SERVO SPINDLE MOTORS
Welding gun motors

1.5 tons of compressive force – 10 million times

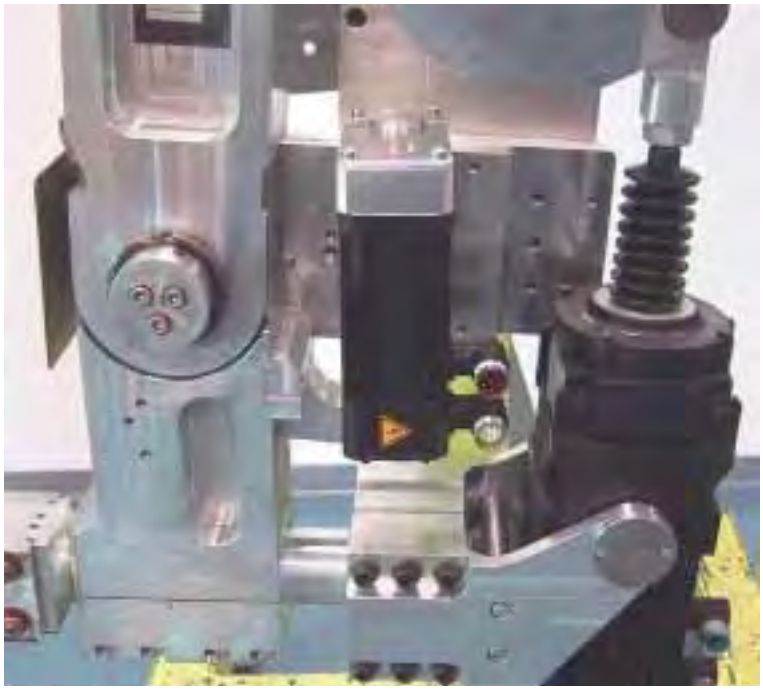
Lenze's servo motor with integrated spindle marks the introduction of a mechatronic unit which has been designed specifically for welding guns. The high-precision motor opens and closes welding guns significantly faster, more accurately and more smoothly than the conventional pneumatic version. Because the compact units can be used to control speed and torque with high levels of precision, the quality of the spot welds improves.

Designed for the automotive industry

The new motor has been designed to meet the requirements of the automotive industry and can be used equally effectively for welding, clinching, stamping or riveting. The servo inverters for the main and compensating drive can either be integrated into the robot control cabinet as the seventh and eighth axis or installed in a decentralised control cabinet. Lenze supplies servo inverters which can be freely programmed in accordance with IEC 61131-3.

Increased tool life

The enhanced technology prevents the copper caps from bouncing on the contacted material. This increases the service life of the tools. Depending on the cycle time, productivity can be increased by up to 25%. The use of electrical drives now also allows easier changes between products thanks to easier and more flexible adaption.



Servo welding gun

Easy to adapt

When using electrical drives outside of the robot cabinet, the servo welding gun is relatively easy to adapt to new applications. Only the PLC function integrated in the inverter has to be modified. A range of motion profiles can be stored and selected by the machine operator at the touch of a button.

Suitable for wrist joints

Lenze's new motor is so compact that it can be used on the wrist joint of a six-axis robot. It can reach a permanent welding force of 7 kN. The maximum force is 15 kN.

Axis controller for robot controls

Servo spindle motor

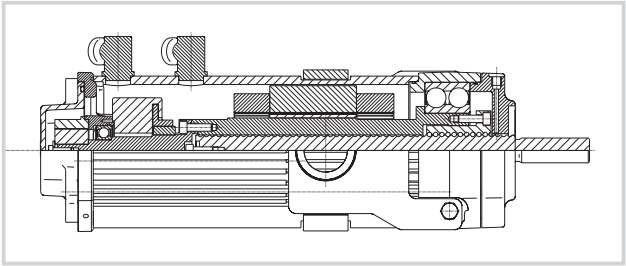
Lenze compact servo

13034351

Technical data

MDSLSRS071-03 servo spindle motor	
Torque	8.3 Nm
Maximum torque	35.2 Nm
Speed	3000 min^{-1}

MDSLSRS056-33 servo spindle motor	
Torque	4.2 Nm
Maximum torque	17.2 Nm
Speed	3000 min^{-1}



Servo spindle motor

Linear drive	MDSLSBS071-13	MDSLSBS056-33
Feed force (medium)	15 kN at 0 min^{-1}	6.6 kN at 0 min^{-1}
	4.3 kN at 50 min^{-1}	2.2 kN at 50 min^{-1}
	3.4 kN at 3000 min^{-1}	1.9 kN at 3000 min^{-1}
Hub	170 mm	160 mm
Service life	20 million load cycles	20 million load cycles
Traversing speed	250 mm/s	250 mm/s
Accuracy	0.2 mm	0.2 mm
Distance traversed at peak load	2 mm	2 mm
Duration closing	0.1 s (10 mm)	0.1 s (10 mm)
Duration of gun opening	0.1 s (10 mm)	0.1 s (10 mm)
Load cycle	max. approx. 30 spot welds / minute followed by 10 s pause	max. approx. 30 spot welds / minute followed by 10 s pause

Spindle	MDSLSBS071-13	MDSLSBS056-33
Leadscrew pitch	5 mm	5 mm
Spindle diameter	25 mm	20 mm
Spindle connection (drive end)	M20 x 1.5; thread length 60 mm	M16 x 1.5; thread length 60 mm
Spindle type	Rolled ball screw	
Initial stress	none	
Protection against soft wind-up	Due to the integration of the drive into the tool, i. e. no anti-rotation tag in the motor	
Lubrication	Grease chamber in the motor filled via an external supply	

Lenze control cabinet for main drive

Welding gun with integrated spindle motor