

Responsibility and recognition



Performing competent authority:
 Julius Kühn-Institute (Germany)
 Institute for Application Techniques in Plant Protection
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This test is recognized by the ENTAM members:



BLT- Francisco Josephinum, Wieselburg
 (Austria) 052/11



AU/DAE - University of Aarhus - Department of
 Agricultural Engineering Sciences (Denmark) AU/DAE/ENTAM
 2011-17



Cemagref - Institut de recherche pour l'ingénierie
 de l'agriculture et de l'environnement CEMAGREF/ENT/11/042



HIAE Hungarian Institute of Agricultural
 Engineering (Hungary) D-59/2011



ENAMA Ente Nazionale per la Meccanizzazione
 Agricola (Italy) ENTAM „Rapporto di
 prova prestazionale”
 13/2011



PIMR - Przemyslowy Instytut Maszyn
 Rolniczych Industrial Institute of Agricultural
 Engineering (Poland) PIMR-78/ENTAM/11



CMA Generalitat de Catalunya
 Centre de Mecanització Agrària (CMA) (Spain) EB 015/11



I.A.M.C. Institute of Agricultural Machinery
 and Constructions (Greece) AE/154/01/ZZ



ENTAM - Test Report



Trade mark:	MMAT
Model:	EZK 11004
Equipment type:	hydraulic nozzle, flat spray
Field of application:	Field crop spraying
Pressure range:	3 - 6 bar tested
Standard working height:	50 cm (40 cm - 60 cm tested)

Manufacturer:
 MMAT Marian Mikolajczak
 Agro Technology
 Gronówko 23a
 64-111 Lipno
 Poland
 Sept. 2011

Test report: D - 1916

Test results

This nozzle has been tested without accessories.
This nozzle is appropriate for the use of spraying field crops, grassland, vegetables and ornamental plants with a liquid pressure of 3.0 - 6.0 bar.

The front page image of this report shows the demountable nozzle parts (right side) and the assembled nozzle in a 90° twisted position (left side).

- The cross distribution CV¹⁾ is between 3.4 % (3.0 bar) and 4.1 % (6.0 bar) for the tested pressure range 3.0 - 6.0 bar at a standard working height of 50 cm. For a pressure of 3.0 bar, the CV varies from 8.9 % (40 cm) to 3.4 % (50 cm). The maximum allowed CV for one working height and one pressure (specified by the manufacturer) is 7 %, for all heights and pressures is 9 %.
- The max. deviation between the measured single nozzle flow rate and the flow rate table is between -5 % (at 4 bar) and -0.4 % (at 6 bar). The maximum allowed deviation is 5 %.
- The max. deviation of the single nozzle flow rates from the mean flow rate is between -1.1 % and 1.0 %.
- The nozzle fulfils the discharge rate requirement of the color code according ISO 10625 (color code: Flame red, 1.6 l/min at 3 bar). See tab.1.

Test results

Pressure (bar)	Discharge rate without accessories (l/min)	droplet size ²⁾
3.0	1.59	coarse
4.0	1.81	coarse
6.0	2.22	medium

tab.1: Discharge rate and droplet size depending on liquid pressure.

- 1) on a spray boom with 50 cm nozzle distance
- 2) according BCPC scheme (additional information)

Additional information

The tested nozzles (24) were picked out at random of a stock of 200 nozzles. Testing takes place according to the Technical Instructions for ENTAM-Tests of Spray nozzles, rel.1.

This procedure was developed by the competent testing authorities of the European countries participating in ENTAM and is based on the ISO 5682 standard: „Equipment for crop protection - Spraying equipment; Part 1 Test methods for sprayer nozzles“ and on EN 12761 standard: „Agricultural and forestry machinery - Sprayers and liquid fertilizer distributors - Environmental protection; Part 2“. This test is only a technical performance test which takes place without an accompanying field test. The test results apply only to the tested appurtenances of the sprayer. Statements on the behaviour of different appurtenances cannot be derived from these results.

Free download of the test report under: www.ENTAM.net
or: www.jki.bund.de