NIMET

WHERE
INNOVATION
LIVES

WHV

INDUCTION HARDENED AND CHROME PLATED HOLLOW LINEAR SHAFTS

TECHNICAL SHEET

NI-WHV-TS-2020

NI-SERIES

INDUCTION HARDENED AND CHROME PLATED HOLLOW LINEAR SHAFTS

STEEL GRADES CORRESPONDENTS

EN	Werkstoff	DIN	B.S.	UNI	JIS	GOST	AISI / SAE / ASTM
C60E	1.1221	Ck60	060A62, 070M60	C60	S58C	60, 60G, 60GA	1060

CHEMICAL COMPOSITION - IN % BY WEIGHT

Steel grade	C	Si	Mn	P	S	Cr	Ni	Mo	V
C60E	0.57 ÷ 0.65	0.10 ÷ 0.40	0.60 ÷ 0.90	max. 0.025	max. 0.035	max. 0.4	max. 0.4	max. 0.1	-

MECHANICAL PROPERTIES

Steel grade	Tensile strength R_m N/mm^2	Yield strength $R_{p0.2}$ N/mm^2	Elongation A_5 %
C60+NBK	720 - 900	min. 390	min. 13

NBK = normalized in a protective atmosphere.

HARDENABILITY

Steel grade	Surface hardness HRC min.
C60E	60

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

WHV

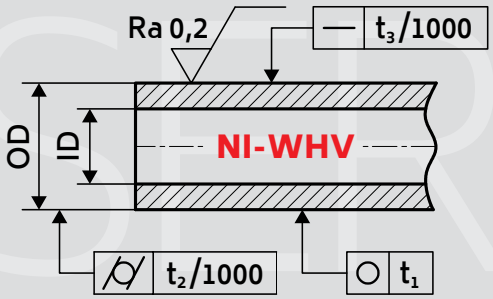
INDUCTION HARDENED AND CHROME PLATED HOLLOW LINEAR SHAFTS

Steel grade	C60E
Surface hardness	62±2 HRC
Chrome layer thickness	12±5 µm
Chrome layer microhardness	900-1100HV0.1
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-WHV / METRIC

Outside Diameter OD	Inside Diameter ID	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 ISO h7
mm	mm	kg/m		mm	mm	µm	µm	mm/m	µm
12	4	0.79	NI-WHV 12x4	6000	0.4 + 0.4	8	12	0.20	0 / -18
12	7	0.59	NI-WHV 12x7	6000	0.4 + 0.4	8	12	0.20	0 / -18
16	7	1.28	NI-WHV 16x7	6000	0.4 + 0.4	8	12	0.20	0 / -18
20	14	1.25	NI-WHV 20x14	6000	0.6 + 0.5	9	12	0.20	0 / -21
25	15	2.47	NI-WHV 25x15	6000	0.8 + 0.8	9	12	0.15	0 / -21
30	18	3.55	NI-WHV 30x18	6000	0.9 + 0.8	9	12	0.15	0 / -21
40	28	5.03	NI-WHV 40x28	6000	1.2 + 1.1	11	15	0.15	0 / -25
40	26	5.70	NI-WHV 40x26	6000	1.2 + 1.1	11	15	0.15	0 / -25
50	30	9.87	NI-WHV 50x30	6000	1.5 + 1.2	11	15	0.15	0 / -25
60	36	14.20	NI-WHV 60x36	6000	1.5 + 1.2	13	15	0.15	0 / -30
80	57	19.42	NI-WHV 80x57	6000	1.6 + 1.3	13	15	0.20	0 / -30

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.



Steel grade	C60E
Surface hardness	62±2 HRC
Chrome layer thickness	12±5 µm
Chrome layer microhardness	900-1100HV0.1
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-WHV / IMPERIAL

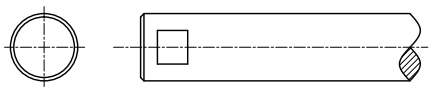
Outside Diameter OD		Inside Diameter ID		Weight	Series	Standard length	Surface hardening depth	Roundness (circularity)	Parallelism (cylindricity)	Straightness	Standard tolerance
							SHD	t_1	t_2	t_3	Class "L"
							(min.+tol.)	max.	max.	max.	
mm	inch	mm	inch	kg/m		inch	inch	inch	inch	in/ft	inch
15.875	0.625	6.35	0.25	1.30	NI-WHV 15.875x6.35	236.22	0.024 + 0.020	0.000315	0.000472	0.00246	-0.0005 / -0.001
19.05	0.75	11.125	0.438	1.48	NI-WHV 19.05x11.125	236.22	0.035 + 0.032	0.000354	0.000472	0.00246	-0.0005 / -0.001
25.4	1	15.494	0.61	2.50	NI-WHV 25.4x15.494	236.22	0.035 + 0.032	0.000354	0.000472	0.00185	-0.0005 / -0.001
31.75	1.25	18.288	0.72	4.15	NI-WHV 31.75x18.288	236.22	0.035 + 0.032	0.000354	0.000472	0.00185	-0.0005 / -0.001
38.1	1.5	22.606	0.89	5.80	NI-WHV 38.1x22.606	236.22	0.047 + 0.043	0.000433	0.000591	0.00185	-0.0006 / -0.0011
50.8	2	31.75	1.25	9.69	NI-WHV 50.8x31.75	236.22	0.059 + 0.043	0.000433	0.000591	0.00185	-0.0006 / -0.0013

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.

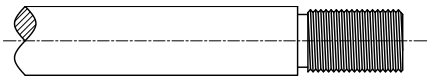
NI-SERIES

INDUCTION HARDENED AND CHROME PLATED HOLLOW LINEAR SHAFTS

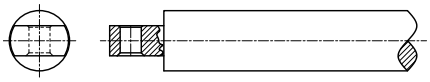
CROSSWISE GROOVE



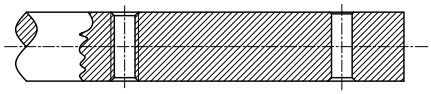
OUTSIDE DIAMETER THREAD



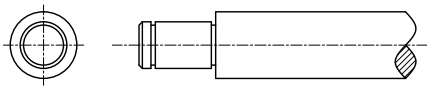
END FOR MOUNT WITH CLEVIS CLAMP



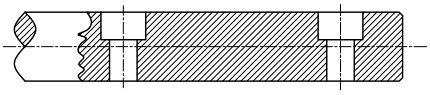
TAPPED OR DRILLED HOLES RADIALLY THROUGH SHAFT



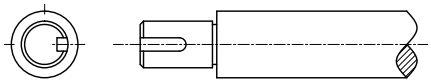
GROOVES FOR SNAP RING



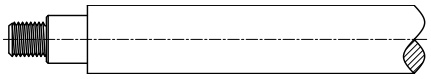
RADIAL DRILLING HOLES, BORED



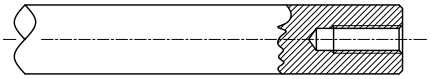
REDUCED DIAMETER WITH/ WITHOUT FEATHER KEYWAY



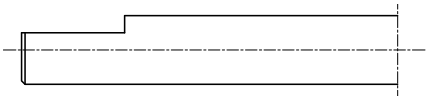
REDUCED DIAMETER WITH THREADED END



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

Targului Street 103, 137121 / Lazuri (DB) / Romania
Tel: +40 245 607 000 / Fax: +40 245 607 001 / office@nimet.ro

NIMET.RO