Technical sheet:

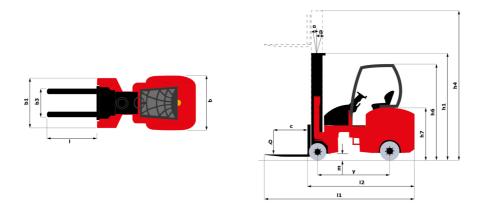
## **EMA II 20 HD-1**





Model Name			EMA II 20 HD-1 GIC	ateu off May 2, 2024 at 1.01.231 M
Model Name		Technical characteristics		Metric
Power source	1.1	Manufacturer		Manitou
	1.2	Model Name		EMA II 20 HD-1
Max. capaciny	1.3	Power source		Electrical
Load citation of gravity   C	1.4	Operator type		Seated
Lead distance, centre of drive axie to fok   Weelblaze   Weelbla	1.5	Max. capacity	Q	2000 kg
Weelbase   Weight   Weight   George   Weight   George	1.6	Load center of gravity	С	500 mm
Weelbase   Weight   Weight	1.8		Х	
	1.9		٧	1745 mm
	2.1	•		6900 kg
Weight on front axle (Unladen) / rear axle (Unladen)	2.2	•		¥
Vincels   Tires type	2.3	. , , , ,		
Tires type	2.0	. , , , ,		2250 kg / 1700 kg
Dimensions of front wheels	3.1			Solid tires
Dimensions of rear wheels				
1.5   Number of front wheels / rear wheels   2 / 2				
5.2         Number of drive wheels         2           6.6         Front wheel gauge         b10         1110 mm           6.7         Height of overhead guard (cabin)         b11         1250 mm           8.8         Set height of overhead guard (cabin)         h6         2250 mm           1.9         Overall length         11         3710 mm           1.9         Uerall broad of forks         12         2550 mm           2.0         Uerall width         b1         1250 mm           2.2         Forks section / width / length         s / e / l         40 mm x 125 mm           2.2         Forks section / width / length         s / e / l         40 mm x 125 mm           2.2         Forks section / width / length         s / e / l         40 mm x 125 mm           2.2         Fork section / width / length         s / e / l         40 mm x 125 mm           2.2         Fork section / width / length         s / e / l         40 mm x 125 mm           2.2         Fork section / width / length         s / e / l         40 mm x 125 mm           2.2         Fork seating sellow section width         s / e / l         40 mm x 125 mm           2.2         Fork camage sibox section width         s / e / e / l         130 mm <td< td=""><td></td><td></td><td></td><td></td></td<>				
Front wheel gauge				
			h10	
Dimensions				
Height of overhead guard (cabin)   h6   2260 mm	3./		DII	1230 111111
1.8         Seat height/stand height         h7         1200 mm           1.9         Overall length         11         3710 mm           2.0         Length to face of forks         12         2560 mm           2.1         Overall width         b1         1250 mm           2.2         Fork section / width / length         s / e / l         40 mm x 125 mm x 1150 mm           2.2         Fork carriage width         b3         860 mm           3.1         Ground clearance below mast         m1         50 mm           3.2         Ground clearance to wheelbase         m2         130 mm           3.3         A isle width for allow width for 800 x 1200 crosswys         Ast         1550 mm           3.3         A isle width for 800 x 1200 pallet lengthways         Ast         2150 mm           4         A isle width for 800 x 1200 pallet lengthways         Ast         9 km/h-9.50 km/h           5.2         Lifting speed (laden / unladen)         0.35 m/s -0.45 m/s         0.35 m/s -0.45 m/s           5.2         Lifting speed (laden / unladen)         8 % / 10.50 %         8 % / 10.50 %           5.2         Lift motor rating s S 60 min         10 kW         10 kW           5.2         Lift motor rating at S 3 15%         9 kW         10 kW </td <td>4.7</td> <td></td> <td>16</td> <td>0060</td>	4.7		16	0060
19   Overall length				
Length to face of forks   12   2560 mm     21   Overall width   1250 mm     22   Forks section / width / length   5 / e /   40 mm x 125 mm x 1150 mm     23   Fork carriage is 80 2328 (class/form) A/B   2     24   Fork carriage width   53   860 mm     31   Ground clearance below mast   m1   50 mm     32   Ground clearance at centre of wheelbase   m2   130 mm     32   Ground clearance at centre of wheelbase   m2   130 mm     33   Aisle width for 800 x 1200 crossways   Ast   1950 mm     34   Aisle width for 800 x 1200 pallet lengthways   Ast   2150 mm     34   Aisle width for 800 x 1200 pallet lengthways   Ast   2150 mm     35   Performances				
221         Overall width         b1         1250 mm           222         Fork section / width / length         s / e / I         40 mm x 125 mm x 1150 mm           23         Fork carriage ISO 2328 (class/form) A/B         b3         860 mm           24         Fork carriage width         b3         860 mm           31         Ground clearance below mast         m1         50 mm           32         Ground clearance at centre of wheelbase         m2         130 mm           33         A isle Width for 900 x 1200 pallet lengthways         Ast         1950 mm           34         A isle width for 900 x 1200 pallet lengthways         Ast         2150 mm           4         A isle width for 900 x 1200 pallet lengthways         Ast         9 km/h-9.50 km/h           5.1         Travel speed (laden / unladen)         9 km/h-9.50 km/h         0.35 m/s-0.45 m/s           5.1         Travel speed (laden / unladen)         9 km/h-9.50 km/h         0.35 m/s-0.45 m/s           5.2         Lift ing speed (laden / unladen)         8 % 10.50 %         8 % 10.50 %           5.7         Gradeability (laden / unladen)         8 % 10.50 %         8 % 10.50 %           5.1         Drive motor rating st 2.60 min         10 kW         4 kW/max           5.2         Lift m		•		
222         Forks section / width / length         \$ / e / I         40 mm x 125 mm x 1150 mm           23         Fork carriage ISO 2328 (class/form) A/B         2           24         Fork carriage width         b3         860 mm           31         Ground clearance at centre of wheelbase         m1         50 mm           .32         Ground clearance at centre of wheelbase         m2         130 mm           .33         Aisle Width for pallets 1000 x 1200 crossways         Ast         1950 mm           .34         Aisle width for 800 x 1200 pallet lengthways         Ast         2150 mm           .34         Aisle width for 800 x 1200 pallet lengthways         Ast         2150 mm           .35         Travel speed (laden / unladen)         9 km/h-9.50 km/h         30.50 km/h           .36         Lifting speed (laden / unladen)         9 km/h-9.50 km/h         30.50 km/h           .37         Gradeability (laden / unladen)         9 km/h-9.50 km/h         30.40 m/s-0.36 m/s           .38         Lowering speed (laden / unladen)         9 km/h-9.50 km/h         30.50 km/h           .39         Service brake         9 km/h-9.50 km/h         30.50 km/h           .30         Drive motor rating S2 60 min         10 km         9 kW           .30         Battery wo				
23         Fork carriage ISO 2328 (class/form) A/B         2           24         Fork carriage width         b3         860 mm           .31         Ground clearance at centre of wheelbase         m1         50 mm           .32         Ground clearance at centre of wheelbase         m2         130 mm           .33         Aisle Width for pallets 1000 x 1200 crossways         Ast         1950 mm           .34         Aisle width for 800 x 1200 pallet lengthways         Ast         2150 mm           Ferformances	4.21			
Fork carriage width			s / e / l	
3.31         Ground clearance below mast         m1         50 mm           .32         Ground clearance at centre of wheelbase         m2         130 mm           .33         Aisle width for pallets 1000 x 1200 crossways         Ast         1950 mm           .34         Aisle width for 800 x 1200 pallet lengthways         Ast         2150 mm           .34         Aisle width for 800 x 1200 pallet lengthways         Ast         2150 mm           .34         Travel speed (laden / unladen)         9 km/h-9.50 km/h         0.35 m/s-0.45 m/s           .35         Lifting speed (laden / unladen)         0.40 m/s-0.36 m/s         0.40 m/s-0.36 m/s           .36         Coradeability (laden / unladen)         8 % / 10.50 %         8 % / 10.50 %           .37         Gradeability (laden / unladen)         8 % / 10.50 %         9 km/h-9.50 km/h           .38         Engine         8 / 10.50 %         9 km/h-9.50 km/h           .40         Drive motor rating S2 60 min         10 kW         9 km/h-9.50 km/h           .5.2         Lift motor rating at S3 15%         9 kW         9 kW           .5.3         Battery according to DIN 43531/35/36 A, B, C         9 kW         48 V/775 Ah           .5.4         Battery weight (+/- 5%)         48 V/775 Ah         48 V/775 Ah	4.23	, ,		
.32         Ground clearance at centre of wheelbase         m2         130 mm           .33         Aisle Width for pallets 1000 x 1200 crossways         Ast         1950 mm           .34         Aisle width for 800 x 1200 pallet lengthways         Ast         2150 mm           Performances           .10         Travel speed (laden / unladen)         9 km/h-9.50 km/h           .5.2         Lifting speed (laden / unladen)         0.35 m/s 0.45 m/s           .5.3         Lowering speed (laden / unladen)         8 % / 10.50 %           .5.7         Gradeability (laden / unladen)         8 % / 10.50 %           .5.1         Broine         Hydraulic           .5.2         Lift motor rating \$2.60 min         10 kW           .5.2         Lift motor rating at \$3.15%         9 kW           .5.3         Battery according to DIN 43531/35/36 A, B, C         DIN 43595           .5.4         Battery voltage / capacity         48 V / 775 Ah           .5.5         Battery weight (+/- 5%)         1435 kg           .5.6         Battery weight (y-/- 5%)         Mosfet AC speed controller           .5.2         Working hydraulic pressure for attachments         200 bar           .5.2         Working hydraulic pressure for attachments         200 bar	4.24	· ·		
.33       Aisle Width for pallets 1000 x 1200 crossways       Ast       1950 mm         .34       Aisle width for 800 x 1200 pallet lengthways       Ast       2150 mm         Performances         .5.1       Travel speed (laden / unladen)       9 km/h-9.50 km/h         .5.2       Lifting speed (laden / unladen)       0.35 m/s-0.45 m/s         .5.3       Lowering speed (laden / unladen)       8 % / 10.50 %         .5.7       Gradeability (laden / unladen)       8 % / 10.50 %         .5.7       Gradeability (laden / unladen)       8 % / 10.50 %         .5.0       Service brake       Hydraulic         Engine         .5.1       Drive motor rating \$2.60 min       10 kW         .5.2       Lift motor rating \$2.50 min       10 kW         .5.2       Lift motor rating \$2.50 min       \$ 9 kW         .5.3       Battery voltage / capacity       \$ 48 V / 775 Ah         .5.4       Battery voltage / capacity       48 V / 775 Ah         .5.5       Battery weight (*/- 5%)       Mssellaneous         .5.1       Type of drive control       Mosfet AC speed controller         .5.2       Working hydraulic pressure for attachments       200 bar         .5.3       Oil flow rate for attachments       < 73 d	4.31			
34       Aisle width for 800 x 1200 pallet lengthways       Ast       2150 mm         Performances         5.1       Travel speed (laden / unladen)       9 km/h-9.50 km/h         5.2       Lifting speed (laden / unladen)       0.35 m/s-0.45 m/s         5.3       Lowering speed (laden / unladen)       8 / 10.50 %         5.7       Gradeability (laden / unladen)       8 / 10.50 %         5.7       Service brake       Hydraulic         6.10       Service brake       Hydraulic         6.1       Drive motor rating \$2.60 min       10 kW         6.2       Lift motor rating at \$3.15%       9 kW         6.3       Battery according to DIN 43531/35/36 A, B, C       DIN 43595         6.4       Battery voltage / capacity       48 V / 775 Ah         6.5       Battery weight (+/- 5%)       1435 kg         6.5       Miscellaneous       Mosfet AC speed controller         6.1       Type of drive control       Mosfet AC speed controller         6.2       Working hydraulic pressure for attachments       200 bar         6.3       Oil flow rate for attachments       25 l/min         6.4       Measured/guaranteed mean noise level at the ear of the operator       < 73 dB	4.32		m2	
Performances	1.33	Aisle Width for pallets 1000 x 1200 crossways	Ast	1950 mm
5.1       Travel speed (laden / unladen)       9 km/h-9.50 km/h         5.2       Lifting speed (laden / unladen)       0.35 m/s-0.45 m/s         5.3       Lowering speed (laden / unladen)       0.40 m/s-0.36 m/s         5.7       Gradeability (laden / unladen)       8 % / 10.50 %         5.7       Gradeability (laden / unladen)       8 % / 10.50 %         5.10       Service brake       Hydraulic         Engine         5.1       Drive motor rating \$2.60 min       10 kW         5.2       Lift motor rating at \$3.15%       9 kW         5.3       Battery according to DIN 43531/35/36 A, B, C       DIN 43595         5.4       Battery voltage / capacity       48 V / 775 Ah         5.5       Battery weight (+/- 5%)       1435 kg         Miscellaneous         3.1       Type of drive control       Mosfet AC speed controller         3.2       Working hydraulic pressure for attachments       200 bar         3.3       Oil flow rate for attachments       25 l/min         3.4       Measured/guaranteed mean noise level at the ear of the operator       < 73 dB	1.34	Aisle width for 800 x 1200 pallet lengthways	Ast	2150 mm
5.2       Lifting speed (laden / unladen)       0.35 m/s-0.45 m/s         5.3       Lowering speed (laden / unladen)       0.40 m/s-0.36 m/s         5.7       Gradeability (laden / unladen)       8 % / 10.50 %         5.10       Service brake       Hydraulic         6.1.1       Drive motor rating S2 60 min       10 kW         5.2       Lift motor rating at S3 15%       9 kW         5.3       Battery according to DIN 43531/35/36 A, B, C       DIN 43595         5.4       Battery voltage / capacity       48 V / 775 Ah         5.5       Battery weight (+/- 5%)       1435 kg         Miscellaneous         8.1       Type of drive control       Mosfet AC speed controller         8.2       Working hydraulic pressure for attachments       200 bar         8.3       Oil flow rate for attachments       25 l/min         8.4       Measured/guaranteed mean noise level at the ear of the operator       < 73 dB		Performances		
Lowering speed (laden / unladen)  Gradeability (laden / unladen)  Service brake  Engine  Lift motor rating S2 60 min  Lift motor rating at S3 15%  Battery according to DIN 43531/35/36 A, B, C  Battery voltage / capacity  Battery weight (+/- 5%)  Miscellaneous  Lift pof drive control  Working hydraulic pressure for attachments  Working hydraulic pressure for attachments  Measured/guaranteed mean noise level at the ear of the operator  D.40 m/s-0.36 m/s  8 % / 10.50 %  Hydraulic  Hydraulic  By W  Hydraulic  DIN W  10 kW  10 kW  10 kW  10 kW  11 kW  10 kW  11 kW  11 kW  11 kW  11 kW  12 kW  13 kW  148 V / 775 Ah  1435 kg	5.1	Travel speed (laden / unladen)		9 km/h-9.50 km/h
6.7 Gradeability (laden / unladen) 8 % / 10.50 % 10 Service brake  Engine 6.1 Drive motor rating S2 60 min 6.2 Lift motor rating at S3 15% 9 kW 6.3 Battery according to DIN 43531/35/36 A, B, C 10 IN 43595 6.4 Battery voltage / capacity 8 Battery weight (+/- 5%) 1435 kg  Miscellaneous 8.1 Type of drive control 8.2 Working hydraulic pressure for attachments 8.3 Oil flow rate for attachments 8.4 Measured/guaranteed mean noise level at the ear of the operator  8 Mydraulic 8 Hydraulic 8 Hydraulic 8 Mydraulic 8 Mydraulic 8 Mosfet AC speed controller 8 Capacity 8 Measured/guaranteed mean noise level at the ear of the operator  8 Measured/guaranteed mean noise level at the ear of the operator	5.2	Lifting speed (laden / unladen)		0.35 m/s-0.45 m/s
Hydraulic   Engine   Hydraulic	5.3	Lowering speed (laden / unladen)		0.40 m/s-0.36 m/s
Engine         Incomposition of the protocol o	5.7	Gradeability (laden / unladen)		8 % / 10.50 %
5.1       Drive motor rating S2 60 min       10 kW         5.2       Lift motor rating at S3 15%       9 kW         5.3       Battery according to DIN 43531/35/36 A, B, C       DIN 43595         5.4       Battery voltage / capacity       48 V / 775 Ah         5.5       Battery weight (+/- 5%)       1435 kg         Miscellaneous         8.1       Type of drive control       Mosfet AC speed controller         8.2       Working hydraulic pressure for attachments       200 bar         8.3       Oil flow rate for attachments       25 l/min         8.4       Measured/guaranteed mean noise level at the ear of the operator       < 73 dB	5.10	Service brake		Hydraulic
5.2       Lift motor rating at S3 15%       9 kW         5.3       Battery according to DIN 43531/35/36 A, B, C       DIN 43595         5.4       Battery voltage / capacity       48 V / 775 Ah         5.5       Battery weight (+/- 5%)       1435 kg         Miscellaneous         8.1       Type of drive control       Mosfet AC speed controller         8.2       Working hydraulic pressure for attachments       200 bar         8.3       Oil flow rate for attachments       25 l/min         8.4       Measured/guaranteed mean noise level at the ear of the operator       < 73 dB		Engine		
Battery according to DIN 43531/35/36 A, B, C  DIN 43595  48 V / 775 Ah  48 V / 775 Ah  5.5 Battery weight (+/- 5%)  Miscellaneous  8.1 Type of drive control  Working hydraulic pressure for attachments  3.2 Working hydraulic pressure for attachments  3.3 Oil flow rate for attachments  Measured/guaranteed mean noise level at the ear of the operator  DIN 43595  48 V / 775 Ah  Mosfet AC speed controller  200 bar  25 I/min  < 73 dB	6.1	Drive motor rating S2 60 min		10 kW
Battery voltage / capacity  Battery weight (+/- 5%)  Miscellaneous  3.1 Type of drive control  Working hydraulic pressure for attachments  3.2 Working hydraulic pressure for attachments  3.3 Oil flow rate for attachments  48 V / 775 Ah  Mosfet AC speed controller  200 bar  25 I/min  473 dB	6.2	Lift motor rating at S3 15%		9 kW
Battery weight (+/- 5%)  Miscellaneous  3.1 Type of drive control  3.2 Working hydraulic pressure for attachments  3.3 Oil flow rate for attachments  3.4 Measured/guaranteed mean noise level at the ear of the operator  3.5 Battery weight (+/- 5%)  3.6 Mosfet AC speed controller  3.7 Mosfet AC speed controller  3.8 200 bar  3.9 Lymin  3.9 A Measured/guaranteed mean noise level at the ear of the operator	6.3	Battery according to DIN 43531/35/36 A, B, C		DIN 43595
Miscellaneous 3.1 Type of drive control Mosfet AC speed controller 3.2 Working hydraulic pressure for attachments 200 bar 3.3 Oil flow rate for attachments 25 l/min 3.4 Measured/guaranteed mean noise level at the ear of the operator <73 dB	6.4	Battery voltage / capacity		48 V / 775 Ah
Type of drive control  Nosfet AC speed controller  Working hydraulic pressure for attachments  Oil flow rate for attachments  Measured/guaranteed mean noise level at the ear of the operator  Nosfet AC speed controller  200 bar  25 I/min  < 73 dB	6.5	Battery weight (+/- 5%)		1435 kg
Working hydraulic pressure for attachments 200 bar  3.3 Oil flow rate for attachments 25 l/min  4.4 Measured/guaranteed mean noise level at the ear of the operator <73 dB				
Working hydraulic pressure for attachments 200 bar  3.3 Oil flow rate for attachments 25 l/min  4.4 Measured/guaranteed mean noise level at the ear of the operator <73 dB	8.1			Mosfet AC speed controller
Oil flow rate for attachments 25 l/min  Measured/guaranteed mean noise level at the ear of the operator <73 dB	8.2	**		
Measured/guaranteed mean noise level at the ear of the operator <73 dB	8.3			
· · · · · · · · · · · · · · · · · · ·	8.4			
	8.4	Sound level at the driver's ear according to DIN 12 053		73 dB

EMA II 20 HD-1 - Dimensional drawing



## Characteristics of masts and residual capacities

Free Lift Triplex (FLT)		FLT 56	FLT 60	FLT 66	FLT 70	FLT 76	FLT 80	FLT 86	FLT 90	FLT 95	FLT 102	FLT 106
Mast/fork carriage tilt, forward	۰	1	1	1	1	1	1	1	1	1	1	1
Mast/fork carriage tilt, backward	۰	3	3	3	3	3	3	3	3	3	3	3
h1 - Mast lowered height	mm	2750	2900	3150	3290	3590	3720	4020	4150	4500	4690	4820
h2 - Mast free lift	mm	1930	2080	2330	2470	2770	2900	3200	3330	3650	3870	4000
h3 - Mast lifting height	mm	5550	6000	6600	7020	7620	8010	8610	9000	9500	10200	10560
h4 - Mast extended height	mm	6380	6830	7430	7850	8450	8840	9440	9830	10475	11175	11535
Residual capacity with integrated side shift at max heigth	kg	1600	1450	1450	1300	1300	1200	1100	1000	900	750	650





## **Head Office**

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