



SYSTEM AVAILABILITY

Filtration For Less Valve Failures In Blow Molding Machine

Technical Application Bulletin

PROJECT BACKGROUND

DISCOVER



DIAGNOSE

- Upon visiting a large Plastic Injection manufacturer, it was discovered that they were experiencing frequent downtime due to servo valve failures on their Blow Molding Machines.
- They were having a hard time hitting a target ISO code of 17/15/13 (achieving ISO 23/19/17 to 25/22/19).
- Inadequate filtration was found on the machines with many machines in bypass.

- A TMU was brought onsite to show the ISO contamination level of their oil.
- 22 machines were then surveyed for oil condition through bottle samples. The oil in many of these machines was found to be either the incorrect oil or oil having high amounts of wear metal.
- From this analysis, Schroeder determined the customer was using an inexpensive return-line filter element.

INDUSTRIES



DESIGN

What We Did: Due to space constraints, we needed to identify a compact filtration unit with pump/motor group to kidney loop the reservoir on the Blow Molding Machine:

Course of action

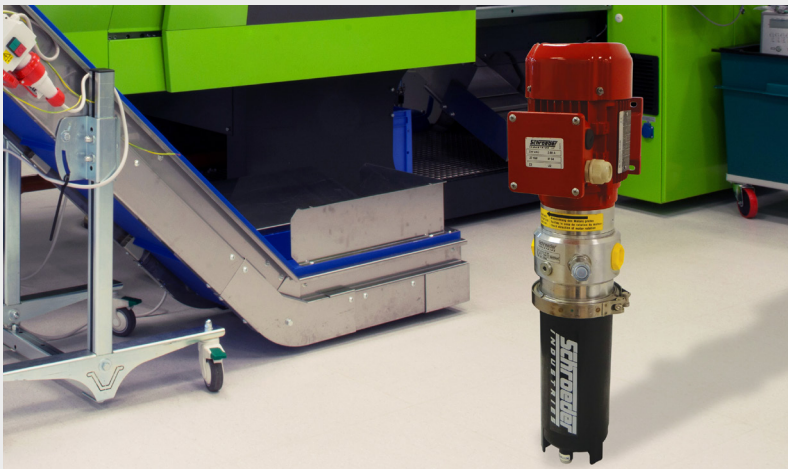
1. Upon deliberation, a KLC15 top-loading filter system with a 120VAC and approximately 5 gpm flow rate was recommended for installation due to its small size.
2. A 2 μ m filter element will help the customer reach their desired ISO code with its high dirt holding capacity.
3. Install on three systems to prove kidney loop filtration of the reservoir will improve oil cleanliness.



DELIVER

- The top-loading KLC15 offline filtration unit was installed on three (3) machines due to ease of element change-out.
- The customer was able to obtain their desired ISO cleanliness of 17/15/13 and lower on these three machines within 2 weeks of operation.
- Installation of the KLC15 has now been done on two-thirds (2/3) of the Blow Molding Machines with the balance of the 22 being installed in late 2018.

Blow Molding Machine	Without KLC15	With KLC15	Savings
Element Changes	Net \$98.00 (x3)	Net \$148.00 (x1)	+\$3,212.00
Dirt Holding Capacity	50 grams	200 grams	+150 grams
Servo Valve Repair	\$1,200 (x0)	\$1,200 (x2)	-\$2,400.00
Servo Valve Replace	\$6,000 (x5)	\$6,000 (x0)	+\$30,000.00
Servo Valve Total (R&R)	\$30,000	\$2,400	+\$27,600.00



CUSTOMER BENEFITS

- Cleaner, more efficient systems
- Lower operating costs
- Extended oil life and element service life

FURTHER APPLICATION AREAS

ROI

Element Savings



\$3.2K

Dirt Holding Capacity



▲ 75%

Servo Valve Total



\$27.6K

Underlying values:

Competitive costs per element = \$98.00 (x3):
\$98.00 x 3 = \$294.00

Schroeder costs per element = \$148.00 (x1) = \$148:
\$294.00 - \$148.00 = \$146.00
\$146.00 x 22 machines = \$3,212.00

PRODUCT SPECS

KLC15 | Kidney Loop (Compact System)

Flow Rating: 4.9 gpm
Max. Viscosity: 3,600 SUS
Operating Pressure: 45 psi (3 bar)
Fluid Temperature: 32°F to 175°F
Seals: Buna N
Dirt Holding Capacity:
 200g ISO MTD (KLE particulate)
 185g ISO MTD (KLE water)
Weight: 24.3 lbs. (11.0 kg)