



# PRODUCT STANDARD

## SWITCHGEAR ENGINEERING DIVISION

SG 12710 REV.08

PAGE 1 OF 3

### SPRING CHARGING MOTOR

#### 1. INTRODUCTION

Spring charging motor to Drawing. No. 25211001582 & 35211001915 is used in spring operating mechanism of Vacuum Circuit Breaker. Its function is to charge the closing spring electrically.

#### 2. CONSTRUCTIONAL FEATURES

- (1) This is a single phase, FHP vertically mounted universal motor (series wound or compensated series wound) which may be operated either on DC or single phase AC at approx. the same speed and output. Direction of rotation is clockwise when viewed from key way end of the shaft. It shall not rotate anticlock wise in any connection combination. The motor shall generally confirm to IS: 996-1979.
- (2) The motor shall be suitable for operation through a full wave rectifier (without filter) when operated on single phase AC.
- (3) The motor enclosure shall be preferably open Ventilated Type made of Aluminium Die Casting.
- (4) Brushes shall be of carbon and generally confirming to IS: 3003 (Part III) 1978. These shall be easily replaceable type. Since Brush material gets eroded with multiple operations. Design and setup shall be such that brushes are suitable for more than 10,000 operations without replacements.
- (5) Insulating materials used shall be in accordance with IS: 1271-1958. Insulating plates or mountings used shall be of Glass fibre laminates or Glass filled nylon of fire retardant property.
- (6) The shaft end projecting on the mounting flange side shall be provided with "Keyway" and the matching parallel key (size A3 x 3 x 16 DIN 6885). Key shall be protected against falling by providing adhesive tape over the key and shaft or by some other suitable means.
- (7) Connection leads shall be of minimum cross section 0.75 mm.sq. and length 250 mm. The leads shall be covered with flexible sleeve of suitable material.
- (8) Motor shall be treated to make it suitable for operation in harsh tropical conditions including coastal areas.
- (9) Antitracking or other suitable paint shall be applied on motor windings and its clamps for aesthetic improvements.

**COPYRIGHT AND CONFIDENTIAL**

The information on this document is the property of Bharat Heavy Electricals Limited  
It must not be used directly or indirectly in any way detrimental to interest of Co.

REV.	08	PRINTS TO:-		APPROVED –		
ALTD.	PKN	SWM (PLNG)	1	HRP		
APPD.	MAK	QCX (SCR)	1	PREPARED	ISSUED	DATE
DATE.	08-09-14	PDG	1			
		O/C	1	S.M.M	B.P.N	07.06.95



# PRODUCT STANDARD

## SWITCHGEAR ENGINEERING DIVISION

SG 12710 REV.08

PAGE 2 OF 3

(10) Rating plate with screen printed AL foil to be provided duly riveted stating the following.

- 1) Type of the motor
- 2) Sr No
- 3) Rated voltage
- 4) Full load Current
- 5) No Load RPM
- 6) F.L (Input) watts.
- 7) Short time Rating (Time in min)
- 8) Suppliers name or logo.
- 9) IS:996

### 3. RATED PARTICULARS

The motor shall have following ratings :

<u>PARAMETER FOR ITEM</u>	<u>25211001582</u>	<u>35211001915</u>
RATED VOLTAGE	As per drg. item +/- 15%	As per drg. item +/- 15%
RATED OUTPUT	365 Watts (Approx)	520 Watts (Approx)
SPEED AT RATED OUTPUT	8000 RPM	10000 RPM
SPRING CHARGING TIME AT FULL LOAD	< 12 SECS.	< 12 SECS.
RATED FULL LOAD CURRENT	4 A for 220 VDC / 230 VAC Motor 7 A for 125 VDC Motor 8 A for 110 VDC Motor	
OPERATING DUTY	SHORTTIME (Motor shall be suitable for 25 spring charging operations at a stretch. One spring charging operation takes 10-12 seconds)	
OPERATING TEMPERATURE	- 10 To + 80 °C.	
DIRECTION OF ROTATION	CLOCK WISE (When viewed from Keyway end of the shaft).	

### 4. QA PLAN

QA Plan shall be submitted along with offer & got approved .This shall include tests & measurements on raw material , semi finished / finished products and details of manufacturing process followed including tools, jigs & fixtures /gauges used at different stages to ensure quality of end product.

**COPYRIGHT AND CONFIDENTIAL**

The information on this document is the property of Bharat Heavy Electricals Limited. It must not be used directly or indirectly in any way detrimental to interest of Co.



# PRODUCT STANDARD

## SWITCHGEAR ENGINEERING DIVISION

SG 12710 REV.08

PAGE 3 OF 3

**COPYRIGHT AND CONFIDENTIAL**

The information on this document is the property of Bharat Heavy Electricals Limited  
It must not be used directly or indirectly in any way detrimental to interest of Co.

### 5. TEST REQUIREMENTS

Following tests shall be conducted at supplier's works:

#### TYPE TESTS

Type tests as per clause 15.3.2 of IS: 996-1979 for the first supply at independent test lab. Subsequently type tests at an interval of four years.

#### ROUTINE TESTS

Following Routine tests as per clause 15.4.2 of IS:996-1979 on each motor being supplied shall be done

- (a) No-load current power input and speed at rated voltage and rated frequency (for ac motor only).
- (b) Insulation resistance test.
- (c) High voltage test.

### 6. ACCEPTANCE CRITERION

- (I) Supplier shall furnish routine and acceptance test report as per approved QA Plan dimensional report as per approved drawing along with each lot supplies.
- (II) Motors shall be subjected to operations test at BHEL works for lot size as per IS 996 Appendix – E after mounting in spring operating mechanism of VCB for following observations:
  - Spring charging time at rated voltage shall be 12 sec (max).
  - Spring charging operation with motor at the minimum and maximum specified voltage shall be verified.

### 7. IDENTIFICATION MARKINGS FOR TRACEABILITY

- (a) Rating plate as per clause 2 (10).
- (b) For identification blue paint mark on item-001 220V motor; and yellow paint mark on item-003 110V.

### 8. PACKING

Each motor shall be packed in polythene bag and then stapled. The packed motor shall be kept in a hard card board box and the lot shall be supplied packed in wooden crate.