NIMET

WHERE
INNOVATION
LIVES

WRB

INDUCTION HARDENED AND GROUND STAINLESS STEEL LINEAR SHAFTS

TECHNICAL SHEET

NI-WRB-TS-2020

NI-SERIES

WRB

INDUCTION HARDENED AND GROUND STAINLESS STEEL LINEAR SHAFTS

STEEL GRADES CORRESPONDENTS

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

CHEMICAL COMPOSITION - IN % BY WEIGHT

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

MECHANICAL PROPERTIES

Steel grade	Diameter Ø mm	Tensile strength R_m N/mm^2	Yield strength $R_{p0.2}$ N/mm^2	Elongation A_5 %	Hardness Brinell HB	Norm
X46Cr13+A	4 < Ø ≤ 50	max. 800	-	-	max. 245	EN 10088-3

A=annealed

HARDENABILITY

Steel grade	Surface hardness HRC min.
X46Cr13+A	53

A = annealed

NI SERIES

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 the minimum guaranteed value of the surface hardness and it is established in accordance with ISO 13012, depending on the shaft's size.

The minimum guaranteed value of the surface hardness varies depending the steel grade.

NI-SERIES

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INDUCTION HARDENED AND GROUND STAINLESS STEEL LINEAR SHAFTS

Steel grade	X46Cr13 (W1.4034)
Surface hardness	55±2 HRC
Surface roughness	Ra max. 0.32 µm
Length tolerance	±200 mm
Surface hardening depth, SHD	according to EN ISO 15787
On request	special lengths, tolerances and dimensions
	chrome plating

NI-WRB / METRIC

Shaft Diameter Ø	Weight	Series	Standard length	Surface hardening depth SHD (min. + tol.)	Roundness (circularity) t1 max.	Parallelism (cylindricity) t2 max.	Straightness t3 max.	Standard tolerance ISO h6
mm	kg/m		mm	mm	µm	µm	mm/m	µm
4	0.10	NI-WRB 4	3000	min. 0.4	4	6	0.25	0 / -8
5	0.15	NI-WRB 5	3000	min. 0.4	4	6	0.25	0 / -8
6	0.22	NI-WRB 6	3000	0.4 + 0.9	4	6	0.25	0 / -8
8	0.39	NI-WRB 8	6000	0.4 + 0.9	4	6	0.20	0 / -9
10	0.62	NI-WRB 10	6000	0.4 + 0.9	4	6	0.20	0 / -9
12	0.89	NI-WRB 12	6000	0.6 + 0.9	5	8	0.20	0 / -11
14	1.21	NI-WRB 14	6000	0.6 + 0.9	5	8	0.20	0 / -11
15	1.39	NI-WRB 15	6000	0.6 + 0.9	5	8	0.20	0 / -11
16	1.58	NI-WRB 16	6000	0.6 + 0.9	5	8	0.20	0 / -11
20	2.46	NI-WRB 20	6000	0.8 + 0.8	6	9	0.20	0 / -13
25	3.85	NI-WRB 25	6000	0.9 + 0.8	6	9	0.15	0 / -13
30	5.55	NI-WRB 30	6000	0.9 + 0.8	6	9	0.15	0 / -13
35	7.55	NI-WRB 35	6000	1.5 + 1.3	7	11	0.15	0 / -16
40	9.86	NI-WRB 40	6000	1.5 + 1.3	7	11	0.15	0 / -16
50	15.41	NI-WRB 50	6000	1.5 + 1.3	7	11	0.15	0 / -16

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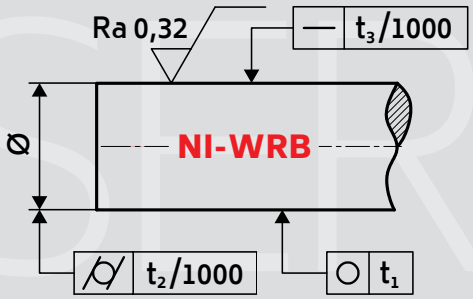

Steel grade	X46Cr13 (W1.4034)
Surface hardness	55±2 HRC
Surface roughness	Ra max. 0.32 µm
Length tolerance	±200 mm
Surface hardening depth, SHD	according to EN ISO 15787
On request	special lengths, tolerances and dimensions
	chrome plating

NI-WRB / IMPERIAL

Shaft Diameter Ø		Weight	Series	Standard length	Surface hardening depth SHD (min. + tol.)	Roundness (circularity) t_1 max.	Parallelism (cylindricity) t_2 max.	Straightness t_3 max.	Standard tolerance Class "L"
mm	inch	kg/m		inch	inch	inch	inch	in/ft	inch
6.35	0.25	0.25	NI-WRB 6.35	118.11	0.016 + 0.035	0.00016	0.00024	0.00308	-0.0005 / -0.001
9.525	0.375	0.56	NI-WRB 9.525	236.22	0.016 + 0.035	0.00016	0.00024	0.00246	-0.0005 / -0.001
12.7	0.5	0.99	NI-WRB 12.7	236.22	0.024 + 0.035	0.00020	0.00031	0.00246	-0.0005 / -0.001
15.875	0.625	1.55	NI-WRB 15.875	236.22	0.024 + 0.035	0.00020	0.00031	0.00246	-0.0005 / -0.001
19.05	0.75	2.24	NI-WRB 19.05	236.22	0.032 + 0.032	0.00024	0.00035	0.00246	-0.0005 / -0.001
25.4	1	3.98	NI-WRB 25.4	236.22	0.032 + 0.032	0.00024	0.00035	0.00185	-0.0005 / -0.001
31.75	1.25	6.21	NI-WRB 31.75	236.22	0.059 + 0.051	0.00028	0.00043	0.00185	-0.0005 / -0.001
38.1	1.5	8.94	NI-WRB 38.1	236.22	0.059 + 0.051	0.00028	0.00043	0.00185	-0.0006 / -0.0011
50.8	2	15.90	NI-WRB 50.8	236.22	0.087 + 0.063	0.00028	0.00043	0.00185	-0.0006 / -0.0013

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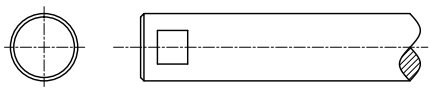
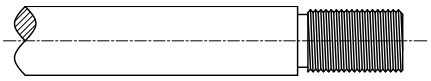
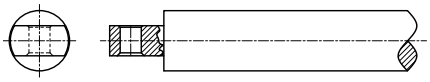
CROSSWISE GROOVE



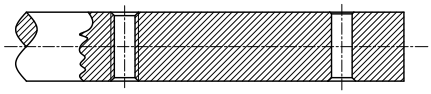
OUTSIDE DIAMETER THREAD



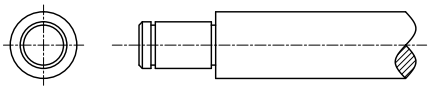
END FOR MOUNT WITH CLEVIS CLAMP



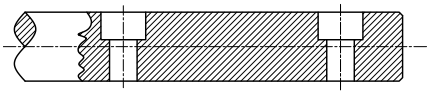
TAPPED OR DRILLED HOLES RADIALLY THROUGH SHAFT



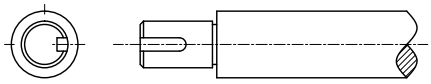
GROOVES FOR SNAP RING



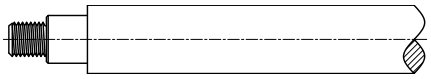
RADIAL DRILLING HOLES, BORED



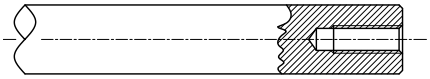
REDUCED DIAMETER WITH/ WITHOUT FEATHER KEYWAY



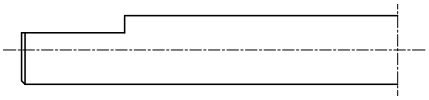
REDUCED DIAMETER WITH THREADED END



AXIAL DRILLED AND THREADED TO ENDS



D-CUT SHAPE



PACKING SOLUTIONS

- Branorost paper, spacer rings, raffia and wooden boxes for Ø 4 - 16 mm.
- Bundles protected with branorost paper, spacer rings and raffia for Ø over 16 mm. Same range but in chrome plated condition can be packed in individual cardboard tubes.
- Customized packaging solutions - wooden cases and wooden Euro-pallets.
- Aluminum foil vacuum bags extra protection of bundles for overseas transportation.

STORAGE AND HANDLING RECOMMENDATIONS

- Keep the products stored in dry and covered spaces.
- Whenever possible, please use the crane to load or unload the bundles; when you use the fork lift, please avoid the direct contact of the forks with the products.
- Always lift the bundles using textile slings. Do not use metal slings during handling of bundles.
- Always use gloves when handling the shafts.
- Always keep dry the cardboard tubes that protect the chromed products.

NIMET SRL

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