1. Description
- The actionair Marine Fire Damper is tested and approved for fitting to class A-0 A-15 A-30 A-60 divisions (bulkheads and decks), when suitably insulated. A-0 does not require any insulation to the casing.

2. Tests, approvals and certification
- Lloyds Register Approved.
- DNV-GL Approved.
- ABS Approved
- USCG Approved.
- Transport Canada approved.
- MED Marine Equipment Directive Compliant.
- Fire tested to the latest IMO FTP code & in compliance with the international convention for the safety of life at sea (SOLAS)
- Sira certification (Ex) category 2 equipment
- Corrosion Tested - EN60068-2-52 severity 2 conditions
- Vibration Tested – EN60068-2-6 (5Hz to 350Hz @2g)

3. Health and Safety
- Care must be taken when installing and inspecting dampers, as they are likely to close without warning due to loss of electrical power, or a temperature rise in the ductwork. This is their prime function.
- Larger dampers are heavy and must be handled in accordance with current local regulations and good practice.
- All wiring should be carried out in accordance with the wiring details provided, to the IEC regulations.

4. General Information
- The actionair Marine Fire Damper is suitable for both vertical and horizontal applications, with airflow in either direction.
- The dampers tested to IMO fire test procedures Code, Annex 1 Pt 3, are normally open, and fail-safe to the closed position. The actionair Marine Fire Dampers are supplied with the blades in the fully interlocked closed position to avoid damage during transit and installation. It is recommended that the dampers remain closed until actual date of commissioning. All fire dampers are life safety products and must be treated with care during handling, storage and installation.
10. Damper installation
All installations shall be carried out in accordance with the relevant Marine/Offshore Authority requirements.
The damper should be installed in accordance with Insulation details that represent a typical installation.
Please refer to the relevant notified body certificates for insulation lengths located on Actionair website:
https://www.actionair.co.uk/products/a60-marine-damper

Bolt holes provided as standard on the damper flanges (unless otherwise stated) at 150mm maximum centres. Matching hole positions are necessary on mating coaming/duct flanges.
Apply approved fire-resistant sealant/gasket to mating flanges and position damper.
Bolt A60 square/rectangular dampers using suitable steel bolts minimum M8 diameter and minimum M6 diameter on A60 circulars.

Important:
For insulation lengths ** please refer to the relevant notified body certificates located on Actionair website: https://www.actionair.co.uk/products/a60-marine-damper

** Multiple Damper Assemblies
Tested and approved to a size of either;
(2x1) 2080mm x 1000mm
or (1x2) 1000mm x 2080mm

www.actionair.co.uk
sales@actionair.co.uk
11. Control Modes (3 positions) (Refer to figure 8)
Two sizes of Control Modes are utilised - 5.10Nm & 15Nm. Correctly sized Control Modes are designed to fit only to the relevant sized damper. (See ‘Control Mode Standard Parameters’ figure) (Refer to figure 5)
Remove transit plate from damper mounting plate and recycle. Mount actuator to damper mounting brackets & secure with screw & washer provided - 5Nm Max. (Refer to figure 6)
Its important to fit the 2 spacers provided. (Refer to figure 6)
Never operate the manual override (shaft) when actuator is connected to power supply.
Actuators will only work if Safety temperature sensor (ExPro TT) is properly connected. (Refer to figure 7)
*IMPORTANT* - please ensure damper blades are in the fully closed position prior to mounting actuators. Failure to do so may damage drive shafts and render the damper inoperable.

12. Mechanical Operation check
As an interim check, the damper should be manually reset and released using the manual reset key provided, (refer to Control Mode label) to ensure that correct mechanical operation is achieved. This feature may be used for system commissioning when electrical power is unavailable. Note however, the ExPro TT is not operable without electrical power, and the damper will not close automatically should a temperature rise or fire occur.

13. Safety Temperature Sensor (ExPro TT) Installation (When not affixed to damper casing, 210mm wide casing option only)
Select a suitable position for the ExPro TT on the duct as follows:
Deck Installations – Must be anywhere below the damper.
Bulkhead installations – Ideally this should be anywhere in the top half of the duct.
Position the self-adhesive ExPro TT drilling template label provided in the appropriate position on the duct.
Using a 2.5mm dia bit, drill the two ExPro TT fixing holes. Using a 10mm dia drill, drill the central hole.
Remove sharp edges.
Push the ExPro TT through the duct and ensure that both screws are used to hold it securely in position. The ExPro TT cable must not be shortened, and care must be taken not to damage it.

14. Electrical Connection and Final Operational Test
The unit must be wired as described in the Application and Wiring section 17. When power is available, the unit must be checked for electrical operation. Power on to motor open, power off to spring close. The unit must also be checked by moving and holding the test switch on the ExPro TT to confirm that the damper closes. When pressure is removed from the switch the damper will re-open. This may be done after the initial installation test, to provide periodic operation of the damper to simulate actual fail-safe closure under fire conditions.
Schischek actuators are equipped with a universal supply unit working at a voltage range from 24 to 230 VAC/DC. The supply unit is self-adjustable to the connected voltage! The safety operation of the spring return function works if the supply voltage is cut. For electrical connection inside hazardous areas, an EEx-e terminal box, certified in accordance with ATEX is required (E.G ExBox XNNN00578)

Electrical ATEX (Ex) rated as below
Fail-safe is by means of an ExPro-TT which operates at 72 °C, or if power supply is interrupted.
A manual test button (Refer to figure 7) allows periodic operation of the damper for testing purposes, simulating actual fail-safe release under fire conditions.
The associated electrical Control Modes are available in one Universal version with 24 – 230V AC/DC supply.

ExMax ATEX classification:
Explosion proof Zone 1, 2, 21 & 22 gas & dust PTB-certified
II 2(1) G Ex d [ia] IIC T6
II 2 D Ex tD A21 IP66 T80 oC
ATEX 94/9/C, IEC-Ex

RedMax ATEX classification:
Explosion proof Zone 2 & 22 gas & dust PTB-certified
II 3(1) G Ex nC [ia] IIC T6
II 3 G Ex nC ia IIC T6
II 3 D Ex tD A22 IP66 T80 oC
ATEX 94/9/EC
IEC-Ex

InMax actuators are IP66 classified
NOT ATEX classified and only for use in safe areas

15Nm
5.10 Nm

Figure 5

Control Mode Standard Parameters

www.actionair.co.uk
sales@actionair.co.uk
15. Actuator installation

Actuator mounting brackets riveted to damper casing

![Figure 6](image)

- Schischek 5.10Nm
- Schischek 15Nm

- Actuator mounting plate
- Damper drive shaft
- Screw
- Washer
- Pointer
- 2 spacers
- ExPro TT

Test button

![Figure 7](image)

- ExPro TT
- Safety
- Temperature Sensor
- c/w 1mtr halogen free cable

16. Three position Actuator mounting & dimensional data

![Figure 8](image)

- Position 1
- Position 2
- Position 3

- Detail A Earthing Boss for ATEX Rated
17. Application & wiring

---------Important---------

Please fully read the Schischek data sheets provided with every actuator.

For 5.10 actuators 10Nm & 3 sec/90° must be selected.
For 15Nm actuators 3 sec/90° must be selected.
Make sure that 1 cycle per minute is not exceeded.

--- End of Important Section ---

On-off (1-wire) – spring return + Ex i tripping circuit

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Current</th>
<th>Intermittent Power</th>
<th>Quiescent Power</th>
</tr>
</thead>
<tbody>
<tr>
<td>24 V DC</td>
<td>0.70 A</td>
<td>1.30 A</td>
<td>0.70 A</td>
</tr>
<tr>
<td>120 V AC</td>
<td>0.30 A</td>
<td>0.60 A</td>
<td>0.20 A</td>
</tr>
<tr>
<td>240 V AC</td>
<td>0.12 A</td>
<td>0.20 A</td>
<td>0.10 A</td>
</tr>
</tbody>
</table>

Parameters, adjustments and failure indication

Switch – Push button – Lamp for adjustment (behind the blanking plug)
10-position switch (S) 
3-colour LED

Parameter selection

<table>
<thead>
<tr>
<th>Type</th>
<th>Torques</th>
<th>5 Nm</th>
<th>10 Nm</th>
</tr>
</thead>
<tbody>
<tr>
<td>ExMax 5.10-BF</td>
<td>20 sec</td>
<td>00</td>
<td>00</td>
</tr>
<tr>
<td>ExMax 10-BF</td>
<td>10 sec</td>
<td>00</td>
<td>00</td>
</tr>
</tbody>
</table>

Running times

<table>
<thead>
<tr>
<th>Position of switch (S)</th>
<th>3 sec</th>
<th>5 sec</th>
<th>6 sec</th>
</tr>
</thead>
<tbody>
<tr>
<td>00</td>
<td>00</td>
<td>00</td>
<td>00</td>
</tr>
<tr>
<td>01</td>
<td>00</td>
<td>00</td>
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<tr>
<td>02</td>
<td>00</td>
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</tr>
<tr>
<td>04</td>
<td>00</td>
<td>00</td>
<td>00</td>
</tr>
</tbody>
</table>

Cross sections of the inlet line

Required cross section A at existing cable length L:

\[ A = 0.0714 \times \frac{U_n}{V} \times L \]

Example: L = 250 m, \( U_n = 30 \) V
Cross section \( A = 1.5 \) mm²

Maximum cable length L at existing cross section A:

\[ L = A \times \frac{U_n}{V} \]

Example: A = 1.5 mm², \( U_n = 24 \) V
Length of cable L = 126 m

For calculation following characteristics are essential:
- \( U_n \) = supply voltage [V]
- \( A \) = cross section [mm²]
- \( l \) = conductor length [m]

Factor 0.0714 = area specific factor [W/mm² (based on the electrical conductivity of electrolytic copper with a coefficient of 56 m²/Ohm/m³)]

Power input depending on supply voltage

The design of the on-site supply depends on the selected motor running time and selected supply voltage. Accompanying values are "about values" since there can be construction unit dispersions within electronics. The holding power is run time independently typically at ~5 W. The power consumption for the heater is ~16 W. In the heating phase the motor is not active. The initial starting supply voltage required by the actuators power supply unit is ~2 VA. The starting phase takes about 1 sec. (please consider this while concepting the cross section of the supply line). The power factor is between 0.8 and 0.5 in dependence of motor running time. A line protection should be min. 2 AT.

Rated current in acc. with motor running time

<table>
<thead>
<tr>
<th>Voltage</th>
<th>Current</th>
<th>3 / 7.5 s</th>
<th>15 s</th>
<th>30 s</th>
<th>60 s</th>
<th>120 s</th>
</tr>
</thead>
<tbody>
<tr>
<td>24 V DC</td>
<td>0.70 A</td>
<td>1.30 A</td>
<td>0.70 A</td>
<td>0.60 A</td>
<td>0.50 A</td>
<td></td>
</tr>
<tr>
<td>120 V AC</td>
<td>0.30 A</td>
<td>0.60 A</td>
<td>0.20 A</td>
<td>0.17 A</td>
<td></td>
<td></td>
</tr>
<tr>
<td>240 V AC</td>
<td>0.12 A</td>
<td>0.20 A</td>
<td>0.10 A</td>
<td>0.08 A</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
To isolate from main power supply, the system must incorporate a device, which disconnects the phase conductors, with at least 3mm contact gap.

**Special Conditions of Safe Use**

1. The associated spring return failsafe actuator must be suitably rated ATEX certified for the hazardous atmosphere into which it is to be installed.
2. The equipment must be suitably bonded to a common earth point and continuity to be checked upon installation.
3. The equipment must not be subjected to charging mechanisms stronger than manual rubbing.
4. The minimum ignition energy of dust atmospheres into which the equipment is installed is to be >1mJ

Please refer to Schischek data sheets or website for further information

**Trouble shooting:**

<table>
<thead>
<tr>
<th>Fault</th>
<th>Possible problem</th>
<th>Recommended action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Control Mode does not fit to damper drive shaft when Control Mode is correctly positioned</td>
<td>Damper shaft not in ‘damper closed’ position</td>
<td>Damper shaft has an ‘indication groove’ which is parallel to damper blades. Damper must be in closed position before fitting Control mode.</td>
</tr>
<tr>
<td>Control Mode does not operate electrically</td>
<td>ExPro not correctly fitted</td>
<td>Refer to Page 3.</td>
</tr>
<tr>
<td></td>
<td>Mode wired incorrectly / No power</td>
<td>Refer to above wiring diagram</td>
</tr>
<tr>
<td></td>
<td>STS activated</td>
<td>Replace STS.</td>
</tr>
<tr>
<td>Control Mode operated, but limited or no movement of damper blades evident</td>
<td>Damper/Control Mode positions not synchronised</td>
<td>Remove Control Mode. Check damper closed (see indication Groove on damper shaft), and Control Mode released. Refit Control Mode.</td>
</tr>
<tr>
<td></td>
<td>Obstruction impeding damper blade</td>
<td>Check visually, remove obstruction. If necessary, remove Control Mode and operate damper drive shaft with 14mm A/F spanner.</td>
</tr>
<tr>
<td></td>
<td>Over tightening of M5 x 80mm screw. (3 position only)</td>
<td>Loosen screw to 5Nm torque.</td>
</tr>
</tbody>
</table>