



TECHNICAL WHITE PAPER

COMPARISON OF WASHPLANT FEEDER OPTIONS



The profitability of a placer / alluvial gold mine is closely related to the volume of material processed efficiently. This applies certainly for relatively large scale, low grade deposits.

Feed preparation and supply to a washplant is a complex consideration, including the consistency of pay gravels, logistics and type of mobile equipment required for hauling, feeding and oversize removal for example. Consistent feed rate affects the utilization of screening capacity (equally relevant for trommel or shaker decks) and the gold recovery efficiency of sluice runs. For smaller capacity washplants, feeder options are limited to the robust and versatile (wide) pre-wash hopper, whereas for larger capacity operations mechanical feeder options are available.

Drag chain hopper feeders are still excavator fed but eliminate the need for feathering the feed to achieve a steady flow. Grizzly feeders combined with a narrow pre-wash hopper allow for most efficient material handling by front end loader.

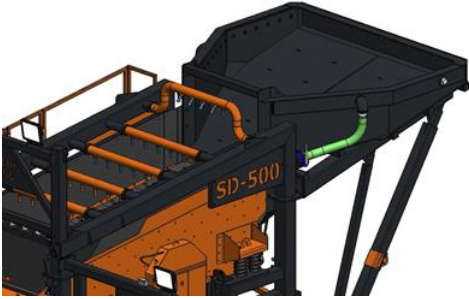


All three hopper options are modular, such that a washplant can be configured from factory or once in operation.



Fig. 1 – Paygravels hauled by Truck and fed by Excavator into two parallel Washplants equipped with Drag Chain Feeders



Fig. 2 – Paygravels hauled and fed by Front End Loader into Grizzly Feeder

	Compatible Feeder Equipment	Compatible Washplant Models	Compatible Ground Type	PRO's	CON's
<p>Wide Pre-wash Hopper</p> 	Excavator Feed direct into Hopper	SD and T models (All)	Works well for any type ground condition, particularly grounds with clay content benefit from pre-washing (wetting) material prior to screening	Compact; Robust; Simple –no moving parts; Works with any type of material and requires little maintenance	Excavator needs to feather the material into the hopper in order not to over- or underfeed. Feed surging to some degree is not avoidable; Large boulders to be manually excluded by attention of excavator operator
<p>Drag Chain Feeder Hopper</p> 	Excavator Feed direct into Hopper	SD and T models, 500 class and up	Works best for rather clean, gravelly ground that does not require pre-washing	Compact; Excavator can dump entire bucket into the hopper without need for feathering; Allows feeding multiple parallel washplants from one excavator	Mechanical / hydraulic moving parts require more maintenance than pre-wash hoppers; Rather not recommended for clay rich material due to carryback with drag bars; Large boulders to be manually excluded by attention of excavator operator
<p>Narrow Pre-wash Hopper</p> 	Front End Loader (Grizzly Feeder) or Dozer (Dozer Trap)	SD and T models, 500 class and up	Works best for rather clean, gravelly ground with minimum fines adhering to large boulders rejected over grizzly bars (typically 8" spacing on grizzly feeder)	Allows for efficient material handling by FEL or dozer; Provides consistent feed to the washplant without surging, enabling maximum tonnage utilization of washplant; Grizzly bars excluding large boulders protect the screen deck or trommel	Additional Grizzly Feeder (or Dozer Trap) required, adding to capital cost and affecting plant mobility (two skidded units instead of one); Large material is not washed but discarded with some fines