

# CARTRIDGE VALVE POPULATION

## INSTALLED BASE

NO. OF  
SUBMARINES/SHIPS

VALVES PER  
SUBMARINE/SHIPS

TOTAL NO.  
VALVES

DATE OF  
COMMISSION

U.K.



• SWIFTSURE- SSN



5

980

4,900

1<sup>st</sup> Commissioned: 1973  
*All Decommissioned*

• TRAFALGAR- SSN



2

1,750

3,500

1<sup>st</sup> Commissioned: 1985  
*5 Decommissioned*

5

1,750

8,750

• VANGUARD - SSBN



4

2,067

8,268

1<sup>st</sup> Commissioned: 1993

• ASTUTE- SSN



7

1,860

13,020

1<sup>st</sup> Commissioned: 2010  
5 Boats Confirmed

• SEAWOLF- SSN



3

4

12

1<sup>st</sup> Commissioned: 1997

• VIRGINIA- SSN



18

4

72

1<sup>st</sup> Commissioned: 2004  
18 Boats Confirmed

• VICTORIA- SS



4

1,260

5,040

formerly Upholder (UK):  
1<sup>st</sup> Commissioned: 1986  
Victoria (Canada) Commissioned: 2000

• S-80 CLASS- SS



4

580

1<sup>st</sup> to be Commissioned 2013

• BARRACUDA- SSN



4

1,250

1<sup>st</sup> to be Commissioned : Expected in 2017

CANADA



SPAIN



FRANCE



**INSTALLED BASE**

**NO. OF  
SUBMARINES/SHIPS**

**VALVES PER  
SUBMARINE/SHIPS**

**TOTAL NO.  
VALVES**

**DATE OF  
COMMISSION**

**Future Request**

**“To be Determined”**

**U.S.A.**



- OHIO REPLACEMENT PROGRAM (ORP)—SSBN



**NETHERLANDS**



- M-CLASS FRIGATES



7

925

6,475

1<sup>st</sup> Commissioned : 1991

**SPAIN**



- OFFSHORE PATROL VESSEL



8

95

760

1<sup>st</sup> Commissioned : 2009

**INDIA**



- PROJECT 17



3

486

1,458

1<sup>st</sup> Commissioned : 2010

- AIRCRAFT CARRIER



1

360

1<sup>st</sup> to be Commissioned:  
Expected in 2016

**INDIA**



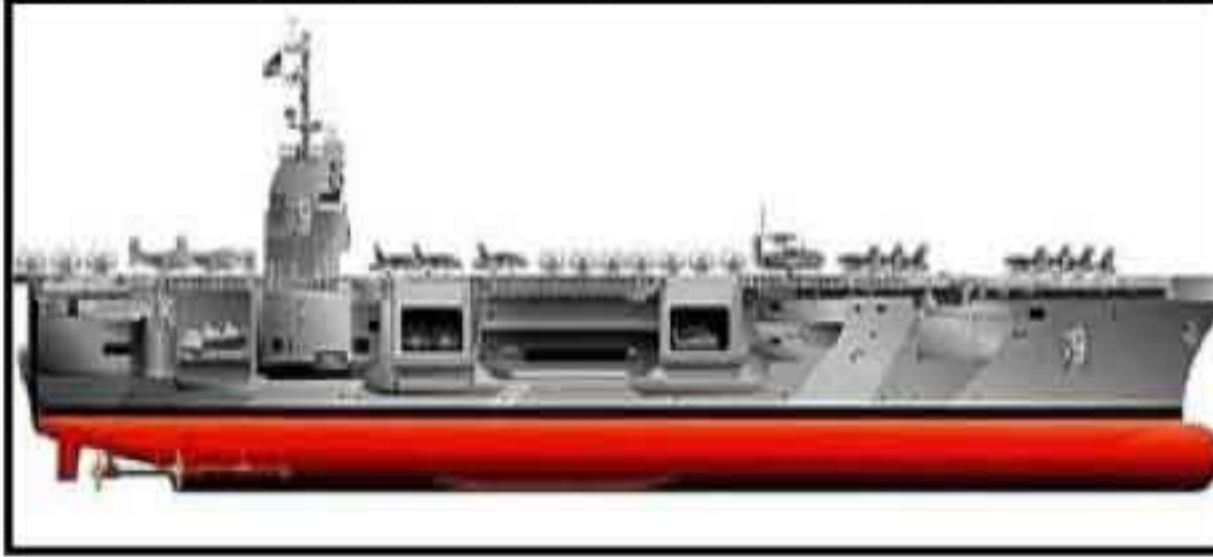




- ROCKET LAUNCH



1

1,842

	<b>INSTALLED BASE</b>	<b>NO. OF SUBMARINES/SHIPS</b>	<b>VALVES PER SUBMARINES/SHIPS</b>	<b>TOTAL NO. VALVES</b>	<b>DATE OF COMMISSION</b>
<b>U.S.A.</b> 	<ul style="list-style-type: none"> <li>AIRCRAFT CARRIER-CVN 78</li> </ul> 	1		680	1 <sup>st</sup> to be Commissioned: Expected in 2015
	<ul style="list-style-type: none"> <li>AIRCRAFT CARRIER-CVN 79</li> </ul> 	1		680	
<b>GERMANY</b> 	<ul style="list-style-type: none"> <li>LNG GAS SYSTEM BULK CARRIERS</li> </ul> 	38	16	608	TBA

**TOTAL INSTALLED BASE**

	<b>No. of Submarines/Ships</b>		<b>Total No. of Valves</b>	
	<i>COMMISSIONED</i>	<i>DECOMMISSIONED</i>	<i>COMMISSIONED</i>	<i>DECOMMISSIONED</i>
• Submarines	<u>46</u>	<u>10</u>	<u>31,742</u>	<u>13,650</u>
• Aircraft Carriers/ Naval Surface Ships	<u>21</u>		<u>10,413</u>	
• Rocket Launch	<u>1</u>		<u>1,842</u>	
• LNG Gas System Bulk Carriers	<u>38</u>		<u>608</u>	
<b>Total</b>	<b>106</b>	<b>10</b>	<b>44,605</b>	<b>13,650</b>

 <b>DYNAMIC CONTROLS</b>	SUBMARINES			SURFACE SHIPS		 ROCKET LAUNCH	 <b>cunico</b>
	 SSN's	 SSBN's	 DIESEL ELECTRIC	 CVN's	 DD's and CG's		