

Certificate for Machinery Equipment

Valves

This is to certify that the undersigned Surveyor to LLOYD'S REGISTER did at the request of the below customer, attend the testing and examination of the product(s) described below in accordance with the relevant Rules and Regulations for the Classification of Ships and found it/them satisfactory.

General information

Customer	Jotron Skipper AS
Purchase Order No	129527
Manufacturer	Jotron Skipper AS
Intended for	Warehouse
Customer Work Order No	127015
Date of issue	04 February 2025
Quantity	9 pcs

Particulars

Description	Sea valves including bottom flanges and tanks
Size	SB 60 and SB 100 Valves and tanks
Valve body material	EN10213/1.4408, flanges 316/L
Test pressure body	348 psi
Test pressure seat	5 bar
Design pressure	2bar WP
Set pressure if applicable	-
Quantity	Batch

Identification Marks On Product

I.D number	LR
Surveyors initials	-
Date of inspection	10.09.2024

Remarks

No remarks raised

Johannes Nordtveit
Lloyd's Register EMEA
A subsidiary of Lloyd's Register Group Limited



Page 2 of 2	
Certificate No.	OSL2400697
First Date of Inspection	10 September 2024
Final Date of Inspection	10 September 2024
Office	Oslo

Description	Manufacturer Designation	Serial Number	IMO Number
SB-100-SB		24495	0
SB-100-SB		24496	0
SB-100-SB		24497	0
SB-100-SB		24498	0
SB-100-SB		24499	0
SB-100-SB		24500	0
SB-60-SA		24501	0
SB-60-SA		24502	0
ETNST		N142Y2W6	0

Sertifika No / Number of Cert.: :2024/068

Tarih/Date

1.04.2024

Firma Adı / Customer Name : :LANGTHON AS/ SKIPPER - PO 452476

Malzeme Kalitesi / Material Standard : CF8M / Stainless Steel Casting

Sıra Pos	Döküm No/Heat Number	Malzeme Adı / Material Name	Parça Adeti / Material Quantity	Kimyasal Kompozisyon / Chemical Composition									
				% C	% Si	% Mn	% P	% S	% Cr	%Mo	%Ni		
				0.08 Max	1.5 Max.	1.5 Max.	0.040 Max	0.030 Max.	17.0-21.0	2.0-3.0	9.0-12.0		
1	2319	DN65 PN16 INTERMEDIATE BODY	72	0.061	0.84	0.75	0.021	0.019	17.5	2.15	9.08		
2	2329	DN65 PN16 INTERMEDIATE BODY	66	0.055	0.82	0.73	0.017	0.021	17.6	2.08	9.12		
3	2339	DN65 PN16 INTERMEDIATE BODY	62	0.052	0.85	0.69	0.024	0.024	17.5	2.07	9.09		
4													
5													

Mekanik Özellikler / Mechanical Properties

Döküm No / Heat Number.	Akma Dayanımı N/mm ² Yield Strength	Çekme Dayanımı N/mm ² Tensile Strength	Uzama / Elongation %	Kesit Daralması / Reduction of Area %	Darbe Testi / Charpy Impact test J/0°C	Sertlik / Hardness HB
	180 Min.	440	30 Min.	-	-	-
2319	284.5	504.8	42	-	-	-
2329	291.4	511.6	41			
2339	295.4	498.7	41			

Tahribatsız Testler / Non Destructive Tests

Döküm No / Heat Number.	Parça Adeti / Material Quantity	MT	PT	UT	RT	VT	Microstructure Ranges
2319	72	-	-	-	-	OK	-
2329	66	-	-	-	-	OK	-
2339	62	-	-	-	-	OK	-

Uygulanan Isıl İşlemler / Heat Treatment Applied

Döküm No / Heat Number.	Parça Adeti / Material Quantity	Normalizing °C	Annealing °C	Stress Relieving °C	Quenching °C	Tempering °C
2319	72	1100°C/ 2 Hours	-	-	-	-
2329	66	1100°C/ 2 Hours	-	-	-	-
2339	62	1100°C/ 2 Hours	-	-	-	-

We hereby certify that the material has been made by an approval process and satisfactorily tested in accordance with the rules of BV,LR and DNV-GL.

Surface quality is suitable with eye examination of MSS SP55 Standard.

KONTROL / CONTROLLED BY		ONAY / APPROVED BY	GÖZETİM / WITNESS BODY (If necessary)
Adı /Name	Tuncay SARAÇ	Hakan ÇALIŞKAN	
Ünvanı/ Title	Quality Control Engineer	Quality Manager	
İmza/ Signature		 VISVANA SAN. İTH. VE İHR. TİC. LTD. ŞTİ. Türkoba Mh. Atatürk Cad.No 232 Büyükkçekmece-İstanbul -TÜRKİYE Tel: (0212) 859 03 24 / 859 03 24 Büyükkçekmece V.D. 925 006 3058	
Tarih/ Date	1.04.2024	1.04.2024	

CERTIFICATES:(Validities:DD/MM/..YY)

ASB Certification ISO 9001:2015 Cert No:01/14059/01 (29.12.2023 -28.12.2024)

DNV-GL : Certificate No:AMMM00002YE (05.04.2022-04.04.2025)

Bureau Veritas-Mode II Survey Scheme- Marine Division Cert No:SMS.W.II./57463/A.0 (09.11.2022-27.02.2026)

Lloyd's Register-Certificate No:LR2004266WA (03.07.2020-02.07.2023)



VISVANA SAN.İTH.VE İHR. TİC.LTD.ŞTİ. Türkoba Mh.Atatürk Cad.No 232 Büyükkçekmece-İstanbul -TÜRKİYE Tel :+90 212 859 00 71 Fax:+90 212 859 03 24 www.visvana.com info@visvana.com

Sertifika No / Number of Cert.: :2024/069 Tarih/Date 1.04.2024

Firma Adı / Customer Name : :LANGTHON AS/ SKIPPER - PO 452475

Malzeme Kalitesi / Material Standard : CF8M / Stainless Steel Casting

Sıra Pos	Döküm No/Heat Number	Malzeme Adı / Material Name	Parça Adeti / Material Quantity	Kimyasal Kompozisyon / Chemical Composition							
				% C	% Si	% Mn	% P	% S	% Cr	% Mo	% Ni
				0.08 Max	1.5 Max.	1.5 Max.	0.040 Max	0.030 Max	17.0-21.0	2.0-3.0	9.0-12.0
1	2349	DN100 PN16 INTERMEDIATE BODY	54	0.063	0.81	0.84	0.022	0.023	17.6	2.09	9.12
2	2359	DN100 PN16 INTERMEDIATE BODY	54	0.053	0.79	0.79	0.019	0.018	17.5	2.14	9.13
3	2369	DN100 PN16 INTERMEDIATE BODY	50	0.059	0.82	0.68	0.017	0.019	17.7	2.06	9.14
4	2379	DN100 PN16 INTERMEDIATE BODY	42	0.065	0.77	0.71	0.017	0.022	17.6	2.09	9.09
5											

Mekanik Özellikler / Mechanical Properties

Döküm No / Heat Number.	Akma Dayanımı N/mm ² Yield Strength	Çekme Dayanımı N/mm ² Tensile Strength	Uzama / Elongation %	Kesit Daralması / Reduction of Area %	Darbe Testi / Charpy Impact test J/0°C	Sertlik / Hardness HB
	180 Min.	440	30 Min.	-	-	-
2349	277.5	509.4	39	-	-	-
2359	279.5	498.4	40	-	-	-
2369	291.4	491.5	39	-	-	-
2379	287.1	487.2	41	-	-	-

Tahratsız Testler / Non Destructive Tests

Döküm No / Heat Number.	Parça Adeti / Material Quantity	MT	PT	UT	RT	VT	Microstructure Ranges
2349	54	-	-	-	-	OK	-
2359	54	-	-	-	-	OK	-
2369	50	-	-	-	-	OK	-
2379	42	-	-	-	-	OK	-

Uygulanan Isıl İşlemler / Heat Treatment Applied

Döküm No / Heat Number.	Parça Adeti / Material Quantity	Normalizing °C	Annealing °C	Stress Relieving °C	Quenching °C	Tempering °C
2349	54	1100°C/ 2 Hours	-	-	-	-
2359	54	1100°C/ 2 Hours	-	-	-	-
2369	50	1100°C/ 2 Hours	-	-	-	-
2379	42	1100°C/ 2 Hours	-	-	-	-

We hereby certify that the material has been made by an approval process and satisfactorily tested in accordance with the rules of BV, LR and DNV-GL.

Surface quality is suitable with eye examination of MSS SP55 Standard.

KONTROL / CONTROLLED BY		ONAY / APPROVED BY		GÖZETİM / WITNESS BODY (if necessary)
Adı / Name	Tuncay SARAÇ	Hakan ÇALIŞKAN		
Ünvanı / Title	Quality Control Engineer	Quality Manager		
İmza / Signature				
Tarih / Date	1.04.2024	1.04.2024		

CERTIFICATES: (Validities: DD/MM/..YY)

ASB Certification ISO 9001:2015 Cert No:01/14059/01 (29.12.2023 -28.12.2024)	DNV-GL: Certificate No:AMMM00002YE (05.04.2022-04.04.2025)
Bureau Veritas-Mode II Survey Scheme- Marine Division Cert No:SMS.W.II./57465/A.O (09.11.2022-27.02.2026)	Uoyd's Register-Certificate No:LR2004266WA (08.07.2020-02.07.2023)



PICKING LIST

SKI-NO:PWO/129527

CASE. 129520



Printed: 06.09.2024 - 08:56

Operation number	Operation	Manufacturing area	Remaining quantity
		PRODUCTION	2 stk

Note
SB-60-SA-LR

Stockloc / Details	Assignment	Quantity	Product
For operation number 100			
1-PALL-02	SSA/132782-1	2 stk	ZCC-02001
1-PALL-02			Main element DN65 for XB-60-XA
For operation number 200			
1-PALL-06	SSA/133743-1	2 stk	DB-1031
1-PALL-06			Top Flange for XB-60-XA
1-PALL-06	SSA/133886-1	2 stk	DB-1021
1-PALL-06			Intermediate Element 60 mm
1-PALL-07	SSA/134269-1	2 stk	SB-1022
1-PALL-07			Bottom flange for SB-60-XA
1-S-74	SSA/134001-1	2 stk	DB-2040
1-S-74			Washer Ø46x2,5 Ø32,5 for XB-60/100/200-XX
1-T-01	SSA/134394-1	4 stk	DB-2035
1-T-01			Gasket Ø47/32,5 X 20mm for XB-60/100/200-XX
1-T-02	SSA/132139-1	8 stk	ZOA-01048
1-T-02			Washer M12 DIN125 A4
1-T-02	SSA/132838-1	4 stk	ZOA-01065
1-T-02			Bolt M12x40mm DIN933 A4-80
1-T-02	SSA/133057-1	8 stk	ZOA-01023
1-T-02			Nut M12 DIN934 A4
1-T-02	SSA/133576-1	12 stk	ZOA-01066
1-T-02			Spring Washer M12,2 DIN 127B A4
1-T-02	SSA/133931-1	8 stk	ZOA-01034
1-T-02			Bolt M16x40 DIN933 A4-80
1-T-02	SSA/134518-1	8 stk	ZOA-01035
1-T-02			Spring washer M16 DIN127B A4
1-T-02	SSA/135381-1	2 stk	DB-2036
1-T-02			Nut M50 Brass for XB-60/100/200-XX
3-TK-11	SSA/133955-1	4 stk	ZZA-01127
3-TK-11			Metallized, silver polyester label, on roll

Additional parts

Product	Stockloc	Quantity
GVA-LR		2 stk
Sea Valve approval from Lloyds Register		

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

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

INSPECTION & TEST PROTOCOL FOR SEA VALVE

Document No: Q12-TI-0108-02 2023

SKIPPER sea valve Serial No.:	24501
Class certificate no.:	

Class stamp and certificate no. shall be stamped on main element and bottom flange (welding part)

Class: DNV ☐ ABS ☐ BV ☐ LR ☒ RINA ☐ NK ☐

Sea valve Type:

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

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

	<u>Heat no</u> <u>Body</u>	<u>Heat no</u> <u>Cap</u>	<u>Skipper Part</u> <u>No.</u>
Valve Element:	CP16M		ZCC-02001
Intermediate Element:		2329	DB-1021
Bottom Flange:		568933	SB-1022
Intermediate flange (for DB valves)			

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_Pressure testing Gate_ball Valve

Performed without remarks: ☒

Date: 09.09-24

Sign.: A.S

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

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

INSPECTION & TEST PROTOCOL FOR SEA VALVE

Document No: Q12-TI-0108-02 2023

SKIPPER sea valve Serial No.:	24502
Class certificate no.:	

Class stamp and certificate no. shall be stamped on main element and bottom flange (welding part)

Class: DNV ☐ ABS ☐ BV ☐ LR ☒ RINA ☐ NK ☐

Sea valve Type:

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

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

	<u>Heat no</u> <u>Body</u>	<u>Heat no</u> <u>Cap</u>	<u>Skipper Part</u> <u>No.</u>
Valve Element:	CNCN4		ZCC-02001
Intermediate Element:		2329	DB-1021
Bottom Flange:		568933	SB-1022
Intermediate flange (for DB valves)			

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_Pressure testing Gate_ball Valve

Performed without remarks: ☒

Date: 09.09-24

Sign.: A.S

Operation number

Operation

Manufacturing area

Remaining quantity

PRODUCTION

6 stk

Note

SB-100-SB-LR

Stockloc / Details	Assignment	Quantity	Product
For operation number 200			
1-PALL-00	SSA/134863-1	6 stk	DB-2051
1-PALL-00	31 stk		Intermediate element for xB-100-xB casted
For operation number 100			
1-PALL-01	SSA/135306-1	6 stk	ZCC-01015
1-PALL-01	47 stk		Main element, Ball Valve DN100 PN16/3.1.B
For operation number 200			
1-PALL-03	SSA/134847-1	6 stk	SB-2019
1-PALL-03	12 stk		Bottom flange for SB-100-xx
1-PALL-03	SSA/135226-1	48 stk	ZOA-01075
1-PALL-03	1860 stk		Bolt M16x55 mm DIN933 A4-80
1-PALL-06	SSA/135179-1	6 stk	DB-2031
1-PALL-06	27 stk		Top Flange for XB-100/200-XX
1-S-74	SSA/134001-1	6 stk	DB-2040
1-S-74	188 stk		Washer Ø46x2,5 Ø32,5 for XB-60/100/200-XX
1-T-01	SSA/134599-1	72 stk	ZOA-01036
1-T-01	1512 stk		Nut M16 DIN934 A4
1-T-01	SSA/135091-1	12 stk	DB-2035
1-T-01	484 stk		Gasket Ø47/32,5 X 20mm for XB-60/100/200-XX
1-T-02	SSA/134518-1	36 stk	ZOA-01035
1-T-02	1180 stk		Spring washer M16 DIN127B A4
1-T-02	SSA/135381-1	6 stk	DB-2036
1-T-02	45 stk		Nut M50 Brass for XB-60/100/200-XX
1-T-02	SSA/135468-1	36 stk	ZOA-01035
1-T-02	3000 stk		Spring washer M16 DIN127B A4
3-TK-11	SSA/133955-1	12 stk	ZZA-01127
3-TK-11	4828.5 stk		Metallized, silver polyester label, on roll

Additional parts

Product	Stockloc	Quantity
GVA-LR		6 stk
Sea Valve approval from Lloyds Register		

SKIPPER Electronics A/S
Engebakkveien 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

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

INSPECTION & TEST PROTOCOL FOR SEA VALVE

Document No: Q12-TI-0108-02 2023

SKIPPER sea valve Serial No.:	24495
Class certificate no.:	

Class stamp and certificate no. shall be stamped on main element and bottom flange (welding part)

Class: DNV ☐ ABS ☐ BV ☐ LR ☒ RINA ☐ NK ☐

Sea valve Type:

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

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

	<u>Heat no</u> <u>Body</u>	<u>Heat no</u> <u>Cap</u>	<u>Skipper Part</u> <u>No.</u>
Valve Element:	VB9A	VB9A	ZCC-01015
Intermediate Element:		2359	DB-2051
Bottom Flange:		569485	SB-2019
Intermediate flange (for DB valves)			

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_Pressure testing Gate_ball Valve

Performed without remarks: ☒

Date: 09.09-24

Sign.: A.S

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

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

INSPECTION & TEST PROTOCOL FOR SEA VALVE

Document No: Q12-TI-0108-02 2023

SKIPPER sea valve Serial No.:	24496
Class certificate no.:	

Class stamp and certificate no. shall be stamped on main element and bottom flange (welding part)

Class: DNV ☐ ABS ☐ BV ☐ LR ☒ RINA ☐ NK ☐

Sea valve Type:

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

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

	<u>Heat no</u> <u>Body</u>	<u>Heat no</u> <u>Cap</u>	<u>Skipper Part</u> <u>No.</u>
Valve Element:	VB9A	VB9A	ZCC-01015
Intermediate Element:		2359	DB-2051
Bottom Flange:		569485	SB-2019
Intermediate flange (for DB valves)			

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_Pressure testing Gate_ball Valve

Performed without remarks: ☒

Date: 09.09-24

Sign.: A.S

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

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

INSPECTION & TEST PROTOCOL FOR SEA VALVE

Document No: Q12-TI-0108-02 2023

SKIPPER sea valve Serial No.: 24497

Class certificate no.:

Class stamp and certificate no. shall be stamped on main element and bottom flange (welding part)

Class: DNV ☐ ABS ☐ BV ☐ LR ☒ RINA ☐ NK ☐

Sea valve Type:

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

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

	<u>Heat no</u> <u>Body</u>	<u>Heat no</u> <u>Cap</u>	<u>Skipper Part</u> <u>No.</u>
Valve Element:	VB9A	VB9A	ZCC-01015
Intermediate Element:		2359	DB-2051
Bottom Flange:		569485	SB-2019
Intermediate flange (for DB valves)			

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_Pressure testing Gate_ball Valve

Performed without remarks: ☒

Date: 09.09-24

Sign.: A.S

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

SKIPPER

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

INSPECTION & TEST PROTOCOL FOR SEA VALVE

Document No: Q12-TI-0108-02 2023

SKIPPER sea valve Serial No.:	24499
Class certificate no.:	

Class stamp and certificate no. shall be stamped on main element and bottom flange (welding part)

Class: DNV ☐ ABS ☐ BV ☐ LR ☒ RINA ☐ NK ☐

Sea valve Type:

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

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

	<u>Heat no</u> <u>Body</u>	<u>Heat no</u> <u>Cap</u>	<u>Skipper Part</u> <u>No.</u>
Valve Element:	VC9A	VC9A	ZCC-01015
Intermediate Element:		2359	DB-2051
Bottom Flange:		569485	SB-2019
Intermediate flange (for DB valves)			

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_Pressure testing Gate_ball Valve

Performed without remarks: ☒

Date: 09.09-24

Sign.: A.S

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

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

INSPECTION & TEST PROTOCOL FOR SEA VALVE

Document No: Q12-TI-0108-02 2023

SKIPPER sea valve Serial No.:	24500
Class certificate no.:	

Class stamp and certificate no. shall be stamped on main element and bottom flange (welding part)

Class: DNV ☐ ABS ☐ BV ☐ LR ☒ RINA ☐ NK ☐

Sea valve Type:

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

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

	<u>Heat no</u> <u>Body</u>	<u>Heat no</u> <u>Cap</u>	<u>Skipper Part</u> <u>No.</u>
Valve Element:	VC9A	VC9A	ZCC-01015
Intermediate Element:		2359	DB-2051
Bottom Flange:		569485	SB-2019
Intermediate flange (for DB valves)			

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_Pressure testing Gate_ball Valve

Performed without remarks: ☒

Date: 09.09-24

Sign.: A.S

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

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

INSPECTION & TEST PROTOCOL FOR SEA VALVE

Document No: Q12-TI-0108-02 2023

SKIPPER sea valve Serial No.:	24498 rev 01*
Class certificate no.:	OSL2400697

Class stamp and certificate no. shall be stamped on main element and bottom flange (welding part)

Class: DNV☒ ABS☐ BV☐ LR☒ RINA☐ NK☐

Sea valve Type:

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

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

	<u>Heat no</u> <u>Body</u>	<u>Heat no</u> <u>Cap</u>	<u>Skipper Part</u> <u>No.</u>
Valve Element:			ZCC-01015
Intermediate Element:			DB-2051
Bottom Flange:		568409	SB-2023
Intermediate flange (for DB valves)			

*** Rev 01: bottom flange SB-2023 added, SB-2019 deleted**

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_Pressure testing Gate_ball Valve

Performed without remarks: ☒

Date: 09.09.24

Sign.: A.S

A02/Z03

INSPECTION CERTIFICATE acc to
EN 10204 3.1

A06

SVERDRUP STEEL AS
STRANDSVINGEN 2
4032 STAVANGER
NORWAY

SVQ

Customer References A07 P0-N001782 Customer order 2023-12-05 125-06911 SVERDRUP S	Alleima References A08 <table style="width: 100%;"> <tr> <th>Order No.</th> <th>Subs No.</th> <th>Dispatch note</th> </tr> <tr> <td>604454</td> <td>723929</td> <td>05664/53</td> </tr> <tr> <th>Suppl. No</th> <th>C.Code</th> <td></td> </tr> <tr> <td>284-81846</td> <td>87</td> <td></td> </tr> </table>	Order No.	Subs No.	Dispatch note	604454	723929	05664/53	Suppl. No	C.Code		284-81846	87																																											
Order No.	Subs No.	Dispatch note																																																					
604454	723929	05664/53																																																					
Suppl. No	C.Code																																																						
284-81846	87																																																						
Material description B01/B04 HOT WORKED BAR STEEL FORGED ANNEALED & STRAIGHTENED PEEL TURNED AND POLISHED Melt Source ALLEIMA AB SWEDEN Metallurgical process Origin C70 EAF+AOD+LRF Sweden	Steel/material Designations B02 Alleima SANMAC 316/SANMAC 316L <table style="width: 100%;"> <tr> <th>AISI</th> <th>UNS</th> </tr> <tr> <td>316/316L</td> <td>S31600/S31603</td> </tr> <tr> <th>W.nr</th> <th>EN no</th> </tr> <tr> <td>1.4401/1.4404</td> <td>1.4401/1.4404</td> </tr> </table>	AISI	UNS	316/316L	S31600/S31603	W.nr	EN no	1.4401/1.4404	1.4401/1.4404																																														
AISI	UNS																																																						
316/316L	S31600/S31603																																																						
W.nr	EN no																																																						
1.4401/1.4404	1.4401/1.4404																																																						
Technical requirements B03 EN 10088-3:-2014, EN10272:-2016*, EN10060:2003, EN 10221:1996 EN10222-5:-2017*, PED 2014/68/EU, QQ-S-763 F, NACE MR0175/ISO 15156-3:-2020, NACE MR0103/ISO 17945-1:-2015, ASTM A-276-17, ASME SA-276-ED-21 SECT II PART A, ASTM A-479-23A, ASME SA-479-ED-21 SECT II PART A, ASTM A-484-23, ASTM A-182-23*, ASTM A-965-21A*, ASTM A-314-19*, NORSOK M-630:2020, NORSOK MDS S17 REV. 1 *For detailed information, please see the appendix																																																							
EXTENT OF DELIVERY B07-B13 <table style="width: 100%;"> <thead> <tr> <th>It</th> <th>Product designation</th> <th>Heat</th> <th>Lot</th> <th>Pieces</th> <th>Kg</th> </tr> </thead> <tbody> <tr> <td>01</td> <td>MBR-SANMAC316L-225</td> <td>568409</td> <td>53121</td> <td>1</td> <td>1594.0</td> </tr> <tr> <td colspan="4" style="text-align: right;">Total</td> <td>1</td> <td>1594.0</td> </tr> </tbody> </table> Heat Recycled material(%) 568409 Continuous casting 95.1 TEST RESULTS Reduction ratio (times) Lot 53121 2.2 Chemical composition (weight%) acc. to ASTM A-751 <table style="width: 100%;"> <thead> <tr> <th>Heat</th> <th>C</th> <th>Si</th> <th>Mn</th> <th>P</th> <th>S</th> <th>Cr</th> <th>Ni</th> <th>Mo</th> </tr> </thead> <tbody> <tr> <td>568409</td> <td>0.010</td> <td>0.26</td> <td>1.74</td> <td>0.030</td> <td>0.025</td> <td>16.82</td> <td>10.12</td> <td>2.01</td> </tr> <tr> <td></td> <td>N</td> <td colspan="7"></td> </tr> <tr> <td>568409</td> <td>0.049</td> <td colspan="7"></td> </tr> </tbody> </table>		It	Product designation	Heat	Lot	Pieces	Kg	01	MBR-SANMAC316L-225	568409	53121	1	1594.0	Total				1	1594.0	Heat	C	Si	Mn	P	S	Cr	Ni	Mo	568409	0.010	0.26	1.74	0.030	0.025	16.82	10.12	2.01		N								568409	0.049							
It	Product designation	Heat	Lot	Pieces	Kg																																																		
01	MBR-SANMAC316L-225	568409	53121	1	1594.0																																																		
Total				1	1594.0																																																		
Heat	C	Si	Mn	P	S	Cr	Ni	Mo																																															
568409	0.010	0.26	1.74	0.030	0.025	16.82	10.12	2.01																																															
	N																																																						
568409	0.049																																																						
Quality assurance - Erik Jansson/QA-manager Primary Products A05/Z02 MTC Service / Certificates																																																							



Tensile test at room temperature acc. to ASTM A370/ISO 6892-1

Longitudinal

Location half radius

Lot	Yield strength		Tensile strength	Elongation	
	Mpa	MPa	Mpa	%	%
	Rp0.2	Rp1.0	Rm	A	2"
53121	226	261	526	63	63
	Red.of Area				
	%				
	Z				
	72				

Transversal, 90° from each other.

Location half radius

Lot	Yield strength		Tensile strength	Elongation	
	MPa	MPa	MPa	%	%
	Rp0.2	Rp1.0	Rm	A	2"
53121	232	267	524	60	60
	225	259	519	58	58
	Red.of Area				
	%				
	Z				
	56				
	65				

Hardness test acc.to ASTM A-370/ISO 6506-1

Location half radius

Lot	Min	Max
	HB	HB
53121	146	149
Lot	Min	Max
	HRB	HRB
53121	75	76

Grain size acc to ASTM E-112.

Lot	
53121	4.5

Impact test, J, Transversal acc. to ASTM A-370

Location half radius

Lot	Single values			Avg.	Temperature
	Joule			Joule	°C
53121	150	163	147	153	20
	161	154	156	157	20

Following controls/tests have been satisfactorily performed:

- Intergranular corrosion test acc to ASTM A-262 PR.E and EN ISO 3651-2A
- Positive Material Identification (PMI)
- Ultrasonic testing (*)
- Visual inspection and dimensional control.

Heat Treatment:

Solution annealed and quenched.

Melt Source

Heat 568409 ALLEIMA AB

SWEDEN



HEAT TREATMENT:

Up to 35mm: Material soaking 1050°C, min. 20 minutes. Quenched in water. Water temp pre-quench max 38°C, after quench max 49°C.

>35-150mm: In process annealed according to ASTM A484 above the minimum hot rolling temperature of 1010°C and cooled in air.

>150-350mm: Material soaking 1065°C, min. 30 minutes. Quenched in water. Water temp pre-quench max 38°C, after quench max 49°C.

>350-375mm: Material soaking 1050°C, min. 60 minutes. Quenched in water. Water temp pre-quench max 38°C, after quench max 49°C.

>375mm: Material soaking 1050°C, min. 120 minutes. Quenched in water. Water temp pre-quench max 38°C, after quench max 49°C.

The raw material is free from radioactive contamination.

Material free from mercury contamination.

No welding or weld repair.

This is to certify that the contents of this certified material test report are correct and accurate and that all test results and operations are in compliance with the material specification.

Approved acc. AD 2000-Merkblatt W0 and certified acc. to Pressure Equipment Directive (2014/68/EU) by TÜV NORD; notified body, reg.no. 0045.

The material is manufactured according to a Quality system, approved and registered to ISO 9001:2015.

No unauthorized alterations. The contents of this Inspection Certificate may not be modified or revised in any way without the prior written approval of Alleima.

Unauthorized alterations to the Inspection Certificate, including introduction of false, fictitious or fraudulent statements or entries, may be punishable by fines, imprisonment, or both. This Inspection Certificate may be copied only in the manner and for the purposes specified in Section 6 of EN 10204:2004. Contravention of this notice will be prosecuted to the fullest extent of applicable law.

The certificate is produced with EDP and valid without signature.



APPENDIX

Lab accreditation

Our lab is accredited under SWEDAC Accreditation number 1636 for testing as per ISO/IEC 17025

Applicable only to specific dimensions

20mm - 250mm: EN 10088-5 EN (Only valid for CE marked products together with Alleima Declaration of Performance certificate).

20mm - 400mm: PED 2014/68/EU EN 10272 (Stainless steel bars for pressure purposes)

20mm - 375mm: AD-2000-W2/W10

20mm - 450mm: NORSOK M-630 - NORSOK MDS S17

180mm- 450mm: PED 2014/68/EU EN 10222-5 (Chemical composition only)

70mm - 450mm: AMS 5648 Rev. L, AMS 5653 Rev. H

Suitable for manufacturing of components in acc. with *ASTM A-182, (F316/F316L), ASTM A-965, ASTM A-314.

Test location

Mechanical, ferrite, corrosion testing:

Bar dim <=50mm - Longitudinal test pieces in center of the bar.

Bar dim > 50mm - 160 mm - Longitudinal test pieces, 1/4 T and minimum 100 mm from any second surface.

Bar dim > 160mm- 450 mm - Transversal test pieces, 1/4 T and minimum 100 mm from any second surface.

One set of test samples per heat treatment lot.

Maximum lot size 15 ton.

Furnace calibration every third month according to API 6A 21th Edition Annex M, Thermocouples of S-type (+/- 5°C tolerance) are used to monitor the Furnace temperature.

Ultrasonic test

Dim 29 - 74 mm: EN 10308 quality class 3

Dim 75 mm - : EN 10228-4, Tab 3 Scan coverage 1a 100%, Tab 5
Quality Class 3, ASTM A-388, API 6A PSL3/3G.



