

# 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	1816g
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 @ 800°C EGT continuous
Max. thermal stress (h2O cooled)*	>24hr @ 800°C EGT continuous
Max. ambient/compartment temp.	200°C / 392°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 Output	220-268 Hz

### Material Data

Beryllium (Be)	0%
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### Temp Sensor Data

Accuracy	±2.7°C
Voltage offset at 0°C	2630mV
Gain	-13.6mV/ °C
Deg C (Deg F)	Temp Sensor Output (mV)
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%

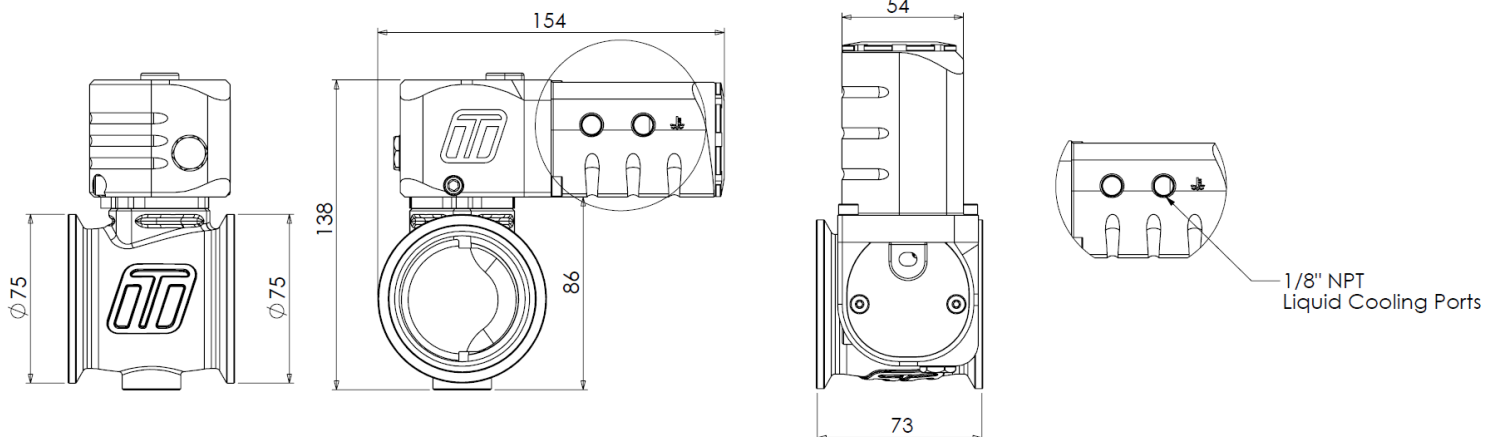
### Connection Data

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.**

### Flow Characteristics

Max. Flow	383.9 CFM/10.87m3/min @1psidP
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\*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.

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

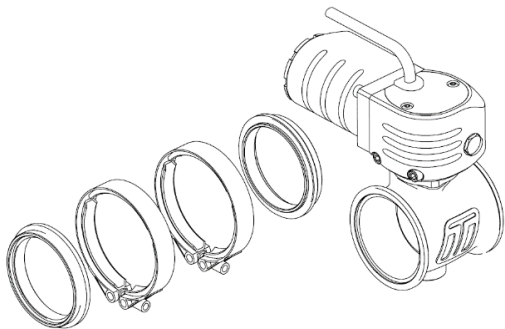
Wire Size	14AWG
Direction	Red wire positive closed
Stall Current**	60A
Hold Current	0A (Short motor wire for braking)
Max Force @stall	4085N
Max Force @power	2042N
Speed (Opening)	750%/s (130ms)

### 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

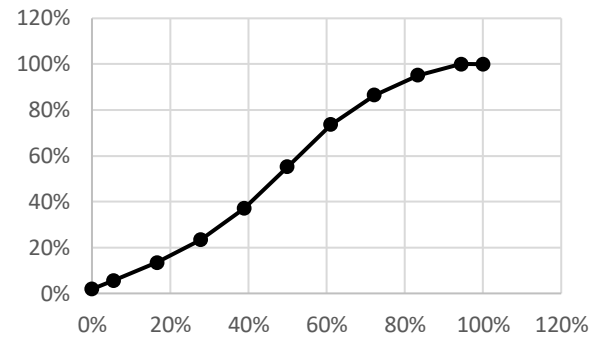
### Included in the Box

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



Flow Linearity -8.8% of full lift (BFSL)

### Flow Linearity



### Order Data

TS-0565-1002 eSG50 Electronic Straight Gate

### Accessories

TS-0503-3002 WG60 Stainless Outlet Weld Flange  
 TS-0555-3004 WG60 Outlet V-Band  
 TS-0550-3124 Electronic Straight 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.