ENGINEERING DOCUMENTATION

Ball Screw Linear Module Engineering Configuration

Dimensional & Integration Guide

DOCUMENT	REVISION / ISSUE	STATUS
DIG-ES-LM-C04-S008-V014	DRAFT-08 / 29 Aug 2026	Engineering Integration Reference

Integration Overview

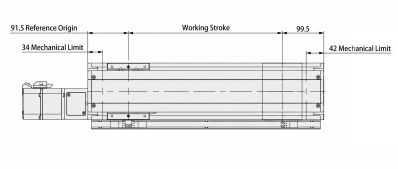
Exact ball-screw linear-module configuration for guided linear motion in automation equipment. This guide supports dimensional layout, mounting, load-path , motor and coupling integration, cable and sensor clearance, maintenance and commissioning for ES-LM-C04-S008-V014.

Key Integration Facts

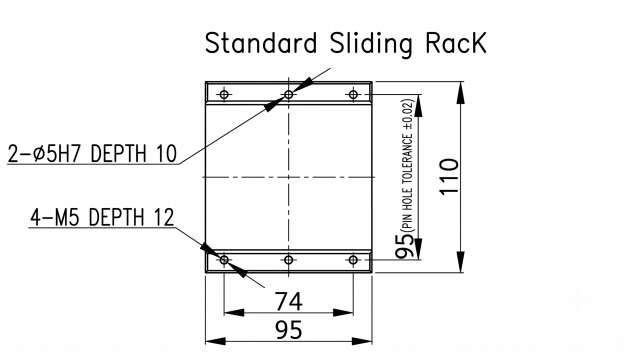
INTEGRATION ITEM	VALUE
Working Stroke	300 mm
Overall Length	491 mm
Module Mass	4.9 kg
Mounting Hole Count	8
Motor Mounting Style	External Direct Coupling
Configured Motor Power	400 W

Product Structure & Views

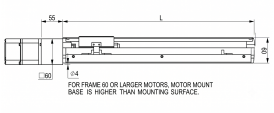
These views present the selected product structure, mounting interfaces and relevant integration geometry for this configuration.



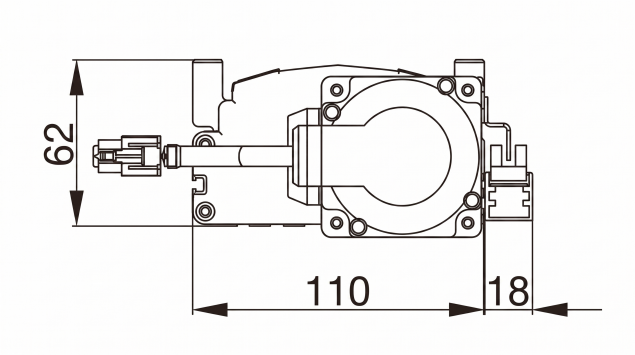
Mechanical View 1



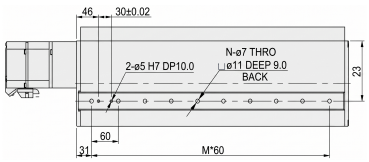
Mechanical View 2



Mechanical View 3



Mechanical View 4



Mechanical View 5

VIEW	FIELD	VALUE
Mechanical View 1	Reference origin distance	91.5 mm
	Working stroke	Not specified
	End clearance distance	99.5 mm
	Left mechanical limit	34 mm
	Right mechanical limit	42 mm
Mechanical View 2	Dowel pin holes	2 holes, ϕ5H7, depth 10 mm
	Mounting threaded holes	4 holes, M5 threaded, depth 12 mm
	Pin hole positional tolerance	±0.02 mm
	Total height	110 mm
	Inner width	74 mm
	Total width	95 mm
Mechanical View 3	Mounting surface offset	55 mm
	Overall length L	Variable dimension L
	Motor mounting frame size	□60 mm
	Mounting hole diameter	Φ4 mm
	Height dimension	60 mm
Mechanical View 4	Overall Height	62 mm
	Overall Length	110 mm
	Right End Extension Length	18 mm
Mechanical View 5	Edge to first mounting hole center distance	46
	Mounting hole pitch	30±0.02
	Number and diameter of through holes	N-ϕ7 THRO
	Counterbore diameter and depth	ϕ11 DEEP 9.0
	Number, diameter, tolerance and depth of locating holes	2-ϕ5 H7 DP10.0
	Height dimension	23
	View identifier	BACK
	Through-hole spacing	60
	Total Pitch	M*60
	End face to hole center distance	31

Overall Dimensions and Mounting Interface

PARAMETER	VALUE	UNIT
Working Stroke	300	mm
Overall Length	491	
Module Mass	4.9	kg
Mounting Hole Count	8	

- Confirm this exact SKU, the selected motor-mounting configuration and the applicable mechanical views before using dimensions or interface geometry.
- Keep mounting faces flat, clean and free of burrs, raised holes, debris and coating buildup.
- Reserve assembly, inspection, cable, lubrication and removal access around the module and motor interface.

Load Path and Installation Orientation

- Route axial force through the carriage, supported mounting structure and host guide; include offset, side load, acceleration, shock and emergency-stop cases.
- Validate horizontal, wall and vertical installation loads with the actual payload center, guide spacing, host stiffness and duty cycle.
- Control payload center of gravity and overhung moment; verify the complete installed load path rather than inferring capacity from module mass or size.

Motion and Duty-Cycle Validation

PARAMETER	VALUE	UNIT
Working Stroke	300	mm
Module Mass	4.9	kg

- Validate the complete acceleration, travel, dwell, reversal and stop cycle using the stroke and selected motor configuration.
- Establish speed, acceleration, payload and moment limits from the complete selected module, motor, guide and host calculation.
- Verify temperature and resonance behavior using the installed motor, stroke, load, mounting heat path and operating cycle.

Motor, Coupling and Sensor Integration

PARAMETER	VALUE	UNIT
Motor Mounting Style	External Direct Coupling	
Configured Motor Power	400	W

- Match the motor mounting style, adapter, configured motor power and interface dimensions before assembly.
- Verify coupling bore, engagement, concentricity, axial position and tightening controls, then check smooth travel at zero energy.
- Provide cable slack, bend radius, strain relief and sensor clearance across the complete motion envelope.

Maintenance, Contamination and Service Envelope

- Prevent chips, fibers, cleaning residue and moisture from entering the ball screw, guide, sensor and coupling interfaces.
- Provide access for lubrication, inspection, sensor adjustment, fastener verification and specified removal.
- Stop and inspect after binding, impact, abnormal noise, rising temperature, unexpected friction or protection damage.

Commissioning and Safety

- Commission in stages with the host guide, limits, guards and cable routing installed; verify each boundary before increasing speed or load.
- At low energy verify travel direction, home and limit behavior, command polarity, stroke and sensor state.
- Verify emergency stop, fault response, recovery behavior and safe holding requirements for the installed orientation.

Integration Checklist

01	Confirm the exact SKU, parameters and selected mechanical-view configuration.
02	Verify working stroke, overall length, module mass, mounting-hole count and service clearance.
03	Establish the complete axial, side-load and moment load path for the host structure.
04	Validate horizontal, wall and vertical installation cases using the actual payload center and duty cycle.
05	Match motor mounting style, configured motor power, adapter and coupling dimensions.
06	Verify coupling alignment, engagement, tightening and smooth travel before applying drive power.
07	Provide cable slack, bend radius, strain relief and sensor clearance across the full motion envelope.
08	Protect the ball screw, guide, sensors and coupling from contamination and moisture.
09	At low energy verify direction, home, limits, stroke, speed and fault-stop behavior.
10	Request current 2D, STEP, motor-interface, wiring, lubrication and maintenance data before final integration.

View SKU Product Datasheet **Request controlled 2D drawing** **Request controlled STEP review** **Request a Quote**

Engineering Use and Verification Notice

01. This Dimensional & Integration Guide applies only to EmbodyStack SKU ES-LM-C04-S008-V014 and is intended for dimensional evaluation and preliminary integration. It is not a applicable manufacturing drawing, module or motor selection approval, payload or safety approval, wiring final integration, machinery risk assessment or integration planning document and must not be used as the sole basis for machining, host-structure design, coupling manufacture, fastener selection, cable assembly or final integration. Before design freeze, assembly or commissioning, verify dimensions, interface geometry, mounting holes, travel and collision envelope, load path, orientation, payload center, speed, acceleration, motor, adapter, coupling, sensors, cable routing, limits, thermal behavior, contamination control and maintenance requirements against the applicable EmbodyStack engineering data for this exact SKU and selected configuration. Where this guide and applicable product documentation differ, the applicable product documentation governs. Validate the complete module, motor, guide, host structure, motion cycle, guarding, fault cases and applicable regulatory requirements under intended operating conditions.