

TEST REPORT



[OFFICIALLY TESTED
APPROVED
Federal Biological Research
Centre for Agriculture and
Forestry]
Inspection No. G 1686

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

Member of



**AAMS "TBS" type "pressure testing" inspection equipment
Approved for the inspection of plant protection instruments
(pressure gauge test up to 16 bar)**

Applicant and manufacturer
AAMS nv
Vliegplein 14 A
B - 9991ADEGEM (MALDEGEM)

Approved on
20 December 2004

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

Equipment and dimensions

Design:



Design:

Plastic transport case with four locks and detachable lid for various measuring instruments. It contains a pressure balance, four individual nozzle pressure measuring devices, an individual nozzle flow volume measuring device, a 2,000 ml measuring cylinder, in addition to an air pressure testing instrument, a stop watch and a nozzle cleaning tool.

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

Dimensions: length 800 mm, width 430 mm and height 300 mm.

Fig. 2: Transport case with standard contents



Fig. 3: Pressure balance with screw pump and calibrated pressure gauge

Pressure balance: Unit for checking the instrument's pressure gauge supplied in a special case. This requires the test samples to be placed on the pressure balance using the adapter piece and compared with the calibrated reference pressure gauge. The pressure is built up by means of a screw in the piston.

Reference pressure gauge: calibrated pressure gauge with a diameter of 160 mm, 0 - 16 bar (pressure gauges can also be supplied with 10 bar, 25 bar, 40 bar and 60 bar final pressure value), accuracy class 0.6. Dimensions: length 470 mm, width 180 mm and height 235 mm. The calibrated pressure gauge can be connected to the test connection (R 1/4") of the plant protection instrument that is to be inspected via an accessory.

It is therefore possible to check the instrument's pressure gauge in its mounted condition..



Fig. 4: The test pressure gauge can be connected to the test samples via a hose.

Measuring cylinder: Plastic cylinder with a 2,000 ml nominal capacity and 20 ml graduations.



Fig. 5: Optionally available adapter with test pressure gauge for testing the pressure drop on the nozzle bar.

Nozzle pressure measurement: Individual nozzle adapter for pressure measurement on the bar, adapter with sealing surface (hard rubber seal) and two jaws for fitting on any standard nozzles. One pressure gauge, (WIKA) 0 - 16 bar, per adapter (pressure gauges with 6 bar, 10 bar, and 25 bar measuring range can also be supplied), accuracy class 1.0, diameter 100 mm. Dimensions: length 170 mm, width 106 mm, height 150 mm, weight 1.096 kg.

An adapter with a hose (see figure 5) is offered for testing with special designs such as TeeJet XRC nozzles or Agrotop TD nozzles.



Fig. 6 and 7: Floating body flow meter for the rough estimation of individual nozzle flow volumes.

Individual nozzle flow meter (not suitable for testing because of the low measurement accuracy): Flow meter based on the floating body principle with a nozzle adapter (must be manually pressed on to the nozzle to be tested) and a hose line in transparent plastic with an inside diameter of 10 mm and length of 700 mm. Flow rates of 0.4 to 2.8 l/min.



Fig. 8: Air pressure measuring device for checking the air chamber pressure on pumps.

Also included in the lid of the instrument case is a handy air pressure testing device (air chamber pressure), a stop watch and a nozzle brush.

Assessment

The range of measuring instruments combined in a plastic case consisting of a calibrated test pressure gauge with pressure balance and/or hose adapter, four individual nozzle test pressure gauges, floating body flow meter, 2 l measuring cylinder, pneumatic pressure testing device and stop watch is suitable for checking plant protection instruments (pressure gauge test up to 16 bar).

The pressure gauges used are sufficiently accurate to meet the requirements. The test pressure gauge for the pressure gauge test can be calibrated. The integrated measuring cylinder with a 2 l capacity has 20 ml graduations and has an indication error of 7 ml maximum. It therefore complies with the requirements for test instruments. The pressure drop on different bar sections of a spraying device can be easily checked using the integrated individual nozzle test pressure gauge. The nozzle adapters seal sufficiently securely on the standard nozzle caps. Optional nozzle adapters are available for testing with special designs such as TeeJet XRC nozzles (cap - nozzle combination) and Agrotop TD nozzles (page 3, figure 5).

The floating body flow meter included in the kit for the measurement of individual nozzle flow volumes only provides an approximate indication of the flow volume measured. The measurement accuracy is not adequate for an individual nozzle flow volume measurement within the framework of an official instrument test.

All in all the case is easy to handle and includes the most important measuring devices for testing pressure gauges and checking individual nozzle flow volumes (via a measuring cylinder). A stop watch and a pneumatic pressure testing device complete the contents supplied.

Measurement results:

Table 1: Measurement accuracy of the test pressure gauge

Test pressure (bar)	Indication rising (bar)	Error (rising) (%)	Indication falling (bar)	Error (falling) (%)	Difference rising : falling
1.0	1.00	0.00	1.00	0.00	0.00
2.0	2.00	0.00	2.00	0.00	0.00
3.0	3.00	0.00	3.00	0.00	0.00
4.0	3.98	-0.13	4.00	0.00	-0.13
5.0	4.98	-0.12	4.98	-0.12	0.00
6.0	5.95	-0.31	5.98	-0.12	-0.19
7.0	6.95	-0.31	6.97	-0.19	-0.12
8.0	7.94	-0.37	7.96	-0.25	-0.12
9.0	8.92	-0.50	8.96	-0.25	-0.25
10.0	9.92	-0.50	9.94	-0.38	-0.12
11.0	10.92	-0.50	10.95	-0.31	-0.19
12.0	11.93	-0.44	11.95	-0.31	-0.12
13.0	12.93	-0.44	12.95	-0.31	-0.12
14.0	13.93	-0.44	13.95	-0.31	-0.12
15.0	14.94	-0.38			

Table 2: Indication error of measuring cylinder

Capacity (ml)	Weight of contents (g) at 21°C	Weight of contents (g) at 21°C	Mean value	Deviation (ml)	Deviation (%)
200	197.4	199.4	198.4	1.6	-0.80
400	396.7	399.4	398.1	2.0	-0.49
500	494.6	499.3	497.0	3.0	-0.61
600	595.3	597.4	596.4	3.7	-0.61
800	797.4	797.7	797.6	2.5	-0.31
1000	994.9	998.2	996.6	3.5	-0.35
1200	1193.0	1196.5	1194.8	5.3	-0.44
1400	1393.0	1395.4	1394.2	5.8	-0.41
1600	1593.0	1594.9	1594.0	6.0	-0.38
1800	1793.2	1795.2	1794.2	5.8	-0.32
2000	1990.5	1994.8	1992.7	7.3	-0.37

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