TYPE APPROVAL CERTIFICATE

Certificate no.:
TAS00002AF
Revision No:
7

This is to certify:

that the Bow shackles

with type designation(s)
HD, HP, HS

issued to
Anker Schroeder ASDO GmbH
Dortmund, Nordrhein-Westfalen, Germany

is found to comply with
DNV standard DNV-ST-0377 – Standard for shipboard lifting appliances
DNV standard DNV-ST-0378 – Offshore and platform lifting appliances
Federal Specification Chains and Attachments, Carbon and Alloy Steel, RR-C-271F

Application:

Products approved by this certificate are accepted for DNV product certification.

Issued at **Hamburg** on **2026-02-12**

This Certificate is valid until **2028-12-11**.
DNV local unit: **Essen**

Approval Engineer: **Heiko Herrmann**

for **DNV**
Digitally Signed By: Kallies, Joerg
Location: DNV, Hamburg, Germany
Signing Date: 21.02.2026

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid.
The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

LEGAL DISCLAIMER: Unless otherwise stated in the applicable contract with the holder of this document, or following from mandatory law, the liability of DNV AS, its parent companies and their subsidiaries as well as their officers, directors and employees ("DNV") arising from or in connection with the services rendered for the purpose of the issuance of this document or reliance thereon, whether in contract or in tort (including negligence), shall be limited to direct losses and under any circumstance be limited to 300,000 USD.

Product description

Alloyed Anchor Bow Shackles

Type No.	Type Description	Extended Annotation	Load Range SWL/WLL	Dimensions as per Annex 1
1	**HD**	Heavy Duty Shackle	35t - 1500t	Table 5
2	**HP**	Heavy Polar Shackle	35t - 600t	Table 5
3	**HS**	Heavy Super Shackle	55t - 175t	Table 6

Table 1

Application/Limitation

Safe Working Load/Working Load Limit, Test- and Minimum Break Loads:

Detailed Type	Load Limit SWL/WLL [t]	Test Load L_{Pstat} [t]	Break Load MBL [t]
HD/HP 35	35	62.7	175
HD/HP 55	55	87.1	275
HD/HP 85	85	123.7	425
HD/HP 120	120	166.4	600
HD/HP 150	150	203	750
HD/HP 200	200	265	1000
HD/HP 250	250	325	1250
HD/HP 300	300	386	1500
HD/HP 400	400	508	2000
HD/HP 500	500	630	2500
HD/HP 600	600	752	3000

Detailed Type	Load Limit SWL/WLL [t]	Test Load L_{Pstat} [t]	Break Load MBL [t]
HD 700	700	874	3500
HD 800	800	996	4000
HD 1000	1000	1240	5000
HD 1250	1250	1545	6250
HD 1500	1500	1850	7500
HS 55	55	87.1	275
HS 85	85	123.7	425
HS 120	120	166.4	600
HS 150	150	203.0	750
HS 175	175	233.5	875

Table 2

Equivalence and compliance with Fed. Spec. RR-C-271F [3.4.3.2] type IV A, class 3, is limited to the following sizes, minimum breaking strength satisfies 5x WLL, proof loads as per RR-C-271 [3.4.3.1.2] deviate from above *Table 2* :

Grade A **Size** [inch]	**ASDO** equivalent	**Test Load $L_{P,stat}$** [pounds] / [t]
2	HD/HP 35	154 000 / 69.9
2 ¾	HD/HP 55	264 000 / 119.7
3	HD/HP 85	374 000 / 169.6
3 ½	HD/HP 120	528 000 / 239.5
4	HD/HP 150	660 000 / 299.4

Grade B **Size** [inch]	**ASDO** equivalent	**Test Load $L_{P,stat}$** [pounds] / [t]
2	HS 55	220 000 / 99.8
2 ¾	HS 85	396 000 / 179.6
3	HS 120	484 000 / 219.5
3 ½	HS 150	616 000 / 279.4
4	HS 175	770 000 / 349.3

Table 3

Load cycles: Fatigue is not in scope of this approval; load cycles are limited to 20 000.

Material: For basic requirements on material selection, design temperature and mechanical properties, as well as applicable equivalent steel grades as per EN ISO 683-2:02018, reference is made to the 'Product Specification', available in type approval documentation with DNV no. 235~237.

Testing: To obtain a DNV Product Certificate, each item shall be load tested in presence of DNV with a test load according to DNV-ST-0377 [Table 7-4] respectively DNV-ST-0378 [Table 14-2].
For compliance with RR-C-271, proof load shall follow *Table 2.1* above, marking shall include shackle size in inch

Type Approval documentation

Drawing no.	rev.	DNV no.	Drawing title
ASDO-141218	A	229	HD-WLL35
ASDO-141219	A	230	HD-WLL55
ASDO-083243	A	203	HD-WLL85
ASDO-083244	A	204	HD-WLL120
ASDO-083245	A	205	HD-WLL150
ASDO-083246	A	206	HD-WLL200
ASDO-083247	A	207	HD-WLL250
ASDO-083248	A	208	HD-WLL300
ASDO-083249	A	209	HD-WLL400
ASDO-083250	A	210	HD-WLL500
ASDO-083251	A	211	HD-WLL600
ASDO-083252	A	212	HD-WLL700
ASDO-083253	A	213	HD-WLL800
ASDO-083254	A	214	HD-WLL1000
ASDO-083255	A	215	HD-WLL1250
ASDO-083256	A	216	HD-WLL1500
ASDO-083266	A	217	HP-WLL85
ASDO-083267	A	218	HP-WLL120
ASDO-083268	A	219	HP-WLL150
ASDO-083269	A	220	HP-WLL200
ASDO-083270	A	221	HP-WLL250
ASDO-083271	A	222	HP-WLL300
ASDO-083272	A	223	HP-WLL400
ASDO-083273	A	224	HP-WLL500
ASDO-083274	A	225	HP-WLL600
ASDO-132884	A	231	HS-WLL55
ASDO-132899	A	232	HS-WLL85
ASDO-083263	A	226	HS-WLL120
ASDO-083264	A	227	HS-WLL150
ASDO-083265	A	228	HS-WLL175

Document no.	rev.	DNV no.	Document title
2	-	146	Procedures and Work Instructions
4	-	173	Break Load Testing
5	-	174	Material Certificates
-	-	175	FEA Report 200t
-	-	176	FEA Report ALL (reduced)
PS-AS-HD	3	235	Product Specification - HD
PS-AS-HP	2	236	Product Specification - HP
PS-AS-HS	3	237	Product Specification - HS
29102	-	238	MBL Test Reports HS35 HD55
EN 10204	-	239	Material Prototype Testing

Table 4

For drawing approval refer to NPS job ID 262.1-030908-2 and *-4, M-SA-SE/HHE/262.1-030908-J-10.

Tests carried out

Prototype test reports nos. 2000-19-[404, 405, 407, 409-418, 441], witnessed by DNV GL, dated 2019-07-23/24 and test certificates nos. 3000-[808, 837, 838, 842, 843], witnessed by DNV, dated 2025-10-20 and 2025-11-05.

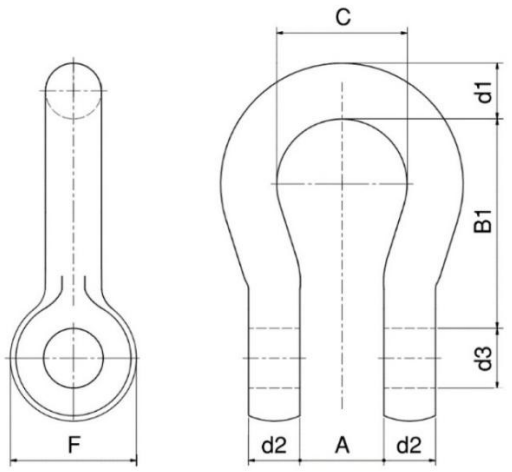
Marking of product

Each shackle shall be marked with at least manufacturer's name or trademark and nominal load (SWL/WLL) in tonnes. Serial number/batch code, year of construction and reference to a type approval shall be traceable via the 3.1 manufacturer certificate.

Periodical assessment

This certificate is only valid if required periodical assessments are carried out with satisfactory results.
To check the validity of this certificate, please look it up in https://approvalfinder.dnv.com

Annex 1: Dimensions



Type HD (Heavy Duty) and Type HP (Heavy Polar, marked *)

Load Limit SWL/WLL [t]	Bow Diameter d1 [mm]	Pin Diameter D [mm]	Inner Diameter C [mm]	Inner Width A [mm]	Inner Height B1 [mm]	Eye Diameter F [mm]	Eye Thickness d2 [mm]
35*	52	57	139	87	198	119	52
55*	66	70	180	109	256	148	66
85*	85	83	190	127	330	162	80
120*	95	95	238	144	380	200	89
150*	105	108	275	165	385	230	100
200*	120	125	280	180	450	270	110
250*	130	140	305	205	520	290	115
300*	140	150	305	205	530	315	120
400*	160	175	325	230	575	365	160
500*	180	185	350	250	650	385	160
600*	200	205	375	275	650	430	185
700	210	215	400	300	650	440	200
800	210	220	400	300	650	450	200
1000	240	240	420	340	700	500	210
1250	260	270	450	360	750	570	225
1500	280	290	450	360	800	610	225

Table 5

Type HS (Heavy Super)

SWL/WLL [t]	d1 [mm]	D [mm]	C [mm]	A [mm]	B1 [mm]	F [mm]	d2 [mm]
55	52	57	139	87	198	119	52
85	66	70	180	109	256	148	66
120	85	83	190	127	330	162	80
150	95	95	238	144	380	200	89
175	105	108	275	165	385	230	100

Table 6