TECHNO INDUSTRY
(An ISO 9001:2000 company)

QUALITY SYSTEM MANUAL

SPRING SUPPORTS AND PIPE SUSPENSION EQUIPMENT

REGD OFF: 545, G. T. ROAD (S), HIND APARTMENT, 2ND FLOOR, ROOM-207, HOWRAH-711 101 (W.B)
DIAL: 91-033-2641 5952 / 2637 8887 / 2640 4070 / 2640 4461, FAX: 91-033-2637 8887
E-MAIL technoindustry@vsnl.net / techno.industry@indiatimes.com,

PREFACE

We are the manufacturer of variable load effort, constant load effort spring hanger / support and allied pipe suspension equipments. We have awarded ISO 9001:2000 certificate, we maintain a fixed programme in process and manufacture of our product in line of ISO 9000. Details of our programmer's are given from next page. From this, our customers and clients will know about our resources and capabilities.

1.0. PRODUCT:

Variable spring hanger or spring supports.

1.1. INTRODUCTION OF PRODUCTS:

Variable spring hangers are used for supporting piping and / or vessels or equivalents, subjected to vertical movement or deflection and supporting load work in linearity.

1.2. *DESIGN CHARACTERISTICS*:

Variable spring hangers have a wide range of applications under three different standard model nos. in a series VS1 having short vertical travel / movement and series VS2 having medium vertical travel / movement and series VS3 having long vertical travel each series having twenty five models which indicates light load to heavy load step by step for selection of supports for pipeline under specific Hot / operating or cold / installation load with vertical movement / travel finally there are seven models for typical arrangement of variable load spring cages according to suitability in the line with corresponding fixing structure. Details are given in our product catalogue.

2.0. *COMMERCIAL:*

Brief description about enquiry from the customers / clients.
When customers / clients issue us enquiry of the items then they mention following Data's.

i) Hot load / operating load in KG / KN in pipe.
ii) Cold load / installation load KG / KN in pipe.
iii) Vertical movement or travel in mm/inch in pipe.
iv) Horizontal travels in mm/inch pipe.
v) Minimum and maximum surface temperature in pipe surface.
vi) Variability factor (our max V. F. within 25%) in % Typical arrangement required in the piping such as spring cages hanger type or foot mount type and their respective lay out i.e. length from structure bottom to pipe centre from structure surface to centre of pipe lines etc.

2.1. *TENDER:*

Offer made by a supplier in response to an invitation to satisfy a contract award to Provide product.
Mainly two parts divide our offer:

a) Commercial part. b) Technical part.

2.2. COMMERCIAL PART:

i) Scope of supply.
ii) Price – Maintained in a specific format.
iii) Delivery Schedule.
iv) Packing Forwarding.
v) Bank Guarantee proposal.

vi) L. D. Clause proposal.
vii) Sale Tax (WBST or CST).
viii) Excise.
ix) Validity.

2.3. TECHNICAL PART:

i) Specification and standard maintained in fabrication and manufacturing.
ii) Complete sets of Drawing and Data sheet as per data and specification stated by the clients /
iii) Customers. Enquiry for client's approval.
iv) Total Bill of materials and material specifications are described in our drawings for approval.
v) Testing certificate of materials physical and chemical.
vi) Inspection system of products and its components.
vii) Performance guarantee certificate against the Quality &Workmanship of our products.

3.0. Method and formalities maintained after awarding of purchase order from clients / Customer.

3.1. QAP Sheet According to which inspection will be done by clients Inspection Engineers/ Statutory inspection agencies and this will be sent for client's approval.

3.2. *DRAWING:*

Complete drawing sets with data sheet for working drawing for client's approval. Manufacturing process will be followed as per this drawing.

4.0. *RAW MATERIALS PURCHASE:*

i) Requisition of raw material through formats.
ii) Raw materials for product variable spring supports

PLATES: As per specification IS /Equiv.
PIPES: As per specification IS /Equiv.
ROUND ROD: As per specification IS / Equiv.
SPRING STEEL ROUND: As per specification IS /Equiv.

5.0. PROCUREMENTS:

Raw materials are procured from Authorized Stockiest from Main Mill.

5.1. Procedure of test carried out from this Raw materials lying at supplier's godown. Test pieces are taken from the cut pieces of raw materials and identification marks impressed on each lot of the raw materials. After getting the result of Physical & Chemical Test, then raw materials, are brought to our Works.

Preservation of raw materials at shop floor:

Plates are kept on a separate place free from direct contact of soil (free from rust). Plates pre painted by primer on surface and proper identification punch with paint mark stating the order code. Dimensional Checking and visual checking is done from the beginning.

Pipes are kept on stands in covered space with proper lubricant (for anti-rust purpose). Dimensional checking and visual checking to be done initially. Identification mark of round rod stating its specification and order code, dimensional checking & visual checking are done in initial stage. Spring Steel Rounds are also kept on racks under covered space by proper lubricant application and identification mark on round rod stating its specification and order code. Dimensional checking and visual checking also carried out at initial stage.

All the raw materials Quantity, Size, Specifications, and Identification codes are kept in record in the raw materials in register book. Inward and outward records are maintained properly to take care at the time of consumption.

6.0. PRODUCTION & PROCESS:

6.1 MANUFACTURING PROCEDURE:

List of Components with specific sizes is described in an official format to workshop supervisor. According to the list, process of manufacture started.

6.2. PROCESSING IN PRODUCTION ON SHOP FLOOR:

ii) Marking job on plates for making components such as Top plates, bottom plates, Piston plates, Side Lug / side Preset stud & Nut holder are done as per drawing. Each component is identified with proper marking by metallic punch.

iii) Pipe casing are also marked for cut to size and proper identification mark done by metallic punch.

iv) Hanger bolts are marked and identified properly by white paint marks. After marking jobs are over then quality control supervisor will check each and every components by thorough visual checking regarding the surface defects of each components.

v) Operations are now gas cutting operations, turning operations, facing operations. Drilling operations, which are carried out for plates and pipes of spring cages components.

vi) Hanger bolt heads are forged at one side by proper forging dies and kept in a covered place in a dry area without contact of out side air. Gradually cooled down before machining. Then hanger bolts are threaded (MM Thd).

Threads are checked by go – no – go thread gauge to ensure proper threading. After the completion of above operation each components are properly grounded by surface grinding and bench grinding machine, finally again the quality control supervisor thoroughly check each components by dimensional checking and visual checking of shape, surface and identification mark position. Any defective materials if detected are instantly rejected, and these materials are kept separate as scrap by our production department. Accepted components are allowed for further process work.

7.0. SPRING FOR SPRING CAGES:

7.1. PROCESS OF MANUFACTURE:

a) Spring Steels are drawn from store under proper (requisition) (slip). Then rods are cut to sizes as per requirement of manufacturing helical compression spring of RH Helix.

b) Spring rods are grounded by centre less grinding machine. Then magnetic particle testing done to find out surface crack check. Defective rods are rejected.

c) Now spring rods are forged at two ends for flat forging by pneumatic hammer. After this operation springs are inserted inside oil-fired furnace for heating. Raising the temperature 600° C to 750° C the rods become red hot and coiling and spacing started in semi automatic coiling machine. After coiling one by one the red hot springs are dipped inside the quenching oil bath. Springs are cooled down inside the bath. When oils become hot then oil is changed. Heated oil cooled down applying cold air and cold water flow around the tank. Springs are hardened and springs are taken out from the oil bath and are kept on the floor. Now tempering fired furnace started and temperature increased, when the temperature becomes 450 degree C then in this static temperature springs are kept for 30 minutes to 40 minutes and then furnace is cooled down. Springs are kept in side the furnace till the in side temperature become normal.

Springs are then removed from the furnace and kept in the natural temperature of the shop floor. Then free Height checked for all the springs are done and noted on reports. Then all the springs are compressed in a solid height in the Hydraulic press machine for ten minutes and then released fully at no load condition then free heights are checked and noted down, any change of height less then 2% of the actual free height are not be accepted. Unaccepted springs are separated with proper tag marking as not accepted. Accepted springs are taken for surface grinding. After the completion of perfect surface grinding our supervisors checked the square ness / straightness of the each springs placing on the surface plates. Uniform outside curvature edge dial of each coils along the vertical surface of both side also checked. Duration up to +_ 4mm is acceptable. Other wise those springs are separated with proper tag marking stating the reason of non-acceptance.

After that the spring's free lengths are checked and noted down. Then each spring are compressed consecutively from free length position to almost home height position for at last 6 times. This process is called sagging. Then free height checked and if it is found unaccepted limit (- 2% than actual free lengths) then only springs are accepted. Then those springs are compressed in a home height clamping by top and bottom flange tightened up through bolts and nuts. By this condition springs are kept for at least 6 Hrs and then those are released. Again finally free lengths are checked. Then correct springs are taken for load testing.

In the load testing generally done by hydraulic operated load testing machine. Two loads are generally taken one by one. First the height of the springs checked at load minimum 20% of the maximum allowable load and second the height of the springs checked at load maximum 80% of the maximum allowable load. Now the mean difference of the two load will be divided by the mean difference of the two heights and the result spring constant / spring rate will be found (kg/mm) now we take tolerance of the spring rates = 6% to 8% of Actual or specified spring constant / spring rate. If the obtained spring rates are found within tolerance limit, this spring are

taken for further test. We take the cut prices from straight surface of the dead coil and undergo hardness test BHN and if we found the hardness is within accepted limit then we take those springs for further necessary test.

8.0. DYE PENETRATION TEST:

The accepted springs by internal testing and checking are processed for shoot penning for cleaning and polishing the coils surface. Then springs are washed by penetrate remover to remove dirt and springs are dried up in natural air for fifteen minutes. Then spring coils are coated by dye penetrate and kept the springs for fifteen minutes unless the dye become dry. Then dye penetrate is removed by applying penetrate remover thoroughly. After removal of dye penetrate thoroughly the springs are kept for a few minutes for drying up the surface. Finally white developers are applied carefully on all the surface of the coil. Springs are kept for dry up the solution on the surface. Then observing the coil surface if red hair spot is found, then, that particular zone to be grounded by flexible hand grinding and file. If the hair spot is removed then springs will be accepted other wise those springs will be rejected, Identification mark on tag will be fixed on those springs stating the reason of rejection. Now the accepted springs will be washed and dried up. Finally spring will be painted by anticorrosive zinc enrich primer.

Springs manufacturing and other testing is done as per standard code BS1726 pt-1.

9.0. ASSEMBLY:

Now all the loose components of spring cage will be cleaned and inner portion (which will be kept in side coverage after tacking assembly) will be painted by zinc enrich primer before tacking. Before assembly each components will be checked by dimensionally and visually.

9.1. ASSEMBLY PROCESSING:

First pipe casing are tacked and welded with bottom plate then side lugs are tacked and welded accordingly. At the time of tack and weld first root run are done by 3.15 ∅ electrodes for proper fusion and finally 4 mm ∅ or 5 mm ∅ or 6 mm ∅ electrodes are used. At the time of weld, special care taken in choosing the good quality of electrodes like ISAB, VORDRAN OR ADVANI ORLIKONS over cord electrodes specification. Fillet welding is done in welding of spring supports welding work and method shield metal arc welding followed (code ASME code sec. ix, is followed). Experienced welders are engaged in welding work. Some time preheating method also followed when welding of casing pipes 6 mm wall Thk are welded with higher thickness plates more than 25 Thickness. (Generally alloy steel welding procedure).

9.2. FINAL ASSEMBLY:

Now springs are kept inside the casing, piston plates and central hanger bolts are fitted on the top surface of springs side preset studs are tightened up with nut through the bolt boles of piston plate and side lugs, which are fixed at both side of the casing at compressed condition of springs in side the casing. Now top plates are rest on the top wall of the casing and tacked properly and finally welded all over the curved surface. At the end of assembly process of spring supports, then all the assembled supports are checked very carefully through visual checking. Welded portion of the

supports are cleaned properly by filing and dusts are removed by light polished wheel and emery cloths application. Then welded portion under gone with dye penetrates test. Finally supports are brought to finished floor. There proper surface cleaning is done by help of grinding (Bench grinding and sand wheel of angle grinding and filing etc). All the sharp and rough surfaces are made smooth. Proper punch mark at the top surfaces are punched the mark no, Designation, operating load and vertical travel. Then two coats of zinc enriched primers application done.

10.0. INTERNAL INSPECTION :

Now each supports are checked dimensionally and recorded in the respective format. Then each supports are taken for load calibration testing in Hot / operating load and Cold / Installation load as per data. Travels are observed and if it is found under acceptable tolerance then load calibration records are recorded in the respective formats . Lastly each supports are locked in preset load condition and applying the 1.5 tones of maximum load of the springs on the supports and result are recorded in the respective formats. During load calibration the marking of the point of Hot / operating load and cold / installation load are marked on the surface of the body and load travel scale fixing screw holes are made. Finally supports are painted by spray painting applying two coats of synthetic enamel paint or special paints as specified by the clients.

EQUIPMENTS USED FOR LOAD CALIBRATION:

Oil hydraulic jack 30 MTn. capacity tension and compression double acting where in compression capacity 30 MTn. And tension capacity 15 MTn. Jack is fixed with the vertical testing structure grouted on the floor. Proving rings 10 MT. Capacity and 1 MT? Capacity universal tension and compression type. Those are up to date calibration certification. Dimension checking instruments are also calibrated by government authorized testing lab.

OTHER TEST:

i) Chemical test certificate are provided for main components under government authorized lab.
ii) Hardness test of springs from government authorized lab.
iii) Load test, cramp test certificates (Internal) of springs.
iv) Dimensional checking records (Internal) of support assembly and allied accessories.
v) Performances guarantee certificates of our products quality and craftsmanship.

SERVICE OR INSTALLATION:

Generally for installation of our product spring hanger supports and other type of pipe support we do not take installation responsibility. Any problems arising out at the site during welder also provide guidance, for proper fittings of our products, we depute our engineer and technicians to visit site to extend our fullest co-operation. The additional charges for these works can be agreed upon.

WE FOLLOW FORMATS & RECORDS FOR MAINTAINING QUALITY FROM RAW MATERIAL TO FINISHED PRODUCT PROGRAMMING AGAINST EVERY ORDER.

1. *FORMAT OF TECHNO COMMERCIAL OFFER.*
2. *FORMAT OF COMMERCIAL PRICE BID.*
3. *DRAWING AND DATA SHEET.*
4. *Q.A. P SHEET.*
5. *REQUISITION OF RAW MATERIAL.*
6. *TESTING OF CUT PIECES FOR CHEMICAL TEST.*
7. *RAW MATERIAL ACCEPTANCE CERTIFICATE.*
8. *SUBVENDORING ITEMS TO OUR SUB VENDOR'S HOUSE.*
9. *CHECKING OF FINISHED ITEMS FROM SUB VENDOR'S HOUSE AND ACCEPTANCE OF ITEMS.*
10. *LIST OF PARTS FOR MANUFACTURE BEFORE ASSEMBLY.*
11. *SCRAGGING & CRAMPING TEST REPORT.*
12. *LOAD TEST REPORT OF SPRING.*
13. *INTERNAL DIMENSION REPORT OF SPRING.*
14. *INTERNAL DIMENSION REPORT OF FINISHED SUPPORTS AND ALLIED COMPONENTS.*
15. *PERFORMANCE GUARANTEE CERTIFICATE.*
16. *PACKING LIST.*

REF NO: TI/ / DATE:

TO,

KIND ATTN:

SUB:

ENQUIRY NO: **DT:**

PROJECT:

YOU'RE DOC ID:

Dear Sir,

We thank you for sending us the enquiry. For spring supports under caption and take the opportunity of submitting our best offer on following terms and conditions:

1. **SCOPE OF WORK:** This will include design, material procurement, manufacture inspection, surface preparation, packing / forwarding and transportation on TO-PAY basis.

2. **CODE & STANDARD:** In manufacture of spring supports and its assembly we MSS –SP 58, 69 & 89 for pipe hanger /support selection, application, fabrication and installation practice. For spring manufacture and testing BS 1726 Part 1 CL-B is followed.

3. **DRAWING:** We are enclosing our drawing and data sheet. Please Note, the drawing and data sheet have been prepared accordingly .To you're prescribed Load, vertical movement, Variability Factor (%) and other factors.

4. **MATERIAL CONSTRUCTION:** All pipes, Plates will be of IS 2062 Gr A, Hanger Bolts and Eye Bolts from EN-8, BS 970. Spring rod will be of EN 42/ 45 / 47 quality. CLAMP-IS 2062/ALLOY STEEL (SA 387 Gr.11.)

5. **SUPPORT BODY & PAINT:** Surface will be cleaned properly to remove all dirt's, 1 coat of red oxide primer & 1 coat of synthetic enamel paint. will be provided

5.1 All Supports are selected on the basis of operating or Hot Load and V.F (%) as per specified data.

5.2 All supports will be provided with cold set locking arrangement with position indicator and load travel scale fitted (Al. anodized scale) on the body of the support. Both Hot and cold load position will be properly marked.

5.3 Our Aluminum anodized scale will also indicate support mark no, support designation, line no etc.

6. **TESTING:** We will provide Govt. approved laboratory chemical test certificate for springs for each rod diameter of all the materials.

7. **SHOP TEST:** Besides above we will also provide scragging and load test certificates for each spring of support carried out in our workshop. Internal Inspection Report will also be provided.
8. **GUARANTEE**: Our materials are provided with guarantee for 12 (Twelve) month from the date of erection or 18(Eighteen) month from the date of dispatch whichever is earlier for defective materials / bad workmanship.
9. **INSPECTION:** Proper intimation will be sent to you for inspection at our works and all necessary assistance will be extended to the engineer. Our standard Q.A.P. sheets are enclosed for your kind study. Your Inspection authority all cost borne by you.
10. **PRICE:** Price part Separate sheet enclosed. Please note our quoted prices are ex-works Howrah /Cal. including of packing /Forwarding charges and exclusive of Sale tax and transport charge.
11. **SALES TAX:** C.S.T CHARGES @ 4% on basis price extra applicable pay borne by you against declaration form 'C'.
12. **EXCISE DUTY**: Not applicable at present.
13. **DELIVERY**: Materials will be dispatched within 30 days from the date of receipt of purchase order.
14. **VALIDITY**: Our above offer will remain open and valid for 30 (Thirty) days from the date of offer.
15. **PACKING**: Supports will be securely packed in wooden crates and proper binding will be provided for carrier.
16. **TRANSPORTATION**: Materials will be loaded at our works your authorized carrier at Howrah /Cal on TO_PAY basis.
17. **TERMS OF PAYMENTS**: Payment 100% after the submission of dispatch documents within 10 days. Note. You are requested to pay us by way of Bank D.D.payable at Howrah /Calcutta, in favour of TECHNO INDUSTRY.

Finally we hope you will find our offer in order and soon we will receive your esteemed Purchase Order.
Thanking you and assuring you the best attention at all times.

Yours faithfully
For **TECHNO INDUSTRY**

R.HASAN (PROP)

TECHNO INDUSTRY (An ISO 9001:2000 company)

ANNEXURE :	COMMERCIAL PRICED OFFER			Page :	Sheet	of
To M/s,	Vill. & P. O. :	Dist. :	PIN :	OUR OFFER NO. :		
ENQUIRY NO. :	Date :	Project :	Consultant :	Client :		
Subject :	DRG No. :	JOB No. :	Remarks			

Sl. No.	CODE NO./TAG MARK NO.	DESCRIPTION	DESIGNATION	MATERIAL	Quantity	UNIT PRICE		TOTAL PRICE		Remarks
						Rs.	P.	Rs.	P.	

Company Name: Our Offer Ref. No. : Date: __/__/___. Designation: Signature with Stamp

TECHNO INDUSTRY (An ISO 9001:2000 company)

ANNEXURE: **COMMERCIAL PRICED OFFER** **Page : Sheet OF**

To M/s, Vill. & P. O. : Dist. : PIN: OUR OFFER NO. : Date :

ENQUIRY NO. : Date : Project : Consultant : Client :

Subject: DRG No. : JOB No. : Remarks :

Sl. No.	CODE NO./TAG MARK NO.	DESCRIPTION	DESIGNATION	MATERIAL	Quantity	UNIT PRICE Rs.	P.	TOTAL PRICE Rs.	P.	Remarks

ENCLS : Attach Separate Sheet Page Sheet No. : ANNEXURE Our Basic Price Total Rs.

2. Packing Forwarding & Loading at /vender /shop @ Rs.
3. Excise Duty Rs.
4. Sales Tax @ As per Rule Against Declaration ( ) Form / or actual Rs.
5. Freight to Site TO PAY / PAID BASIS Rs.
6. Octroi / Transit Insurance Included / Excluded Rs.
7. Grand Total Rs.
(Rupees ----------)

8. Delivery_____ Week / Months from date of your Firm Order
9. Validity of offer 90 days
10. Terms of Payment:
11. Subject to Howrah/ Calcutta jurisdiction.
12. Mode of Payment By A/c. Payee D/D or Pay order Payable Calcutta/ Howrah,
13. Guarantee 12 months from the date of supply against any manufacturing defect subject to proper operation, up keeping & maintenance except any wearable and serviceable parts.

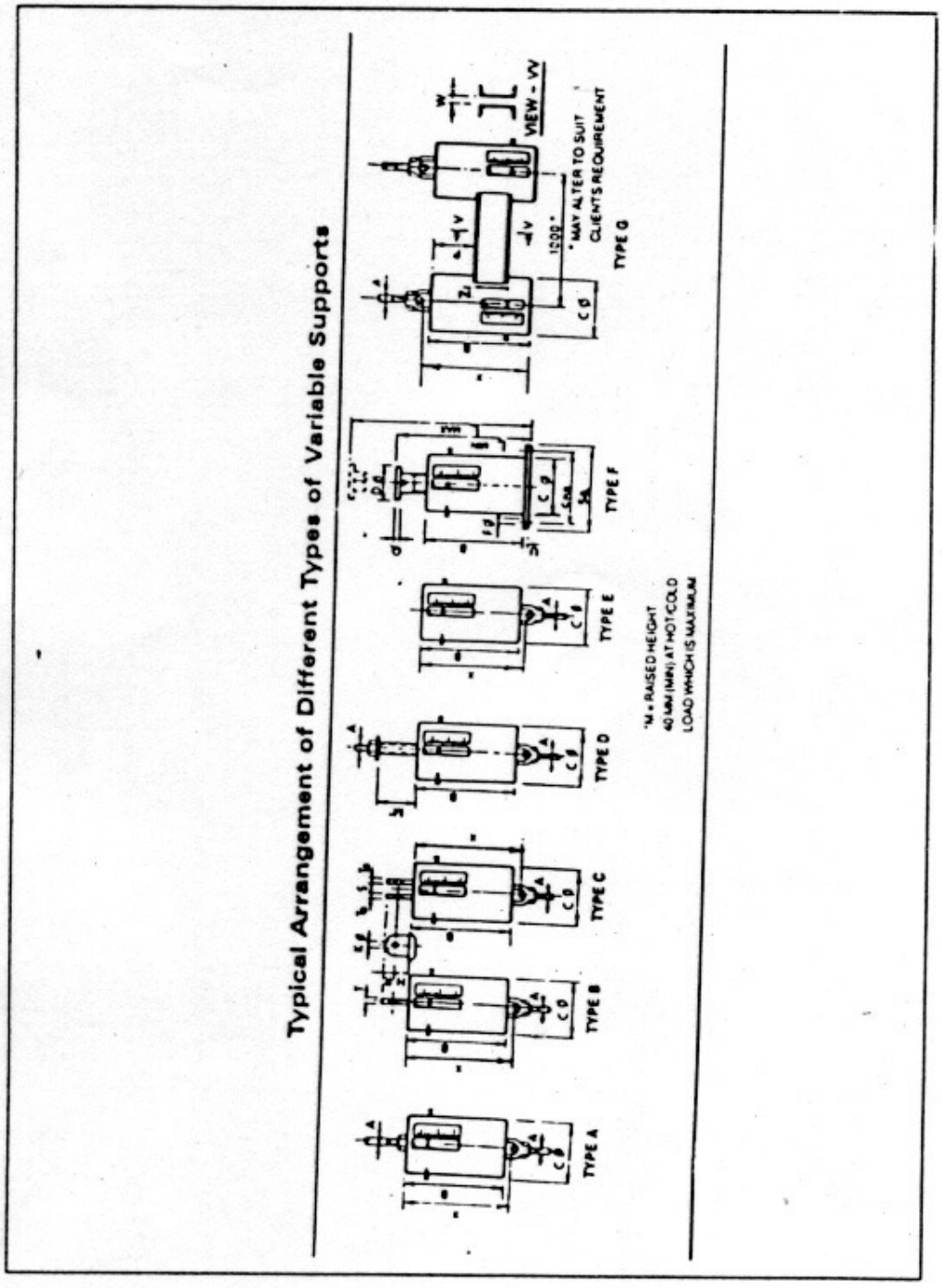
Company Name : Our Offer Ref.No. : date :___/___/____. Designation: Signature with Stamp

TECHNO INDUSTRY (An ISO 9001:2000 company)

DATASHEET OF SPRING SUPPORT																									
ALL DIMENSION ARE IN MM																									
SL	SUPPORT	Pipe	Hot Load	vertical	Cold Load		Spg. Rate		VF	Techno	Qty	A	B	C	D	H	R	RA	2xSA	U	K	Q	T	F	L	Temp.
NO.	MKD NO	Size	ment	Travel	Client	Techno	Client	Techno	%	Deign																('C)

OUR REF:	**DT:**
YOU'RE REF:	**DT.**
ENQ NO:	DT:
CLIENT :	
CONSULTANT:0	
PROJECT:	
YOUR DRG NO:	
OUR DRG NO:	
REV-0	SCALE: N.T.S
DRN BY:	PREPARED BY:

TECHNO INDUSTRY



TECHNO INDUSTRY (An ISO 9001:2000 company)

CLIENT:
VENDOR:
DRG. NO. & DATE:
ITEM: VARIABLE LOADS SPRING SUPPORT P. O. NO. & DATE: CONSULTANT: PROJECT:

STANDARD QUALITY PLAN

SL. NO.	COMPONENTS FOR ASSLY	CHARACTERISTIC CHECK	CATEGORY	TYPE/METHOD OF CHECKING	REFERANCE DOCUMENTS	ACCEPTANCE NORMS	FORMAT OF RECORDS	QUANTUM OF CHECK	REMARKS CLIENT	VENDOR
1	TOPS BOTTOM PLATE, PISTON PLATE, SIDE LUGS, TOP LUG	DIMENSION, SURFACE PREPARATION	STAGE WISE INSPECTION	VISUALLY/DIMENSION BY MEASURING INSTRUMENT	AS PER APPROVED DRAWING	AS PER APPROVED DRAWING		AS PER CLIENT'S ADVICE	W	R
		MATERIAL SPECIFICATION		CHEMICAL TEST	AS PER APPVED. DRG SPECIFICATION OF MATL	AS PER APPVD. DRG. MATL SPEC.	TEST CERTIFICATE	-DO-	R	R
2	CASING PIPE FOR SPRING CAGE ERW / SEAMLES	MATERIAL SPECIFICATION	___	CHEMICAL TEST	AS PER APPROVED DRG SPEC OF MATL 151239.CLB.	STD1529.CLB.	TEST CERTIFICATE	-DO-	R	R
3	HANGER BOLT	VISUAL/DIMENSION CHECKING		DIMENSION CHECKING OF ROD BY MEASURING INSTRUMENTS AND GUAGE	AS PER APPOVED DRG SPEC	AS PER APPVD. DRG SPEC	INTERNAL INSPECTION RECORD	-DO-	W	R
		RAW MATERIAL SPECIFICATION		CHEMICAL TEST	AS PER SPEC OF APPVD DRG	BS970 -EN8 152073	TEST CERTIFICATE			
4	\SPRING HELICAL COMPRESSION	SCRAGGING TEST & CRAMPING TEST		SCRAGGING 6 TIMES BY COMPRESSING AT MAX. ALLOWABLE LOAD BY HYDRAULIC COMPRESS-ION AND TENSION TYPE LOAD TESTING MACHINE. CRAMPING OF SPRING AT MAX LOAD LOCKED BY FLANGE, BOLT AND NUT MIN 6HRS AT A STRETCH	AS PER STD BS1726 PT.I	AS PER BS1726 PT1	INTERNAL INSPECTION RECORD	-DO-	W	R
		LOAD TESTING OF SPRING FOR SPRING RATE CHECKING		BY LOAD TESTING DEVICE						
		DIMENSION CHECK		VISUALLY AND BY MEASU-RING INSTRUMENT						
		DPTEST		SURFACE CRACK DETGTI-ON BY APPLICATION OF DYE PGNITRANT.		AS PER 'DPT' NORMS		-DO-	W	R

SHEET NO. :
W = WITNESS R = REVIEW

PREPARED BY
[SUPERVISOR (Q. C.)]

CHECKED BY
[MANAGER (Q. C.)]

CONTINUE SHEET ***STANDARD QUALITY PLAN***

SL. NO.	COMPONENTS FOR ASSLY	CHARACTERISTIC CHECK	CATEFORY	TYPE/METHOD OF CHECKING	REFERANCE DOCUMENTS	ACCEPTANCE NORMS	FORMAT OF RECORDS	QUANTUM OF CHECK	REMARKS CLIENT	REMARKS VENDOR
5	TURN BUCKLE	DIMENSION, VISUAL CHECKING	STAGE WISE INSPECTION	VISUAL CHECK OF GET UP AND SURFACE DIMENSION CHECKING BY MEASURING INSTRUMENT & GUAGE			INTERNAL TEST RECORD		W	R
		MATL APECIFICATION	—	CHEMICAL TEST	AS PER APPVED. DRG. SPECIFICATION OF MATL	AS PER APPVED DRG SPEC.	CHEMICAL TEST CERTIFICATE	AS PER CLIENTS ADVICE	R	R
		PROOF LOAD CHECK		SUBJECTED TO TWO TIMES OF MAXIMUM ALLOWABLE AXIAL WORKING LOAD.	AS PER APPVED.DRG. DATA SHEET LOAD.	AS PER APPVED. DRG. AND DATA SEET	NTERNAL TEST RECORD	-DO-	W	R
		D. P. TEST		APPLYING DYE, DYE PENITRATION & PENITRANTREMOVER ON SURFACE FOR CRACK EXAMINATION.	AS PER QAP TERMS & COND	AS PER RULES &REGULATION OF DPT.		-DO-	W	R
6	SPRING HANGER ASSLY AT FINAL STAGE	DIMENSION CHECKING	STAGE WISE INSPECTION AT FINAL STAGE	DIMENSION CHECKING OF FINISHED SUPPORT BY MEASURING INSTRUMENT AND GUAGES.	AS PER APPVD. DRG. AND DATASHEET	AS PER APPVD DRG. AND DATA SHEET	INTERNAL INSPECTION RECORD	-DO-		
		LOAD CALIBRATION TEST APPLYING HOT & COLD LOAD		CHECKING BY LOAD TEST M/C & PROVING RING.	-DO-	-DO-	-DO-		R	R
		LOAD MARKING ON SUPPORT BODY WITH MARKING LOAD/TRAVEL, MARK NO ON LOAD TRAVEL SCALE		VISUAL CHECK	-DO-	-DO-	-DO-			
		PAINTING		VISUAL CHECK	AS PER CLIENT'S SPECIFICATION OR VENDOR'S OWN PROCESS	AS PER APPVD TERMS & COND IN TECHNICAL PART OF OFFER	AS PER WRITTEN TERMS &COND. OF CLIENTS.			

SHEET NO. :

W = WITNSS R = REVIEW

PREPARED BY

[SUPERVISOR (Q. C.)]

CHECKED BY

[MANAGER (Q. C.)]

TECHNO INDUSTRY (An ISO 9001:2000 company)

GENERAL QUALITY PLAN	*PURCHASE ORDER NO.*	*REV NO. :* *PAGE 1 OF _____*	**Q**

CLIENT :							*ITEM :*
PROJECT :							*EQUIPMENT NO. :*
T.P.I./CERT.AUTHORITY :			*CONSULTANT :*				*EQUIPMENT TYPE :*
ISSUE NO.	1	DATE	2	DATE	3	DATE	***Inspection Activities***
MADE BY							***R - Review***
CHECKED BY							***W - Witness***
APPROVED BY							***H - Hold***

ACTIVITY NO.	*ACTIVITY*	*PROCEDURE DRAWING SPECIFICATION*	*ACCEPTANCE CRITERIA*	*VERIFYING DOCUMENT*	*INSPECTION REQUIREMENT*		
					VENDOR	*CLIENT*	*TPI / CA*

_____ _____

SIGNATURE
MANAGER/INCHARGE
FOR TECHNO INDUSTRY

SIGNATURE
PARTY /
AUTHORISED PERSON

DATE:
PLACE:

M A T E R I A L R E Q U I S I T I O N	JOB NO. : P. O. NO. :

1. ITEM AND QUANTITIES:

The following equipment's shall be furnished in accordance with requirements specified in this Requisition as per / drawings.

SL NO.	ITEM NO. MAT 'L CODE	SIZE	Q' TY / UNIT (EA)	DESCRIPTION

CHALLAN

M/S

……..

……..

……

Challan No:

Date:

P.O NO: **DT:**

Delivery By: **Date**:

QTY NOS.	*DESCRIPTION*

Any complaint regarding the goods must be made within 3 days in writing otherwise no complains will be entertained.	E. & O. E. FOR TECHNO INDUSTRY	Please receive the goods in good condition & sign the Challan with rubber stamp.

TO

NAME: - **OUR REF NO. : -**
DATE: -

ADDRES: - **OUR JOB NO.: -**

Dear Sir,

We are sending the cut piece / Borings of the raw materials for chemical composition test. Kindly issue the certificate
Confirming the material specification.

NAME OF CLIENTS :

NAME OF CONSULTANT :

P. ORDER & DATE :

TYPE OF CUT PIECE :

DIMENSION :

SPECIFICATION OF MATERIAL :

DATE OF SUBMISSION OF CUT PIECE(S) :

REMARKS :

WITNESSED BY & DATE :

_____
SIGNATURE OF RECEIVER

_____
SIGNATURE OF SENDER

CLIENTS: **P. O. NO. & DATE:**
CONSULTANTS: **JOB NO.**

RAW MATERIALS CHECKING BEFORE ACCEPTANCE

SL. NO.	ITEMS:	DIA X WALL THK.	MATL. SPECN.REQD.	SPECN FOUND AFTER TEST	SURFACE CONDITION	REMARKS
1. 2.	CASING PIPE (ERW) CASING PIPE (SEAMIBS)					
		THICKNESS	LENGTH X WIDTH	SPECN.REQD.SPECN. FOUND AFTER TEST	SURFACE CONDITION	REMARKS
3. 4.	PLATE FLAT					
		SIZE REQD.	SIZE FOUND	LEANGTH FOUND	REMARKS	
5. 6.	CHANNEL ANGLE					
		DIA REQD / FOUND	MATL.SPECN.REQD	MATL.SPECN FOUND AFTER TEST	SURFACE CONDITION	REMARKS
7. 8.	ROUND ROD SQUARE BAR					
		SIZE REQD.	SIZE FOUND	MATL. SPECN. REQD.	MATL, SPECN. FOUND AFTER TEST	VISUAL REMARKS GET UP
9.	BOLTS &NUT					

_____
SIGNATURE OF SUPERVISOR (Q. C.)

TECHNO INDUSTRY (An ISO 9001:2000 company)

CLIENTS : **P. O. NO. & DATE:** **ITEMS** : **(DRG. ENCLOSED)**

CONSULTANTS : **JOB NO.** :

INTERNAL DIMENSION CHECKING RECORD

SL. NO.	LENGTH X DIA OF ROD		TYPE OF THREAD X LENGTH OF THREAD		DIA OF EYE HOLE		REMARKS
	ACTUAL	OBTAINED	ACTUAL	OBTAINED	ACTUAL	OBTAINED	

SIGNATURE OF OFFICER (Q. C.)

TECHNO INDUSTRY (An ISO 9001:2000 company)

NAME OF SUBVENDOR: ***JOB NO. :***

OUR P. O. NO. & DATE :

DATE OF INSPECTION :

SL. NO.	NAME OF FINISHED ITEMS & QUANTITY	DIMENSION OF ITEMS		REMARKS	
		ACTUAL DIMENSION	OBTAINED DIMENSION	ACCEPTED	NOT ACCEPTED
		1. 2. 3. 4. 5. 6. 7. 8. 9. 10. 11. 12. 13. 14. 15. 16. 17. 18. 19. 20.			

SIGNATURE (INSPECTION OFFICER)

Order No……..….Date……..…….Drg No……..Sheet No……

Sl. No.	Tag/Mark No.	Support designation	Casing Pipe OD × L × Thk. Slot	Top Plate OD × ID × Thk.	Bottom Plate OD × ID × Thk. ✱RA× RA ×Thk.	Piston Plate OD×THK.×Hole	Hanger rod OD×L×THREAD

SL. No.	Tag/Mark No.	L. C. Pipe OD×L×Thk.×ThK.	L. C. Nut OD ×ID×L×THK.	Load Flange OD×Thk×Groove	Top / Side Lug OD×Thk.×Hole	Side Stud OD × L	Quantity Nos

SPRING DETAILS NO

Order No. : **Date:** **Drg. No. :** **Remarks:**

SL. NO.	RD	MD	TC	FH	SR	RCL	QTY	MATL.	TAG NO.

TECHNO INDUSTRY (An ISO 9001:2000 company)

SCRAGGING & CRAMPING TEST REPORT

No. : TI /
Client: **DATE :**
P. O. No. & Date:
A. Scragging Test: **Drg. No. :**
B. Cramping Test: **JOB No. :**

Sl. No.	TAG NO.	HT BEFORE CRAMPING. mm	HT AFTER CRAMPING. mm	QTY. NOS.	REMARKS

Remarks : (Checked by) **For Techno Industry**

[Q. C. Manager]

CLIENT: ***ORDER NO. :*** ***DATE:***

LOAD TEST CERTIFICATE NO. : TI-LT ***DATE:*** ***STANDARD FOLLOWS: BS – 1726. PART - 1***

SCRAGGING TEST : ***CRAMPING TEST :*** ***SHEET :*** ***OF :***

SL. NO.	CLIENT'S MARK NO. TAGNO./CODENO.	TECHNO SUPPORT DESIGNATION	QUAN TITY. NOS.	HEIGHT AT KG. LOAD	TRAVEL MM	HEIGHT AT KG. LOAD	OBTAINED SPRING RATE KG/MM	REQUIRED SPRING RATEKG/MM	% AGE OF VARIATION	REMARKS

REMARKS :

Enquiry No. :

CHECKED BY

Job No. : Project :

For
TECHNO INDUSTRY

(Q. C. Manager)

Consultant :

TECHNO INDUSTRY (An ISO 9001:2000 company)

CLIENT : **ORDER NO :** **DATE :**

LOAD TEST CERTIFICATE NO. : TI-LT **DATE:** **STANDARD FOLLOWS: BS – 1726. PART - 1**

SCRAGGING TEST: **CRAMPING TEST :** **SHEET :** **OF**

SL. NO.	CLIENT'S MARK NO. TAG NO./CODE NO.	TECHNO SUPPORT DESIGNATION	QUAN TITY. NOS.	HOT LOAD KG.	COLD LOAD KG.	TRAVEL REQD MM	TRAVEL OBTD. MM	OBTAINED SPRING RATE KG/MM	REQUIRED SPRING RATE KG/MM	% AGE OF VARIATION	REMARKS

REMARKS :

For TECHNO INDUSTRY

CHECKED BY (Q. C. MANAGER)

Enquiry No. Job No. Project Consultant

CLIENTS: **P. O. NO. & DATE:** **ITEM:** **PROJECT:**

CONSULTANT: **DRG & DATA SHEET NO:**

DRG & DATA SHEET TO FOLLOW: INTERNAL INSPECTION RECORD OF DIMENSION CHECK (SPRING SUPPORT)

SL. NO.	MARK NO.	DESIGN-ATION	DIMENSION 'A'		DIMENSION 'B'		DIMENSION 'C'		DIMENSION 'D'		DIMENSION 'H X R'		DIMENSION 'S'		DIMENSION 'T'		DIMENSION 'SA X RA'		DIMENSION 'Kø X Pø'	
			ACT-UAL	OBT-ND	ACT-UAL	OBT-ND	ACT-UAL	OBT-ND	ACT-UAL	OBT-ND	ACT-UAL	OBT-ND	ACT-UAL	OBT-ND	ACT-UAL	OBT-ND	ACT-UAL	OBT-ND	ACT-UAL	OBT-ND

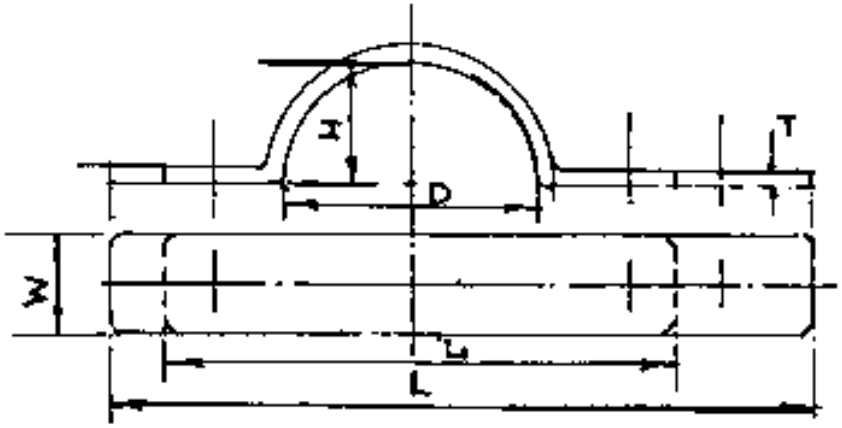
REMARKS:

PREPARED BY
Q. C. SUPERVISOR

CHECKED BY
Q. C. MANAGER

TECHNO INDUSTRY (An ISO 9001:2000 company)

NAME OF SUBVENDOR :
CLIENT'S NAME :
P.O. NO. & DATE :
CONSULTANT :
PROJECT:
ITEM : FORGED CLAMP
SHEET : OF



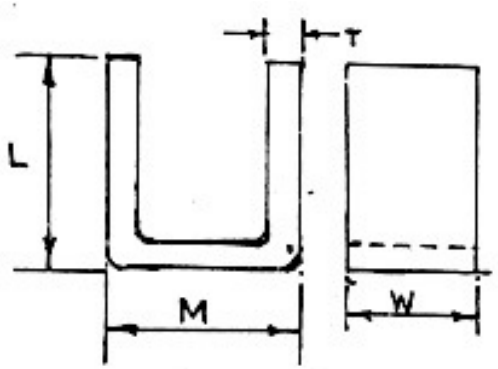
NOTE : L1 FOR TWO BOLTS CLAMP
AFTER FORGING DIMENSION / VISUAL CHECKING AT VENDOR'S SHOP

SL. NO.	COMPONENTS	DIMENSION 'L' FOUND (ORL)	DIMENSION 'W' FOUND	DIMENSION 'T' FOUND	DIMENSION 'H' FOUND	SURFACE ALL OVER	REMARKS

JOB NO : DT:

SIGNATURE OF SUPERVISOR (QC)

NAME OF SUBVENDOR :
CLIENT'S NAME :
P.O. NO. & DATE :
CONSULTANT :
PROJECT :
ITEM : FORGED BEAM BRACKET
SHEET : OF



AFTER FORGING DIMENSIONAL / VISUAL CHECKING AT SUBVENDOR'S SHOP

	COMPONENTS	DIMENSION 'L' FINISHED FORGED		DIMENSION 'M' ACTUAL OBTND		DIMENSION 'W' ACTUAL OBTND		DIMENSION 'T' ACTUALOBTND		SURFACE ALL OVER	REMARKS

JOB NO : DT:

SIGNATURE OF SUPERVISOR (QC)

TECHNO INDUSTRY (An ISO 9001:2000 company)

CLIENT'S :
P.O. NO. :
ITEM : SPRING SUPPORT **DRG NO :** **JOB NO :**

INTER DIMENSION CHECKING RECORD OF FINISHED SUPPORT FROM TYPE A, B, C, D, E & G ASPER CATALOGUE

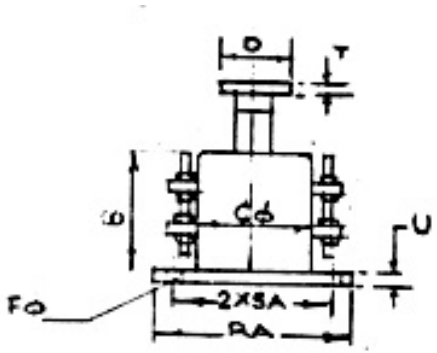
SL. NO.	DIMENSION 'A' ACTUAL -OBTND		DIMENSION 'B' ACTUALOBTND		DIMENSION 'C' ACTUAL- OBTND		DIMENSION 'H' ACTUAL-OBTND		DIMENSION 'R' ACTUAL-OBTND		DIMENSION 'T' ACTUAL -OBTND		DIMENSION 'K0' ACTUAL - OBTND		REMARKS
1															
2															
3															
4															
5															
6															
7															
8															
9															
10															
11															
12															
13															
14															
15															
16															
17															
18															

DATE :

SIGNATURE OF SUPERVISOR (QC)

TECHNO INDUSTRY (An ISO 9001:2000 company)

CLIENT : M/S
P.O. NO. : BG/1
ITEM :
DRG NO : **JOB NO :**

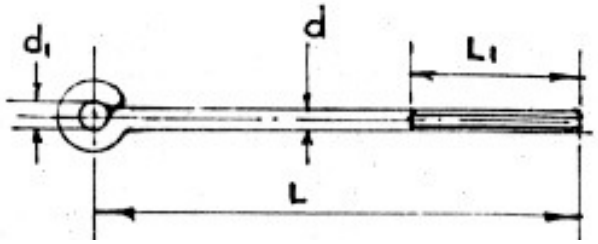


INTERNAL DIMENSION CHECKING RECORD OF FINISHED SUPPORT (DIMENSIONS IN MM)

SL. NO.	SUPPORT MKD NO	SUPPORT DESIGNATION	DIMENSION 'B' ACTUAL-OBTND		DIMENSION 'C0' ACTUAL- OBTND		DIMENSION 'RA' ACTUAL-OBTND		DIMENSION '.2XSA' ACTUAL-OBTND		DIMENSION 'U' ACTUAL-OBTND		DIMENSION 'F' ACTUAL-OBTND		DIMENSION 'D0XT' ACTUAL-OBTND	

DATE:

SIGNATURE OF QC ASST



DIMENSION CHECK OF EYE BOLT (INTERNAL RECORD)

SL. NO.	MARK NO.	DIMENSION 'd' ACTUAL -	OBTND	DIMENSION 'd' ACTUAL -	OBTND	DIMENSION 'L' ACTUAL -	OBTND	DIMENSION 'L' ACTUAL -	OBTND	REMARKS

CLIENTS:
P.O. NO. & DATE:
CONSULTANT:
PROJECT: **JOB NO:**

_____
SIGNATURE OF SUPERVISOR (QC)

DIMENSION CHECKING OF HANGERSTUD (INTERNAL RECORD)

SL. NO.	MARK NO.	DIMENSION 'L' ACTUAL	- OBTND	DIMENSION 'd' ACTUAL	-OBTND	DIMENSION 'L2' ACTUAL	- OBTND	DIMENSION 'L1' ACTUAL	- OBTND	REMARKS

CLIENTS:
P.O. NO. & DATE:
CONSULTANT:
PROJECT:

JOB NO:

_____

SIGNATURE OF SUPERVISOR (QC)

REF NO: DATE:

GUARANTEE CERTIFICATE

CLIENT :

CONSULTANT :

ITEM :

P.O NO :

APPROVED DRG NO. :

WORK ORDER NO :

CONSIGNEE :

This is to certify, the above materials are manufactured as per your approved drgs, mentioned above. We confirm to rectify replace the materials free of cost, in case, any defect found in our material/ workmanship for a period of 24 (Twenty four) months from the date of dispatch and 12 (Twelve) months from the date of commissioning which ever is earlier. If any fitment problem arises at your end and any damage occurs out of mishandling at site we shall not be held responsible. Even at the time of transportation any of the materials be damaged in transit, it will be the responsibility of client.

For TECHNO INDUSTRY

R.HASAN (PROP).

Delivery site address:

TECHNO INDUSTRY (An ISO 9001:2000 company)

To, **M/s.** **TRANSPORTER NAME:**	**CLIENT NAME:** **P.O NO:**_____ DT: **DESPATCH DATE:** **VENDOR CODE:**

PACKING LIST

SL. NO	WOODEN BOX	MARK NO & DESCRIPTION OF ITEMS	TECHNO DESIGNATION	QTY