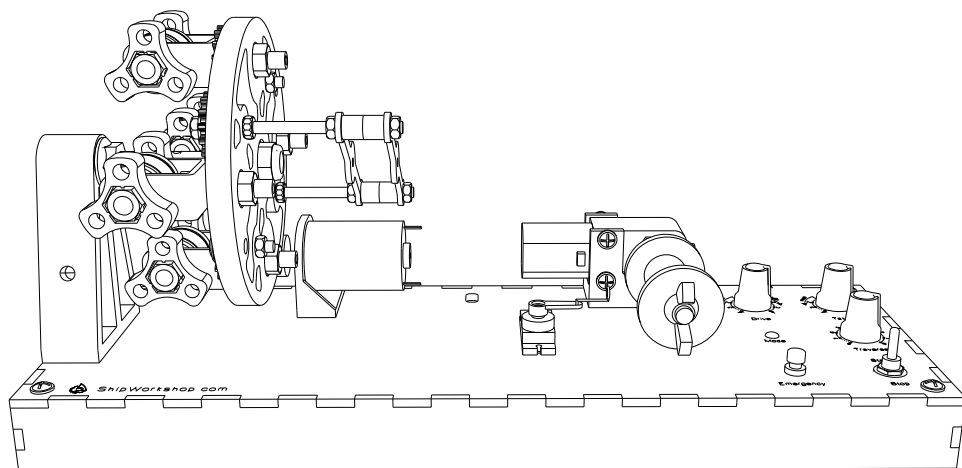


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PL4 series

Endless rope making machines



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Basic features

PL Endless rope making machine ("PL machine") is intended for making professional model ropes:

- 2-, 3- or 4-stranded;
- With/without the core;
- Plain laid or cable laid;
- Left or right lay.

Series members

1. PL4-3: 2, 3 strands, no core;
2. PL4-4: 2-4 strands, with core;

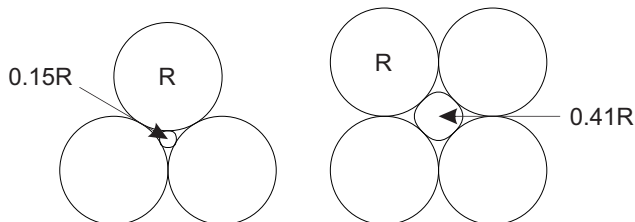
Choosing the right machine

Please consider followings choosing the machine:

- PL4-3 makes 3-strand ropes and cables little bit better and easier than PL4-4.
- 4-strand ropes are rarely used on models and can be made using another tool like our VR series rope making machines.

Before you begin

- The design and the color of the machine may differ from that shown in this manual and on our website.
- If necessary, remove the protective film from plastic parts.
- Before attaching traverse lead for the first time power on the machine so traverse motor moves to the center position then put lead in place along central line of the machine.
- PL machine is operated by specially designed micro controller based Smart Control Unit which is built in already.



Operation guidelines

1. Traverse moves to the center position every time you turn the machine on.
2. Do not overtighten the spool in the spoolholder. Leave a gap between the spool and the felt collar to allow the thread run down the spool freely.
3. The outage during winding is not the machine's defect - it is about how smoothly the thread runs down from one of the spools.
To eliminate the problem try the following:
 - in some cases the only thing that helps is to remove all spools and refit them in a different order;
 - you can also try to replace the spool itself (the spools may be poor manufactured);
 - to check how the thread runs down just pull the thread and observe how spool rotates in the spool holder.
4. Uneven operation of the take-up block, head jumping, winding point offset do not make a problem and within certain range do not affect the winding.
5. If you experience the lack of speed at the take-up block, reduce the head rotation speed.
6. You have to use core for 4-strand ropes. Please refer to the picture for core diameters.
7. Regardless of the strands number it is NECESSARY to mount ALL spools even empty. This provides good balance of the machine head and prevents its damage.
 - Setting PL4-4 for 3 strands: Filled-Filled-Filled-Empty.
 - Setting PL4-4 for 2 strands: Filled-Empty-Filled-Empty.
 - Setting PL4-3 for 2 strands: Filled-Filled-Empty.
8. "Mode" LED shows current machine mode:
 - slow flashes - "Idle";
 - blinks - "Starting/Stopping";
 - continuously lights - "Operate";
 - slow blinks - "Setting traverse limits"

Setting traverse limits

1. In "idle" mode press "Emergency" button once to set the lead closest limit using "Takeup" knob.
2. Press "Emergency" button again and use "Drive" knob to adjust lead furthest limit.
3. Pressing "Emergency" button again saves set limits, moves the lead to the central position and returns machine to "idle" mode.

Threads for making ropes. Reference information.

Threads used

Polyester threads (lavsan, terylene, dacron, tergal).

List of manufacturers

- Gutermann. Skala, Tera threads.
- Amann Group. Synton, Serafil threads.

Colors article numbers

- Gutermann numbers:
 - black — 0000
 - dark-brown — Skala-696, Tera-452
 - beige — Skala-464, Tera-131
 - red — Skala-180, Tera-448
- Synton, Serafil numbers
 - dark-brown — Serafil-0264, Synton-1224
 - beige — Serafil, Synton-0267
 - red — Serafil, Synton-026

Finished rope diameter depending on the source threads

Thread	Lay	Diameter, mm
Skala 360	1x3	0.19
Skala 240	1x3	0.22
Tera 60 (1/3)	1x3	0.25
Skala 360	2x3	0.26
Skala 200	1x3	0.26
Tera 80 (1/3)	1x3	0.27
Tera 40 (1/3)	1x3	0.31
22Л	1x3	0.33
70Л (1/3)	1x3	0.33
Skala 240	2x3	0.35
Tera 80 (1/3)	2x3	0.36
Skala 360	3x3	0.38
Tera 30 (1/3)	1x3	0.38
Skala 200	2x3	0.42
Tera 60 (1/3)	2x3	0.42
Tera 80	1x3	0.43
Skala 240	3x3	0.48
Skala 200	3x3	0.48
130Л (1/3)	1x3	0.48
Tera 40 (1/3)	2x3	0.50
Tera 20 (1/3)	1x3	0.50
70Л (1/3)	2x3	0.50
22Л	2x3	0.55
Tera 30 (1/3)	2x3	0.57
170Л (1/3)	1x3	0.60
Tera 60	1x3	0.62
Tera 40	1x3	0.62

Thread	Lay	Diameter, mm
70Л	1x3	0.62
Tera 80	2x3	0.65
Tera 10 (1/3)	1x3	0.68
22Л	3x3	0.68
130Л (1/3)	2x3	0.70
Tera 30	1x3	0.72
Tera 20 (1/3)	2x3	0.75
Tera 60	2x3	0.78
Tera 80	3x3	0.84
170Л (1/3)	2x3	0.85
130Л	1x3	0.88
Tera 60	3x3	0.95
Tera 40	2x3	0.95
Tera 10 (1/3)	2x3	0.95
Tera 30	2x3	1.00
Tera 20	1x3	1.00
70Л	2x3	1.00
170Л	1x3	1.15
70Л	3x3	1.22
Tera 40	3x3	1.25
Tera 10	1x3	1.30
170Л	1x4	1.30
Tera 30	3x3	1.45
Tera 20	2x3	1.50
130Л	2x3	1.50
170Л	2x3	1.70
Tera 10	2x3	1.94

Thread	Lay	Diameter, mm
Serafil 120/2	1x3	0.3
Synton 60	1x3	0.5

Thread	Lay	Diameter, mm
Synton 30	1x3	0.7
Synton 20	1x3	1.0

Note:

- 1/3 means that the thread was untwisted into plies which then were used to wind the rope.
- 1x, 2x, 3x - number of plies in a strand.
- x3, x4 - number of strands in the rope.
- The real rope is measured by circumference. Here the diameters are given.

If you find some translation mistakes and/or misprints in this manual, please, let us know dropping a message to info@ShipWorkshop.com.

Your help is highly appreciated!