Optimal lubrication
of a circular knitting machine

Know How Panel

02.2024 K. Dimkonis

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Three reasons for proper lubrication

1 Optimal lubrication reduces friction between the moving parts of the machine. This results in **smooth and efficient movement**.

2 Oil lubrication protects the parts from corrosion by forming a protective layer, repelling other harmful substances and cleaning elements needed for stitch formation, such as needles and sinkers. **This keeps the machine in good condition and working reliably.**

3 Oil lubrication helps to cool the parts, especially in high-speed machines, by dissipating the heat generated by friction. This helps to **prevent overheating and possible damage**.

A questions of type and quantity

Manual application of oil is not sensible.

Ecological point of view

Economic perspective

Fabric quality

Neither amount of oil nor place can be controlled precisely. Too much oil will lead to greasy spots in the knitted fabric, not enough oil will, in the long run, damage the knitting head.

Characteristics of optimum lubrication

Methods of application:

- Spray (small drops)
- Injection
- Spray and injection combined

Application of oil to all areas evenly and with the same quantity OR customized oiling of defined spots. No random over-oiling.

Modern lubrication systems feature a cleaning function by automatically flushing the system – system detects proper timing.

Lubrication made easy with Senso Blue RS

✓ Senso Blue RS, Mayer & Cie.'s machine integrated lubrication system with **needle oil recycling.**

✓ Oil is applied optimally in terms of quantity and areas.

✓ Used oil is collected, **filtered** three times and returned to the system, **mixed** with fresh oil.

✓ Spray and injection nozzles across various sections of knitting head ensure spot-on oil input at needles and sinkers.

✓ Lubrication is speed dependent and regulated automatically.

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Senso BlueRS oil cycle
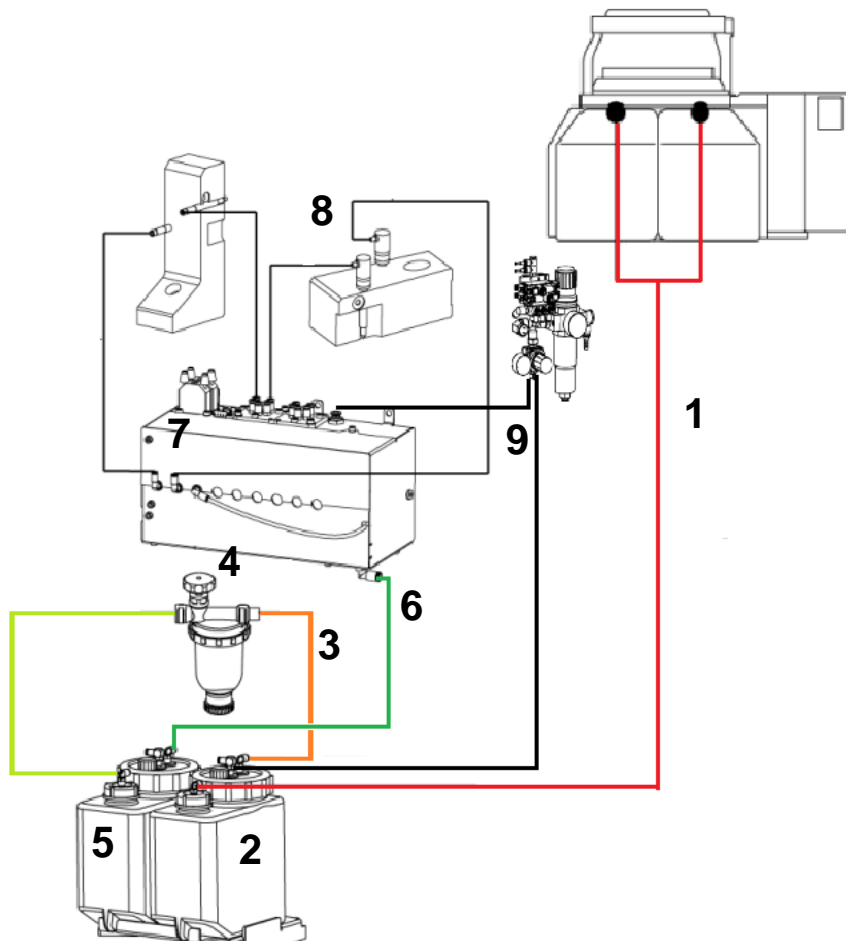
1. Collect used oil from machine
2. Store oil in waste oil tank
3. Pump oil through first filter
4. Filter oil with fine filter
5. Pass filtered oil to fresh oil tank
6. Pump oil through last filter into the supply unit
7. Deliver oil with spray box inside the supply unit into nozzles
8. Nozzles inject and spray oil into defined areas
9. Control unit delivers 2 bar air to system

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Features of different common systems

	System 1	System 2	Senso Blue RS
Lubrication method	Spray (small drops) Manual Flush(display)	Injection Spray Manual Flush(device)	Injection Spray Auto + Manual Flush
Oil feeding regulation	Manual – Speed independent	Manual – Input in several injections per revolution	Automatically – Speed-dependent Single input / revolution
Air supply	4 bar	3 bar	2 bar
Air consumption	High – Permanent supply	Low	Low
Electric power consumption	Low	High – Stepping motors	Low
Oil recycling	None	None	YES

Results on recycling rate

Trial parameters:

Machine: Relanit 3.2 HS, 30", E20,
Single Jersey, 100% PES, fabric roll: 82 Kg / 4600 rev., **clean/flush OFF**

		Senso Blue RS
Running hours	206	390
Optimized Oil Input setting	35,0 ml/h	22,2 ml/h
Fresh oil	6,0 liters (for 206 h)	7,2 liters (for 390h)
Fabric kg/L	920	1544
Recycled oil	--	4,5 liters
Recycling rate actual / expected		62,5% / **40,5%**

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Oil costs

Comparison of Senso Blue RS with common system

Oil costs
Common system - **Senso Blue RS**
Oil price: € 3,61 / liter
Recycling rate : 40,5 %
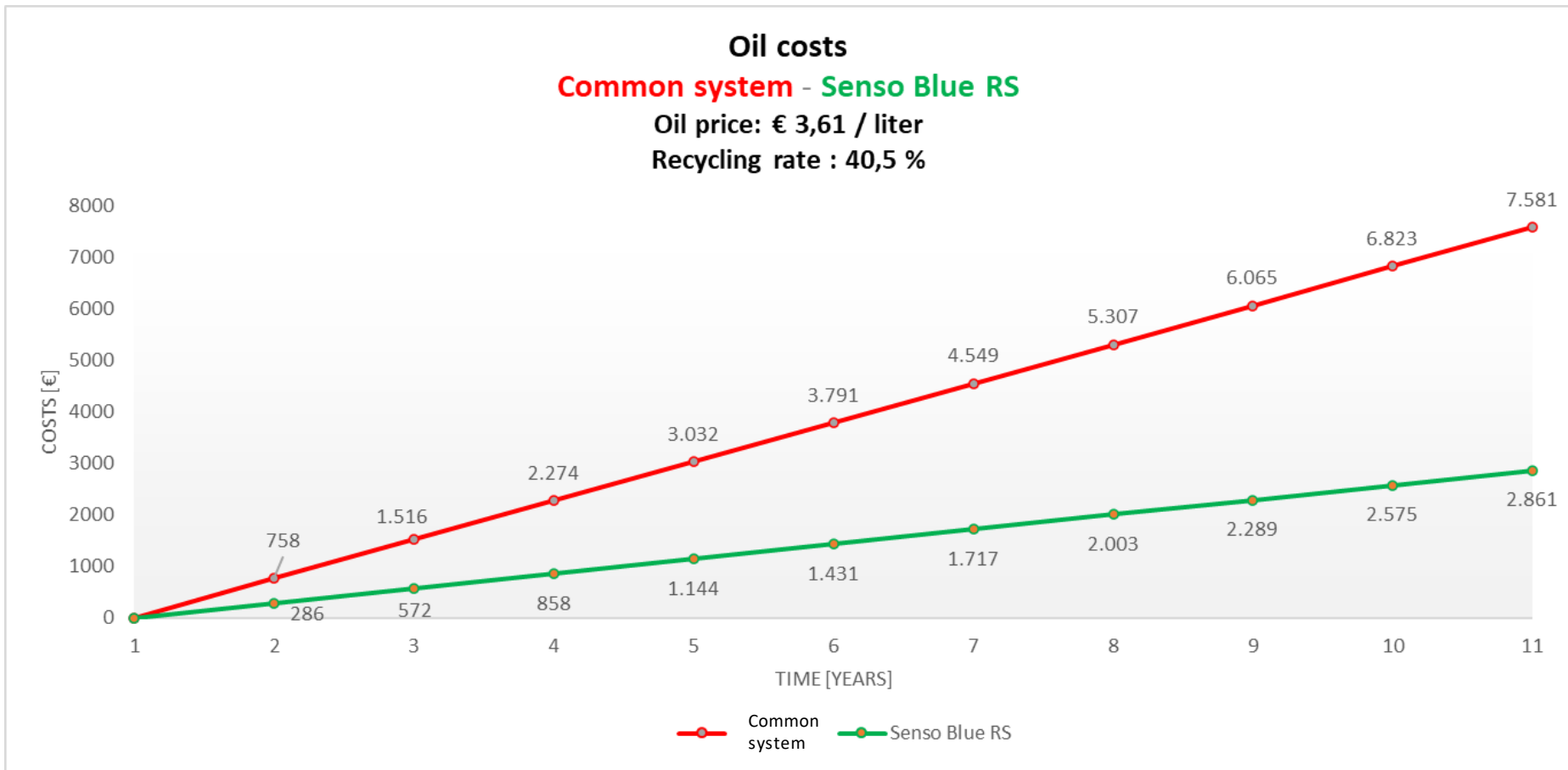
Current situation

Challenges:

- **Increasing power costs**
- **Increasing oil prices**
- **Recycling of waste oil difficult**
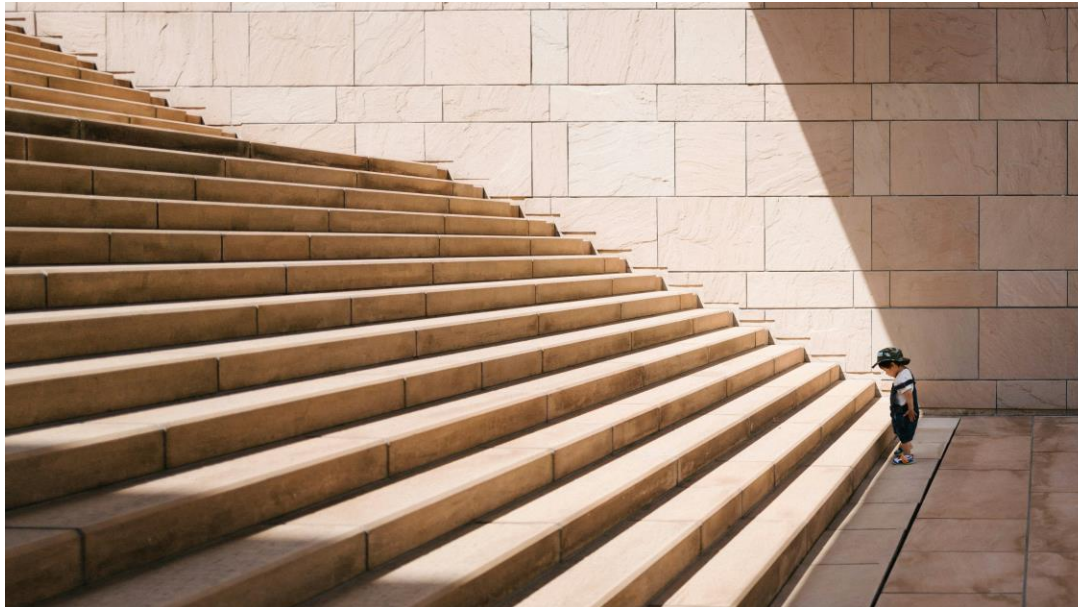
Summary

For all textile companies, sustainability and carbon footprint is #1 issue.

Benefits of Senso Blue RS:

- **Most efficient oiling system, even without oil recycling**
- **Only oiling system with recycling**
- **Low running cost for the overall system, e.g. power, air**
- **Exact adjustments**

**Mayer & Cie.'s Senso Blue RS is
the ECONOMIC and SUSTAINABLE oiler system.**