

STEGIA

P R E S E N T S H Y P E R G E A R



**AN INNOVATION TO CONTROL
AIR DAMPER ACTUATOR TO PERFECTION**

STEGIA FOCUSES ON DEVELOPING INTELLIGENT MOTOR SOLUTIONS WITH HIGH QUALITY AND INNOVATIVE DESIGN

HYPERGEAR

A patented technology

The market has demanded a smart solution for controlling air quality to perfection. Stegia has developed Hypergear, a compact unit with everything you need for operation of air damper actuators.

Hypergear is the next generation air damper actuator. A patented stepper motor technology solution that with 1000 positions over 90° opens up completely new possibilities for precise positioning.

For smart communication Modbus RTU is integrated in the unit, it is also optional to choose 0-10V. The user can select preset cycle times in a range from hyperfast to slow.

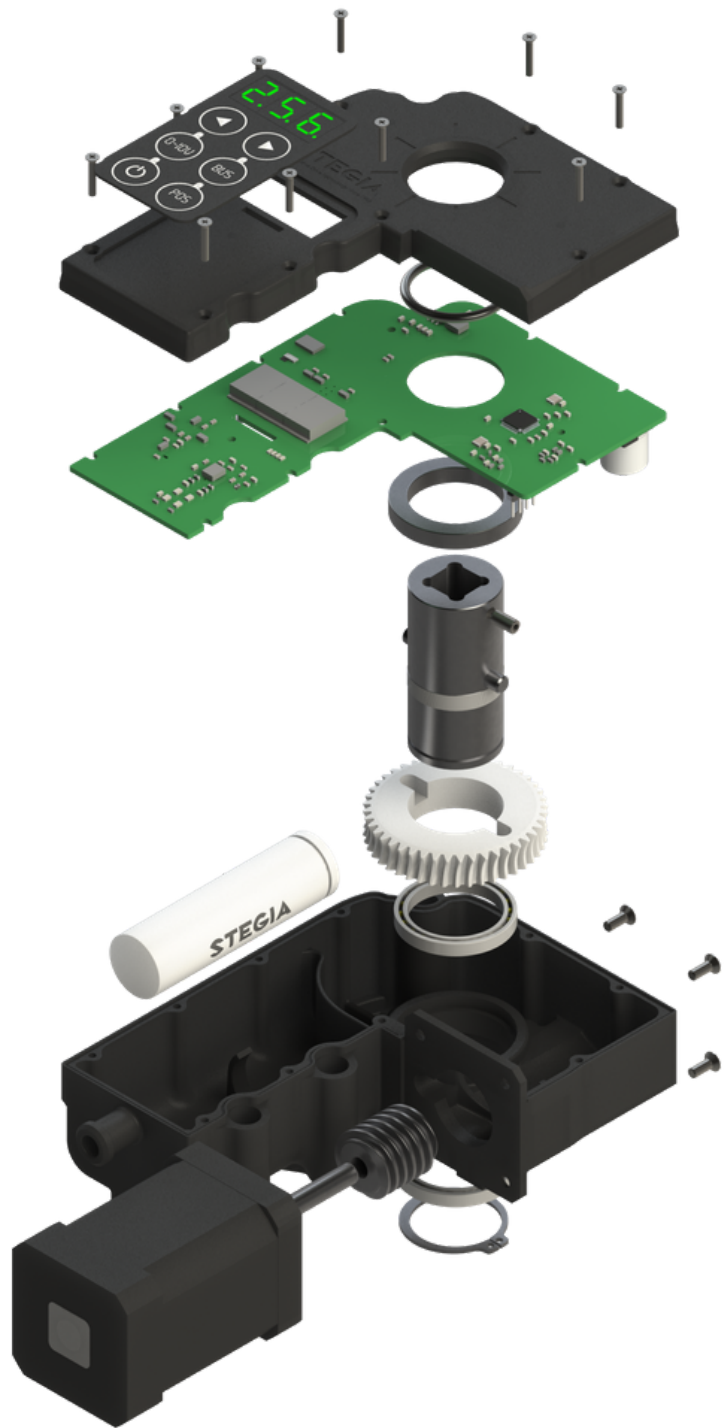
The smart display is developed to read out information from the installed devices. It's easy for the user to make all settings directly on the display.

Unique with Hypergear is the developed battery technology that replaces the spring return solution. The battery also enables full operation in the event of a power failure.

Human health, well-being and work performance are crucially influenced by room climate. To optimize function, reliability and operating economy, it is important to choose the right damper motor. Hypergear contributes to a cost-effective system with the help of precise air control. Thanks to battery technology, reliability also increases in the event of a power failure.

EXPLORE THE INNOVATIVE DESIGN OF HYPERGEAR

Every part is
carefully engineered
and optimized
for operation of
air damper actuators.



For more information visit
www.stegia.com

BATTERY TECHNOLOGY

For optimal energy savings

Traditional air damper actuators are using a spring to close at emergency or powerloss. Due to new regulations and demands to cycle the actuators frequently to gurantee the closing functionality we have seen the stress on the springs increases dramatically and might cause spring failures .

Stegia has integrated the latest battery LiFePO₄/LFP technology in our Hypergear series that brings massive benefits compared with spring solution.

With constant monitoring of battery status using the integrated battery management systems (BMS) we make sure it meets the highest request on the market for an outstanding functionality and safety. Our battery powered Hypergear also gives the flexibility to test and program even before adding the external powersource.



With a battery durability more than 20 years our Hypergear is designed for the future. Lithium iron phosphate batteries (LiFePO₄ or LFP) offer lots of benefits compared to lead-acid batteries and other lithium batteries. Longer life span, no maintenance, extremely safe, lightweight, improved discharge and charge efficiency, just to name a few. LiFePO₄ batteries are not the cheapest in the market, but due to a long life span and zero maintenance, it's the best investment you can make over time.

SMART DISPLAY

Easy to control



The advantage of the display is that you as a user easily can adapt the device for your application. It is also possible to read out relevant user data about running time, opening angle and Modbus address. Our air damper actuator can be installed, calibrated and tested without being connected to the main power source thanks to our smart control interface display and battery system. All parameter settings can be set within seconds.

POS

POSITION MODE

Run the unit in CW or CCW
Set operation direction

BUS

Modbus MODE

Preset address (1-247)
Standby mode for address
Display address
Display opening angle 0-90°
Display 0-100% of opening

0-10V

0-10V MODE

Choose preset opening time
Display opening angle 0-90°
Display 0-100% of opening



EVOLUTION OF HYPERGEAR

The story of Hypergear began when a customer contacted us because of their problems with their existing solution for ventilation dampers. The product broke way to early on field and did not meet the desired quality requirements.

On customers request, we started to develop a stepper motor solution to replace the existing product. Initially we worked on the existing solution and tried to find a way to upgrade it to achieve the quality requirements. Once we had developed the upgraded version, we realized that it neither reached the customers goals in terms of performance, budget or quality.

We began to investigate whether it was possible to simplify any type of gear solution to make a more compact cost-effective product with a focus on design, quality and performance. In 2016, the first version of Hypergear was launched. Then we gradually took the product to a new level by further developing smart solutions such as a patented sensor solution, battery backup and smart display.

Today we have developed Hypergear in three different designs from basic to premium, to be able to offer a solution regardless of the customer's needs. Although the product is new on the market, it has been delivered in 50,000 faultless units to the customer. Hypergear challenges the HVAC industry with a revolutionary technology that is here to stay.

HYPERGEAR BASIC

Powerful unit at our most affordable price

STB - Stegia Basic								
Part number	STB42S-10P	STB42M-10P	STB42L-10P	STB42XL-10P	STB42S-22P	STB42M-22P	STB42L-22P	STB42XL-22P
Reduction	10:1				22:1			
Motor length	S - 39.8 mm	M - 48.3 mm	L - 62.8 mm	XL - 77.1 mm	S - 39.8 mm	M - 48.3 mm	L - 62.8 mm	XL - 77.1 mm
Holding torque	2.5 Nm	4.5 Nm	6.2 Nm	8 Nm	3.8 Nm	7.2 Nm	10.0 Nm	15.0 Nm
Position accuracy	0.18 °				0.09 °			
Constant torque	2 Nm	4 Nm	5.7 Nm	7.5 Nm	3.3 Nm	6.7 Nm	9.5 Nm	12.5 Nm
0-90° regulation time	30 sec. (Set in software, can be modified by request)							
Control signal	0-10 VDC							
Direction	CW/CCW							
Rated voltage	24 VAC / 24VDC							
Power consumption - Sleep mode	0.98 W							
Recommended damper size up to approx.	0.5 m ²	0.8 m ²	1.0 m ²	1.5 m ²	0.8 m ²	1.2 m ²	2 m ²	3m ²
Mass	0.73 kg	0.81 kg	1.05 kg	1.1 kg	0.73 kg	0.81 kg	1.05 kg	1.1 kg
IP Protection	IP 54							



HYPERGEAR STANDARD

Meet the digital world with smart communication

STS - Stegia Standard								
Part number	STS42S-10P	STS42M-10P	STS42L-10P	STS42XL-10P	STS42S-22P	STS42M-22P	STS42L-22P	STS42XL-22P
Reduction	10:1				22:1			
Motor length	S - 39.8 mm	M - 48.3 mm	L - 62.8 mm	XL - 77.1 mm	S - 39.8 mm	M - 48.3 mm	L - 62.8 mm	XL - 77.1 mm
Holding torque	2.5 Nm	4.5 Nm	6.2 Nm	8 Nm	3.8 Nm	7.2 Nm	10.0 Nm	15.0 Nm
Position accuracy	0.18 °				0.09 °			
Constant torque	2 Nm	4 Nm	5.7 Nm	7.5 Nm	3.3 Nm	6.7 Nm	9.5 Nm	12.5 Nm
0-90° regulation time	5-100 sec. (Set via modbus)							
Emergency close time	5-100 sec. (Set via modbus)				5-100 sec. (Set via modbus)			
Control signal	Modbus RTU / 0-10 VDC							
Direction	CW/CCW (Opening direction set via modbus)							
Rated voltage	24 VAC / 24VDC							
Power consumption - Sleep mode	0.98 W							
Recommended damper size up to approx.	0.5 m²	0.8 m²	1.0 m²	1.5 m²	0.8 m²	1.2 m²	2 m²	3m²
Mass	0.73 kg	0.81 kg	1.05 kg	1.1 kg	0.73 kg	0.81 kg	1.05 kg	1.1 kg
IP Protection	IP 54							



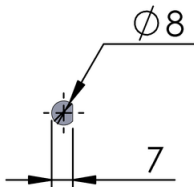
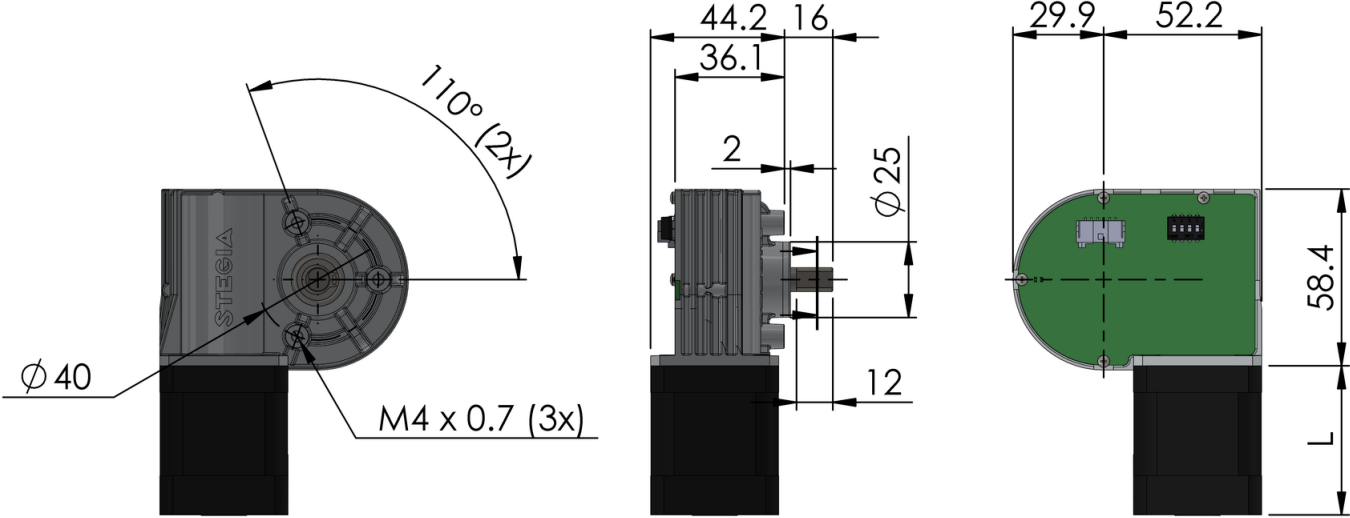
HYPERGEAR PREMIUM

State of the art introducing battery technology

STP - Stegia Premium								
Part number	STP42S-10P	STP42M-10P	STP42L-10P	STP42XL-10P	STP42S-22P	STP42M-22P	STP42L-22P	STP42XL-22P
Reduction	10:1				22:1			
Motor length	S - 39.8 mm	M - 48.3 mm	L - 62.8 mm	XL - 77.1 mm	S - 39.8 mm	M - 48.3 mm	L - 62.8 mm	XL - 77.1 mm
Holding torque	2.5 Nm	4.5 Nm	6.2 Nm	8 Nm	3.8 Nm	7.2 Nm	10.0 Nm	15.0 Nm
Position accuracy	0.18 °				0.09 °			
Constant torque	2 Nm	4 Nm	5.7 Nm	7.5 Nm	3.3 Nm	6.7 Nm	9.5 Nm	12.5 Nm
0-90° regulation time	5-100 sec. (Set via modbus)							
Emergency close time	5-100 sec. (Set via modbus)				5-100 sec. (Set via modbus)			
Power loss / Emergency feature	Powered via battery backup							
Control signal	Modbus RTU / 0-10 VDC							
Direction	CW/CCW (Opening direction set via modbus)							
Rated voltage	24 VAC / 24VDC							
Power consumption - Sleep mode	0.98 W							
Recommended damper size up to approx.	0.5 m²	0.8 m²	1.0 m²	1.5 m²	0.8 m²	1.2 m²	2 m²	3m²
Mass	0.78 kg	0.86 kg	1.10 kg	1.15 kg	0.78 kg	0.86 kg	1.10 kg	1.15 kg
IP Protection	IP 54							

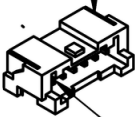


STB 42



Shaft details

JST PA series (6P)
P/N: SM06B-PASS-TB



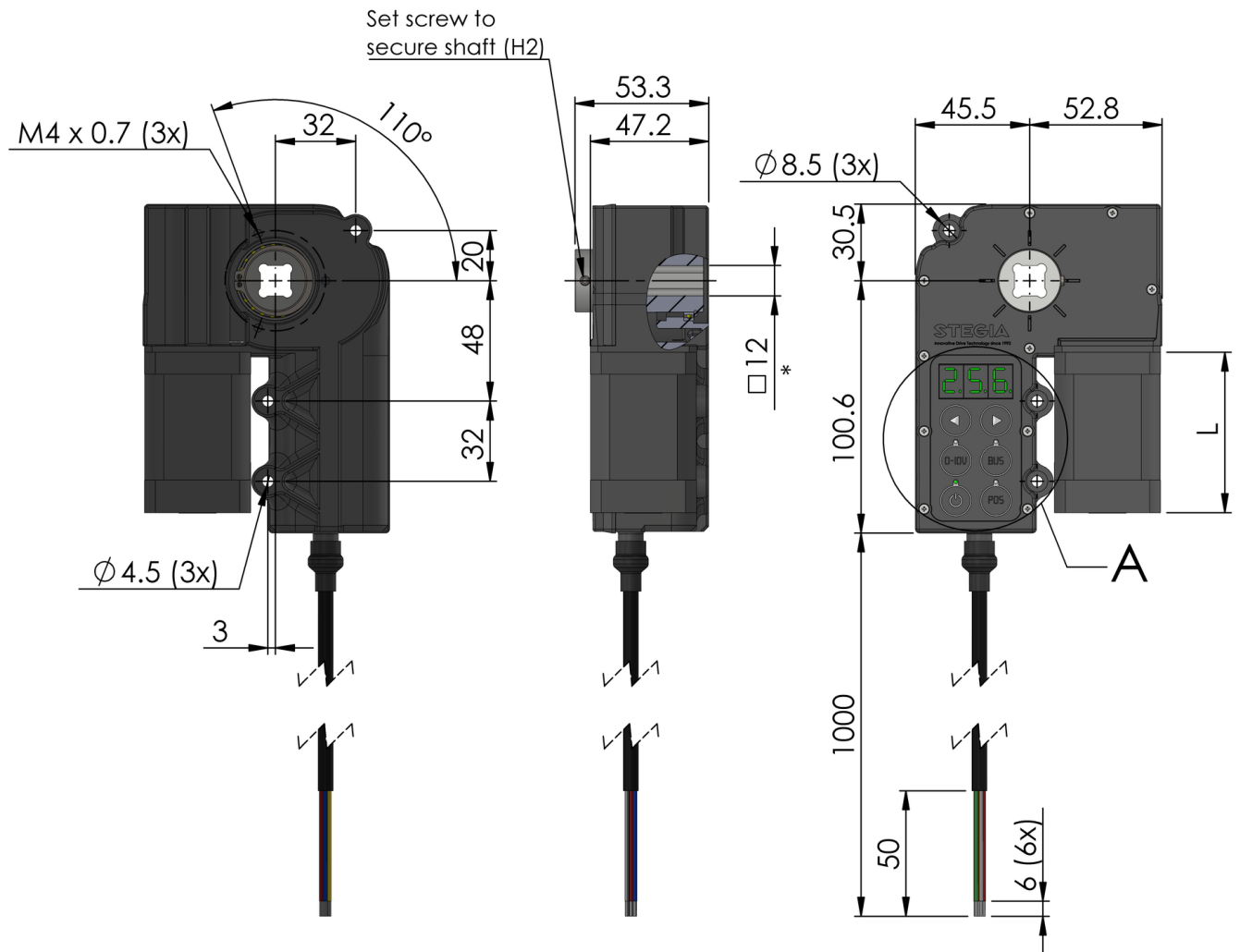
Pin1

Connector

Connection table		
Pin	Name	Description
6	24VAC	24VAC Power supply
5	G0	Neutral
4	Y	Analog input signal 0-10VDC
3	U	Analog output signal 0-10VDC
2	Rx	Not available
1	Tx	Not available

Value	Picture	Description
0		Default setting for regulation that requires silence operation
1		High speed mode - Velocity and acceleration for faster control with slightly higher noise level

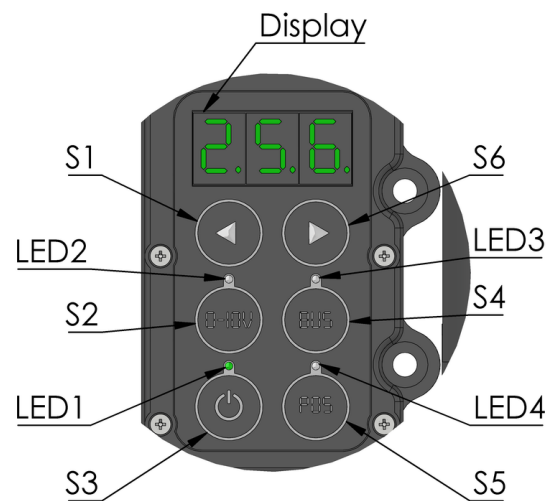
STS 42 / STP 42



* Optional square shaft size
□8 - □10mm is available upon request

Connection table		
Color	Description	Remark
Red	L / 24VDC	24VAC / 24VDC
Blue	N/Ground	Neutral / 0V
Yellow	Modbus A+	
Green	Modbus B-	
Brown	In 0-10VDC	Control signal
Grey	Out 0-10VDC	Feedback signal

Control interface table		
Button	Description	Indication
S1	Decrease position setpoint value	Value in display
S2	Show analog input voltage in display	LED 2
S3	Power ON/OFF (Power Off not available when mains supply is connected)	Display enable / disable LED 1
S4	Show Modbus node address value in display	LED 3
S5	Show actual shaft position in display	LED 4
S6	Increase position setpoint value	Value in display



DETAIL A
Control interface

HYPERGEAR

KEY FEATURES

01 PRECISION

Traditional damper actuators have a position accuracy of $\pm 2^\circ$ which is only 22.5 positions on a normal operation window of 90° . With our patented design Hypergear offers an outstanding position accuracy of 0.09° , which can achieve up to 1000 precise positions within an operation window of 90° .

02 QUIET OPERATION

The benefit of our patent drive solution results in longer life time and smoother operations. With over 30 years knowledge of stepper motors and innovative drive solutions Stegia have handpicked key features and innovative design from our different applications to offer the optimal package to operate air damper actuator noiseless and without vibrations.





03

ENERGY EFFICIENT

Hypergear is a highly energy efficient product which uses smart features as self adapting the motor current according to the damper load. One additional feature is integrated sleep mode when no operation is needed. Therefore the system reduces the energy consumption substantially. Reducing power consumption keeps the system cooler, increases motor life, and allows reducing cost.

04

EASY INSTALLATION

Our hypergear actuator offers one direction installation for both CW or CCW dampers. The direction is quickly set in our smart function display. With our hollow shaft design we offer a robust and swift installation and still ensure zero clearance between damper and actuator.

05

COMPACT DESIGN

Stegia's focus is to deliver intelligent motor solutions with high quality and innovative design. The Hypergear series have built in a high precision stepper motor with one-stage gearbox and intelligent electronics which enhance the performance and precision.

CONTACT INFORMATION

REGATTAGATAN 22B
723 48 VÄSTERÅS SWEDEN
+46 21 811 822
INFO@STEGIA.SE
WWW.STEGIA.COM

STEGIA

INNOVATIVE DRIVE TECHNOLOGY SINCE 1993