

Ministry of Home Affairs
Government of India
35, S. P. Marg
New Delhi - 110 021

Tender Enquiry No 4 / Civicon / 2008 (69)

Dated 23rd February 2010

Dear Sir,

You are invited to offer tender for installation work as per details given in the schedule to this enquiry.

2. The conditions of the contract which will govern any contract made are contained in Pamphlet No DGS&D-36 entitled "Conditions of contract governing contracts, placed by the Central Purchase Organization of the Government of India as amended up to 31-12-1991 and those contained in the Pamphlet No DGS&D-229 containing various instructions to tenderer quoting against the tender enquiry issued by the DGS&D.

3. The above mentioned pamphlets and the list of amendments thereto can be obtained on payment from the under mentioned officers:

- a. The Manager of Publications, Civil Lines, Delhi
 - b. The Superintendent, Government Printing and Stationary, UP, Allahbad
 - c. The superintendent, Government Printing and Stationary, Mumbai
 - d. The Superintendent, Government Press, Chennai
 - e. The Superintendent, Government Printing and Stationary, Nagpur
 - f. The Superintendent, Government Printing, Gulzarbag, Patna, Bihar
 - g. DGS&D New Delhi and its regional Offices at Mumbai, Chennai and Calcutta.
 - h. Government of India Book Depot, 8 Hastings Street, Calcutta.
4. The following certificate should be given in the request

"It is certified that our concern / establishment require the copy of the specification and other details in connection with the **TE No. 4 / Civicon / 2008 (69)** It is further certified that the information contained in the document will be utilized by our concern / establishment for own use only for the purpose of producing supplying/ inspection of stores. The information contained therein will not be divulged / supplied to any outside agencies not authorized to the same without prior approval of the issuing authority."

5. If you are in a position of quote for installation work in accordance with the requirements stated in the attached schedule to tender, all documents attached herewith should be duly filled in, signed and returned to this office.

6. Your tender should be submitted **in triplicate**. This tender is not transferable.

Yours faithfully

(S. V. Gopinath)
Asst. Director

No 4 / Civicon / 2008 (69)
Ministry of Home Affairs
Government of India
35, S. P. Marg
New Delhi - 110 021

PRICE PER TENDER SET
EARNEST MONEY REQUIRED

: **Rs.300.00 (Rs Three hundred only)**
: **Rs.15000.00 (Rs Fifteen thousand only)**
(Tenderer's are advised to go through the
Earnest money clause attached with this T.E.
Carefully before filling the tenders)

Tender document can be purchased from our office reception from 02/03/2010 to 19/03/2010 between 1500 Hrs to 1600 Hrs on all working days.

No Public Sector Unit / Joint Sector Unit will be exempted from paying the Earnest Money.

Time and date of receipt of tender by

Joint Director, 35, S.P. Marg

New Delhi -110021 by

: 1100 hrs on 22nd March 2010

Closing date for submission of tender

: 1100 hrs on 22nd March 2010

Time and date of opening of Bid

: 1200 hrs on 22nd March 2010

The tender shall remain open for acceptance for 6 months from the date of opening of bids.

ITEM. No	DESCRIPTION OF WORK	UNIT	QTY.	Unit charge including taxes
1.	Installation of Static antenna 4.5m at Civicon Station SIB,Itanagar.	Number	01	

All tender documents duly completed and signed on each page are to be returned with your offer.

2. The tender must be submitted in triplicate.

3. Incomplete offers, Offers not confirming fully to T/E requirements or with vague replies or without Earnest Money, will not be considered.

4. Firms must clearly indicate in their offer different taxes and duties which they propose to charge extra mentioning clearly the present rates thereof. **Installation charges and services etc., where service tax is chargeable should be mentioned extra. Where ever installation and other service are shown inclusive, service tax would be chargeable on total cost.** Vague offers like DUTIES AS APPLICABLE shall not be considered.

5. Offers received without these details and without Earnest Money will be ignored.

6. **The Indenter**

Director, IB, MHA, New Delhi

7. **Inspection Authority**

Joint Director-Technical, IB, MHA

8. **Inspecting Officers**

Representatives of Joint Director-Technical IB, MHA, New Delhi/Itanagar.

9. **Security Deposit**

An amount equivalent to 5% of the value of Supply Order / AT to be deposited by the successful bidder. Security deposit may be paid in the form of bank guaranty or demand draft in the favor of Accounts Officer (M), IB, MHA, New Delhi to remain valid until the completion of work.

10. **Work required at**

SIB,Itanagar,Arunachal Pradesh.

11. **Delivery required by**

Full functional systems to be handed over to the indenter on or before the delivery date mentioned in the Acceptance of Tender (AT) by the Indenter. Failing which LD should be chargeable @ 0.5% per week with a maximum of 5%. The purchaser reserves the right to revoke the work order and forfeit security deposit thereafter.

CONDITIONS REGARDING DEPOSIT OF EARNEST MONEY

1. All firms are required to deposit EARNEST MONEY of **Rs.15000.00 (Rs Fifteen thousand only)**
NO PUBLIC SECTOR UNIT OR JOINT SECTOR UNIT IS EXEMPTED FROM PAYING EARNEST MONEY
2. The Earnest Money can be deposited in any one of the following alternative forms
 - a. A crossed bank draft drawn in favor of the **Accounts Officer (M), IB, MHA**. The draft should be payable at New Delhi.
 - b. An irrevocable bank guarantee of any Nationalized Schedule Bank or reputed commercial bank of the tender country in the PROFORMA attached.
 - c. FDR for an equivalent amount.
3. The Earnest Money shall be valid and remain deposited with the indenter for the period of Six months from the date of tender opening. If the validity of the tender is extended, the validity of the BG or any other document submitted in lieu of EMD will also be suitably extended by the tenderer, failing which the tender after the expire of the aforesaid period shall not be considered by the indenter.
4. No interest shall be payable by the indenter on the EM deposited by the tenderer.
5. The EM deposited is liable to be forfeited if the tenderer withdraws or amends, impairs or derogates from the tender in any respect within the period of validity of his tender.
6. The Earnest Money of the successful tenderer shall be returned after the award of contract
7. Earnest Money of all unsuccessful tenderer shall be returned by the Purchaser as early as possible after the expiry of the bids validity and placement of contract. Tenderer are advised to send a pre-receipted challan along with their bids so that refund of EM is made in time.
8. Any tender not accompanied with Earnest Money in one of the approved forms acceptable to the indenter, shall be rejected.

9. PRICE PER TENDER DOCUMENT SET:

- i) Incase of tender document sets are not purchased from our office or down loaded copy of tender doc. submitted, a crossed bank draft of equal amount of cost of tender doc. drawn in favour of the **Accounts Officer (M), IB, MHA** may be accompanied with the bid. The draft should be payable at New Delhi.
- ii) Incase of tender sets are purchased from our office **money receipt in original** should be accompanied with the bid.

Enclose with Technical Bid
PROFORMA for Earnest money
PROFORMA of Bank Guarantee for Earnest Money
(On non-judicial Stamp paper of requisite amount)
Bank Guarantee No.....

To,
The Accounts Officer (M)
Ministry of Home Affairs (IB)
35, S. P. Marg
New Delhi - 110 021

Dear Sir,
In-accordance with your Invitation to tender
M/Shereafter called the tenderer with the following Directors on their Board of Directors Partners
of the firms

- 1.
- 2.
- 3.
- 4.

wish to participate in the said Tender for the installation of 4.5m static antenna for S.I.B,Itanagar,Arunachal Pradesh
Ministry of Home Affairs ,Government of India.

As a Bank Guarantee against Earnest Money the sum of **Rs.15000.00 (Rs Fifteen thousand only)** Valid for Six
months from the date of opening of the Tender **22nd March 2010** is required to be submitted by the tender as a
condition for the participation, this bank hereby guarantees and undertakes during the above said period of Six
months to immediately pay on demand by Account Officer (M), Ministry of Home Affairs writing the amount of
Rs.15000.00 (Rs Fifteen thousand only) without any reservation and recourse if:

- i. The Tenderer after submitting his Tender modifies the rates or any of the terms and conditions thereof,
except with the previous written consent of the Purchaser.
- ii. The tenderer withdraws the said Tender within Six months after opening of tender
or
- iii. The Tenderer having not withdrawn the tender fails to furnish the contract security deposit imposed for the
performance of the contract within the period provided in the general conditions of contract.

The Guarantee shall be irrevocable and shall remain valid up to six months if further extension to this
guarantee is required the same shall be extended to such required period on receiving instructions from M/S
.....of whose behalf this guarantee is issued.

Date.....

Signature.....

Place.....

Printed Name.....

Witness

.....

1.....

(Banks Commercial Seal)

Annexure-I
Special Conditions

The offer must fulfill and comply following special conditions:

Special Conditions will supersede the conditions mentioned else where in the document. Wherever applicable these conditions will over ride the conditions mentioned else where in the document.

1. **Confidentiality:** The indenter of sub-systems in this tender is related to a classified project of the Government of India. All bidders are requested to maintain confidentiality and not to disclose/ part or share any information/ program of tender processing with any person or party not authorized by tenderer or directly related with the project.

End user name and address should not be disclosed to any of the sub-contractors, suppliers to bidder for bought out items. Where ever necessary End user's name may be given as Technical Laboratories, Ministry of Home Affairs, New Delhi.. Any failure or lapse in maintaining confidentiality on the part of bidder will be dealt as the breach of confidentiality.

2 **Submission of bid-**

The offer must be prepared and must include,

- i. Eligibility documents,
- ii. Earnest Money,
- iii. Technical compliance as per schedule enclosed with tender document,
- iv. Commercial terms and conditions **excluding price and its break-up.**

b. **Price bid** - must include total cost of the offer, cost break-up of each items, taxes and duties with prevailing rates. Tender enquiry number, date, time of opening and contents therein should be marked on the top of the cover. The cover should be addressed to, **Joint Director-Technical, 35, S. P. Marg, New Delhi - 110 021.**

4 **Payment terms:**

- I. 90% on successful completion of work testing and acceptance at site by the Indenter.
- II. 10% after successful completion & functioning at site for 8 weeks.

5. Late Delivery - implementation including, testing, and installations of the equipment should be completed within the agreed time schedule. In the event of delay in implementation for any reason, the purchaser would be entitled to charge LD penalty @ 0.5% of the cost of total Purchase Order per week for every week's delay, subject to a maximum of 5%. In the event of delay of more than 10 weeks, purchaser will have the right of revoking the purchase order and forfeiting the Security Deposit.

6. The Purchaser reserves the right of accepting or rejecting any or all the tenders.

7. Successful bidder will have to deposit security money equal to 5% of the total value of supply order before issue of Supply order by the purchaser.

8. **Eligibility** –

- i. Tendereer must have adequate experience in installation of large satellite dish antenna of the size of 4.5 m diameter or more and conducting antenna testing for obtaining NOCC clearance. Documentary proof in this regard should be provided.
- ii. Tenderer must enclose an undertaking stating that he or his firm has not been debarred from bidding by any government organization.

9. The bidder should respond to each section, point or requirement within the tender enquiry.

10. **System Acceptance at site-** Installation, testing, and successful commissioning will be validated by the purchaser before final acceptance at site.

General description of the Static antenna system:

The 4.6m Antenna system is designed and developed for applications on satellite communication systems and specifically for VSAT' satellite communication Networks. The antenna is designed to withstand specified wind loads.

It meets the pointing errors at operational wind speeds and stability conditions at survival wind speeds. The antenna features an all aluminium reflector and steel AZ-El mount incorporating a mast, which can be positioned to point to any satellites visible in the region. The antenna system is provided with bearings in AZ. And El. Bearings axes and hence can be motorized at any time to facilitate statutory tests like NOCC tests etc.

The structural part of the antenna system consists of :

- a) Quadrapod to support prime focus feed and receive electronics.
- b) Back-up structure.
- c) Reflector panels.
- d) Centre hub.
- e) King post pedestal mount.
- f) Tie pipes.
- g) Elevation and Azimuth jacks.
- h) R.C.C. Foundation.

a) **Quadrapod:** The Quadrapod spars (4 Nos.) are made of 25 NB steel pipes (galvanized) and are pivoted on to 4 trusses (truss Nos. 2,5,8 and 11) at the bottom by M16 bolts. Feed ring is fixed on the top by M10 bolts. The feed ring is designed to hold the feed system and allows its rotation for polarization adjustment.

b) **Back-up structure:** The radial trusses (12 Nos.) are made out of aluminum square tubes of 38.1 X 38.1 X 2.4 thk (HE 30 WP Quality). The pads for centre hub interface are made from 10mm thick plates welded to the trusses. The trusses are held in correct geometry by circumferential bearings, made out of 35x35x5 thick aluminium angles (HE 30 WP Quality) The trusses are painted with one coat of zinc, chromate yellow primer and one coat of synthetic enamel paint (White matt finish).

c) **Reflector panels:** The reflector panels (12 Nos.) are made out of aluminium T-sections 50.8x50.8x4.78 thick (HE 30 WP), over which 1.5 thick aluminium alloy sheet is riveted. The gussets are made out of 5mm thick, 75mm aluminium flats (all of HE 30 Quality) The T-sections are rolled to the particular parabolic curvature and the panels are manufactured in fixtures specially developed for the purpose. The reflector panels are positioned and bolted on the back-up structure by 6 Nos. of 50x160mm flats for each panel. The alignment of the panels of the reflector is done by a rotating template and the flats holding the reflector panels are fixed in position and fit bolts are used to locate the panel position. The panels are painted with one coat of zinc chromate yellow primer and one coat of synthetic enamel paint (white matt finish).

Note: The flats on the trusses are positioned in such a way that, when the panel is bolted to the flats, the antenna reflector corresponds to the correct parabolic shape. **DO NOT DISTURB THE POSITION OF FLATS.**

d) **Centre hub:** The centre hub is a 5mm thick-rolled steel pipe of 880mm outside diameter. Fabricated T-Section are welded to the pipe and two flange plates of 1020 diameter. 5mm thick gussets are welded connecting top and bottom flanges of the pipe. Pad plates (130x 130x 8-2 nos. & 170x 150x8-8 1nos) having interface with the yoke are welded to bottom flange. The centre hub is machined on a lathe to O.D 1020 to maintain an accurate interface for the reflector trusses. The centre hub is painted with two coats of red oxide and white paint.

e) **King post pedestal amount:** Pedestal mount is made out of ERW Pipe O.D 457.2,THK-7.137 with a channel box at the top to carry elevation hinges and another channel box at the bottom to carry the azimuth jack hinge point and azimuth bearing point. Azimuth rotation is over GE 30 bearings (2 Nos.) one at the top and another at the bottom. Elevation jack bracket is welded on the top surface of the bottom channel box. (Elevation jack hinge point is attached here). King post pedestal mount is hot dip galvanized (70-100u) thickness.

f) **Tie pipes:** Tie pipes 2 Nos. are made of ERW pipe o.d-114.3,THK-5.4mm. They are flattened at both ends. Bottom end is fastened to the foundation bolts, while the top end is bolted with a pipe bracket, which holds the top azimuth bearing shaft. The pipes are hot dip galvanized (70-100u thickness).

g) **Azimuth and elevation jacks:** The azimuth jacks as shown is provided to give various elevation angles to the antenna.

h) Foundation design: A 4500mm square RCC slab of 350 mm thick is cast to hold the foundation bolts of the antenna system. 6 foundation pad plates containing 4 Nos. each of foundation bolts M 24 (L= 800mm) are located as per the foundation plan.

SPECIFICATION:

ELECTRICAL: (1) Frequency of Operation :

Rx (GHz)	Tx (GHz)
3.625-4.2	5.85-6.425
4.500-4.8	6.725-7.025
10.95-12.75	14.00-14.50

(2) Antenna gain (MID BAND):

	Rx	Tx
C Band	: 43.0	47.5
Extn.C Band	: 44.0	48.0
KU Band	: 52.5	54.5

(3) G/T (Typical) : With 35Degree K for C band: 25.4dB/k
With 70Degree K for KU Band: 32 dB/k

(4) 3dB Beam width :

	Rx	Tx
C Band	: 1.14	0.68
KU Band	: 0.34	0.29

(5) Side lobes : As per RS 580 Rec V

(6) Cross polarization :

C Band	: 27 dB
KU Band	: 35dB

(7) VSWR : 1.30:1

(8) Out put Wave guide flange :

	Rx	: CPR 229G
C Band	: Tx	CPR 137G
KU Band	: Rx	WR 75 flat.

(9) Power handling Cap :

C Band	: 2KW
KU Band	: 2KW

MECHANICAL:

Coverage:

Azimuth	:1) +/- 20 Degree at 8 different position in 360 Degree 2) 90 Degree continuous, at 6 positions @ 60 Degree in 360 Degree.
Elevation	: 0 to 90 Degree.
Travel Rates	: 0.1 Degree/Sec for Az & El, 0.01 Degree/Sec for tracking
Feed	: Prime Focus
Polarisation	: Manual Plus or minus 95 Degree.
Weight of reflector	: 500 Kgs.
Weight of mount	: 1000 Kgs
Reflector structure	: Aluminium alloy.
Mount structure	: Steel (Galvanized)
Surface accuracy	: 1mm RMS for C-Band and 0.5mm RMS for KU Band.

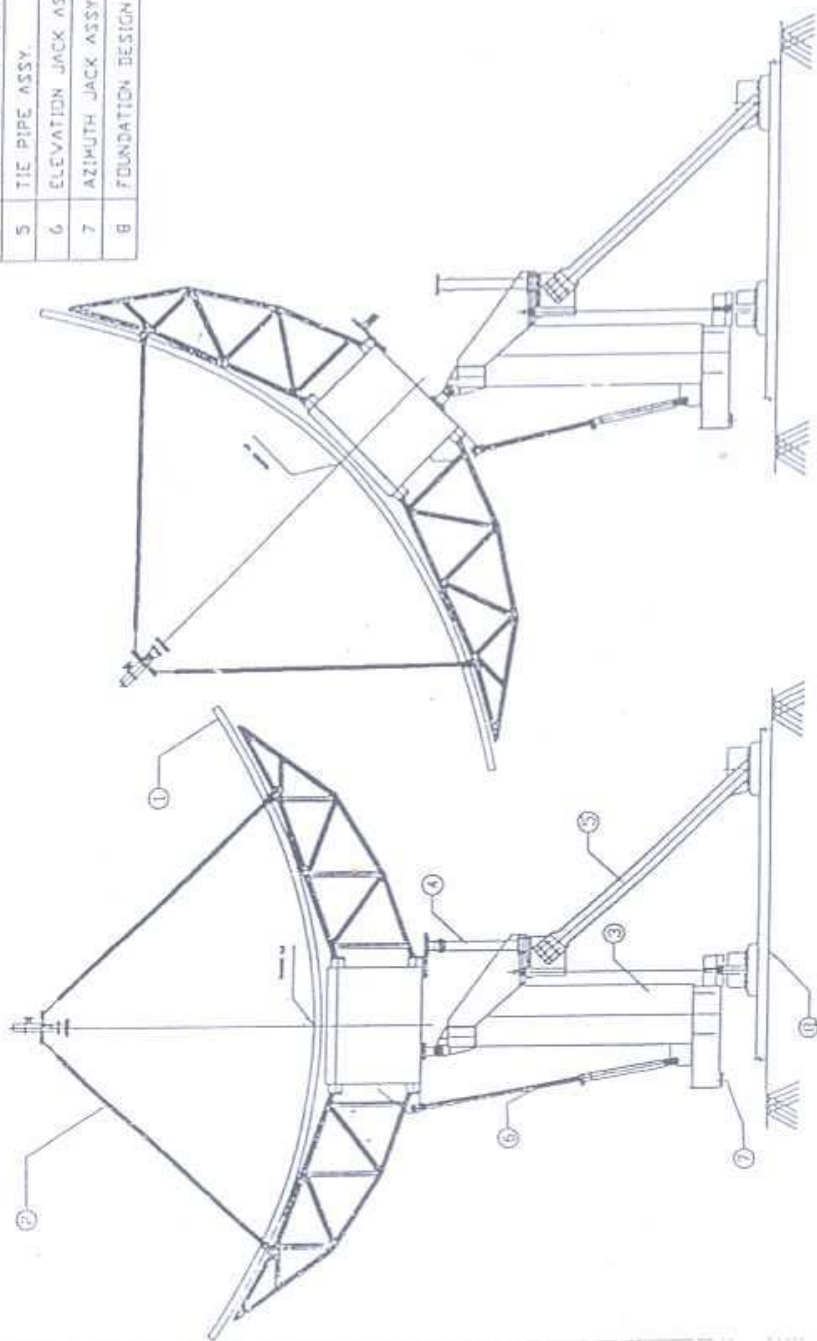
ENVIRONMENTAL:

Operational winds	: 70 Kmph Gusting 100 kmph
Survival winds	: 200 Kmph
Ambient Temperature	: Minus15 Degree to plus 50 Degree
Rain	: upto 100mm/hr
Humidity	: 100%
Solar radiation	: 360 BTU / h/ ft Sq. or 1000 K Cal/hr/m Sq.
Shock and vibration	: As encountered on the roads
Corrosive Atmosphere	: As encountered in marine atmosphere / industrial pollutants.

INSTALLATION:

- 1) Place pedestal mount on the bottom azimuth bearing shaft bracket fitted on the foundation bolts.
- 2) Fasten to tie pipes to the foundation bolts and connect to the pedestal mount top azimuth bearing bracket.
- 3) Adjust pedestal mast to the plumb line from the top Az bearing shaft to the bottom azimuth bearing shaft.
- 4) Check and level the elevation axis by water level by adjusting the tie pipes.
- 5) Assemble centre hub over the elevation pad plates , and level it.
- 6) Hold the other end of the centre hub with the help of stow lock pipe.
- 7) Install the trusses and connect the circumferential angles.
Note: With out leveling the centre hub, don't install the trusses.
- 8) Check and confirm the distance 4500 plus or minus 2mm between the opposite trusses extreme point
- 9) Install the panels one by one. Panels are fastened to the trusses with the help of bolts through the holes provided in the cleat plates. Correct bending of cleat plates is determined and fixed in the factory. The panels are only fastened to mach the holes.
- 10) Install quadruped pipes with feed ring. Check the centre of the feed ring by measuring distances to the fiducially points on the panels. Plumb line from the centre of the feed frame should coincide with centre of the panels/vertex.
Note: RF axis depends on the adjustment of the feed and feed frame.
- 11) Install the feed and check the distance 1800 plus or minus 1mm from the bottom of the feed to the vertex.
- 12) Install the elevation jack between the elevation point in the hub and elevation turn ion point in the pedestal mount.
- 13) Install the azimuth jack between the azimuth turn ion bracket and azimuth pivot point in the pedestal mount.


S.No.	DESCRIPTION	MATL./UNING.	QTY
1	REFLECTOR ASSY.	4.5MST-01-00R0	1
2	FEED WITH SPAR ASSY.	4.5MST-02-00R0	1
3	KING POST PEDESTAL MOUNT.	4.5MST-05-00R0	1
4	STOWLOCK (ELEVATION)	4.5MST-06-02R0	1
5	TIE PIPE ASSY.	4.5MST-07-2R0	2
6	ELEVATION JACK ASSY.	4.5MST-09-07R0	1
7	AZIMUTH JACK ASSY.	4.5MST-08-07R0	1
8	FOUNDATION DESIGN	4.5MST-10-R0	1



ANTENNA IN WORKING POSITION

ANTENNA IN SIDE POSITION

1) ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE SPECIFIED.
 2) DO NOT SCALE THE DIMENSIONS.
 3) IN CASE OF ANY DISCREPANCY BETWEEN THE DRAWING AND THE PARTS LIST, THE PARTS LIST SHALL PREVAIL.
 4) CHECKED, DRAWN, DESIGNED, APPROVED, BY THE PROJECT ENGINEER.
 5) THE DRAWING IS THE PROPERTY OF COMSAT SYSTEMS PVT. LTD. AND MUST NOT BE REPRODUCED OR TRANSMITTED IN ANY FORM OR BY ANY MEANS, ELECTRONIC OR MECHANICAL, INCLUDING PHOTOCOPYING, RECORDING, OR BY ANY INFORMATION STORAGE AND RETRIEVAL SYSTEM.

DRAWN	NAME	DATE	SCALE	WT KG	MATERIAL	QTY
DESIGNED	K.R.K.		NTS			1
CHECKED	G.J.S.					
APPROVED	S.C.T.					
 COMSAT SYSTEMS PVT. LTD., HYDERABAD-500 070 PAKC NUMBER: 1 SHEET: 1						

GENERAL ASSEMBLY

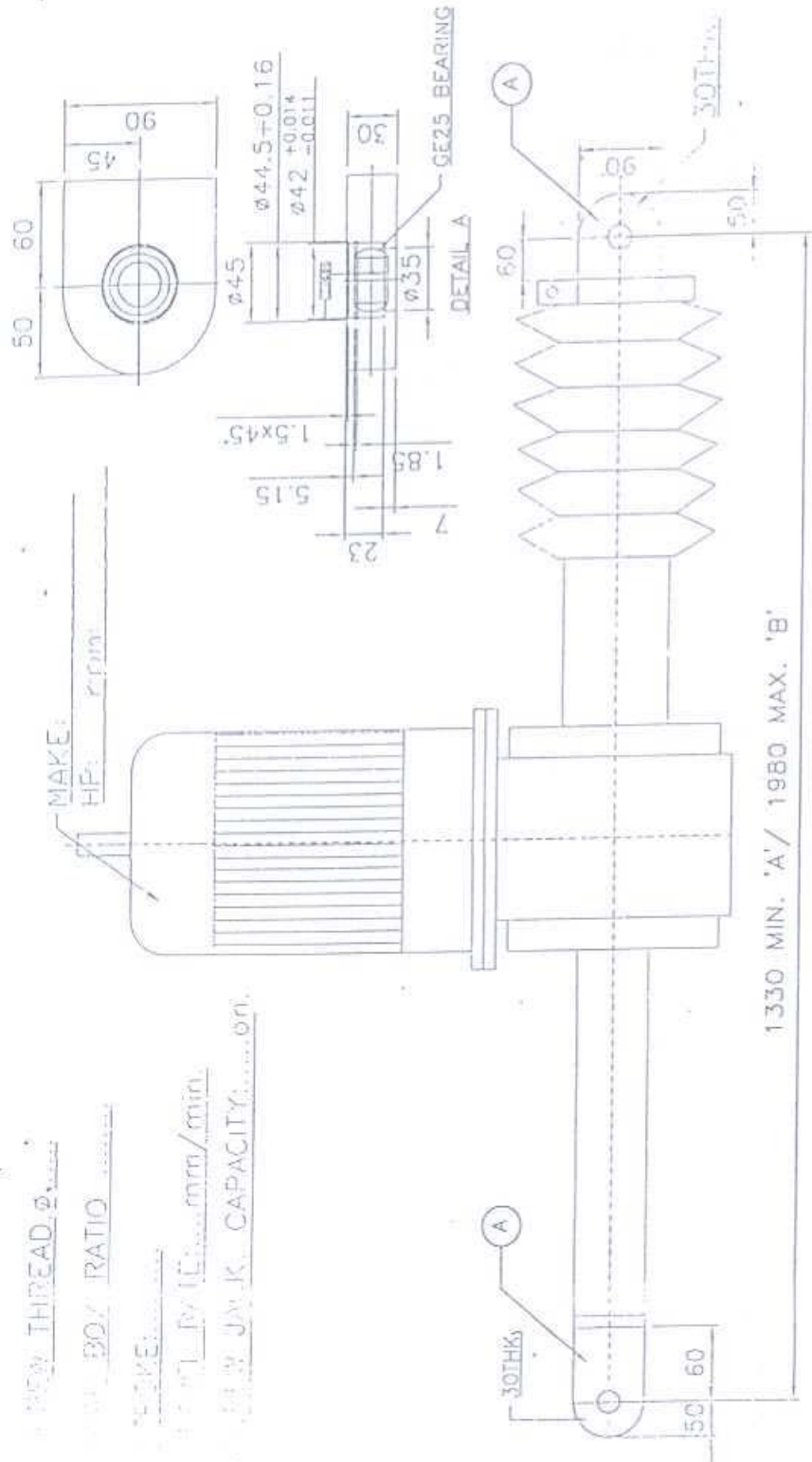
NEW THREAD ϕ

BOY RATIO

MAKE:

mm/min

J.V.K. CAPACITY:



1330 MIN. 'A' / 1980 MAX. 'B'

STROKE=B-A=C=650

1) ALL DIMENSIONS ARE IN MILLIMETERS, UNLESS OTHERWISE SPECIFIED.		DRAWN		NAME		SIGN.		DATE		SCALE		MATERIAL	
2) DO NOT SCALE THE DRAWING. ASK FOR CLARIFICATION IN CASE OF ANY DOUBT IN CONNECTION WITH THE DRAWING.		DESIGNED		K.R.K.						1/25		ST 1	
3) IN CONNECTION WITH THE DRAWING, THE FOLLOWING INFORMATION IS TO BE PROVIDED:		CHECKED		G.J.S.									
4) DRAWING TITLE AND DESCRIPTION.		APPROVED		S.C.T.									
5) THERE IS THE SOLE PROPERTY OF C.S.P.L. AND MUST NOT BE REPRODUCED, USED, REPRODUCED, OR TRANSFERRED WITHOUT THE WRITTEN PERMISSION OF C.S.P.L.		2008											
COMSAT SYSTEMS PVT. LTD., HYDERABAD-500 076										PAGE NUMBER		SIZE	
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ELEVATION JACTUATOR

SCREW THREAD: ϕ

MAKE:

GEAR BOX RATIO

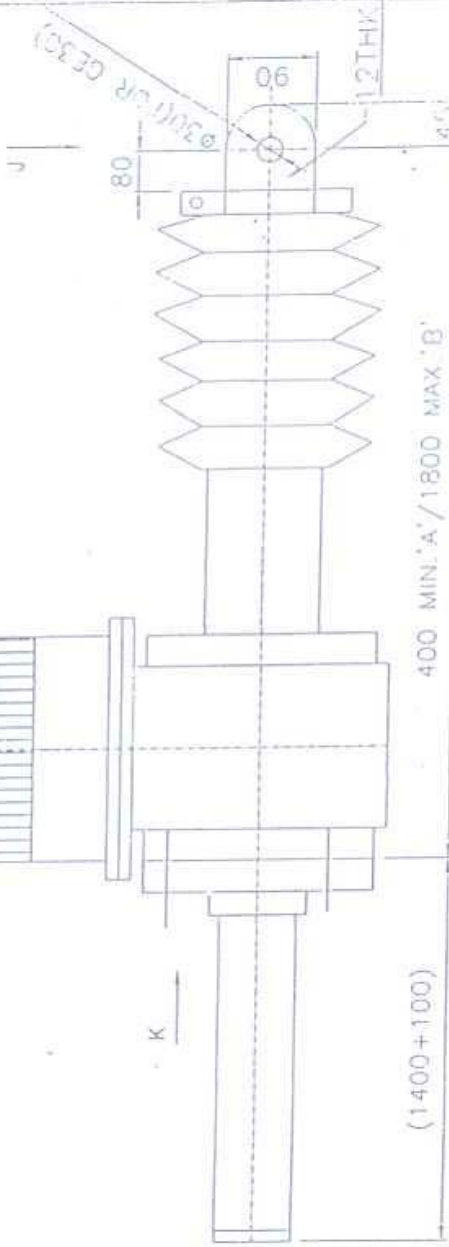
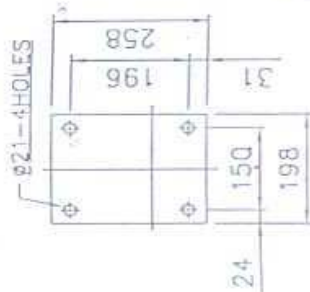
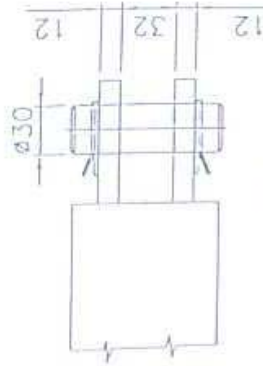
HP:

rpm:

STROKE:

TRAVEL RATE: ..mm/min.

SCREW JACK CAPACITY:



- 1) ALL DIMENSIONS ARE IN MILLIMETERS, UNLESS OTHERWISE SPECIFIED.
- 2) DO NOT SCALE THE DRAWING. ASK IF IN DOUBT.
- 3) REMOVE SHARP EDGES, BURRS, SPATTERS AND WELD-FLUX.
- 4) CHAMFER FINISHES.
- 5) THIS DRAWING AND INFORMATION HEREIN IS THE SOLE PROPERTY OF COMSAT SYSTEMS PVT. LTD. IT IS TO BE KEPT IN CONFIDENTIALITY AND NOT BE REPRODUCED, REPRODUCED OR TRANSMITTED IN ANY MANNER WITHOUT THE WRITTEN PERMISSION OF COMSAT SYSTEMS PVT. LTD.

DESIGNED	CHECKED	APPROVED	DATE	SIGN.	NAME	SCALE	WT. KG	MATERIAL	QTY
G.J.S.	G.J.S.	SCT.			K.R.K.	NTS			1
AZIMUTH JACTUATOR									
COMSAT SYSTEMS PVT. LTD., HYDERABAD-500 076									
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									SHEET
									SIZE: A1