Base Load Power Hub (BLPH)

ULTRASONIC FLOWMETER

# ULTRASONIC FLOWMETER SIZING CALCULATION

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Document Class: 2

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|---|---|---|---|---|---|
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Baker Hughes

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## Revision / Change Log

| Rev. | Description |
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## HOLDS LIST

| No. | Description |
|---|---|
| 1. | |
| 2. | |
| 3. | |
| 4. | |

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# G-FAST RESULTS SUMMARY

*Flowmeter Application Calculator and Test System® Ver. 2.73, Dec-6-2023*

Customer Name: ROSSETTI MARINO
CPO#: 2721420
Tag Number: 43-FT-001

## Pipe Data

| | | |
|---|---|---|
| Pipe Material: | 316 Stainless Steel | |
| Pipe Size: | 10 | in |
| Pipe Schedule: | 10S | |
| Outer Diameter: | 10.75 | in |
| Inner Diameter: | 10.42 | in |
| Wall thickness: | 0.165 | in |
| Interal Area: | 0.59219 | ft² |

## Fluid Data

Fluid Name/Type: Gas Composition Tab 100%H2

| Variables | Min | Nom | Max | Units |
|---|---|---|---|---|
| Provided Flowrate | 153.00 | 1,067.00 | 2,381.50 | kg/Hour |
| Velocity | 6.43 | 44.80 | 100.00 | m/s |
| Temperature | 25.00 | 25.00 | 25.00 | °C |
| Pressure | 40 | 40 | 40 | kPa |
| Density | 0.120 | 0.120 | 0.120 | kg/m³ |
| Sound Speed | 1314.8 | 1314.8 | 1314.8 | m/s |
| Reynold's No. | 23,059 | 160,787 | 358,874 | |

| | | |
|---|---|---|
| Base Temperature | 15.6 | °C |
| Base Pressure | 101 | kPa |
| Barometric Pressure | 101 | kPa |
| Molecular Weight | 2.02 | |
| Max Allowed Vel. | 100 | m/s |

## Configuration Data

Transducer Configuration: Custom, Diameter (45°)
Traverses/Paths: 1 Traverse , 1 Path
Transducer Material: 316SS
PREAMP GAIN: 40

minimun measurable 0.75 kg/h / 0.03 m/s
estimated accuracy 155%

## Repeatability Results (% of Reading)

Accuracy/repeatability calculated is based on velocity

| | Temperature | | |
|---|---|---|---|
| Flow Rate: | Min | Nom | Max |
| Min | 0.76% | | |
| Nom | | 0.75% | |
| Max | | | 0.75% |

Calculations evaluated at **specified** conditions:

Min Flow @ Min Temp, Min Pressure, and Min Density (if applicable)
Max Flow @ Max Temp, Max Pressure, and Max Density (if applicable)

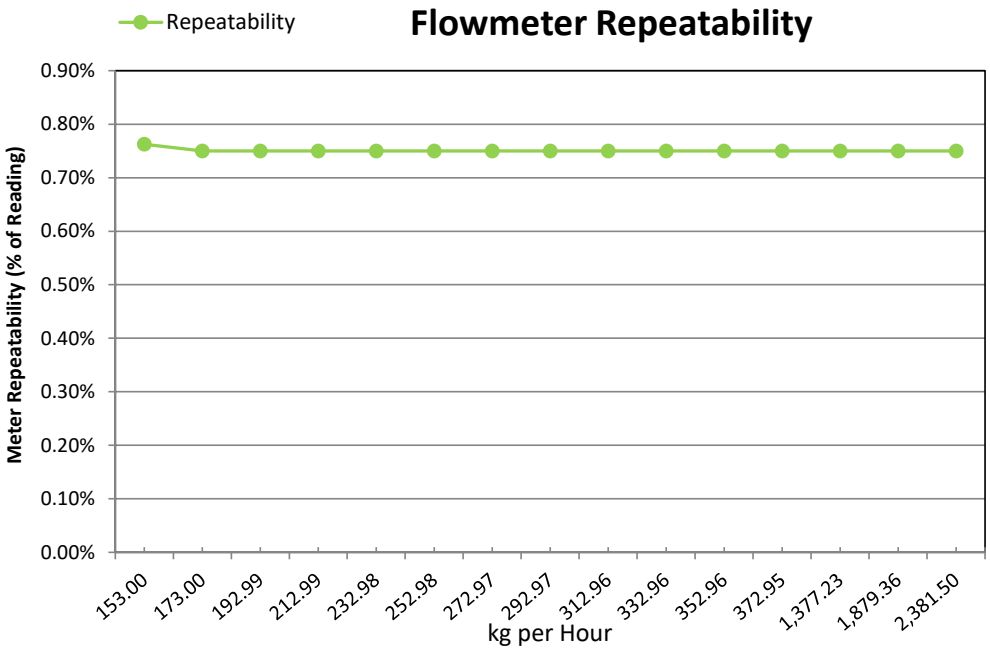
## Calibrated Accuracy Results (% of Reading)

| | Temperature | | |
|---|---|---|---|
| Flow Rate: | Min | Nom | Max |
| Min | 0.76% | | |
| Nom | | 0.75% | |
| Max | | | 0.75% |

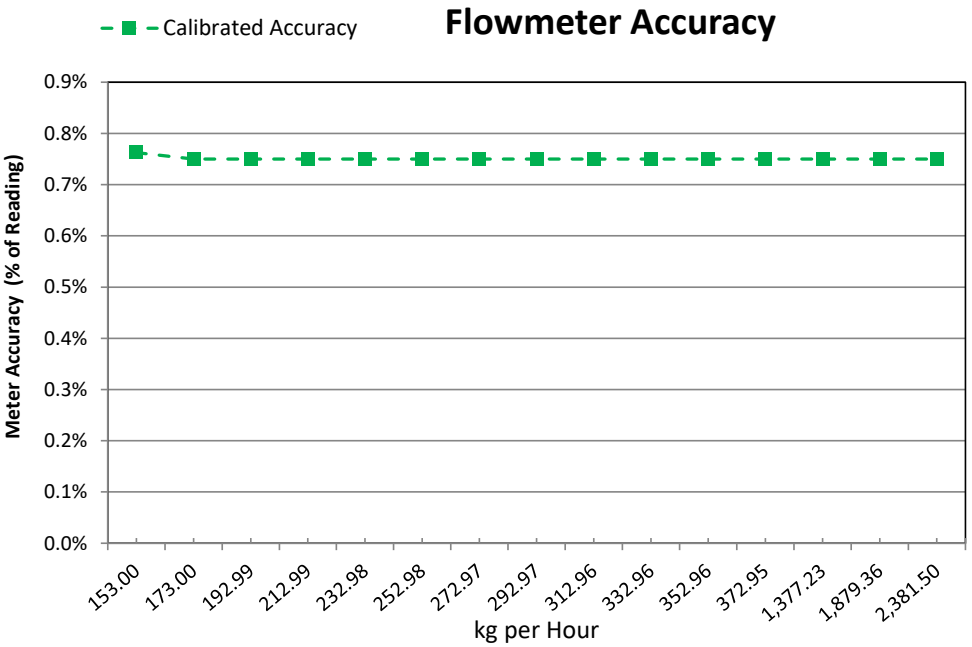
Calculations evaluated at **specified** conditions:

Min Flow @ Min Temp, Min Pressure, and Min Density (if applicable)
Max Flow @ Max Temp, Max Pressure, and Max Density (if applicable)

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| kg / Hour | Repeat-ability |
|---|---|
| 153 | 0.8% |
| 173 | 0.8% |
| 193 | 0.8% |
| 213 | 0.8% |
| 233 | 0.8% |
| 253 | 0.8% |
| 273 | 0.8% |
| 293 | 0.8% |
| 313 | 0.8% |
| 333 | 0.8% |
| 353 | 0.8% |
| 373 | 0.8% |
| 1,377 | 0.8% |
| 1,879 | 0.8% |
| 2,382 | 0.8% |




| kg / Hour | Calibrated Accuracy |
|---|---|
| 153 | 0.8% |
| 173 | 0.8% |
| 193 | 0.8% |
| 213 | 0.8% |
| 233 | 0.8% |
| 253 | 0.8% |
| 273 | 0.8% |
| 293 | 0.8% |
| 313 | 0.8% |
| 333 | 0.8% |
| 353 | 0.8% |
| 373 | 0.8% |
| 1,377 | 0.8% |
| 1,879 | 0.8% |
| 2,382 | 0.8% |

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