

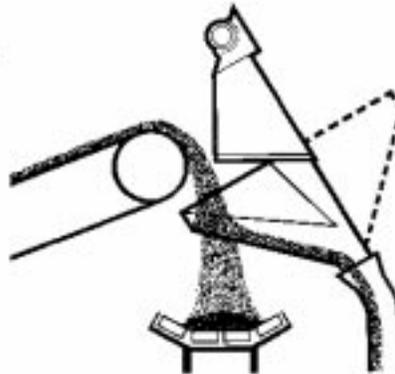
# PRL Rotary Scoop Sampler for Solids

## PRL Model Numbers

PRL-400 PRL-500 PRL-600 ...

PRL-750 PRL-900 PRL-1000

The number following PRL model designation indicates radius of cutter scoop (mm).



PRL rotating scoop sampling units are designed to obtain representative samples from material flow on a conveyor by means of installation of the sampler at the conveyor head pulley discharge. The sample scoop is rotated by a gear motor drive through a rugged and heavy-duty mechanism transmitting power through a self-aligning grid coupling from a brake motor by a shaft held by two pillow block bearings. Sample extraction is carried out as the cutter passes through the bulk material cast from the belt. Cutter openings are determined by scoop angle to extract sample from the conveyor discharge trajectory, typically for material top-size up to 3 inches (75mm). Larger top-size material can be sampled by taking into consideration appropriate design factors. For recommended radial cutter scoop angles with cutter openings three times nominal top-size where material enters the cutter, see the chart below.

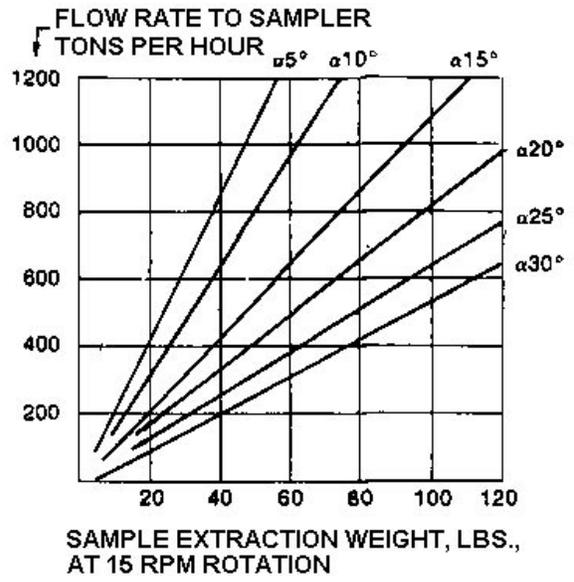
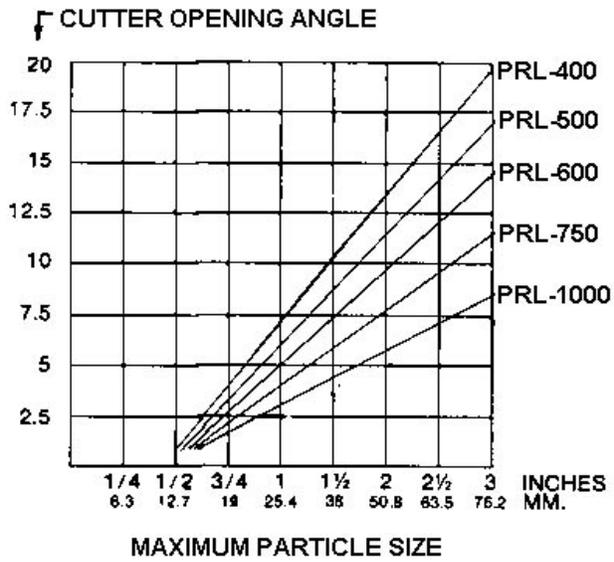
By inclining the cutter drive shaft to 60 degrees, sample is effectively emptied from the cutter as rotation continues to the opposite out-of-stream rest position when the cutter scoop sample receiving surface stops at almost 90 degrees (approximately vertical) position. Wet and difficult to handle sticky solids taken into the sample are more readily discharged by this action. The cutter drive holds its out-of-stream position by a brake, which on engaging aids dislodging sticky solids remaining in the scoop. The PRL sampler design configuration permits installation in a compact and low headroom arrangement to minimize elevation and space requirements. Sampler installations are made in compact dust tight enclosures for maintaining sample integrity as well for safety considerations.

Sample quantity extracted is determined by cutter angle and rotation speed. Rotation speeds are set to maintain standards of sampling for cutter speed through the material being sampled, according to radius of cutter, to avoid sample bias for optimizing sampling accuracy. See chart below for estimated sample extraction weights according to cutter radius and drive rotation rate.

Use of PRL sampling methods are recommended for belt speeds of 300 feet per minute (1.5 m. per sec.) or less to avoid trajectory bias potentially occurring when conveyor speeds vary. At belt speeds below 300 feet per minute, essentially no cast-off trajectory discharge will take place. However, the PRL sampler can be installed at a conveyor trajectory, taking care that speed of the conveyor is maintained constant and the cutter is properly selected and installed in the trajectory stream.

Motor drives vary from 1/2 HP to 3 HP according to sampler model required and application requirements. A timer-starter control unit model PB-200 series is available for stand-alone operation of a PRL sampler. Alternatively, the sampler can be operated from a remote or centralized control system, or a programmed logic

controller.



EXTRACTION WEIGHT AT OTHER ROTATION RATES IS PROPORTIONAL TO RPM. ADJUST WEIGHT OF SAMPLE ACCORDING TO RPM.

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