

John Deere 5125R PowerShift

Datasheet DLG PowerMix

Applicant
Deere & Co.
Product Engineering Center
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Test performed by
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Specifications

Engine

Manufacturer			**John Deere**	
Stage of emission			**III B**	
Exhaust aftertreatment device				
Nitrous gaseous emission*			-	
Particulate matter emission			Active regenerating Diesel particulate filter (DPF)	
Time for regeneration DPF (average)			33	min
Time between regeneration:				
- maximum*			25	h
- under PowerMix conditions*			25	h
- checked			-	
Exhaust gas recuperation			**-**	
Number of cylinders*			**4**	
Bore*		**106**		**mm**
Stroke*		**127**		**mm**
Displacement*		**4500**		**cm³**
Rated speed		**2200**		**min^{-1}**
Power by 97/68 EC	**standard**		**boost**	
Rated power	92	kW	99	kW
Maximum power	99,3	kW	100,9	kW
at engine speed	2000	min^{-1}	2000	min^{-1}
Loss of power during regeneration			-	
Main fan				
Diameter		555	mm	
Number of fan blades		9		

Transmission

Manufacturer		**Deere & Co.**	
Type of construction		**PowerShift**	
Ranges		**3**	
Powershift gear		**-**	
Forward		16	
Reverse		16	
Design speed	**40**	**km/h**	

Power take off

Profile			**Form 3: 20 tooth (1 ¾")**	
Transmission ratio*				
Standard pto speed	540	540E	1000	1000E
Engine speed [min^{-1}]	2100	-	2100	1647

Chassis

Front axle			
Manufacturer		John Deere	
Type		Rigid axle	
Tires	**front**	**rear**	
Manufacturer	Mitas AC 65	Mitas AC 65	
Tire size	480/65 R 24	540/65 R 38	
Axle load	**front**	**rear**	**total**
Permissible*	3200 kg	6000 kg	8600 kg
Empty weight	1960 kg	2865 kg	4825 kg

Hydraulic

System*		**Closed-center, press/flow**	
Supply of oil		**Common with transmission oil**	
Fluid type*		**J20D Hy-Gard**	
Capacity*		**48**	**l**
Extractable*		**25 (35 max overfill)**	**l**
Auxiliary valves			
Number		4	
Max. flowrate*		117	l/min
Max. pressure*		**205**	**bar**

Fitted options

Free return flow	**Yes**
Air condition	**Yes**
Air compressor	**Yes**
Front hydraulic power lift	**Yes**
Front pto (disengageable)	**-**
	-
	-

Test conditions

Axle load	**front**	**rear**
With ballast	**2250 kg**	**4110 kg**
Ballast		
on frame	585 kg	950 kg
on axle	- kg	- kg
Axle load distribution	**35 %**	**65 %**
Tire pressure	**front**	**rear**
Field work	1,2 **bar**	1,2 **bar**
Transporttest	1,6 **bar**	1,6 **bar**

Remarks

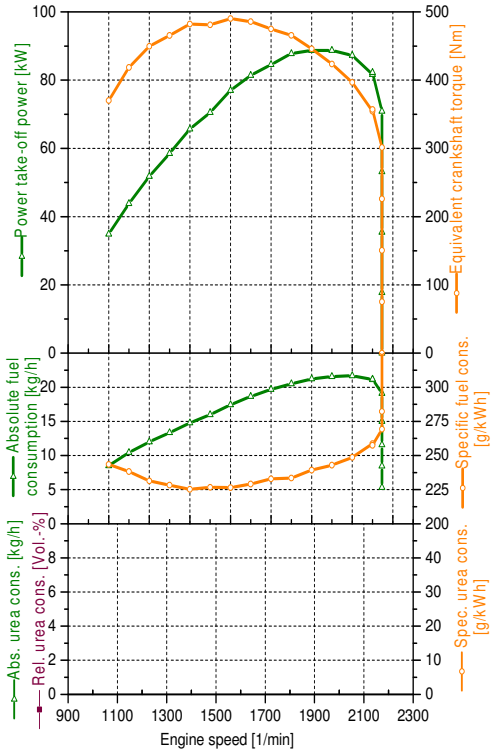
* Manufacturer´s data

Results of measurement at pto dynamometer – standard

Full load		
Rated speed		
Pto power	81,7	kW
Absolute fuel consumption	21,1	kg/h
Specific fuel consumption	259	g/kWh
Specific urea consumption	-*	g/kWh
Ratio urea to fuel	-*	Vol-%
Maximum power		
Engine speed	2000	min^{-1}
Pto power	88,7	kW
Absolute fuel consumption	21,6	kg/h
Specific fuel consumption	243	g/kWh
Specific urea consumption	-*	g/kWh
Ratio urea to fuel	-*	Vol-%
Maximum torque		
Engine speed	1500	min^{-1}
Pto power	77,0	kW
Absolute fuel consumption	17,4	kg/h
Specific fuel consumption	226	g/kWh
Specific urea consumption	-*	g/kWh
Ratio urea to fuel	-*	Vol-%
1000 rpm at pto		
Engine speed	2100	min^{-1}
Pto power	87,2	kW
Absolute fuel consumption	21,7	kg/h
Specific fuel consumption	249	g/kWh
Specific urea consumption	-*	g/kWh
Ratio urea to fuel	-*	Vol-%

Part load		
Full throttle, 80 % of power at rated speed		
Absolute fuel consumption	17,6	kg/h
Specific fuel consumption	269	g/kWh
Specific urea consumption	-*	g/kWh
Ratio urea to fuel	-*	Vol-%
90 % of rated speed, 80 % of power at rated speed		
Absolute fuel consumption	16,2	kg/h
Specific fuel consumption	248	g/kWh
Specific urea consumption	-*	g/kWh
Ratio urea to fuel	-*	Vol-%
90 % of rated speed, 40 % of power at rated speed		
Absolute fuel consumption	9,8	kg/h
Specific fuel consumption	302	g/kWh
Specific urea consumption	-*	g/kWh
Ratio urea to fuel	-*	Vol-%
60 % of rated speed, 40 % of power at rated speed		
Absolute fuel consumption	8,2	kg/h
Specific fuel consumption	251	g/kWh
Specific urea consumption	-*	g/kWh
Ratio urea to fuel	-*	Vol-%
60 % of rated speed, 60 % of power at rated speed		
Absolute fuel consumption	11,4	kg/h
Specific fuel consumption	232	g/kWh
Specific urea consumption	-*	g/kWh
Ratio urea to fuel	-*	Vol-%

Graphical analysis



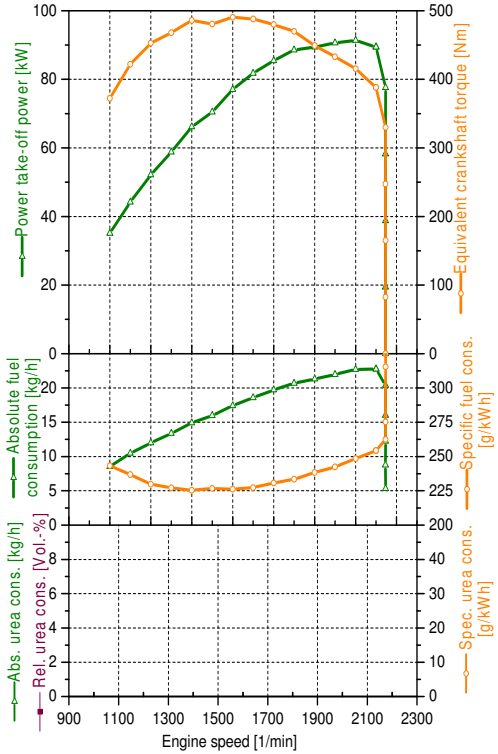
Torque rise	38	%
Engine speed drop	32	%
Pulling off torque	118	%

Results of measurement at pto dynamometer – boost

Full load		
Rated speed		
Pto power	89,4	kW
Absolute fuel consumption	22,7	kg/h
Specific fuel consumption	254	g/kWh
Specific urea consumption	-*	g/kWh
Ratio urea to fuel	-*	Vol-%
Maximum power		
Engine speed	2100	min^{-1}
Pto power	91,4	kW
Absolute fuel consumption	22,7	kg/h
Spec. Fuel consumption	248	g/kWh
Spec. urea consumption	-*	g/kWh
Ratio urea to fuel	-*	Vol-%
Additional fuel consump. during regeneration	1,2	kg
Additional fuel consump. turned-over**	0,2	%
Spec. fuel consump. with regen. (calculated)	250	g/kWh
Maximum torque		
Engine speed	1500	min^{-1}
Pto power	77,0	kW
Absolute fuel consumption	17,4	kg/h
Spec. Fuel consumption	226	g/kWh
Spec. urea consumption	-*	g/kWh
Ratio urea to fuel	-*	Vol-%
1000 rpm at pto		
Engine speed	2100	min^{-1}
Pto power	91,4	kW
Absolute fuel consumption	22,7	kg/h
Spec. Fuel consumption	248	g/kWh
Spec. urea consumption	-*	g/kWh
Ratio urea to fuel	-*	Vol-%

Part load		
Full throttle, 80 % of power at rated speed		
Absolute fuel consumption	18,7	kg/h
Spec. Fuel consumption	261	g/kWh
Spec. urea consumption	-*	g/kWh
Ratio urea to fuel	-*	Vol-%
90 % of rated speed, 80 % of power at rated speed		
Absolute fuel consumption	17,5	kg/h
Spec. Fuel consumption	246	g/kWh
Spec. urea consumption	-*	g/kWh
Ratio urea to fuel	-*	Vol-%
90 % of rated speed, 40 % of power at rated speed		
Absolute fuel consumption	10,5	kg/h
Spec. Fuel consumption	294	g/kWh
Spec. urea consumption	-*	g/kWh
Ratio urea to fuel	-*	Vol-%
Additional fuel consump. during regeneration	1,8	kg
Additional fuel consumption turned-over**	0,7	%
Spec. fuel consump. with regen. (calculated)***	299	g/kWh
60 % of rated speed, 40 % of power at rated speed		
Absolute fuel consumption	8,8	kg/h
Spec. Fuel consumption	247	g/kWh
Spec. urea consumption	-*	g/kWh
Ratio urea to fuel	-*	Vol-%
60 % of rated speed, 60 % of power at rated speed		
Absolute fuel consumption	12,3	kg/h
Spec. Fuel consumption	230	g/kWh
Spec. urea consumption	-*	g/kWh
Ratio urea to fuel	-*	Vol-%
Additional fuel consump. during regeneration	0,3	kg
Additional fuel consumption turned-over**	0,1	%
Spec. fuel consump. with regen. (calculated)	231	g/kWh

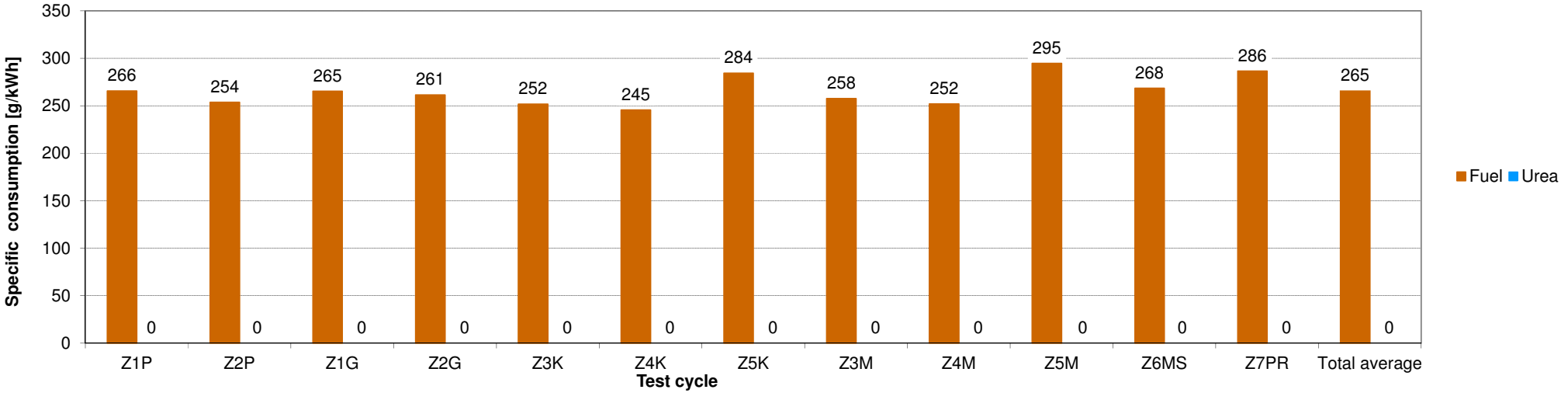
Graphical analysis



Torque rise	26 %
Engine speed drop	32 %

** Ratio of additional fuel for regeneration to total fuel consumption during two regenerations; calculated with maximum operating hours during regeneration (see Specification-Engine)

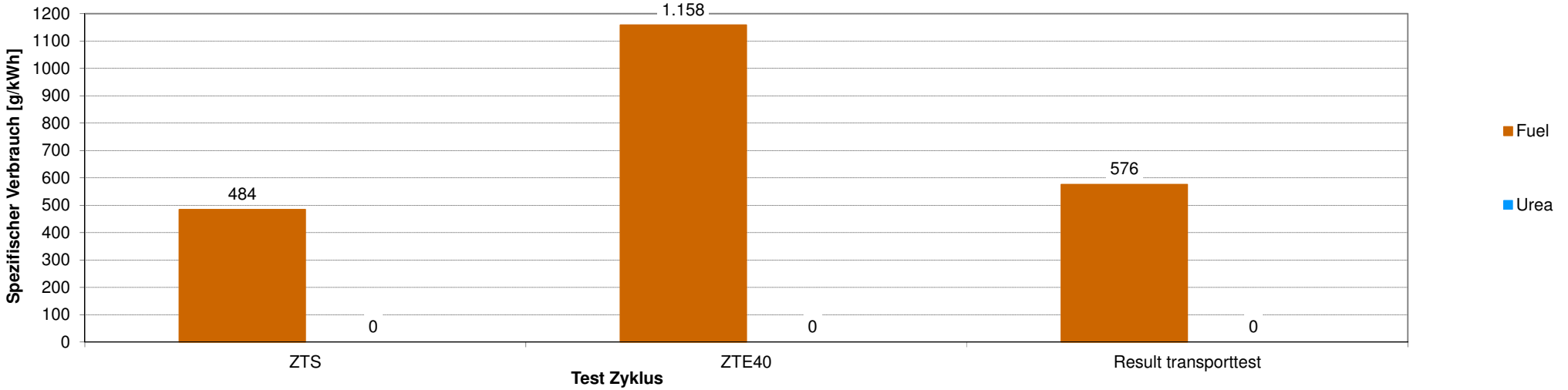
Results at DLG PowerMix - Field work



Load type	Test cycle		Average values: Engine speed [min^{-1}]	Driving speed [km/h]	Total power [kW]	Absolute fuel consumption [kg/h]	Absolute fuel consumption [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]
Drawbar work	Plough 100 %	Z1P	1615	7,3	66	17,2	21,0	265	-*	-*	0,3	266
	Plough 60 %	Z2P	1204	8,7	48	12,0	14,3	253	-*	-*	0,1	254
	Cultivator 100 %	Z1G	1747	9,7	72	19,0	23,1	265	-*	-*	0,2	265
	Cultivator 60%	Z2G	1320	10,9	51	13,2	16,2	261	-*	-*	0,1	261
Drawbar + PTO work	Rotary harrow 100 %	Z3K	1861	5,6	76	18,7	22,7	251	-*	-*	0,2	252
	Rotary harrow 70 %	Z4K	1489	6,3	56	13,4	16,3	245	-*	-*	0,1	245
	Rotary harrow 40 %	Z5K	1490	6,3	32	8,8	10,7	282	-*	-*	0,8	284
	Mower 100 %	Z3M	1835	14,8	76	19,5	23,7	257	-*	-*	0,2	258
	Mower 70 %	Z4M	1489	15,1	55	13,9	16,9	252	-*	-*	0,1	252
	Mower 40 %	Z5M	1489	15,1	32	9,3	11,3	292	-*	-*	0,8	295
Drawbar- + PTO + Hydraulic work	Manure spreader	Z6MS	1630	6,3	59	15,5	19,1	267	-*	-*	0,5	268
	Baler	Z7PR	1638	9,6	51	13,9	17,0	285	-*	-*	0,5	286
Total average DLG PowerMix								**265**	**-***	**-***	**0,3**	**265**

* Ratio of additional fuel for regeneration to total fuel consumption during two regenerations; calculated with maximum operating hours during regeneration (see Specification-Engine)

Results at DLG-PowerMix - Transport test



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	1846	34,5	40	19,4	23,4	483	-	-	0,2	484
	flat section 40 km/h	ZTE40	1711	39,8	8	8,7	10,5	1149	-	-	0,8	1158
Idle * **		ZLL	896	-	-	2,8	3,4	-	-	-	-	-
Result DLG-PowerMix - Transporttest flat section with 40 km/h (50 % ZTS : 40 % ZTE40 : 10 % ZLL) ***								**572**	**-**	**-**	**0,6**	**576**

Optional tests (e.g. ZTS with reduced (-R) engine speed, flat section with additional speed settings (-50, -60))												
Transportwork	only hill section	ZTSR	-	-	-	-	-	-	-	-	-	-
	flat section 50 km/h	ZTE50	-	-	-	-	-	-	-	-	-	-
	flat section 60 km/h	ZTE60	-	-	-	-	-	-	-	-	-	-
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) ***							**-**	**-**	**-**	**-**	**-**
	flat section with 60 km/h ZTE60 (50 % ZTS : 40 % ZTE60 : 10 % ZLL) ***							**-**	**-**	**-**	**-**	**-**

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

** 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)

*** Results are calculated for a distance of 10 km. 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.