ELECON CONVEYOR PULLEYS

ELECON

Always step ahead in technology

Introduction

In the past three decades, few industries have changed more rapidly than the material handling industry in India. Technological advances and growing complexity of client needs, coupled with customer awareness have created a requirement for a new kind of organization, with a much broader range of largely sophisticated and specialized skills and capabilities than was normally found inthe traditional companies.

Cotton duck belts were replaced by synthetics, and then by steel cords. Capacities have catapulted from 200 tph plant to 20,000 tph or more. New theoretical concepts have replaced old ones, and a new era of computer programmes has been initiated.

To comply with this trend, Elecon has moved into vertical integration of all types to come up with the latest and most dependable designs and technical know-how.

Conveyor pulleys been recognized as a critical component of conveyor, failure of which could lead to extensive damage and down time. Hence special attention has been given to design an develop the most dependable pulleys.

The range of belt conveyor pulleys manufactured today in Elecon comes in three basic categories, i.e.,

- Standard construction pulleys
- Heavy-duty construction pulleys
- Extra heavy-duty construction pulleys.

Special custom pulleys are also manufactured to comply with customer requirements.

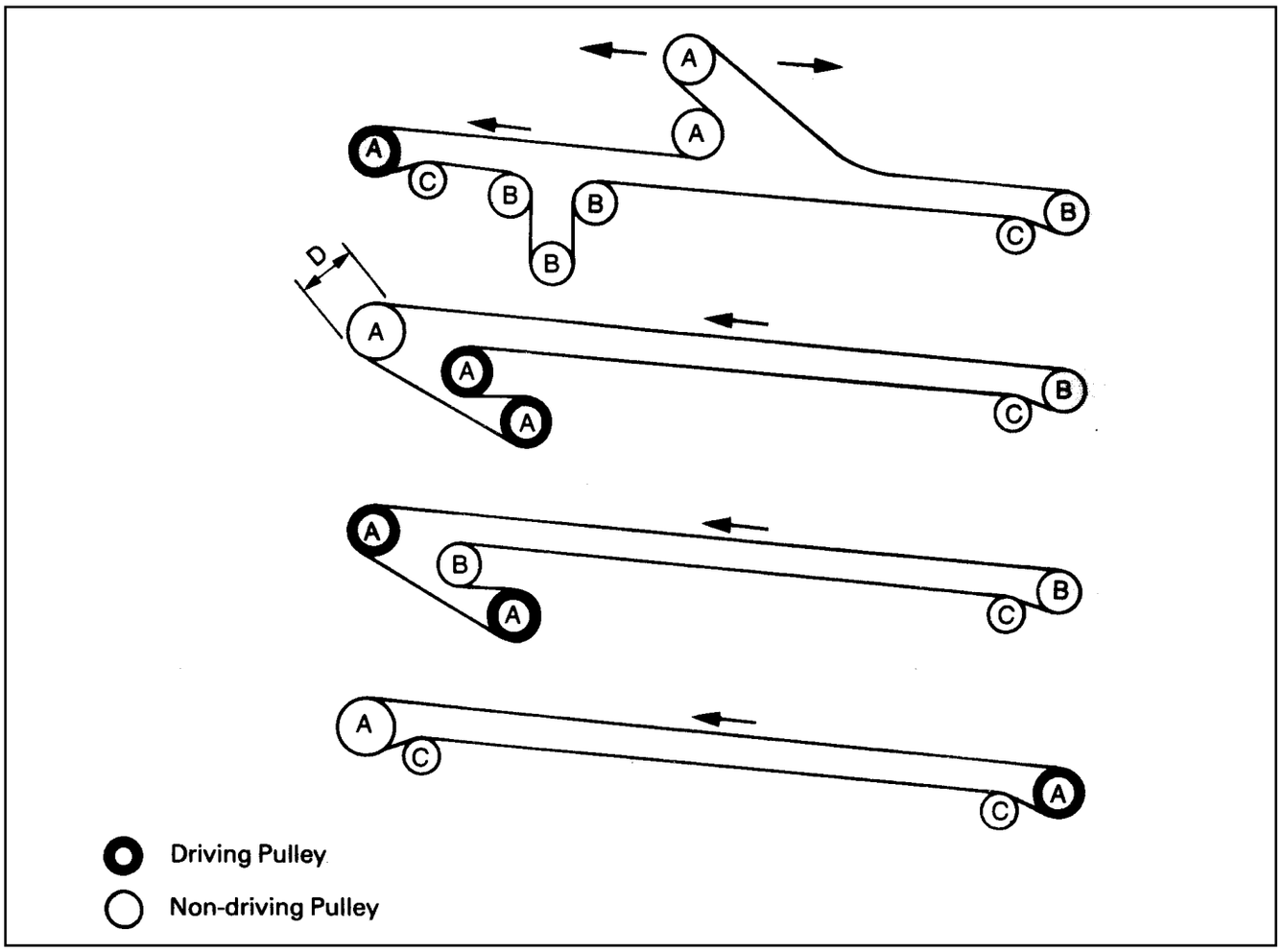

Figure 1

Selection of pulley diameters D of belt conveyors are based on ISO:3684

A

Driving pulleys and pulleys exposed to high belt tension, i.e., main driving pulley on the head or on the tail; delivery pulleys under full tension; loop pulleys in the tripper; terminal head pulleys in the case of tail driving, etc.

B

Snub pulleys in the return run under lower belt tension, i.e., terminal tail pulleys in the case of head driving; terminal head pulleys for down hill conveying if the terminal tail pulley is braked; snub and bend pulleys in take-up devices.

C

Bend pulleys , for a change of direction of the belt of less than 30^0.

Design

A special computer programme has been evolved to optimize on design and obviate any calculation errors. Pulleys are designed to cater to overload forces of short duration.

Quality

To ensure the best quality and dependability, a rigind form of stage inspection is enforced, starting with raw materials to component checking and final assembly.

Pulley diameters and face widths

Pulley diameters and face width dimensions are adopted as per IS:8531. However, the same can be supplied to comply with customer requirements.

Crowning on pulley face

For long conveyors, where the belt tensions are high, the crowning pulley is injurious to the belt and subsequently reduces belt life. In view of synthethic belts used now, and with deep trough conveyor idlers, crowning on pulley is a redundant feature and hence it is not recommended. However, if required by customer, crowning can be provided on pulleys as per IS:8531.

Lagged pulleys

Elecon can supply pulleys with hot vulcanized rubber lagging, plain or grooved, as required by client. Different patterns of grooving such as herring-bone or diamond can be provided to increase tractive friction under dirty or wet conditions. Diamond grooves have the advantage of being installed in any direction, regardless of belt direction.

Pulley shells

Pulley shells are accurately rolled from weldable quality steel. Tolerances are maintained strictly within limits specified in IS:8531.

Pulley shafts

Special CNC machines ensure accuracy and consistency for machine shafts. In case locking elements are used, sophisticated machines are available in shop, to achieve a high degree of surface finish and minimize ovality to ensure positive stress distribution. All shafts are ground to close tolerance where the bearing sits.

Bearing blocks

Bearing with bearing blocks can be supplied along with pulleys, with 2 or 4 mounting holes. Variety of seals can be provided depending on degree of protection required and duty involved.

Non-magnetic pulleys

Special non-magnetic pulleys with stainless steel shell and diaphragm plates are also manufactured for special requirements.

Balancing

All Elecon pulleys are statically balanced. Dynamically balanced pulleys are supplied upon request at extra cost.

Stress relieve

All Elecon pulleys are stress relieved.

Enquiry

We would be pleased to evaluate your requirements and offer you precision engineered pulley on receiving the following information :

1 Pulley diameter
2 Belt width
3 Bearing centres
4 Incoming belt tension
5 Outgoing belt tension
6 Angle of belt wrap in degree
7 Number of drives on pulley
8 Motor kW (each if 2 drives)
9 Belt speed
10 Type of high speed coupling
11 Type of drive employed between reducer and pulley
12 Rubber lagging : thickness, groove, pattern and type

Standard construction pulleys

Elecon standard construction pulleys incorporate hubs machined from weldable quality steel. The hubs connect the shaft with the shell by end diaphragm steel plates, which are welded with the hubs and shell.

Shaft to hub connection for drive pulleys would be keyed, while it would be shrink fitted for non-drive pulleys. However, the non-drive pulleys can be supplied with keyed construction on requirement.

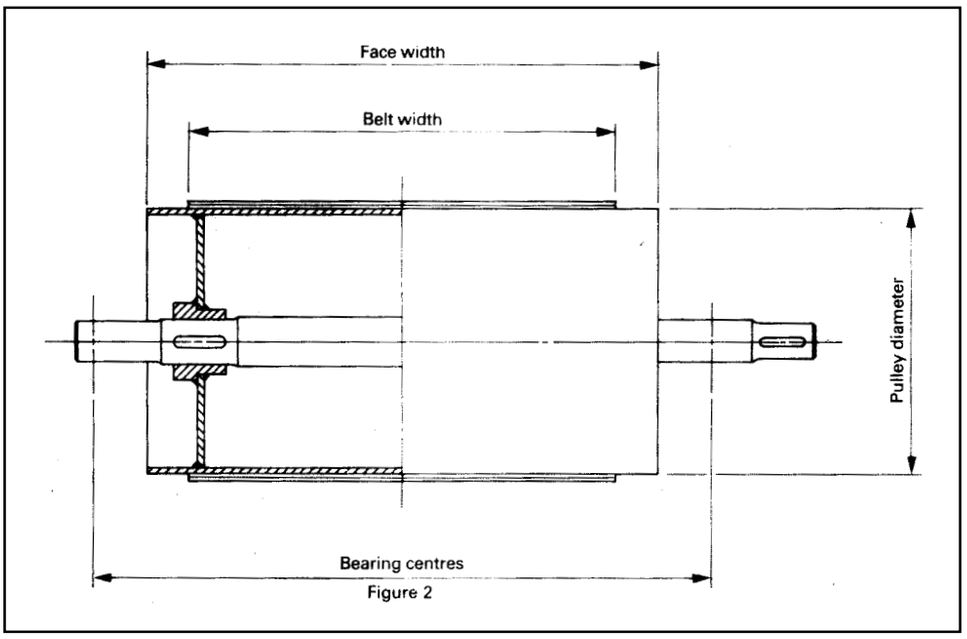

Figure 2

DRIVING PULLEYS

(Standard Construction)

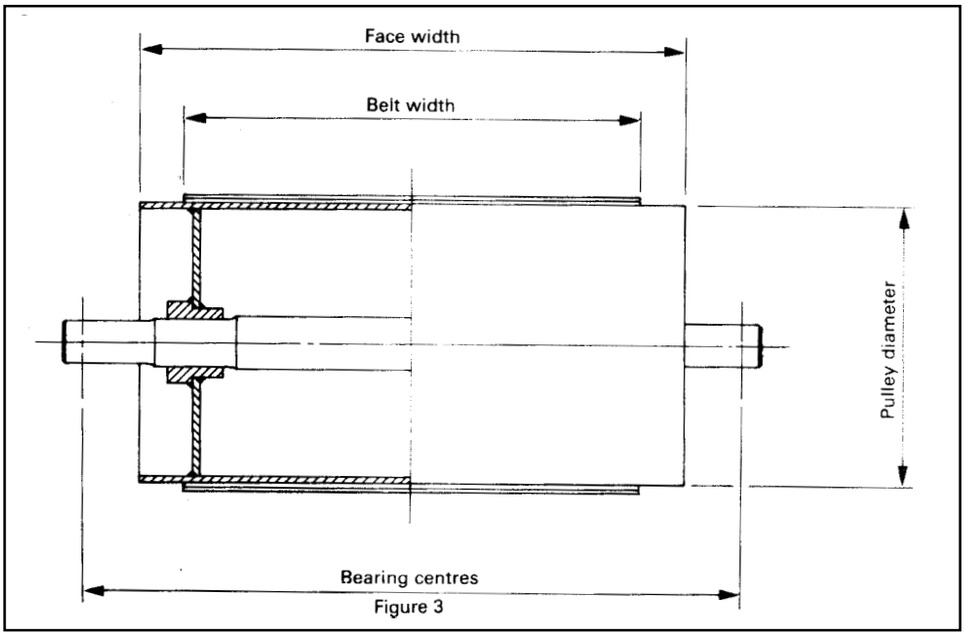

Figure 3

NON-DRIVING PULLEYS

(Standard Construction)

Heavy-duty construction pulleys

Elecon heavy-duty construction pulley are provided with steel diaphragms (end discs), welded with the shell and incorporate friction based releasable locking elements, which connect the shaft to the shell without the use of separate hubs. This type of end discs make it possible to eliminate the weld in the high stress zone. These locking elements are self-centring, and self-locking, as well as simultaneously, transmitting more torque than the equivalent solid shaft with keyway and also transmit axial thrusts without keys.

This type of locking assembly also proves invaluable, when shaft or shell require maintenance, as they facilitate easy removal and installation of shaft.

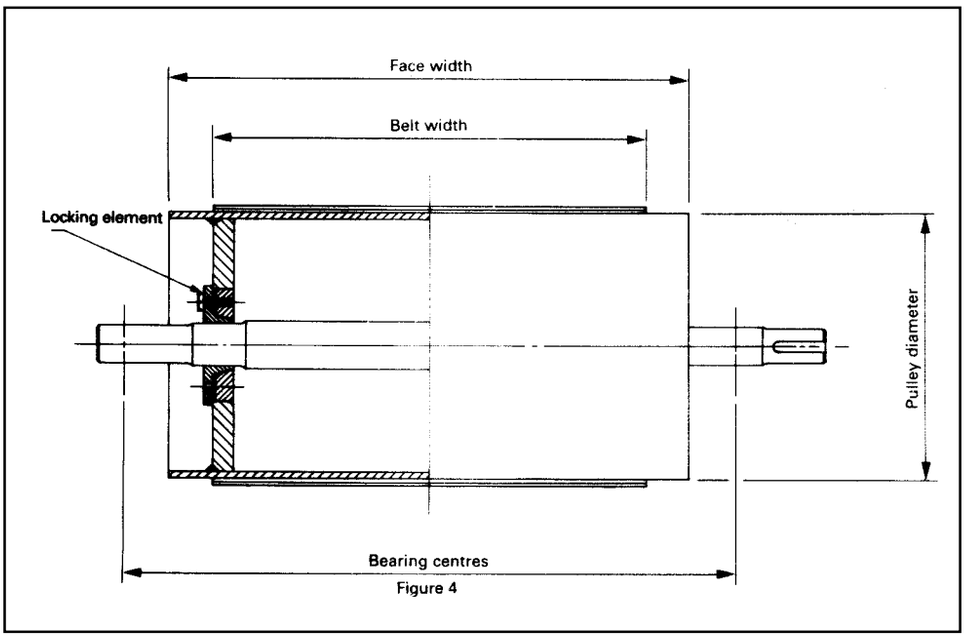

Figure 4

DRIVING PULLEYS

(Heavy-duty Construction)

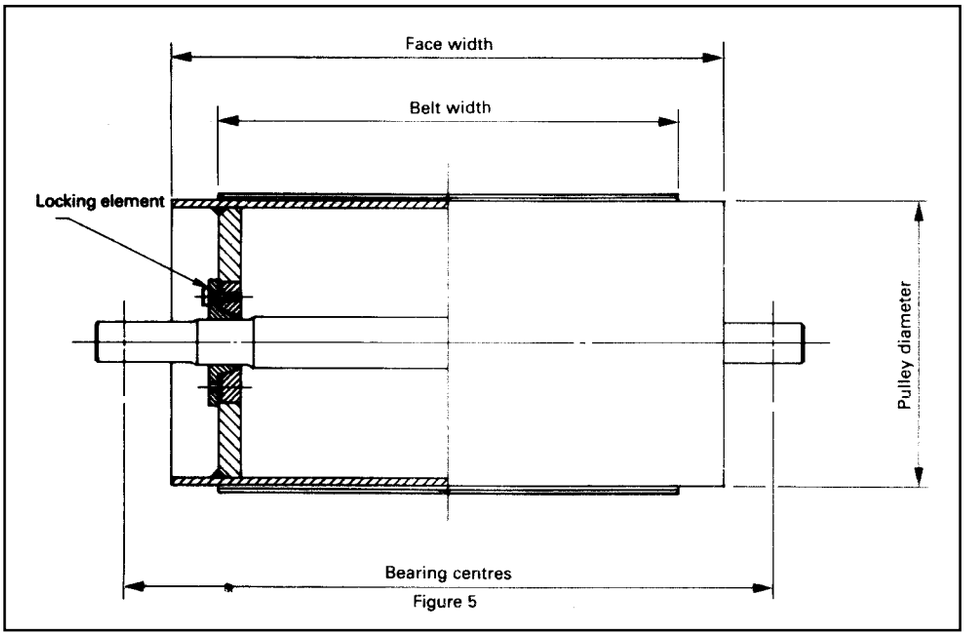

Figure 5

NON-DRIVING PULLEYS

(Havy-duty Construction)

Extra heavy-duty construction pulleys

Elecon also manufactures a range of custom-built extra heavy-duty pulleys suitable for any known application and to perform in arduous duties with extended fatigue life. This range of pulleys is designed with turbo-diaphragms of weldable quality cast steel, which are profiled to obtain even stress distribution. A characteristic of this type of diaphragm is in the welding of the diaphragm to the shell, where the altermating fatigue stresses are far lower.

For driving pulleys, the shaft to hub connection is by means of heavy-duty locking elements, which have the other characteristics and advantages similar to the locking elements used for heavy-duty construction pulleys.

For non-driving pulleys, the pulley body consisting of shell and turbo-diaphragms rotate on the fixed axle, with bearings mounted inside the pulley body.

Elecon has successfully supplied a number of such extra heavy-duty construction pulleys, both driving and non-driving, for Neyveli Lignite Open Cast Mines, handling 20,000 tph of overburden by belt coneyors having 2400 mm wide steel card conveyor belting at belt speed of 5.2 m/sec. The pulleys are designed and supplied to withstand belt pull of 320 tonnes and capable of transmitting 2 x 1250 kW of power. Elecon can also supply pulleys to meet even higher belt tensions and power transmission rating.

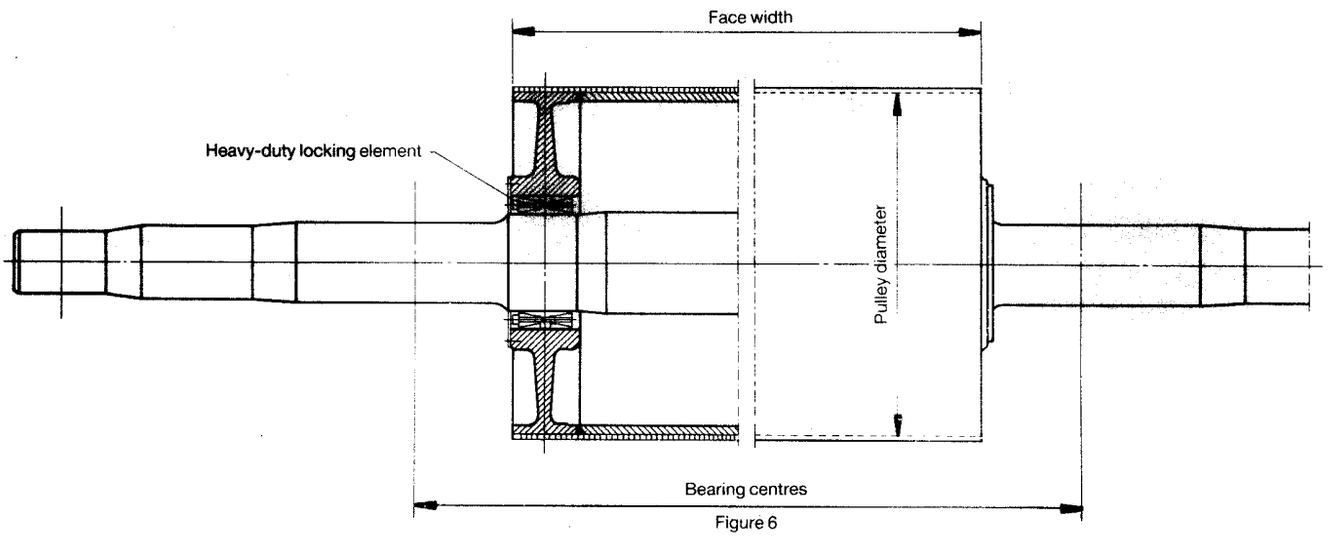

Figure 6

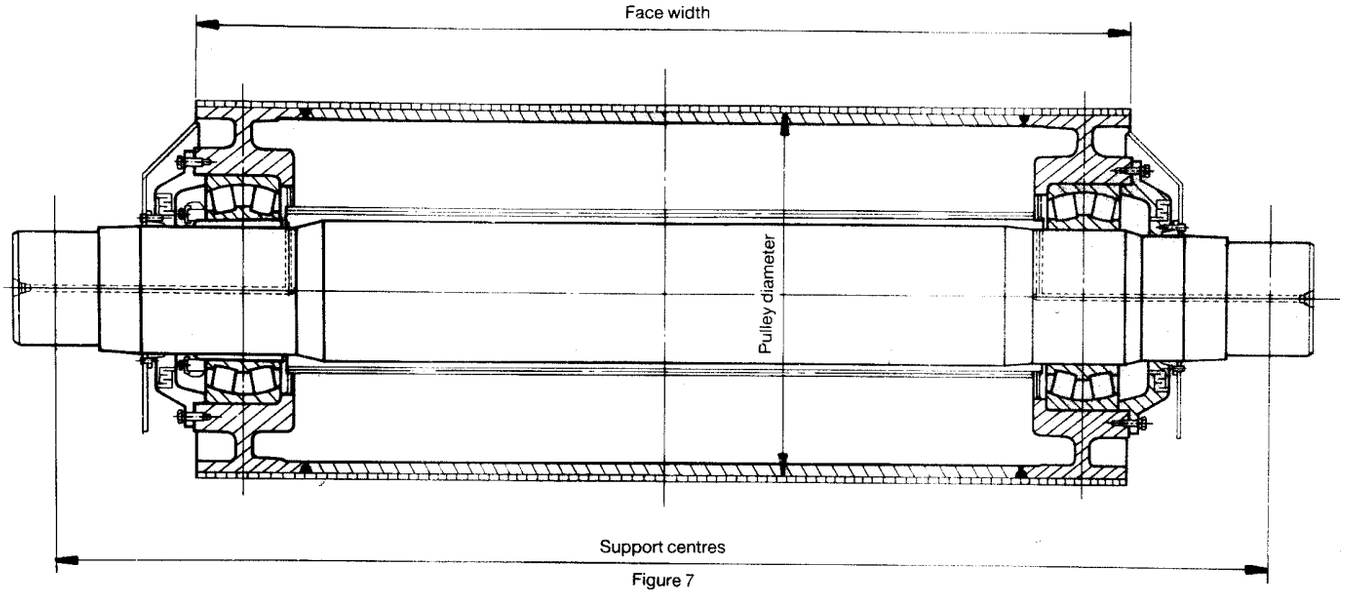

Figure 7

CORPORATE OFFICE

Elecon Engineering Company Ltd.
Anand Sojitra Road, Vallabh Vidyanagar - 388120, Gujarat, India.
Phone : 91-2692-31170, 31070, 31120, **Fax :** 91-2692-36559
E-mail: Gear division : bjbabaria@mhe.elecon.com
MHE division : jnshah@gear.elecon.com

SINGAPORE OFFICE

Elecon Singapore Pte. Ltd.
10 Anson Road, #19-13 International Plaza,
Singapore - 079903.
Phone : 65-227-8258, 65-227-8425, **Fax :** 65-227-8942
E-mail: elecon_sing@eleconsingapore.elecon.com

AUSTRALIA OFFICE

Elecon Australia Pty Ltd.
16, Dunwell Avenue,
Loftus NSW 2232, Australia.
Phone: +61 2 9521 3511 **Fax:** +61 2 9521 3522
E-mail: thall@aus.elecon.com

MARKETING AGENT

EMTICI Engineering Ltd.,
Phone : +91-2692-30168, 31082, 31419, 31125
Fax : +91-2692-36508
E-Mail : sales_emtici@emtici.elecon.com

EAST ZONE

CALCUTTA
Phone : +91-33-4761861, 4760876, 4760904, 4760926
Fax : +91-33-4761831
E-Mail : sales@calemtici.elecon.com

ASANSOL
Phone : +91-341-205901, 202038, 211726
Fax : +91-341-202038
E-Mail : sales@asnemtici.elecon.com

DHANBAD
Phone : +91-326-306283, 302320
Fax : +91-326-302320
E-Mail : sales@dhnemtici.elecon.com

JAMSHEDPUR
Phone : +91-657-428138, 435382
Fax : +91-657-428015
E-Mail : sales@jsremtici.elecon.com

CENTRAL ZONE

NAGPUR
Phone : +91-712-540771, 531601
Fax : +91-712-531450
E-Mail : sales@ngpemtici.elecon.com

WEST ZONE

AHMEDABAD
Ph. No. : +91-79-6406683,84,85,86
Fax No. : +91-79-6401363
E-mail : sales@ahdemtici.elecon.com

MUMBAI
Phone : +91-22-2821315, 2820725, 2821365, 2870792, 2815693
Fax : +91-22-2870791
E-Mail : sales@bomemtici.elecon.com

PUNE
Phone : +91-20-4330646
Fax: +91-20-4330646
Email : sales@puneemtici.elecon.com

VALLABH VIDYANAGAR
Phone : +91-2692-30168, 31082, 31419, 31125
Fax : +91-2692-36508
E-Mail : sales_emtici@emtici.elecon.com

VADODARA
Phone : +91-265-750739,750740,
Fax : +91-265-750739
E-Mail : bmjoshi@brd.emtici.elecon.com

SOUTH ZONE

CHENNAI
Phone : +91-44-4349237, 4349497, 4349643, 4322455
Fax : +91-44-4349643
E-mail : sales@cheemtici.elecon.com

BANGALORE
Phone : +91-80-2260219, 2281834, 2250082
Fax : +91-80-2281834
E-Mail : sales@blremtici.elecon.com

SECUNDERABAD
Phone : +91-40-7844748, 7845250, 7846984
Fax : +91-40-7848317
E-Mail : sales@secemtici.elecon.com

NORTH ZONE

NEW DELHI
Phone : +91-11-3414339, 3414341, 3414069, 3414634
Fax : +91-11-3709046
E-Mail : sales@delemtici.elecon.com

BILASPUR
Phone : +91-7752-47347, 28922, 24122
Fax : +91-7752-23188
E-Mail : sales@bspemtici.elecon.com