

INDUSTRY
WOOD**APPLICATION**
PELLETIZERS**PRODUCT**
PLATINUM / UNI MATCH

SITUATION/APPLICATION

Pelletizers are machines that form material into the shape of a pellet for various uses. The material is compressed through a die to form the pellets. A wide range of different materials are pelletized including chemicals, iron ore, animal feed and wood pellets used for burning in heating stoves.

Pelletizers commonly utilize a two-stage belt drive transmission to achieve the proper gear reduction for desired die speeds. The first stage is normally a shock-absorbing v-belt while the second stage is driven by synchronous belt. Belts offer a reliable, cost effective and efficient system with a compact design.

THE PROBLEM

A Pelletizer manufacturer contacted Megadyne regarding issues with their two-stage drive. While some slippage was desirable to absorb frequent peak shock loads on the first stage of the drive, the standard raw edge rubber v-belts used did not last very long on this demanding drive. The slippage caused by the frequent peak loads generated excessive heat, reducing the belt life to unacceptable levels.

The second stage of the drive also had problems. The polyurethane synchronous belt suffered shrinkage caused by elevated temperatures. The heat was generated by the high flex rate of the belt due to the excessive speed of the drive. The resulting shrinkage increased belt tension, negatively affecting belt and bearing life and requiring frequent and expensive replacement of both. Additionally, the customer considered the stiffer, less flexible, polyurethane belt to be more difficult to install. These problems all combined to reduce the efficiency and productivity of the machine.

THE SOLUTION

After a thorough analysis by the Megadyne Application Engineering team a solution was presented. For the first stage of the drive, Uni Match raw edge v-belts were installed. Their EPDM rubber compound was able to withstand the elevated temperatures and easily survived the tough conditions with a temperature range up to 110°C (230°F). Their improved power rating (up to 30% greater than standard raw edge v-belt) also contributed to a much longer belt life.

Platinum Ultra High Torque rubber synchronous belt was chosen for the second stage of the drive. The belt heat generated by the extreme flex rate of the high speed drive was eliminated. This is attributed to the HNBR rubber based technology of Platinum which is capable of withstanding up to 115°C (239°F) versus 85°C (185°F) for polyurethane synchronous belts. The customer not only found Platinum easier to install due to the rubber construction, but also discovered it was much quieter in operation, resulting in lower overall noise levels.

THE RESULT

Productivity and reliability issues were resolved with the combination of two different types of Megadyne premium quality power transmission belts. With the use of these readily available standard, high performance belts from Megadyne, the customer was able to eliminate significant problems from their drive system with simple, highly cost effective solutions.

