

HYDRAULIC REMOTE CONTROLLED MONITORS A3-H_v TYPE**OPERATING AND MAINTENANCE HANDBOOK****A) TECHNICAL DATA**

Flanged inlet	3" or 4" ANSI 150 lbs RF DN 80 or DN 100 DIN PN 16
Max. working pressure	16 bar
Test pressure (mechanical strength)	24 bar
Test pressure (rotating joints tightness)	20 bar
Flowrate range	1.000÷3.000 lt/min.
Type of operation	hydraulic remote control by means of hydraulic motors for rotation and elevation mounted on self arresting worm gears, with handwheels for local manual operation of the monitor
Hydraulic motors	flowrate: 40÷50 lt/min. operating pressure: 60 bar
Horizontal movement	max.355° with hydraulic limit switch
Vertical movement	max.-55° / +70° with hydraulic limit switch
Locking device for horiz. movement	yes - self locking worm gear
Locking device for vert. movement	yes - self locking worm gear
Rotating joints	with Lubrifon slide bearings and teflon rings
Greasing nipples	yes - on horizontal and vertical movement rotating joints
Body material	anodized seawater resistant light alloy G-AlSi9 or bronze Bz N7
Pressure loss in the monitor	0,9 bar at flowrate 2.000 lt/min. / 2 bar at 3.000 lt/min.
Horizontal rotation speed	180° in about 45 sec. (~4°/sec.)
Vertical elevation speed	90° in about 23 sec. (~3,9°/sec.)

B) PIPES AND NOZZLES

- water pipe with internal flow stabilizers and water full jet nozzle in anodized light alloy G-AlSi9
- FOG type hydraulic remote controlled adjustable water nozzle for full jet and fog jet
- A type combined foam/water pipe with nozzle in anodized seawater resistant light alloy G-AlSi9 or bronze Bz N7 and pipe in stainless steel
- hydraulic remote controlled foam deflector for foam pipes in stainless steel for full jet / flat jet

C) FEATURES OF THE MONITORS

Caccialanza hydraulic remote controlled monitors A3-EI type are compact units for high performances, designed to operate in extremely hard conditions and in aggressive environments (refineries, offshore).

D) INSTRUCTIONS FOR ERECTION

Attention! - For lifting the monitors use only by the special lifting eyebolts

- mount the monitor body on the existing 3" (or 4") flange and fix it with bolts and nuts.
The initial direction of the monitor's outlet is not relevant in this phase, but it is better to install the monitor body already with the outlet in the foreseen direction.
- check by manually rotation of the monitor that the limit switches for the horizontal and vertical movements of the monitor are properly positioned in order to stop the movements of the monitor in the required operational final positions.

Attention! During the manual operation, the hydraulic limit switch must never override the limit switch actuator, otherwise the hydraulic limit switch can be damaged!

- the limit switch actuators for the vertical movements are already preset for an operating range of $+70^{\circ}$ / -50° .
If other operating ranges are required, it is possible to adjust the position of the actuators.
- connect the hydraulic flexible pipes guide fixing it at the lower part of the existing flange of the ship.
The hydraulic flexible pipe guide must be mounted on the rear part of the monitor.
- connect the hydraulic flexible pipes for elevation, rotation and spraying head on the guide to the switch for hydraulic/manual operation.
- check the easy horizontal and vertical movements of the monitor by manual operation using the handwheels for horizontal and vertical movement.
For this operation, the lever of the switch for hydraulic/manual operation must be in horizontal position (manual operation).
- check that all movements can be done without obstacles and that the hydraulic flexible pipes can move freely in the complete operating range - eventually modify the position of the limit switch actuators.

Attention! during this check, take care that the hydraulic limit switches don't overcome the limit switch actuators!

- turn the lever of the hydraulic/manual operation switch in vertical position (hydraulic remote operation) and check the monitor's movements hydraulically.

Attention! before the hydraulic limit switches reach the final position (hydraulic limit switch actuators), check by means of a screw driver or similar if the relevant movement stops when the hydraulic limit switch is operated - eventually check the correct connection of the pipe.

E) OPERATION OF THE MONITORS

- after installation check that all hydraulic pipes are properly connected and tightened and that the hydraulic limit switches for elevation and rotation are properly mounted.
- check that the monitor's pipe can move freely on the rotation and elevation without colliding with any obstacle.
Check that the hydraulic limit switches stop the movements of the monitor when reached by the actuators.
- before starting with the hydraulic remote operation of the monitors, check that the handlever of the switch for hydraulic remote / local manual operation is in vertical position (hydraulic remote operation).
- operate the monitor remotely by means of the joy stick. on the electric control panel (connected to the hydraulic power pack).
- for the local manual operation of the monitor, put the handlever of the switch for hydraulic remote / local manual operation in horizontal position (local manual operation).
After this operation, the handwheels for manual rotation and elevation of the monitor can be easily operated.

F) MAINTENANCE

- after each fire fighting intervention (particularly with foam) rinse the monitors with clean water.
- after each intervention drain the monitors and the main water supply line.
- Once a week start the hydraulic power pack and check the horizontal and the vertical movements of the monitors.

After each operation and at least once every six months:

- inspect and lubricate the monitors, particularly lubricate the Lubrifon slide bearings and the teflon rings on the rotating joints by means of the greasing nipples and grease the worms gears
- check the conditions of the flexible hydraulic pipes
- check the conditions of the connections of the hydraulic pipes and tighten the hydraulic screwings.
- for the maintenance of the hydraulic motors follow the annexed specific instructions.

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