

Chemical analysis

C%	Si%	Mn%	P%	S%	Cr%	Mo%	V%
0.85 - 0.95	max 1.0	max 1.0	max 0.040	max 0.015	17.0 - 19.0	0.9 - 1.3	0.07 - 0.12

Mechanical Properties

HB max. 265

Corresponding standards

A-LINE	EN 10088	Werkstoff-Nr.	UNI	AFNOR	GOST	ASTM
A-LINE WRB	X46Cr13	1.4034	X40Cr14	Z44Cr13	40Ch13	420C

Surface Roughness

The surface roughness (Ra) is maximum 0.20 µm.

Diameter tolerance

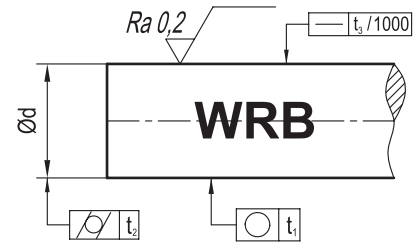
ISO h6 is standard; other tolerances can be supplied upon request.

Tolerance Range according to ISO 286-2 Table for ISO h6 in µm

Size (mm)	upper	lower
>4-6	0	-8
>6-10	0	-9
>10-18	0	-11
>18-30	0	-13
>30-50	0	-16
>50-80	0	-19

Surface Hardness

Steel grade X46Cr13: 55±3 HRC



Hardness depth, roundness, parallelism, straightness

Shaft Diameter d	Weight per metre	Shaft part number	Standard length	Hardening depth Rht DIN 50190 (max)	Standard tolerance ISO h6	Roundness (circular) t1	Parallelism (cylindric) t2	Straightness t3
mm	kg		mm	mm	µm	µm	µm	mm/m
5	0.16	WRB 5	4000	0.5 - 0.8	0/-8	4	5	0.16
6	0.23	WRB 6	6000	0.5 - 0.8	0/-8	4	6	0.16
8	0.40	WRB 8	6000	0.6 - 0.9	0/-9	4	6	0.16
10	0.62	WRB 10	6000	0.7 - 1.0	0/-9	4	6	0.16
12	0.89	WRB 12	6000	0.8 - 1.2	0/-11	5	8	0.12
14	1.21	WRB 14	6000	0.9 - 1.3	0/-11	5	8	0.12
15	1.39	WRB 15	6000	1.1 - 1.5	0/-11	5	8	0.12
16	1.58	WRB 16	6000	1.1 - 1.5	0/-11	5	8	0.12
20	2.47	WRB 20	6000	1.2 - 1.5	0/-13	6	9	0.1
25	3.85	WRB 25	6000	1.5 - 1.7	0/-13	6	9	0.1
30	5.55	WRB 30	6000	1.5 - 1.9	0/-13	6	9	0.1
40	9.87	WRB 40	6000	2.5 - 3.0	0/-16	7	11	0.1
50	15.40	WRB 50	6000	2.7 - 3.2	0/-16	7	11	0.1
60	22.20	WRB 60	6000	2.9 - 3.3	0/-19	8	13	0.1

Packaging

Bars are degreased and oiled, placed in bundles that are wrapped in wax paper and raffia.

On request with additional cost

- Wooden boxes



Our products packaging is recyclable

Marking

Each batch has a label showing: manufacturing date, product name, diameter, tolerance range, number of bars, heat No. to facilitate full traceability.

Certifications

ISO 9001

ISO 14001

OHSAS 18001