Technical sheet:

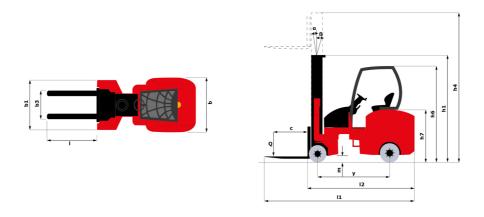
EMA II 20 HD-2





Technical characteristics	.JJ AIVI
Model Name	
1.4 Operator type	
1.5 Max. capacity	
1.6 Load center of gravity C S00 mm 1.8 Load distance, centre of drive axle to fork x 278 mm 1.9 Whelbase y 1745 mm 1.9 Waight Service weight S000 kg 2.1 Service weight S000 kg S0300 kg / 4080 kg 2.2 Weight on front axle (laden) / rear axle (laden) 2.3 Weight on front axle (Unladen) / rear axle (Unladen) 2.3 Weight on front axle (Unladen) / rear axle (Unladen) 3480 kg / 5220 kg Wheels S010 kg S010 kg 3.1 Tires type S010 kg S010 kg 3.2 Dimensions of front wheels S010 kg S010 kg 3.3 Dimensions of rear wheels S010 kg S010 kg 3.3 Dimensions of rear wheels S010 kg S010 kg 3.5 Number of front wheels / rear wheels 2 / 2 3.6 Front wheel gauge b10 1110 mm 3.7 Rear wheel gauge b10 1110 mm 3.8 S010 kg S010 kg S010 kg 4.7 Helight of owerhead guard (cabin) b1 370 mm 4.8 Seat helight/stand height b1 3710 mm 5.1 Louening back of forks b1 3710 mm 5.2 Louening back of forks b1 380 mm 5.2 Fork carriage Wolft length b1 380 mm 6.1 Gound clearance betow mast m1 50 mm 7.0 Fork carriage wolft length length	
1.8 Load distance, centre of drive axle to fork x y 1745 mm y weight weight	
Weight W	
Weight Weight or front axie (laden) Weight or front axie (luden) / rear axie (Unladen) Weight or front axie (Unladen) / rear axie (Unladen) Weight or front axie (Unladen) / rear axie (Unladen) Weight or front axie (Unladen) / rear axie (Unladen) Weight or front axie (Unladen) Weight or front axie (Unladen) / rear axie (Unladen) Weight or front axie (Unladen) / rear axie (Unladen) Weight or front axie (Unladen) / rear axie (Unladen) Weight or front axie (Unladen) / rear axie (Unladen) Weight or front axie (Unladen) / Rear axie (Unladen) / Rear axie (Unladen) Weight or front axie (Unladen) / Rear axie (Unladen) Weight or front axie (Unladen) / Rear axie (Unladen) / Re	
Weight Service weig	
Service weight	
Weight on front axie (laden) / rear axie (laden) 6330 kg / 4080 kg 3480 kg / 5220 kg	
Weight on front axie (Unladen) / rear axie (Unladen) 3480 kg / 5220 kg	
Solid tires	
1	
3.5 Number of front wheels / rear wheels 2 / 2 5.5.2 Number of drive wheels 2 3.6 Front wheel gauge b10 1110 mm 3.7 Rear wheel gauge b11 1370 mm Dimensions 4.7 Height of overhead guard (cabin) h6 250 mm 4.8 Seat height/stand height h7 1200 mm 4.9 Uergith b face of forks 12 2560 mm 4.0 Leight b face of forks 12 2560 mm 4.2 Fork section / width / leigth h1 1350 mm 4.2 Fork section / width / leigth s / e / l 40 mm x 125 mm x 1150 m 4.2 Fork section / width / leigth s / e / l 40 mm x 125 mm x 1150 m 4.2 Fork section / width / leigth b3 860 mm 4.2 Fork carriage Width b3 860 mm 3.3 Ground clearance below mast m1 50 mm 3.3 Aisle Width for pollets 1000 x 1200 crossways Ast 200 mm 3.3 Ai	
Number of drive wheels 2	
Second	
Rear wheel gauge	
Dimensions	
Height of overhead guard (cabin) h6 2260 mm 4.8 Seat height/stand height h7 1200 mm 1.19 Overall length l1 3710 mm 1.20 Length to face of forks l2 2560 mm 1.21 Overall width length b1 1350 mm 1.22 Forks section / width / length s / e / l 40 mm x 125 mm x 1150 mm 1.23 Fork carriage ISO 2328 (class/form) A/B 2 1.24 Fork carriage width b3 860 mm 1.31 Ground clearance below mast m1 50 mm 1.32 Ground clearance at centre of wheelbase m2 130 mm 1.33 Aisle Width for pallets 1000 x 1200 crossways Ast 2000 mm 1.34 Aisle width for 800 x 1200 pallet lengthways Ast 2200 mm Performances Performances S.1 Travel speed (laden / unladen) 8.50 km/h-9 km/h 5.2 Lifting speed (laden / unladen) 8.50 km/h-9 km/h 5.3 Lowering speed (laden / unladen) 6 % / 8 % 5.5 Gradeability (laden / unladen) 6 % / 8 % 5.6 Service brake Hydraulic Engine En	
4.8 Seat height/stand height h7 1200 mm 1.19 Overall length l1 3710 mm 1.20 Length to face of forks l2 2560 mm 1.21 Overall width b1 1350 mm 1.22 Forks section / width / length s / e / I 40 mm x 125 mm x 1150 m 1.23 Fork carriage SiO 2328 (class/form) A/B 2 2 1.24 Fork carriage width b3 860 mm 1.31 Ground clearance below mast m1 50 mm 1.32 Ground clearance at centre of wheelbase m2 130 mm 1.33 Aisle Width for pallets 1000 x 1200 crossways Ast 2000 mm 1.34 Aisle width for 800 x 1200 pallet lengthways Ast 2200 mm 5.1 Travel speed (laden / unladen) 8.50 km/h-9 km/h 5.2 Lifting speed (laden / unladen) 8.50 km/h-9 km/h 5.5 Gradeability (laden / unladen) 0.35 m/s-0.45 m/s 5.7 Gradeability (laden / unladen) 6 % / 8 % 5.10 Service brake Hydraulic 6.10 Drive motor rating \$2.60 min 10 kW	
1.19 Overall length 11 3710 mm 1.20 Length to face of forks 12 2560 mm 1.21 Overall width bil 1350 mm 1350 mm 1.22 Forks section / width / length 5 / e / l 40 mm x 125 mm x 1150 mm 2.23 Fork carriage ISO 2328 (class/form) A/B 2 2 2 2 2 2 2 2 2	
Length to face of forks 12 2560 mm Length to face of forks 12 2560 mm Length to face of forks 1350 mm Length carrier of wheelbase 1300 mm Length carrier of wheelbase 1300 mm Length for 800 x 1200 pallet lengthways Ast 2200 mm Length for 800 x 1200 pallet lengthways Ast 2200 mm Length for 800 x 1200 pallet lengthways Ast 2200 mm Length for 800 x 1200 pallet lengthways Ast 2200 mm Length for 800 x 1200 pallet lengthways Ast 2200 mm Length for 800 x 1200 pallet lengthways Ast 2200 mm Length for 800 x 1200 pallet lengthways Ast 2200 mm Length for 800 x 1200 pallet lengthways Ast 2200 mm Length for 800 x 1200 pallet lengthways Ast 2200 mm Length for 800 x 1200 pallet lengthways Ast 2200 mm Length for 800 x 1200 pallet lengthways Ast 2200 mm Length for 800 x 1200 pallet lengthways Ast 2200 mm Length for 800 x 1200 pallet lengthways Ast 2200 mm Length for 800 x 1200 pallet lengthways Ast 2200 mm Length for 800 x 1200 pallet lengthways Ast 2200 mm Length for 800 x 1200 pallet lengthways Ast 2200 mm Length for 800 x 1200 pallet lengthways Ast 2200 mm Length for 800 x 1200 pallet lengthways Ast 2200 mm Length for 800 x 1200 pallet lengthways Ast 2200 mm Length for 8	
1.21 Overall width S Forks section width length S e I 40 mm x 125 mm x 1150 mm 1.22 Forks section width length S e I 40 mm x 125 mm x 1150 mm 1.23 Fork carriage ISO 2328 (class/form) A/B 2 1.24 Fork carriage width S S S S 1.24 Fork carriage width S S S S 25 Mm S S S S 26 Mm S S S 27 Mm S S S 28 Mm S S S 29 Mm S S 33 Aisle Width for pallets 1000 x 1200 crossways Ast 2000 mm 33 Aisle Width for 800 x 1200 pallet lengthways Ast 2200 mm 34 Aisle width for 800 x 1200 pallet lengthways Ast 2200 mm 35 Ms S S S S S 36 Lifting speed (laden unladen) S S S S S S 37 S C Gradeability (laden unladen) S S S S S 38 S S S S S S S 38 S S S S S S S S 39 S S S S S S S S 30 S S S S S S S S S 30 S S S S S S S S 30 S S S S S S S S 30 S S S S S S S 30 S S S S S S S S 30 S S S S S S S S 30 S S S S S S S S 30 S S S S S S S S 30 S S S S S S S 30 S S S S S S S S 30 S S S S S S S S 30 S S S S S S S S 30 S S S S S S S S 30 S S S S S S S S 30 S S S S S S S S 30 S S S S S S S S 30 S S S S S S S S 30 S S S S S S S S S 30 S S S S S S S S 30 S S S S S S S S S 30 S S S S S S S S S 30 S S S S S S S S S	
1.22 Forks section / width / length s / e / l 40 mm x 125 mm x 1150 mm 1.23 Fork carriage ISO 2328 (class/form) A/B 2 1.24 Fork carriage width b3 860 mm 1.31 Ground clearance below mast m1 50 mm 1.32 Ground clearance at centre of wheelbase m2 130 mm 1.33 Aisle Width for pallets 1000 x 1200 crossways Ast 2000 mm 1.34 Aisle width for 800 x 1200 pallet lengthways Ast 2200 mm Performances 5.1 Travel speed (laden / unladen) 8.50 km/h-9 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) 6 % / 8 % 5.10 Service brake Hydraulic Engine 6.1 Drive motor rating \$2 60 min 10 kW 6.2 Lift motor rating at \$3 15% 9 kW	
Fork carriage ISO 2328 (class/form) A/B 2	
1.24 Fork carriage width	ım
Simple S	
3.32 Ground clearance at centre of wheelbase m2 130 mm 3.33 Aisle Width for pallets 1000 x 1200 crossways Ast 2000 mm 3.34 Aisle width for 800 x 1200 pallet lengthways Ast 2200 mm Performances 5.1 Travel speed (laden / unladen) 8.50 km/h-9 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) 6 % / 8 % 5.10 Service brake Hydraulic Engine 6.1 Drive motor rating \$2 60 min 10 kW 6.2 Lift motor rating at \$3 15% 9 kW	
3.33 Aisle Width for pallets 1000 x 1200 crossways Ast 2000 mm 3.34 Aisle width for 800 x 1200 pallet lengthways Ast 2200 mm Performances 5.1 Travel speed (laden / unladen) 8.50 km/h-9 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) 6 % / 8 % 5.10 Service brake Hydraulic Engine 6.1 Drive motor rating \$2 60 min 10 kW 6.2 Lift motor rating at \$3 15% 9 kW	
Ast 2200 mm Performances S.50 km/h-9 km/h	
Performances 5.1 Travel speed (laden / unladen) 8.50 km/h-9 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) 6 % / 8 % 5.10 Service brake Hydraulic Engine 6.1 Drive motor rating \$2 60 min 10 kW 6.2 Lift motor rating at \$3 15% 9 kW	
5.1 Travel speed (laden / unladen) 8.50 km/h-9 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) 6 % / 8 % 5.10 Service brake Hydraulic Engine 6.1 Drive motor rating \$2 60 min 10 kW 6.2 Lift motor rating at \$3 15% 9 kW	
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) 6 % / 8 % 5.10 Service brake Hydraulic Engine 6.1 Drive motor rating \$2 60 min 10 kW 6.2 Lift motor rating at \$3 15% 9 kW	
5.3 Lowering speed (laden / unladen) 0.40 m/s-0.36 m/s 5.7 Gradeability (laden / unladen) 6 % / 8 % 5.10 Service brake Hydraulic Engine 6.1 Drive motor rating S2 60 min 10 kW 6.2 Lift motor rating at S3 15% 9 kW	
5.7 Gradeability (laden / unladen) 6 % / 8 % 5.10 Service brake Hydraulic Engine 6.1 Drive motor rating S2 60 min 10 kW 6.2 Lift motor rating at S3 15% 9 kW	
5.10 Service brake Hydraulic Engine 10 kW 6.1 Drive motor rating S2 60 min 10 kW 6.2 Lift motor rating at S3 15% 9 kW	
Engine 10 kW 6.1 Drive motor rating S2 60 min 10 kW 6.2 Lift motor rating at S3 15% 9 kW	
6.1 Drive motor rating S2 60 min 10 kW 6.2 Lift motor rating at S3 15% 9 kW	
6.2 Lift motor rating at S3 15% 9 kW	
·	
DIN 40505	
6.3 Battery according to DIN 43531/35/36 A, B, C DIN 43595	
6.4 Battery voltage / capacity 48 V / 930 Ah	
6.5 Battery weight (+/- 5%) 1300 kg	
Miscellaneous	
8.1 Type of drive control Mosfet AC speed controlle	er
8.2 Working hydraulic pressure for attachments 200 bar	
8.3 Oil flow rate for attachments 25 1/min	
8.4 Measured/quaranteed mean noise level at the ear of the operator <73 dB	
8.4 Sound level at the driver's ear according to DIN 12 053	

EMA II 20 HD-2 - Dimensional drawing



Characteristics of masts and residual capacities

Free Lift Triplex (FLT)		FLT 55	FLT 60	FLT 66	FLT 76	FLT 80	FLT 86	FLT 90	FLT 100	FLT 106
Mast/fork carriage tilt, forward	۰	1	1	1	1	1	1	1	1	1
Mast/fork carriage tilt, backward	۰	3	3	3	3	3	3	3	3	3
h1 - Mast lowered height	mm	2750	2900	3150	3590	3720	4020	4150	4590	4820
h2 - Mast free lift	mm	1930	2080	2330	2770	2900	3200	3330	3770	4000
h3 - Mast lifting height	mm	5500	6000	6600	7620	8010	8610	9000	10020	10560
h4 - Mast extended height	mm	3680	6830	7430	8450	8840	9440	9830	11000	11540
Residual capacity with integrated side shift at max heigth	kg	1500	1500	1450	1400	1350	1300	1250	1000	850





Head Office

B.P. 249 - 430 rue de l'Aubinière 44150 Ancenis Cedex - France Tel: +33 (0)2 40 09 10 11 - Fax: +33 (0)2 40 09 10 97 www.manitou.com



This publication provides a description of the configuration versions and options for Manitou products, which may differ for equipment. The equipment presented in this brochure may be part of a series, as an option, or it may not be available, depending on the versions. Manitou reserves the right, at any time and without notice, to amend the specifications described and represented. The specifications provided do not bind the manufacturer. For more details, please contact your Manitou agent. This is not a contractually binding document. The presentation of the products is not contractually binding. List of specifications non-exhaustive. The logos as well as the visual identity of the company are owned by Manitou and cannot be used without authorisation. All rights reserved. The photos and diagrams contained in this brochure are only provided for consultation and information purposes.

MANITOU BF SA - Limited company with board of directors - Share capital: 39,668,399 euros - 857 802 508 RCS Nantes