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HEINZMANN[®]
Electronic Speed Governors

Explosion Proof Actuators

StG 2120.xx

StG 30.90-xx

StG 40.90-xx

 <p>Warning</p>	<p>Read this entire manual and all other publications appertaining to the work to be performed before installing, operating or servicing your equipment.</p> <p>Practice all plant and safety instructions and precautions.</p>
 <p>Danger</p>	<p>Failure to follow instructions may result in personal injury and/or damage to property.</p> <p>HEINZMANN will refuse all liability for injury or damage which results from not following instructions</p>
 <p>Danger! High Voltage</p>  <p>Danger</p>	<p>Please note before commissioning the installation:</p> <p>Before starting to install any equipment, the installation must have been switched dead!</p> <p>Be sure to use cable shieldings and power supply connections meeting the requirements of the <i>European Directive concerning EMI</i>.</p> <p>Check the functionality of the existing protection and monitoring systems.</p>
 <p>Danger</p>	<p>To prevent damages to the equipment and personal injuries, it is imperative that the following monitoring and protection systems have been installed:</p> <p>Overspeed protection acting independently of the speed governor</p> <p>Overtemperature protection</p> <p>HEINZMANN will refuse all liability for damage which results from missing or insufficiently working overspeed protection</p> <p>Generator installation will in addition require:</p> <p>Overcurrent protection</p> <p>Protection against faulty synchronization due to excessive frequency, voltage or phase differences</p> <p>Reverse power protection</p>
	<p>Overspeeding can be caused by:</p> <p>Failure of the voltage supply</p> <p>Failure of the actuator, the control unit or of any accessory device</p> <p>Sluggish and blocking linkage</p>



Warning

The examples, data and any other information in this manual are intended exclusively as instruction aids and should not be used in any particular application without independent testing and verification by the person making the application.



Danger

Independent testing and verification are especially important in any application in which malfunction might result in personal injury or damage to property.

HEINZMANN make no warranties, express or implied, that the examples, data, or other information in this volume are free of error, that they are consistent with industry standards, or that they will meet the requirements for any particular application.

HEINZMANN expressly disclaim the implied warranties of merchantability and of fitness for any particular purpose, even if **HEINZMANN** have been advised of a particular purpose and even if a particular purpose is indicated in the manual.

HEINZMANN also disclaim all liability for direct, indirect, incidental or consequential damages that result from any use of the examples, data, or other information contained in this manual.

HEINZMANN make no warranties for the conception and engineering of the technical installation as a whole. This is the responsibility of the user and of his planning staff and specialists. It is also their responsibility to verify whether the performance features of our devices will meet the intended purposes. The user is also responsible for correct commissioning of the total installation.

Contents

	Page
1 Safety Instructions and Related Symbols	1
1.1 Basic Safety Measures for Normal Operation	2
1.2 Basic Safety Measures for Servicing and Maintenance	2
1.3 Before Putting an Installation into Service after Maintenance and Repair Works	3
2 General	4
2.1 Scope of Delivery	4
2.2 Description of Function	5
3 Technical Informationen	6
3.1 Technical Data	6
3.2 Measurements	7
4 Mounting and Connection	10
4.1 Mounting	10
4.2 Electrical Connection	11
5 Operation	12
5.1 Commissioning	12
5.2 Operation	12
6 Maintenance and Service	13
7 Download of Manuals	14

1 Safety Instructions and Related Symbols

This publication offers wherever necessary practical safety instructions to indicate inevitable residual risks when operating the engine. These residual risks imply dangers to

persons

product and engine

environment.

The symbols used in this publication are in the first place intended to direct your attention to the safety instructions!



Warning

This symbol is to indicate that there may exist dangers to the engine, to the material and to the environment.



Danger

This symbol is to indicate that there may exist dangers to persons. (Danger to life, personal injury)



Danger!
High
Voltage

This symbol is to indicate that there exist particular dangers due to electrical high tension. (Mortal danger).



Note

This symbol does not refer to any safety instructions but offers important notes for better understanding the functions that are being discussed. They should by all means be observed and practised. The respective text is printed in italics.

The primary issue of these safety instructions is to prevent personal injuries!

Whenever some safety instruction is preceded by a warning triangle labelled “Danger” this is to indicate that it is not possible to definitely exclude the presence of danger to persons, engine, material and/or environment.

If, however, some safety instruction is preceded by the warning triangle labelled “Caution” this will indicate that danger of life or personal injury is not involved.

The symbols used in the text do not supersede the safety instructions. So please do not skip the respective texts but read them thoroughly!

In this publication the Table of Contents is preceded by diverse instructions that among other things serve to ensure safety of operation. It is absolutely imperative that these hints be read and understood before commissioning or servicing the installation.v

1.1 Basic Safety Measures for Normal Operation

- The installation may be operated only by authorized persons who have been duly trained and who are fully acquainted with the operating instructions so that they are capable of working in accordance with them.
- Before turning the installation on please verify and make sure that
 - only authorized persons are present within the working range of the engine;
 - nobody will be in danger of suffering injuries by starting the engine.
- Before starting the engine always check the installation for visible damages and make sure it is not put into operation unless it is in perfect condition. On detecting any faults please inform your superior immediately!
- Before starting the engine remove any unnecessary material and/or objects from the working range of the installation/engine.
- Before starting the engine check and make sure that all safety devices are working properly!

1.2 Basic Safety Measures for Servicing and Maintenance

- Before performing any maintenance or repair work make sure the working area of the engine has been closed to unauthorized persons. Put on a sign warning that maintenance or repair work is being done.
- Before performing any maintenance or repair work switch off the master switch of the power supply and secure it by a padlock! The key must be kept by the person performing the maintenance and repair works.
- Before performing any maintenance and repair work make sure that all parts of engine to be touched have cooled down to ambient temperature and are dead!
- Refasten loose connections!
- Replace any damaged lines and/or cables without delay!

- Keep the cabinet always closed. Access should be permitted only to authorized persons having a key or tools.
- Never use a water hose to clean cabinets or other casings of electric equipment!

1.3 Before Putting an Installation into Service after Maintenance and Repair Works

- Check on all slackened screw connections to have been tightened again.
- Make sure the control linkage has been reattached and all cables have been reconnected.
- Make sure all safety devices of the installation are in perfect order and are working properly!

2 General

2.1 Scope of Delivery

Actuator StG 2120.xx or Actuator StG xx.90-xx

Optionally: Coupling

Optionally: 1" control valve or 1.5" control valve for metering gaseous fuel for gas turbines

Optionally: Control lever

The following cable glands M 20x1,5 can be used:

- Manufacturer: AGRO AG
Type: 1820.11.26
Test certificat: PTB 00 ATEX 1059

- Manufacturer: Hawke
Type: 501/453 RAC
Test certificat: BAS 01 ATEX 2072X.

- Manufacturer: Hawke
Type: CSB 656
Test certificat: BAS 01 ATEX 2079X

2.2 Description of Function

The explosion-proof actuator types StG 2120.xx and StG xx90-xx, type of protection flameproof enclosure “d”, are used for actuating gas valves in gas turbine control applications.

These actuators are distinguished by following features:

- Fast response and high torque in either direction
- Low consumption of electric energy
- Operation within a wide range of supply voltage
- To be mounted in any position
- Test certificate for use in hazardous environments

The actuator represents the actuation unit within a closed control loop of gas, steam and water turbines. By means of this unit, an electric signal from the control unit is converted into mechanical movement for actuating valves of diverse design.

The rotating movement of the integrated actuator control output shaft of the StG2120 series is generated by a rotary magnet system. This design does not require any gearing.

For the StG xx.90-xx series DC disk motors are used as drives. Torque is transmitted to the output shaft by a twin-stage gear.

Non-contacting sensing is used to scan the feedback cam on the control output shaft. The electric signal is a function of the wave position.

3 Technical Informationen

3.1 Technical Data

Description	StG 2120	StG 30.90-xx	StG 40.90-xx
Rotation angle	68°	90°	90°
Max. torque	12 Nm	22 Nm	44 Nm
Torque in steady state condition	4 Nm	7.5 Nm	14.5 Nm
Current consumption of whole governor			
Max. current	7 A	approx. 5 A	approx. 7 A
Safe current in steady state condition	approx. 2.3 A	approx. 1.7 A	approx. 2.3 A
Resistance of coil system	ca. 2,1 Ohm	ca. 2 Ohm	ca. 1 Ohm
Number of cable bushings	2 x M 20x1,5	2 x M 20x1,5	2 x M 20x1,5
Ambiente temperature during operation *	-20°C up to +60°C	-20°C up to +60°C	-20°C up to +60°C
Type of protection „e“	II 2 G EEx d IIB T5	II 2 G EEx d IIB T5	II 2 G EEx d IIB T5
Protection grade	IP 55	IP 55	IP 55
Weigth	31 kg	24.5 kg	24.5 kg

*Operating ambient temperature for StG 30.90-06: -20°C to +40°C

3.2 Measurements

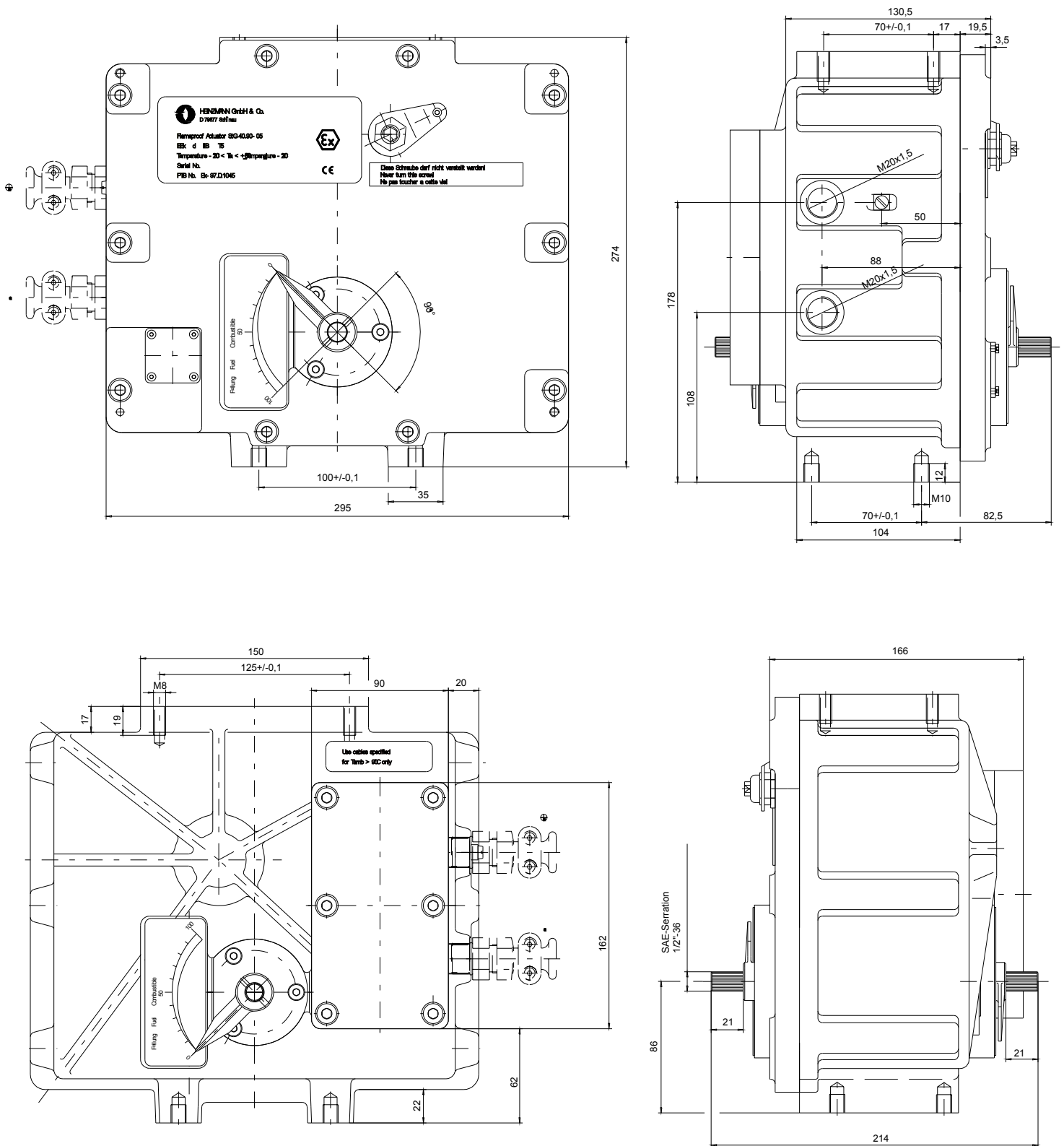
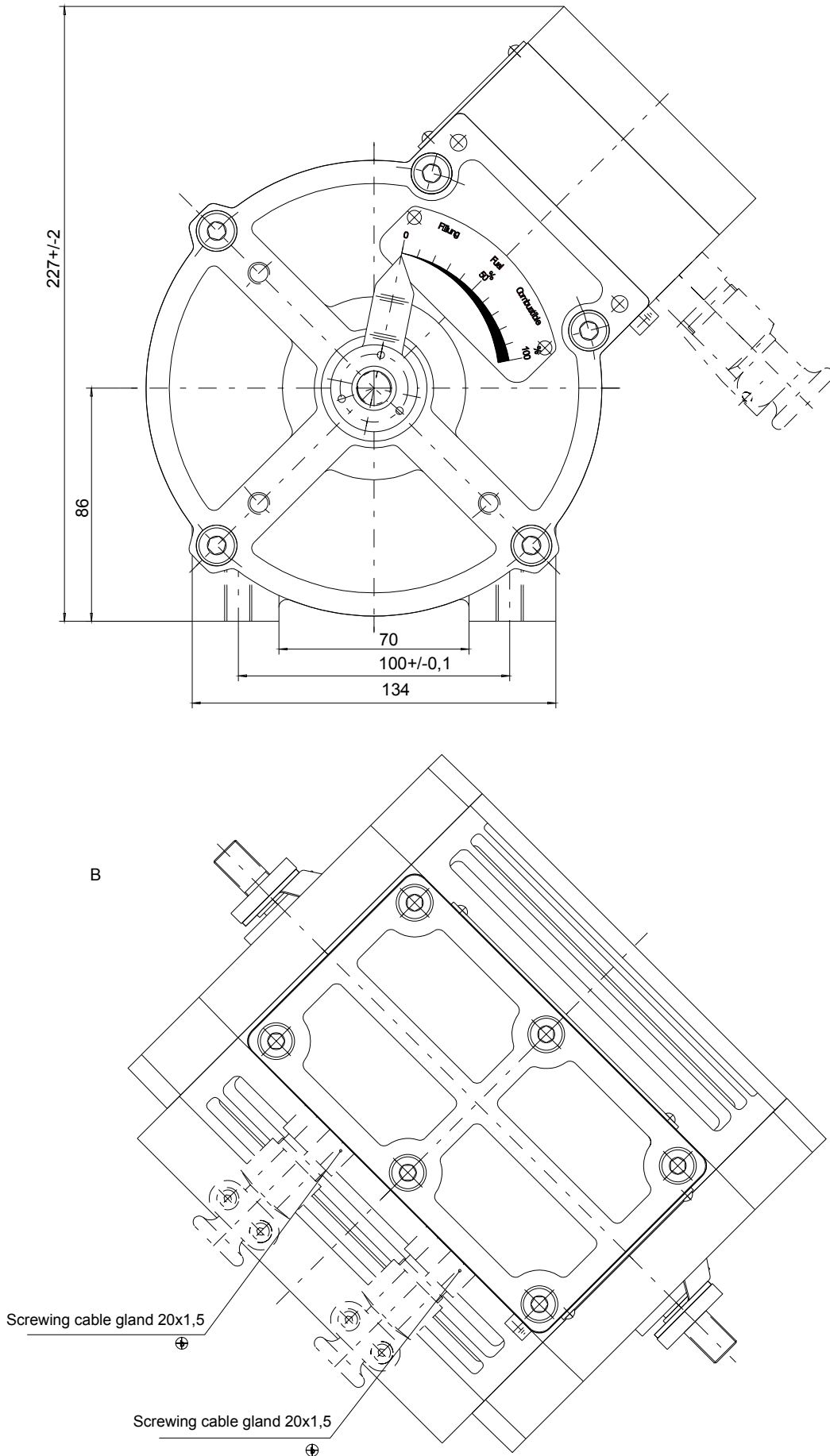


Figure 1: StG xx.90-xx



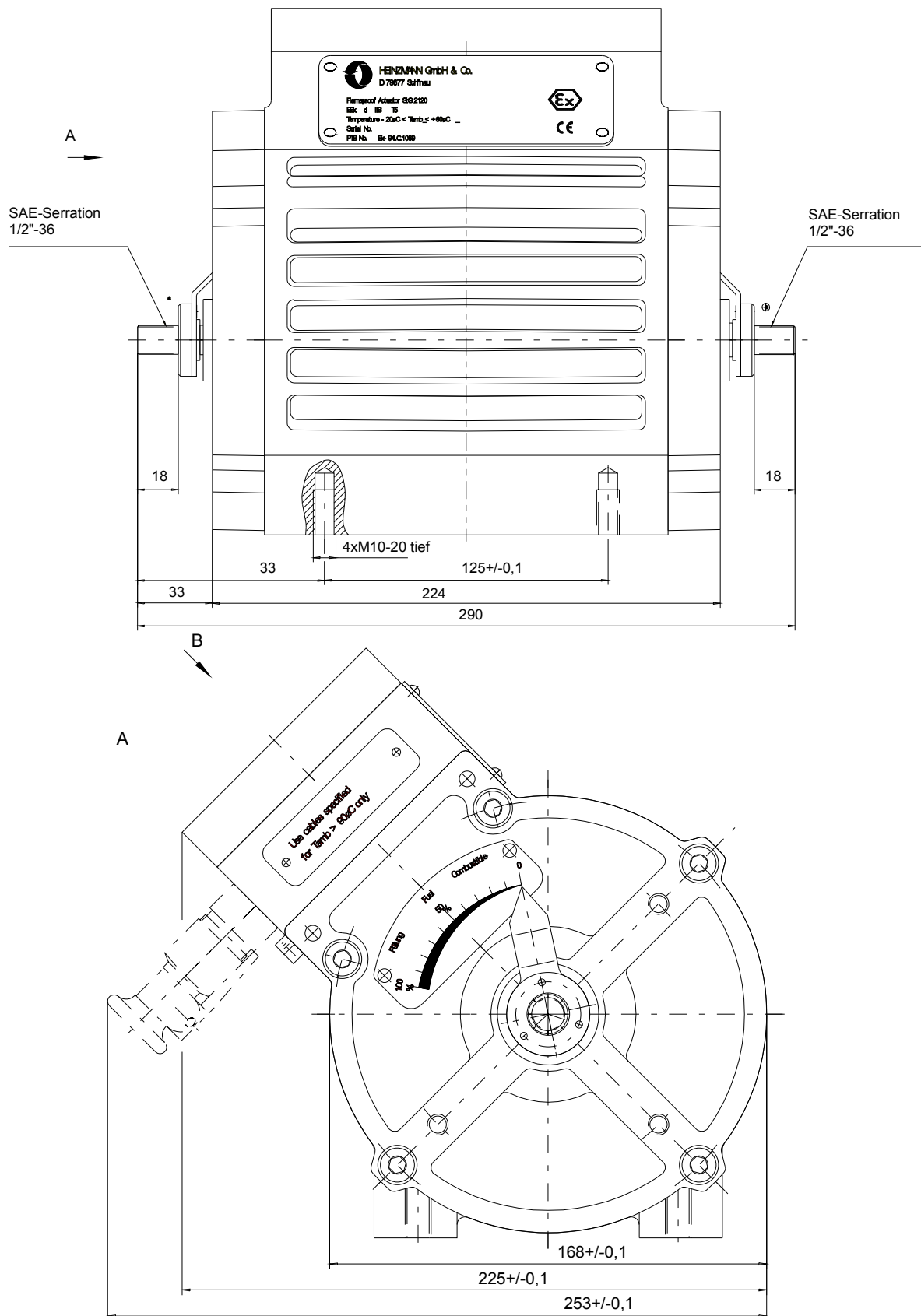


Figure 2: StG 2120.xx

4 Mounting and Connection

4.1 Mounting



Warning

Any works on the actuators may be performed only by properly trained specialists and in compliance with applicable standards.

For metering gaseous fuels for gas turbines, both actuators are available as a complete set with a 1" or 1.5" control valve.

The mounting location must be chosen in such a way as to avoid vibrations and shocks as far as possible.

Furthermore, the mounting location of the actuator must be chosen in accordance with the protection grade.

In principle, any mounting position is admissible. One should, however, avoid mounting the actuators in such a way that the screwed cable glands are pointing upward.

4.2 Electrical Connection



Warning

Any works on the actuators may be performed only by properly trained specialists and in compliance with applicable standards.

Be sure to follow the connection diagram of the plant manufacturer when installing the electric connection. All cable sizes must be chosen in accordance with the specification.

Up to	10 m	2,5 mm ²
More than	10 – 20 m	4,0 mm ²
More than	20 – 40 m	6,0 mm ²



Warning

The actuator is driven by a HEINZMANN control unit. In special cases, the actuator may be connected to some other control as provided by the plant manufacturer. This will, however, require that HEINZMANN have explicitly agreed and that the specifications provided by HEINZMANN be strictly observed

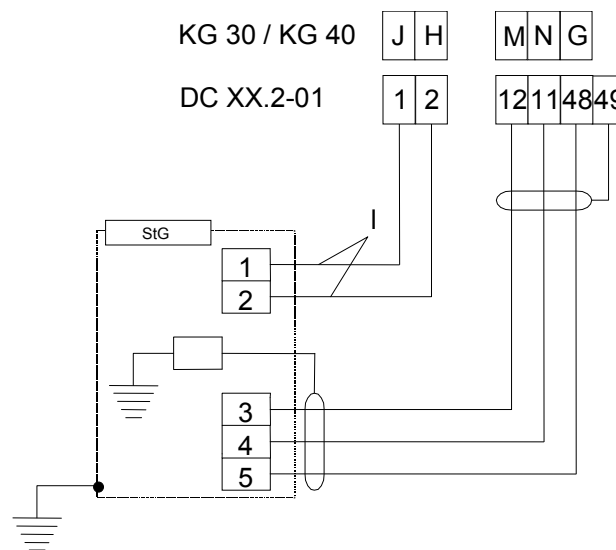


Figure 3: Electrical Connection

Good earthing according to standards must be ensured. The actuator type StG 2120.xx has a separate earthing screw which must be secured properly.

5 Operation

5.1 Commissioning



Warning

Any works on the actuators may be performed only by properly trained specialists and in compliance with applicable standards.

The user is responsible for correct and proper commissioning of the installation as a whole.

Please note before commissioning the installation:

- Before starting to install any equipment, the installation must have been switched dead!
- Check the functionality of the existing protection and monitoring systems.

Commissioning may be conducted only with the cover of the terminal box mounted.

5.2 Operation

The actuator must be operated in such manner as to safely exclude any damages.

With particular regard to electric and technical operating, the device may be used only in conformance with the specifications.

6 Maintenance and Service



Warning

Any repair work may be executed only and exclusively at the factory of the manufacturer.

Before cleaning the device, make absolutely sure that it has been switched dead!

The device must be regularly checked for damages.

The exterior of the device must be kept in orderly condition. The surface may not be damaged mechanically or by chemical substances.

For cleaning the device, only methods conforming with the protection grade may be applied.

The actuator must always be kept in clean condition. In order to prevent accumulation of heat, any soiling of the exterior should be avoided.



Warning

The device may not be opened under any circumstances by the user.

7 Download of Manuals

Technical manuals can be downloaded in pdf-format from our homepage:

www.heinzmann.com

If the desired manual should not be available there, send an e-mail to:

info@heinzmann.de

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