

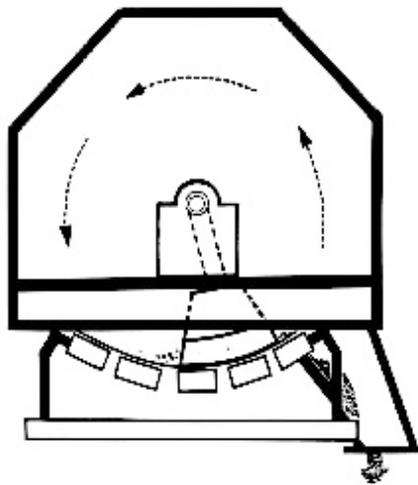
PRH CROSS-BELT ELECTRIC DRIVE SAMPLER FOR CONVEYOR SAMPLING

PRH Model Numbers

PRH-400 PRH-600 PRH-750 PRH-900

PRH-1000 PRH-1200 PRH-1500 PRH-1800

The number following the PRH sampler model designation indicates cutter radius (mm).



The PRH Cross-Belt rotary cutter sampler is designed to extract representative samples directly from solid materials carried on a moving conveyor belt. Extraction takes place by driving the PRH cutter through a circular path above the belt with radius of the path matched to arc radius of specially constructed supporting belt idlers installed on each side of the cutter. The supporting idlers establish a fixed belt contour at the sampling position. This arrangement permits the cutter to traverse the belt surface with an equivalent radially shaped cutter skimming the belt surface (edges of cutter are adjustable and contoured polyurethane plates, avoiding a possibility of metal contact with the belt surface to cause belt surface damage).

The PRH cutter moves through a linear path on the belt at speed twice conveyor speed (typically in range of 80-160 inches per second, or 0.2-0.4 m. per second) to extract all material from a designated section on the belt into sample. Actual cutter path through the load on the conveyor belt is in the form of a parallelogram with an angle of 30 deg. The cutter attitude angle relative to the conveyor is adjusted to the 30 deg. path to minimize possible loss of sample during cutter travel through the material load on the belt.

Cutter rotational travel is mechanically braked at a discharge position just beyond the conveyor belt edge. Sample in the cutter then discharges into a collection chute directing sample into a collection container or to the next stage of processing. Skirts installed on the conveyor belt on either side of the cutter path prevent scattered solids from flowing material entering the sample chute.

The PRH sample cutter travelling at high speed through material carried on the conveyor enables efficient sampling of moist materials having tendency for adhering to surfaces. Cutter discharge is enhanced by momentum with brake action at completion of the sampling cycle. Advantages of the PRH mechanisms also includes simplified installation requirements and relative lower quantity of sample volume per extraction by comparison to conveyor discharge trajectory sampling.

An electric gear motor drive is connected to the cutter shaft through a self-aligning grid coupling held by two pillow block bearings. Adjustment of cutter radius length to the belt arc and cutter angle to traversing path in moving

through material burden on the belt is made at a shaft holding block. The cutter is provided with adjustable plastic plate of durable quality (polyurethane or equivalent) to safely minimize clearance between the cutter radial arc path and the belt surface while avoiding contact with the belt. Cutter volume is approximately equal to the cumulative sample volume.

Cutter opening is recommended as equal to a multiple of three times nominal particle top size, and cutter radial arc length as approximately equal to the width of material load on the conveyor belt. A scraper-brush device is provided to recover any remaining and residual fines left on the belt surface into the sample.

A timer-starter control unit Model PB-200 series is available for operation of the single sampler, or alternatively operation can be carried out with a centralized control system.

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