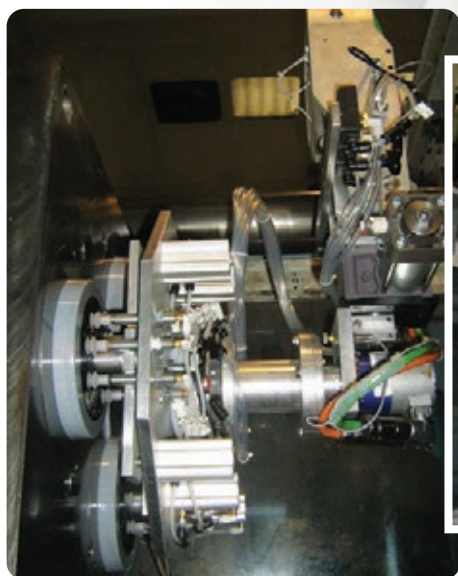
Your Wheel

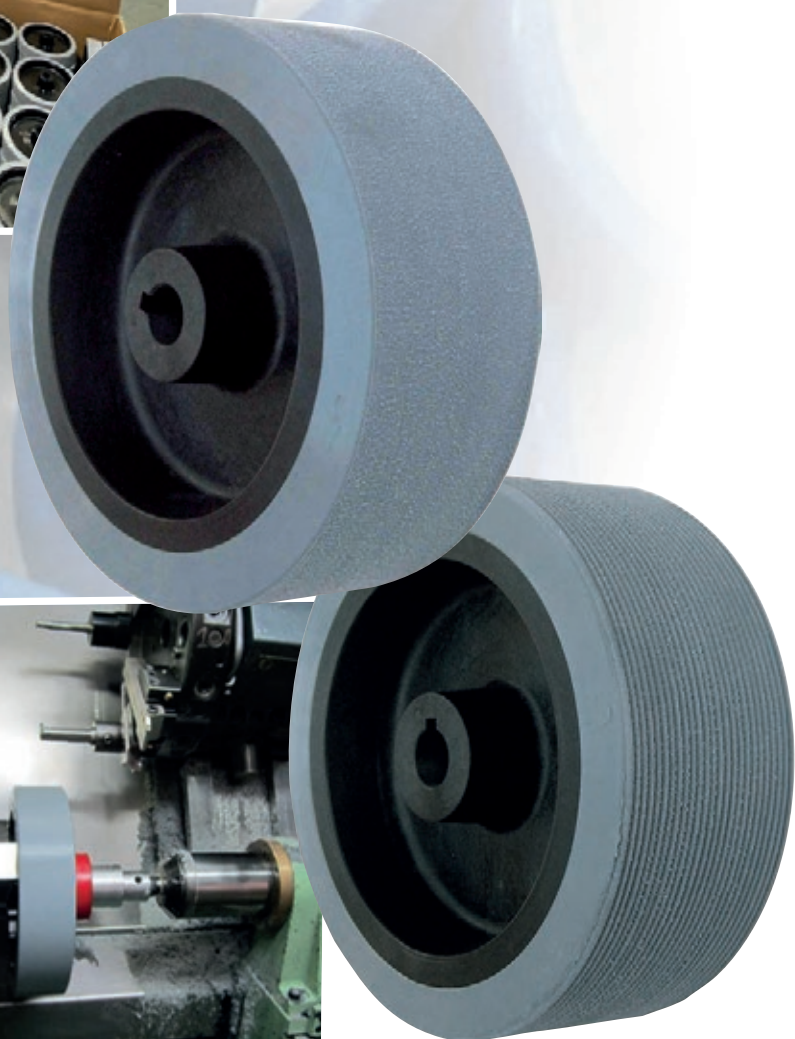
Injection molding

6

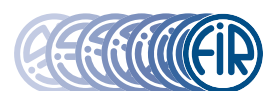
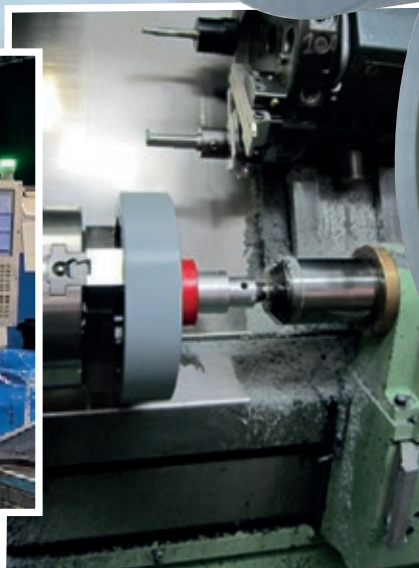


The robotized injection molding equipment is at the forefront of automated technology.





The machining unit finishes the wheel to your precise specification.



Fabbrica Italiana Ruote

YOUR IDEAS IN MOTION

F.I.R.'s products are shipped from the Modena factory



FERRARA

A1
MILANO



A1
BOLOGNA



F.I.R. s.r.l.

Via Ho Chi Minh, 2
41122 Modena - ITALY

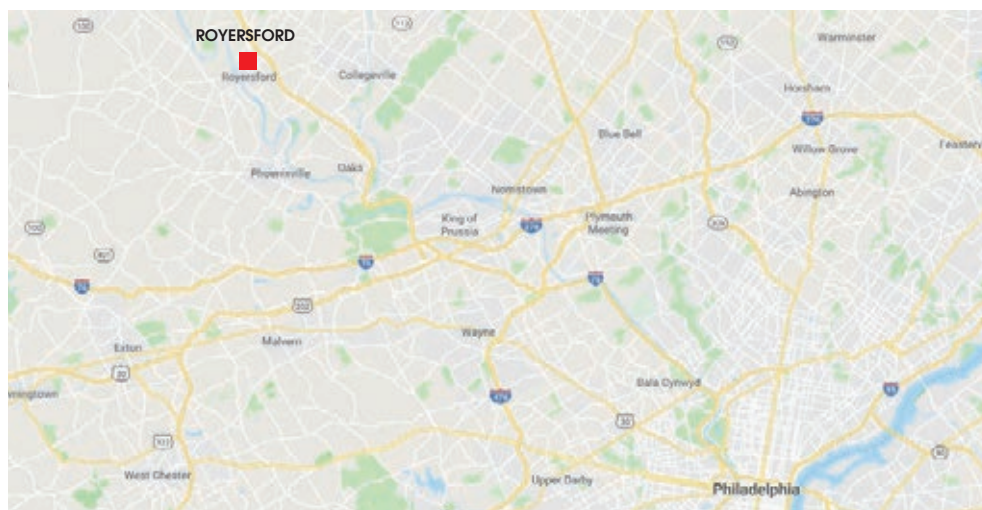
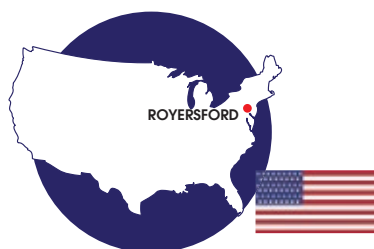
Tel. +39 059 255 77 00 Fax +39 059 255 77 33
www.fir.it

**We now offer just in time delivery from our logistics hub in the USA at
Royco Logistics**

98 Main Street, Royersford, PA 19468

Phone +1 610 948 4440 Fax +1 610 948 4511

www.royersfordspring.com



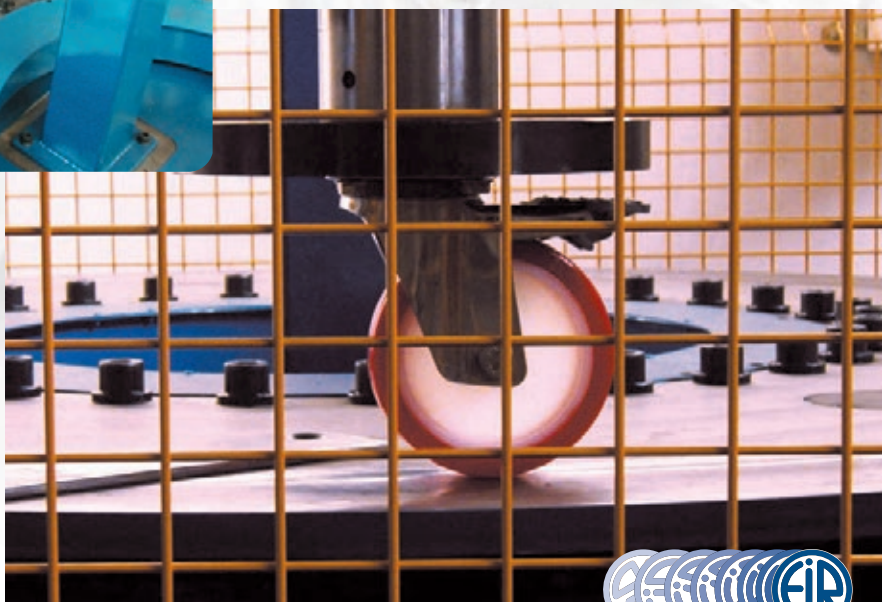
We produce and sell quality

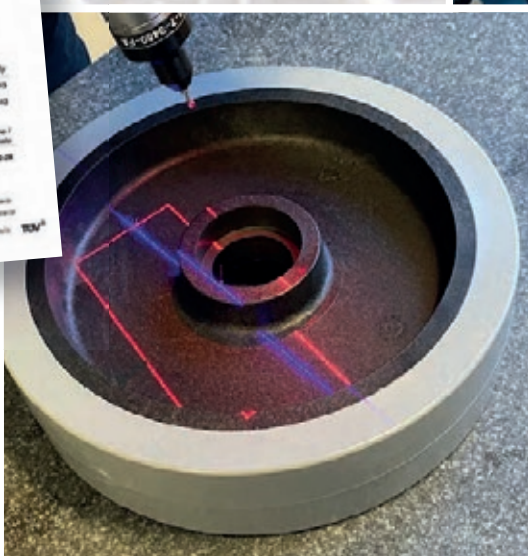
At F.I.R., the commitment to innovation is ever-present. We have invested in technically advanced machines and equipment which have increased production efficiency and improved product quality. We only use top quality materials. Product quality is constantly monitored using modern equipment which allows us to test our products on site in relation to international standards. The vertically integrated factory allows us to control the entire process from the design and the execution of the mold to the final product.

*Le ruote ed i supporti F.I.R. sono prodotti in
accordo con le seguenti normative:*

*F.I.R. wheels and brackets are manufactured
according to the following ISO:*

ISO 22877 - UNI EN 12526
ISO 22878 - UNI EN 12527
ISO 22881 - UNI EN 12530
ISO 22883 - UNI EN 12532
ISO 22884 - UNI EN 12533





Everyone of us at F.I.R. is committed, every day of the year, for the improvement of:

- Product quality
- Productivity
- Client relations
- Service efficiency
- Value for money

Our product are designed to be long-lasting.



F.I.R. is committed to continuous product and process innovation.



- In 2012, F.I.R. was granted the European Patent, Patent no. 2236317
- In 2014 F.I.R. was granted a United States Patent, Patent no. US 8,911,025 B2.
- In 2014, F.I.R. obtained 6 Registered Community Designs for wheels at OHIM, Office for Harmonization in the Internal Market, Trade Marks and Designs:

Registrations no.:

002460139-0001-002460139-0002
002460139-0003-002460139-0004
002460139-0005-002460139-0006



Fabbrica Italiana Ruote

YOUR IDEAS IN MOTION



Wheel Diameter



Load capacity



Speed



Hardness



Temperature



Price



Tread width



Wheel hole diameter



Hub length



Designed and made in Italy



Recyclable



Shock absorbing



Non-marking



Non-slip



Noise-free



Resistant to chemicals and detergents



Choice of colour



Custom-made

MEASURES

mm	inches
37.7	1 1/2
38	1 1/2
48.5	1 15/16
49.7	1 15/16
50.5	2
51	2
51.3	2
54.5	2 1/8
60	2 3/8
63.5	2 1/2
64	2 1/2
76.2	3
90	3 9/16
172	6 3/4
198	7 13/16
203	8
213	8 3/8
220	8 11/16
222	8 3/4
254	10
307	12 1/16

HUB TYPES



PLAIN BORE



STAINLESS STEEL
ROLLER BEARINGS



KEY SEAT



BALL BEARING



FLANGED



SPLINED

TREAD TYPE



SMOOTH



SMOOTH LATHED



ROUGH/SCRATCHED



COUNTRY PROFILE



FINELY GROOVED

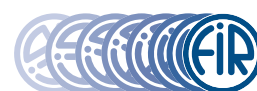


GROOVED



**TPU+TPU, thermoplastic polyurethane
injected onto a thermoplastic
polyurethane center**

F.I.R.'s top range, the Alpha series, features a combination of hub and tread both made from top quality TPU. These wheels have both mechanical and chemical interlocking systems making them exceptionally strong. They are ideal for high speed applications of up to 10 km/h or 6 mph. They are very durable and resistant to tearing. The elastic polyurethane, from 70 to 80 Shore A, allows excellent grip and the ability to overcome obstacles. The wheels are noiseless and do not vibrate; they are suited to most surfaces.



Fabbrica Italiana Ruote

YOUR IDEAS IN MOTION



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



from 160 kg to 300 kg
from 350 lb to 660 lb



maximum speed 10 km/h
maximum speed 6 mph



Polyamide 6 reinforced with glass fiber



from 70 to 80 Shore A



Antistatic



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



HUB TYPES



PLAIN BORE



STAINLESS STEEL
ROLLER BEARINGS



KEY SEAT



BALL BEARING



FLANGED



SPLINED

TREAD TYPE



SMOOTH



SMOOTH LATHED



ROUGH/SCRATCHED



COUNTRY PROFILE



FINELY GROOVED



GROOVED



TRACTION WHEELS



CODICE / CODE							
MOZZO A CHIAVETTA / KEY SEAT							
200	75	6	20	76	80	GROOVED	PS/GN155P76CH
200	75	6	20	76	80	SCRATCHED	PS/GN155P76CHGRT

NON TRACTION WHEELS



CODICE / CODE							
MOZZO A CUSCINETTI / BALL BEARING							
200	78	25		51	80	SCRATCHED	PS/NN155P76CGRT

Available in different colors,
sizes and surface patterns





**TPU+PA6, thermoplastic
polyurethane injected onto
a polyamide center**

F.I.R.'s most popular range, the Beta series, features a combination of hub made in polyamide 6 and tread made from top quality TPU. These wheels have mechanical interlocking system. This series has the best price-quality ratio. The wheels are very strong, durable and resistant to tearing. They are ideal for applications that require a speed of up to 6 km/h or 4 mph. The elastic polyurethane, from 70 to 80 Shore A, allows excellent grip and the ability to overcome obstacles. The wheels are noiseless and do not vibrate. They are suited to most surfaces.





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



from 160 kg to 300 kg
from 350 lb to 660 lb



maximum speed 6 km/h
maximum speed 4 mph



Also available in ESD (electrostatic discharge) polyamide and polyurethane



Hub can be reinforced with fiberglass



from 70 to 80 Shore A



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



HUB TYPES



PLAIN BORE



STAINLESS STEEL
ROLLER BEARINGS



KEY SEAT



BALL BEARING



FLANGED



SPLINED

TREAD TYPE



SMOOTH



SMOOTH LATHED



ROUGH/SCRATCHED



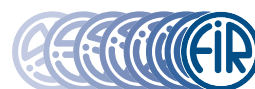
COUNTRY PROFILE



FINELY GROOVED



GROOVED



Fabbbrica Italiana Ruote

YOUR IDEAS IN MOTION

TRACTION WHEELS



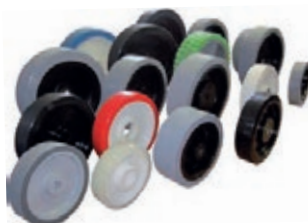
								CODICE / CODE
MOZZO A CHIAVETTA/KEY SEAT								
150	40	5	14	39	82	COUNTRY PROFILE		PS/153CHCP
175	45	6	20,2	43	92	SMOOTH		PN/154 CH
172	45	5,135	12,7/21,26	50	75	SCRATCHED		PY/GG154CHGRT
198	50	5,135	12,7/21,26	50	75	SMOOTH, LATHED		PS/GG198CHCL
198	50	5,135	12,7/21,26	50	75	SCRATCHED		PS/GG198CHC
200	50	6	20	55	82	SMOOTH, LATHED		PS/GN155CH
200	50	6	20	47	72	DEEPLY GROOVED		PY/GN155CHMCGR
200	50	4,76	19,05	47	75	SCRATCHED		PYGN155CHMCGR
200	45	6	20	47	72	SMOOTH, LATHED		PY/GN155CHMC
200	50	6	20	56,5	70	SCRATCHED		PY/GN155CHGRT
200	50	6	27	55	70	COUNTRY PROFILE		PYG/155 CH 02
200	50	6,36	27,03	55	75	SCRATCHED		PYG/155CH02GRT
200	50	6	19	50	80	GROOVED		PS/GN155CHCOMB
200	50	6	20	50	80	GROOVED		PS/GN155CHCOMB20
203,2	50	5,135	12,7/21,26	50	75	SCRATCHED		PS/GG203CHC
213	50	5,135	12,7/21,26	50	75	SCRATCHED		PS/GG213CHC
213	50	5,135	12,7/21,26	50	80	SMOOTH, LATHED		PS/GG213CHCL
220	50	5,135	12,7/21,26	50	80	SCRATCHED		PS/GG220CHGRT
222	50	5	12,7/22,13	50	75	SCRATCHED		PY/GN222CHGR
250	60	6	20	70	80	SMOOTH, LATHED		PS/GN250CH
250	60	4,8	19,05	47,63	92	SCRATCHED		PN/GN250CHGRT
250	60	4,8	19,05	47,63	92	SCRATCHED		PN/NN250CHGRT
250	50	6	20	42	80	SCRATCHED		JP/GN250CHFV1
254	80	6	20	57	80	SMOOTH, LATHED		PTG/254CHFV

TRACTION WHEELS



								CODICE / CODE
MOZZO FLANGIATO/FLANGED								
200	50	4 FORI	19,05	10	90	SMOOTH, LATHED		PNG/155BH
200	50	4 FORI	19,05	10	70	SCRATCHED		PYG/155BHGRT
200	50	4 FORI	19,05	10	70	SCRATCHED		PY/GG155BHGRT
200	50	4 FORI	19,05	10	75	SCRATCHED		PYN/155BHNGRT
250	60	4 FORI	50,8	10	75	SCRATCHED		PY/GN250BHGRT
250	60	4 FORI	50,8	10	70	SCRATCHED		PY/NN250BHGRT
250	60	3 FORI	40	10	80	GROOVED		PS/GN250F40COMB
250	60	3 FORI	20	50	70	SCRATCHED		PY/GN250CH3FGRT
254	80	3 FORI	42	11	80	SCRATCHED		PTG/254F42GRT
300	70	4 FORI	50,8	15	75	SCRATCHED		PS/GN158BHGRT
300	70	4 FORI	50,8	15	70	SCRATCHED		PS/NN158BHGRT
300	70	6 FORI	70		80	GROOVED		PS/G158 F
254	80	6	20	57	80	SMOOTH, LATHED		PTG/254CHFV

TRACTION WHEELS



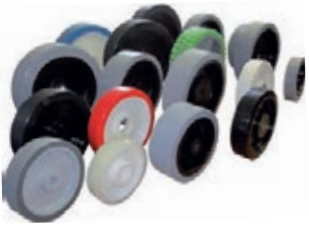
							CODICE / CODE
MOZZO SCANALATO/SPLINED							
198	50	5482		50	75	SCRATCHED	PS/GG198SPL
200	50	5482		56	80	COUNTRY PROFILE	PS/155DIN5482
200	50	5482		50	70	COUNTRY PROFILE	PYG/155DIN
254	80	5482		58	80	SCRATCHED	PSG/254 DIN

NON TRACTION WHEELS



							CODICE / CODE
MOZZO A CUSCINETTI/BALL BEARING HUB							
152,4	40	20		50	80	SCRATCHED	PS/GN152CGRT
158	40	20		50,5	82	SMOOTH, LATHED	PS/GN160CS
160	48,5	20		49,5	63	SCRATCHED	PY/GN160CGRT
175	45	20		50	82	SMOOTH, LATHED	PNPG/154CSPEC
175	45	20		50,5	92	SMOOTH, LATHED	PN/154 CS
175	45	20		50	70	SCRATCHED	PY/GN154CS
175	45	12		50	75	SMOOTH, LATHED	PY/GG154C12
198	50	20		54,5	75	SCRATCHED	PS/GG198C20
198,5	50	25		60	80	SMOOTH, LATHED	PS/GN155CSI
200	50	17		60	80	SCRATCHED	PS/GN155CSI17
200	76,2	25		51,3	70	SMOOTH, LATHED	PY/GN155L76C
200	50	20		50,5	72	SCRATCHED	PYN/155CNGRT
200	50	20		49,7	75	SCRATCHED	PYG/155CGRT
200	50	20		50	70	COUNTRY PROFILE	PYG/155 S 01
203	50	20		54,5	75	SCRATCHED	PS/GG203C20
213	50	20		54,5	75	SCRATCHED	PS/GG213C20
250	60	25		38	70	SCRATCHED	PY/GN250CN25GRT
250	60	25		38	70	SCRATCHED	PY/NN250CN25GRT
250	51	25		37,7	80	GROOVED	PS/GN250PCKF
250	50	25		37,72	80	GROOVED	PS/GN250PCKF4
254	80	25		51	80	SMOOTH, LATHED	PTG/254CFV
254	80	20		51	80	SCRATCHED	PTG254C20FVGRT
254	80	25		51	80	GROOVED	PSN/254CFV
254	80	25		51	80	SCRATCHED	PSG/254CFV
300	70	25		70	70	SCRATCHED	PYG/158CNTGRT
300	70	25		70	70	SCRATCHED	PYN/158CNTGRT
300	70	25		70	70	SCRATCHED	PYG/158CSGRT
300	70	25		70	70	SCRATCHED	PYG/158C4NTGRT
300	70	25		70	70	SCRATCHED	PYN/158C4NTGRT
300	90	25		64	70	SMOOTH, LATHED	PYG/158 C 01
300	90	25		63,5	70	SCRATCHED	PYG/158C01GRT
307	90	25		64	80	GROOVED	PS/GN307CGR

NON TRACTION WHEELS



							CODICE / CODE
ANTISTATICA/ANTISTATIC - MOZZO A CUSCINETTI/BALL BEARING							
250	60	20		38	FORMAPUR 60	SCRATCHED	PY/GN250C20ESD

NON TRACTION WHEELS



							CODICE / CODE
MOZZO A FORO PASSANTE/PLAIN BORE							
250	50	23		42	80	SCRATCHED	JP/GN250BFV

NON TRACTION WHEELS



							CODICE / CODE
MOZZO A RULLI INOX/ INOX ROLLER BEARING							
175	45	20		58	82	SMOOTH	PS/154 RX GN

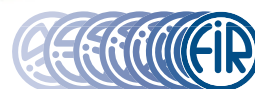
Available in different colors,
sizes and surface patterns





TPE+PP, thermoplastic elastomer injected onto a polypropylene 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.



Fabbrica Italiana Ruote

YOUR IDEAS IN MOTION



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



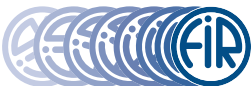
Available in different colors and size.
Available with double ball bearings.



NON TRACTION WHEELS

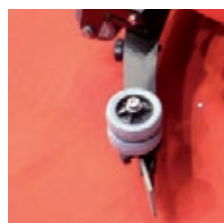
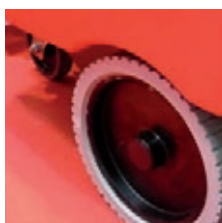
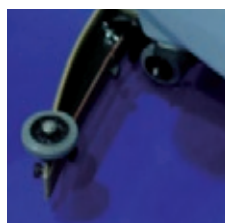


							CODICE / CODE
BALL BEARING							
250	50	17		37,7	80	SMOOTH	JP/GN250CA
250	50	17		37,7	80	SMOOTH, LATHED	JP/GN250C



Traction wheels












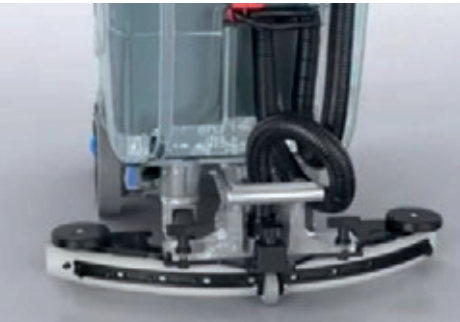
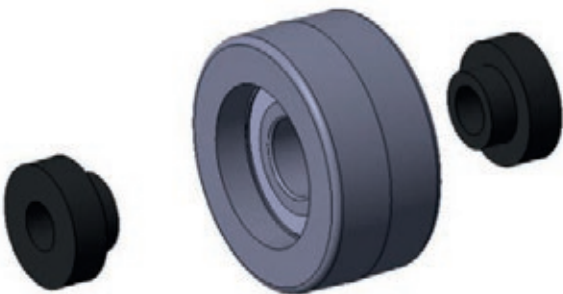


Driver wheels for squeegee brackets

Series Superlan Compact

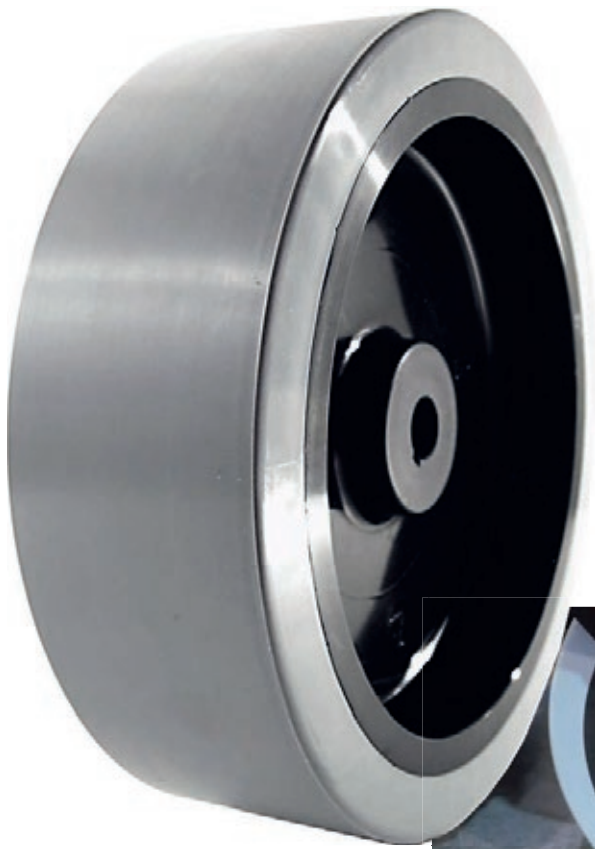
Made of thermoplastic polyurethane, 92ShoreA, injected onto high quality ball bearings

											CODICE / CODE	
												
BALL BEARING												
50	24	24					25					PG/50CTT
50	24	8,2					26					PG/50CTT01
50	33	15					33					PN/50C15



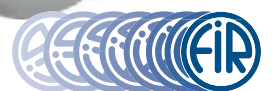
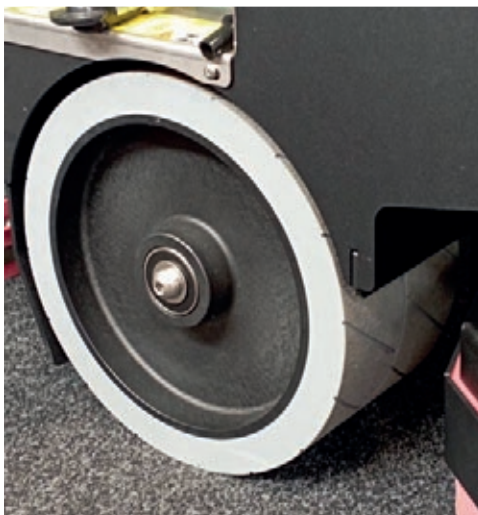
Custom-made wheels and applications

28



Custom-made wheels and applications

29



Fabbbrica Italiana Ruote

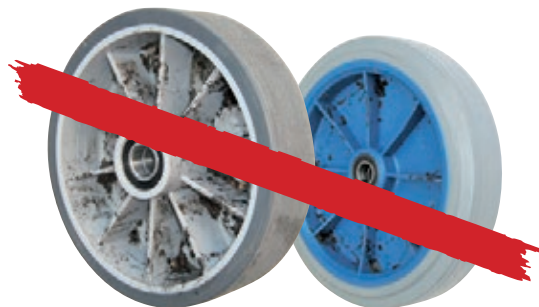
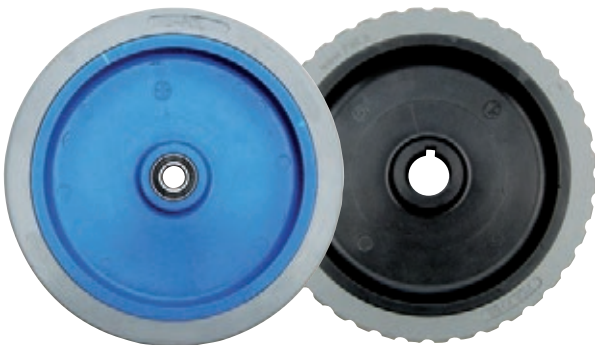
YOUR IDEAS IN MOTION

Custom-made wheels and applications

30



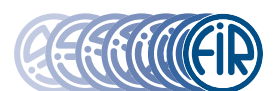
the cleaner, the better



structurally clean!!

Custom-made wheels and applications

31



Fabbbrica Italiana Ruote

YOUR IDEAS IN MOTION

Custom-made wheels and applications

32



Custom-made wheels and applications

33

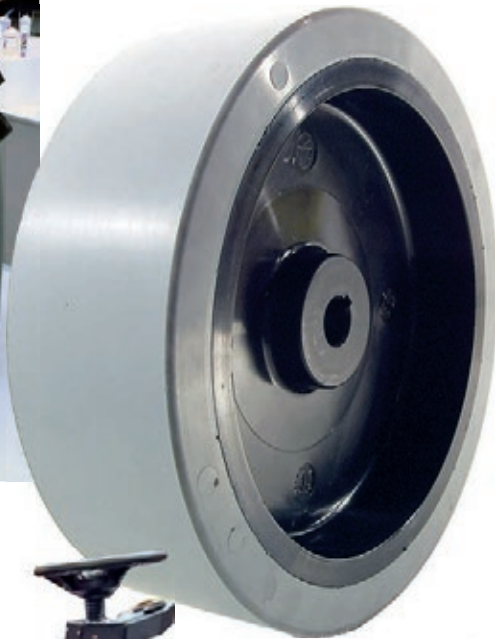


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YOUR IDEAS IN MOTION

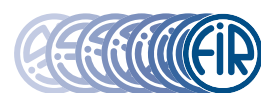
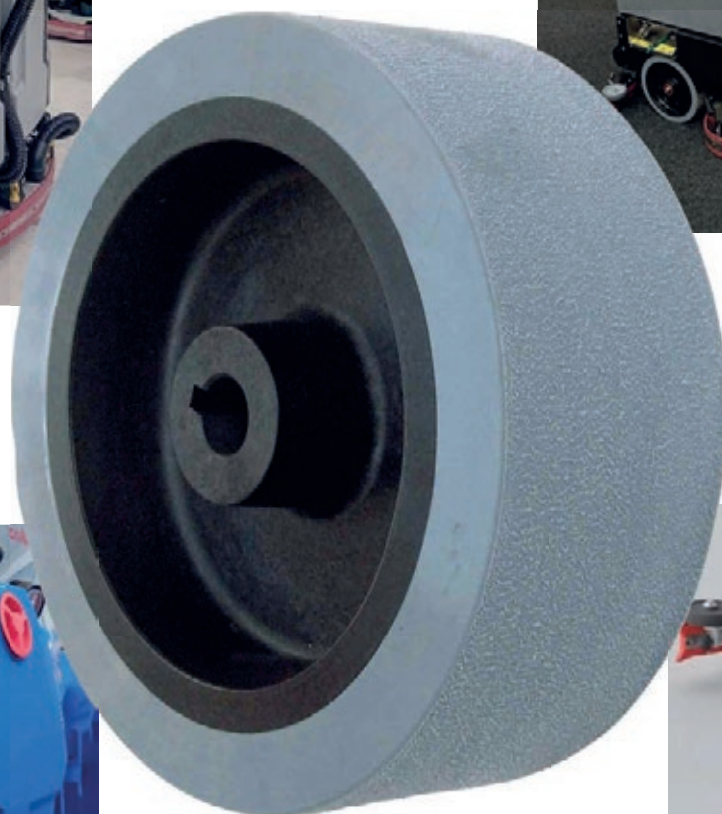
Custom-made wheels and applications

34



Custom-made wheels and applications

35



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YOUR IDEAS IN MOTION

Custom-made wheels and applications

36



Custom-made wheels and applications



Fabbrica Italiana Ruote

YOUR IDEAS IN MOTION

ECO-SMART WHEELS - ESW

F.I.R. climate friendly wheels for scrubber driers

Made of up to 30% of recycled material.

Hub made of PA6-eco, polyamide 6 with up to 30% of recycled PA6

Tread made of TPU-eco, thermoplastic urethane with up to 30% of recycled material.

Did you know that PA6 and TPU shore 90A, 80A and 70A, the materials we use through injection molding for producing our wheels, are fully recyclable? And not just that, they can be recycled many times, without losing their properties. They can also give an improved injection cycle, with the result that they even outperform new materials.

Our in-house circular economy is built to make the supply chain more sustainable.

In order to meet the high requirements for the products technical properties while also ensuring sustainable production, we only use our own run-around scrap (such as purges, sprues, scrap obtained from machining, etc.). In this way we have full control on the quality of the materials used. The material is processed in our grinding unit and then re-used in the injection molding process in specified percentages dictated by our rigorous testing procedures.

The materials maintain their original characteristics without altering the high quality content of our products or compromising the outstanding service life of the wheel.

The use of ecofriendly raw materials translate into a reduction in the carbon footprint attributable to production.



Fabbrica Italiana Ruote





Fabbrica Italiana Ruote
www.fir.it



THE BEST ANSWER TO YOUR NEEDS

Why choose F.I.R.:



QUALITY

we are certified UNI EN ISO 9001



INDUSTRY 5.0

smart factory for smart people in a sustainable environment



INNOVATION

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, high price-quality ratio and fast delivery to our customers



FLEXIBILITY

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



ENVIRONMENT

we comply with European standards for the protection of the environment



ESG

F.I.R. is committed to comply with UN goals for sustainable development



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



Quality
management
system ISO 9001:2015
certified company