DLG Tractor Datasheet PowerMix

Performance and fuel consumption during field and transport applications

John Deere 7R 330

DLG Test Report 7142



	Boost	Standard	
Rated power	265	243	kW
Maximum power	274	267	kW
According to		UNECE R 120	

	Boost	Standard mobile / *stationary*	
Rated power	231	213 / 199	kW
Maximum power	244	239 / 220	kW
According to		OECD Code 2	

	Diesel	AdBlue	
Energy efficiency	245	11	g/kWh
Consumption per hectare	5,6	0,2	l/ha
Area output		12,4 ha/h	

	Diesel	AdBlue	
Energy efficiency	375	17	g/kWh
Consumption per 100 kilometers per tonne	4,5	0,1	l/100km/t
Haul capacity		997 tkm/h	

Measurement results overview

Power Take-Off (PTO) power according to OECD Code 2	Engine speed	Power Take-Off Power	Specific consumption		Diesel consumption	Ratio AdBlue to diesel
			Diesel	AdBlue		
	min^{-1}	kW	g/kWh		l/h	Vol-%
Standard mode mobile/stationary						
Rated power	2100	213 / 199	225 / 228	11 / 14	57,5 / 54,6	3,8 / 4,8
Maximum power	1850 / 1700	239 / 220	217 / 219	11 / 13	62,3 / 57,4	3,7 / 4,5
Maximum torque	1500 / 1400	219 / 189	213 / 216	11 / 10	56,1 / 48,9	3,8 / 3,7
Torque increase	44 / 45 %					
Drop in speed	29 / 33 %					
Overcapacity	27 / 21 kW					
Starting torque	117 / 129 %					
Boost mode						
Rated power	2100	231	225	10	62,3	3,6
Maximum power	1900	244	218	10	63,8	3,6
Maximum torque	1401	205	213	12	52,3	4,2
Torque increase	33 %					
Drop in speed	33 %					
Overcapacity	12 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	2158	170	234	12	47,8	4,0
	1890		222	9	45,2	3,2
Savings in %			**-5**	**-25**	**-5**	**-21**
40 % of standard rated power, instead of 90 % of rated speed only with 60 % of rated speed	1890	85	260	11	26,5	3,4
	1260		228	6	23,3	1,8
Savings in %			**-12**	**-52**	**-12**	**-45**

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		Consumption / hectare		Area output
			Diesel	AdBlue	Diesel	AdBlue	
	min^{-1}	kW	g/kWh		l/ha		ha/h
Heavy pulling work	1688	176	255	12	11,9	0,4	5,2
Medium pulling work	1465	137	247	10	7,1	0,2	6,6
Heavy PTO shaft work	1765	203	229	11	5,0	0,2	15,3
Medium PTO shaft work	1579	149	229	9	3,5	0,1	17,3
Light PTO shaft work	1579	85	256	9	2,2	0,1	17,4
Drawbar + PTO + Hydraulic work	1756	150	252	12	3,7	0,1	12,5
Overall result at field work			**245**	**11**	**5,6**	**0,2**	**12,4**

PowerMix - Transport work	Engine speed	Delivered net power	Specific consumption		Consumption / 100 kilometers / tonne		Transport power
			Diesel	AdBlue	Diesel	AdBlue	
	min^{-1}	kW	g/kWh		l/100km/t		tkm/h
Heavy transportwork	1855	148	348	16	7,1	0,2	894
Light transportwork at 40 km/h	1478	29	565	19	1,8	0,0	1100
Optional: light transportwork at 50 km/h	1908	38	631	28	2,1	0,1	1420
Optional: light transportwork at 60 km/h	-	-	-	-	-	-	-
Overall result transport work at 40 km/h			**375**	**17**	**4,5**	**0,1**	**997**

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	243	kW	265	kW
Maximum power	267	kW	274	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 oxyde emission	Selective Catalytic Reduction (SCR)	
Particulate emission	DPF / DOC	
Time for regeneration (average)	20-25	min
Regeneration interval:		
- maximum	40	h
Replacement intervals	-	
Exhaust gas recuperation	**externally cooled**	
Exhaust-gas turbocharger	**variable geometry**	
Number of cylinders	**6**	
Bore	**118**	**mm**
Stroke	**136**	**mm**
Displacement	**8984**	**cm³**
Main fan		
Diameter	700	mm
Number of fan blades	9	
Fan Type		Visco fan
Tank volume		
Diesel / AdBlue	463 l /	26 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			spring-mounted rigid axle
Axle load	**front**	**rear**	**total**
Unladen masses	4881 kg	7357 kg	12238 kg
Permissible	6500 kg	11000 kg	18000 / 16000 kg**
Technically permissible	6500 kg	11000 kg	18000 kg

Dimensions*		
Length w/o front linkage	**5260**	**mm**
Width	**2550**	**mm**
Height	**3456**	**mm**
Wheelbase	**2925**	**mm**
Turning radius	**8700**	**mm**

Rear PTO Shaft*				
Profile				**20 spline (1 3/4")**
Transmission ratio				
PTO mode	540	540E	1000	1000E
Engine speed [min^{-1}]	-	1763	1967	1756

Front PTO Shaft*				
Profile			**-**	
Transmission ratio*				
PTO mode	540	540E	1000	1000E
Engine speed [min^{-1}]	-	-	-	-

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

Hydraulic power*		
System	**CCLS (Closed Centre Load Sensing System)**	
Hydraulic oil	**common with transmission**	
Total capacity	**160**	**l**
Removable	**65**	**l**
Hydraulic flow		
Maximum pump delivery	162	l/min
Optional	223	l/min
Max. flow at one rear remote	132	l/min
Maximum pressure	**204 ±3**	**bar**

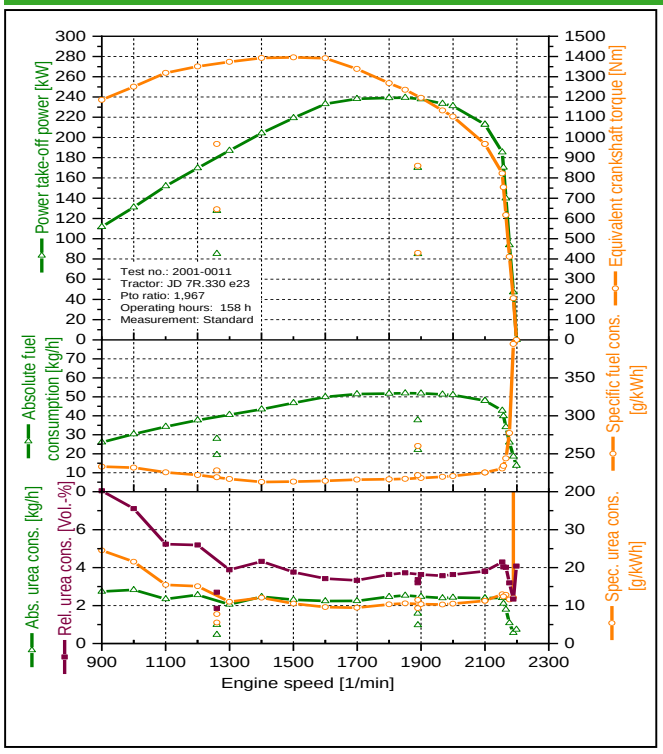
* Manufacturer data

** at 40 / 50 km/h

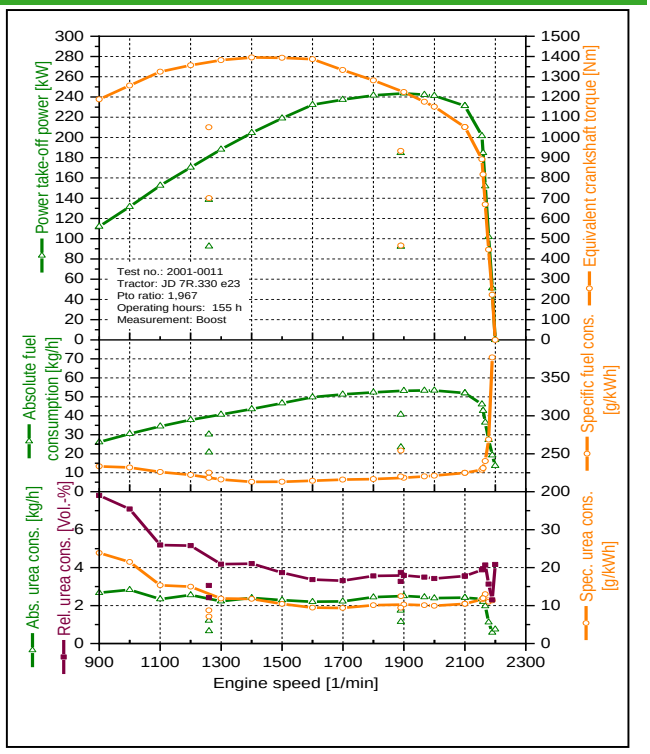
Power Take-Off Power according to OECD Code 2

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	231	1.051	52,0	62,3	2,4	2,2	3,6	225	10
Standard	2100	213	968	47,9	57,5	2,4	2,2	3,8	225	11
Maximum power										
Boost	1900	244	1.224	53,2	63,8	2,5	2,3	3,6	218	10
Standard	1850	239	1.236	51,9	62,3	2,5	2,3	3,7	217	11
Maximum torque										
Boost	1401	205	1395	43,6	52,3	2,4	2,2	4,2	213	12
Standard	1500	219	1396	46,8	56,1	2,3	2,1	3,8	213	11
1000 PTO shaft rotation										
Boost	1967	242	1176	53,3	64,0	2,4	2,2	3,5	220	10
Standard	1967	234	1134	51,3	61,4	2,4	2,2	3,6	220	10
Part loads at full throttle										
80 % of boost rated pw.	2160	185	817	42,7	51,2	2,2	2,0	3,9	231	12
80 % of standard rated pw.	2158	170	754	39,9	47,8	2,1	1,9	4,0	234	12
Part loads with governor control set to 90 % of rated engine speed										
80 % of boost rated pw.	1890	185	934	40,7	48,8	1,7	1,6	3,3	220	9
80 % of standard rated pw.	1890	170	860	37,7	45,2	1,6	1,4	3,2	222	9
40 % of boost rated pw.	1890	92	466	23,4	28,1	1,2	1,1	3,7	254	12
40 % of standard rated pw.	1890	85	429	22,1	26,5	1,0	0,9	3,4	260	11
Part loads with governor control set to 60 % of rated engine speed										
60 % of boost rated pw.	1260	139	1.051	30,3	36,3	1,2	1,1	3,1	218	9
60 % of standard rated pw.	1260	128	968	28,0	33,5	1,0	0,9	2,7	219	8
40 % of boost rated pw.	1260	92	700	20,8	24,9	0,7	0,6	2,4	225	7
40 % of standard rated pw.	1260	85	645	19,4	23,3	0,5	0,4	1,8	228	6

Standard mode



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 consump-tion		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	1621	7,1	173	44,1	52,9	3,5	256	12
Z1G	cultivator, disc harrow	1754	9,0	180	45,7	54,8	3,6	254	12
Z2P	mech. seed drill, planter	1313	8,8	130	32,1	38,5	3,2	248	10
Z2G	stubble working, seed bed combination	1616	11,5	145	35,7	42,9	3,2	246	10
Z3K	milling, rotary harrows seeding combination	1761	5,7	205	46,1	55,3	3,7	225	11
Z3M	cut 1. step, cultivator-rotary harrows-seeding combination	1768	13,2	201	46,8	56,1	3,7	233	11
Z4K	pneumatic seeding drill, milling as plant care, mulch	1579	5,6	145	32,3	38,7	3,1	223	9
Z4M	cut 2. step, direct seeding machine	1579	15,5	153	35,9	43,0	3,1	235	10
Z5K	plant protector, mineral fertiliser, tedder, swather	1579	5,7	83	20,5	24,6	2,7	248	9
Z5M	cut 3. step, airseeder	1579	15,6	88	23,1	27,8	2,9	265	10
Z6MS	self-loading wagon, manure spreading	1754	6,6	163	39,9	47,8	3,7	245	12
Z7PR	high pressure baler, round baler or square baler	1759	9,7	138	35,6	42,7	3,6	258	12
								245	**11**

Performance and fuel consumption during exemplary transport work		Engine speed	Driving speed	Delivered net power	Diesel consump-tion		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)	1855	32	148	51,3	63,3	3,5	348	16
ZTE40	Transportwork at flat section with 40 km/h	1478	40	29	16,4	20,3	2,2	565	19
ZTE50	Transportwork at flat section with 50 km/h	1908	51	38	24,3	30,0	3,3	631	28
ZTE60	Transportwork at flat section with 60 km/h	-	-	-	-	-	-	-	-
	Idle	900	-	-	2,7	3,3	-	-	-
								375	**17**

Test conditions

Tires	front	rear
Manufacturer	Michelin AxioBib	Michelin AxioBib
Tire size	IF 620/75 R 30	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	1150	0	6375	47	7065	53	13440	1,2	1,2	-	No
medium havy drawbar w.	0	0	4840	39	7450	61	12290	1,2	1,2	-	No
heavy PTO work	0	0	4840	39	7450	61	12290	1,2	1,2	1000	Yes
medium heavy PTO work	0	0	4840	39	7450	61	12290	1,2	1,2	1000E	Yes
light PTO work	0	0	4840	39	7450	61	12290	1,2	1,2	1000E	Yes
Drawbar + PTO + hyd.	0	0	4840	39	7450	61	12290	1,2	1,2	1000E	Yes
Performance and fuel consumption during exemplary transport work											
Transport work	0	0	4840	39	7450	61	12290	1,6	1,6	-	Yes

Applicant

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