



ASDO

## HEAVY LIFTING SHACKLES

WLL 85t to 1500t  
All type approved according to  
DNV-ST-0377 and DNV-ST-0378



US Customary Units



Since 1920

over **100**  
years steel tradition

**ANKER  
SCHROEDER**  
ASDO heavy lifting & mooring



# HEAVY LIFTING SHACKLES

Anker Schroeder has been forging steel for over a century from its base in Dortmund Germany. Large shackles have been manufactured here for over 60 years in a variety of pin colours and supplied to global players in the market. Heavy lifting shackles are now offered direct to the market under the ASDO brand with 'orange & blue pin' for both industrial and offshore applications.

The ASDO standard range of shackles includes Heavy Duty (HD), Heavy Polar (HP) and Heavy Super (HS) ranging from 85 t to 1500 t WLL (see page 4 & 5 for more detail).

The flexibility of the ASDO production process and reliable access to high quality material allows for cost-effective manufacturing of custom-made shackles to suit your application. Please contact our sales team for more information.

- No limitations on batch size of customised shackles: ranging from a few to many hundred pieces within the shortest time frame.
- ASDO capabilities allow for small increments of sizes and tolerances, best material utilisation and minimal waste.

## Production process



ASDO shackle material is sourced from certified European steel mills



ASDO stocks over 4,000 tonnes of steel



Zero-waste forging process: eyes are upset forged



Zero-waste forging process: 'dog bones'



# PRODUCTION PROCESS



Shackles are available from stock



Zero-waste forging process: 'dog bones' are formed to bow shape



Bow forging dimensions are controlled and adjusted



Shackles and pins CNC machined in-house



Shackles are proof load tested (witnessed by Classification society on request)

# ASDO SHACKLES - 85 TO 1500 TONNES WLL



The safety factor of ASDO shackles is fully assessed by in-house FEA and confirmed by physical testing during DNV Type approval process. ASDO Heavy Lifting Shackles generally comply or exceed design and testing requirements of ASME B30.26-1 and Federal Specification RR-C-271.

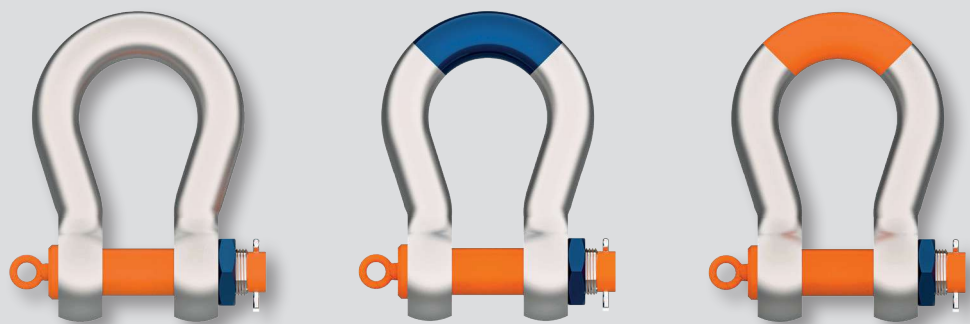
ASDO Heavy Polar (HP) Shackles are designed for use in low temperature conditions. ASDO Heavy Super (HS) Shackles are made of higher strength material and are well suited for use where higher loads are required with reduced dimensions and weight.

All ASDO Shackles used for lifting applications are always marked with hard stamped batch code and serial ID as well as hot embossed markings WLL, ASDO symbol, steel grade and CE mark. Additional markings are applied as required by the additional certification scope.

## Key features

- Quenched and tempered steel Grade 8
- Type approval by DNV (ST-0378, ST-0377)
- Unique ID number
- Anti-rotation pin
- MBL Design factor 5 x WLL
- Each shackle is supplied with
  - » 100% Proof load test to 2 x WLL
  - » 100% UT of raw material
  - » 3.1 Material Certificate acc.to EN 10204
  - » EU Declaration of Conformity CE
  - » Painted finish
- By request the following can be supplied
  - » DNV product certificate for loose gear [CG3]
  - » Witnessed Proof Load test Certificate
  - » 100% MPI and UT test Certificate
  - » Certificate of conformity UKCA
  - » Special dimension and tolerances

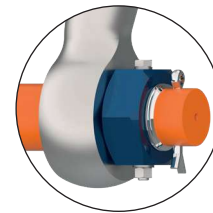
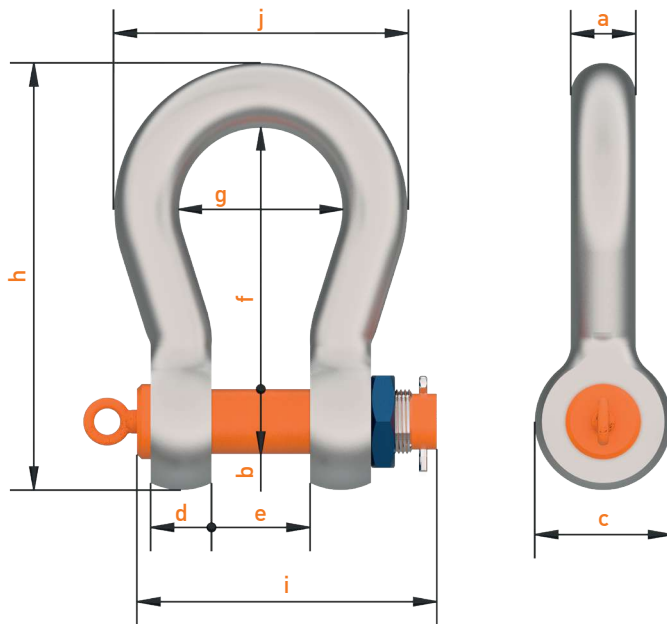
## Product branding



Type Designation	HD Heavy Duty	HP Heavy Polar	HS Heavy Super
Working Load Limit Range (WLL)	85 t - 1500 t	85 t - 600 t	120 t - 175 t
Charpy value at Temperature	20 ft/lbs @ -4 °F	31ft/lbs @ -40 °F	20 ft/lbs @ -4 °F
	27 J @ -20 °C	42 J @ -40 °C	27 J @ -20 °C
Operating Temperature range	-4 °F to +392 °F	-76 °F to +392 °F	-4 °F to +392 °F
	-20 °C to +200 °C	-60 °C to +200 °C	-20 °C to +200 °C

## Dimensions and capacity

## SYSTEM DATA



Standard ASDO range is also available with lock nut at request (LN)

Type	Frame (bow) Size	Working Load Limit	bow diameter	pin diameter	inside width	jaw gap	inside height	eye diameter	eye thickness	pin length	total height	total width	aprox. weight
			a	b +/- 0.5	g	e (min./max.)	f	c (min./max.)	d	i	h (max.)	j (max.)	
HD Heavy Duty	HP Heavy Polar	3 85 t	inches 3.3	3.3	7.5	5.00 / 5.24	13.0	6.38 / 6.97	3.1	15.7	22.6	14.8	172 lb
			mm 85	83	190	127 / 133	330	162 / 177	80	398	574	376	78 kg
		3 1/2 120 t	inches 3.7	3.7	9.4	5.67 / 5.91	15.0	7.87 / 8.46	3.5	17.2	25.9	17.5	253 lb
			mm 95	95	238	144 / 150	380	200 / 215	89	438	659	444	115 kg
		4 150 t	inches 4.1	4.3	10.8	6.50 / 6.81	15.2	9.06 / 9.65	3.9	20.0	27.4	19.8	357 lb
			mm 105	108	275	165 / 173	385	230 / 245	100	508	696	503	162 kg
		4 3/4 200 t	inches 4.7	4.9	11.0	7.09 / 7.40	17.7	10.63 / 11.34	4.3	21.7	31.8	21.3	529 lb
			mm 120	125	280	180 / 188	450	270 / 288	110	550	807	540	240 kg
		5 250 t	inches 5.1	5.5	12.0	8.07 / 8.46	20.5	11.42 / 12.13	4.5	23.2	36.0	23.0	674 lb
			mm 130	140	305	205 / 215	520	290 / 308	115	590	914	585	306 kg
		6 300 t	inches 5.5	5.9	12.0	8.07 / 8.46	20.9	12.40 / 13.19	4.7	23.8	37.5	23.8	811 lb
			mm 140	150	305	205 / 215	530	315 / 335	120	605	952	605	368 kg
		7 400 t	inches 6.3	6.9	12.8	9.06 / 9.45	22.6	14.37 / 15.24	6.3	28.1	41.6	26.3	1327 lb
			mm 160	175	325	230 / 240	575	365 / 387	160	715	1057	667	602 kg
		7 1/4 500 t	inches 7.1	7.3	13.8	9.84 / 10.31	25.6	15.16 / 16.14	6.3	29.1	46.0	28.9	1620 lb
			mm 180	185	350	250 / 262	650	385 / 410	160	740	1168	734	735 kg
HS Heavy Super	HP Heavy Polar	8 600 t	inches 7.9	8.1	14.8	10.83 / 11.34	25.6	16.93 / 18.03	7.3	32.6	48.1	31.5	2136 lb
			mm 200	205	375	275 / 288	650	430 / 458	185	828	1222	800	969 kg
		8 1/4 700 t	inches 8.3	8.5	15.7	11.81 / 12.40	25.6	17.32 / 18.43	7.9	34.8	48.9	33.3	2405 lb
			mm 210	215	400	300 / 315	650	440 / 468	200	885	1242	847	1091 kg
		8 1/2 800 t	inches 8.3	8.7	15.7	11.81 / 12.40	25.6	17.72 / 18.82	7.9	35.0	49.1	33.3	2438 lb
			mm 210	220	400	300 / 315	650	450 / 478	200	890	1247	847	1106 kg
		9 1/2 1000 t	inches 9.4	9.4	16.5	13.39 / 14.06	27.6	19.69 / 20.87	8.3	37.6	53.8	36.5	3253 lb
			mm 240	240	420	340 / 357	700	500 / 530	210	955	1366	928	1476 kg
		10 1250 t	inches 10.2	10.6	17.7	14.17 / 14.88	29.5	22.44 / 23.62	8.9	39.8	58.5	39.4	4309 lb
			mm 260	270	450	360 / 378	750	570 / 600	225	1010	1486	1000	1955 kg
HS Heavy Super	HP Heavy Polar	11 1500 t	inches 11.0	11.4	17.7	14.17 / 14.88	31.5	24.02 / 25.20	8.9	39.8	62.4	40.9	5129 lb
			mm 280	290	450	360 / 378	800	610 / 640	225	1010	1586	1040	2327 kg
	HS Heavy Super	3 120 t	inches 3.3	3.3	7.5	5.00 / 5.24	13.0	6.38 / 6.97	3.1	15.7	22.6	14.8	172 lb
			mm 85	83	190	127 / 133	330	162 / 177	80	398	574	376	78 kg
		3 1/2 150 t	inches 3.7	3.7	9.4	5.67 / 5.91	15.0	7.87 / 8.46	3.5	17.2	25.9	17.5	253 lb
			mm 95	95	238	144 / 150	380	200 / 215	89	438	659	444	115 kg
		4 175 t	inches 4.1	4.3	10.8	6.50 / 6.81	15.2	9.06 / 9.65	3.9	20.0	27.4	19.8	357 lb
			mm 105	108	275	165 / 173	385	230 / 245	100	508	696	503	162 kg

PL = 2 x WLL exceeding the class requirements.



# ASDO IS AN APPROVED MANUFACTURER

Anker Schroeder is an approved manufacturer of forgings and forged accessories by ABS, DNV, Bureau Veritas, and Lloyd's Register for industrial, lifting and mooring applications. The Quality management system is certified by Lloyd's Register.

ASDO shackles are forged from high quality alloy steels and quenched and tempered according to approved heat treatment procedures complying with the latest requirements set by the Classification Societies. Each batch is tested for mechanical properties by an accredited partner. The production history of each shackle is traceable to heat treatment batch, proof load test and inspection certificate. ASDO shackles meet all relevant requirements of the Machinery Directive 2006/42/EC and the UK Supply of Machinery (Safety) Regulations 2008.

Where requested the proof load test and final inspection is performed under the survey of a classification society, such as ABS, BV, DNV, LROS or any other officially certified inspection body at additional cost. Additional certification must be requested at time of order.

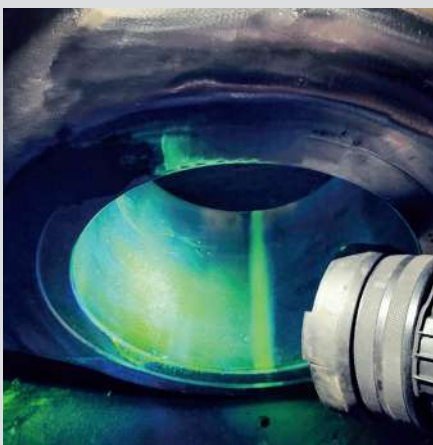
## Quality Control



NDT - ultrasonic testing



Proof testing (2 x WLL) using quick release system



NDT - Magnetic Particle Inspection



Mechanical testing is performed for every production batch and ensures individual traceability to every shackle.



Shackle unique ID / traceability marking

This publication provides information and technical details currently used by Anker Schroeder in the manufacture of its products. Although we have taken great care in the preparation of the data within this publication, we cannot assume responsibility for the completeness and accuracy of all the details given. Each customer should satisfy themselves of the product suitability for their requirements. The publication of this data does not imply a contractual offer.

In line with Anker Schroeder's policy of continuous improvement the company reserves the right to change or amend details. Please contact our technical department for further information or to ensure these details are current.

ASDO has the experience, passion and dedicated team to make a product to meet your specific project goals.



We at Anker Schroeder design and manufacture shackles of special size and shape to suit your application: heavy lifting, towing or mooring



Reimund Schroeder, forge master for more than 45 years

## OTHER PRODUCTS



### ASDO Structural

Architectural structural bars to EN1993 for use in structures

Diameter M16 to M160



### ASDO Marine

Upset forged tie bars to EN1993-5 for use in marine retaining structures

Diameter M64 to M170

## Seal of approval





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