



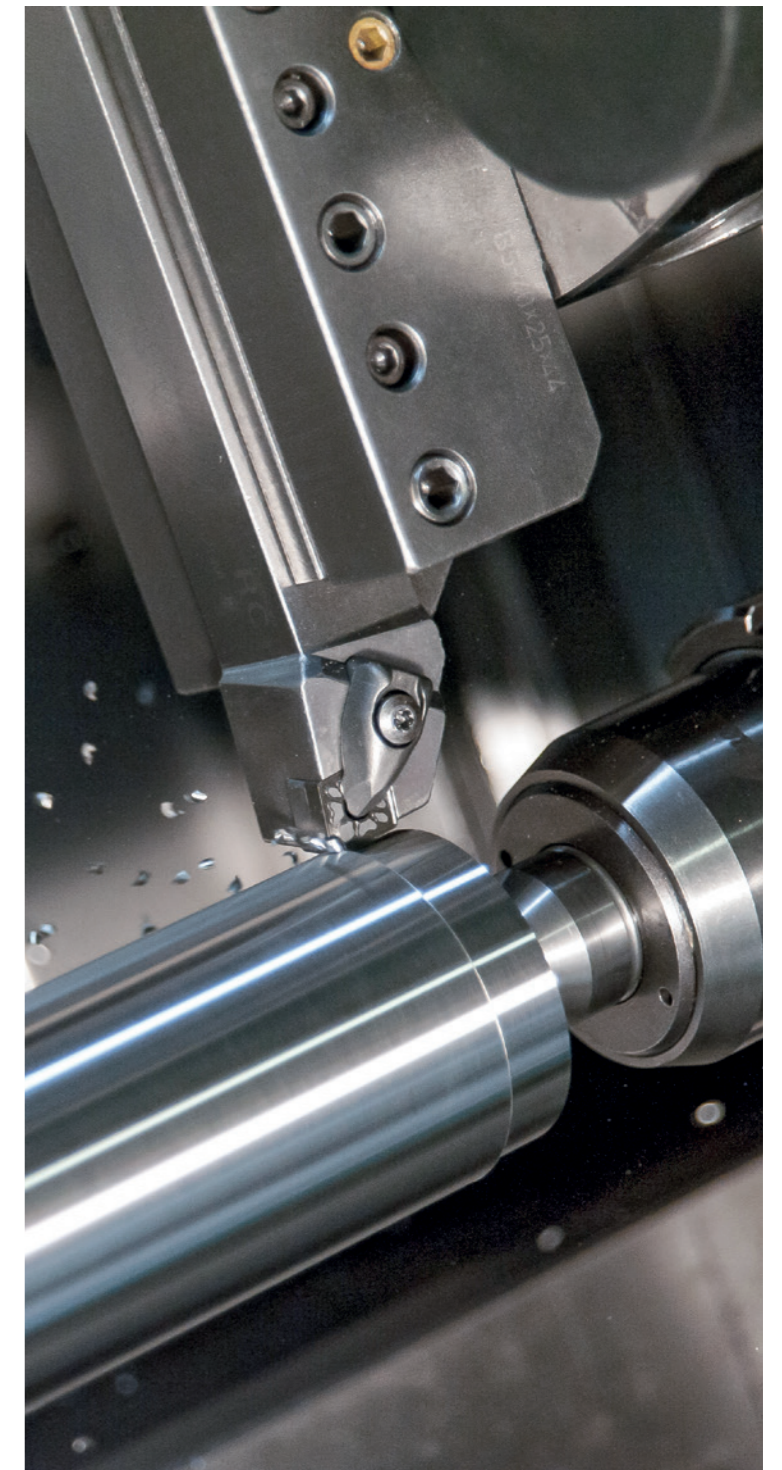
**Ugitech SA  
France**

Avenue Paul Girod  
CS90100  
73403 UGINE Cedex  
Tel.: + 33 (0)4 79 89 30 30  
Fax: + 33 (0)4 79 89 34 34

[www.ugitech.com](http://www.ugitech.com)

The information and data presented here in are typical or average values and are not a guarantee of maximum or minimum values. Only the information reported on our material certificates is to be considered as relevant. Applications specifically suggested for material described herein are made for the purpose of illustration only to enable the reader to make its own evaluation and are not intended as warranties, either express or implied, of fitness for any purposes.

**UGIMA®**  
Creating productivity



# Technical support

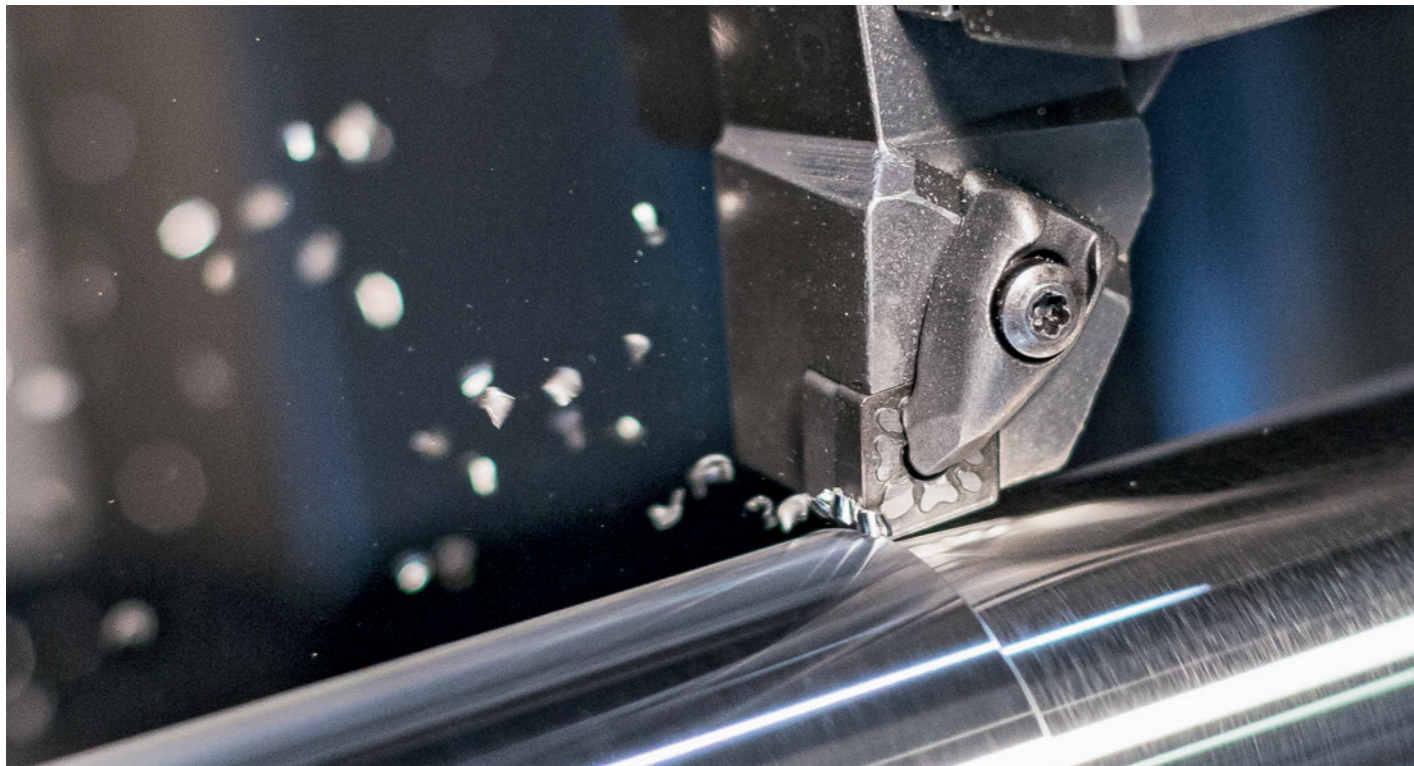
**Experts available to help you throughout the world. They can provide you with information and help you optimise your cutting conditions and/or carry out work on your machines.**

### Our customers' testimonials

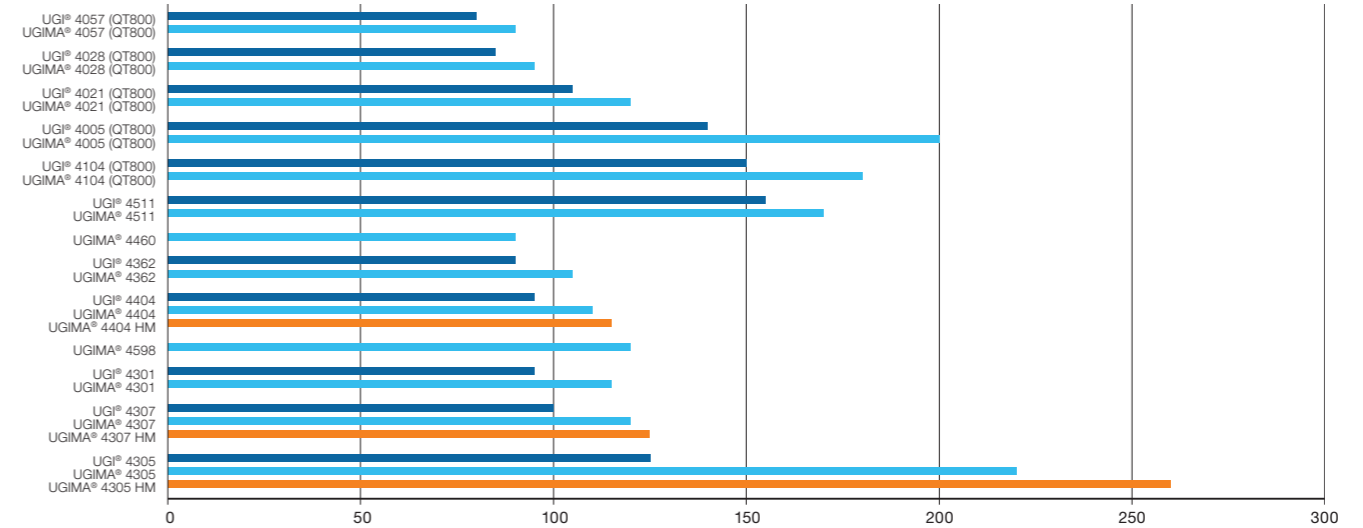
"UGIMA®: "turbo stainless steel", "the champion of machinability"... Our engineers know it, our agents say it... our customers testify to its efficiency in writing! "Thanks to UGIMA® and its reproducibility, I no longer need to change my cutting parameters!"

"Not only has the latest UGIMA®HM 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!

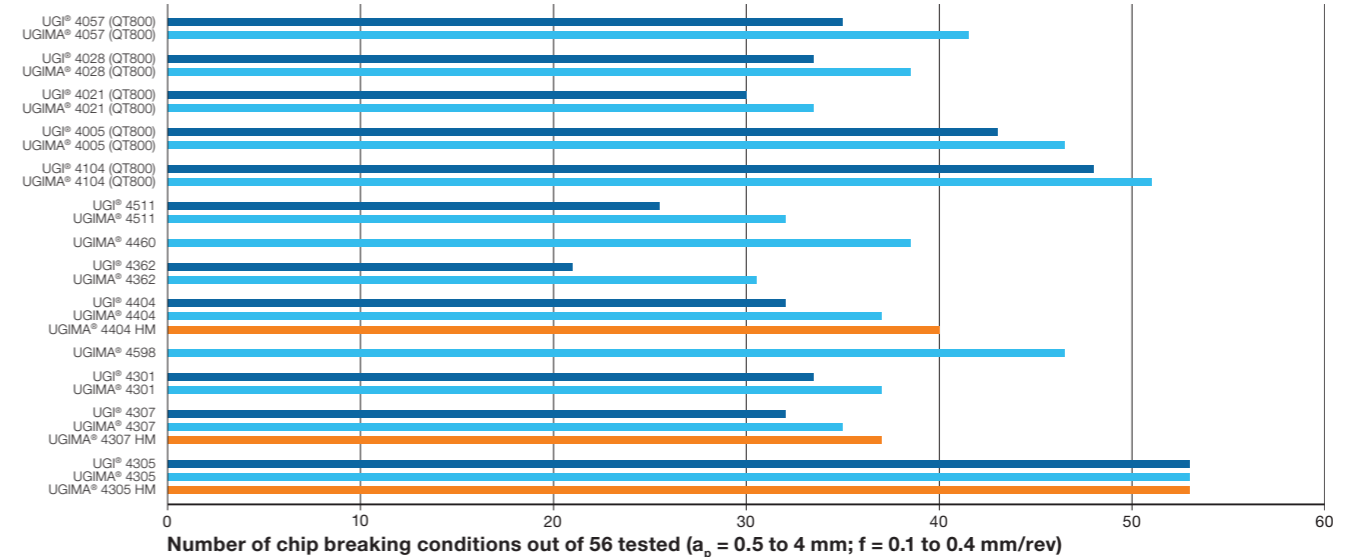


### Validated performance levels



**Potential machining productivity in relation to cutting tool wear**  
UGI® 4307 productivity is taken as the base reference of 100

### Chip breakability



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® HM grades

Ugitech Grades	Equivalence		Description		Chemical analysis of Ugitech grades (typical analysis given as a %)										
	AISI	ASTM	UNS	N ° EN	EN designation	C	Si	Mn	Ni	Cr	Mo	N	S	P	Others
<b>Martensitic stainless steels</b>															
UGIMA® 4006	UGIMA® 410	410	S41000	1.4006	X12Cr13	min. 0.08 max. 0.15	1.0	1.5	0.75	11.5 13.5	-	-	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 14.0	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 14.0	-	-	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 14.0	-	-	0.030	0.040	-
UGIMA® 4034	UGIMA® 420D	420	S42000	1.4034	X46Cr13	min. 0.43 max. 0.50	1.0	1.0	-	12.5 14.5	-	-	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	1.5 2.5	15.0 17.0	-	-	0.030	0.040	-
UGIMA® 4542	UGIMA® 630	630	S17400	1.4542	X5CrNiCuNb16-4	min. 0.07 max. 0.07	0.7	1.5	3.0 5.0	15.0 17.0	0.6	-	0.030	0.040	Cu: 3.0 - 5.0 Nb: 5xC - 0.45
<b>Ferritic stainless steels</b>															
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
<b>Austenitic stainless steels</b>															
UGIMA® 4301	UGIMA® 304	304	S30400	1.4301	X5CrNi18-10	min. 0.07 max. 0.07	1.0	2.0	8.0 10.5	17.5 19.5	-	0.11	0.030	0.045	Cu: ≤ 1.0
UGIMA® 4307HM	UGIMA® 304LXL	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® 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® 4305HM	UGIMA® 303XL	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	0.150 0.350	0.045	Cu: 0.4 - 0.7
UGIMA® 4570	UGIMA® 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	0.150 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® 316	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® 316L	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® 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
<b>Austeno-ferritic stainless steels / Duplex</b>															
UGIMA® 4362		-	S32304	1.4362	X2CrNiN23-4	min. 0.03 max. 0.03	1.0	2.0	3.5 5.5	22.0 24.0	0.1 0.6	0.05 0.20	0.015	0.035	Cu: 0.1 - 0.6
UGIMA® 4460	UGIMA® 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!

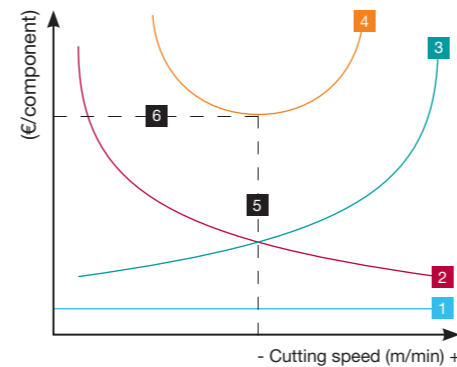
## UGIMA® and UGIMA® HM grades can:

- increase productivity by between 10% and 50%, depending on the grades<sup>1</sup>
- significantly increase tool service life<sup>2</sup>
- provide performance levels that can be repeated from one batch to another

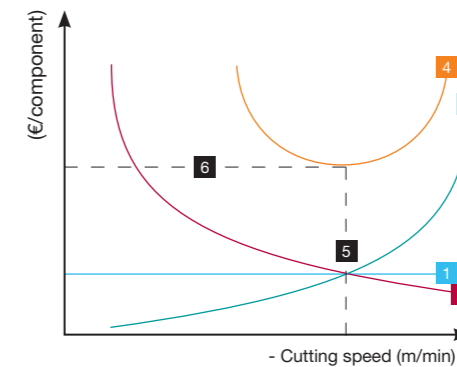
Le tout, en améliorant la fragmentation des copeaux et l'état de surface des pièces. Avec ces nuances, ce véritable tour de force (niveau de performance) est accessible à tous les types de machines et d'outils.

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

Cost of components with a standard grade



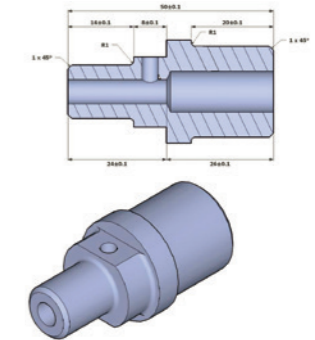
Cost of components with a UGIMA® grade



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

## Usage value

	1.4404 Standard	UGIMA® 4404HM
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



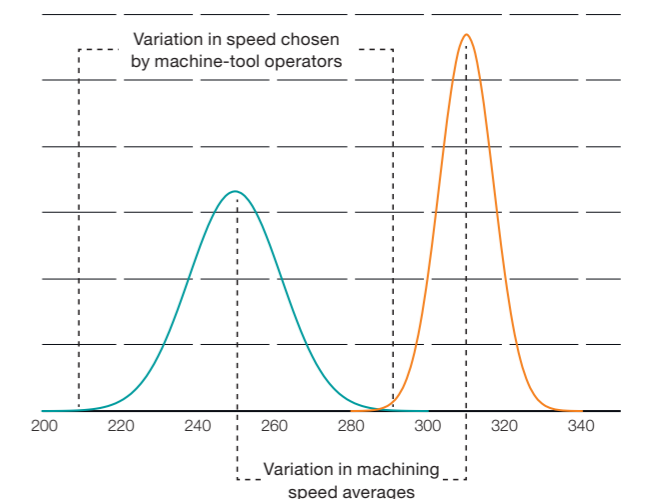
## Reduction in the dispersion of optimum cutting speeds

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.



Optimum cutting speed (m/min)  
— UGI® 4307 — UGIMA® 4307HM

# Properties of Ugitech long stainless-steel products

	Drawn wires	Drawn bars	Turned bars	Profiles
<b>Reference standard</b>	EN 10088-3	EN 10088-3 2H	EN 10088-3 2B	EN 10088-3
<b>Size range</b>	1 to 14 mm	1 to 28 mm	22 to 55 mm	2 to 70 mm <sup>2</sup>
<b>Tolerances</b>	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
<b>Lengths</b>	-	Standard 3 m + 50 - 0 mm On request 1.5 m, 4 m or 6 m or other.	Standard 3 m + 100 - 0 mm On request 1.5 m, 4 m or 6 m or other	1 to 6 m on request
<b>Roundness</b>	50% TI	50% TI On request: 30% TI	50% TI On request: 30% TI	-
<b>Straightness</b>	-	0.5 mm/m On request 0.3 mm/m	0.5 mm/m	5 mm/m, 3 mm/m on request and specific straightening direction on request
<b>Roughness</b>	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
<b>Mechanical properties</b>	Custom-made	According to grade, size, and hardening requirement	According to grade, size	According to grade/cross-section, Annealed state, work-hardened
<b>Ends</b>	-	1 chamfered / 1 pointed; other finishes on request	2 chamfered; other finishes on request	-
<b>Non-destructive tests</b>	-	Eddy current on request Ultrasound up to 0.7 mm KSR for dia ≥ 10 mm on request	Eddy current on request Ultrasound up to 0.7 mm KSR on request	Continuous dimensional measurement (SPC)
<b>Markings</b>	-	On request	Laser on diameter > 35 mm	-
<b>Surface defect commitment</b>	-	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	-
<b>Customisation</b>	-	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
<b>Straightness and roundness for long components and tailstocks</b>	-	Possibility of special process for bars with improved roundness: long tight-tolerance components	-	-
<b>Batch size</b>	Min. production: 150 kg depending on the grade	From stock: min 50 kg From factory: min 1 t	From stock: min 50 kg From factory: min 1 t	Mini 1 t

## 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.