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The operator selects the driving programs (L - H - P) easily by just pressing the buttons on the steering column. The automotive-style dashboard, with alpha-numeric display, allows easy identification of diagnostic codes. In the standard version, it also carries travel direction and driving program indicator lights and the electronic hour counter.

The roomy, comfortable, ergonomic driving seat is easily accessible thanks to the large, convenient step. The masts are designed for excellent visibility and unrivalled safety thanks to their torsional rigidity and stability at the maximum height.

The proportional electronic controls integrated in the new (optional) armrest enable the operator to manage all the hydraulic functions by simply moving the Mini-Joystick or Fingertips levers. The inversion of the drive direction is managed by the simple touch of the buttons placed on the driver's armrest.

The use of oil wet brakes not only ensures effective braking, but also allows a significant reduction in maintenance costs.

Options

Electronic Fingertips / Mini-Joystick controls fitted on the armrest.
Pedal drive control.
Complete cab with or without heating.
Integrated side shift.
Working lights.
Twin wheels.

At Your Local Dealer

Cesab Ltd:
Unit 10, Regent Park, Booth Drive, Park Farm South, Wellingborough,
Northamptonshire, NN8 6GR
Tel. +44 1 933 670 460 - Fax +44 1 933 679 854
e-mail: sales@cesab.net

Cesab Carrelli Elevatori Spa
Via Persicetana Vecchia, 10 - 40132 Bologna (Italy)
Tel. +39 051 20.54.11 - Fax +39 051 72.80.07
website: www.cesab-forklifts.com - e-mail: cesab@cesab.it

CESAB
MOTION TECHNOLOGY

Mak 400 450 500

Four wheels electric counterbalanced

Top level performance, great flexibility in use, strength of components

AC Technology

The CESAB MAK 400 450 500 AC Technology for heavy duty is a range of electric trucks with ergonomic solutions, advanced technology and top level performance. They are designed for demanding lifting duties in heavy applications. The range comprises models from 4000 to 4900 Kg and lifting capacity up to 6120 mm.

Extreme simplicity of operation, which can be translated into increased safety and higher performance.

Strength of components. Heavy duty frame and axles are manufactured to withstand the most demanding applications.

The driver's module is fully suspended on silent blocks to minimize vibrations and maximize the operator's comfort.

The comfortable adjustable full suspension seat is equipped with inertia safety belt as standard.

A wide storage tray for documentation is within easy reach of the operator.

Large front and rear wheels, cushion, superelastic and pneumatic, guarantee comfort, long life, greater adaptability to the road surface, and extremely easy handling of the truck.

AC Technology means exceptional performance levels, combined with reduced energy consumption and lower service and maintenance requirements, due to fewer components and to the absence of major wear items such as carbon brushes and traditional contactors.

The electronic control, located in a dust-proof housing guarantees a great flexibility in use. Possibility to adjust the parameters of the various function such as electronic braking, drive and lift acceleration, minimum acceleration.

CESAB
MOTION TECHNOLOGY

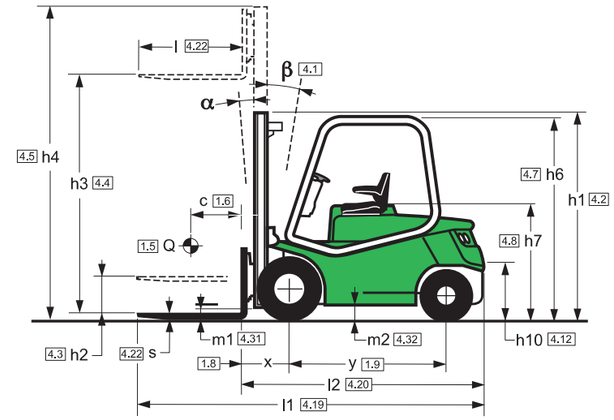
Mak 400 450 500

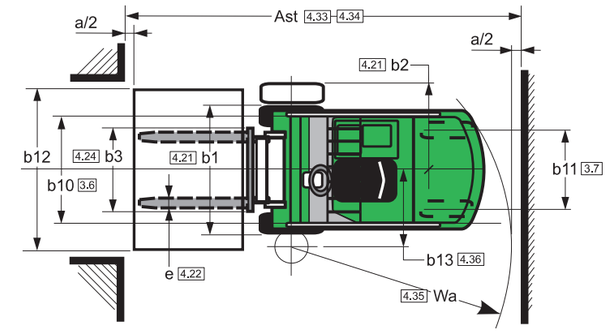
VDI 2198

Characteristics	1.1	Manufacturer			CESAB			CESAB		CESAB
	1.2	Model designation			**MAK 400**			**MAK 450**		**MAK 500**
	1.3	Power unit: electric (battery), diesel, petrol, LPG			electric			electric		electric
	1.4	Operation: manual, pedestrian, stand-on, driver seated			driver seated			driver seated		driver seated
	1.5	Load capacity	Q (kg)		4000			4500		4900
	1.6	Load centre	c (mm)		500			500		500
	1.8	Axle centre to fork face	x (mm)		509	(a)		509	(a)	529 (b)
	1.9	Wheel-base	y (mm)		1810			1810		1810
Weights	2.1	Weight	kg		6800			7120		7670
	2.2	Axle load with load, front/rear	kg		9600 / 1200			10490 / 1130		11570 / 1100
	2.3	Axle load without load, front/rear	kg		3500 / 3300			3490 / 3630		3800 / 3870
Wheels and chassis	3.1	Tyres: C=Cushion, SE=Superelastic, PN=Pneumatic, TW=Twin			C - SE - PN - SE.TW - PN.TW			C - SE - SE.TW - PN.TW		C - SE - SE.TW - PN.TW
	3.2	Tyre size, front			28x10x22 - 250-15 -250-15 - 7.00-15 - 7.00-15			28x12x22 - 250-15 - 7.00-15 - 7.00-15 (e)		28x12x22 - 28x12.5-15 - 7.00-15 - 7.00-15
	3.3	Tyre size, rear			22x8x16 - 23x9-10 - 23x9-10 - NO - NO			22x8x16 - 23x9-10 - NO - NO		22x8x16 - 23x9-10 - NO - NO
	3.5	Wheels, number front/rear (x = driven)			2x - 4x / 2			2x - 4x / 2		2x - 4x / 2
	3.6	Track width, front	b10 (mm)		1164 - 1132 - 1132 - 1330 - 1330			1215 - 1132 - 1330 - 1330		1215 - 1202 - 1330 - 1330
	3.7	Track width, rear	b11 (mm)		1154			1154		1154
Dimensions	4.1	Mast tilt, forward/backward	α / β	(degrees)	2° 30' / 10°			2° 30' / 10°		2° 30' / 10°
	4.2	Height of mast, lowered	h1 (mm)		2400			2400		2450
	4.3	Free lift	h2 (mm)		150			150		150
	4.4	Lift height	h3 (mm)		3150			3150		3150
	4.5	Height of mast, extended	h4 (mm)		3948			3948		3991
	4.7	Height of overhead guard	h6 (mm)		2450			2450		2450
	4.8	Height of driver's seat	h7 (mm)		1294			1294		1294
	4.12	Towing coupling height	h10 (mm)		360			360		360
	4.19	Overall length	l1 (mm)		3750	(a)		3750	(a)	3770 (b)
	4.20	Length to fork face	l2 (mm)		2750	(a)		2750	(a)	2770 (b)
	4.21	Overall width	b1/b2 (mm)		1418 - 1360 - 1360 / 1756 - 1756			1520 - 1360 / 1756 - 1756		1520 - 1520 / 1756 - 1756
	4.22	Fork dimensions	s/e/l (mm)		50 x 150 x 1000			50 x 150 x 1000		60 x 150 x 1000
	4.23	Fork carriage to DIN 15173, class/form A, B			III A			III A		III A
	4.24	Width of fork carriage	b3 (mm)		1200			1200		1200
	4.31	Floor clearance, mast (with load)	m1 (mm)		150			150		150
	4.32	Floor clearance, centre of wheel-base (with load)	m2 (mm)		160			160		160
	4.33	Aisle width with pallets 1000 x 1200 across forks	Ast (mm)		4123	(a)		4123	(a)	4143 (b)
	4.34	Aisle width with pallets 800 x 1200 along forks	Ast (mm)		4323	(a)		4323	(a)	4343 (b)
	4.35	Turning radius	Wa (mm)		2414			2414		2414
	4.36	Minimum distance between the centres of rotation	b13 (mm)		–			–		–
Performance	5.1	Travel speed, with/without load	km/h		15 / 17	(c)		15 / 17	(c-d)	14 / 17 (c-d)
	5.2	Lifting speed, with/without load	m/s		0.27 / 0.47			0.26 / 0.47		0.23 / 0.44
	5.3	Lowering speed, with/without load	m/s		< 0.60			< 0.60		< 0.60
	5.5	Tractive force, with/without load	N		5238 / 5338			5188 / 5338		5188 / 5338
	5.6	Maximum tractive force, with/without load, S2 5 minute rating	N		14460 / 15130			14330 / 15130		14300 / 15130
	5.7	Climbing ability, with/without load, S2 30 minute rating	%		7 / 11			6 / 10		5 / 9
	5.8	Maximum climbing ability, with/without load, S2 5 minute rating	%		13 / 23			12 / 22		11 / 21
	5.9	Acceleration time, with/without load	s		–			–		–
	5.10	Service brake: mechanical/hydraulic/electric/pneumatic			hydraulic			hydraulic		hydraulic
Electric motor	6.1	Drive motor, S2 60 minute rating	kW		17			17		17
	6.2	Lift motor, S3 15% rating	kW		18			18		18
	6.3	Battery according to DIN 43531/35/36 A, B, C, NO			DIN 43536			DIN 43536		DIN 43536
	6.4	Battery voltage/rated capacity (5 h)	V/Ah		80 / 625-775			80 / 625-775		80 / 625-775
	6.5	Battery weight	kg		1872			1872		1872
	6.6	Energy consumption in acc. with VDI-cycle	kWh/h		–			–		–
Others	8.1	Type of drive control			AC MOSFET			AC MOSFET		AC MOSFET
	8.2	Working pressure for attachments	bar		–			–		–
	8.3	Oil flow for attachments	l/min		–			–		–
	8.4	Noise level at driver's ear	dB (A)		–			–		–
	8.5	Towing coupling, design/type DIN			–			–		–

(**a**) with sideshift = + 32 mm (**b**) with sideshift = + 39 mm (**c**) with C tyres, maximum travel speed = 16km/h for all versions (**d**) with single tyres, travel speed = 13 / 15 km/h (**e**) optional SE tyres 28x12.5-15 (b1 = 1520 mm)

NOTES: Unless otherwise specified, all data refer to vehicles with SE tyres. All performance figures refer to fully run-in vehicles, in perfect working status with homologated tyres mix, battery fully charged and excellent conditions with closed circuit voltage equal to nominal value. Truck performance and dimensions are nominal and subject to tolerances.





Masts specifications (4000 – 4500 Kg)

Mast,	mm	Duplex		Duplex FFL		
h3	**Lift height**	**3150**	**3650**	**3150**	**3650**	**4150**
h1	Height of mast, lowered	2400	2650	2400	2650	2900
h2	Free lift	100	100	1552	1802	2052
h4	Height of mast, extended	3948	4448	3998	4498	4998
α / β	Mast tilt forward/backward	2° 30' / 10°		2° 30' / 6°		

Masts specifications (4000 – 4500 Kg)

Mast,	mm	Triplex			Triplex FFL			
h3	**Lift height**	**4950**	**5550**	**6060**	**4300**	**4950**	**5550**	**6050**
h1	Height of mast, lowered	2500	2700	2900	2285	2500	2700	2900
h2	Free lift	75	75	75	1442	1657	1857	2057
h4	Height of mast, extended	5750	6350	6890	5143	5793	6393	6893
α / β	Mast tilt forward/backward	2° 30' / 6°			2° 30' / 8°			

Masts specifications (5000 Kg)

Mast,	mm	Duplex		Duplex FFL		
h3	**Lift height**	**3150**	**3650**	**3150**	**3650**	**4150**
h1	Height of mast, lowered	2450	2700	2450	2700	3000
h2	Free lift	100	100	1552	1802	2052
h4	Height of mast, extended	3991	4491	4048	4548	5048
α / β	Mast tilt forward/backward	2° 30' / 10°		2° 30' / 6°		

Masts specifications (5000 Kg)

Mast,	mm	Triplex			Triplex FFL			
h3	**Lift height**	**4950**	**5550**	**6060**	**4300**	**4950**	**5550**	**6050**
h1	Height of mast, lowered	2550	2750	2950	2335	2550	2750	2950
h2	Free lift	75	75	75	1442	1657	1857	2057
h4	Height of mast, extended	5820	6420	6960	5193	5843	6443	6943
α / β	Mast tilt forward/backward	2° 30' / 6°			2° 30' / 8°			