

Series	Description
NICRO 500-NCT	External Nickel and Hard Chrome Plated Steel Tubes with Utmost Corrosion Resistance steel grade: E355, P460N / OD: Ø30 - 140 mm

#### Steel grades correspondents

EN	Werkstoff	DIN	B.S.	UNI	JIS	GOST	AISI SAE ASTM
E355	1.0580	St52	CFS5	Fe510	STKM19A	St6sp	1524
P460N	1.8905	StE460	55C	FeE460KG	-	18G2AF	-

#### Chemical composition - in % by weight

Steel grade	C	Si	Mn	P	S	Cr	Mo	Ni	V	Cu	N
E355	max. 0.22	max. 0.55	max. 1.60	max. 0.025	max. 0.040	-	-	-	-	-	-
P460N	max. 0.20	max. 0.60	1.00-1.70	max. 0.025	max. 0.020	max. 0.30	max. 0.10	max. 0.80	max. 0.20	max. 0.70	max. 0.020

#### Mechanical properties

Steel grade	Tensile strength $R_m$ N/mm <sup>2</sup>	Yield point $R_{p0.2}$ N/mm <sup>2</sup>	Impact energy KV J	Elongation $A_5$ %	Hardness *** Brinell N/mm <sup>2</sup>	Norm
E355+SR	min. 580	min. 450	(27 J / -20° C) **	min. 10	min. 175	EN 10305-1
P460N+N	560 - 730	min. 460 *	27 J / -20° C	min. 19	170 - 220	EN 10216-3

SR = stress-relieved, N = normalized

\* Wall thickness ≤ 12 mm

\*\* on request

\*\*\* The hardness values are for information only

# Nickel and Hard Chrome Plated Steel Tubes

steel grade: E355 / P460N



Series **NICRO 500-NCT** - E355+SR / P460N+N

Outside diameter - OD	Ø30 - 140 mm
Inside diameter - ID	see Standard dimensions range
Outside tolerance - OD	ISO f7
Roundness - OD	max. 1/2 from diameter tolerance
Standard length	up to 6000 mm / on request: cut lengths
Surface roughness - OD	Ra: max. 0.20 µm
Nickel layer thickness	min. 10 µm
Chrome layer thickness	min. 25 µm
Nickel layer microhardness	min. 300 HV0.1
Chrome layer microhardness	min. 900 HV0.1
Straightness	max. 0.25 mm/1000 mm



- ✓ Replaces solid piston rods in systems where the total weight is to be minimized.
- ✓ In spite of it's well known oxidation resistance, chrome plating has a limited corrosion resistance.
- ✓ Our solution in this case is nickel chrome plating, a process meant to give products a high durability while working in very aggressive environments, based on a nickel layer followed by a chromium plating.

### Table of dimensions - OD tolerance

Diameter mm	ISO f7 µm
Ø = 30	-20 / -41
30 < Ø ≤ 50	-25 / -50
50 < Ø ≤ 80	-30 / -60
80 < Ø ≤ 120	-36 / -71
120 < Ø ≤ 140	-43 / -83

### Standard dimensions range

Outside diameter mm	30	32	35	40	45	50	55	60	63	65	70	75	80	85	90	100	110	120	140
Inside diameter mm	15	16	25	20	25	30	35	40	43	45	50	55	60	65	70	80	90	100	120
	20	20	20	25	30	35	40	45	53	50	55	60	65	75	75	85	95	-	-
	-	-	-	30	35	40	45	50	-	55	60	65	70	-	80	90	-	-	-
Wall thickness mm	7.5	8	5	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
	5	6	7.5	7.5	7.5	7.5	7.5	7.5	5	7.5	7.5	7.5	7.5	5	7.5	7.5	7.5	-	-
	-	-	-	5	5	5	5	5	-	5	5	5	5	-	5	5	-	-	-

### Corrosion resistance

Outside diameter mm	Standard product NICRO 500-NCT
Ø30 - 140	rating 10 after 500 h in NSS rating 10 after 180 h in AASS

Tested in our own laboratory according to ISO 9227.  
Evaluated according to ISO 10289.