

Laboratory

Apex Assessment Labs Private Limited, Plot No. 7, Anand Industrial Estate, Mohan Nagar, Ghaziabad, Uttar Pradesh

Accreditation Standard ISO/IEC 17025: 2005

Certificate Number

TC-6701 (in lieu of T-1633 & T-1634)

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Validity

17.12.2017 to 16.12.2019

Last Amended on 03.01.2018

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
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CHEMICAL TESTING

I.	BUILDING MATERIALS			
1.	Building Lime	Insoluble residue	IS 6932 (Part 1): 1973 (RA 2009)	0.1 % to 20.0 %
		Loss on ignition	IS 6932 (Part 1): 1973 (RA 2009)	0.1 % to 30.0 %
		Silicon dioxide	IS 6932 (Part 1): 1973 (RA 2009)	0.1 % to 20.0 %
		Ferric oxide	IS 6932 (Part 1): 1973 (RA 2009)	0.1 % to 8.0 %
		Aluminum oxide	IS 6932 (Part 1): 1973 (RA 2009)	0.1 % to 8.0 %
		Calcium Oxide	IS 6932 (Part 1): 1973 (RA 2009)	0.5 % to 90.0 %
		Magnesium Oxide	IS 6932 (Part 1): 1973 (RA 2009)	0.1 % to 15.0 %
2.	Cement (OPC & PPC)	Silicon dioxide	IS 4032: 1985 (RA 2014) Cl. 4.3	15.0 % to 35.0 %
		Aluminum oxide	IS 4032: 1985 (RA 2014) Cl. 4.6.1	0.5 % to 15.0 %
		Iron oxide	IS 4032: 1985 (RA 2014) Cl. 4.5.2	0.5 % to 10.0 %
		Magnesium Oxide	IS 4032: 1985 (RA 2014) Cl. 4.8.2	0.5 % to 10.0 %
		Insoluble oxide (IR)	IS 4032: 1985 (RA 2014) Cl. 4.10	0.2 % to 35.0 %
		Sulphuric Anhydride	IS 4032: 1985 (RA 2014) Cl. 4.9	0.1 % to 5.0 %
		Loss on Ignition	IS 4032: 1985 (RA 2014) Cl. 4.2	0.1 % to 5.0 %

Sreeram Pinnamaraju
Convenor

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		Calcium Oxide	IS 4032: 1985 (RA 2014) Cl. 4.7.2	20.0 % to 70.0 %
3.	Concrete	Sulphate	IS 4032: 1985 (RA 2014)	0.05 % to 5.0 %
		Chloride	IS 14959 (Part 2): 1998	0.01 % to 2.0 %
4.	Sodium Silicate (Liquid)	Matter soluble in water	IS 14212: 1995 (RA 2010)	15.0 % to 35.0 %
		Total soluble silicate	IS 14212: 1995 (RA 2010)	0.5 % to 50.0 %
		Total alkalinity	IS 14212: 1995 (RA 2010)	0.5 % to 10.0 %
		Total soluble silica	IS 14212: 1995 (RA 2010)	0.5 % to 40.0 %
		Chloride	IS 14212: 1995 (RA 2010)	0.2 % to 15.0 %
		Sulphate	IS 14212: 1995 (RA 2010)	0.1 % to 5.0 %
		Relative Density	IS 14212: 1995 (RA 2010)	1.0 % to 5.0 %
5.	Admixture	Dry material content	IS 9103: 1999 (RA 2013)	1.0 % to 60.0 %
		Ash content	IS 9103: 1999 (RA 2013)	0.5 % to 20.0 %
		Relative density	IS 9103: 1999 (RA 2013)	1.0 to 2.0
		pH Value	IS 9103: 1999 (RA 2013)	1.0 to 10.0
6.	Bitumen	Flash point	IS 1209: 1978 (RA 2009)	30 °C to 400 °C
		Softening point	IS 1209: 1978 (RA 2009)	30 °C to 100 °C
		Specific gravity	IS 1209: 1978 (RA 2009)	0.7 to 1.20
		Loss on heating	IS 1209: 1978 (RA 2009)	0.1 % to 10.0 %
		Solubility in Trichloroethylene	IS 1209: 1978 (RA 2009)	0.1 % to 99.9 %
		Penetration	IS 1203: 1978 (RA 2009)	2 to 110 Units (1/10mm)
7.	Asphalt Mix	Binder Content	ASTM D 2172 2017	1 to 30
II.	SOLID FUELS			
1.	Coal	Moisture content	IS 1350 (Part 1): 1984 (RA 2013)	0.1 % to 60.0 %
		Ash content	IS 1350 (Part 1): 1984 (RA 2013)	0.1 % to 70.0 %
		Volatile matter	IS 1350 (Part 1): 1984 (RA 2013)	0.1 % to 50.0 %
		Fixed carbon	IS 1350 (Part 1): 1984 (RA 2013)	0.1 % to 80.0 %

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		Nitrogen	IS 1350 (Part 4): 1999 (RA 2010)	0.1 % to 5.0 %
III.	METALS & ALLOYS			
1.	Plain Carbon Steel, Low Alloy Steel and High Alloy Steel	Carbon	IS 228 (Part 1): 1987 (RA 2012)	0.02 % to 2.0 %
		Manganese	IS 228 (Part 2): 1987 (RA 2012)	0.05 % to 2.0 %
		Phosphorus	IS 228 (Part 3): 1987 (RA 2012)	0.01 % to 2.0 %
		Nickel	IS 228 (Part 5): 1987 (RA 2014)	0.1 % to 10.0 %
		Chromium	IS 228 (Part 6): 1987 (RA 2014)	0.1 % to 20.0 %
		Silicon	IS 228 (Part 8): 1987 (RA 2014)	0.05 % to 3.0 %
		Sulphur	IS 228 (Part 9): 1987 (RA 2014)	0.01 % to 0.20 %
2.	Cast Iron & SG Iron	Phosphorus	IS 12308 (Part 5): 1991 (RA 2012)	0.01 % to 0.30 %
		Silicon	IS 12308 (Part 6): 1991 (RA 2012)	0.05 % to 4.0 %
		Sulphur	IS 12308 (Part 2): 1987 (RA 2012)	0.01 % to 0.20 %
3.	Steel products	Zinc coating (Mass /Unit area)	IS 6745: 1972 (RA 2016)	20 g/m ² to 1000 g/m ²
		Uniformity of coating	IS 2633: 1986 (RA 2016)	Qualitative
4.	Aluminum Products	Thickness of Hard Anodic coating	IS 5523: 1983 (RA 2016)	1 Micron to 50 Microns
5.	Ferrous & Non Ferrous metals	Corrosion resistance of electroplated and		

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		anodized Aluminum coating		
		- By Neutral salt spray	IS 9844: 1981 (RA 2015)	Qualitative
		- By Acetic acid salt spray	IS 6910 1985 (RA 2015)	Qualitative
		Thickness of chrome plating	IS 3203: 1982 (RA 2014) (Cl. 6)	0.02 micron to 3 microns
		Thickness of Nickel plating	IS 3203: 1982 (RA 2014) (Cl. 5)	0.1 micron to 30 microns
IV.	WATER			
1.	Water for construction purpose	pH	IS 3025 (Part 11): 1983 (RA 2012)	1.0 to 12.0
		Acidity - phenolphthalein indicator	IS 3025 (Part 22): 1986 (RA 2014) IS 456	0.12 ml to 15 ml 0.02N of NaOH
		Alkalinity - mixed indicator	IS 3025 (Part 23): 1986 (RA 2014) IS 456	0.10 ml to 100 ml 0.02N of H ₂ SO ₄
		Organic solids	IS 3025 (Part 18): 1984 (RA 2012)	10.0 mg/l to 1000 mg/l
		In organic solids	IS 3025 (Part 18): 1984 (RA 2012)	10.0 mg/l to 5000 mg/l
		Sulphate as SO ₃	IS 3025 (Part 24): 1986 (RA 2014)	12.0 mg/l to 200 mg/l
		Chloride as Cl	IS 3025 (Part 32): 1988 (RA 2014)	1.0 mg/l to 500 mg/l
		Total Suspended matter	IS 3025 (Part 17): 1984 (RA 2012)	10.0 mg/l to 4000 mg/l

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V.	FOOD AND AGRICULTURAL PRODUCTS			
1.	Spices and Condiments (Grounded / Whole) (Ginger Powder , Chilli Powder, Turmeric Powder, Dry Mango , Mustard Powder, Cardamom, Cinnamon, Cumin black, Fennel , Fenugreek , Mustard, Mace, Pepper Black, Curry Powder, Caraway Powder, Asafoetida, Mixed Masala)	Moisture	IS 1797: 1985 (RA 2017)	0.5 % to 15.0 %
Total Ash (Dry Basis)		IS 1797: 1985 (RA 2017)	0.5 % to 15.0 %	
AIA (Dry Basis)		IS 1797: 1985 (RA 2017)	0.1 % to 5.0 %	
Cold Water Soluble extract		IS 1797: 1985 (RA 2017)	0.1 % to 25.0 %	
Crude Fiber (Dry Basis)		IS 1797: 1985 (RA 2017)	0.5 % to 30.0 %	
Volatile Oil		IS 1797: 1985 (RA 2017)	0.5 % v/w to 5.0 % v/w	
Water Soluble Ash		IS 1797: 1985 (RA 2017)	0.1 % to 5.0 %	
Non Volatile Ether Extract		IS 1797: 1985 (RA 2017)	1.0 % to 30.0 %	
Starch		FSSAI Manual Spices and Condiments, 2016	Qualitative	
Extraneous Matter - foreign matter, edible Seeds, Chaff, Stem, Straw, Dust		IS 1797: 1985 (RA 2017)	0.5 % to 20.0 %	
Insect Damaged Matter		IS 1797: 1985 (RA 2017)	0.1 % to 15.0 %	
Added Coloring Matter		IS 1797: 1985 (RA 2017)	Qualitative	
2.	Milk & Dairy Products (Paneer , Khoa, Standardized milk, Recombined milk, toned milk Skimmed milk, Full cream milk, cream, Dahi)	Moisture	IS 10672: 2012 (RA 2014)	5.0 % to 60.0 %
Fat		IS 11762: 2013	0.5 % to 70.0 %	
Titration Acidity - Lactic Acid		IS 10484: 1983 (RA 2010) IS 4883: 1980 (RA 2010)	0.1 % to 2.0 %	
Total Ash		IS 14433: 2007 (RA 2012)	0.1 % to 2.0 %	
Starch		FSSAI Manual Milk & Milk Products, 2016	Qualitative	
Sugar		IS 12898: 1989	0.1 % to 10.0 %	
Milk Fat		FSSAI Manual Milk & Milk Products, 2016	0.10 % to 10.0 %	
	Milk solids not fat	IS 10083: 1982 (RA 2012)	1.0 % to 15.0 %	

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3.	Cheese hard, Processed cheese, Processed cheese spread	Moisture	IS 10672: 2012 (RA 2014)	5.0 % to 60.0 %
		Milk Fat	IS 11762: 2013	Up to 70.0 %
4.	Shrikhand, Yoghurt, Chakka	Milk Fat	IS 11762: 2013	0.5 % to 70.0 %
		Milk Protein	IS 7219: 1973 (RA 2015)	0.10 % to 40.0 %
		Titration Acidity - Lactic Acid	IS 1479 (Part 2): 1961 (RA 2012)	0.1 % to 5.0 %
		Total Ash	IS 1165: 2002 (RA 2012)	0.1 % to 10.0 %
		Sugar	IS 12898: 2014	0.1 % to 10.0 %
		Total milk Solids	IS 11622: 2013	10.0 % to 60.0 %
5.	Cereals and by Product (Atta, Besan, Maida, Semolina)	Moisture	IS 1155: 1968 (RA 2015) IS 1009: 1979 (RA 2015)	0.1 % to 20.0 %
		Total Ash (Dry Basis)	IS 1155: 1968 (RA 2015) IS 1009: 1979 (RA 2015)	0.1 % to 10.0 %
		AIA (Dry Basis)	IS 1155: 1968 (RA 2015) IS 1009: 1979 (RA 2015)	0.1 % to 2.0 %
		Gluten (Dry Basis)	IS 1155: 1968 (RA 2015) IS 1009: 1979 (RA 2015)	0.5 % to 20.0 %
		Alcoholic Acidity - H ₂ SO ₄	IS 1155: 1968 (RA 2015) IS 1009: 1979 (RA 2015)	0.1 % to 5.0 %
		Crude Fiber (Dry Basis)	IS 1155: 1968 (RA 2015)	0.5 % to 5.0 %
		Protein (N x 6.25)	IS 7219: 1973 (RA 2010)	0.1 % to 40.0 %
6.	Pulses & by Products (Chana, Tur)	Moisture	IS 4333 (Part 1): 1996 (RA 2012)	0.5 % to 20.0 %
		Foreign Mater	IS 4333 (Part 1): 1996 (RA 2012)	0.1 % to 15.0 %
		Other edible grains	IS 4333 (Part 1): 1996 (RA 2012)	0.1 % to 15.0 %
		Damaged Grains	IS 4333 (Part 1): 1996 (RA 2012)	0.1 % to 15.0 %
		Weeviled Grains	IS 4333 (Part 1): 1996 (RA 2012)	0.1 % to 15.0 %

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7.	Oil, Fats & Related Products (Coconut oil, Cotton seed oil, Ground nut Oil, Linseed oil, Mahua oil, Rapeseed oil, Olive oil, Poppy seed oil, Sunflower Seed oil, Safflower Seed oil, Til oil, Soya bean oil, Maize oil, Refined vegetable oil, Almond oil, Water melon seed oil Imported rapeseed oil Palm oil, Palmolein Oil, Palm kernel oil , Rice bran oil)	Saponification Value	FSSAI Lab Manual Oils & Fats, 2016	10.0 to 350.0
		Iodine Value	FSSAI Lab Manual Oils & Fats, 2016	10.0 to 180.0
		Acid Value	FSSAI Lab Manual Oils & Fats, 2016	0.1 to 5.0
		Unsaponifiable matter	FSSAI Lab Manual Oils & Fats, 2016	0.0 % to 10.0 %
		Bellier	FSSAI Lab Manual Oils & Fats, 2016	15.0 °C to 45.0 °C
		Flash Point	FSSAI Lab Manual Oils & Fats, 2016	20.0 °C to 360.0 °C
8.	Sugar & by Products (Sweetening Agents Plantation white sugar Misri, Refined sugar , Khand sari sugar,	Moisture	IS 15279: 2003 (RA 2013)	0.1 % to 50.0 %
		Sucrose	IS 15279: 2003 (RA 2008)	0.1 % to 100.0 %
		Acid insoluble	IS 6287: 1985 (RA 2008)	0.01 % to 10.0 %
		Reducing sugar	IS 6287: 1985 (RA 2009)	0.1 % to 50.0 %

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	Bura, Gur or Jaggery, Cube Sugar)			
9.	Honey	Specific Gravity	IS 4941: 1994 (RA 2014)	0.9 % to 1.5 %
		Total reducing sugar	IS 4941: 1994 (RA 2014)	30.0 % to 80.0 %
		Sucrose	IS 4941: 1994 (RA 2014)	0.1 % to 20.0 %
		Fructose - Glucose ratio	IS 4941: 1994 (RA 2014)	0.8 to 2.0
		Ash	IS 4941: 1994 (RA 2014)	0.01 % to 5.0 %
		Acidity (as formic Acid)	IS 4941: 1994 (RA 2014)	0.05 % to 5.0 %
10.	Tea Coffee & by Products (Chicory, Coffee –chicory mixture, Soluble Coffee Powder, Instant Coffee, Chicory mix , kangra Tea)	Moisture	IS 2791: 1992 (RA 2014)	0.1 % to 10.0 %
		Total Ash	IS 13854: 1994 (RA 2014)	1.0 % to 20.0 %
		Acid Insoluble Ash	IS 13857: 1993 (RA 2014)	0.05 % to 2.0 %
		Water Soluble Ash	IS 13855: 1993 (RA 2014)	1.0 % to 70.0 %
		Alkalinity of Water soluble ash	IS 13856: 1993 (RA 2014)	0.5 % to 5.0 %
		Caffeine	IS 2791: 1992 (RA 2014)	0.1 % to 5.0 %
		Extract Obtained by Boiling dried Tea	IS13862: 1999 (RA 2014)	5.0 % to 80.0 %
		Crude fiber	IS10226: 1982 (RA 2015)	0.5 % to 40 %
11.	Fruit Juices & Concentrates (Fruit Juice Tomato Juice, Fruit Syrup, Fruit Squash , Fruit Drink)	Acidity - Citric Acid	FSSI Lab Manual Fruit & Vegetable Products, 2016	0.5 % to 5.0 %
		Total Soluble Solids	FSSI Lab Manual Fruit & Vegetable Products, 2016	5.0 % to 25.0 %
12.	Iodized Salt	Moisture	IS 7224: 2010 (RA 2016)	0.1 % to 10.0 %
		Sodium Chloride	IS 7224: 2010 (RA 2016)	10.0 % to 100.0 %
		Matter Insoluble in water	IS 7224: 2010 (RA 2016)	0.1 % to 10.0 %
		Matter Soluble in water	IS 7224: 2010 (RA 2016)	10 % to 100.0 %
		Iodine	IS 7224: 2010 (RA 2016)	1.0 mg/kg to 100.0 mg/kg

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MECHANICAL TESTING

I.	BUILDING MATERIALS			
1.	Cement Concrete Cube Paver Block	Compressive strength	IS 516: 1959 (RA 2013) IS 15658: 2000 (RA 2016)	5 N/mm ² to 55 N/mm ²
2.	Burnt clay, fly ash, building bricks	Compressive strength	IS 3495 (Part 1): 1992 (RA 2011)	5 N/mm ² to 45 N/mm ²
		Water absorption	IS 3495 (Part 2): 1992 (RA 2011)	Up to 40 %
		Efflorescence	IS 3495 (Part 3): 1992 (RA 2011)	Qualitative
		Dimensions	IS 1077: 1992 (RA 2011)	5 mm to 5000 mm 5 mm to 5000 mm
3.	Cement Concrete Flooring Tile	Water absorption	IS 1237: 2012 (RA 2016)	0.10 % to 25 %
		Transverse strength	IS 1237: 2012 (RA 2016)	1 N/mm ² to 8 N/mm ²
		Dimension - Length - Width - Thickness	IS 1237: 2012 (RA 2016) IS 13801: 2013	1 mm to 1000 mm 1 mm to 1000 mm 0.1 mm to 25 mm
4.	Ceramic Tile	Modulus of rupture	IS 13630 (Part 6): 2006 (RA 2016)	5 N/mm ² to 45 N/mm ²
5.	Stone/Stone slabs & Tiles/Granite/ Marble blocks, slabs & tiles	Specific gravity	IS 1124: 1974 (RA 2013)	1.0 to 5.0
		Compressive strength	IS 1121 (Part 1): 2013	1.0 N/mm ² to 45 N/mm ²
6.	Aggregate for concrete (Course & Fine)	Sieve analysis	IS 2386 (Part 1): 1963 (RA 2016)	75 microns to 63 mm
		Flakiness Index	IS 2386 (Part 1): 1963 (RA 2016)	1.0 % to 60 %
		Elongation Index	IS 2386 (Part 1): 1963	1.0 % to 60 %

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			(RA 2016)	
		Specific Gravity	IS 2386 (Part 3): 1963 (RA 2016)	1.0 to 5.0
		Water absorption	IS 2386 (Part 3): 1963 (RA 2016)	0.5 % to 25 %
		Bulk density and Void	IS 2386 (Part 3): 1963 (RA 2016)	1.0 kg/l to 5 kg/l
		Crushing value	IS 2386 (Part 4): 1963 (RA 2016)	1.0 % to 60 %
		Impact value	IS 2386 (Part 4): 1963 (RA 2016)	1 % to 60 %
		Soundness	IS 2386 (Part 5): 1963 (RA 2016)	1 % to 15 %
7.	Cement (OPC/PPC)	Consistency	IS 4031 (Part 4): 1988 (RA2009)	20 % to 40 %
		Fineness - Blain permeability method	IS 4031 (Part 2) 1999 (RA 2008)	100 m ² /kg to 500 m ² /kg
		Soundness - Le-Chatlier	IS 4031 (Part 3): 1988 (RA 2014)	0.5 mm to 20 mm
		Soundness - Autoclave	IS 4031 (Part 3): 1988 (RA 2014)	0.1 % to 5.0 %
		Setting time		
		- Initial Setting time	IS 4031 (Part 5): 1988 (RA 2009)	30 min to 300 min
		- Final setting time	IS 4031 (Part 6): 1988 (RA 2009)	30 min to 650 min
		Compressive strength	IS 4031 (Part 6): 1988 (RA 2009)	10 N/mm ² to 60 N/mm ²
8.	Ply wood for	Moisture content	IS 1734 (Part 1): 1983	1 % to 5.0 %

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	general purpose		(RA 2013)	
		Density	IS 1734 (Part 1): 1983 (RA 2013)	100 kg/m ³ to 1000 kg/m ³
		Adhesion of piles	IS 1734 (Part 5): 1983 (RA 2013)	Qualitative
		Water resistance	IS 1734 (Part 6): 1983 (RA 2013)	Qualitative
		Mycological	IS 1734 (Part 7): 1983 (RA 2013)	Qualitative
		Static bending strength - MOR - MOE	IS 1734 (Part 11): 1983 (RA 2013) IS 1734 (Part 11): 1983 (RA 2013)	10 N/mm ² to 80 N/mm ² 2500 N/mm ² to 10000 N/mm ²
9.	Door Shutters	Dimensions and squareness	IS 4020 (Part 2): 1998 (RA 2008)	10 mm to 3000 mm
		End immersion	IS 4020 (Part 13): 1998 (RA 2008)	Qualitative
		Knife	IS 4020 (Part 14): 1998 (RA 2008)	Qualitative
		Glue adhesion	IS 4020 (Part 15): 1998 (RA 2008)	Qualitative
		Screw withdrawal resistance	IS 4020 (Part 16): 1998 (RA 2008)	200 N to 20000 N
II.	MECHANICAL PROPERTIES OF METALS			
1.	Ferrous & Plain Carbon Steel	Tensile strength	IS 1608: 2005 (RA 2017)	250 MPa to 2000 MPa
		Yield stress	IS 1608: 2005 (RA 2017)	200 MPa to 1500 MPa 1 kN to 550 kN Load
		Elongation	IS 1608: 2005 (RA 2017)	Up to 70 %
		Rockwell Hardness (HRC)	IS 1586: 2012	20 HRC to 70 HRC
		Rockwell Hardness (HRB)	IS 1586: 2012	20 HRBW to 100 HRBW

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		Bend test	IS 1599: 2012 (RA 2017)	Qualitative (mandrel diameter 28 mm, 30 mm, 32 mm, 36 mm, 40 mm, 48 mm, 60 mm, 64 mm, 100 mm, 124 mm, 128 mm & 140 mm)
		Impact - Charpy - Izod	IS 1757: 2014 IS 1598: 1977 (RA 2015)	2 J to 280 J
2.	Ferrous high Strength deformed bar	Re-bend	IS 1786: 2008 (RA 2013)	Qualitative (mandrel diameter 28 mm, 30 mm, 32 mm, 36 mm, 40 mm, 48 mm, 60 mm, 64 mm, 100 mm, 124 mm, 128 mm 140 mm)
		Mass	IS 1786: 2008 (RA 2013)	0.1 kg/m to 25 kg/m
3.	Steel Pipe & Tube	Close Flattening	IS 2328: 2005 (RA 2017)	Qualitative 50 mm to 200 mm
4.	Non ferrous & Stain less Steel	Tensile strength	IS 1608: 2005 (RA 2017)	50 MPa to 1000 MPa 1 kN to 500 kN Load
		Elongation	IS 1608: 2005 (RA 2017)	Up to 70 %
5.	Steel	Spring Rate Helical Compression Spring	IS 7906 (Part 2): 1975 (RA 2014)	10 N/mm to 1000 N/mm
		Spring Rate Helical Tension Spring	IS 7907 (Part 2): 1976 (RA 2014)	10 N/mm to 1000 N/mm 1 kN to 500 kN Load