

0027790	DATA SHEET	
Valid from: 04.04.2019	SERVO LK SMS FX8PLUS servo motor cable with signal	

Application

LAPP servo motor cables according to Siemens®* (see footnote) Standard **FX8008 PLUS** are part of a new generation of very highly flexible, screened servo motor cables (P/N **0027790** thru **0027798**), with PUR outer sheath and UL/CSA approvals. They are suitable in **very highly dynamically operating power chain applications** under accelerations up to **50 m/s²** as well as for static use. Lapp FX8PLUS servo motor cables are made in accordance with Siemens Motion Connect* typically used for interconnection in between servo motors and servo drive controllers of Siemens SINAMICS* drive systems. Typical kind of application: In power chains of **modern high-speed/high-efficiency machine tools**, production plants, car body presses, transfer lines... Cables can be used in dry and damp areas and also outdoors, provided the recommended temperatures of use are respected. Usage of these cables in moving cable carriers, respectively on motor drum guidance or under a strain of more than 20 N/mm² is not allowed. LK SMS-FX8PLUS cables have increased oil resistance, and are halogen-free and free of PWIS – Paint-Wetting Impairment Substances (“free of silicones”).

Technical Data

Power element

Conductor	copper strands	bare finest wires acc. to IEC 60228 Cl. 6/ VDE 0295 Cl. 6
Insulation		PP / polypropylene
Identification codes	black with white alphanumeric printing	
	1.5 mm ² to 2.5 mm ²	V/L2 U/L1/C/L+ W/L3/D/L- green-yellow
	4 mm ² to 50 mm ²	U/L1/C/L+ V/L2 W/L3/D/L- green-yellow

Signal pair element (brake)

Conductor	copper strands	bare finest wires acc. to IEC 60228 Cl. 6/ VDE 0295 Cl. 6
Insulation		PP / polypropylene
Identification codes		black white
Pair shield	copper braid	tinned strands optic coverage ≥80 %
Cable design		3 power conductors + PE 1 shielded signal pair associated by fillers all twisted as a whole

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Overall shield		copper braid	tinned strands optic coverage ≥80 %
Outer sheath			TMPU / polyurethane, EN 50363-10-2 orange (similar to RAL 2003)
Nominal voltage	IEC/VDE	power element signal pair	0.6/1 kV 24 V
Operating voltage	UL/CSA	power & signals	1000 V
RMS test voltage	core/core & core/shield		4 kV x 5 min
Insulation resistance			≥2500 MOhm x km 10 MOhm x km @ 80 °C
Max. Capacitance	800 - 1200 Hz	1.5 mm ² - 6 mm ² 10 mm ² - 16 mm ²	150 pF/m 300 pF/m
Shield transfer impedance (versions with signal pair)	1.5 mm ² to 4 mm ²	0.01 MHz to 2 MHz	≤20 mOhm/m
		4 MHz	≤40 mOhm/m
		10 MHz	≤100 mOhm/m
	6 mm ² to 16 mm ²	30 MHz	≤300 mOhm/m
		0.01 MHz to 1 MHz	≤10 mOhm/m
		2 MHz	≤20 mOhm/m
		4 MHz	≤40 mOhm/m
	25 mm ² to 50 mm ²	10 MHz	≤100 mOhm/m
		30 MHz	≤300 mOhm/m
0.01 MHz to 0.5 MHz		≤5 mOhm/m	
1 MHz		≤10 mOhm/m	
2 MHz		≤20 mOhm/m	
Temperature range		dynamically moved	-20 °C up to +60 °C
		stationary on conductor, max.	-50 °C up to +80 °C +80 °C
<u>Dynamic performance</u>			
Tensile strength (dynamic)			≤20 N/mm ²
Tensile strength (stationary)			≤50 N/mm ²
Max. Acceleration		1.5 mm ² to 16 mm ²	see table B
		25 mm ² to 50 mm ²	see table C
Max. Speed			5 m/s
			300 m/min
Max. Travel length, horizontal		1.5 mm ² to 16 mm ²	see table B
		25 mm ² to 50 mm ²	see table C

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Min. Bend radius	dynamically moved	1.5 mm ² to 16 mm ²	7.5 x outer cable diameter
	stationary	25 mm ² to 50 mm ²	10 x outer cable diameter 4 x outer cable diameter
Max. Torsion load	+/-30 °/m		
Bends	10.000.000		

Chemical characteristics

Oil resistance	DIN EN 50363-10-2
Halogen-free	VDE 0472-815
Flame retardance	IEC/EN 60332-1-2 IEC/EN 60332-1-3 FT1 VW-1

Certifications & Conformities

Certifications	USA Canada Europe	UL AWM Style 21223 80°C 1000V VW-1 CSA AWM I/II A/B 80°C 1000V FT1 VDE-Registered – see outer sheath
Conformities	technical, or within product scope	DESINA RoHS CE

Table A – Nominal diameters

Part Number	Product name	Nominal diameter in mm			
		above insulated conductor, approx. [power/signal]	above overall shield, approx.	above outer jacket, approx.	
0027790	SERVO LK SMS FX8PLUS-1BA11/4G1.5+2x1.5	2.1/2.1	9.4	11.6	+/- 0.4
0027791	SERVO LK SMS FX8PLUS-1BA21/4G2.5+2x1.5	2.4/2.1	10.9	13.4	+/- 0.4
0027792	SERVO LK SMS FX8PLUS-1BA31/4G4+2x1.5	3.0/2.1	12.3	14.8	+/- 0.4
0027793	SERVO LK SMS FX8PLUS-1BA41/4G6+2x1.5	3.6/2.1	14.1	16.8	+/- 0.5
0027794	SERVO LK SMS FX8PLUS-1BA51/4G10+2x1.5	4.4/2.1	16.5	19.4	+/- 0.7
0027795	SERVO LK SMS FX8PLUS-1BA61/4G16+2x1.5	5.6/2.1	19.7	23.1	+/- 0.7
0027796	SERVO LK SMS FX8PLUS-1BA25/4G25+2x1.5	7.1/2.1	23.2	26.6	+/- 1.0
0027797	SERVO LK SMS FX8PLUS-1BA35/4G35+2x1.5	8.6/2.1	26.8	30.9	+/- 1.0
0027798	SERVO LK SMS FX8PLUS-1BA50/4G50+2x1.5	9.6/2.1	29.9	34.0	+/- 1.0

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Table B – Servo motor power cable with signal – dynamics – 1.5 mm² to 16 mm²

Maximum acceleration (m/sec²) **Dynamic Characteristic**

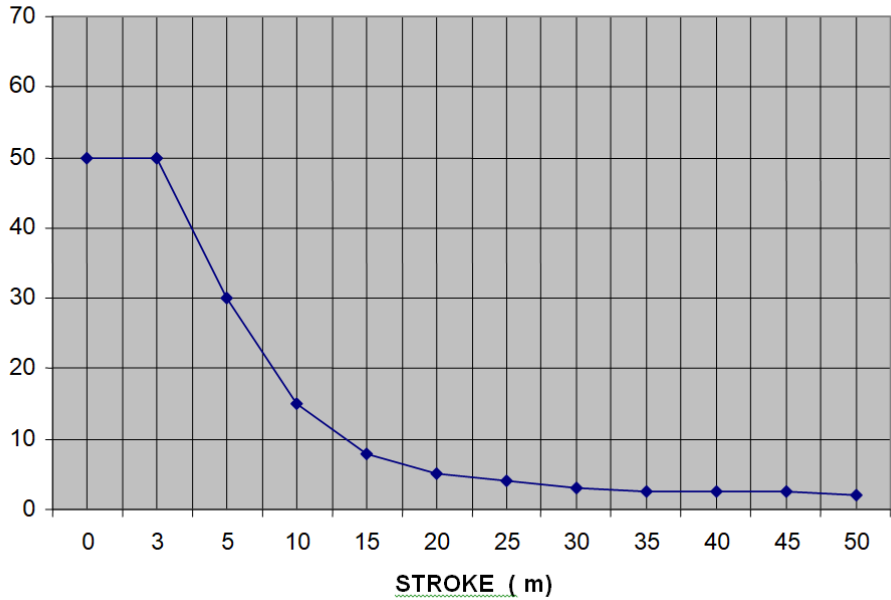
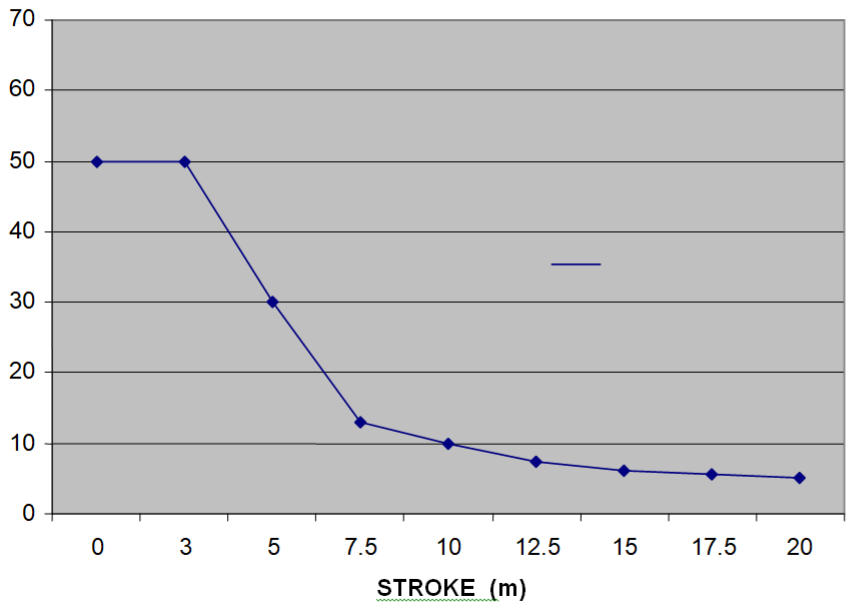


Table C – Servo motor power cable with signal – dynamics – 25 mm² to 50 mm²

Acceleration (m/sec²) **Dynamic Characteristic**



—◆— performance level

* SIEMENS, SINAMICS, MOTION CONNECT, DRIVE CLIQ and Siemens part designations (i.e. 6FX5002/5008, 6FX7002/7008, 6FX8002/8008, 6FX8002/8008-Plus) are registered trademarks of Siemens AG and for comparing purpose only