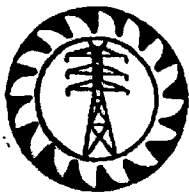


CEB STANDARD

055 : 2001

MECHANICAL COMPRESSION TOOLS



CEYLON ELECTRICITY BOARD
SRI LANKA

MECHANICAL COMPRESSION TOOLS

CEB Standard - 055 : 2001

CEYLON ELECTRICITY BOARD

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SPECIFICATION FOR MECHANICAL COMPRESSION TOOLS

1.0 SCOPE

This specification covers the design, manufacture and testing of compression tools for making Non Tension Crimp Joints/connections in Copper/Aluminium conductors.

2.0 APPLICABLE STANDARDS

The items and components supplied shall be in accordance with the standard specified below or later editions and/or amendments thereof.

- a) **BS 4579** - Performance of mechanical and compression joints in electric cable and wire connectors.
 - Part 1 (1988)** - Compression joints in copper conductors
 - Part 3 (1976)** - Mechanical and compression joints in aluminium conductors.

The Compression Tools shall be suitable for making crimp joints/connections in Aluminium/Copper conductors and service cables conform to the following standards

- b) **BS 6360 (1991)** - Conductors in insulated cables and cords.
- c) **BS 215 (1970)** - All Aluminium conductors and ACSR for Overhead Power Transmission.

3.0 BASIC FEATURES

3.1 General

The Compression Tool shall be of hand operated mechanical type for making effective non-tension tap/terminal joints in Copper/Aluminium Conductors.

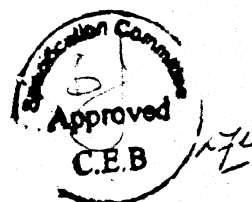
3.2 Dimensions

The maximum weight of the tool shall not exceed 3 kg and the length shall not exceed 700mm.

3.3 Design & Material

The Jaws of the tool shall be of forged high grade tool steel of uniform quality, smoothly finish and free from hard spots cracks and other defects. Jaws shall be provided with insulated covers which shall have a rated withstand voltage not less than 1kV.

The arms and the housing of the operating mechanism of the compression tool shall be made out of a non conducting material with adequate mechanical strength. Jaws of the tool shall be insulated and the tool shall be suitable for use on energized low voltage distribution lines with voltages upto 1kV between conductors.



The handle shall be made of high strength composite polymer/fibreglass for long life, durability and enhanced corrosion resistance.

The dies shall be of high grade tool steel properly heat treated to withstand mechanical stresses without damage.

All bolts shall be of hardened steel and bronze bushings for wear resistance. Bushings made out of any other superior material shall be accepted. All nuts shall be of the self-locking type. The tool shall be provided with two fixed dies corresponding to Index No. "0 and D3". The D3 groove shall also be used as nest for the other industrial standard die inserts.

3.4 Joints and Connections

The dies supplied shall match the connectors of Burndy compatible and shall be suitable for making crimp joints/connections in the conductors of following sizes.

a) H Type Connectors (Non Tension Joints)

Main Cond.	No. of str. & Wire Dia.	Overall Diameter	Tap Cond.	No. of Str. & Wire Dia.	Overall Diameter
AAC Wasp	7/4.39mm	13.17mm	Service Cable Al.	7/1.35mm	4.05mm
AAC Wasp	7/4.39mm	13.17mm	- do -	7/1.70mm	5.10mm
AAC Wasp	7/4.39mm	13.17mm	AAC Fly	7/3.40mm	10.20mm
AAC Wasp	7/4.39mm	13.17mm	AAC Wasp	7/4.39mm	13.17mm
AAC Fly	7/3.40mm	10.20mm	Service Cable Al.	7/1.35mm	4.05mm
AAC Fly	7/3.40mm	10.20mm	- do -	7/1.70mm	5.10mm
AAC Fly	7/3.40mm	10.20mm	AAC Fly	7/3.40mm	10.20mm

b) Repair Sleeve (Non Tension Joints)

Conductor Type	No. of strands & wire Diameter	Overall Diameter
AAC Wasp	7/4.39mm	13.17mm
AAC Fly	7/3.40mm	10.20mm

c) Cable Sockets (Non Tension Joints)

Copper 95mm², 70mm², 50mm², 35mm², 16mm²

Aluminium 95mm², 70mm², 50mm², 35mm², 16mm²

3.5 Dies

The "D3" groove shall be able to accommodate industrial standard dies suitable to make crimp connections of the type of conductors given in the above (a), (b) and (c).

The type of dies required for the above purpose shall be indicated in the offer. A set of dies required (one from each type) shall be supplied with each tool.



3.6 Technical Requirements

The Compression Tool shall be suitable to perform at least 90,000 crimps, without need to any adjustment or any part replacement.

The handle shall be provided with anti-slip grips to facilitate easier operation.

Die inserts shall positively get locked into place held securely by spring-applied die retainer buttons built into the jaw. Die retainer buttons shall be of replaceable type and shall be available as spare parts. Any other superior mechanism which holds the dies securely will be acceptable. Details of the mechanism together with drawings shall be supplied along with the offer.

4.0 QUALITY ASSURANCE

The manufacturer shall possess ISO 9002 Quality Assurance Certification for the manufacture of Mechanical Compression Tools for the plant where the offered Mechanical Compression Tools is manufactured. The Bidder shall furnish a copy of the ISO Certificate certified as true copy of the original by the manufacture, along with the offer.

5.0 ADDITIONAL REQUIREMENTS

5.1 Service and Spares

A list of free spare parts /dies supplied with each Compression tool shall be furnished with the offer.

The prices of recommended set of spares necessary for further 90,000 trouble free crimp operations shall be quoted separately.

5.2 Warranty

Minimum of one year warranty for any manufacturing defects shall be provided.

5.3 Markings

The cross section ranges of conductor/cable jointing accessories that could be crimped by the tool shall be range clearly and indelibly marked on the Compression tool/die.

The marking shall be weather and corrosion proof and the following shall also be indicated.

- i) Manufacturer's identification.
- ii) Type and Model number.
- iii) Compression (range of conductor sizes)

5.4 Packing

Each tool and the set of dies shall be supplied in a carrying box suitable for rough usage in the field. Canvas casings shall not be accepted.



6.0 INFORMATION TO BE SUPPLIED WITH THE OFFER

6.1 The following shall be furnished with the offer.

- (i) Catalogues describing the technical features of the equipment and indicating the Model Number.
- (ii) Constructional features and dimensional drawing
- (iii) Completed Schedule of Particulars , Annex. A.
- (iv) A list of names and addresses of preferably ten leading purchasers giving year of delivery and quantities supplied during the past five years.
- (v) Test certificates on the following, for the different crimp connections made using the tool offered. (Conductor sizes shall be indicated)
 - a) Resistance
 - b) Temperature rise
 - c) Failing load

Test Certificates performed shall conform to the standards specified. The test certificates shall clearly identify the equipment concerned showing the Manufacturer's identity, type/model number and basic technical parameters and shall be issued by an **Internationally recognised Independent Testing Authority acceptable to the purchaser.**

(vi) Documents to prove ISO 9001 Accreditation

6.2 Failure to furnish the particulars asked for in clause 5.1 will result in the offer being rejected

7.0 TECHNICAL LITERATURE AND DRAWINGS

The selected tenderer shall supply along with the equipment relevant drawings and technical literature including operation and maintenance instructions.

8.0 SAMPLE

One sample of Compression Tool offered shall accompany the Bid to facilitate analysis and evaluation.

9.0 ANNEX

A - Schedule of Particulars



GUARANTEED SCHEDULE OF PARTICULARS

(This schedule shall be duly filled by the Manufacturer)

- i) Country of Manufacture
- ii) Number and year of Standard adopted
- iii) Compression Range/Ranges (Cable Sizes)
- iv) Compression force/pressure and area of Compression
- v) Gross Weight and Length of the tool
- vi) Guaranteed number of operations during its life span.
- (vii) Whether in built 'O' and 'D3' die groves are provided.
- (viii) Number of dies offered, type, size with each tool.
- (ix) The type of dies to be used in grove 'D3' to make crimp connections in the conductors given in section 3.4 (a), (b) and (c).
- (x) The identification number of the die and corresponding conductor sizes that can be crimped using that die.
- (xi) Rated withstand voltage of the insulation of the Jaw Covers (Test Certificate shall be provided).
- (xii) Rated withstand voltage of the handle and the housing of the tool (Test Certificate shall be provided).
- (xiii) Whether the tool is completely insulated for making crimp type connections on energized Low Voltage Distribution Lines upto a voltage of 1kV between phases (Conductors)(Test Certificate shall be provided).

I/We certify that the above data are true and correct.

SEAL AND SIGNATURE OF THE BIDDER / MANUFACTURER




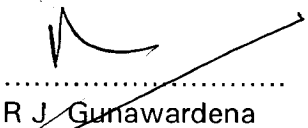
APPROVAL OF CEB STANDARDS

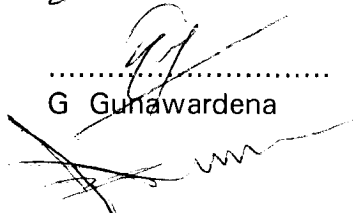
CEB Standard No. : *CEB Standard 055 : 2001*
Title of the Standard : *Mechanical Compression Tools*
Date of Approval : *February, 2001*

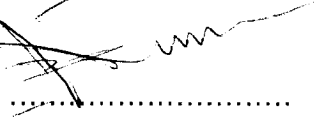
This is to certify that the above Standard has been recommended by us for Adoption in the CEB.

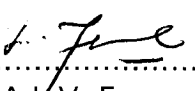

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Chairman Specification Committee
A M Tissera

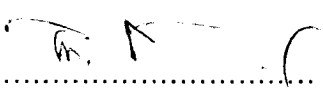

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Member Specification Committee
Mrs. B Jayaweera


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Member Specification Committee
R J Gunawardena


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Member Specification Committee
G Gunawardena

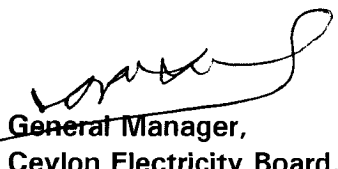

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Member Specification Committee
A K Devasurendra


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Member Specification Committee
M A L V Fernando


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Member Specification Committee
K K A C Samarasinghe


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Convenor Specification Committee
A K Thavaparendran

CEB Standard 055 : 2001 – Specification for Mechanical Compression Tools is approved for adoption in the CEB.


General Manager,
Ceylon Electricity Board.

Date : 19.02.2001