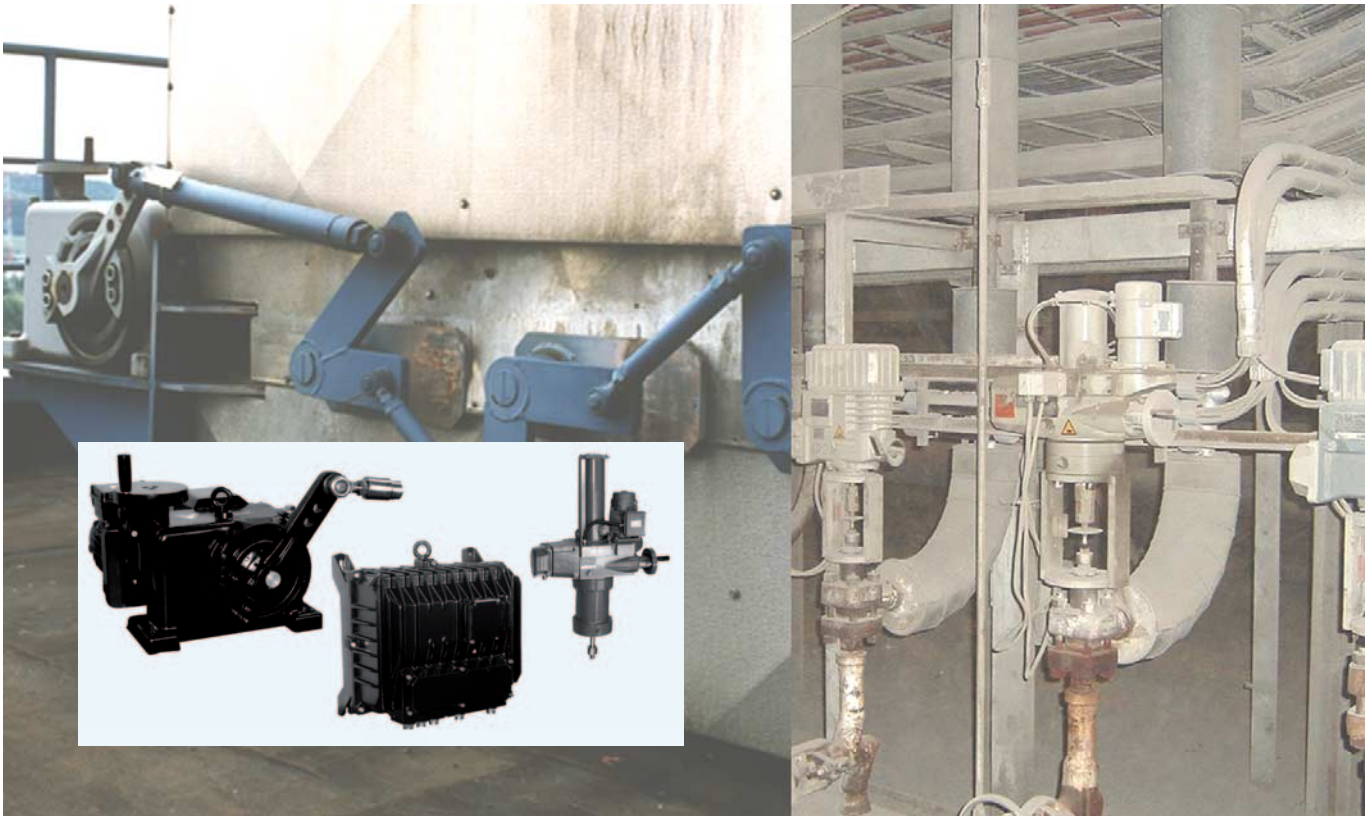


Consideration of the Lifecycle Cost of Contrac Electrical Actuators

High availability,
low maintenance cost

Instrumentation Solutions



- Designed for 10 years continuous operation without any maintenance
- Extremely low maintenance cost
 - under rough operating conditions
 - with many operating cycles (> 1200 cycles/h)
- No replacement of valuable parts required

1 Problem

The necessity of service and maintenance is a controversially discussed subject in the industrial goods industry. One approach is to use the equipment until it fails instead of repairing or replacing it. The extra risk regarding the plant availability is accepted in this case.

The – often cost-intensive – alternative is routine maintenance according to the suppliers' specifications.

For components used in hazardous areas even exploring this issue is inadmissible. If an Ex component is not serviced and maintained in accordance with the suppliers' specifications, its Ex approval will be invalidated.

In operating manuals of competitive products you can find the information that electrical actuators must be serviced in dependence of their load and number of operating cycles. With an average number of less than 700 operating cycles/hour [c/h] a maintenance interval of seven months is required.

If the plant operator strives for longer maintenance intervals of, for example, two years, this will reduce the permissible average number of operating cycles down to 125 to 250 c/h, i.e. 2 to 4 cycles/minute. The control algorithms of many process control systems take this into account. The controllers are not optimized for optimal process control, but for adherence to the permissible number of operating cycles of the used actuator technology.

As shown in the diagram below, this results in extremely high maintenance cost which may soon exceed the asset cost many times over, discounting the cost of plant downtimes due to maintenance.

Sliding movements which are typical for the worm gear pair used in many competitive products cause more wear than the movements of Contrac's spur gears. As a result, the maintenance work of competitive products often includes the expensive replacement of gear components.

2 Solution

Contrac electrical actuators are designed for 10 years of maintenance-free operation. Special operating conditions like extreme ambient temperatures, however, may limit the service life of elastomers and lubricants. As a result, the integrated maintenance microprocessor may in some cases recommend a maintenance operation after less than 10 years.

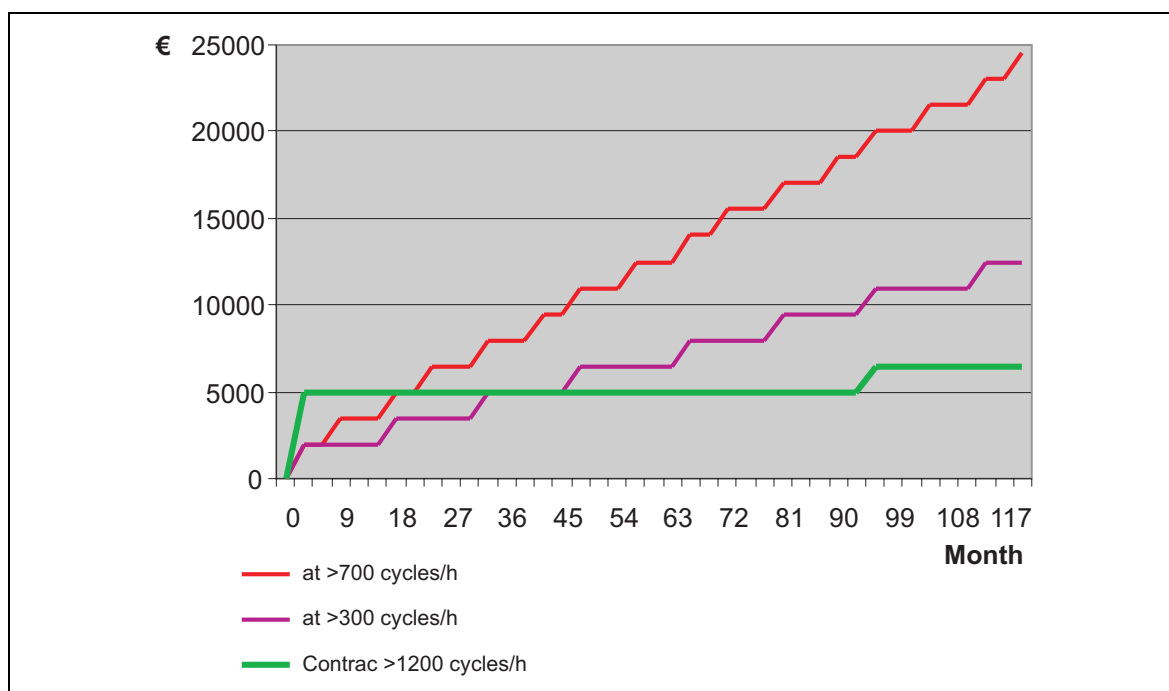


Fig. 2-1: Estimated lifecycle cost of electrical line actuators

Maintenance is extremely simple and, thus, economical.

Typically, you only have to change the gear oil and replace the shaft seals and gaskets.

3 Benefit analysis

The use of Contrac electrical actuators is recommended for all applications with considerable operational demands which require high plant availability.

Just make your own calculation: [Maintenance cost calculator](#)

4 Features of the used components

Instrumentation	
	<p>Contrac electrical actuators, with integrated or separate power electronics unit</p> <ul style="list-style-type: none">• Part-turn actuators<ul style="list-style-type: none">– with rated torque of 100 Nm to 16000 Nm• Linear actuators<ul style="list-style-type: none">– with rated force of 4 kN to 200 kN• Reliable converter electronics<ul style="list-style-type: none">– integrated in the actuator– field-mounting– rack-mounting• Continuous positioning• Robust design• Oil-lubricated gear• Low maintenance• Self-diagnostics• Low lifecycle cost

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