

Logistics Focus[™]

Ready Reckoner:
Railway Wagons &
Containers Operating
over Indian Railways



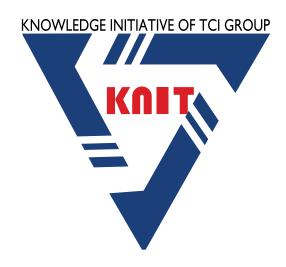


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Railway Wagons & Containers Operating over Indian Railways

2023



KNIT is a knowledge dissemination initiative of TCI Group. We believe in sharing insights and knowledge with the industry, to encourage best practice replication. In this edition of our **Logistics Focus** series, we bring to you a Ready Reckoner about "Railways Wagons & Containers".

For more such Industry insights, visit us at www.tcil.com/tcil/
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Contents

Editorial	06
About Us	07
Brief History of Indian Railways	
Did you know?	09
Railway Wagons	
Nomenclature of a Wagon	12
Wagon Holdings on Indian Railways	13
Numbering System of Wagons	14
Types of Wagons	15
Features of Different Types of Wagons	18
Railway Containers	
Types of Containers	27
Recent Developments	37
Glossary	39

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Editorial

Dear Readers,

Welcome to yet another edition of our knowledge initiative, "Logistics Focus". It covers a wide spectrum of topics on Logistics and Supply Chain ranging from Case Studies, White Papers and Analysis on the latest trends and developments in the field of Logistics and Supply Chain Management.

In this edition, we have collated all the relevant information on 'Types of Wagons & Containers operating over Indian Railways', making it as a ready reckoner for the logistics fraternity.

From the inception of Indian Railways in 1853 to now, it has grown significantly to become the world's fourth-largest network by size, having 75,439 miles of total track spanning 67,368 km route*. Indian Railways, along with national highways and ports, is backbone of India's transport infrastructure. Currently, more than 33% of total freight traffic (in terms of ton kilometers) of country moves on rail. Further, share of Railways in certain core infrastructure sectors such as coal, power, steel, cement and in other critical sectors like fertilizer is as high as 70%. The reach and access of its services are constantly expanding with continuous improvement in its services through its dedicated team of 1.32 million* people and by the use of cutting-edge technologies**.

We sincerely appreciate the work being done by the Hon'ble Ministry of Railways, Government of India & are in-line with the vision of promoting the shift from Road to Rail to meet the sustainability goals under the Green Growth 'Saptrishi' (7 priorities) of Budget 2023-24.

Hope you have a good read!

We look forward to receiving your feedback on enroute@tcil.com.

Disclaimer: All the images and information belongs to Indian Railways and we have picked it up from publicly available sources.

*IBEF (India Brand Equity Foundation) & ** Ministry of Railways, Government of India







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Sanjana Grover





Designed By: Krishna Rao

About Us

Everything Logistics

Transport Corporation of India Limited (TCI) started as an individual's entrepreneurial dream and efforts in 1958. Six decades later it stands tall with grit, determination and resilience. TCI, today is at the forefront of providing integrated multi-modal logistics network through its business divisions: TCI Freight, TCI Supply Chain Solutions, and TCI Seaways; subsidiary; TCI Cold Chain Solutions; joint ventures, TCI-CONCOR, Transystem; a sub-division, TCI Chemical Logistics Solutions and subsidiaries in SAARC, TCI Bangladesh and TCI Nepal.

With over 6 decades of experience and proven commitment to excellence in every facet of activity, TCI continues to service its customers and all stakeholders with efficiency and quality as its bywords.

During the pandemic, TCI worked with resilience and adaption to the new normal, to minimize supply chain disruptions. The company continued the operations of certain critical warehouses throughout, whilst ensuring the highest standards of safety.

As part of ESG framework, TCI through its multimodal network and renewable energy based modern warehouses, is enabling its customers to reduce GHG emissions and help meet their sustainability goals. TCI has created a centre of excellence for digital transformation & technology adoption. This is enabling it to offer customers value added services using latest tools and technologies.





























Brief History of Indian Railways

Did you know?



First Passenger Train

First railway service in India started on **16 April**, **1853** when the first train was flagged off from **Bombay (Mumbai) to Thane**, to cover a distance of **34 kilometers** with **14 coaches** and **400 passengers**.

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Old Railway Board Building, Shimla

By 1880, the Indian Railway system had a route length of about 14400 kilometers. Looking at the growing need, the Railway Board was formed in 1901.

India inherited rail network after independence which needed substantial improvement. In order to connect important cities many lines were re-routed and new line were constructed. Indian Railways was formed by amalgamation of 42 railways owned by the former Indian princely states. The network stood at 55,000 kms after independence in 1947. In 1952, the existing rail networks were divided into six Zones for administrative purpose. Further with the economic growth, Indian Railways made all railway production indigenous. 1985 onwards steam locomotives were phased out and electric and diesel locomotives took their place.



Railway Wagons





Types of Rail Wagons Operating Over Indian Railways

Indian Railway wagons are manufactured in Railway Workshops (ASR/NR, GOC/SR, JMP/ER, SPJ/ECR & UBL/SWR), PSUs (Braithwaite & Company Limited, SAIL-RITES Bengal Wagon Industry Private Limited) and Private Wagon Builders (Texmaco Rail, Modern Industries, HEI, Besco(WD), Titagarh Wagons, Jupiter Wagons, Cimmco, Besco(FD), Jindal Rail, Amzen, SRBWIPL, Oriental, CEBBCO). Final Inspection of Wagons at PSUs and Private Wagon Builders is done by Quality Assurance (Mech.), Research Designs & Standards Organization (RDSO), while in Railway Workshops inspection is done by Neutral Control Organisation (NCO).

(Source: RDSO, Minsitry of Railways, Government of India)

Nomenclature of a Wagon

B: (prefix) Bogie wagon (sometimes omitted)

BV: Brake van

O: Open wagon (gondola)

C: Covered wagon (boxcar)

F: Flat car

FK: Flat car for container transport

FU: Well wagon

LA: Low flat car with standard buffer height

LB: Low flat car with low buffer height

R: Rail-carrying wagon

T: Tanker (additional letters indicate material carried)

C: Centre discharge

R: Rapid (forced) discharge, bottom

discharge

LW: Light Weight

HL: Higher Axle load/Heavy load

HS: High Speed

N: Pneumatic Brake

CR: Corrosion Resistant

AP: Alumina Powder

Wagon Holdings on Indian Railways

Type of Wagon	Wagons	Total Qty.
Open Wagon	BOXN, BOXNHS, BOXNHL, BOXNLW, BOY, BOST, BO, BOST HSM2, BOXNLW, BOXNS	1,37,360
Covered Wagon	BCNA, BCNHL, BCNAHS	70,239
Flat Wagon	BFNS, BRNA, BRN22.9, BRHNEHS	11,694
Hopper Wagon	BOBYN, BOBYN22.9, BOBRN, BOBRNHS, BCFC, BO BRNAHSM1, BOBRNAL, BOBSN	25,196
Brake Van Wagon	BVZI, BVZC, BVCM	5,982
Tank Wagon	BTPN, BTPGLN, BTFLN	14,066
Container Wagon	BLC/BLL	14,891
Special Purpose Wagon	BCACBM (A-CAR/B-CAR), BOM, BWT & Others	6,780
Total		2,86,208

The above quantity is as of 31st March, 2021. However, there has been an increase since then and as per the Indian Railways Freight Portal, the current strength of the wagon holdings is 3,33,183.







Numbering System of Wagons

Monitoring and liquidating overage arrears of rolling stock is a focus area in the interest of safety of train operations. However, some of the Railways have reported difficulty in ascertaining the age of wagons where the manufacturer's plate is missing. Also computerization of wagon data is becoming cumbersome with development of various versions in a category e.g. BG bogie open wagons BOXN,

BOXNHS, BOXNAHA, BOXNCR, BOXNHL, BOXNR and BOXNLW are being clubbed together by the computer cell and shown as BOXN in the holding. To overcome the above-mentioned problems and to facilitate computerization of the wagon data base, a new wagon numbering system was introduced by Railway Board as per Letter No. 2000/M(N)/60/2/wagon census. Dated 4th July, 2003 In the new scheme, the wagon number shall consist of 11 digits as follows:

Type of	Type of Wagon		Owning Railway		Year of Manufacture		Individual Wagon Number		nber	Check Digit
C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11

It can also be remembered as TOYS i.e

T: Type of Wagon (Two digits),

O: Owning Railway (Two digits),

Y: Year of Manufacture (Two digits),

S: Serial number of wagon (Four digits)

The codification for various types of wagons, owning railways, year of manufacture and individual wagon no. are as follows:

Types of Wagons (C1, C2)

	Open Wagon	Code allotted
	BOXN	10
	BOXNHA	11
	BOXNHS	12
	BOXNCR	13
	BOXNLW	14
i)	BOXNB	15
	BOXNF	16
	BOXNG	17
	BOY	18
	BOST	19
	BOXNAL	20
	BOXN-HL	22

	Covered Wagon	Code allotted
	BCNA	30
ii)	BCNAHS	31
	BCCNR	32
	BCN-HL	33

	Tank Wagon	Code allotted
	BTPN	40
	BTPNHS	41
iii)	BTPGLN	42
,	BTALN	43
	BTCS	44
	ВТРН	45
	BTAP	46

iv)	Flat Wagon	Code allotted	
	BRNA	55	
	BRNAHS	56	
	BFNS	57	
	BOMN	58	
	BRSTH	59	
	BFAT	60	
	BLCA	61	
	BLCB	62	

	Flat Wagon	Code allotted
	BOBYN	70
')	BOBYNHS	71
,	BOBRN	72
	BOBRNHS	73
	BOBRAL	74

vi)	Flat Wagon	Code allotted	
	BWTB	80	

	Brake Van	Code allotted
vii)	BVZC	85
	BVZI	86
	BVCM	87





Ownership (Railways') Codes (C3, C4)

S.No.	Name of Railways	Numerical codes
1	Central Railway	1
2	Eastern Railway	2
3	Northern Railway	3
4	North East Railway	4
5	Northeast Frontier Railway	5
6	Southern Railway	6
7	South Eastern Railway	7
8	Western Railway	8
9	South Central Railway	9
10	East Central Railway	10
11	North Western Railway	11
12	East Coast Railway	12
13	North Central Railway	13
14	South East Central Railway	14
15	South Western Railway	15
16	West Central Railway	16
17	Wagons owned by CONCOR	25
18	Wagons owned by other private parties	26

Check Digit - Method of calculation

The Check Digit for each wagon is calculated using a six-step algorithm based on ten digit wagon number arrived at as described below:

 $\mbox{\bf Step 1:}$ Starting from the left, add all the characters in the even position.

S1 = C2 + CA4 + C6 + C8 + C10

Step 2: Multiply the sum by 3 to get 3. S1

Step 3: Starting from the left, add all the characters in the odd position.

S2 = C1 + C3 + C5 + C7 + C9

Step 4: Add the sum of Step 2 to the sum of Step 3 to get S4 = 3s 1 + S2

Step 5: Round this total up to the next multiple of 10

Step 6: The check digit is the number required to be added to round up to the next multiple of 10.

Here, if the total in S4 is already of 10, then the check digit is 0.

RFID Tags on Wagons (Radio Frequency Identification Tags)

The purpose of providing RFID tags on freight stock is to result in Automatic Wagon Identification using Radio Frequency Identification. Fitted at DV & Non DV Side of wagons. Information like Year of Manufacturing, Owning Railway, Wagon Type, Wagon Serial No., Date of entry of data, Manufacturing code, Station Code are entered in the tag.

Warranty / Guaranty of Wagons

Period of warranty/ guaranty of Wagons will be 30 months from the date of delivery or 24 months from the date of commissioning whichever is earlier. This clause is mentioned in Railway Board's Purchase Orders.

16





Features of Different Types of Wagons

I) Open Wagons





BOXNHL WAGON

BOXNHS WAGON

Salient Feature	BOXNHL	BOXNHS	BOXNS	воу	
Material of Construction	IRS M44, CRF section	IS 2062 E250 A CU	IS 2062 E450 BR CU	IS:2062E250 A CU & IRSM 41	
Type of Commodity	Coal	Coal	Coal	minerals/ore	
Loading	Top Loading	Top Loading	Top Loading	Top Loading	
Unloading	Side doors	& Grabber	Tipping operation or Grabbe		
Length over head stock (mm)	10034	9784	9784	11000	
Length over copulers (mm)	10963	10713	10713	11929	
Width inside/Width Overall (mm)	3022/3250	1950/3200	3111/3135	2924/3134	
Height inside/ Height(max.) from RL.	2028/3301	1950/3233	2300/3581	1175/2450	
Height of C.B.C from R.L. (mm)	1105				
Floor area (Sq.M)	30.32	28.87	30.281	32.13	
Cubic Capacity (Cu.M)	61.05	56.29	69.36	37.8	

II) Covered Wagons





BCNHL WAGON

BCNHAS WAGON

BCNHL 22.9	BCNHAS
22.9	
	20.32
20.8	24.55
70.8	56.73
91.6	81.28
4106	2439
Air Brake	Air Brake
C.B.C.	C.B.C.
R.B.	R.B.
Casnub 22 HS Bogie	Casnub 22 HS Bogie
Bogie mounted	Under frame mounted
100 kmph	100 kmph
	70.8 91.6 4106 Air Brake C.B.C. R.B. Casnub 22 HS Bogie ogie mounted





III) Flat Wagons





BRNA WAGON

BRNA-EUR WAGON

Salient Feature	BRNA/	BRNA-EUR	BFNS/	BFNSM 22.9
Salletit Feature	BRNAHS	BRIVA-EUR	BFNSM1	BENSIN 22.9
Material of Construction	IS:2062 E250A CU	IS:2062 E250A CU	IRSM41&IS:206 2 E250A CU	IS:2062 E450BR CU&IS:2062 E250A
Type of Commodity	Rail, Steel Plates, Sleepers	Long welded rails	coli	coli
Loading	Top Loading	Top Loading	Top Loading	Top Loading
Unloading	Lifting by Crane	Lifting by Crane	Lifting by Crane	Lifting by Crane
Length over head stock (mm)	13716	13716	13716	10034
Length over couplers (mm)	14645	14645	14645	10963
Width Over Sole bar (mm)	2845	2845	2845	2845
Height (max.) from RL.	2544	2544	2776	1799
Height of C.B.C. from R.L. (mm)	1105	1105	1105	1105

IV) Hopper Wagons





BOBYN WAGON

BOBSN WAGON

Salient Feature	BOBYN	BOBSN	BCFC	BOBRN	BOBRNHSM1
Material of Construction	IS:2062E250 A CU	IS:2062E250 A CU	IRSM 44	IS:2062E250 A CU & IRSM44	IS: 2062E250 A CU & SAILMA 350
Type of Commodity	Ballast	Ballast	Fly ash / cement	Coal	Coal
Loading	Тор	Тор	Top inlet hatches	Тор	Тор
Unloading	Bottom & Side discharge	Side discharge	Air Assisted Bottom discharge	Bottom o	discharge
Length over head stock (mm)	10718	10668	9784	9671	9671
Length over couplers (mm)	12000	11597	10713	10600	10600
Length inside (mm)	9000	9296	10085	9327	9327
Width inside/ Width Overall (mm)	2863/3189	2743/3020	3129	3340/3500	3340
Height inside/ Height(max.) from RL.	1781/3050	3304	4265	2466/3735	2456/3735
Height of C.B.C. from R.L. (mm)	1105	1105	1105	1105	1105
Cubic Capacity (Cu.M)	40.3	34	75.8	56.78	56.78





V) Tank Wagons





BTPN WAGON

BTAP WAGON

Salient Feature	BTPN	ВТАР	BTALN	BTPGLN	BTCS
Material of Construction	IS:2062E250 ACU	IS:2062E250 ACU	Mild Steel	Mild Steel	Mild Steel
Type of Commodity	kerosene, petrol, diesel and naphtha	Alumina powder	Ammonia	LPG	Caustic soda
Loading		Top Inl	et Hatches		
Unloading	Discharge valves at bottom of the barrel				
Length over head stock (mm)	11491	11400	16600	18000	9784
Length over couplers (mm)	12420	12329	17529	19282	10713
Length of barrel inside (mm)	11434	8400	16325	17960	9760
Dia. Inside (barrel) (mm)	2850	3200	2200	2400	2300
Overall Height from R.L. (mm)	4265	4350	4265	4285	4110
Height of C.B.C. from R.L. (mm)	1105	1105	1105	1105	1105
Cubic Capacity (Cu. M)	70.4	62	60.66	79.4	38.75

VI) Container Wagons





BLC WAGON

BLLA WAGON

Salient Feature	BLLA	BLLB	BLCA	BLCB
Material of Construction	IS:2062 E450 BR CU	IS:2062 E450 BR CU	IS:2062 E450 BR CU	IS:2062 E450 BR CU
Type of Commodity	Container	Container	Container	Container
Loading	By Crane	By Crane	By Crane	By Crane
Unloading	By Crane	By Crane	By Crane	By Crane
Length over head stock (mm)	15220	13810	13625	12212
Length over couplers (mm)	16161	14763	14566	13165
Length inside (mm)	-	-	-	-
Width inside/Width Overall (mm)	2100/2200	2100/2200	2100/2200	2100/2200
Height inside/Height (max.) from RL.	1008	1008	1009	1009
Height of S.D.B. from R.L. (mm)	1105	1105/845	1105/845	845





VII) Auto Car Wagons





BCACBM WAGON

BCACBM A&B WAGON

Salient Feature	BCACBM A-CAR/B-CAR	воми	вwтв
Material of Construction	IS:2062 E250A CU	IS:2062 E250A CU	IS:8500, Gr. 540 & IS: 2062
Type of Commodity	Car	Military Vehicle	Military Tank
Loading	By end	By end	By end
Unloading	By end	By end	By end
Length over head stock (mm)	22626	18460	15510
Length over couplers faces (mm)	23555	19742	15510
Length over car track (mm)	22446	-	-
Width inside/Width Overall (mm)	2900	3200	3200
Height inside/Height (max.) from RL.	4305	1275	1306
Height from R.L. (mm)	1269	1306	1306

VIII) Brake Van



BVZI WAGON

Salient Feature	BVZI	BVCM
Material of Construction	IS: 2062 E 250, IS:3502 & IRS: M41	IS:2062 E250 A Cu
Type of Commodity	BREAK VAN	BREAK VAN
Length over head stock (mm)	13540	9784
Length over couplers (mm)	14469	10713
Width inside/Width Overall (mm)	3200	3200
Height inside/Height (max.) from RL.	2448/3894	3894
Height of C.B.C. from R.L. (mm)	1105	1105
Tare Weight (tonne)	23.5	21.1
Brake System	Air Brake	Air Brake
Coupler	C.B.C.	C.B.C.
Bearing	R.B.	R.B.
Bogie	ICF BOGIE	CASNUB 22H5
Brake rigging	Bogie Mounted	Under frame mounted
Maximum Speed (Loaded)	100 kmph	100 kmph



Railway Containers

Types of Containers

I) 20' & 40' STANDARD

Standard containers are also known as general purpose containers.

They are closed containers, i.e. they are closed on all sides. A distinction may be drawn between the following types of standard container:

- Standard containers with doors at one or both end(s)
- Standard containers with doors at one or both end(s) and doors over the entire length of one or both sides
- Standard containers with doors at one or both end(s) and doors on one or both sides

In addition, the various types of standard container also differ in dimensions and

weight, resulting in a wide range of standard containers.

Standard containers are mainly used as 20' and 40' containers. Containers with smaller dimensions are very seldom used. The trend is towards even longer dimensions, e.g. 45

Usage: Standard containers are used for all types general cargo (dry cargo).

Parameters	20'	40'
Inside Length	5.895 m	12.029 m
Inside Width	2.350 m	2.350 m
Inside Height	2.392 m	2.392 m
Door Width	2.340 m	2.340 m
Door Height	2.292 m	2.340 m
Capacity	33 m3	67 m3
Tare Weight	2230 Kgs	3780 Kgs
Max Cargo Weight	28230 Kgs	26700 Kgs









II) 40' & 45' HIGH-CUBE

High-cube containers are similar in structure to standard containers, but taller. In contrast to standard containers, which have a maximum height of 2591 mm (8\'6"), high-cube containers are 2896 mm, or 9\'6", tall. High-cube containers are for the most part 40\' long, but are sometimes made as 45\' containers.

A number of lashing rings, capable of bearing loads of at most 1000 kg, are mounted on the front top end rail and bottom cross member and the corner posts.

Many 40\' containers have a recess in the floor at the front end which serves to center the containers on so-called gooseneck chassis. These recesses allow the containers to lie lower and therefore to be of taller construction.

Usage: High-cube containers are used for all types general cargo (dry cargo). However, they are particularly suitable for transporting light, voluminous cargoes and over height cargoes up to a maximum of 2.70 m tall.





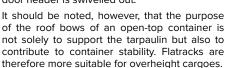
Parameters	40'	45'
Inside Length	12.024 m	13.556 m
Inside Width	2.350 m	2.352 m
Inside Height	2.697 m	2.700 m
Door Width	2.340 m	2.340 m
Door Height	2.597 m	2.597 m
Capacity	76 m3	86 m3
Tare Weight	4020 Kgs	4800 Kgs
Max Cargo Weight	26460 Kgs	27700 Kgs

III) 20' & 40' OPEN TOP

The walls of open-top containers are generally made of corrugated steel. The floor is made of wood.

It has the following typical distinguishing structural features. The roof consists of removable bows and a removable tarpaulin. The door header may be swivelled out.

These two structural features greatly simplify the process of packing and unpacking the container. In particular, it is very easy to pack and unpack the container from above or through the doors by crane or crab when the roof is open and the door header is swivelled out







Lashing rings, to which the cargo may be secured, are installed in the upper and lower side rails and the corner posts. The lashing rings may take loads of up to 1,000 kg.

Usual open-top container dimensions are 20' and 40'.

Usage: Open-top containers are used for all types of general cargo (dry cargo). Their principal uses are as follows:

- Packing and unpacking from above or through the doors by crane or crab tall cargo
- Tall cargo

Parameters	20'	40'
Inside Length	5.888 m	12.029 m
Inside Width	2.345 m	2.342 m
Inside Height	2.315 m	2.326 m
Door Width	2.286 m	2.341 m
Door Height	2.184 m	2.274 m
Capacity	32 m3	65 m3
Tare Weight	2250 Kgs	3810 Kgs
Max Cargo Weight	30480 Kgs	26670 kgs

28





IV) 20' & 40' Flatrack

Flatracks consist of a floor structure with a high loading capacity composed of a steel frame and a softwood floor and two end walls, which may either be fixed or collapsible. The end walls are stable enough to allow cargo securing means to be attached and several flatracks to be stacked on top of one another. Flatracks are available in 20\' and 40\' sizes.

A number of lashing rings, to which the cargo may be secured, are installed in the side rails, the corner posts and the floor. The lashing rings may take loads of up to 2000 kg in the case of 20\' flatracks or up to 4000 kg in the case of 40\' flatracks.

Some types of 20\' flatracks have forklift pockets.

40\' flatracks have gooseneck tunnels at each end. In addition, they are sometimes equipped with lashing winches with 2 metric ton lashing belts.

For transport of certain cargoes, flatracks may be provided with stanchions

Usage: Flatracks are mainly used to transport heavy-lifts and overheight or overwidth cargoes.





Parameters	20'	40'
Inside Length	5.698 m	11.832 m
Inside Width	2.230 m	2.228 m
Inside Height	2.255 m	1.981 m
Door Width	0.000 m	0.000 m
Door Height	0.000 m	0.000 m
Capacity	0 m3	0 m3
Tare Weight	2500 Kgs	4200 Kgs
Max Cargo Weight	21500 Kgs	40800 Kgs

V) 20' & 40' Flatrack Collapsible

Flatracks consist of a floor structure with a high loading capacity composed of a steel frame and a softwood floor and two end walls, which may either be fixed or collapsible. The end walls are stable enough to allow cargo securing means to be attached and several flatracks to be stacked on top of one another. Flatracks are available in 20' and 40' sizes.

A number of lashing rings, to which the cargo may be secured, are installed in the side rails, the corner posts and the floor. The lashing rings may take loads of up to 2000 kg in the case of 20\' flatracks or up to 4000 kg in the case of 40' flatracks.

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For transport of certain cargoes, flatracks may be provided with stanchions.

Usage: Flatracks are mainly used to transport heavy-lifts and overheight or overwidth cargoes.





Parameters	20'	40'
Inside Length	5.675 m	11.660 m
Inside Width	2.213 m	2.200 m
Inside Height	2.270 m	2.245 m
Door Width	0.000 m	0.000 m
Door Height	0.000 m	0.000 m
Capacity	0 m3	0 m3
Tare Weight	2600 Kgs	5700 Kgs
Max Cargo Weight	30150 Kgs	39300 Kgs





VI) 20' & 40' Platform

Platforms consist solely of a floor structure with extremely high loading capacity; they have no side or end walls. This high loading capacity makes it possible to concentrate heavy weights on small areas. A platform consists of a steel frame and a wooden floor structure.

Platforms are available in 20' and 40' sizes. 40' platforms have a gooseneck tunnel at each end.

Lashing rings, to which the cargo may be secured, are installed in the side rails. The lashing rings may take loads of up to 3.000 kg.

Usage: Platforms are used principally for oversized and very heavy cargoes.





Parameters	20'	40'
Inside Length	6.058 m	12.192 m
Inside Width	2.438 m	2.245 m
Inside Height	0.370 m	0.648 m
Door Width	0.000 m	0.000 m
Door Height	0.000 m	0.000 m
Capacity	0 m3	0 m3
Tare Weight	2520 Kgs	5700 Kgs
Max Cargo Weight	27960 Kgs	39300 Kgs

VII) 20' & 40' Refrigerated

The refrigeration unit is arranged in such a way that the external dimensions of the container meet ISO standards and thus fit into the container ship cell guides, for example. The presence of an integral refrigeration unit entails a loss of internal volume and payload.

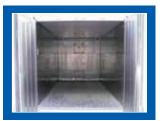
Usage: Refrigerated containers are used for goods which need to be transported at a constant temperature above or below freezing point. These goods are divided into chilled goods and frozen goods, depending on the specified transport temperature. They principally include fruit, vegetables, meat and dairy products, such as butter and cheese.

High-cube integral units are used in particular for voluminous and light goods (e.g. fruit, flowers).

Nowadays, goods requiring refrigeration are mostly transported in integral units, which have a markedly higher market share than porthole containers.

Chilled meat is sometimes also transported hanging, for which purpose the ceilings of refrigerated containers are equipped with special hook rails





Parameters	20'	40'
Inside Length	5.724 m	11.840 m
Inside Width	2.286 m	2.286 m
Inside Height	2.014 m	2.120 m
Door Width	2.286 m	2.286 m
Door Height	2.067 m	2.195 m
Capacity	26 m3	60 m3

Logistics Focus | 2023 Logistics Focus | 2023





VIII) 20' Bulk

Bulk (or bulk cargo) containers have three loading hatches in the roof, each of a diameter of approx. 455 mm (1 3/4\'). The distance between the hatches (center to center) is 1.83 m (6\'). On the door side, there are two discharge hatches, which are sometimes equipped with short discharge tubes for guiding the bulk cargo. Alternatively, two unloading hatches may be mounted in the doorways, for emptying the containers.

Such containers may also be used for general cargo. Lashing rings are mounted in the top side rails for securing the cargo. Some bulk containers are equipped with forklift pockets, which allow handling by forklift trucks.

Usage: Bulk containers are used in particular for transporting bulk cargo, such as grain, feedstuffs, spices. However, they may also be used for transporting general cargo.







Parameters	20'
Inside Length	5.934 m
Inside Width	2.358 m
Inside Height	2.340 m
Door Width	2.335 m
Door Height	2.292 m
Capacity	32 m3

IX) 20' Tank

Description

Tank containers must be at least 80%% full, to prevent dangerous surging of the liquids in transit. On the other hand, they must not as a rule be over 95%% full, or there will not be sufficient ullage space for thermal expansion. The extent of thermal expansion may be calculated for each cargo on the basis of the following formula:

- ΔV = Va ν ΔT
- Ve = Va (1 γ Δ T)
- ΔV : change in volume
- · Va: volume at initial temperature a
- Ve : final volume at temperature e
- γ : coefficient of cubic (thermal) expansion
- ΔT: temperature difference in degrees kelvin

Tank containers intended for transporting foodstuffs must be labeled "Potable Liquids only".

Some hazardous materials must be transported in tank containers with no in- or outlet openings below the surface of the liquid.

Tank containers are generally designed for an operating pressure of up to 3 bar (above atmospheric). The test pressure used is 4.5 bar (above atmospheric).

If the cargo requires temperature-controlled transport, tank containers can be equipped with insulation or heating. The temperature of the cargo may be precisely controlled using temperature sensors.

Usage: Tank containers are used for liquid cargoes, such as:

- · Foodstuffs: fruit juices, spirits, sweet oils
- Chemicals: hazardous materials, such as fuels, toxic substances, corrosion protection agents



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Parameters	20'
Inside Length	6.058 m
Inside Width	2.438 m
Inside Height	2.438 m
Door Width	0.000 m
Door Height	0.000 m
Capacity	0 m3

X) 45' Pallet-wide

Containers are used in the supply chain to transport large shipments, bulky goods, and heavy items:

- 1. unpackaged;
- 2. in lightweight blocks;
- 3. packed.

They are also in demand in modular construction, where they may be used to build large warehouses, industrial buildings, and agricultural facilities. The container is flexible and cost-effective due to the fact that it is equipped with all of the specific gripping components required for dealing with professional loading systems

Several advantages include:

- Low operating costs only minor maintenance and repairs are required.
- 2. Extremely high mobility.
- 3. Designed for the transportation of a wide variety of goods.
- When changing modes of transportation, there is no need to reload the goods.
- It is simpler to handle the transportation of goods when containers are used.

This container's specifics are as follows:

- 1. Steel beams are used to construct the frame.
- Corrugated profile constructed of low-alloy steel for the side walls and ceiling
- 3. A double door with a bar lock.

- A rubber seal around the perimeter of the door ensures that the door remains tightly closed.
- 5. Steel U-beams and corrugated film faced plywood help compensate the floor's construction.
- The container's sides are all equipped with fitting feet, which are secured with screws.



Parameters	20'
Inside Length	13560 m
Inside Width	2452 m
Inside Height	2684 m
Door Width	2343 m
Door Height	2670 m
Capacity	85,0 m3

Recent Developments

 There have been certain recent developments to increase the axle load condition and increase in carrying capacity of container wagons. The new BLCM wagons have a capacity of 68 tonnes as against 61 T of the regular BLC wagons.

Parameters	20'	40'
Tare Weight	19.1 MT(A-Car)	18.0 MT(B-Car)
Carrying Capacity	61.0 MT/68(A-Car)	62.1/69t(B-Car)
Axle Load	20.32 MT	22 MT
Length Over Head Stocks	13,625 mm(A-Car)	13,625 mm(A-Car)





II) DFCCIL

With the commissioning of DFCCIL project, the wagon specifications have also changed for permitting higher speeds and higher carriage of cargo.

Salient Features of DFCCIL wagon dimensions:

Upgraded Dimensions of DFC:

Feature	Existing on IR	On DFC
Moving Dimesions		
Height	4.265 m 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	7.1m 00 00 5.1m
100.40		Double Stack (WC) Single Stack (EC)
Width	3200 mm	3660 mm
Container Stack	So So Singe Stack	Couble Stack (IVC) Single Stack (IVC)
Train Length	700 m	1500 m
Train Load	88 88 5430 T	7.1m 55 55 55 5.1m

Feature	Existing on IR	On DFC
	Heavier Axle loa	ad
Axie Load	22.9 TQ5T	25/T (Track Structure), Bridges & Formation Designed for 32.5T
Track loading Density	0.571 fm	121/m
Minimum Speed	75 Kmph	100 Kmph
Grade	Up to 1 in 100	1 in 200
Curvature	Up to 10 Degree	Up to 2.5 Degree
Traction	Electrical (25 KV)	Electrical (2x25 KV AT Feeding)
Station Spacing	7-10 Km	40 km on Double Line 10 km on Single Line
Signaling	Absolute/Automatic with 1 Km spacing	Automatic With 2Km Spacing
Communication	Emergency Socket/Mobile Train Radio	Mobile Train Radio







Railways

Bulk Cargo - Unpacked homogeneous cargo poured loose in a certain space of a vessel or container e.g. oil and grain.

Bulk Carrier - Single deck vessel designed to carry homogeneous unpacked dry cargoes such as grain, iron ore and coal.

Bulk Container - A container designed for the carriage of free-flowing dry cargoes, which are loaded through hatchways in the roof of the container and discharged through hatchways at one end of the container.

Break Bulk Cargo - General cargo conventionally stowed as opposed to unitised, containerised and Roll On-Roll Off cargo.

Container - A box typically ten to forty feet long, which is used primarily for ocean freight shipment. For travel to and from ports, containers are loaded onto truck chassis' or on railroad flatcars.

Container on Flatcar (COFC) - Containers resting on railway flatcars without a chassis underneath.

Containerization - A shipment method in which commodities are placed in containers, and after initial loading, the commodities per se are not rehandled in shipment until they are unloaded at destination.

Containerized Cargo - Cargo that is transported in containers that can be transferred easily from one transportation mode to another.

Container Traffic - The movement of goods using containers.

Container Check Digit - The 7th digit of the serial number of a container used to check whether prefix and serial number are correct.

Container Depot - Storage area for empty containers.

Container Lease - The contract by which the owner of containers (lessor) gives the use of containers to a lessee for a specified period of time and for fixed payments.

Container Load Plan (CLP) - A list of items loaded in a specific container and where appropriates their sequence of loading.

Container Manifest - The document specifying the contents of particular

freight containers or other transport units, prepared by the party responsible for their loading into the container or unit.

Container Number - Identification number of a container consisting of prefix and serial number and check digit. (E.g. KNLU 123456-7)

Container Prefix - A four letter code that forms the first part of a container identification number indicating the owner of a container.

Container Size Code - An indication of 2 digits of the nominal length and nominal height.

Container Terminal - Place where loaded and/or empty containers are loaded or discharged into or from a means of transport.

Container Yard (CY) - A facility at which FCL traffic and empty containers are received from or delivered to the Merchant by or on behalf of the Carrier. Note: Often this yard is used to receive goods on behalf of the merchant and pack these in containers for FCL traffic.

Cellular Vessel - A vessel, specially designed and equipped for the carriage of containers.

Chassis - A wheeled carriage onto which an ocean container is mounted for inland conveyance. The part of a motor vehicle that includes the engine, the frame, suspension system, wheels, steering mechanism etc., but not the body.

Drop off Charge - Charge made by container owner and/or terminal operators for delivery of a leased, or pool container into depot stock. The drop-off charge may be a combination of actual handling and storage charges with surcharges.

EXIM Traffic - "Export and Import Traffic" or "Exim Traffic" means carriage of maritime Containers/ goods where (i) in case of export, the origin of such Container/goods is from any location within India and the final destination is at a location outside India and (ii) in case of import, the origin of such Container/goods is from any location outside India and the final destination is at a location within India

FEU - Forty Foot Equivalent Unit of measurement equivalent to one forty foot container.

Feeder - A vessel normally used for local or coastal transport (for carriage of cargo and/or containers) to and from ports not scheduled to be called

40

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by the main (ocean) vessel, directly connecting these ports to the main(ocean) vessel.

Flat Rack Container - A container with two end walls and open sides.

General Purpose Container - A Container with two end walls and open sides.A container used for the carriage of general cargo without any special requirements for the transport and or the conditioning of the goods.

ICDs - Inland Container Depotis a common user facility with public authority status equipped with fixed installations and offering services for handling and temporary storage of import/export laden and empty containers carried under customs control and with Customs and other agencies competent to clear goods for home use, warehousing, temporary admissions, re-export, temporary storage for onward transit and outright export. Transhipment of cargo can also take place from such stations.

ISO Containers - A container specially designed to facilitate the carriage of goods by one or more modes of transport without intermediate reloading. Constructed to dimensions and to quality criteria set out by the ISO. Container is designed as to be easy to fill and empty.

Idle Time - The amount of ineffective time whereby the available resources are not used e.g. a container in a yard.

Less than Container Load (LCL) - A general reference for identifying cargo in any quantity intended for carriage in a container, where the Carrier is responsible for packing and/or unpacking the container. For operational purposes a LCL (Less than full container load) container is considered a container in which multiple consignments or parts thereof are shipped.

Merchant Haulage - Inland transport of cargo in containers arranged by the Merchant. It includes empty container-moves to and from hand-over points in respect of containers released by the Carrier to Merchants. Note: Carrier's responsibility under the Bill of Lading does not include the inland transport stretch under Merchant Haulage.

Oncarriage - The carriage of goods (containers) by any mode of transport to the place of delivery after discharge from the ocean vessel (main means of transport) at the port (place) of discharge.

Open Top Container - A freight container similar in all respects to a

Logistics Focus | 2023

general purpose container except that it has no rigid roof but may have a flexible and movable or removable cover, for example one made of canvas or plastic or reinforced plastic material normally supported on movable or removable roof bows.

Out of Gauge Cargo - Cargo which dimensions are exceeding the normal dimensions of a 20 or 40 feet container, e.g. overlength, overwidth, overheight, or combinations thereof.

Reefer Container - A thermal container with refrigerating appliances (mechanical compressor unit, absorption unit etc.) to control the temperature of cargo.

Roll cage, roll container, roll pallet - Small, un-stackable, normally boxy unit on wheels intended to facilitate the loading and unloading of goods.

Seal - A device used for containers, lockers, trucks or lorries to proof relevant parties that they have remained closed during transport.

Stack - An identifiable amount of containers stowed in a orderly way in one specified place on an (ocean) terminal, container freight station, container yard or depot.

Stripping - The unloading of cargo out of a container.

Stuffing - The loading of cargo into a container.

TEU - The twenty-foot equivalent unit (often TEU or teu) is an inexact unit of cargo capacity often used to describe the capacity of container ships and container terminals.

Tank Container - A tank, surrounded by a framework with the overall dimensions of a container for the transport of liquids or gasses in bulk.

Tanker - A vessel designed for the carriage of liquid cargo in bulk.

Tare Weight of Container - Mass of an empty container including all fittings and appliances associated with that particular type of container on its normal operating condition.

Tare weight of a container - Tare weight of a container is included in the total weight of the containerised goods transported, also called the gross-gross weight of goods. The gross weight of containerised goods transported can be calculated from the gross-gross weight by deducting the tare weight of the container and vice versa. Advanced Registration Fee: The registration fee paid by the consignor or his representative at the time of registration of forwarding notes demand for wagons.



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ARP: ARP, short for "advance reservation period", is the period from which you can reserve seats on a train. For most trains it is 60 days from the date the train leaves its origin, though some short-distance day trains in North India have a reduced advance reservation period of 30 days.

Authorised: Authorised means authorised by a railway administration.

Average Lead : Average haul of a passenger or a tone of freight.

Branch Lines : Broad gauge and Metre Gauge lines joined to the main lines at one end only and all metre gauge lines.

Broad Gauge: A width, between the rails of a railroad, greater than standard gauge (56.5 in, or 143.5 cm) or Broad gauge railways use a rail gauge (distance between the rails) of 1,435 mm.

Book Delivery: The event involving after surrendering the original RR at the destination station. It can take place even if the consignments have not arrived.

Carriage: carriage means the carriage of passengers or goods by a railway administration.

Consignment : Consignment means goods entrusted to a railway administration for carriage.

Consignor : Consignor means the person, named in a railway receipt as consignor, by whom or on whose behalf goods covered by the railway receipt are entrusted to a railway administration for carriage.

Cross Traffic : cross traffic when used with reference to a railway means traffic which passes over that railway but neither originates nor terminates on it.

Demand Capture: All demands for despatch of goods in wagon loads/ train loads are entered in the Wagon Demand Register maintained at the station or goods shed open for booking of goods in wagon loads/ train loads.

Disposal Code: Code given by the user to indicate to the system to prompt it to deal with the load in a specified manner, on its arrival at a station/yard.

Diversion: The change of destination after wagon/rake has departed from the booking station but has not reached destination. The changed

destination may be beyond or short of the original station. Diversion is a change in destination while the load is still in transit before reaching its destination.

Destination Railway: destination railway means the railway on which traffic terminates

Division: A Zone is divided into several divisions. Each division is a functional and administrative unit having fixed boundaries.

Endorsee: endorsee means the person in whose favour an endorsement is, made, and in the case of successive endorsements, the person in whose favour the last endorsement is made;

Endorsement: endorsement means the signing, by the consignee or the endorsee after adding a direction on a railway receipt to pass the property in the goods mentioned in such receipt to a specified person.

Extension: It is the procedure for change in destination after the load has arrived at the original destination.

Freight: freight means the charge levied for the carriage of goods including transhipment charges, if any.

Forwarding Note : The document executed under section 64 of the Railway Act, 1989.

Freight Charges : The charges levied for the carriage of goods.

Goods Removal : The physical removal of goods by the consignee from railway premises.

Interchange Point: The junction point at which the stock between two or more Railways or diversions is interchanged.

Inward Number Taking: On arrival of a load at the destination yard / station, all the wagons in the load are verified with in the incoming consist brought by the guard. Necessary corrections are made.

Luggage: luggage means the goods of a passenger either carried by him in his charge or entrusted to a railway administration for carriage.

Leading Loco: When a train is handled by more than one working loco, the first loco towards the direction of movement of the train is called a leading loco.

Load: Load is a group of wagons which will be moved from one place to



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another. The source and destination of the load may not match those of the associated wagons.

Loading: An event taking place after allotment of wagon but before invoice generation. The time of loading determines the Demurrage charges levied.

Loading Time: The exact time when Loading of Goods was completed by the consignor.

Load Pipe Line: Lists out loads yet to be received for or via a terminal from a defined direction. This is universally visible.

Meter Gauge : Meter gauge refers to railways with a track gauge(distance between the rails) of 1,000 mm.

Net Tonne Kilometre: Unit of measure of freight traffic which represent the transport of one tonne goods (including the weight of any packing, but excluding the weight of the vehicle used for transport) over a distance of one kilometer.

Narrow Gauge : It is a rail gauge (762 or 610 mm) still used in some parts of India of movement of rail traffic.

Net Tonne Kilometre: Unit of measure of freight traffic which represent the transport of one tonne goods (including the weight of any packing, but excluding the weight of the vehicle used for transport) over a distance of one kilometer.

New Lines : Construction/laying of new railway links/lines not existed earlier

Ordering Station: The station/yard from which crew/guard are arranged for a train to be run out at a specific time.

Parcel: parcel means goods entrusted to a railway administration for carriage by a passenger or a parcel train.

Prescribed : Prescribed means prescribed by rules made under the Railway Act.

Placement Time: The exact time when placement of Wagons is made over to the party for handling.

Programmed Traffic: Demands that are generated at Ministry level for Rake consignments. It constitutes about 90% of traffic movement on Indian Railways.

Put Forward/put Back : When the ordering time of a train is brought forward/advanced the train is said to have been Put forward. When the ordering time is postponed, the train is said to have been Put back.

Rail Freight : Rail freight transport includes all freight transportation carried by rail.

Rail Terminal: terminal where trains load or unload passengers or goods.

Railway transport operator: Any public or private transport operator which provides services for the transport of goods and/or passengers by rail.

Railway traffic: Any movement of a railway vehicle on lines operated.

When a railway vehicle is being carried on another vehicle only the movement of the carrying vehicle (active mode) is considered.

Ro-Ro unit: Wheeled equipment for carrying goods, such as a lorry, trailer or semi-trailer, which can be driven or towed onto a vessel or train.

Railway Receipt: The Receipt issued under section 65 of IRA 1989, by the Railway Administration on completion of loading of goods which are to be loaded by a person, entrusting of such goods for carrying by Railway Administration.

Rake: An identifiable group of wagons consisting of mainly same type of stock as defined by the user.

Rake Assignment: When a load is formed, a rake (either old or new) with its associated wagons, is assigned to it.

Rake Dissipation : When the associated wagons of the rake are not required to run as one unit, the rake is dissipated.

Rake Formation: When a yard/station collects a number of wagons to run as a unit, it is termed as Rake formation.

Rake Placement: The time when the rake is placed for loading/unloading.

Rake Release: It is the time when previously placed rake is released after loading/unloading and made available for further disposal.

Rebooking: The customers decision to despatch the goods to a new destination after the goods have reached their destination.

Release: The event involving returning of wagon(s) to the railway custody by the customer.





Release Time: The exact time when consignor / consignee hands over the consignment to the Railway authorities.

Reporting Station : Station/yard where it is mandatory to report train arrival, departure timings, is termed as reporting station.

Shunting: Operation of moving a rail vehicle or set of rail vehicles inside a railway station or other railway installations (depot, workshop, marshalling yard, etc.).

Section: The area controlled by Division is divided into sections generally situated between two engine changing stations.

Siding: It is laid out to serve a factory/mill or other industrial premises other than a colliery or a mining area under a Special Agreement.

Station: Any place on a line of railway at which traffic is dealt with or at which an authority to proceed is given under the system of working.

Trailer on Flat Car (TOFC): Carriage of piggyback highway trailers on specially equipped railway wagons.

Train: An engine with or without vehicles or any self propelled vehicles which can not be lifted off the track.

Train Pipe Line: Lists out loads which are on move or ordered for a move for or via a terminal from a defined direction. This is visible to stations on a train path.

Transshipment: The event involving unloading of Goods from one / group of Wagons and loading into one other group of wagons, which occurs due to a break of gauge, wagon becoming sick or accidents.

Termination: When a load meant for a particular destination is terminated at a station short of destination.

Unloading Time: The time when Unloading was completed by the consignee.

Via: Major junctions over which a load/train/wagon is to travel to reach its destination, especially when alternative routes are available.

Wagon Allotment: Earmarking of wagon to the consignor against the specific demand.

Wagon Exchange Register: The register which maintains details of all wagons placed in the goods shed & drawn out from the goods shed.

Wagon Placement: The time stamp of arrival of a wagon in a goods shed in either empty or loaded status. This is the operating placement. The time when the wagon is taken over by the goods shed is the commercial placement time.

Wagon Transfer Register : A register that includes time stamps of placement, allotment,(un)loading, release details. May be Inward WTR or Outward WTR

Wagon Type: It represents the traffic codes for various types of wagons handled by Indian Railways. E.g. BOX, BCX, BCXN.

Wharfage: The charges levied on goods for not removing them from the Railway after expiry of the free time for such removal.

16 Zones of Indian Railways

Central Railway (CR), Eastern railway (ER), East Central Railway (ECR), East Coast Railway (ECoR), Northern Railway (NR), North Central Railways (NCR), North Eastern Railway (NER), **Northeast Frontier Railway** (NEFR), North Western Railway(NWR), Southern railway (SR), South Central Railway (SCR), South Eastern Railway (SER), Southeast Central Railway(SECR), South Western Railway (SWR), Western Railway (WR), West Central Railway (WCR).

6 Railway Production Units

Chittaranjan Locomotive
Works (CLW), Chittaranjan;
Diesel Locomotive
Works(DLW), Varanasi;
Integral Coach Factory (ICF),
Chennai; Rail Coach Factory
(RCF), Kapurthala; Rail Wheel
Factory (RWF), Yelahanka;
Diesel Loco Modernisation
Works (DMW), Patiala

The attempt of this reckoner is to give a glimpse of key terms at one place, typically used by the logistics fraternity. Any gaps, errors are inadvertent. This is just a compilation & not any expert view.

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Transport Corporation of India Limited

TCI House, 69, Institutional Area, Sector 32, Gurugram-122 001

Tel: 0124-238 1603-07

CIN: L70109TG1995PLC019116

Email: corporate@tcil.com, Website: www.tcil.com

Socials: www.linktr.ee/TCI_Group



















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TCI House, 69 Institutional Area, Sector 32, Gurugram - 122001 | Tel.: +91 - 124 - 2381603-07 E-mail Id: corporate@tcil.com | Website: www.tcil.com | CIN: L70109TG1995PLC019116













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