

VALVES FOR NAVAL SHIPS

MAZAGAON DOCK LIMITED

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**HISTORICAL
 BACKGROUND /
 LANDMARKS**

- In existence since : 1771
- Taken over by the Govt. of India for Warship Construction : 1960
- Diversified into Offshore Business : 1974
- Upgraded to Schedule 'B' Company : 1975
- Commenced Submarine Construction : 1984
- ISO 9001-1994 for Shipbuilding & Ship Repair 1998 ISO 9001-2000 2003 ISO 9001-2008 : 2008
- Upgraded to Schedule 'A' Company : 2000
- Secured Miniratna Status : 2006

REQUIREMENT OF VALVES ON NAVAL SHIPS

Naval Vessel has following Fluid Systems:

Sr. No.	System	Pressure Kg/Cm ²	Fluid	MOC of Body	MOC of Disc/Trim Spindle
1.	Sea Water Cooling	3	SW	NAB	NAB
2.	Fire Main System	8	SW	NAB	NAB
3.	Salvage System	2	SW	GM	NAB
4.	Lub Oil Post Purification	5	LO	GM	NAB
5.	Lub Oil Pre-purification	5	LO	GM	NAB
6.	Fresh Water System	5	Fresh Water	GM	NAB
7.	FO Transfer Pre- Coalescer	5	Diesel	C St	SS 316 *
8.	FO Transfer after Coalescer	5	Diesel	GM	NAB
9.	AVCAT (Aviation Fuel)	5	Aviation Fuel	GM	NAB
10.	Air Escape	1	Vent Air	GM	NAB
11.	Bilge	3	Bilge	GM	NAB
12.	Hull Valves (SDSL/SDNR/ Butterfly / Storm / Gate Valve) +	8	SW	NAB	NAB +
13.	Detergent for GT Wash	5	Detergent	GM	NAB
14.	Vacuum Sanitation / Sewage Treatment	0.6	Grey water/ Sewage	SS	SS

TYPES OF VALVES USED ON A NAVAL SHIP

1. BALL VALVES
2. BUTTERFLY VALVES
3. PLUG VALVES
4. NON-RETURN PLUG VALVES
5. FLAP TYPE NON-RETURN CHECK VALVES
6. SDSL VALVES (SCREW DOWN SCREW LIFT)
7. SDNR VALVES (SCREW DOWN NON-RETURN)
8. HYDRANT VALVES
9. FOOT VALVES WITH STRAINERS
10. AUTO DRAIN VALVES
11. GATE VALVES
12. DIAPHRAGM VALVES
13. PRESSURE RELIEF / REDUCING VALVES

(B) LINE VALVES

Type	MOC	Qty.	(Nos.) Size Range (NB)
Butterfly Valve	GM	100	100-200
	NAB	80	100-200
Ball Valve	GM	450	10-100
	NAB	100	15-80
SDNR	GM	20	10-65
SDSL	GM	220	10-100
PLUG VALVES	GM	450	6-80
NR STOP/	GM	215	10-150
PLUG Valves	NAB	55	40-175
N.R. Flap Valve	GM	70	15 - 200
	NAB	10	50 - 150
Diaphragm Valve	GM	100	6 - 100
	NAB	30	25 - 80
Pressure Reducing Valve	GM	5	50
	NAB	10	50 - 125
Pressure Relief Valve	GM	5	50
	NAB	10	32 - 150
Fire Safe Ball Valve	CS	60	32 - 50
Fire Safe Butterfly Valves	CS	70	100 - 200
TOTAL PER SHIP	GM	1635 NOS	
- 2060 Nos	NAB	295 NOS	
	CS	130 NOS	

TYPICAL REQUIREMENT OF VALVES IN A NAVAL SHIP

(A) HULL VALVES - (MOC-NAB)

Type	Qty. (Nos.)	Size Range (NB)
SDSL	40	100-200
SDNR	85	25-200
GATE	25	50-200
STORM	35	50-100
BUTTERFLY	28	80-350
BALL	17	20-50
TOTAL	230	

TYPE TESTING REQUIREMENT OF VALVES

Sr. No.	Type of Valve	Life Cycle Test	Noise & Vibration	Cv (Pr.Drop)	2 x Rated Pr. Test of Valve
1.	Ball Valve	Ö	Ö	Ö	Ö
2.	Butterfly Valve	Ö	Ö	Ö	Ö
3.	Plug Valve	Ö	Ö	Ö	Ö
4.	NR Plug Valve	Ö	Ö	Ö	Ö
5.	Flap Type NR	Ö	Ö	Ö	Ö
6.	SDSL	Ö	Ö	Ö	Ö
7.	SDNR	Ö	Ö	Ö	Ö
8.	Hydrant	Ö	Ö	Ö	Ö
9.	Foot Valve with Strainer	Ö	Ö	Ö	Ö
10.	Auto Drain Valve	Ö	Ö	Ö	Ö
11.	Gate Valve	Ö	Ö	Ö	Ö
12.	Diaphragm Valve	Ö	Ö	Ö	Ö

Life Cycle Test : For 10,000 Cycles

Vibration & Noise Measurement Test :
As per MIL STD 740 2

Shock Test : For Hull Valves & Actuated
Valves as per NSS Gr I or II

Inspection Agency : IRS / ABSIV

**VALVE REQUIREMENT IN
MERCHANT SHIPS**

Types of Valve:Ball Plug
NR Flap Valve Butterfly Valves (Wafer
Type) Globe Valves (SDSL/SDNR)

MDL : Hull : C. Iron / C. Steel

LINE : GM/CI

Working Pressure : PN 10 (10 BAR)

Hull : 50- 300 NB

Line : 25- 450 NB

Qty. / Vessel : @ 300- 350 Total

MDL'S PRESENT VENDORS FOR VALVES

Sr.No.	INDIGENOUS	OVERSEAS
1.	M/s. Leader Valves, Jalandhar	M/s. Econosto, Dubai
2.	M/s. Govardhan Das P.A., Kolkata	M/s. Brookes Bank Valves, U.K.
3.	M/s. Saxena Marine Tech, Ghaziabad	M/s. Broady Valves, U.K.
4.	M/s. Malhar Valves, Mumbai	
5.	M/s. Forward Alloys, Mumbai	
6.	M/s. Propel Valves, Chennai	
7.	M/s. VKE Valves, Mumbai	
8.	M/s. L&T (Audco), Chennai	
9.	M/s. Technocrats, Delhi	
10.	M/s. BDK Engineering Inds,Mumbai	
11.	M/s.Constellation Dynamics, Mumbai	
12.	M/s.Kirloskar Pneumatic Co.Ltd,Pune	
13.	M/s.Fouress Engineering, Bangalore	
14.	M/s. Tyco Valves, Mumbai	

Testing : Hydro Test. No special test
requirement

Hull : Valves are to be approved by
Classification Society

*This paper was presented at CII
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What is common between them ?

They are paid Subscriber of Valves India