

AEROSTATIC MOTORIZED LINEAR SYSTEM DATA SHEET

LMP-S05

The LMP-S05 aerostatic linear system is featured by an aerostatic bearing both in vertical and in lateral direction.

The aerostatic bearing (tabletop) is characterized by a pre-loading system.

Main features are: direct drive servomotor, high resolution encoder, very accurate linearity and positioning precision.

The abovementioned technologies can guarantee that the moving parts are totally free from mechanical contact. This type of system is suitable for precise positioning applications: tests and measurement systems, light machining, laser micromachining, handling of semi-conductors.

In order to get a fast and efficient interfacing with the system, the system is connected through D-SUB connectors.

The LMP-S05 system is designed for horizontal axis use.



MAIN FEATURES		UM	
axial bearing technology			aerostatic
radial bearing technology			aerostatic
tabletop material			OX hard. aluminium
air inlet			M5 – tubo ø4

MOTOR		UM	
technology			direct drive
motor type			linear ironcore
continous force	F_c	N	8
peak force	F_p	N	52
continous current	I_c	Arms	2.5
peak current	I_p	Arms	15
force constant	K_F	N/Arms	3.4
BEMF constant	K_v	Vrms/(m/s)	1.1
inductance	L	mH	1.0
resistance	R	ohm	0.5
magnetic period	T_p	mm	24

ENCODER ⁽¹⁾		UM	
technology			optical-incremental
grating period		μm	40
accuracy		μm	5.0
power source voltage		V	5
signal type			1 Vpp

DIMENSIONS AND MASSES		UM	
width	W	mm	230
height	H	mm	83
strokes	T	mm	50÷300
length	L	mm	T+220
total mass	m	kg	3.0÷9.5
translating parts mass total inertia	m_i	kg	1.7

PERFORMANCE		UM	
standard supply pressure	p	bar	4
min air pressure ⁽²⁾	p_{min}	bar	3
max air pressure	p_{max}	bar	5
vertical load ⁽⁴⁾	L_v	N	100
vertical stiffness	R_v	N/ μm	40
lateral load ⁽⁴⁾	L_l	N	40
lateral stiffness	R_l	N/ μm	20
Q consumption (with no payload)	Q	l/min ANR	15
vertical linearity error ⁽⁵⁾	e_v	μm	≤ 4.0
lateral linearity error ⁽⁵⁾	e_l	μm	≤ 4.0
tabletop-base parallelism error	e_p	μm	≤ 8.0
positioning accuracy ^{(3) (1)}	P_a	μm	≤ 6.0
positioning repeatability	P_r	μm	≤ 2.0
maximum speed	s	m/s	1

(1) Different types of encoder on demand

(2) In order to protect the system from pressure drop, it is necessary to install an air pressure switch connected with the electric drive

(3) The values here mentioned refer to standard electric drives

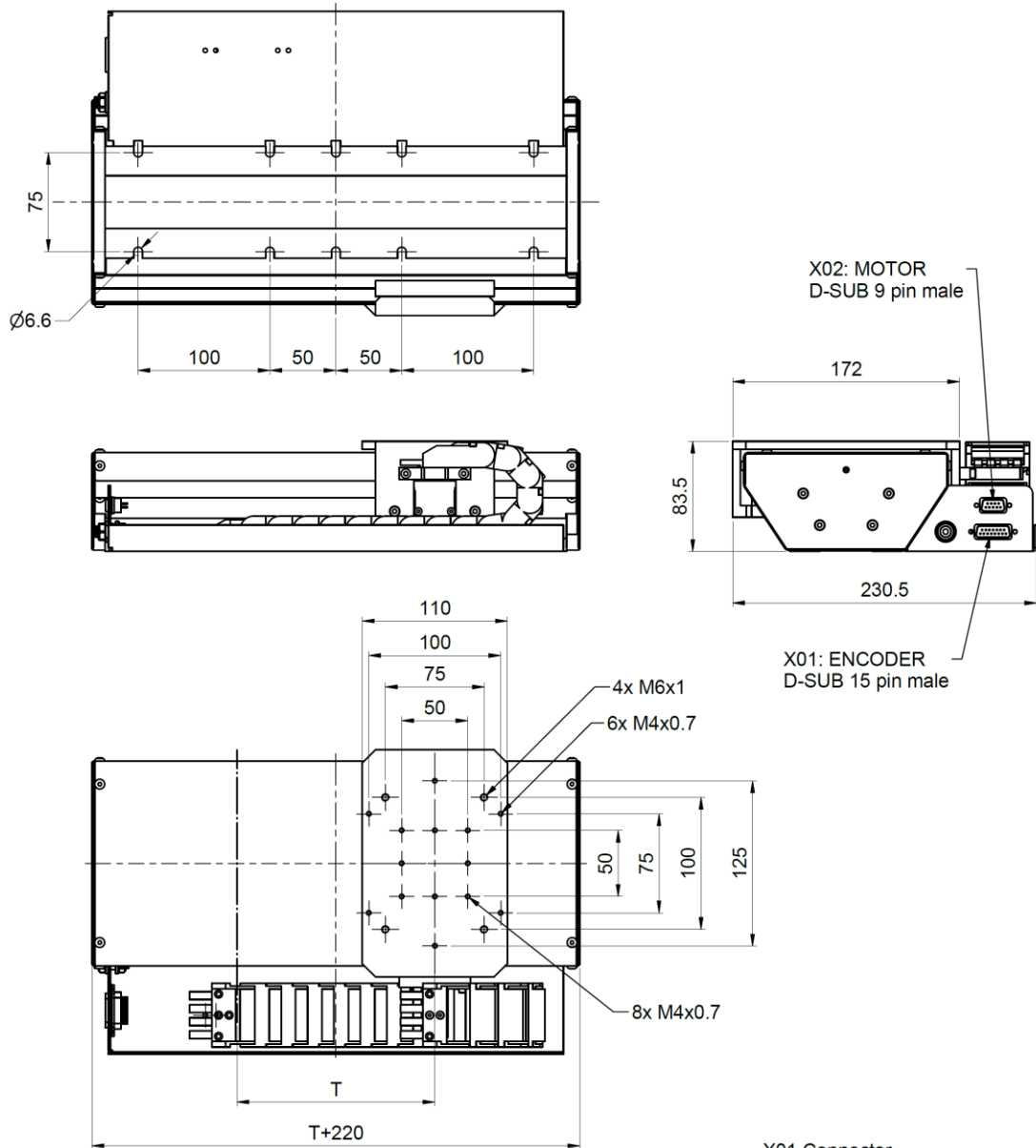
(4) The values here mentioned are mutually exclusive

(5) The values here mentioned are measured at the the tabletop level

AIR SUPPLY SPECIFICATIONS

Requested filtration value: 0.5 μm . Not lubricated air. Dry to 3°C dew point.

Outline drawing



X02: MOTOR
D-SUB 9 pin male

X01: ENCODER
D-SUB 15 pin male

X01 Connector

	Pin	Signal
	1	-
	2	0V SENSE
	3	-
	4	IND -
	5	COS -
	6	SIN -
	7	+ 5V SENSE
	8	+ 5V
	9	0V
	10	-
	11	-
	12	IND +
	13	COS +
	14	SIN +
	15	-

X02 Connector

	Pin	Signal
	1	-
	2	-
	3	-
	4	-
	5	-
Motor	6	PHASE 1
	7	PHASE 2
	8	PHASE 3
	9	GND

CODE	DESCRIPTION	STROKE
WF20450001000	LMP-S05-C0050	50 mm
WF20450002000	LMP-S05-C0100	100 mm
WF20450003000	LMP-S05-C0150	150 mm
WF20450004000	LMP-S05-C0200	200 mm
WF20450005000	LMP-S05-C0250	250 mm
WF20450006000	LMP-S05-C0300	300 mm