

# eSG50 Electronic Straight Gate



The Turbosmart Electronic Straight Gate is a new feature in the electronic wastegate line-up. The Straight gate provides extensive user configurability, world leading extended thermal performance, fatigue resistance and uninterrupted flow performance for optimum control and longevity with its butterfly valve.

- Liquid cooling provision
- Strap type V-band clamps
- User adjustable actuator position
- Full Electronic control
- Endless Boost Control Strategies

### Mechanical Data

Flow Diameter	50mm (1.97in)
Mass	Xg
Safe working pressure max.	220 psig / 1520 kPa / 15 bar
Actuator life	550k cycles @ 150°C (302 °F) ambient 800k cycles @ 80°C (176 °F) ambient
Port fittings type	Liquid Cooling: 2x 1/8" NPT

### Thermal Data

Max. thermal stress (non-cooled)*	>45min @ 1250°C EGT continuous
Max. thermal stress (h2O cooled)*	>24hr @ 1250°C EGT continuous
Max. ambient/compartment temp.	260°C / 500°F
Max. actuator temp.	150 °C / 257°F

### Electrical Data

Sensor Operating voltage	5V±0.5V
Outputs	<ul style="list-style-type: none"> <li>• Analog 0-5V</li> <li>• Pulse Width Modulated signal</li> </ul>
Operating Temperature	-40 °C to 150 °C (-40 °F to 302 °F)
Sensor Supply Current	21mA
PWM Frequency	220-268 Hz

### Temp Sensor Data

Accuracy	±2.7°C
Voltage offset at 0°C	2630mV
Gain	-13.6mV/°C
<b>Deg C (Deg F)</b>	<b>Temp Sensor Output (mV)</b>
0 °C (32 °F)	2630
150 °C (302 °F)	538

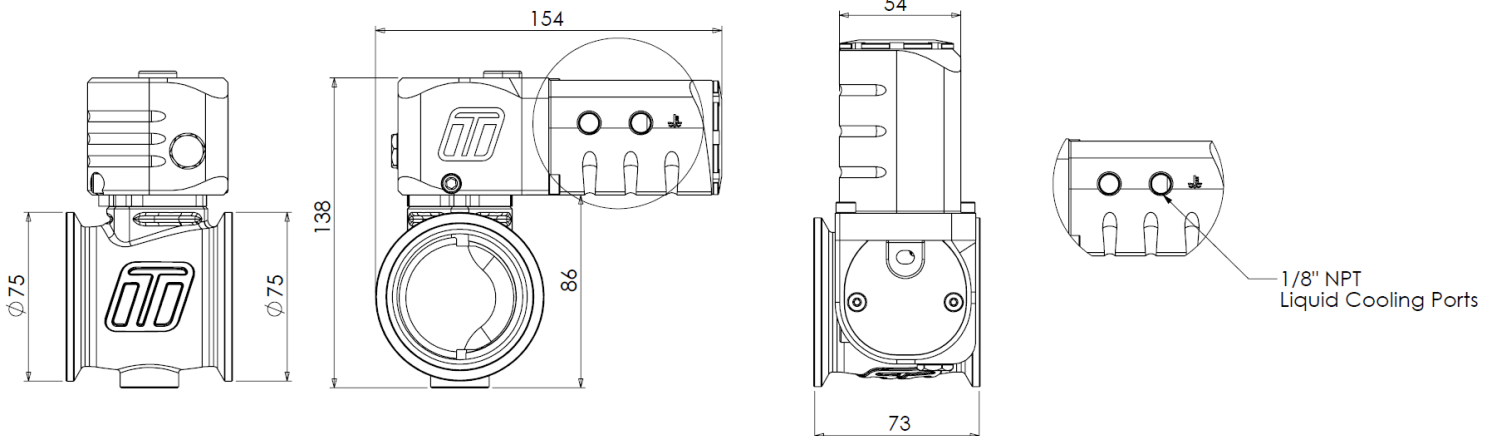
### Position Sensor Data

Position	Target Voltage (V)	Duty Cycle
100%	0.20-0.60V	~16%
0%	4.40-4.80V	~84%

### Connection Data

Red 22AWG	5V
Black 22AWG	0V
White 22AWG	Valve position
Blue 22AWG	*Unfiltered Signal (Position Output)
Yellow 22AWG	Sensor Temperature
Red 14AWG	Motor A (positive closed)
Black 14AWG	Motor B (positive open)

**\*Note: The Blue (unfiltered position signal) is not required for use & is for development purposes only.**



\*Continual source of minimum 1250°C exhaust gas, with no cool down periods for at least 30minutes and no external air cooling on actuator, this is a destructive test that an ICE engine cannot support. Contact tech support for further information.

### Material Data

Beryllium (Be)	0%
Main Body	High temp 347 SS
Actuator housing	6262 T6 anodised Al.
Butterfly Shaft	630ss
Butterfly Valve	630ss
V-Band	Heat treated 431 SS w/ 18-8 nut
Weld Flanges	304 Stainless Steel

### Motor Data

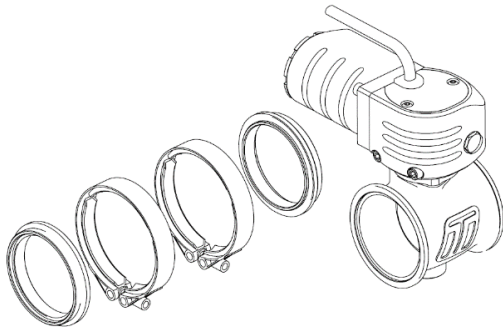
Wire Size	14AWG
Direction	Red wire positive closed
Stall Current**	60A
Hold Current	0A (Short motor wire for braking)
Max Force @stall	4085N
Max Force @power	2042N
Speed (Opening)	750%/s (130ms)

### Water Cooling

Temperature Range	-40 to 120degC / -40 to 248degF
Pressure Range	0 to 100psi / 0 to 689kPa / 0 to 6.9 Bar
Coolant Safe	Yes

### Included in the Box

- Wastegate unit
- Outlet V-Band
- Outlet V-Band
- Outlet SS304 weld flange
- Outlet SS304 weld flange
- Sticker
- Instruction card

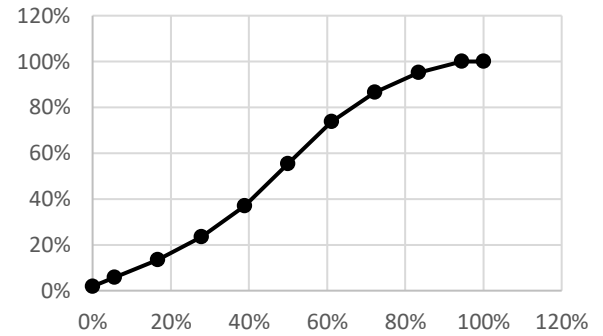


### Flow Characteristics

Max. Flow	383.9 CFM/10.87m <sup>3</sup> /min @1psidP
Flow	-8.8% of full lift (BFSL)

Linearity

#### Flow Linearity



### Order Data

TS-0565-1002	eSG50 Electronic Straight Gate
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### Accessories

TS-0503-3002	WG60 Stainless Outlet Weld Flange
TS-0555-3004	WG60 Outlet V-Band
TS-0550-3120	GenV E-Gate motor replacement
TS-0550-3123	eStraight Gate Replacement Sensor

*Refer to catalogue for further accessories*

### Install Req.

Inlet Pipe	Suits 63.5mm/2.50" OD
Outlet Pipe	Suits 63.5mm/2.50" OD
Water Port Tube Min. ID	6mm / 0.236" (Recommended -4 AN Fitting)

\*\* High amperage for prolonged periods will damage the motor, keep high Amperage operation to short bursts.