

**DESIGN STANDARDS****OHTL TOWERS**

DIN VDE 210	Planning and Design of Overhead Power Lines with Rated Voltages Above 1 kV
NESC C2-2002	National Electrical Safety Code C2
CEI - IEC 826 / 60326	Technical Report Loading and Strength of Overhead Transmission Line
EN 50341-1	Overhead Electrical Lives Exceeding AC 45kV
ASCE Manual No : 52	Guide for Design of Steel Transmission Towers
ASCE Manual No : 74	Design of Electrical Transmission Line Structural Loading
ASCE Manual No : 10-97	Design of Latticed Steel Transmission Structures
TS 648	Building Code for Steel Structures
TS 500	Building Code Requirements for Reinforced Concrete
DIN 18800	Structural Steelwork

**ANTENNA TOWERS**

TIA / EIA - 222-F	Structural Std's for Steel Antenna Towers and Antenna Supporting Structures
BSI CP 3	Code of Basic Data for the Design of Buildings - Chapter 5 Part 2 Loading
BS 8100	Lattice Towers and Masts
BS 449 Part 2	Specification for the Use of Structural Steel In Building
ASCE Manual No : 52	Guide for Design of Steel Transmission Towers
TS 648	Building Code for Steel Structures
TS 500	Building Code Requirements for Reinforced Concrete
TS 498	Design Loads for Buildings

**POLES**

ASCE Manual No : 72	Design of Steel Transmission Pole Structures
EIA 222 - E	Structural Std's for Steel Antenna Towers and Antenna Supporting Structures
TIA / EIA -222-F	Structural Std's for Steel Antenna Towers and Antenna Supporting Structures
BSI CP 3	Code of Basic Data for the Design of Buildings - Chapter 5 Part 2 Loading
ILE	Technical Report Number 7 - High Mast Lighting
AASHTO	Structural Supports For Highway Signs, Luminares and Traffic Signals
BS 449 Part 2	Specification For the Use of Structural Steel In Building
TS 648	Building Code for Steel Structures
TS 498	Design Loads for Buildings
EN 40 Part 1	Lighting Columns - Definition and Terms
EN 40 Part 2	Lighting Columns - Dimensions and Tolerances
EN 40 Part 3	Lighting Columns - Materials
EN 40 part 3-1	Lighting Columns - Part 3-1 Desing and Verification - Spesification for Characteristic Loads
EN 40 part 3-2	Lighting Columns - Part 3-2 Desing and Verification - Verication by Testing
EN 40 part 3-3	Lighting Columns - Part 3-3 Desing and Verification by Calculation
EN 40 Part 5	Lighting Columns - Base Compartments and Cableways
EN 40 Part 6	Lighting Columns - Loads

**PRODUCT STANDARDS****LATTICED TOWERS****DIMENSIONAL STANDARDS**

<b>ANGLES, EQUAL</b>	EN 10056 / 1-2, ISO 657 / 1-5	<b>BEAMS</b>	EN 10034 (DIN 1025)
<b>ANGLES, UNEQUAL</b>	EN 10056 / 1-2, ISO 657 / 1-5	<b>FLAT BARS</b>	DIN 1017
<b>PLATES</b>	EN 10 029	<b>ROUND BARS</b>	DIN EN 10060
<b>SHEETS</b>	EN 10 051	<b>PIPES</b>	EN 10210 / 1-2
<b>CHANNELS</b>	EN 10279 (DIN 1026)	<b>HOLLOW SECTIONS</b>	EN 10210 / 1-2

**QUALITY STANDARDS**

<b>MILD STEEL</b>	EN 10025 / 1-6 Grade S235JR, EN 10025 /1-6 Grade S275JR
<b>HIGH TENSILE STEE</b>	EN 10025 / 1-6 Grade S355JO, EN 10025 / 1-6 Grade S355J2

**POLES****DIMENSIONAL STANDARDS**

<b>SHEETS</b>	EN 10 051	<b>ROUND BARS</b>	DIN 1013
<b>PLATES</b>	EN 10 029	<b>PIPES</b>	EN 10210 / 1-2
<b>CHANNELS</b>	EN 10279 (DIN 1026)	<b>HOLLOW SECTIONS</b>	EN 10210 / 1-2
<b>FLAT BARS</b>	DIN 1017	<b>PRODUCT DIMENSIONS</b>	EN 40 Part 2

**QUALITY STANDARDS**

<b>MILD STEEL</b>	EN 10025 / 1-6 Grade S235JR, EN 10025 /1-6 Grade S275JR
<b>HIGH TENSILE STEE</b>	EN 10025 / 1-6 Grade S355JO, EN 10025 / 1-6 Grade S355J2

**WELDED PRODUCTS****DIMENSIONAL STANDARDS**

EN ISO 13920	(DIN 8570 Part 1-2 General Tolerances for Welded Structures)
--------------	--

**PROCESS STANDARD**

EN ISO 15607	EN ISO 15614-2	EN ISO 15612
EN ISO 15609	EN ISO 15610	EN ISO 15613
EN ISO 15614-1	EN ISO 15611	prEN 288-9
DIN 18 800 Part 7	Steel Structures, Fabrication, Verification of Suitability for Welding	

**FASTENERS**
**DIMENSIONAL STANDARDS**

<b>BOLTS</b>	DIN 7990	DIN EN ISO 4014	ASME B 18.2.1
	DIN 931	DIN EN ISO 4016	ASME B 1.1
	DIN 933	DIN EN ISO 4017	ASME B 1.13M
	DIN 960	DIN EN ISO 4018	ASME B 16.5
	DIN EN 28676	DIN EN ISO 4762	ASTM A325
	DIN EN 1665	DIN EN ISO 7089	ASTM A490
	DIN 607	DIN EN ISO 8765	ISO 965-2
	DIN EN 14399-4	DIN EN ISO 8676	ISO 965-3
	DIN 912	DIN EN 1665	ISO 965-4
	DIN 603	BS 3692	BS 4190
	DIN 961	DIN 6914	DIN 6921

**ANCHOR BOLTS** As per customer drawings

<b>NUTS</b>	DIN 439	DIN EN ISO 4032	ASTM A 563M
	DIN EN 24034	DIN EN ISO 4034	NF EN 24033
	DIN 934	DIN EN 14399-4	BS 3692
	DIN 936	DIN 7967	BS 4190
	DIN 6915	DIN 555	

<b>WASHERS</b>	DIN 125	DIN 6916	ASME B 18.2.2
	DIN 126	DIN 6917	ASTM F 436M
	DIN 434	DIN 6918	
	DIN 435	DIN 7989	

**SPRING WASHERS** DIN 127  
DIN 128

**QUALITY STANDARDS**

<b>BOLTS</b>	ISO 898 / 1 ASTM A30, ASTM A 325M, ASTM A 490M, SAEJ 429, ISO 4759-1
<b>ANCHOR BOLTS</b>	ISO 898 / 1, AISI 1020, AISI 1030, AISI 1050, AISI 4140
<b>NUTS</b>	ISO 898 / 2, ISO 4759-1
<b>WASHERS</b>	Structural Steel
<b>SPRING WASHERS</b>	Spring Steel

**GALVANIZING STANDARDS****HOT DIP GALVANIZING**

ASTM A123	Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
ASTM A153	Zinc Coating (Hot-Dip) on Iron and Steel Hardware
ASTM A143	Safeguarding Against Embrittlement of Hot-Dip Galvanized Structural Steel Products and Procedure for Detecting Embrittlement.
ASTM A385	Standard Practice for Providing High-Quality Zinc Coatings (Hot-Dip)
ASTM A384	Safeguarding Against Warpage and Distortion During Hot Dip Galvanizing of Steel Assemblies
ASTM A780	Standard Practice for Repair of Damaged Hot Dip Galvanized Coatings.
EN ISO 1461	Metallic Coatings - Hot Dip Galvanized Coatings on Fabricated Ferrous Products
ISO 1460	Metallic Coatings - Hot Dip Galvanized Coatings on Fabricated Ferrous Products
DIN EN ISO 1461	Hot Dip Galvanized Coatings on Fabricated Iron and Steel Articles Specification and Test Methods
ISO 14713	Protection Against Corrosion of Iron and Steel in Structures - Guidelines
EN 40 Part 4	Lighting Columns - Surface Protection of Metal Lighting Columns

**MECHANICAL GALVANIZING**

ASTM B695	Coatings of Zinc Mechanically Deposited on Iron and Steel
-----------	---

**ELECTROGALVANIZING**

ASTM B633	Electrodeposited Coatings of Zinc on Iron and Steel
ASTM B842	Electrodeposited Coatings for Zinc Iron Alloy Deposits
ASTM B840	Electrodeposited Coatings for Zinc Cobalt Alloy Deposits
ASTM B841	Electrodeposited Coatings for Zinc Nickel Alloy Deposits

**INSPECTION & TESTING STANDARDS****MATERIAL & STEEL STRUCTURAL PRODUCTS**

EN 10025 Part 1, 2	Hot Rolled Products of Non-Alloy Structural Steels
ASTM A370	Mechanical Testing of Steel Products
EN10002-1	Mechanical Testing of Metal Products
EN 10045 Part 1, 2	Impact Testing of Metal Products
ISO 6506	Hardness Test
IEC 652 / 60652	Loading Tests on Overhead Line Towers

**FASTENERS**

ISO 898 / 1	Mechanical Properties of Fasteners
ISO 898 / 2	Mechanical Properties of Nuts

**WELDING**

EN 25817	Arc-Welded Joints in Steel - Guidance on Quality Levels for Imperfections
EN 1369	Magnetic Particle Inspection
EN 571-1	Penetrant Testing, General Principles

**GALVANIZING**

ASTM A123	Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
ASTM A153	Zinc Coating (Hot-Dip) on Iron and Steel Hardware
ASTM A90	Standard Test Method for Weight of Coating on Iron and Steel Articles with Zinc and Zinc Alloy Coatings
ASTM A143	Safeguarding Against Embrittlement of Hot-Dip Galvanized Structural Steel Products and Procedure for Detecting Embrittlement.
ASTM A239	Standard Test Method for Locating Thinnest Spot in a Zinc Coating on Iron and Steel Articles by the Preece Test [Copper Sulfate Dip].
ASTM E376	Practice for Measuring Coating Thickness by Magnetic-Field or Eddy-Current Test Methods
EN ISO 1461	Metallic Coatings - Hot Dip Galvanized Coatings on Fabricated Ferrous Products
DIN EN ISO 1461	Hot Dip Galvanized Coatings on Fabricated Iron and Steel Articles Specification and Test Methods
ASTM B695	Coatings of Zinc Mechanically Deposited on Iron and Steel
ASTM B633	Electrodeposited Coatings of Zinc on Iron and Steel
ASTM B842	Electrodeposited Coatings for Zinc Iron Alloy Deposits
ASTM B840	Electrodeposited Coatings for Zinc Cobalt Alloy Deposits
ASTM B841	Electrodeposited Coatings for Zinc Nickel Alloy Deposits