Report on test in accordance with O.E.C.D. STANDARD CODE

O.E.C.D. No. 631




# Agricultural Tractor DEUTZ DX 50-V

**Manufacturer**
Klöckner-Humboldt-Deutz AG, D-5000 Köln 80

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This bulletin is based on engineering tests in accordance with the O.E.C.D. STANDARD CODE for the Official Testing of Agricultural Tractor Performance. It does not contain an evaluation of the tractor performance on practical work.

Performance of tests: July 1978 till March 1979

DLG-Testing-Station for Agricultural Machinery, Max-Eyth-Weg 1,
D-6114 Groß Umstadt

This report has been approved by the O.E.C.D. Coordinating Centre (C.N.E.E.M.A., France) as being in accordance with the O.E.C.D. STANDARD CODE.

Date of Approval: 7th June 1979 O.E.C.D. No. 631

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In this report all performance characteristics are given corresponding to the International System of Units.

The reference to the former used Technical System of Units is given by the following relations:

| | | | | |
|---|---|---|---|---|
| Forces | 1 daN = 10 N | = 1,02 kp | or 1 kp | = 0,981 daN |
| Powers | 1 kW | = 1,36 PS | or 1 PS | = 0,736 kW |
| Pressures | 1 bar | = 1,02 kp/cm$^2$ | or 1 kp/cm$^2$ | = 0,981 bar |
| | 1000 mbar = 750,1 mm Hg | | | |

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TABLE OF CONTENTS


| | Page |
|---|---|
| Specification of tractor | 4 to 12 |
| Fuel and lubricants used in tests | 12 |
| **COMPULSORY TESTS** | |
| (1) Main power take-off performance | 14 to 17 |
| (2) Drawbar performance on a concrete track | 18 and 19 |
| (3) Turning space and turning circle | 20 |
| (4) Location of centre of gravity | 20 |
| (5) Braking performance | 21 |
| (6) Ambient noise, emitted by the tractor | 22 |
| (7) Noise at the driver's ear level | 22 |
| (8) Power lift and hydraulic pump performance | 23 to 26 |
| **OPTIONAL TESTS** | |
| (9) Engine performance | 27 to 30 |

**PRÜFUNGS-ABTEILUNG**
DEUTZ DX 50-V

Test No. 78-88

| | |
|---|---|
| Tractor manufacturer: | KLÖCKNER-HUMBOLDT-DEUTZ AG<br>D-5000 Köln 80 |
| Submitted for test by: | Manufacturer |
| Selected by: | Manufacturer with agreement by DLG |
| Place of running-in: | Köln |
| Duration of running-in: | Engine and tractor appr. 100 hours |

## SPECIFICATION OF TRACTOR

### Tractor

| | |
|---|---|
| Make: | KLÖCKNER-HUMBOLDT-DEUTZ AG |
| Model: | DX 50-V |
| Type: | Wheel tractor, unit construction, rear wheel driven |
| Serial no: | 75460002 |

### Engine

| | |
|---|---|
| Make: | KLÖCKNER-HUMBOLDT-DEUTZ AG |
| Model: | F3L 912 |
| Type: | 4-stroke DIESEL engine with direct injection, air cooled |
| Serial no: | 5792338 |
| Cylinders: | 3 in line, bore 100 mm, stroke 120 mm; displacement 2826 $cm^3$; compression ratio 17; replaceable ribbed cylinder liners |
| Valves: | Overhead |
| Fuel system: | PIERBURG fuel feed pump PE 15252;<br>BOSCH in line injection pump:<br>PES 3A 80D 410/3 RS 1183;<br>manufacturer's production setting 44 $mm^3$/stroke at rated engine speed;<br>injection timing $22^{\circ} + 12^{\circ}$ before TDC, with injection timing mechanism;<br>BOSCH multihole injection nozzles DLLA 149 S 394, injection pressure 175 bar;<br>MANN fuel filter with replaceable cartridge;<br>capacity of fuel tank 42 l |
| Governor: | BOSCH centrifugal variable speed governor:<br>EP/RSV 325-1400 A8B 495 DL,<br>governed range of engine speed 700 to 2640 rev/min, rated engine speed 2500 rev/min |

**PRÜFUNGS-ABTEILUNG**
DEUTZ DX 50-V

Test No. 78-88

| | |
|---|---|
| Air cleaner: | MANN dry paper element filter with replaceable cartridge |
| Exhaust silencer: | DEUTZ 2-chamber expansion type silencer, 125 mm diameter, 460 mm long, on the left hand side below the gear box, mouth showing rearward |
| Lubrication system: | Forced feed from gear pump; strainer in sump; MANN oil filter in full flow with by-pass valve and replaceable cartridge, changing interval 200 hours; oil capacity 8,5 l; recommended oils and changing intervals:<br>MIL-L-2104 B 100 hours<br>MIL-L-2104 C 200 hours<br>recommended oil viscosities:<br>below -5°C SAE 10W<br>above -10°C to +10°C SAE 20W/20<br>above +5°C to +30°C SAE 30<br>above +25°C SAE 40 |
| Cooling system: | Air cooling with axial blower, V-belt driven |
| Starting system: | Electrical<br>BOSCH screw push starter motor JD 12V 3,7 kW; heating coil in intake pipe |
| Electrical equipment: | 12 Volt, negative earth<br>BOSCH three phase alternator G1 14V 33A;<br>1 battery 92 Ah at 20 hours rating, lead acid type |

Transmission

| | |
|---|---|
| Clutch: | LAMELLEN- UND KUPPLUNGSBAU GMBH<br>dry dual disc clutch DT 225/225,<br>both discs 225 mm diameter;<br>driving part pedal operated,<br>p.t.o. part hand lever operated |

**PRÜFUNGS-ABTEILUNG**
DEUTZ DX 50-V

Test No. 78-88

Gear box: AGRIFULL S.P.A. Italy
speed change gear with 3 forward speeds and 1 reverse speed, collar shifted,
group gear with 3 groups (slow L, intermediate Z and fast S), collar shifted,
totally 9 forward and 3 reverse speeds

Rear axle and final drive: Bevel gear with crown wheel and pinion;
bevel gear differential with pedal operated lock, self disengaging;
spur gear final drives

Lubrication: Transmission oil SAE 90 MIL-L-2105
gear box and rear axle drive 14,5 l
final drives 3,5 l each
oil changing period 1200 hours

Total ratios and speeds (tyres 11,2-28)

| Group | Gear | Total ratio engine : driving wheel | Nominal travelling speed *) at rated engine speed km/h | Nominal travelling speed *) at standard p.t.o. speed 540 rev/min km/h |
|---|---|---|---|---|
| Forward speeds | | | | |
| L | 1 | 274,23 | 1,94 | 1,75 |
| | 2 | 196,78 | 2,71 | 2,44 |
| | 3 | 151,23 | 3,52 | 3,18 |
| Z | 1 | 109,48 | 4,86 | 4,39 |
| | 2 | 78,56 | 6,78 | 6,12 |
| | 3 | 60,38 | 8,82 | 7,97 |
| S | 1 | 44,35 | 12,01 | 10,84 |
| | 2 | 31,83 | 16,73 | 15,11 |
| | 3 | 24,46 | 21,77 | 19,67 |
| Reverse speeds | | | | |
| L | R | 230,53 | 2,31 | 2,09 |
| Z | R | 92,04 | 5,79 | 5,23 |
| S | R | 37,28 | 14,28 | 12,90 |

*) calculated with the INDEX RADIUS 565 mm as per WdK 154

PRÜFUNGS-ABTEILUNG
DEUTZ DX 50-V

Test No. 78-88

Power take-off

| | |
|---|---|
| Main p.t.o.: | Independent p.t.o.;<br>driven by the hand lever operated second disc of the dual disc clutch;<br>at rear of tractor, in the median plane, 515 mm above ground;<br>35 mm diameter, 6 splines, acc. to DIN 9611 and ISO 500 type 1;<br>598 rev/min at rated engine speed, standard p.t.o. speed 540 rev/min at 2258 rev/min engine speed;<br>direction of rotation clockwise, viewed from tractor rear;<br>p.t.o. speeds may be set by aid of tractormeter |
| Ground speed p.t.o.: | Main p.t.o. may be shifted to ground speed p.t.o.;<br>travelling distance per 1 rev of the p.t.o. 0,47 m;<br>7,61 rev of p.t.o. per 1 rev of driving wheel, same direction of rotation as main p.t.o. |

Power lift

| | |
|---|---|
| Hydraulic system: | MITA, Italy<br>MH 45L<br>hydraulic power lift, unit construction;<br>BOSCH gear type pump HY/ZFR 1/11 CL;<br>delivery 11 $cm^3$/rev or 27,5 l at rated engine speed, directly driven by engine;<br>MITA control valve for lifting, lowering, draft control, position control and floating position, top link control;<br>maximum oil pressure 180 bar;<br>single acting ram 84 mm bore, 90 mm stroke;<br>overpressure relief valve for ram adjusted to 200 bar;<br>1 additional double acting control valve with oil tapping;<br>hydraulically acting linkage lock for transport by lowering throttle; |

| | |
|---|---|
| | hydraulic oil tank in the power lift unit with 13 l capacity,<br>up to 10 l may be taken off through oil tapping when tractor is driving or stationary;<br>recommended oil engine oil SAE 20W/20<br>MIL-L-2104 B or MIL-L-2104 C<br>oil changing interval 1000 hours |
| Implement linkage: | Three point linkage category I (DIN 9674),<br>lift rods length adjustable from 400 to 470 mm;<br>lifting range above ground:<br>with short lift rods from 386 to 915 mm<br>with long lift rods from 246 to 795 mm |
| Holed bar: | Short bar, fitted on clevis of lower links;<br>length between the joint balls 680 mm,<br>thickness of the bar 25 mm;<br>centre hole and on either side 3 holes with 80 mm distance each;<br>all holes 22 mm diameter;<br>height above ground adjustable by power lift from 259 to 928 mm depending on lift rods length, measured at the surface of the bar;<br>height above ground hydraulically fixable;<br>distance of holes centre line with lower links in horizontal position:<br>from rear axle centre 882 mm<br>from p.t.o. shaft end 495 mm |

Pull attachments

| | |
|---|---|
| Trailer hitch: | ROCKINGER<br>model 277, not automatical;<br>height above ground 660 mm, not adjustable;<br>hitch hole 33 mm diameter;<br>distance of the hitch hole centre to rear axle centre 475 mm;<br>permissible vertical load 400 kg |
| Towing hitch: | Height above ground 491 mm |

Steering

CAM GEARS
mechanically acting by undivided track rod on front wheels

Brakes

Parking brake: Mechanically acting dry disc type brake, operated by hand lever with ratchet, acting on 2 lining discs per wheelbrake, on both differential half shafts, discs 102 mm diameter; optionally acting on the service brake discs

Service brake: AGRIFULL S.P.A.
mechanically acting dry disc type brake, operated by pedal, acting on 2 lining discs per wheelbrake, on both differential half shafts, discs 128 mm diameter

Steering brake: Divided pedal of service brake, for normal use locked together

Wheels

Steered wheels: 2 pneumatics in front 5,00-15 AS Front 4 ply; maximum permissible load per tyre 365 kg at 2,5 bar inflation pressure and 30 km/h; track width adjustable from 753 to 953 mm and with turned wheels from 917 to 1117 mm in steps of 100 mm by extending telescopic half axles;
rims 4,00 E x 15

Driving wheels: 2 pneumatics at rear 11,2-28 AS 4 ply, diagonal type tyre casing;
maximum permissible load per tyre 900 kg at 1,3 bar inflation pressure and 30 km/h;
track width adjustable from 723 to 1223 mm in 5 steps of 100 mm each by turning wheels and offset lug type rims;
rims W9 x 28

Wheel base: 1791 mm

PRÜFUNGS-ABTEILUNG
DEUTZ DX 50-V

Test No. 78-88

| | |
|---|---|
| Overturning protection frame | AGRIFULL S.P.A.<br>extensible steel tube guard<br>not O.E.C.D. tested |
| Seat | BOSTROM model RS<br>upholstered seat with back rest<br>adjustable spring with shock absorber;<br>height of driver's platform above ground 500 mm;<br>height of unloaded seat above platform 550 mm;<br>for and aft adjustable about 150 mm,<br>no adjustability of height |

Weights — Ready for use as tested

| | | without driver | with driver |
|---|---|---|---|
| Without ballast: | front | 570 kg | 580 kg |
| | rear | 915 kg | 980 kg |
| | total | 1485 kg | 1560 kg |
| Front ballast: | 5 front weights 35 kg each | | 175 kg |
| Rear ballast: | 1 intermediate ring per wheel 50 kg each | | 100 kg |
| | 5 weights per wheel 50 kg each | | 500 kg |
| With ballast: | front | 785 kg | 805 kg |
| | rear | 1475 kg | 1530 kg |
| | total | 2260 kg | 2335 kg |

Number of grease points 16

PRÜFUNGS-ABTEILUNG
DEUTZ DX 50-V

Test No. 78-88

Track setting — during test
at front 853 mm
at rear 723 mm

Dimensions

| | | |
|---|---|---|
| Total length | 3206 mm | without ballast |
| | 3656 mm | with ballast |
| Total width: | 1058 mm | without ballast, side lights turned in |
| | 1115 mm | without ballast, side lights turned out |
| | 1640 mm | with ballast |
| Total height: | 1538 mm | protection frame pushed in |
| | 2020 mm | protection frame drawn out |
| Ground clearance: | 210 mm | below exhaust silencer |

Lighting equipment — Electrical 12 Volt
as per German legislation

| | Dimensions mm | Height above ground to centre mm | Distance from outside edge of tractor to centre mm |
|---|---|---|---|
| Head lights | 130 ø | 760 | 405 |
| Side lights *) | 30 x 80 | 1273 | 40 |
| Rear lights *) | 30 x 80 | 1273 | 40 |
| Reflectors | | | |
| 1st pair | 80 ø | 1150 | 125 |
| 2nd pair | 80 ø | 390 | 468 |

*) lights swingable, measured in turned out position

PRÜFUNGS-ABTEILUNG
DEUTZ DX 50-V

Test No. 78-88

Permissible total weights and axle loads

for all available wheel equipment

| Wheel equipment | | Permissible total weights | Permissible axle load | |
|---|---|---|---|---|
| front | rear | kg | front kg | rear kg |
| | 9,5-24 6 ply | 2630 | | 1800 |
| 5,00-15 4 ply | 11,2-24 4 ply | 2630 | 830 | 1800 |
| | 11,2-28 4 ply | 2750 | | 1920 |

FUELS AND LUBRICANTS USED IN TESTS

Fuel: ARAL-DIESEL-fuel DIN 51601

specific gravity at 15°C

at engine tests 0,833 kg/l

at p.t.o. tests 0,833 kg/l

at drawbar tests 0,826 kg/l

Engine oil: SHELL ROTELLA TX SAE 20W/20 MIL-L-2104 B

Transmission oil: SHELL SPIRAX EP SAE 90 MIL-L-2105

Hydraulic oil: SHELL ROTELLA TX SAE 20W/20 MIL-L-2104 B

PRÜFUNGS-ABTEILUNG
DEUTZ DX 50-V

Test No. 78-88

TEST RESULTS

**PRÜFUNGS-ABTEILUNG**
DEUTZ DX 50-V

Test No. 78-88

## COMPULSORY TESTS

### (1) MAIN POWER TAKE-OFF PERFORMANCE ( 540 rev/min)

Date of tests: 3rd August 1978
Type of dynamometer: SCHENCK hydraulic dynamometer U1-40

| Power kW | Speed engine rev/min | Speed p.t.o. rev/min | Fuel consumption total l/h | Fuel consumption total kg/h | Fuel consumption specific g/kWh | Specific energy kWh/l |
|---|---|---|---|---|---|---|
| **Maximum power** | | | | | | |
| At 2-hour test | | | | | | |
| 31.9 | 2500 | 598 | 9.75 | 8.13 | 255 | 3.27 |
| At standard p.t.o. speed | | | | | | |
| 31.4 | 2258 | 540 | 9.26 | 7.71 | 246 | 3.39 |
| At the speed recommended for drawbar work | | | | | | |
| 31.9 | 2500 | 598 | 9.75 | 8.13 | 255 | 3.27 |
| **Part loads**, the governor hand lever in the position corresponding to the maximum power at full load | | | | | | |
| (i) 85% of the torque at maximum power at 2-hour test | | | | | | |
| 28.1 | 2596 | 621 | 9.01 | 7.51 | 267 | 3.12 |
| (ii) unloaded | | | | | | |
| - | 2633 | 630 | 3.31 | 2.76 | - | - |
| (iii) 50% of the load defined in (i) | | | | | | |
| 14.2 | 2617 | 626 | 6.04 | 5.03 | 355 | 2.35 |
| (iv) maximum power | | | | | | |
| 31.9 | 2500 | 598 | 9.75 | 8.13 | 255 | 3.27 |
| (v) 25% of the load defined in (i) | | | | | | |
| 7.1 | 2622 | 627 | 4.67 | 3.89 | 547 | 1.52 |
| (vi) 75% of the load defined in (i) | | | | | | |
| 21.2 | 2605 | 623 | 7.54 | 6.28 | 297 | 2.81 |

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DEUTZ DX 50-V

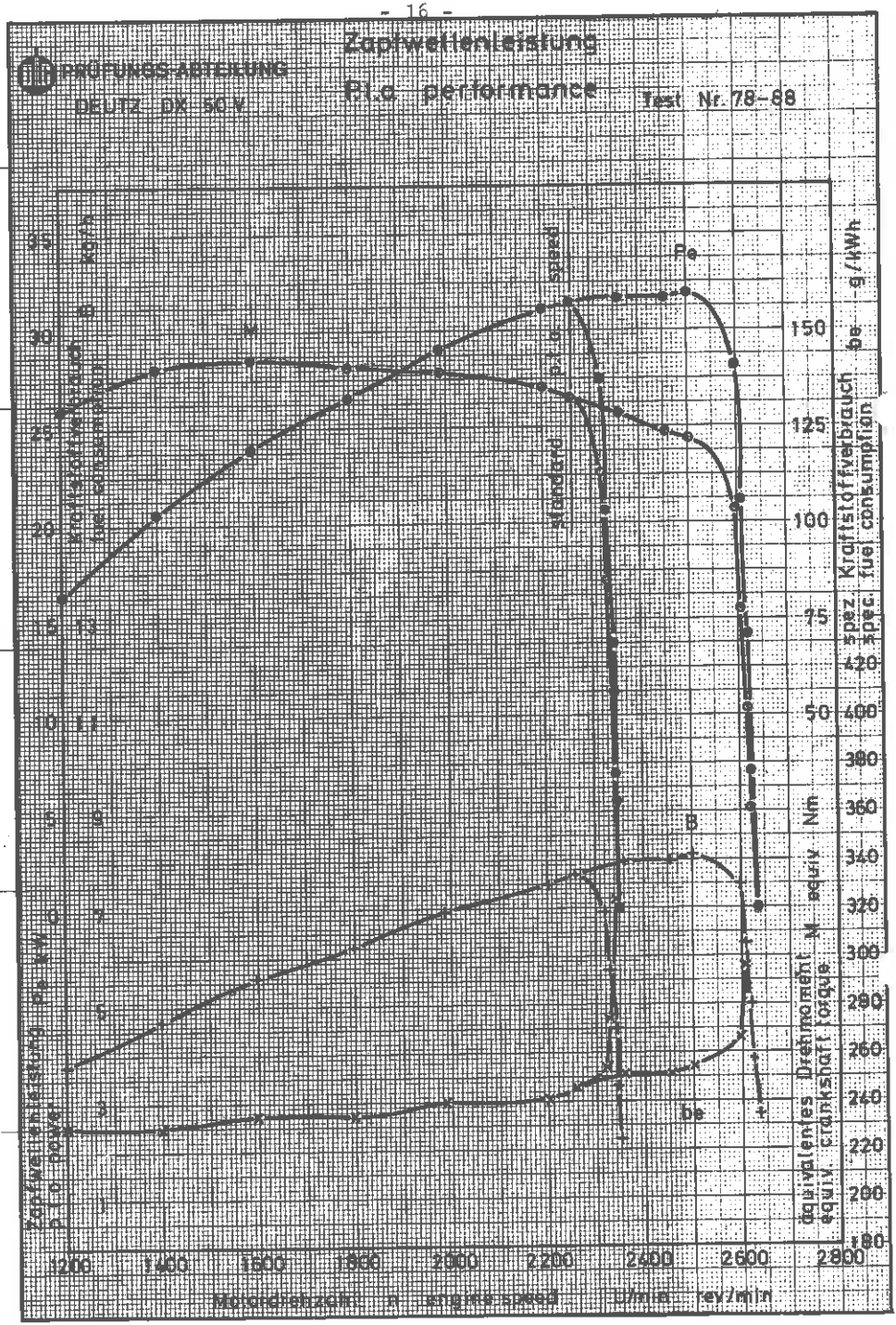
Test No. 78-88

| Power kW | Speed engine rev/min | Speed p.t.o. rev/min | Fuel consumption total l/h | Fuel consumption total kg/h | Fuel consumption specific g/kWh | Specific energy kWh/l |
|---|---|---|---|---|---|---|
| Part loads, the governor hand lever in the position corresponding to the standard p.t.o. speed at full load | | | | | | |
| (i) 85% of the torque at maximum power at 2-hour test | | | | | | |
| 27.4 | 2319 | 555 | 8.28 | 6.90 | 252 | 3.31 |
| (ii) unloaded | | | | | | |
| - | 2352 | 563 | 2.66 | 2.22 | - | - |
| (iii) 50% of the load defined in (i) | | | | | | |
| 13.8 | 2343 | 560 | 5.37 | 4.47 | 323 | 2.58 |
| (iv) maximum power | | | | | | |
| 31.4 | 2258 | 540 | 9.26 | 7.71 | 246 | 3.39 |
| (v) 25% of the load defined in (i) | | | | | | |
| 6.9 | 2343 | 560 | 3.98 | 3.31 | 479 | 1.74 |
| (vi) 75% of the load defined in (i) | | | | | | |
| 20.6 | 2329 | 557 | 6.82 | 5.68 | 275 | 3.03 |

Standard specific fuel consumption (g/kWh): 267/355/252/323

No load maximum engine speed: 2633 rev/min
Equivalent crankshaft torque at maximum power (2 hours): 122 Nm
Maximum equivalent crankshaft torque: 143 Nm at 1597 rev/min of the engine

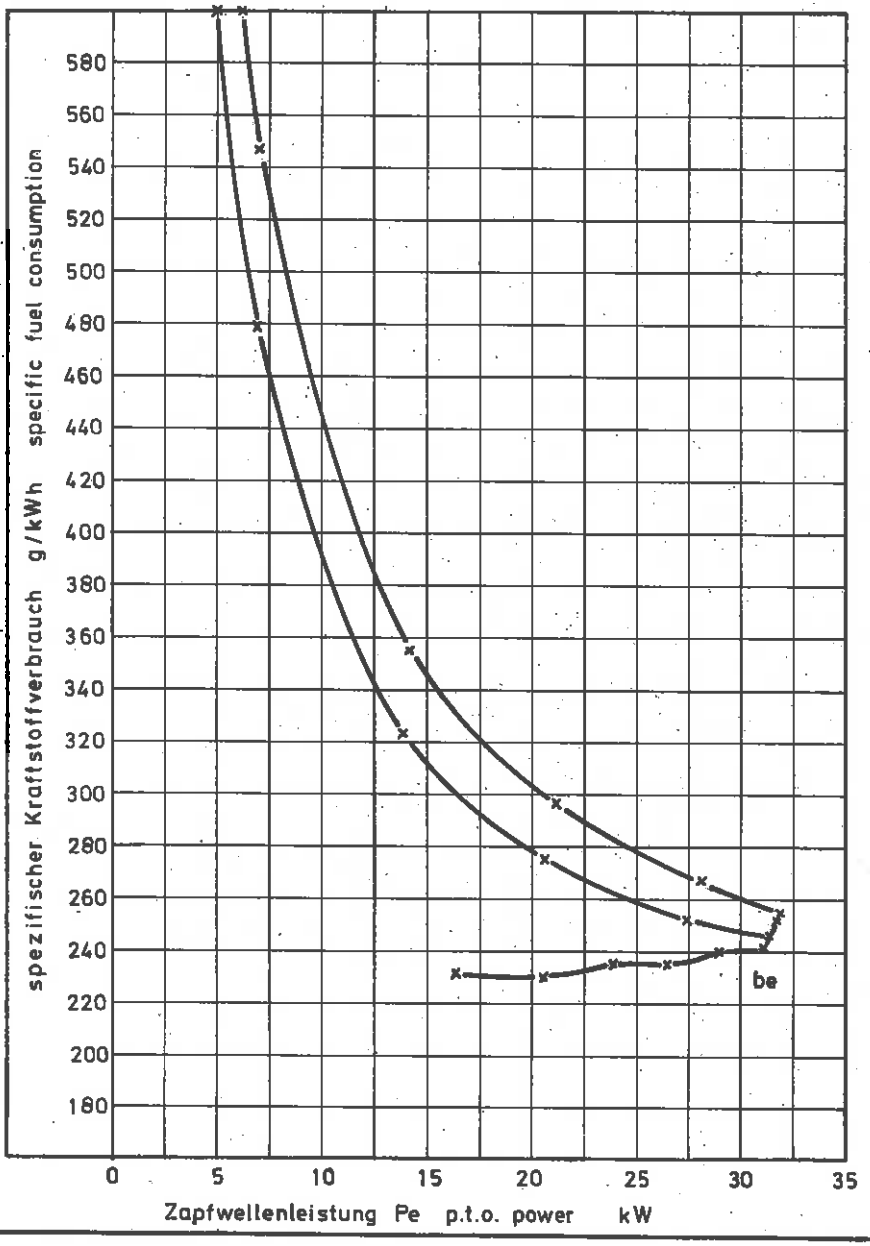
| | | |
|---|---|---|
| Mean atmospheric conditions: | temperature | 24 °C |
| | pressure | 997 mbar |
| | relative humidity | 70 % |
| Maximum temperatures: | coolant | - |
| | engine oil | 107 °C |
| | fuel | 25 °C |
| | engine air intake | 25 °C |


Zapfwellenleistung
PRÜFUNGS-ABTEILUNG
DEUTZ DX 50 V
P.t.o. performance
Test Nr. 78-88
Pe
M
be
B
Zapfwellenleistung p.t.o. power
Drehmoment M equiv. Nm
equiv. crankshaft torque
spez. Kraftstoffverbrauch be g/kWh
spec. fuel consumption
Motordrehzahl n engine speed U/min rev/min
1200
1400
1600
1800
2000
2200
2400
2600
2800

PRÜFUNGS-ABTEILUNG
DEUTZ DX 50 V

# Zapfwellenleistung
## P.t.o. performance

Test Nr. 78-88



**PRÜFUNGS-ABTEILUNG**
DEUTZ DX 50-V

## (2) DRAWBAR PERFORMANCE

Date of tests: 28th February till 9th March 1979
Type of track: Concrete

| Gear No. and Group | Driving speed km/h | Power kW | Drawbar pull daN | Engine speed rev/min | Slip of wheels % |
|---|---|---|---|---|---|
| (i) MAXIMUM POWER with ballast height of drawbar above ground 532 mm | | | | | |
| 1 L | 1,72 | 9,9 | 2080 | 2618 | 14,9 |
| 2 L | 2,37 | 13,6 | 2067 | 2615 | 15,1 |
| 3 L | 3,09 | 18,0 | 2094 | 2609 | 15,0 |
| 1 Z | 4,23 | 24,5 | 2084 | 2590 | 15,1 |
| 2 Z | 6,22 | 28,5 | 1648 | 2504 | 7,4 |
| 3 Z | 8,25 | 28,9 | 1262 | 2500 | 5,0 |
| 1 S | 11,37 | 29,3 | 926 | 2495 | 3,7 |
| 2 S | 16,12 | 29,1 | 649 | 2505 | 2,5 |
| (ii) FIVE-HOUR-TEST at 75% of pull at maximum power in 2 Z gear | | | | | |
| 2 Z | 6,62 | 22,7 | 1236 | 2601 | 5,1 |
| (iii) FIVE-HOUR-TEST at pull corresponding to 15% wheel slip in test (i) | | | | | |
| 1 Z | 4,52 | 26,3 | 2094 | - | - |
| (iv) MAXIMUM POWER without ballast height of drawbar above ground 540 mm | | | | | |
| 1 Z | 4,30 | 16,8 | 1408 | 2604 | 15,0 |
| 2 Z | 5,94 | 23,3 | 1410 | 2588 | 14,9 |
| 3 Z | 7,97 | 27,4 | 1236 | 2505 | 8,9 |
| 1 S | 11,25 | 28,7 | 918 | 2502 | 5,5 |
| 2 S | 15,88 | 29,5 | 668 | 2496 | 3,6 |

Total oil consumption during ten hours duration of tests (ii) and (iii) 94 g/h

**PRÜFUNGS-ABTEILUNG**

Test No. 78-88

Tyres make and size: front: 5,00-15 PIRELLI 4 ply
rear: 11,2-28 CEAT 4 ply

Tread bar height at the beginning of drawbar tests 79% of the value when new

| Specific energy kWh/l | Specific fuel consumpt. g/kWh | Temperatures Fuel °C | Coolant °C | Engine-oil °C | Atmospheric conditions Tempe-rature °C | Relative humidity % | Pressure mbar |
|---|---|---|---|---|---|---|---|
| tyre inflation pressure 1,2 bar | | | | | | | |
| 1,78 | 462 | 19 | - | 100 | 17 | 72 | 998 |
| 2,06 | 400 | 19 | - | 100 | 17 | 72 | 998 |
| 2,31 | 357 | 17 | - | 95 | 13 | 66 | 996 |
| 2,55 | 323 | 17 | - | 90 | 12 | 69 | 997 |
| 2,90 | 285 | 17 | - | 102 | 12 | 69 | 997 |
| 2,94 | 280 | 16 | - | 99 | 13 | 66 | 997 |
| 2,95 | 280 | 15 | - | 100 | 13 | 66 | 997 |
| 2,92 | 283 | 15 | - | 105 | 13 | 66 | 997 |
| 2,70 | 305 | 17 | - | 110 | 12 | 69 | 1006 |
| - | - | 17 | - | 105 | 13 | 76 | 1000 |
| tyre inflation pressure 0,8 bar | | | | | | | |
| 2,25 | 366 | 16 | - | 100 | 13 | 58 | 988 |
| 2,53 | 327 | 13 | - | 105 | 10 | 60 | 998 |
| 2,80 | 295 | 15 | - | 102 | 7 | 67 | 1006 |
| 2,93 | 282 | 14 | - | 101 | 7 | 76 | 1008 |
| 2,98 | 279 | 12 | - | 96 | 8 | 74 | 1008 |

Test (iii) was carried out with additional ballast, the figures not quoted are therefore irrelevant

PRÜFUNGS-ABTEILUNG
DEUTZ DX 50-V

Test No. 78-88

## (3) TURNING SPACE AND TURNING CIRCLE

Wheel equipment front: 5,00-15 4 ply
rear: 11,2-28 4 ply

Track of wheels front: 853 mm
rear: 723 mm

| | With brakes | | Without brakes | |
|---|---|---|---|---|
| | left-hand m | right-hand m | left-hand m | right-hand m |
| Radius of turning space | 2,89 | 2.82 | 3,19 | 3,17 |
| Radius of turning circle | 2,78 | 2,70 | 3,08 | 3,05 |

## (4) LOCATION OF CENTRE OF GRAVITY

| | |
|---|---|
| Height above ground | 649 mm |
| Distance forward from rear axle centre | 672 mm |
| Distance from tractor's median plane | 2 mm to the left |

PRÜFUNGS-ABTEILUNG
DEUTZ DX 50-V

Test No. 78-88

## (5) BRAKING PERFORMANCE

### A) SERVICE BRAKE

Date of tests: 5th and 6th March 1979
Type of track: Concrete
Type of decelerometer: MOTO-METER-Bremsverzögerungs- und Pedalkraftschreiber

Weight of ballasted tractor with driver 2335 kg

Cold brakes

| | | With ballast | Without ballast |
|---|---|---|---|
| Travelling speed | km/h | 23,0 | 23,0 |
| Deceleration | $m/s^2$ | 4,4 | 4,4 |
| Stopping distance | m | 4,8 | 4,9 |
| Force on pedal | daN | 47 | 29 |
| Force on pedal to achieve a deceleration of 2,5 $m/s^2$ | daN | 24 | 13 |

Brake fade characteristics (hot tests)

| | | | | |
|---|---|---|---|---|
| Deceleration | hot/cold | % | 97 | 100 |
| Stopping distance | cold/hot | % | 96 | 102 |
| Force on pedal | cold/hot | % | 78 | 80 |

### B) PARKING BRAKE

Tractor facing up 16% slope
Pull on hand brake 26 daN, tractor does not roll

Tractor facing down 16% slope
Pull on hand brake 25 daN, tractor does not roll

PRÜFUNGS-ABTEILUNG
DEUTZ DX 50-V

Test No. 78-88

## (6) AMBIENT NOISE EMITTED BY THE TRACTOR

Date of test: 5th March 1979
Type of track: Concrete
Type of sound level meter: BRÜEL AND KJAER model 2209

Results of test

Gear: 3 S
Travelling speed before acceleration: 17,24 km/h
Sound level: 89,0 dB(A)

## (7) NOISE AT THE DRIVER'S EAR LEVEL

Date of tests: 5th March 1979
Type of track: Concrete
Type of sound level meter: BRÜEL AND KJAER model 2209

An overturning protection frame has been fitted on tractor

Results of tests

| Gear | Drawbar pull at which the tractor develops the maximum sound level daN | Travelling speed nominal km/h | Travelling speed effective km/h | Sound level dB(A) |
|---|---|---|---|---|
| 1 L | 1400 | 1,94 | 1,80 | 94,0 |
| 2 L | 1420 | 2,71 | 2,48 | 94,0 |
| 3 L | 1410 | 3,52 | 3,34 | 94,5 |
| 1 Z | 1412 | 4,86 | 4,29 | 94,0 |
| 2 Z *) | 1415 | 6,78 | 5,92 | 95,5 |
| 3 Z | 1230 | 8,82 | 8,00 | 96,0 |
| 1 S | 905 | 12,01 | 11,39 | 95,5 |
| 2 S | 670 | 16,73 | 15,90 | 94,5 |
| 3 S | light load | 21,77 | 22,98 | 94,5 |

*) the 2nd Z gear corresponds to the travelling speed nearest to 7,5 km/h

**PRÜFUNGS-ABTEILUNG**
DEUTZ DX 50-V

Test No. 78-88

## (8) POWER LIFT AND HYDRAULIC PUMP PERFORMANCE

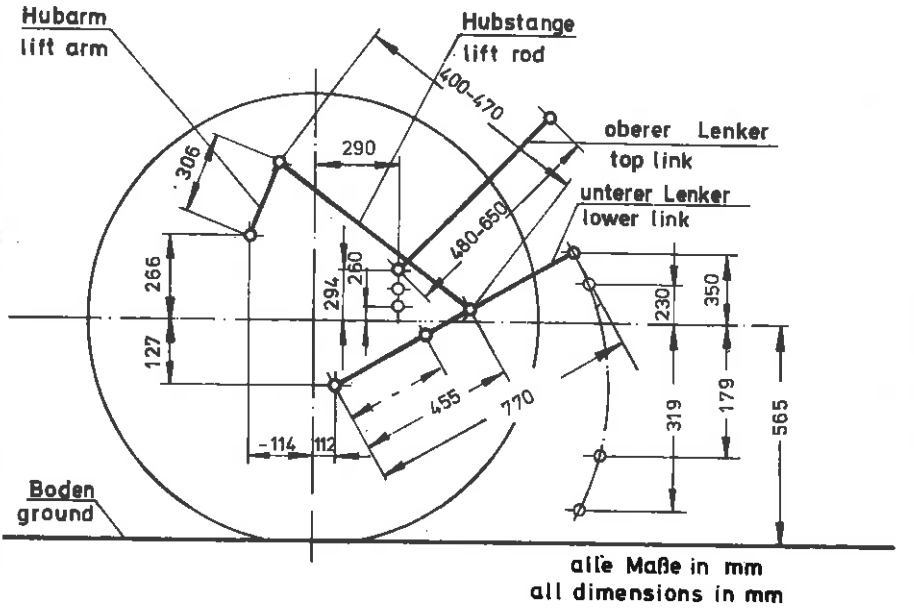
Date of tests: 24th January 1979

### HYDRAULIC PUMP

| | | |
|---|---|---|
| (1) | Opening pressure of relief valve in remote circuit | 167 bar |
| | Sustained pressure by open relief valve | 180 bar |
| (2) | Pump delivery rate at minimum pressure and rated engine speed | **30,2 l/min** |
| (3) | Pump delivery rate at max. hydraulic power | 29,4 l/min |
| | corresponding delivery pressure | 167 bar |
| | power | 8,2 kW |

### POWER LIFT

Dimensions of linkage geometry for the table on page 26



**PRÜFUNGS-ABTEILUNG**
DEUTZ DX 50-V

## LIFTING FORCES

Lifting heights relative to horizontal lower links

| mm | -210 | -200 | -192 | -100 | -81 | -52 | 0 | +100 |
|---|---|---|---|---|---|---|---|---|

at hitch points maximum mechanical advantage

| daN | | | | | | 1260 | 1320 | 1470 |
|---|---|---|---|---|---|---|---|---|

minimum mechanical advantage

| daN | | | 1140 | 1370 | | | 1480 | 1550 |
|---|---|---|---|---|---|---|---|---|

Max. force exerted throughout the whole range 1260 daN

Force at which front of tractor lifts if front axle is ballasted to its maximum permissible load (830 kg) 1650 daN

at test frame maximum mechanical advantage

| daN | 1210 | 1220 | | 1290 | | | 1310 | 1280 |
|---|---|---|---|---|---|---|---|---|

minimum mechanical advantage

| daN | | | | | 1100 | | 1150 | 1170 |
|---|---|---|---|---|---|---|---|---|

Max. force exerted throughout the whole range 1070 daN

Force at which front of tractor lifts if front axle is ballasted to its maximum permissible load (830 kg) 980 daN

| +200 | +300 | +357 | +382 | +400 | +477 | +500 | +600 | +612 |
|---|---|---|---|---|---|---|---|---|

lift rods 400 mm long

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1560 | 1610 | | | 1650 | 1700 | | | |

lift rods 470 mm long

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1590 | 1620 | 1650 | | | | | | |

**lift rods 470 mm long, high top link pivot point**

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1230 | 1150 | | 1070 | | | | | |

lift rods 400 mm long, low top link pivot point

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 1160 | 1100 | | | 1020 | | 940 | 860 | 840 |

All values of forces for pressure 167 bar at maximum hydraulic power, see page 23; calculated from measurements at max. oil pressure 180 bar

| LINKAGE GEOMETRY when connected to the standard frame | Maximum mechanical advantage | Minimum mechanical advantage |
|---|---|---|
| Projected length in side view: | | |
| Lower links | 770 mm | 770 mm |
| Lift arms | 306 mm | 306 mm |
| Lift rods | 470 mm | 400 mm |
| Top link | 575 mm | 569 mm |
| Distance of lift rod connection point from pivot point of lower link | 455 mm | 455 mm |
| The following dimensions are given relative to rear axle centre line 565 mm above ground | | |
| Lower link pivot point | 112 mm behind, 127 mm below | 112 mm behind, 127 mm below |
| Top link pivot point | 290 mm behind, 294 mm above | 290 mm behind, 260 mm above |
| Lift arm pivot point | 114 mm behind, 266 mm above | 114 mm behind, 266 mm above |
| Maximum and minimum height of lower link hitch points | 230 mm above, 319 mm below | 350 mm above, 179 mm below |
| Height of lower link hitch points above ground when locked in highest transport position | 795 mm | 915 mm |

**PRÜFUNGS-ABTEILUNG**
DEUTZ DX 50-V

Test No. 78-88

## OPTIONAL TESTS

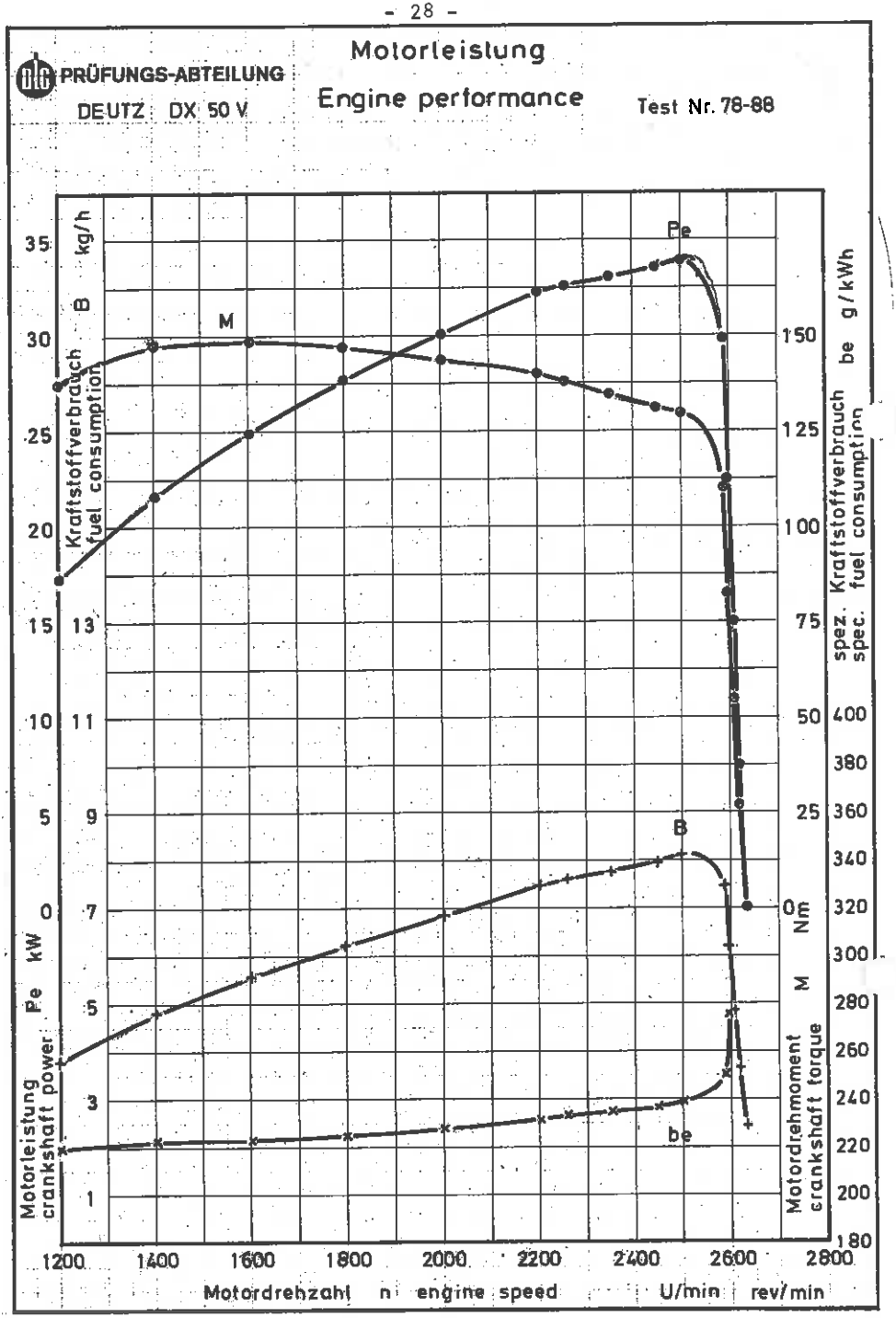
### (9) ENGINE PERFORMANCE

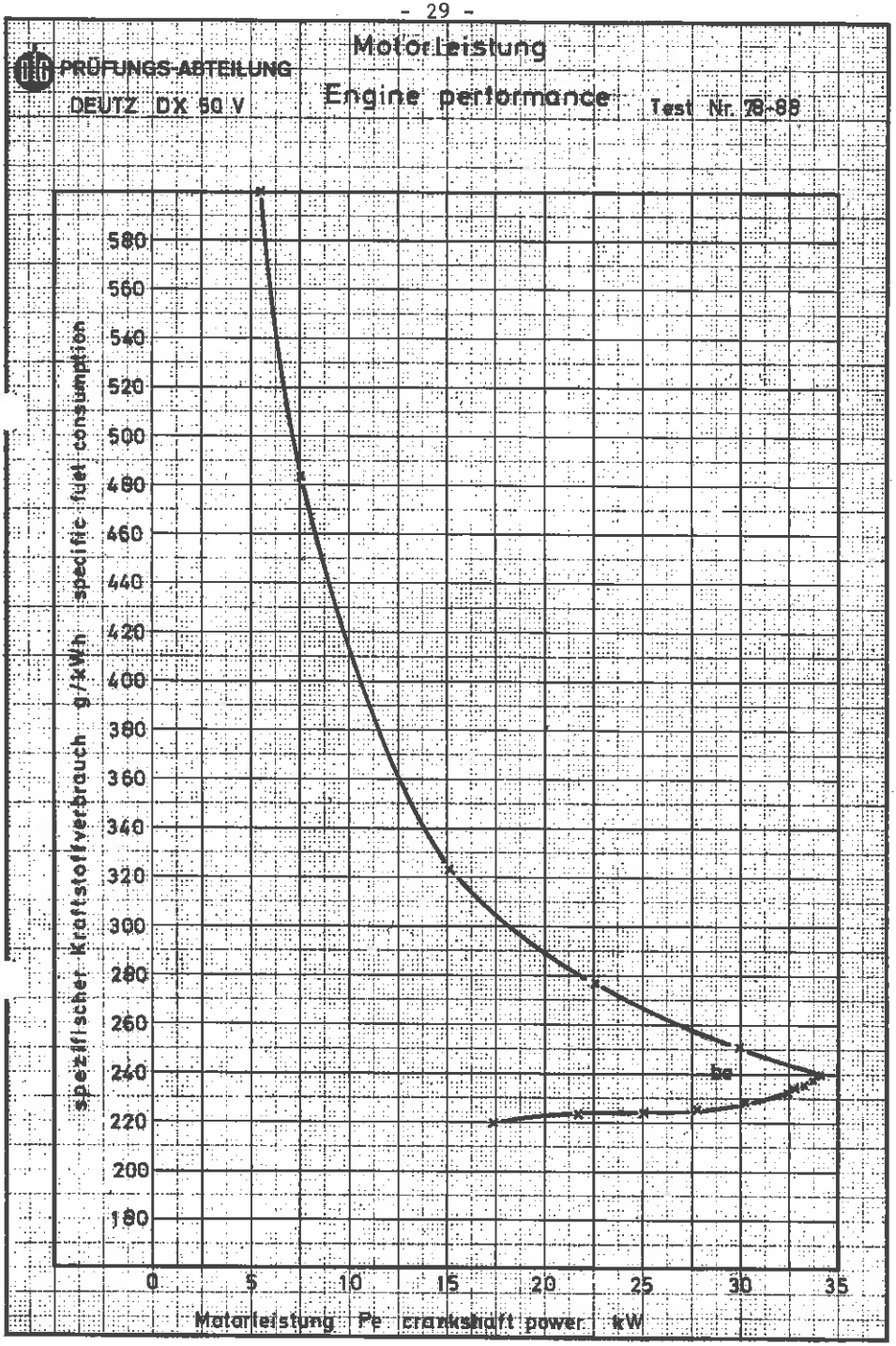
Date of tests: 21st and 24th July 1978
Type of dynamometer: SCHENCK eddy-current dynamometer W 150

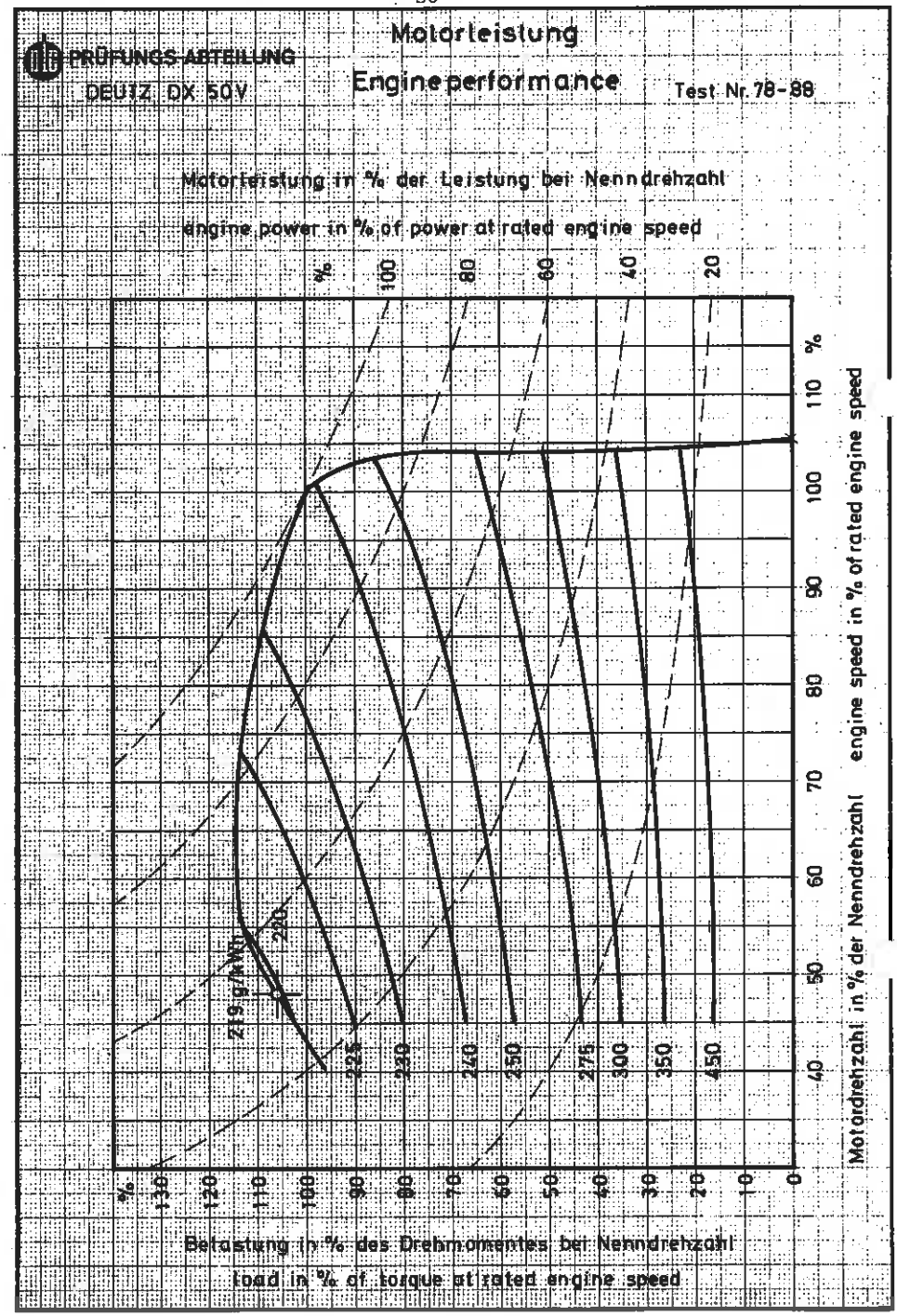
| Power kW | Engine speed rev/min | Fuel consumption total l/h | Fuel consumption total kg/h | Fuel consumption specific g/kWh | Specific energy kWh/l |
|---|---|---|---|---|---|
| **Maximum power** | | | | | |
| At 2-hour test | | | | | |
| 34.0 | 2500 | 9.77 | 8.13 | 239 | 3.48 |
| At standard p.t.o. speed ( 540 rev/min) | | | | | |
| 32.7 | 2257 | 9.18 | 7.64 | 234 | 3.56 |
| At the speed recommended for drawbar work | | | | | |
| 34.0 | 2500 | 9.77 | 8.13 | 239 | 3.48 |
| **Part loads** | | | | | |
| (i) 85% of the torque at maximum power at 2-hour test | | | | | |
| 29.9 | 2587 | 8.99 | 7.49 | 250 | 3.33 |
| (ii) unloaded | | | | | |
| - | 2631 | 2.96 | 2.46 | - | - |
| (iii) 50% of the load defined in (i) | | | | | |
| 15.1 | 2606 | 5.84 | 4.86 | 323 | 2.58 |
| (iv) maximum power | | | | | |
| 34.0 | 2500 | 9.77 | 8.13 | 239 | 3.48 |
| (v) 25% of the load defined in (i) | | | | | |
| 7.6 | 2617 | 4.38 | 3.65 | 483 | 1.73 |
| (vi) 75% of the load defined in (i) | | | | | |
| 22.5 | 2594 | 7.45 | 6.20 | 276 | 3.02 |

Optimum fuel consumption: 219 g/kWh at 17.3 kW and 1200 rev/min
No load maximum engine speed: 2631 rev/min
Torque at maximum power (2 hours): 130 Nm
Maximum torque: 149 Nm at 1601 rev/min of the engine

| | | |
|---|---|---|
| Mean atmospheric conditions: | temperature | 21 °C |
| | pressure | 994 mbar |
| | relative humidity | 68 % |
| Maximum temperatures: | coolant | - |
| | engine oil | 105 °C |
| | fuel | 24 °C |
| | engine air intake | 22 °C |


Motorleistung
Engine performance
PRÜFUNGS-ABTEILUNG
DEUTZ DX 50 V
Test Nr. 78-88
Pe
M
B
be
Motorleistung crankshaft power Pe kW
Kraftstoffverbrauch B kg/h fuel consumption
Motordrehmoment crankshaft torque M Nm
spez. Kraftstoffverbrauch be g/kWh spec. fuel consumption
Motordrehzahl n engine speed U/min rev/min
1200 1400 1600 1800 2000 2200 2400 2600 2800


Motorleistung
Engine performance
PRÜFUNGS-ABTEILUNG
DEUTZ DX 50 V
Test Nr. 28-89
spezifischer Kraftstoffverbrauch g/kWh specific fuel consumption
580
560
540
520
500
480
460
440
420
400
380
360
340
320
300
280
260
240
220
200
180
be
0
5
10
15
20
25
30
35
Motorleistung Pe crankshaft power kW


Motorleistung
Engine performance
PRÜFUNGS-ABTEILUNG
DEUTZ DX 50 V
Test Nr. 78-88
Motorleistung in % der Leistung bei Nenndrehzahl
engine power in % of power at rated engine speed
%
100
80
60
40
20
219 g/kWh
220
225
230
240
250
275
300
350
450
110 %
100
90
80
70
60
50
40
Motordrehzahl in % der Nenndrehzahl engine speed in % of rated engine speed
%
130
120
110
100
90
80
70
60
50
40
30
20
10
0
Belastung in % des Drehmomentes bei Nenndrehzahl
load in % of torque at rated engine speed

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