PRODUCT MANUAL FOR PRECAST CONCRETE CABLE COVERS ACCORDING TO IS 5820: 1970

This Product Manual shall be used as reference material by all Regional/Branch Offices & licensees to ensure coherence of practice and transparency in operation of certification under Scheme-I of Bureau of Indian Standards (Conformity Assessment) Regulations, 2018 for various products. The document may also be used by prospective applicants desirous of obtaining BIS certification licence/certificate.

1.	**Product**	:	IS 5820: 1970
	Title	:	Precast Concrete Cable Covers
	No. of Amendments	:	Nil
2.	**Sampling Guidelines:**		
a)	**Raw material**	:	Please refer ANNEX- A
b)	**Grouping guidelines**	:	Please refer ANNEX- B
c)	**Sample Size**	:	30 Nos of Cable Covers
3.	**List of Test Equipment**	:	Please refer ANNEX – C
4.	**Scheme of Inspection and Testing**	:	Please refer ANNEX – D
5.	**Possible tests in a day**	:	
	i) Dimensions (Clause 4.1) ii) Reinforcement (Clause 5.5) iii) Finish (Clause 6.1)		
6.	**Scope of the Licence:**		
	Licence is granted to use Standard Mark as per IS 5820: 1970 with the following scope:		
	Name of the product	Precast Concrete Cable Covers	
	Class	EHV/ HVP/ HV/ LV	
	Type	1/ 2/ 3	
	Shape	Flat/ With Peak/Arched type	
	Unreinforced/ Reinforced		

ANNEX A

Raw Material

1. Cement: Cement shall be ISI marked and as per clause 2.1 of IS 5820

2. Aggregates: Clause 2.2 of IS 5820

3. Water: Clause 2.3 of IS 5820

4. Steel wire or rods: Clause 2.4 of IS 5820 and shall be ISI marked

5. Concrete: Clause 5.1 of IS 5820 and shall be minimum M20 as per IS 456.

Note: If different type and/or sizes of steel for reinforcement are used, it shall be treated as additional raw material. Similarly, if source and/or size and types of coarse and fine aggregate has changed, it shall be treated as additional raw material.

ANNEX B

Grouping Guidelines

1. IS 5820: 1970 covers Precast Concrete Cable Covers which are categorised as given below:

	Class								
	EHV		**HVP**		**HV**		**LV**		
Type	1	2	1	2	1	2	1	2	3
Shape	With peak	With peak	With peak	With peak	Flat	Flat	Flat	Flat	Flat
Reinforced/ Unreinforced	Reinforced		Unreinforced		Unreinforced		Unreinforced		

(Arched type cable covers are also permitted, with typical design as given in Fig 3 of IS 5820. These cable coves are manufactured with suitable changes in dimensions to confirm to the other dimensions of the standard)

2. Considering the above, following grouping guidelines is developed for GoL/CSoL:

a) Sample of each class of cable cover shall be tested for all requirements to cover that particular class of precast concrete cable cover in the scope of the licence.

b) If cable covers of Type 2 of class EHV/HVP are tested, cable covers of Type 1 of the corresponding class may also be covered in the scope of the licence.

c) If cable cover of Type 2 of class HV is tested, cable covers of Type 1 of class HV and Type 1, 2 and 3 of class LV may also be covered in the scope of the licence.

d) If cable covers of any type of class LV is tested, cable covers of other types of class LV may also be covered in the scope of the licence.

e) Arched type cable cover shall be tested separately to cover that variety in the licence.

3. The Firm shall declare the varieties of Precast Concrete Cable Covers intended to be covered in the Licence. The Scope of Licence may be restricted based on the Manufacturing and Testing capabilities of the Manufacturer.

4. During the operation of the Licence, BO shall ensure that all the varieties covered in the Licence are tested in rotation, to the extent possible.

ANNEX C

List of Test Equipment

Major test equipment required to test as per the Indian Standard

Sl. No.	Tests used in with Clause Reference	Test Equipment
1.	Size of aggregates (Clause 2.2.1)	- IS sieve 10 mm
2.	Dimensions and Tolerances (Clause 4)	- Steel Scale - Vernier Calliper, - Outside Calliper - Depth gauge
3.	Compressive strength of concrete cubes (Clause 5.1)	- 150 x 150 mm Cube Moulds, - Concrete cube vibrating machine, - Measuring jars, - Weighing Balance, - Curing tank, - Compression Testing Machine,
4.	Reinforcement cage (Clause 5.5)	- Weighing balance - Micrometer - Vernier calliper - Steel scale - Steel tape
5.	Impact Strength (Clause 8.2)	- Impact Testing Apparatus as per clause 8.2, Appendix A and Fig 5 of IS 5820: 1970 with all accessories
6.	Transverse Strength (Clause 8.3)	- Transverse Strength Testing Machine as per clause 8.3, Appendix B and Fig 6 of IS 5870: 1970 - Thermostatically controlled Water Bath - Stop Watch

The above list is indicative only and may not be treated as exhaustive.

ANNEX D

Scheme of Inspection and Testing

1. LABORATORY - A laboratory shall be maintained which shall be suitably equipped (as per the requirement given in column 2 of Table 1) and staffed, where different tests given in the specification shall be carried out in accordance with the methods given in the specification.

1.1 The manufacturer shall prepare a calibration plan for the test equipments.

2. TEST RECORDS –The manufacturer shall maintain test records for the tests carried out to establish conformity.

3. LABELLING AND MARKING – As per the requirements of IS 5820: 1970.

4.CONTROL UNIT – Every 500 Cables covers or part thereof, of same class and type, manufactured under similar conditions of manufacturing in day (from same consignment of cement, same mix design for concrete/mortar and similar curing condition) shall constitute a control unit.

5. LEVELS OF CONTROL - The tests as indicated in column 1 of Table 1 and the levels of control submitted by the manufacturer in column 3 of Table 1, shall be carried out on the whole production of the factory which is covered by this plan and appropriate records maintained in accordance with paragraph 2.0 above.

5.1 All the production which conforms to the Indian Standards and covered by the licence should be marked with Standard Mark.

6. REJECTIONS–Disposal of non-conforming product shall be done in such a way so as to ensure that there is no violation of provisions of BIS Act, 2016.

TABLE 1

(1)				(2)	(3)		
Test Details				**Test equipment requirement R: required (or) S: Sub-contracting permitted**	**Levels of Control**		
Cl.	**Requirement**	**Test Method**			**No. of Sample**	**Frequency**	**Remarks**
		Clause	**Reference**				
2	**Materials**						
2.1	Cement	2.1	IS 5820	S	-	-	Cement received shall be ISI marked and accompanied with test certificate.
2.2	Aggregates	2.2	IS 5820 IS 383 IS 3812 (Part 2)	S	One	Once in year for each type and size.	Additional sample shall be tested wherever there is change in source of raw material.
3.3	Water	3.3	IS 5820 IS 456	S	One	Once in a year or whenever there is a change in source of water, whichever is earlier	
2.4	Steel wire or rod	2.4	IS 5820 IS 432 (Part 1) IS 432 (Part 2) IS 1786 IS 1566	S	-	-	Reinforcement material received shall be ISI marked and accompanied with test certificate.
4.1	Dimensions	4.1, Table 1	IS 5820	R	One	From every 10 covers casted	Cable cover may be checked by gauging/templates.
5.1	Compression test on concrete cubes	5.1	IS 5820 IS 456	R	One sample consisting of 3 cubes from each consignment of cement	Supply of cement executed against order spread over up to three months shall be taken as one consignment for this test only. One sample may be tested in a month in case same mix is used for different size/class of pipes.	

5.5	Reinforcement	5.5	IS 5820	S	One	Each cage manufactured	-
6	Finish	6.1	IS 5820	R	Each cable cover	-	-
8.2	Impact Strength	8.2 Appendix A	IS 5820	R	One	Each control unit	Applicable for reinforced concrete cable cover.
8.3	Transverse Strength	8.3 Appendix B	IS 5820	R	One	Each control unit	Applicable for unreinforced concrete cable cover.

Note-1: Sub-contracting is permitted to a laboratory recognized by the Bureau or Government laboratories empanelled by the Bureau.

Note-2: Levels of control given in column 3 are only recommendatory in nature. The manufacturer may define the control unit/batch/lot and submit his own levels of control in column 3 with proper justification for approval by BO Head.