

## 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 WRAZ	X90CrMoV18	1.4112	440B

## Surface Roughness

The surface roughness (Ra) is maximum 0.20  $\mu$ m.

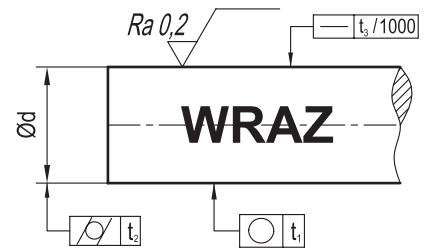
## Diameter tolerance

Class "L" is standard; other tolerances can be supplied upon request.

## Tolerance Range according to ISO 286-2

Table for Class "L" (inch)

Size (inch)	Size (mm)	upper (inch)	lower (inch)
1/4"	6.35	-0.0005	-0.001
3/8"	9.525	-0.0005	-0.001
1/2"	12.7	-0.0005	-0.001
5/8"	15.875	-0.0005	-0.001
3/4"	19.05	-0.0005	-0.001
1"	25.4	-0.0005	-0.001
1" ¼	31.75	-0.0005	-0.001
1" ½	38.1	-0.0006	-0.0011
2"	50.8	-0.0006	-0.0013
2" ¼	57.15	-0.0007	-0.0015



## Hardness depth, roundness, parallelism, straightness

Shaft Diameter d	Shaft Diameter d	Weigh per metre	Shaft part number	Standard length	Hardening depth Rht DIN 50190	Standard tolerance Class "L"	Roundness (circular) t1	Parallelism (cylindric) t2	Straightness t3
inch	mm	kg		inch	inch	inch	inch	inch	inch/m
1/4	6.35	0.25	WRAZ 6	237	0.019 - 0.031	-0.0005/-0.001	0.0002	0.0002	0.008
3/8	9.525	0.56	WRAZ 9	237	0.027 - 0.039	-0.0005/-0.001	0.0002	0.0002	0.008
1/2	12.7	0.99	WRAZ 12	237	0.031 - 0.047	-0.0005/-0.001	0.0002	0.0003	0.008
5/8	15.875	1.55	WRAZ 15	237	0.043 - 0.059	-0.0005/-0.001	0.0002	0.0003	0.008
3/4	19.05	2.24	WRAZ 19	237	0.047 - 0.059	-0.0005/-0.001	0.0002	0.0004	0.004
1	25.4	3.97	WRAZ 25	237	0.059 - 0.066	-0.0005/-0.001	0.0002	0.0004	0.004
1¼	31.75	6.22	WRAZ 31	237	0.059 - 0.074	-0.0005/-0.001	0.0002	0.0004	0.004
1½	38.1	8.95	WRAZ 38	237	0.094 - 0.114	-0.0006/-0.0011	0.0003	0.0004	0.004
2	50.8	15.91	WRAZ 50	237	0.106 - 0.125	-0.0006/-0.0013	0.0003	0.0005	0.004
2¼	57.15	20.13	WRAZ 57	237	0.114 - 0.129	-0.0007/-0.0015	0.0003	0.0005	0.004

## Surface Hardness

Steel grade X90CrMoV18: 56±3 HRC

## 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