

Brodie Compact Prover (BCP)



General

The Brodie Compact Prover provides high accuracy, rapid operation and continuous flow for proving a flow meter in an operational line. Designed per API MPMS Chapter 4 standards, the Brodie Compact Prover can be utilized to verify the accuracy of almost any liquid flowmeter type, including positive displacement, turbine and manufactured pulse meters.

Proving is accomplished without interrupting normal flow and without the use of manually operated bypass valves. The unique design features a piston assembly with an internal poppet valve in conjunction with optical position sensing, hydraulic piston return, pneumatic piston actuation and modern data processing techniques. The result is a compact proving system significantly reduced in size, weight and cost that ensures accurate and repeatable proving performance.

The Brodie Compact Prover offers flexible mounting configurations on a truck or trailer for field proving of flow meters or permanently installed in a meter station or testing facility either vertically or horizontally, with maximum flow rate capabilities up to 25,000 BPH.

Pulse interpolation electronics permit exact time determination and pulse counting which provides high accuracy proving with a smaller volume and fewer flow meter pulses than any previous prover technology. The use of a small displacement volume is made possible by the high resolution of the Brodie Compact Prover which is attributed to two major factors: precision optical switches and data acquisition using double chronometry.

The Brodie Compact Prover is formerly known as the Brooks®/Daniel™ Compact Prover.

Features and Benefits

Compact and portable - a single prover may be used in multiple locations for proving various sizes of meters.

1500:1 Turn-down ratio

Vertical mounting available for applications having space constraints.

Rapid proving operation offers single or multi-pass operation with immediate K-factor calculation.

Versatility - operates with virtually any pulse output flow meter.

Positive leak checking.

Automatic mechanical operation assures undisturbed product flow.

Corrosion resistant flow tube.

Flexibility-volumetric or mass meter proving.

Supports volumetric or mass meter proving.

Pressure Ratings

		ANSI RATINGS				
		150	300	600	900	1500
PROVER SIZE	8"	✓	✓	✓	CF	CF
	12" MINI	✓	✓	✓	CF	CF
	12"	✓	✓	✓	CF	CF
	18"	✓	✓	✓	CF	CF
	24"	✓	✓	✓	CF	CF
	34"	✓	✓	✓	CF	CF
	40"	✓	✓	✓	CF	CF

✓ = Available
 CF = Consult Factory

International Safety Standards and Certifications

International mechanical requirements are met by utilizing components designed in accordance with API MPMS Chapter 4.2 and OIML R119.

Brodie Compact Prover materials meet ASTM, ANSI piping and fittings, ASME pressure containment design, CRN for Canada and PED for Europe requirements.

All electrical components contained meet global requirements, including CSA-US, ATEX and IECEx electrical certification.

Certified welder, as per ASME BPV code section IX are used for pressure containing welds.

Performance

Repeatability: 0.02% or better (waterdraw)

Standard Compact Prover Capacities Flow Rates, Dimensions and Weights:

NOMINAL FLOW TUBE DIAMETER	PROVER FLOW RATE RANGES		PROVER BASE VOLUME	INLET/ OUTLET FLANGE SIZE	NOMINAL PROVER SHIPPING DIMENSIONS (LXWXH)	APPROX. SHIPPING WEIGHT
	MINIMUM	MAXIMUM				
8"	0.17 GPM	250 GPM	5 GAL	2"	121" X 56" X 50"	2,200 LBS
	0.24 BPH	357 BPH				
	0.63 LPM	946 LPM	20 LITERS		307CM X 142CM X 127CM	998 KG
	0.04 M3/HR	57 M3/HR				
12" MINI	0.67 GPM	1,000 GPM	10 GAL	4"	147" X 62" X 55"	4,400 LBS
	0.95 BPH	1,430 BPH				
	2.52 LPM	3,780 LPM	40 LITERS		373CM X 157CM X 140CM	1,995 KG
	0.15 M3/HR	227 M3/HR				
12"	1.17 GPM	1,750 GPM	15 GAL	6"	172" X 67" X 57"	4,900 LBS
	1.67 BPH	2,500 BPH				
	4.42 LPM	6,623 LPM	60 LITERS		437CM X 170CM X 145CM	2,223 KG
	0.26 M3/HR	397 M3/HR				
18"	2.33 GPM	3,500 GPM	30 GAL	8"	193" X 76" X 56"	7,300 LBS
	3.33 BPH	5,000 BPH				
	0.88 LPM	13,247 LPM	120 LITERS		490CM X 193CM X 142CM	3,311 KG
	0.53 M3/HR	794 M3/HR				
24"	4.67 GPM	7,000 GPM	65 GAL	12"	220" X 96" X 66"	13,400 LBS
	6.67 BPH	10,000 BPH				
	17.72 LPM	26,583 LPM	250 LITERS		559CM X 244CM X 168CM	6,078 KG
	1.06 M3/HR	1,595 M3/HR				
34"	8.40 GPM	12,600 GPM	100 GAL	16"	230" X 102" X 74"	19,200 LBS
	12.0 BPH	18,000 BPH				
	31.79 LPM	47,691 LPM	400 LITERS		584CM X 259CM X 188CM	8,709 KG
	1.91 M3/HR	2,860 M3/HR				
40"	11.67 GPM	17,500 GPM	170 GAL	20"	240" X 130" X 77"	35,000 LBS
	16.67 BPH	25,000 BPH				
	44.16 LPM	66,237 LPM	650 LITERS		610CM X 330CM X 196CM	13,876 KG
	2.65 M3/HR	3,972 M3/HR				

Standard Materials Of Construction

Flow Tube: 17- 4 PH Stainless steel
Piping and Flange: Carbon steel/Stainless steel
Poppet Seal: Fluoroelastomer (FKM)
O-rings: Fluoroelastomer (FKM)

Engineered Options

Combination volumetric/mass meter prover
Integrated Master Meters and density measurement
Special materials, e.g., NACE compliant designs
Custom instrumentation packages (Inlet and outlet pressure and temperature measurement)
Trailer mounting (horizontal and vertical lift)
Vertical lift and fixed vertical installation provers
Local and remote proving flow computers
Insulated and jacketed provers
Flexible hoses, hydraulic, articulated and swivel arms

NOTE: Please consult the factory for your compact prover configuration. Improved performance and other product and material offerings may be available depending on the application.

Standard Factory Tests

Hydrostatic: Chart recorded pressure test to 1.5 times max working pressure
Waterdraw: Calibration test within 0.02% repeatability traceable to NIST
Functional: Verifies functionality of prover, components (i.e., instrumentation) and repeatability as per API Chapter 4

Hazardous Location Approvals

Electrical systems conforming to National Electrical Code, Class I, Div. 1, Group D or CSA Std C22.2, Class I, DIV. 1, Group D, using UL/CSA approved components only

Electrical systems conforming to European directives and standards (Ex de ia m IIB T3 (ATEX, PED)), using ATEX approved components only.



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