



ITI LIMITED
A Govt. Of India Undertaking
Dooravaninagar Bangalore
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Website: www.itilttd-india.com

Due Date 19-06-2021 15:00

ENQUIRY FOR PR M2121E001

Date 04-06-2021 10:31

Respected Sir Kindly quote your best prices and deliveries for the below mentioned components.

Sino	Item and Description	Quantity	Unit
1	D3363060A020A00 M6 X 20 CSK SLOTTED HEAD SCREW S0018 (ITI Drawing (Fasteners Family)) ITI DRAWING	8000.0000	Number of Units
2	D3364040A015A00 M4 X 40 SLOTTED CHEESE HEAD SCREW S0018 (ITI Drawing (Fasteners Family)) ITI DRAWING	15000.0000	Number of Units
3	D3364040A025A00 M4 X 25 SLOTTED CHEESE HEAD SCREW S0018 (ITI Drawing (Fasteners Family)) ITI DRAWING	6000.0000	Number of Units
4	D3364040A032A00 "M 4 X 32mm CH HD SCREW FREE CUTTING STEEL B295 PART I S0018 (ITI Drawing (Fasteners Family)) ITI DRAWING	3000.0000	Number of Units
5	D3364050A020A00 "M 5.00 X 20.00 CHEESE HEAD SCREW S0018 (ITI Drawing (Fasteners Family)) ITI DRAWING	32000.0000	Number of Units
6	D3364060A020A00 "M 6.00 X 20.00mm CH HD SCREW S0018 (ITI Drawing (Fasteners Family)) ITI DRAWING	130000.0000	Number of Units
7	D3364060A030A00 M6X 30 Screw (for fixing top cover) S0018 (ITI Drawing (Fasteners Family)) ITI DRAWING	4000.0000	Number of Units
8	D3365080A025A00 M8 HEX HD 25 mm STEEL BOLT, FINISH B504B S0018 (ITI Drawing (Fasteners Family)) ITI DRAWING	11000.0000	Number of Units

NOTE :

1. PLEASE SEND YOUR QUOTE IN A SEALED COVER SUBSCRIBING OUR ENQUIRY NUMBER AND THE DUE DATE ON THE ENVELOPE SHOULD REACH US ON OR BEFORE DUE DATE BY 3.00 PM.
2. OFFER THROUGH EMAIL WILL NOT BE CONSIDERED.
3. TERMS AND CONDITIONS AS PER ENCLOSURE.
4. OUR PAYMENT IS 60 DAYS CREDIT.
5. YOUR QUOTED PRICE SHALL BE ALL INCLUSIVE FOR ITI LTD.BANGALORE

Special Note:

- * KINDLY PROVIDE UDYAM REGISTRATION CERTIFICATE IF MSME REGISTERED ENTERPRISE
- * KINDLY SUBMIT QUOTE AS PER ATTACHED ITI DRAWING
- * KINDLY MENTION RFQ # & DUE DATE OVER ENVELOPE WITHOUT WHICH QUOTATION WILL NOT BE CONSIDERED FOR TENDERING
- * KINDLY ACKNOWLEDGE THE RECEIPT OF ENQUIRY BY RETURN MAIL
- * KINDLY CONFIRM WHETHER QUOTATION SUBMITTED BY PERSONAL DEPOSIT OR THROUGH ANY COURIER SERVICES (PROVIDE DOCKET REFERENCE)

Deputy General Manager(MM)

Central Purchase,

ITI Limited,Dooravaninagar

Bangalore-560016

Thanking You.

Yours Faithfully,

For I.T.I Limited

CHIEF MATERIAL MANAGER



SLOTTED COUNTERSUNK HEAD SCREWS

SPEC. No. D 3363
ISSUE No. 2
15 April 2002

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1. SCOPE

This specification covers the requirements of Slotted Countersunk Head Screws in the diameter range of M 1.6 to M 10.

2. REFERENCE

- i) IS 1365 / 1978

3. REQUIREMENTS

3.1 General

The screws manufactured as per this specification shall conform to the requirements of IS 1365 / 1978 Product Grade "A".

3.2 Thread

The screw shall have Metric thread, coarse pitch with thread tolerance of 6g of IS 4218 / Part 6 / 1978 table 6 and IS 1365 / 1978 Product grade "A".

3.3 Dimensions

The dimensional requirements shall be as given in table 2.

3.4 Standard Length

The diameter and length combination shall be as given Table 3.

3.5 Material

The screws shall be manufactured from the following materials as given in Table 1.

Table 1

MATERIAL DESCRIPTION

ITI / IS SPEC

Steel Free Cutting

B 295 / Part 1

Steel Cold Heading

B 2547

Brass Free Cutting

B 286

Brass Cold Heading

B 2752

Stainless Steel

IS 1367 / Part 14 / 1984

Grade "A2", Property Class 50

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3.6 Finish

3.6.1 Free cutting Steel and Cold heading Steel Screws

Screws manufactured from free cutting steel and cold heading steel shall be finished with zinc plating to ITI specification B 504. The minimum average plating thickness shall be 7.5 microns.

3.6.2 Free cutting Brass and Cold heading Brass Screws

Screws manufactured from free cutting and cold heading brass shall be finished with Nickel plating to ITI specification B 507. The minimum average plating thickness shall be 7.5 microns.

3.6.3 Stainless Steel Screws

Screws manufactured from stainless steel shall be cleaned as per ITI specification B501G.

NOTE : The maximum plating thickness shall be such that after plating the screws shall suit to the corresponding gauge.

4. TESTS

4.1 Stainless Steel

4.1.1 Screws Up to and Including M5

- a) Tensile strength shall be minimum 50 kg / mm². Method of test shall be as per IS 1608 / 1995 and IS 1367 / Part 3 / 1979. This test is applicable for screws length equal to twice the diameter or larger.
- b) Breaking torque test shall be conducted as per IS 1367 / Part 14. The breaking torque load shall be as per table 5 of IS 1367 / Part 14 / 1984, property class 50.

4.1.2 Screws above M5

- a) Tensile strength shall be minimum 50 kg / mm². Method of test shall be as per IS 1608 / 1995 and IS 1367 / Part 3 / 1979. This test is applicable for screws length equal to twice the diameter or larger.
- b) Stress at 0.2 percent strain min. (yield strength) 210 N / mm². The test shall be conducted as per IS 1367 / Part 14 / 1984.
- c) Extension after fracture shall be min. 0.6d. This test is applicable for screw length equal to three times the diameter or larger. The test shall be conducted as per IS 1367 / Part 14 / 1984.



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4.1.3 Test for all sizes of Screws

- a) Hardness Min. 150 VPN.
- b) One sample shall be checked for chemical composition of chromium and nickel content. The requirement of chromium shall be between 17 to 19% and nickel shall be between 8 to 10%.
- c) Test shall be conducted to ascertain whether the screws are nonmagnetic or not. Magnetic screws are not acceptable.

4.2 Steel / Brass Screws

4.2.1 Hardness

Hardness shall be checked on the shank at the cross section. The end of the shank portion of the screw shall be polished using metallurgical grade emery paper. It shall not be prepared using grinding machine.

In case of doubt, it shall be verified by checking the hardness at the middle point of radius of the shank after removing a length of one dia. The hardness value shall be 120 to 250 VPN for steel screws and 200 VPN for brass screws.

4.2.2 Tensile Strength

Tensile strength shall be checked up as per method detailed in IS 1367 / Part 3 / 1979. The tensile strength value shall meet the minimum requirement of the relevant raw material specification. However, a negative tolerance of 10% is allowed. This test is applicable for screws length equal to twice the diameter of the screw or larger.

4.2.3 Extension after Fracture

Extension after fracture shall be minimum 0.6d. This test is applicable for screws of length equal to three times the diameter or larger.

4.2.4 Chemical Composition

One sample shall be checked for chemical composition, and the same shall meet the requirements of relevant raw material specification.

4.3 Finish

Screws shall be checked for finishing aspect and the same shall meet the relevant finish specification requirements.





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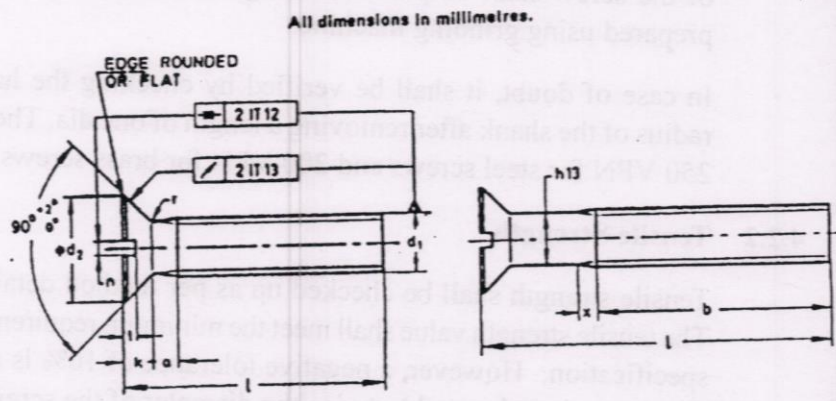
5 DESIGNATION

The slotted Countersunk head screws shall designated as per Data sheet STDS-DFX-S

Example: A slotted Countersunk Head screw of size M8 and length 20 mm made from free cutting brass to ITI specification B 286 shall be designated as:

D3363 080 C 020 C00

TABLE 2 - DIMENSIONAL REQUIREMENTS OF SLOTTED COUNTERSUNK HEAD SCREWS



All dimensions in millimetres.

SHANK DIAMETER \approx PITCH DIAMETER

a and x according to IS: 1369-1975 'Dimensions of screw thread run-outs and under-cuts (first revision)
Shank diameter = major diameter and chamfered end also permitted.

Nominal Size d_1	M1.6	M2	(M2.2)	M2.5	M3	(M3.5)	M4	(M4.5)	M5	M6	M8	M10
d_1 h_{13} , $d_2 \sqrt{3}$ h_{14} , $d_1 \sqrt{3}$	Nom 3.00 Min 2.75	3.8 3.50	4.2 3.90	4.7 4.40	5.6 5.30	6.5 6.11	7.5 7.19	8.3 7.94	9.2 8.84	11 10.57	14.5 14.07	18 17.57
k	Max 0.96	1.2	1.32	1.5	1.65	1.93	2.2	2.25	2.5	3	4	5
n c_{13} , $n < 1$ c_{14} , $n > 1$	Nom 0.4 Max 0.6 Min 0.48	0.5 0.7 0.56	0.6 0.8 0.66	0.6 0.8 0.66	0.8 1 0.88	0.8 1 0.86	1 1.2 1.06	1 1.2 1.06	1.2 1.51 1.25	1.6 1.91 1.66	2 2.31 2.06	2.5 2.81 2.56
l	Max 0.5 Min 0.32	0.6 0.4	0.6 0.44	0.6 0.5	0.8 0.6	0.8 0.7	1 0.8	1 0.9	1 1	1.2 1.2	1.6 1.6	2 2
$r \approx$	0.16	0.2	0.22	0.25	0.3	0.35	0.4	0.45	0.5	0.6	0.8	1
b	+2P 15	16	17	18	19	20	22	24	25	28	34	40

Note — Sizes given in parentheses are of second preference.
*Threaded up to the head.

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Table 3 Standard Length (All Dimensions are in mm)

Screw Size	(MM)
M1.6	3 4 5 6 8 10 12 14 16
M2	3 4 5 6 8 10 12 14 16 20
(M2.2)	3 4 5 6 7 8 10 12 14 16 18 20
2.5	4 5 6 8 10 12 14 16 20 25
M3	5 6 8 10 12 14 16 18 20 22 25 28 30 35
(M3.5)	5 6 7 8 9 10 12 12 16 18 20 22 25 28 30 35
M4	6 8 10 12 12 16 20 25 30 35 40
(M4.5)	6 7 8 9 10 12 14 16 18 20 22 25 28 30 35 40 45
M5	8 10 12 14 16 20 22 25 30 35 40 45 50
M6	8 10 12 14 16 20 22 25 30 35 40 45 50
M8	12 14 16 20 22 25 30 40
M10	16 20 25 30 35 40 50

TOLERANCE OF LENGTH:

- a) Above 3mm upto & Including 10 mm ± 0.3 mm
- b) Above 10 mm upto & Including 16 mm ± 0.4 mm
- c) Above 16 mm upto & Including 50 mm ± 0.5 mm
- d) Above 50 mm upto & Including 80 mm ± 1 mm

Note: Sizes shown in brackets are second preference and shall not be used in new designs.

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6. TYPE APPROVAL

6.1 Provision of Samples

For type approval purpose, the supplier shall submit 75 Nos. of free samples in different sizes as indicated below :

25 Nos. Lowest Size (M1.6 in this case)

25 Nos. Middle size (M5 in this case)

25 Nos. Largest Size (M10 in this case)

6.2 Type Approval Tests

SL No.	No. of Samples			Test	Clause No.
	Lowest size	Middle size	Largest size		
1	25 Nos.	25 Nos.	25 Nos.	Dimension	3.3
2	20 Nos	20 Nos.	20 Nos.	Mech.Test	4.1.1 to 4.2.3
3	5 Nos.	5 Nos.	5 Nos.	Finish	4.3

7. BATCH ACCEPTANCE

7.1 Sampling

Shall be as given in unit/divisional Quality system documents

7.1.1 After selecting the samples and conducting the test for dimensions, applicable tests as called for in clause 3 shall carried out for batch acceptance.



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8. PACKING AND MARKING

8.1 Packing

The screws shall be packed in cartons / boxes in numbers of 5, 10, 20, 50, 100, 200, 500, 1000 and thereafter in multiples of 1000 Nos.. In case of cold heading steel and free cutting steel screws procured without plating, the same shall be well oiled before packing in to cartons / boxes.

8.2 Marking

Cartons / Boxes containing the screws shall be marked with screw designation, quantity, suppliers name / trade mark and where possible a pictorial representation of screw.

9. REJECTION OF SUPPLIES

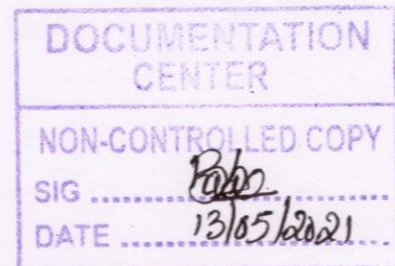
ITI limited have the right to reject any screws which do not corresponds to the above specification and to return any screws which subsequently proves faulty in usage.

10. ACCEPTANCE

The acceptance of this specification without any comment shall be taken to indicate that the suppliers agrees to comply with the conditions herein contained.

History of revision:

Reviewed & revised to include code No.



PREPARED	<i>K.S:K.G M.S. SEC(S.D.S.)</i>	Ref : D3363, Issue No. 1 Dated : 16 Aug. 1991	Page 7 / 7
CHECKED	<i>[Signature]</i> CEQ-D		
APPROVED	<i>[Signature]</i> DGM(QV)		

D 3364



STANDARD

SLOTTED CHEESE HEAD SCREWS

SPEC. No. D 3364

Issue No. 2

26.07.2000

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1 SCOPE

This specification covers the requirements of Slotted Cheese Head Screws in the diameter range M1.6 to M10.

2 REFERENCES

IS 1366 - 1982	Spec. for Slotted Cheese Head Screws
IS 1367 Pt 2 - 1979	Product Grades and Tolerances
IS 1367 Pt.3 - 1991	Mechanical Properties & Test Methods for Bolts, Screws & Studs with full loadability
IS 1367 Pt.14 - 1984	Stainless Steel Threaded Fasteners
IS 1501 Pt.2 - 1984	Method for Vickers Hardness Test for Metallic Materials
IS 1608 - 1995	Mechanical Testing of Metals - Tensile Testing
IS 4218 Pt.6 - 1984	ISO Metric Screw Threads

3 REQUIREMENTS

3.1 General

The screws manufactured as per this specification shall comply with the tolerance requirements of IS 1366 - 1982 Product grade 'A'. The screws shall be of metric thread coarse pitch with thread tolerance '6g' of IS 4218 Pt.6 - 1984. The screws shall be cleanly finished sound and free from defects that may affect their serviceability. The stainless screws shall be non-magnetic.

3.2 Material

The screws shall be made of brass, steel, stainless steel or any other suitable material as specified in the purchase order / drawing and it shall satisfy the requirements of relevant raw material specifications.

3.3 Dimensions

The screws shall meet the dimensional requirements as specified in Table - I.

3.4 Mechanical Properties

Property	Requirement	Test Method
a. Hardness	- 120 - 200 VPN for Brass screws	IS 1501 Pt.2 - 1984
	- 120 - 250 VPN for Steel screws	IS 1501 Pt.2 - 1984
	- 150 VPN min. for SS screws	IS 1501 Pt.2 - 1984

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Property	Requirement	Test Method
b. Tensile Strength	Min. values as called for in the relevant R/M spec. However 10% negative tolerance is permitted. Test applicable for length equal to twice the dia. or larger.	IS 1608 / IS 1367 Pt.3
c. Extension after Fracture	- min. 0.6 d where d = dia. of screw Test applicable for length equal to thrice the dia. or larger.	IS 1367Pt14

Note : Hardness shall be checked on the shank at the cross section of the screws.

3.5 Finish

Screw	Raw material used	Finish
a. Brass	B286 / B 2752	Nickel plating B507
b. Steel	B 295 Pt.1 / B2547	Zinc plating B 504 or Zinc & passivation B 504 G or Zinc & Clear lacquer B 504 B
c. Stainless Steel	IS 1367 Pt.14 Gr. A2 Property Cl. 50	Cleaning B501 G

Note: i. Unless otherwise specified, the Min. average plating thickness shall be 7.5 microns.
ii. If any other type of material / finish is required, the same shall be indicated in the purchase order.

4 ORDERING CODE

The screws shall be designated by the size, material & finish applied as per the standard document for fasteners STDS - DFX - S

eg : **D3364 030 C 016 C00** for slotted cheese head screw of size M3, length 16 mm madeup of free cutting brass to specification B 286 & plated nickel to spec. B 507.

5 TYPE APPROVAL

5.1 For type approval, the manufacturer shall submit 75 Nos. of samples, in different sizes as follows, manufactured with the same material.
25 Nos. Lower size ; 25 Nos. Middle size & 25 Nos. Large size
Along with the screws individual raw material samples (3 pieces of 300 mm long) shall also be submitted for type approval .



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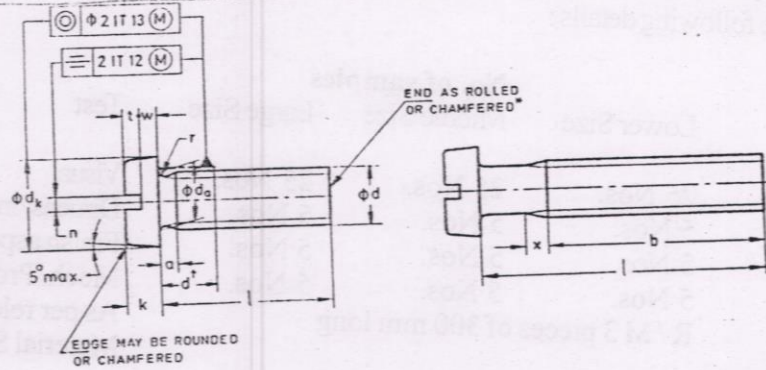
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TABLE - I Dimensional requirements of Cheese Head Screws
(all dimensions in mm.)



SIZE d	M1.6	M2	M2.5	M3	(M3.5)	M4	M5	M6	M8	M10
PITCH P	0.35	0.4	0.45	0.5	0.6	0.7	0.8	1	1.25	1.5
b	Max	25.7	25.8	25.9	26	39.2	39.4	39.6	40	40.5
	Min	25	25	25	25	38	38	38	38	38
dk	Max	3	3.8	4.5	5.5	6	7	8.5	10	13
	Min	2.86	3.62	4.32	5.32	5.82	6.78	8.28	9.78	12.73
da	Max	2	2.6	3.1	3.6	4.1	4.7	5.7	6.8	9.2
	Min	1	1.3	1.6	2	2.4	2.6	3.3	3.9	5
k	Max	1	1.3	1.6	2	2.4	2.6	3.12	3.6	4.7
	Min	0.86	1.16	1.46	1.86	2.26	2.46	3.12	3.6	4.7
n	Nom	0.4	0.5	0.6	0.8	1	1.2	1.51	1.6	2
	Min	0.6	0.7	0.8	1	1.2	1.51	1.51	1.91	2.31
r	Min	0.46	0.56	0.66	0.86	1.06	1.26	1.26	1.66	2.06
	Min	0.1	0.1	0.1	0.1	0.1	0.2	0.2	0.25	0.4
t	Min	0.4	0.55	0.7	0.8	1	1.1	1.3	1.6	2
w	Min	0.35	0.45	0.6	0.8	1	1.1	1.3	1.6	2
LENGTH l										
	Nom	Max	Min							
2	2.2	1.8								
2.5	2.7	2.3								
3	3.2	2.8								
4	4.3	3.7								
5	5.3	4.7								
6	6.3	5.7								
8	8.3	7.7								
10	10.3	9.7								
12	12.4	11.6								
(14)	14.4	13.6								
16	16.4	15.6								
20	20.5	19.5								
25	25.5	24.5								
30	30.5	29.5								
35	35.5	34.5								
40	40.5	39.5								
45	45.5	44.5								
50	50.5	49.5								
55	56	54								
60	61	59								
(65)	66	64								
70	71	69								
80	81	79								

Shank diameter = Pitch diameter or = Major thread diameter permissible.
 a and x according to IS : 1369-1982 'Dimensions for screw thread runouts and undercuts (second revision)'.
 *Thread end when chamfered, shall be according to IS : 1368-1980 'Dimensions for ends of bolts and screws (second revision)'.
 †The datum feature shall not be partly shank partly thread. If necessary the datum feature d should be placed at sufficient distance (3P max) from the head of the screw (to avoid thread runout).
 Note 1 — Sizes shown within brackets are non-preferred.
 Note 2 — Preferred lengths are between stepped bold lines.
 Note 3 — Screws with nominal lengths above the dotted stepped line, are threaded up to the head (b = l - a).

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5.2 Type Approval Tests : The finished screws and raw material samples shall be checked for the following details :

Lower Size	No. of samples			Test	Clause
	Middle Size	Large Size			
25 Nos.	25 Nos.	25 Nos.		Visual	3.1
5 Nos.	5 Nos.	5 Nos.		Dimension	3.3
5 Nos.	5 Nos.	5 Nos.		Finish aspect	3.5
5 Nos.	5 Nos.	5 Nos.		Mech. Properties	3.4
R / M 3 pieces of 300 mm long				As per relevant Material Spec.	3.2

6 BATCH ACCEPTANCE TESTS

Sampling plan as per BU 0020 cl. 4.5 of spec. shall be followed and tested for the following details :

Visual aspects, dimensions, hardness, material identification as per relevant raw material spec. and finish.

7 PACKING AND MARKING

Packing : Unless otherwise specified the screws shall be packed in cartons of 100, 200, 500 or 1000 numbers. Each carton shall contain screws of one size only. In case if the steel screws are supplied without any surface protection, the same shall be well oiled before packing.

Marking : Each carton containing screws shall be labelled with the manufacturer's name or trade mark, type of screws, the size and quantity of screws.

8 OBJECTION

M/s ITI LIMITED have the right to reject any material which does not comply with the aforesaid conditions and to return any material which subsequently proves faulty in in useage.

9 ACCEPTANCE

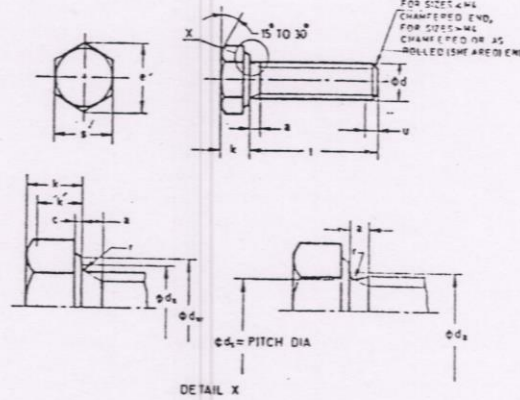
The acceptance of this specification without comment shall be taken to indicate that the contractor agrees to comply with the conditions contained herein.

PREPARED	<i>K. Nambiar</i> E.E.(S/H)	Ref: Revised and reformatd for clarity.	PAGE 4/4
CHECKED	<i>A. Sanyal</i> A.C.E.(S/H)		
APPROVED	<i>W. Sanyal</i> DGM(Q.V)		

AMENDMENT No : 1 Dated 28/02/2000, To Spec No : D 3365, Issue : 1

- 1 **CL1 Scope** : Read "M3 to M8" as "M3 to M36".
- 2 **Table 2 / Page 3/7** : Replace the existing table with the following :

Table 2 - Dimensional Requirements of Hexagonal Screws



u according to 'CE' of IS : 1368-1960 'Dimensions for ends of bolts and screws (second revision)'].

Thread size d	M3	M4	M5	M6	M8	M10	M12	M16	M20	M24	M30	M36
p^*	0.5	0.7	0.8	1	1.25	1.5	1.75	2	2.5	3	3.5	4
H	Max											
	1.5	2.1	2.4	3	3.75	4.5	5.25	6	7.5	9	10.5	12
c	Min											
	0.15	0.15	0.15	0.15	0.15	0.15	0.15	0.2	0.2	0.2	0.2	0.2
	Max											
	0.4	0.4	0.5	0.5	0.6	0.6	0.8	0.8	0.8	0.8	0.8	0.8
d_s	Max											
	3.6	4.7	5.7	6.8	8.2	11.2	13.7	17.7	22.4	26.4	31.4	39.4
d_w	Min											
$l \leq 10 d$ or 150 mm	4.9	5.9	6.9	8.9	11.6	14.6	15.6	22.5	28.2	31.6	42.7	51.1
$l > 10 d$ or 150 mm	—	—	6.7	8.7	11.4	14.4	16.4	22	27.7	31.2	42.7	51.1
e	Min											
$l \leq 10 d$ or 150 mm	6.01	7.66	8.79	11.05	14.38	17.77	20.01	26.75	31.53	39.79	50.85	60.79
$l > 10 d$ or 150 mm	—	—	8.63	10.89	14.25	17.59	19.85	26.17	32.95	39.55	50.85	60.79
k	Nom											
$l \leq 10 d$ or 150 mm	2	2.8	3.5	4	5.3	6.4	7.5	10	12.5	15	18.7	22.5
	Min											
	1.88	2.68	3.35	3.85	5.15	6.22	7.32	9.92	12.28	14.78	—	—
	Max											
	2.12	2.92	3.65	4.15	5.45	6.58	7.68	10.18	12.72	15.22	—	—
$l > 10 d$ or 150 mm	Min											
	—	—	3.26	3.76	5.06	6.11	7.21	9.71	12.15	14.65	18.25	22.08
	Max											
	—	—	3.74	4.24	5.54	6.69	7.79	10.29	12.85	15.35	19.12	22.27
k'	Min											
	1.3	1.9	2.28	2.63	3.54	4.28	5.05	6.8	8.5	10.3	12.8	15.5
r	Min											
	0.1	0.2	0.2	0.25	0.4	0.4	0.6	0.6	0.8	0.8	1	1
u	Max											
$l \leq 10 d$ or 150 mm	5.5	7	8	10	13	16	18	24	30	36	46	55
$l > 10 d$ or 150 mm	5.32	6.78	7.78	9.78	12.73	15.72	17.73	23.67	29.67	35.38	46	55
	Min											
	—	—	7.64	9.64	12.57	15.57	17.67	23.16	29.16	35	45	53.8

* p = pitch of the thread
to 'Min' — not less than 1. p .

- : End of Amendment : -

PREPARED	<i>K. Anand C. EE (S/S)</i>	Ref: Test Request No : X 3605	PAGE 1/1
CHECKED	<i>A. Anand C. EE (S/S)</i>	referred from X-IGI on 22.02.2000.	
APPROVED	<i>W. Anand R. (M/V)</i>	IGA X93590 dtd 05.02.2000	

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1.0. SCOPE :

This specification covers the requirements of hexagonal head screws in the diameter range of M3 to M8.

2.0. REFERENCE :

IS : 1364 / PART2 / 1983 Product grade "A".

3.0. REQUIREMENTS :

3.1. GENERAL :

3.1.1. The screws manufactured as per this specification shall comply with the requirements of IS : 1364 / part2 / 1983 product grade "A".

3.2. THREAD :

The screws shall have metric thread, coarse pitch with thread tolerance of 6g, of IS : 4218 part6 / 1978, Table 6, and product grade "A" of IS : 1364 / part2 / 1983.

4.0. DIMENSIONS :

4.1. The requirements of dimensions shall be as given in Table 2.

5.0. STANDARD LENGTH :

5.1. The diameter and length combination shall be as given in Table 3.

6.0. MATERIAL :

6.1. The screws shall be manufactured from the materials as given in Table 1

TABLE 1

6.1. MATERIAL DESCRIPTION	ITI . STD / IS STD.	CODE
a) Steel free cutting	B295 Part1	SF
b) Steel cold heading	B2547	SC
c) Brass free cutting	B286	BF
d) Brass cold heading	B2752	BC
e) Stainless steel	IS 1367 - part14 1984, Grade A2 with property class 50	SS

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STANDARD

HEXAGONAL HEAD SCREWS

SPEC. No. D3365

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7.0. TESTS :**7.1. STAINLESS STEEL SCREWS :****7.2. SCREWS UPTO AND INCLUDING M5 :**

7.2.1. Tensile strength shall be min. 50kg per mm². Method of test shall be as per IS : 1608 - 1972 and IS : 1367 - part3 - 1979. This test is applicable for screws length equal to twice the diameter or larger.

7.2.2. Breaking torque test shall be conducted as per IS : 1367 - part14- 1984. The breaking torque load shall be as per table 5 of IS : 1367 - part14 - 1984, property class 50.

7.3. SCREWS ABOVE M5 :

7.3.1. Tensile strength shall be min. 50 kg per mm². Method of test shall be as per IS : 1608 - 1972 and IS : 1367 - part 3 - 1979. This test is applicable for screw length equal to twice the diameter or larger.

7.3.2. Stress at 0.2 percent strain min. (yield strength) 210 N per mm². The test shall be conducted as per IS : 1367 - part 14 - 1984.

7.3.3. Extension after fracture shall be min. 0.6d. This test is applicable for screw length equal to three times the diameter or larger. The test shall be conducted as per IS : 1367 - part 14 - 1984.

7.4. TEST FOR ALL SIZES OF SCREWS :

7.4.1. Hardness min. 150 VPN.

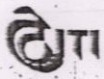
7.4.2. One sample shall be checked for chemical composition of chromium and nickel content. The requirement of chromium shall be between 17 to 19% and nickel shall be between 8 to 10%.

7.4.3. Test shall be conducted to ascertain whether the screws are nonmagnetic or not. Magnetic screws are not acceptable.

7.5. STEEL / BRASS SCREWS :

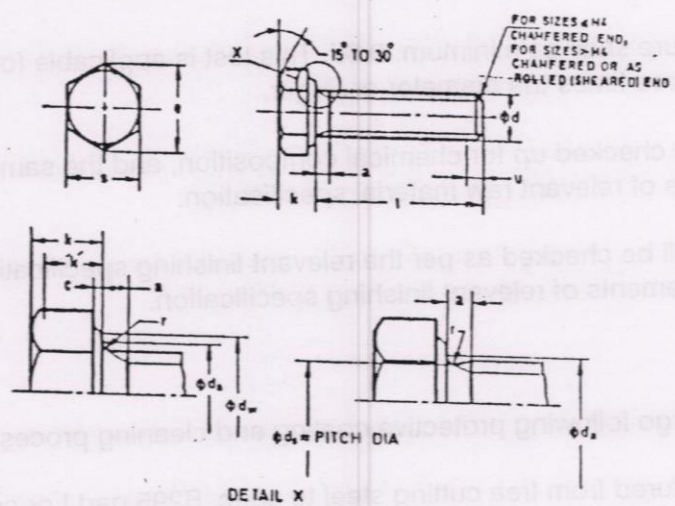
7.5.1. Hardness shall be checked on the shank at the cross section. The end of shank portion of the screw shall be polished using metallurgical grade emery paper - first coarse and then smooth. It shall not be prepared using grinding machine. In case of doubt, it shall be verified by checking the hardness at the middle point of radius of the shank after removing a length of one dia., using hacksaw. The hardness value shall be 120 to 250 VPN for steel screws and 120 to 200 VPN for brass screws.

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TABLE 2 - DIMENSIONAL REQUIREMENTS OF HEXAGONAL SCREWS



According to 'CE' of IS : 1368-1980 'Dimensions for ends of bolts and screws (second revision)'.

Thread size d		M3	M4	M5	M6	M8	
p		0.5	0.7	0.8	1	1.25	
s_f	Max	1.5	2.1	2.4	3	3.75	
c	Min	0.15	0.15	0.15	0.15	0.15	
	Max	0.4	0.4	0.5	0.5	0.6	
d_s	Max	3.6	4.7	5.7	6.8	9.2	
d_w	$l \leq 10 d$ or 150 mm	4.6	5.9	6.9	8.9	11.6	
	$l > 10 d$ or 150 mm	--	--	8.7	8.7	11.4	
e	$l \leq 10 d$ or 150 mm	6.01	7.66	8.79	11.05	14.38	
	$l > 10 d$ or 150 mm	--	--	8.63	10.89	14.20	
k	$l \leq 10 d$ or 150 mm	Nom	2	2.8	3.5	4	5.3
		Min	1.88	2.68	3.35	3.85	5.15
	$l > 10 d$ or 150 mm	Max	2.12	2.92	3.65	4.15	5.45
		Min	--	--	3.26	3.76	5.06
k	Max	--	--	3.74	4.24	5.54	
	Min	1.3	1.9	2.28	2.63	3.54	
r	Min	0.1	0.2	0.2	0.25	0.4	
e	$l \leq 10 d$ or 150 mm	5.5	7	8	10	13	
	$l > 10 d$ or 150 mm	5.32	6.78	7.78	9.78	12.73	
		--	--	7.64	8.64	12.67	

*P -- pitch of the thread.
†e Min -- not less than 1 P.

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7.5.2. Tensile strength shall be checked up as per the method detailed in IS : 1367 - part 3 - 1979. The tensile strength value obtained shall meet the minimum requirements of the relevant raw material specification. However, a negative tolerance of 10% is allowed. This test is applicable for screws length equal to twice the diameter or larger.

7.5.3. Extension after fracture shall be minimum. $0.6d$. This test is applicable for screw of length equal to three times the diameter or larger.

7.5.4. One sample shall be checked up for chemical composition, and the same shall meet the requirements of relevant raw material specification.

7.5.5. Finishing aspect shall be checked as per the relevant finishing specification and it shall meet the requirements of relevant finishing specification.

8.0. FINISH :

8.1. The screws shall undergo following protective coating and cleaning process.

8.1.1. The screws manufactured from free cutting steel to spec. B295 part I or cold heading steel to spec. B2547 shall be finished with zinc plating and passivation to ITI specification B504B without lacquering. The minimum average plating thickness shall be 7.5 microns.

8.1.2. The screws manufactured from free cutting brass to spec. B286 or cold heading brass to spec. B2752 shall be finished with nickel plating to ITI specification B507. The minimum average plating thickness shall be 7.5 microns.

8.1.3. The screws manufactured from stainless steel to spec. IS:1367/part14/1984 shall be cleaned to ITI specification B501G.

NOTE : The maximum plating thickness shall be such that, after plating, the screws shall suit to the corresponding gauge.

9.0. DESIGNATION :

The hexagonal headed screws shall be designated by the number of this Standard, Size, Length, Material and the type of finish. The same designation shall be used for ordering / stocking purposes.

EXAMPLE :

A hexagonal screw of size M12, length 50mm made from free cutting steel to spec. B295 part I and finished with zinc plating to spec. B504B shall be designated as :

D 3365 - M12 x 50 SF - B504B- LESS LAC.

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TABLE 3

SCREW SIZE 'd'	l (mm)														
	M3	6	8	10	12	16	20	25							
M4		8	10	12	16	20	25	30	35	40					
M5			10	12	16	20	25	30	35	40	45	50			
M6				12	16	20	25	30	35	40	45	50	55	60	
M8					16	20	25	30	35	40	45	50	55	60	80

TOLERANCE ON LENGTH :

- a) ABOVE 3mm UPTO & INCLUDING 10mm + OR - 0.3mm
- b) ABOVE 10mm UPTO INCLUDING 16mm + OR - 0.4mm
- c) ABOVE 16mm UPTO & INCLUDING 50mm + OR - 0.5mm
- d) ABOVE 50mm UPTO & INCLUDING 80mm + OR - 1mm

10.0. TYPE APPROVAL :

10.1. PROVISION OF SAMPLES :

10.1.1. For type approval, the supplier shall submit 75 Nos. of samples in different sizes as follows, (manufactured with the same material as specified in clause 6.1)

25 Nos. Lowest size (M3 in this case)

25 Nos. Middle size (M5 in this case)

25 Nos. Largest size (M8 in this case)

10.1.2. Along with the samples, each raw material specimen shall also be submitted for type approval. The quantity and size of the material shall be as per ITI specification D3800.

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STANDARD

HEXAGONAL HEAD SCREWS

SPEC. No. D3365
ISSUE No. 1
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10.2. TYPE APPROVAL TESTS :

SI No.	No. of samples			Test	Clause
	Lowest size	Middle size	Largest size		
1.	25 Nos.	25 Nos.	25 Nos.	Dimensions	4.0
2.	20 Nos.	20 Nos.	20 Nos.	Mech. Tests	7.2.1 to 7.5.3.
3.	5 Nos.	5 Nos.	5 Nos.	Finish	8.1.1. to 8.1.3.
4.	Raw material Samples			Material aspects	6.1

11.0. BATCH ACCEPTANCE TESTS :

11.1. SAMPLING :

Shall be as per IS :2614 - 1969

11.1.2. After selecting the samples and conducting the tests for dimensional aspects, the following tests shall be conducted for batch acceptance.

11.1.3. Tests as called for under clauses 7.1 to 8.1.3. (Tests applicable to the material and size of the screw shall be selected from the clauses 7.1. to 8.1.3.) shall be conducted for batch acceptance.

12.0. PACKING AND MARKING :

12.1. PACKING :

The screws shall be packed in cartons / wooden boxes and are packed in such a way that they are protected against mechanical damage during transit / handling / storage.

The screws shall be packed in cartons in numbers of 5, 10, 20, 50, 100, 200, 500, 1000, and thereafter in multiples of 1000 numbers. In case of cold heading steel screws and free cutting steel screws procured without any specified surface protection, the same shall be well oiled before packing in to the cartons / wooden boxes to prevent corrosion.

12.2. MARKING :

The cartons / wooden boxes shall be marked with screw designation, quantity, suppliers name / Trade Mark if any and where possible a pictorial representation of screw.

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HEXAGONAL HEAD SCREWS

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12.2. MARKING :

The cartons / wooden boxes shall be marked with screw designation, quantity, suppliers name / Trade Mark if any and where possible a pictorial representation of screw.

13.0. OBJECTION :

The Indian Telephone Industries Limited has the right to refuse all the screws which do not corresponds to the aforesaid conditions and to return any screws which subsequently proves faulty in usage.

14.0. ACCEPTANCE :

The acceptance of this specification without any comment shall be taken to indicate that the supplier agrees to comply with the conditions herein contained.

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PREPARED	<i>S. Narayanan - E.E.Q.A.</i>	REF : TC 02 1st MEETING DT. 6 & 7 APRIL 1990	PAGE 7 / 7
CHECKED	<i>M.V. Madhavan Nair SE Q.A.(V)</i>		
APPROVED	<i>M. Srinivasan CEQA(V)</i>		

TERMS AND CONDITIONS FOR SUBMISSION OF TENDER

1. Quotation must be submitted in duplicate (one copy without pricing), in a wax sealed cover, superscribed with our tender number & due date and should reach us well before DUE DATE. Open and/or late tenders and tenders without enquiry number and due date on the cover are liable for rejection without assigning any reason.
2. All offers should be complete with specification/catalogue (ENGLISH only) and samples where specified.
3. Validity : Quotations should be valid for a period of 180 days from the due date of tender. Once quotation is accepted and order is confirmed, the price must remain firm till completion of the order.
4. Delivery Schedule : Quoted must be valid and remain firm from the date we confirm the order. Indicate mode of despatch (RPP/ROAD/RAIL/AIR).
5. Inspection : Inspection of goods at our works is final. Goods rejected will be returned on freight to pay basis. Packing & forwarding charges in respect of such consignment will be debited to your account.
6. Payment : Bills will be paid within 60 days from the date of receipt of materials.
7. We reserve the right to accept or reject any or all offers and order part or full quantity, without assigning any reason.
8. Please specify your income Tax Account Number and Name of I.T. Circle.
9. The quote must be for the quantity specified in the enquiry and should also indicate slab rates for multiples of the quantity enquired.
10. Components to be supplied shall be from the latest batch of production. If items are offered from stocks the lot/batch code shall not be earlier than 2 years from the date of shipment.
11. LIQUIDATED DAMAGES AND RISK PURCHASE CLAUSES: Time is the essence of contract and the materials against the order arising out of this enquiry must be delivered by the supplier according to the delivery schedule indicated in the purchase order. In case of any change, the supplier should inform us in advance and obtain our approval to the revised delivery schedule should the supplier fail to deliver the material in full or part thereof, we shall be entitled at our option either to recover from the supplier as agreed the liquidated damages and not as penalty, a sum equivalent to half percent of the contract price of the item per week of such delay or part thereof subject to maximum of 15% of the contract price of the item delayed or to terminate the contract in respect of the balance Quantity so delayed and purchase material elsewhere at the risk of the supplier.
12. FOR INDIGENEOUS OFFERS ONLY:
 - (a) PRICES should always be quoted on F.O.R. KRISHNARAJAPURAM basis including suitable packing.
 - (b) Specify applicable statutory levies, e.g. Central Excise Duty, Sales Tax, etc. In absence of these, the prices shall be treated as inclusive of all such levies & no subsequent claims will be entertained.
13. FOR FOREIGN OFFERS ONLY :
 - (a) Prices must be quoted on F.O.B. Port of Despatch or Airport and Indicate estimated charges for despatch by AIR FREIGHT/AIR POST PARCEL to BANGALORE.
 - (b) Prices quoted must include Agency Commission (if any) to your Indian Agents. The same must be specified, which is payable to them in Indian Rupees.
 - (c) Payment : Letter of Credit or sight draft through the STATE BANK OF INDIA, BANGALORE - 560016, as detailed below :

"ITI will bear only LC establishment charges once & bank charges of State Bank of India. All foreign bank's charges [i.e. charges while negotiating documents which the same are sent on the collection basis, due to certain discrepancies in the presentation of documents (LCBCs etc.)] are to be borne by Foreign Suppliers. In case of order placed on sight draft basis (FLSCAs) also, the invoice amount will be paid & all the foreign bank's charges are to the supplier's account.

Please furnish your Banker's name and address for this purpose.

Please indicate whether you fall under purview of MSMED Act 2006 and if so the certified copy of relevant registration certificate as proof may be submitted along with tender bid.

In case such certificate is not produced at the time of bid you will not be considered to be falling under this category.

N.B.: FAILURE TO ADHERE TO ANY OF THE ABOVE, WILL DISQUALIFY THE OFFER.