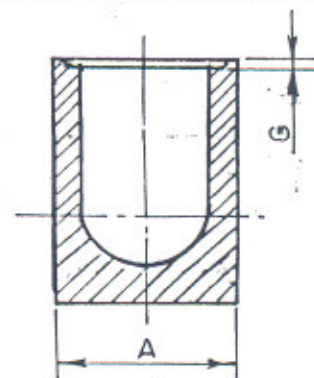
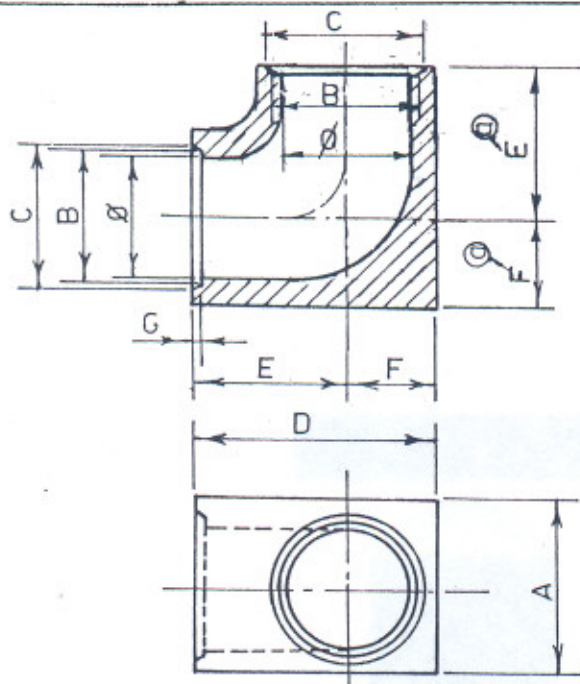




REV	DATE	ALTD
©	10.4.02	CHD
MATERIAL REVISED		
REV	DATE	ALTD.
⑥	15.9.01	CHD.
MATERIAL GRADE MODIFIED.		

SNO	Ø	A	B	C	D	E	F	G	$\frac{A-\delta}{2}$	SECTION Cm ²	VOLUME Dm ³
1	30	60	40	42	70	45	25	5	15	7.1	0.200
2	40	70	50	52	85	55	30	5	15	12.6	0.309
3	50	80	62	64	108	70	38	5	15	19.7	0.479
4	60	90	72	74	118	75	43	5	15	28.3	0.622
5	70	100	85	87	135	85	50	5	15	38.5	0.810
6	80	110	95	97	145	90	55	5	15	50.3	1.003
7	90	125	107	110	163	100	63	7	17.5	63.6	1.466
8	100	140	120	123	175	105	70	7	20	78.5	2.005
9	120	165	142	145	203	120	83	7	22.5	113.1	3.165
10	150	200	175	178	250	150	100	7	25	176.7	5.489

TOLERANCE $\pm 2\%$ OR ± 2 mm WHICHEVER IS GREATER.
ALL DIMENSIONS ARE IN MM.

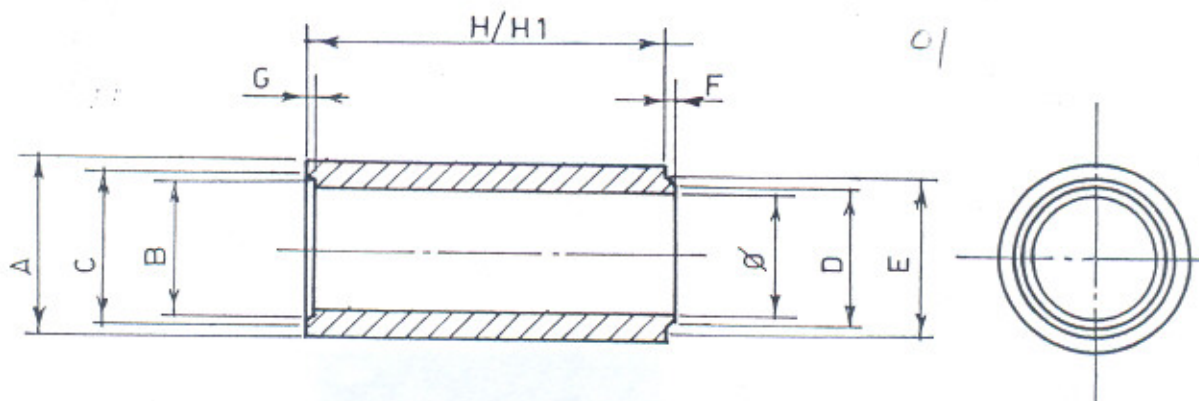
REVISIONS
⑥ 9129 CHECKED
MISSING DIMENSIONS
PROVIDED



BHARAT HEAVY ELECTRICALS LTD.
UNIT : CENTRAL FOUNDRY FORGE PLANT.
HARDWAR.

DEPT. FDY TECHY	SCALE NTS	WEIGHT (KGS)	MATERIAL GRADE: FF 06010, REV 01			
TITLE REFRACTORY KNEES			DRAWN	NAME	SIGN.	DATE
			WORKED	AJIT SINGH.	<i>Ajit Singh</i>	18.3.97
			CHECKED	Y.N.V. RAO	<i>Y.N.V. Rao</i>	18.3.97
			APPROVED	N. KHAN.	<i>N. Khan</i>	18.3.97
			DRAWING NO. 03/009/2 REV.-C			
			SHEET NO. 01	NO. OF SHEETS 01		

(ALL DIMENSIONS ARE IN mm)



		DIMENSIONS IN mm												
S.NO.	Ø	A	B	C	D	E	F	G	H	$\frac{A-\phi}{2}$	SECTION Cm ²	VOLUME Dm ³	H1	VOL 1
1	30	55	40	42	38	40	6	5	200	12.5	7.1	0.333	100	0.17
2	40	65	50	52	48	50	6	5	200	12.5	12.6	0.412	100	0.21
3	50	75	62	64	60	62	6	5	200	12.5	19.7	0.491	100	0.25
4	60	85	72	74	70	72	6	5	200	12.5	28.3	0.570	100	0.285
5	70	100	85	87	83	85	6	5	200	15	38.5	0.802	100	0.40
6	80	110	95	97	93	95	6	5	200	15	50.3	0.896	100	0.45
7	90	125	107	110	104	107	8	7	300	17.5	63.6	1.774	100	0.59
8	100	140	120	123	117	120	8	7	300	20	78.5	2.262	100	0.754
9	120	165	142	145	139	142	8	7	300	22.5	113.1	3.023	100	1.01
10	150	200	175	178	172	175	8	7	300	25	176.7	4.126	100	1.71

TOLERANCE: $\pm 2\%$ OR $\pm 2\text{mm}$ WHICHEVER IS GREATER
ALL DIMENSIONS ARE IN MM

REV 04 DATE 10.4.02
MATERIAL REVISED

REV 03	DATE 6-3-01	ALTD. CHD	REV 02	DATE 18-9-98	ALTD. CHD	REV 01	DATE 30-5-96	ALTD. CHD
MATERIAL CHANGED			H1 AND VOL 1 ADDED			(i) MATERIAL GRADE ADDED. (ii) NOTE-SUPERSEDED WITH SAME DRG NO-ELIMINATED		

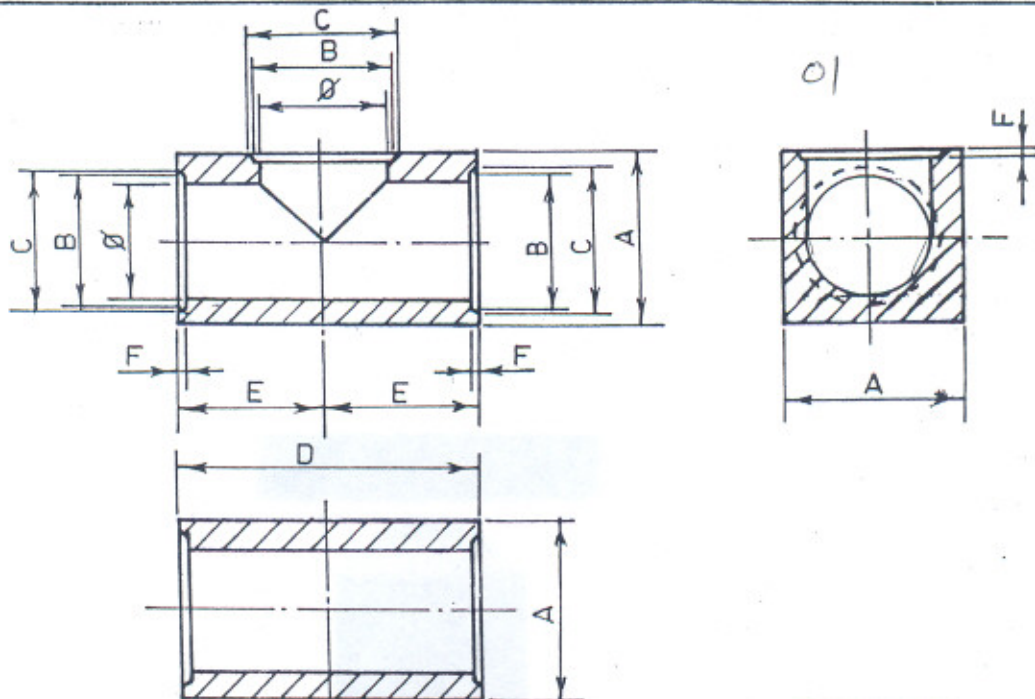


BHARAT HEAVY ELECTRICALS LTD.
UNIT : CENTRAL FOUNDRY FORGE PLANT.
HARDWAR.

DEPT. FDY-TECHY	SCALE NTS	WEIGHT (KGS.)	MATERIAL- AS PER FF 06010 REV 01			
TITLE REFRACTORY SLEEVES			DRAWN	NAME	SIGN.	DATE
			WORKED	ANIT SINGH.	<i>Asst</i>	20-3-96
			CHECKED	A.K. CHAKRABORTY.	<i>[Signature]</i>	3-4-96
			APPROVED	N. KHAN.	<i>N. Khan</i>	11/4/96
			DRAWING NO. 03/009/1		REV. 01	
			SHEET NO. 01		NO. OF SHEETS 01	

SIZE-A4

(ALL DIMENSIONS ARE IN mm)



S NO	Ø	A	B	C	D	E	F	$\frac{A-\phi}{2}$	SECTION Cm ²	VOLUME Dm ³
1	30	60	40	42	90	45	5	15	7.1	0.247
2	40	70	50	52	110	55	5	15	12.6	0.381
3	50	80	62	64	140	70	5	15	18.7	0.530
4	60	90	72	74	150	75	5	15	28.3	0.748
5	70	100	85	87	170	85	5	15	38.5	1.026
6	80	110	95	97	180	90	5	15	50.3	1.170
7	90	125	107	110	200	100	7	17.5	63.6	1.672
8	100	140	120	123	210	105	7	20	78.5	2.211
9	120	165	142	145	240	120	7	22.5	113.1	3.430
10	150	200	175	178	300	150	7	25	176.7	5.588

TOLERANCE $\pm 2\%$ OR ± 2 mm WHICHEVER IS GREATER.
ALL DIMENSIONS ARE IN MM.

REV	DATE	REV	DATE	ALTD.	REV	DATE	ALTD.
03	10-4-02	02	6-3-01	CHD	01	30-5-96	CHD
MATERIAL REVISED		MATERIAL CHANGED		MATERIAL GRADE ADDED		NOTE SUPERSEDED WITH SAME DRG NO ELIMINATED	



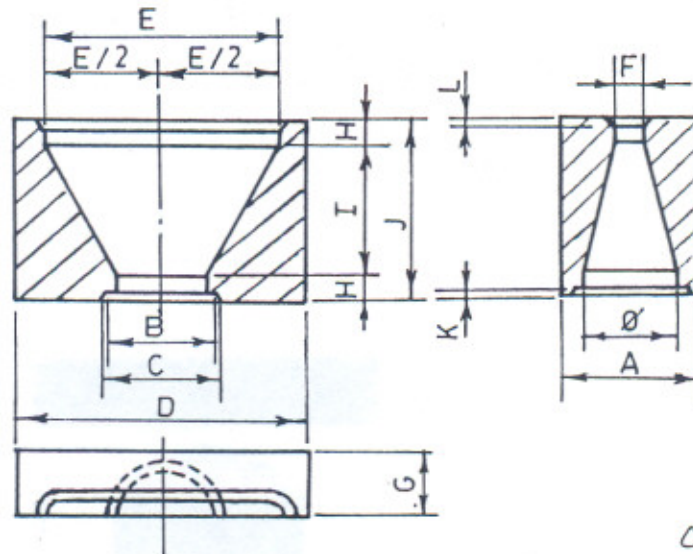
BHARAT HEAVY ELECTRICALS LTD.
UNIT: CENTRAL FOUNDRY FORGE PLANT.
HARDWAR.

DEPTT.	FDY-TECHY.	SCALE	NTS	WEIGHT (KGS.)	MATERIAL- AS PER FF 06010:REV 01
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TITLE	REFRACTORY TEES	DRAWN	NAME	SIGN.	DATE
		WORKED	AJIT SINGH	Ajit	20-3-96
		CHECKED	A-K. CHAKRABORTY		12-2-96
		APPROVED	N-K. KHAN	N.K.	11/4/96
		DRAWING NO.		03/009/3	
		SHEET NO. 01		REV. 03	
		NO. OF SHEETS		01	

SIZE-A4

(ALL DIMENSIONS ARE IN mm)



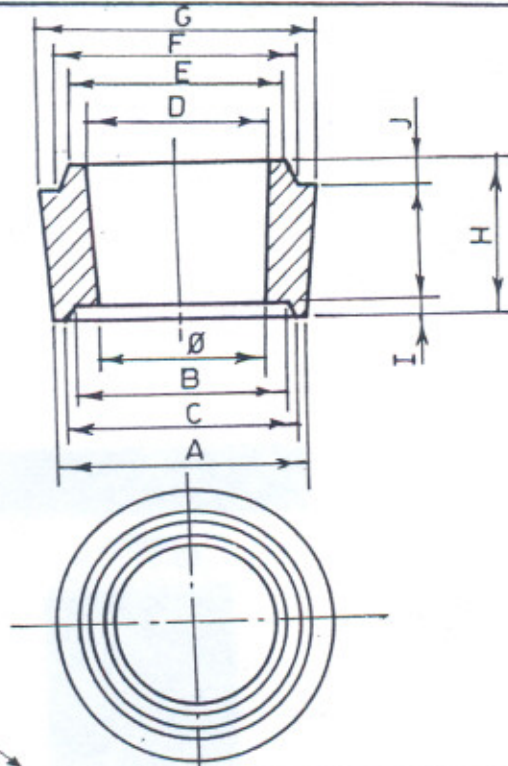
Rp	Ø	A	B	C	D	E	F	G	H	I	J	K	L	AREA Cm ²	VOLUM Dm ³	WT Kg	TO BE USED BY
1	30	50	40	42	125	90	9	25	15	55	85	5	3	7.9	0.461	0.876	STEEL FDY.
2	40	60	50	52	140	115	13	30	15	65	95	5	4	14.5	0.661	1.256	"
3	50	75	62	64	160	130	18	37.5	18	69	105	5	5	22.7	1.024	1.946	"
4	60	85	72	74	190	160	21	42.5	18	89	125	5	6	32.7	1.616	3.068	"
5	70	100	85	87	215	175	26	50	20	105	145	5	8	43.9	2.487	4.725	"
6	80	110	95	97	246	200	30	55	20	120	160	5	10	58.1	3.298	6.266	"
7	90	125	107	110	260	210	36	62.5	22	131	175	7	12	73.0	4.413	9.385	"
8	100	140	120	123	270	220	43	70	22	136	180	7	15	90.6	5.174	9.830	"
9	120	165	142	145	300	240	56	82.5	25	150	200	7	18	128	7.967	15.137	"
10	150	200	175	178	350	270	78	100	30	175	225	7	20	198	11.734	22.290	"

TOLERANCE $\pm 2\%$ OR $\pm 2\text{mm}$ WHICHEVER IS GREATER
ALL DIMENSIONS ARE IN MM

REV 03	DATE 10.4.02	ALTD CHD	REV 02	DATE 6.3.01	ALTD CHD	REV 01	DATE 30.5.96	ALTD CHD
MATERIAL REVISED			MATERIAL CHANGED			(i) (ii)		
						MATERIAL GRADE ADDED. NOTE-SUPERSEDED WITH SAME DRG.NO-ELIMINATED		
			BHARAT HEAVY ELECTRICALS LTD. UNIT: CENTRAL FOUNDRY FORGE PLANT. HARDWAR.					
DEPTT. FDY/TECHY.			SCALE NTS		WEIGHT (KGS)		MATERIAL - AS PER FF 06010 REV-01	
TITLE REFRACTORY INGATE						DRAWN		NAME
						WORKED		NAME
						CHECKED		NAME
						APPROVED		NAME
						DRAWING NO. 03/009/4 REV-03		
						SHEET NO. 01		NO. OF SHEETS 01

SIZE-A4

(ALL DIMENSIONS ARE IN mm)



S NO	Ø	A	B	C	D	E	F	G	H	I	J	$\frac{A-\phi}{2}$	$\frac{G-D}{2}$	VOLUME DM ³
1	30	55	40	42	40	48	50	65	50	5	6	12.5	12.5	0.081
2	40	65	50	52	50	60	62	75	50	5	6	12.5	12.5	0.113
3	50	75	62	64	60	70	72	85	50	5	6	12.5	12.5	0.132
4	60	85	72	74	70	83	85	100	50	5	6	12.5	15	0.170
5	70	100	85	87	80	93	95	110	50	5	6	15	15	0.212
6	80	110	95	97	90	104	107	125	50	5	6	15	17.5	0.258
7	90	125	107	110	100	117	120	140	50	7	8	17.5	20	0.334
8	100	140	120	123	120	139	142	165	50	7	8	20	22.5	0.440
9	120	165	142	145	150	172	175	200	80	7	8	22.5	25	0.950
10	150	200	175	178	200	222	225	250	130	7	8	25	25	2.042

TOLERANCE: $\pm 2\%$ OR $\pm 2\text{mm}$ WHICHEVER IS GREATER
ALL DIMENSIONS ARE IN MM

REV 03	DATE 10-4-02	ALTD CHD	REV 02	DATE 6-3-01	ALTD CHD	REV 01	DATE 30-5-96	ALTD CHECKED
MATERIAL REVISED			MATERIAL CHANGED			(i) MATERIAL GRADE ADDED. (ii) NOTE SUPERSEDED WITH SAME DRC NO ELIMINATED		



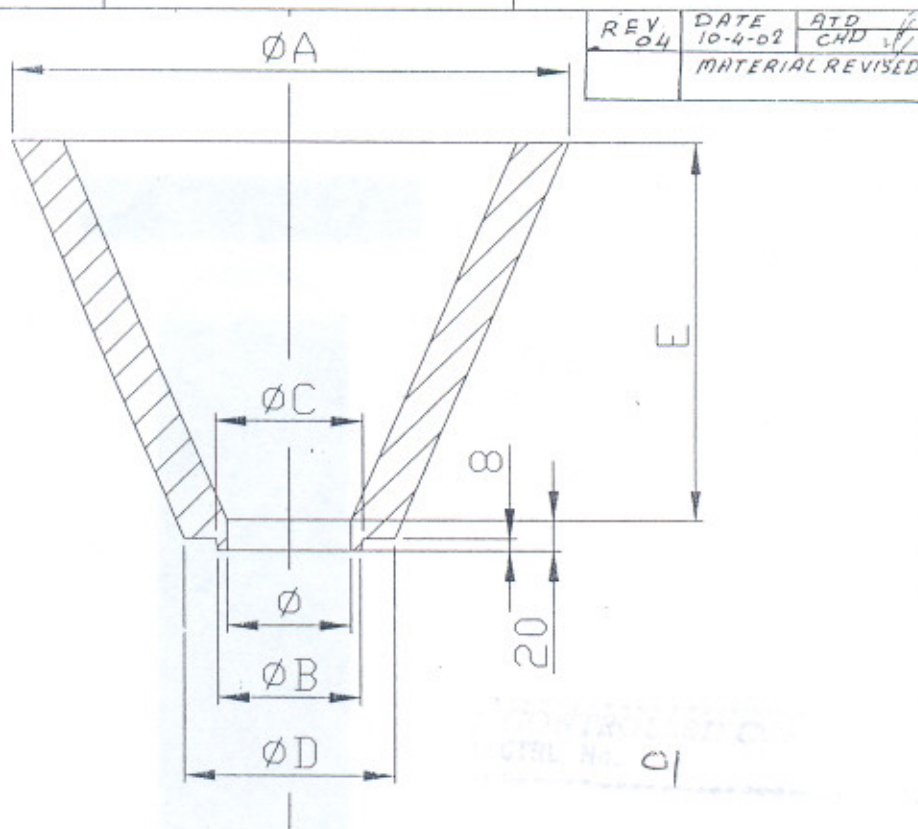
BHARAT HEAVY ELECTRICALS LTD.
UNIT: CENTRAL FOUNDRY FORGE PLANT.
HARDWAR.

DEPTT. FDY. TECHY.	SCALE NTS	WEIGHT (KGS.)	MATERIAL - AS PER FF06010 REV 01			
TITLE REFRACTORY REDUCERS			DRAWN	NAME	SIGN.	DATE
			WORKED	AJIT SINGH.	As with	20.3.96
			CHECKED	A.K. CHAKRABORTY.	27.3.96	
			APPROVED	H. KHAN.	11/4/96	
			DRAWING NO 03 / 009 / 8			
SHEET NO. 01			NO. OF SHEETS 01			

SIZE-A4

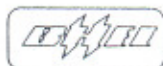
FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm)

REV	DATE	ALTERED	REV	DATE	ALTERED	REV	DATE	ALTERED
01	30.5.96	CHECKED	02	14.6.00	CHECKED	03	06.3.01	CHECKED
MATERIAL GRADE ADDED NOTE- SUPERSEDED WITH SAME DRG NO. ELIMINATED			DIA 150 CUP ADDED IN TABLE DRAWING RETRACED IN CAD			NOTE FOR MATERIAL GRADE AMENDED		



Sl.	Ø	ØA	ØB	ØC	ØD	E
1	80	360	92	95	136	230
2	100	430	116	120	158	300
3	120	430	138	142	175	300
4	150	460	172	175	200	300

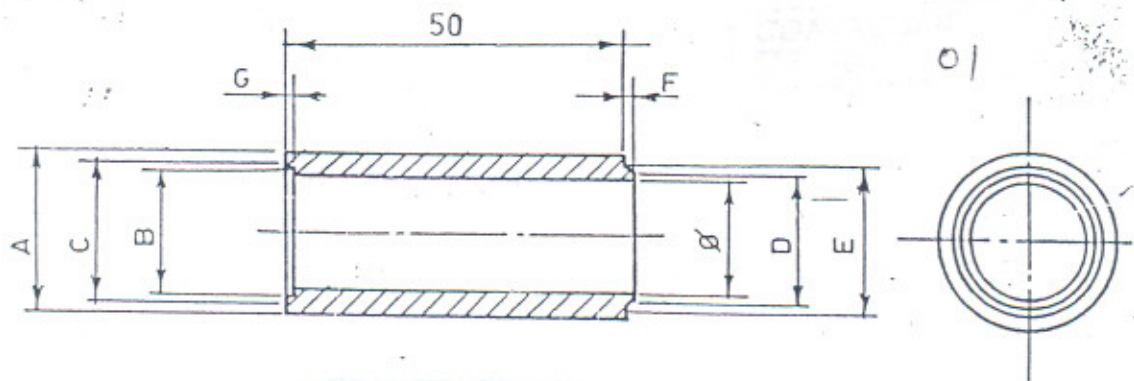
TOLERANCE: $\pm 2\%$ OR ± 2 MM WHICHEVER IS GREATER
MATERIAL AS PER FF06010 REV-01.



BHARAT HEAVY ELECTRICALS. LTD.
CENTRAL FOUNDRY FORGE PLANT
RANIPUR HARDWAR

DEPTT. FDY.TECH.	SCALE N.T.S.	WEIGHT IN Kgs	NAME	SIGN	DATE
TITLE REFRACTORY POURING CUP			DRN	/REF POURING CUP	
			WKD	T DAVE	13.3.01
			CHD	AKC	12.3.01
			APPD	NGS	11
PROJECT AND CUSTOMER NAME		TECHNOLOGY NO	DRAWING NO.- FT-11-19 REV 04		
			SHEET NO.- 1		NO. OFF SHEETS- 1

(ALL DIMENSIONS ARE IN mm)



DIMENSIONS IN mm

S.NO.	Ø	A	B	C	D	E	F	G	VOLUME DM ³
1	30	55	40	42	38	40	6	5	0.09
2	40	65	50	52	48	50	6	5	0.11
3	50	75	62	64	60	62	6	5	0.13
4	60	85	72	74	70	72	6	5	0.15
5	70	100	85	87	83	85	6	5	0.20
6	80	110	95	97	93	95	6	5	0.22
7	90	125	107	110	104	107	8	7	0.30
8	100	140	120	123	117	120	8	7	0.38
9	120	165	142	145	139	142	8	7	0.50
10	150	200	175	178	172	175	8	7	0.86

TOLERANCE: $\pm 2\%$ OR $\pm 2\text{mm}$ WHICHEVER IS GREATER
ALL DIMENSIONS ARE IN MM

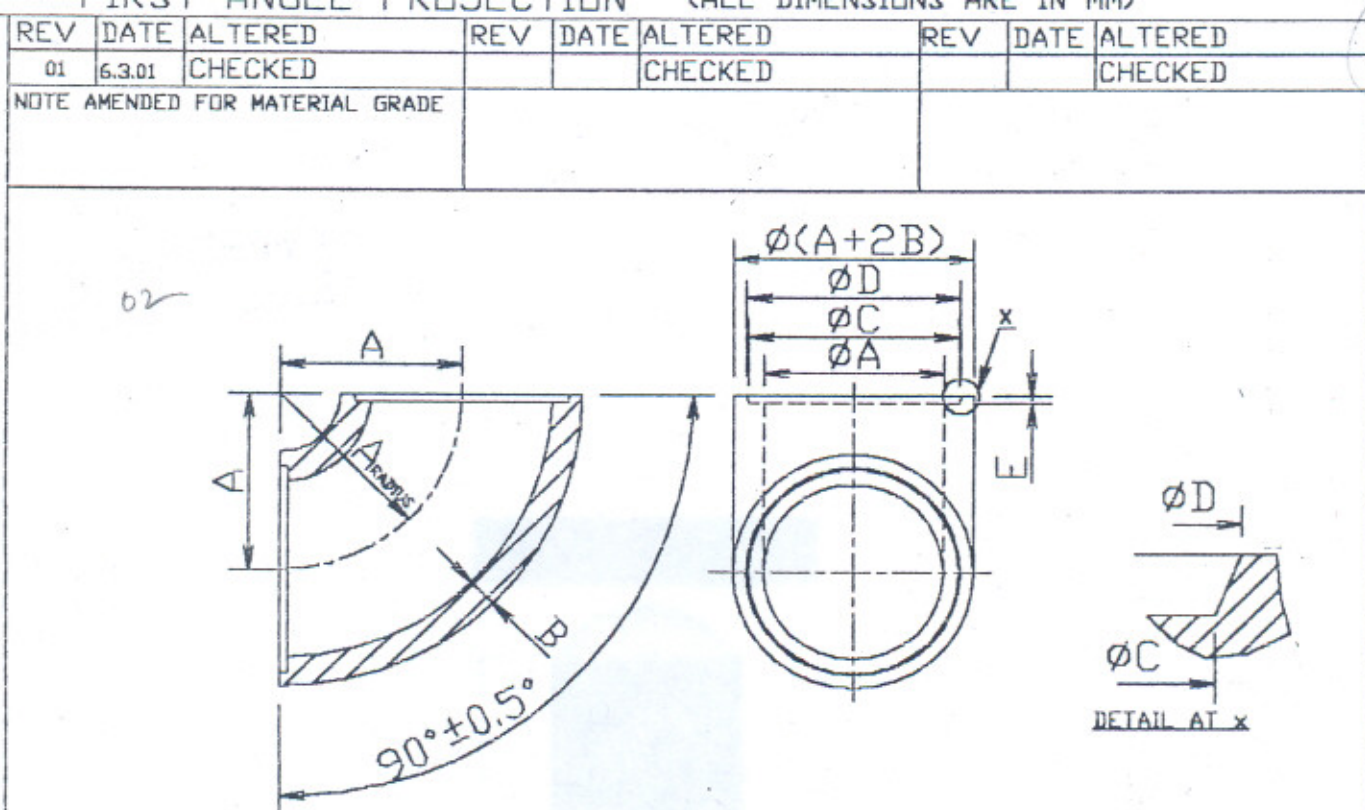
REV	DATE	ALTD
01	10-4-02	CHD
MATERIAL REVISED		



BHARAT HEAVY ELECTRICALS LTD.
UNIT: CENTRAL FOUNDRY FORGE PLANT.
HARDWAR.

DEPTT. FDY-TECHY.	SCALE NTS	WEIGHT (KGS)	MATERIAL-AS PER FF06010 REV.01			
TITLE REFRACTORY SLEEVES			DRAWN	NAME	SIGN.	DATE
			WORKED			12/8/01
			CHECKED	A.K.C.		
			APPROVED	N.KHAN		12/8/01
			DRAWING NO.	03/009/1/1 REV. 01		
			SHEET NO. 01	NO. OF SHEETS 01		

SIZE-A4

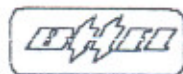


A	B	C	D	E	VOLUME DM ³
50	15	62	64	5	.24
60	15	72	74	5	.333
70	15	85	87	5	.44
80	15	95	97	5	.563
90	17.5	107	110	7	.836
100	20	120	123	7	1.184
120	22.5	142	145	7	1.899
150	25	175	178	7	3.238

NOTE

TOLERANCE ON DIMENSIONS ± 1

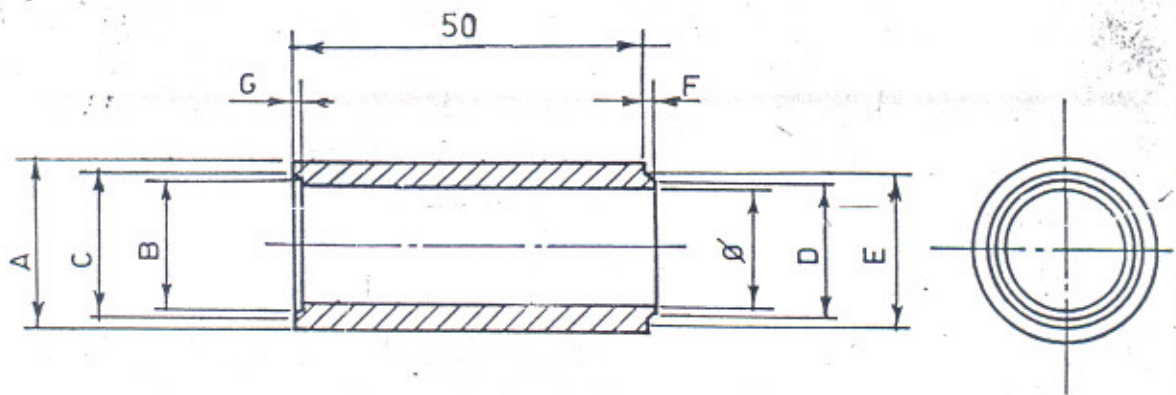
MATERIAL AS PER FF06010 REV. 00



BHARAT HEAVY ELECTRICALS. LTD.
CENTRAL FOUNDRY FORGE PLANT
RANIPUR HARDWAR

DEPTT. FDY.TECH.		SCALE N.T.S.	WEIGHT IN Kgs	NAME	SIGN	DATE
TITLE REFRACTORY KNEE				DRN	ACAD	
				WKD	T DAVE	6.3.2001
				CHD	A.K.C.	6.3.2001
				APPD	NGS	6.3.01
PROJECT AND CUSTOMER NAME --			TECHNOLOGY NO	DRAWING NO.- FT-11-30 REV 01		

(ALL DIMENSIONS ARE IN mm)



DIMENSIONS IN mm									
S.NO.	Ø	A	B	C	D	E	F	G	VOLUME DM ³
1	30	55	40	42	38	40	6	5	0.09
2	40	65	50	52	48	50	6	5	0.11
3	50	75	62	64	60	62	6	5	0.13
4	60	85	72	74	70	72	6	5	0.15
5	70	100	85	87	83	85	6	5	0.20
6	80	110	95	97	93	95	6	5	0.22
7	90	125	107	110	104	107	8	7	0.30
8	100	140	120	123	117	120	8	7	0.38
9	120	165	142	145	139	142	8	7	0.50
10	150	200	175	178	172	175	8	7	0.86

TOLERANCE: $\pm 2\%$ OR $\pm 2\text{mm}$ WHICHEVER IS GREATER
ALL DIMENSIONS ARE IN MM

REV	DATE	ALTD
01	10-4-02	CHD
MATERIAL REVISED		



BHARAT HEAVY ELECTRICALS LTD.
UNIT : CENTRAL FOUNDRY FORGE PLANT.
HARDWAR.

DEPTT. FDY-TECHY.

SCALE NTS

WEIGHT (KGS)

MATERIAL- AS PER FF06010 REV.01

TITLE

REFRACTORY SLEEVES

DRAWN NAME SIGN. DATE

WORKED

CHECKED A.K.C.

APPROVED N.KHAN

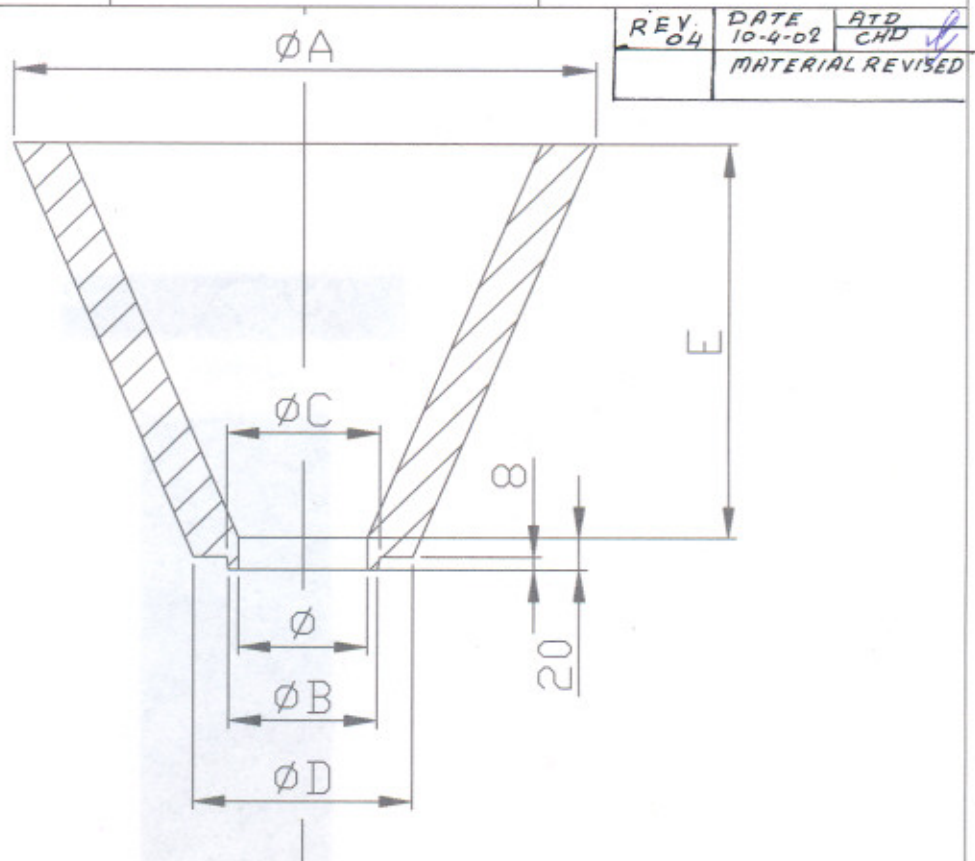
DRAWING NO 03/009/1/1 REV. 01

SHEET NO. 01 NO. OF SHEETS 01

SIZE-A4

FIRST ANGLE PROJECTION (ALL DIMENSIONS ARE IN mm)

REV	DATE	ALTERED	REV	DATE	ALTERED	REV	DATE	ALTERED
01	30.5.96	CHECKED	02	14.6.00	CHECKED	03	06.3.01	CHECKED
MATERIAL GRADE ADDED NOTE- SUPERSEDED WITH SAME DRG NO. ELIMINATED			DIA 150 CUP ADDED IN TABLE DRAWING RETRACED IN CAD			NOTE FOR MATERIAL GRADE AMENDED		



Sl.	Ø	ØA	ØB	ØC	ØD	E
1	80	360 295	92	95	136 120	230 351
2	100	430 265	116	120	158 140	300 280
3	120	430 265	138	142	175 160	300 280
4	150	460 265	172	175	200 200	300 280

**TOLERANCE: ±2% OR ±2 MM WHICHEVER IS GREATER
MATERIAL AS PER FF06010 . REV-01.**

		BHARAT HEAVY ELECTRICALS. LTD. CENTRAL FOUNDRY FORGE PLANT RANIPUR HARDWAR						
DEPTT.	FDY.TECH.		SCALE	N.T.S.	WEIGHT IN Kgs	NAME	SIGN	DATE
REFRACTORY POURING CUP						DRN	/REF POURING CUP	
						WKD	T DAVE	
						CHD	AKC	
						APPD	NGS	
PROJECT AND CUSTOMER NAME			TECHNOLOGY NO			DRAWING NO.-		
-			-			FT-11-19 REV 04		
						SHEET NO.- 1 NO. OFF SHEETS- 1		