

HHR ProPak™ flow meter for oil and gas

For applications without straight upstream and downstream pipes

Model FLC-HHR-PP

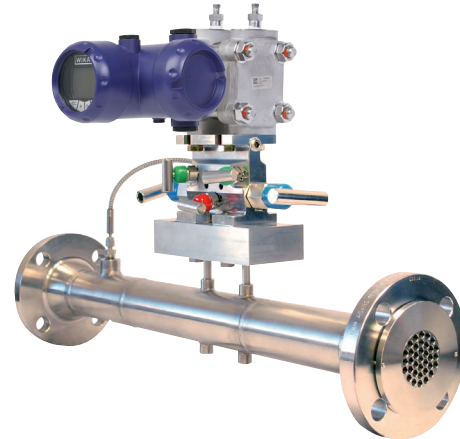
WIKA data sheet FL 10.07

Applications

- Custody transfer according to test protocol API 22.2
- Oil production and refining
- Power generation
- Gas processing and transport, LNG, FLNG
- Chemical and petrochemical industries

Special features

- No need for straight upstream and downstream pipes
- Highest accuracy
- Energy-efficient
- Flexible installation
- Wide variety of applications



HHR ProPak™ flow meter, model FLC-HHR-PP

Description

Innovative technology and design

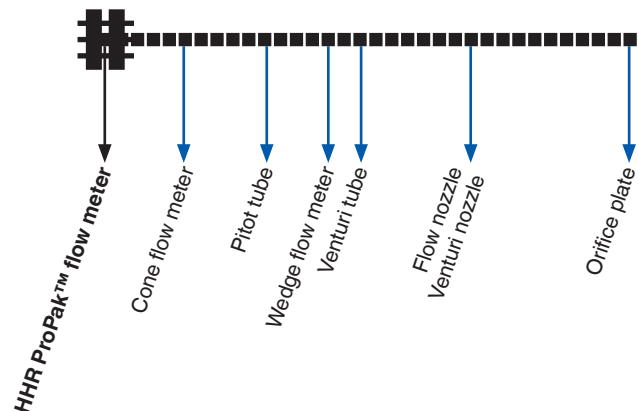
The HHR ProPak™ flow meter is a technological advancement in differential pressure flow measurement, redefining performance standards in critical applications in the oil and gas industry.

No need for straight upstream and downstream pipes

The unique design ensures that the flow velocity profile is well developed and properly defined prior to measurement. Test results show that the flow meter maintains its high accuracy and performance without any additional upstream or downstream piping, even in the case of disturbed flows.

Maximised performance

The HHR ProPak™ flow meter has a lower permanent pressure loss than the orifice plate or cone flow meter. This is enabled by an optimised inlet and pressure recovery cone.



No need for straight upstream and downstream pipes

Tested in accordance with API 22.2

The HHR ProPak™ flow meter has been laboratory tested in accordance with the guidelines of the “Manual of Petroleum Measurement Standards Chapter 22 – Testing Protocol, Section 2” by the American Petroleum Institute (API). API 22.2 states the objectives for the testing protocol such as performance characteristics, Reynolds number ranges, measurement uncertainties and the installation and operating conditions for which these measurement uncertainties apply.

Constant flow coefficient and accuracy

Installation effect tests (IET) have been carried out to evaluate the measurement performance under worst case conditions. These tests include various configurations of the piping layout (upstream, downstream and both upstream and downstream) to create swirl and asymmetric velocity profiles.

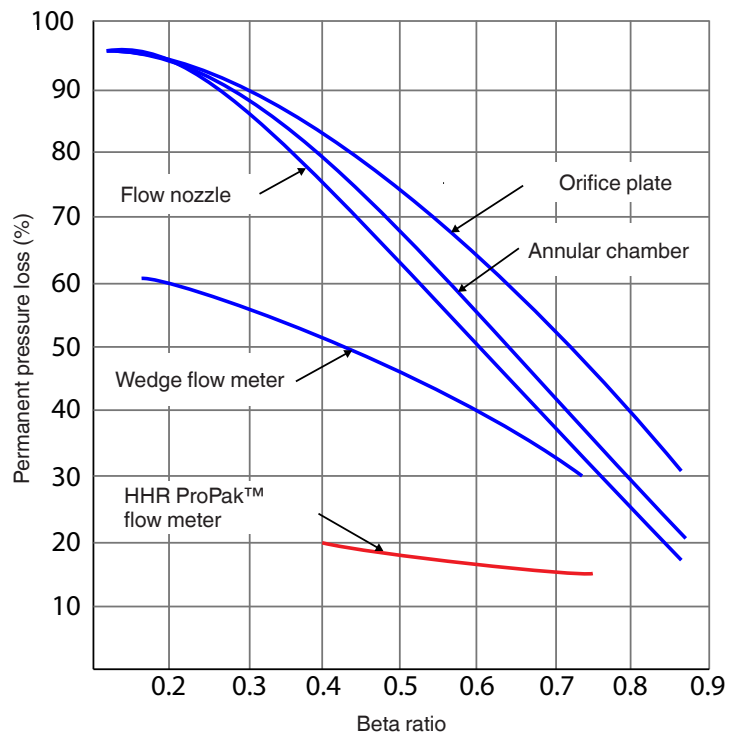
Test results show the flow coefficient of the HHR ProPak™ flow meter to remain constant, independent of the Reynolds number and within ±0,75 % (uncalibrated) of the predicted value, even when installed directly after two elbows out of plane.

Should an accuracy of ±0.25 % or higher be required, a calibration via a certified laboratory can be carried out.

Highest energy efficiency reduces operating costs

Each piece of equipment or pipe integrated into an existing piping system will result in an increase in the pressure loss. With higher pressure losses, pumps and compressors must work harder in order to keep the flow rate stable. Pressure loss is synonymous with higher energy costs that must be spent for normal operation.

The lowest possible pressure loss, thus, assists in reducing the operating costs to a minimum. The HHR ProPak™ flow meter displays the lowest permanent pressure loss of all orifice-based flow measuring systems. The smoothest possible inlet contour and surface together with the unique design of the diffuser section ensures pressure recovery optimisation.



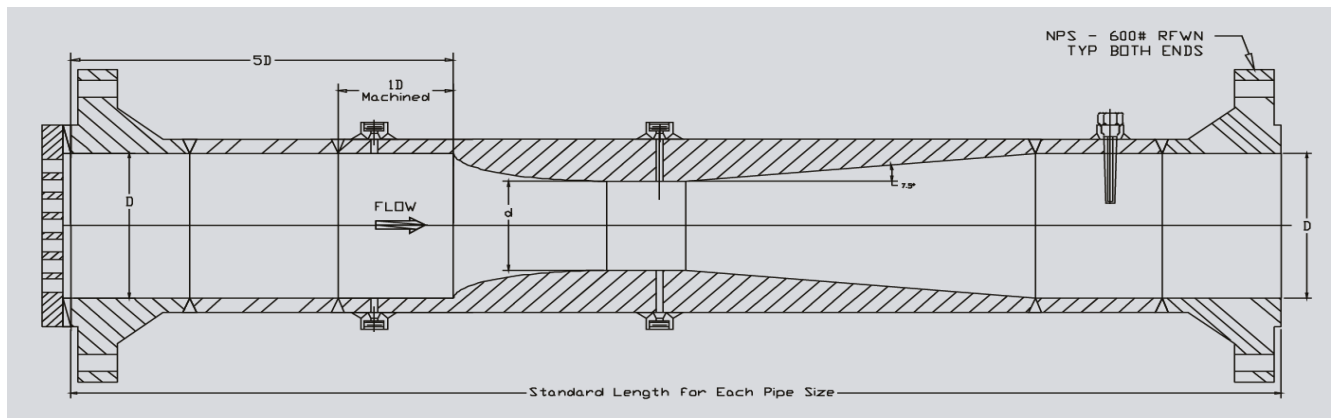
Specifications	
Uncalibrated accuracy	±0.75 %
Flow coefficient (KV value)	0.985
Repeatability	±0.1 %
Adjustment ratio	Limited only by the lower limit of the Reynolds number
Requirements for upstream and downstream pipes	None
Nominal size	2", 3", 4", 6" or 8"
Beta ratio	0.75 and 0.40
Pipe schedule	40/Std (others on request)
Nominal pressure rating	#600 (others on request)
Flange connection	Welding neck flange with raised face (RFWN)
Thermowell	In the downstream pipe (see dimensions)
Permanent pressure loss	15 % of the differential pressure with a beta ratio of 0.75

Dimensions in inch

The length of the flow meter is independent of the beta ratio. This enables users to change between beta ratios without having to adapt the existing piping system.

Nominal size	Inner diameter	Beta ratio	Bore diameter	Length Flange - flange	Overall length incl. flow straightener and seals
2"	2.067	0.40	0.827	24.36	25
2"	2.067	0.75	1.550	24.36	25
3"	3.068	0.40	1.227	34.23	35
3"	3.068	0.75	2.301	34.23	35
4"	4.026	0.40	1.610	43.10	44
4"	4.026	0.75	3.020	43.10	44
6"	6.065	0.40	2.426	62.84	64
6"	6.065	0.75	4.549	62.84	64
8"	7.981	0.40	3.192	80.59	82
8"	7.981	0.75	5.986	80.59	82

Shorter lengths on request



Options

- Mounted differential pressure gauge or transmitter
- Mounted thermowell with thermometer
- Flat gaskets and valve manifold seal in Graphoil (standard: PTFE)
- Studs and nuts for pipelines in accordance with customer requirements

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