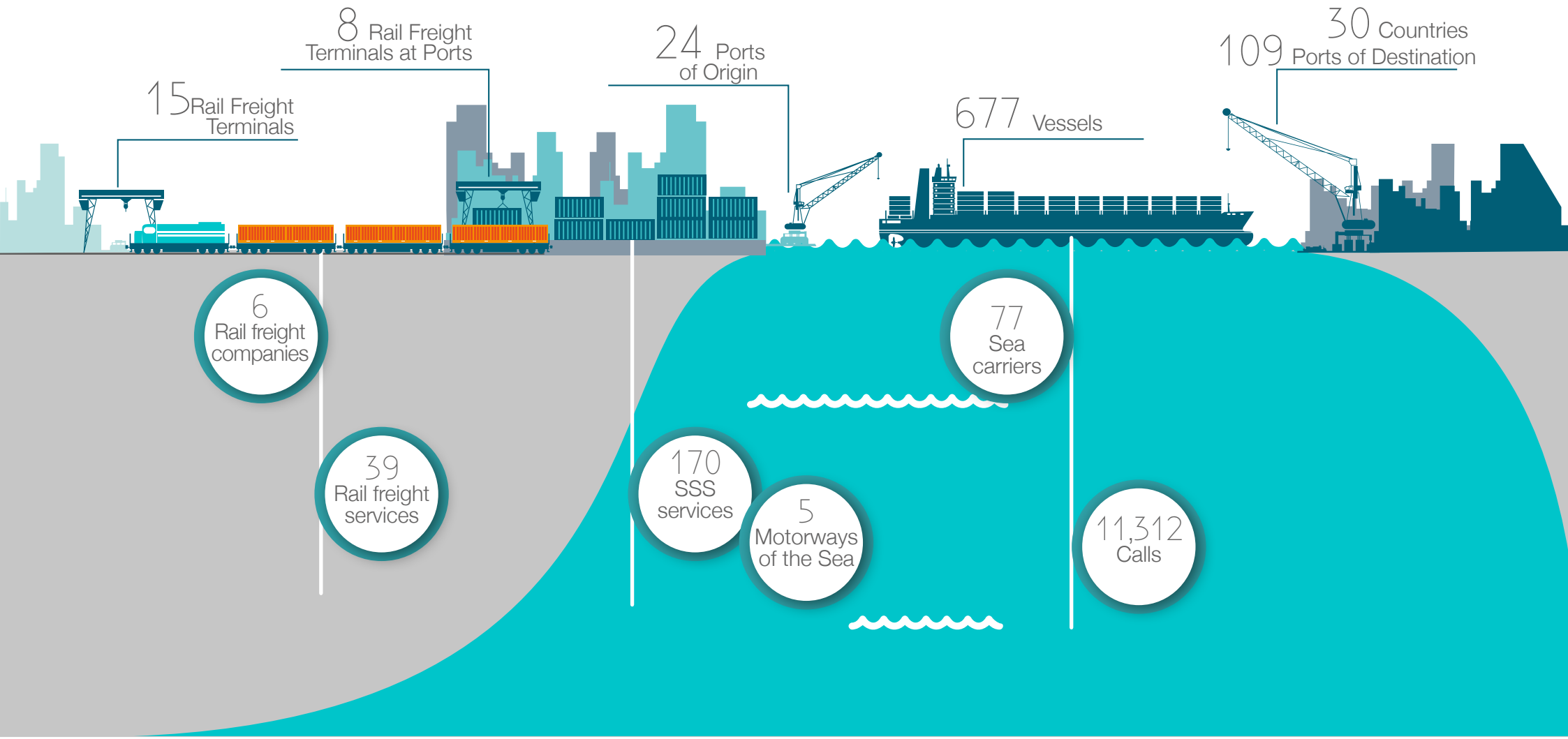
OCTOBER
2017

SUPPLY OF SSS AND RAIL FREIGHT SERVICES

AT SPANISH PORTS

FUNDACIÓN valenciaport

index


15 Rail Freight Terminals
8 Rail Freight Terminals at Ports
24 Ports of Origin
677 Vessels
109 Ports of Destination
30 Countries
6 Rail freight companies
39 Rail freight services
170 SSS services
5 Motorways of the Sea
77 Sea carriers
11,312 Calls

01. SSS SERVICES CHARACTERISATION

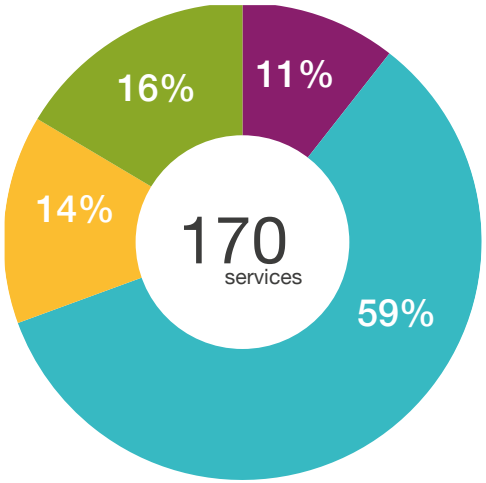


Figure 1. SSS services by type of freight

Figure 2. SSS services with interoceanic calls

Figure 3. Average frequency of SSS services by type of freight

CAR-CARRIER CONTAINER ROPAX RORO

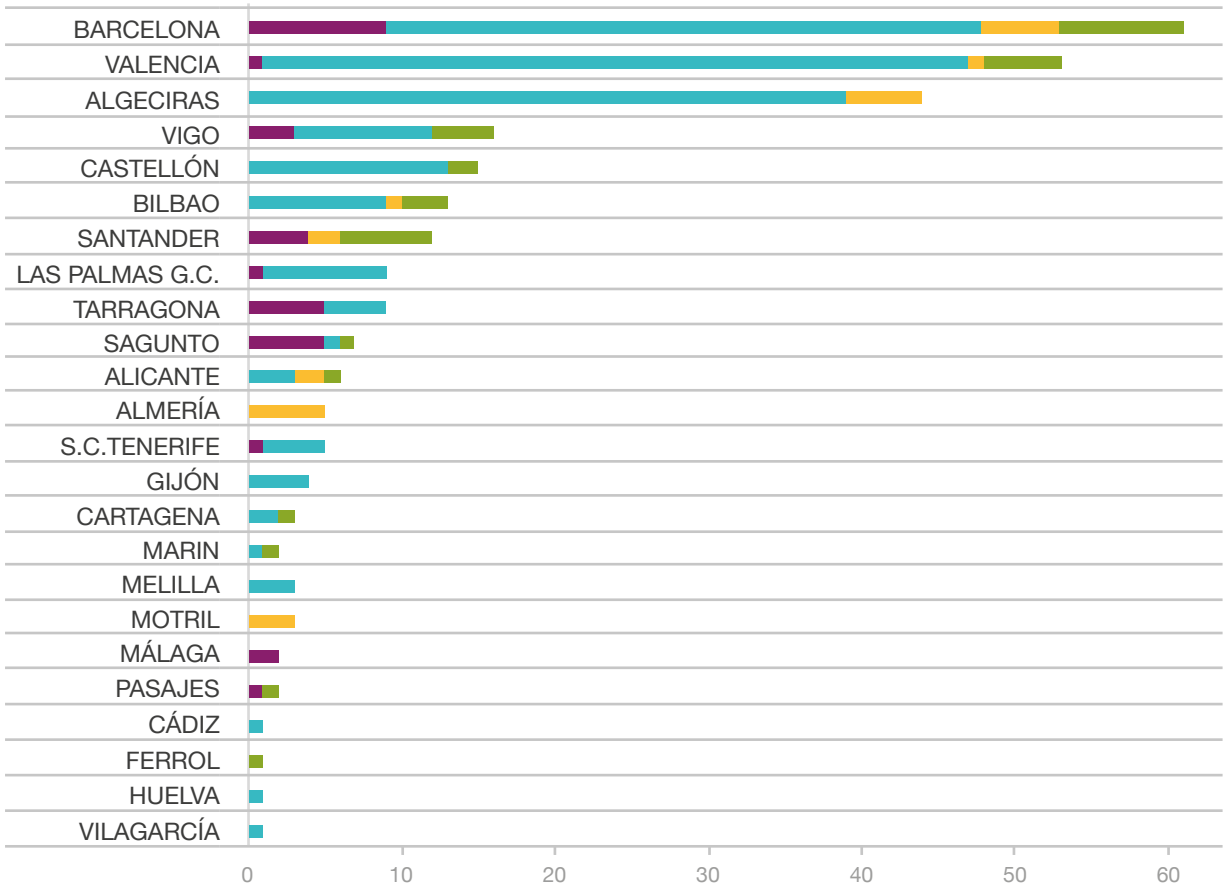


Figure 4. Ranking of Spanish ports according to the number of SSS services by type of freight

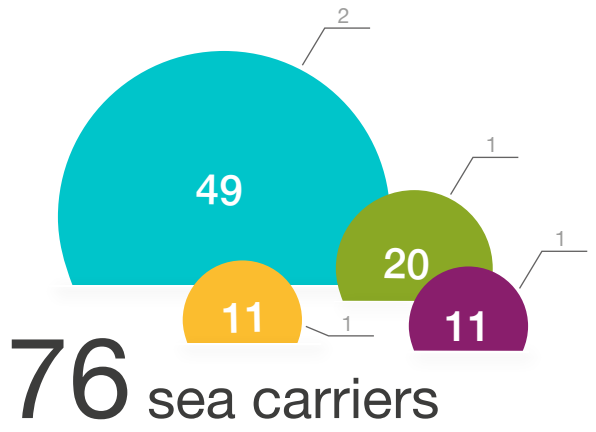


Figure 5. Sea carriers offering SSS services by type of freight

Average of sea carriers by service

02. PORT CONNECTIVITY INDEX

CONTAINER

Port origin	PCI 2017
VALENCIA	100
ALGECIRAS	89.65
BARCELONA	88.56
CASTELLÓN	32.69
LAS PALMAS G.C.	27.78
VIGO	19.62
BILBAO	19.58
TARRAGONA	15.78
TENERIFE	9.97
GIJÓN	9.19
MELILLA	7.91
SAGUNTO	7.14
CARTAGENA	6.05
ALICANTE	5.48
MARIN	5.24
CÁDIZ	4.57
HUELVA	3.63
VILAGARCÍA	2.92

RORO FREIGHT

Port origin	PCI 2017
BARCELONA	100
VALENCIA	60.30
SANTANDER	58.99
ALGECIRAS	56.81
BILBAO	39.50
VIGO	38.78
CASTELLÓN	30.35
ALMERÍA	20.46
ALICANTE	16.71
MOTRIL	16.14
CARTAGENA	14.07
PASAJES	13.14
MARIN	12.17
SAGUNTO	10.39
FERROL	10.34

Figure 6. Port connectivity index by type of freight

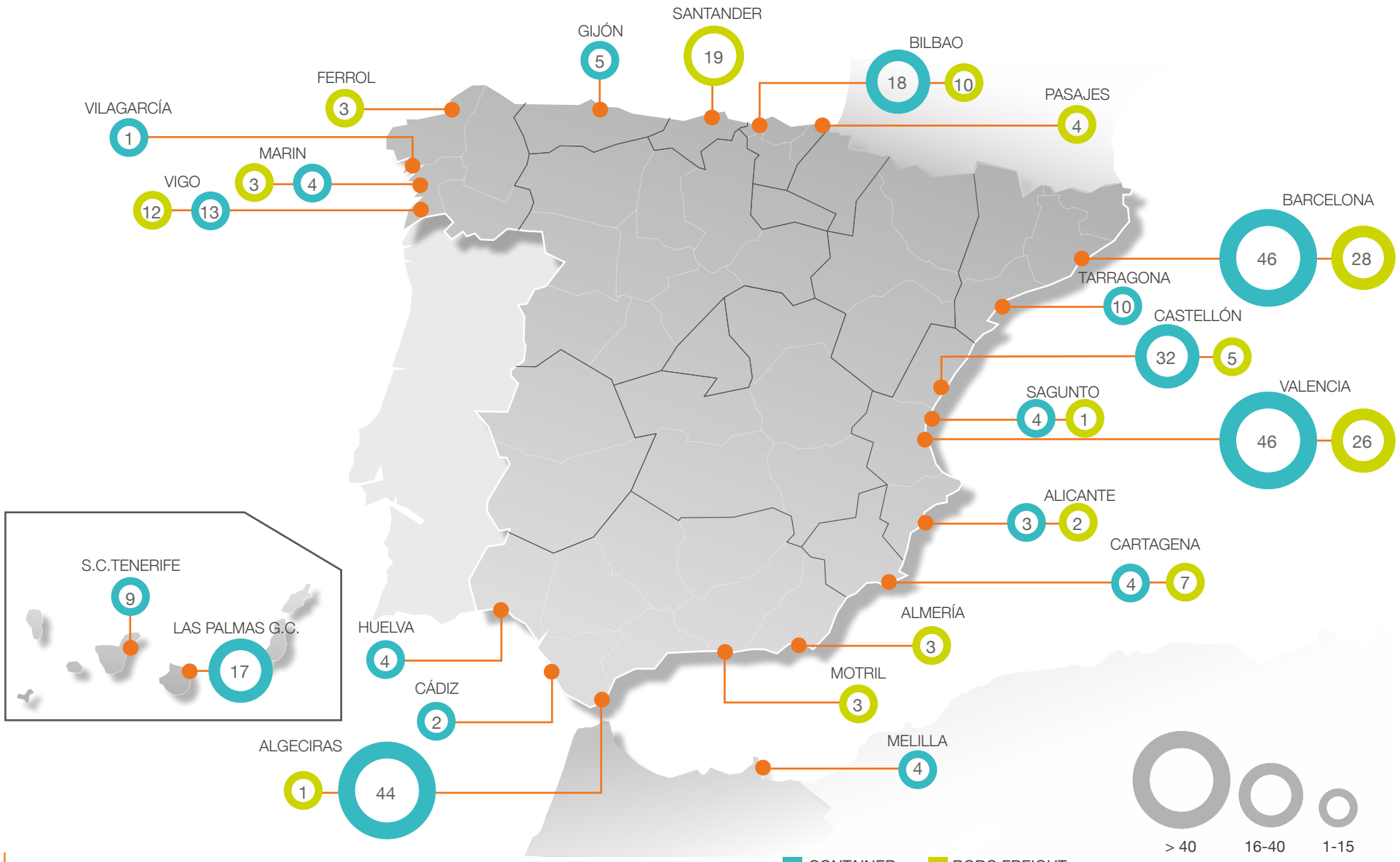


Figure 7. Ranking of Spanish ports according to the number of connected ports of destination

03. SSS FLEET ANALYSIS IN SPAIN

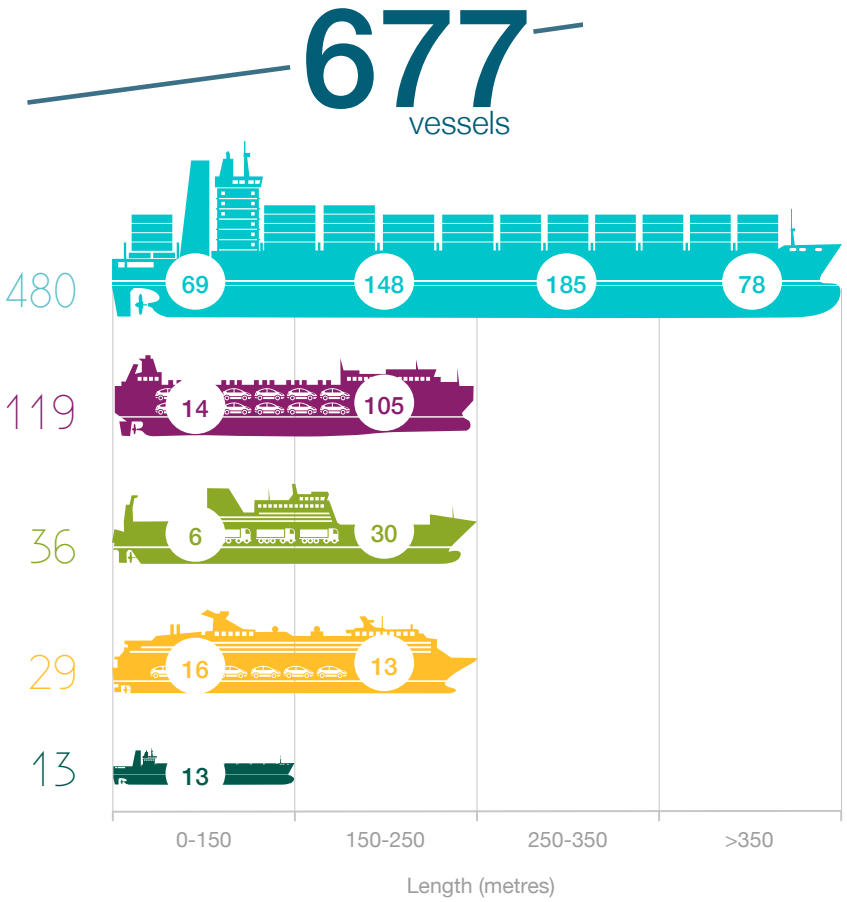


Figure 8. Number of vessels by length and type of freight

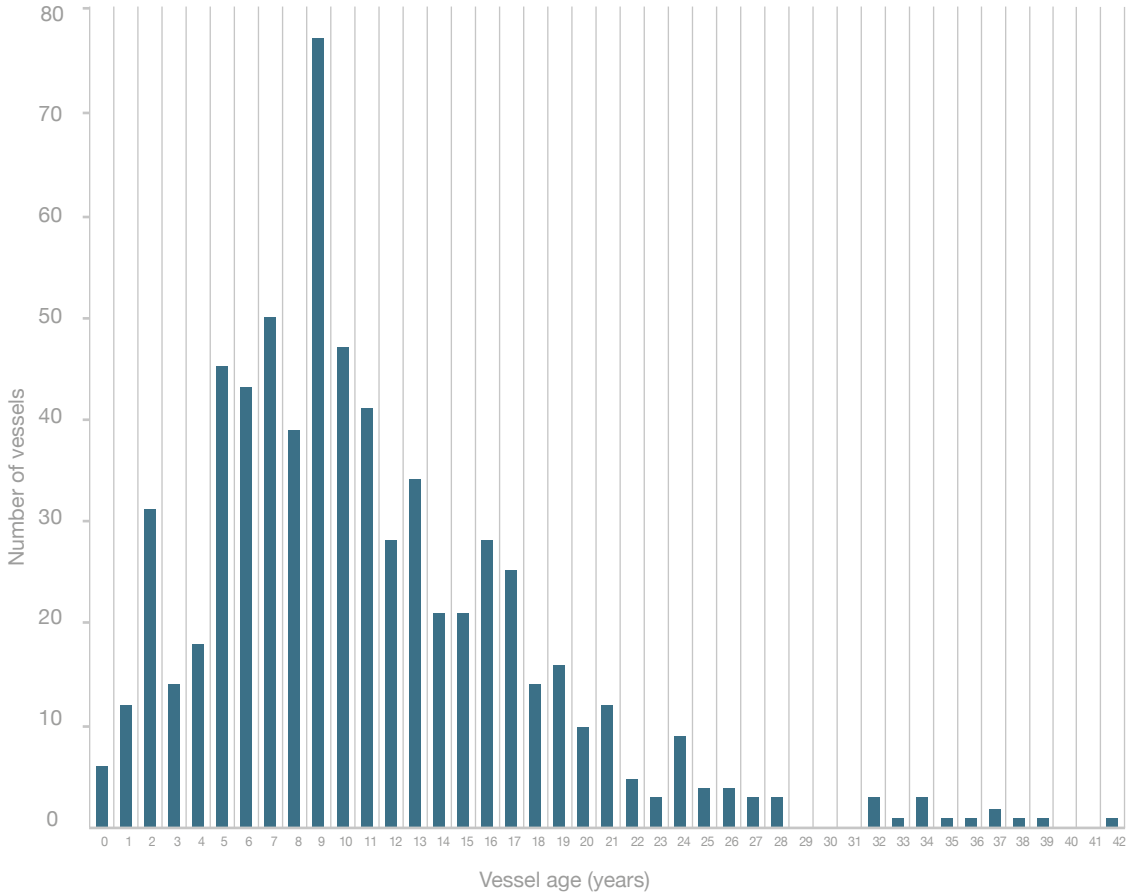


Figure 9. Number of vessels according to vessel age

CAR-CARRIER CONTAINER ROPAX RORO GENERAL CARGO

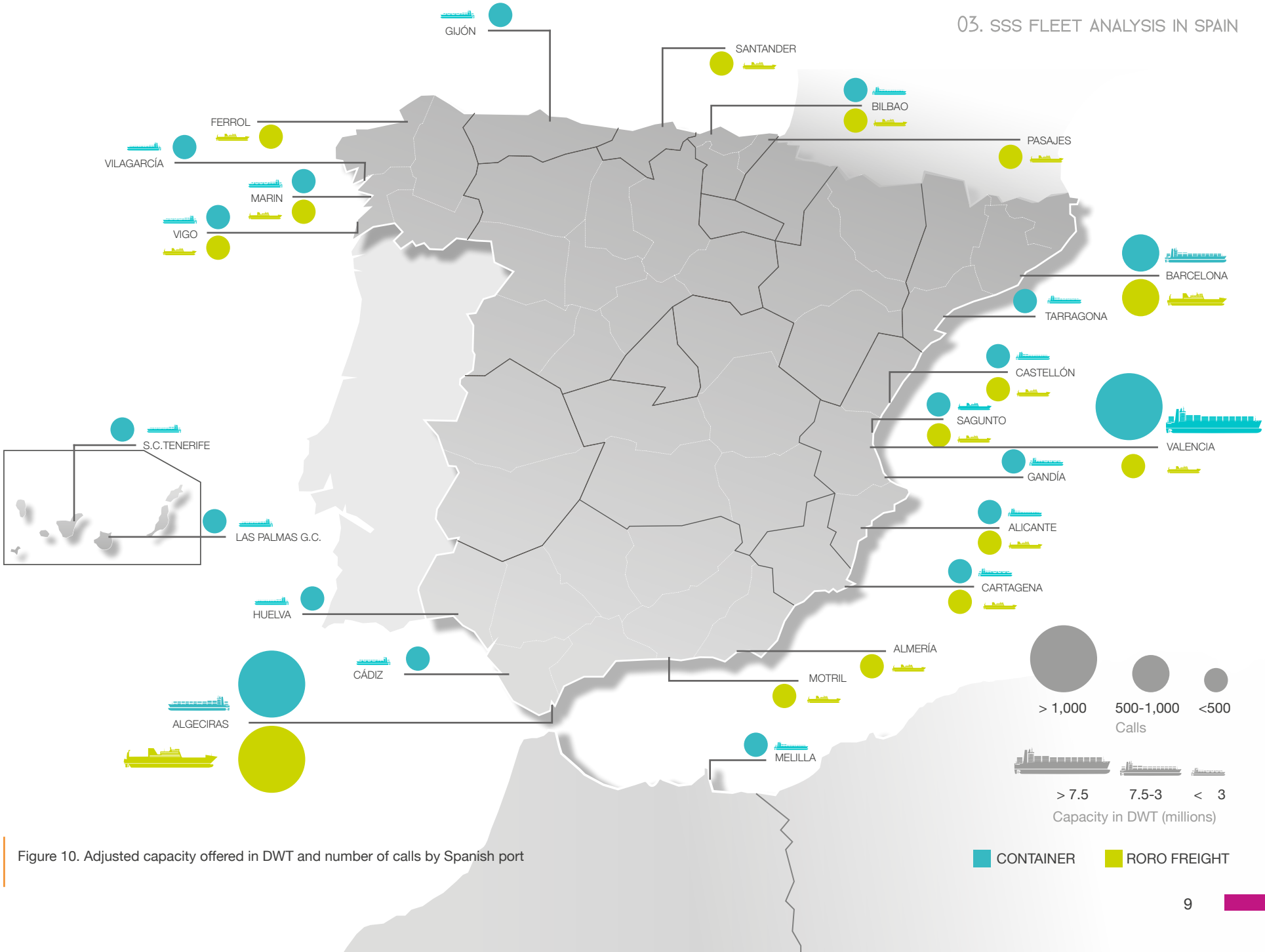


Figure 10. Adjusted capacity offered in DWT and number of calls by Spanish port

04. SSS BY SPANISH COASTLINE

ATLANTIC COASTLINE

37 SERVICES

26 OCEAN CARRIERS

PORTS
- 11 origin
- 54 destination

1.3 Weekly departures

113 VESSELS

BOTH COASTLINES

12 SERVICES

16 OCEAN CARRIERS

PORTS
- 15 origin
- 34 destination

0.9 Weekly departures

48 VESSELS

MEDITERRANEAN COASTLINE

121 SERVICES

63 OCEAN CARRIERS

PORTS
- 11 origin
- 85 destination

2.4 Weekly departures

519 VESSELS

05. MOTORWAYS OF THE SEA

Route	Ocean carrier	Frequency	Transit time	Vessels
SANTANDER-PORTSMOUTH	BRITTANY FERRIES	3 x week	24h	2
VIGO-SAINT NAZAIRE	SUARDIAZ	3 x week	35h	2
BARCELONA-PORTO TORRES-CIVITAVECCHIA	GRIMALDI	6 x week	12/20h	2
VALENCIA-BARCELONA-LIVORNO-SAVONA	GRIMALDI	6 x week	36/51h - 20/35h	4
VALENCIA-CAGLIARI-SALERNO	GRIMALDI	3 x week	26/45h	2

Western MoS South-West MoS ROPAX RORO

06. SSS ANALYSIS BY COUNTRY

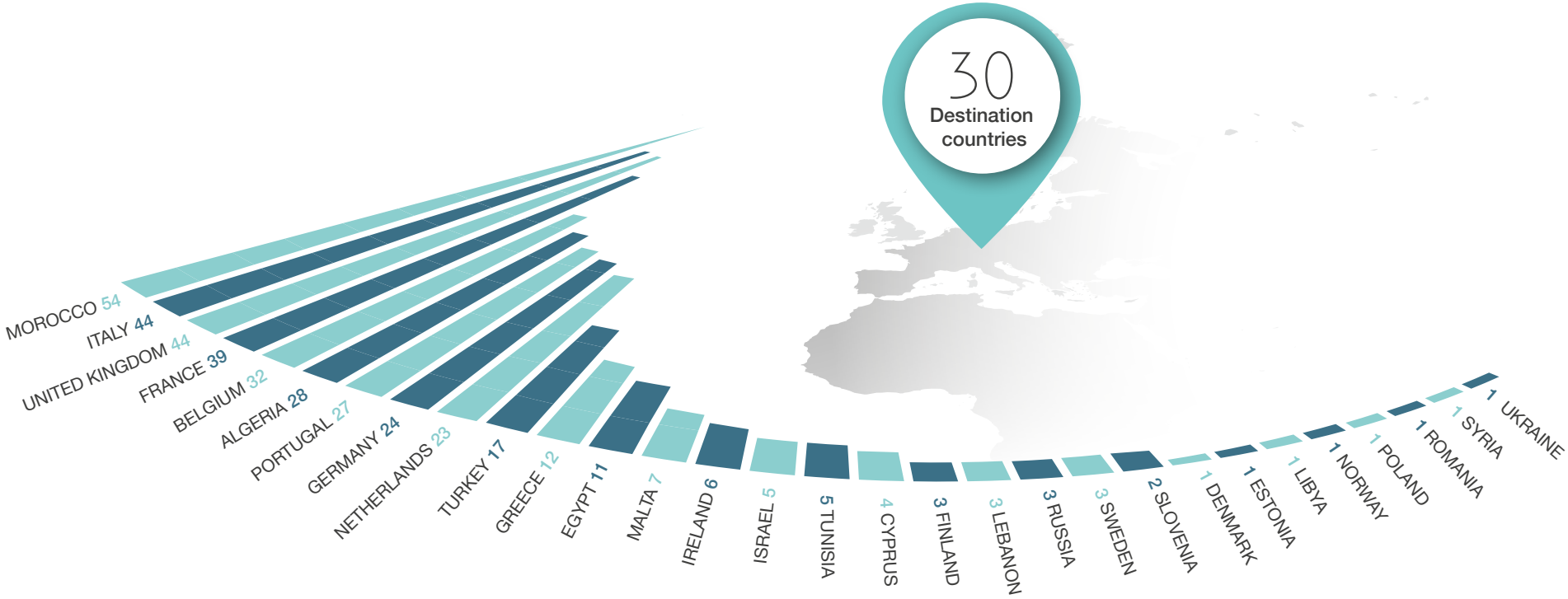


Figure 11. Destination countries according to the number of SSS services

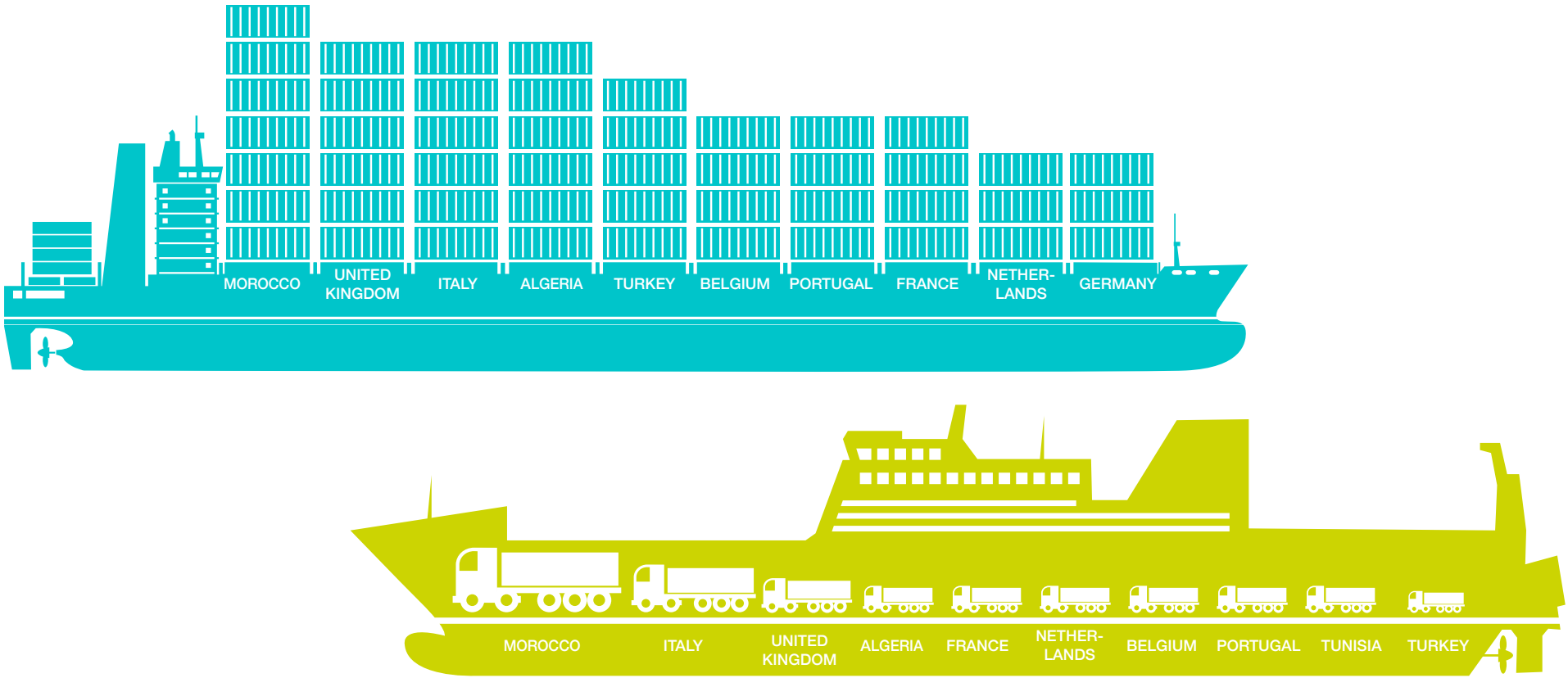
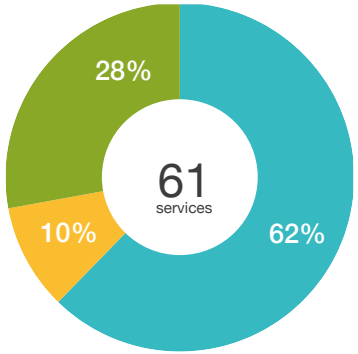
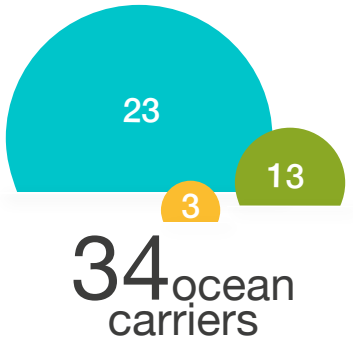


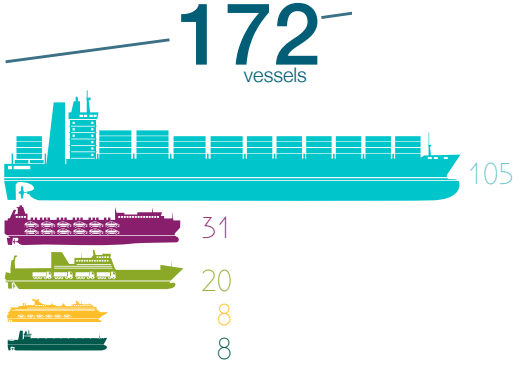
Figure 12. Ranking destination countries according to the adjusted capacity offered (TEU and line metres)

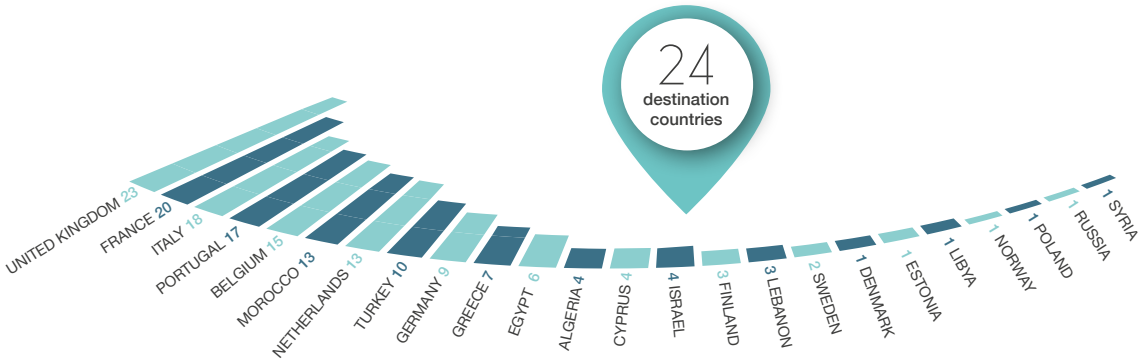
07. SSS ALTERNATIVE TO ROAD TRANSPORT

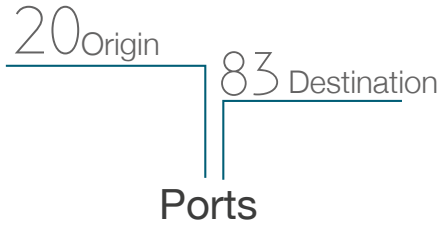




CAR-CARRIER CONTAINER ROPAX RORO GENERAL CARGO







	Services	Ocean carriers	Ports		Frequency	Vessels
			Origin	Destination		
Atlantic Coastline	26	20	10	45	1.5	56
Both Coastlines	5	7	12	17	0.9	16
Mediterranean Coastline	30	22	5	54	1.5	101

08. RAIL FREIGHT SERVICES AT PORTS

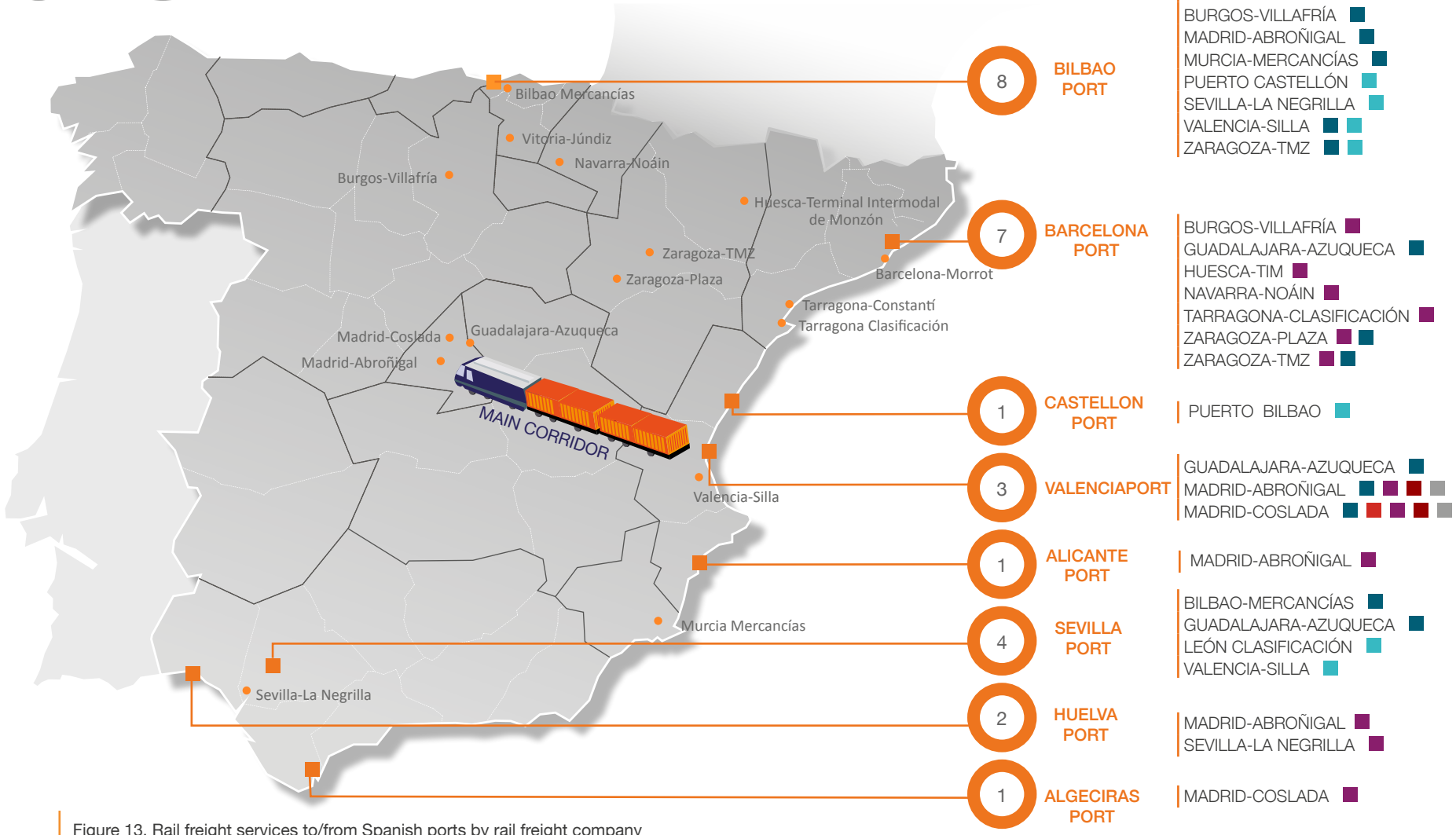


Figure 13. Rail freight services to/from Spanish ports by rail freight company

Methodological notes

The LinePort and LineRail databases, developed by the Fundación Valenciaport, compile information related to the regular short sea shipping services (SSS) and rail freight services that have fixed frequency, departure times and routes and, therefore, reflect the open and ongoing supply of transport. These essential tools for analysing SSS and rail freight services provide data referring to the characteristics of the services (frequency, transit time, origin and destination, etc.) and the characteristics of the fleet (capacity, age, size, etc.).
This section details the methodology used to calculate the indicators published in this edition.

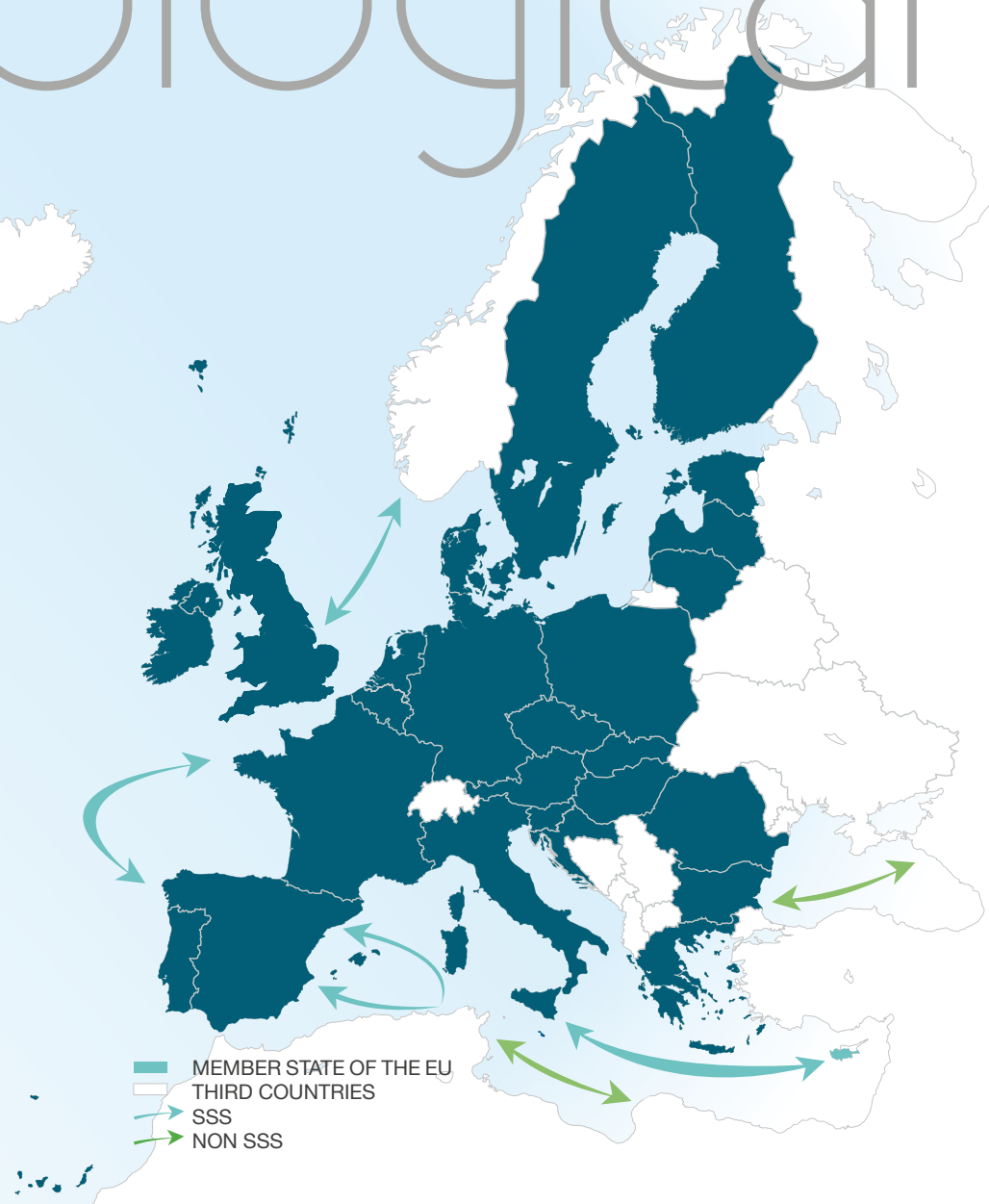
SSS SERVICES

Classifications defined in the LinePort database

Classification of services

• **SSS:** commodity and passenger transport services by sea between ports in geographical Europe or between those countries and others situated in non-European countries having a coastline on the enclosed seas bordering Europe - in keeping with the definition of SSS by the European Short Sea Network (ESN).

Interoceanic maritime transport services that accept freight bound for destination countries studied by the LinePort database have also been considered.



• **SSS alternative to road transport:** this category includes maritime container or ro-ro services that we believe represent an alternative to overland transport. The traffic between Spain and countries or islands not accessible over land* (except Ireland) have therefore been excluded from this classification, along with bulk and vehicle freight and interoceanic services, as they are considered to have a series of logistical features that make road transport unfeasible or uncompetitive and can consequently be considered, to a certain extent, a captive market of maritime transport.

*The routes with ports in Ireland, Malta, Cyprus, Iceland, Corsica, Sardinia, the Balearic Islands, the Canary Islands, Ceuta and Melilla are therefore excluded.

• **Motorways of the Sea:** SSS services that are defined as follows: minimum frequency of 3 departures per week and 3 maximum number of calls
Two geographical areas are considered:

• **Western MoS:** SSS services competitive with road haulage established in the Western European corridor connecting the ports on Spain's Atlantic coastline with the North Sea and the Irish Sea, considering the port of Hamburg as the Eastern boundary of the motorway.

• **South-West MoS:** SSS services competitive with road haulage established in the South-West European corridor connecting ports along the Spanish Mediterranean coastline to the Mediterranean coast of France, Italy and Malta.

The port of Algeciras is deemed capable of offering MoS services in both the Western and South-West corridors.

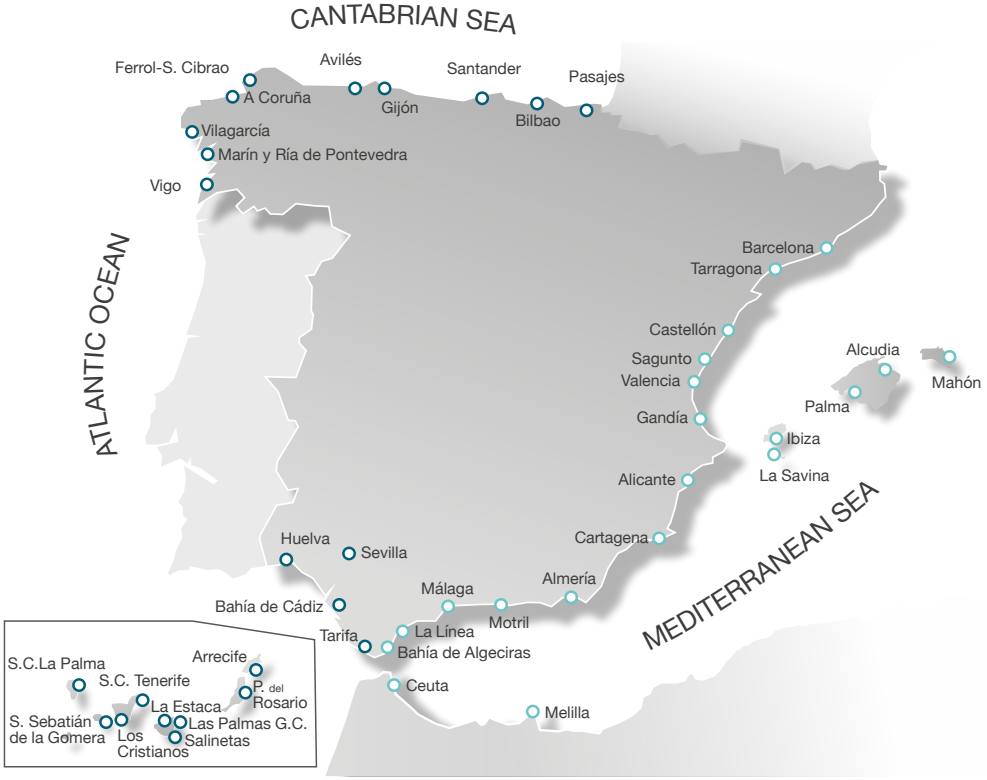
Ports studied

• **Origin ports:** 46 Spanish ports of general interest grouped in 28 Port Authorities.

The following classification is obtained using the location of the Spanish ports as a basis:

• **Atlantic Coastline:** Includes the Spanish ports on the coast of the Atlantic Ocean and the Cantabrian Sea.

• **Mediterranean Coastline:** Includes the port of Algeciras Bay, the Spanish ports on the coast of the Mediterranean Sea.



• **Destination ports:** The ports included in the LinePort database are located in geographical Europe or in non European countries having a coastline on the enclosed seas bordering Europe.

Calculation of indicators

Total SSS services: total number of services in the LinePort database during the sample period.

Total SSS services with interoceanic calls: total number of services in the LinePort database that accept freight bound for destination countries studied.

Total services by port of origin and type of freight: total number of operative services during the sample period broken down into Spanish load ports, grouped according to type of service and the type of freight defined previously. The aggregate of this classification differs from Total SSS Services as one same line is accounted for in all the Spanish ports it calls at where goods can be loaded.

Average frequency: average frequency of all services, calculated as the number of departures per week offered by the services during the period they are operative.

Ocean carriers by type of freight: total number of ocean carriers that provide services over the sample period.

Total origin ports: total number of Spanish ports offering SSS services.

Total destination ports: total number of foreign ports of destination connected with Spanish ports.

Destination ports by origin port and type of freight: sum of foreign ports of destination connected with Spanish ports according to type of freight.

Connectivity index of Spanish ports: Based on the Liner Shipping Connectivity Index (LSCI) proposed by UNCTAD for the connectivity index by country, the Fundación Valenciaport has calculated an index focusing on the connectivity of Spanish ports only in terms of the regular SSS services.

$$PCI_{j,i}=\left(\left(\frac{N_j}{Max(N_{j\ldots n})}+\frac{L_j}{Max(L_{j\ldots n})}+\frac{C_j}{Max(C_{j\ldots n})}+\frac{B_j}{Max(B_{j\ldots n})}+\frac{TB_j}{Max(TB_{j\ldots n})}+\frac{F_j}{Max(F_{j\ldots n})}+\frac{PD_j}{Max(PD_{j\ldots n})}\right)/X\right)$$

PCI= Port Connectivity Index

j= port under study

i= year for which the PCI is calculated

n= total number of ports included in the PCI

N (Ocean carriers): number of ocean carriers offering services in each Spanish port

L (Lines): number of SSS services offered during the year under study

C (Adjusted Capacity): total DWT of the vessels offering services in each port

B (Vessels): total number of vessels per service involved in the rotation

TB (Vessel size): maximum size of vessel operating in the port in question, in DWT

F (Frequency): number of departures per week offered by each port

PD (Ports of destination): total number of connected foreign ports of destination for each Spanish port.

X: total number of variables that make up the PCI.

Total vessels: total number of vessels deployed for all the services that are operative during the period under consideration.

Vessels by size and type of freight: sum of vessels that are operative during the period under consideration according to the length of the vessel and type of freight.

Vessels according to the vessel age: sum of vessels that are operative during the period under consideration grouped by vessel age.

Total capacity: calculated bearing in mind the frequency of the line and the characteristics of the vessels that operate on the route.

- **Total capacity offered in DWT:** sum of the total DWT offered by each service.
- **Total capacity offered in TEU:** sum of the total TEU that can be transported by each service.
- **Total capacity offered in LINE METRES:** sum of the total line metres offered by each service.

Adjusted capacity by origin port: Due to the fact that the load capacity allocated to a port does not coincide with the maximum capacity of the vessel on certain routes, the concept of adjusted capacity has been used. This figure is the result of applying a weighting factor to the total capacity of the vessel.

$$\text{Adjusted capacity}_{\text{origin port}} = \text{Total capacity} \times \left(\frac{1}{\text{No. ports origin}}\right)$$

Adjusted capacity by destination country: The concept of adjusted capacity also applies when considering the capacity by country of destination, using a weighting factor which distributes total TEU and line metres among calls by country destination.

$$\text{Adjusted capacity}_{\text{destination country}} = \text{Total capacity} \times \left(\frac{\text{No. destination ports in the same destination country}}{\text{Total destination ports}}\right)$$

Concerning SSS services with interoceanic call, as the ultimate purpose of these lines is to transport freight between large geographical regions (e.g. Far East-Mediterranean line), a correction factor of 0.1 is added to the foregoing adjustment ratio to calculate adjusted capacity. The correction factor stems from the hypothesis that only 10% of freight will be bound for the ports studied by LinePort.

Calls by origin port and type of freight: Total vessel calls at the spanish ports during the period under consideratial, grouped according to type of freight.

The indicators calculated in this publication include methodological improvements that represent a break in the historical series of the data calculated so far. In order to save this break, the Fundación Valenciaport will elaborate a special edition, calculating the historical data with the current methodology.

RAIL FREIGHT SERVICES

The present publication provides the national and international rail freight services with origin and destination at any rail terminal at port.

The following information details the current rail model in Spain as well as the rail freight companies that are current offering rail freight services.

Rail freight service providers

- **Commercialisation:**

  · **Rail freight operator:** a company that organises and sells rail freight transport and is responsible for it. The company may have its own locomotive or need to contract one from a rail company.

  · **Entitled Candidate:** a company that may directly request rail slots for new freight transport traffic from Adif, although the company must contract the locomotion from rail companies, the only authorised companies where the safety conditions and professional skills required by the Rail Sector Act are concerned.

ENTITLED CANDIDATE	INITIAL LICENSE
1. CONTE RAIL S.A.	02/ 2007
2. TRAMESA	02/ 2010

- **Locomotion:**

  - **Rail Company:** a company that provides locomotion. Any company that wishes to provide a rail freight transport service on the RFIG (General Interest Rail Network) must have a rail license and a safety certificate in order to be able to request rail slots on the RFIG from Adif to transport freight.

This table includes the rail companies that are current holders of a rail license in Spain.

| ● SAFETY CERTIFICATE |

	RAIL COMPANY	INITIAL LICENSE
1.	RENFE - OPERADORA	09/ 2005
2.	COMSA RAIL TRANSPORT, S.A.	09/ 2005 ●
3.	CONTINENTAL RAIL, S.S.	10/ 2005 ●
4.	ACCIONA RAIL SERVICES, S.A.	03/ 2006 ●
5.	TRANSFESA RAIL , S.A.U.	07/ 2006 ●
6.	TRACCIÓN RAIL, S.A.	07/ 2006 ●
7.	EUSKO TRENBIDEAK-FERROCARRILES VASCOS, S.A.	08/ 2006 ●
8.	ARCELORMITTAL SIDERAIL, S.A.	07/ 2007
9.	LOGITREN FERROVIARIA, S.A.U.	04/ 2008 ●
10.	FESUR- FERROCARRILES DEL SUROESTE, S.A.	05/ 2008
11.	FGC- MOBILITAT, S.A.	07/ 2009
12.	ALSA FERROCARRIL, S.A.U.	03/ 2010
13.	GUINOVART RAIL, S.A.U.	12/ 2010 ●
14.	FERROVIAL RAILWAY, S.A.	03/ 2011 ●
15.	LOGIBÉRICA RAIL, S.A.U..	11/ 2011
16.	TAKARGO- TRANSPORTE DE MERCADORÍAS	10/ 2012
17.	TRANSITIA RAIL, S.A.	04/ 2013 ●
18.	MONBUS RAIL, S.A.	04/ 2013
19.	ASTURMASA RAIL, S.A.U.	10/ 2013
20.	ECO RAIL, S.A.U.	10/ 2013
21.	INTERBUS, S.A.	10/ 2013 ●
22.	ARREMELE SIGLO XXI, S.A.	11/ 2013 ●
23.	LA SEPULVEDANA, S.A.U.	06/ 2014
24.	RENFE MERCANCÍAS, S.A.U.	07/ 2014 ●
25.	TRANSPORTES MIXTOS ESPECIALES, S.A. (TRAMESA)	01/ 2015
26.	NOGARTRAIN, S.A.U.	10/ 2015 ●
27.	CONSTRUCCIONES Y AUXILIAR DE FERROCARRILES, S.A.	12/ 2015
28.	GLOBAL RAIL, S.A.U.	06/ 2016
29.	FGC RAIL, S.A.	07/ 2016
30.	LOW COST RAIL, S.A.	09/ 2016

Source: Adif

Data from databases LinePort and LineRail

For quotation this information, please refer to: LinePort and/or LineRail database of the Fundación Valenciaport.

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