

## DK 100 / StG 3 DK 100 / StG 3-PD

### DATA SHEET

#### Description

Preferential application of this combination of a throttle valve with an actuator or positioner from HEINZMANN is gas engine control. Engine speed and power of the engines can be influenced by controlling the mixture amount. In special applications it can additionally be used as gas valve for air-fuel-ratio control. Alternatively application as bypass valve for turbochargers is possible.

Usually it is used for stationary engines. Over and above its robust construction makes it fit for mobile heavy duty applications as well.

A multipolar magnetised permanent magnet is facing a multipolar armature radial. That kind of design allows to generate powerful torque in 4Q-operation. A return spring is mounted on the output shaft to ensure setting to a zero position in case of voltage loss.

The armature is optimised for lowest heat build-up. The design enhances heat transfer and allows a wide working temperature range. Additionally, the positioner electronic can be liquid cooled.

Result of the direct acting gearless function is a very fast response time. A high precision contactless feedback system allows high-grade position control of the throttle.

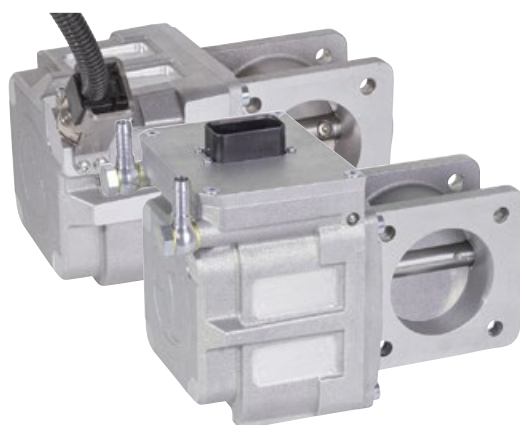
Application of special materials and long-duration lubricants assure maintenance-free operation and long service life. Mounting of the actuator is possible in any fitting position.

The robust and enduring model with IP6K9K degree of protection allows operation under roughest ambient conditions.

As standard there are three different throttle valve diameters available.

#### Application range

- Gas, diesel and dual-fuel engines, suitable for heavy-duty engines
- Gas and steam turbines



#### Features

Available as actuator or positioner version

Can be used as throttle valve or turbo bypass

Quick response time

Contactless high precision feedback

Robust and enduring construction with minimal axial bearing load

Wide working temperature range up to 150 °C

Completely maintenance-free

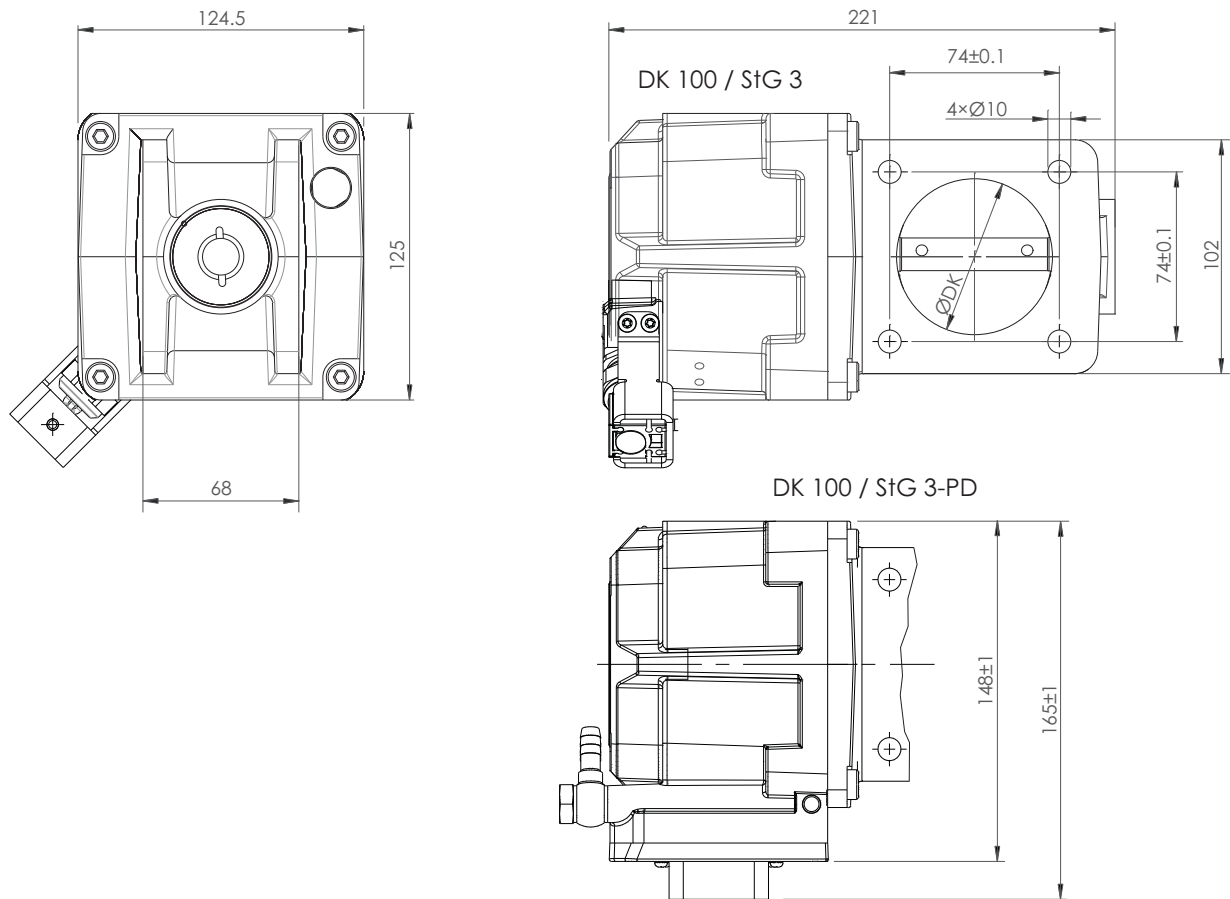
IP6K9K degree of protection

Any mounting position possible

Standard dimensions of flange

Applicable for a wide range of gas qualities (e.g. natural gas, landfill gas, biogas, propane)

## Dimensions



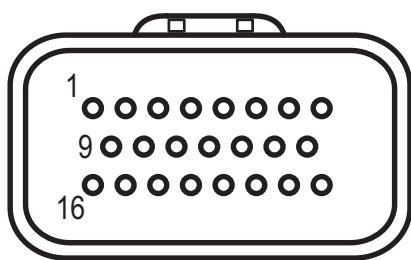
## Technical data

|                                      |   |                       |                       |
|--------------------------------------|---|-----------------------|-----------------------|
| Steady state torque                  | 1.5 Nm  |                       |                       |
| Maximum torque                       | 3 Nm  |                       |                       |
| Rotation                             | 72°   |                       |                       |
| Response time *)                     | < 40 ms   |                       |                       |
| Supply voltage                       | 16 ... 32 VDC, nominal 24 VDC   |                       |                       |
| Sensor supply                        | 4.5 ... 5.5 VDC   |                       |                       |
| Positioner input                     | voltage, current, CAN bus   |                       |                       |
| Current consumption                  | max. 6 A  |                       |                       |
| Steady state current                 | 3 A   |                       |                       |
| Diameter (ØDK)                       | Ø 48 mm   | Ø 60 mm               | Ø 68 mm               |
| Engine power range **)               | approx. 50 ... 100 kW   | approx. 60 ... 150 kW | approx. 70 ... 250 kW |
| Boost pressure                       | max. 5.8 bar abs.   |                       |                       |
| Actuator housing pressure resistance | ±0.35 bar   |                       |                       |
| Operating temperature                | -40 ... +150 °C (StG 3, StG 3-PD liquid cooled positioner electronic)<br>-40 ... +110 °C (StG 3-PD without cooling) |                       |                       |
| Storage temperature                  | -40 ... +160 °C   |                       |                       |
| Degree of protection                 | IP6K9K  |                       |                       |
| Weight                               | approx. 6.5 kg  |                       |                       |

\*) For actuator version depending on controller

\*\*) Power range for naturally aspirated engines. For turbo charged engines 50 up to 150 % higher, depending on boost pressure.  
Variants on request.

## Pin assignment



TYCO 23-pin,  
view on plug side

| Pin | Signal                        | Signal type or range  |
|-----|-------------------------------|---|
| 1   | Power supply (+)              | 24 V  |
| 2   | Auxiliary power out           | 24 V, 0.7 A   |
| 3   | RS-232 TX                     | Communication   |
| 4   | Setpoint input                | 4 ... 20 mA or 0 ... 5 V,<br>type selection via pin 19  |
| 5   | Digital input 1               | Run enable  |
| 6   | PWM shield                    | -   |
| 7   | Digital input 2               | discrete  |
| 8   | Power output                  | 5 V, 50 mA  |
| 9   | Throttle position             | 0 ... 5 V   |
| 10  | Digital input 4 (-), isolated | PWM or discrete   |
| 11  | RS-232 RX                     | Communication   |
| 12  | GND                           | 0 V   |
| 13  | CAN high                      | Communication   |
| 14  | CAN shield                    | -   |
| 15  | GND                           | 0 V   |
| 16  | Power supply GND              | 0 V   |
| 17  | GND                           | 0 V   |
| 18  | Digital input 4 (+), isolated | PWM or discrete   |
| 19  | Analogue input 1              | Selection of analogue input type pin 4,<br>pull-down to pin 20: 4 ... 20 mA,<br>open: 0 ... 5 V |
| 20  | Analogue input 1 GND          | 0 V   |
| 21  | CAN low                       | Communication   |
| 22  | Digital input 3               | discrete  |
| 23  | Status output                 | discrete  |

## Certificates

On request

*Subject to alterations. ©HEINZMANN GmbH & Co. KG, 2018*



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