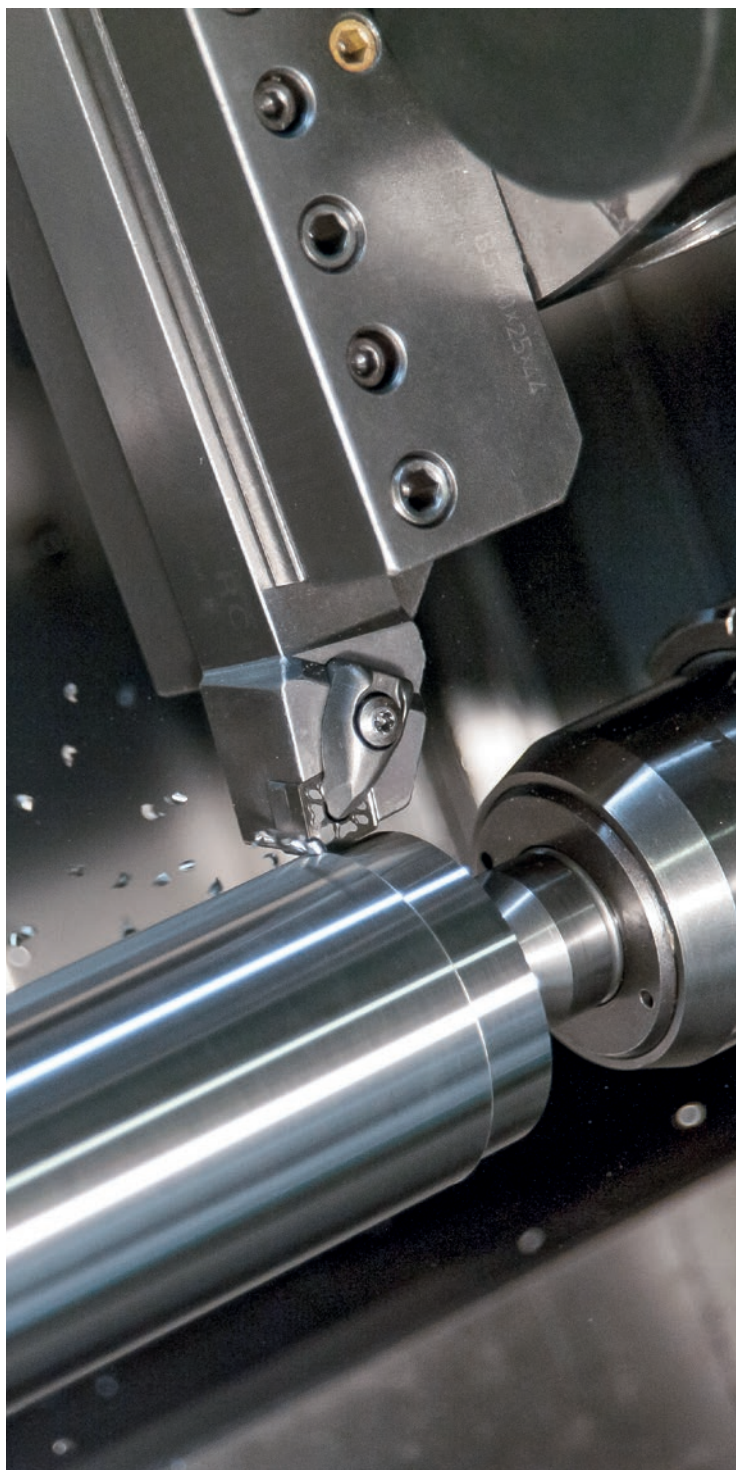


UGIMA®
Creating productivity



Technical support

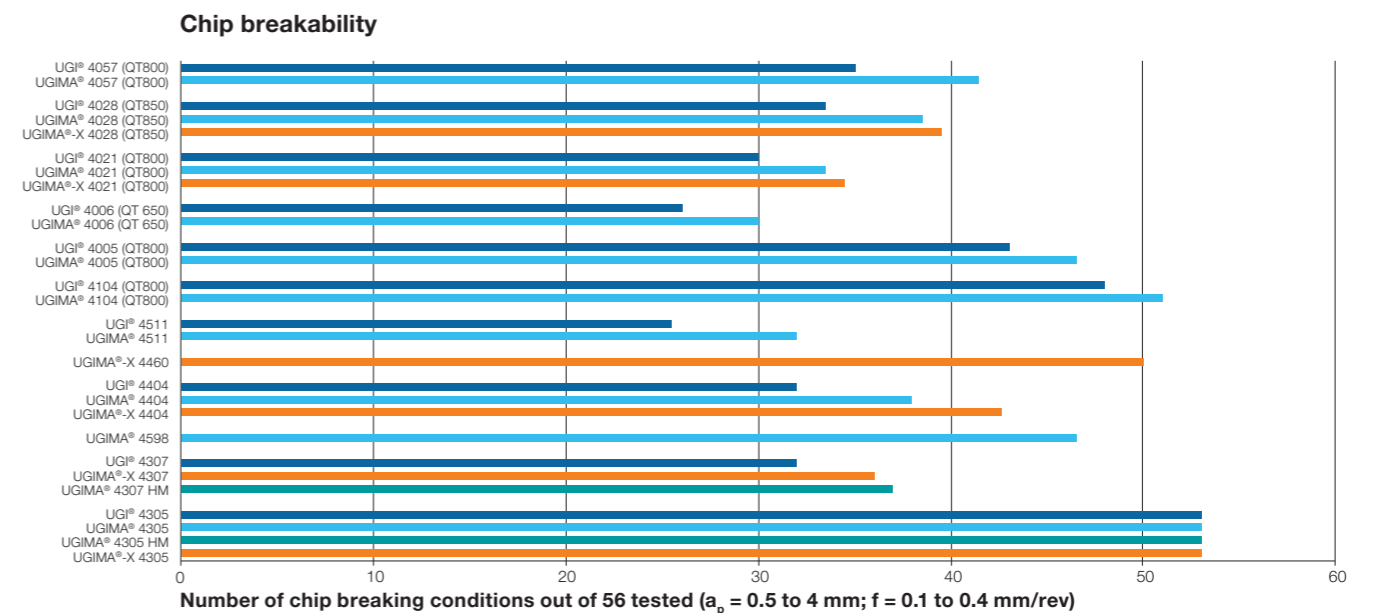
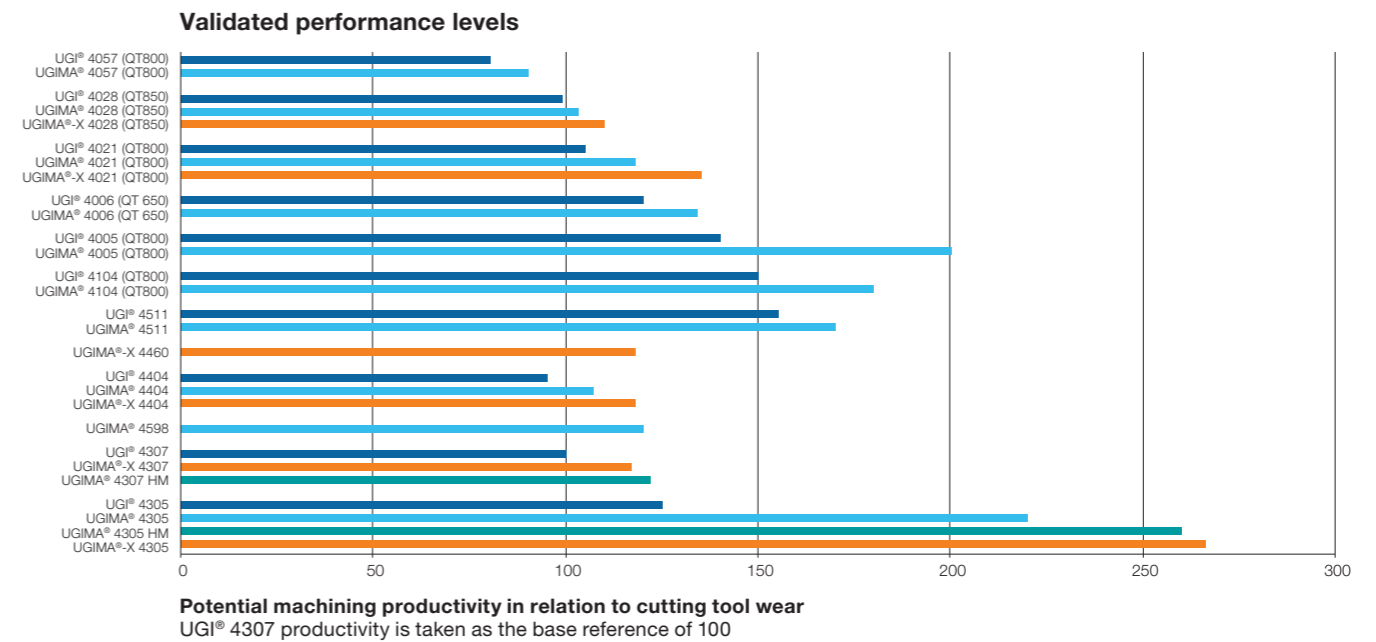
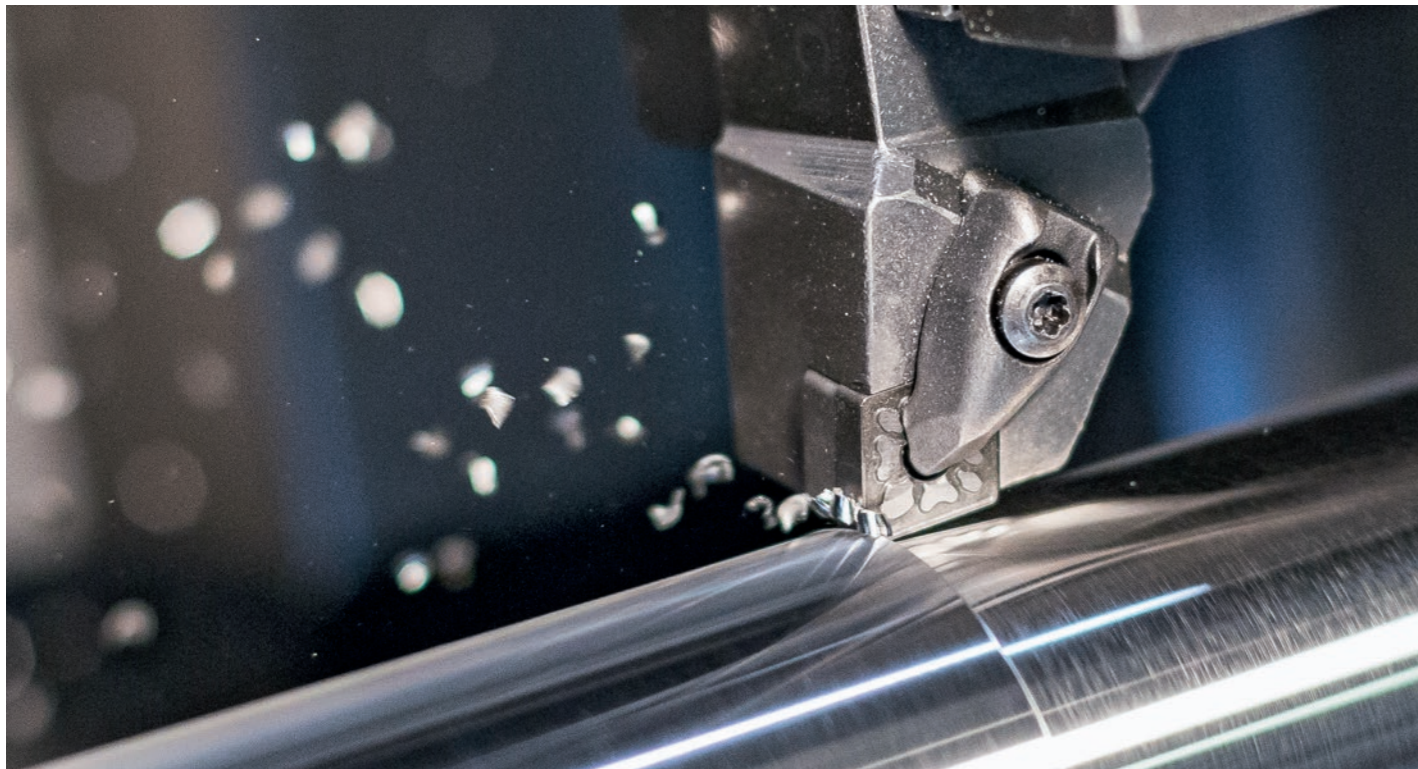
Experts available to help you throughout the world. They can provide you with information and help you optimise your cutting conditions and/or carry out work on your machines.

Our customers' testimonials

"UGIMA®: "turbo stainless steel", "the champion of machinability"... Our engineers know it, our agents say it... our customers testify to its efficiency in writing! "Thanks to UGIMA® and its reproducibility, I no longer need to change my cutting parameters!"

"Not only has the latest UGIMA®-X generation allowed those customers who chose it to further increase their productivity (by 10 to 20% in comparison with UGIMA®), it has also increased tool life (2 to 5 times, according to circumstances)." Tornos

The UGIMA® solution and Ugitech's technical support are unsurpassed in the industry!



Depending on the grades, product performance can optimise productivity in relation to cutting tool wear or facilitate material implementation by improving chip breakability.

A growing range of UGIMA® and UGIMA®-X grades

Ugitech Grades	Equivalence		Description		Chemical analysis of Ugitech grades (typical analysis given as a %)										
	AISI	UNS	N ° EN	EN designation	C	Si	Mn	Ni	Cr	Mo	N	S	P	Others	
Martensitic stainless steels															
UGIMA® 4006	UGIMA® 410	410	S41000	1.4006	X12Cr13	min. 0.08 max. 0.15	1.0	1.5	0.75	11.5	-	-	0.030	0.040	-
UGIMA® 4005A	UGIMA® 416A	416	S41600	1.4005	X12CrS13	min. 0.06 max. 0.15	1.0	1.5	-	12.0	0.6	-	0.150 0.350	0.040	-
UGIMA® 4021	UGIMA® 420A	420	S42000	1.4021	X20Cr13	min. 0.16 max. 0.25	1.0	1.5	-	12.0	-	-	0.030	0.040	-
UGIMA®-X 4021	UGIMA®-X 420A	420	S42000	1.4021	X20Cr13	min. 0.16 max. 0.25	1.0	1.5	-	13.0	-	-	0.015 0.030	0.040	-
UGIMA® 4028	UGIMA® 420B	420	S42000	1.4028	X30Cr13	min. 0.26 max. 0.35	1.0	1.5	-	12.0	-	-	0.030	0.040	-
UGIMA®-X 4028	UGIMA®-X 402B	420	S42000	1.4028	X30Cr13	min. 0.26 max. 0.35	1.0	1.5	-	13.0	-	-	0.015 0.030	0.040	-
UGIMA® 4116N				1.4116	X50CrMoV15	min. 0.45 max. 0.55	1.0	1.0	-	14.0 15.0	0.5 0.8	-	0.015 0.030	0.040	V: 0.1 - 0.2
UGIMA® 4057	UGIMA® 431	431	S43100	1.4057	X17CrNi16-2	min. 0.12 max. 0.22	1.0	1.5	2.5	15.0	-	-	0.030	0.040	-
UGIMA® 4542	UGIMA® 630	630	S17400	1.4542	X5CrNiCuNb16-4	min. 0.07 max. 0.07	0.7	1.5	5.0	15.0	0.6	-	0.030	0.040	Cu: 3.0 - 5.0 Nb: 5xC - 0.45
Ferritic stainless steels															
UGIMA® 4511	UGIMA® 430LNb	430LNb	-	1.4511	X3CrNb17	min. 0.05 max. 0.05	1.0	1.0	-	16.0 18.0	-	-	0.030	0.040	Nb: 12xC - 1.0
UGIMA® 4509		441	S43940	1.4509	X2CrTiNb18	min. 0.03 max. 0.03	1.0	1.0	-	17.5 18.5	-	-	0.015	0.040	Ti: 0.1 - 0.6
UGIMA® 4104		-	-	1.4104	X14CrMoS17	min. 0.10 max. 0.17	1.0	1.5	-	15.5 17.5	0.2 0.6	-	0.150 0.350	0.040	Nb: 3xC+0.30-1.0
Austenitic stainless steels															
UGIMA®-X 4307 UGIMA® 4307 HM UGIMA® 4307FG UGIMA® 4307 FG2	UGIMA®-X 304L UGIMA® 304LXL UGIMA® 304FG UGIMA® 304FG2	304L	S30403	1.4307	X2CrNi18-9	min. 0.03 max. 0.03	1.0	2.0	8.0 10.5	17.5 19.5	-	0.11	0.030	0.045	-
UGIMA® 4306 UGIMA® 4306FG		304L	S30403	1.4306	X2CrNi19-11	min. 0.03 max. 0.03	1.0	2.0	10.0 12.0	18.0 20.0	-	0.11	0.030	0.045	-
UGIMA® 4567	UGIMA® 304Cu	304Cu	S30430	1.4567	X3CrNiCu18-9-4	min. 0.04 max. 0.04	1.0	2.0	8.5 10.5	17.0 19.0	-	0.11	0.030	0.045	Cu: 3.0 - 4.0
UGIMA® 4305 UGIMA® 4305HM UGIMA®-X 4305	UGIMA® 303 UGIMA® 303XL UGIMA®-X 303	303	S30300	1.4305	X8CrNiS18-9	min. 0.10 max. 0.10	1.0	2.0	8.0 10.0	17.0 19.0	-	0.11	0.350	0.045	Cu: 0.4 - 0.7
UGIMA® 4570 UGIMA®-X 4570	UGIMA® 303UX UGIMA®-X 303UX	-	-	1.4570	X6CrNiCuS18-9-2	min. 0.08 max. 0.08	1.0	2.0	8.0 10.0	17.0 19.0	0.6	0.11	0.350	0.045	Cu: 1.4 - 1.8
	UGIMA® 303Cu+	303Cu	S30330	-	X6CrNiCuS18-9-3	min. 0.06 max. 0.06	1.0	2.0	8.0 10.0	17.0 19.0	0.6	-	0.150 0.350	0.040	Cu: 2.5 - 3.0
UGIMA® 4401 UGIMA® 4401FG	UGIMA® 316 UGIMA® 316FG	316	S31600	1.4401	X5CrNiMo17-12-2	min. 0.07 max. 0.07	1.0	2.0	10.0 13.0	16.5 18.5	2.0 2.5	0.11	0.030	0.045	-
UGIMA® 4404 UGIMA®-X 4404 UGIMA® 4404 FG UGIMA® 4404FG2	UGIMA® 316LXL UGIMA®-X 316L UGIMA® FG UGIMA® FG2	316L	S31603	1.4404	X2CrNiMo17-12-2	min. 0.03 max. 0.03	1.0	2.0	10.0 13.0	16.5 18.5	2.0 2.5	0.11	0.030	0.045	-
UGIMA® 4435 UGIMA® 4435FG UGIMA® 4435ICH	UGIMA® 316LMO UGIMA® 316LMO	316L (316LMO)	S31603	1.4435	X2CrNiMo18-14-3	min. 0.03 max. 0.03	1.0	2.0	12.5 15.0	17.0 19.0	2.5 3.0	0.11	0.030	0.045	-
UGIMA® 4541	UGIMA® 321	321	-	1.4541	X6CrNiTi18-10	min. 0.08 max. 0.08	1.0	2.0	9.0 12.0	17.0 19.0	-	-	0.030	0.045	Ti: 5xC - 0.7
UGIMA® 4571	UGIMA® 316Ti	316Ti	S31635	1.4571	X6CrNiMoTi17-12-2	min. 0.08 max. 0.08	1.0	2.0	10.5 13.5	16.5 18.5	2.0 2.5	-	0.030	0.045	Ti: 5xC - 0.7
UGIMA® 4598		-	-	1.4598	X3CrNiMoS17-11-2	min. 0.03 max. 0.03	1.0	2.0	10.0 13.0	16.5 18.5	2.0 2.5	0.11	0.100 0.200	0.045	Cu: 1.3 - 1.8
Austeno-ferritic stainless steels / Duplex															
UGIMA®-X 4460	UGIMA®-X 329	329	S32900	1.4460	X3CrNiMoN27-5-2	min. 0.05 max. 0.05	1.0	2.0	4.5 6.5	25.0 28.0	1.3 2.0	0.05 0.20	0.030	0.035	-

FG grades are intended for hot forging and slight cold deformation with a higher Ni content.

Easy machining!

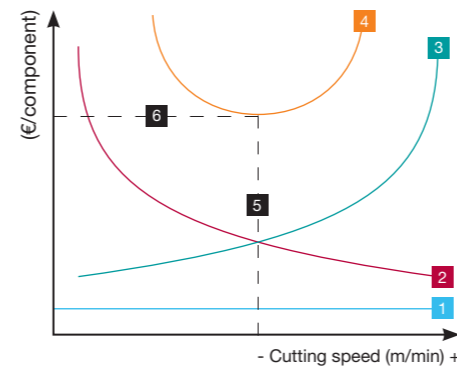
UGIMA® and UGIMA®-X grades can:

- increase productivity by between 10% and 50%, depending on the grades¹
- significantly increase tool service life²
- provide performance levels that can be repeated from one batch to another

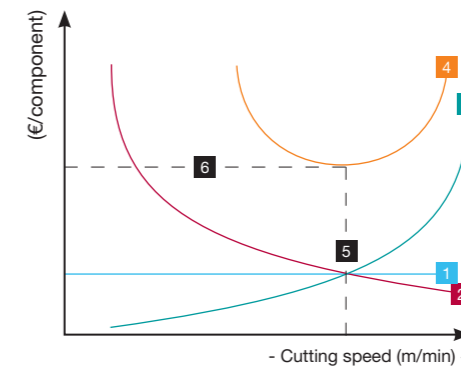
Le tout, en améliorant la fragmentation des copeaux et l'état de surface des pièces. Avec ces nuances, ce véritable tour de force (niveau de performance) est accessible à tous les types de machines et d'outils.

- 1: with the same tool service life
- 2: after optimisation of cutting conditions

Cost of components with a standard grade



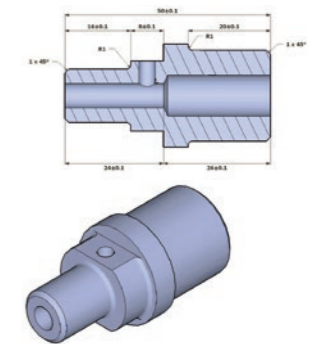
Cost of components with a UGIMA® grade



- 1: Material cost
- 2: Machine cost
- 3: Cutting tool cost
- 4: Machine cost = Material cost + machine cost + cutting tool cost
- 5: Selected speed
- 6: Final component cost

Usage value

	1.4404 Standard	UGIMA®-X 4404
Material cost (€/component)	€0.84	€0.88
Productivity (component/h) (83% efficiency)	46	57,7
Machining cost (€/component)	€0.98	€0.78
Total cost (€/component)	€1.82	€1.66
Savings (€/component)	-	€0.16
Savings on a production run of 10.000 components	-	€ 1,570.00



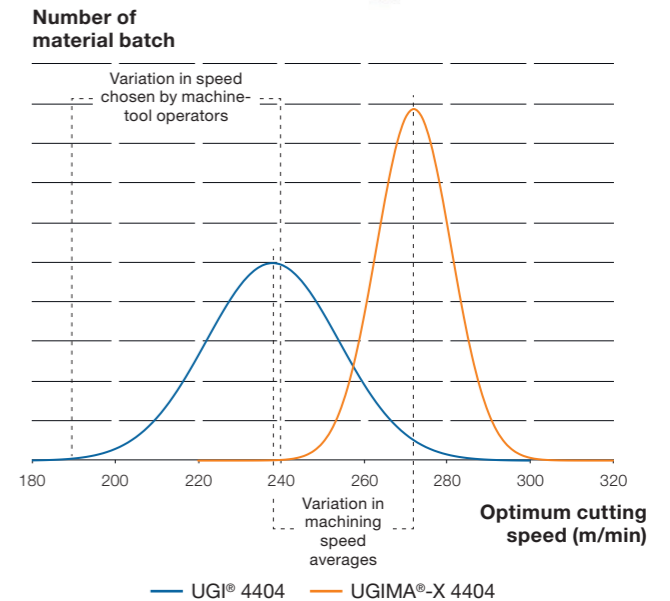
Reduction in the dispersion of optimum cutting speeds

Each batch of material has an optimum cutting speed. With UGIMA® grades

- not only has the average optimum cutting speed increased
- but the optimum cutting speed dispersion has decreased.

As machine-tool operators want to avoid machine stoppages, they set their cutting speed to the lowest optimum speed for the batches of material they receive from their supplier.

With UGIMA® grades, the speed variation selected by machine-tool operators is even more important than the variation in cutting speed averages noted.



Properties of Ugitech long stainless-steel products

	Drawn wires	Drawn bars	Turned bars	Profiles
Reference standard	EN 10088-3	EN 10088-3 2H	EN 10088-3 2B	EN 10088-3
Size range	1 to 14 mm	1 to 30 mm	20 to 75 mm	2 to 70 mm ²
Tolerances	ISO 6 to finest	Standard h9 On request, ground h9 to h6	Standard h9, h10 On request, ground h9 to h6	Variation up to ±0.02 mm Standard deviation on request
Lengths	-	Standard 3 m + 50 - 0 mm On request 1,5 m, 3,6 m (12") or 6m or other	Standard 3 m + 100 - 0 mm On request 1,5 m, 3,6 m (12") or 6m or other	1 to 6 m on request
Roundness	50% TI	50% TI On request: 30% TI	50% TI On request: 30% TI	-
Straightness	-	0.5 mm/m	0.5 mm/m	5 mm/m, 3 mm/m on request and specific straightening direction on request
Roughness	1 ≤ d < 2.50 Ra average 0.4 µm CLA 2.50 ≤ d < 5.0 Ra average 0.8 µm CLA 5.0 ≤ d Ra average 1.2 µm CLA	Maximum arithmetic roughness Ra < 0.6 µm to Ra ≤ 1.0 µm	Maximum arithmetic roughness Ra < 1.5 µm	Ra < 1 µm
Mechanical properties	Custom-made	According to grade, size, and hardening requirement	According to grade, size	According to grade/cross-section, Annealed state, work-hardened
Ends	-	1 chamfered / 1 pointed; other finishes on request	2 chamfered; other finishes on request	-
Non-destructive tests	-	Eddy current on request Ultrasound up to 0.7 mm FBH* for dia ≥ 10 mm on request	Eddy current on request Ultrasound up to 0.7 mm FBH* on request	Continuous dimensional measurement (SPC)
Markings	-	On request	Laser on diameter > 35 mm	-
Surface defect commitment	-	In accordance with EN 10088-3 Max 0.2 mm for d ≤ 20 mm Max 0.01 x d for d > 20 mm	In accordance with EN 10088-3 Max 0.2 mm for d ≤ 20 mm Max 0.01 x d for d > 20 mm	-
Customisation	-	Cut-to-length, deep chamfered, cropping of non-checked ends	Cut-to-length, deep chamfered, cropping of non-checked ends	Triangular, flat, hexagon, square, oval and other cross-sections on request
Straightness and roundness for long components and tailstocks	-	Possibility of special process for bars with improved roundness: long tight-tolerance components	-	-
Batch size	Min. production: 150 kg depending on the grade	From stock: min 100 kg From factory: min 1 t	From stock: min 100 kg From factory: min 1 t	Mini 1 t

* FBH: Flat Bottom Hole

Packaging

Drawn wires

- Drums, pallet with cover - dia. 800 mm - H 600 - 250 kg
- Coils, 30 to 250 kg on pallet or basket
Ø of internal coil:
Ø 1 to 1.50 mm = 350 mm
Ø > 1.50 mm = 500 mm
- Reels, 250 or 400 kg - external Ø 760 mm - reaming Ø 40 mm

Bars

- Ø > 9 mm: Akilux with 2 slings
- Ø < 9 mm: wooden crates

Profiles

- 250 to 1000 kg reels
- Coils
- Bars in wooden crates (2 to 6 m)

The essential solution to numerous high-performance applications

- Automotive
- Offshore
- Aeronautics
- Nuclear
- Wind power: cylinders used for the axial rotation of wind turbine blades.
- Road transport: truck tailboards, etc.
- Sanitation
- Clockmaking
- Medical
- Maritime: cylinders for engine manoeuvring, etc.



Swiss Steel Group

Production sites: Ugitech SA

barsales@swisssteelgroup.com

www.swisssteel-group.com

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