

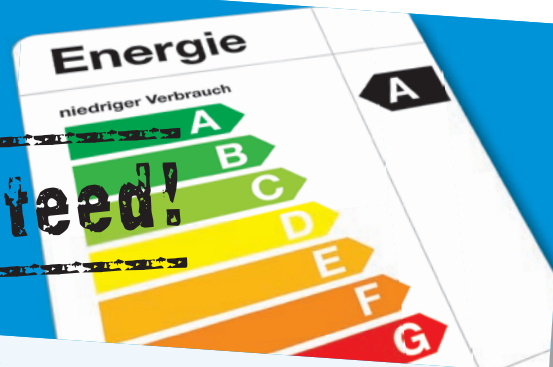
E-PASS

ENERGYNOW

KNOLL
.It works

We determine
your possible
energy savings
on-site

Guaranteed!



So far, not many customers opted for our energy saving PQ-Tronic control technology because the determination of the possible savings was too complex.

NOW the measuring process is fast and simple

KNOLLE-PASS

- 1.** We can determine your energy-saving potential on site with a brief measurement, followed by a computer calculation. Afterwards, you receive your energy protocol.
- 2.** Additionally, we provide you with an on-site cost/benefit appraisal, including your amortization analysis.
- 3.** You then decide whether to go for a PQ-Tronic upgrade.

If you wish to obtain more detailed information, please contact us.

Florian Schönbacher, energy-efficient solutions

Tel.: +49 7581 2008-91254

Fax: +49 7581 2008-90151

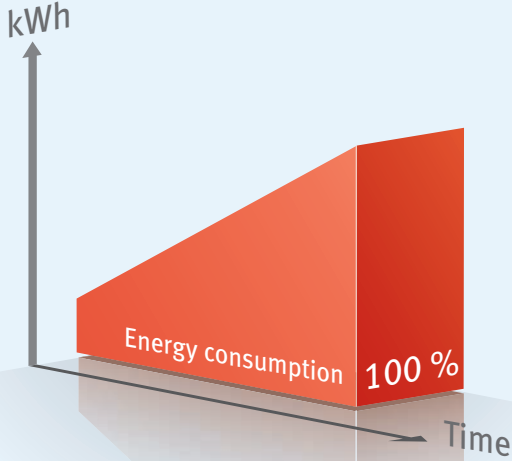
E-Mail: florian.schoenbacher@knoll-mb.de

KNOLL Maschinenbau GmbH
Schwarzachstraße 20
DE-88348 Bad Saulgau
www.knoll-mb.com

Comparison of pressure regulation

Energy savings for the processing of a gearbox housing calculated from the energy required to supply cooling lubricant.

Constant and unregulated pressure (pressure relief valve)

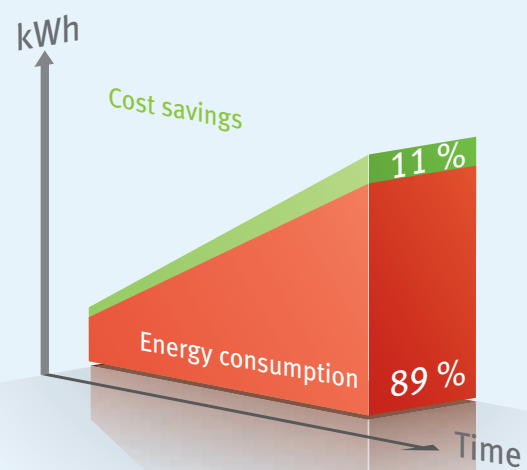


- Constant pressure e.g. 90 bar
- Constant rotational speed
- Valve setting constantly 90 bar

Conclusion

Greatest energy consumption, lowest purchase costs

Constant pressure and pressure-minimized discharge

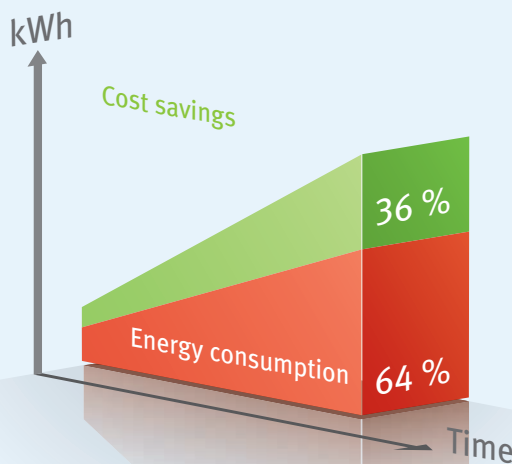


- Fixed pressure e.g. 90 bar
- Constant speed
- Valve setting 90 bar, opened during pauses

Conclusion

Low energy savings, low purchase costs

Variable pressure and pressure-minimized discharge

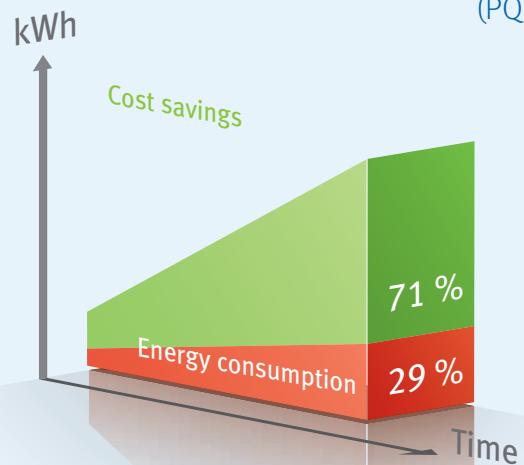


- Constant pressure e.g. 30 / 60 / 90 bar
- Constant rotational speed
- Regulated pressure

Conclusion

Average energy savings, average purchase costs, short amortization time

Variable pressure with rotational speed adaptation (PQ-Tronic)

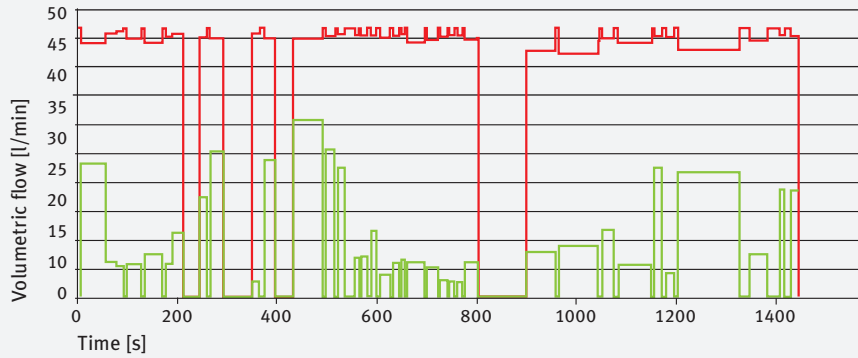


- Variable pressure e.g. 30 / 60 / 90 bar
- Variable rotational speed with frequency inverter

Conclusion

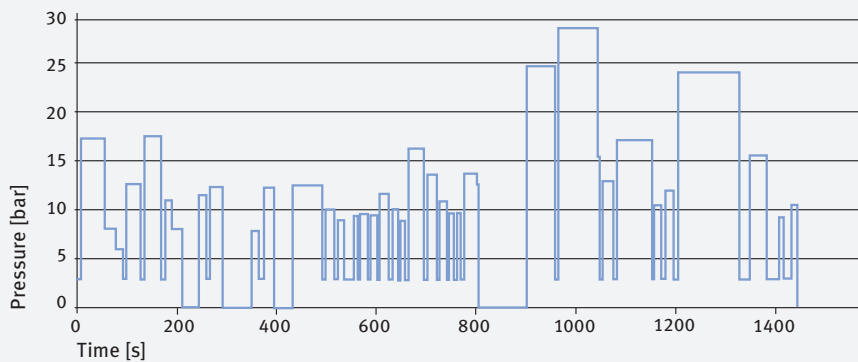
Highest energy savings, highest purchase costs, shortest amortization time

Cooling lubricant volumetric flow



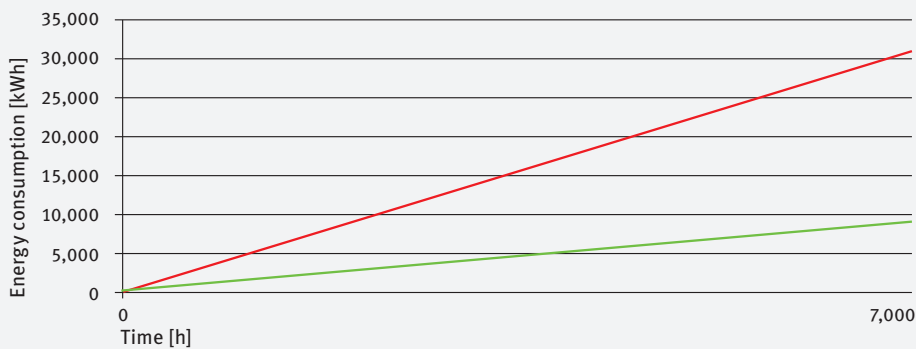
- Volumetric flow without regulation
- Volumetric flow with regulation

PQ-Tronic-Pressure curve



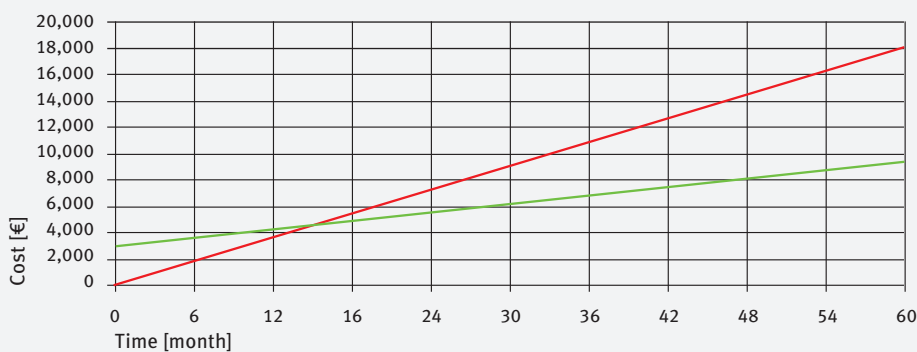
- Pressure curve

Energy consumption (pump and cooler)



- Energy consumption without regulation 100 %
- Energy consumption with regulation 28,3 %

Amortisation (7,000 operating hours per year)



- Costs without regulation
- Costs with regulation

KNOLL Maschinenbau GmbH
 Schwarzachstraße 20
 DE-88348 Bad Saulgau
 Tel. +49 7581 2008-0
 Fax +49 7581 2008-90140
 info.itworks@knoll-mb.de
 www.knoll-mb.com

E-PASS

Process monitoring with PQ-Tronic

The KTS system for deep drilling using the PQ-Tronic

KNOLL uses the data from the frequency inverter to identify predictive signs of tool breakage. Relevant signals are forwarded to the CNC control so that the operator or machine can intervene in the process early enough.

Customer benefits

- Increased feed
- Greater process reliability
- Lower reject rate
- Reduced tool costs
- Early identification of tool wear
- Greater system availability
- Energy savings
- Increased productivity

