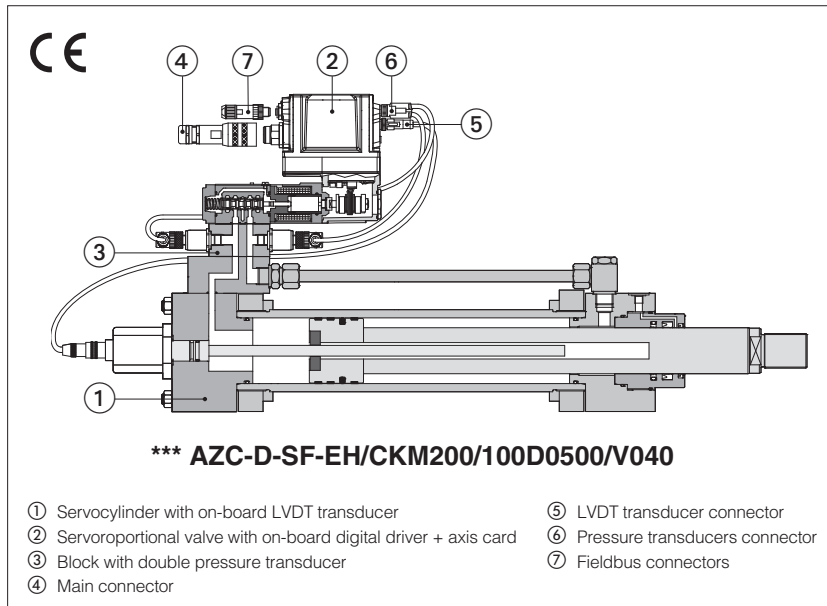


Digital electrohydraulic servoactuators

servocylinder plus servoproportional directional with on-board driver & axis card



AZC

Digital electrohydraulic servoactuators are stand-alone units performing closed loop position controls.

The complete motion control cycle can be operated by external signals (from machine PLC) or programmed internally to the controller.

Alternate force control added to the basic position one with pressure transducers or load cell factory pre-assembled and wired.

The servoactuators are composed by a servocylinder with position transducer, servoproportional valve with on-board driver plus axis card, factory assembled and tested.

They can be provided with optional fieldbus interfaces for functional parameters setting, reference signals and real time diagnostics. The USB interface is always present for connection to Atos PC software which allows to easily customize the AZC configuration to the specific application requirements.

1 MODEL CODE

***	AZC	M	-	D	-	SF	-	EH	/	CK	M	200	/	100	D	0500	/	V0	40		
Design number																				Servoproportional valve configuration, zero spool overlap: 40 = with fail safe, sleeve execution, direct (tech table FS610) 60 = without fail safe, sleeve execution, direct (tech table FS610) or piloted (tech table FS630) 70 = spring central position, direct (tech table FS620) or piloted (tech table FS630)	
Digital electrohydraulic servoactuator for linear axis position control																				Servoproportional valve size with axis controller: V0 = direct, size 06 V1 = direct or piloted, size 10 V2 = piloted size 16 V4 = piloted size 25 or size 27	
Cycle Generation type: - = none I = injection M = mold P = parison S = synchronism X = positioning 9 = customized																				Stroke [mm]	
Position transducer type: A = analog D = digital																					Rod: S = single rod D = double rod
Alternated P/Q controls: SN = none SF = with on-board double pressure transducer SL = with on-board load cell transducer XL = with remote load cell transducer																					Rod diameter [mm]
Fieldbus interfaces, USB port always present: NP = Not present BC = CANopen BP = PROFIBUS DP EH = EtherCAT EW = POWERLINK EI = EtherNet/IP EP = PROFINET RT/IRT																					Bore diameter [mm]
Servocylinder Type, tech table B310: CN = ISO 6020-1, Pmax 250 bar - tech table B180 CK = ISO 6020-2, Pmax 250 bar - tech table B137 CH = ISO 6020-3, Pmax 250 bar - tech table B160 CC = ISO 6022, Pmax 320bar - tech table B241																					Cylinder position transducer type, see section 6 : Analog (only for AZC-A) P = potentiometer, max stroke 900mm F = analog magnetostrictive, max stroke 2500mm N = analog magnetostrictive, max stroke 4000mm T = LVDT, max stroke 16mm L = LVDT, max stroke 30mm V = inductive, max stroke 900mm Digital (only for AZC-D) M = SSI magnetostrictive, max stroke 900mm Analog or Digital 9 = special X = remoted

2 MAIN CHARACTERISTICS

Assembly position	Any position		
Ambient temperature range	standard execution = -20°C ÷ +60°C		
Storage temperature range	Standard execution = -20°C ÷ +70°C		
Protection degree to EN60529	IP66 / IP67		
Duty factor	Continuous rating (ED=100%)		
Recommended fluid temperature	-20°C ÷ +60°C, with HFC hydraulic fluids = -20°C ÷ +50°C		
Recommended viscosity	20 ÷ 100 mm ² /s - max allowed range 15 ÷ 380 mm ² /s		
Max fluid contamination level	normal operation	ISO4406 class 18/16/13 NAS1638 class 7	see also filter section at www.atos.com or KTF catalog
	longer life	ISO4406 class 16/14/11 NAS1638 class 5	
Hydraulic fluid	Classification	Ref. Standard	
Mineral oils	HL, HLP, HLPD, HVLP, HVLPD	DIN 51524	
Flame resistant without water	HFDU, HFDR	ISO 12922	
Flame resistant with water	HFC		

3 AXIS CONTROLLER

Digital servoproportionals direct or pilot operated include valve with on-board digital driver plus axis card to perform the position closed loop of hydraulic actuator. Axis controllers are operated by an external or internally generated reference position signal.

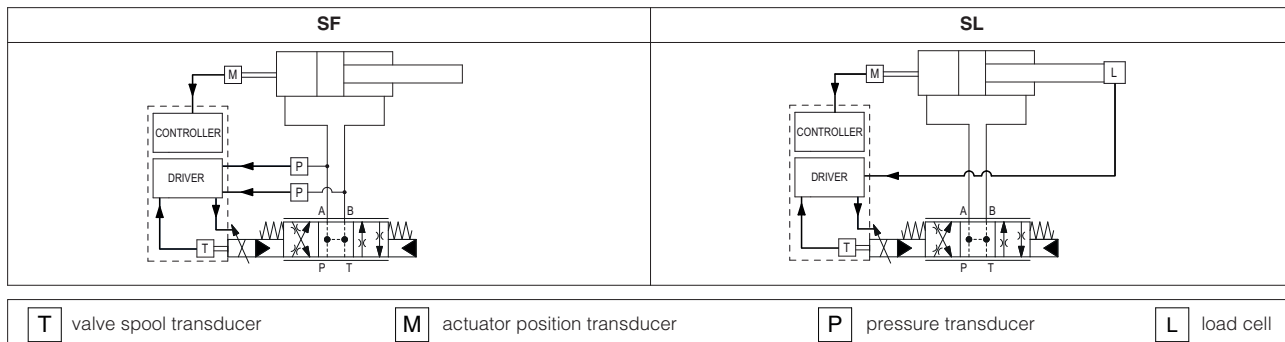
For detailed information about integral axis controller see tech tables **FS610**, **FS620**, **FS630**.

4 ALTERNATED P/Q CONTROLS

SF and **SL** controls add the alternated force closed loop control to the actuator standard position control.

A dedicated algorithm alternates pressure (force) depending on the actual hydraulic system conditions.

For detailed information about SF, SL controls, see tech table **FS500**.



5 FIELDBUS

Fieldbus allows the direct communication of the servoactuator with machine control unit for digital reference signal, diagnostics and settings of functional parameters. Analog reference signal remain available on the main connector for quick commissioning and maintenance.

For detailed information about fieldbus features and specification see tech table **GS510**.

6 ACTUATOR TRANSDUCER CHARACTERISTICS

6.1 Position transducers

The accuracy of the position control is strongly dependent to the selected position transducer. Four different transducer interfaces are available on the controllers, depending to the system requirements: potentiometer or analog signal (A execution), SSI or Encoder (D execution).

Transducers with digital interface allow high resolution and accurate measures, that combined with fieldbus communication grants highest performances.

Transducers with analog interface grant simple and cost effective solutions.

6.2 Pressure/force transducers

The accuracy of the force control is strongly dependent to the selected force transducer. Alternated force controls require to install pressure transducers or load cell to measure the actual pressure/force values.

Pressure transducers allow easy system integration and cost effective solution for alternated position/force controls (see tech table **GS465** for pressure transducers details). Load cell transducers allow the user to get high accuracy and precise regulations for alternated position/force control.

The characteristics of the remote pressure/force transducers must be always selected to match the application requirements and to obtain the best performances: transducer nominal range should be at least 115%÷120% of the maximum regulated pressure/force.

6.3 Transducers characteristics & interfaces - following values are just for reference, for details please consult the transducer's datasheet

Execution	Position				Pressure/Force
	A	Analog	D	D	SF, SL
Input type	Potentiometer	Analog	SSI (3)	Incremental Encoder	Analog
Power supply (1)	±10 Vdc	+24 Vdc	+5 Vdc / +24 Vdc	+5 Vdc / +24 Vdc	+24 Vdc
Controller Interface	±10V	0 ÷ 10V / 4 ÷ 20 mA	Serial SSI binary/gray	TTL 5Vpp - 150 KHz	±10 Vdc 4 ÷ 20 mA
Max speed	0,5 m/s	1 m/s	2 m/s	2 m/s	-
Max Resolution	< 0.4 % FS	< 0.2 % FS	1 µm	1 µm (@ 0.15 m/s)	< 0.4 % FS
Linearity error (2)	± 0.1% FS	< ±0.03% FS	< ± 0.01 % FS	< ± 0.001 % FS	< ±0.25% FS
Repeatability (2)	± 0.05% FS	< ± 0.005% FS	< ± 0.001 % FS	< ± 0.001 % FS	< ±0.1% FS

(1) power supply provided by digital controller

(2) percentage of total stroke

(3) Balluff BTL7 with SSI interface is not supported