



Technical Bulletin No. 102

Motorized Pulley “Dual Drive” Concept



Recirculating Plant—Operating Mode (Wisconsin)

Mobile plant originally designed by Allis Minerals Systems uses two 15.75” diameter 15 HP motorized pulleys to drive 850 TPH 384 fpm 36” wide screen feed belt. Actual full load screen feed power requirement is 23.5 HP. Photo taken while plant was in service in 2003 after nine years of service in Wisconsin gravel pits.



Recirculating Plant—Transport Mode (New York)

End view of plant described above upon arrival at Oriskany Falls, New York granite quarry in 1994. Note that 36” wide screen feed belt conveyor pins to structure adjacent to screen for transport mode. Road weight is 170,000 lbs. Maximum allowable highway plant clearance width of 12’ - 0” limited pulley face width to 40 inches. Note that screen feed conveyor vertical pivot feature also simplifies gyratory crusher manganese replacement.



“Dual Drive”—Head Pulley

Close-up of 15.75” diameter 15 HP screen feed head pulley described above. Pulley face width is 39.37” and motor is powered by 460V/3ph/60Hz power supply generated by separate portable diesel-powered motor-generator set. Motorized pulley is mounted below conveyor structure due to close proximity of vibrating screen and maximum allowable highway plant clearance height of 13’ - 6”. Photo taken during 1994 plant start-up.



“Dual Drive”—Tail Pulley

Close-up of 15.75” diameter 15 HP screen feed tail pulley for 700 tph recirculating plant similar to the one described above. Photo taken in 2003 after three years of service. Motorized pulley is mounted on top of pedestal-type jacking screw belt take-up assembly. Note that electrical connection requires a “festoon loop” in flexible conduit to connect movable drive pulley to conveyor structure.



Recirculating Plant—Operating Mode (Iowa)

Becker Gravel Company modified their Svedala H4000 mobile crushing/screening plant in 2001 (after two years of service in Iowa quarries) to reduce and redistribute plant's weight for transport. Modification included dividing the "dual drive" screen feed conveyor into two segments: inclined and horizontal. The inclined section still uses two 15.75" diameter 15 HP motorized pulleys. Note that each of the two conveyor segments is outfitted with "lifting lugs" to reposition them on a flat bed for transport. Plant weight without the screen feed conveyor is 156,000 lbs.



Traveling Reversing Stacker—South End

One of twin 31.5" diameter 50 HP motorized pulleys at British limestone quarry. Photo shows large stone discharging onto south pile from belt in "forward" direction. Note that "dual drive" concept provides 360 degrees of belt wrap around pulleys (180 degrees per motorized pulley), without the use of "dirty side" snub pulleys.



Traveling Reversing Stacker—North End

One of twin 31.5" diameter 50 HP motorized pulleys at British limestone quarry. Photo shows small stone discharging onto north pile from belt in "reverse" direction. Two separate standard-size motor starters are all that is required to power a "dual" motorized pulley belt drive system.



- Hermetically sealed enclosure increases system reliability
- Internal motor & gearbox minimizes conveyor drive size & weight
- Self-lubricating gearbox design decreases maintenance expense
- Enclosed drive and "dead shaft" improve operator safety



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