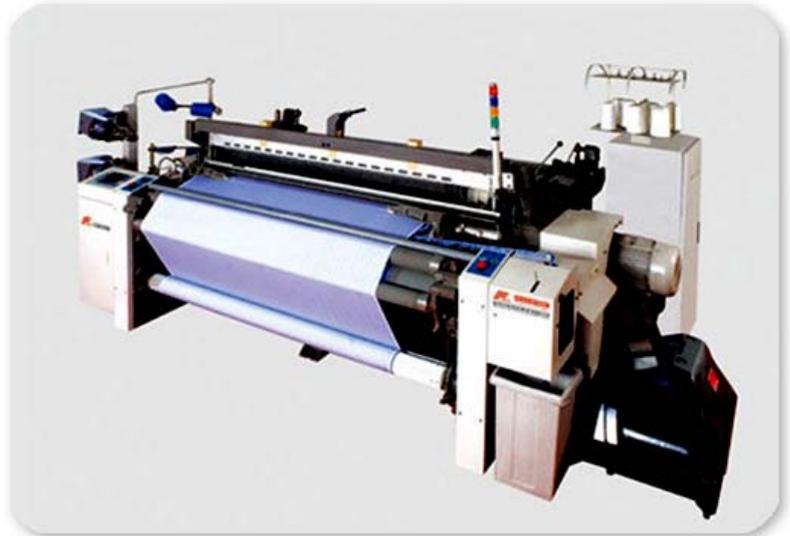


### Weaving Machines

DropsA has worked with weaving machines manufacturers to develop solutions for complex lubrication requirements. In this example the manufacturer asked DropsA to develop a grease lubrication system and oil lubrication system for a weaving machine. The grease system lubricated various bearings on the machine and the oil system lubricated the shuttle.



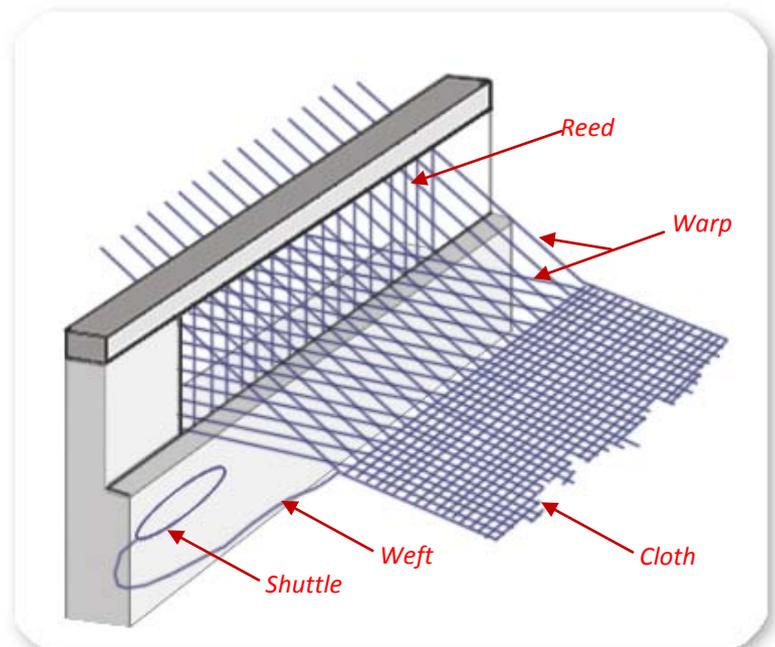
### Analysis of the lubrication system

The major issue facing weaving machines is availability of space to fit the lubrication system. The machines are very compact and space is considered a luxury. Therefore for the grease system DropsA suggested its SMP as a primary block and SMPMs as secondary blocks. SMPM is DropsA's miniature progressive block with 4mm push fit tube outlets.

The oil system was more complex. After poor results with a competitor's oil injection system the manufacturer asked DropsA for a solution. After investigating the failures DropsA ( and its client ) concluded that it was not possible to operate the oil injection pump rapidly due to heavily decreased lifetime of spring.

The spring is present within what is known as the micropump. The micro pump is pneumatically operated when oil is needed which dispenses between 0 to 30mm<sup>3</sup> of oil. After the injection of oil the air is released to atmosphere and the spring returns the piston to its original position.

The manufacturer wanted a reliable oil injection unit with monitoring of oil output as low as 15mm<sup>3</sup> which could be operated at short intervals. Lubricating the rapier/shuttle is very important so each micro pump had to have its individually monitored output of oil so that the customer knows that every operation a minimum of 15mm<sup>3</sup> is injected onto the shuttle. The frequency of oil injected can be as low as every 2 seconds as the machine can operate up to 220 ppm ( picks per minute ).

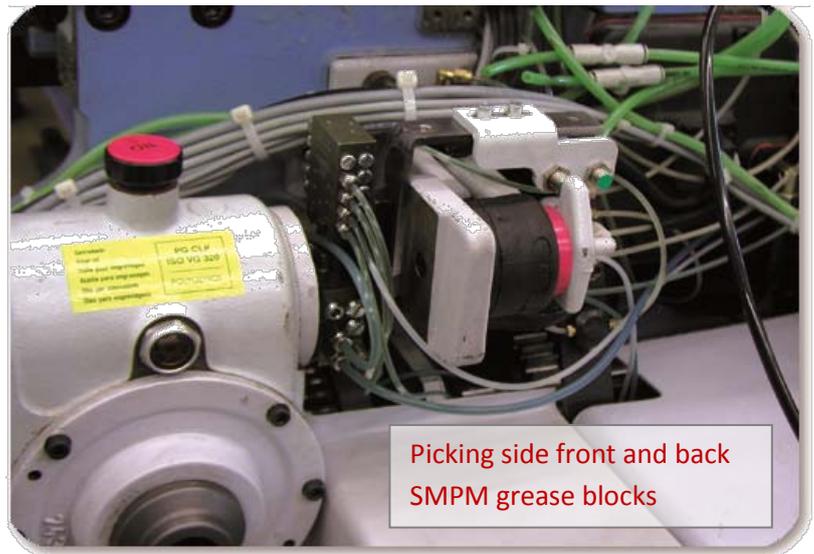


Dropsa used its patented oil flow sensor that detects oil upon activation of micro pump. The oil passes through the pump base and makes electrical contact which is then sent to machine PLC. Furthermore Dropsa suggested its double effect pumping element. This means that the micropump does not use a spring. The return of the piston is done with air. The double acting spool has a longer lifetime than the more common spring returns found on the market. These innovations are why Dropsa won the business. The tender was not based on most economical solution but most reliable.

Dropsa proposed:

For grease system dropsa used:

- **Bravo**
- **SMP**
- **SMPM**
- **Ultra Sensor**



For oil system dropsa used:

- **Vip4 tool double effect with sensor.**

