STANDARDS RELATED DOCUMENT

ATP-08.1

AMPHIBIOUS OPERATIONS INTEROPERABILITY MATRIX

Edition A Version 2

December 2019

NORTH ATLANTIC TREATY ORGANIZATION

ALLIED TACTICAL PUBLICATION

Published by the
NATO STANDARDIZATION OFFICE (NSO)
© NATO/OTAN

INTENTIONALLY BLANK

NORTH ATLANTIC TREATY ORGANIZATION (NATO)

NATO STANDARDIZATION OFFICE (NSO)

NATO LETTER OF PROMULGATION

18 December 2019

1. The enclosed Standards Related Document, ATP-08.1, Edition A, Version 2, AMPHIBIOUS OPERATIONS INTEROPERABILITY MATRIX, which has been approved in conjunction with ATP-08 by the nations in the MILITARY COMMITTEE MARITIME STANDARDIZATION BOARD (MCMSB), is promulgated herewith.

2. ATP-08.1, Edition A, Version 2 is effective upon receipt and supersedes ATP-08.1, Edition A, Version 1, which shall be destroyed in accordance with the local procedure for the destruction of documents.

3. No part of this publication may be reproduced, stored in a retrieval system, used commercially, adapted, or transmitted in any form or by any means, electronic, mechanical, photo-copying, recording or otherwise, without the prior permission of the publisher. With the exception of commercial sales, this does not apply to member or partner nations, or NATO commands and bodies.

4. This publication shall be handled in accordance with C-M(2002)60.

for

Zoltán GULYÁS
Brigadier General, HUNAF
Director, NATO Standardization Office

Dieter Schmaglowski
Deputy Director NSO
Branch Head P&C

INTENTIONALLY BLANK

RESERVED FOR NATIONAL LETTER OF PROMULGATIO

INTENTIONALLY BLANK

ATP-8.1 was developed using information and data provided by the contributing nations. The Interoperability Matrix is NOT an official certified and/or by nations approved document, and it should NOT be implied by the user of ATP-8.1 that the interoperability between amphibious ships with surface connectors was determined and certified by official technical assessment of a nation or nations. ATP-8.1 is intended to act as a guideline for possible bilateral or multinational interoperability between amphibious ships and surface connectors of partnering nations.
The ship/connector matrix provides data for the physical–dimensions of amphibious platforms and surface connectors to assist a planning staff to quickly evaluate feasibility of ship and surface connector combinations only. Specific notes are included to amplify issues other than physical dimension data that might be considered when evaluating the feasibility of interoperability.
All cross-nation operations between amphibious ships and surface connectors require specific national approval that may be determined in such planning.

NOTE. THE DATA IN THE MATRIX MERELY INDICATES PHYSICAL COMPATIBILITY AND SHOULD NOT BE CONSTRUED AS AN OFFICIAL CLEARANCE OR AUTHORIZATION TO CONDUCT NATION-TO-NATION SURFACE PLATFORM INTERFACE OPERATIONS.

Limitations and Review Date.

It is a nation's responsibility to provide the custodian accurate and up-to-date data / information for its amphibious ships and surface connector capabilities. Additional data to supplement national information or tables can be entered into the comment box on respective amphibious capability page(s). The date, located on the page and in the nations' rows within the Interoperability matrix, indicates when the data was last reviewed.

Since the aim of this document is to provide a guideline for amphibious ships and surface connector interoperability with the most up-to-date information possible, nations should contact specific partnering nations to verify data in preparation of an exercise or operation. Lessons identified or lessons learned regarding interoperability possibilities or restrictions from exercises or operations should be send by each nation to the custodian to be incorporated into the document.

Ratification/Adoption.

This document is a Standard Related Document (SRD) of STANAG 1149, ATP-08 VOL.I, DOCTRINE FOR AMPHIBIOUS OPERATIONS. Thereby the document will be promulgated under a silence procedure.

INTENTIONALLY BLANK

TABLE OF CONTENTS

INTENTIONALLY BLANK

CHAPTER 1 INTRODUCTION

0101. The purpose of this NATO standards-related document (SRD) is to outline the capacities and characteristics of amphibious platforms and landing craft (chapter 2 – chapter 16) and the interoperability between the nations (chapter 17).

0102. This publication is intended for the guidance as a reference document for use by NATO / national staffs.

0103. To review their national chapter and to forward revisions to the custodian in accordance with the yearly updated Terms of Reference (TOR) of AMPHIB WG / Required Action List (RAL) of Military Committee Maritime Standardization Board (MCMSB) will be the responsibility of each nation. Further on the nations are responsible to inform the custodian immediately if there will be any change in the which may cause any influence to the planning or enforcement of bi-/ multinational operations.

0104. By both means, the custodian may incorporate these amendments (minor changes) in a new version of the publication, which will be subject to MCMSB approval for promulgation in accordance with AAP-03. This is the way ahead for this publication being an updated, reliable and consequently a living document.

0105. This document remains valid in times of peace, tension or crisis and in times of war. However, nothing in this document should be taking as setting aside any specific bi-/multilateral agreements concluded between nations on particular logistic and administrative matters.

CHAPTER 2 AUSTRALIA

Last review 29-08-2017

CANBERRA CLASS (LHD)

L01 HMAS ADELAIDE (III)
L02 HMAS CAMBERRA (III)

Landing Craft	4 x LLC or 4 x LCM8 (or combination)
Well deck Length (m)	69.7
Width (m)	16.8 (stern) 7.7 lane at centre barrier
Centre barrier y/n width p/sb	Y 7.7 / 7.7
Area (Lims = lanes in meters, width 2.8 m)	Heavy vehicle Deck 1410m2 – 80t/Light Vehicle Deck/Hanger Deck 1,880m2 -16t
Max Overhead Clearance (m) (fully ballasted)	10
Max Depth of Well (m) (fully ballasted)	2.8
Well Deck NVG Capable	Y
Refueling Capable	
Stern ramp Restrictions	

Comment:

BAY CLASS (LSD)

L100 HMAS CHOULES

Landing Craft	LCM8/2 x Mexeflote (Same as GBR)
Well deck Length (m)	31.2 to foot of beach 47 to head of beach
Width (m)	8.4
Centre barrier y/n width p/sb	N
Area (Lims = lanes in meters, width 2.8 m)	900
Max Overhead Clearance (m) (fully ballasted)	7.35
Max Depth of Well (m) (fully ballasted)	3
Well Deck NVG Capable	Y
Refueling Capable	
Stern ramp Restrictions	

Comment:

LANDING CRAFT

LCM-1E (Navy) / LCM-8 (Army)

LCVP

Landing Craft	LCM-1E (Navy)	LCM-8 (Army)	LCVP
Length (m)	23.3	22.45	13.2
Width (m)	5.36	4.57	3.5
Draft (m)	1.8	1.8	
Height above waterline – No load (m)			
Craft Displacement empty (t) *	56.6		7
Deadweight cargo (DWCC, t)			
Craft Displacement total (t)	110	70	
Personnel (temperate)	4	4 (5 Combat)	3
Vehicles	1 MBT (M60A3) or 2med tr.+ tlr		
Planning Speed (knots)	12	10	15
Max Speed (knots)	16	12	22
Endurance (hours)	16		
Range (nm)	160	510	
Davit Capable	N	N	N
Capable of stern transfer	Y (only in dry dock)	N	
Roll-On/Roll Off	Y (only in dry dock)	N	
Sea State (WMO/Douglas sea scale)	4	4	
Wind Speed (knots)			
Beach Gradient (e.g:1:120)	1:60	1:50	

*incl. lightship, fuel and craft stores

Comment:
LLC (Navy) > Derivative of Spanish LCM-1E
> Crane capable – Y
LCM-8 (Army) > Crane capable – Y

CHAPTER 3 FRANCE

Last review 13-06-2019

MISTRAL CLASS (LHD)

L9013 Mistral
L9014 Tonnerre
L9015 Dixmude

Landing Craft	4x CMT / 2x LCAT
Well deck Length (m)	60
Width (m)	14.3
Centre barrier y/n width p/sb	N
Area (Lims = lanes in meters, width 2.8 m)	910 m²
Max Overhead Clearance (m) (fully ballasted)	5.20
Max Depth of Well (m) (fully ballasted)	2.6
Well Deck NVG Capable	Yes
Refueling Capable	Yes
Stern ramp Restrictions	60 Tons

Comment: None

LANDING CRAFT (CTM AND LCAT)

CTM

LCAT

Landing Craft	CTM	LCAT
Length (m)	23.8	30
Width (m)	6.35	12.4
Draft (m) - empty/full	1.23/1.60	Landing mode: 0.9/1.10 Catamaran mode: 1.66/2.35
Height above waterline – No load (m)	4.45	5.40
Craft Displacement empty (t) *	60	185
Deadweight cargo (DWCC, t)	90	80-100
Craft Displacement total (t)	149 (fully loaded)	285
Personnel (temperate)	80	100
Vehicles	20 ml	6
Planning Speed (knots)	8	18-10
Max Speed (knots)	9	30
Endurance (hours)	460Nq - 0,8 PMP	20
Range (nm)	300	400
Davit Capable	N	N
Capable of stern transfer	Y	Y
Roll-On/Roll Off	N	Y
Sea State (WMO/Douglas sea scale)	4	Nav 5, docking 3
Wind Speed (knots)	Front 25-lateral 15	Front 25-lateral 15
Beach Gradient (e.g:1:120)	3%	>2.5%

*incl. lightship, fuel and craft stores

Comment:
Note that for the FRENCH beach recce unit, during peace time operations, it is mandatory to dive and conduct a beach recce report. Using a dip-stick method is not sufficient. In addition, after a French beach recce unit has closed a beach, they need to dive again to reopen the (same) beach.

CHAPTER 4 GERMANY

Last review 05-11-2019

LANDING CRAFT

LCU type 520

Landing Craft	LCU type 520
Length (m)	40.04
Width (m)	8.8
Draft (m)	2.3
Height above waterline – No load (m)	11.9
Craft Displacement empty (t) *	219
Deadweight cargo (DWCC, t)	143
Craft Displacement total (t)	430
Personnel (temperate)	17
Vehicles	Up to 3 main battle tanks
Planning Speed (knots)	9
Max Speed (knots)	10
Endurance (hours)	240
Range (nm)	1600/10kn
Davit Capable	N
Capable of stern transfer	Y
Roll-On/Roll Off	Y
Sea State (WMO/Douglas sea scale)	5
Wind Speed (knots)	5-6
Beach Gradient (e.g:1:120)	N.A.

*incl. lightship, fuel and craft stores

Comment:

CHAPTER 5 GREECE

Last review14-03-2017

JASON CLASS (LST)

L173 HS CHIOS
L174 HS SAMOS
L175 HS IKARIA
L176 HS LESVOS
L177 HS RODOS

Landing Craft	4 LCVP
Well deck Length (m)	N.A.
Width (m)	N.A.
Centre barrier y/n width p/sb	N.A.
Area (Lims = lanes in meters, width 2.8 m)	N.A.
Max Overhead Clearance (m) (fully ballasted)	N.A.
Max Depth of Well (m) (fully ballasted)	N.A.
Well Deck NVG Capable	N.A.
Refueling Capable	
Stern ramp Restrictions	

Comment:

Landing Craft

LCAC ZUBR (POMORNIK)CLASS

L180 HS KEFALLINIA
L181 HS ITHAKI
L182 HS KERKYRA

LCVP 36F MKII

Landing Craft	LCAC ZUBR	LCVP 36F
Length (m)	57.3	10.6
Width (m)	25.6	3.2
Draft (m)	-	
Height above waterline – No load (m)	18.5	1.5
Craft Displacement empty (t) *	366.4	7
Deadweight cargo (DWCC, t)	2.6	N.A.
Craft Displacement total (t)		
Personnel (temperate)	140	22
Vehicles	3MBT or 10 APC or 8 IFV	N
Planning Speed (knots)	40	12
Max Speed (knots)	60	18
Endurance (hours)	N.A.	N.A.
Range (nm)	1000@55kts and max fuel load	N.A.
Davit Capable	N	Y
Capable of stern transfer	N	N
Roll-On/Roll Off	Y	N
Sea State (WMO/Douglas sea scale)	< 5	< 4
Wind Speed (knots)	< 24	< 20
Beach Gradient (e.g:1:120)	< 5 degrees	N.A.

*incl. lightship, fuel and craft stores

Comment

CHAPTER 6 ITALY

Last review 20-10-2017

SAN GIORGIO CLASS (LPD)

L9892 SAN GIORGIO
L9893 SAN MARCO

Landing Craft	3 LCM – 6 / 3 LCVP / 1 LCPL
Well deck Length (m)	20,5
Width (m)	7,5
Centre barrier y/n width p/sb	
Area (Lims = lanes in meters, width 2.8 m)	
Max Overhead Clearance (m) (fully ballasted)	6,5
Max Depth of Well (m) (fully ballasted)	2
Well Deck NVG Capable	N
Refueling Capable	
Stern ramp Restrictions	

Comment:

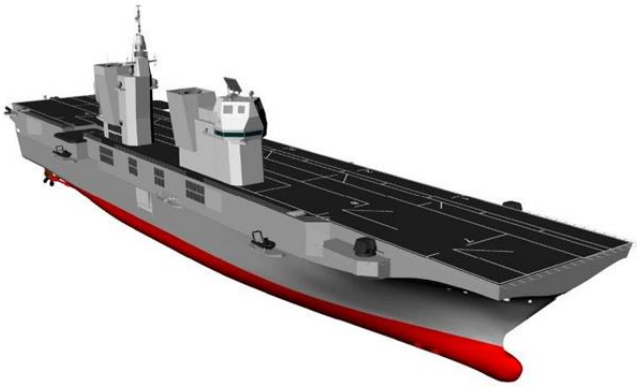
SAN GIUSTO CLASS (LPD)

L9894 SAN GIUSTO

Landing Craft	3 LCM – 6 / 3 LCVP / 1 LCPL
Well deck Length (m)	20,5
Width (m)	7,5
Centre barrier y/n width p/sb	
Area (Lims = lanes in meters, width 2.8 m)	
Max Overhead Clearance (m) (fully ballasted)	6,5
Max Depth of Well (m) (fully ballasted)	2
Well Deck NVG Capable	N
Refueling Capable	
Stern ramp Restrictions	

Comment:

LHD (expected delivery 2022)



Landing Craft	4 LCM 1E
Well deck Length (m)	50
Width (m)	15
Centre barrier y/n width p/sb	
Area (sq m)	750
Max Overhead Clearance (m) (fully ballasted)	6,8
Max Depth of Well (m) (fully ballasted)	2,2
Well Deck NVG Capable	Y
Refueling Capable	
Stern ramp Restrictions	

Comment: expected delivery 2022

LANDING CRAFT (LCM-6 AND LCVP)

LCM-6

LCVP 96 MDN

Landing Craft	LCM-6	LCVP 96 MDN
Length (m)	19,58	13,5
Width (m)	5,1	3,5
Draft (m)	1,1	0,52
Height above waterline – No load (m)	2,5	2,1
Craft Displacement empty (t) *	46,076	11,5
Deadweight cargo (DWCC, t)	30	4,5
Craft Displacement total (t)	76,076	15,5
Personnel (temperate)	120 (fully equipped)	30 (fully equipped)
Vehicles	2 apc's or 2 veh. or 1 heavy vehicle	N
Planning Speed (knots)	8	18
Max Speed (knots)	12	24
Endurance (hours)	N.A	N.A
Range (nm)	220 (190 @ 9 kts)	120
Davit Capable	Y	Y
Capable of stern transfer	N	N
Roll-On/Roll Off	Y	N
Sea State (WMO/Douglas sea scale)	3	2
Wind Speed (knots)	N.A.	N.A.
Beach Gradient (e.g:1:120)	N.A.	N.A.

*incl. lightship, fuel and craft stores

Comment:

LANDING CRAFT

RRC (BAA)

RRC (DEN)

AAV-7

Landing Craft	RRC (BAA)	RRC (DEN)	AAV-7
Length (m)	8,20	9,20	8,2
Width (m)	2,5	3,10	3,3
Draft (m)	0,52	0,56	
Height above waterline – No load (m)	N.D.	N.A.	
Craft Displacement empty (t) *	3	4,4	22
Deadweight cargo (DWCC, t)	1,6	1,8	N.A.
Craft Displacement total (t)	4,6	6,2	
Personnel (temperate)	10 + 2 crew	10+2 crew	18+2 crew
Vehicles	N	N	NA
Planning Speed (knots)	30	28	5
Max Speed (knots)	40	37	8
Endurance (hours)	N.A.	N.D.	7
Range (nm)	120	250	2
Davit Capable	Y	Y	N
Capable of stern transfer	N	N	N
Roll-On/Roll Off	N	N	N
Sea State (Douglas sea scale)	4	4	4
Wind Speed (knots)	N.A.	N.A.	21 knots
Beach Gradient (e.g:1:120)	N.A.	N.A.	

*incl. lightship, fuel and craft stores

Comment:

CHAPTER 7 NETHERLANDS

Last review 05-11-2019

Rotterdam CLASS (LPD)

L800 ZRMS ROTTERDAM

Landing Craft	2x LCU + 3 x LCVP
Well deck Length (m)	51
Width (m)	14.5
Centre barrier y/n width p/sb	Y 7,02 (p/sb)
Area (Lims = lanes in meters, width 2.8 m)	535
Max Overhead Clearance (m) (fully ballasted)	7.5
Max Depth of Well (m) (fully ballasted)	2.5
Well Deck NVG Capable	Y
Refueling Capable	Y
Stern ramp Restrictions	

Comment:

JOHAN DE WITT CLAS (LPD)

L801 ZRMS JOHAN DE WITT

Landing Craft	2x LCU or 5 LCVP (Dock) + 4x LCVP/Frisc (Davids)
Well deck Length (m)	37
Width (m)	15.5
Centre barrier y/n width p/sb	Y Ps: 7,3m / Sb: 8,0m
Area (Lims = lanes in meters, width 2.8 m)	1095
Max Overhead Clearance (m) (fully ballasted)	7.5
Max Depth of Well (m) (fully ballasted)	2.5
Well Deck NVG Capable	Y
Refueling Capable	Y
Stern ramp Restrictions	

Comment:

KAREL DOORMAN (JSS)

A833 ZRMS KAREL DOORMAN

Landing Craft	2x LCVP/FRISC (Davits)
Well deck Length (m)	Stern ramp/Slipway
Width (m)	N
Centre barrier y/n width p/sb	N
Area (Lims = lanes in meters, width 2.8 m)	1913
Max Overhead Clearance (m) (fully ballasted)	N
Max Depth of Well (m) (fully ballasted)	N
Well Deck NVG Capable	N
Refueling Capable	Y
Stern ramp Restrictions	

Comment:

LANDING CRAFT (LCU MK 2 and LCvp MK 5 C/D)

LCU MK 2

LCVP MK 5

Landing Craft	LCU MK 2	LCVP MK 5
Length (m)	35.8	15.7
Width (m)	6.7	4.27
Draft (m)	1.5	0.66
Height above waterline – No load (m)	6.6 (without searchlight 6.0)	3.55
Craft Displacement empty (t) *	210	16
Deadweight cargo (DWCC, t)	65	8.2
Craft Displacement total (t)	275	24.2
Personnel (temperate)	160 (incl crew)	34
Vehicles	BARV +2 BV 206	BV 206/2x LARO
Planning Speed (knots)	8.5	25
Max Speed (knots)	9	30
Endurance (hours)	34	8
Range (nm)	300-350	200
Davit Capable	N	Y
Capable of stern transfer	Y	N
Roll-On/Roll Off	Y	N
Sea State (WMO/Douglas sea scale)	4	4
Wind Speed (knots/bft)	< 30 kts/ 6 bft	< 30 kts/ 6 bft
Beach Gradient (e.g:1:120)	1:120	1:120

*incl. lightship, fuel and craft stores

Comment:

LANDING CRAFT (FRISC)

FRISC-RC

FRISC-BC

Landing Craft	Raiding Craft	Boarding Craft
Length (m)	12	12
Width (m)	3,3	3,3
Draft (m)	0,65	1,15
Height above waterline – No load (m)	2,8	2,8
Craft Displacement empty (t) *	7,27	7,2
Deadweight cargo (DWCC, t)	0,6	0.45
Craft Displacement total (t)		
Personnel (temperate)	8	6
Vehicles	-	-
Planning Speed (knots)	25	25
Max Speed (knots)	40	40
Endurance (hours)	7 @ 30 Kn	6 @ 40kn
Range (nm)	200	240
Davit Capable	Y	Y
Capable of stern transfer	N.A.	N.A.
Roll-On/Roll Off	N	N
Sea State (WMO/Douglas sea scale)	4	4
Wind Speed (knots/bft)	< 30 kts/ 6 bft	< 30 kts/ 6 bft
Beach Gradient (e.g:1:120)	N.A.	N.A.

*incl. lightship, fuel and craft stores

Comment:

CHAPTER 8 NEW ZEALAND

Last review 02-07-2017

CANTERBURY CLASS

L421 HMNZS CANTERBURY

Landing Craft	2 x LCM-8
Well deck Length (m)	N
Width (m)	N
Centre barrier y/n width p/sb	N
Area (Lims = lanes in meters, width 2.8 m)	402 *
Max Overhead Clearance (m) (fully ballasted)	4.9
Max Depth of Well (m) (fully ballasted)	N
Well Deck NVG Capable	N
Refueling Capable	
Stern ramp Restrictions	

Comment:
*height restrictions apply

LANDING CRAFT

LCM-8

Landing Craft	LCM-8
Length (m)	23
Width (m)	6.4
Draft (m)	1.2
Height above waterline – No load (m)	5.90 approx.
Craft Displacement empty (t) *	58.9
Deadweight cargo (DWCC, t)	40
Craft Displacement total (t)	98.9
Personnel (temperate)	50 pers with FSMO
Vehicles	40 (tonnes)
Planning Speed (knots)	10
Max Speed (knots)	10.2
Endurance (hours)	27.5 @ 9kts
Range (nm)	250nm @ 9kts
Davit Capable	Y
Capable of stern transfer	Y
Roll-On/Roll Off	Y
Sea State (WMO/Douglas sea scale)	3 (max with cargo)
Wind Speed (knots)	25 (max launch/recovery)
Beach Gradient (e.g:1:120)	1:13

*incl. lightship, fuel and craft stores

Comment:

CHAPTER 9 NORWAY

Last review unknown

LANDING CRAFT CB90

CB-90N

Landing Craft	CB-90N
Length (m)	16.1
Width (m)	3.8
Draft (m)	0.8
Height above waterline – No load (m)	5.2
Craft Displacement empty (t) *)	17.5
Deadweight cargo (DWCC, t)	4.5
Craft Displacement total (t)	21
Personnel (temperate)	12
Vehicles	N
Planning Speed (knots)	
Max Speed (knots)	40
Endurance (hours)	
Range (nm)	300
Davit Capable	In study
Capable of stern transfer	N
Roll-On/Roll Off	N
Sea State (WMO/Douglas sea scale)	3-4
Wind Speed (knots)	
Beach Gradient (e.g:1:120)	

*incl. lightship, fuel and craft stores

Comment:

CHAPTER 10 POLAND

Last review 19-11-2019

LUBLIN CLASS (LST)

821 LUBLIN
822 GNIEZNO
823 KRAKOW
824 POZNAN
825 TORUN

Landing Craft	Non
Length	95.4
Width (m)	10.8
Centre barrier y/n width p/sb	N.A.
Area (Lims = lanes in meters, width 2.8 m)	92.0
Max Overhead Clearance (m) (fully ballasted)	2.4
Max Depth of Well (m) (fully ballasted)	1.4
Well Deck NVG Capable	N.A.
Refueling Capable	YES
Stern ramp Restrictions	N.A.

Comment:
The LST's ramp will only support 15 tons when at sea (and ramp is not bottomed) which means it cannot embark for instance AAV's at sea or on the beach in that particular circumstances, but only when pier side with a supported ramp (then max weight is 45 tons).

LANDING CRAFT

DEBA LCU

PTS

Landing Craft	DEBA LCU TYPE	PTS
Length (m)	37.2	11.5
Width (m)	7.1	3.3
Draft (m)	1.7	1.7
Height above waterline – No load (m)	13.2	1.5
Craft Displacement empty (t) *)	166	20
Deadweight cargo (DWCC, t)	20	5
Craft Displacement total (t)	N.A.	N.A.
Personnel (temperate)	50+15 crew	15+2 crew
Vehicles	1 tank or 2x 20 ton	N
Planning Speed (knots)	16	5
Max Speed (knots)	20	10.6
Endurance (hours)	72hr	10hr
Range (nm)	430Nm	50Nm
Davit Capable	N	N
Capable of stern transfer	N	N
Roll-On/Roll Off	N	N
Sea State (WMO/Douglas sea scale)	3	1
Wind Speed (knots)	4	3
Beach Gradient (e.g:1:120)	1.67 deg	30 deg

*incl. lightship, fuel and craft stores

Comment:

AMV VOLWERINE

Landing Craft	KTO ROSOMAK / AMV VOLWERINE
Length (m)	7,9
Width (m)	2,8
Draft (m)	1,6
Height above waterline – No load (m)	1,6
Craft Displacement empty (t) *)	22
Deadweight cargo (DWCC, t)	N.A.
Craft Displacement total (t)	N.A.
Personnel (temperate)	8+3 crew
Vehicles	N
Planning Speed (knots)	5
Max Speed (knots)	6
Endurance (hours)	15hr
Range (nm)	35Nm
Davit Capable	N
Capable of stern transfer	N
Roll-On/Roll Off	N
Sea State (WMO/Douglas sea scale)	2
Wind Speed (knots)	10 knots
Beach Gradient (e.g:1:120)	24,4 deg

*incl. lightship, fuel and craft stores

Comment:

CHAPTER 11 PORTUGAL

Last review unknown

LANDING CRAFT

LDG

Landing Craft	LDG
Length (m)	56.2
Width (m)	11.8
Draft (m)	1.9
Height above waterline – No load (m)	
Craft Displacement empty (t) *)	654
Deadweight cargo (DWCC, t)	350
Craft Displacement total (t)	
Personnel (temperate)	400
Vehicles	2 MBT OR 5 LARC
Planning Speed (knots)	9.5
Max Speed (knots)	10.5
Endurance (hours)	
Range (nm)	2600 NM at 10.5 kn
Davit Capable	N
Capable of stern transfer	N
Roll-On/Roll Off	Y
Sea State (WMO/Douglas sea scale)	
Wind Speed (knots)	
Beach Gradient (e.g:1:120)	

*incl. lightship, fuel and craft stores

Comment:

CHAPTER 12 SPAIN

Last review 29-05-2017

GALICIA CLASS (LPD)

L51 GALICIA
L52 CASTILLA

Landing Craft	4 LCM-1E
Well deck Length (m)	65
Width (m)	14.5
Centre barrier y/n width p/sb	Y 7.0 (p/sb)
Area (Lims = lanes in meters, width 2.8 m)	972.4 m²
Max Overhead Clearance (m) (fully ballasted)	7.4
Max Depth of Well (m) (fully ballasted)	2.8
Well Deck NVG Capable	Y
Refueling Capable	
Stern ramp Restrictions	

Comment:

JUAN CARLOS class (LHD)

L61 JUAN CARLOS I

Landing Craft	4 LCM-1E
Well deck Length (m)	69,3
Width (m)	16,64
Centre barrier y/n (width p/sb)	Y 7.0 (p/sb)
Area (Lims = lanes in meters, width 2.8 m)	975 m²
Max Overhead Clearance (m) (fully ballasted)	7,2
Max Depth of Well (m) (fully ballasted)	3,0
Well Deck NVG Capable	Y
Refueling Capable	
Stern ramp Restrictions	

Comment:

Landing craft

LCM-1E

AAV-7

Landing Craft	LCM-1E	AAV-7
Length (m)	23,3	8,2
Width (m)	6.4	3,3
Draft (m)	0,9/1,4	1.8
Height above waterline – No load (m)	< 4	3.2
Craft Displacement empty (t) *)	55,2	22
Deadweight cargo (DWCC, t)	70	N.A.
Craft Displacement total (t)		
Personnel (temperate)	170 incl. equipment	18+3 crew
Vehicles	1 MBT (M60A3) or 2 med trucks + tlr	NA
Planning Speed (knots)	10	5
Max Speed (knots)	>20	8
Endurance (hours)	16	7
Range (nm)	190@12 knots	2
Davit Capable	NA	N
Capable of stern transfer	Y	N
Roll-On/Roll Off	Y	N
Sea State (WMO/Douglas sea scale)	4	4
Wind Speed (knots)	35 knots	21 knots
Beach Gradient (e.g:1:120)	Between 1:60 and 1:120	

*incl. lightship, fuel and craft stores

Comment:

CHAPTER 13 SWEDEN

last review 08-05-2018

LANDING CRAFT

CB-90

LCAC

Landing Craft	CB-90	LCAC GRIFFON 8100TD
Length (m)	16.1	23
Width (m)	3.8	11
Draft (m)		
Height above waterline – No load (m)		
Craft Displacement empty (t) *)	17.5-21	23
Deadweight cargo (DWCC, t)	4.5	11 (container 20ft)
Craft Displacement total (t)		
Personnel (temperate)	12	50
Vehicles		1 ATV VIKING
Planning Speed (knots)		35-40
Max Speed (knots)	40	Up to 50
Endurance (hours)		
Range (nm)	300	
Davit Capable	In study	N
Capable of stern transfer	N	
Roll-On/Roll Off	N	Y
Sea State (WMO/Douglas sea scale)	3-4	
Wind Speed (knots)		
Beach Gradient (e.g:1:120)		

*incl. lightship, fuel and craft stores

Comment:

LANDING CRAFT

LTRB

Landing Craft	LTRB Main data series S
Length (m)	24,6
Width (m)	5,4
Draft (m)	1,1
Height above waterline – No load (m)	Top of mast 10,0 lowered mast 6,3
Craft Displacement empty (t) *)	43,6
Deadweight cargo (DWCC, t)	20,5 (max load on deck 10,5)
Craft Displacement total (t)	64,1 (with max load 20,5)
Personnel (temperate)	3 crew (11 passengers)
Vehicles	1 BV or HUMVEE/Land Rover etc, 4 or more ATV
Planning Speed (knots)	20-25
Max Speed (knots)	Above 25 (25-28 with a light ship)
Endurance (hours)	18 (Due to regulations regarding “work hours” for the crew, can be expanded when adding a second crew)
Range (nm)	Approx 250NM (The craft has the ability to connect all three fuel tanks and therefor can go much further but will use fuel that might be for CB90 or other crafts)
Davit Capable	No
Capable of stern transfer	No
Roll-On/Roll Off	Yes
Sea State (WMO/Douglas sea scale)	5
Wind Speed (knots)	No information
Beach Gradient (e.g:1:120)	N.A.

*incl. lightship, fuel and craft stores

Comment:
The LTRB can carry up to approx 15000L of fuel with the ability to refuel up to 4 other crafts at the same time either stationary (4) or under way (2) in speeds up to 15 knots.

CHAPTER 14 TURKEY

LAST REVIEW 02-05-2019

LHD CLASS

L400 TCG ANADOLU

Landing Craft	4x LCM
Well deck Length (m)	69,3
Width (m)	16,64
Centre barrier y/n width p/sb	N.A.
Area (Lims = lanes in meters, width 2.8 m)	975m2
Max Overhead Clearance (m) (fully ballasted)	N.A.
Max Depth of Well (m) (fully ballasted)	N.A.
Well Deck NVG Capable	N.A.
Refueling Capable	N.A.
Stern ramp Restrictions	N.A.

Comment: expected to be launched in 2019

Bayraktar class LST

L402 TCG BAYRAKTAR
L403 TCG SANCAKTAR

Landing Craft	4x LCVP
Well deck Length (m)	No Welldeck
Width (m)	N.A.
Centre barrier y/n width p/sb	N.A.
Area (Lims = lanes in meters, width 2.8 m)	N.A.
Max Overhead Clearance (m) (fully ballasted)	N.A.
Max Depth of Well (m) (fully ballasted)	N.A.
Well Deck NVG Capable	N.A.
Refueling Capable	N.A.
Stern ramp Restrictions	N.A.

*incl. lightship, fuel and craft stores

Comment:

LANDING CRAFT

LCVP

Landing Craft	140 class	LCVP
Length (m)	34,14	11
Width (m)	7,95	2,5
Draft (m)		
Height above waterline – No load (m)		
Craft Displacement empty (t) *)		
Deadweight cargo (DWCC, t)		
Craft Displacement total (t)		
Personnel (temperate)		
Vehicles	3x MBT	
Planning Speed (knots)		
Max Speed (knots)	10	37
Endurance (hours)		
Range (nm)		
Davit Capable	N	
Capable of stern transfer	N	
Roll-On/Roll Off	N	
Sea State (WMO/Douglas sea scale)		
Wind Speed (knots)		
Beach Gradient (e.g:1:120)		

*incl. lightship, fuel and craft stores

Comment:

LANDING CRAFT

151 CLASS

Landing Craft	151 class
Length (m)	49,3
Width (m)	9,5
Draft (m)	
Height above waterline – No load (m)	
Craft Displacement empty (t) *)	
Deadweight cargo (DWCC, t)	
Craft Displacement total (t)	
Personnel (temperate)	
Vehicles	5x MBT
Planning Speed (knots)	
Max Speed (knots)	17
Endurance (hours)	
Range (nm)	
Davit Capable	N
Capable of stern transfer	N
Roll-On/Roll Off	N
Sea State (WMO/Douglas sea scale)	3-4
Wind Speed (knots)	
Beach Gradient (e.g:1:120)	

Comment:

CHAPTER 15 UNITED KINGDOM

LAST REVIEW 25-11-2016

ALBION CLASS (LPD)

L14 HMS ALBION
L15 HMS BULWARK

Landing Craft	4x LCU + 4x LCVP
Well deck Length (m)	65
Width (m)	16.7
Centre barrier y/n width p/sb	Y (2x8.1)
Area (Lims = lanes in meters, width 2.8 m)	500
Max Overhead Clearance (m) (fully ballasted)	7.3
Max Depth of Well (m) (fully ballasted)	3
Well Deck NVG Capable	Y
Refueling Capable	
Stern ramp Restrictions	

Comment:

BAY CLASS (LSD)

L3007 RFA LYME BAY
L3008 RFA MOUNTS BAY
L3009 RFA CARDIGAN BAY

Landing Craft	1 LCU MK-10+2x mexiflote+1LCVP Mk 5 or 1xLCAC(L) on upper deck
Well deck Length (m)	31.2 to foot of beach 47 to head of beach
Width (m)	8.4
Centre barrier y/n width p/sb	N
Area (Lims = lanes in meters, width 2.8 m)	900
Max Overhead Clearance (m) (fully ballasted)	7.35
Max Depth of Well (m) (fully ballasted)	3
Well Deck NVG Capable	Y
Refueling Capable	
Stern ramp Restrictions	

Comment:

LANDING CRAFT (LCU MK 10 AND LCAC-L)

LCU MK 10

LCAC-L

Landing Craft	LCU MK 10	LCAC-L
Length (m)	30.25	13.4
Width (m)	7.7	6.8
Draft (m)	1.17-1.43	-
Height above waterline – No load (m)	9.8/5.5	4.4
Craft Displacement empty (t) *)	168	-
Deadweight cargo (DWCC, t)	72	2
Craft Displacement total (t)	240	
Personnel (temperate)	120	16
Vehicles	1 MBT	-
Planning Speed (knots)	8	25
Max Speed (knots)	8	40 (no wind)
Endurance (hours)	N.A.	8
Range (nm)	600	8hr @ 40 knots
Davit Capable	N	N
Capable of stern transfer	Y	Y
Roll-On/Roll Off	Y	N
Sea State (WMO/Douglas sea scale)	4	3
Wind Speed (knots)	N.A.	20 gust 25
Beach Gradient (e.g:1:120)	1:120	-

*incl. lightship, fuel and craft stores

Comment:

LANDING CRAFT (LCVP MK 5)

LCVP MK V

Landing Craft	LCVP MK 5
Length (m)	15.66
Width (m)	4.27
Draft (m)	0.66
Height above waterline – No load (m)	5.6/3.4
Craft Displacement empty (t) *)	18.5
Deadweight cargo (DWCC, t)	8.2
Craft Displacement total (t)	
Personnel (temperate)	35
Vehicles	1 BV 206 D
Planning Speed (knots)	12
Max Speed (knots)	20
Endurance (hours)	210 NM @ 15
Range (nm)	210
Davit Capable	Y
Capable of stern transfer	Y
Roll-On/Roll Off	N
Sea State (WMO/Douglas sea scale)	4
Wind Speed (knots)	N.A.
Beach Gradient (e.g:1:120)	1:120

*incl. lightship, fuel and craft store

Comment:

CHAPTER 16 UNITED STATES OF AMERICA

Last review 22-11-2018

WASP CLASS (LHD)

LHD-1 USS Wasp
LHD-2 USS Essex
LHD-3 USS Kearsarge
LHD-4 USS Boxer
LHD-5 USS Bantaan
LHD-6 USS Bon Homme Richard
LHD-7 USS Iwo Jima
LHD-8 USS Makin Island

Landing Craft	3 LCAC or 2x LCU
Well deck Length (m)	81
Width (m)	15
Centre barrier y/n width p/sb	N.A.
Area (Lims = lanes in meters, width 2.8 m)	N.A.
Max Overhead Clearance (m) (fully ballasted)	10.03
Max Depth of Well (m) (fully ballasted)	3.05
Well Deck NVG Capable	Y
Refueling Capable	
Stern ramp Restrictions	

Comment:

AMERICA CLASS (LHA)

LHA-6 USS America
LHA-7 USS Tripoli
LHA-8 USS Bougainville

Landing Craft	
Well deck Length (m)	
Width (m)	
Centre barrier y/n width p/sb	
Area (Lims = lanes in meters, width 2.8 m)	
Max Overhead Clearance (m) (fully ballasted)	
Max Depth of Well (m) (fully ballasted)	
Well Deck NVG Capable	
Refueling Capable	
Stern ramp Restrictions	

Comment: LHA-6-USS America (No Well Deck) LHA-7-USS Tripoli (2018/No Well Deck) LHA-8-USS Bougainville (2024/Well Deck)

SAN ANTONIO CLASS (LPD)

LPD-17 USS San Antonio
LPD-18 USS New Orleans
LPD-19 USS Mesa Verde
LPD-20 USS Green Bay
LPD-21 USS New York
LPD-22 USS San Diego
LPD-23 USS Anchorage
LPD-24 USS Arlington
LPD-25 USS Somerset
LPD-26 USS John P. Murtha
LPD-27 USS Portland

Landing Craft	2 LCAC or 1x LCU incl AAV
Well deck Length (m)	57.5
Width (m)	15.2
Centre barrier y/n width p/sb	N.A.
Area (Lims = lanes in meters, width 2.8 m)	N.A.
Max Overhead Clearance (m) (fully ballasted)	9.45
Max Depth of Well (m) (fully ballasted)	2.75
Well Deck NVG Capable	Y
Refueling Capable	Y F76 and F44.
Stern ramp Restrictions	N

Comment:

WHIDBEY ISLAND CLASS (LSD)

LSD-41 USS Whidbey Island
LSD-42 USS Germantown
LSD-43 USS Fort McHenry
LSD-44 USS Gunston Hall
LSD-45 USS Comstock
LSD-46 USS Tortuga
LSD-47 USS Rushmore
LSD-48 USS Ashland

Landing Craft	4 LCAC or 2 LCU 64 AAV
Well deck Length (m)	134
Width (m)	15.24
Centre barrier y/n width p/sb	N.A.
Area (Lims = lanes in meters, width 2.8 m)	N.A.
Max Overhead Clearance (m) (fully ballasted)	9.17
Max Depth of Well (m) (fully ballasted)	3.05
Well Deck NVG Capable	Y
Refueling Capable	Y F76 and F44 with a D-1 connection.
Stern ramp Restrictions	N

Comment:

HARPERS FERRY CLASS (LSD)

LSD-49 USS Harpers ferry
LSD-50 USS Carter Hall
LSD-51 USS Oak hill
LSD-52 USS Pearl Harbour

Landing Craft	2 LCAC or 1 LCU or 25 AAV
Well deck Length (m)	54.8
Width (m)	15.24
Centre barrier y/n width p/sb	N.A.
Area (Lims = lanes in meters, width 2.8 m)	N.A.
Max Overhead Clearance (m) (fully ballasted)	8.26
Max Depth of Well (m) (fully ballasted)	3.05
Well Deck NVG Capable	Y
Refueling Capable	Y F76 and F44 with a D-1 connection.
Stern ramp Restrictions	N

Comment:

LANDING CRAFT

LCAC

LCU 1610

Landing Craft	LCAC	LCU 1610
Length (m)	28.0	41.1
Width (m)	14.75	8.9
Draft (m)		
Height above waterline – No load (m)	10.5 (on cushion)	9.42
Craft Displacement empty (t) *)	–	392.2
Deadweight cargo (DWCC, t)	76.2	127.0
Craft Displacement total (t)		
Personnel (temperate)	24 combat troops/Transport Module (PTM) can hold 185 combat troops or 108 litters	400
Vehicles	1 M1A1	1 M1A1 or 6 LAVs
Planning Speed (knots)	35	8
Max Speed (knots)	40+	11
Endurance (hours)	–	10 days
Range (nm)	200 nm at 40 knots	1200 nm at 8 knots
Davit Capable	N	N
Capable of stern transfer	N	Y
Roll-On/Roll Off	Y	Y
Sea State (WMO/Douglas sea scale)	4	3
Wind Speed (knots)		
Beach Gradient (e.g:1:120)	6 deg	1.43 deg

*incl. lightship, fuel and craft stores

Comment:

LANDING CRAFT

AAV

Landing Craft	AAV
Length (m)	8.16m
Width (m)	3.35m
Draft (m)	1.83*
Height above waterline – No load (m)	**0.65m bow/0.29m stern
Craft Displacement empty (t) *)	24.03t
Deadweight cargo (DWCC, t)	5t
Craft Displacement total (t)	31.54t ^
Personnel (temperate)	21 combat equipped troops + 3 crew
Vehicles	NA
Planning Speed (knots)	5
Max Speed (knots)	7.13
Endurance (hours)	7hrs
Range (nm)	***
Davit Capable	N
Capable of stern transfer	N
Roll-On/Roll Off	Y***
Sea State (WMO/Douglas sea scale)	3; survive up to 5
Wind Speed (knots)	N.A
Beach Gradient (e.g:1:120)	

*incl. lightship, fuel and craft stores

Remarks:
*Average draft, unloaded; draft will depend on load.
**Cargo loaded: 62,504lbs
48,060lbs (EAAK armor, less crew, duel, equipment, & ammo)
^ heaviest configuration 62,904lbs (combat equipped with Mk1 MOD 0 Mine Clearance System)
***7 hrs fuel in water, depends on sea conditions
****Ramp dependent

CHAPTER 17 INTEROPERABILITY MATRIX

Proved. Well deck capacities to operate with landing craft
Assumed Wel-deck capacities based on well deck and landingcraft dimensions.
Assumed Stern-ramp marriages.
No inter-operability.

NA Data not available
4 Well Deck craft capacity.
* In Davids

V. 0.11	AUS			GER	ESP		FRA		UK			GRC		ITA				NLD			NOR	NZL	POL			PRT	SWE			TUR			USA		
Last review	Aug-17			Nov-19	May-17		Jun-19		Nov-16			Jul-17		Oct-17				Nov-19			-	Jul-17	Oct-19			-	May-18			May-19			Nov-18		
Platform/Country	LCM-8	LLC / LCM-1E	LCVP	Type 520	AAV-7	LCM-1(E)	CTM	L-CAT	LCU Mk 10	LCVP MK 5B	LCACL 2000	LCAC ZUBR CLASS	LCVP 36F Mk II	LCM-8 (GIS)	AAV-7 A1	LCVP 96 (MDN)	RHIB BAA	LCU MK 2	LCVP Mk 5 C/D	FRISC	CB-90	LCM-8	Deba LCU	AMW VOLWERINE	PTS Series	LDG Bombarda Class	CB-90 (LCP)	LCAC GRIFFON 8100 TD	LTRB	LCVP	140 CLASS	151 CLASS	LCU 1600	LCAC	AAV-7
AUSTRALIA																																			
Canberra Class LHD	4	4		NA																		4							NA	NA				1	
HMAS Choules LSD	1	1		NA	1	2			1	2								1	2			1							NA	NA					
FRANCE																																			
Mistral Class LHD	NA	NA	NA	NA	2	6	4	2	2	6	8																		NA	NA					
UNITED KINGDOM																																			
Bay Class LSD	1	1			1	2	1		1	2								1	2			1							NA	NA					
Albion Class LPD	NA	NA	NA		4	4			4	4								2	4		NA					NA	NA		NA	NA					
GREECE																																			
Jason Class LST	NA	NA	NA	NA	1			NA	1				4					1											NA						

- Proved. Well deck capacities to operate with landing craft
- Assumed Wel-deck capacities based on well deck and landingcraft dimensions.
- Assumed Stern-ramp marriages.
- No inter-operability.

NA	Data not available
4	Well Deck craft capacity.
*	In Davids

V. 0.11	AUS			GER	ESP		FRA		UK			GRC		ITA				NLD			NOR	NZL	POL			PRT	SWE			TUR			USA		
Last review	Aug-17			Nov-19	May-17		Jun-19		Nov-16			Jul-17		Oct-17				Nov-19			-	Jul-17	Oct-19			-	May-18			May-19			Nov-18		
Platform/Country	LCM-8	LLC / LCM-1E	LCVP	Type 520	AAV-7	LCM-1(E)	CTM	L-CAT	LCU Mk 10	LCVP MK 5B	LCACL 2000	LCAC ZUBR CLASS	LCVP 36F Mk II	LCM-8 (GIS)	AAV-7 A1	LCVP 96 (MDN)	RHIB BAA	LCU MK 2	LCVP Mk 5 C/D	FRISC	CB-90	LCM-8	Deba LCU	AMW VOLWERINE	PTS Series	LDG Bombarda Class	CB-90 (LCP)	LCAC GRIFFON 8100 TD	LTRB	LCVP	140 CLASS	151 CLASS	LCU 1600	LCAC	AAV-7
ITALY																																			
San Giorgio class LPD		NA	NA																										NA						
San Giusto class LPD		NA	NA																										NA						
LHD	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA		NA	NA	NA	NA
NETHERLANDS																																			
Johan de Witt LPD	NA	NA	NA		1	4*			1	4*								2	4*	4*															
Rotterdam LPD	NA	NA	NA															2	3										NA						
Karel Doorman JSS	NA	NA	NA		NA	2*	1	NA	NA	2*	NA		NA	NA	NA	NA	NA	1	2*	2*	NA	NA	NA	NA	NA		2	NA	1	NA		NA	NA	NA	NA
NEW ZELAND																																			
HMNZS Canterbury	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA			NA	NA	NA	NA	?	?	?	NA	2*	NA	NA	NA		NA	NA	NA	NA	NA		NA	NA	NA
POLAND																																			
Lublin Class LST	NA	NA	NA	NA	9	NA	NA	NA	NA	NA	NA			NA	9	NA		NA	NA	NA	NA	NA	NA	8	9		NA	NA	NA	NA	NA	NA	NA	NA	9
Deba LCU	NA	NA	NA	NA	1	NA	NA	NA	NA	NA	NA	NA	NA	NA	1	NA		NA	NA	NA	NA	NA	NA	1	1		NA	NA	NA	NA	NA	NA	NA	NA	1

- Proved. Well deck capacities to operate with landing craft
- Assumed Wel-deck capacities based on well deck and landingcraft dimensions.
- Assumed Stern-ramp marriages.
- No inter-operability.

NA	Data not available
4	Well Deck craft capacity.
*	In Davids

V. 0.11	AUS			GER	ESP		FRA		UK			GRC		ITA				NLD			NOR	NZL	POL			PRT	SWE			TUR			USA		
Last review	Aug-17			Nov-19	May-17		Jun-19		Nov-16			Jul-17		Oct-17				Nov-19			-	Jul-17	Oct-19			-	May-18			May-19			Nov-18		
Platform/Country	LCM-8	LLC / LCM-1E	LCVP	Type 520	AAV-7	LCM-1(E)	CTM	L-CAT	LCU Mk 10	LCVP MK 5B	LCACL 2000	LCAC ZUBR CLASS	LCVP 36F Mk II	LCM-8 (GIS)	AAV-7 A1	LCVP 96 (MDN)	RHIB BAA	LCU MK 2	LCVP Mk 5 C/D	FRISC	CB-90	LCM-8	Deba LCU	AMW VOLWERINE	PTS Series	LDG Bombarda Class	CB-90 (LCP)	LCAC GRIFFON 8100 TD	LTRB	LCVP	140 CLASS	151 CLASS	LCU 1600	LCAC	AAV-7
SPAIN																																			
Juan Carlos I LHD	NA	NA	NA																								NA	NA	NA	NA	NA				
Galicia Class LPD	NA	NA	NA															2									NA	NA	NA	NA	NA				
TURKEY																																			
LHD Class	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4	NA	NA	NA	NA	NA
Bayraktar Class LST	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	4	NA	NA	NA	NA	NA
UNITED STATES																																			
Wasp class LSD	NA	NA	NA	NA				2																			NA	NA	NA	NA	NA	NA	2	3	
America class LHA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
San Antonio class LPD	NA			NA																							NA	NA	NA	NA	NA	NA	1	2	
Whidbey Island LSD	NA	NA	NA	NA																							NA	NA	NA	NA	NA	NA	3	4	
Harpers Ferry LSD	NA	NA	NA	NA																							NA	NA	NA	NA	NA	NA	1	2	