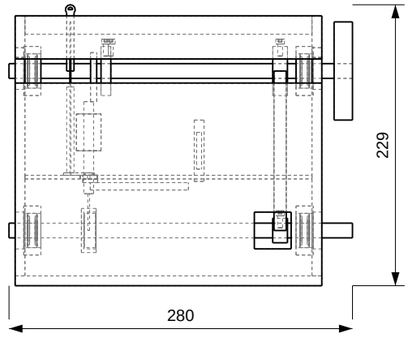
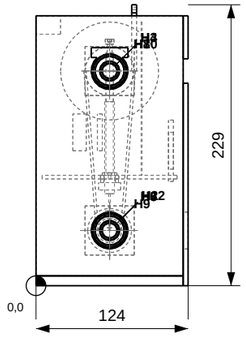
FRONT VIEW



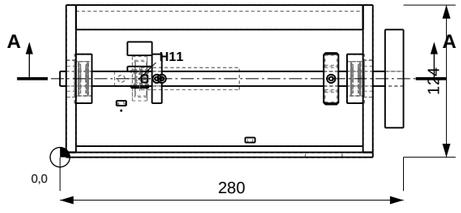
LEFT SIDE VIEW



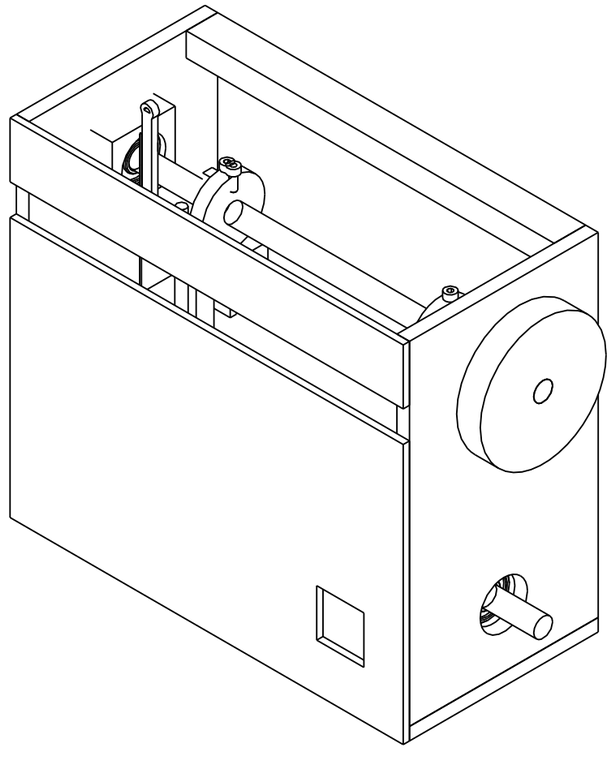
DRIVING DIMENSIONS

Parameter	Value	Unit
Enclosure length	250	mm
Enclosure width	120	mm
Enclosure height	220	mm
Plate t	8	mm
Cover t	4	mm
Shaft d	12	mm
Z upper	175	mm
Z lower	45	mm
Crank radius	15	mm
Rod l	40	mm
Needle x	60	mm
Bed z	90	mm
Shaft angle	0	deg
Feed length	2.5	mm
Hook ratio	2	
Hook d	36	mm
Pulley main d	40	mm
Wheel d	80	mm

TOP VIEW



ISOMETRIC



Hidden lines omitted · not to scale

PARTS LIST

Pos	Part	Qty	Standard / mass
1	base_plate	1	1884.0 g
2	frame_left	1	1497.3 g
3	frame_right	1	1497.3 g
4	upper_arm	1	551.1 g
5	cover_front	1	1542.8 g
6	main_shaft	1	248.6 g
7	hook_shaft	1	248.6 g
8	Deep groove ball bearing 6001	4	bearing
9	bearing_block_1	1	108.2 g
10	bearing_block_2	1	108.2 g
11	bearing_block_3	1	108.2 g
12	bearing_block_4	1	108.2 g
13	handwheel	1	578.6 g
14	pulley_main	1	107.7 g

NOTES

1. Mechanical timing is validated kinematically only; actual stitch formation depends on thread tension, needle system and hook-point adjustment and is not proven by this model
2. Hook-to-needle 0.1 mm clearance is below ±0.2 mm general tolerance: hook/needle seat needs IT6 machining and shim adjustment
3. Thread is schematic, no flexible simulation
4. Main shaft Ø12, upper shaft at Z=175, lower (hook) shaft at Z=45, both along X
5. Needle crank radius 15 mm, connecting rod 40 mm -> stroke 30 mm
6. Hook drive ratio 2:1 (hook shaft 2 rev per main shaft rev), typical for horizontal-axis full-rotary hook (Singer 15 type); synchronous belt T5, 20/10 teeth simplified as pulleys

TITLE

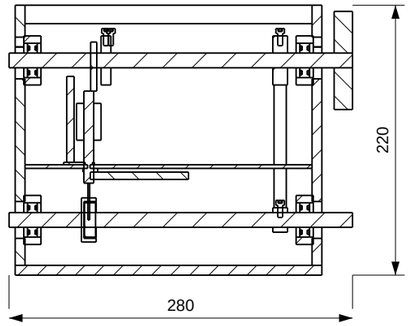
Lockstitch Sewing Machine Demonstrator

LUXXO

DRAWN BY Luxxo AI design engineer	DATE 2026-11-14	PROJECTION ISO first angle [|O] -O
MATERIAL Steel (S235)	GENERAL TOLERANCE ISO 2768-m ± 0.2 mm	MASS (calc.) 9.74 kg
SCALE 1 : 5	SHEET 1 / 2 A3	DRAWING No. LX-38FE41-v1

Dimensions in mm · unspecified tolerances ISO 2768-m · surface Ra 3.2 unless noted · break sharp edges 0.5 × 45° · welded

SECTION A-A



A-A (1 : 5) cutting plane y = 0 mm, viewed from the front

HOLE TABLE (X / Y from datum 0,0 of the view F / S / T on sheet 1)

Tag	Ø	X	Y	Depth	View	Thread / fit / note
H1	Ø30	60	45	THRU	S	Drilled
H2	Ø30	60	45	THRU	S	Drilled
H3	Ø28	60	175	THRU	S	Ø28 H7 (+0.021 / 0) bearing housing
H4	Ø28	60	175	THRU	S	Ø28 H7 (+0.021 / 0) Housing bore for bearing 6001 (H4)
H5	Ø28	60	45	THRU	S	Ø28 H7 (+0.021 / 0) Housing bore for bearing 6001 (H5)
H6	Ø28	60	45	THRU	S	Ø28 H7 (+0.021 / 0) Housing bore for bearing 6001 (H6)
H7	Ø12	60	175	THRU	S	Drilled
H8	Ø12	60	175	THRU	S	Drilled
H9	Ø12	60	45	THRU	S	Drilled
H10	Ø12	60	175	THRU	S	Drilled
H11	Ø2	65	64	THRU	T	M2.5-6H, tap drill Ø2.05
H12	Ø30	60	45	THRU	S	Drilled

FITS & TOLERANCES (ISO 286)

Feature	Size	Max / min	Fit
bearing seat	Ø12 k6	12.012 / 12.001	H7/k6 transition
bearing housing	Ø28 H7	28.021 / 28.0	H7/k6 transition
needle bar guide	Ø8 H7	8.015 / 8.0	H7/g6 clearance
Housing bore for bearing 6001 (H4)	Ø28 H7	28.021 / 28.0	H7/h6 clearance
Housing bore for bearing 6001 (H5)	Ø28 H7	28.021 / 28.0	H7/h6 clearance
Housing bore for bearing 6001 (H6)	Ø28 H7	28.021 / 28.0	H7/h6 clearance
Bearing seat 6001 on hook_shaft	Ø12 js6	12.005 / 11.995	H7/js6 transition

ENGINEERING CHECKS (simplified hand calculations)

OK main shaft: 6001: P = 50 N, C = 5.4 kN → L10 = 1259712 mil. rev = 349,920,000 h at 60 rpm (need 5,000.0 h)
OK hook shaft: 6001: P = 30 N, C = 5.4 kN → L10 = 5832000 mil. rev = 810,000,000 h at 120 rpm (need 5,000.0 h)
OK main shaft: Ø12: T = 0.5 N·m, M = 1.5 N·m → σv = 9.2 MPa, safety 25.54 vs. Re 235 MPa (need 2.5), min. Ø5.5
Flat patterns: 10 DXF files (14 pcs) for laser cutting - download in the app.

Section hatching per ISO 128-50 · hole coordinates from the datum symbol · fits ISO 286-2 · weld symbols ISO 2553 · weld preparation EN ISO 9692-1

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