

NIMET

WHERE
INNOVATION
LIVES



W

INDUCTION HARDENED AND GROUND LINEAR SHAFTS

NI-SERIES



INDUCTION HARDENED AND GROUND LINEAR SHAFTS

STEEL GRADES CORRESPONDENTS

EN	Werkstoff	DIN	B.S.	UNI	JIS	GOST	AISI / SAE / ASTM
C53	1.1213	Cf53 (C53G)	070M55	C53	S50C	50	1050
C55E	1.1203	Ck55	060A57, 070M55	C55	S55C, S55CM	55	1055
C45E	1.1191	Ck45	080M46	C45	S45C	45	1045

CHEMICAL COMPOSITION - IN % BY WEIGHT

Steel grade	C	Si	Mn	P	S	Cr	Ni	Mo	V
Cf53	0.50 ÷ 0.57	0.15 ÷ 0.35	0.40 ÷ 0.70	max. 0.025	max. 0.035	-	-	-	-
C55E	0.52 ÷ 0.60	0.10 ÷ 0.40	0.60 ÷ 0.90	max. 0.025	max. 0.035	max. 0.4	max. 0.4	max. 0.1	-
C45E	0.42 ÷ 0.50	0.10 ÷ 0.40	0.50 ÷ 0.80	max. 0.025	max. 0.035	max. 0.4	max. 0.4	max. 0.1	-

MECHANICAL PROPERTIES

Steel grade	Diameter	Tensile strength	Yield strength	Elongation	Hardness	Norm
	Ø mm	R _m N/mm ²	R _{p0.2} N/mm ²	A ₅ %	Brinell HB	
Cf53+N	Ø ≤ 16	610 - 760	min. 340	min. 16	min. 183	DIN 17212
	16 < Ø ≤ 100	610 - 760	min. 340	min. 16	-	
C55E+N	Ø ≤ 16	min. 680	min. 370	min. 11	min. 208	EN ISO 683-1
	16 < Ø ≤ 100	min. 640	min. 330	min. 12	min. 198	
C45E+N	Ø ≤ 16	min. 620	min. 340	min. 14	min. 190	EN ISO 683-1
	16 < Ø ≤ 100	min. 580	min. 305	min. 16	min. 172	

N=normalized

HARDENABILITY

Steel grade	Surface hardness HRC min.
Cf53	60
C55E	60
C45E	55

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The hardening depth (SHD according to EN ISO 15787 or R_ht 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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Steel grades Cf53, C55E, alternative C45E

Surface hardness 62±2 HRC

Surface roughness Ra max. 0.20 µm

Length tolerance ±200 mm

Surface hardening depth, SHD according to EN ISO 15787

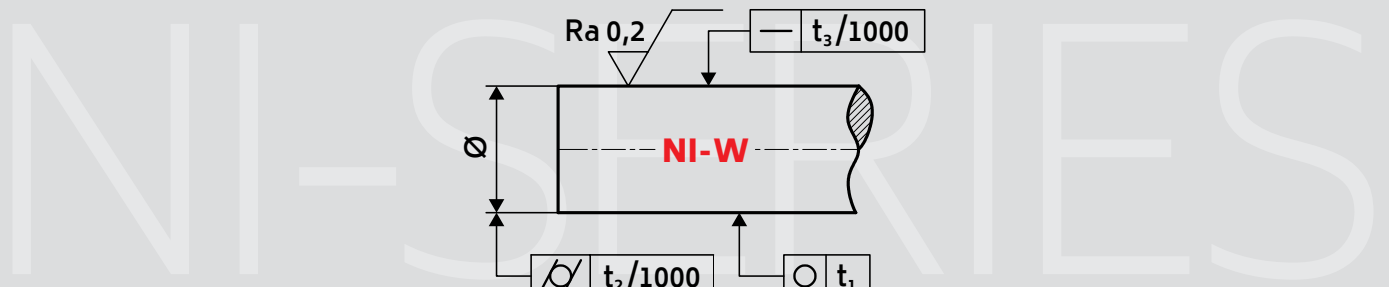
On request special lengths, tolerances and dimensions

NI-W/METRIC

Shaft Diameter Ø	Weight	Series	Standard length	Surface hardening depth	Roundness (circularity)	Parallelism (cylindricity)	Straightness	Standard tolerance
				SHD (min. + tol.)	t ₁ max.	t ₂ max.	t ₃ max.	
mm	kg/m		mm	mm	µm	µm	mm/m	µm
4	0.10	NI-W 4	4000	min. 0.4	4	6	0.30	0/-8
5	0.15	NI-W 5	4000	min. 0.4	4	6	0.25	0/-8
6	0.22	NI-W 6	6000	0.4+0.4	4	6	0.25	0/-8
8	0.39	NI-W 8	6000	0.4+0.4	4	6	0.20	0/-9
10	0.62	NI-W 10	6000	0.4+0.4	4	6	0.20	0/-9
12	0.89	NI-W 12	6000	0.6+0.6	5	8	0.20	0/-11
14	1.21	NI-W 14	6000	0.6+0.6	5	8	0.20	0/-11
15	1.39	NI-W 15	6000	0.6+0.6	5	8	0.20	0/-11
16	1.58	NI-W 16	6000	0.6+0.6	5	8	0.20	0/-11
18	2.00	NI-W 18	6000	0.6+0.6	5	8	0.20	0/-11
20	2.46	NI-W 20	6000	0.9+0.8	6	9	0.20	0/-13
25	3.85	NI-W 25	6000	0.9+0.8	6	9	0.15	0/-13
30	5.55	NI-W 30	6000	0.9+0.8	6	9	0.15	0/-13
35	7.55	NI-W 35	6000	1.5+1.3	7	11	0.15	0/-16
40	9.86	NI-W 40	6000	1.5+1.3	7	11	0.15	0/-16
45	12.48	NI-W 45	6000	1.5+1.3	7	11	0.15	0/-16
50	15.41	NI-W 50	6000	1.5+1.3	7	11	0.15	0/-16
60	22.18	NI-W 60	6000	2.2+1.6	8	13	0.15	0/-19
70	30.19	NI-W 70	6000	2.2+1.6	8	13	0.15	0/-19
80	39.44	NI-W 80	6000	2.2+1.6	8	13	0.15	0/-19
90	49.91	NI-W 90	6000	2.2+1.6	10	15	0.15	0/-22
100	61.62	NI-W 100	6000	3.2+2.0	10	15	0.15	0/-22

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



Steel grades Cf53, C55E, alternative C45E

Surface hardness 62±2 HRC

Surface roughness Ra max. 0.20 µm

Length tolerance ±200 mm

Surface hardening depth, SHD according to EN ISO 15787

On request special lengths, tolerances and dimensions

NI-W / 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-W 6.35	236.22	0.016 + 0.016	0.00016	0.00023	0.00308	-0.0005 / -0.001
9.525	0.375	0.56	NI-W 9.525	236.22	0.016 + 0.016	0.00016	0.00023	0.00246	-0.0005 / -0.001
12.7	0.5	0.99	NI-W 12.7	236.22	0.024 + 0.024	0.00020	0.00031	0.00246	-0.0005 / -0.001
15.875	0.625	1.55	NI-W 15.875	236.22	0.024 + 0.024	0.00020	0.00031	0.00246	-0.0005 / -0.001
19.05	0.75	2.24	NI-W 19.05	236.22	0.035 + 0.032	0.00024	0.00035	0.00246	-0.0005 / -0.001
22.225	0.875	3.04	NI-W 22.225	236.22	0.035 + 0.032	0.00024	0.00035	0.00185	-0.0005 / -0.001
25.4	1	3.98	NI-W 25.4	236.22	0.035 + 0.032	0.00024	0.00035	0.00185	-0.0005 / -0.001
28.575	1.125	5.03	NI-W 28.575	236.22	0.035 + 0.032	0.00024	0.00035	0.00185	-0.0005 / -0.001
31.75	1.25	6.21	NI-W 31.75	236.22	0.059 + 0.051	0.00028	0.00043	0.00185	-0.0005 / -0.001
34.925	1.375	7.52	NI-W 34.925	236.22	0.059 + 0.051	0.00028	0.00043	0.00185	-0.0005 / -0.001
38.1	1.5	8.94	NI-W 38.1	236.22	0.059 + 0.051	0.00028	0.00043	0.00185	-0.0006 / -0.0011
44.45	1.75	12.17	NI-W 44.45	236.22	0.059 + 0.051	0.00028	0.00043	0.00185	-0.0006 / -0.0011
50.8	2	15.90	NI-W 50.8	236.22	0.087 + 0.063	0.00028	0.00043	0.00185	-0.0006 / -0.0013
57.15	2.25	20.13	NI-W 57.15	236.22	0.087 + 0.063	0.00031	0.00051	0.00185	-0.0007 / -0.0015
63.5	2.5	24.85	NI-W 63.5	236.22	0.087 + 0.063	0.00031	0.00051	0.00185	-0.0007 / -0.0015
76.2	3	35.78	NI-W 76.2	236.22	0.087 + 0.063	0.00031	0.00051	0.00185	-0.0008 / -0.0017
88.9	3.5	48.70	NI-W 88.9	236.22	0.087 + 0.063	0.00039	0.00059	0.00185	-0.0010 / -0.0020
101.6	4	63.61	NI-W 101.6	236.22	0.126 + 0.079	0.00039	0.00059	0.00185	-0.0012 / -0.0024

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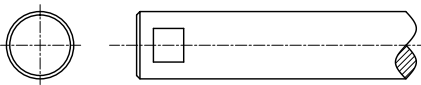
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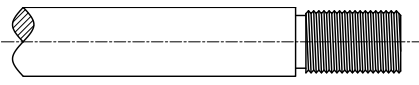


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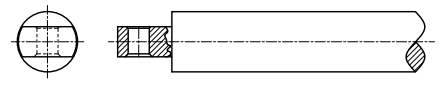
CROSSWISE GROOVE



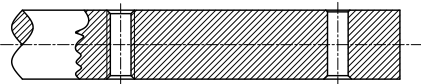
OUTSIDE DIAMETER THREAD



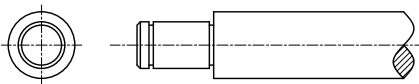
END FOR MOUNT WITH CLEVIS
CLAMP



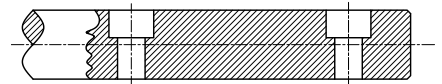
TAPPED OR DRILLED HOLES
RADIALLY THROUGH SHAFT



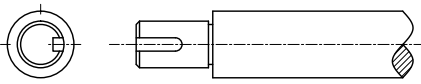
GROOVES FOR SNAP RING



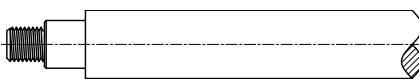
RADIAL DRILLING HOLES, BORED



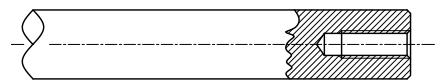
REDUCED DIAMETER WITH/
WITHOUT FEATHER KEYWAY



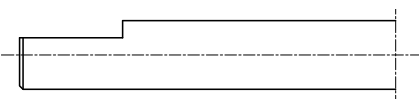
REDUCED DIAMETER WITH
THREADED END



AXIAL DRILLED AND THREADED
TO ENDS



D-CUT SHAPE



PACKING SOLUTIONS

- Branorost paper, spacer rings, raffia and wooden boxes for \varnothing 4 - 16 mm.
- Bundles protected with branorost paper, spacer rings and raffia for \varnothing 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.



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