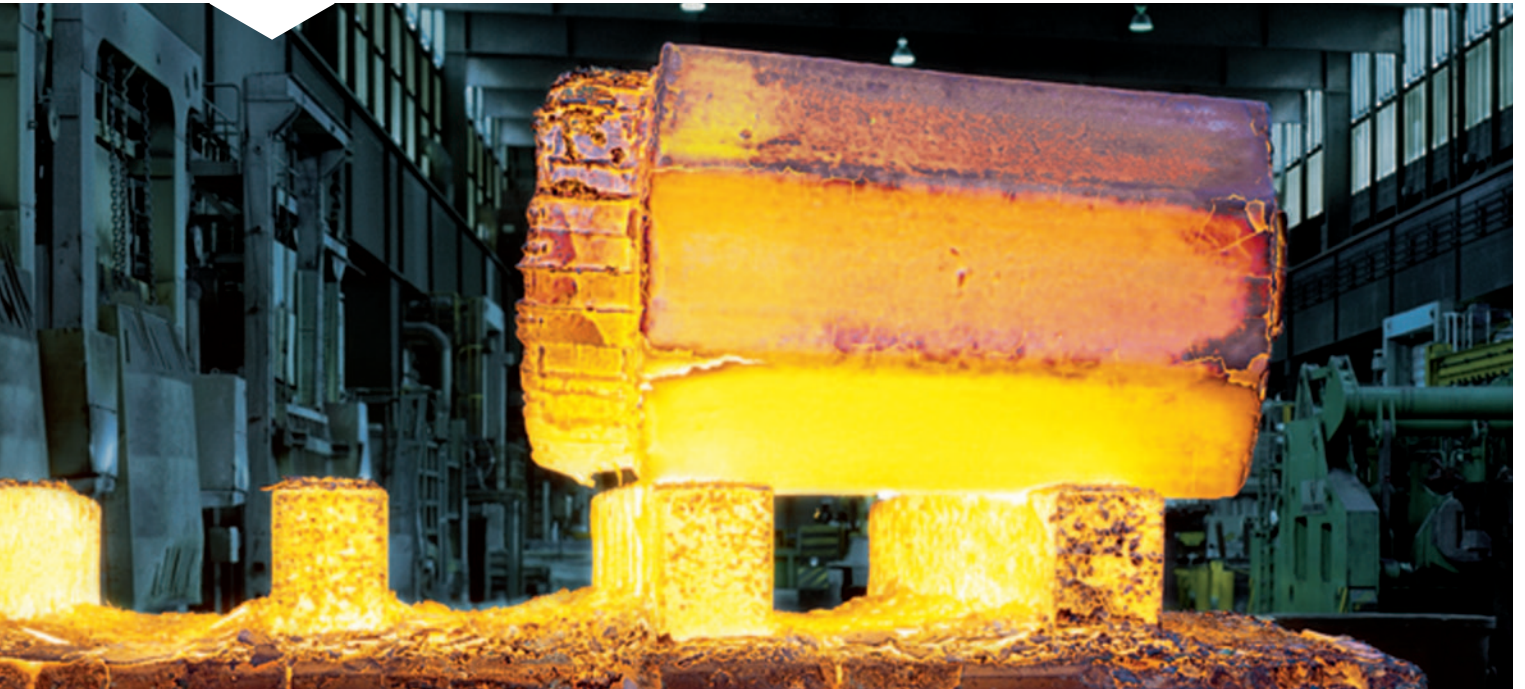


UGIMA®

Creating productivity





Everything begins with steel: the steel that you, our customer, require to ensure success in your market. Steel of distinctive quality.

You need a reliable supply of very small or very large quantities of this perfectly reproducible quality steel at any time. You need it quickly, mostly on a just-in-time basis. Late delivery and failure to deliver are out of the question.

Steel with the most varied properties: easy to form, yet ultra-strong for the plastics industry, highly corrosion-resistant for offshore facilities or able to withstand extreme dynamic stresses when used in engine components.

Welcome to SCHMOLZ + BICKENBACH. We can provide the solution you need. Always.

An ambitious claim. But we will meet the challenge, because we are more than just a steel-producing company. In the heart of Europe, we manufacture the products our clients need to succeed in fiercely contested markets: integrated solutions based on top-of-the-range steels. Our corporate concept is unique in our sector, based on the integration of production, further processing, distribution and service, enabling us to operate at all levels of the value chain. We are therefore a solutions provider, a technology generator and, above all, a reliable and quality-conscious partner for our customers worldwide.

For us, size, competitiveness and global presence are not an end in themselves. As with everything we do, these qualities enable us to continuously develop and consolidate our position as an "all-in-one" steel solutions provider, based on our know-how and service. Wherever you are. Whatever your needs, we are the solution. This is our ambition and our philosophy.



SCHMOLZ + BICKENBACH GROUP

PRODUCTION	SALES & SERVICES			
<p>Deutsche Edelstahlwerke Germany</p> <p>Finkl Sorel Forge USA Canada</p> <p>Steeltec Switzerland Germany Sweden Denmark Turkey</p> <p>Swiss Steel Switzerland</p> <p>Ugitech France Italy Germany</p>	<p>SCHMOLZ + BICKENBACH Blankstahl GmbH Germany</p> <p>SCHMOLZ + BICKENBACH Austria GmbH Austria</p> <p>SCHMOLZ + BICKENBACH Belgium S.A. Belgium</p> <p>SCHMOLZ + BICKENBACH s.r.o. Czech Republic</p> <p>SCHMOLZ + BICKENBACH Baltic OÜ Estonia</p> <p>SCHMOLZ + BICKENBACH Oy Finland</p> <p>SCHMOLZ + BICKENBACH France S.A.S. France</p> <p>SCHMOLZ + BICKENBACH UK Ltd. Great Britain</p>	<p>SCHMOLZ + BICKENBACH Magyarország Kft. Hungary</p> <p>SCHMOLZ + BICKENBACH Italia S.r.l. Italy</p> <p>SCHMOLZ + BICKENBACH Baltia SIA Latvia</p> <p>SCHMOLZ + BICKENBACH Baltic UAB Lithuania</p> <p>SCHMOLZ + BICKENBACH B.V. Netherlands</p> <p>SCHMOLZ + BICKENBACH Polska Sp. z o.o. Poland</p> <p>SCHMOLZ + BICKENBACH Portugal S.A. Portugal</p> <p>SCHMOLZ + BICKENBACH Romania S.r.l. Romania</p>	<p>SCHMOLZ + BICKENBACH Russia OOO Russia</p> <p>SCHMOLZ + BICKENBACH Slovakia s.r.o. Slovakia</p> <p>SCHMOLZ + BICKENBACH Ibérica S.A. Spain</p> <p>SCHMOLZ + BICKENBACH Australia Pty. Ltd. Australia</p> <p>SCHMOLZ + BICKENBACH do Brasil Ltda. Brazil</p> <p>SCHMOLZ + BICKENBACH Canada Inc. Canada</p> <p>SCHMOLZ + BICKENBACH Middle East FZCO Dubai (UAE)</p> <p>SCHMOLZ + BICKENBACH Hong Kong Co. Ltd. Hong Kong</p>	<p>SCHMOLZ + BICKENBACH (Hong Kong) Trading Ltd. Hong Kong</p> <p>SCHMOLZ + BICKENBACH India Pvt. Ltd. India</p> <p>SCHMOLZ + BICKENBACH Malaysia Sdn. Bhd. Malaysia</p> <p>SCHMOLZ + BICKENBACH Mexico S.A. de C.V. Mexico</p> <p>SCHMOLZ + BICKENBACH Singapore Pte. Ltd. Singapore</p> <p>SCHMOLZ + BICKENBACH South Africa (Pty.) Ltd. South Africa</p> <p>SCHMOLZ + BICKENBACH USA Inc. USA</p>

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.

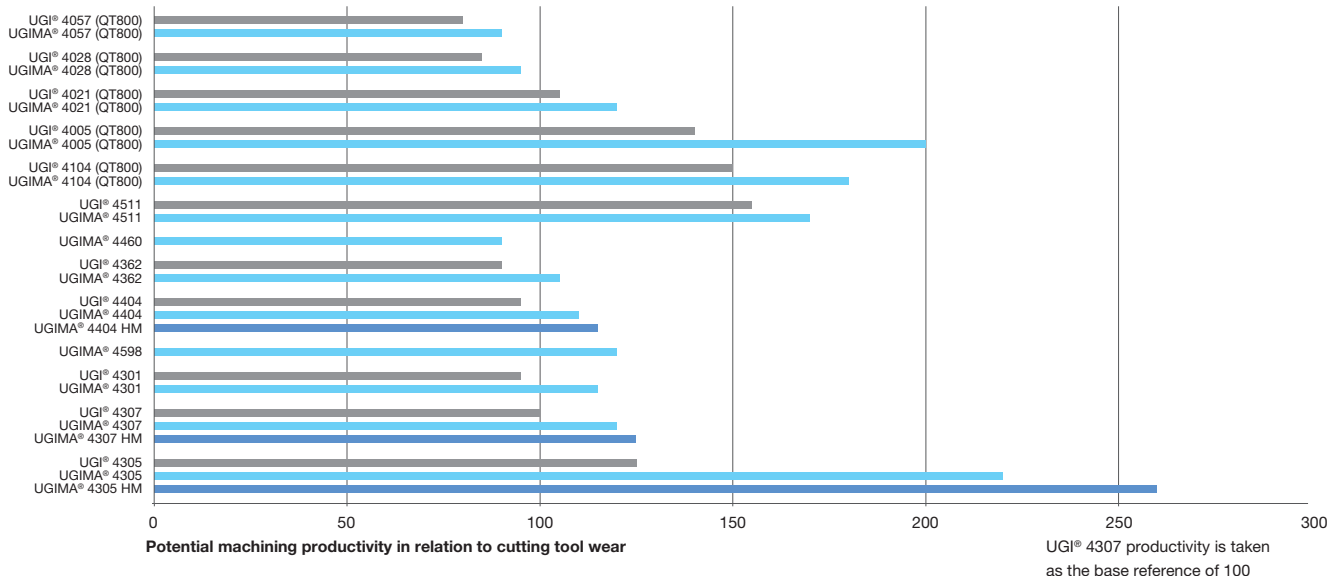
Our customers' testimonials

"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!" »

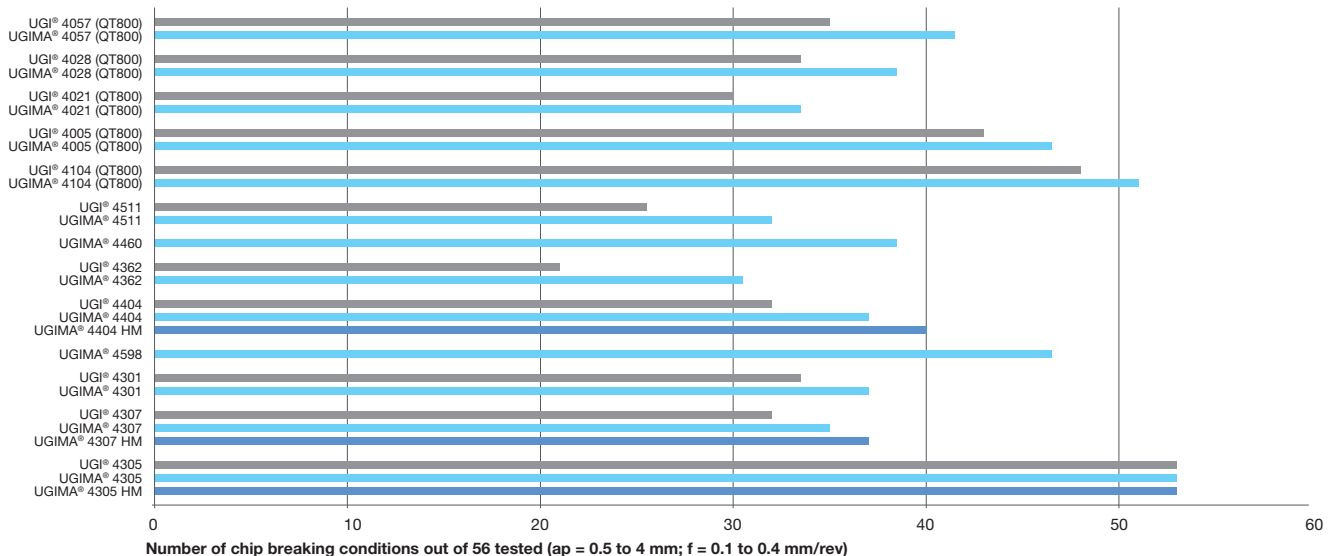
"Not only has the latest UGIMA®HM generation allowed those customers who chose it to further increase their productivity (by 10 to 20% in comparison with UGIMA®), it has also increased tool life (2 to 5 times, according to circumstances)."
Tornos

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

Validated performance levels



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	

MARTENSITIC STAINLESS STEELS

UGIMA® 4006	UGIMA® 410	410	S41000	1.4006	X12Cr13	min. max.	0.08 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. max.	0.08 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. max.	0.16 0.25	1.0	1.5	-	12.0 14.0	-	-	0.030	0.040	-
UGIMA® 4028	UGIMA® 420B	420	S42000	1.4028	X30Cr13	min. max.	0.26 0.35	1.0	1.5	-	12.0 14.0	-	-	0.030	0.040	-
UGIMA® 4034	UGIMA® 420D	420	S42000	1.4028	X46Cr13	min. max.	0.43 0.50	1.0	1.0	-	12.5 14.5	-	-	0.030	0.040	-
UGIMA® 4057	UGIMA® 431	431	S43100	1.4057	X17CrNi16-2	min. max.	0.12 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. 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

FERRITIC STAINLESS STEELS

UGIMA® 4511	UGIMA® 430LNb	430LNb	-	1.4511	X3CrNb17	min. 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. 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. max.	0.10 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® 4301	UGIMA® 304	304	S30400	1.4301	X5CrNi18-10	min. max.	0.07	1.0	2.0	8.0 10.5	17.5 19.5	-	0.11	0.030	0.045	-
UGIMA® 4301FG	UGIMA® 304FG															
UGIMA® 4307HM	UGIMA® 304LXL	304L	S30403	1.4307	X2CrNi18-9	min. max.	0.03	1.0	2.0	8.0 10.5	17.5 19.5	-	0.11	0.030	0.045	-
UGIMA® 4307FG	UGIMA® 304L															
UGIMA® 4306	UGIMA® 304L	304L	S30403	1.4306	X2CrNi19-11	min. max.	0.03	1.0	2.0	10.0 12.0	18.0 20.0	-	0.11	0.030	0.045	-
UGIMA® 4306FG																
UGIMA® 4567	UGIMA® 304Cu	304Cu	S30430	1.4567	X3CrNiCu18-9-4	min. 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. 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® 4305	UGIMA® 303															
UGIMA® 4570	UGIMA® 303UX	-	-	1.4570	X6CrNiCuS18-9-2	min. 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. 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. 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® 4401FG	UGIMA® 316FG															
UGIMA® 4404	UGIMA® 316L	316L	S31603	1.4404	X2CrNiMo17-12-2	min. 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® 4404HM	UGIMA® 316LXL															
UGIMA® 4404FG	UGIMA® 316LFG															
UGIMA® 4435	UGIMA® 316LMo	316L (316LMo)	S31603	1.4435	X2CrNiMo18-14-3	min. 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® 4435FG																
UGIMA® 4435ICH																
UGIMA® 4541	UGIMA® 321	321	-	1.4541	X6CrNiTi18-10	min. 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. 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. 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® 4362		-	S32304	1.4362	X2CrNiN23-4	min. 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. 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 grades¹

» significantly increase tool **service life**²

» provide performance levels that can be repeated from one batch to another

All this, by improving chip breakability and the surface finish of the components.

With these grades, this real achievement (performance level) is accessible to all types of machines and tools.

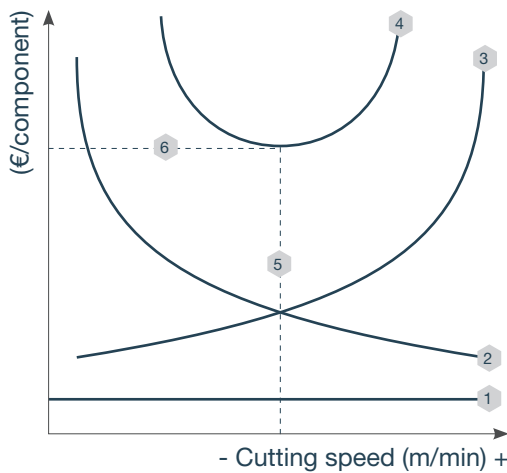
1: with the same

tool service life

2: after optimisation

of cutting conditions

Cost of components with a standard grade



1: Material cost

2: Machine cost

3: Cutting tool cost

4: Machine cost =

Material cost

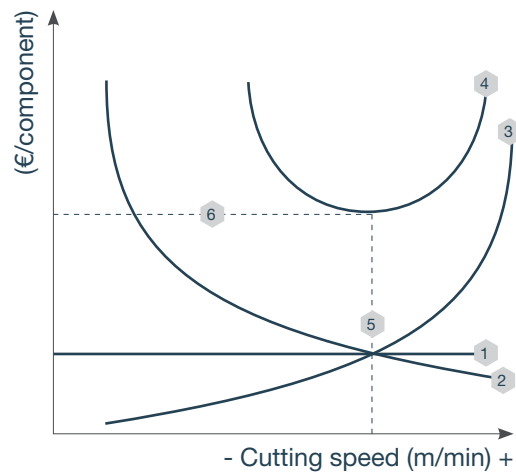
+ tools

+ machine

5: Selected speed

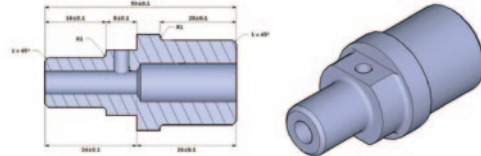
6: Final component cost

Cost of components with a UGIMA® grade

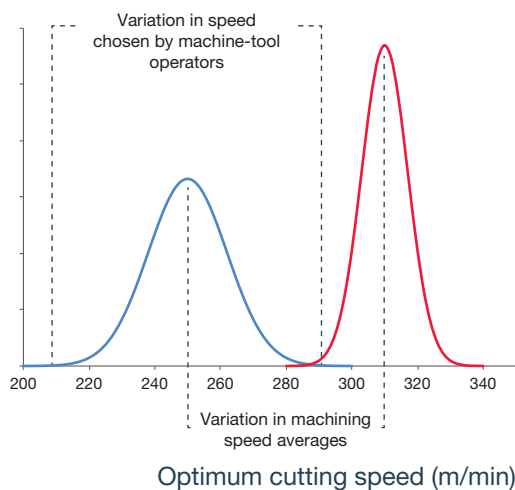


Usage value

	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



— UGI® 4307

— UGIMA® 4307HM

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 28 mm	22 to 55 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, 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
Roundness	50% TI	50% TI On request: 30% TI	50% TI On request: 30% TI	-
Straightness	-	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
Roughness	1 ≤ d < 2.50 Ra average 0.4 µm CLA 2.50 ≤ d < 5.0 Ra average 0.8 µm CLA d ≤ 5.0 Ra average 1.2 µm CLA	Maximum arithmetic roughness Ra < 0.6 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 KSR for dia ≥ 10 mm on request	Eddy current on request Ultrasound up to 0.7 mm KSR 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 round- ness 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 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.



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