

भारत सरकार - रेल मंत्रालय अनुसंधान अभिकल्प और मानक संगठन लखनऊ - 226 011 EPBX (0522) 2451200 Fax (0522) 2450679

No. SV.FIAT DAMPER

Government of India-Ministry of Railways Research Designs & Standards Organisation Lucknow - 226 011

DID (0522) 2450115 DID (0522) 2465310



**Date:** 19.02.2021

## **Principal Chief Mechanical Engineer**

- Central Railway, HQ office, Mech. Branch, CSTM, Mumbai 400 001
- Eastern Railway, HQ office, Mech. Branch, Fairly Place, Kolkata- 700 001 2.
- Northern Railway, HQ office, Mech. Branch, Baroda House, New Delhi-110 001
- Southern Railway, HQ office, Mech. Branch, Park Town, Chennai 600 003 4.
- South Central Railway, HQ office, Mech. Branch, Secunderabad-500 071 5.
- South Eastern Railway, HQ office, Mech. Branch, Garden Reach, Kolkata-700 043 6
- North Eastern Railway, HQ office, Mech. Branch, Gorakhpur-273 001 7.
- 8. North East Frontier Railway, HQ office, Mech. Branch, Maligaon, Guwahati- 781 011
- 9. Western Railway, HQ office, Mech. Branch, Churchgate, Mumbai-400020
- 10. East Central Railway, HQ office, Mech. Branch, Hazipur-844 101
- 11. East Coast Railway, HQ office, Mech. Branch, Railway Complex, Bhubaneshwar- 23
- 12. North Central Railway, HQ office, Mech. Branch, Allahabad-211 001
- 13. North Western Railway, HQ office, Mech. Branch, Jaipur-302 006
- 14. South Western Railway, HQ office, Mech. Branch, Hubli- 580023
- 15. West Central Railway, HQ office, Mech. Branch, Jabalpur- 482 001
- 16. South East Central Railway, HQ office, Mech. Branch, Bilaspur- 495 004
- 17. Konkan Railway Corp. Ltd. Corporate office Belapur Bhawan Nawi Mumbai-400 614
- 18. Integral Coach Factory, Chennai 600038
- Rail Coach Factory, Kapurthala 144 602
- 20. Modern Coach Factory, Rae Bareli 229212

Sub: Drawings of dampers for LHB coaches fitted with FIAT Bogie.

Ref: This office letter of even no. dated 17.12.2020.

Vide letter under ref., draft drawings of FIAT Dampers, prepared by RDSO were issued to stake holders for their valuable comments. Now, on the basis of comments received from Railways and Vendors, RDSO has revised the draft drawings of FIAT dampers. These revised draft drawings (for 06 type of dampers) are enclosed herewith for valuable comments of stake holders.

It is requested to submit your comments upto 01.03.2021 for finalisation of drawings.

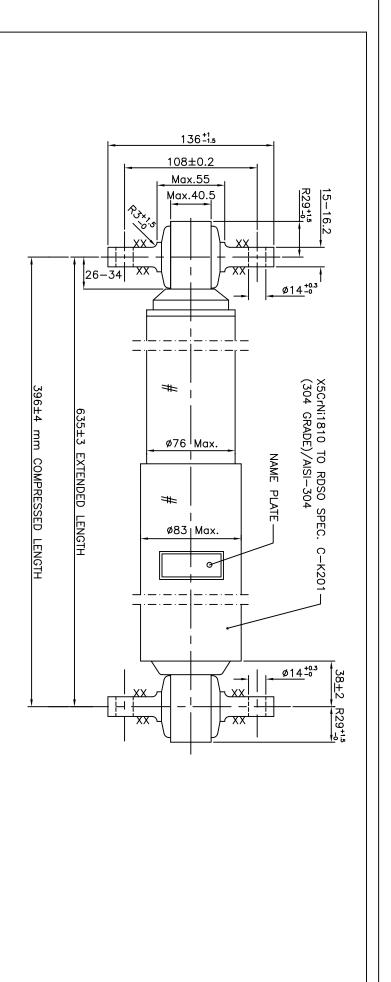
DA: As above

Shobhit Pratap Singh) Joint Director/Carriage

for Director General/Carriage

Copy to:

DME (Coaching), Railway Board, Rail Bhavan, New Delhi - 110 001.



## NOTE:-

- WITH MINIMUM DEPTH OF 0.25 mm ON DUST COVER / BARREL TUBE. ALSO BE MARKED IN 10 mm HEIGHT LETTERS BY PUNCHING OR ENGRAVING WITH RDSO DRG. No., SERIAL NO. & MONTH & YEAR OF MANUFACTURE SHALL # THE MANUFACTURER NAME OR CODE, RATED CAPACITY, TYPE OF DAMPER
- 2. NAME PLATE ALSO TO BE MOUNTED ON DUST COVER WITH ABOVE DETAILS.
- 3. XX-SURFACES ZINCED & FREE OF PAINTING.
- 4. DAMPER IS MOUNTED IN VERTICAL POSITION.
- 5. DURING FITMENT ON BOGIE, NAME PLATE SHOULD BE DIAMETRICALLY OPPOSITE TO ENGRAVING / PUNCHING.
- 6. PAINT SHADE TO RAL 3011 (BROWN RED) ON DAMPER WITH COVER

## DAMPER TESTING AT 23°±5°C

7	6	5	4	3	2	-
RADIAL STIFFNESS AT END CONNECTIONS	CARDANIC ANGLE	TORSIONAL ANGLE	FORCE	VELOCITY	NO. OF REVOLUTIONS	STROKE
7225 - 24000	±10° (Min.)	±22* (Min.)	405±15% (WITHOUT ATTACHMENT)	0.10	38	50
N/mm	DEG	DEG	Kg	m/s	min-1	mm

AFT-1	/DRG/DR	RDSO/CG/DRG/DRAFT-1		[	(CG)	٥.6.		DATE	CKD.	
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ROCIE		NON AC COACHES WITH FIAT ROCK	3	NON A		- -				
IN FUN	T DAME T	SECUMENT ARMITED LOW	VAIN	NIO JEG		C				
TO TIND		/ Uppmc/	70.			SCALE P	REFERENCE:-			
102	COACHES	LHB TYPE COACHES	HI.		ĒS:-	SUPERSEL	ASSEMBLY DRGS. SUPERSEDES:-			
	MAYS	INDIAN RAILWAYS	Ħ		ED BY:-	SUPERSEDED BY:-				
SPEC. REMARKS	E (KG) MIL & S	REF.DRG. WI	육종	DIMENSIONS	ITEM DESCRIPTION & DIMENSIONS No.   REF.DRG. No. (KG)   MIL & SPEC. REMARKS	TTEM DES				
-18005	RDSO/CG-18005 Rev. Nil.				Damper	1 D				

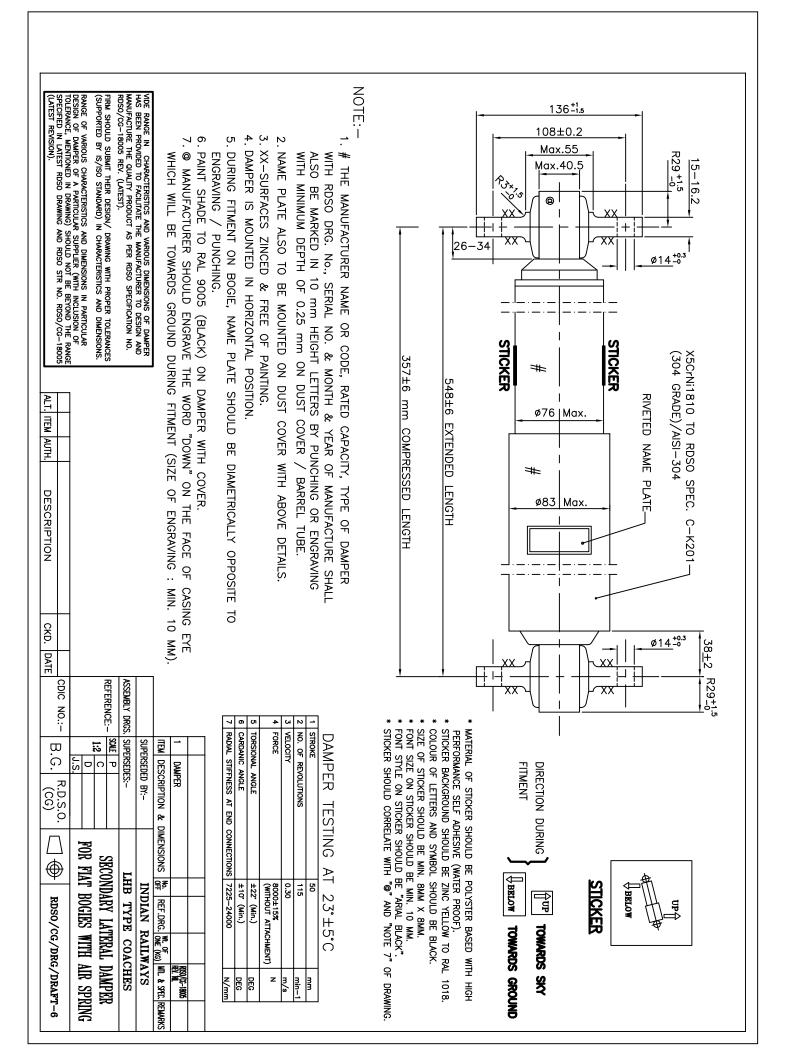
VIDE RANGE IN CHARACTERISTICS AND VARIOUS DIMENSIONS OF DAMPER HAS BEEN PROVIDED TO FACILITATE THE MANUFACTURER TO DESIGN AND MANUFACTURE THE QUALITY PRODUCT AS PER RDSO SPECIFICATION NO. RDSO/CG-18005 REV. (LATEST).

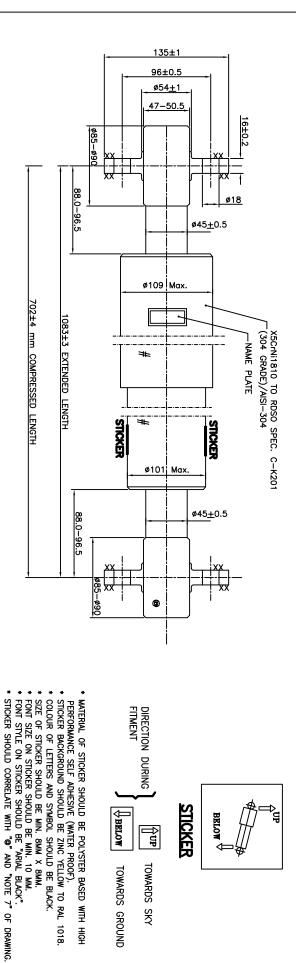
FIRM SHOULD SUBMIT THEIR DESIGN/ DRAWING WITH PROPER TOLERANCES (SUPPORTED BY IS/ISO STANDARD) IN CHARACTERISTICS AND DIMENSIONS.

RANGE OF VARIOUS CHARACTERISTICS AND DIMENSIONS IN PARTICULAR DESIGN OF DAMPER OF A PARTICULAR SUPPLIER (WITH INCLUSION OF TOLERANCE, MENTIONED IN DRAWING) SHOULD NOT BE BEYOND THE RANGE SPECIFIED IN LATEST RDSO DRAWING AND RDSO STR NO. RDSO/CG-18005

DESCRIPTION

ALT. ITEM AUTH.





DIRECTION DURING FITMENT

∯up

TOWARDS SKY

**₩OTBE** 

TOWARDS GROUND

STICKER

BELOW.

## NOTE:-

- 1. # THE MANUFACTURER NAME OR CODE, RATED CAPACITY, TYPE OF DAMPER ALSO BE MARKED IN 10 mm HEIGHT LETTERS BY PUNCHING OR ENGRAVING WITH MINIMUM DEPTH OF 0.25 mm ON DUST COVER / BARREL TUBE. WITH RDSO DRG. No., SERIAL NO. & MONTH & YEAR OF MANUFACTURE SHALL
- 2. NAME PLATE ALSO TO BE MOUNTED ON DUST COVER WITH ABOVE DETAILS
- 3. XX-SURFACES ZINCED & FREE OF PAINTING.
- 4. DAMPER IS MOUNTED IN HORIZONTAL POSITION.
- ENGRAVING / PUNCHING.
  6. PAINT SHADE TO RAL 7012 (BASALT GREY) ON DAMPER WITH COVER. 5. DURING FITMENT ON BOGIE, NAME PLATE SHOULD BE DIAMETRICALLY OPPOSITE 귱
- 7. @ MANUFACTURER SHOULD ENGRAVE THE WORD "DOWN" ON THE FACE OF CASING EYE WHICH WILL BE TOWARDS GROUND DURING FITMENT (SIZE OF ENGRAVING : MIN. 10 MM).
- 8. MAXIMUM COMPRESSIVE FORCE ON RUBBER PART= 20KN(APPROX.).

7	6	5	4	3	2	1	
RADIAL STIFFNESS	CARDANIC ANGLE	TORSIONAL ANGLE	FORCE	VELOCITY	NO. OF REVOLUTIONS	STROKE	DAMPER
RADIAL STIFFNESS AT END CONNECTIONS 50 - 70					SN		TESTING AT 23°±5°C
50 - 70	±9" (Min.)	±9.5° (Min.)	11000±15% (WITHOUT ATTACHMENT)	0.10	76	25	T 23°±5°C
KN/mm	DEG	DEG	z	m/s	min-1	mm	

7 RADIAL STIFFNESS AT END CONNECTIONS 50 - 70
RADIAL STIFFNESS
STIFFNESS /
TEND
CONNECTIONS
50 - 70
KN/mr

MANUFACTURE THE QUALITY PRODUCT AS PER RDSO SPECIFICATION NO. RDSO/CG-18005 REV. (LATEST). VIDE RANGE IN CHARACTERISTICS AND VARIOUS DIMENSIONS OF DAMPER HAS BEEN PROVIDED TO FACILITATE THE MANUFACTURER TO DESIGN AND

FIRM SHOULD SUBMIT THEIR DESIGN/ DRAWING WITH PROPER TOLERANCES (SUPPORTED BY IS/ISO STANDARD) IN CHARACTERISTICS AND DIMENSIONS.

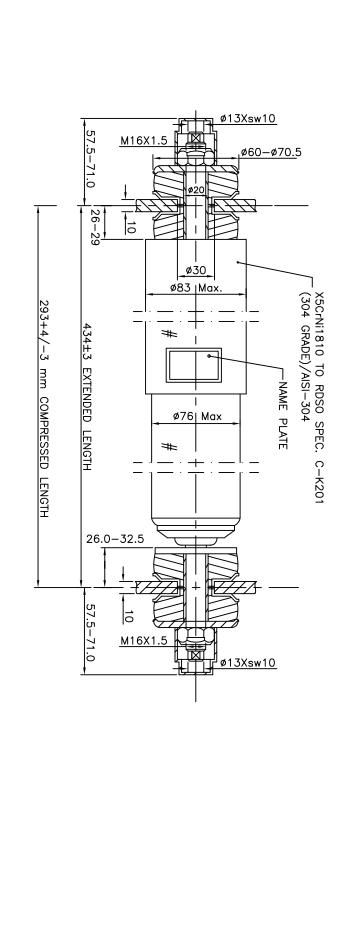
RANGE OF VARIOUS CHARACTERISTICS AND DIMENSIONS IN PARTICULAR DESIGN OF DAMPER OF A PARTICULAR SUPPLIER (WITH INCLUSION OF TOLERANCE, MENTIONED IN DRAWING) SHOULD NOT BE BEYOND THE RANGE SPECIFIED IN LATEST RDSO DRAWING AND RDSO STR NO. RDSO/CG—18005 (LATEST REVISION).

ALT. ITEM AUTH.

DESCRIPTION

SE. DATE

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į			FIAT ROCIES	Ŧ			D	-		
3	OF LHB COACHES FITTED	CHES	COA	Ħ			<u>.</u>	<u></u>	!	
PE		OR A	ER F	AMI	YAW DAMPER FOR ALL TYPE		SCALE P	Š	REFERENCE:-	
	CHES	COAC	LHB TYPE COACHES	HB	I	ES:-	PERSED	SU	ASSEMBLY DRGS. SUPERSEDES:-	
	AYS	RAILW	INDIAN RAILWAYS	Ħ		SUPERSEDED BY:-	PERSED	SI		
REMARKS	MTL & SPEC.	WIL OF ONE (KG)	REF.DRG.	No. OFF	ITEM DESCRIPTION & DIMENSIONS No.   REF.DRG. NE. (KG)   MIL & SPEC.   REMARKS	CRIPTION &	M DES	∄		_
	RDSO/CG-18005 REV. NIL					DAMPER		-		



NOTE:-

- 1. # THE MANUFACTURER NAME OR CODE, RATED CAPACITY, TYPE OF DAMPER WITH RDSO DRG. No., SERIAL NO. & MONTH & YEAR OF MANUFACTURE SHALL ALSO BE MARKED IN 10 mm HEIGHT LETTERS BY PUNCHING OR ENGRAVING WITH MINIMUM DEPTH OF 0.25 mm ON DUST COVER / BARREL TUBE.
- 2. NAME PLATE ALSO TO BE MOUNTED ON DUST COVER WITH ABOVE DETAILS.
- 3. DURING FITMENT ON BOGIE, NAME PLATE SHOULD BE DIAMETRICALLY OPPOSITE TO ENGRAVING / PUNCHING.
- 4...PAINT SHADE TO RAL 7012 (BASALT GREY) ON DAMPER WITH COVER

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23°
±5°C

1 STROKE   50     2 NO. OF REVOLUTIONS   115     3 VELOCITY   0.30     4 FORCE   4250±15%     5 CARDANIC ANGLE   ±8' (Min.)     6 AXIAL STIFFNESS AT END CONNECTIONS   3200–5200	6	ū	4	u	2	-
50 115 0.30 4250±15% (WITHOUT ATTACHMENT) ±8' (Min.) 3200–5200	AXIAL STIFFNESS AT END CONNECTIONS	CARDANIC ANGLE	FORCE	VELOCITY	NO. OF REVOLUTIONS	STROKE
	3200-5200	±8" (Min.)	4250±15% (WITHOUT ATTACHMENT)	0.30	115	50

KUSO/CG/DRG/DRAFI=4	)   JRG	KDSO/C	<u> </u>	[ (	B.G. (cg)	۵.G.		DATE	CKD. DATE	ĬŌN
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TITLE TOTAL			3 3	TI TIV		ი	[			
FR FOR		PRIMARY VERTICAL DAMPER FOR	₹	PRIMA		SCALE P	REFERENCE:- S			
ES	COACH	LHB TYPE COACHES	HH	I	ES:-	UPERSEDI	ASSEMBLY DRGS. SUPERSEDES:-			
'S	RAILWAY	INDIAN RAILWAYS	Ħ		ED BY:-	SUPERSEDED BY:-				
& SPEC. REMARKS	WIL OF MIL	REF.DRG.	윢종	DIMENSIONS	TEM DESCRIPTION & DIMENSIONS No.   REF.DRG.   WIL OF (KG)   WIL & SPEC.   REMARKS	TEM DES		_		
RDSO/CG-18005 REV. NIL	RDSC REV.				DAMPER	DAN				

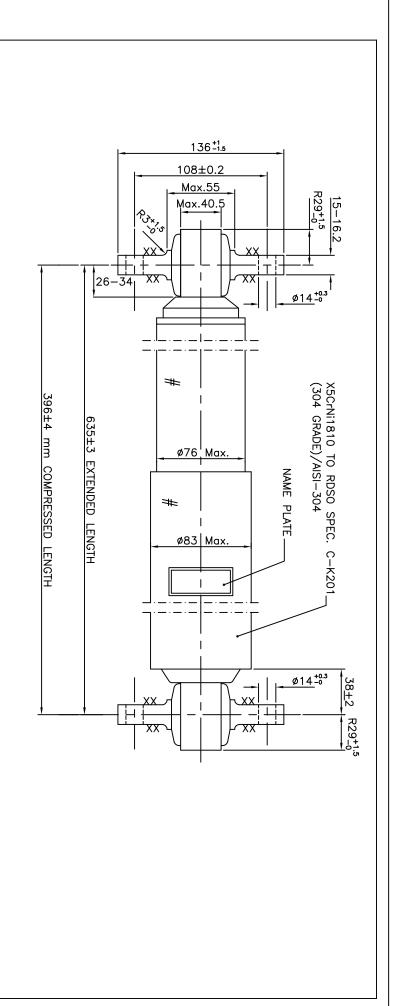
VIDE RANGE IN CHARACTERISTICS AND VARIOUS DIMENSIONS OF DAMPER HAS BEEN PROVIDED TO FACILITATE THE MANUFACTURER TO DESIGN AND MANUFACTURE THE QUALITY PRODUCT AS PER RDSO SPECIFICATION NO. RDSO/CG-18005 REV. (LATEST).

FIRM SHOULD SUBMIT THEIR DESIGN/ DRAWING WITH PROPER TOLERANCES (SUPPORTED BY IS/ISO STANDARD) IN CHARACTERISTICS AND DIMENSIONS.

RANGE OF VARIOUS CHARACTERISTICS AND DIMENSIONS IN PARTICULAR DESIGN OF DAMPER OF A PARTICULAR SUPPLIER (WITH INCLUSION OF TOLERANCE, MENTIONED IN DRAWING) SHOULD NOT BE BEYOND THE RANGE SPECIFIED IN LATEST ROSO DRAWING AND ROSO STR NO. RDSO/CG-18005 (LATEST REVISION).

ALT. ITEM AUTH.

DESCRIPTION



NOTE:-

- 1. # THE MANUFACTURER NAME OR CODE, RATED CAPACITY, TYPE OF DAMPER WITH RDSO DRG. No., SERIAL NO. & MONTH & YEAR OF MANUFACTURE SHALL ALSO BE MARKED IN 10 mm HEIGHT LETTERS BY PUNCHING OR ENGRAVING WITH MINIMUM DEPTH OF 0.25 mm ON DUST COVER / BARREL TUBE.
- 2. NAME PLATE ALSO TO BE MOUNTED ON DUST COVER WITH ABOVE DETAILS
- 3. XX-SURFACES ZINCED & FREE OF PAINTING.
- 4. DAMPER IS MOUNTED IN VERTICAL POSITION.
- 5. DURING FITMENT ON BOGIE, NAME PLATE SHOULD BE DIAMETRICALLY OPPOSITE TO ENGRAVING / PUNCHING.
- 6. PAINT SHADE TO RAL 6027 (LIGHT GREEN) ON DAMPER WITH COVER.

## DAMPER TESTING AT 23°±5°C

7	6	G	4	3	2	_	l
RADIAL STIFFNESS AT END CONNECTIONS 7225 - 24000	CARDANIC ANGLE	TORSIONAL ANGLE	FORCE	VELOCITY	NO. OF REVOLUTIONS	STROKE	
7225 - 24000	±10° (Min.)	±22" (Min.)	3500±15% (WITHOUT ATTACHMENT)	0.20	76	50	
N/mm	DEG	DEG	z	m/s	min-1	mm	

VIDE RANGE IN CHARACTERISTICS AND VARIOUS DIMENSIONS OF DAMPER HAS BEEN PROVIDED TO FACILITATE THE MANUFACTURER TO DESIGN AND MANUFACTURE THE QUALITY PRODUCT AS PER RDSO SPECIFICATION NO. RDSO/CG-18005 REV. (LATEST).

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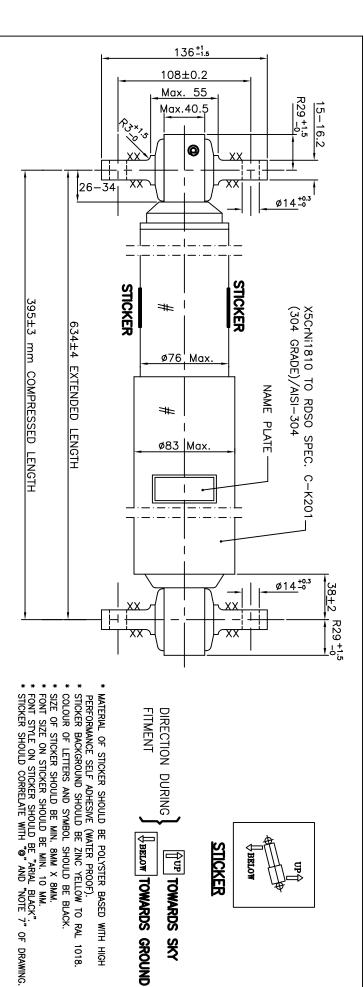
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ALT. ITEM AUTH.

DESCRIPTION

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				3 5			(C		ŕ
Ŕ		<u>\</u>	VERTIC	Pγ	SECONDARY VERTICAL DAMPER FOR		SCALE P	REFERENCE - S	
	SHES	COAC	LHB TYPE COACHES	HB	I	:S:-	UPERSEDE	ASSEMBLY DRGS. SUPERSEDES:-	ASS
	AYS	RAILW.	INDIAN RAILWAYS	Ħ		5D BY:-	SUPERSEDED BY:-	s	
REMARKS	MTL & SPEC.	ONE (KG)	REF.DRG. WIL OF (KG) MIL & SPEC REMARKS	육종	SNOISNAMIC	ITEM DESCRIPTION & DIMENSIONS	EM DES	=	]
	RDSO/CG-18005 Rev. NIL					PER	DAMPER		



- # THE MANUFACTURER NAME OR CODE, RATED CAPACITY, TYPE OF DAMPER WITH MINIMUM DEPTH OF 0.25 mm ON DUST COVER / BARREL TUBE. ALSO BE MARKED IN 10 mm HEIGHT LETTERS BY PUNCHING OR ENGRAVING WITH RDSO DRG. No., SERIAL NO. & MONTH & YEAR OF MANUFACTURE SHALL
- 2. NAME PLATE ALSO TO BE MOUNTED ON DUST COVER WITH ABOVE DETAILS
- 3. XX-SURFACES ZINCED & FREE OF PAINTING.
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- 7. @ MANUFACTURER SHOULD ENGRAVE THE WORD "DOWN" ON THE FACE OF CASING EYE WHICH WILL BE TOWARDS GROUND DURING FITMENT (SIZE OF ENGRAVING : MIN. 10 MM)

YUDE RANGE IN CHARACTERISTICS AND VARIOUS DIMENSIONS OF DAMPER HAS BEEN PROVIDED TO FACILITATE THE MANUFACTURER TO DESIGN AND MANUFACTURE THE QUALITY PRODUCT AS PER RDSO SPECIFICATION NO. RDSO/CG-18005 REV. (LATEST).

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RANGE OF VARIOUS CHARACTERISTICS AND DIMENSIONS IN PARTICULAR DESIGN OF DAMPER OF A PARTICULAR SUPPLIER (WITH INCLUSION DESIGN OF DAMPER OF A PARTICULAR SUPPLIER (WITH INCLUSION DESIGN OF DAMPING) SHOULD NOT BE BEYOND THE RANGE SPECIFIED IN LATEST RDSO DRAWING AND RDSO STR NO. RDSO/CG-18005

alt.| Item |auth.

DESCRIPTION

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DATE

CDIC NO .:-

В.G.

R.D.S.O. (CG)

**Ф** 

RDSO/CG/DRG/DRAFT-2

- **!** 

ALL COIL FIAT BOGIE

# DAMPER TESTING AT 23°±5°C

7	6	5	4	3	2	1
RADIAL STIFFNESS AT END CONNECTIONS 7225 - 24000	CARDANIC ANGLE	TORSIONAL ANGLE	FORCE	VELOCITY	NO. OF REVOLUTIONS	STROKE
7225 - 24000	±10" (Min.)	±22' (Min.)	8000±15% (WITHOUT ATTACHMENT)	0.30	115	50
N/mm	DEG	DEG	z	m/s	min-1	mm

<u> </u>								
",	1	DAMPER					RDSO/CG-18005 Rex. No	
	ПЕМ	ITEM DESCRIPTION & DIMENSIONS OF REF.DRG, W. OF ONE (KG) WIL & SPEC, REMARKS	DIMENSIONS	No. OFF	REF.DRG.	Wt. OF ONE (KG)	MTL & SPEC.	REMARKS
	SUPE	Superseded by:-		Ħ	INDIAN RAILWAYS	RAILW	AYS	
ASSEMBLY DRGS. SUPERSEDES:-	SUPE	.RSEDES:-	L	HB	LHB TYPE COACHES	COAC	Sanc	
REFERENCE - SOME P	SCALE	Р		VOV	aauv I	IVU IV	ם מפתע	Đ
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