

COMPANY STANDARDS

AMENDMENT NO. 01

DATE: 1998-09-02

TITLE: BOLT SPECIAL, HEX. HEAD,
COARSE PITCH PRECISION GRADE,
WASHER FACED

STD.NO
CEB07 to CEB12

AMENDMENT SHEET-01/01

ISSUE NO ONE

Read clause 5 a) as follows instead of the existing :

For 8.8 grade, the thread tolerance shall be 6g before coating and 6h after coating. However, the coating thickness shall be 8 micrometer (min) as measured on shank.

The threads, after coating, shall not transgress the maximum material limit for tolerance specified.

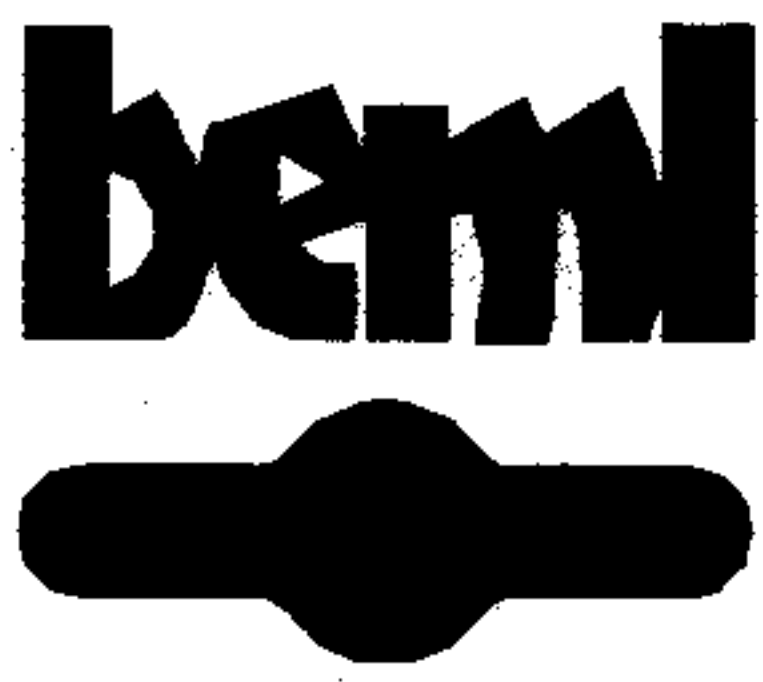
For 10.9 grade, the thread tolerance shall be 6g as per IS: 4218 part- 5.

..

APPROVED BY:

MSSamuel
980905

411010



COMPANY STANDARDS

AMENDMENT NO.: 02

TITLE : BOLT-SPECIAL,
HEX. HEAD, COARSE PITCH,
PRECISION GRADE, WASHER FACED

DATE : 2004-08-21

STD NO.: CFB07~12

AMENDMENT SHEET – 1 / 1

ISSUE NO.: 01

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I. In Table-2, page 3 of 10 for classification code-1, the material standard B1105 shall be replaced by C1105.

II. In page 8 of 10, clause 5 a) shall be read as follows instead of the existing :

5 a). For 8.8 grade, the thread tolerance shall be 6g before coating and 6h after coating as per latest issuance of IS: 14962 part 3. However the coating thickness shall be 8 micrometer (min) as measured on shank.

The threads after coating shall not transgress the maximum material limit for tolerance specified.

For 10.9 grade, the thread tolerance shall be 6g as per IS: 14962 part-3- latest issuance.

II. In page 10 of 10, last para of clause 10 shall be read as follows instead of the existing :

10. PACKAGING :

Other requirements regarding packing shall confirm to latest issuance of IS: 1367 (part 18).

---IT---

(Reason : Updation of Indian Standard)

APPROVED BY :

GE

411010



COMPANY STANDARDS

**TITLE: BOLT SPECIAL, HEX. HEAD,
COARSE PITCH, PRECISION
GRADE, WASHER FACED**

AMENDMENT No. 03

DATE : 2007-12-08

STD No.: CFB07 - 12

AMENDMENT SHEET - 1/1

ISSUE No. 01

In page 5 of 10, in Table-3 'LENGTH AND SIZE CODES' Bolt length of 170 mm shall be included for Nominal number M22.

TABLE-3 (Contd..) (LENGTH AND SIZE CODES)

Unit : mm

BOLT SPECIFI - CATION CODE	NOMINAL No.		M14	M18	M22	M27	M30	M36	M39
	LENGTH L	TOL.							
CFB08 CFB10 CFB12	170	± 0.80			2270				

Ref: 1) SE/BD155/BD355 – GEN/2445 Dated 2006-05-04
2) GES/11/585 Dated 2007-05-22

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GE

411 010

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COMPANY STANDARDS

TITLE:

**BOLT SPECIAL, HEX. HEAD,
COARSE PITCH, PRECISION GRADE,
WASHER-FACED**

AMENDMENT No. 04

DATE : 2013-06-07

STD No. CFB07 - 12

AMENDMENT SHEET - 1/1

ISSUE No. 01

In page 3 of 10, TABLE-2, SURFACE TREATMENT shall be read as follows instead of existing :

TABLE-2

CLASSIFICATION CODE	1	2
GRADE DESIGNATION	8.8	10.9
SURFACE TREATMENT	Zinc plating with Chromate conversion as per Company Standard PR1033-C	Black Oxide coating as per IS : 13212

Ref : 1) E-mail from 'GW' dated 18-04-2013
2) QEL/25.1/06 dated 17-05-2013

APPROVED BY:

GE



COMPANY STANDARDS

AMENDMENT No. 05

TITLE:

**BOLT SPECIAL, HEX. HEAD, COARSE PITCH
PRECISION GRADE, WASHER FACED**

DATE : 2013-12-11

STD No. CFB07 - 12

AMENDMENT SHEET - 1/1

ISSUE No. 01

In page 5 of 10 , in TABLE-3, ' LENGTH AND SIZE CODES' Bolt length of 150 mm shall be included for Nominal number M18

TABLE-3 (Contd..) (LENGTH AND SIZE CODES)

BOLT SPECIFICATION CODE	NOMINAL No.		M14	M18	M22	M27	M30	M36	M39
	LENGTH L	TOL.							
CFB08									
CFB10	150	± 0.80		1850					
CFB12									

Ref : SAP mail from 'GEL' dated 11-12-2013

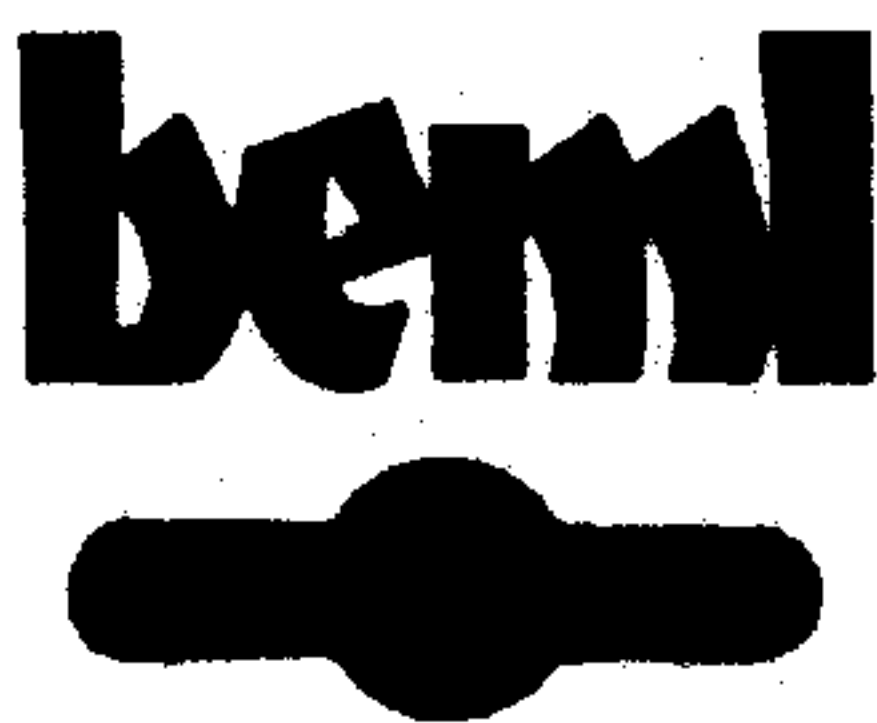
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GE

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COMPANY STANDARDS

TITLE:
BOLT SPECIAL, HEX. HEAD, COARSE PITCH,
PRECISION GRADE, WASHER FACED



The mass of a single pack shall not exceed the following:

	<u>Mass in kg</u>
Paper or plastic bag	5
Plastic box or carton	10
Plastic or metal crate or carton	40
Wooden crate or box	50

Other requirements regarding packing shall conform to IS:9141.

11. IDENTIFICATION MARKING :

On the bolt head, grade as per Table-2 and vendor code/logo shall be marked by embossing as shown in the following Figure-5.

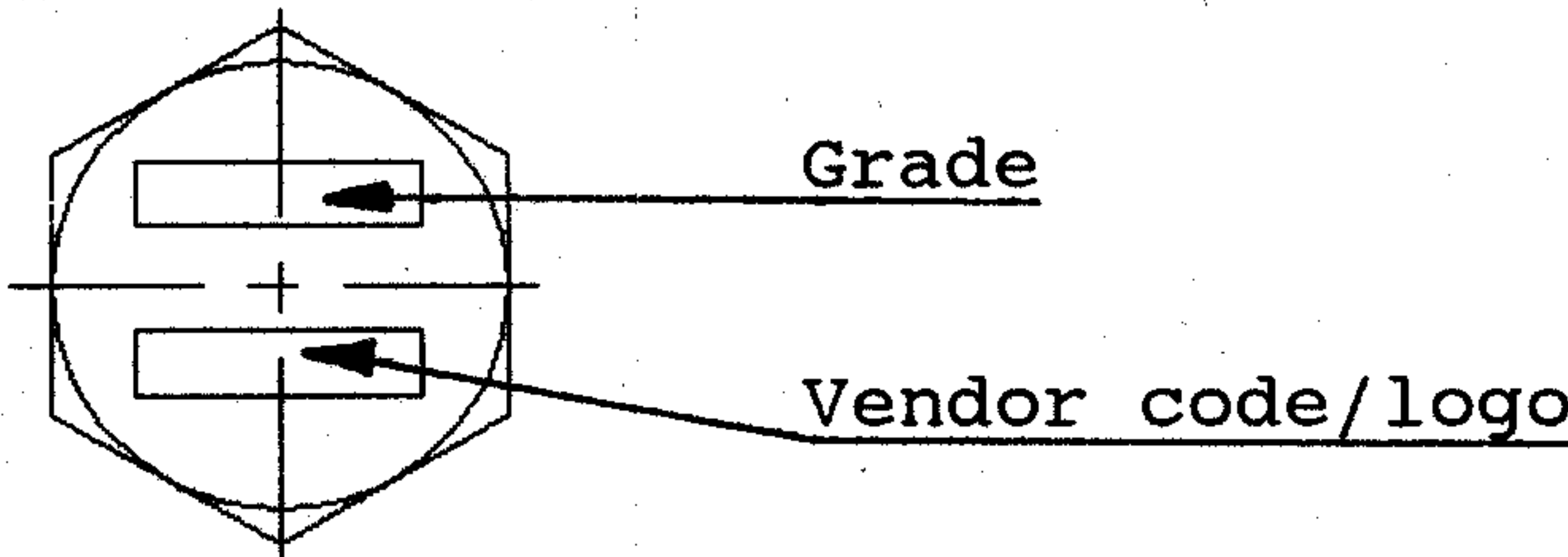
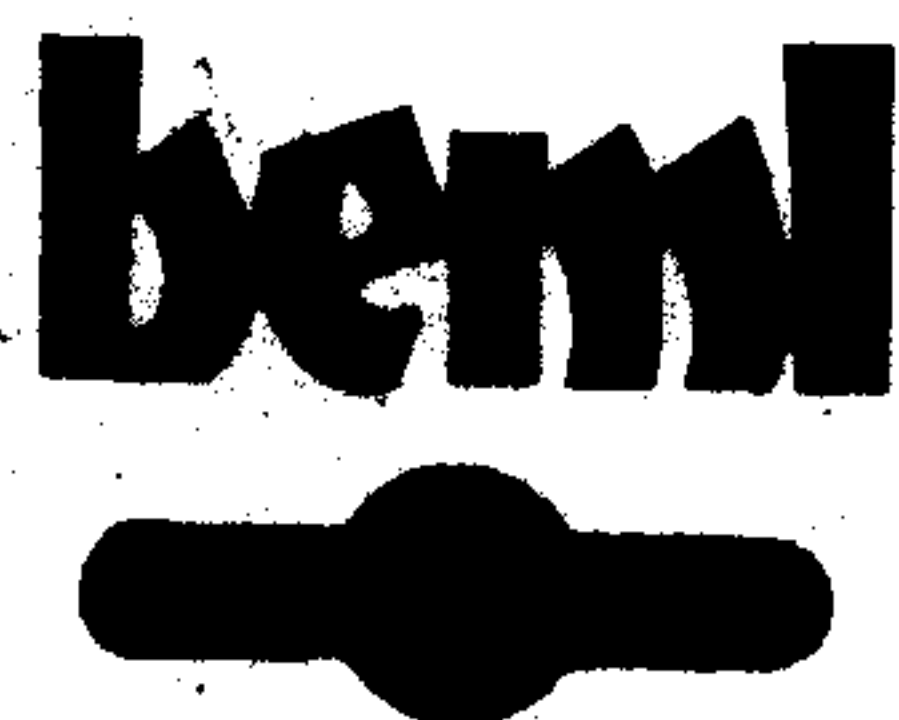


FIGURE - 5.

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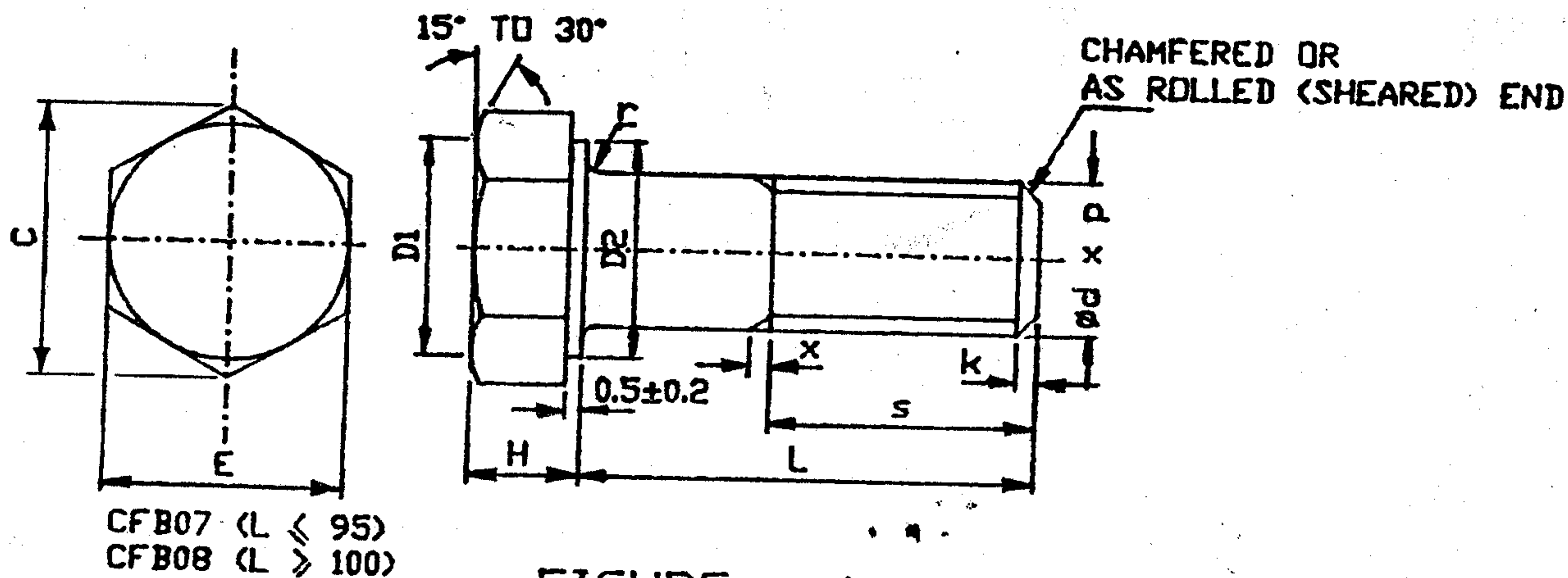


COMPANY STANDARDS

CFB07, CFB08,
CFB09, CFB10,
CFB11, CFB12
PAGE NO. 1 OF 10

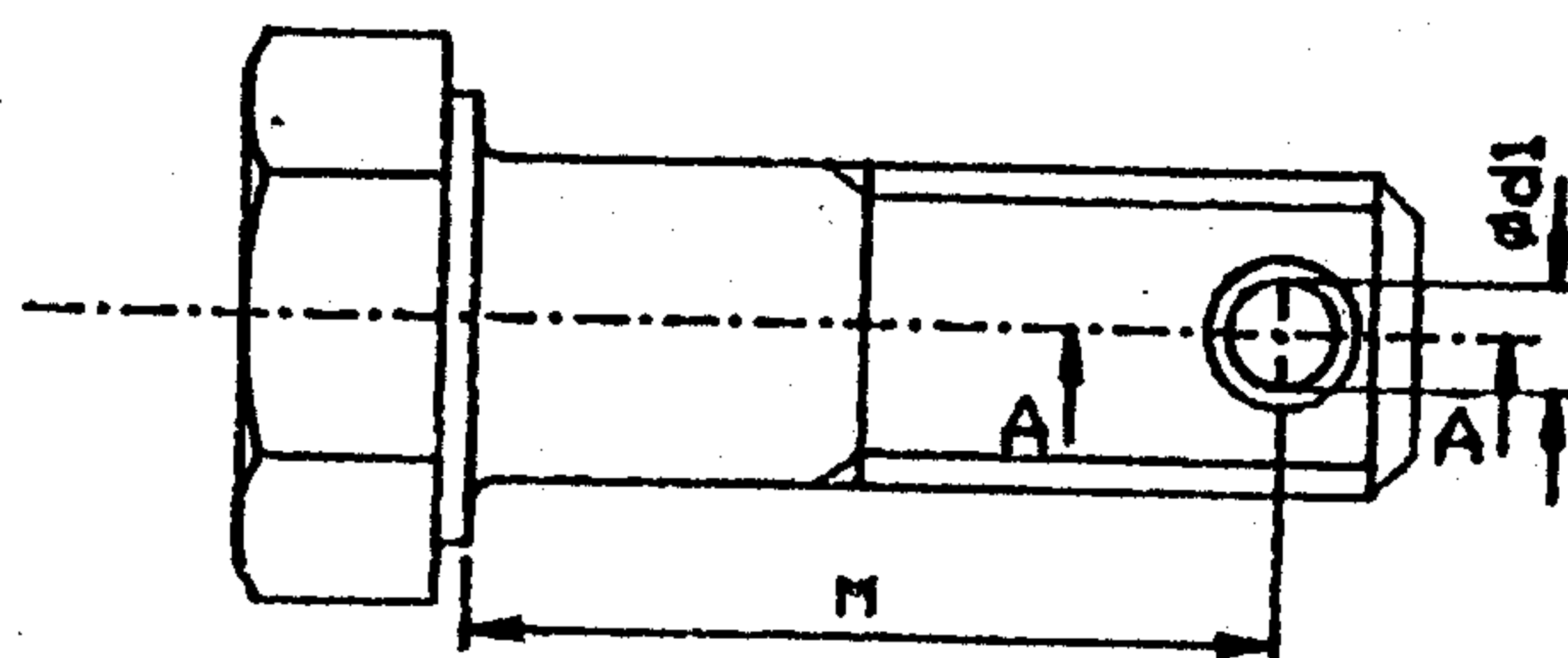
TITLE :
BOLT SPECIAL, HEX. HEAD, COARSE PITCH,
PRECISION GRADE, WASHER FACED.

DATE :
1997-08-20

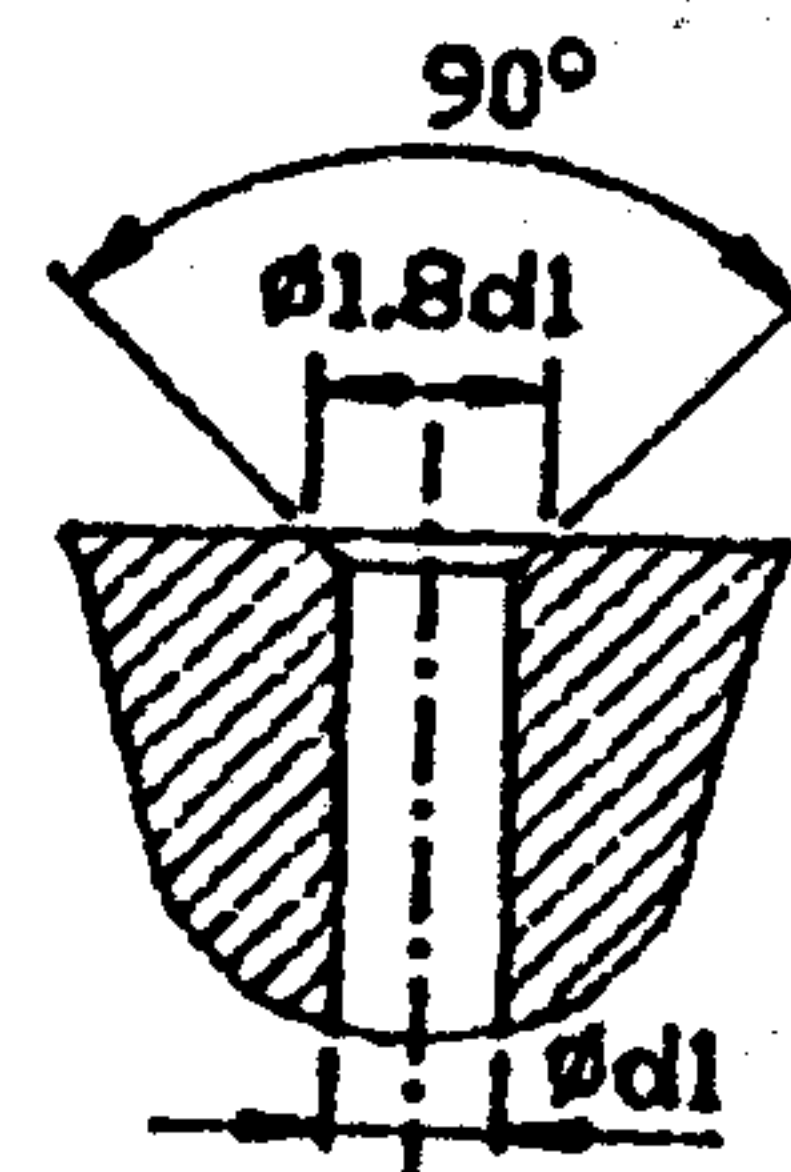


CFB07 (L ≤ 95)
CFB08 (L ≥ 100)

FIGURE - 1

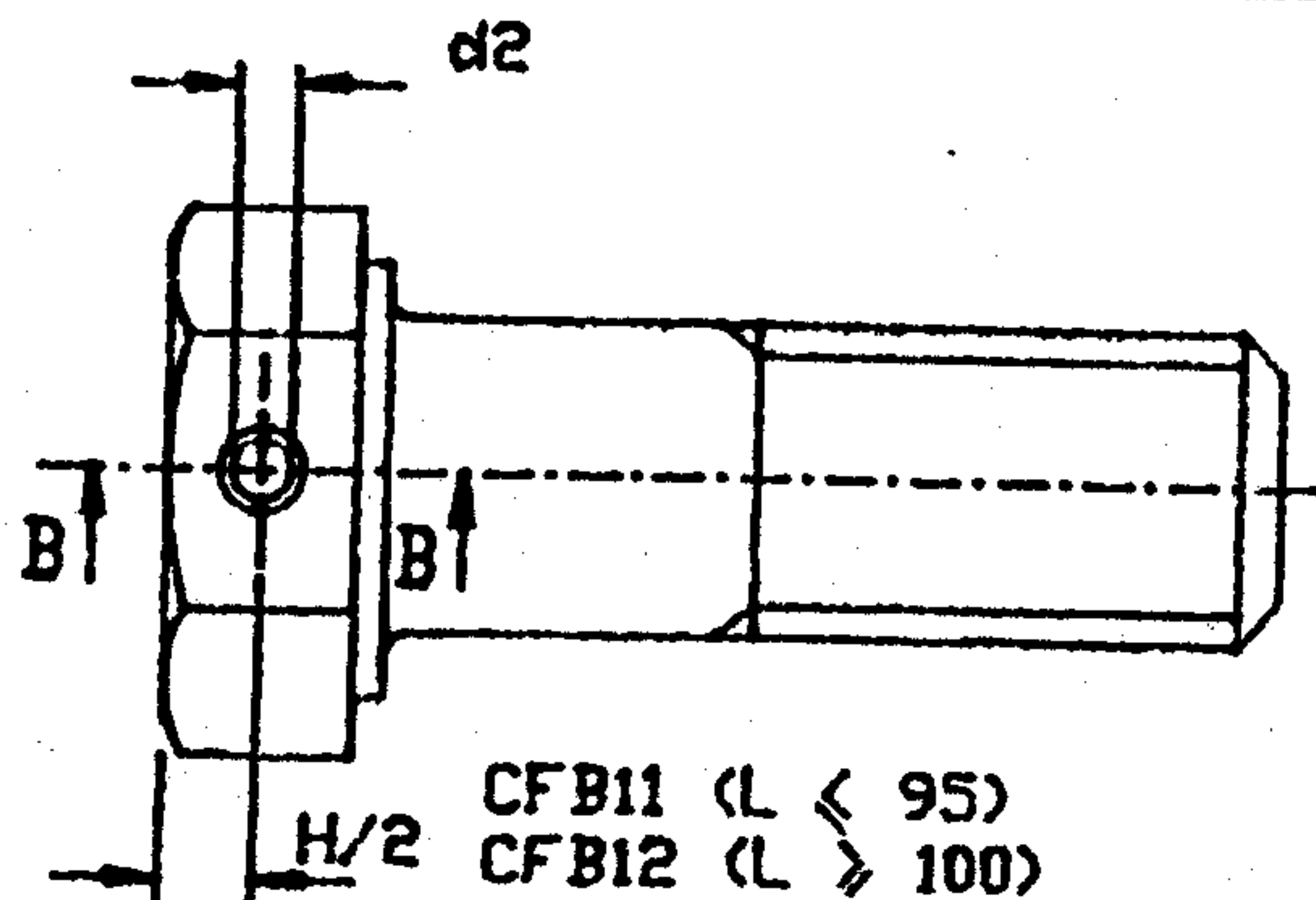


CFB09 (L ≤ 95)
CFB10 (L ≥ 100)

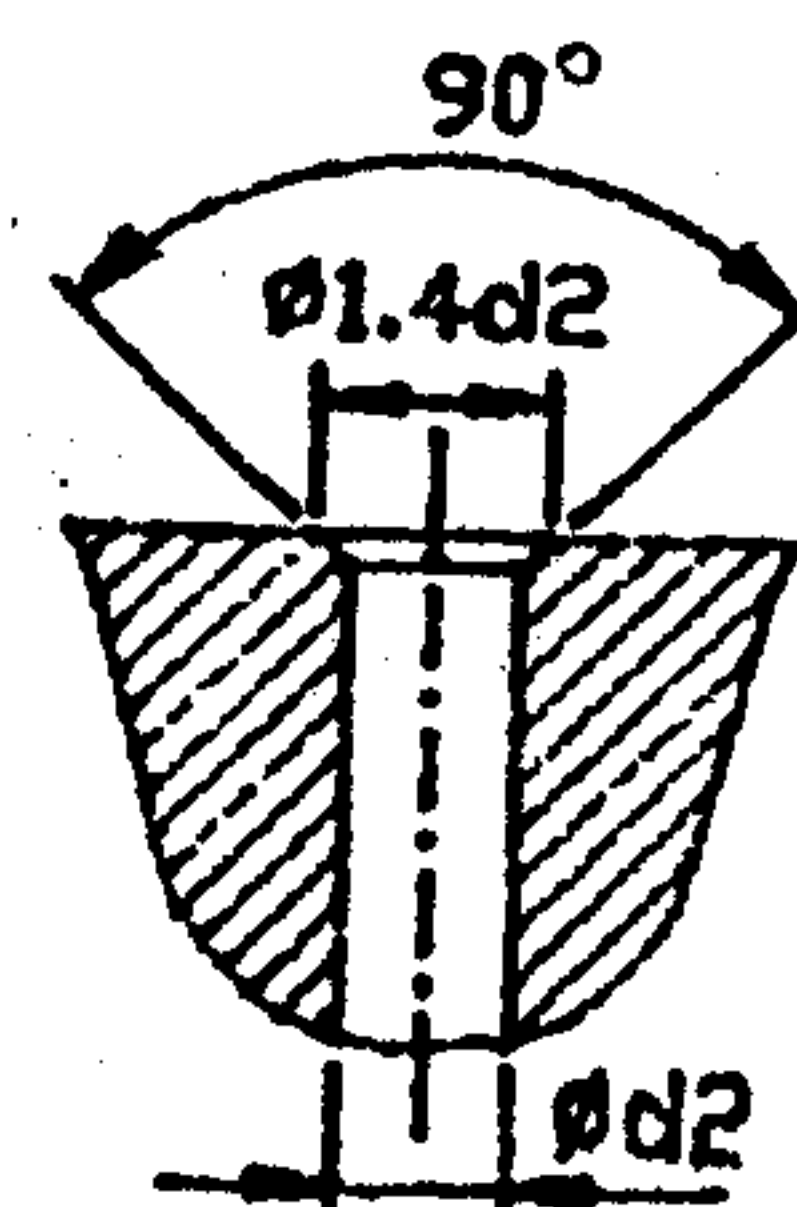


SECTION - AA

FIGURE - 2



CFB11 (L ≤ 95)
CFB12 (L ≥ 100)



SECTION - BB

FIGURE - 3

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PREPARED BY :
CSD

ISSUE No:
1 (one)

REPLACEMENT FOR:

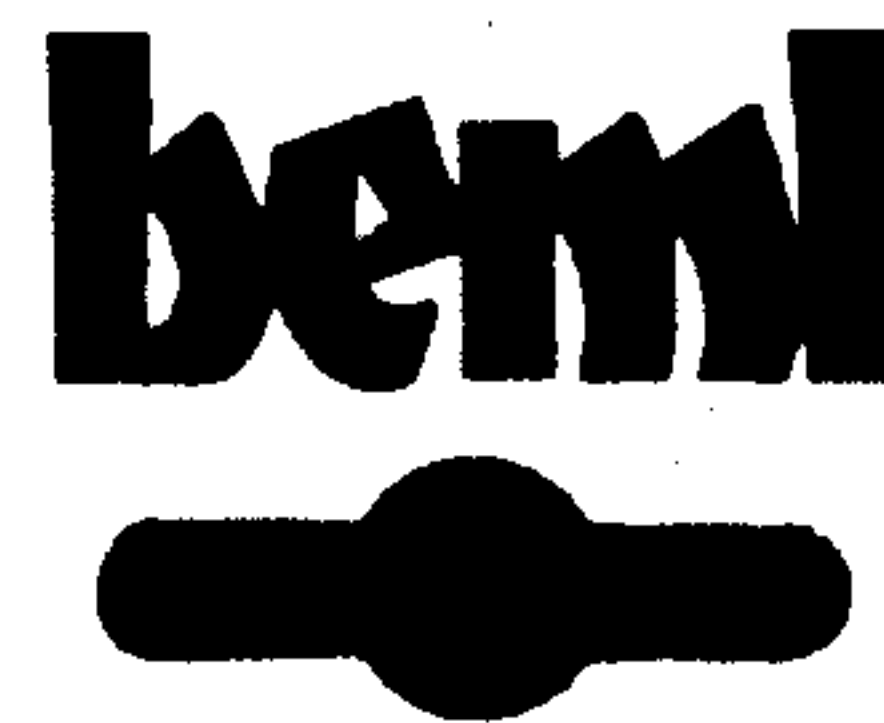
REFERENCE:

APPROVED BY :

[Signature]
ED (G)

[Signature]
D (G)

[Signature]
D (P)

DATE :
1997-08-20**COMPANY STANDARDS**TITLE :
BOLT SPECIAL, HEX. HEAD, COARSE PITCH,
PRECISION GRADE, WASHER FACEDTABLE-1-(DIMENSIONS)
(REF. FIG.- 1 to 3)

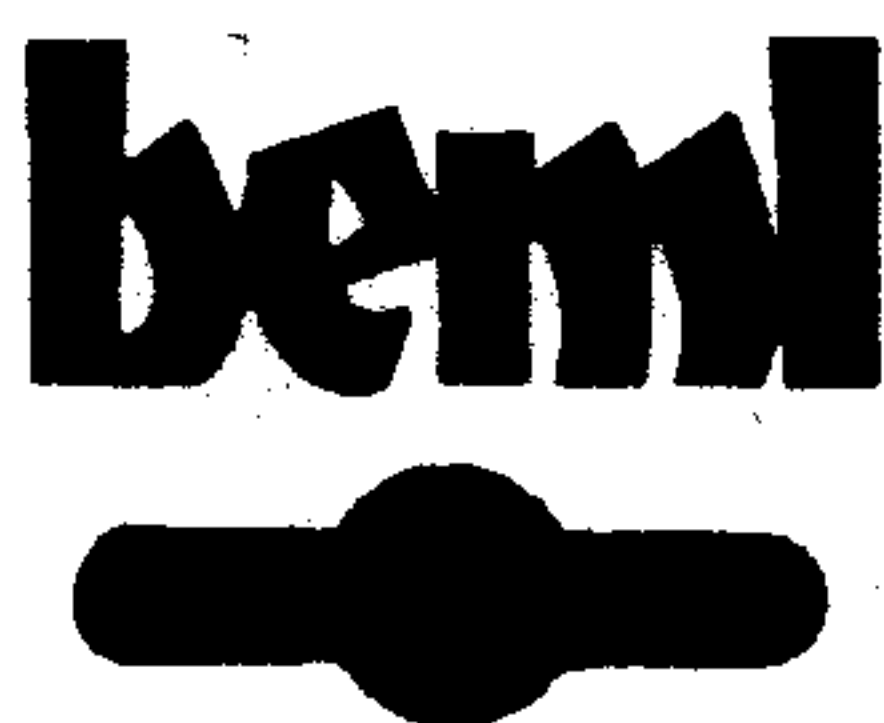
Thread Size	d	14	18	22	27	30	36	39
Pitch	P	2	2.5	2.5	3	3	3	3
S		32	35	38	46	51	60	64
X (App)		2 Threads						
K (App)		2	2.5	2.5	3	3.5	4	4
r		1~1.5	1~1.5	1~1.5	1.5~2	1.5~2	1.5~2	1.5~2
H		9	12	14	17	19	23	25
* E	Max.	21	27	34	41	46	55	60
	A	20.67	26.67	33.38	--	--	--	--
	B	--	26.16	33	40	45	53.8	58.8
C (App)		25.4	31.2	37	47.3	53.1	63.5	69.3
D1 (App)		21	26	31	39	44	53	57
D2 Min.		20.4	25.6	30.4	39	43.7	52.3	56.3
m		L-6.8	L-7.8	L-9.8	L-10.3	L-12.3	L-12.8	L-14.8
d1		3	4	5	5	6	6	8
d2		2.3	2.3	2.3	3.5	3.5	3.5	3.5

NOTE : i) M18, M22 & M27 Bolts shall be used only for Hydraulic products.

ii) For values of 'L' see Table-3

* Width across flat : Code 'A' is for products with $d \leq 24$ and $L \leq 10d$ or 150 mm whichever is shorter. Code 'B' is for products with $d > M24$ or $L > 10d$ or 150 mm whichever is shorter.

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BOLT SPECIAL, HEX. HEAD, COARSE PITCH,
PRECISION GRADE, WASHER FACED.

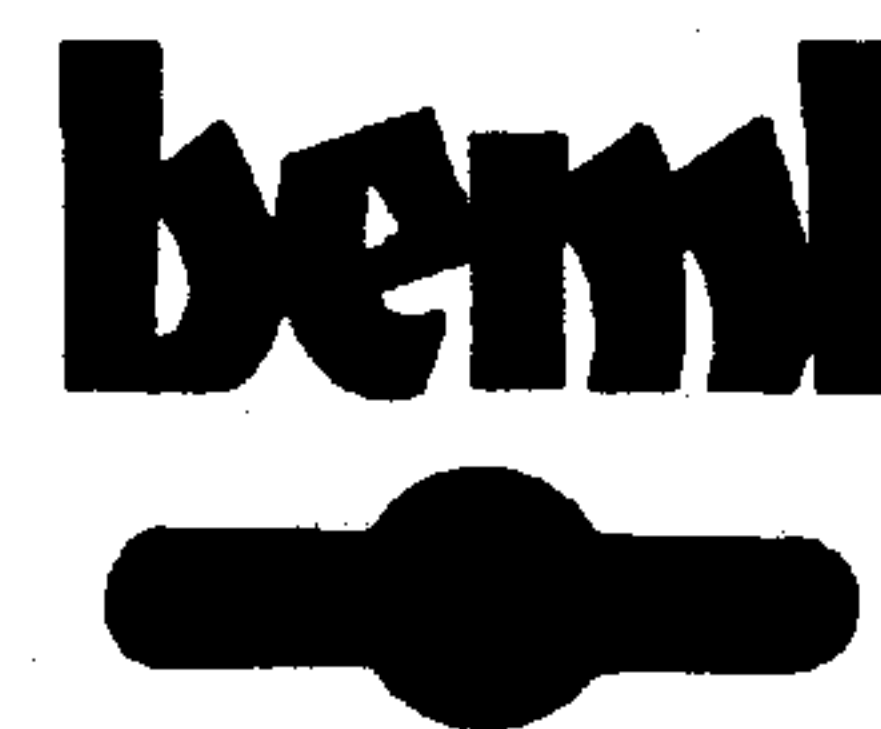
DATE :
1997-08-20

TABLE-2

CLASSIFICATION CODE		1		2	
GRADE DESIGNATION		8.8		10.9	
SIZE		< M16	M18~M39	< M16	M18~M39
MATERIAL AS PER COMPANY STANDARD		C1101 B1105	C1101 B1105 C1221	C1221 C1212	C1212 C1221 C1215
QUENCH AND TEMPER HARDNESS	VICKERS HARDNESS HV, $\geq 98N$	250~320 $\leq M16$	255~335 $> M16$	320 ~ 380	
	BRINELL HARDNESS HB, $F= 30 D^2$	238~304 $\leq M16$	242~318 $> M16$	304 ~ 361	
	ROCKWELL HARDNESS HRC	22 ~ 32 $\leq M16$	23 ~ 34 $> M16$	32 ~ 39	
TENSILE STRENGTH N/mm ² (Min)		800 $\leq M16$ 830 $> M16$		1040	
STRESS UNDER PROOF LOAD N/mm ² (Min)		580 $\leq M16$ 600 $> M16$		830	
CHARPY 'U' NOTCH IMPACT VALUE, at 27 \pm 5°C, JOULES- KU - 300/2		58 Min.		56 Min.	
SURFACE TREATMENT		Zinc plating with chromate conversion. Refer. Co. Std. PR1033-C.		Rust prevent- ive oil.Refer. Co.Std. C6001- 10/Black oxide coating as per IS : 13212.	

- Note : i) Medium carbon steels with Boron may be used subject to hardenability being equal or superior to the specified grades. Suggested standard grades are SAE 15B35H, SAE 15B37H, SAE 15B41H.
- ii) Equivalent specification to IS:1570 and/or other overseas specifications may be used subject to equivalent chemistry & hardenability.
- iii) S & P shall be 0.040% max.

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PRECISION GRADE, WASHER FACED

- iv) Inclusion rating shall be 3 max. (Ref:IS:4163), for thick and thin series unless otherwise agreed to in the Purchase Contract.
- Slag inclusion shall not be permitted.
- v) Material specified for higher size and grade may be used for lower size and grade.
- vi) Surface hardness shall not be more than 30 Vickers points above the measured core hardness on the product when readings of both surface and core are carried out at HV 0.3. For property class 10.9, any increase in hardness at the surface which indicates that the surface exceeds 390 HV is not acceptable.

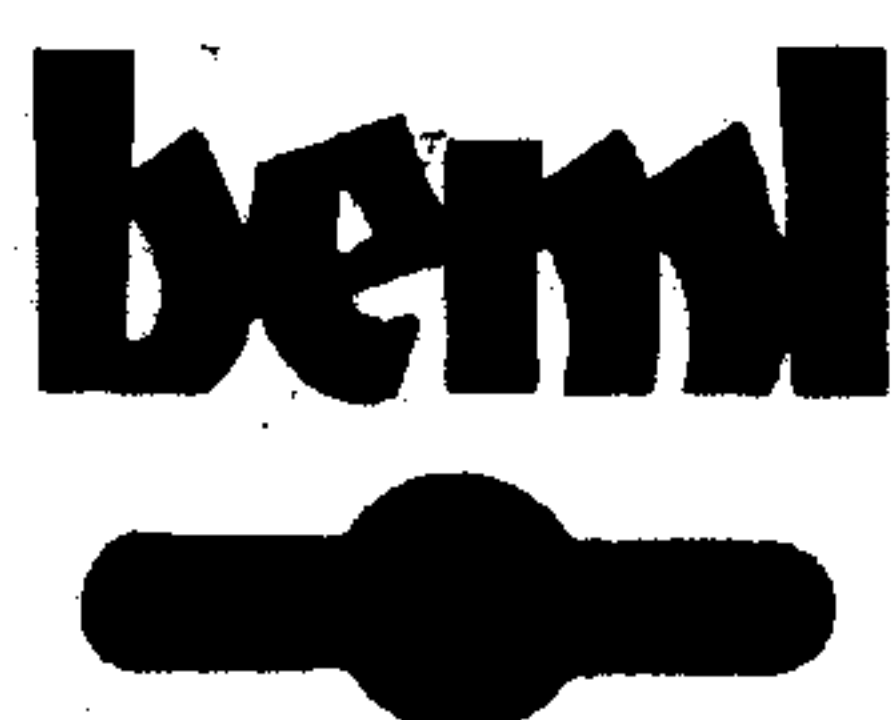
TABLE-3 (LENGTH AND SIZE CODES)

Unit: mm

Bolt Specif-ication Code	Nominal No		14	18	22	27	30	36	39
	Length L	Tol.							
CFB07 CFB09 CFB11	20	±0.42	1420						
	25		1425						
	30	±0.50	1430						
	35		1435	1835					
	40		1440	1840	2240				
	45		1445	1845	2245				
	50	±0.60	1450	1850	2250				
	55		1455	1855	2255				
	60		1460	1860	2260		3060		
	65		1465	1865	2265	2765	3065		
	70		1470	1870	2270		3070	3670	
	75		1475	1875		2775	3075	3675	
	80		1480	1880	2280	2780	3080	3680	

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COMPANY STANDARDS

TITLE :
BOLT, SPECIAL, HEX. HEAD, COARSE PITCH,
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CFB09, CFB10,
CFB11, CFB12
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TABLE-3 (Contd..) (LENGTH AND SIZE CODES) Unit: mm

BOLT SPECIF- ICATION CODE	NOMINAL No		M14	M18	M22	M27	M30	M36	M39
	LENGTH L	TOL.							
CFB07 CFB09 CFB11	85	± 0.70	1485	1885	2285	2785	3085	3685	
	90		1490	1890	2290	2790	3090	3690	3990
	95		1495	1895	2295		3095	3695	3995
CFB08 CFB10 CFB12	100		1400	1800	2200	2700	3000	3600	3900
	105		1405			2705	3005	3605	
	110		1410	1810	2210	2710	3010	3610	
	115		1415		2215		3015	3615	
	120		1420	1820		2720	3020	3620	3920
	125		1425			2725	3025	3625	
	130		1430		2230	2730	3030	3630	
	135		1435		2235	2735	3035	3635	
	140		1440		2240	2740	3040	3640	
	145	± 0.80	1445		2245	2745	3045	3645	
	150		1450		2250	2750	3050	3650	
	155		1455				3055	3655	
	160		1460		2260	2760	3060	3660	
	165		1465				3065	3665	
	170		1470				3070	3670	
	175		1475				3075	3675	
	180		1480				3080	3680	
	185	± 0.925	1485				3085	3685	
	190		1490				3090	3690	

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TITLE :

BOLT SPECIAL, HEX. HEAD, COARSE PITCH,
PRECISION GRADE, WASHER FACED.

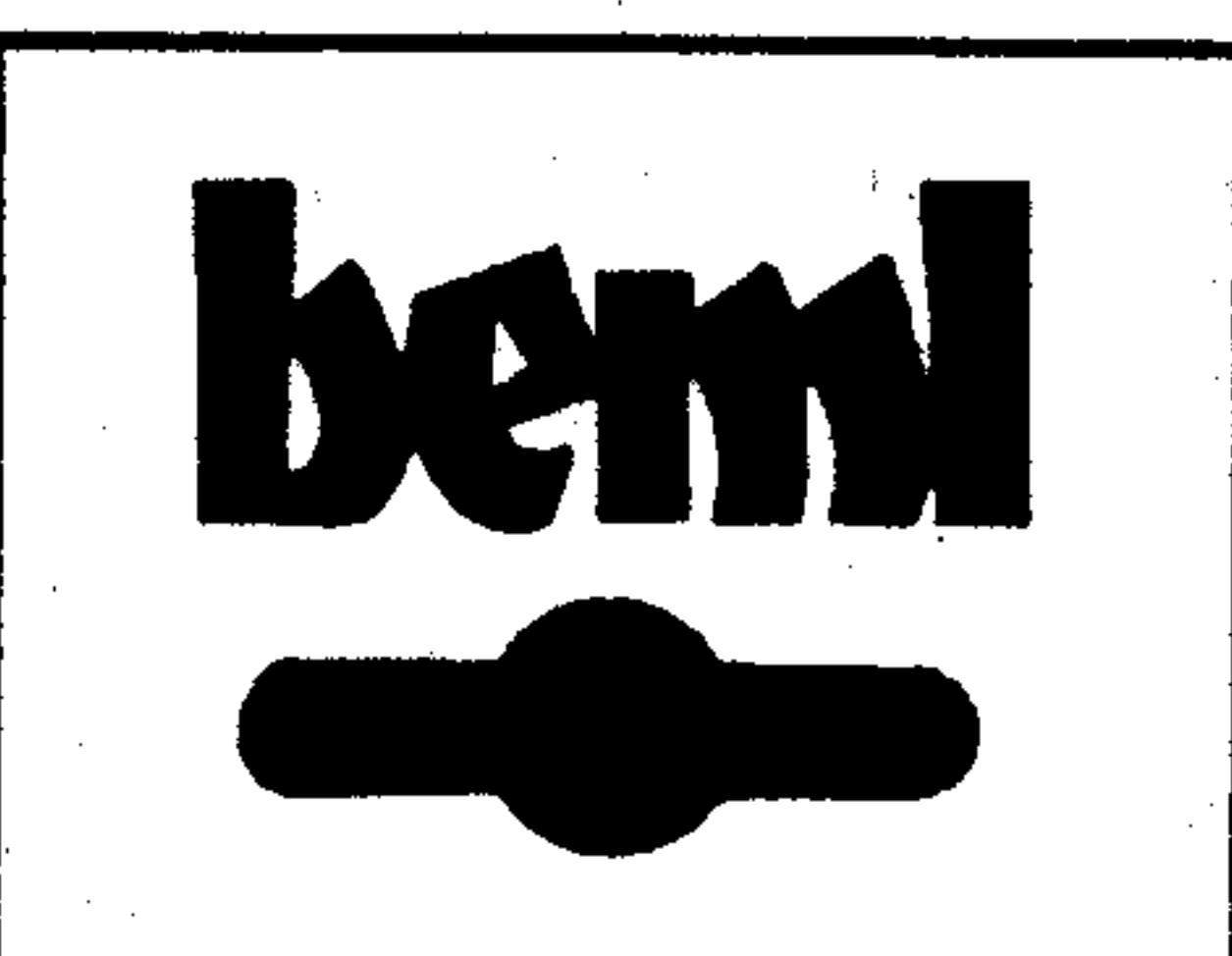
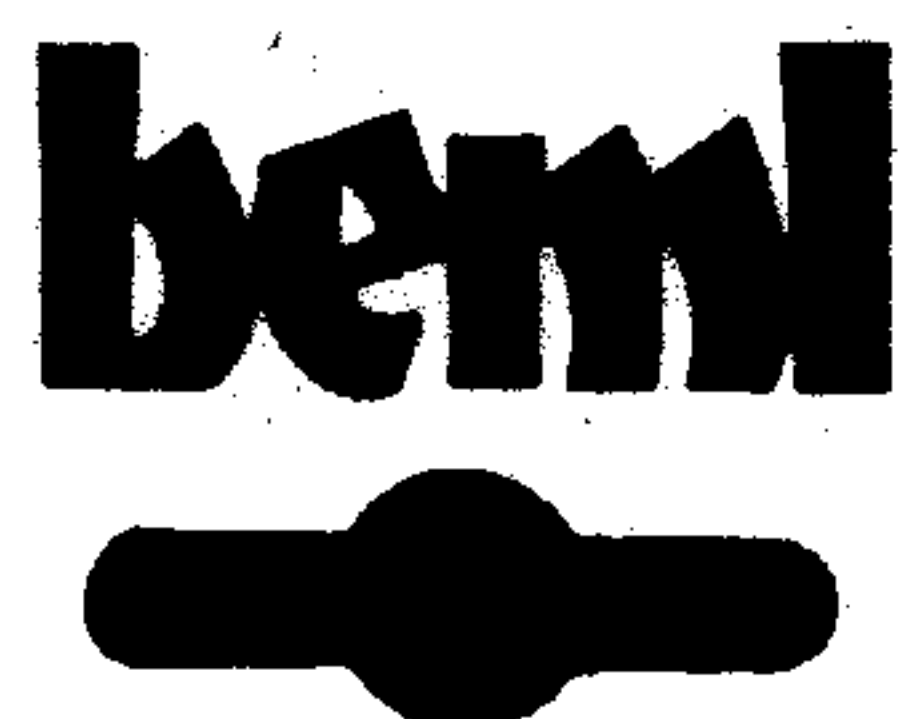


TABLE-4 -(MASS OF BOLTS) Unit : gram

NOMINAL SIZE Length L (mm)	M14	M18	M22	M27	M30	M36	M39
20	50						
25	56						
30	61						
35	67	121					
40	73	130	202				
45	79	140	217				
50	85	150	231				
55	91	159	246				
60	97	169	260		565		
65	103	179	275	456	592		
70	109	189	289		619	962	
75	114	198		500	646	1001	
80	120	208	319	521	673	1040	
85	126	218	332	543	700	1078	
90	132	227	347	565	727	1117	1361
95	138	237	362		754	1156	1407
100	144	247	376	609	781	1196	1453
105	150			630	808	1231	
110	156	266	405	653	835	1273	
115	161	276	420		862	1312	1590
120	167	286		696	889	1351	1635
125	173			718	916	1389	

Contd..

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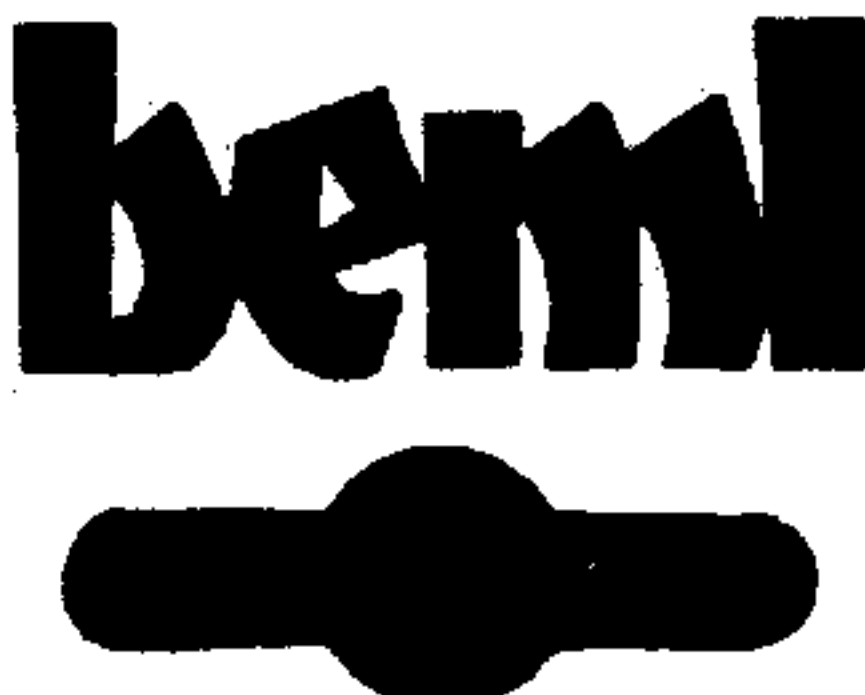
DATE :
1997-08-20

TABLE-4 (Contd..) MASS OF BOLTS) Unit:gram

NOMINAL SIZE	M14	M18	M22	M27	M30	M36	M39
Length L (mm)							
130	179		464	740	943	1428	
135	185		478	762	970	1467	
140	191		493	784	997	1506	
145	197		507	806	1024	1545	
150	203		522	828	1051	1584	
155	209				1074	1623	
160	215		551	871	1101	1662	
165	220				1128	1701	
170	226				1155	1739	
175	232				1192	1778	
180	238				1219	1817	
185	244				1246	1856	
190	250				1273	1895	

TABLE-5 PACKAGING DETAILS

BOLT Nom. SIZE	BOLT LENGTH	QTY. IN EACH PACK
M14	20 - 100	25 Nos.
M14	105 - 190	10 Nos.
M18	Upto 70	25 Nos.
M22	Upto 150	10 Nos.
M27	Upto 150	5 Nos.
M30	Upto 190	3 Nos.
M36	Upto 190	2 Nos.
M39	Upto 120	3 Nos.

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1. DESIGNATION :

Part number & description shall be as shown below The first 5 digits appear on the document.

A	AA	NN
---	----	----

Bolt, Special, Hex.
Coarse pitch.
(07 to 12)
Fastener Bolt (FB).
Company
Standard (C).

N	NN	NN
---	----	----

Size code
(Table-3).
Length (L)
(Table-3).
Nom.size
(Table-1).
Classification
code (Table-2).

Ex : a) Part number : CFB07 21450
Description : Bolt, Special, Hex. M14 x 50mm long.

b) Part number : CFB08 11450
Description : Bolt, Hex. M14 x 150mm long.

2. For Technical requirements inclusive of dimensions & tolerances not covered in this specification, relevant parts of IS:1367 & IS:1364: latest issuance shall be referred.

3. Mechanical properties shall conform to Table-2. Test methods in general shall conform to IS:1367 Part 3 " Technical supply condition for threaded fasteners". Impact strength shall be determined by Charpy Impact Test for metals in accordance with IS:1499. Bolts defects (surface discontinuities) permissible shall be as per IS:1367 Part 9. For unit weight Table-4 shall be referred.

4. Material, and Surface treatment shall be as per Table-2.

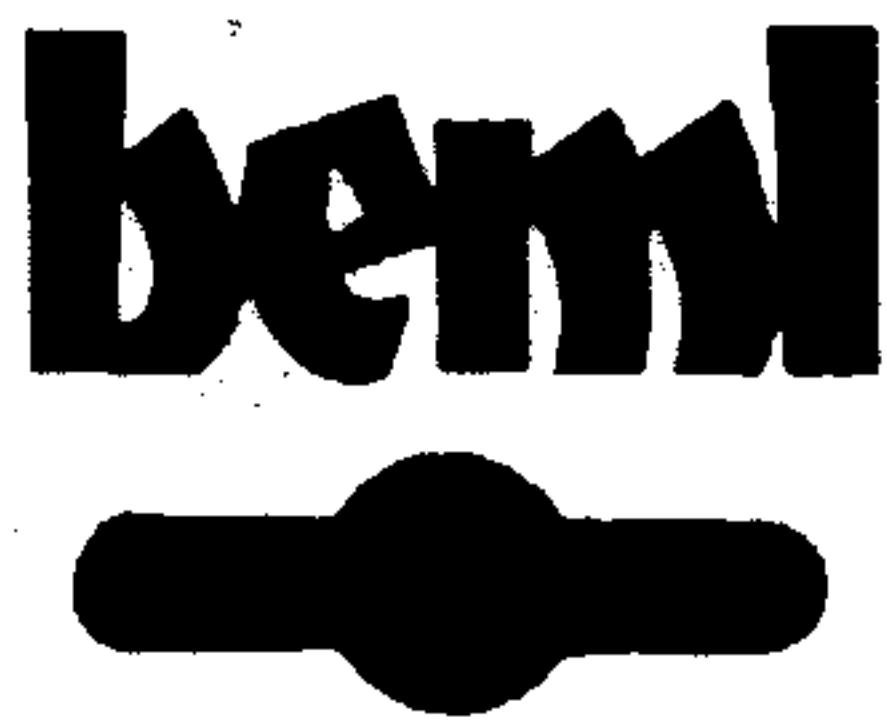
5. a) Thread tolerance shall be 6g as per IS:4218 Part-5.

b) The shank diameter (φd) shall not be less than pitch diameter and shall not be more than major diameter of the threads.

6. Rolled threads shall be provided for all Sizes of Bolts.

7. For inspection & acceptance criteria, Company Standard QS1001-C shall be referred.

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8. DECARBURIZATION :

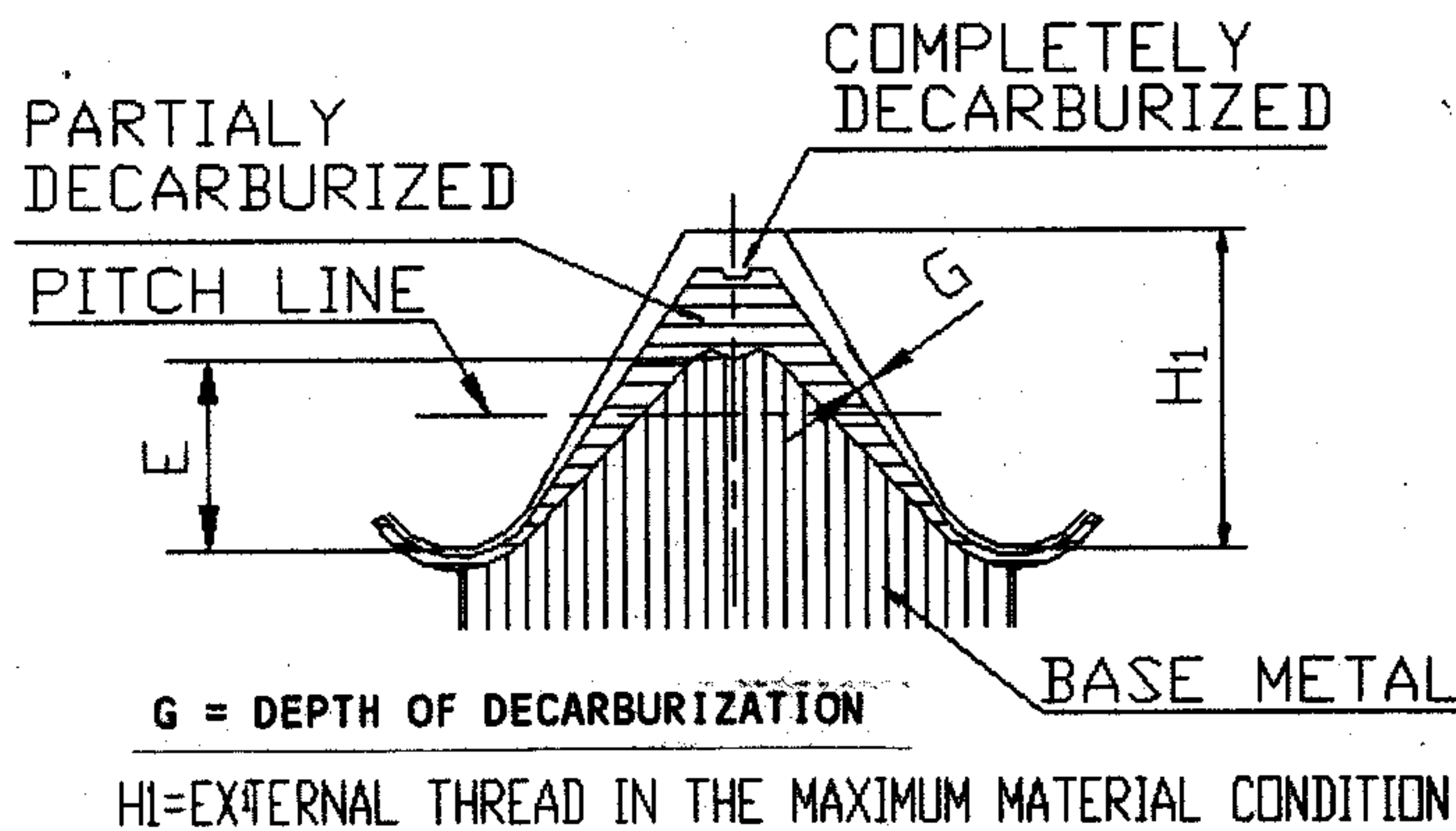


FIGURE-4

Maximum depth of complete decarburization shall be 0.015mm Max.

Minimum height of non-decarburized thread zone, E shall be $1/2 H1$ for 8.8 grade & $2/3 H1$ for 10.9 grade.

9. EVALUATION OF IMPACT STRENGTH FOR SMALL BOLTS :

In case of bolts under 16mm diameter whose impact testing with standard test specimen cannot be carried out reliability shall be ensured by ensuring cleanliness of steel (inclusion rating).

10. PACKAGING :

Bolt threads of nominal size M14 and above shall be supplied with thread protectors of high density polyethylene to protect them from mechanical damage. The bolts of quantities as mentioned in Table-5 shall be packed in polyethylene covers and properly sealed to protect them from entry of dust and water. The covers containing bolts shall in turn be packed in cartons or crates depending on the mass.