

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.	ASTM
A-LINE WRA	X90CrMoV18	1.4112	440B

Surface Roughness

The surface roughness (Ra) is maximum 0.20 µm.

Diameter tolerance

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

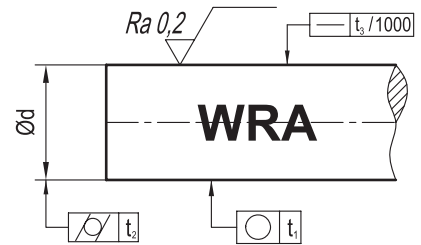
Tolerance Range according to ISO 286-2 Table for ISO h6 in µm

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 X90CrMoV18: 56±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	WRA 5	5000	0.5 - 0.8	0/-8	4	5	0.16
6	0.23	WRA 6	6000	0.5 - 0.8	0/-8	4	6	0.16
8	0.40	WRA 8	6000	0.6 - 0.9	0/-9	4	6	0.16
10	0.62	WRA 10	6000	0.7 - 1.0	0/-9	4	6	0.16
12	0.89	WRA 12	6000	0.8 - 1.2	0/-11	5	8	0.12
14	1.21	WRA 14	6000	0.9 - 1.3	0/-11	5	8	0.12
15	1.39	WRA 15	6000	1.1 - 1.5	0/-11	5	8	0.12
16	1.58	WRA 16	6000	1.1 - 1.5	0/-11	5	8	0.12
20	2.47	WRA 20	6000	1.2 - 1.6	0/-13	6	9	0.1
25	3.85	WRA 25	6000	1.5 - 1.7	0/-13	6	9	0.1
30	5.55	WRA 30	6000	1.5 - 1.9	0/-13	6	9	0.1
40	9.87	WRA 40	6000	2.5 - 3.0	0/-16	7	11	0.1
50	15.40	WRA 50	6000	2.7 - 3.2	0/-16	7	11	0.1
60	22.20	WRA 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