

Series	Description
NI-WRB <i>metric and imperial sizes</i>	Induction hardened and ground stainless steel linear shafts steel grade: X46Cr13 (W1.4034) / $\varnothing 5 - 50 \text{ mm}$ / $\varnothing 1/4'' - 2''$

Steel grades correspondents

EN	Werkstoff	DIN	B.S.	UNI	JIS	GOST	AISI SAE ASTM
X46Cr13	1.4034	X46Cr13	(420S45)	X40Cr14	-	40Ch13	-

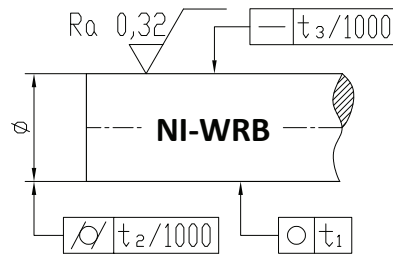
Chemical composition - % by weight

Steel grade	Norm	C	Si	Mn	P	S	Cr	Ni.	Mo	V
X46Cr13	EN 10088-3	0.43 ÷ 0.50	max. 1.0	max. 1.0	max. 0.040	max. 0.030	12.5 ÷ 14.5	-	-	-

Mechanical properties for steel bars

Steel grade	Diameter	Tensile strength	Yield strength	Elongation	Hardness
	\varnothing mm	R_m N/mm ²	$R_{p0.2}$ N/mm ²	A_5 %	Brinell HB
X46Cr13+A	$5 < \varnothing \leq 50$	max. 800	-	-	max. 245

A=annealed



Shaft Diameter \varnothing	Weight	Series	Standard length	Hardening depth SHD	Roundness (circularity)	Parallelism (cylindricity)	Straightness	Standard tolerance ISO h6
					t1 max. μm	t2 max. μm	t3 max. mm/m	
mm	kg/m		mm	mm				μm
5	0.15	NI-WRB 5	3000	0.4	4	6	0.25	0 / -8
6	0.22	NI-WRB 6	3000	0.4	4	6	0.25	0 / -8
8	0.39	NI-WRB 8	6000	0.4	4	6	0.20	0 / -9
10	0.62	NI-WRB 10	6000	0.4	4	6	0.20	0 / -9
12	0.89	NI-WRB 12	6000	0.6	5	8	0.20	0 / -11
14	1.21	NI-WRB 14	6000	0.6	5	8	0.20	0 / -11
15	1.39	NI-WRB 15	6000	0.6	5	8	0.20	0 / -11
16	1.58	NI-WRB 16	6000	0.6	5	8	0.20	0 / -11
20	2.46	NI-WRB 20	6000	0.9	6	9	0.20	0 / -13
25	3.85	NI-WRB 25	6000	0.9	6	9	0.15	0 / -13
30	5.55	NI-WRB 30	6000	0.9	6	9	0.15	0 / -13
40	9.86	NI-WRB 40	6000	1,5	7	11	0.15	0 / -16
50	15.41	NI-WRB 50	6000	1,5	7	11	0.15	0 / -16

Shaft Diameter \varnothing		Weight	Series	Standard length	Hardening depth SHD	Roundness (circularity)	Parallelism (cylindricity)	Straightness	Standard tolerance Class "L"
t1 max. inch	t2 max. inch					t3 max. in/ft			
mm	inch	kg/m		inch	inch			inch	
6.35	1/4	0.25	NI-WRB 6.35	118.11	0.016	0.00016	0.00024	0.00308	-0.0005 / -0.001
9.525	3/8	0.56	NI-WRB 9.525	236.22	0.016	0.00016	0.00024	0.00246	-0.0005 / -0.001
12.7	1/2	0.99	NI-WRB 12.7	236.22	0.024	0.00020	0.00031	0.00246	-0.0005 / -0.001
15.875	5/8	1.55	NI-WRB 15.875	236.22	0.024	0.00020	0.00031	0.00246	-0.0005 / -0.001
19.05	3/4	2.24	NI-WRB 19.05	236.22	0.035	0.00024	0.00035	0.00246	-0.0005 / -0.001
25.4	1	3.98	NI-WRB 25.4	236.22	0.035	0.00024	0.00035	0.00185	-0.0005 / -0.001
31.75	1¼	6.21	NI-WRB 31.75	236.22	0.059	0.00028	0.00043	0.00185	-0.0005 / -0.001
38.1	1½	8.94	NI-WRB 38.1	236.22	0.059	0.00028	0.00043	0.00185	-0.0006 / -0.0011
50.8	2	15.90	NI-WRB 50.8	236.22	0.059	0.00028	0.00043	0.00185	-0.0006 / -0.0013

- ✓ Surface hardness: 55±2 HRC
- ✓ Surface roughness: Ra: max. 0.32 μm
- ✓ Length tolerance: ±200 mm
- ✓ Hardening depth, SHD: according to EN ISO 15787
- ✓ On request: special lengths, tolerances and dimensions
- ✓ Additional chrome plating on request
- ✓ The hardening depth (SHD according to EN ISO 15787 or Rht according to DIN 6773) is defined as the distance from the steel surface up to the point where the hardness value is 80% of minimum guaranteed value of the surface hardness and is established in accordance with ISO 13012, depending on shaft's size.
- ✓ Approximately 75 mm of both shaft ends are not guaranteed to be either in diameter tolerance or in the standard hardness values.