Laboratory	**Scientific and Industrial Testing and Research Centre, #83 & 84, Avarampalayam Road, K.R. Puram Post, Coimbatore, Tamil Nadu**	
Accreditation Standard	**ISO/IEC 17025: 2017**	
Certificate Number	**TC-5324**	**Page 1 of 47**
Validity	**01.01.2019 to 31.12.2020**	**Last Amended on --**

"In view of the transition for ISO/IEC 17025:2017, the validity of this accreditation certificate will cease on 30.11.2020"

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		BIOLOGICAL TESTING		
I.	**WATER**			
1.	**Drinking Water**	E.coli	IS 15185:2016 (First Revision)	Present/Absent (250ml)
		E.coli	IS 5887(Part I)-1976 Reaffirmed 2013	Present/Absent/ml
		E.coli	IS 5887(Part I)-1976 Reaffirmed 2013	≥1 CFU/ 0.1ml
		Total Coliforms	IS 15185:2016 (First Revision)	Present/Absent (250ml)
		Total Coliforms	IS 5401(Part I) : 2012 Reaffirmed 2012	≥1 CFU/ml
		Faecal streptococci	IS 15186:2002 Reaffirmed 2014	Present/Absent (250 ml)
		Staphylococcus aureus	IS 5887 (Part 2)1976 Reaffirmed 2013	Present/Absent (250 ml)
		Sulphite Reducing Anaerobes	IS 13428:2005 (ANNEX- C) Reaffirmed 2014	Present/Absent (50ml)
		Pseudomonas aeruginosa	IS 13428:2005 (ANNEX-D) Reaffirmed 2014	Present/Absent (in 250ml)
		Aerobic Microbial Count at(37˚c for 24 hrs)	IS 5402:2012 Reaffirmed 2018	≤ 1 CFU/ml
		Aerobic Microbial Count at (22 ˚c for 72 hrs.)	IS 5402:2012 Reaffirmed 2018	≤ 1 CFU/ml
		Yeast & Mould	IS 5403-1999 Reaffirmed 2013	Present/Absent (250 ml)
		Salmonella	IS 15187:2016 (First Revision)	Present/Absent (250 ml)
		Shigella	IS 5887 (Part 7):1999 Reaffirmed 2013	Present/Absent (250 ml)

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Vibrio cholerae	IS 5887(Part 5)-1976 Reaffirmed 2013	Present/Absent (250 ml)
		Vibrio parahaemolyticus	IS 5887(Part 5)-1976 Reaffirmed 2013	Present/Absent (250 ml)
2.	**Packaged Drinking Water**	E.coli	IS 15185:2016 (First Revision)	Present/Absent (250ml)
		Total Coliforms	IS 15185:2016 (First Revision)	Present/Absent (250ml)
		Faecal streptococci	IS 15186:2002 Reaffirmed 2014	Present/Absent (250ml)
		Staphylococcus aureus	IS 5887 (Part 2) 1976 Reaffirmed 2013	Present/Absent (250ml)
		Sulphite Reducing Anaerobes	IS 13428:2005 (ANNEX- C) Reaffirmed 2014	Present/Absent (50ml)
		Pseudomonas aeruginosa	IS 13428:2005 (ANNEX-D) Reaffirmed 2014	Present/Absent (250ml)
		Aerobic Microbial Count at (37˚c for 24 hrs)	IS 5402:2012 Reaffirmed 2018	≤ 1 CFU/ml
		Aerobic Microbial Count at (22 ˚c for 72 hrs.)	IS 5402:2012 Reaffirmed 2018	≤ 1 CFU/ml
		Yeast & Mould	IS 5403-1999 Reaffirmed 2013	Present/Absent (250ml)
		Salmonella	IS 15187:2016 (First Revision)	Present/Absent (250ml)
		Shigella	IS 5887 (Part 7):1999 Reaffirmed 2013	Present/Absent (250ml)
		Vibrio cholerae	IS 5887(Part 5)-1976 Reaffirmed 2013	Present/Absent (250ml)
		Vibrio Parahaemolyticus	IS5887(Part 5)-1976 Reaffirmed 2013	Present/Absent (250ml)

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
3.	**Packaged Natural Mineral Water**	E.coli	IS 15185:2016 (First Revision)	Present/Absent(in 250 ml)
		Total Coliforms	IS 15185:2016 (First Revision)	Present/Absent (in 250 ml)
		Faecal streptococci	IS 15186:2002 Reaffirmed 2014	Present/Absent (in 250 ml)
		Staphylococcus aureus	IS 5887 (Part 2) 1976 Reaffirmed 2013	Present/Absent (in 250 ml)
		Sulphite Reducing Anaerobes	IS 13428:2005 (ANNEX- C) Reaffirmed 2014	Present/Absent (50ml)
		Pseudomonas aeruginosa	IS 13428:2005 (ANNEX-D) Reaffirmed 2014	Present/Absent (250ml)
		Aerobic Microbial Count at (37˚c for 24 hrs)	IS 5402:2012 Reaffirmed 2018	≤ 1 CFU/ml
		Aerobic Microbial Count at (22 ˚c for 72 hrs.)	IS 5402:2012 Reaffirmed 2018	≤ 1 CFU/ml
		Yeast & Mould	IS 5403-1999 Reaffirmed 2013	Present/Absent (250ml)
		Salmonella	IS 15187:2016 (First Revision)	Present/Absent (250ml)
		Shigella	IS 5887 (Part 7):1999 Reaffirmed 2013	Present/Absent (250ml)
		Vibrio cholerae	IS 5887(Part 5)-1976 Reaffirmed 2013	Present/Absent (250ml)
		Vibrio Parahaemolyticus	IS5887(Part 5)-1976 Reaffirmed 2013	Present/Absent (in 250 ml)
4.	**Ground Water / Surface Water**	E.coli	IS 15185:2016 (First Revision)	Present/Absent(in 250 ml)
		E.coli	IS 5887(Part I)-1976 Reaffirmed 2013	Present/Absent/ml

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		E.coli	IS 5887(Part I)-1976 Reaffirmed 2013	≥1CFU/0.1ml
		Total Coliforms	IS 15185:2016 (First Revision)	Present/Absent (in 250 ml)
		Total Coliforms	IS 5401(Part I) : 2012 Reaffirmed 2012	≥1 CFU/ml
		Faecal streptococci	IS 15186:2002 Reaffirmed 2014	Present/Absent (in 250 ml)
		Staphylococcus aureus	IS 5887 (Part 2) 1976 Reaffirmed 2013	Present/Absent (in 250 ml)
		Sulphite Reducing Anaerobes	IS 13428:2005 (ANNEX- C) Reaffirmed 2014	Present/Absent (in 50 ml)
		Pseudomonas aeruginosa	IS 13428:2005 (ANNEX-D) Reaffirmed 2014	Present/Absent (in 250ml)
		Aerobic Microbial Count at (37˚c for 24 hrs)	IS 5402:2012 Reaffirmed 2018	≤ 1 CFU/ml
		Aerobic Microbial Count at (22 ˚c for 72 hrs.)	IS 5402:2012 Reaffirmed 2018	≤ 1 CFU/ml
		Yeast & Mould	IS 5403-1999 Reaffirmed 2013	Present/Absent (in 250ml)
		Salmonella	IS 15187:2016 (First Revision)	Present/Absent (in 250ml)
		Shigella	IS 5887 (Part 7):1999 Reaffirmed 2013	Present/Absent (in 250 ml)
		Vibrio cholerae	IS 5887(Part 5)-1976 Reaffirmed 2013	Present/Absent (in 250 ml)
		Vibrio. Parahaemolyticus	IS 5887(Part 5)-1976 Reaffirmed 2013	Present/Absent (in 250 ml)

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
II.	**FOOD & AGRICULTURAL PRODUCTS**			
1.	**Tea**	Escherichia coli	IS :5887(Part 1)-1976 (Reaffirmed 2013)	Present/Absent 25 g
		Coliforms	IS 5401(Part 1):2012 (Reaffirmed 2012)	≥10 CFU/g
		Total bacterial Count	IS 5402:2012 (Reaffirmed 2018)	≥10 CFU/g
		Yeast & Mould	IS 5403-1999 (Reaffirmed 2013)	≥10 CFU/g
		Salmonella	IS 5887(Part 3) : 1999 (Reaffirmed 2013)	Present/Absent 25 g

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

CHEMICAL TESTING

I.	**METALS & ALLOYS**			
1.	**Cast Iron**	C	IS:12308 (Part 4) : 2014 IS:12308 (Part 11) : 2018	1.5 % to 4.5 %
		S	IS:12308 (Part 2)- 2018	0.01% to 0.25%
		Mn	IS:12308 (Part 10) : 2018	0.1% to 7.0 %
		P	IS:12308 (Part 5) : 2018	0.01 % to 0.6%
		Si	IS:12308 (Part 6) : 2018	0.1 % to 6.0 %
		Ni	IS:12308 (Part 7) : 2018	0.5 % to 36.0 %
		Cu	IS:12308 (Part 12) : 2018	0.01 % to 0.5 %
		Mg	IS:12308 (Part 13) : 2018	0.001 % to 0.1 %
		C	IS-15338: 2018 & OES	1.50% to 4.20%
		S	IS-15338: 2018 & OES	0.001% to 0.20%
		Mn	IS-15338: 2018 & OES	0.02% to 2.00%
		P	IS-15338: 2018 & OES	0.002% to 1.0%
		Si	IS-15338: 2018 & OES	1.00% to 4.00%
		Cr	IS-15338: 2018 & OES	0.001% to 2.00%
		Ni	IS-15338: 2018 & OES	0.002% to 2.00%
		Mo	IS-15338: 2018 & OES	0.005% to 1.50%
		Cu	IS-15338: 2018 & OES	0.001% to 1.00%
		Ti	IS-15338: 2018 & OES	0.002% to 0.20%
		Co	IS-15338: 2018 & OES	0.001% to 0.21%
		Mg	IS-15338: 2018 & OES	0.001% to 0.13%
2.	**Steel**	C	IS:228 (Part 1) : 2018	0.05 % to 2.5 %
		Mn	IS:228 (Part 2) : 2018	0.1 % to 1.5 %
		Ni	IS:228 (Part 5) : 2014	0.1% to 35 %
		Cr	IS:228 (Part 6) : 2014	0.1% to 35 %
		Mo	IS:228 (Part 7) : 2018	1 % to 5 %
		S	IS:228 (Part 9) : 2014	0.01 % to 0.25 %

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Si	IS:228 (Part 8) : 2014	0.05 % to 5.0 %
3.	**Stainless Steel & Tool Steel**	C	IS-9879: 2015 & OES	0.005% to 2.50%
		S	IS-9879: 2015 & OES	0.001% to 0.50%
		Mn	IS-9879: 2015 & OES	0.005% to 10.0%
		P	IS-9879: 2015 & OES	0.001% to 0.10%
		Si	IS-9879: 2015 & OES	0.10% to 2.00%
		Cr	IS-9879: 2015 & OES	2.50% to 27.0%
		Ni	IS-9879: 2015 & OES	0.01% to 22.0%
		Mo	IS-9879: 2015 & OES	0.01% to 9.50%
		Cu	IS-9879: 2015 & OES	0.01% to 4.0%
		Ti	IS-9879: 2015 & OES	0.003% to 1.0%
		V	IS-9879: 2015 & OES	0.10% to 4.0%
		W	IS-9879: 2015 & OES	1.0% to 20.0%
		Co	IS-9879: 2015 & OES	0.01% to 10.0%
		Al	IS-9879: 2015 & OES	0.005% to 1.0%
		Nb	IS-9879: 2015 & OES	0.004% to 3.0%
4.	**Carbon Steel & Low Alloy Steels**	C	IS-8811:2018 & OES	0.003% to 2.50%
		S	IS-8811:2018 & OES	0.003% to 0.35%
		Mn	IS-8811:2018 & OES	0.005% to 2.0%
		P	IS-8811:2018 & OES	0.005% to 0.15%
		Si	IS-8811:2018 & OES	0.005% to 2.50%
		Cr	IS-8811:2018 & OES	0.005% to 4.00%
		Ni	IS-8811:2018 & OES	0.005% to 4.50%
		Mo	IS-8811:2018 & OES	0.005% to 2.00%
		Cu	IS-8811:2018 & OES	0.005% to 0.60%
		Ti	IS-8811:2018 & OES	0.003% to 0.50%
		Co	IS-8811:2018 & OES	0.001% to 2.40%
		Al	IS-8811:2018 & OES	0.0005% to 2.0%
5.	**Ferro-Alloys Ferro Silicon**	Si	IS 1559 (Part 1): 2014	15 % to 85 %
		C	IS 1559 (Part 2): 2018	0.05 % to 1.5 %
6.	**Ferro Chromium**	Cr	IS 13452 (Part 5): 2018 IS 13452 (Part 6): 2018	45 % to 70 %

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
7.	**Copper & It's Alloys**	Cu	IS 440:2018 IS 4027 (Part 1): 2018 IS 7212:2015	40 % to 99.5 % Upto 99.99 %
		Pb	IS 440:2018 IS 4027 (Part 1): 2018	0.1% to 20%
		Ni	IS 440:2018 IS 4027 (Part 4): 2018	0.1% to 4 %
		Fe	IS 4027 (Part 8): 2018	0.01 % to 2.0 %
II.	**WATER**			
1.	**IS 14543:2016 Packaged Drinking Water**	Colour	IS:3025(Part-4)-1983 Reaffirmed 2017 (First revision)	1- 10colour units
		Odour	IS:3025(Part-5) -1983 Reaffirmed 2017 (First revision)	Agreeable/ Non agreeable
		Taste	IS:3025(Part-8)- 1984 Reaffirmed 2017 (First revision)	Agreeable,[AT Scale a) or b) or c)] /Non agreeable
		Turbidity	IS:3025 (Part-10)-1984 Reaffirmed 2017 (First revision)	0-10 NTU
		Total dissolved solids	IS:3025 (Part-16-1984) Reaffirmed 2017 (First revision)	5 mg/l to1000 mg/l
		pH	IS:3025(Part-11) - 1983 Reaffirmed 2017 (First revision)	4 -12
		Barium	Annex F of IS 13428-2005 Reaffirmed 2014 (second revision)	0.5 mg/l to 5mg/l

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Copper	IS:3025 (Part-42)- 1992 Reaffirmed 2014 (First revision)	0.02 to 5.0 mg/l
		Iron	IS:3025(Part 53)-2003 Reaffirmed 2014	0.01 mg/l to 10 mg/l
		Iron	IS 15303-2003 Reaffirmed 2009	0.01 mg/l to 10 mg/l
		Manganese	IS:3025 (Part 59)-2006 Reaffirmed 2012	0.05 mg/l to 0.5 mg/l
		Nitrate	IS:3025 (Part 34)-1988 Reaffirmed 2014 (First revision)	0.5 mg/l to 50mg/l
		Nitrite (as NO2)	IS:3025 (Part 34)- 1988 Reaffirmed 2014 (First revision)	0.01 mg/l to 5mg/l
		Fluoride (as F)	IS:3025 (Part 60)-2008 Reaffirmed 2013 (First revision)	0.05 mg/l to 5 mg/l
		Zinc (as Zn)	IS 3025(Part 49)-1994 Reaffirmed 2014 (First revision)	0.01mg/l to 10mg/l
		Silver (as Ag) mg/l	Annex J of IS 13428-2005 Reaffirmed 2014 (Second revision)	0.004 mg/l to 20 mg/l
		Aluminium (as Al)	IS 15302 -2003 Reaffirmed 2009 by AAS method	0.01 mg/l to 2 mg/l
		Aluminium (as Al)	IS:3025 (Part 55) – 2003 Reaffirmed 2014 (FirstRevision)	0.02 mg/l to 2mg/l
		Chloride (as Cl)	IS:3025 (Part 32)- 1988 Reaffirmed.2014	2 mg/l to 2000mg/l

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Selenium (as Se)	IS 15303-2003 Reaffirmed.2009	0.005 mg/l to 1mg/l
		Selenium (as Se)	IS:3025 (Part 56)-2003 Reaffirmed.2014 (First revision)	0.005 mg/l to 1mg/l
		Sulphate (as SO4)	IS:3025(Part 24)- 1986 Reaffirmed 2014 (First revision)	1 mg/l to 1500mg/l
		Alkalinity (as HCO3)	IS:3025(Part 23)-1986 Reaffirmed 2014 (First revision)	1 mg/l to 1000mg/l
		Calcium (as Ca)	IS:3025 (Part 40)-1991 Reaffirmed 2014 (First revision)	1 mg/l to 500mg/l
		Magnesium (as Mg)	IS:3025 (Part 46)-1994 Reaffirmed.2014 (First revision)	1 mg/l to 200mg/l
		Sodium (as Na)	IS:3025 (Part 45)-1993 Reaffirmed.2014 (First revision)	0.1 mg/l to 200mg/l
		Residual Free chlorine	IS:3025 (Part 26)-1986 Reaffirmed 2014 (First revision)	0.1mg/l to 5mg/l
		Phenolic compounds (as C6H5OH)	IS:3025 (Part 43)-1992 Reaffirmed 2014 (First revision)	0.01mg/l to 1mg/l
		Mineral Oil	IS:3025 (Part 39)- 1991 Reaffirmed 2014 (First revision)	0.1 mg/l to 20 mg/l
		Anionic surface active agents (as MBAS)	Annex K of IS 13428-2005 Reaffirmed 2014 (Second revision)	0.05 mg/l to 2mg/l

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Sulphide (as H2S)	IS:3025 (Part 29)- 1986 Reaffirmed 2014 (First revision)	0.05 mg/l to 5mg/l
		Antimony (as Sb)	IS 15303-2003 Reaffirmed 2009	0.005 mg/l to 5 mg/l
		Borates(as B)	Annex H of IS 13428-2005 Reaffirmed 2014 (Second revision)	0.01mg/l to 10 mg/l
		Bromate (as Bro_3)	ISO 15061:2001	0.005 mg/l to 5 mg/l
2.	**IS 10500:2012 Drinking Water**	Colour	IS:3025 (Part-4)-1983 Reaffirmed 2017 (First revision)	1- 50colour units
		Odour	IS:3025 (Part-5) -1983 Reaffirmed 2017 (First revision)	Agreeable
		Taste	IS:3025(Part-8)- 1984 Reaffirmed 2017 (First revision)	Agreeable/ Non Agreeable
		Turbidity	IS:3025 (Part-10)-1984 Reaffirmed 2017 (First revision)	0-400 NTU
		Total dissolved solids	IS:3025 (Part-16-1984) Reaffirmed 2017(First revision)	5 mg/l to10000 mg/l
		pH	IS:3025 (Part-11) - 1983 Reaffirmed 2017(First revision)	4 -12
		Barium	Annex F of IS 13428-2005 Reaffirmed 2014 (second revision)	0.5 mg/l to 5mg/l
		Copper	IS:3025 (Part-42)- 1992 Reaffirmed 2014(First revision)	0.02 to 5.0 mg/l
		Iron	IS:3025 (Part 53)-2003 Reaffirmed 2014	0.01 mg/l to 10 mg/l

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Iron	IS 15303-2003 Reaffirmed 2009	0.01 mg/l to 10 mg/l
		Manganese	IS:3025 (Part 59)-2006 Reaffirmed 2012	0.05 mg/l to 0.5 mg/l
		Nitrate	IS:3025 (Part 34)-1988 Reaffirmed 2014	0.5 mg/l to 50mg/l
		Fluoride (as F)	IS:3025 (Part 60)-2008 Reaffirmed 2013(First revision)	0.05 mg/l to 5 mg/l
		Zinc (as Zn)	IS 3025(Part 49)-1994 Reaffirmed 2014 (First revision)	0.01mg/l to 10mg/l
		Silver (as Ag)	Annex J of IS 13428-2005 Reaffirmed 2014 (Second revision)	0.004 mg/l to 20 mg/l
		Aluminium (as Al)	IS 15302 -2003 Reaffirmed 2009 by AAS method	0.01 mg/l to 2 mg/l
		Aluminium (as Al)	IS:3025 (Part 55) – 2003 Reaffirmed 2014(First Revision	0.02 mg/l to 2mg/l
		Chloride (as Cl)	IS:3025 (Part 32)- 1988 Reaffirmed.2014	2 mg/l to 2000mg/l
		Selenium (as Se)	IS 15303-2003 Reaffirmed.2009	0.005 mg/l to 1mg/l
		Selenium (as Se)	IS:3025 (Part 56)-2003 eaffirmed 2014 (First revision)	0.005 mg/l to 1mg/l
		Sulphate (as SO4)	IS:3025 (Part 24)- 1986 Reaffirmed 2014(First revision)	1 mg/l to 1500mg/l
		Alkalinity (as HCO3)	IS:3025 (Part 23)-1986 Reaffirmed 2014	1 mg/l to 1000mg/l
		Calcium (as Ca)	IS:3025 (Part 40)-1991 Reaffirmed 2014(First revision)	1 mg/l to 500mg/l

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Magnesium (as Mg)	IS:3025 (Part 46)-1994 Reaffirmed. 2014(First revision)	1 mg/l to 200mg/l
		Residual Free chlorine	IS:3025 (Part 26)-1986 Reaffirmed 2014(First revision)	0.1mg/l to 5mg/l
		Phenolic compounds (as C6H5OH)	IS:3025 (Part 43)-1992 Reaffirmed 2014(First revision)	0.01mg/l to 1mg/l
		Mineral Oil	IS:3025 Part 39- 1991 Reaffirmed 2014(First revision)	0.1 mg/l to 20 mg/l
		Anionic surface active agents (as MBAS)	Annex K of IS 13428-2005 Reaffirmed 2014 (Second revision)	0.05mg/l to 2mg/l
		Sulphide(as H2S)	IS:3025 (Part 29)- 1986 Reaffirmed 2014(First revision)	0.05mg/l to 5mg/l
		Ammonia (as NH_3-N)	IS 3025 (Part-34)-1988 Reaff.2014	0.1 mg/l to 500mg/l
		Borates(as B)	Annex H of IS 13428-2005 Reaffirmed 2014 (Second revision)	0.01mg/l to 10 mg/l
		Total hardness	IS 3025 (Part-21)-2009 eaff.2014	1 mg/l to 2000mg/l
3.	**IS 13428:2005 Packaged Natural Mineral Water**	Colour	IS:3025(Part-4)-1983 Reaffirmed 2017(First revision)	1- 50colour units
		Odour	IS:3025(Part-5) -1983 Reaffirmed 2017(First revision)	Agreeable/Non agreeable
		Taste	IS:3025(Part-8)-1984Reaffirmed 2017 (First revision)	Agreeable /Non agreeable
		Turbidity	IS:3025 (Part-10)-1984 Reaffirmed 2017(First revision)	0-400 NTU

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Total dissolved solids	IS:3025 (Part-16-1984) Reaffirmed 2017(First revision)	5 mg/l to10000 mg/l
		pH	IS:3025 (Part-11) - 1983 Reaffirmed 2017(First revision)	4 -12
		Barium	Annex F of IS 13428-2005 Reaffirmed 2014 (second revision)	0.5 mg/l to 5mg/l
		Copper	IS:3025 (Part-42)- 1992 Reaffirmed 2014(First revision)	0.02 to 5.0 mg/l
		Manganese	IS:3025 (Part 59)-2006 Reaffirmed 2012	0.05 mg/l to 0.5 mg/l
		Nitrate	IS:3025 (Part 34)-1988 Reaffirmed 2014(First revision)	0.5 mg/l to 50mg/l
		Fluoride (as F)	IS:3025 (Part 60)-2008 Reaffirmed 2013(First revision)	0.05 mg/l to 5 mg/l
		Zinc (as Zn)	IS 3025(Part 49)-1994 Reaffirmed 2014 (First revision)	0.01mg/l to 10mg/l
		Silver (as Ag)	Annex J of IS 13428-2005 Reaffirmed 2014 (Second revision)	0.004 mg/l to 20 mg/l
		Nitrite (as NO2)	IS:3025 (Part 34)- 1988 Reaffirmed 2014(First revision)	0.01 mg/l to 5mg/l
		Chloride (as Cl)	IS:3025 (Part 32)- 1988 Reaffirmed.2014	2 mg/l to 2000mg/l
		Selenium (as Se)	IS 15303-2003 Reaffirmed.2009	0.005 mg/l to 1mg/l
		Selenium (as Se)	IS:3025 (Part 56)-2003 Reaffirmed. 2014(First revision)	0.005 mg/l to 1mg/l
		Sulphate (as SO4)	IS:3025 (Part 24)- 1986 Reaffirmed 2014(First revision)	1 mg/l to 1500mg/l

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Alkalinity (as HCO3)	IS:3025 (Part 23)-1986 Reaffirmed 2014(First revision)	1 mg/l to 1000mg/l
		Calcium (as Ca)	IS:3025 (Part 40)-1991 Reaffirmed 2014(First revision)	1 mg/l to 500mg/l
		Magnesium (as Mg)	IS:3025 (Part 46)-1994 Reaffirmed. 2014(First revision)	1 mg/l to 200mg/l
		Phenolic compounds (as C6H5OH)	IS:3025 (Part 43)1992Reaffirmed 2014(First revision)	0.01mg/l to 1mg/l
		Mineral Oil	IS:3025 Part 39- 1991 Reaffirmed 2014(First revision)	0.1 mg/l to 20 mg/l
		Anionic surface active agents (as MBAS)	Annex K of IS 13428-2005 Reaffirmed 2014 (Second revision)	0.05mg/l to 2mg/l
		Sulphide(as H2S)	IS:3025 (Part 29)- 1986 Reaffirmed 2014(First revision)	0.05mg/l to 5mg/l
		Borates(as B)	Annex H of IS 13428-2005 Reaffirmed 2014 (Second revision)	0.01mg/l to 10 mg/l
		Antimony(as Sb)	IS 15303-2003 Reaffirmed 2009	0.005mg/l to 5 mg/l
		Sodium (as Na)	IS:3025 (Part 45)-1993 Reaffirmed.2014 (First revision)	0.1 mg/l to 200 mg/l
4.	**Ground Water/ Bore Well Water**	Colour	IS:3025(Part-4)-1983 Reaffirmed 2017(First revision)	1- 500 colour units
		Odour	IS:3025(Part-5) -1983 Reaffirmed 2017(First revision)	Agreeable/Non agreeable
		Taste	IS:3025(Part-8)- 1984 Reaffirmed 2017(First revision)	Agreeable/Non agreeable

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Turbidity	IS:3025 (Part-10)-1984 Reaffirmed 2017(First revision)	0-400 NTU
		Total dissolved solids	IS:3025 (Part-16-1984) Reaffirmed 2017(First revision)	5 mg/l to10000 mg/l
		pH	IS:3025 (Part-11) - 1983 Reaffirmed 2017(First revision)	4 -12
		Barium	Annex F of IS 13428-2005 Reaffirmed 2014 (second revision)	0.5 mg/l to 5mg/l
		Copper	IS:3025 (Part-42)- 1992 Reaffirmed 2014(First revision)	0.02 to 5.0 mg/l
		Iron	IS:3025 (Part 53)-2003 Reaffirmed 2014	0.01 mg/l to 10 mg/l
		Iron	IS 15303-2003 Reaffirmed 2009	0.01 mg/l to 10 mg/l
		Manganese	IS:3025 (Part 59)-2006 Reaffirmed 2012	0.05 mg/l to 0.5 mg/l
		Nitrate	IS:3025 (Part 34)-1988 Reaffirmed 2014	0.5 mg/l to 50mg/l
		Nitrite (as NO2)	IS:3025 (Part 34)- 1988 Reaffirmed 2014(First revision)	0.01 mg/l to 5mg/l
		Fluoride (as F)	IS:3025 (Part 60)-2008 Reaffirmed 2013(First revision)	0.05 mg/l to 5 mg/l
		Zinc (as Zn)	IS 3025(Part 49)-1994 Reaffirmed 2014 (First revision)	0.01mg/l to 10mg/l
		Silver (as Ag)	Annex J of IS 13428-2005 Reaffirmed 2014 (Second revision)	0.004 mg/l to 20 mg/l
		Aluminium (as Al)	IS 15302 -2003 Reaffirmed 2009 by AAS method	0.01 mg/l to 2 mg/l

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Aluminium (as Al)	IS:3025 (Part 55) – 2003 Reaffirmed 2014 (FirstRevision)	0.02 mg/l to 2mg/l
		Chloride (as Cl)	IS:3025 (Part 32)- 1988 Reaffirmed.2014	2 mg/l to 2000mg/l
		Selenium (as Se)	IS 15303-2003 Reaffirmed.2009	0.005 mg/l to 1mg/l
		Selenium (as Se)	IS:3025 (Part 56)-2003 Reaffirmed. 2014 (First revision)	0.005 mg/l to 1mg/l
		Sulphate (as SO4)	IS:3025 (Part 24)- 1986 Reaffirmed 2014	1 mg/l to 1500mg/l
		Alkalinity(as HCO3)	IS:3025 (Part 23)-1986 Reaffirmed 2014(First revision)	1 mg/l to 1000mg/l
		Calcium (as Ca) mg/l	IS:3025 (Part 40)-1991 Reaffirmed 2014(First revision)	1 mg/l to 500mg/l
		Magnesium (as Mg)	IS:3025 (Part 46)-1994 Reaffirmed. 2014(First revision)	1 mg/l to 200mg/l
		Sodium (as Na)	IS:3025 (Part 45)-1993 Reaffirmed. 2014(First revision)	0.1 mg/l to 200mg/l
		Residual Free chlorine	IS:3025 (Part 26)-1986 Reaffirmed 2014(First revision)	0.1mg/l to 5mg/l
		Phenolic compounds (as C6H5OH)	IS:3025 (Part 43)-1992 Reaffirmed 2014(First revision)	0.01mg/l to 1mg/l
		Mineral Oil	IS:3025 Part 39- 1991 Reaffirmed 2014(First revision)	0.1 mg/l to 20 mg/l
		Anionic surface active agents (as MBAS)	Annex K of IS 13428-2005 Reaffirmed 2014 (Second revision)	0.05mg/l to 2mg/l
		Sulphide(as H2S)	IS:3025 (Part 29)- 1986 Reaffirmed 2014(First revision)	0.05mg/l to 5mg/l

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Antimony(as Sb)	IS 15303-2003 Reaffirmed 2009	0.005 mg/l to 5 mg/l
		Borates(as B)	Annex H of IS 13428-2005 Reaffirmed 2014 (Second revision)	0.01 mg/l to 10 mg/l
		Total solids	IS 3025 (Part-15)-1984 Reaff.2014	5 mg/l to 10000 mg/l
		Total suspended solids	IS 3025 (Part-17)-1984 Reaff.2012	5 mg/l to 1000 mg/l
		Silica	IS 3025 (Part-35)-1988 Reaff.2014	1 mg/l to 50mg/l
		Conductivity	IS 3025 (Part-14)-1984 Reaff.2013	0.1-6000 µmhos/cm
		Total kjeldahl nitrogen	IS 3025 (Part-34)-1988 Reaff.2014	1 mg/l to 500mg/l
		Total hardness	IS 3025 (Part-21)-2009 Reaff.2014	1 mg/l to 2000mg/l
		Potassium	IS 3025 (Part-45)-1993 Reaff.2014	0.05 to 200mg/l
		Ammonia (as NH_3-N)	IS 3025 (Part-34)-1988 Reaff.2014	0.1 mg/l to 500mg/l
III.	**RESIDUES IN WATER**			
1.	**IS 14543:2016 Packaged Drinking Water, IS 10500:2012 Drinking Water, IS 13428:2005 Packaged Natural Mineral Water & Ground Water**	**Pesticides**		
		DDT 2,4 DDT	USEPA 508 Revision 3.0, (1989)	0.01µg/l to 100 µg/l
		2,4 DDE		0.01µg/l to 100 µg/l
		2,4 DDD		0.01µg/l to 100 µg/l
		4,4 DDT		0.01µg/l to 100 µg/l
		4,4 DDE		0.01µg/l to 100 µg/l
		4,4 DDD		0.01µg/l to 100 µg/l
		Lindane	USEPA 508	0.01µg/l to 100 µg/l

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	(Bore Well Water)	BHC (HCH) Alpha HCH	Revision 3.0,(1989)	0.01µg/l to 100 µg/l
		beta HCH		0.01µg/l to 100 µg/l
		delta HCH		0.01µg/l to 100 µg/l
		Endosulphan Alpha endosulphan	USEPA 508 Revision 3.0,(1989)	 0.01µg/l to 100 µg/l
		beta endosulphan		0.01µg/l to 100 µg/l
		Endosulphan sulphate		0.01µg/l to 100 µg/l
		Monocrotophos	USEPA 8141A Revision 1.0 (Sep-1994)	0.01µg/l to 100 µg/l
		Ethion	USEPA 1657A -Revision A (Sep-2000)	0.01µg/l to 100 µg/l
		Chlorpyrifos	USEPA 525.2- Revision 2.0(1995)	0.01µg/l to 100 µg/l
		Phorate	USEPA 8141A Revision 1.0(sep-1994)	0.01µg/l to 100 µg/l
		Phorate Sulphone		0.01µg/l to 100 µg/l
		Phorate sulphoxide		0.01µg/l to 100 µg/l
		Butachlor	USEPA 525.2- Revision 2.0(1995),	0.01µg/l to 100 µg/l
		Isoproturon	USEPA 532- Revision 1.0 (June 2000)	0.01µg/l to 100 µg/l
		2,4 D	USEPA 515.1 Revision 4.0	0.01µg/l to 100 µg/l
		2,4 D	USEPA 555- Revision 1.0 (1992)	0.01µg/l to 100 µg/l
		Alachlor	USEPA 525.2- Revision 2.0 (1995)	0.01µg/l to 100 µg/l
		Atrazine	USEPA 525.2 - Revision 2.0(1995),	0.01µg/l to 100 µg/l
		Methyl parathion Methyl paraoxon	USEPA 8141A Revision 1.0 (Sep-1994)	 0.01µg/l to 100 µg/l
		Methyl parathion		0.01µg/l to 100 µg/l

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Malathion Malaoxon	USEPA 8141A Revision 1.0 (Sep-1994)	 0.01µg/l to 100 µg/l
		Malathion		0.01µg/l to 100 µg/l
		Aldrin Aldrin	USEPA 525.2- Revision 2.0 (1995)	 0.01µg/l to 100 µg/l
		dieldrin		0.01µg/l to 100 µg/l
2.	**IS 14543:2016 Packaged Drinking Water, IS 10500:2012 Drinking Water, IS 13428:2005 Packaged Natural Mineral Water & Ground Water (Bore Well Water)**	**Trace Metal Elements**		
		Mercury (as Hg)	IS:3025 (Part-48) – 1994 Reaffirmed 2014(First revision)	0.001mg/l to 5mg/l
		Cadmium (as Cd)	IS:3025 (Part 41)-1992 Reaffirmed 2014(First revision)	0.003mg/l to 1mg/l
		Cyanide (as CN)	IS:3025 (Part 27)-1986 Reaffirmed 2014(First revision)	0.005mg/l to 5mg/l
		Lead(as Pb)	IS:3025 (Part 47)-1994 Reaffirmed 2014(First revision)	0.01mg/l to 1mg/l
		Arsenic(asAs)	IS:3025 (Part 37)-1988 Reaffirmed-2014(First revision)	0.005mg/l to 5mg/l
		Chromium (as Cr)	Annex J of IS 13428-2005 (Second revision)	0.01mg/l to 3mg/l
		Nickel(as Ni)	Annex L of IS 13428-2005 Reaff 2014(Second revision)	0.015mg/l to 2mg/l
3.	**Polynuclear Aromatic Hydrocarbons (PAH) IS 14543:2016 Packaged Drinking Water, IS 10500:2012 Drinking Water,**	Acenaphtnene	APHA 6440 ,22nd Edition	0.015µg/l to 100 µg/l
		Acenaphthlylene		0.015µg/l to 100 µg/l
		Anthracene		0.015µg/l to 100 µg/l
		Benzo (A) Anthrackene		0.015µg/l to 100 µg/l
		Benzo (A) Pyrene		0.015µg/l to 100 µg/l
		Benzo (B) Fluoranthene		0.015µg/l to 100 µg/l

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	IS 13428:2005 Packaged Natural Mineral Water & **Ground Water (Bore Well Water)**	Benzo (G,H,I) Perylene		0.015µg/l to 100 µg/l
		Benzo (K) Fluoranthene		0.015µg/l to 100 µg/l
		Chrysene		0.015µg/l to 100 µg/l
		Dibenze (A,H) Anthracene		0.015µg/l to 100 µg/l
		Fluoranthene		0.015µg/l to 100 µg/l
		Fluorene		0.015µg/l to 100 µg/l
		Indeno (1,2,3-CD) Pyrene		0.015µg/l to 100 µg/l
		Naphthalene		0.015µg/l to 100 µg/l
		Phenathrene		0.015µg/l to 100 µg/l
		Pyrene		0.015µg/l to 100 µg/l
4.	**IS 14543:2016 Packaged Drinking Water, IS 10500:2012 Drinking Water, IS 13428:2005 Packaged Natural Mineral Water &** **Ground Water (Bore Well Water)**	**Poly Chlorinated Biphenyl (Pcb)**		
		2,6 Dichlorobiphenyl	Annex M of IS 13428-2005 Reaffirmed 2014 (Second revision)	0.01µg/l to 100 µg/l
		2,4,4' Trichlorobiphenyl		0.01µg/l to 100 µg/l
		2,2',5,5' tetrachloro biphenyl		0.01µg/l to 100 µg/l
		2,2',4,4',5,5' hexachlorobiphe		0.01µg/l to 100 µg/l
		2,2',3,4,4',5' Hexachlorobiphe		0.01µg/l to 100 µg/l
		2,2',3,4,4',5,5' Heptachlorobi		0.01µg/l to 100 µg/l
IV.	**FOOD & AGRICULTURAL PRODUCTS**			
1.	**TEA**	Total Ash	IS 13854:1994 (Reaffirmed 2009) ISO 1575 :1987	1 g/100g to 25 g/100g
		Water soluble Ash	IS 13855:1993 (Reaffirmed 2009) ISO 1576 :1988	10 g/100g to 80 g/100g

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Water insoluble Ash	IS 13855:1993 (Reaffirmed 2009) ISO 1576 :1988	10-80 g/100g
		Alkalinity of water soluble Ash	IS 13856:1993 (Reaffirmed 2009) ISO 1578 :1975	0.3 g/100g to 20 g/100g
		Acid insoluble Ash	IS 13857:1993 (Reaffirmed 2009) ISO 1577 :1987	0.1 g/100g to 20g/100g
		Loss in mass at 103˚C	IS 13853:1994 (Reaffirmed 2009) ISO 1573 :1980	0.1 g/100g to 25 g/100g
		Water extract	IS 13862:1999 Reaffirmed 2009) ISO 9768 :1994	10 g/100g to 70 g/100g
		Crude fibre	IS 10226(Part-1):1982 (Reaffirmed 2015) ISO 5498-1981	2g/100g to 50 g/100g
2.	**Edible Oils and Fats** **Ground-nut oil / Mustard oil / Rice Bran Oil / Sunflower Oil / Soybean Oil / Coco-nut Oil / Sesame Oil / Palmolein Oil**	Moisture	IS 548 (part-1):1964 (Reaffirmed 2015)	0.1 g/100g to 20g/100g
		Insoluble Impurities	IS 548 (part-1):1964 (Reaffirmed 2015)	0.05 g/100g to 5g/100g
		Specific gravity 30º/30ºC	IS 548 (part-1):1964 (Reaffirmed 2015)	0.85 to 2.0
		Refractive index at 40ºC	IS 548 (part-1): 1964 (Reaffirmed 2015)	1.3000 to 2.000
		Saponification value	IS 548 (part-1): 1964 (Reaffirmed 2015)	50 to 300 Unit
		Iodine value(Wijs)	IS 548 (part-1): 1964 (Reaffirmed 2015)	5 to 200
		Acid value	IS 548 (Part-1): 1964 (Reaffirmed 2015)	0.2 g/100g to 20g/100g
		Unsaponifiable matter	IS 548 (part-1): 1964 (Reaffirmed 2015)	0.35 g/100g to 6.0 g/100g
		Peroxide value	IS 548 (part-1): 1964 (Reaffirmed 2015)	0.5 milli eq/kg to 20 milli eq/kg
		Bellier turbidity temperature	IS 548 (Part-2): 1976 (Reaffirmed 2010)	10 °C to 55 °C

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Phosphorous	IS 4276 : 2014	5 mg/kg to 2000 mg/kg
		Flash point-penski martens(closed)	IS 1448 (part-21):2012	100° C to 400° C
		Mineral oil	IS 15642 (part-1&2):2006 (Reaffirmed 2011)	Present/Absent
		Castor oil	IS 15642 (part-1&2):2006 (Reaffirmed 2011)	Present/Absent
		Argemone oil	IS 15642 (part-1&2):2006 (Reaffirmed 2011)	Present/Absent
		Rancidity	FSSAI Lab Manual-2,2012-oil and Fats	Present/Absent
V.	**RESIDUES IN FOOD PRODUTS**			
1.	**Pesticides**			
a.	**Tea**	Ethion	AOAC Official Method 2007.01 ,19th edition	0.1 mg/kg to 10mg/kg
		Dicofol	AOAC Official Method 2007.01, 19th edition	0.1 mg/kg to 10mg/kg
2.	**Trace Metal Elements**			
a.	**Tea**	Lead	IS 12074:1987 (Reaffirmed 2010)	1mg/kg to 50 mg/kg
		Copper	IS 11123:1984 (Reaffirmed 2010)	1 mg/kg to 250mg/kg
3.	**Edible Oils and Fats**			
a.	**Ground-nut oil / Mustard oil / Rice Bran Oil / Sunflower Oil / Soybean Oil / Coco-nut Oil / Sesame Oil /**	**Trace Metal Elements**		
		Lead	IS 1699:1995 (Reaffirmed 2009)	0.05 mg/kg to 10 mg/kg
		Arsenic	IS 1699:1995 (Reaffirmed 2009)	0.05 mg/kg to 10 mg/kg
		Cadmium	IS 1699:1995 (Reaffirmed 2009)	0.05 mg/kg to 10 mg/kg

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Palmolein Oil	Mercury	IS 1699:1995 (Reaffirmed 2009)	0.05 mg/kg to 10 mg/kg

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

ELECTRICAL TESTING

I.	**ROTATING ELECTRICAL MACHINES**			
1.	**Motors & Pumps** **IS 996:1979 Single phase small AC and universal electric motors, (upto & including 1500 W for AC induction motors, upto & including 750 W for universal motors)** **IS 996 : 2009 Single phase small AC motors, (upto & including 2200 W for AC induction motors)** **IS 2972 (Pt I) : 1979 Specification for textile motors - part 1-loom motors (upto & including**	Insulation resistance test @ 500V DC Resistance	IS 996 : 1979 IS 996 : 2009 IS 2972 (Pt I) : 1979 IS 7538 : 1996 IS 8034 : 2018 IS 8472 : 1998 IS 9079 : 2018 IS 9283 : 2013 IS 12225 : 1997 IS 12615 : 2018 IS 14220 : 2018 IS 14582 : 1998	1 MΩ to19.99GΩ
		High voltage test Voltage	IS 996 : 1979 IS 996 : 2009 IS 2972 (Pt I) : 1979 IS 7538 : 1996 IS 8034 : 2018 IS 8472 : 1998 IS 9079 : 2018 IS 9283 : 2013 IS 12225 : 1997 IS 12615 : 2018 IS 14220 : 2018 IS 14582 : 1998	0.02 to 5 kV
		Current		100 mA to 600 mA
		Resistance of Winding	IS 996 : 1979 IS 996 : 2009 IS 2972 (Pt I) : 1979	19.9mΩ to 1Ω

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	3.7kW) **IS 7538 : 1996 Three phase squirrel cage induction motors for centrifugal pumps for agricultural applications. (Upto & including 15 kW.)** **IS 8034 : 2018 Submersible pump sets. (upto & including 75 kW)** **IS 8472 : 1998 Pumps - regenerative for clear, cold water upto & including 2200 W for AC induction motors for single phase motors (upto & including 15 kW for three phase motors)** **IS 9079 : 2018**	Resistance	IS 7538 : 1996 IS 8034 : 2018 IS 8472 : 1998 IS 9079 : 2018 IS 9283 : 2013 IS 12225 : 1997 IS 12615 : 2018 IS 14220 : 2018 IS 14582 : 1998	1Ω to 1 kΩ
		Reduced voltage running up test Speed	IS 2972(Pt I) : 1979 IS 7538 : 1996 IS 8034 : 2018 IS 9079 : 2018 IS 9283 : 2013 IS 12225 : 1997 IS 12615 : 2018 IS 14220 : 2018	2 rpm to 3000 rpm
		No load test Voltage	IS 996 : 1979 IS 996 : 2009 IS 2972(Pt I) : 1979 IS 7538 : 1996 IS 8034 : 2018 IS 8472 : 1998 IS 9079 : 2018 IS 9283 : 2013 IS 12225 : 1997 IS 12615 : 2018 IS 14220 : 2018 IS 14582 : 1998	0.2 to 600V
		Current		0 to 100A
		Input Power		1 to 98kW
		Speed		2 to 3000 rpm
		Frequency		1 to 65 Hz

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Electric monoset pumps for clear, cold water for agriculture and water supply purpose, (upto & including 15 kW for three phase motors, upto & including 1500 W for single phase motors) **IS 9283 : 2013 Motors for submersible pumpsets. (Upto & including 75 kW.)** **IS 12225 : 1997 Centrifugal jet pump, upto & including 15 kW for three phase motors, (upto & including 1500 W for single phase motors)** **IS 12615 : 2018 Line operated three phase a.c.**	Load test Voltage	IS 996 : 1979 IS 996 : 2009 IS 2972(Pt I) : 1979 IS 7538 : 1996 IS 9283 : 2013 IS 12615 : 2018 IS 14582 : 1998	0.2 to 600V
		Current		0 to 100A
		Input Power		1 to 98kW
		Load Torque		0.5 to 55 kgm
		Speed		2 to 3000 rpm
		Power Factor		0.1 to 1.0
		Efficiency		Upto 95%
		Frequency		1 to 65 Hz
		Leakage current Test Current	IS 996 : 1979 IS 996 : 2009 IS 8034 : 2018 IS 9283 : 2013 IS:14220:2018	0.1 to 20 mA
				0.01 to 200 mA
		Locked rotor test Torque	IS 996 : 1979 IS 996 : 2009 IS 2972(Pt I) : 1979 IS 7538 : 1996 IS 8034 : 2018 IS 8472 : 1998 IS 9079 : 2018 IS 9283 : 2013 IS 12225 : 1997 IS 12615 : 2018 IS 14220 : 2018 IS 14582 : 1998	0.5 to 100 kg
		Current		0.1 to 100A

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	induction motors(IE Code) "Efficiency classes and performance specification" (upto & including 140kW) **IS 14220 : 2018 Open well submersible pump sets, (upto & including 50 kW)** **IS 14582 : 1998 Single phase small AC electric motors for centrifugal pumps for agricultural applications, (Upto & including 1500 W)**	Pull up torque test Torque	IS 996 : 1979 IS 996 : 2009 IS 2972(Pt I) : 1979 IS 8472 : 1998 IS 12615 : 2018	0 to 900% of full load torque
		Pull out torque test Torque	IS 996 : 1979 IS 996 : 2009 IS 2972(Pt I) : 1979 IS 12615 : 2018	0 to 900% of full load torque
		Momentary overload test Torque	IS 996 : 1979 IS 996 : 2009 IS 2972(Pt I) : 1979 IS 7538 : 1996 IS 9283 : 2013 IS 12615 : 2018 IS 14582 : 1998	0 to 60% of full load torque
		Temperature rise test Temperature	IS 996 : 1979 IS 996 : 2009 IS 2972(Pt I) : 1979 IS 7538 : 1996 IS 8034 : 2018 IS 8472 : 1998 IS 9079 : 2018 IS 9283 : 2013 IS 12225 : 1997 IS 12615 : 2018 IS 14220 : 2018 IS 14582 : 1998	20 °C to 150°C
		Moisture proofness test Temperature	IS 996 : 1979 IS 996 : 2009	Temp : 40 ± 5°C
		Relative Humidity		RH = ≥ 95%
		Vibration measurement test	IS 996 : 1979 IS 996 : 2009	1 to 1000 Microns pk to pk

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Displacement	IS 2972(Pt I) : 1979 IS 7538 : 1996 IS 9283 : 2013 IS 12615 : 2018 IS 14582 : 1998	
		Velocity		1 mm/sec to 4.5 mm/sec
		Dimensions	IS 996 : 1979 IS 996 : 2009 IS 2972(Pt I) : 1979 IS 7538 : 1996 IS 8034 : 2018 IS 9283 : 2013 IS 12615 : 2018 IS 14582 : 1998	0 to 50 mm
				51 to 100 mm
				101 to 500 mm
		Terminal markings, Direction of Rotation	IS 996 : 1979 IS 996 : 2009 IS 2972(Pt I) : 1979 IS 7538 : 1996 IS 9283 : 2013 IS 12615 : 2018 IS 14582 : 1998 IS 8034:2018 IS 8472:1998 IS 9079:2018 IS 12225:1997 IS 14220:2018	Visual examination
		Over Speed test	IS 996 : 1979 IS 7538 : 1996 IS 12615 : 2018	2 rpm to 3600 rpm
				1 Hz to 65 Hz

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Commutation Test	IS 996 : 1979	Visual examination
		Pump Performance test Flow	IS 8034 :2018 IS 8472 : 1998 IS 9079 : 2018 IS 12225 : 1997 IS 14220 : 2018 IS:11346: 2017	0.03 lps to 75 lps
		Head		0.5 kg/cm^2 to 70 kg/cm^2
		Power		75 kW
		Efficiency		Upto 95 %
		Current		0 to 100A
		Pipe Size		15 to 200 mm NB
		Hydrostatic Pressure test	IS 8034 :2018 IS 8472 : 1998 IS 9079 : 2018 IS 12225 : 1997 IS 14220 : 2018	0 to 70 kg/cm^2
		Self-Priming test	IS 8472 : 1998	0 to 60 min.
		Surface Roughness test	IS 8034 :2018 IS 14220 : 2018	0 to 360 µm
2.	**IEC 60034-1/ IEC 60034-2/-1** **Three Phase & Single Phase AC Induction Motor**	Winding Resistance Measurement Winding resistance measurement	Cl. 5.7 of IEC 60034 – 2 -1 : 2014	500 mΩ to 1000 Ω
		Insulation Resistance measurement test @500 V DC Insulation Resistance Measurement	IEC 60034 – 1 Edition 12.0 2010 – 02	1MΩ to 19.99 GΩ
		With Stand Voltage Test	Cl. 9.2 of IEC 60034 – 1 Edition 12.0 2010 – 02	0.02 kV to 5 Kv

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		High Voltage Test		
				100 mA to 600mA
		No Load Test Voltage	Table 15 of IEC 60034 – 1 Edition 12.0 2010 – 02	0.2 V to 600 V
		Current		0 to 100 A
		Input Power		1 to 60 kW
		Speed		2 rpm to 3000rpm
		Frequency		1 Hz to 65 Hz
		Direction of Rotation	Table 15 of IEC 60034 – 1 Edition 12.0 2010 – 02	Qualitative
		Load Curve Test Voltage	IEC 60034 – 2 – 1 : 2014	0.2 V to 600 V
		Current		0 A to 100 A
		Input Power		1 to 60 kW
		Speed		2 to 3000 rpm
		Frequency		1 Hz to 65 Hz
		Power Factor		0.1 to 1.0 lag
		Output Power		1 W to 37 kW
		Torque		0.5 to 55 kgm
		Efficiency		Up to 95%
		Temperature Measurement Winding Temperature measurement	Cl. 5.7.2 of IEC 60034 – 2 – 1 : 2014	20 to 150°C
		Occasional Excess Current Test	Cl. 9.3 of IEC 60034 – 1 Edition 12.0 2010 – 02	0.1 A to 100 A
		Momentary Excess Torque Test	Cl. 9.4 of IEC 60034 – 1 Edition 12.0 2010 – 02	0 to 60% of the FLT
		Pull - Up Torque Test	Cl. 9.5 of IEC 60034 – 1 Edition 12.0 2010 – 02	0 to 900% of FLT
		Pull - Out Torque / Breakdown Torque Test	Table 20 of IEC 60034 – 1 Edition 12.0 2010 – 02	0 to 900% of FLT

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Locked Rotor Test Current	Table 20 of IEC 60034 – 1 Edition 12.0 2010 – 02	0.1 A to 100 A
		Torque		0.5 kgm to 100 kgm
		Over Speed Test	Cl. 9.6 of IEC 60034 – 1 Edition 12.0 2010 – 02	2 rpm to 3600 rpm
				1 Hz to 65 Hz
		Protective Earthing	Cl. 11.1 of IEC 60034 – 1 Edition 12.0 2010 – 02	Qualitative
		Terminal Marking	IEC 60034 – 8	Qualitative
		Connection Diagram	IEC 60034 – 8	Qualitative
3.	**IEC 60034-1/ IEC 60034-2-1**	Winding Resistance Measurement Resistance	Cl. 5.7 of IEC 60034 – 2 -1 : 2014	500 mΩ – 1000 Ω
	DC & Universal Motors	Insulation Resistance measurement test @ 500V Insulation Resistance	IEC 60034 – 1 Edition 12.0 2010 – 02	1 MΩ to 20 GΩ
		With Stand Voltage Test High Voltage Test	Cl. 9.2 of IEC 60034 – 1 Edition 12.0 2010 – 02	0.02 kV to 5 kV
				100 mA to 600 mA
		No Load Test	Table 15 of IEC 60034 – 1 Edition 12.0 2010 – 02	
		Voltage DC		0.2 V to 50 V DC &
				0.2 V to 300 V DC
		Current DC		0 – 200 A DC at 50 V DC Range
				& 0 – 50 A DC at 300 V DC Range
		Input Power		7.5 kW at 50 V, 200 A Range &
				15 kW at 300 V, 50 A Range
		Speed		2 rpm to 30000 rpm

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Direction of Rotation	Table 15 of IEC 60034 – 1 Edition 12.0 2010 – 02	Qualitative
		Load Curve Test (Direct Torque Measurement Method)		
		Voltage	IEC 60034 – 2 – 1 : 2014	0.2 V to 50 V DC &
				0.2 V to 300 V DC
		Current		0 – 200 A DC at 50 V DC Range
				& 0 – 50 A DC at 300 V DC Range
		Input Power		7.5 kW at 50 V, 200 A Range &
				15 kW at 300 V, 50 A Range
		Speed		2 rpm to 30000 rpm
		Output Power		0 to 10.0 kW
		Torque		0.5 to 40 kgm
		Efficiency		Up to 95%
		Temperature Measurement Winding Temperature measurement	Cl. 5.7.2 of IEC 60034 – 2 – 1 : 2014	20 to 150°C
		Occasional Excess Current Test	Cl. 9.3 of IEC 60034 – 1 Edition 12.0 2010 – 02	0.1 A to 100 A
		Momentary Excess Torque Test	Cl. 9.4 of IEC 60034 – 1 Edition 12.0 2010 – 02	0 to 60% of the FLT
		Over Speed Test	Cl. 9.6 of IEC 60034 – 1 Edition 12.0 2010 – 02	2 rpm to 30000 rpm
		Protective Earthing	Cl. 11.1 of IEC 60034 – 1 Edition 12.0 2010 – 02	Qualitative
		Terminal Marking	IEC 60034 – 8	Qualitative
		Connection Diagram	IEC 60034 – 8	Qualitative

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Commutation Test	Cl. 9.10 of IEC 60034 – 1 Edition 12.0 2010 – 02	Qualitative
4.	**IEC 60335 – 2 – 41/ IEC 60335 – 1 Electrical Appliances (Pumps) (Single & Three Phase Machines)**	Winding Resistance Measurement Winding resistance measurement	Cl. 11.3 of IEC 60335 – 1	500 mΩ to 1000 Ω
		Insulation Resistance measurement test Insulation Resistance Measurement	IEC 60335 – 2 – 41 / IEC 60335 – 1	1MΩ to 20 GΩ
		With Stand Voltage Test Voltage	IEC 60335 – 2 – 41 / IEC 60335 – 1, IEC 60034 – 1	0.02 kV to 4.5 kV
		Current		100 mA to 600 mA
		No Load Test	IEC 60335 – 2 – 41 / IEC 60335 – 1, IEC 60034 – 1	
		Voltage		0.2 V to 600 V
		Current		0 A to 100 A
		Input Power		1 to 60kW
		Speed		2 rpm to 3000 rpm
		Frequency		1 Hz to 65 Hz
		Load & Heating Test	IEC 60335 – 2 – 41, Cl. 10, Table 10, Cl. 11, Cl. 19 of IEC 60335 – 1, IEC 60034 – 1	
		Voltage		0.2 V to 600 V
		Current		0 A to 100 A
		Input Power		1 to 60 kW
		Speed		2 to 3000 rpm
		Frequency		1 Hz to 65 Hz
		Power Factor		0.1 to 1.0 lag
		Output Power		1 W – 37 kW
		Torque		0.5 to 55 kgm
		Efficiency		Up to 95%
		Marking& Instructions	Cl. 7 of IEC 60335 – 2 – 41& Cl. 7 of IEC 60335 – 1	Qualitative

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Direction of Rotation	Cl. 7 of IEC 60335 – 2 – 41	Qualitative
		Temperature Measurement Temperature measurement using resistance method	Cl. 5.7.2, Table 8, Cl. 19 of IEC 60034 – 2 – 1 : 2014	10 to 150°C & Qualitative (Resistance Method)
		Leakage current Test	Cl. 13& 16 of IEC 60335 – 1	0.1 to 20 mA
		Current		0.01 to 200 mA
		Electric Strength Test High Voltage Test	Cl. 13, Table 4, Cl. 16, Table 7, Annex A.2 of IEC 60335 – 1	0.02 kV to 5 kV
				100 mA to 600 mA
		Moisture Resistance test	Cl. 15 of IEC 60335 – 1	
		Temperature		Temp : 40 ± 5°C
		Relative Humidity		RH = ≥ 95%
		Earth& Earth Continuity Test	Cl. 27, Annex A.1 of IEC 60335 – 1	0 – 24 V DC
				0 – 30 A DC
				2000 mΩ
		Functional Test	Annex A.3 of IEC 60335 – 1	Qualitative
		Load / Heating Test Pump performance Test Flow	IEC 60335 – 2 – 41 / IEC 60335 – 1	 0.1lps to 42lps
		Head		0.5 to 98 kg/cm^2
		Power		1 W – 37 kW
		Current		0 A to 100 A
5.	**SPV pumping system** **IEC 62253**	Water Output per day / per watts Water Output per day	MNRE JNNSM Solar Photovoltaic Water Pumping System	

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	surface motor pump set connected to the PV generator directly or via converter (DC to DC or AC to DC)	Maximum Shut off Head Input power	for Drinking Water Applications (2014-15)	Upto 9000Wp
		Voltage	Solar Photovoltaic Water Pumping System (2015-16) for Micro Pumping Applications (2016-17)	0.1V to 1000V(DC)
		Current		0.1A to 200A(DC)
		Pressure		0.5 to 98 kg/cm^2
		Flow		0.1lps to 42lps
	Submersible motor pump set connected to the PV generator directly or via converter (DC to DC or AC to DC)	Photovoltaic pumping systems design qualification and performance measurements Voltage	IEC 62253 (Cl.No.5)	0.1V to 1000V(AC)
		Current		0.1A to 200A (AC)
		Input power		Up to 45 kW
		Output power		Up to 30 kW
		Freguency		0 – 60 Hz (AC)
		Speed		2 to 4000 rpm
II.	**CABLES & ACCESSORIES**			
1.	**IS 694:2015 PVC insulated cables for working voltages upto & Including 1100V**	Core Identification	IS 694 : 2015 Cl.11	Visual examination
		Test on Conductor Annealing test (for copper)	IS 10810 (Pt.1) : 2016 Cl.15.1a	0.01 to 500 N
		Tensile test (for Aluminum)	IS 10810 (Pt.2) : 2016 Cl.15.1a	0.01 to 500 N
		Wrapping test (for Aluminum)	IS 10810 (Pt.3) : 2016 Cl.15.1a	0 to 25 mm
		Resistance test	IS 10810 (Pt.5) : 2016 Cl.15.1a	3 mΩ to 30 kΩ
		Test for overall dimensions	IS 10810 (Pt.6) : 2016 Cl.15.1b	0.01 to 50 mm

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Test for Thickness of insulation	IS 10810 (Pt.6) : 2016 Cl.15.1b	0.01 to 50 mm
		Test for Thickness of sheath	IS 10810 (Pt.6) : 2016 Cl.15.1b	0.01 to 50 mm
		Physical test for insulation and sheath Tensile strength and elongation at break	IS 10810 (Pt.7) : 2016 Cl.15.1c	0.01 to 10 kN
		Loss of mass	IS 10810 (Pt.10) : 2016 Cl.15.1c	0.1 to 5 mg /cm^2
				20 to 250 ^{o} C
		Ageing in air oven	IS 10810 (Pt.11) : 2016 Cl.15.1c	0.01 to 10 kN
				20 to 300 ^{o}C
		Shrinkage test	IS 10810 (Pt.12) : 2016 Cl.15.1c	0.1 to 10 mm
				20 to 300^{o} C
		Heat shock test	IS 10810 (Pt.14) : 2016 Cl.15.1c	20 to 300^{o} C
		Hot deformation test	IS 10810 (Pt.15) : 2016 Cl.15.1c	20 to 250 ^{o} C
		Insulation resistance @ 500V room temperature and elevated temperature	IS 10810 (Pt.43) : 2016 Cl.15.1d	10 to 1000 x 10^6 MΩ
				20 to 100°C
		High voltage test at room temp	IS 10810 (Pt.45) : 2016 Cl.15.1	0.01 to 28 kV AC
		High voltage test (Water immersion test) at elevated temp	IS 10810 (Pt.45) : 2016 Cl.15.1	20 to 100°C,
				0.01 to 28kV AC
				0.01 to 5 kV DC

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
2.	**IS 1554(Pt-1):2015 PVC Insulated (Heavy Duty) Electric Cables for Working Voltage upto & Including 1100V**	Core Identification	IS 1554 (Pt-1) : 2015 Cl.10	Visual examination
		Test on Conductor Annealing test (for copper)	IS 10810 (Pt.1) : 201615.1a	0.01 to 500 N
		Tensile test (for Aluminium)	IS 10810 (Pt.2) : 2016	0.01 to 500 N
		Wrapping test (for Aluminium)	IS 10810 (Pt.3) : 2016 Cl.15.1a Cl.15.1a	0 to 25 mm
		Resistance test	IS 10810 (Pt.5) : 2016 Cl.15.1a	3 mΩ to 30kΩ
		Test for Thickness of insulation	IS 10810 (Pt.6) : 2016 Cl.15.1	0.01 to 50 mm
		Test for Thickness of sheath	IS 10810 (Pt.6) : 2016 Cl.15.1	0.01 to 50 mm
		Physical test for insulation and sheath Tensile strength and elongation at break	IS 10810 (Pt.7) : 2016 Cl.15.1d	0.01 to 10 kN
		Ageing in air oven	IS 10810 (Pt.11) : 2016 Cl.15.1d	0.01 to 10 kN
				20 to 300 ^{o}C
		Shrinkage test	IS 10810 (Pt.12) : 2016 Cl.15.1d	0.01 to 10 mm
				20 to 300 ºC
		Hot deformation test	IS 10810 (Pt.15) : 2016 Cl.15.1d	20 to 250 ^{o} C
		Loss of mass in air oven	IS 10810 (Pt.10) : 2016 Cl.15.1d	0.01 to 5 mg /cm^{2}
				20 to 250 ^{o} C
		Heat shock test	IS 10810 (Pt.14) : 2016 Cl.15.1 d	20 to 300°C
		Insulation resistance @	IS 10810 (Pt.43) : 2016	10 to 1000 x 10^{6} MΩ

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		500 V room temp. and elevated temperature	Cl.15.1e	
				20 to 100°C
		High voltage test at room temp	IS 10810 (Pt.45) : 2016 Cl.15.1	0.01 to 28 kV AC
		Cl.15.1 f) High voltage test (Water immersion test) at elevated temp	IS 10810 (Pt.45) : 2016	0 to 100°C
				0.01 to 28 kV AC
				0.01 to 5 kV DC
3.	**IS 7098(Pt-1):2015 Cross linked Polyethylene insulated thermoplastic sheathed cables for working voltages upto & including 1100 volts**	Core Identification	IS 7098 (Pt.1) : 2015 Cl.10	Visual examination
		Test on Conductor Annealing test (for copper)	IS 10810 (Pt.1) : 2016 Cl.15.1a	0.01 to 500 N
		Tensile test (for Aluminium)	IS 10810 (Pt.2) : 2016 Cl.15.1a	0.01 to 500 N
		Wrapping test (for Aluminium)	IS 10810 (Pt.3) : 2016 Cl.15.1a	0.01 to 25 mm
		Resistance test	IS 10810 (Pt.5) : 2016 Cl.15.1a	3 mΩ to 30kΩ
		Test for Thickness of insulation	IS 10810 (Pt.6) : 2016 Cl.15.1c	0.01 to 50 mm
		Test for Thickness of sheath	IS 10810 (Pt.6) : 2016 Cl.15.1	0.01 to 50 mm
		Physical test for insulation Tensile strength and elongation at break	IS 10810 (Pt.7) : 2016 Cl.15.1d	0.01 to 10 kN
		Ageing in air oven	IS 10810 (Pt.11) : 2016 Cl.15.1d	0.01 to 10 kN
				20 to 300 ^{o}C

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Shrinkage test	IS 10810 (Pt.12) : 2016 Cl.15.1d	20 to 300 ^{o} C
				0.01 to 10 mm
		Water absorption (Gravimetric)	IS 10810 (Pt.33) : 2016 Cl.15.1d	0.01 to 5 mg /cm^{2}
				20 to 250 ^{o} C
		Physical test for sheath i) Tensile strength and elongation at break	IS 10810 (Pt.7) : 2016 Cl.15.1e	0.01 to 10 kN
		Ageing in air oven	IS 10810 (Pt.11) : 2016 Cl.15.1e	0.01 to 10 kN
				Upto 300^{o} C
		Loss of mass in air oven	IS 10810 (Pt.10) : 2016 Cl.15.1e	0.01 to 5 mg /cm^{2}
				20 to 250 ^{o} C
		Shrinkage test	IS 10810 (Pt.12) : 2016 Cl.15.1e	0.01 to 10 mm
				20 to 300 ºC
		Hot deformation test	IS 10810 (Pt.15) : 2016 Cl.15.1d	20 to 250 ^{o} C
		Heat shock test	IS 10810 (Pt.14) : 2016 Cl.15.1d	20 to 300^{o} C
		(Volume Resistivity @ 500V room temperature and elevated temperature)	IS 10810 (Pt.43) : 2016 Cl.15.1	10 to 1000 x 10^{6} MΩ
				20 to 100°C
		High voltage test at room temp	IS 10810 (Pt.45) : 2016 Cl.15.1	0.01 to 28 kV AC
				0 to 5min

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
III.	**POWER CAPACITORS**			
1.	**IS 2993:2013 Motor Capacitors AC Motor Capacitors**	Sealing test	Cl.2.12 of IS 2993 : 2013	20 to 250°C
		Voltage test between terminals	Cl. 2.7 of IS 2993 : 2013	0.01 to 1.0 kV AC
		Voltage test between terminals & case	Cl. 2.8 of IS 2993 : 2013	0.01 to 20 kV AC
IV.	**ELECTRICAL MATERIALS – CONDUCTORS**			
1.	**Winding Wires** **IS 13730 Part 3 :2017 Polyester enameled round copper wire class 155**	IS:13730–2012 Dimensions: Conductor diameter, Out of roundness of diameter, minimum increase in diameter Overall diameter	IS 13778 (Part 2) : 2018 Cl 4.1 Cl 4.2 Cl.4.3 Cl 4.4	0.01 to 5 mm
	IS 13730 Part 8 :2014 Polyestermide enameled round copper wire class 180 **IS 13730 Part 9 :1994 Polyester enameled round Aluminium wire Class 130**	Resistance measurement	IS 13778 (Part 5) : 2017 Cl.5	3 mΩ to 30kΩ
		Elongation test	IS 13778 (Part 3) : 2017 Cl.6	0.01 to 500 mm
		Springiness test	IS 13778 (Part 3) : 2017 Cl.7	72 Degree Angular
		Mandrel winding test	IS 13778 (Part 3) : 2017 Cl.8.1	0.18 to 25mm dia
		Stretching test	IS 13778 (Part 3) : 2017 Cl.8.2	100 to 500 mm / min
		Jerk test	IS 13778 (Part 3) : 2017 Cl.8.3	0.5 to 250 mm
		Peel test	IS 13778 (Part 3) : 2017 Cl.8.4	0.01 to 400N
		Heat shock	IS 13778 (Part 6) : 2016 Cl.9	20 to 250°C
		Cut through	IS 13778 (Part 6) ; 2016 Cl.10	1 to 72 N
				20 to 400°C
		Resistance to abrasion	IS 13778 (Part 3) : 2017 Cl.11	0.1 to 50 N
		Solvent test	IS 13778 (Part 4) : 2016 Cl.12	20 to 300°C
				0.1 to 150 mm
		Breakdown voltage at	IS 13778 (Part 5) : 2017 Cl.13	0.1 to 15 kV AC

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	IS 13730 Part 13 :2014 Polyester or Polyestermide over coated with polyamide-imide enameled round copper wire, class 200 **IS 13730 Part 34 :2000 Particular types of winding wires Polyester enameled round copper wire class 130 L** **IS 13730 Part 45 :2014 Polyester enameled round copper wire Class 130**	room temp		
		Breakdown voltage at elevated temp	IS 13778 (Part 5) : 2017 Cl.13	0.1 kV to 15 kV AC 0 to 250ºC
		Continuity of insulation	IS 13778 (Part 5) : 2017 Cl.14	350 V to 2 kV DC
		High temperature Test	IS 13778 (Part 6) : 2016	0.01 to 5 mm
				0.1 to 300 V
				20 to 600°C
2.	**Winding Wires for Submersible Motors** **IS 8783 : 2015 IS 8783 (Part 4 Sec1)-2015**	IS:8783 (Pt1) -2015 Material Conductor Form of Conductor Joints in conductor	IS 8783 (Pt1) : 2015 Cl 4 Cl 4.1 Cl 4.1.2	Visual examination.
		Conductor Composition	Cl 5	Visual examination.

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
	Winding Wires for submersible motor ,Part-4 Specification for individual wires Sec 1 HR PVC Insulated wires. **IS 8783 (Part 4 Sec2) – 2015** **Winding Wires for submersible motor, Part-4 Specification for individual wires Sec 2 Cross linked polyethylene insulated and polyamide jacketed wires.** **IS 8783 (Part 4 Sec3)-2015** **Winding Wires for submersible motor ,Part-4 Specification for individual wires Sec 3 Polyester and polypropylene insulated winding wires**	IS:8783 (Pt1) -2015 Conductor diameter	IS 8783 (Pt 3) : 2015, Cl 6 Annex A	0.01 to 5 mm
		IS:8783 (Pt1) -2015 Annealing test	IS 10810 (Pt.1) : 2016 Cl.6	0.01 to 500 mm
		IS:8783 (Pt1) -2015 Resistance measurement	IS 10810 (Pt.5) : 2016 Cl.6	3 mΩ to 30kΩ
		IS 8783(Part 2):2015 Table-1 Volume Resistivity @ 500V room temper and elevated temp Resistance	IS 10810 (Pt.43) : 2016	10 to 1000 x 10^6 MΩ
		Temperature		20 to 100°C
		iii) Before Ageing	IS 10810 (Pt 7) : 2016	0.01 to 1000N
		Tensile Strength		
		Elongation at break		
		iv) Ageing in air oven Elongation at break Tensile Strength	IS 10810 (Pt 11) : 2016	0.01 to 1000N
		Temperature		20 to 300°C
		v) Shrinkage test	IS 10810 (Pt.12) : 2016	0.01 to 10 mm
				20 to 300°C
		vi) Water absorption (Gravimetric)	IS 10810 (Pt. 33) : 2016	20 to 300°C
		Temperature		
		Water Absorption		0.01 to 5 mg /cm^2
		viii) Hot deformation test	IS 10810 (Pt 15) : 2016	20 to 300°C
		Temperature		
		ix) Heat shock test	IS 10810 (Pt.14) : 2016	20 to 300°C
		Temperature		
		Sign of Cracks, Scales, Separation of layers		Visual examination

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		IS 8783 (Pt 4)-2015 Thickness of insulation	IS 10810 (Pt.6) : 2016 Cl 4.1	0.01 to 5 mm
		Application of insulation	IS 8783 (Pt 4) : 1995 Cl.4.2	Visual examination.
		Colour	IS 8783 (Pt 4) : 1995 Cl.4.3	Visual examination.
		Overall diameter	IS 8783 (Pt1) : 1995 Cl.4.4	0.01 to 5mm
		High Voltage test (Water immersion test at room temp.)	IS 10810 (Pt.45) : 2016 Cl.4.5	0.1 to 28 kV AC

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

MECHANICAL TESTING

I.	**MECHANICAL PROPERTIES OF METALS**			
1.	**Ferrous and Non Ferrous Alloys**	Tensile Test Yield stress	IS 1608:2018	400 kN Capacity
		Tensile stress		0 to 40 kN, LC=80N
		% elongation		0 to 100 kN, LC=200N
		% reduction - in area		0 to 200 kN, LC=400N
		0.2%Proof Stress		0 to 400 kN, LC=800N (50 mm GL only)
		0.2%Proof Stress		10 kN Capacity 0-10kN, LC = 1N (50 mm GL only)
		Tensile Test Yield stress Tensile stress		0 to 600 kN Capacity (25 mm, 50 mm & 70 mm GL only)
		% elongation		
		% reduction - in area		
		0.2% Proof Stress		
		Hardness test by Rockwell 'C' scale	IS 1586:2018	Upto 70 HRC
		Hardness Test by -Brinell	IS 1500:2013	Upto 572 HBW 5 mm / 750 kg 10 mm / 3000 kg
		Bend Test	IS 1599:2017	Mandrel dias 12,20,25,32,40,50 mm & 90^0, 180^0 bend upto 400 kN & 600 kN applied load
		Transverse Root and Face Bend test on	IS 3600 (Part 5): 2018	

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		welded joints		
		Transverse Side Bend test on welded joints	IS 3600 (Part 6): 2013	
		Longitudinal Root and Face Bend test on welded joints	IS 3600 (Part 7): 2013	
		Static Load Test on Helical Compression Springs (Characteristic Curve)	IS 7906 (Part 2): 2014	Upto 600 kN
II.	**INDUSTRIAL EQUIPMENTS/INSTRUMENTS/PRODUCTS**			
1.	**IS 6595:2017 Horizontal Centrifugal pumps**	Pump Performance test Flow	IS 11346:2017	 Upto 75 l/s
	IS 9542:2017 Horizontal Centrifugal Monoset pumps	Head		Upto 70 kg/cm^2
		Power		Upto 11 kW
		Efficiency		Upto 95 %
	IS 8418:2014 Self-Priming Pumps	Hydrostatic Pressure test		Upto 70 kg/cm^2
		Self-Priming test		0 to 60 min.
2.	**IS 10805:1986 Foot Valves, Reflux Valves and Bore Valves**	Performance test K Value Pressure	IS 10805:2016	Pipe Size: 150 mm NB Upto 150mm NB Diff Head: 1 bar
III.	**SCIENTIFIC OR MEASURING EQUIPMENTS**			
1.	**IS 779:2015 Domestic Water Meter**	Performance test Pressure Tightness	IS 6784:2017	 Upto 40 kg/cm² LC : 1 kPa
		Loss of Pressure		Upto 25 lps

Laboratory	**Scientific and Industrial Testing and Research Centre, #83 & 84, Avarampalayam Road, K.R. Puram Post, Coimbatore, Tamil Nadu**	
Accreditation Standard	**ISO/IEC 17025: 2017**	
Certificate Number	**TC-5324**	**Page 47 of 47**
Validity	**01.01.2019 to 31.12.2020**	**Last Amended on --**

"In view of the transition for ISO/IEC 17025:2017, the validity of this accreditation certificate will cease on 30.11.2020"

Sl.	Product / Material of Test	Specific Test Performed	Test Method Specification against which tests are performed	Range of Testing / Limits of Detection
		Metering Accuracy		
		Temperature Suitability		Upto 100 Deg C
		Life Test (for tests given under a, b, c & d)		

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