



ASPHALT SYSTEMS

Metering Rubberized Asphalt

- Rev B

Heat, smooth flow and a clear view of the process

TECHNICAL PAPER

Rev B | 2026.09.23

Document BCP-TP-MRA

Rev B: Restores the design explanations and practical benefits; includes low-flow pressure regulation.



BearCat Pumps

1954 East Deer Valley Road | Phoenix, AZ 85024
www.bearcatpumps.com | 623-587-1350

Heat and pressure get the system moving

Rubberized asphalt asks more of a pumping system than conventional asphalt. Crumb rubber adds abrasion, the blend can be highly viscous, and material left in the system cools between runs. Reliable metering comes from three things working together: **heat in the right places, smooth liquid flow and useful monitoring.**

A warm pump is only part of the job

A pump may be ready to turn while cold asphalt remains in a valve, meter or short connecting section. Flange joints are common trouble spots because they receive less direct heat than jacketed pipe. Heat tracing throughout the circuit gives those areas a way to warm up.

The relief valve deserves particular attention. If its passages remain packed with cold asphalt, the pump can turn before the valve is able to bypass. Heating the end plate and relief passages makes the valve useful during startup, when it is needed most.

Use gentle pressure while the system warms

Heat softens the asphalt; pressure helps move it. At very low pump speed, about **5-10% of maximum pump flow**, a heated relief valve can bypass the reduced output and regulate startup pressure. A small cold slug can then move from a flange joint into a heated section, soften and allow circulation to begin.

The 5-10% refers to pump output before bypass. The meter may initially show little or no downstream flow because material is circulating through the relief. As the line opens, delivery increases and the pump can be brought gradually up to production speed.

Watch actual pressure, flow and drive load as this happens. Use the startup pressure established for the system. The relief's regulating action at this low flow is useful; it does not hold that same pressure at every higher pump speed.

Give the meter its own heat source

A cold meter should not have to wait for hot asphalt to thaw it. Properly fitted heat blocks or tracing warm the sensor along with the rest of the system. Apply heat evenly, keep the core processor outside the insulation, and use the installed sensor's temperature rating. Concentrated torch heat can damage the meter.

THE PRACTICAL BENEFIT

Heating the pump, relief passages and meter turns startup into a controlled process: soften the material, apply gentle pressure, establish circulation, then build flow.

Any pump that is heated or pumping hot liquid should be operated with Safety Blankets properly installed.

See the companion Asphalt System Startup Procedure. Meter heating reference: [Micro Motion ELITE Installation Manual, sections 2.2-2.3.](#)

Smooth flow and early warning

Help the meter see a steady stream

A Coriolis meter measures flow through vibrating tubes. A continuous, liquid-filled stream gives those tubes a steady working condition. Pump pulsation, poor inlet supply and entrained air disturb it.

Straight-cut gears discharge material in repeating pulses as their teeth enter and leave engagement. Helical gears spread that engagement along the gear's length, smoothing the discharge. BearCat's phase-balanced design takes this further: the tooth position shifts by half a tooth from one end of the gear to the other.

HOW PHASE BALANCING WORKS

As one end of the gear reaches a higher-delivery point, the other reaches a lower-delivery point. Their contributions overlap, reducing the combined pulse at the outlet and the corresponding fluctuation at the inlet.

Keep air out and liquid coming in

A clear screen, adequate supply and sound suction connections let the pump fill consistently. A restricted inlet increases suction vacuum and can draw air through worn seals or leaking joints. Air can also arrive with the material. Correcting the source gives the meter a steadier stream to measure.

Drive Gain shows how hard the meter is working

Drive Gain is the effort needed to keep the meter tubes vibrating at their intended amplitude. Under steady conditions, that effort is fairly consistent. Entrained air can damp the motion, making Drive Gain rise or fluctuate. A change in density alongside it provides another useful clue.

Learn the normal readings when the system is hot, full and running well. Then watch for changes during production, especially as tank level or material changes. Read Drive Gain alongside flow, density and temperature; plugging or a sensor problem can also increase the effort. Investigating a persistent change early is more useful than waiting for the reading to reach its maximum.

Bring the information to the operator

The BearCat T7 reads the Micro Motion core processor directly over RS-485, making meter information available without a separate transmitter. The available fields depend on the installed program. Regular observation helps an operator recognize deteriorating flow conditions before they become a production problem. Calibration establishes accuracy; these readings help keep the process in the condition in which it was calibrated.

References: [T7 Control Operator Manual Rev J](#); [Emerson Drive Gain explanation](#); [Micro Motion diagnostic guidance, sections 12.6 and 12.28](#).