



Zettelmeyer ZL 502



An Agile Allrounder — Tough and Flexible on any Job

- **High-performance, environmentally-friendly diesel engine:** quiet, low emissions, economical fuel consumption.
- **Hydrostatic drive** with significant advantages:
 - Easy to operate due to automatic drive facility
 - Maintains high drawbar pull even when working hydraulics are engaged
 - Advantageous hydrostatic brakes, wear-free and safe
- **Powerful Z-bar loader-linkage** with two lifting cylinders:
 - High breakout force and lifting capacity in bucket applications
 - Excellent fork-lift capacity
- Optimum traction, due to **supplementary 100% differential locks** in both axles.
- Standard **hydraulic quick-change coupling:** Various tried-and-tested attachments for a wide range of applications
- **Purpose designed cab comfort** for extra performance. Audio-visual warning system for monitoring operating systems
- **Gross Power:**
SAE J1995 36/49 kW/hp
- **Operating Weight:**
4,3 t (9480 lb)
- **Bucket Capacities:**
0,7 - 1,3 m³ (0,9 - 1,7 yd³)

Zettelmeyer

ENGINE



Engine: 4-cylinder direct injection, 4-stroke diesel engine

Make	Deutz	Deutz
Type	F 4L 1011	F 4L 1011
Gross power	2800 ¹ /min	2800 (r/min)
SAE J1349 JUN 85	36 kW	49 (hp)
Net power	2800 ¹ /min	2800 (r/min)
SAE J1349 JUN 85	35 kW	48 (hp)
DIN 70020 / 62 71	35 kW	48 (hp)
Max. torque at	1600 ¹ /min	1600 (r/min)
SAE J1349 netto	118 Nm	118 (lbf ft)
DIN 70020 / 6271	118 Nm	118 (lbf ft)
No. cylinders / configuration	4 in-line	4 in-line
Total displacement	2,73 l	167 (in ³)
Bore	91 mm	3,6 (in)
Stroke	105 mm	4,1 (in)
Cooling	oil/air	oil/air

Air cleaning:

1. Paper filter with indicator
2. Safety filter

ELECTRICAL SYSTEM



Central alarm, audible and visible

1. Warning light and audible alarm for
 - Engine temperature
 - Engine oil pressure
 - Drive system oil temperature
 - Air filter restriction

2. Warning light for
 - Parking brake

Electrical specifications:

Rated voltage	12 V	12 (V)
Battery voltage	12 V	12 (V)
Battery capacity	88 Ah	88 (Ah)
Alternator rating	840 / 60 W/A	840 / 60 (W/A)
Starter motor output	2,2 / 3,0 kW/PS	2,2 / 3,0 (kW/hp)

SERVICE FILL CAPACITIES



Engine	10,5 l	2,8 (US gal)
Fuel tank	60,0 l	15,8 (US gal)
Front axle, total	10,0 l	2,6 (US gal)
Rear axle incl. transmission	11,0 l	2,9 (US gal)
Hydraulic tank		
incl. hydraulic system	60,0 l	15,8 (US gal)

DRIVETRAIN



Transmission: Hydrostatic transmission, full power shift under load, both when changing direction (forward and revers) and between work and travel range. Inch/Brake pedal for variable machine speed control and power transfer to bucket hydraulics at constant engine RPM.

Transmission, make ZF/type 1 AV G 65

Axes: All-wheel drive by two rigid portal axles

Ground clearance	450 mm	17,7" (in)
Oscillation at wheel, max.	250 mm	9,8" (in)
Track with standard tyres	1382 mm	54,4" (in)
Front axle, make ZF/type	AV 225	
Rear axle, make ZF/type	AV 225	

Differential lock: 100% hydraulically operated differential locks in both axles. The differential locks are acting upon all four wheels. Actuation by simply lifting the differential lock ring on the single lever control.

Frame: Solid front and rear frame, robot-welded. Articulating oscillating joint for optimum manoeuvrability and traction.

Angle of oscillation, max. $\pm 10^\circ$

Tyres: Size Make Profile Rim
Standard: 12.5-18 Dunlop TG 32 11x18
Special tyres for specific job conditions available as an option.

For details see extra table overleaf.

Speed:

2 speeds forward/reverse, full powershift under load

	Speed, max.	km/h	(mile/h)
Work range forward/reverse		10	(6,2)
Travel range forward/reverse		20	(12,5)

BRAKE SYSTEM



Service brake:

1. Wear-free, hydrostatic inching brake.
2. Central friction brake, actuated via "Inching/Brake Pedal", acting upon all 4 wheels.

In the first stage of the stroke the "Inching/Brake Pedal" serves the "Inching", in the second stage the friction brake is additionally actuated.

Parking brake: Central drum brake, acting upon all 4 wheels.

STEERING



Hydrostatic steering.
Central articulating oscillating joint with damping effect.
Angle of articulation $\pm 39^\circ$.

Steering pump: Gear-type tandem pump

Flow	22 l/min	5,8 (US gal/min)
@ engine RPM	2800 1/min	2800 (r/min)
Relieve valve pressure	150 bar	2250 (psi)

Steering cylinder: 1 double acting steering cylinder

Diameter	63 mm	2,5" (in)
Piston rod diameter	32 mm	1,25" (in)
Stroke	300 mm	11,8" (in)

OPERATOR'S CAB



Safety cab tested and approved according to regulations for ROPS (ISO 3471-1989, SAE J1040 APR 88), "Schutzdach für Gabelstapler" (ISO 6055-1981) and Operator Restraint System (SAE J386 JUN 85).

Safety and comfort: The driver's cab can be detached and is accessible from both sides via comfortable entrances. It has sound attenuation and vibration cushioning, runs on 4 rubber elements and is padded with soundproofing material on the inside. Maximum acoustic sound level in the cab (in accordance with EG guidelines) dB(A) 82.

The generously dimensioned glazing offers an excellent allround view. The tinted front windscreen made of laminated glass allows glarefree working. All operating levers and fittings are arranged clearly and ergonomically. Operation is further simplified by the symbolic markings and lighting elements, plus an audible warning system.

Heating and ventilation: A reliable engine-dependent three-step heating system and ventilation possibilities via fans, sliding windows and adjustable doors provide pleasant working temperatures in all weathers.

Driver's seat: The sprung, individually adjustable driver's seat with comfortable upholstery is an important component of the cab. A lap belt is fitted for the driver's safety. It dissipates absorbed energy via the seat rails.

HYDRAULIC SYSTEM



Thermostatically controlled oil circuit with integrated cooling system and electrically switched fan. Common tank for working, drive and steering hydraulics safeguarded by a breather valve.

Hydraulic pump: Gear-type tandem pump

Flow	45 l/min	11,9 (US gal/min)
@ engine RPM	2800 1/min	2200 (r/min)
Relieve valve pressure	200 bar	3000 (psi)

Hydraulic steering valve: Double acting control valve three spool system.

1. Lifting function: The valve has four positions: Lifting - neutral - lowering floating.
2. Tilting function: The valve has three positions: rollback - neutral - forward tilting.
3. Additional function: Serves for operating the hydraulic attachment carrier via three positions: unlock - dismount - lock. Preparation for operating hydraulic attachment available as an option.

Cylinders: each of them double acting

2 Lift cylinder		
Diameter	75 mm	3,14" (in)
Piston rod diameter	40 mm	1,57" (in)
Stroke	510 mm	20,0" (in)
1 Tilt cylinder		
Diameter	80 mm	3,14" (in)
Piston rod diameter	40 mm	1,57" (in)
Stroke	440 mm	17,3" (in)

Hydraulic oil filter: Main stream filter cartridge with a 10 μ m degree of fineness in the return.

Suction filter for the drive assy, with a 10 μ m degree of fineness.

The filters can be replaced without emptying the tank.

Lifting frame: Z-bar linkage for extremely high breakout forces, plus excellent reach and dump height. Material losses during transport are reduced, due to the wide tip-back angle. Wide dump angles ensure that the bucket is thoroughly emptied.

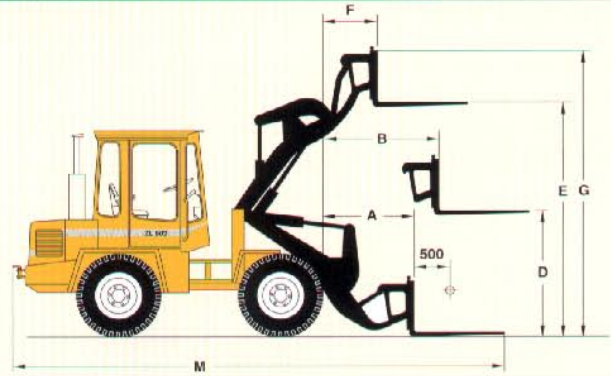
The lift cylinders are arranged in alignment with the lifting arms. The tilt cylinder is located centrally between the lifting arms.

Lift time (loaded)	6,0 s
Lowering time (empty)	3,0 s
Dump time	1,0 s
Crowd time	1,0 s

LOADING FORK (quick change mounting)

Dimensions

Variable opening width, min.	216 mm	0' 8,5" (ft in)
Variable opening width, max.	1225 mm	4' 0" (ft in)
Length of tynes	1000 mm	3' 3" (ft in)
A	700 mm	2' 4" (ft in)
B	1230 mm	4' 0" (ft in)
D	1420 mm	4' 8" (ft in)
E	2970 mm	9' 9" (ft in)
F	540 mm	1' 9" (ft in)
G	3650 mm	11' 12" (ft in)



Tipping Load

Tipping load, full turn without counterweight	1900 kg	4189 (lb)	Tipping load, full turn with counterweight	2340 kg	5158 (lb)
Rated payload acc. to 55 3462 at centre of gravity and operating weight of machine	1500 kg	3307 (lb)	Rated payload acc. to 55 3462 at centre of gravity and operating weight of machine	1900 kg	4189 (lb)
	500 kg	1'8" (ft in)		500 mm	1'8" (ft in)
	4200 kg	9259 (lb)		4620 kg	10185 (lb)

Weight alternations with counterweight

Counterweight	Static tipping load straight	Static tipping load full turn	Operating weight	Counterweight only to be mounted in combination with loading fork.
155 kg	+ 185 kg	+ 162 kg	+ 155 kg	
342 (lb)	(+ 408) (lb)	(+ 357) (lb)	(+ 342) (lb)	
420 kg	+ 500 kg	+ 440 kg	+ 420 kg	
926 (lb)	(+ 1213) (lb)	(+ 970) (lb)	(+ 926) (lb)	

ATTACHMENTS

Buckets

Straight buckets of various sizes 0,65-1,5 m³ (0,8-1,9 yd³) with or without teeth

Wide range of bucket types, e.g.:

- Light material bucket w/wo teeth
- High-tip bucket w teeth
- 4 in 1 bucket w/wo teeth
- Side-tip bucket w/wo teeth
- Brick bucket
- Horticultural bucket
- Bolt-on cutting edge

Further buckets and attachments available on request.

Selection of further attachments, e.g. for:

- Timber industry:
 - Log grapple
 - Loading fork with log grapple
- Road building/industry:
 - Loading fork with various teeth length
 - Hook and tackle
- Communal location:
 - Angle dozer blade
 - Sweeper
 - Snow plow
- Horticultural and agricultural field:
 - Hay/manure fork

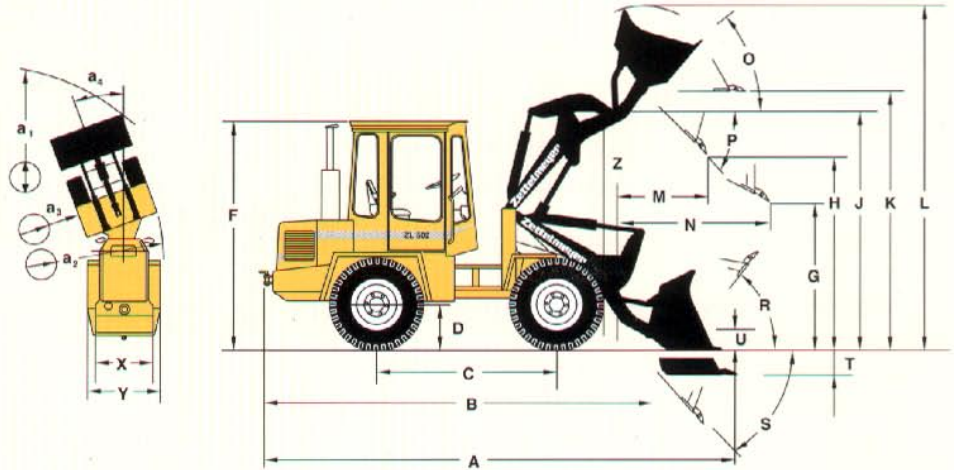
TYRES

Tyres:	Size	Make	Profile	Bearing Index	Rim	Track		Width across tyres		Adjustment in weight		Adjustment in vertical dimensions	
						mm	(in)	mm	(in)	kg	(lb)	kg	(lb)
Standard	12.5-18	Dunlop	TG 32	125 G	11x 18	1382	(54,4")	1707	(67,2")	-	-	-	-
Optional	335/80 R20	Dunlop	SPT 9	147 A2	11 x 20	1382	(54,4")	1711	(67,4")	+ 12	(26,4")	- 5	(-)
	405/70 R18	Dunlop	SPT 9	155 A 2	11 x 18	1482	(58,3")	1902	(74,9")	+ 64	(141")	- 20	(1,7")
	15.5/55 R18	Dunlop	SPPG 7	134 E	11 x 18	1492	(58,7")	1888	(73,5")	- 24	(53")	- 70	(2,7")
	14.5-20	Dunlop	E91	132 G	11 x 20	1482	(58,3")	1837	(72,3")	+ 92	(203")	+25	(1")
	335/80 R18	Michelin	XM27	147 A2	11 x 18	1382	(54,4")	1717	(67,6")	- 12	(26,4")	- 30	(1,2")
335/80 R20	Michelin	XM27	147 A2	11 x 20	1382	(54,4")	1717	(67,6")	+ 20	(44")	- 10	(0,4")	
375/75 R20	Michelin	XM27	147 A2	13 x 20	1482	(58,3")	1844	(72,6")	+ 64	(141")	-	(-)	

DIMENSIONAL DATA ZETTELMEYER ZL 502 (Bucket 0,65 m³ / 0,8 yd³ quick-change mounting standard equipment) Tyres: 12.5-18 126 G

All technical data and dimensions - as far as applicable - according to regulations ISO 7131, SAE J732 FEB 80, ISO 7546, SAE J742 FEB 85, ISO 5998, SAE J818 MAI 87.

C	2000 mm	6' 7" (ft in)
D	450 mm	1' 6" (ft in)
F	2585 mm	8' 6" (ft in)
G	920 mm	3' 1" (ft in)
J	2940 mm	9' 8" (ft in)
K	3090 mm	10' 2" (ft in)
O	53 °	
P	45 °	
R	50 °	
S	143 °	
U	345 mm	1' 2" (ft in)
X	1382 mm	4' 6" (ft in)
Y	1717 mm	5' 8" (ft in)
Z	2850 mm	9' 4" (ft in)
a ₂	3690 mm	12' 1" (ft in)
a ₃	1980 mm	6' 6" (ft in)
a ₄	± 39 °	



OPERATING DATA

Order N° Mounting R (quick-change mounting standard equipment) Bucket Type with/without teeth		R Straight Bucket w/wo	R Straight Bucket w/wo	R Light Mate- rial Bucket wo	R Light Mate- rial Bucket wo	R 4 in 1 Bucket w/wo	R High-tip Bucket wo
Capacity, heaped	m ³ (yd ³)	0,65 (0,8)	0,8 (1,0)	1,1 (1,4)	1,3 (1,7)	0,70 (0,9)	1,2 (1,5)
Material density	kg/m ³ (lb/yd ³)	1900 (3200)	1600 (2700)	1100 (1850)	900 (1510)	1700 (2860)	900 (1510)
Static tipping load, straight	kg (lb)	3050 (6724)	3000 (6614)	2890 (6370)	2800 (6173)	2730 (6018)	2670 (5886)
Static tipping load, full turn (39°)	kg (lb)	2710 (5974)	2670 (5886)	2570 (5666)	2500 (5511)	2430 (5357)	2370 (5225)
Hydraulic lifting capacity, max.	kN (lbf)	29,5 (6632)	28,5 (6407)	27,5 (6182)	26,8 (6025)	26,0 (5845)	24,5 (5508)
Breakout force	kN (lbf)	40,0 (8992)	38,0 (8543)	28,5 (6407)	27,0 (6070)	34,7 (7800)	- -
A Total length	mm (ft in)	5095 (16'8")	5180 (16'12")	5385 (17'8")	5435 (17'10")	5240 (17'2")	5430 (17'9")
L Lift height, max.	mm (ft in)	3905 (12'9")	3970 (13'0")	4110 (13'6")	4110 (13'6")	3960 (12'12")	4630 (15'2")
V Bucket width	mm (ft in)	1750 (5'9")	1750 (5'9")	1900 (6'3")	1900 (6'3")	1750 (6'3")	1900 (6'3")
a ₁ Clearance circle	mm (ft in)	8120 (26'7")	8180 (26'10")	8400 (27'6")	8480 (27'10")	8200 (26'10")	8980 (29'5")
T Digging depth, max.	mm (ft in)	90 (3,5")	140 (5,5")	140 (5,5")	140 (5,5")	140 (5,5")	140 (5,5")
H Dump height	mm (ft in)	2500 (8'3")	2440 (8'0")	2290 (7'6")	2260 (7'5")	2330 (7'7")	3530 (11'7")
M Reach at max. height	mm (ft in)	740 (2'5")	740 (2'5")	890 (2'11")	920 (3'0")	790 (2'7")	1150 (3'9")
N Reach, max.	mm (ft in)	1420 (4'8")	1420 (4'8")	1570 (5'2")	1600 (5'3")	1470 (4'10")	2105 (6'11")
Weight distribution, front (empty, transport position)	kg (lb)	1650 (3637)	1680 (3703)	1780 (3924)	1810 (3990)	1930 (4255)	2090 (4608)
Weight distribution, rear (empty, transport position)	kg (lb)	2550 (5622)	2540 (5600)	2500 (5512)	2490 (5490)	2440 (5379)	2370 (5224)
Operating weight	kg (lb)	4200 (9259)	4220 (9303)	4280 (9436)	4300 (9480)	4370 (9634)	4460 (9832)

STANDARD

Cab, exterior

Removable cab with flexible mountings

Walk-through cab
Lockable doors

Tinted safety glass (windscreen)
Windscreen wiper front and rear
Sliding window in the left door
Door stops
External rear view mirrors (right and left)

Cab, interior

4-way adjustable driver's seat belt

Sun-visor
Heater with air filter and defroster
Cab lighting
Storage box in the cab
Tool box

Instrument panel

with symbols
Instrument lighting
12 V power socket
Horn
Safety start

Gauges:

Fuel gauge
Hour meter
Drive system oil temperature

Indicator lamps for:

Direction indicator
Parking brake
Main beam
Pre-heater
Battery charging
Differential locks
Hazard warning flashers

Warning lights for:

Engine temperature
Engine oil pressure
Drive system oil temperature
Air filter restriction
Parking brake

Central audible alarm for:

Engine temperature
Engine oil pressure
Drive system oil temperature
Air filter restriction

Exterior lighting:

Main head lights
full/dipped beam /asymmetrical (Halogen)
Parking lights
Rear lights
Brake lights
Direction indicators
Hazard warning lights

Aggregates

Diesel engine with direct fuel injection
Cold start aid
Dry-type air filter
Alternator 60 A

Hydrostatic drive
100 % lockable differential lock

Tyres 12.5-18

Gear-type tandem pump
Control valve three spool system
Third hydraulic circuit

Working equipment

Single lever control
Bucket level indicator
Hydraulic quick-change attachment carrier

Carriage body

Fenders and mudguards, front and rear
Lockable engine hood
Lockable fuel tank cap
Vertical exhaust
Rain cap for exhaust
Towing device

OPTIONAL EQUIPMENT

Cab

Throttle
Heating independent of engine
Radio

Windscreen washer, front and rear
Sliding window in the right door
Hinge-out skylight

Service and maintenance

Tool kit
Wheel nut wrench

Safety

FOPS-guard
Protecting guards for main head lights (front) working lights (rear) rear lights
Rotating beacon with collapsible mounting
Audible reversal alarm
Warning triangle
Counterweight

Aggregates

Pre-heater
Catalysator
Extra fuel filter

Working equipment

Working lights, front, single (Halogen)
ZLS-Load Stabilizer
Extended lift arms
Towing device

PTO

3rd hydraulic circuit
Extra hydraulics, rear
Additional hydraulics for attachment carrier
4th hydraulic circuit with cables
Hydraulic circuit with additional pump

*Under our policy of continuous product improvement, we reserve the right to change specifications and design without prior notice.
The illustrations do not necessarily show the standard version of the machine.*

Zettelmeyer Baumaschinen GmbH

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