

ANNEXURE-A TO PURCHASE INDENT		REV.NO.- 00
BHEL	Technical Specification of: Mech Interlock	Page 1 of 6
Bhopal		
SWE	PI No.:	Enq. No.:
		PO No.:
W.O. Nos. :		

## MECHANICAL INTERLOCKS & KEY

### 1.0 **Objective:**

This specifications governs the requirements for MECHANICAL INTERLOCKS, BOLT LOCK & KEY INCLUDING KEY EXCHANGE BOX for use in Switchgear panels.

The basic lock consisting of a main spindle with die-cast head in a brass housing. A key with inscription corresponding to the inscription on the die-cast head of spindle can be inserted in the housing to rotate the spindle in the clockwise or anticlockwise direction thro' 45, 60, 85, 90 or 360 degree.

### 2.0 **Application:**

The locks can be used in different mechanical interlocking schemes to ensure a definite sequence of operation of one or more industrial or substations equipment (Power plants/Distribution).

### 3.0 **Technical specifications:**

S.No.	Description	BHEL Requirement	Supplier confirmation (YES/NO)
1	Material	Brass casting AA-19912	
2	Finish	Nickel plated with chrome finish Thickness of plating > 5 microns	
3	Direction of rotation (from free to trap key)	Clock-wise from the front of lock	
4	Angle of rotation of key	90 degree unless otherwise stated	
5	Dimensions	As per figures 1, 2 & 3	
6	Height/Depth of inscription letters	Minimum 3mm	
7	For one particular project :		
	i) Whether it is possible to insert keys having one inscription, on the locks having other inscription	No	
	ii) Whether keys of the same inscription are common for loose locks & locks fitted on key exchange box.	Yes	
8	All the locks & key pertaining to one particular board will be packed together in one single packet	Yes	
9	All the packets pertaining to one project will be kept together to form one package	Yes	
<b>Note:</b> Supplier shall give unembossed locks, keys & key exchange boxes in absence of above inscription details from BHEL. However, items shall be taken back by supplier as and when these details are furnished and supply embossed items within 10 days of issue. This activity will be coordinated by planning.			

ANNEXURE-A TO PURCHASE INDENT		REV.NO.- 00
BHEL	Technical Specification of: Mech Interlock	Page 2 of 6
Bhopal		
SWE	PI No.:	Enq. No.:
		PO No.:
W.O. Nos. :		

#### **4.0 ITEM DETAILS**

**Table-1**

<b>Item No.</b>	<b>Item Description &amp; drawing reference</b>	<b>Supplier confirmation</b>
1	Castle Lock (spindle length 20mm) - Fig.1	
2	Castle Lock (spindle length 65mm) - Fig.3	
3	Key for above locks - Fig.1	
4	Key exchange box with 2 front locks without keys & one control lock with key-Fig.2	
5	Key exchange box with 3 front locks without keys & one control lock with key-Fig.2	

#### **5.0 Packing:**

All items shall be properly packed to avoid any damage during transport and handling. All package shall be marked with following information:

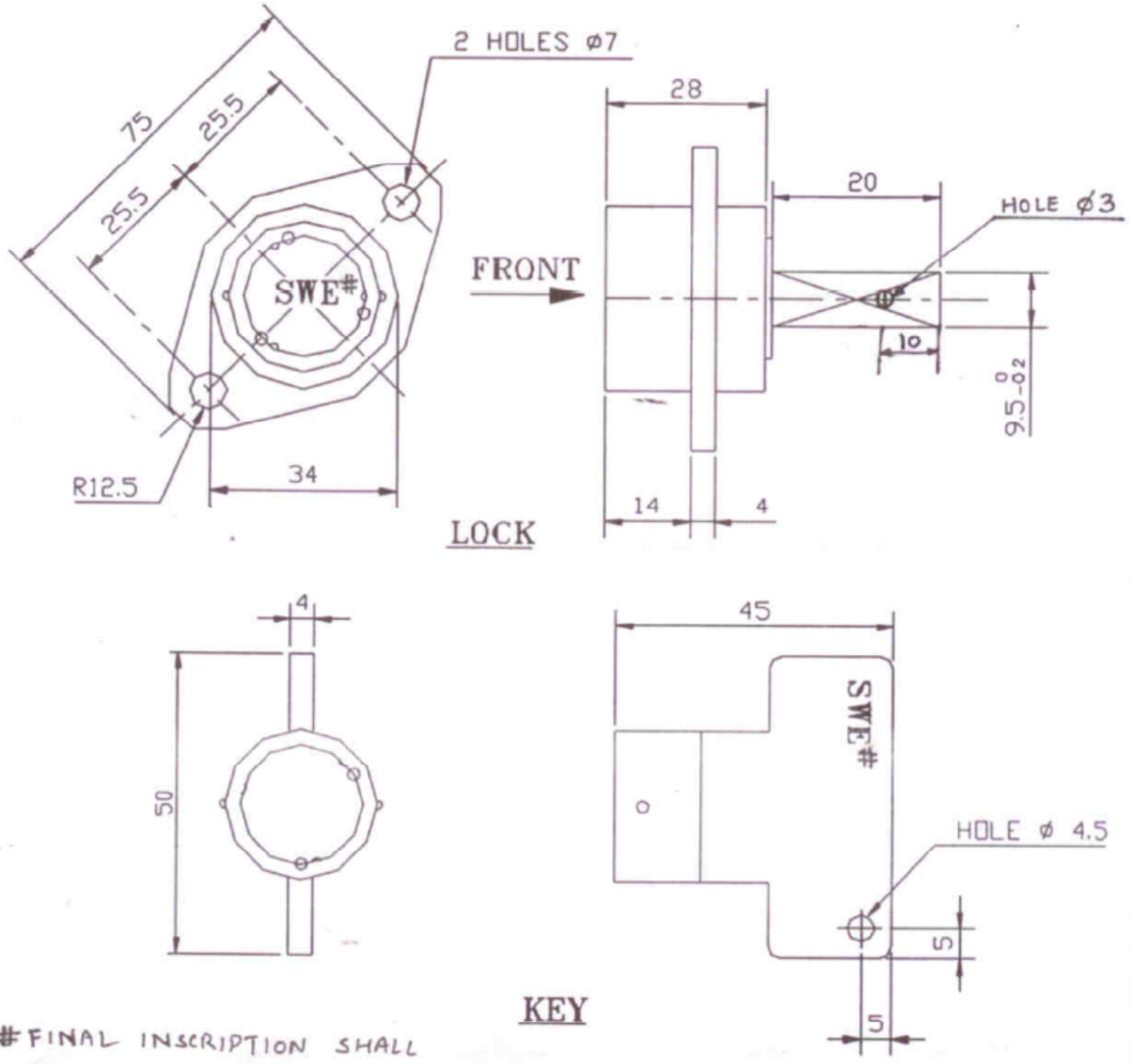
Project Name :  
 BHEL Order No. :  
 W.O. No. :  
 Itemwise quantity (Item 1, 2, 3, 4, 5 &6) :  
 Batch/Lot No. :  
 Manufacturer's Name and TYPE :  
 Month and Year of Manufacture :

#### **6.0 Acceptance norms:**

All the items are to be accepted based on the following:

- Verification of inscription marked on the MECHANICAL INTERLOCKS, KEYS & KEY EXCHANGE BOXES with Annexure-I.
- Smooth & Free movement in operation.
- Visual inspection for defect free surface & smooth finish.
- Key exchange box & their labels as per Annexure-I.
- Dimensional checks as per figures 1, 2 & 3

ANNEXURE-A TO PURCHASE INDENT		REV.NO.- 00
BHEL	Technical Specification of: Mech Interlock	Page 3 of 6
Bhopal		
SWE	PI No.:	Enq. No.:
		PO No.:
W.O. Nos. :		



#FINAL INSCRIPTION SHALL BE AS PER DETAILS FURNISHED VIDE ANNEXURE-I.

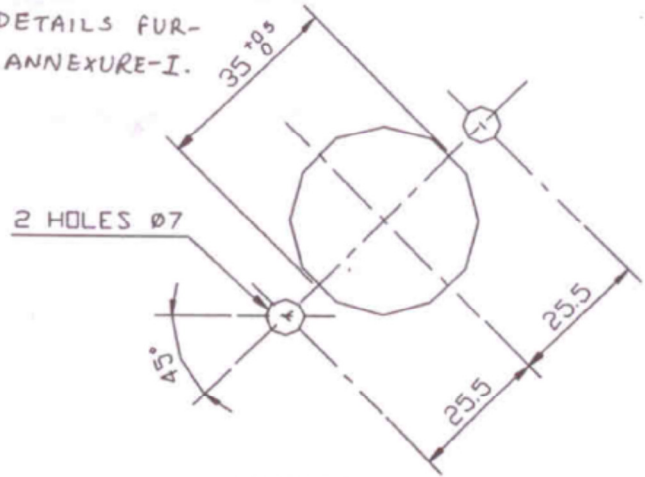
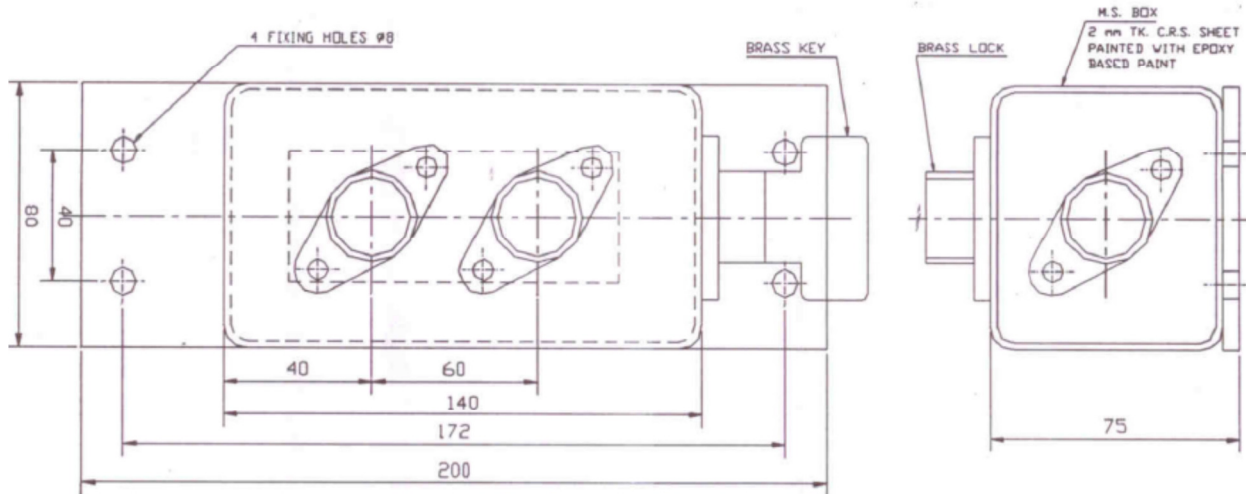


FIG.-1

DRILLING PLAN  
MECHANICAL INTERLOCK AND KEY

ANNEXURE-A TO PURCHASE INDENT		REV. NO. - 00
BHEL	Technical Specification of: Mech Interlock	Page 4 of 6
Bhopal		
SWE	PI No.:	Enq. No.:
		PO No.:
W.O. Nos. :		

**KEY EXCHANGE BOX ONE END LOCK WITH KEY & TWO FRONT LOCKS WITHOUT KEYS**



**THE LOCKS:-**

THE LOCKS ARE MOUNTED IN A SINGLE ROW ON THE FRONT OF THE HOUSING WITH THE CONTROL LOCK ON THE RIGHT HAND SIDE. THE MECHANISM INSIDE THE BOX ENSURES THAT:

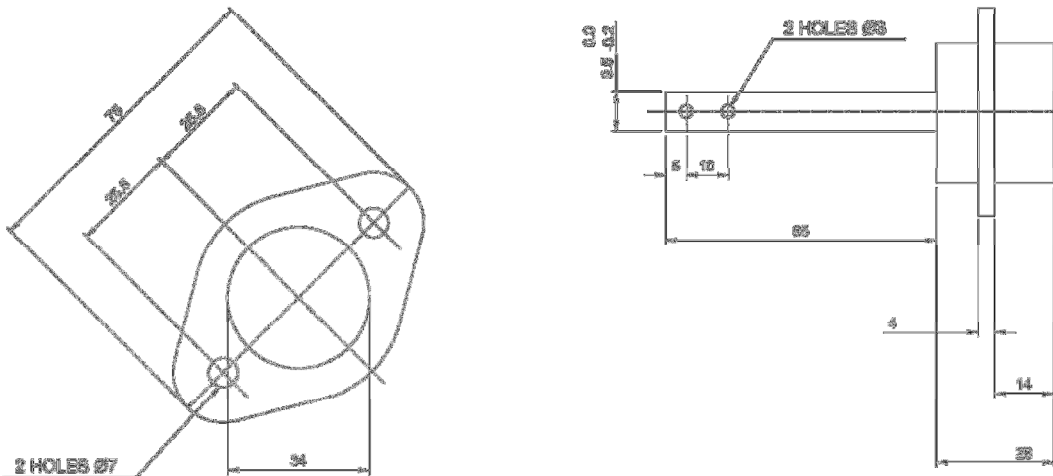
1. THE CONTROL LOCK KEY IS TRAPPED WHEN ALL OR ANY OF THE FRONT KEYS ARE REMOVED.
2. WHEN THE CONTROL KEY IS REMOVED ALL THE FRONT KEYS ARE TRAPPED WITHIN THEIR LOCKS

FOR DIMENSIONS OF LOCK & KEY REF. FIG. 1

**NOTES:-**

1. GENERAL FABRICATION TOLERANCE  $\pm 2$  mm.
2. FIXING HOLES CENTRE TO CENTRE DISTANCE TOLERANCE  $\pm 1$  mm.
3. THE VIEW SHOWN ABOVE IS WITH TWO NOS. FRONT LOCK INCREASE MORE THAN TWO NOS. LOCKS ARE REQD. THE SAME SHALL BE MOUNTED AT A CENTRE DISTANCE OF 60 mm.

**FIG.-2**



**Figure-3**

ANNEXURE-A TO PURCHASE INDENT		REV. NO.- 00
BHEL	Technical Specification of: Mech Interlock	Page 5 of 6
Bhopal		
SWE	PI No.:	Enq. No.:
W.O. Nos. :		PO No.:

## **ITEM 006 Solenoid Operated Key Exchange Box**

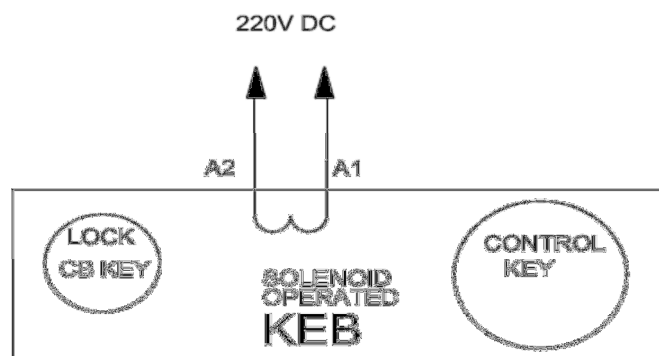
### **1.0 Objective:**

This specification governs the requirements of SOLENOID OPERATED KEY EXCHANGE BOX for use in Switchgear panels.

The box comprises of two lock, one key and a solenoid operating at 220VDC.

### **2.0 Operation of Key exchange box :**

- 1) 1 no. Solenoid operated Key Exchange box to be provided in as per Fig below:



**Fig-1**

- 2) Solenoid operated KEB (Key Exchange Box) will be provided with One control Key, one LOCK for CB (Circuit Breaker) Key and provision for 220 DC supply to operate solenoid. Control Key can only be taken out from KEB when two conditions-A & Condition-B are met simultaneously. Condition-A: CB Key in inserted and Condition-B 220V DC supply is extended to KEB. The condition is detailed below:

S.No.	CB Lock (Key from breaker truck)	220V DC Aux. Supply	Control Key
1	Not inserted	Not available	Trapped
2	Not inserted	Available	Trapped
3	Inserted	Available	Released
4	Inserted	Not Available	Trapped

- 3) Once control key is released reverse process needs to be followed, Circuit breaker key should be released once control key is inserted. The condition is detailed below:

S.No.	Control Key	220V DC Aux. Supply	CB Lock (Key from breaker truck)
1	Not inserted	Not available	Trapped
2	Not inserted	Available	Trapped
3	Inserted	Available	Released
4	Inserted	Not Available	Released

ANNEXURE-A TO PURCHASE INDENT		REV.NO.- 00
BHEL	Technical Specification of: Mech Interlock	
Bhopal	Page 6 of 6	
SWE	PI No.:	Enq. No.:
W.O. Nos. :	PO No.:	

### 3.0 **Packing:**

Key exchange box shall be properly packed to avoid any damage during transport and handling. A approved drawings of key exchange box shall be supplied along with each consignment.

Each package shall be marked with the following information:

BHEL Order No. :  
CODE NO. :  
Batch/Lot No. :  
Manufacturer's Name and TYPE :  
Month and Year of Manufacture :

### 4.0 **Acceptance norms:**

- Verification of the data marked on the Locks, Keys and key exchange box, with the specification requirement.
- Smooth & Free movement in operation.
- Visual inspection.
- Operation of Key exchange box as per the clause 2.0