

FINAL DRAWINGS

remotely controlled valve system

Berg project no.: 3-3362

newbuilding: 05

vessel: MV ADRASAN C

If required final drawings can be requested as pdf-file at all times

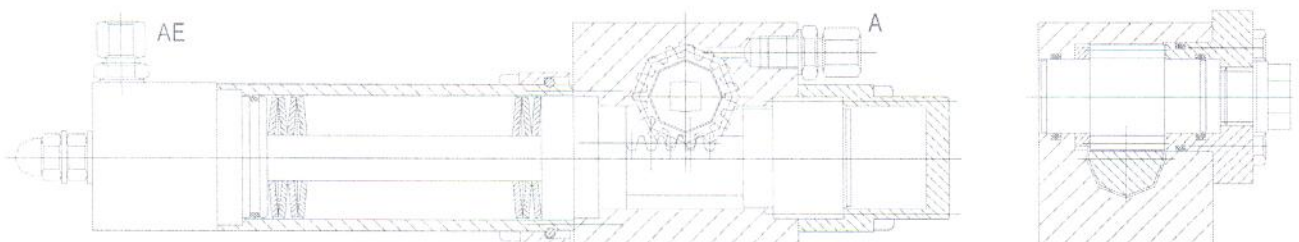
BY ORDERING SPARE PARTS PLEASE STATE

Berg project no.: 3-3362
drawing no.:
part no.:

technical specification

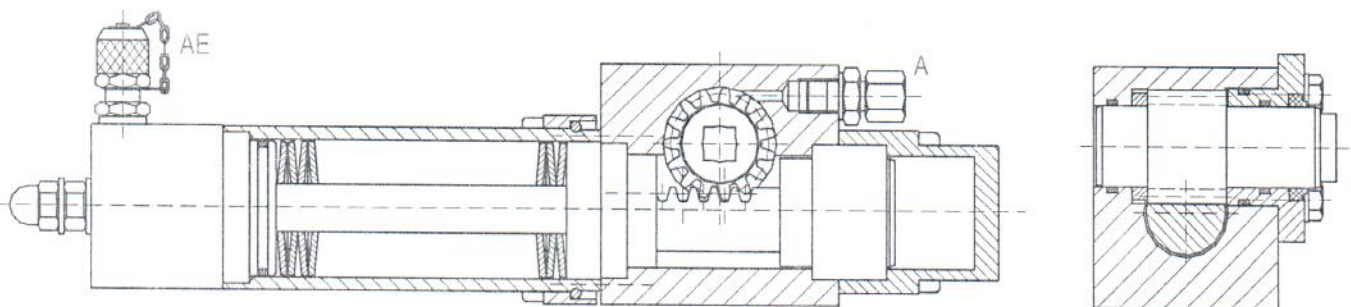
for hydraulic 90° rotary actuators - submerged mounting

type:	HRA-S.V2
function:	single acting, pressure opening / spring closing
principle:	rack and pinion
control pressure:	115 - 145 bar
closing position	adjustable
position indication:	<p>a) visual: direct at actuator - covered by plug - to be screwed out</p> <p>b) direct: Block / S</p> <p>c) indirect: VPI-P / limit switch</p>
design :	submerged mounting
hydraulic connection:	<p>direct at actuator with 1/4" connection for pipe diameter - 8mm = standard (A = pressure opening)</p>
emergency operation:	<p>a) <u>hydraulically</u>, via 2. piston independent from main piston by portable hand pump – connection AE (AE = pressure opening emergency)</p> <p>b) <u>hydraulically</u>, via shuttle valve by portable hand pump</p>
action:	
spring close – N.C.	<p>quick opening slowly closing - actuator with installed throttle</p>
spring open – N.O.	<p>quick closing slowly opening - actuator with installed throttle</p>



technical specification
for hydraulic 92° rotary actuators - dry mounting

type:	HRA-S.V3
function:	single acting, pressure opening / spring closing
principle:	rack and pinion
control pressure:	115 - 145 bar
closing position	adjustable
position indication:	a) visual: direct at actuator c) indirect: VPI-P / limit switch
design:	dry mounting
hydraulic connection:	direct at actuator with 1/4" connection for pipe diameter 8mm = standard (A = pressure opening)
emergency operation:	a) <u>hydraulically</u> , via 2. piston independent from main piston by portable hand pump – connection AE (AE = pressure opening emergency) b) <u>hydraulically</u> , via shuttle valve by portable hand pump
action:	
spring close – N.C.	quick opening slowly closing - actuator with installed throttle
spring open – N.O.	quick closing slowly opening - actuator with installed throttle



Trouble shooting - HLA / S ; HRA / S ; HRA / D

Trouble shooting.doc

Trouble

possible reason

1. The actuators open respectively close slowly

- a) hydraulic pressure is too low
- b) oil viscosity is too high
- c) surrounding temperature is too low

2. Incorrect indication of position indication

Air inside of the control pipes → radical ventilation, that means the pipes have to be filled with low pressure, at the actuator the pipe has to be disconnected and min. 1 litre oil has to be drained into a pail

3. The actuators do not open completely

- a) hydraulic pressure is too low
- b) cylinder body (part 9) is partly filled with leak oil

4. The actuators do not close completely

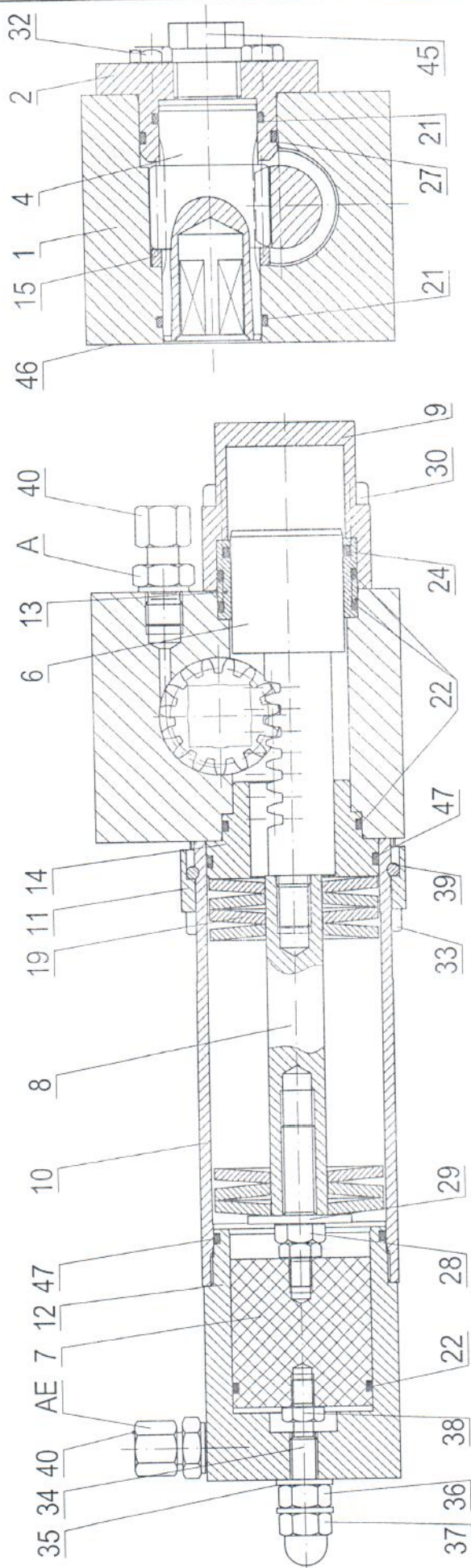
- connection of hydr. emergency operation is wrong
- a) in emergency operation via change over valve:
because an air bubble is on the emergency operated side of the change over valve → complete ventilation from pipe to quick-coupling.
 - b) in emergency operation via 2. piston:
because disconnection of hand pump and quick-coupling of 2. piston was done too early, a residual pressure remaining
→ do not separate too early

5. hydraulic oil tank is getting full respectively overflows

by control pipe which was installed inside water tanks, in case of leakage of the pipe, water can be pressed into the pipe, respectively into the system.

6. The hydraulic pump does not bring the full pressure (105 - 135 bar)

by gap loss inside the hydraulic pump due to dirt or corrosion, which is caused by oil / water emulsion. (please see pos. 5)



A = Druckanschluß
- Rohrverschraubung od 8mm
- pressure connection
- pipe connection od 8mm

AE = Druckanschluß, Notbetätigung
- pressure connection for emerg. hand operated
- federschließband / spring closing

Ansicht/view X

	DIN ISO	2768-m	Überläufe	Maßstab	1:1	Position	Umriss
	Druck	IS 1102	Schrauben	Druck	IS 1102	Schrauben	unter Mechan mit Notkloben
HRA 43-40/S.V2-2 einfach wirkend / single acting							
HRA 43-40/S.V2-2 Blatt							

Ersatzteilliste / list of spare parts



nach Zchnngs.Nr.: HRA 43-40-S.V2-2
 acc. to drawing no.:

Kom.Nr. / com.no.:

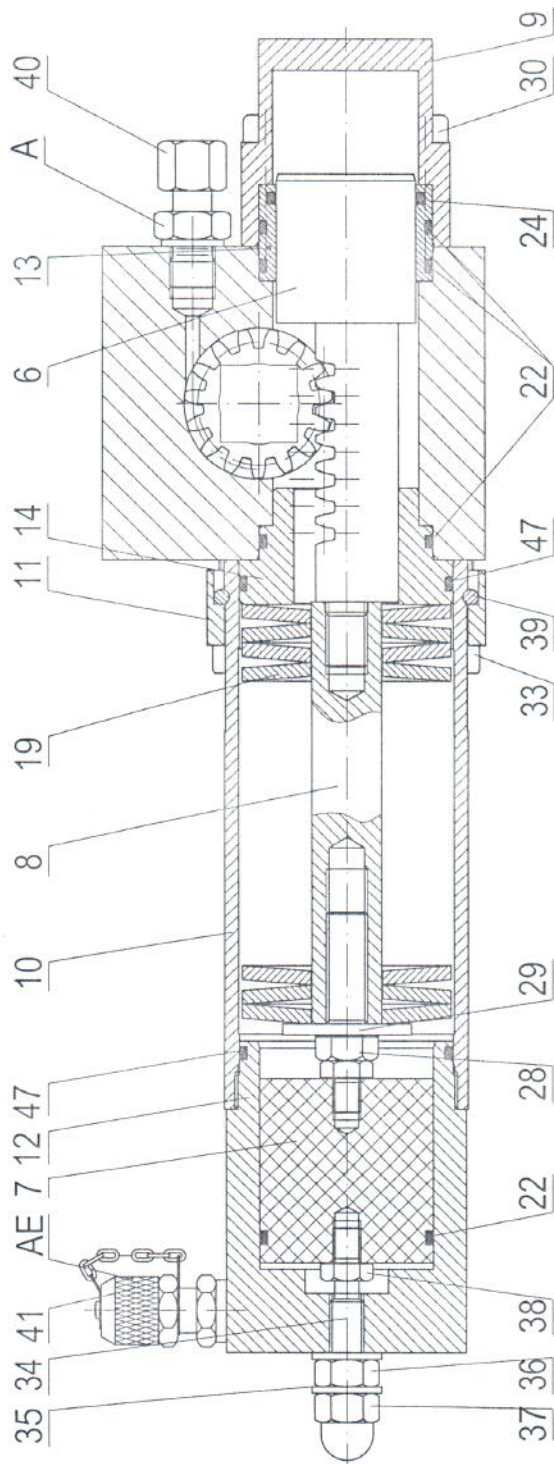
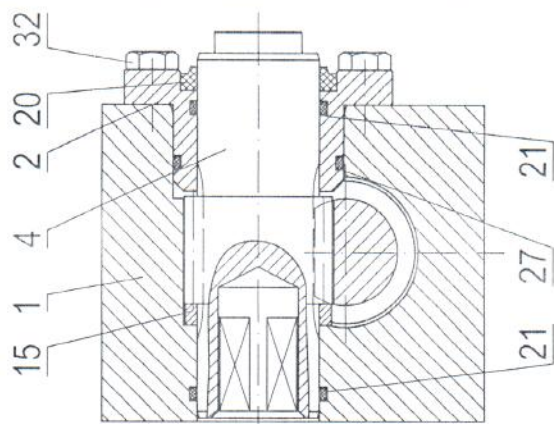
Datum: 26.08.2015

Blatt: 1 / 1

BERG ARMATUREN STEUERUNGEN

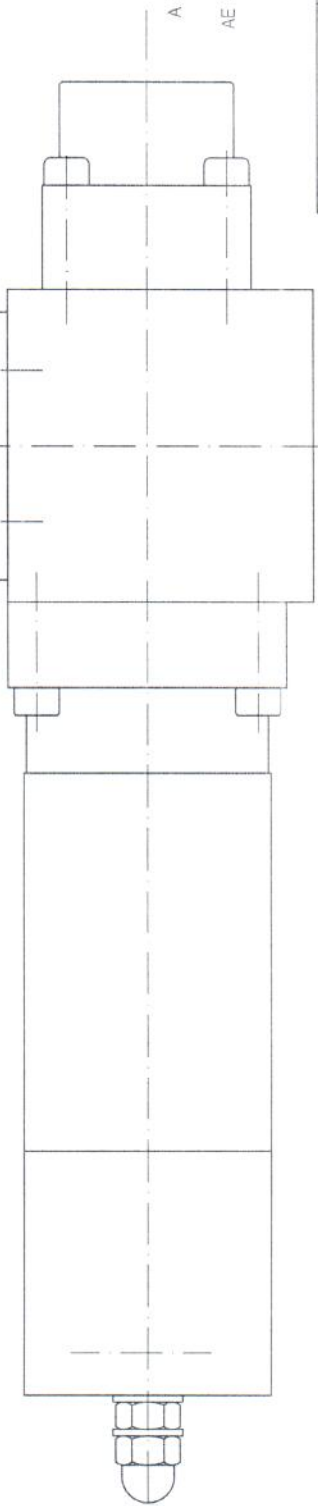
Pos.	Stck.	Gegenstand / object	Zchnng.Nr./Art.-Nr.
1	1	Gehäuse housing	02-0001-00008
2	1	Gehäusedeckel housing cover	02-0002-00010
4	1	Ritzelwelle pinion shaft	02-0004-00009
6	1	Zahnstange gear rack	02-0006-00004
7	1	Notkolben emergency piston	02-0007-00002
8	1	Federführung spring guide	02-0008-00003
9	1	Zylinder cylinder	02-0009-00003
10	1	Federhülse spring cylinder	02-0010-00003
11	1	Überwurflansch flange	02-0011-00002
12	1	Notzylinder emergency cylinder	02-0013-00002
13	1	Führungsbuchse ZH guide bush	02-0014-00002
14	1	Führungsbuchse FS guide bush	02-0014-00009
15	1	Gleitring slide ring	02-0015-00003
19	31	Tellerfeder plate spring	50-2001-00002
21	2	O-Ring o-ring	51-0022-00735
22	4	O-Ring o-ring	51-0021-00745
23	0	O-Ring o-ring	51-0021-00754
24	1	O-Ring o-ring	51-0021-00740
27	1	O-Ring o-ring	51-0021-00744
28	1	Sechskantschraube hexagon screw	50-0011-00008
29	1	U-Scheibe washer	50-0121-00002
30	4	Zylinderschr. m. Innen6kt hex. Socket head cap screw	50-0021-00031
32	4	Sechskantschraube hexagon screw	50-0011-00005
33	4	Zylinderschr. m. Innen6kt hex. Socket head cap screw	50-0021-00005
34	1	Gewindestift hex. Socket set screw	50-0091-00422
35	2	Cu-Scheibe cu-washer	50-0123-00110
36	1	Sechskantmutter hexagon nut	50-0112-00001
37	1	Hutmutter hexagon cap nut	50-0112-00002
38	2	Sechskantschraube hexagon screw	50-0011-00007
39	1	Sprengring retaining ring	02-0019-00002
40	2	Druckanschluss pipe screw connection	55-0012-00001
45	1	Verschlußschraube stopper screw	50-0011-01010
46	1	Flachdichtung flat seal	51-0010-00029*
46	1	Flachdichtung flat seal	51-0010-00031*
47	2	O-Ring o-ring	51-0022-00754

*) = in case of spare request of flat sealing - please state DN size



↑ x

Ansicht / view X



A = Druckanschluß - Rohrverschraubung od 8mm
 pressure connection - pipe connection od 8mm
 AE = Druckanschluß, Notbetätigung
 pressure connection for emerg. hand operated
 federschließend / spring closing

LES BERG A-BAUTEN S-TEILNENNEN	DIN ISO	Druckstufe	Verhältnis	Position	Menge
	2768-m	1:1	1:1		
	Druck	Druck	Druck	Druck	Druck
	15/10/11	15/10/11	15/10/11	15/10/11	15/10/11
	Norm	Norm	Norm	Norm	Norm
	HRA 43-40/S.V3-2	HRA 43-40/S.V3-2	HRA 43-40/S.V3-2	HRA 43-40/S.V3-2	HRA 43-40/S.V3-2
	einfach wirkend / single acting	einfach wirkend / single acting	einfach wirkend / single acting	einfach wirkend / single acting	einfach wirkend / single acting
	HRA 43-40/S.V3-2	HRA 43-40/S.V3-2	HRA 43-40/S.V3-2	HRA 43-40/S.V3-2	HRA 43-40/S.V3-2

Ersatzteilliste / list of spare parts



nach Zchnngs.Nr.: HRA 43-40-S.V3-2
acc. to drawing no.:

Kom.Nr. / com.no.:

Datum: 26.08.2015

Blatt: 1 / 1

Pos.	Stck.	Gegenstand / object	Zchnng.Nr./Art.-Nr.
1	1	Gehäuse housing	02-0001-00008
2	1	Gehäusedeckel housing cover	02-0002-00009
4	1	Ritzelwelle pinion shaft	02-0004-00008
6	1	Zahnstange gear rack	02-0006-00004
7	1	Notkolben emergency piston	02-0007-00002
8	1	Federführung spring guide	02-0008-00003
9	1	Zylinder cylinder	02-0009-00003
10	1	Federhülse spring cylinder	02-0010-00003
11	1	Überwurflansch flange	02-0011-00002
12	1	Notzylinder emergency cylinder	02-0013-00002
13	1	Führungsbuchse ZH guide bush	02-0014-00002
14	1	Führungsbuchse FS guide bush	02-0014-00009
15	1	Gleitring slide ring	02-0015-00003
19	31	Tellerfeder plate spring	50-2001-00002
20	1	Schmutzabstreifer dirt wiper	51-0040-00035
21	2	O-Ring o-ring	51-0022-00735
22	4	O-Ring o-ring	51-0021-00745
24	1	O-Ring o-ring	51-0021-00740
27	1	O-Ring o-ring	51-0021-00744
28	1	Sechskantschraube hexagon screw	50-0011-00008
29	1	U-Scheibe washer	50-0121-00002
30	4	Zylinderschr. m. Innen6kt hex. Socket head cap screw	50-0021-00031
32	4	Sechskantschraube hexagon screw	50-0011-00005
33	4	Zylinderschr. m. Innen6kt hex. Socket head cap screw	50-0021-00005
34	1	Gewindestift hex. Socket set screw	50-0091-00422
35	2	Cu-Scheibe cu-washer	50-0123-00110
36	1	Sechskantmutter hexagon nut	50-0112-00001
37	1	Hutmutter hexagon cap nut	50-0112-00002
38	2	Sechskantschraube hexagon screw	50-0011-00007
39	1	Sprengring retaining ring	02-0019-00002
40	1	Druckanschluss pipe screw connection	55-0011-00001
41	1	Notbetätigungsanschluss emergency connection	55-0301-00005
47	2	O-Ring o-ring	51-0022-00754