Fendt 939 Vario S4

Data sheet DLG PowerMix

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Test performed by
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Test No.

2015-358



Juli 2015

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Specifications

Engine

Manufacturer	**Deutz AG**	
Stage of emission	**IV**	
Exhaust aftertreatment device		
Nitrous gaseous emission	Selective Catalytic Reduction (SCR)	
Particulate matter emission	Passive regenerating CSF Diesel particulate filter (DPF)	
Time for regeneration DPF (average)	-**	min
Time between regeneration:		
- maximum*	-**	h
- under PowerMix conditions*	-**	h
- checked	-**	
Exhaust gas recuperation	**Extern, cooled**	
Number of cylinders*	**6**	
Bore*	**110**	**mm**
Stroke*	**136**	**mm**
Displacement*	**7750**	**cm³**
Rated speed	**2100**	**min^{-1}**

Power* by ECE R24	**standard**	**boost**
Rated power	287 kW	- kW
Maximum power	287 kW	- kW
at engine speed	1900 min^{-1}	- min^{-1}
Loss of power during regeneration	-**	

Main fan		
Diameter	800	mm
Number of fan blades	9	

Transmission

Manufacturer	**AGCO Fendt**	
Type of construction	**continuous**	
Ranges	**2**	
Gears		
Forward	-	
Reverse	-	
Design speed	**60**	**km/h**

Power take off

Profile	**6 spline (1¾")**			
Transmission ratio*				
Standard pto speed	540	540E	1000	1000E
Engine speed [min^{-1}]	-	-	1970	1605

Chassis

Front axle		
Manufacturer	Dana	
Type	Rigid axle, suspended	

Tires	**front**	**rear**
Manufacturer	Michelin AXIOBIB	Michelin AXIOBIB
Tire size	IF 650/65 R34	IF 710/75 R42

Axle load	**front**	**rear**	**total**
Permissible*	8000 kg	11500 kg	16000 kg
Empty weight	4890 kg	5910 kg	10800 kg

Hydraulic

System*	**Pressure ans flow compensated**	
Supply of oil	**Separate hydraulic tank**	
Fluid type*	**HD SAE 10 W 40**	
Capacity*	**102**	**l**
Extractable*	**80**	**l**
Auxiliary valves		
Number	8	
Max. flowrate*	140	l/min
Max. pressure*	**200**	**bar**

Fitted options

Free return flow	**Yes**
Air condition	**Yes**
Air compressor	**Yes**
Front hydraulic power lift	**Yes**
Front pto	**No**
	-
	-

Test conditions

Axle load	**front**	**rear**
With ballast	**5050 kg**	**7420 kg**
Ballast		
on frame	620 kg	1050 kg
on axle	- kg	- kg
Axle load distribution	**40 %**	**60 %**
Tire pressure	**front**	**rear**
Field work	1,2 **bar**	1,2 **bar**
Transporttest	1,0 **bar**	1,0 **bar**

Remarks

* Manufacturer´s data

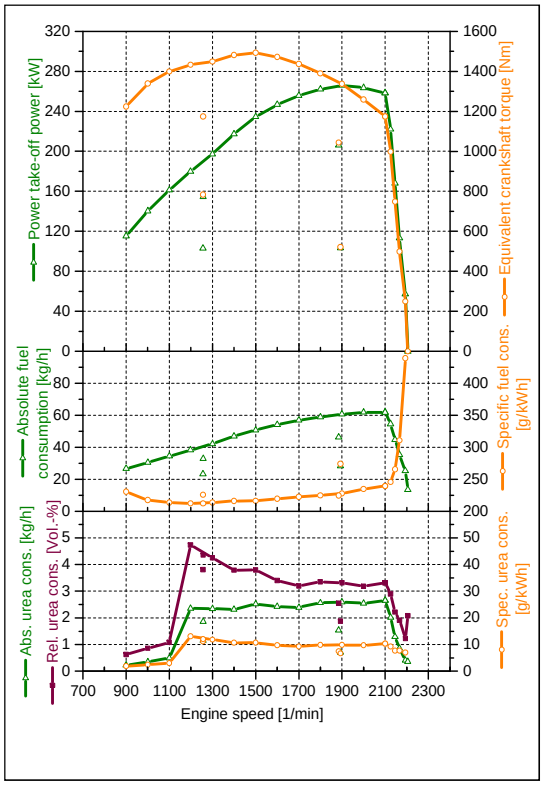
** Active regeneration Diesel Particulate Filter (DPF) - only stand still regeneration, no time between regeneration fixed

Results of measurement at pto dynamometer – standard

Full load		
Rated speed		
Pto power	258,2	kW
Absolute fuel consumption	61,8	kg/h
Specific fuel consumption	239	g/kWh
Specific urea consumption	10	g/kWh
Ratio urea to fuel	3,3	Vol-%
Maximum power		
Engine speed	1900	min^{-1}
Pto power	266,0	kW
Absolute fuel consumption	60,6	kg/h
Specific fuel consumption	228	g/kWh
Specific urea consumption	10	g/kWh
Ratio urea to fuel	3,3	Vol-%
Maximum torque		
Engine speed	1500	min^{-1}
Pto power	234,5	kW
Absolute fuel consumption	50,7	kg/h
Specific fuel consumption	216	g/kWh
Specific urea consumption	11	g/kWh
Ratio urea to fuel	3,8	Vol-%
1000 rpm at pto		
Engine speed	1970	min^{-1}
Pto power	271,3	kW
Absolute fuel consumption	61,5	kg/h
Specific fuel consumption	227	g/kWh
Specific urea consumption	10	g/kWh
Ratio urea to fuel	3,2	Vol-%

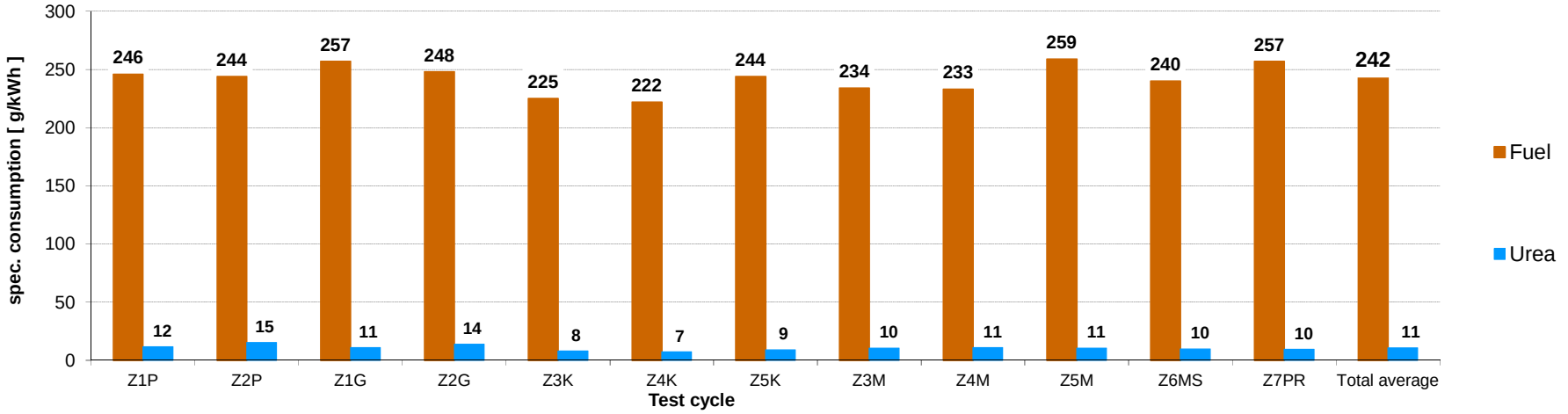
Part load		
Full throttle, 80 % of power at rated speed		
Absolute fuel consumption	51,2	kg/h
Specific fuel consumption	248	g/kWh
Specific urea consumption	8	g/kWh
Ratio urea to fuel	2,4	Vol-%
90 % of rated speed, 80 % of power at rated speed		
Absolute fuel consumption	46,3	kg/h
Specific fuel consumption	225	g/kWh
Specific urea consumption	8	g/kWh
Ratio urea to fuel	2,6	Vol-%
90 % of rated speed, 40 % of power at rated speed		
Absolute fuel consumption	28,3	kg/h
Specific fuel consumption	274	g/kWh
Specific urea consumption	7	g/kWh
Ratio urea to fuel	1,9	Vol-%
60 % of rated speed, 40 % of power at rated speed		
Absolute fuel consumption	23,3	kg/h
Specific fuel consumption	226	g/kWh
Specific urea consumption	11	g/kWh
Ratio urea to fuel	3,8	Vol-%
60 % of rated speed, 60 % of power at rated speed		
Absolute fuel consumption	32,8	kg/h
Specific fuel consumption	212	g/kWh
Specific urea consumption	12	g/kWh
Ratio urea to fuel	4,4	Vol-%

Graphical analysis



Torque rise	27 **%**
Engine speed drop	29 **%**
Pulling off torque	114 **%**

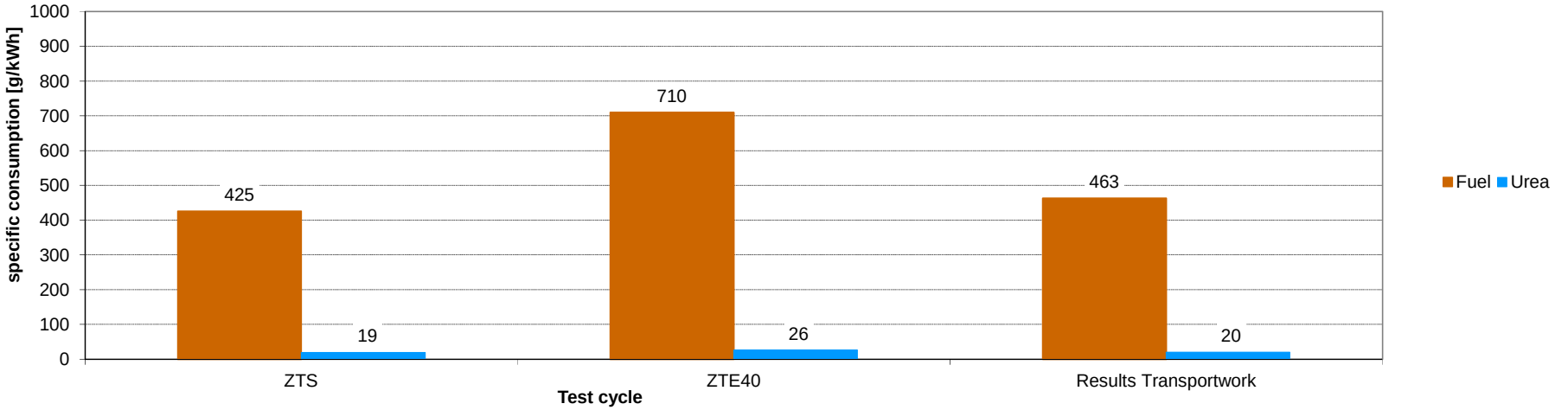
Results at DLG PowerMix - Field work



Load cycle	Test cycle		Engine speed [min^{-1}]	Driving speed [km/h]	Total power [kW]	Absolute fuel consumption [kg/h]	[l/h]	Average values Specific fuel consumption [g/kWh]	Spec. urea cons. [g/kWh]	Ratio urea to fuel [Vol-%]	Relative additional fuel for DPF regeneration** [%]	Calculated spec. Fuel cons. with DPF regeneration** [g/kWh]
Drawbar work	Plough 100 %	Z1P	1307	6,7	181	44,2	53,4	246	12	3,7	*)	*)
	Plough 60 %	Z2P	1231	8,6	139	33,8	40,8	244	15	4,9	*)	*)
	Cultivator 100 %	Z1G	1836	9,4	213	54,1	65,3	257	11	3,3	*)	*)
	Cultivator 60%	Z2G	1251	10,7	148	36,4	43,8	248	14	4,3	*)	*)
Drawbar + PTO work	Rotary harrow 100 %	Z3K	1696	5,7	219	48,4	58,7	225	8	2,8	*)	*)
	Rotary harrow 70 %	Z4K	1399	5,8	155	33,9	41,1	222	7	2,6	*)	*)
	Rotary harrow 40 %	Z5K	1414	5,9	89	21,3	25,8	244	9	2,8	*)	*)
	Mower 100 %	Z3M	1676	14,7	221	51,6	62,8	234	10	3,4	*)	*)
	Mower 70 %	Z4M	1391	15,6	163	37,9	46,1	233	11	3,5	*)	*)
	Mower 40 %	Z5M	1416	15,7	94	24,3	29,4	259	11	3,1	*)	*)
Drawbar- + PTO + Hydraulic work	Manure spreader	Z6MS	1535	6,5	171	40,5	49,3	240	10	3,1	*)	*)
	Baler	Z7PR	1552	9,6	147	36,5	44,1	257	10	2,9	*)	*)
Total average DLG PowerMix - Field work								**242**	**11**	**3,4**	***)**	***)**

* No activ regenerating diesel-particel-filter (DPF)

Results DLG-PowerMix - Transport work



Load type	Test cycle		Average values: Engine speed [min^{-1}]	Driving speed [km/h]	Total power [kW]	Absolute fuel consumption [kg/h]	[l/h]	Specific fuel consumption [g/kWh]	Spec. urea cons. [g/kWh]	Ratio urea to fuel [Vol-%]	Relative additional fuel for DPF regeneration** [%]	Calculated spec. Fuel cons. with DPF regeneration** [g/kWh]
Transportwork	only hill section	ZTS	1755	42,5	131	55,6	66,5	425	19	3,4	*)	*)
	flat section 40 km/h	ZTE40	1185	40,0	21	14,8	17,7	710	26	2,5	*)	*)
Idle ***		ZLL	803	-	-	2,5	2,9	-	-	-	-	-
Result DLG-PowerMix - Transporttest flat section with 40 km/h (50 % ZTS : 40 % ZTE40 : 10 % ZLL) ****								**463**	**20**	**3,2**	***)**	***)**

Optional tests (e.g. ZTS with reduced (R) engine speed, flat section with additional speed settings)												
Transportwork	only hill section	ZTSR	-	-	-	-	-	-	-	-	*)	*)
	flat section 50 km/h	ZTE50	1354	50,0	29	20,1	24,1	705	28	2,9	*)	*)
	flat section 60 km/h	ZTE60	1893	60,2	37	27,4	32,8	737	23	2,2	*)	*)
Optional results based on	**hill section with reduced engine speed ZTSR (50 % ZTSR : 40 % ZTE40 : 10 % ZLL)** ****							**-**	**-**	**-**	***)**	***)**
	flat section with 50 km/h ZTE50 (50 % ZTS : 40 % ZTE50 : 10 % ZLL) ****							**465**	**20**	**3,3**	***)**	***)**
	flat section with 60 km/h ZTE60 (50 % ZTS : 40 % ZTE60 : 10 % ZLL) ****							**473**	**19**	**3,1**	***)**	***)**

* No activ regenerating diesel-particel-filter (DPF)

** Relation of additional fuel consumption caused by regeneration to conventional fuel consumption within two regeneration cycles; calculated for the maximum regeneration interval (see technical data - engine)

** * 70 % in parking position w/o driver, 30 % w/ inserted drive position and w/ driver, e.g. waiting at traffic lights

** ** single results are weighted as follows: 50 % ZTS, 40 % ZTE und 10 % ZLL
The fuel consumption in cycle ZLL is taken into the final result by a calculation based on the real measured fuel consumption during the test.