

## CORIOLIS FLOWMETERS

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## The Trend Toward Large-Line Coriolis Continues

oriolis flowmeters have been around since Micro Motion (*micromotion.com*) introduced them in 1977. Since their introduction, they have undergone many changes, and many new suppliers have entered the market. While initially all Coriolis flowmeters had bent tubes, in 1994 KROHNE (*krohne.com*) introduced the first commercially successful straight-tube meter. Straight-tube meters offer less pressure drop than the bent tube variety, are easier to clean, and are less subject to clogging.

More than any other meter, Coriolis meters have line-size limitations. Due to the nature of the technology, Coriolis meters get large and unwieldy once they reach the six-inch size. Even two-inch, three-inch, and four-inch meters are quite large. About 85 percent of Coriolis flowmeters sold are for line sizes two inches and less.

Despite their size limitations, companies have made a lot of progress in the past few years in breaking the line-size barrier. Rheonik, now a part of GE Measurement & Control Solutions (*ge-mcs.com*), has put together two six-inch Coriolis meters to create a meter that can handle larger line sizes. Rheonik used to be the only Coriolis flowmeter company that offered flowme-



Endress+Hauser's Proline ProMass 83S/84X is so far the largest Coriolis flowmeter made. Designed for a 14-inch line, it features a unique fourtube flow path.

Photo courtesy of Flow Research Inc. (flowresearch.com).

ters for line size greater than six inches. In the past three years, three more companies have brought out large-line-size meters. Endress+Hauser (*us.endress.com*), Micro Motion, and KROHNE have all begun offering Coriolis meters in line sizes above six inches. Endress+Hauser and Micro Motion have bent tube meters, while KROHNE's large size meters are straight tube. While the straight tube meters are long, they are less bulky than the bent-tube meters of the corresponding size.

Endress+Hauser's most recent offering is the Proline ProMass 83S/84X, which is so far the largest Coriolis flowmeter made. Designed for a 14-inch line, it can be fitted with 12-, 14-, and 16-inch flanges to accommodate different line sizes. What is unique about the design of the Promass 83X/84X is that it is a four-tube Coriolis meter. The 84X is suitable for custody-transfer applications.

All indications are that these large line size meters are selling quite well, even though they generally carry price tags greater than \$50,000. Demand is primarily coming from the oil & gas segment, where oil is selling between \$90 and \$100 a barrel, making the enhanced accuracy provided by Coriolis flowmeters a particularly attractive feature.

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