Your partner in fluids and gas management

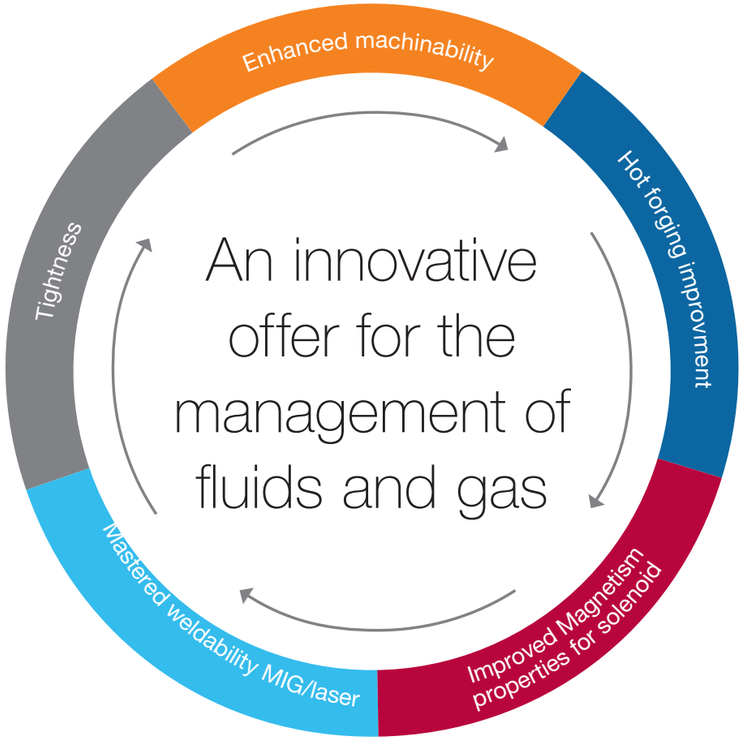
Swiss Steel Group

Ugitech: your partner

Ugitech produces stainless steels and alloys in the forms of bars, billets, wire rod and drawn wire.

Ugitech stands out for its technical culture and internationally recognized expertise in long stainless steel products.

A key player in the field of research thanks to its Research and Development Center, supported by experts and high performance means Ugitech offers you many solutions for your development.



Two commitments on a daily basis: quality and performance

Ugitech is an actor actively engaged in the in the search for operational excellence inspired by the EFQM (European Foundation for Quality Management).

Thanks to rigorous quality procedures, Ugitech consistency in the quality of its products attested by various certifications.


IATF 16949
Ugitech SA Ugine


IATF 16949
Ugitech ITALIA Srl


EN 9120
Ugitech SA Ugine Grigny


ISO 9001
Ugitech SA
Main locations


ISO 9001
Ugitech ITALIA Srl


ISO 13485
Ugitech SA


ISO/CEI 17025
COFRAC
Accreditation of Ugine's Laboratories


TÜV AD2000 W0_
Ugitech SA


TÜV PED 2014/68/EU-AD 2000 W0
Ugitech ITALIA Srl


TÜV PED 2014/68/EU
Ugitech Ugine


EDF CEIDRE
Qualification Stock RCC-M Barres


Marine Lloyd's Register


Marine Offshore Veritas


Marine the DNV GL


NORSOK M650
UNS 32750 F53
MDS-D57 1.4410
bars


NORSOK M650
UNS 32550 F61
MDS-D57
1.4507 bars


NORSOK M650
UNS 31803/32205
F51 F60 MDS-D47

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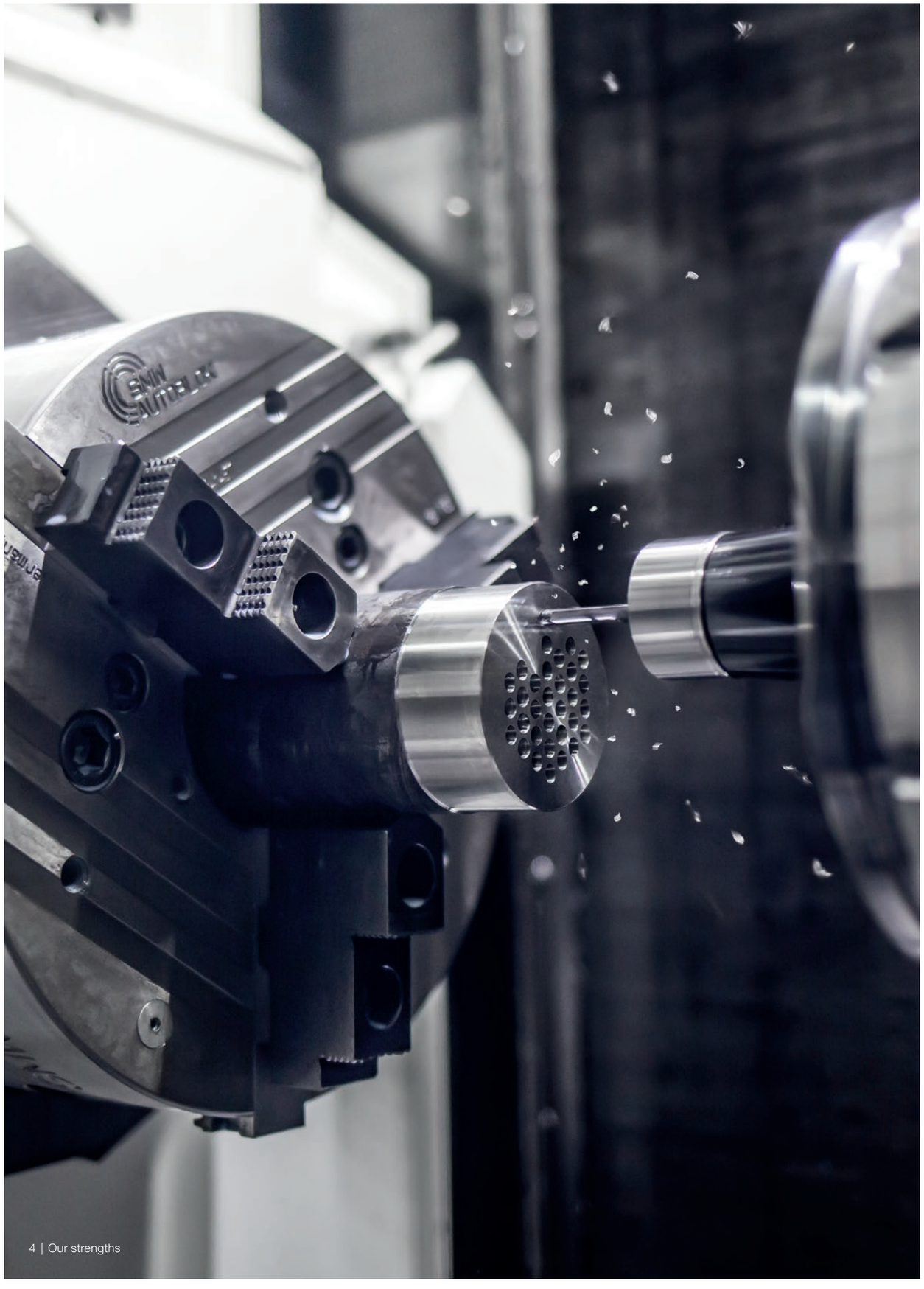
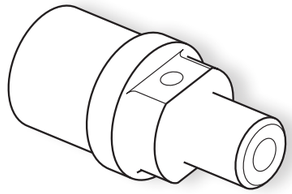


Our strengths

Machinability

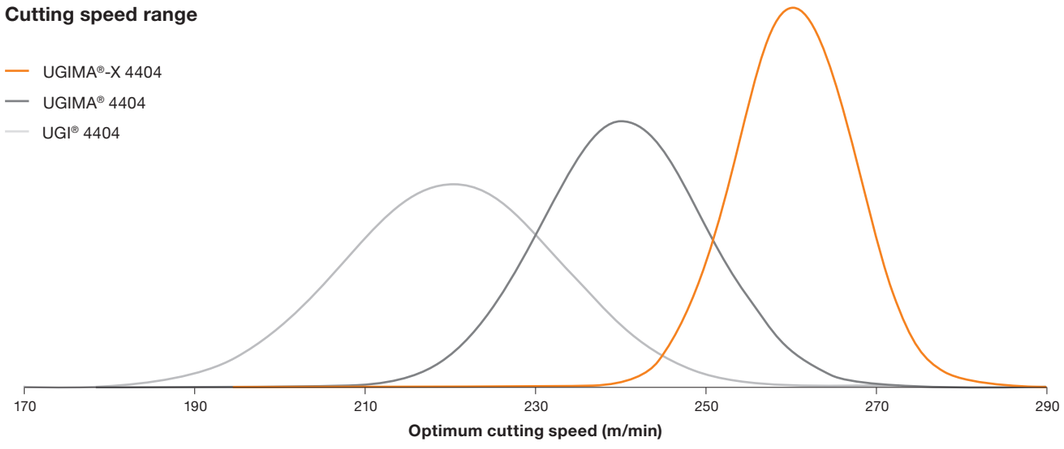
Over the years Ugitech has developed more than thirty grades with improved machinability.

These grades have all been tested and validated in Ugitech's research center on turning machines to offer you the best compromise between cutting speed and tool life.

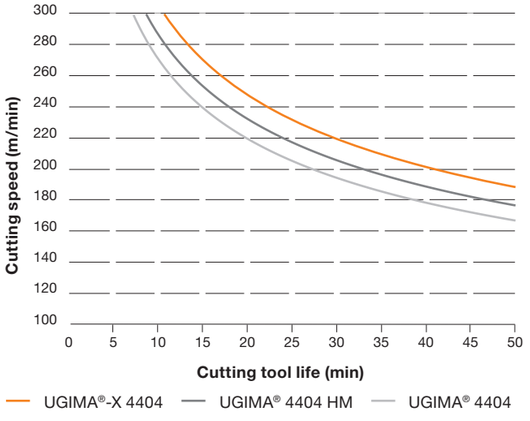


UGIMA®-X: +15% of productivity

Cutting speed range



Tool life according to cutting speed



Case Study

	UGIMA® 4305	UGIMA®-X 4305
Material cost per component (€)	0.89	0.91
Cycle time / component (second)	65	56
Productivity (component/hour)	55.4	64.3
Machining cost (€/component)	0.81	0.70
Tooling cost (€/component)	0.06	0.06
Total component cost (€)	1.76	1.67
Savings per component (€)		0.09
Savings in €/kg		0.48

Forgeability

In order to meet all your needs Ugitech will support you in the choice of materials to be used.

To do this, Ugitech has developed material evaluation tests (forgeability tests) and numerical simulation of hot stresses in order to develop materials adapted to the various forging conditions.

Ugitech offers different finishes on round bars or square billets depending on the materials used after forging.

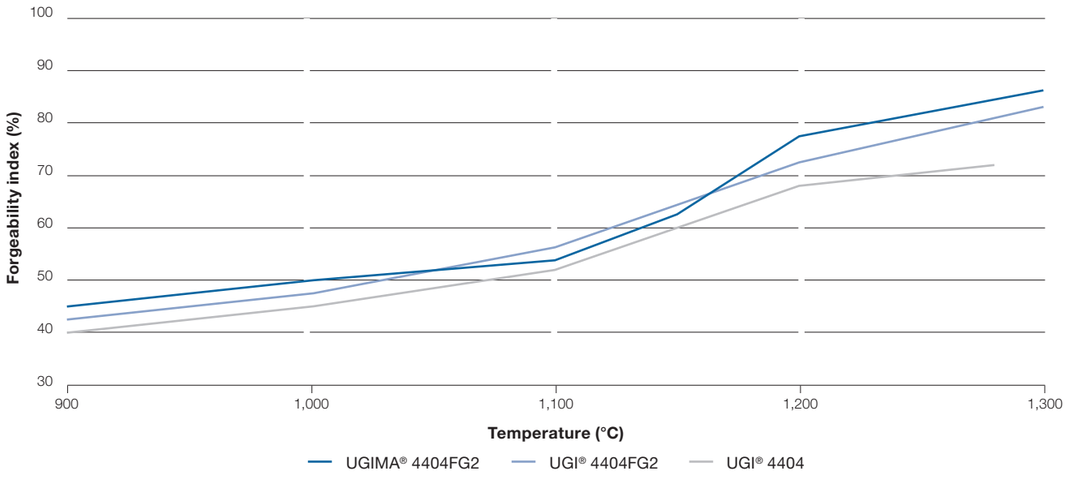
Type of finishing	Square billets	Round
Not descaled	Black	Black
Peeled or descaled	Descaled	Descaled
Peeled or ground without defects	Fully ground	Turned & polished

If strong machining on piece after forgeability

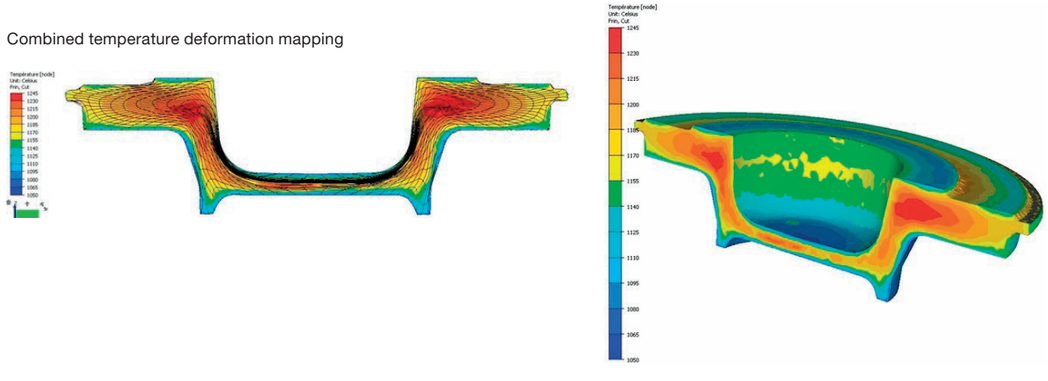
If parts “near net shape”

Designation	Customers’ needs	Examples of grades
FG2	Machining (complex)	UGIMA® 4307FG2: family 304 with an 8% N
		UGIMA® 4404FG2: family 316 with an 10% Ni
	Welding (low % Ca and % S)	UGI® 4307FG2: family 304 with an 8% Ni
		UGI® 4404FG2: family 316 with an 10% Ni
FG	Highly complex forging	family 304 with a 9% Ni: different grades (FG) according to customers’ needs
		family 316 with a 11% Ni: different grades (FG) according to customers’ needs

Forgeability until 1300°C



Combined temperature deformation mapping

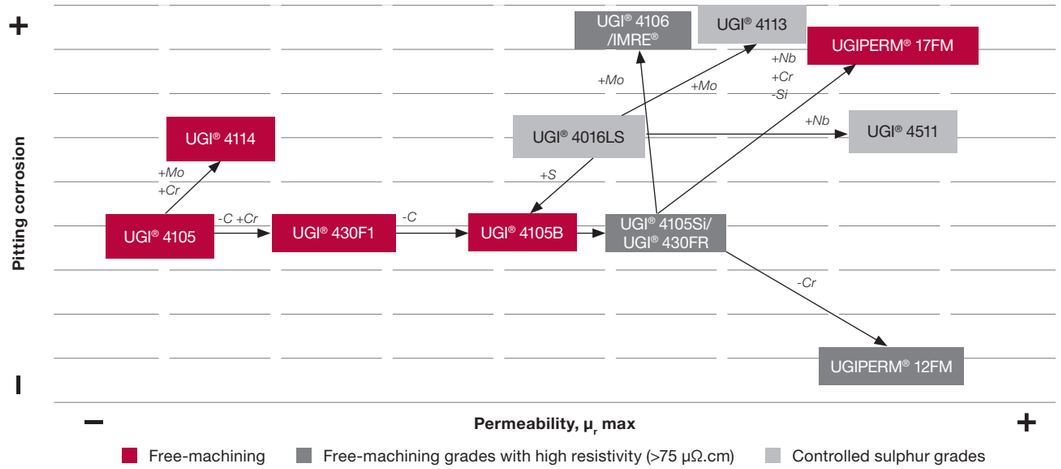


Magnetism

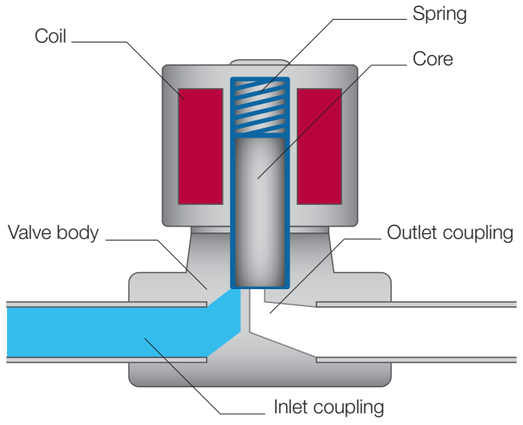
Ugitech offers a comprehensive range of ferritic stainless steels with soft magnetic properties, specifically for electromagnetic actuators.

The choice of the most suitable grade for a given application is a trade-off between magnetic properties, electrical resistivity, corrosion resistance, machinability and weldability.

Positioning of the Ugitech ferritic steel offer according to pitting corrosion resistance and relative permeability.



Principle of a solenoid valve



Quality management specifically for the magnetism market

To qualify the materials, Ugitech has the whole range of magnetic measurement techniques, all standardized:

- Type A direct-current permeameter: measurement on bars as per EN 60404-4 and ASTM A341/A341M
- Coercimeter for measurements on bars or on parts (EN 60404-7)
- Permeability measurement on feebly magnetic materials

For ferromagnetic grades, a permeameter can be used to determine the B(H) curves of first magnetization and the hysteresis cycle, from which the values μr max, Hc, Br and Js are deduced.

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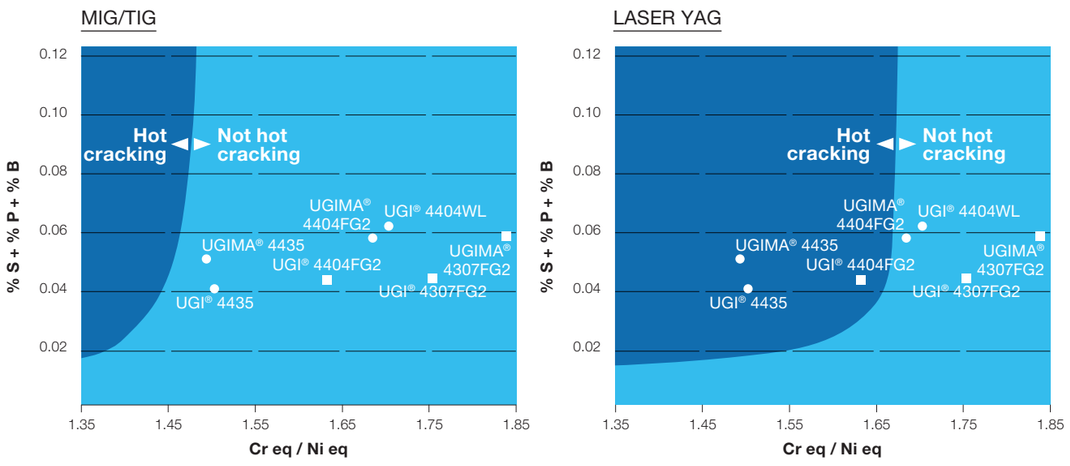
Welding

Ugitech has developed grades that are specially adapted to the processing method and welding process.

		Laser welding	MIG welding
Forged products	Specificity	Low calcium	Calcium treatment
		Low sulfur	
	Product offer	UGI® ****FG2	UGIMA® ****FG2
Machined pieces	Specificity	Low calcium	Calcium treatment
		Sulfur controlled	Sulfur controlled
	Product offer	UGI® ****WL	UGIMA® / UGIMA®-X

Welding technologies according to grades



Cr eq = %Cr + 1.37%Mo + 1.5%Si + 2%Nb + 3%Ti

Ni eq = %Ni + 0.31%Mn + %Cu + 22%C + 14.2%N

Tightness

Ugitech developed a process of elaboration to obtain a level of cleanliness.

On parts with wall thicknesses > 2mm, the problem of tightness does not exist.

On the other hand, on thin-walled parts, for sensitive applications such as cryogenics, chemistry or nuclear, a higher level of inclusionary cleanliness is required.

Various elaboration processes

Precedents of elaboration	Cleanliness (inclusions)	Sulfur content (%)	Machinability	Applications
Improved machinability	•	≤ 0.030	••••	Machining
Standard	••	≤ 0.030	•••	Standard Basic material
Premium	•••	≤ 0.030	•••	Tightness
Low sulfur	••	≤ 0.020	••	Aerospace Medical (Tools)
Remelted (ESR)	••••	≤ 0.005	•	Aerospace Nuclear

ESR (Electro Slag Remelting) Ugitech is capable of providing specific grades for these sensitive applications (nuclear compliant with the RCCM code) based on a process for the production of remelting process (ESR).

Grades properties

Grades for fluids and gas management

Reference grades	AISI designation	Other designations	Ugitech basis designations	Corrosion ISO 9227	Alim.	Machinability	Forgeability	Weldability	Tightness	Mechanical characteristics (Rp 0.2)	End-users markets			
											Hydraulics	Pneumatic	Cryogenics	High temperature
Austenitics														
1.4570	303Cu		UGI® 4570		Yes	UGIMA® 4570	N.R.	N.R.	N.R.		x	x		
1.4305	303		UGI® 4305		Yes	UGIMA®-X 4305	N.R.	N.R.	N.R.		x	x		
1.4307 - 1.4301	304L - 304		UGI® 4307		Yes	UGIMA®-X 4307	UGI®/UGIMA® 4307FG2	UGI® 4301X3	UGI® 4301X5		x	x		
					Yes	UGIMA® 4307 HM					x	x		
1.4567	304Cu		UGI® 4567		Yes	UGIMA® 4567					x	x		
1.4404 - 1.4401	316L - 316		UGI® 4404		Yes	UGIMA®-X 4404	UGI®/UGIMA® 4404FG2	UGI® 4404WL			x	x	x	
1.4598	316LCuS		UGI® 4598		Yes	UGIMA® 4598	N.R.				x	x		
1.4435	316LMo		UGI® 4435 *		Yes	UGIMA® 4435	UGI® 4435WL				x			
1.4550	347		UGI® 4550		Yes						x			x
1.4541	321		UGI® 4541		Yes	UGIMA® 4541					x			x
1.4571	316Ti		UGI® 4571		Yes	UGIMA® 4571	UGI® 4571FG				x			x
1.4374 (mod)	209	XM-19	UGI® 209		Yes						x		x	
1.4539	904L		UGI® 4539		Yes								x	x
1.4980	660	A286	4944		Yes									
Martensitics														
1.4006			UGI® 4006		**	UGIMA® 4006					x	x		
1.4005			UGI® 4005		No	UGIMA® 4005	N.R.	N.R.	N.R.		x	x		
1.4021			UGI® 4021		**	UGIMA® 4021X1					x	x		
1.4028			UGI® 4028		**	UGIMA® 4028					x	x		
1.4031 - 1.4034			UGI® 4031 - 4034		No	UGIMA® 4034					x	x		
1.4035			UGI® 4035		No		N.R.	N.R.	N.R.		x	x		
1.4122			UGI® 4122		Yes						x	x		x
1.4116			UGI®4116N		Yes	UGIMA® 4116N		N.R.	N.R.		x	x		
1.4057			UGI® 4057		Yes	UGIMA® 4057	UGI® 4057FG				x	x		
1.4418			UGI® 4418		Yes						x	x		
1.4542			UGI® 4542		Yes	UGIMA® 4542					x	x		
Duplex														
1.4362			UGI® 4362		Yes	UGIMA® 4362					x			
1.4462			UGI® 4462		Yes						x			
1.4507			UGI® 4507		Yes						x			
1.4410			UGI® 4410		Yes						x			
Ferritics														
1.4016			UGI® 4511		Yes	UGIMA® 4511		UGIMA® 4511			x	x		
1.4105			UGI® 4105		Yes	UGIMA® 4105					x	x		
1.4521			UGI® 4521		Yes	UGI® 4521					x			x
1.4713			UGI® 4713											x
1.4742			UGI® 4742											x
Magnetic grades														
1.4106			IMRE								x			
1.4114			UGI® 4114								x			
1.4105			UGI® 4105Si								x			

* Compliance to the standard BN2 (Bale Norm)

** Food grade version available

N.R.: Not Recommended

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Size range

In order to answer all your requirements, Ugitech offers you a wide range of products in constant evolution.

	Bars for forging			Bars for machining and slugs				
	Billets	**Black Bars**	**Peeled bars**	**Peeled bars for bar feeder**	**Turned & poshed bars**	**Drawn bars**	**Drawn bars hexagonal**	**Grinded Bars**
Format	Square	Round	Round	Round	Round	Round	Hexagonal	Round
Surface	Black, decarbonized and complete grinding	Black	Decarbonized	Turned / Turned & polished	Polished	Polished	Mat	Polished
Dimensions	50 - 140mm	23 - 134mm	22 to 130mm	22 to 75mm	22 to 130mm	Softened from 1.8 to 31mm*	3.0 to 55mm	1.5 to 110mm
	All the 10mm	Every millimeter	Every millimeter	Every millimeter	All diameters			
Tolerances	+/-2%	+/-1%	k12 / k13	h10	h10 / h11	h9 / h10	h11	h9 to h6
				k11 / k12	h9: 22 to 55mm	h8: 5 to 12mm		
Depth of surface defects	Black = 1% of the dimension Decarbonized = 1% of the dimension Complete grinding = 0.5% of the dimension	EN 10221 cl B Between 0.3 and 0.7mm 1% of the dimension	EN 10221 cl D Between 0.2 and 0.3mm In the average of 0.5% of the dimension	EN 10221 cl D Between 0.2 and 0.3mm In the average of 0.5% of the dimension	EN 10277 cl4 No surface defects	EN 10277 cl3 for d ≤ 20mm max. 0.2mm; for 20 < d ≤ 55mm max. 0.01 d		EN 10277 cl3 and cl4
Permissible defect quantity in mass	Black = 2% in weight Decarbonized = 1% in weight	2% of weight	2% of weight	2% of weight	Cl4 0.2% of weight	Cl3 1% of weight	Cl3 1% of weight	Cl3 1% and Cl4 0.2%
Straightness	max 4mm/m	max 1.5mm/m	max 1.5mm/m	max 0.5mm/m	max 0.5mm/m 22 to 55mm: 0.5mm/m max 55 to 130mm: 1.2mm/m max	max 0.5mm/m	1mm/m max	max 0.8mm/m on request
Endpoints	Hot cut	Hot cut	Sheared or hot cut	Sheared or hot cut	Cut	Chamferred and/or pointed	Cut or Chamferred	Deburred
			Deburred	Chamferred ≤ 55mm	Chamferred ≤ 55mm			
				Deburred > 55mm	Deburred > 55mm			
Non-destructive tests	Not applicable	Not applicable	CF and US on request	CF and US on request	CF and US on request	CF and US on request	CF and US on request	CF and US on request
Packaging	Metallic strips	Metallic strips	Metallic strips	Akylux	Akylux	Akylux	Akylux	Akylux or wooden box

* Possibility to offer drawn bars from 1.8mm to 50mm.

Chromium plated bars are available upon request.

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Swiss Steel Group

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