

FOR DIMENSIONAL TOLERANCES OF SHEET METAL PARTS AND WELDED STRUCTURES, REFER STD. RD-227

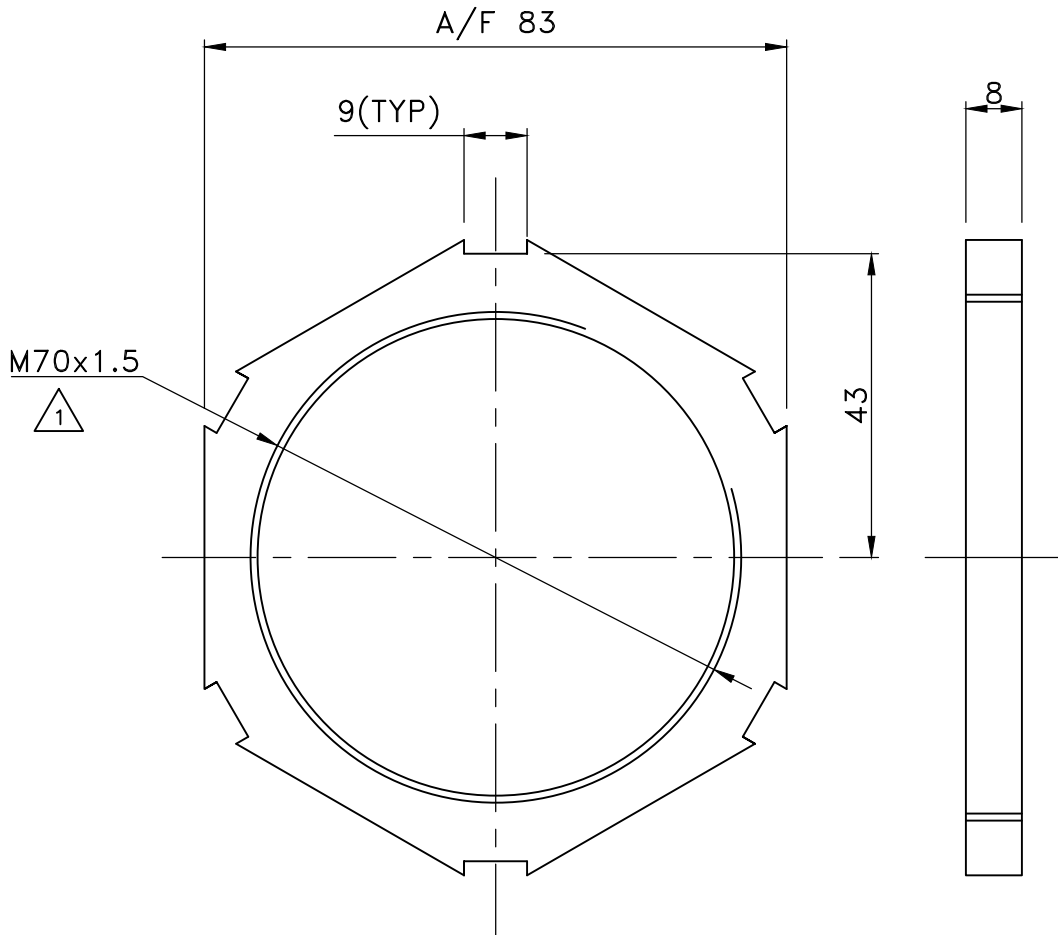
UNSPECIFIED TOLERANCE FOR LINEAR AND ANGULAR DIMENSIONS REF. IS 2102 (PT-1) (MEDIUM)

VALUES OF SURFACE TEXTURE SHALL BE AS PER COMPANY STD DS.1012.C.

QUALITY OF WELD JOINTS REF, RD-230 MEDIUM

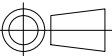


PROTO/PILOT/PRODUCTION

UNCONTROLLED



83x96x8 THK
SS PLATE

AISI 304

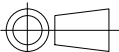






SI No.	QTY	DRG. / STOCK No.				DESCRIPTION		SIZE		COMPANY.STD/IS.STD		Wt(Kg)			
		DETAIL PARTS								MATERIAL					
						PRODUCT DMRC BG METRO CARS									
									SURFACE TREATMENT						
									SCALE		SHEET OF	Wt(Kg)			
						2	909-56201	T-CAR							
						QTY	NEXT ASSY	MODEL	REF DRG						
						TITLE			APPROVED	KCS		12.01.09			
						LOCK NUT (75C)			CHECKED	KRKR		12.01.09			
									DRAWN	SNH		10.01.09			
1	Dim M70 was M75 ECN:90900186	28.05.12	SNH	CKN	KCS	 BEML LIMITED R&D, BANGALORE COMPLEX BANGALORE 560 075			DRG No.		ALT				
									909-56103						
ALT	CHANGE/ECN No.	DATE	BY	CKD	APP										

BEML LIMITED
R&D, BANGALORE COMPLEX
BANGALORE 560 075

PROTO/PILOT/PRODUCTION

SECTION-AA

MATERIAL:—AISI 304

Sl No.	QTY	DRG. / STOCK No.					DESCRIPTION	SIZE	COMPANY.STD/IS.STD		Wt(Kg)		
		DETAIL PARTS							MATERIAL				
							PRODUCT DMRC BG METRO CARS						
									SURFACE TREATMENT				
							3	909-56201	T-CAR	SCALE		SHEET OF	Wt(Kg)
							QTY	NEXT ASSY	MODEL	REF DRG			
							TITLE			APPROVED	KCS	12.01.09	
							END BUSHING			CHECKED	KRKR	12.01.09	
										DRAWN	SNH	10.01.09	
										DRG No.		ALT	
1	Dim M70 was M75 ECN:90900186	28.05.12					 BEML LIMITED R&D, BANGALORE COMPLEX BANGALORE 560 075			909-56104			
ALT	CHANGE/ECN No.	DATE	BY	CKD	APP								




GRADE No.		N12	N11	N10	N9	N8	N7	N6	N5	N4	N3	N2	N1
VALUE		50/	25/	12.5/	6.3/	3.2/	1.6/	0.8/	0.4/	0.2/	0.1/	0.05/	0.025/
SYMBOL													

PROTO/PILOT/PRODUCTION

Technical drawing of a circular part, likely a flange or a plate, showing two views: a front view (left) and a side view (right).

Front View (Left): A circular cross-section with a central hole. The outer diameter is dimensioned as $\phi 85$. The inner hole diameter is dimensioned as $\phi 72$. The drawing includes a vertical centerline (dashed line) and a horizontal centerline (dashed line). A triangle with the number 1 is located near the bottom left corner of the circular part.

Side View (Right): A rectangular cross-section showing the thickness of the part. The thickness is dimensioned as 2. The drawing includes a vertical centerline (dashed line) and a horizontal centerline (dashed line).

Sl No.	QTY	DRG. / STOCK No.		DESCRIPTION		SIZE		COMPANY.STD./IS.STD		Wt(Kg)	
		DETAIL PARTS				MATERIAL					
						PRODUCT DMRC BG METRO CARS					
								SURFACE TREATMENT			
								SCALE		SHEET OF	Wt(Kg)
						2	909-56201				
						QTY	NEXT ASSY	MODEL	REF DRG		
						TITLE			APPROVED	KCS	12.01.09
2	Material SS was Aluminium ECN:90900580	17.2.16	VSHNU	SNH	KCS	WASHER			CHECKED	KRKR	12.01.09
									DRAWN	SNH	10.01.09
1	Dimn 72 was 77 ECN:90900189	29.05.12	SNH	CRN	KCS	 BEML LIMITED R&D, BANGALORE COMPLEX BANGALORE 560 075			DRG No.		ALT
ALT	CHANGE/ECN No.	DATE	BY	CKD	APP				909-56106		

FOR DIMENSIONAL TOLERANCES OF SHEET METAL PARTS AND WELDED STRUCTURES, REFER STD. RD-227

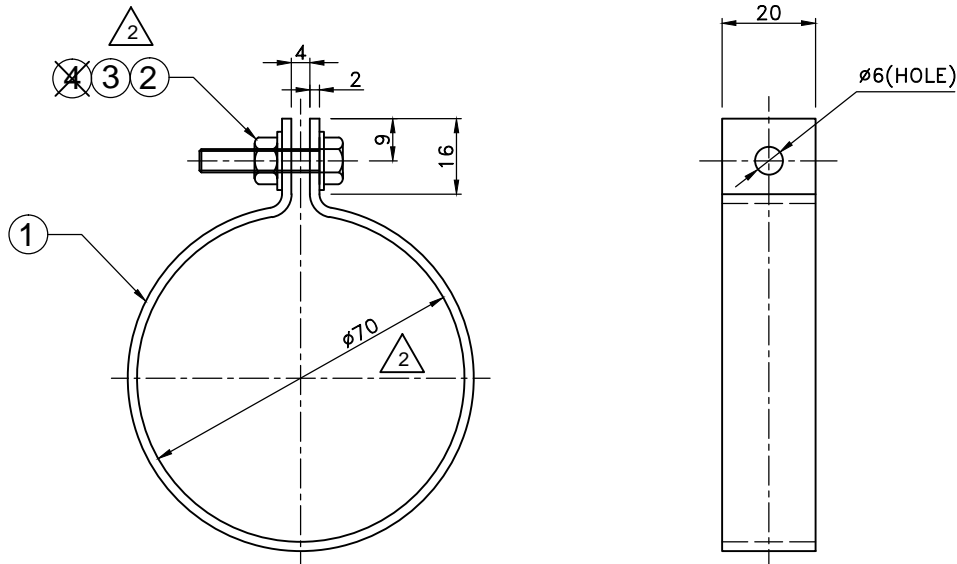
UNSPECIFIED TOLERANCE FOR LINEAR AND ANGULAR DIMENSIONS REF. IS 2102 (PT-1) (MEDIUM)

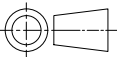

VALUES OF SURFACE TEXTURE SHALL BE AS PER COMPANY STD DS.1012.C.

QUALITY OF WELD JOINTS REF, RD-230 MEDIUM

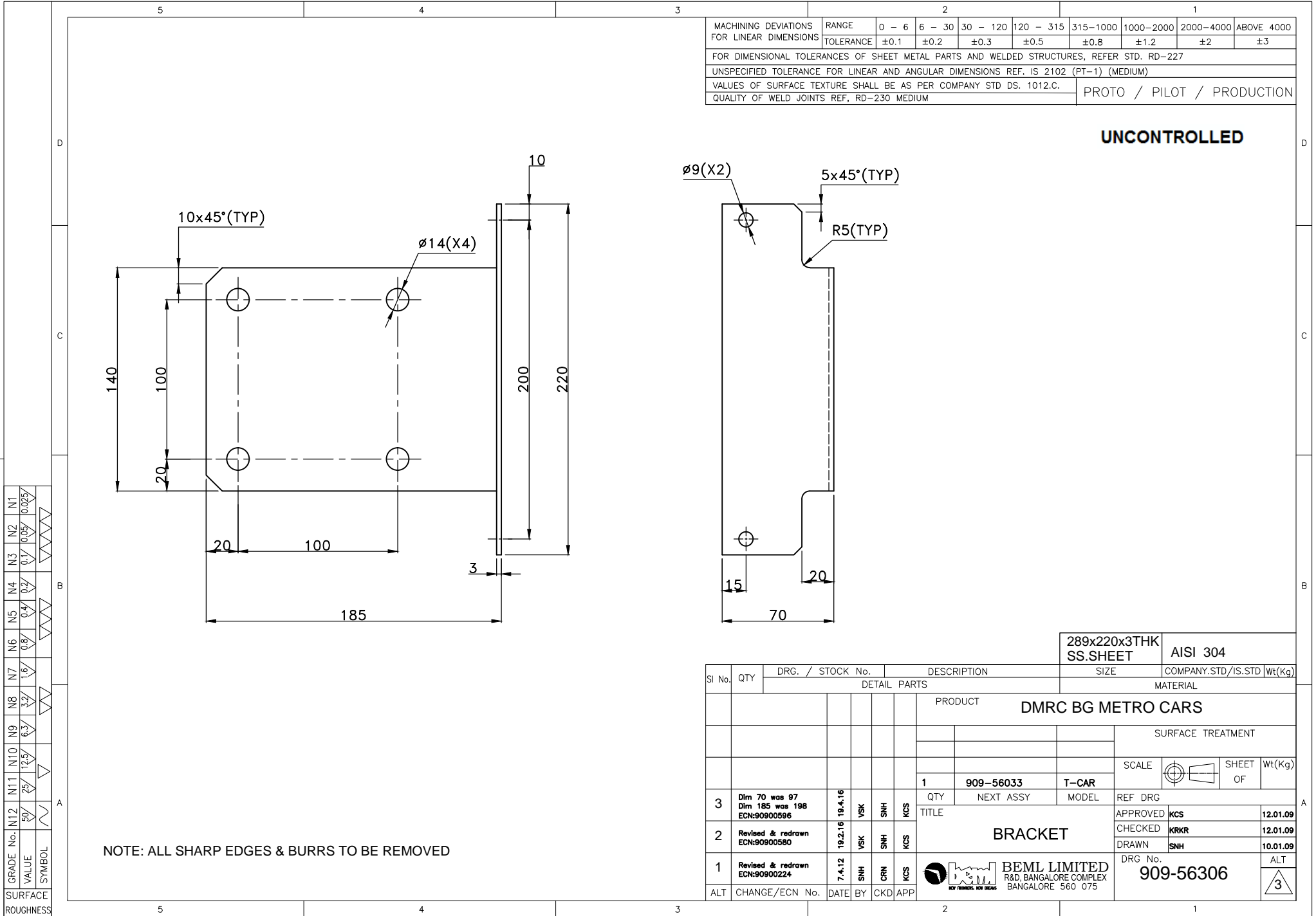
PROTO/PILOT/PRODUCTION

UNCONTROLLED

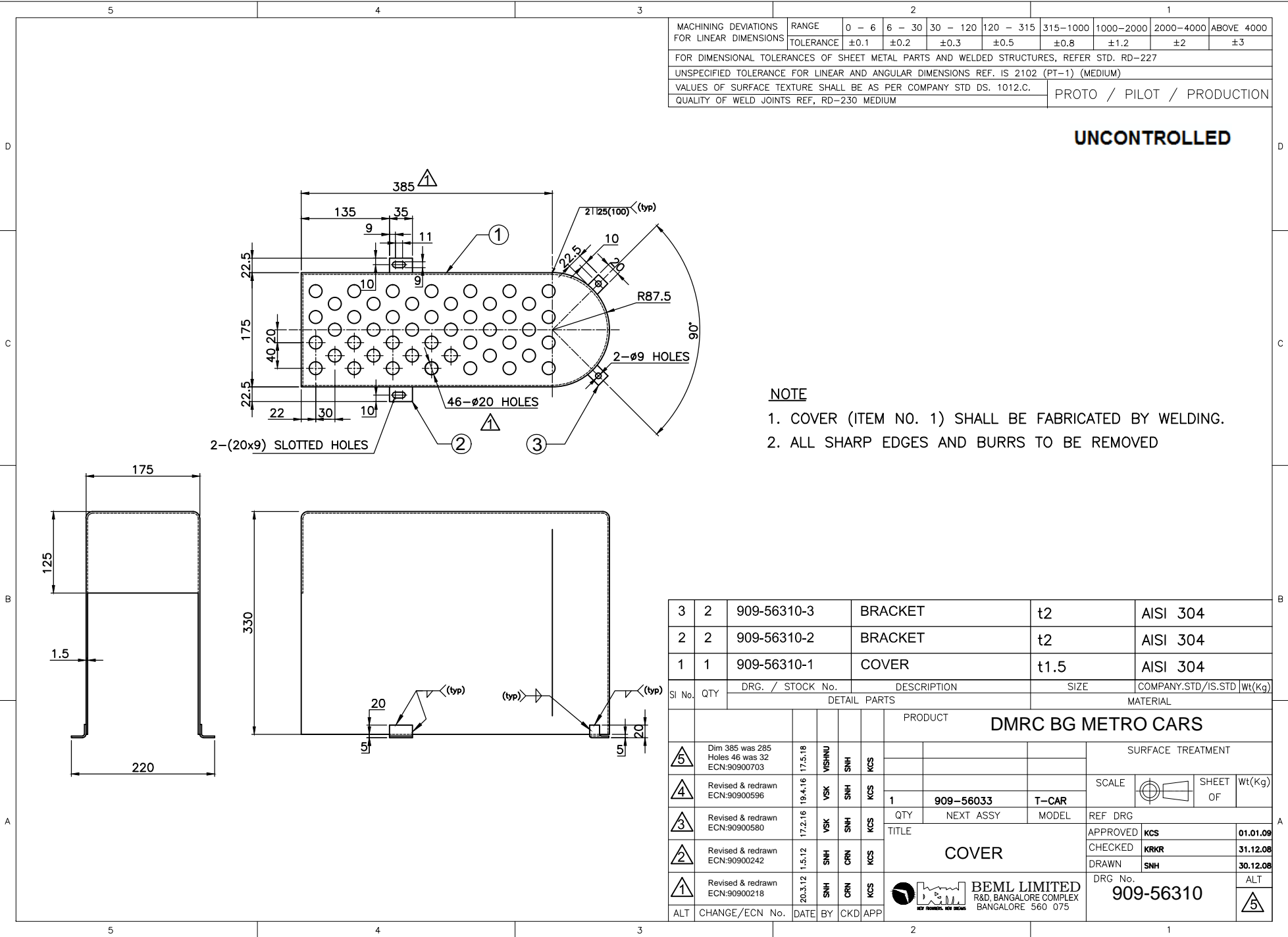


4	1	RFW0920512	SPRING WASHER B5 TO IS:3063(TAB 1) 1994/MATL:AISI 304,STAINLESS STEEL						
3	1	RFN5850547	HEX HD NUT WITH FLANGE M5 TO ISO:4161-83 / MATL-ISO:3506,Gr-A2-70,SS						
2	1	RFB3850525	HEX HEAD FLANGE BOLT FULL THREAD M5x25 TO ISO:4162-90 / MATL:IS-1367(P-14) Gr-A2-70,SS WITH NYLOK BLUE PATCH PRE APPLIED ADHESIVE						
1	1		CLAMP. PIPE	265x20X2 SS.SHEET	AISI 304				
SI No.	QTY	DRG. / STOCK No.	DESCRIPTION	SIZE	COMPANY.STD/IS.STD	Wt(Kg)			
		DETAIL PARTS			MATERIAL				
			PRODUCT				DMRC BG METRO CARS		
						SURFACE TREATMENT			
						SCALE		SHEET OF	Wt(Kg)
			3	909-56201	T-CAR				
			QTY	NEXT ASSY	MODEL	REF DRG			
			TITLE			APPROVED	KCS	12.01.09	
2	DIM 70 WAS 72 ITEM-4 DELETED ITEM-2&3 ALTERED	04.08.13	SNH	CRN	KCS	CHECKED	KRKR	12.01.09	
						DRAWN	SNH	10.01.09	
1	DIM 72 WAS 77 ECN:90900186	28.05.12	SNH	CRN	KCS	DRG No.		ALT	
						909-56304		<div>2</div>	
ALT	CHANGE/ECN No.	DATE	BY	CKD	APP	 BEML LIMITED R&D, BANGALORE COMPLEX BANGALORE 560 075			

GRADE No.	N1	N2	N3	N4	N5	N6	N7	N8	N9	N10	N11	N12
VALUE	0.025	0.05	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50
SYMBOL												
SURFACE ROUGHNESS												



GRADE No.	N1	N2	N3	N4	N5	N6	N7	N8	N9	N10	N11	N12
VALUE	0.025	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50	
SYMBOL												
SURFACE ROUGHNESS												



SURFACE ROUGHNESS		N11	N10	N9	N8	N7	N6	N5	N4	N3	N2	N1
GRADE No.												
VALUE		50/ 25/	12.5/ 6.3/	6.3/ 3.2/	3.2/ 1.6/	1.6/ 0.8/	0.8/ 0.4/	0.4/ 0.2/	0.2/ 0.1/	0.1/ 0.05/	0.05/ 0.025/	
SYMBOL												

PROTO/PILOT/PRODUCTION

Technical drawing of a circular component, showing a cross-section (SECTION-AA) and a top view.

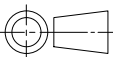


Cross-section (SECTION-AA):

- Overall diameter: $\phi 58$
- Inner diameter: $\phi 47$
- Top flange thickness: 20
- Inner bore diameter: 10
- Section line (hatched area) is shown on the top flange and the inner bore.



Top View:

- Overall diameter: 30
- Inner diameter: 4
- Thread specification: M50x1.5
- Section line (hatched area) is shown on the outer rim.

SECTION-AA

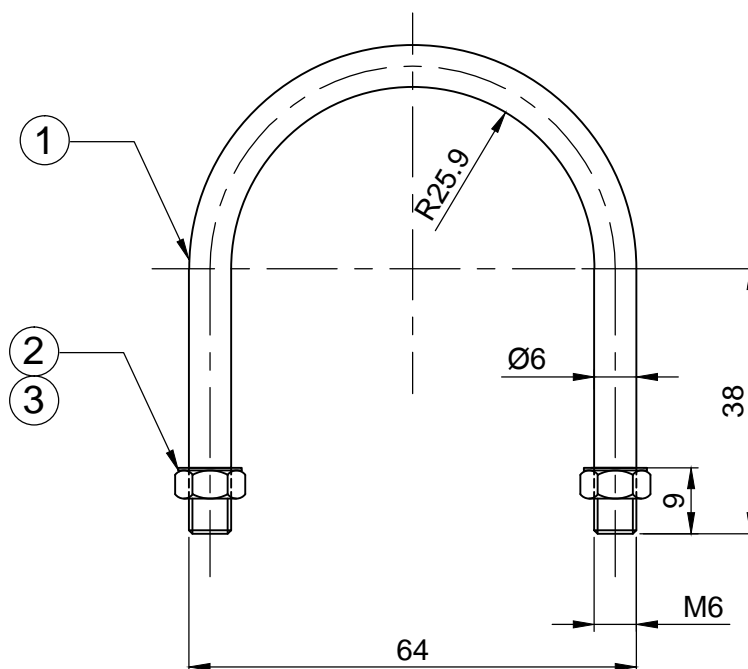
SI No.	QTY	DRG. / STOCK No.				DESCRIPTION		SIZE		COMPANY.STD /IS.STD		Wt(Kg)	
		DETAIL PARTS						MATERIAL					
							PRODUCT DMRC BG METRO CARS						
										SURFACE TREATMENT			
										SCALE		SHEET OF	Wt(Kg)
						2	909-56101	M-CAR					
						QTY	NEXT ASSY	MODEL	REF DRG				
						TITLE END BUSHING (51C)				APPROVED	KCS	12.01.09	
										CHECKED	KRKR	12.01.09	
										DRAWN	SNH	10.01.09	
1	Dim M50 was M51 ECN:90900186	28.05.12	SNH	CRN	KCS	 BEML LIMITED R&D, BANGALORE COMPLEX BANGALORE 560 075				DRG No.		ALT	
ALT CHANGE/ECN No.		DATE	BY	CKD	APP					909-56319			

PROTO/PILOT/PRODUCTION

SI No.	QTY	DRG. / STOCK No.			DESCRIPTION		SIZE	COMPANY.STD/IS.STD		Wt(Kg)	
		DETAIL PARTS					MATERIAL				
						PRODUCT DMRC BG METRO CARS					
								SURFACE TREATMENT			
								SCALE		SHEET OF	Wt(Kg)
						2	909-56101	M-CAR			
						QTY	NEXT ASSY	MODEL	REF DRG		
						TITLE WASHER (51C)			APPROVED	KCS	12.01.09
									CHECKED	KRKR	12.01.09
									DRAWN	SNH	10.01.09
						 BEML LIMITED R&D, BANGALORE COMPLEX BANGALORE 560 075			DRG No.		ALT
ALT	CHANGE/ECN No.	DATE	BY	CKD	APP				909-56321		

Technical drawing of a U-shaped metal bracket. The drawing includes the following dimensions and callouts:

- Callout 1:** Points to the top curved section of the bracket.
- Callout 2:** Points to the left vertical section of the bracket.
- Callout 3:** Points to the mounting hole on the left vertical section.
- Radius:** The top curve has a radius of $R25.9$.
- Width:** The overall width of the bracket is 64 .
- Height:** The overall height of the bracket is 38 .
- Mounting Hole:** The mounting hole has a diameter of $\varnothing 6$.
- Mounting Hole Spacing:** The distance between the mounting holes is 9 .
- Mounting Hole Thread:** The mounting hole is threaded with $M6$.

[illegible]

UNCONTROLLED

Technical drawing of a U-bolot (U-bolot) showing dimensions and callouts:

- Callout 1: Points to the curved top section of the U-bolot.
- Callout 2: Points to the left vertical section of the U-bolot.
- Callout 3: Points to the left vertical section of the U-bolot, specifically the lower part.
- Dimension R36: Radius of the curved top section.
- Dimension Ø10: Diameter of the central hole in the vertical section.
- Dimension 60: Total height of the U-bolot.
- Dimension 21: Height of the vertical section from the base to the top of the curved section.
- Dimension 92: Total width of the U-bolot.
- Dimension M10: Thread specification for the base of the U-bolot.

SL.No.	QTY	DRG. / STOCK No.	DESCRIPTION	SIZE	COMPANY.STD/IS.STD	Wt.Kg.
		DETAIL PARTS		MATERIAL		

ECN:90900180		25	S	C	K	 	BEMC LIMITED R&D, BANGALORE COMPLEX BANGALORE 560 075	909-56617	
ALT	CHANGES	DATE	BY	CKD	APP				

SURFACE ROUGHNESS		N12	N11	N10	N9	N8	N7	N6	N5	N4	N3	N2	N1
GRADE No.													
VALUE		50/	25/	12.5/	6.3/	3.2/	1.6/	0.8/	0.4/	0.2/	0.1/	0.05/	0.025/
SYMBOL													

FOR DIMENSIONAL TOLERANCES OF SHEET METAL PARTS AND WELDED STRUCTURES, REFER STD. RD-227

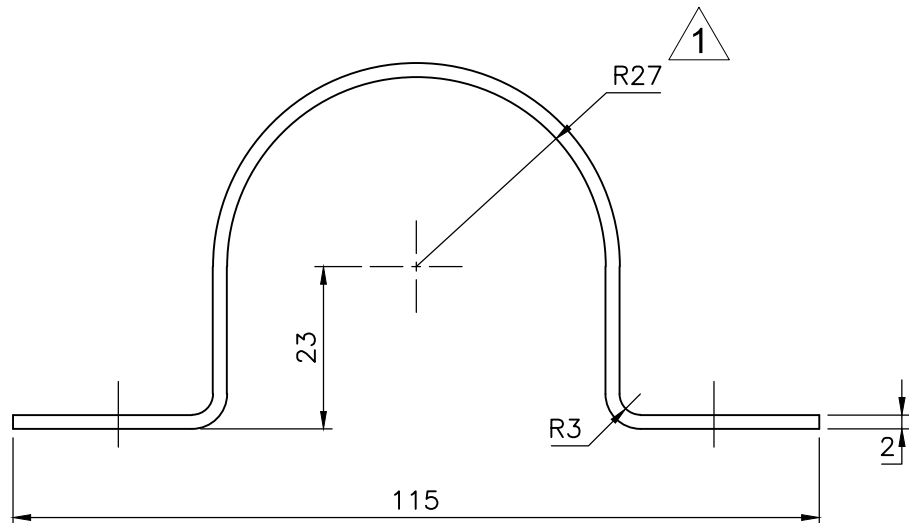
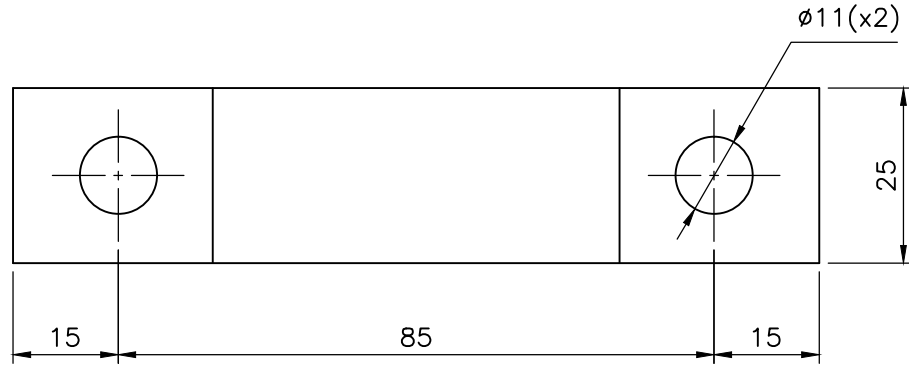
UNSPECIFIED TOLERANCE FOR LINEAR AND ANGULAR DIMENSIONS REF. IS 2102 (PT-1) (MEDIUM)

VALUES OF SURFACE TEXTURE SHALL BE AS PER COMPANY STD DS.1012.C.

QUALITY OF WELD JOINTS REF, RD-230 MEDIUM

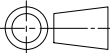



PROTO/PILOT/PRODUCTION

UNCONTROLLED



182x25x2THK
SS SHEET

AISI 304

SI No.	QTY	DRG. / STOCK No.		DESCRIPTION		SIZE		COMPANY.STD/IS.STD		Wt(Kg)	
		DETAIL PARTS				MATERIAL					
						PRODUCT DMRC BG METRO CARS					
								SURFACE TREATMENT			
						1	909-56033	T-CAR	SCALE 	SHEET OF	Wt(Kg)
						QTY	NEXT ASSY	MODEL	REF DRG		
						TITLE			APPROVED	KCS	12.01.09
						CLAMP			CHECKED	KRKR	12.01.09
									DRAWN	SNH	10.01.09
									DRG No.		
1	DIM R27 WAS R21 ECN:90900256	29.05.12	SNH	CKD	KCS	  BEML LIMITED R&D, BANGALORE COMPLEX BANGALORE 560 075			909-56620		
ALT	CHANGE/ECN No.	DATE	BY	CKD	APP						



BEML LIMITED
R&D, BANGALORE COMPLEX
BANGALORE 560 075

909-56620

1

GRADE No.	VALUE	SYMBOL
N1	0.025	
N2	0.05	
N3	0.1	
N4	0.2	
N5	0.4	
N6	0.8	
N7	1.6	
N8	3.2	
N9	6.3	
N10	12.5	
N11	25	
N12	50	

SURFACE
ROUGHNESS

FOR DIMENSIONAL TOLERANCES OF SHEET METAL PARTS AND WELDED STRUCTURES, REFER STD. RD-227

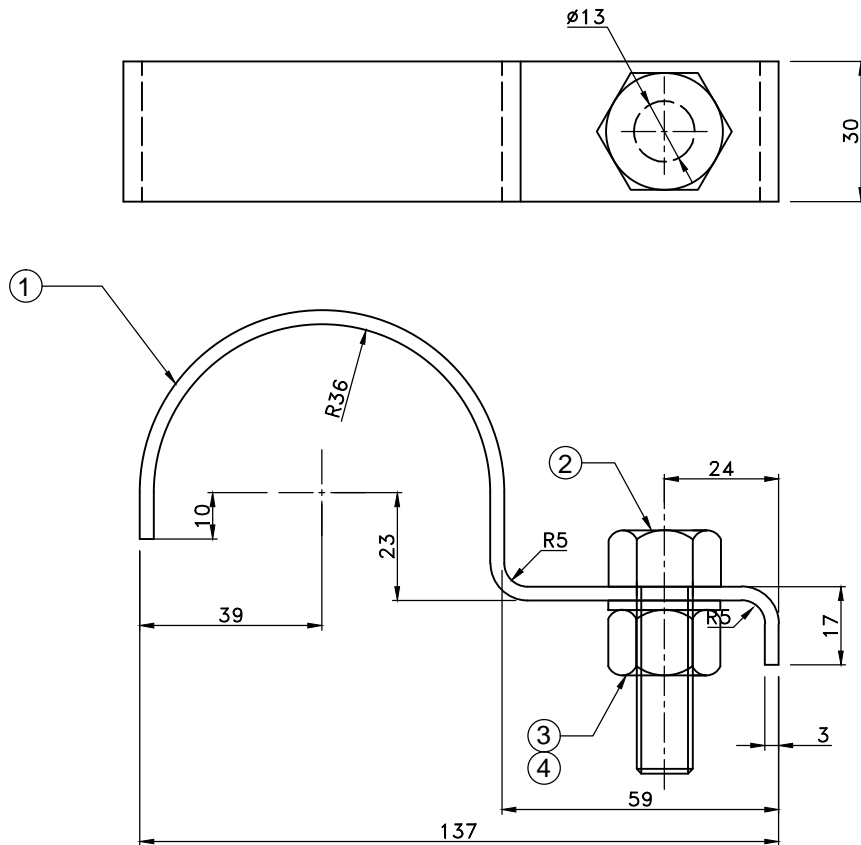
UNSPECIFIED TOLERANCE FOR LINEAR AND ANGULAR DIMENSIONS REF. IS 2102 (PT-1) (MEDIUM)

VALUES OF SURFACE TEXTURE SHALL BE AS PER COMPANY STD DS.1012.C.

QUALITY OF WELD JOINTS REF, RD-230 MEDIUM

PROTO/PILOT/PRODUCTION

UNCONTROLLED

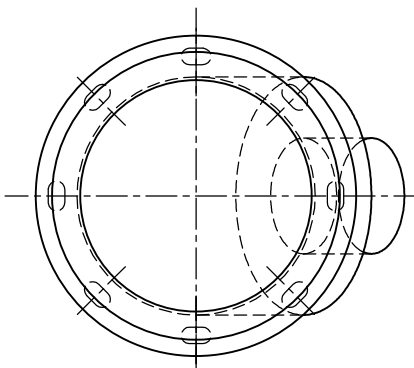
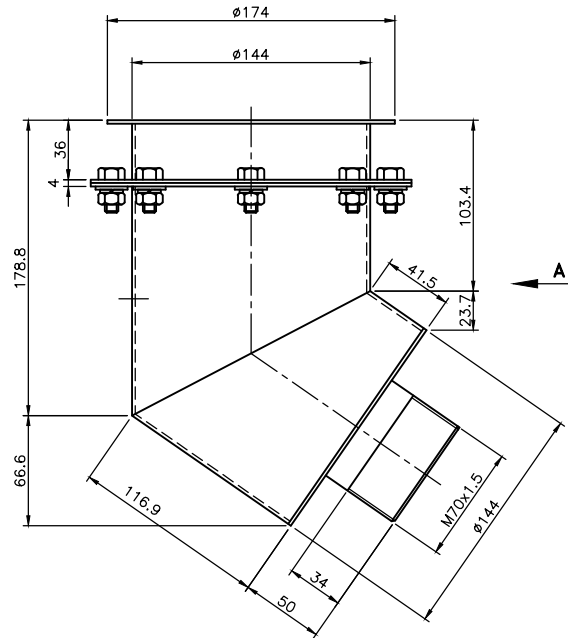


4	1	RFW0921225	SPRING WASHER B12 TO IS:3063-1994/MATL-AISI-304,SS						
3	1	RFN3861211	HEX HD NUT M12 TO IS:1364-(PT-2)2002 / MATL-IS:1367(P-14),Gr-A2-70,SS						
2	1	RFB1461240	HEX HD BOLT M12x40 TO IS:1364-(PT-1)2002 / MATL-IS:1367(P-14),Gr-A2-70,SS						
1	1		BRACKET		222x30x3THK SS SHEET	AISI 304			
SI No.	QTY	DRG. / STOCK No.		DESCRIPTION		SIZE		COMPANY.STD/IS.STD	Wt(Kg)
		DETAIL PARTS					MATERIAL		
						PRODUCT DMRC BG METRO CARS			
							SURFACE TREATMENT		



BEML LIMITED
R&D, BANGALORE COMPLEX
BANGALORE 560 075



GRADE No.	N1	N2	N3	N4	N5	N6	N7	N8	N9	N10	N11	N12
VALUE	0.025	0.05	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50
SYMBOL												
SURFACE												
ROUGHNESS												



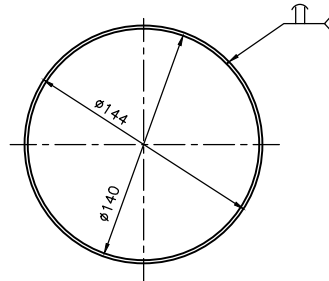
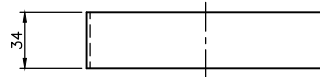
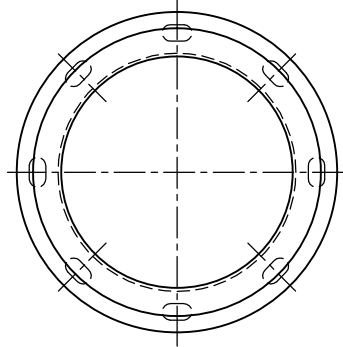
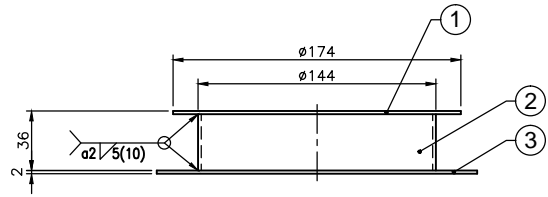
MACHINING DEVIATIONS FOR LINEAR DIMENSIONS	RANGE	0 - 6	6 - 30	30 - 120	120 - 315	315-1000	1000-2000	2000-4000	ABOVE 4000
	TOLERANCE	±0.1	±0.2	±0.3	±0.5	±0.8	±1.2	±2	±3
FOR DIMENSIONAL TOLERANCES OF SHEET METAL PARTS AND WELDED STRUCTURES, REFER STD. RD-227									
UNSPECIFIED TOLERANCE FOR LINEAR AND ANGULAR DIMENSIONS REF. IS 2102 (PT-1) (MEDIUM)									
VALUES OF SURFACE TEXTURE SHALL BE AS PER COMPANY STD DS. 1012.C.									
QUALITY OF WELD JOINTS REF, ISO 5817									
PROTO / PILOT / PRODUCTION									

UNCONTROLLED

VIEW-A

6	8	RFW0920820	SPRING WASHER M8 TO IS:3063-1994, MATL- AISI-304,STAINLESS STEEL					
5	16	RFW1730816	PUNCHED WASHER A9 TO IS:2016(T2)-1967, MATL- AISI-304,STAINLESS STEEL					
4	8	RFN3860868	HEX. HEAD NUT M8 TO IS:1364(P3)-2002,MATL- IS:1367(P14) Gr.A2-70,STAINLESS STEEL					
3	8	RFB1060820	HEX. HEAD BOLT M8x20 TO IS:1364(P1)-2002,MATL- IS:1367(P14) Gr.A2-70,STAINLESS STEEL					
2	1	909-56632	BRACKET					
1	1	909-56631	BRACKET					
SL.No.	QTY	DRG. / STOCK No.	DESCRIPTION		SIZE	COMPANY.STD/IS.STD		Wt.Kg.
		DETAIL PARTS			MATERIAL			
		PRODUCT						
		DMRC BG METRO CARS						
					SURFACE TREATMENT			
		1 909-50501			T CAR	SCALE NTS		Wt.(Kg)
		QTY NEXT ASSY			MODEL	REF DRG		
		TITLE				APPROVED	AMIT BANERJEE	04.05.11
		BRACKET ASSY				CHECKED	SUDARSHAN	03.05.11
						DRAWN	SOMASHEKAR	02.05.11
						DRG No.		ALT
						909-56630		
ALT	CHANGES		DATE	BY	CKD	APP		

GRADE No.	VALUE	SYMBOL	N1	N2	N3	N4	N5	N6	N7	N8	N9	N10	N11	N12
			0.025	0.05	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50
SURFACE														
ROUGHNESS														

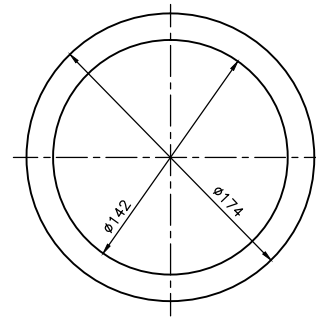


DETAIL-P2

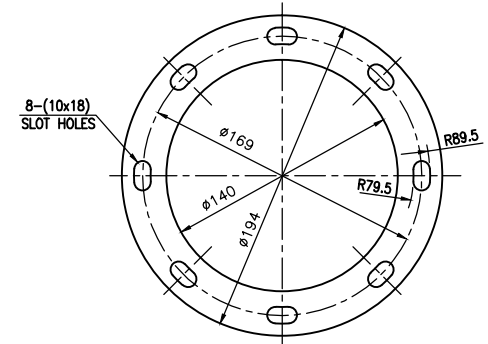
MACHINING DEVIATIONS FOR LINEAR DIMENSIONS	RANGE	0 - 6	6 - 30	30 - 120	120 - 315	315-1000	1000-2000	2000-4000	ABOVE 4000
TOLERANCE		±0.1	±0.2	±0.3	±0.5	±0.8	±1.2	±2	±3
FOR DIMENSIONAL TOLERANCES OF SHEET METAL PARTS AND WELDED STRUCTURES, REFER STD. RD-227									
UNSPECIFIED TOLERANCE FOR LINEAR AND ANGULAR DIMENSIONS REF. IS 2102 (PT-1) (MEDIUM)									
VALUES OF SURFACE TEXTURE SHALL BE AS PER COMPANY STD DS. 1012.C.									
QUALITY OF WELD JOINTS REF, ISO 5817									

PROTO / PILOT / PRODUCTION

UNCONTROLLED




DETAIL-P1









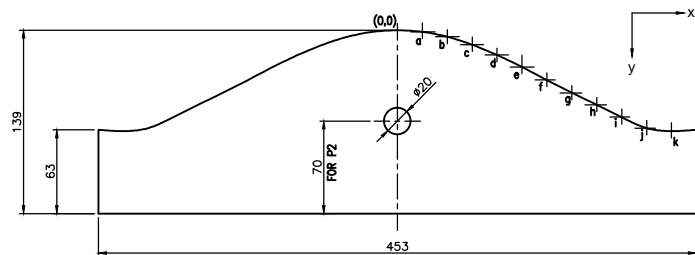
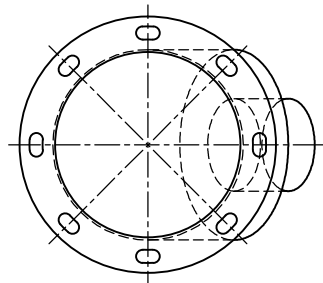
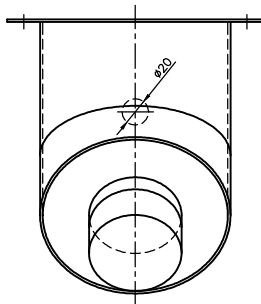
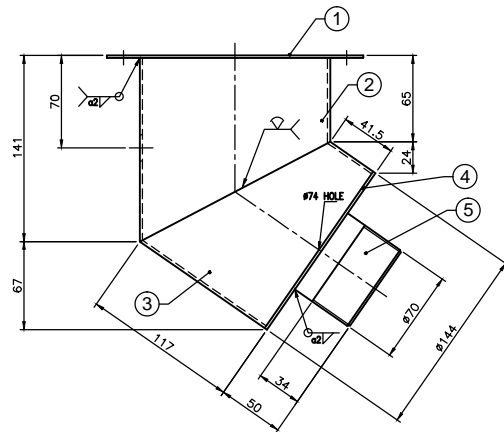
DETAIL-P3

NOTE:

1. WELDING SYMBOLS AS PER IS:813-1986.
2. REMOVE ALL SHARP CORNERS & DEBURR.

3	1		MOUNTING PLATE		195x195x2 THK	AISI 304				
2	1		SHEET		442x34x2 THK	AISI 304				
1	1		SHEET		175x175x2 THK	AISI 304				
SL.No.	QTY	DRG. / STOCK No.		DESCRIPTION		SIZE	COMPANY.STD./IS.STD	Wt.Kg.		
		DETAIL PARTS				MATERIAL				
					PRODUCT					
					DMRC BG METRO CARS					
						SURFACE TREATMENT				
						SCALE		Wt.(Kg)		
						NTS				
					1	909-56630	T CAR			
					QTY	NEXT ASSY	MODEL	REF DRG		
					TITLE			APPROVED		
					BRACKET			AMIT BANERJEE	04.05.11	
								CHECKED	SUDARSHAN	03.05.11
								DRAWN	SOMASHEKAR	02.05.11
								DRG No.	ALT	
ALT	CHANGES	DATE	BY	CKD	APP	909-56631				
						BEM LIMITED				
						R&D, BANGALORE COMPLEX				
						BANGALORE 560 075				

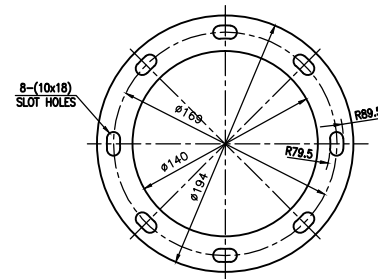
GRADE No.	N12	N11	N10	N9	N8	N7	N6	N5	N4	N3	N2	N1
VALUE	50/	25/	12.5/	6.3/	3.2/	1.6/	0.8/	0.4/	0.2/	0.1/	0.05/	0.025/
SYMBOL												



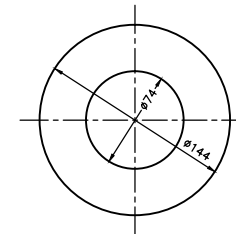
DEVELOPED VIEW P2

	x	y
a	19	2
b	38	5
c	57	11
d	76	19
e	94	28
f	113	38
g	132	48
h	151	57
i	170	66
j	189	74
k	207	76
l	226	78

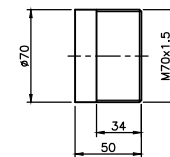
MACHINING DEVIATIONS FOR LINEAR DIMENSIONS	RANGE	0 - 6	6 - 30	30 - 120	120 - 315	315-1000	1000-2000	2000-4000	ABOVE 4000
	TOLERANCE	±0.1	±0.2	±0.3	±0.5	±0.8	±1.2	±2	±3
FOR DIMENSIONAL TOLERANCES OF SHEET METAL PARTS AND WELDED STRUCTURES, REFER STD. RD-227									
UNSPECIFIED TOLERANCE FOR LINEAR AND ANGULAR DIMENSIONS REF. IS 2102 (PT-1) (MEDIUM)									
VALUES OF SURFACE TEXTURE SHALL BE AS PER COMPANY STD DS. 1012.C.						PROTO / PILOT / PRODUCTION			
QUALITY OF WELD JOINTS REF, ISO 5817									



DETAIL-P1

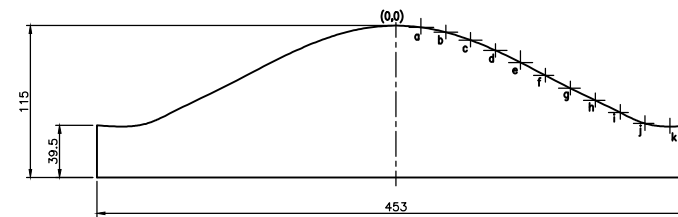


DETAIL-P4



DETAIL-P5

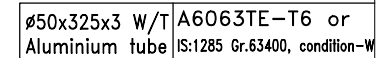
UNCONTROLLED



DEVELOPED VIEW P3

5	1		PIPE	Ø70 SS PIPE	IS:6913 TABLE-2,WELDED TUBE	
4	1		SHEET	145x145x2 THK	AISI 304	
3	1		SHEET	453x115x2 THK	AISI 304	
2	1		SHEET	453x139x2 THK	AISI 304	
1	1		MOUNTING PLATE	195x195x2 THK	AISI 304	
SL.No.	QTY	DRG. / STOCK No.	DESCRIPTION	SIZE	COMPANY.STD/IS.STD	Wt.Kg.
			DETAIL PARTS	MATERIAL		
			PRODUCT			
			DMRC BG METRO CARS			
			SURFACE TREATMENT			
			SCALE			
			NTS			
			Wt.(Kg)			
			1	909-56630	T CAR	
			QTY	NEXT ASSY	MODEL	
			TITLE			
			BRACKET			
			APPROVED			
			AMIT BANERJEE			
			04.05.11			
			CHECKED			
			SUDARSHAN			
			03.05.11			
			DRAWN			
			SOMASHEKAR			
			02.05.11			
			DRG No.			
			909-56632			
			ALT			
			△			
ALT	CHANGES	DATE	BY	CKD	APP	

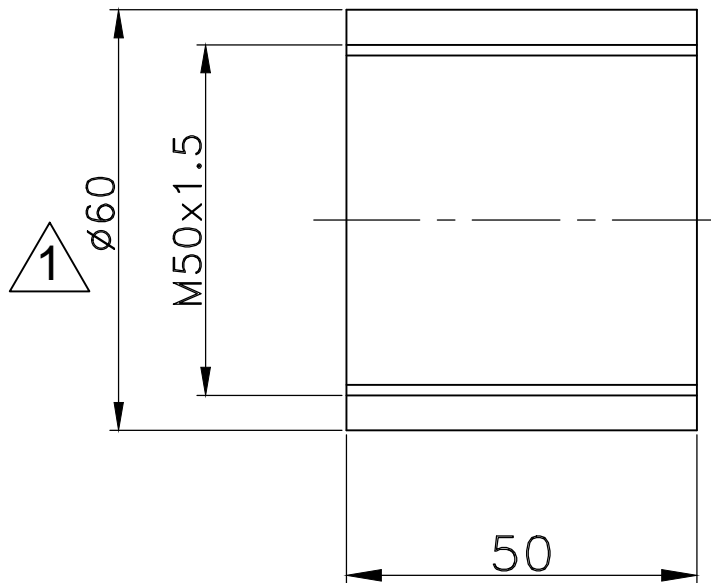
3	1		RING		AISI 304
2	1		NUT		AISI 304
1	1		NIPPLE		AISI 304
Sl No.	QTY	DRG. / STOCK No.	DESCRIPTION	SIZE	COMPANY.STD/IS.STD Wt(Kg)
DETAIL PARTS MATERIAL					
			PRODUCT	DMRC BG METRO CARS	
				SURFACE TREATMENT	
			2	909-50501	T-CAR
			2	909-56201	T-CAR
			QTY	NEXT ASSY	MODEL
			TITLE		
			UNION COUPLING		
			APPROVED		
			CHECKED		
			DRAWN		
			REF DRG		
			KCS		
			JP		
			SNH		
			DRG No.		
			909-56643		
			ALT		
			1		

UNCONTROLLED

GRADE	No.	N12	N11	N10	N9	N8	N7	N6	N5	N4	N3	N2	N1
SURFACE	VALUE	50	25	17.5	6.3	3.2	1.6	0.8	0.4	0.2	0.1	0.05	0.025
ROUGHNESS	SYMBOL												

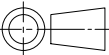



FOR DIMENSIONAL TOLERANCES OF SHEET METAL PARTS AND WELDED STRUCTURES, REFER STD. RD-227	
UNSPECIFIED TOLERANCE FOR LINEAR AND ANGULAR DIMENSIONS REF. IS 2102 (PT-1) (MEDIUM)	
VALUES OF SURFACE TEXTURE SHALL BE AS PER COMPANY STD DS.1012.C.	PROTO/PILOT/PRODUCTION
QUALITY OF WELD JOINTS REF, RD-230 MEDIUM	

UNCONTROLLED



ø56x50x3 THK
AL. TUBE

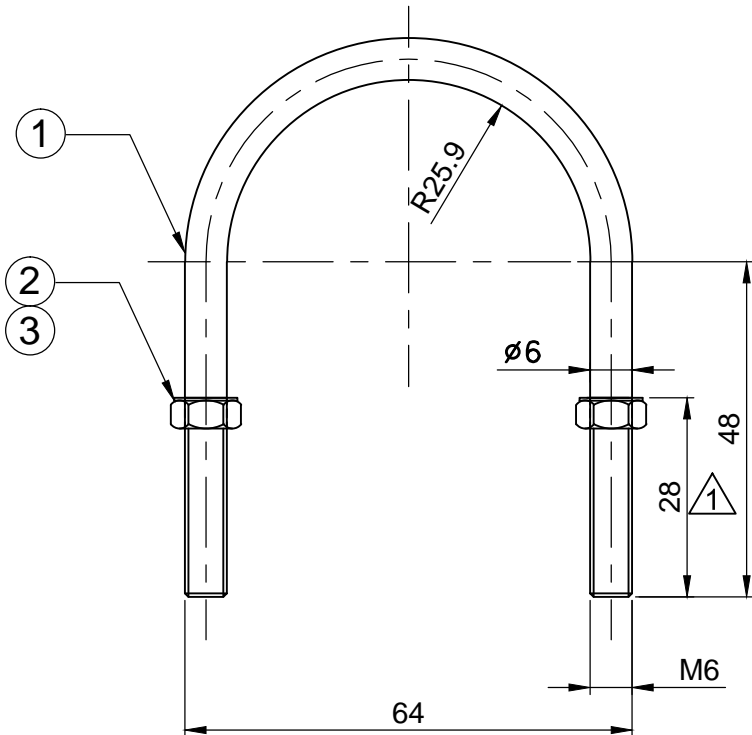
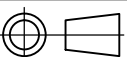
A6063TE-T6 or
IS:1285 Gr.63400, condition-W

SI No.	QTY	DRG. / STOCK No.				DESCRIPTION				SIZE		COMPANY.STD/IS.STD		Wt(Kg)			
		DETAIL PARTS						MATERIAL									
							PRODUCT DMRC BG METRO CARS										
										SURFACE TREATMENT							
							1	909-56101	M-CAR			SHEET OF		Wt(Kg)			
							QTY	NEXT ASSY	MODEL	REF DRG							
							TITLE				APPROVED	KCS	28.10.16				
							COUPLER				CHECKED	SNH	27.10.16				
											DRAWN				VISHNU	27.10.16	
											DRG No.				ALT		
1	DIA 60 WAS DIA56 ECN:90900641	04.11.16	VISHNU	SNH	KCS	 	BEML LIMITED R&D, BANGALORE COMPLEX BANGALORE 560 075				909-56646						
ALT	CHANGE/ECN No.	DATE BY	CKD	APP													

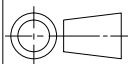


1	DIA 60 WAS DIA56 ECN:90900641	04.11.16	VISHNU	SNH	KCS
ALT	CHANGE/ECN No.	DATE	BY	CKD	APP



BEML LIMITED
R&D, BANGALORE COMPLEX
BANGALORE 560 075

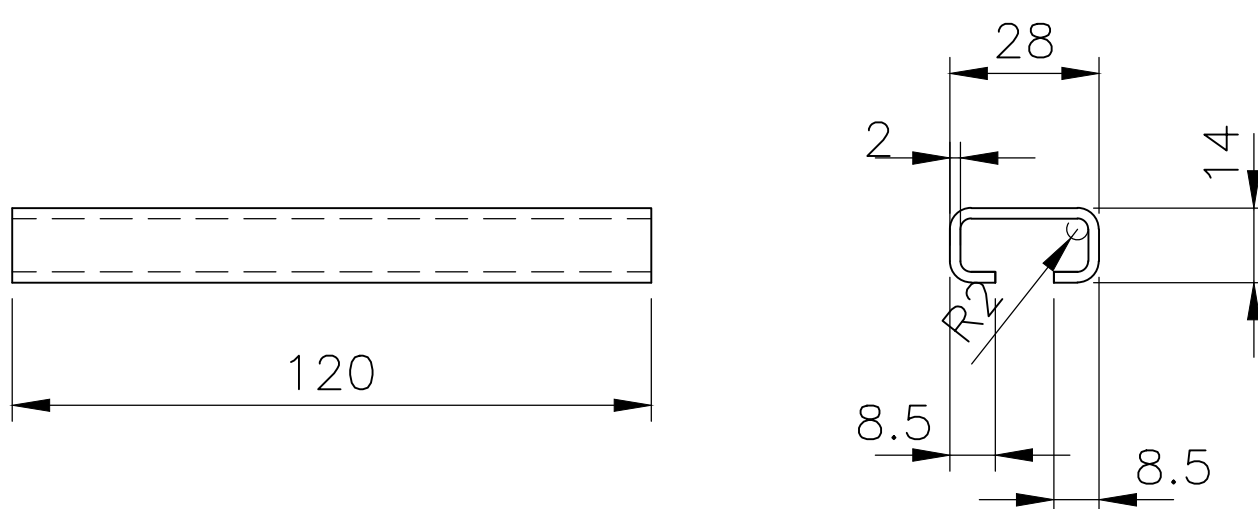
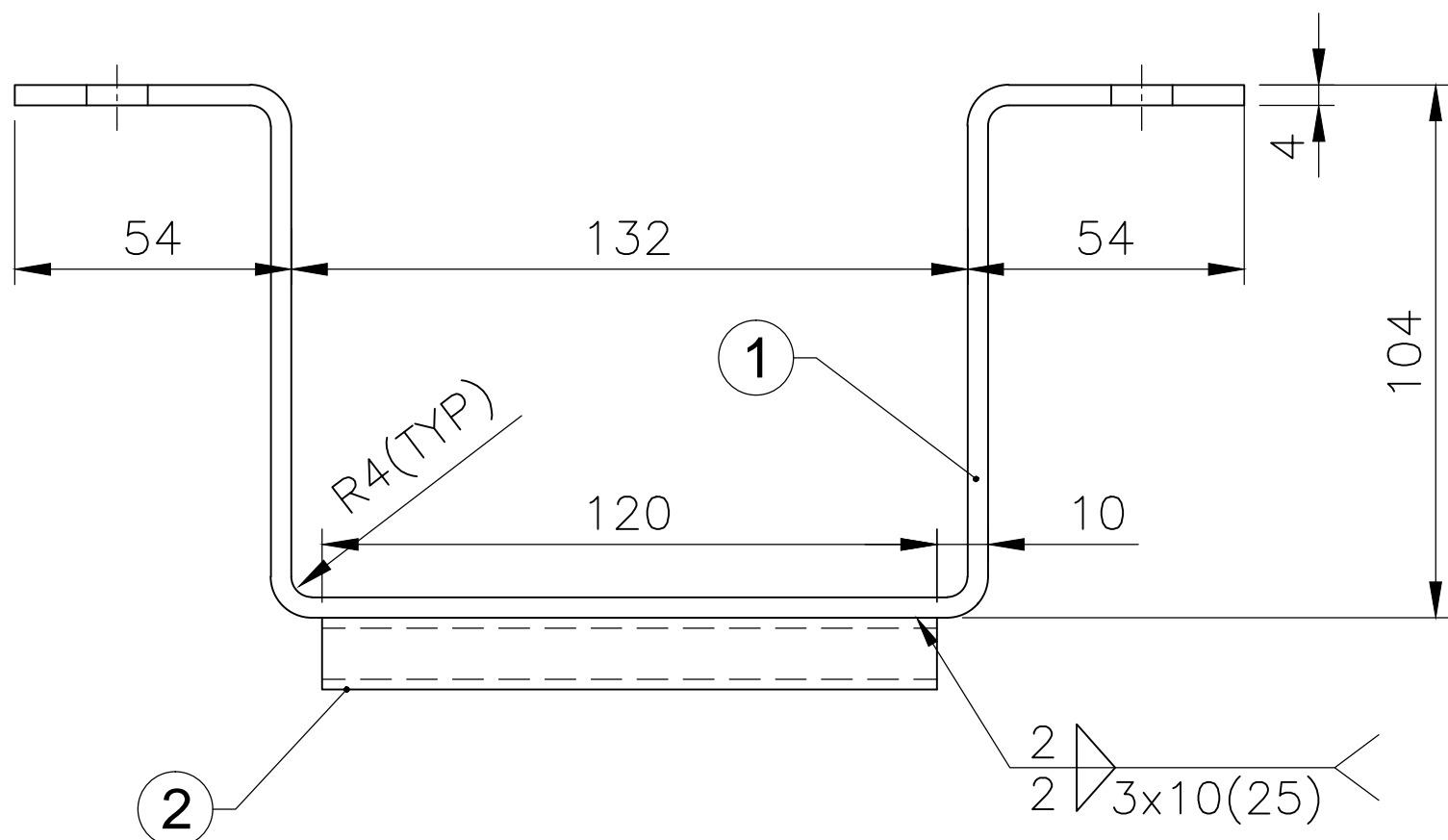
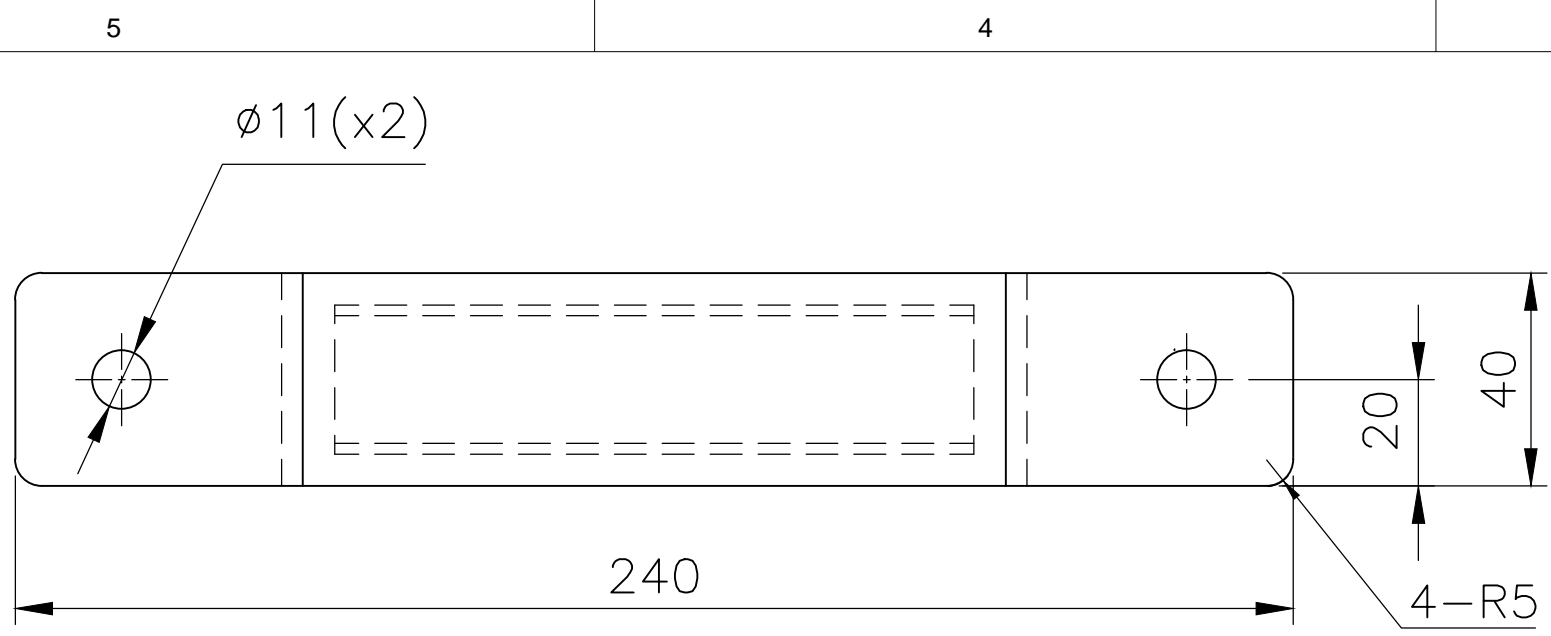
MACHINING DEVIATIONS FOR LINEAR DIMENSIONS		RANGE	0-6	6-30	30-120	120-315	315-1000	1000-2000	2000-4000	ABOVE 4000																																																																																																																																																																																																																																																																																																																																																						
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<table><tr><td>3</td><td>2</td><td>RFW0921022</td><td colspan="8">Spring Washer-B6 to IS:3063(P-3)-2002/Matl:1367(P-14),SS</td></tr><tr><td>2</td><td>2</td><td>RFN3861084</td><td colspan="8">Hex.head nut M6 to IS:1364(P-3)-2002/Matl:IS-1367(P-14)Gr-A2-70,SS</td></tr><tr><td>1</td><td>1</td><td></td><td colspan="4">U-BOLT</td><td colspan="2">Ø6 x185 L</td><td colspan="2">AISI 304</td></tr><tr><td>SL.No.</td><td>QTY</td><td colspan="2">DRG. / STOCK No.</td><td colspan="4">DESCRIPTION</td><td colspan="2">SIZE</td><td>COMPANY.STD/IS.STD</td><td>Wt.Kg.</td></tr><tr><td colspan="11">DETAIL PARTS</td></tr><tr><td colspan="11">PRODUCT</td></tr><tr><td colspan="11">DMRC BG METRO CARS</td></tr><tr><td colspan="11">SURFACE TREATMENT</td></tr><tr><td colspan="11">SCALE</td></tr><tr><td colspan="11">NTS</td></tr><tr><td colspan="11">Wt.(Kg)</td></tr><tr><td colspan="11">0.036</td></tr><tr><td colspan="11">QTY</td></tr><tr><td colspan="11">NEXT ASSY</td></tr><tr><td colspan="11">MODEL</td></tr><tr><td colspan="11">REF DRG</td></tr><tr><td colspan="11">TITLE</td></tr><tr><td colspan="11">U-BOLT</td></tr><tr><td colspan="11">APPROVED</td></tr><tr><td colspan="11">KCS</td></tr><tr><td colspan="11">03.11.16</td></tr><tr><td colspan="11">CHECKED</td></tr><tr><td colspan="11">SNH</td></tr><tr><td colspan="11">02.11.16</td></tr><tr><td colspan="11">DRAWN</td></tr><tr><td colspan="11">VISHNU</td></tr><tr><td colspan="11">02.11.16</td></tr><tr><td colspan="11">DRG No.</td></tr><tr><td colspan="11">909-56647</td></tr><tr><td colspan="11">ALT</td></tr><tr><td colspan="11">1</td></tr></table>											3	2	RFW0921022	Spring Washer-B6 to IS:3063(P-3)-2002/Matl:1367(P-14),SS								2	2	RFN3861084	Hex.head nut M6 to IS:1364(P-3)-2002/Matl:IS-1367(P-14)Gr-A2-70,SS								1	1		U-BOLT				Ø6 x185 L		AISI 304		SL.No.	QTY	DRG. / STOCK No.		DESCRIPTION				SIZE		COMPANY.STD/IS.STD	Wt.Kg.	DETAIL PARTS											PRODUCT											DMRC BG METRO CARS											SURFACE TREATMENT											SCALE											NTS											Wt.(Kg)											0.036											QTY											NEXT ASSY											MODEL											REF DRG											TITLE											U-BOLT											APPROVED											KCS											03.11.16											CHECKED											SNH											02.11.16											DRAWN											VISHNU											02.11.16											DRG No.											909-56647											ALT											1										
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VALUE	0.025	0.05	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5																																																																																																																																																																																																																																																																																																																																																						
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PROTO/PILOT/PRODUCTION

3	1	RFN5850547	HEX HD NUT WITH FLANGE M5 TO ISO:4161-83 / MATL-ISO:3506,Gr-A2-70,SS							
2	1	RFB3850525	HEX HEAD FLANGE BOLT FULL THREAD M5x25 TO ISO:4162-90 / MATL:IS-1367(P-14) Gr-A2-70,SS WITH NYLOK BLUE PATCH PRE APPLIED ADHESIVE							
1	1		CLAMP	195x20X2 AL.SHEET	Gr.52000 condition'o' to IS:737-2008					
Sl No.	QTY	DRG. / STOCK No.	DESCRIPTION	SIZE	COMPANY.STD/IS.STD	Wt(Kg)				
		DETAIL PARTS			MATERIAL					
					PRODUCT DMRC BG METRO CARS					
					SURFACE TREATMENT					
					SCALE		SHEET OF	Wt(Kg)		
					1	909-56101	M-CAR			
					QTY	NEXT ASSY	MODEL	REF DRG		
					TITLE			APPROVED	KCS	14.11.16
					EARTHING CLAMP			CHECKED	SNH	14.11.16
								DRAWN	VISHNU	14.11.16
								DRG No.		ALT
ALT	CHANGE/ECN No.	DATE	BY	CKD	APP	 BEM LIMITED R&D, BANGALORE COMPLEX BANGALORE 560 075			909-56648 	

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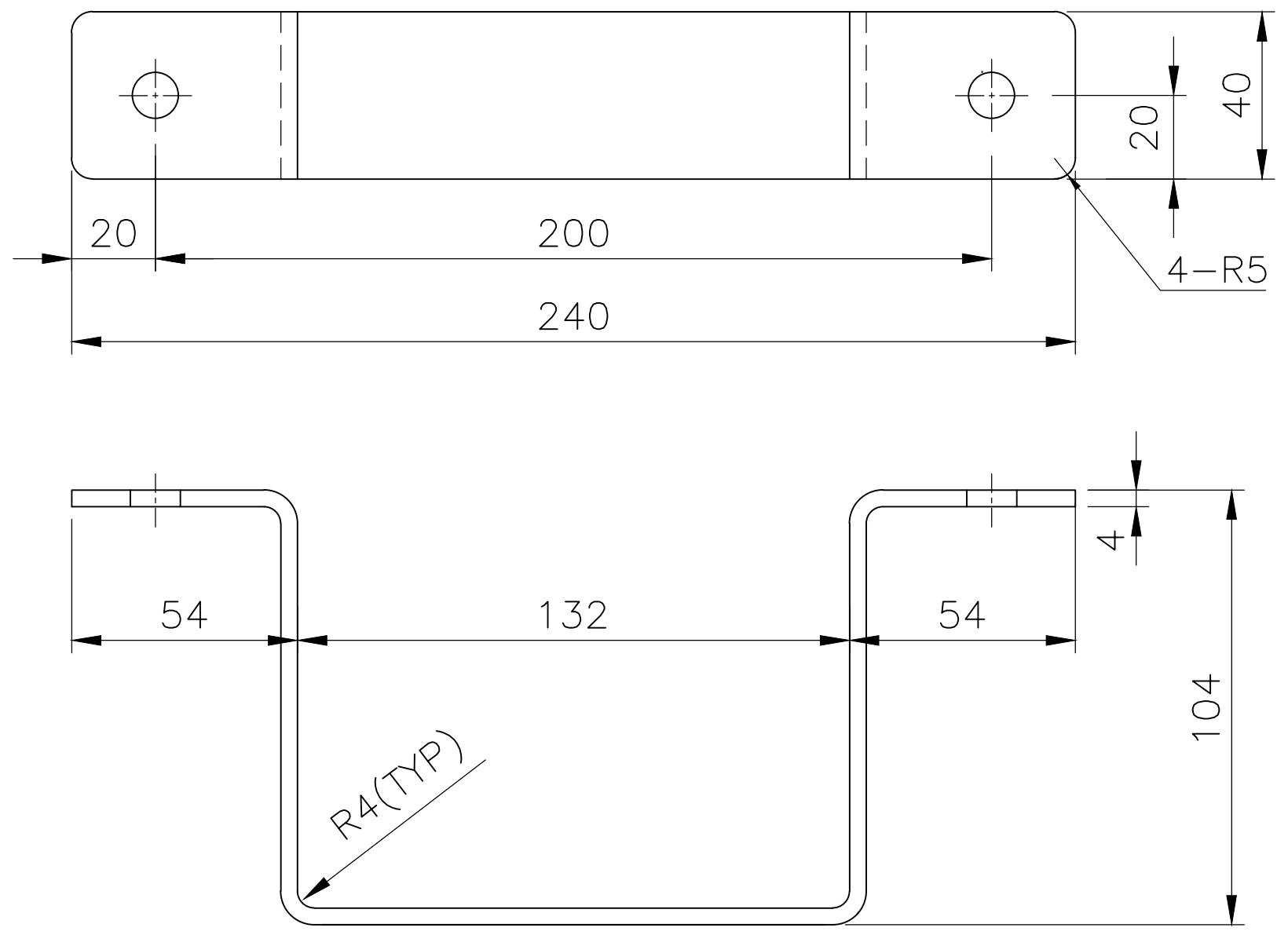
GRADE No.	N1	N2	N3	N4	N5	N6	N7	N8	N9	N10	N11	N12	SURFACE
VALUE	0.025	0.05	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50	ROUGHNESS
SYMBOL													






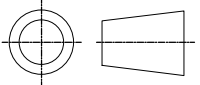



DETAIL-2

UNCONTROLLED

MACHINING DEVIATIONS FOR LINEAR DIMENSIONS	RANGE	0 – 6	6 – 30	30 – 120	120 – 315	315–1000	1000–2000	2000–4000	ABOVE 4000	RA
	TOLERANCE	±0.1	±0.2	±0.3	±0.5	±0.8	±1.2	±2	±3	~
FOR DIMENSIONAL TOLERANCES OF SHEET METAL PARTS AND WELDED STRUCTURES, REFER STD. RD-227										
UNSPECIFIED TOLERANCE FOR LINEAR AND ANGULAR DIMENSIONS REF. IS 2102 (PT-1) (MEDIUM)							QUALITY OF WELD JOINTS REF, RD 230 MEDIUM			
VALUES OF SURFACE TEXTURE SHALL BE AS PER COMPANY STD DS. 1012.C.						STATUS:				
WELDING SHALL BE CARRIED OUT AS PER IS: 9595-96										



DETAIL-1

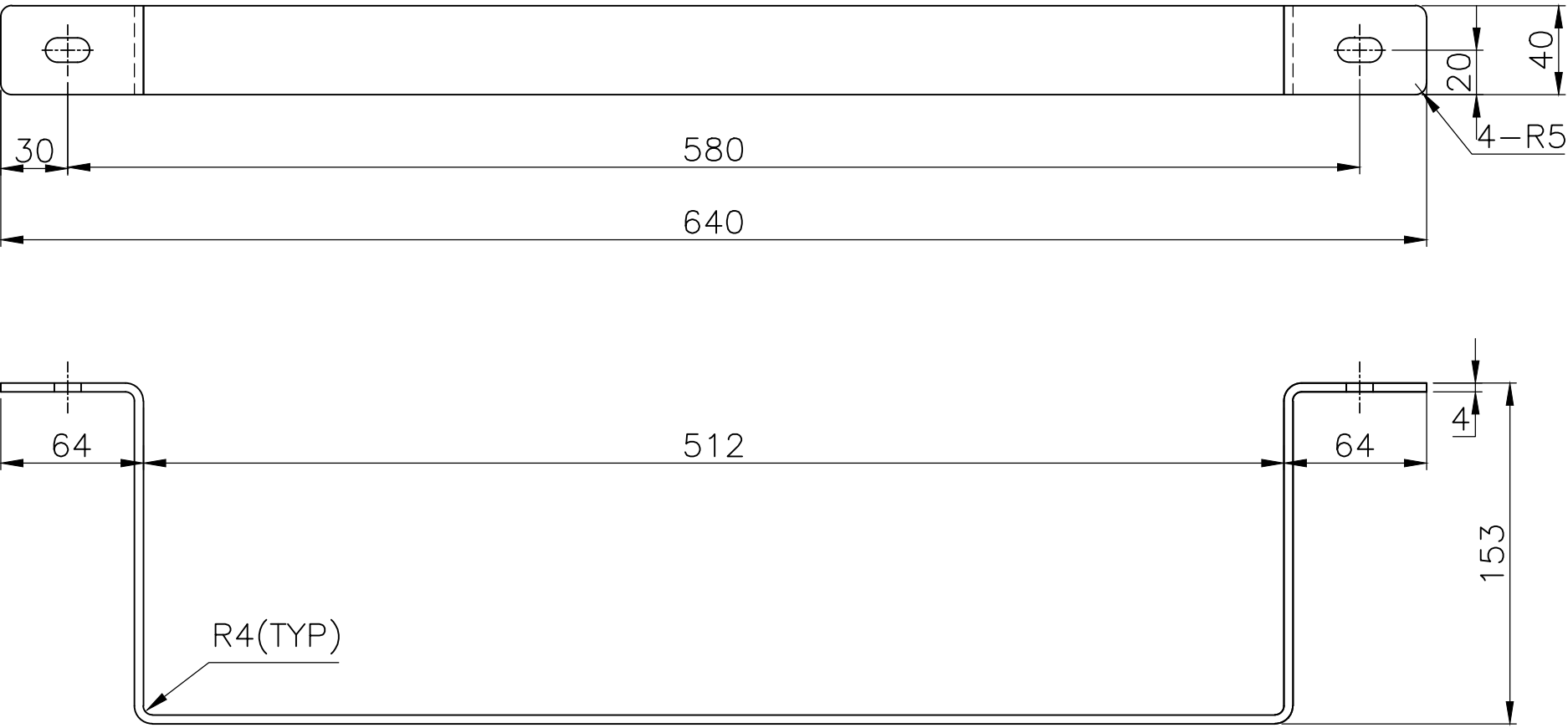
2	1	RTR01-07	RAIL BRACKET								
1	1	909-56797-1	CLAMP			432x40x4THK.		AISI 304			
SL.No.	QTY	PART / STOCK No.	DESCRIPTION			SIZE	COMPANY STD./I.S		Wt. (Kg)		
							MATERIAL				
						PRODUCT	DMRC BG METRO CARS				
						REF DRG					
						MATERIAL					
						HEAT TREAT.		APPD	KCS	10.8.16	
						SURFACE TREAT.		REVD			
						TITLE	CHKD		SNH	10.8.16	
						CLAMP ASSY	DRWN		VSK	9.8.16	
							SCALE		SHEET	Wt.(Kg)	
	REVISED & REDRAWN ECN:90900626		DATE	31.08.16	BY	VSK			OF	0	
			CHKD	SNH	APPD	KCS	DRG No.			ALT	
ALT.NO.	ECN NO/CHANGES		DATE	31.08.16	BY	VSK	 BEML LIMITED		909-56797		

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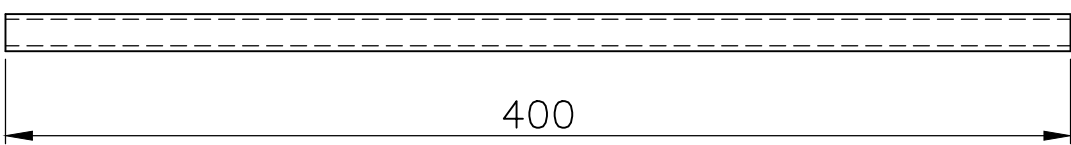
GRADE No.	N1	N2	N3	N4	N5	N6	N7	N8	N9	N10	N11	N12	SURFACE
VALUE	0.025	0.05	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50	ROUGHNESS
SYMBOL													

UNCONTROLLED

MACHINING DEVIATIONS FOR LINEAR DIMENSIONS	RANGE	0 – 6	6 – 30	30 – 120	120 – 315	315-1000	1000-2000	2000-4000	ABOVE 4000	RA
	TOLERANCE	±0.1	±0.2	±0.3	±0.5	±0.8	±1.2	±2	±3	~
FOR DIMENSIONAL TOLERANCES OF SHEET METAL PARTS AND WELDED STRUCTURES, REFER STD. RD-227										
UNSPECIFIED TOLERANCE FOR LINEAR AND ANGULAR DIMENSIONS REF. IS 2102 (PT-1) (MEDIUM)							QUALITY OF WELD JOINTS REF, RD 230 MEDIUM			
VALUES OF SURFACE TEXTURE SHALL BE AS PER COMPANY STD DS. 1012.C.						STATUS:				
WELDING SHALL BE CARRIED OUT AS PER IS: 9595-96										





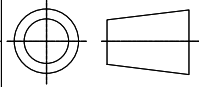




DETAIL-1



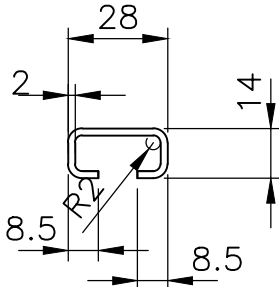
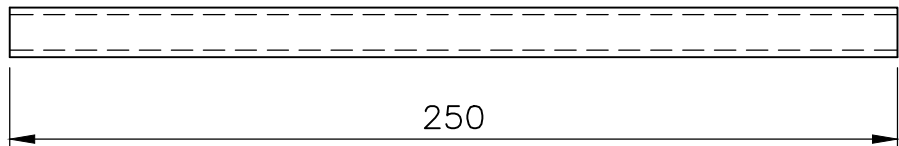
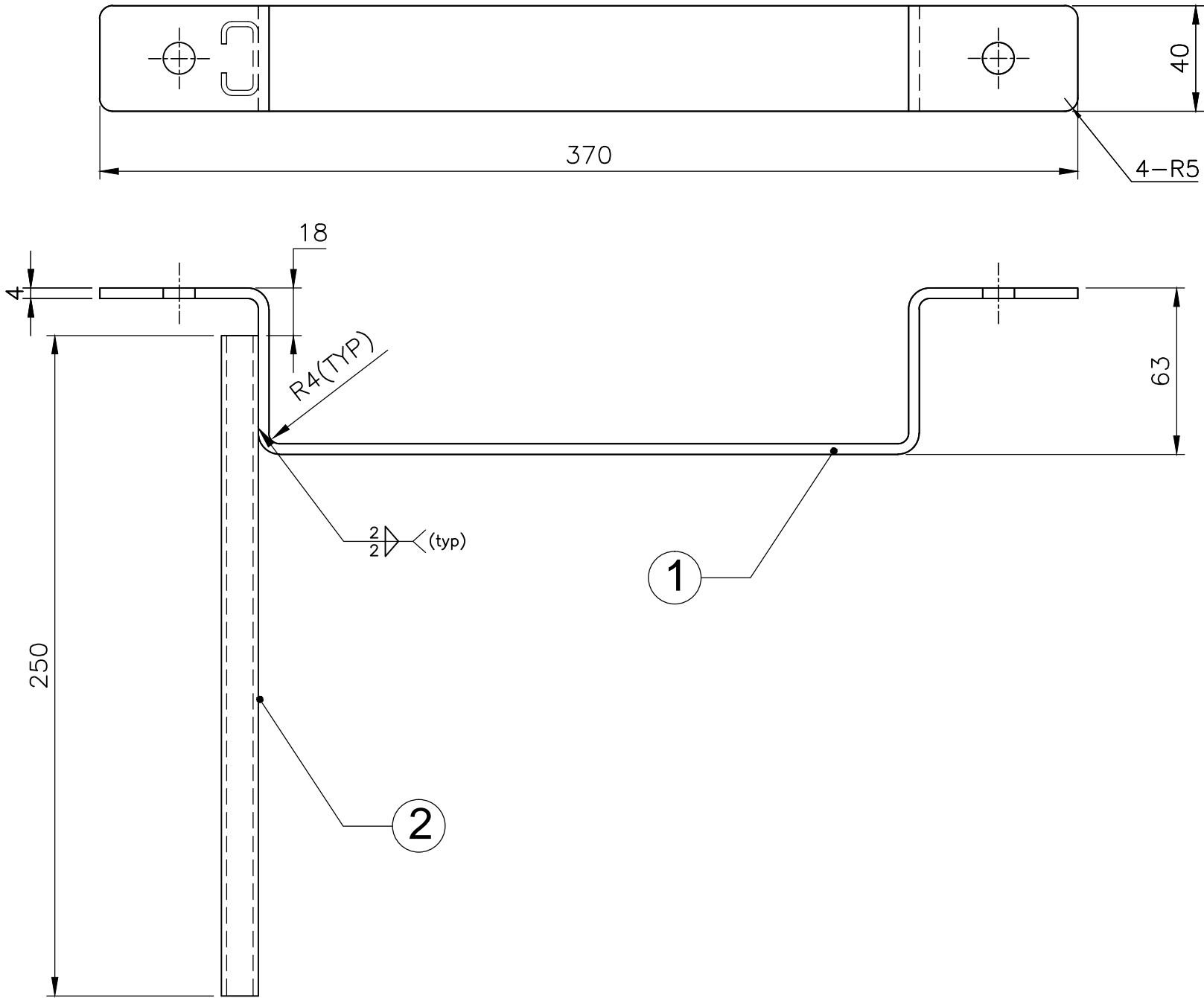
DETAIL-2

NOTE: REMOVE ALL SHARP EDGES & DEBURR.

2	1	RTR01-32	RAIL BRACKET												
1	1	909-56798-1	CLAMP				930x40x4THK.				AISI 304				
SL.No.	QTY	PART / STOCK No.	DESCRIPTION				SIZE		COMPANY STD./I.S		Wt. (Kg)				
									MATERIAL						
						PRODUCT	DMRC BG METRO CARS								
							REF DRG								
						MATERIAL									
							HEAT TREAT.					APPD	KCS		10.8.16
						SURFACE TREAT.					REVD				
							TITLE	CLAMP ASSY				CHKD	SNH		10.8.16
	REVISED & REDRAWN ECN:90900626												SCALE		SHEET
								OF		0					
ALT.No.	ECN NO/CHANGES		DATE	BY	CHKD	APPD		BEML LIMITED		DRG No.		909-56798		ALT	
															

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GRADE No.	N1	N2	N3	N4	N5	N6	N7	N8	N9	N10	N11	N12	SYMBOL
VALUE	0.025	0.05	0.1	0.2	0.4	0.8	1.6	3.2	6.3	12.5	25	50	
SURFACE ROUGHNESS													

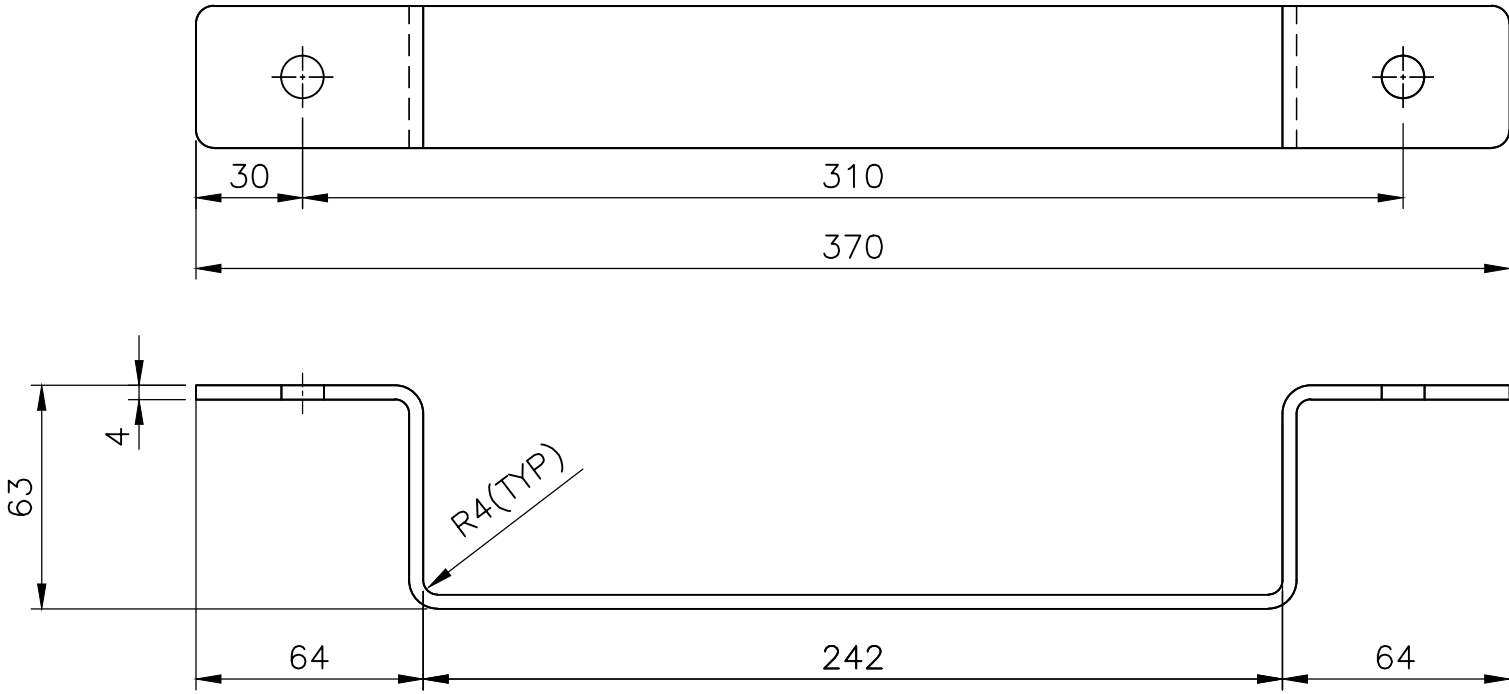


DETAIL-2





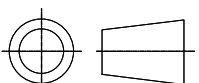



NOTE: REMOVE ALL SHARP EDGES & DEBURR.

MACHINING DEVIATIONS FOR LINEAR DIMENSIONS	RANGE	0 – 6	6 – 30	30 – 120	120 – 315	315-1000	1000-2000	2000-4000	ABOVE 4000	RA
	TOLERANCE	±0.1	±0.2	±0.3	±0.5	±0.8	±1.2	±2	±3	~
FOR DIMENSIONAL TOLERANCES OF SHEET METAL PARTS AND WELDED STRUCTURES, REFER STD. RD-227										
UNSPECIFIED TOLERANCE FOR LINEAR AND ANGULAR DIMENSIONS REF. IS 2102 (PT-1) (MEDIUM)							QUALITY OF WELD JOINTS REF, RD 230 MEDIUM			
VALUES OF SURFACE TEXTURE SHALL BE AS PER COMPANY STD DS. 1012.C.						STATUS:				
WELDING SHALL BE CARRIED OUT AS PER IS: 9595-96										

UNCONTROLLED















DETAIL-1

2	1	RTR01-24	RAIL BRACKET										
1	1	909-56799-1	CLAMP			480x40x4THK.			AISI 304				
SL.No.	QTY	PART / STOCK No.	DESCRIPTION	SIZE	COMPANY STD./I.S			Wt. (Kg)					
					MATERIAL								
					PRODUCT	DMRC BG METRO CARS							
					REF DRG								
					MATERIAL								
					HEAT TREAT.				APPD	KCS		10.8.16	
					SURFACE TREAT.				REVD				
					TITLE	CLAMP ASSY			CHKD	SNH		10.8.16	
						DRWN	VSK		9.8.16				
						SCALE			SHEET	Wt.(Kg)			
						1:2			OF	0			
						DRG No.							ALT
ALT.NO.					ECN NO/CHANGES		DATE	BY	CHKD	APPD			
											909-56799		
							BEM LIMITED						



BEML LIMITED

909-56799

GRADE No.	N12	N11	N10	N9	N8	N7	N6	N5	N4	N3	N2	N1
VALUE	50	25	12.5	6.3	3.2	1.6	0.8	0.4	0.2	0.1	0.05	0.025
SYMBOL												

UNCONTROLLED

Technical drawing of a pipe layout showing dimensions and bend specifications:

- Overall horizontal length: 1600
- Horizontal distance from start to first bend: 501
- Horizontal distance between bends: 584
- Horizontal distance from second bend to end: 50
- Overall vertical height: 352
- Vertical distance from start to first bend: 50
- Vertical distance from second bend to end: 50
- Bend radius: R200(TYP)
- Bend angle: 127°
- End connection: M70x1.5
- Start connection: M70x1.5

NOTE:

1. WELD JOINTS ARE NOT PERMITTED.
2. CONDUIT PIPES TO BE SUPPLIED WITH BRIGHT FINISH.
3. WRINKLES AT BEND REGIONS ARE NOT PERMITTED
4. PIPE THREADS SHALL MATCH TO THE SAMPLE MATING COUPLER THREADS

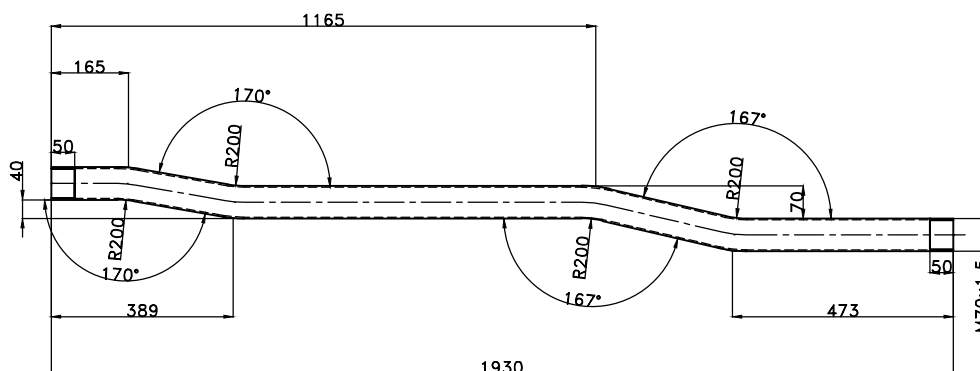
1. WELD JOINTS ARE NOT PERMITTED.
2. CONDUIT PIPES TO BE SUPPLIED WITH BRIGHT FINISH.
3. WRINKLES AT BEND REGIONS ARE NOT PERMITTED
4. PIPE THREADS SHALL MATCH TO THE SAMPLE MATING COUPLER THREADS

A4

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MACHINING DEVIATIONS FOR LINEAR DIMENSIONS	RANGE	0 - 6	6 - 30	30 - 120	120 - 315	315-1000	1000-2000	2000-4000	ABOVE 4000	RA
	TOLERANCE	±0.1	±0.2	±0.3	±0.5	±0.8	±1.2	±2	±3	~
FOR DIMENSIONAL TOLERANCES OF SHEET METAL PARTS AND WELDED STRUCTURES, REFER STD. RD-227										
UNSPECIFIED TOLERANCE FOR LINEAR AND ANGULAR DIMENSIONS REF. IS 2102 (PT-1) (MEDIUM)							QUALITY OF WELD JOINTS REF, RD 230 MEDIUM			
VALUES OF SURFACE TEXTURE SHALL BE AS PER COMPANY STD DS. 1012.C.							STATUS:			
WELDING SHALL BE CARRIED OUT AS PER IS: 9595-96										













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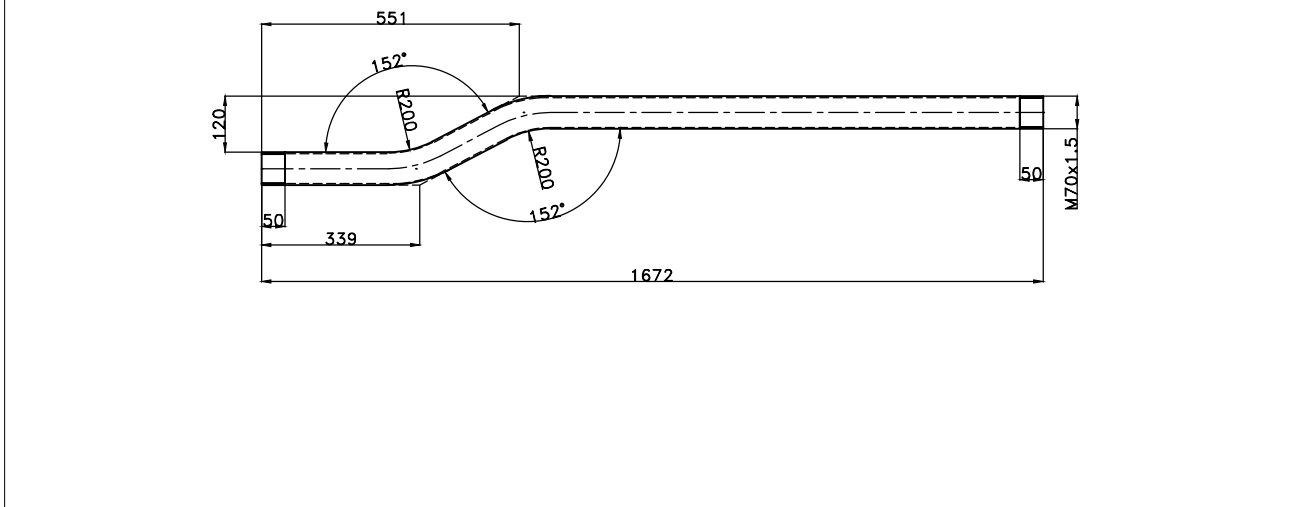
NOTE:

1. WELD JOINTS ARE NOT PERMITTED.
2. CONDUIT PIPES TO BE SUPPLIED WITH BRIGHT FINISH.
3. WRINKLES AT BEND REGIONS ARE NOT PERMITTED
4. PIPE THREADS SHALL MATCH TO THE SAMPLE MATING COUPLER THREADS

[illegible]





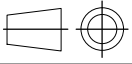


GRADE No.	N12	N11	N10	N9	N8	N7	N6	N5	N4	N3	N2	N1
VALUE	50	25	12.5	6.3	3.2	1.6	0.8	0.4	0.2	0.1	0.05	0.025
SYMBOL												












UNCONTROLLED



NOTE:













1. WELD JOINTS ARE NOT PERMITTED.
2. CONDUIT PIPES TO BE SUPPLIED WITH BRIGHT FINISH.
3. WRINKLES AT BEND REGIONS ARE NOT PERMITTED
4. PIPE THREADS SHALL MATCH TO THE SAMPLE MATING COUPLER THREADS

- | | | | | | | | Ø70x1697x2.5w/t | AISI 304-ERW TUBE | | | |
|---|----------------|------------------|----|------|------|---|--------------------|-------------------|---|---|---------|
| SL.No. | QTY | PART / STOCK No. | | | | DESCRIPTION | SIZE | COMPANY STD./I.S | | Wt. (Kg) | |
| | | | | | | | | MATERIAL | | | |
|  | | | | | | PRODUCT | DMRC BG METRO CARS | | | | |
| | | | | | | REF DRG | | | | | |
|  | | | | | | MATERIAL | | | | | |
| | | | | | | HEAT TREAT. | | APPD | KCS | 14.03.17 | |
| | | | | | | SURFACE TREAT. | | REVD | | | |
|  | | | | | | TITLE | | CHKD | SNH | 14.03.17 | |
| | | | | | | | | DRWN | VISHNU | 14.03.17 | |
|  | | | | | | | | SCALE |  | SHEET | Wt.(Kg) |
| | | | | | | | | | OF | 0 | |
| ALT.NO. | ECN NO/CHANGES | DATE | BY | CHKD | APPD |  BEM LIMITED
NEW FRONTIERS- NEW DREAMS | | DRG No. | | ALT | |
| | | | | | | | | 909-56812 | |  | |

GRADE No.	N12	N11	N10	N9	N8	N7	N6	N5	N4	N3	N2	N1
VALUE	50	25	12.5	6.3	3.2	1.6	0.8	0.4	0.2	0.1	0.05	0.025
SYMBOL												

[illegible]

A4

GRADE No.	N12	N11	N10	N9	N8	N7	N6	N5	N4	N3	N2	N1
VALUE	50	25	12.5	6.3	3.2	1.6	0.8	0.4	0.2	0.1	0.05	0.025
SYMBOL												

UNCONTROLLED

Technical drawing of a 154-degree bend in an M70x1.5 threaded pipe. The drawing shows a side view of the pipe with a horizontal section of length 883 and a vertical section of length 1107. The bend angle is 154 degrees, with a radius of R200. The pipe has a diameter of 70 and a thread pitch of 1.5. The drawing also shows a cross-section of the pipe with a diameter of 70 and a thread pitch of 1.5. The drawing is labeled 'UNCONTROLLED' in the top right corner.

NOTE:

1. WELD JOINTS ARE NOT PERMITTED.
2. CONDUIT PIPES TO BE SUPPLIED WITH BRIGHT FINISH.
3. WRINKLES AT BEND REGIONS ARE NOT PERMITTED
4. PIPE THREADS SHALL MATCH TO THE SAMPLE MATING COUPLER THREADS

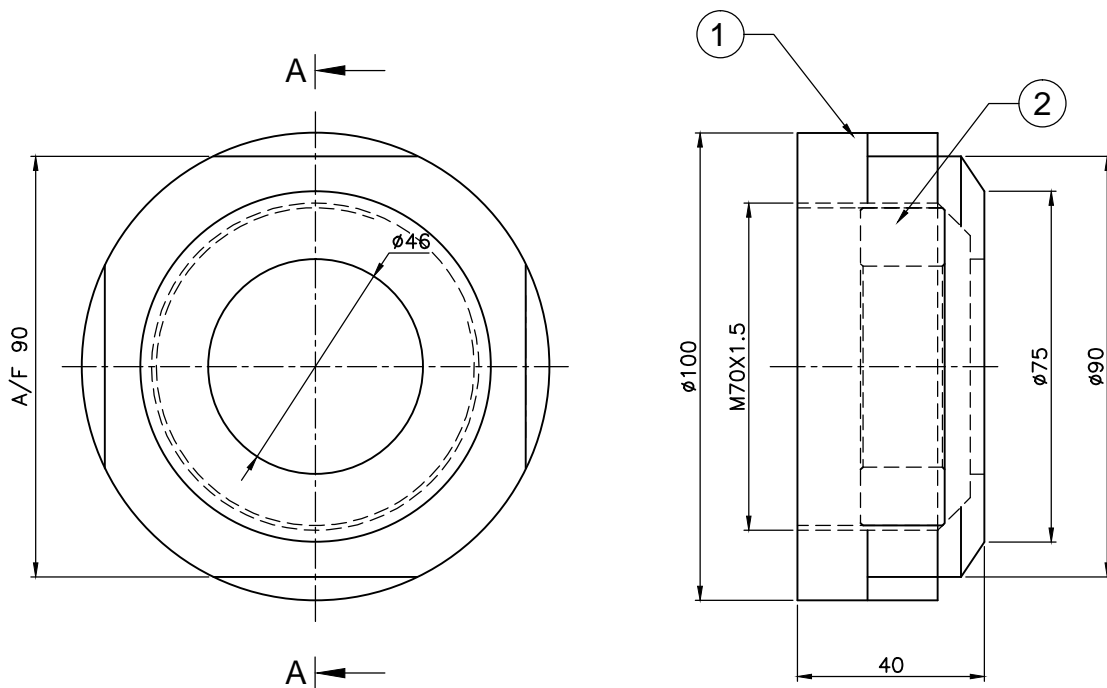
1. WELD JOINTS ARE NOT PERMITTED.
2. CONDUIT PIPES TO BE SUPPLIED WITH BRIGHT FINISH.
3. WRINKLES AT BEND REGIONS ARE NOT PERMITTED
4. PIPE THREADS SHALL MATCH TO THE SAMPLE MATING COUPLER THREADS

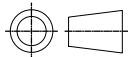


A4

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MACHINING DEVIATIONS FOR LINEAR DIMENSIONS	RANGE	0 - 6	6 - 30	30 - 120	120 - 315	315-1000	1000-2000	2000-4000	ABOVE 4000	RA
	TOLERANCE	±0.1	±0.2	±0.3	±0.5	±0.8	±1.2	±2	±3	~
FOR DIMENSIONAL TOLERANCES OF SHEET METAL PARTS AND WELDED STRUCTURES, REFER STD. RD-227										
UNSPECIFIED TOLERANCE FOR LINEAR AND ANGULAR DIMENSIONS REF. IS 2102 (PT-1) (MEDIUM)							QUALITY OF WELD JOINTS REF, RD 230 MEDIUM			
VALUES OF SURFACE TEXTURE SHALL BE AS PER COMPANY STD DS. 1012.C.							STATUS:			
WELDING SHALL BE CARRIED OUT AS PER IS: 9595-96										

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N1	0.025	N2	0.05	N3	0.1	N4	0.2	N5	0.4	N6	0.8	N7	1.6	N8	3.2	N9	6.3	N10	12.5	N11	25	N12	50	GRADE No.	VALUE	SYMBOL	SURFACE ROUGHNESS
2	1	909-56817	SPACER																								
1	1	909-56816	BUSH																								
SL.No.	QTY	PART / STOCK No.	DESCRIPTION		SIZE		COMPANY STD./I.S		Wt. (Kg)		MATERIAL																
			PRODUCT		DMRC BG METRO CARS																						
			REF DRG																								
			MATERIAL																								
			HEAT TREAT.				APPD		KCS		17.4.17																
			SURFACE TREAT.				REVD																				
			TITLE				CHKD		SNH		17.4.17																
							DRWN		VISHNU		17.4.17																
							SCALE				SHEET		Wt.(Kg)														
											OF		0														
							DRG No.		909-56815		ALT																
					BEML LIMITED																						
ALT.No.			ECN NO/CHANGES		DATE		BY		CHKD		APPD																