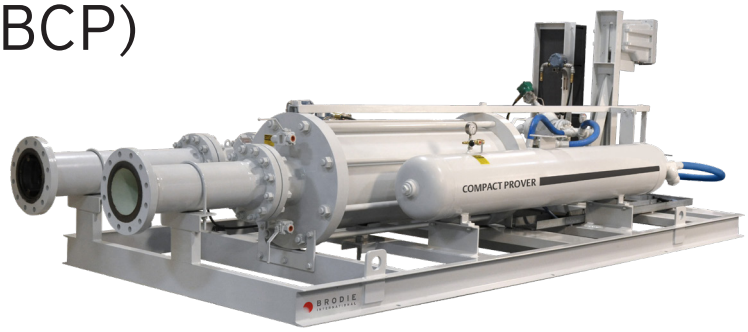
Brodie Compact Prover (BCP)



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 complete packaged 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.

1000:1 flow rangeability.

Vertical mounting available for applications having space constraints/upstream application.

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.

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 included 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.

Pressure Ratings

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

✓ = Available
CF = Consult Factory
NA = Not Available

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"	0.25 GPM	250 GPM	5 GAL	2"	121" X 56" 50"	2,200 LBS
	0.357 BPH	357 BPH				
	0.946 LPM	946 LPM	20 LITERS		307CM X 142CM X 127CM	998 KGS
	0.057 M3/HR	57 M3/HR				
12" MINI	1.0 GPM	1,000 GPM	10 GAL	4"	147" X 62" X 55"	4,400 LBS
	1.43 BPH	1,430 BPH				
	3.78 LPM	3,780 LPM	40 LITERS		373CM X 157CM X 140CM	1,995 KGS
	0.227 M3/HR	227 M3/HR				
12"	1.75 GPM	1,750 GPM	15 GAL	6"	172" X 67" X 57"	4,900 LBS
	2.5 BPH	2,500 BPH				
	6.623 LPM	6,623 LPM	60 LITERS		437CM X 170CM X 145CM	2,223 KGS
	0.397 M3/H	397 M/PH				
18"	3.5 GPM	3,500 GPM	30 GAL	8"	193" X 76" X 56"	7,300 LBS
	5.0 BPH	5,000 BPH				
	13.247 LPM	13,247 LPM	120 LITERS		490CM X 193CM X 142CM	3,311 KGS
	0.794 M/HR	794 M/HR				
24"	7.0 GPM	7,000 GPM	65 GAL	12"	220" X 96" X 66"	13,400 LBS
	10.0 BPH	10,000 BPH				
	26.583 LPM	26,583 LPM	250 GAL		559CM X 244CM X 168CM	6,078 KGS
	1.595 M3PH	1,595 M3PH				
34"	12.6 GPM	12,600 GPM	100 GAL	16"	230" X 102" X 74"	19,200 LBS
	18.0 BPH	18,000 BPH				
	47.691 LPM	47,691 LPM	400 LITERS		584CM X 259CM X 188CM	8,709 KGS
	2.860 M3/HR	2,860 M3/HR				
40"	17.5 GPM	17,500 GPM	170 GAL	20"	240" X 130" X 77"	35,000 LBS
	25.0 BPH	25,000 BPH				
	66.237 LPM	66,237 LPM	650 LITERS		610CM X 330CM X 196CM	13,876 KGS
	3.972 M/HR	3,972 M/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 (hazardous area) electronics with UL and ATEX hazardous area approvals

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

CE Mark for the European Community, including all applicable

European directives and standards.
(Ex de ia m IIB T3 (ATEX, PED))

Canadian Standards Association (CSA International) approval for hazardous locations, Class I, DIV. 1, Group D

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

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