

## ***ENTAM - Test Report***



**Sprayer type:** Self propelled Field Crop Sprayer  
**Trade mark:** Agrifac  
**Model:** Condor 5

**Manufacturer:**  
Agrifac Machinery B.V.  
Eesveenseweg 15  
8332 JA Steenwijk  
The Netherlands

**Test report: D - 2264**  
June 2021

## Assessment table

Table 1: Assessment table

Number	Contents	Assessment
1	spray tank surface roughness	+++
2	spray tank over volume	++
3	volume of total residual	++
4	spray tank contents gauge from 10% to 20% filling	++
5	spray tank contents gauge from 20% filling	++
6	effectivity of agitation system	+
7	width of nozzle bar section	+++
8	boom height adjustment range	+++
9	accuracy of pressure gauge	++
10	accuracy of flow meter, see no.15	
11	regulation speed	++
12	even transverse distribution	+
13	size of rinsing water tank (sprayer on level ground)	+
14	deviation of volume/hectare adjustment device from desired value	not measurable while stepless
15	repeatability of volume/hectare adjustment device	+
16	pressure drop between manometer and nozzle (with 24 m setting)	++
17	deviation of single nozzle output from table	++

Assessment keys are listed at the end of the report.

**Note:**

The layout of German ENTAM reports has changed because German federal authorities are directed to publish only documents accessible for people with a disability on their internet pages.

## Technical data of sprayer

### Tanks + pumps:

- 5000 liter glass fibre reinforced tank
- Electronic contents indicator
- 510 liter glass fibre reinforced rinsing water tank
- 18 liter hand wash tank
- 1 Altek P 500 pump with 322 liter per minute at 4 bar for agitating and spraying

### Spray boom:

- 36 or 24 meter working width
- Single nozzle switching
- 25 cm distance between nozzle stations
- Infinitely variable from 300 mm to 2880 mm
- 10 ° pendulum device
- Pressure recirculation system for spray liquid

### Frame + chassis + drive:

- All wheel steering and hydraulic adjustable track width from 1800 to 2400 millimeter (including different wheel offsets)
- Ground clearance 1240 mm with tyres 420/95R50
- Pneumatic suspension
- Stepless hydraulic drive

### Dimensions + weights:

- Total length 8870 mm
- Height 4000 mm
- Width 3000 mm
- Empty weight 12300 kg

## Description of sprayer

The framework of the sprayer is made of steel profiles with the tank situated on the top. The sprayer has all wheel steering and a pneumatic suspension with a hydraulic adjustable track width. The steering has 3 work modes front wheel steering, all wheel steering and crab steering. It is permitted for a road speed of 40 km/h. 50 km/h are optional. It is propelled by a 192 Kilowatt Diesel engine.

The spray tank with a nominal volume of 5000 l is made of reinforced glass fibre. It keeps an over volume of 8.5 % to hold back foam. The sprayer is equipped with one Altek P500 pump for all spraying liquid actions (including cleaning). The pump is hydraulic powered. The intensity of the agitation can be adjusted from the drivers place or can be controlled automatically. From the control centre at the left sprayer side the automatic agitation control can also be switched ON and OFF. Because of the existing recirculation system all the liquid in the spraying system can be diluted (up to the nozzles) it also facilitates to have the full concentration at the nozzles instantly in the first moment of spraying. For the inner tank cleaning rotating nozzles are placed in the center section of the tank also feeded by the spray liquid pump Altek P500.

The wash water tank with a capacity of 510 liters is also made of reinforced glass fibre and is placed at the rear of the sprayer. The contents is shown on the display in the drivers cabin. The wash water tank has to be filled directly or via the Altek pump.

The boom persists of 7 mechanical sections made of steel and the outer sections contain an obstacle give away function. The boom is hydraulically folded lateral at the sprayer. The left and right boom side can be twisted independently for 10 degrees each. The slope compensation can compensate in a range of up to 15 %. The height of the boom can be controlled automatically by sensors at the boom.

This automatic function also includes the lifting and lowering of the boom at the beginning and end of a track. The range of height is between 300mm and 2880 mm. The usual boom working width is 36 m. If necessary the boom can also be unfolded and operated at a 24 m boom width. The sprayer was equipped with nozzle stations every 25 centimeter with single nozzle control. In standard version the sprayer is delivered with nozzle stations every 50 centimeter.

The installed spray computer and controlling unit Agrifac EcoTronicPlus is placed at the right side of the drivers place together with a multi function lever. All relevant data for the driving and movement of the sprayer are shown and adjusted on the terminal screen with touch function and that lever. Additionally the sprayer is equipped with several cameras to show the surrounding of the sprayer to make ranking movements more safe. The cabine fulfils the category 4 requirements and is equipped with an air-conditioning system.

## Result table

Table 2: Result table

Requirement	Result
spray tank over volume	8.5 %
spray tank contents gauge graduation marks	electronical display
spray tank contents gauge deviation between 10 - 20 % tank filling	3.41 %
spray tank contents gauge deviation over 20 % tank filling	-2.08 %
spray tank surface roughness	0.019 mm
rinsing tank volume	510 liter
rinsing and dilution possible?	yes
cleaning performance of tank (cleaning effectivity)	95.92 %
rinsing efficiency of can rinsing equipment	< 0.01 %
manometer graduation marks	0.1 bar
manometer deviation	0.1 bar
agitation system performance (deviation from even concentration)	- 12 %
dilutable residual in sprayer with no backflow no agitation and 8.5° slope	63.60 liter
non dilutable residual in spray tank	non
spray boom height adjustment range from - to	300 - 2880 mm
spray boom nozzle ground contact protection?	yes
spray boom pressure loss between manometer and nozzle at 4.8 bar (24 m working width setting)	- 4.98 %
spray nozzles dripping after switch off	non
maximum deviation of single nozzle flow rate from table	- 6.1 %
maximum deviation of single nozzle flow rate from mean	4.0 %
spray boom transverse distribution with nozzle: Lechler IDK 90-03 C with 25 cm spacing	
transverse distribution at 30 cm and 3 bar	7.2 % CV
transverse distribution at 25 cm and 5 bar	6.9 % CV
transverse distribution at 30 cm and 7 bar	6.4 % CV
volume/hectare adjustment device - spray computer	
spray computer repeatability of adjustment deviation, ascending maximum	-5.98 %
spray computer repeatability of adjustment deviation, descending maximum	-5.68%
spray computer regulation speed, switching on/off single sections	2.2 seconds
spray computer regulation speed, switching on/off complete sprayer	4.4 seconds
spray computer reaching steady state in varying conditions, changing gear	stepless drive

### Explanation on testing:

Testing takes place according to the Technical Instructions for ENTAM-Tests of Field Crop Sprayers (Rel.5). This procedure was developed by the competent testing authorities of the European countries participating in ENTAM and is based on the standard EN ISO 16119. 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 the sprayer with different appurten-

Pictures of sprayer



Pictures of sprayer



## Assessment keys for assessment table

Table 3: Assessment keys for table 1 Assessment table

assessment point	unit	+	++	+++
1	mm	> 0.070 - 0.1	0.030 - 0.070	< 0.030
2	%	5 - 8	> 8 - 12	> 12
3	of allowed value	> 2/3	1/3 - 2/3	< 1/3
4	%	7.5 - 5.0	< 5.0 - 2.5	< 2.5
5	%	5.0 - 4.0	< 4.0 - 2.0	< 2.0
6	%	> 10 - 15	5 - 10	< 5
7	m	4.5 - 6	> 3 - 4.5	3 or less
8	m	1 - 1.5	> 1.5 - 2.0	> 2.0
9	bar	> 0.10 - 0.20	> 0.05 - 0.10	0.00 - 0.05
10	%	4 - 5	2 - 4	0 - < 2
11	% or seconds	> 7 - 7.5	> 3 - 7	0 - 3
12	CV	> 7 - 9	4 - 7	< 4
13	% of nominal volume	10 - 12	> 12 - 15	> 15
14	s	> 4 - 7	2 - 4	< 2
15	deviation %	> 4 - 6	2 - 4	< 2
16	%	> 7 - 10	3 - 7	< 3
17	%	> 7 - 10	3 - 7	< 3

**Pictures:**

Page 6, top: Right side of the sprayer.

Page 6, middle: Unfolded boom, middle section of one arm.

Page 6, bottom: Hydraulically adjustable half frames.

Page 7, top: Control center and induction bowl at the left sprayer side.

Page 7, middle: Open induction bowl.

Page 7, bottom: Drivers place in the the cabin.

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## Responsibility and recognition



Performing competent authority  
 Julius Kühn-Institute (Germany)  
 Institute for Application Technique in Plant Protection  
 Messeweg 11-12  
 D-38104 Braunschweig

### This test is recognized by the ENTAM members



**HBLFA** Francisco Josephinum BLT Wieselburg (Austria). Recognition number  
 BLT ProtNr 014/21



**CMA**-Administració de la Generalitat de Catalunya, Centre de Mecanització Agrària (Spain).  
 Recognition number EPH 04/21



**ENAMA** Ente Nazionale per la Meccanizzazione (Italy). Recognition number ENTAM  
 „Rapporto di prova prestazionale“ 04/2021



**INRAE** - Institut National De Recherche en Agriculture, Alimentation et Environnement (France).  
 Recognition number INRAE/CEMAGREF/21/030



**ŁUKASIEWICZ-PIMR** – Sieć Badawcza Łukasiewicz – Przemysłowy Instytut Maszyn Rolniczych (Poland).  
 Recognition number Ł-PIMR-315/ENTAM/21

10.5073/20210603-165824