DLG Tractor Datasheet PowerMix

Performance and fuel consumption during field and transport applications

John Deere 8R 410

DLG Test Report 7144

	Boost	Standard	
Rated power	327	302	kW
Maximum power	337	326	kW
According to		UNECE R 120	

	Boost	Standard mobile/*stationary*	
Rated power	303	277 / *248*	kW
Maximum power	311	306 / *278*	kW
According to		OECD Code 2	

	Diesel	AdBlue	
Energy efficiency	240	8	g/kWh
Consumption per hectare	5,4	0,2	l/ha
Area output		15,9 ha/h	

	Diesel	AdBlue	
Energy efficiency	425	12	g/kWh
Consumption per 100 kilometre per tonne	5,1	0,1	l/100km/t
Haul capacity		1011 tkm/h	

Measurement results overview

Power Take-Off (PTO) power according to OECD Code 2			Engine speed	Power Take-Off Power	Specific consumption Diesel	Specific consumption AdBlue	Diesel consumption	Ratio AdBlue to diesel
			min^{-1}	kW	g/kWh		l/h	Vol-%
Standard mode mobile/stationary								
Rated power			2100	277 / *248*	221 / *226*	7 / *8*	73,1 / *67*	2,5 / *3,3*
Maximum power			1900 / *1700*	306 / *278*	218 / *216*	5 / *8*	80,1 / *72*	1,9 / *3,8*
Maximum torque			1600 / *1500*	291 / *256*	210 / *213*	9 /*11*	73,1 / *65*	3,4 / *5,4*
Torque increase	38 / *44*	%						
Drop in speed	24 / *29*	%						
Overcapacity	29 / *30*	kW						
Starting torque	113 / -	%						
Boost mode								
Rated power			2100	303	223	6	81,0	2,1
Maximum power			1900	311	221	5	82,7	1,7
Maximum torque			1500	273	208	11	68,2	3,9
Torque increase	26	%						
Drop in speed	29	%						
Overpcapacity	8	kW						
Savings potential through speed reduction for the same power output								
80 % of standard rated power, instead of full throttle only at 90 % of rated speed			2159	221	226	7	60,1	2,3
			1889		216	10	57,2	3,7
Savings in %					**-4**	**51**	**-5**	**61**
40 % of standard rated power, instead of 90 % of rated speed only with 60 % of rated speed			1889	110	237	12	31,5	3,7
			1260		215	8	28,5	3,0
Savings in %					**-9**	**-30**	**-9**	**-19**

Note on PTO operation:
In stationary PTO operation, this model operates in a reduced power mode. Shown here addionally is the usable power at the PTO during travel operation (mobile) as a basis for the DLG PowerMix 2.0

PowerMix - Field work	Engine speed	Delivered net power	Specific consumption Diesel	Specific consumption AdBlue	Consumption / hectare Diesel	Consumption / hectare AdBlue	Area output
	min^{-1}	kW	g/kWh		l/ha		ha/h
Heavy pulling work	1755	227	251	9	11,7	0,4	6,8
Medium pulling work	1377	163	240	9	6,8	0,2	7,8
Heavy PTO shaft work	1780	258	226	7	5,1	0,1	19,7
Medium PTO shaft work	1423	184	226	9	3,4	0,1	20,3
Light PTO shaft work	1432	112	243	9	2,0	0,1	23,9
Drawbar + PTO + Hydraulic work	1988	193	256	8	3,6	0,1	16,6
Overall result at field work			**240**	**8**	**5,4**	**0,2**	**15,9**

PowerMix - Transport work	Engine speed	Delivered net power	Specific consumption Diesel	Specific consumption AdBlue	Consumption / 100 kilometre / tonne Diesel	Consumption / 100 kilometre / tonne AdBlue	Transport power
	min^{-1}	kW	g/kWh		l/100km/t		tkm/h
Heavy transportwork	1823	164	393	10	8,0	0,2	980
Light transportwork at 40 km/h	1399	27	656	25	2,1	0,1	1042
Optional: light transportwork at 50 km/h	1741	35	714	26	2,4	0,1	1297
Optional: light transportwork at 60 km/h	-	-	-	-	-	-	-
Overall result transport work at 40 km/h			**425**	**12**	**5**	**0,1**	**1011**

Technical data

Engine*				
Manufacturer			**John Deere**	
Stage of exhaust emission			**V**	
Rated engine speed			**2100**	**min^{-1}**
Engine power according				
UNECE-R 120	**Standard**		**Boost**	
Rated power*	302	kW	327	kW
Maximum power*	326	kW	337	kW
at engine speed*	1900	min^{-1}	1900	min^{-1}
Boost activation requirement*				
Load at the power take-off and driving speed > 0,5 km/h or driving speed above 23 km/h				

Exhaust aftertreatment device*		
Nitrogene oxide emission*	Selective Catalytic Reduction (SCR)	
Particulate emission	Diesel Particulate Filter (DPF)	
Time for regeneration (average)	20-25	min
Regeneration interval:		
- maximum*	40	h
Replacement intervals	-	
Exhaust gas recuperation*	**externally cooled**	
Exhaust-gas row turbocharger*	**variable+fixed geometry**	
Number of cylinders*	**6**	
Bore*	**118**	**mm**
Stroke*	**136**	**mm**
Displacement*	**8984**	**cm³**
Main fan		
Diameter	813	mm
Number of fan blades	9	
Fan Type		Visco fan
Tank volume*		
Diesel / AdBlue	727 l / 37 l	

Transmission*		
Manufacturer		**John Deere**
Type of construction		**Powershift type e23**
Number of ranges		**1**
Number of gears		
Forward	23	
Reverse	11	
Design speed*	**50**	**km/h**

Chassis*		
Front axle		
Manufacturer		John Deere
Type		independant supension

Axle load*	front		rear		total	
Unladen masses*	7194	kg	6985	kg	14179	kg
Permissible*	8000	kg	11500	kg	20000 / 18000**	kg
Technically permissible*	10000	kg	11500	kg	20000	kg

Dimensions*		
Length w/o front linkage*	**6065**	**mm**
Width*	**2550**	**mm**
Height*	**3500**	**mm**
Wheelbase*	**3050**	**mm**
Turning radius*	**6310**	**mm**

Rear PTO Shaft*				
Profile				**20 spline (1 3/4")**
Transmission ratio*				
PTO mode	540	540E	1000	1000E
Engine speed [min^{-1}]	1810	-	1995	1590
Front PTO Shaft				
Profile				**-**
Transmission ratio*				
PTO mode	540	540E	1000	1000E
Engine speed [min^{-1}]	-	-	-	-

Hydraulic power lift*	**front**	**rear**
Category	3N	4N / 3

Hydraulic power		
System*	**CCLS (Closed Centre Load Sensing System)**	
Hydraulic oil	**common with transmission**	
Total capacity*	**184**	**l**
Removable*	**40**	**l**
Hydraulic flow		
Maximum pump delivery*	227	l/min
Optional*	318	l/min
Max. flow at one rear remote*	132	l/min
Maximum pressure*	**204 ±3**	**bar**

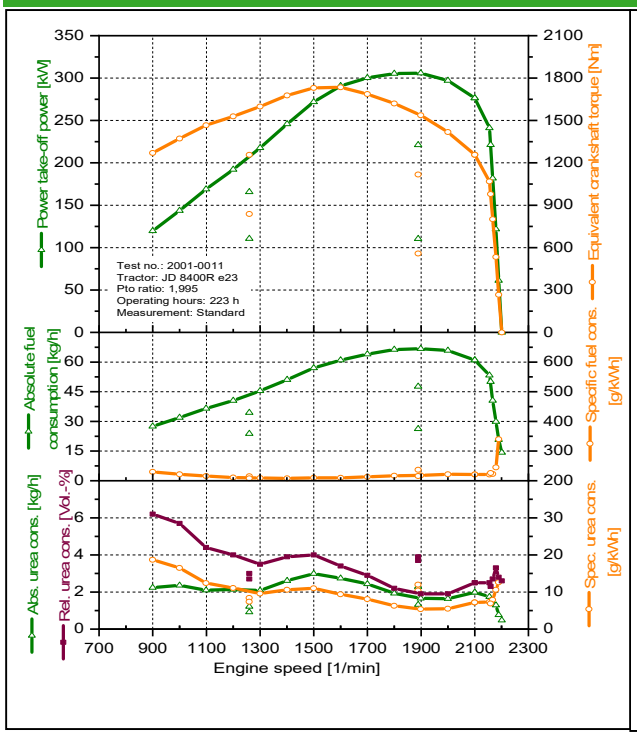
*Manufacturer data

** at 40 / 50 km/h

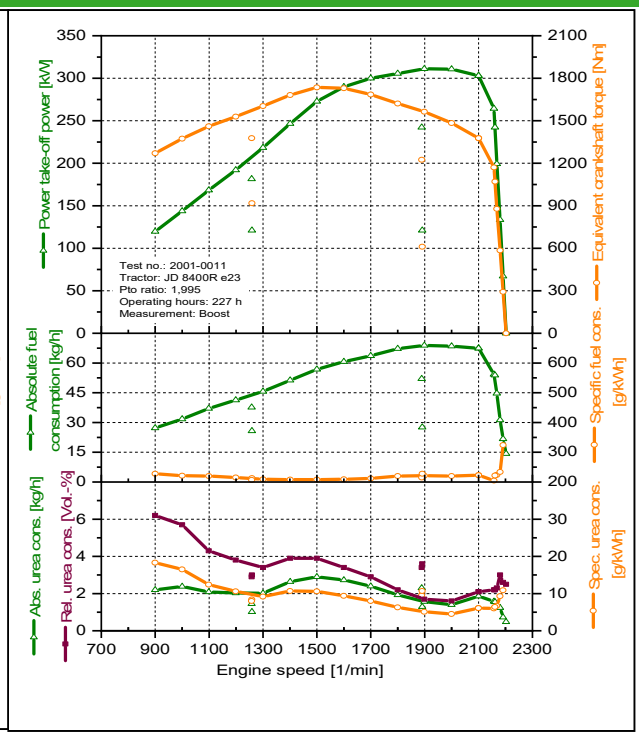
Power Take-Off Power according to OECD Code 2

Measuring point	Engine speed	PTO power	Equiv. Torque	Absolute consumption				Ratio AdBlue to fuel	specific consumption	
				fuel		AdBlue			fuel	AdBlue
	1/min	kW	Nm	kg/h	l/h	Kg/h	l/h	Vol-%	g/kWh	
Rated power										
Boost	2100	303	1378	67,4	81,0	1,9	1,7	2,1	223	6
Standard (mobile)	2100	277	1257	61,0	73,1	2,0	1,8	2,5	221	7
Maximum power										
Boost	1900	311	1.564	68,9	82,7	1,6	1,4	1,7	221	5
Standard (mobile)	1900	306	1.537	66,8	80,1	1,7	1,5	1,9	218	5
Maximum torque										
Boost	1500	273	1.736	56,8	68,2	2,9	2,7	3,9	208	11
Standard (mobile)	1600	291	1.735	61,0	73,1	2,7	2,5	3,4	210	9
1000 PTO shaft rotation										
Boost	1995	311	1.488	69,6	83,6	1,4	1,2	1,5	224	4
Standard (mobile)	1995	298	1.424	65,5	78,5	1,7	1,5	2,0	220	6
Part loads at full throttle										
80 % of boost rated pw.	2161	242	1.071	53,8	64,6	1,6	1,4	2,2	222	6
80 % of standard rated pw.	2159	221	979	50,1	60,1	1,5	1,4	2,3	226	7
Part loads with governor control set to 90 % of rated engine speed										
80 % of boost rated pw.	1889	242	1.225	52,1	62,5	2,3	2,1	3,4	215	10
80 % of standard rated pw.	1889	221	1.117	47,7	57,2	2,3	2,1	3,7	216	10
40 % of boost rated pw.	1891	121	611	27,6	33,1	1,3	1,2	3,6	228	11
40 % of standard rated pw.	1889	110	558	26,2	31,5	1,3	1,2	3,9	237	12
Part loads with governor control set to 60 % of rated engine speed										
60 % of boost rated pw.	1258	182	1.378	37,7	45,2	1,5	1,3	2,9	207	8
60 % of standard rated pw.	1260	166	1.257	34,4	41,3	1,2	1,1	2,7	208	7
40 % of boost rated pw.	1259	121	918	25,7	30,9	1,0	0,9	3,0	213	8
40 % of standard rated pw.	1260	111	838	23,8	28,5	0,9	0,9	3,0	215	8

Standard mode mobile



Boost mode



PowerMix - performance and fuel consumption during field and transport applications

Performance and fuel consumption during exemplary field work		Engine speed	Driving speed	Delivered net power	Diesel consumption		Ratio AdBlue to diesel	Specific consumption	
								Diesel	AdBlue
		1/min	km/h	kW	kg/h	l/h	Vol-%	g/kWh	
Z1P	ploughing, heavy tine cultivator	1712	7,0	218	54,6	65,5	3,4	251	10
Z1G	cultivator, disc harrow	1798	9,3	237	59,4	71,2	2,6	250	8
Z2P	mech. seed drill, planter	1374	8,6	162	38,7	46,4	2,8	239	9
Z2G	stubble working, seed bed combination	1381	10,4	164	39,6	47,5	2,9	241	9
Z3K	milling, rotary harrows seeding combination	1782	5,4	258	57,4	68,8	2,7	222	8
Z3M	cut 1. step, cultivator-rotary harrows-seeding combination	1779	13,6	259	59,4	71,3	2,2	229	7
Z4K	pneumatic seeding drill, milling as plant care, mulch	1430	5,9	186	41,1	49,3	2,9	221	9
Z4M	cut 2. step, direct seeding machine	1416	13,8	182	42,1	50,5	3,1	231	9
Z5K	plant protector, mineral fertiliser, tedder, swather	1430	6,1	108	25,2	30,2	2,7	234	8
Z5M	cut 3. step, airseeder	1434	16,8	117	29,3	35,1	2,8	251	9
Z6MS	self-loading wagon, manure spreading	1978	7,1	212	52,8	63,3	2,5	249	8
Z7PR	high pressure baler, round baler or square baler	1998	9,8	175	45,7	54,8	2,7	262	9
								240	**8**

Performance and fuel consumption during exemplary transport work		Engine speed	Driving speed	Delivered net power	Diesel consumption		Ratio AdBlue to diesel	Specific consumption	
								Diesel	AdBlue
		min^{-1}	km/h	kW	kg/h	l/h	Vol-%	g/kWh	
ZTB	Transportwork at full load (uphill)	1823	38	164	64,5	78,7	2,1	393	10
ZTE40	Transportwork at flat section with 40 km/h	1399	40	27	18,0	22,2	2,9	656	25
ZTE50	Transportwork at flat section with 50 km/h	1741	50	35	25,0	30,6	2,7	714	26
ZTE60	Transportwork at flat section with 60 km/h	-	-	-	-	-	-	-	-
	Idle	900	-	-	3,0	3,7	-	-	-
								425	**12**

Test conditions

Tires	front	rear
Manufacturer	Michelin AxioBib	Michelin AxioBib
Tire size	IF 650/60 R 34	IF 900/60 R 42
Fitted options		
Free return flow		**yes**
Air condition		**yes**
Air compressor		**yes**
Front hydraulic power lift		**yes**
Front PTO (disengageable)		**no**
		-
		-

PowerMix	Ballast		Axle load distribution				Gross weight	Tire pressure		PTO mode	Boost power available
	front	rear	front		rear			front	rear		
	kg	kg	kg	%	kg	%	kg	bar	bar	1000/1000E	Yes/No
Performance and fuel consumption during exemplary field work											
heavy drawbar work	900	3300	8100	44	10300	56	18400	1,2	1,2	-	No
medium havy drawbar w.	0	0	7190	51	7030	49	14220	1,2	1,2	-	No
heavy PTO work	0	0	7190	51	7030	49	14220	1,2	1,2	1000	Yes
medium heavy PTO work	0	0	7190	51	7030	49	14220	1,2	1,2	1000E	Yes
light PTO work	0	0	7190	51	7030	49	14220	1,2	1,2	1000E	Yes
Drawbar + PTO + hyd.	0	0	7190	51	7030	49	14220	1,2	1,2	1000E	Yes
Performance and fuel consumption during exemplary transport work											
Transport work	0	0	7190	51	7030	49	14220	1,6	1,6	-	Yes

Applicant

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