

Operating instructions for ACTEK hoist rings SHR Series, SHRZ Series, HD Series and SSHR Series

General principles for the use of the hoist rings:

The instruction manual is to be kept together with the certificate and the CE - Declaration of Conformity.

The falling of loads, caused by the failure and/or incorrect use and handling of slings or their individual parts, poses a direct danger to the life or health of persons who are in the danger zone of lifting operations.

These operating instructions contain information on the safe use and handling of the lifting gear. Before using the lifting gear, the persons in charge must be instructed in its handling and use by a competent person.

The following applies in principle:

- The permissible load capacity (see marking) of the hoist ring must correspond to the load. If the marking is missing or illegible, the load handling attachment must not be used.
- There must be no danger points (e.g. crushing points, shearing points, or impact points) which could hinder or endanger the slinger and/or the transport.
- The basic material and the design of the load must be able to withstand the forces to be applied without deformation.
- Stresses, e.g. due to off-centre application of forces, which lead to uneven load distribution must be taken into account in the selection of the load must be taken into account when selecting the load-bearing device.
- If extreme stresses or strong dynamic loads (shock effects) can occur, this must be taken into account when selecting the sling and the load capacity and the load-bearing capacity.
- Lifting gear must not be used for transporting people. Persons must never be in the danger zone of the suspended load.
- Lifting gear must not be brought into contact with acid and other aggressive media. It should be noted that acid vapours can also occur in certain production processes.
- Never modify slings unauthorised (e.g. grinding, welding, bending, attaching parts, bending, attaching parts)!
- The hoist ring must not be exposed to unacceptable temperatures.
- Only original spare parts may be used.
- When transporting dangerous goods, the relevant further regulations must be observed.
- Load handling attachments must be stored in such a way that they are protected from damage and do not pose any danger.
- In case of malfunctions, the lifting equipment must be taken out of service immediately and serviced.
- Load handling attachments must be disposed of properly when they are no longer needed.

Attention: Any environmentally hazardous substances (e.g. grease and oils) must be disposed of separately.

Inspection and maintenance:

Slings must be inspected regularly before use, e.g. by the user. The slinging equipment must be inspected regularly before use, e.g. by the user, to ensure that it is used properly and is in a fault-free condition (e.g. screw fit, severe corrosion, deformations, etc.).

Defective slings must not be used. They must be at least once a year, taking into account the relevant standards and guidelines of the Employer's Liability Insurance Association (e.g. BGR 500) by a competent person.

Every 3 years, lifting gear must be tested for cracks using appropriate testing equipment and by a competent person. The user must observe the results of the risk assessment in accordance with the Ordinance on Industrial Safety and Health. The time period is shortened if the products are exposed to critical operating conditions. Records of the inspections must be kept.

The test coefficient (see EU Directive 2006/42/EC point 4.4.1) is specified by the relevant standards and corresponds to 2.5 of the load-bearing capacity with a safety factor of 4.

Caution: Failure to comply will invalidate the operating permit.

Application

The number and arrangement of the hoist rings on the load must be chosen so that the load is safely supported and cannot change its position unpredictably during transport. The shackle/D-ring of the hoist rings must be properly aligned in the direction of the force application and freely movable. Use at a slinging angle of >90° is permissible if the shackle/D-ring or suspended slinging equipment is not supported either on the load or on the slinging point. The load capacity when used at > 90° is equal to the load capacity at 90° (see table 1), provided that the load is distributed symmetrically.

The ACTEK SHR hoist ring is not suitable for continuous rotational movement under load. In the case of rotational use under 90° and full load, increased wear and premature failure must be expected.

General installation instructions

The hoist rings must be easily recognisable on the load (e.g. colour-marking). The position of the anchorage point on the load must be such that a flat supporting surface is suitable for absorbing the expected force. This bearing surface must at least correspond to the full diameter (H or A) of the hoist ring body used and the threaded hole must be at right angles to the bearing surface. The threaded hole must be countersunk.

The following applies in principle to screwable anchor points:

Check the screw connection for correct screw size, thread size and screw-in length. Special threads (not listed in the catalogue) are sometimes additionally marked with the thread designation on the underside of the hoist ring. For blind holes, the thread depth at the load must be at least 1.1 times the screw-in length (e).

As a minimum screw-in length (e) we recommend:

in steel	1.00 x d*
in cast iron	1.25 x d*, for cast strengths <200 MPa at least 1.5xd*.
in aluminium	2 x d*, in aluminium-magnesium alloy 2.5xd*

* d corresponds to the thread size, e.g. M24 = 24 mm

For ACTEK SHR, crack-tested screws of strength class 12.9 must be used. If ACTEK SHR are secured with nuts, these must correspond to strength class 12 and be crack-tested.

All ACTEK SHR anchor points must be tightened at least hand-tight !

Load capacity and temperature suitability

The hoist rings are marked with the corresponding load capacity and listed in tabular and graphic form for the corresponding nominal size in the technical data sheet. These load capacities must not be exceeded. In the case of asymmetrical load distribution, the load capacities for the 2- to 4-leg attachment types apply as for 1-leg at an angle of inclination of 90°. This corresponds to the load capacity indication on the attachment point.

After use above plus 200°C, the load capacity must be permanently reduced for further use according to the adjacent table. Accelerated wear of the bearing is possible in this case and must be monitored by the user.

Application temperature WLL of the load capacity indication*

SHR-, SHRZ- und HD- Series	SSHRR-Series
- 25°C to +250°C 100%	- 45°C to +800°C 100%
+250°C to +300°C 90%	above 800°C not allowed
+300°C to +400°C 75%	
above 400°C not allowed	

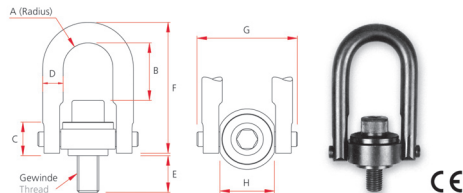
Operating temperature in °C WLL* in %.

* The operating temperature of the ACTEK SHR may be further limited by the screw used; the screw supplier must be consulted on this.

If the ACTEK SHR is secured by a nut, this can also further restrict the operating temperatures.

Tables

SHR Series
SAE4140*
(Tempered steel 1.7227)



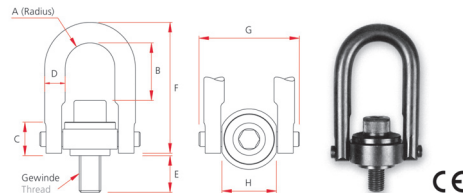
Capacity (to)				1		2		2		2		3 or 4	
	Number	Thread	Area H (mm)	Torque (Nm)	0°	90°	0°	90°	0-45°	45-60°	0-45°	45-60°	0-45°
SHR 400	M8	25	9	0,40	0,40	0,80	0,80	0,57	0,40	0,85	0,60		
SHR 500	M10	25	16	0,50	0,50	1,00	1,00	0,71	0,50	1,06	0,75		
SHR1050N	M12	38	37	1,05	1,05	2,10	2,10	1,48	1,05	2,23	1,58		
SHR 1050	M12	51	37	1,05	1,05	2,10	2,10	1,48	1,05	2,23	1,58		
SHR 1050L	M12	51	37	1,05	1,05	2,10	2,10	1,48	1,05	2,23	1,58		
SHR 1900	M16	51	80	1,90	1,90	3,80	3,80	2,69	1,90	4,03	2,85		
SHR 1900L	M16	51	80	1,90	1,90	3,80	3,80	2,69	1,90	4,03	2,85		
SHR 2150	M20	51	135	2,15	2,15	4,30	4,30	3,04	2,15	4,56	3,23		
SHR 2150L	M20	51	135	2,15	2,15	4,30	4,30	3,04	2,15	4,56	3,23		
SHR 3000	M20	76	135	3,00	3,00	6,00	6,00	4,24	3,00	6,36	4,50		
SHR 3000L	M20	76	135	3,00	3,00	6,00	6,00	4,24	3,00	6,36	4,50		
SHR 4200	M24	76	311	4,20	4,20	8,40	8,40	5,94	4,20	8,91	6,30		
SHR 4200L	M24	76	311	4,20	4,20	8,40	8,40	5,94	4,20	8,91	6,30		
SHR 4200	M30	76	637	4,20	4,20	8,40	8,40	5,94	4,20	8,91	6,30		
SHR 7000	M30	95	637	7,00	7,00	14,00	14,00	9,90	7,00	14,85	10,50		
SHR 11000	M36	124	1085	11,00	11,00	22,00	22,00	15,56	11,00	23,33	16,50		
SHR 12500	M42	124	1085	12,50	12,50	25,00	25,00	17,68	12,50	26,52	18,75		
SHR 13500	M48	124	1085	13,50	13,50	27,00	27,00	19,09	13,50	28,64	20,25		
SHR 22300	M64	165	2847	22,30	22,30	44,60	44,60	31,54	22,30	47,31	33,45		
SHR 31500	M72	206	5830	31,50	31,50	63,00	63,00	44,55	31,50	66,82	47,25		
SHR 44600	M90	218	6914	44,60	44,60	89,20	89,20	63,07	44,60	94,61	66,90		

SSHR Series Stainless steel SAE316* (1.4436)

Capacity (to)				1		2		2		2		3 or 4	
	Number	Thread	Area H (mm)	Torque (Nm)	0°	90°	0°	90°	0-45°	45-60°	0-45°	45-60°	0-45°
SSHR200	M8	25	4	0,20	0,20	0,40	0,40	0,28	0,20	0,42	0,30		
SSHR250	M10	25	8	0,25	0,25	0,50	0,50	0,35	0,25	0,53	0,38		
SSHR525	M12	51	18	0,53	0,53	1,05	1,05	0,74	0,53	1,11	0,79		
SSHR525L	M12	51	18	0,53	0,53	1,05	1,05	0,74	0,53	1,11	0,79		
SSHR950	M16	51	40	0,95	0,95	1,90	1,90	1,34	0,95	2,02	1,43		
SSHR950L	M16	51	40	0,95	0,95	1,90	1,90	1,34	0,95	2,02	1,43		
SSHR1075	M20	51	68	1,08	1,08	2,15	2,15	1,52	1,08	2,28	1,61		
SSHR1075L	M20	51	68	1,08	1,08	2,15	2,15	1,52	1,08	2,28	1,61		
SSHR1500	M20	76	68	1,50	1,50	3,00	3,00	2,12	1,50	3,18	2,25		
SSHR1500L	M20	76	68	1,50	1,50	3,00	3,00	2,12	1,50	3,18	2,25		
SSHR2100	M24	76	108	2,10	2,10	4,20	4,20	2,97	2,10	4,45	3,15		
SSHR2100L	M24	76	108	2,10	2,10	4,20	4,20	2,97	2,10	4,45	3,15		
SSHR2100	M30	76	318	2,10	2,10	4,20	4,20	2,97	2,10	4,45	3,15		
SSHR3350	M30	95	318	3,50	3,50	7,00	7,00	4,95	3,50	7,42	5,25		
SSHR5500	M36	124	542	5,50	5,50	11,00	11,00	7,78	5,50	11,67	8,25		
SSHR6250	M42	124	542	6,25	6,25	12,50	12,50	8,84	6,25	13,26	9,38		
SSHR6750	M48	124	542	6,75	6,75	13,50	13,50	9,55	6,75	14,32	10,13		
SSHR11150	M64	165	1423	11,15	11,15	22,30	22,30	15,77	11,15	23,65	16,73		
SSHR15750	M72	206	2915	16,25	16,25	32,50	32,50	22,98	16,25	34,47	24,38		
SSHR22300	M90	218	3459	22,30	22,30	44,60	44,60	31,54	22,30	47,31	33,45		

Tables

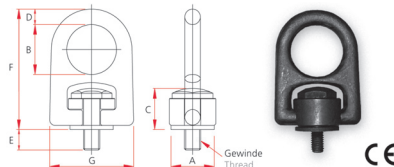
SHRZ Series
SAE4140*
(Tempered steel 1.7227)



Capacity (to)				1		2		2		2		3 or 4	
	Number	Thread	Area H (mm)	Torque (Nm)	0°	90°	0°	90°	0-45°	45-60°	0-45°	45-60°	0-45°
SHRZ600	M8	25	9	0,40	0,40	0,80	0,80	0,57	0,40	0,85	0,60		
SHRZ800	M10	25	16	0,50	0,50	1,00	1,00	0,71	0,50	1,06	0,75		
SHRZ1000	M12	38	37	1,05	1,05	2,10	2,10	1,48	1,05	2,23	1,58		
SHRZ2000	M12	51	37	1,05	1,05	2,10	2,10	1,48	1,05	2,23	1,58		
SHRZ2500	M16	51	80	1,25	1,25	2,50	2,50	1,77	1,25	2,65	1,88		
SHRZ2500L	M16	51	80	1,25	1,25	2,50	2,50	1,77	1,25	2,65	1,88		
SHRZ2500	M20	51	135	1,25	1,25	2,50	2,50	1,77	1,25	2,65	1,88		
SHRZ4000	M20	76	135	2,00	2,00	4,00	4,00	2,83	2,00	4,24	3,00		
SHRZ5000	M20	99	199	2,50	2,50	5,00	5,00	3,54	2,50	5,30	3,75		
SHRZ7000	M24	76	311	3,50	3,50	7,00	7,00	4,95	3,50	7,42	5,25		
SHRZ8000	M24	76	311	4,00	4,00	8,00	8,00	5,66	4,00	8,49	6,00		
SHRZ10000	M30	76	637	5,00	5,00	10,00	10,00	7,07	5,00	10,61	7,50		
SHRZ10000L	M30	76	637	5,00	5,00	10,00	10,00	7,07	5,00	10,61	7,50		
SHRZ15000	M36	124	1085	7,50	7,50	15,00	15,00	10,61	7,50	15,91	11,25		
SHRZ15000L	M36	124	1085	7,50	7,50	15,00	15,00	10,61	7,50	15,91	11,25		
SHRZ20000	M42	124	1085	10,00	10,00	20,00	20,00	14,14	10,00	21,21	15,00		
SHRZ24000	M48	124	1085	12,00	12,00	24,00	24,00	16,97	12,00	25,46	18,00		
SHRZ24000L	M48	124	1085	12,00	12,00	24,00	24,00	16,97	12,00	25,46	18,00		
SHRZ30000	M54	165	2847	15,00	15,00	30,00	30,00	21,21	15,00	31,82	22,50		

HD Series

SAE4140*
(Tempered Steel 1.7227)



Capacity (to)				1		2		2		2		3 or 4	
	Number	Thread	Area A (mm)	Torque (Nm)	0°	90°	0°	90°	0-45°	45-60°	0-45°	45-60°	0-45°
HD400	M8	32	9	0,40	0,40	0,80	0,80	0,57	0,40	0,85	0,60		
HD500	M10	32	16	0,50	0,50	1,00	1,00	0,71	0,50	1,06	0,75		
HD1050	M12	54	37	1,05	1,05	2,10	2,10	1,48	1,05	2,23	1,58		
HD1900	M16	54	80	1,90	1,90	3,80	3,80	2,69	1,90	4,03	2,85		
HD2150	M20	54	135	2,15	2,15	4,30	4,30	3,04	2,15	4,56	3,23		
HD3000	M20	71	135	3,00	3,00	6,00	6,00	4,24	3,00	6,36	4,50		
HD4200	M24	71	311	4,20	4,20	8,40	8,40	5,94	4,20	8,91	6,30		
HD4500	M30	71	637	4,50	4,50	9,00	9,00	6,36	4,50	9,55	6,75		
HD7000	M30	89	637	7,00	7,00	14,00	14,00	9,90	7,00	14,85	10,50		
HD11000	M36	89	1085	11,00	11,00	22,00	22,00	15,56	11,00	23,33	16,50		
HD12500	M42	89	1085	12,50	12,50	25,00	25,00	17,68	12,50	26,52	18,75		

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Date: 05-2015

*SAE details are binding, material number is only used for classification.