

A Flowmeter Recalibration Survey

Name:			
Title:			
Company:			
Street:			
City/State:		Postal Code:	
Country:		Telephone:	
Email:			

Flow Research is an international market research company located in Wakefield, Massachusetts in the United States. One of our research areas is the worldwide oil & gas industry, and the process control instrumentation used in its support.

Flow Research is conducting a survey of flowmeter users on behalf of the Flowmeter Recalibration Working Group (FRWG). This group is composed of over 20 flowmeter manufacturers, calibration companies, and end-users. Its purpose is to arrive at a set of criteria for determining when a flowmeter should be recalibrated. You can find out more about this group at www.frwg.org.

We understand that you are the correct person to complete the survey below for your company. Your answers to this survey will greatly assist with the completion of the research project. We are very grateful for your participation. Please respond by April 20, 2018. Please return your completed survey to jesse@flowresearch.com. You can also respond to our fax or to our address on the last page. We thank you in advance for your participation!

Please provide your responses in the areas that are highlighted. And, your opinions matter a great deal. Please feel free to add your own comments.

1. What is the principal nature of your business activity? *Please mark appropriate box.*

<input type="checkbox"/>	Oil or Gas production
<input type="checkbox"/>	Refining
<input type="checkbox"/>	Oil or gas distribution (including pipelines and/or terminals)
<input type="checkbox"/>	Petrochemical
<input type="checkbox"/>	Chemical
<input type="checkbox"/>	Food and Beverage
<input type="checkbox"/>	Pharmaceutical
<input type="checkbox"/>	Power
<input type="checkbox"/>	Water and Wastewater
<input type="checkbox"/>	Other: _____

2. How would you classify your firm as a purchaser of flowmeters? *Please mark appropriate box.*

<input type="checkbox"/>	End-User
<input type="checkbox"/>	Engineering/Construction Firm
<input type="checkbox"/>	Systems Integrator
<input type="checkbox"/>	Other: _____

3. What is the total number of flowmeters in use at your facility/in your company?

Total Units: At facility? In company?

4. What is the total number of Coriolis, Ultrasonic, Turbine and/or Magnetic flowmeters in use at your facility/company?

	Coriolis	Ultrasonic	Turbine	Magnetic	Differential Pressure (DP)
% of Total Number of units in use	%	%	%	%	%

5. What percent of each of these types are used for custody transfer?

	Coriolis	Ultrasonic	Turbine	Magnetic	Differential Pressure (DP)
% of each type used for Custody Transfer	%	%	%	%	%

6. What types of fluids are measured by your Coriolis, Ultrasonic, Turbine, Magnetic and DP flowmeters **for custody transfer**? For what applications? *Please mark appropriate box(es).*

Fluid Type	Custody Transfer: Coriolis	Custody Transfer: Ultrasonic	Custody Transfer: Turbine	Custody Transfer: Magnetic	Custody Transfer: DP	Application(s)
Crude Oil (Upstream)						
Refined Fuels (Mid- and Downstream)						
Non-petroleum Liquids (incl. water/wastewater)						
Natural Gas						
Industrial Gas						
Steam						
Air						

Questions 7 and 8 regard flowmeters used to measure GAS..

7. How often do you recalibrate your **custody transfer** Coriolis, Ultrasonic, Turbine and/or Differential Pressure flowmeters used to measure **gas**? *Please mark appropriate box(es).*

Recalibration Frequency	Custody Transfer: Coriolis	Custody Transfer: Ultrasonic	Custody Transfer: Turbine	Custody Transfer: DP
Before each use				
Every 3 months				
Every 6 months				
Every year				
Every 3 years				
Every 5 years				
Other (please specify)				

8. How do you have your Coriolis, Ultrasonic, Turbine and/or DP flowmeters recalibrated? *Please mark appropriate box(es).*

Recalibration Method	Custody Transfer: Coriolis	Custody Transfer: Ultrasonic	Custody Transfer: Turbine	Custody Transfer: DP
Run software program				
Calibrate on-site using our equipment				
Bring in an outside calibration company				
Send out to an independent flow lab				
Send to the manufacturer				
On-site prover from our own company				
On-site prover from an outside party				
Diagnostics (e.g, meter verification)				
Other (please specify)				

Questions 9 and 10 regard flowmeters used to measure LIQUIDS.

9. How often do you recalibrate your **custody transfer** Coriolis, Ultrasonic, Turbine, DP and/or Magnetic flowmeters used to measure liquids? *Please mark appropriate box(es).*

Recalibration Frequency	Custody Transfer: Coriolis	Custody Transfer: Ultrasonic	Custody Transfer: Turbine	Custody Transfer: DP	Custody Transfer: Magnetic
Before each use					
Every 3 months					
Every 6 months					
Every year					
Every 3 years					
Every 5 years					
Other (please specify)					

10. How do you have your Coriolis, Ultrasonic, Turbine or Magnetic flowmeters recalibrated? *Please mark appropriate box(es).*

Recalibration Method	Custody Transfer: Coriolis	Custody Transfer: Ultrasonic	Custody Transfer: Turbine	Custody Transfer: DP	Custody Transfer: Magnetic
Run a self-diagnostic software program					
Calibrate on-site using our equipment					
Bring in an outside calibration company					
Send out to an independent flow lab					
Send to the manufacturer					
On-site prover from our own company					
On-site prover from an outside party					
Diagnostics (e.g., meter verification)					
Other (please specify)					

11. What factors determine when you have your Coriolis, Ultrasonic, Turbine, DP, and/or Magnetic flowmeters recalibrated? *Please mark appropriate box(es).*

Recalibration Factor	Custody Transfer: Coriolis	Custody Transfer: Ultrasonic	Custody Transfer: Turbine	Custody Transfer: DP	Custody Transfer: Magnetic
Government Regulation					
Manufacturer's Recommendation					
A problem with the device or the process					
A pre-determined contract interval					
International Acceptance and Traceability					
Quality Control Specifications					
Other (please specify)					

12. Custody Transfer applications require a high degree of accuracy and repeatability. Where do you initially calibrate the flowmeters you use in Custody Transfer applications?

%	By the manufacturer prior to delivery
%	At a calibration facility Where? _____
%	Other: _____

Total = 100%

13. You might have multiple reasons for deciding to recalibrate a flowmeter. What are your reasons for recalibrating your flowmeters used in Custody Transfer applications? *Please rank your reasons in their order of importance (1 = least important, 5 = most important).*

Recalibration Factor	Importance				
	LEAST IMPORTANT ←————→ MOST IMPORTANT				
	1	2	3	4	5
Company policy					
Contract requirements					
Regulations					
Manufacturer recommendation					
Lifecycle cost management					

14. What are the criteria you use in selecting a recalibration facility?
 Please rank in order of importance (1 = least important, 5 = most important).

Calibration Facility Selection Factor	Importance				
	1	2	3	4	5
Price					
Distance					
Availability					
Accuracy					
Capacity and sizing					
Client specification(s)					
International acceptance and accreditation					
Turnaround time					
Ease of witnessing					
Availability of different transition pieces					
Low pressure calibration for 300#, 150# meters					
Availability of high pressure for 600# meters					
Other:					

15. What percent of your **non**-Custody Transfer Coriolis, Ultrasonic, Turbine, and/or Magnetic flowmeters do you have recalibrated, and what is the average interval between calibrations?

%	Flowmeter Type	Interval Between Calibrations
%	Coriolis	
%	Ultrasonic	
%	Turbine	
%	Magnetic	

16. Is the above average turnaround time acceptable to you?

Yes No

17. Who decides where your flowmeters will be recalibrated?

%	The manufacturer / supplier
%	Our client / contractual partner
%	We do Relevant Title: _____
%	Other: _____

Total = 100%

18. We are also interested in other flowmeter types used to measure gas and liquids. If you are also a user of Vortex, Thermal, Differential Pressure, or Positive Displacement flowmeters, how often are these flowmeter types recalibrated at your company or facility?

%	Flowmeter Type	Interval Between Calibrations
%	Vortex	
%	Thermal	
%	Differential Pressure	
%	Positive Displacement	

19. Do you have any other comments that you believe would help us understand how to determine when a flowmeter should be recalibrated and how often?

20. Would you like to join our effort? Do you have articles or data relevant to the topic of flowmeter recalibration that you would like to submit to the Flow Recalibration Working Group? If so, please provide any details here or feel free to submit them directly to jesse@flowresearch.com. We are building a knowledge base on flowmeter recalibration.

Thank you very much for your participation!

- Please see the next page for important information.

Please return this questionnaire to: Flow Research, Inc.
 27 Water Street
 Wakefield, MA 01880
 United States

[1] 781 245-3200

[1] 781 224-7552 (fax)

You can also email your completed questionnaire to: jesse@flowresearch.com.

Would you like to learn more about Flow Research? We'd be happy to send you information about us and, if you would like, a summary of the activities of the Flow Recalibration Working Group.. We also have a new CD called "Go with the Flow" that includes a large number of flowmeter articles and other information. We'd be happy to send you this CD.

Please indicate your preference(s) below. *Please be certain to include your email and mailing addresses on the front page of this questionnaire for any materials you would like to receive.*

Mark your selection(s)	Flow Research Products and Services
	More information about the Flow Recalibration Working Group (free)
	"Go with the Flow" CD (free)
	Oil's Wild Ride, 3 rd Edition – White Paper on Oil Prices (free)
	More information about Flow Research (free)
	All of the above

