

# Nickel Plated Steel

## Wire

Nickel plated steel (NPS) wire is a low carbon steel wire electroplated with nickel. It is used as the inner-lead component for lead-in-wires used in incandescent bulbs, fluorescent tubes, halogen lamps, HID lamps, automotive, and other lamps. It is also used as a third wire to support the anode ring used in fluorescent tube lamps. NPS is also used for making music wire and for other applications that require corrosion resistance.

### Forms of Supply

As plated and annealed wire

Matt Finish or Bright Finish of wires are available as per customer requirement

Nominal Chemical Composition (%)						
	C	Mn	Si	P	S	fe
<b>Regular grade</b>	0.06 max	0.25 - 0.50	0.10 max	0.04 max	0.05 max	Balance
<b>Aluminum killed</b>	0.05 max	0.20-0.40	0.10 max	0.04 max	0.04 max	Balance
<b>Nickel layer:</b>	High purity Nickel					

Note: Other standard grades such as AISI 1006, AISI 1008, etc. are also available for core wire

### Thickness of Nickel layer

Nominal 2-4% by weight in thickness for NPS is used in lead wires for lighting applications. Higher nickel plating thickness (like 4%, 8%, 12% ) can be manufactured as per customer requirement. The nickel coating has uniform adhesion over the full length of the steel core wire.

Diameter of wire mm	Thickness of Nickel plating % by weight	Application
0.40-0.60	2.0-4.0	For Lead-in-Wires
0.70-0.90	2.0-3.0	For Lead-in-Wires
0.80-2.50	1.0-3.0	For Lead-in-Wires
0.80-1.50	8.0-12.0	For redraw

Mechanical Properties			
Alloy	Tensile strength N/mm <sup>2</sup>		Elongation % at L <sub>0</sub> =100 mm
	Min	Max	
<b>Annealed (soft)</b>	300	480	≥ 15
<b>As drawn</b>	700	1000	≤ 5

Size in mm	0.4	0.5	0.6	0.7	0.8	0.9	1.0-2.50
<b>Tolerance (+/-)</b>	0.01	0.01	0.01	0.01	0.01	0.01	0.02

The ovality (the difference between the largest and smallest diameter in a section) is less than half the tolerance in the diameter.

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### Packaging

In standard DIN spools or corrugated drums / barrels (14" outer dia x 10" height)

Diameter of wire mm	Recommended Spool Type	Weight per spool Kg
<b>0.40-0.60</b>	DIN 160	5-7
	DIN 200	6-8
	DIN 250	12-20
	Corrugated Drum	12-20
<b>0.70-0.90</b>	DIN 200	6-8
	DIN 250	15-22
	Corrugated Drum	15-25
<b>1.0-2.50</b>	Coils	20-50
	DIN 355	50-70

Thicker size wires are available in coils or on cardboard rings.

Each spool is individually shrink wrapped and put in cardboard box for maximum protection against oxidation. It is advisable to use the wire within six months from the date of manufacturing for best performance.