

TEST REPORT



[OFFICIALLY TESTED
APPROVED
Federal Biological
Research Centre for
Agriculture and Forestry]
Inspection No. G 1687

of the
**Federal Biological
Research Centre
for Agriculture and
Forestry
Braunschweig
Germany**

Member of



Inspection equipment, AAMS PTP 400-16 pump testing equipment

**Approved for the inspection of plant protection instruments
(pump flow volume and flow meter test from 25 l/min to 400 l/min)**

Applicant and manufacturer

AAMS nv
Vliegeplein 14A
B - 9991 Maldegem

Approved on

19 January 2004

The approval is valid for a period of five years and can be extended.

Equipment and dimensions

Design:



Fig. 2: Opened case with pipe, connections, flow meter and measured value indicator.

Aluminium housing with lockable lid and carrying handles. The indicator, a pressure sensor to indicate the operating pressure, the flow meter and a throttling screw are housed in the casing. There are two CAM-LOCK connections for “pump” and “return” on the outer casing with a 35.5 mm inside diameter. A pressure relief valve with a 16 bar opening pressure is integrated in the pipe to protect against too high a pressure.

Transport container: Aluminium case with detachable lid, lockable with two carrying handles on the side.

Dimensions: width 980 mm, depth 480 mm, height 380 mm.

External connections: CAM-LOCK connections for pump and return.

Indicating device:



Fig. 3: Terminal with measured value indicator and function keys (touch-sensitive keyboard).

Arrangement: In the centre of the container.

Dimensions: Width 215 mm, height 80 mm, depth 95 mm

Design:

Indicator terminal with liquid crystal display (illuminated) and touch-sensitive keyboard (function and arrow keys).

Functions:

Indication of the instantaneous flow volume at the back pressure set via the throttling screw. Memory function for 100 pairs of measured values (pressure and flow volume).

Data input:

Input (pulse value per litre, measured value memory, test function and calibration function) via the touch-sensitive keyboard (function keys with arrow keys). The instrument is supplied calibrated ex works. The indicating accuracy of the flow meter (magnetic-inductive flow meter) can be readjusted via the pulse value.

Flow meter:

Magnetic-inductive operating flow meter (20 - 400 l/min), nominal diameter 40 mm.

Manufacturer:

Krohne, type IFM 1010K/D/6 - DN 40 (1 1/2”), PN 16 bar.

Infeed section:	Stainless steel pipe (1 1/2"). Length of infeed section (straight part of the pipe): 180 mm.
Throttling valves:	Throttling valve (plate valve with hand wheel) for adjusting the back pressure for the pump test.
Pressure indicator:	Electronic pressure sensor to indicate the system pressure during the pump test. WIKA type transmitter S - 10.0 - 25 bar, graduations 0.1 bar.
Overpressure protection:	Pressure relief valve with 16 bar opening pressure.
Power supply:	Rechargeable battery 12 V - 15 Ah with plug-in charger.
Dimensions:	Length: 980 mm Width: 480 mm Height: 380 mm Weight: 33 kg

Assessment

The AAMS PTP 400-16 inspection equipment is equipped for testing pumps on spraying and atomising devices for field crops and for checking the precision of flow meters on these instruments with a flow volume meter, pressure adjustment valve, pressure measuring instrument for the system pressure and pump and return connections (both CAM-LOCK connections, nut part). In addition, the instrument is equipped with overpressure protection (16 bar) to protect against too high a pressure being set unintentionally. The flow meter installed by Krohne can be used both to check the instrument's flow meter and to check the pump in the measurement range 25 l/min to 400 l/min.

The entire measuring device is housed in an aluminium case and can be picked up and carried by one person (weight 33 kg). The adapters required to connect the measuring device to various spraying and atomising devices can easily be procured separately. The indicating device operates without mains power via a rechargeable battery so that pump checks or the checking of the flow meter can also be carried out at locations where no power line is available.

The lid of the case is folded up during operation. An overpressure protection device and a pressure adjustment valve are connected in series to the flow meter. The flow meter indicator is sufficiently accurate for measuring the pump volume and checking the flow meter in the 25 to 400 l/min range (< 1.5 % error in the measured value). Flow volume measurements of less than 25 l/min should not be carried out because of the poor indicating accuracy.

In addition to the tested version PTP 400-16 the manufacturer also offers a high-pressure version up to 50 bar system pressure and a further low-pressure version for 800 l/min maximum.

Table 1:
Measurement accuracy of the flow meter in the BBA test (measurements under practical conditions)

BBA measured value	AAMS PTP 400-16 measured value	Deviation from BBA measured value (%)
26.9	26.8	-0.4
40.5	40.7	0.5
63.1	63.7	1.0
71.0	70.1	-1.3
100.5	99.2	-1.3
130.0	128.0	-1.5
158.0	157.0	-0.6
177.8	175.0	-1.5
158.5	157.5	-0.6
191.0	191.8	0.4
235.5	235.5	0.0
271.0	272.0	0.4
326.5	326.0	-0.2
379.0	378.0	-0.3
392.3	392.5	0.1
423.8	426.0	0.5
475.0	473.0	-0.4

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