



Forward ▶

◀ Back

Art of metering Delivery - Metering - Application - Controlling

Reliable feeding, exact dosages and accurate dispensing mean clean, correct lubrication.

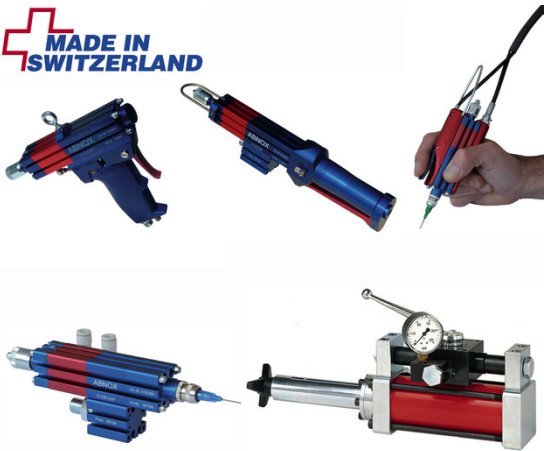
The call for maintenance-free operation, with no lubrication services needed, has become a standard request for equipment with moving parts. Lubrication is expected to last for a lifetime of the device. Apart from surface coating and special material match, lubrication materials are commonly used. Heavy duty lubricants are expensive, and high precision point exact metering is needed for their application. The key to minimize friction and wear, is to apply a lubricant with no maintenance needed in the right quantity and at the right place.

The nowadays used high performance lubricants have to be brought – according to the rules of tribology proper and carefully to the individual causes of friction. Correct lubrication means to bring the correct lubricant at the correct time in the correct amount to the correct place. For this purpose ABNOX delivers a range of products which allow implementing reliable feeding, exact metering and accurate dispensing.

**The art of lubrication is accomplished in four steps:
DELIVERY - METERING - APPLICATION - CONTROLLING**

DELIVERY

The wide range of lubricants reaching from high viscosity grease to thin fluid oil implicates the wide variety needs for lubricant supply pumps. Standard pumps, commonly available for hydraulic applications may be used for oil. In contrast, the properties of lubrication grease do not comply to Newton's law, and in fact, high performance suction pumps may be required to handle some greases. The most common solution for optimal and economic delivery of high viscosity lubricants (of class NLGI 1 to 3) is the use of the well-known pneumatic piston pump. Pressures of 50 to 150 bar are not uncommon if long transport pipes are used. Piston pumps are well capable to generate such pressure.



METERING

Grease and oil lubricants may be applied by various techniques. For applications in the assembly processes, the use of time-controlled feed valves or volumetric metering valves have become widely accepted methods. A main advantage of these valves is their simplicity and reliability. A volumetric metering valve comprises an adjustable dosage chamber for the medium and an integrated pneumatic cylinder serving as an actuator.

The medium is conveyed to the metering valve directly from its original grease container, by a pneumatic piston pump. The valve is controlled by means of a 5/2-way valve.

APPLICATION

Lubrication media must be applied in the right quantity at the right location.

The optimal approach is to place the lubricant directly into the area of friction.

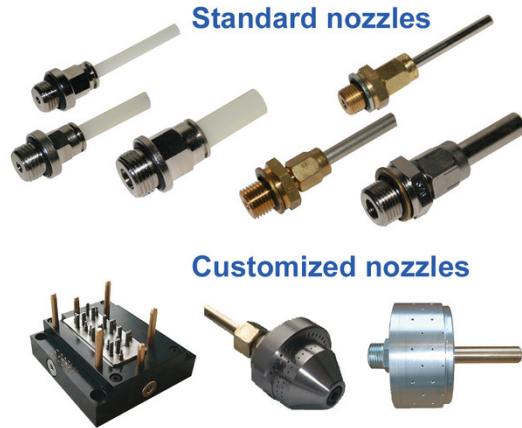
To determine the best layout of the lubrication

equipment, know-how and experience of the designer and the lubrication expert are required. The nozzle size chosen depends on the material properties and the target quantity of the lubricant.

E.g. excessive nozzle size causes inconsistent break-off of material flow, affecting metering precision.

A small nozzle leads to less back-flow after coating. Other questions need to be handled, such as the requested repeat accuracy, the allowed number of lubrication points served by one metering valve, the space requested for the working station, the operation cycle time and others.

Each lubrication task calls for individual analysis and for a specific solution.



CONTROLLING

For lifetime lubrication of components, the correct lubrication quantity has to be applied to each friction spot with absolute certainty. Accordingly, the process monitoring support for the requested process reliability must conform to the highest standards. Metering valves equipped with a position sensor are a low cost and hence frequently used approach to monitor the dosage process.

ABNOX Checklist Selection Metering Systems