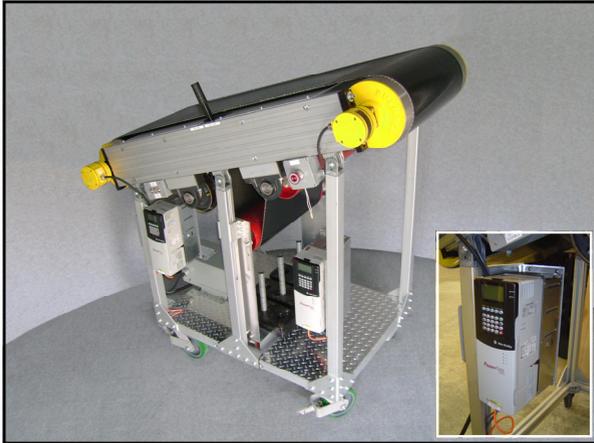




# Technical Bulletin 108

## Dual Motorized Pulleys with Power-Sharing



### Power-Sharing Dual Drive Demo is Innovative Load Sharing

Rulmecca's fully functioning demonstration conveyor helps explain how to: boost main drive power, increase belt & pillow block life, and eliminate main drive overloads. It features Rulmecca Motorized Pulley head and tail drives. Controlled by two Allen Bradley PowerFlex "flux vector" variable frequency drives, the conveyor displays a variety of drive configurations, including: head, tail, and head/tail drives. When in dual drive configuration, VFDs display amp draw and Master/Slave power sharing parameters. The demonstration includes a full load simulator, a variable counterweighted take-up assembly and external thermal protection switch (for demonstration purposes.)



### Overland Conveyor Drive Features Dual Drives

A major UK overland conveyor manufacturer has incorporated Rulmecca Motorized Pulleys (in single or dual drive configurations) into their "SuperDrive." The system is designed to "grow" with overland conveyor power requirements. For example, if 150 HP is required for a given conveyor length the system is configured with a single model 800H at 150 HP with a Rulmecca "dead shaft" idler pulley on the return side in a nested serpentine arrangement. When production rate increases or conveyor length must be extended, the idler pulley is swapped with a second model 800H 150 HP Motorized Pulley. Belt length, conveyor structure, and electrical system (including load sharing VFDs) are all designed with power expansion in mind.



### Nested Dual Drive Arrangement - Bucket Wheel Reclaimer

Three bucket wheel reclaimers at a major rail to ship taconite terminal were retrofitted with dual Motorized Pulleys to drive tail conveyor. Depending on power requirements, dual 120 HP or dual 100 HP were installed. The "nested dual" was installed on return side using a "serpentine" belt wrap configuration. Total wrap angle exceeded 450 degrees. Plant operator reports significant extension to service life of belt, pulleys, and pillow blocks after the 2004 retrofit.



## Reversing Shuttle with Head and Tail Drives

Lafarge's Mountsorrel Quarry in Leicestershire, UK has used dual Rulmecca Motorized Pulleys (head and tail position) in both of their toast-rack travelling/reversing shuttle conveyors for more than nine years. Moving 2,500 tph at 600 fpm, each of the model 630H dual drives is 50 HP. One year after the retrofit, the plant reported extended belt life. This was possible because T2, slack side tension, (to prevent belt slippage) could be reduced after the shuttle was converted from a single drive (with 180 degrees of belt wrap) to a dual drive (with 360 degrees of belt wrap.) The use of ceramic lagging instead of rubber lagging also improved pulley grip on the belt.



## Overland Conveyor Drive is Easily Expanded to Dual Drive

Recently, Lafarge installed two Rulmecca Motorized Pulleys (each at 150 HP with 600 fpm belt speed) in their overland conveyor system near Barrow village. One in the head position and one on the return side (pictured here.) The two model 800H Motorized Pulleys are situated unusually far apart (i.e. 50 ft.) Driven by two load sharing VFDs, the system is designed to move 2,000 tph, start at full load, and run with a single drive (at a reduced rate.) Lafarge decided that the VFDs should "talk" to each other through a bus line to keep belt pull and belt speed properly matched, especially because of the distance between the Motorized Pulleys.



## Mobile Plant with Head and Tail Screen Feed Belt Drives

Originally designed by Allis Mineral Systems, the H4000 mobile crushing and screening plant uses two 15 HP model 400M Rulmecca Motorized Pulleys to drive the 875 tph screen feed conveyor at 384 fpm. A narrow face width requirement for the head pulley prompted designers to select dual Motorized Pulleys. More than eight plants are still in active service since the plant shown was put into service in 1994.



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