

Smart Servopump - SSP

high performance P/Q control and energy saving



SSP systems combine the typical advantages of hydraulic power transmission with the ease of control and adjustment of an electric drive while also ensuring maximum levels of energy efficiency. They are used in high performance machines mainly for the plastic, die-casting and deformation sectors.

Maximum flow:	350 l/min
Maximum rated power:	100 kW
Maximum continuous pressure:	
cast iron pump	330 bar
aluminium pump	250 bar

They consist of a fixed displacement internal gear pump, driven by a permanent magnet synchronous servomotor controlled by an electronic drive. The latter controls the speed of the servomotor and therefore of the pump, to adjust the flow rate or pressure of the system based on the reference signals received from the PLC of the machine.

A dedicated algorithm optimizes the P/Q function by automatically selecting the activation of the flow or pressure control.

Compared to traditional systems, SSPs offer the following advantages:

- significant reduction in energy consumption, as the pump operates at the speed strictly necessary to generate the required flow rate / pressure
- high dynamics and precision of P/Q control thanks to a dedicated algorithm
- reduction of the noise level, thanks to the design of the pump and the variable speed
- maximum flexibility thanks to dedicated software
- Smart Maintenance allows to plan in advance the replacement of worn components, maximizing productivity and minimizing maintenance costs
- simplified commissioning thanks to the Smart start-up and Smart tuning functions
- possibility of customization up to 4 axes with Multiple axis function

For more details see technical table AS050

1 MODEL CODE

SSP	-	T-SP	-	NP	-	2020L	-	1024	-	046	/	C	/	T	/	*	/	PE
Smart servopump																Series number		Seals material PE = FKM
Control logic: T-SP = alternated P/Q control with resolver													Port orientation see section 10: T = standard U, V = optional					
Fieldbus interface , serial port always present: NP = Not present BC = CANopen EH = EtherCAT BP = PROFIBUS DP EP = PROFINET RT/IRT													Hydraulic option see section 8: C = integrated block with relief valve and pressure transducer D = as option C plus Smart Cooling functionality					
Pump PGL, cast iron pump, Pmax 330 bar (1) - see table AS300: 1011 = 10,9 cm ³ /rev 2050 = 50 cm ³ /rev 3080 = 80 cm ³ /rev 2020 = 20 cm ³ /rev 4050 = 50 cm ³ /rev 4080 = 80 cm ³ /rev 2032 = 32,1 cm ³ /rev 3064 = 64 cm ³ /rev 3100 = 100 cm ³ /rev 2040 = 40,1 cm ³ /rev 4064 = 64 cm ³ /rev 4100 = 100 cm ³ /rev													Drive D-MP - see table AS500: 022 = 22 A 060 = 57,5 A 140 = 140 A 032 = 32 A 090 = 87 A 165 = 165 A 046 = 46 A 100 = 100 A 210 = 210 A					
PGL, aluminium pump, Pmax 250 bar - see table AS350: 2020L = 20 cm ³ /rev 2050L = 50 cm ³ /rev 3100L = 100 cm ³ /rev 2032L = 32,1 cm ³ /rev 3064L = 64 cm ³ /rev 4125L = 125 cm ³ /rev 2040L = 40,1 cm ³ /rev 3080L = 80 cm ³ /rev													Motor PMM - see table AS400: 1009 = 8,7 kW 1032 = 30 kW 2080 = 80 kW 1015 = 15 kW 2042 = 42 kW 2100 = 100 kW 1024 = 24 kW 2055 = 55 kW					

(1) Pmax depends on the pump displacement



For optimal sizing, download the sizing software from www.atos.com

8 HYDRAULIC OPTION

C = This option provides a hydraulic block mounted directly on the pump outlet, which integrates a mechanical pressure relief valve with safety function on the maximum system pressure and a pressure transducer for the feedback of the actual pressure on the delivery line.

- ① Mechanical pressure relief valve; the valve is supplied with zero adjustment, and must be adjusted by the user at a pressure slightly higher than the maximum pressure required by the system.
- ② Pressure transducer E-ATR-8/400/I - see technical table GS465

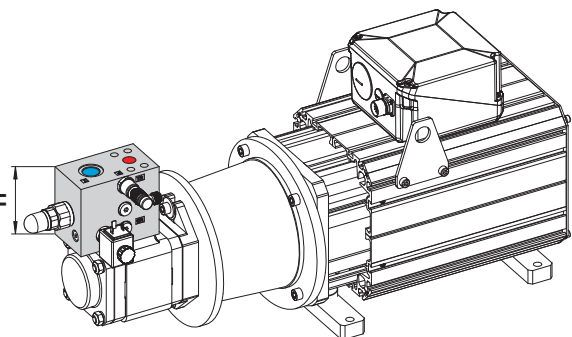
D = This option allows to protect the pump from overheating when it is subjected to particularly heavy duty cycles, in particular in the prolonged phases of static pressure control.

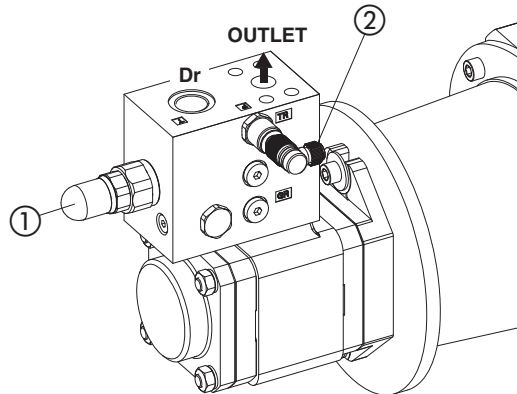
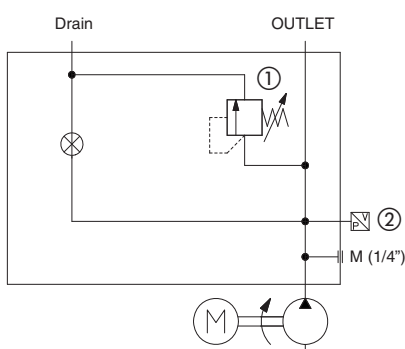
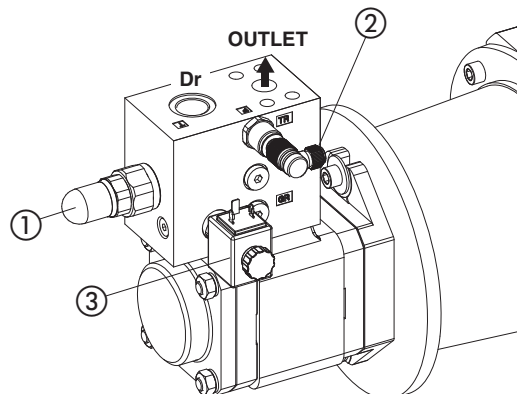
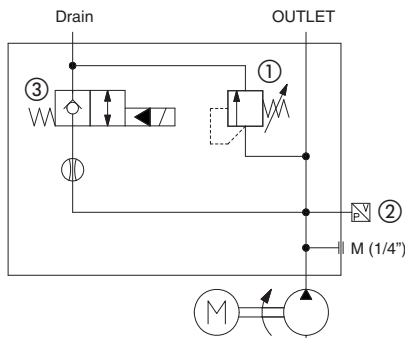
This option includes a hydraulic block with relief valve and pressure transducer, as for the /C option, with also integrated:

- ③ Smart Cooling cartridge valve JO-DL-4-2/NC-X 24DC - see technical table E105

When a temperature considered critical is reached, the Smart Cooling valve opens ③ as to cause a small recirculation of oil through the pump which protects it from dangerous overheating.

The sizing software for SSP suggests the need for the /D option based on the machine cycle.

Options C and D dimensions	SSP CODE	OUTLET	Dr (drain)	H (mm)
	SSP-T-SP**-1011*	1/2" SAE3000	G1/2"	105
	SSP-T-SP**-2020*	3/4" SAE3000	G3/4"	110
	SSP-T-SP**-2032*			
	SSP-T-SP**-2040*	1" SAE3000	G1"	115
	SSP-T-SP**-2050*			
	SSP-T-SP**-4050	1" SAE6000	G1"	115
	SSP-T-SP**-3064*	1" SAE6000	G1 1/4"	125
	SSP-T-SP**-4064			
	SSP-T-SP**-3080*	1 1/4" SAE6000	G1 1/2"	140
	SSP-T-SP**-4080*			
	SSP-T-SP**-3100*			
	SSP-T-SP**-4100			
	SSP-T-SP**-4125*	1 1/2" SAE6000	G 2"	140

<p>Detail option C</p> 	<p>Hydraulic scheme option C</p> 
<p>Detail option D</p> 	<p>Hydraulic scheme option D</p> 

9 ELECTRONIC FUNCTION - always present

K = The drive implements the Safe Torque Off (STO) function as a prevention of unexpected starts according to 2006/42/EC Machinery Directive (MD) - standard EN 61800-5-2.

This function prevents the generation of a rotating magnetic field removing the power semiconductor control voltage allowing short-term operations (such as cleaning and / or maintenance work on parts of non-electrical devices of the machine) without disconnecting drive power supply or the connection between the drive and the servomotor.

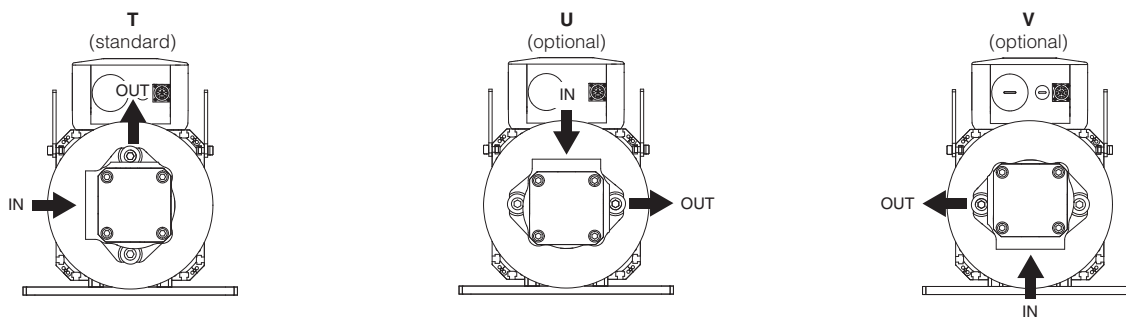
For detailed descriptions, please refer to the S-MAN-HW installation manual.

Possible combined option:

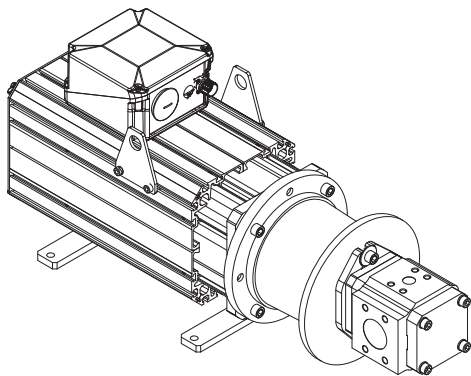
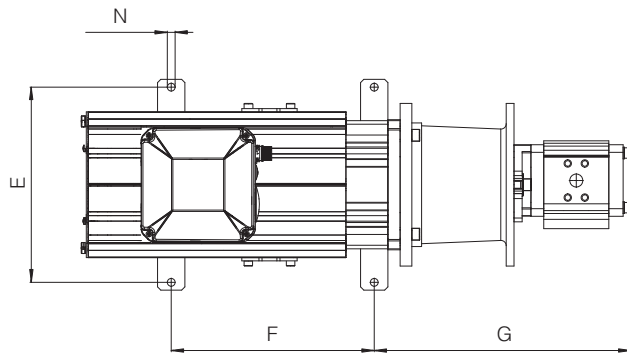
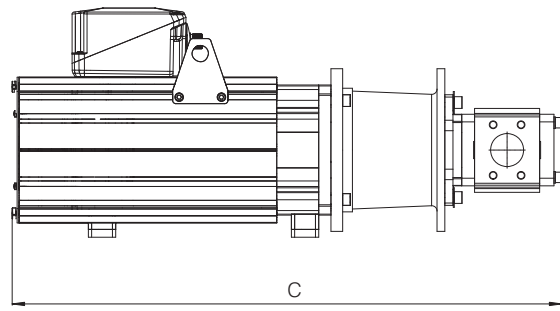
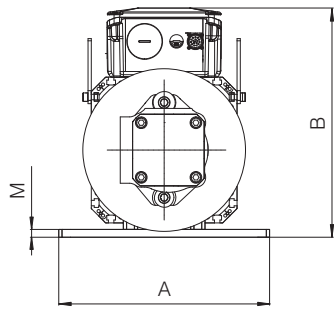
/CK, /DK

10 PORTS ORIENTATION

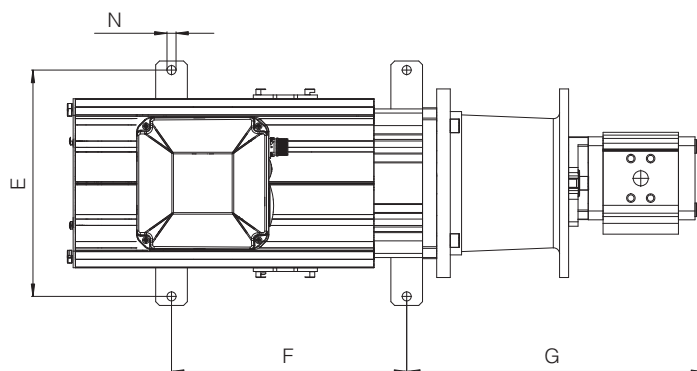
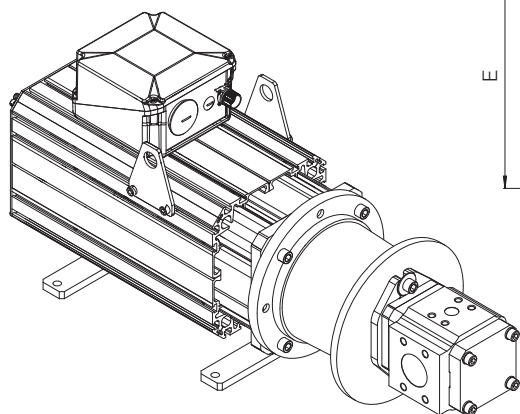
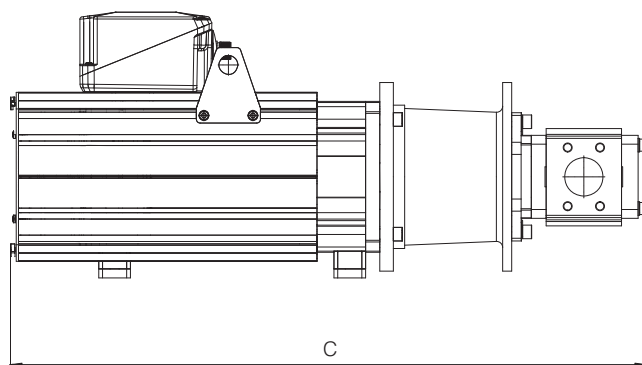
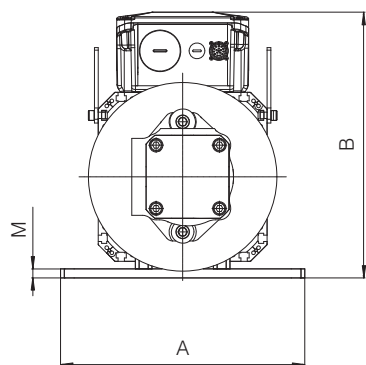
The pump can be supplied with inlet and outlet ports oriented in different configurations, as shown in the figure (seen from the bottom of the pump)



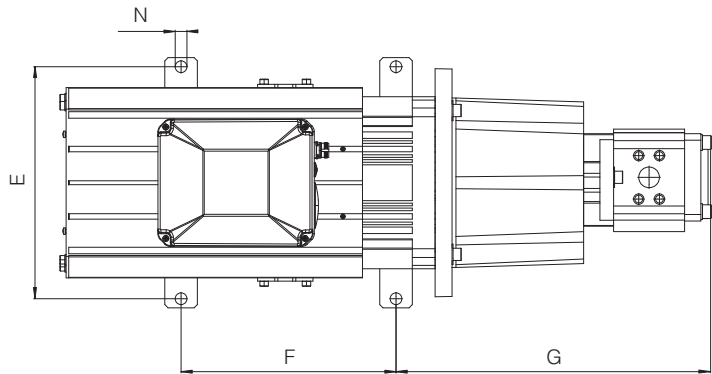
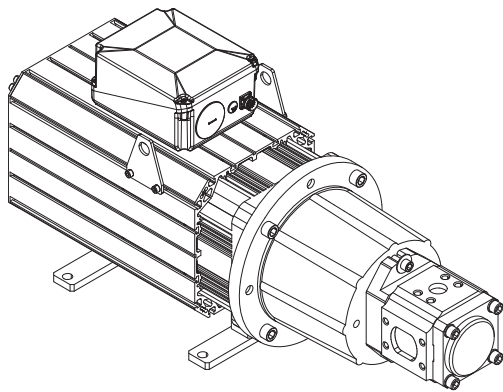
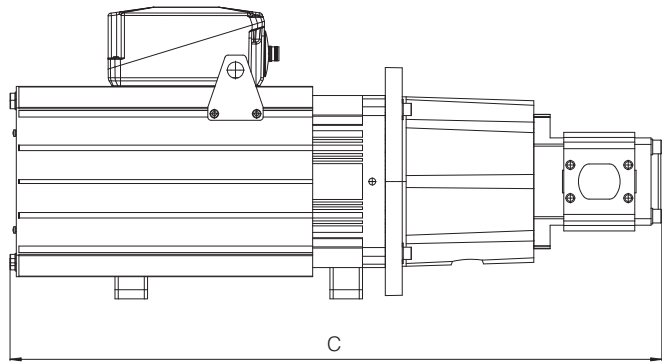
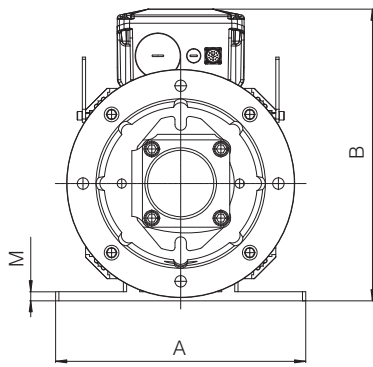
11 INSTALLATION DIMENSIONS - motor pump unit [mm] for drive dimensions see AS500



MODEL CODE	A	B	C	E	F	G	M	N	Mass [Kg]
SSP-*-1011-1009-*	324	335	630	300	168	324	12	12	56
SSP-*-1011-1015-*		355	700		240				68
SSP-*-2020*-1009-*	324	335	680	300	168	373	12	12	62
SSP-*-2020*-1015-*		355	750		240				74
SSP-*-2020*-1024-*			820		312				90
SSP-*-2020-1032-*			890		385				105
SSP-*-2032*-1009-*	324	335	670	300	168	368	12	12	63
SSP-*-2032*-1015-*		355	750		240				76
SSP-*-2032*-1024-*			820		312				91
SSP-*-2032*-1032-*			890		385				107
SSP-*-2032-2042-*	384	435	890	356	275	417	14	18	145
SSP-*-2040*-1015-*	324	355	760	300	240	381	12	12	79
SSP-*-2040*-1024-*			830		312				94
SSP-*-2040*-1032-*			900		385				110
SSP-*-2040*-2042-*	384	435	900	356	275	430	14	18	148
SSP-*-2050*-1015-*	324	355	770	300	240	395	12	12	81
SSP-*-2050*-1024-*			840		312				96
SSP-*-2050*-1032-*			910		385				112
SSP-*-2050*-2042-*	384	435	910	356	275	444	14	18	150
SSP-*-2050*-2055-*		450	970		330				172



MODEL CODE	A	B	C	E	F	G	M	N	Mass [Kg]
SSP-*-3064*-1024-*	324	355	830	300	312	383.5	12	12	94
SSP-*-3064*-1032-*			900		385				111
SSP-*-3064*-2042-*	384	435	930	356	275	456.5	14	18	149
SSP-*-3064*-2055-*			450		980				330
SSP-*-3064*-2080-*		112			476				213
SSP-*-3080*-1024-*		324	355		840				300
SSP-*-3080*-1032-*	920			385	113				
SSP-*-3080*-2042-*	384	435	940	356	275	468.5	14	12	151
SSP-*-3080*-2055-*			450		1000				330
SSP-*-3080*-2080-*		1123			476				216
SSP-*-3080*-2100-*		1200			583				257
SSP-*-3100*-1032-*		324	355		930				300
SSP-*-3100*-2042-*	384	435	950	356	275	484.5	14	18	152
SSP-*-3100*-2055-*			450		1011				330
SSP-*-3100*-2080-*		1140			476				217
SSP-*-3100*-2100-*		490	1210		583				258
SSP-*-4050*-1015-*	324	355	810	300	240	427	12	12	108
SSP-*-4050*-1024-*			870		312				122
SSP-*-4050*-1032-*			950		385				138
SSP-*-4050*-2042-*	384	435	950	356	275	481	14	18	166
SSP-*-4050*-2055-*			450		1011				330
SSP-*-4050*-2080-*		1155			476				239



MODEL CODE	A	B	C	E	F	G	M	N	Mass [Kg]	
SSP* -4064-1024 *	324	355	860	300	312	438	12	12	124	
SSP* -4064-1032 *			960		385				140	
SSP* -4064-2042 *	384	445	48	356	275	492	14	18	168	
SSP* -4064-2055 *			1020		330				189	
SSP* -4064-2080 *			1166		476				511	241
SSP* -4080-1024 *	324	355	890	300	312	447	12	12	126	
SSP* -4080-1032 *			970		385				142	
SSP* -4080-2042 *	384	435	970	356	275	501	14	18	170	
SSP* -4080-2055 *			1032		330				191	
SSP* -4080-2080 *			1175		476				520	243
SSP* -4080-2100 *			1250		583				520	284
SSP* -4100-1032 *			324		355				980	300
SSP* -4100-2042 *	384	435	980	356	275	514	14	18	173	
SSP* -4100-2055 *			1040		330				194	
SSP* -4100-2080 *			1188		476				533	246
SSP* -4100-2100 *			1260		583				533	287
SSP* -4125L-2042 *	384	435	980	356	275	509	14	18	162	
SSP* -4125L-2055 *			1032		330				183	
SSP* -4125L-2080 *			1150		476				528	229
SSP* -4125L-2100 *			490		1183				583	528

12 RELATED DOCUMENTATION

AS050	Basics for Smart Servopumps - SSP	AS800	Programming tools for pumps & servopumps
AS200	Sizing criteria for servopumps	AS810	Accessories for servopumps
AS300	PGI cast iron internal gear pumps, high pressure	AS910	Operating and maintenance information for servopumps
AS350	PGIL aluminium internal gear pumps	GS510	Fieldbus
AS400	PMM high performance synchronous servomotors	S-MAN-HW	Servopumps installation manual
AS500	D-MP electronic drives	S-MAN-SW	Servopumps programming software manual