Saving Energy with Accumulators

By Steve Hansen

The optimal use of hydraulics in industrial applications involves many considerations. Initial system cost, noise levels, heat generation, and on-going energy consumption are all important issues to the user of an industrial hydraulic system. Products from the Hydraulic Accumulator Division (HAD) can often play a significant role in reducing many of these important considerations.

Industrial systems often involve a sequence of events that make up a cycle. Pressure and flow demands can vary throughout a cycle from peak requirement to little or none. In order to meet the peak requirements the pump must be sized to the maximum requirement. The electric motor must also be sufficient to meet the peak horsepower demand. During the remainder of the cycle a portion or all of the available horsepower is wasted as heat.

These types of systems are ideal for the application of a hydraulic accumulator. The accumulator can provide flow and pressure during peak demand and be recharged during periods of low demand. This allows the pump and electric motor to be downsized to meet an overall cycle horsepower requirement. Because less heat is generated, the cost of removing heat is also reduced.

A Parker Hydraulic Technology Center, (HTC) Distributor was recently faced with this type of industrial system. An all electric drive debarking system was to be redesigned as a hydraulic drive system. A system was designed utilizing a 10-gallon bladder accumulator (BA10B3T01A1). The accumulator is used to supply pressure and flow to the log hold-down cylinders while the log is being rotated in the debarking process.

Further calculations show that with the system running 12 hours per day, 5 days a week, 49 weeks per year, the system sees a total of 2940 hours. The 2940 hours times 2.7 Kw saved per hour equals a total of 7938 Kw saved on an annual basis. Saving Energy with Accumulators means saving Money for the Customer. HAD products can make a difference.