Work Order:	4027900-A
First Visit Date:	29-Nov-2019
Last Visit Date:	29-Nov-2019
Vendor PO Number:	112438
Survey Location:	Oslo

Equipment Certification Report

Asset Type Ship Side Valve
Customer Name SKIPPER ELECTRONICS A/S
WCN of Customer 500646
Location Oslo

'This is to certify that the undersigned Surveyors to this Bureau did at the request of SKIPPER ELECTRONICS A/S , on 29-Nov-2019 carry out the following Survey and report as follows:

Client Asset Name	*Quantity*
Shell Valve Diam. 100 mm	1

Name Plate Data

ABS Label	*Manufacturer*	*Purchaser*	*Designer*	*Destination Vessel*
Shell Valve Diam. 100 mm	SKIPPER ELECTRONICS A/S	-	TREADE A.S.	-

Basic Identification Data

Serial Number	*Model Number*	*Owner Tag Number*
19336	SB-100-SB	-

Report Details

ABS Stamping	*Maltese Cross*
4027900	Yes

Design Details

Design state	*Drawing Number*	*Reviewing Organization*
Product Design Assessed	17-LD1648327-PDA	London Engineering Department

Additional Data

Valve Size 100 mm
Valve Material NOT SPECIFIED - Stainless Steel - NOT SPECIFIED - Austenitic Stainless Steel

Report Findings

Statement/Observation

Finding No	*Asset*	*Survey Task*	*Date Created*
171.0	Shell Valve Diam. 100 mm	Certification - Shell Valve Diam. 100 mm	29-Nov-2019

Found
Side shell valves intended for Echosounder Transducer Installation

Hydrostatic pressure test was carried out at 5 bar with closed valve.

Work Order:	4027900-A
First Visit Date:	29-Nov-2019
Last Visit Date:	29-Nov-2019
Vendor PO Number:	112438
Survey Location:	Oslo

No leakage or plastic deformation were noted during testing.

The valves were found covered by ABS Product Design Assessment no. 17-LD1648327-PDA.

Statement of Work - Classification Service - Certification -

- All parts of the machinery/equipment satisfactorily complied with the approved drawings. Amendments, if any, verified to be rectified and considered satisfactory.
- Asbestos-free declaration verified and supporting documentation reviewed.
- Subject to satisfactory installation, testing and trials after installation onboard the vessel.
- The principal data has been verified in accordance with the applicable Rules/specifications and applicable approved plans, and confirmed to be within acceptable tolerances.
- All testing (pressure/load/operational/etc.) has been carried out as applicable and verified in accordance with the applicable Rules/specifications.
- Testing machines are maintained in a satisfactory condition and records of their recheck or calibration dates confirmed.
- Traceability of materials used on this project has been verified.

Closing Paragraph:

The component/equipment was surveyed in accordance with the Rules, specifications, and approved drawings, as applicable, and is eligible for installation on board an ABS classed vessel subject to satisfactory installation and testing, as necessary.

Attending Surveyor(s):

Fuglei, Tor Brodde
Signed-off Date: 09-Dec-2019

Reviewing Surveyor(s)

Work Order Reviewer: Vocke, Sebastian
Work Order Credit Date: 09-Dec-2019

KGPI

SKIPPER Electronics A/S
Enebakkveien 150
P.O.Box 151 Manglerud
N-0612 OSLO

Telephone: +47 23 30 22 70
Telefax: +47 23 30 22 71
E-mail: support@skipper.no
Web page: www.skipper.no

C.O. reg no: NO-965378847-MVA

INSPECTION & TEST PROTOCOL FOR SEA VALVE

Document No: Q12-TI-0108-02

SKIPPER sea valve Serial No.:	19336
Class certificate no.:	

Class: DNV GL☐ ABS☒ BV☐ LR☐

Sea valve Type:

		-SA	-SB	-LA	-LB	-F1	SLB	SJB
SB-60		☐		☐		☐		
DB-60		☐		☐		☐		
SB-100		☐	☐	☐	☒			
DB-100		☐	☐	☐	☐			
ETN- 100mm							☐	☐
SB-200-Echo	☐							

Assembly, Items Serial No. / Batch No. / Charge No.:

	Batch/ S.no	Charge no.	Skipper Part No.
Valve Element:	W8712	W8720	ZCC-01015
Intermediate Element:	P6204		DB-2051
Bottom Flange:	1940	554632	SB-2019

Visual Inspection:

Performed without remarks: ☑

Pressure Test:

Working pressure 2 bar
Tested for 5 minutes with 5 bar pressure,
According to procedure no. 02-Q12_Preassure testing Gate_ball Valve

Performed without remarks: ☑

4027900

ABS OSLO

Date: 26/11-19 Sign.: RU

TREADE A.S

3.1 certificate acc. to EN 10204

*DN8 up and until DN25 is S.E.P **DN32 and bigger CE marked

Page No. : 1 of 2 Customer: TREADE A.S. Certificate No. : K181016A-1

Order No. : 405318 Mill Order No. : S/C NO.:EAB218070302 Date of Delivery 2018/10/9

Fig No. : MD-32 2PCS FLANGED BALL VALVES PN16

Valve Specifications

Shell Wall Thinkness	EN12516-1	Face to Face	DIN3202 F4

End Connections	Parts Material Type					
	Body	Cap	Ball	Stem	Seat , Seal	Bolt&Nut
FLANGED END RF	1.4408	1.4408	CF8M	SS316	RTFE (15%G.F.) GRAPHITE	-

Heat Treatment :	Solution Annealed 1050 - 1100 °C , W.Q.	Standard	EN-1503-1

Pressure Tested in compliance with API 598 Ninth Edition 2009 ;Sec.5 and Sec.6

Size	4"	Q'ty (pcs)	150	Shell Hydro.(bar)	Seat , closure Hydro.HPC(bar)	Seat , closure Air,LPC(bar)	Test Result
				24	-	6.9	Passed

Heat No	Chemical Components (%)											Mechanical Properties Impact (Joule)								
	C	Si	Mn	P	S	Ni	Cr	Mo	Cu	Nb	V	Yie. Mpa	Ten Mpa	Elo %	RA %	Hd Max	(1)	(2)	(3)	Avg.
Min.	≦0.08	≦1.50	≦1.50	≦0.04	≦0.04	9.0	18.0	2.0	≦0.5			≧205	≧485	≧30						
Max.						12.0	21.0	3.0												
BODY W8711	0.05	0.92	0.74	0.03	0.01	9.45	18.48	2.11	0.15			305	555	36			185	197	182	188
BODY W8704	0.05	0.94	0.74	0.03	0.01	9.40	18.38	2.22	0.20			305	530	35			197	182	192	190
BODY W8709	0.05	0.97	0.77	0.03	0.01	9.47	18.40	2.14	0.14			330	530	36			199	185	199	194
BODY W8718	0.05	0.98	0.81	0.03	0.01	9.49	18.38	2.14	0.28			305	530	35			194	186	189	190
BODY W8710	0.05	0.91	0.76	0.03	0.01	9.42	18.32	2.13	0.16			320	525	38			197	199	194	197
BODY W8708	0.05	0.92	0.79	0.03	0.01	9.44	18.45	2.09	0.15			305	525	35			185	188	185	186
BODY W8705	0.05	0.92	0.71	0.03	0.01	9.42	18.39	2.15	0.20			340	525	36			186	185	185	185
BODY W8703	0.05	0.95	0.75	0.03	0.01	9.41	18.38	2.12	0.20			340	525	36			197	182	192	190
BODY W8706	0.05	0.94	0.73	0.03	0.01	9.41	18.44	2.12	0.196			330	555	38			199	199	199	199
BODY W8712	0.05	0.93	0.79	0.02	0.01	9.41	18.40	2.14	0.143			340	515	36			199	186	193	193
BODY W8707	0.055	0.922	0.693	0.03	0.01	9.418	18.43	2.164	0.183			310	515	39			197	199	197	198
BODY W8702	0.055	1.018	0.749	0.03	0.01	9.428	18.4	2.119	0.21			305	555	36			199	185	191	192
BODY W8713	0.053	0.925	0.799	0.03	0.01	9.392	18.39	2.125	0.212			330	530	38			197	199	197	198
BODY W8701	0.053	0.977	0.758	0.03	0.01	9.46	18.48	2.114	0.195			330	515	35			199	185	191	192
BODY W8723	0.053	1.077	0.782	0.03	0.01	9.391	18.39	2.216	0.225			340	530	34			199	185	193	192

Dimension and visual inspection according to MSS-SP-55 , carried out satisfactory.

We,Modentic Ind. Corp., hereby certify that the valve described herein have been manufactured,inspected and tested in accordance with above specification with satisfaction results and also with the requirements called for by the purchase order.

Name : Rengong Chen

Title : Quality Manager Signed : Rengong Chen Date : 2018/10/9 MD-QF-10-06 (Rev4)

TREADE A.S

3.1 certificate acc. to EN 10204

*DN8 up and until DN25 is S.E.P **DN32 and bigger CE marked

Page No. : 2 of 2 Customer: TREADE A.S. Certificate No. : K181016A-2

Order No. : 405318 Mill Order No. : S/C NO.:EAB218070302 Date of Delivery 2018/10/9

Fig No. : MD-32 2PCS FLANGED BALL VALVES PN16

Valve Specifications

Shell Wall Thinkness	EN12516-1	Face to Face	DIN3202 F4

End Connections	Parts Material Type					
	Body	Cap	Ball	Stem	Seat , Seal	Bolt&Nut
FLANGED END						
RF	1.4408	1.4408	CF8M	SS316	RTFE.(15%G.F.) GRAPHITE	-

Heat Treatment :	Solution Annealed 1050 - 1100 °C , W.Q.	Standard	EN-1503-1

Pressure Tested in compliance with API 598 Ninth Edition 2009 ;Sec.5 and Sec.6

Size	4"	Q'ty (pcs)	150	Shell Hydro.(bar)	Seat , closure Hydro.HPC(bar)	Seat , closure Air,LPC(bar)	Test Result
				24	-	6.9	Passed

Heat No	Chemical Components (%)											Mechanical Properties					Impact (Joule)			
	C	Si	Mn	P	S	Ni	Cr	Mo	Cu	Nb	V	Yie. Mpa	Ten Mpa	Elo %	RA %	Hd Max	(1)	(2)	(3)	Avg.
Min. Max.	≤0.08	≤1.50	≤1.50	≤0.04	≤0.04	9.0 12.0	18.0 21.0	2.0 3.0				≧205	≧485	≧30						
CAP W8718	0.05	0.98	0.81	0.03	0.01	9.49	18.38	2.14	0.28			305	530	35			194	186	189	190
CAP W8717	0.05	0.97	0.80	0.03	0.01	9.41	18.36	2.16	0.25			320	525	35			199	182	182	188
CAP W8719	0.05	0.98	0.81	0.03	0.01	9.45	18.46	2.10	0.25			340	525	36			185	194	197	192
CAP W8721	0.06	1.06	0.79	0.03	0.01	9.38	18.42	2.12	0.27			340	515	35			195	199	191	195
CAP W8716	0.05	0.93	0.80	0.03	0.01	9.40	18.33	2.20	0.25			330	515	38			186	197	182	188
CAP W8722	0.05	0.83	0.77	0.03	0.01	9.41	18.41	2.16	0.22			330	525	39			185	197	182	188
CAP W8714	0.05	0.99	0.79	0.03	0.01	9.38	18.33	2.13	0.22			315	525	36			182	197	185	188
CAP W8715	0.05	0.92	0.80	0.03	0.01	9.51	18.29	2.12	0.25			340	555	36			182	197	185	188
CAP W8720	0.05	0.97	0.79	0.03	0.01	9.41	18.42	2.11	0.242			305	555	37			186	185	185	185
CAP W8723	0.05	1.08	0.78	0.03	0.01	9.39	18.39	2.22	0.225			340	530	34			199	185	193	192
CAP W8711	0.054	0.921	0.741	0.03	0.01	9.448	18.48	2.11	0.154			305	555	36			185	197	182	188
CAP W8702	0.055	1.018	0.749	0.03	0.01	9.428	18.4	2.119	0.21			305	555	36			199	185	191	192
CAP W8713	0.053	0.925	0.799	0.03	0.01	9.392	18.39	2.125	0.212			330	530	38			197	199	197	198

Dimension and visual inspection according to MSS-SP-55 , carried out satisfactory.

We,Modentic Ind. Corp., hereby certify that the valve described herein have been manufactured,inspected and tested in accordance with above specification with satisfaction results and also with the requirements called for by the purchase order.

Name : Rengong Chen

Title : Quality Manager Signed : Rengong Chen Date : 2018/10/9 MD-QF-10-06 (Rev4)