Technical sheet:

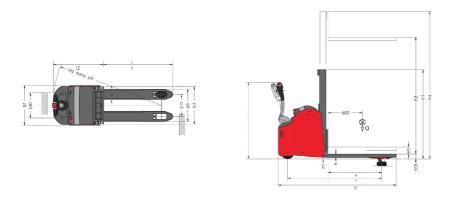
ES 410





Ex 410			ES 410 Oreald	20 011 140 VEHIBET 0, 2020 at 0.04 1 W
Ex 410		Technical characteristics		Metric
	1.1	Manufacturer		Manitou
1.4 Operator type	1.2	Model Name		ES 410
Max. capacity	1.3	Power source		Electrical - Lead
Load center of gantly C	1.4	Operator type		Pedestrian
1.5 Distance from Load backrest to center of rear axie	1.5	Max. capacity	Q	1000 kg
Weblate Yes 1286 mm Yes 1286 mm Yes	1.6	Load center of gravity	C	600 mm
Modpit	1.8	Distance from Load backrest to center of rear axle	х	723 mm
Service weight Serv	1.9	Wheelbase	у	1286 mm
Weight on front axle (laden) / rear axle ((laden) 609 kg / 1161 kg		Weight		
Weight on front axle (Unladen) / rear axle (Unladen) Cushion	2.1	Service weight		870 kg
Wincels	2.2	Weight on front axle (laden) / rear axle (laden)		709 kg / 1161 kg
Times type	2.3	Weight on front axle (Unladen) / rear axle (Unladen)		609 kg / 261 kg
3.3 Number of load wheels / Size of load wheels 2 / 125x50 Number of stabilizer wheels Size of the stabilizer wheels 1 / 172x5x50 Number of dive wheels / Size of dive wheels 2 / 2 Number of dive wheels / Size of dive wheels 1 / 123x50 Number of dive wheels / Size of dive wheels 2 / 2 Number of dive wheels / Size of dive wheels 1 / 230x70 Number of dive wheels / Size of dive wheels 1 / 230x70 Number of stabilizer wheels 1 / 230x70 Number of dive wheels / Size of dive wheels 1 / 230x70 Number of stabilizer wheels 1 / 230x70 Number of dive wheels / Size of dive wheels 1 / 230x70 Number of dive wheels / Size of dive wheels 1 / 230x70 Number of dive wheels / Size of dive wheels 1 / 230x70 Number of dive wheels / Size of dive wheels 1 / 230x70 Number of dive wheels / Size of dive wheels 1 / 230x70 Number of dive wheels / Size of dive wheels 1 / 230x70 Number of dive wheels / Size of dive wheels 1 / 250xm Number of dive wheels / Size of dive wheels 1 / 250xm Number of dive wheels / Size of dive wheels 1 / 250xm Number of dive wheels / Size of dive wheels 1 / 250xm Number of dive wheels / Size of dive wheels 1 / 250xm Number of dive wheels / Size of dive wheels 1 / 250xm Number of dive wheels / Size of dive wheels 1 / 250xm Number of dive wheels / Size of dive wheels 1 / 250xm Number of dive wheels / Size of dive wheels 1 / 250xm Number of dive wheels / Size of dive wheels 1 / 250xm Number of dive wheels / Size of dive wheels 1 / 25xm Number of dive wheels / Size of		Wheels		
Number of stabilizer wheels / Size of the stabilizer wheels 1 / 125x50	3.1	Tires type		Cushion
2	3.3	Number of load wheels / Size of load wheels		2 / 125x50
Number of drive wheels / Size of drive wheels 1/230x70 517 mm 517 mm 517 mm 517 mm 518 mm 517 mm 518 mm 518 mm 517 mm 518 mm 518 mm 518 mm 518 mm 518 mm 518 mm 519 mm 518 mm 519 mm 518 mm 519 mm 518 mm 519 m	3.4	Number of stabilizer wheels / Size of the stabilizer wheels		1 / 125x50
3.6 Front wheel gauge b10 517 mm 3.7 Rear wheel gauge b11 380 mm Dimesions .15 Fork height in low position h13 85 mm .19 Overall length 11 1875 mm .20 Length to face of forks 12 725 mm .21 Overall width b1 632 mm .22 Fork section / width / length s / e / l 60 mm / 180 mm / 1150 mm .22 Fork carriage width s / e / l 60 mm / 180 mm / 1150 mm .24 Fork carriage width s / e / l 60 mm / 180 mm / 1150 mm .31 Ground clearance below mast m1 35 mm .32 Ground clearance at centre of wheelbase m2 30 mm .33 A isle Width for pallets 800 x 1200 crossways A st 2605 mm .34 A isle Width for pallets 800 x 1200 crossways A st 2518 mm .35 Turning radius Wa 1516 mm .49 Height tiller min / max. h14 /h14 920 mm / 1425 mm .5.1 Tavel speed (laden / unladen) 6 km/h 6 km/h<	3.5	Number of front wheels / rear wheels		2/2
3.7 Rear wheel gauge b11 380 mm Dimensions Commension Commension 1.15 Fork height in low position h13 85 mm 1.19 Overall length I1 1875 mm 2.20 Length to face of forks 12 725 mm 2.11 Overall width b1 832 mm 2.21 Fork section / width / length s / e / l 60 mm / 180 mm / 1150 mm 2.22 Fork carriage width b3 680 mm 3.31 Ground clearance below mast m1 35 mm 3.22 Ground clearance at centre of wheelbase m2 30 mm 3.33 A isle Width for pallets 1000 x 1200 crossways Ast 2605 mm 3.34 A isle Width for pallets 800 x 1200 crossways Ast 2518 mm 3.45 Turning radius Wa 1516 mm 4.9 Height tiller min./ max. h14 / h14 920 mm / 1425 mm 5.5 Travel speed (laden / unladen) 0.14 m/s / 0.24 m/s 5.6 Max Gradeability (laden / unladen) 0.	3.5.2	Number of drive wheels / Size of drive wheels		1/230x70
Dimensions Dim	3.6	Front wheel gauge	b10	517 mm
Fork height in low position h13 85 mm 19	3.7	Rear wheel gauge	b11	380 mm
1				
	4.15	Fork height in low position	h13	85 mm
2.21 Overall width b1 832 mm 2.22 Forks section / width / length \$ / e / I 60 mm / 180 mm / 1150 mm 2.24 Fork carriage width b3 680 mm 3.31 Ground clearance below mast m1 35 mm 3.32 Ground clearance at centre of wheelbase m2 30 mm 3.33 Alsie Width for pallets 1000 x 1200 crossways Ast 2605 mm 3.44 Alsie Width for pallets 800 x 1200 crossways Ast 2518 mm 3.55 Tuming radius Wa 1516 mm 4.9 Height tiller min. / max. h14 / h14 920 mm / 1425 mm 4.9 Height tiller min. / max. h14 / h14 920 mm / 1425 mm 5.1 Travel speed (laden / unladen) 0.14 m/s / 0.24 m/s 6.4 m/h 5.2 Lifting speed (laden / unladen) 0.30 m/s / 0.20 m/s 8.8 / 10 % 5.3 Lowering speed (laden / unladen) 8 % / 10 % 8 % / 10 % 5.1 Dive motor rating s2 60 min 3 kW 1.20 kW 5.1 Dive motor rating s2 50 min 3 kW<	4.19	Overall length	I1	1875 mm
Forks section / width / length	4.20	Length to face of forks	12	725 mm
Fork carriage width	4.21	Overall width	b1	832 mm
Fork carriage width	4.22	Forks section / width / length	s / e / l	60 mm / 180 mm / 1150 mm
.32 Ground clearance at centre of wheelbase m2 30 mm .33 Aisle Width for pallets 1000 x 1200 crossways Ast 2605 mm .34 Aisle Width for pallets 800 x 1200 crossways Ast 2518 mm .35 Tuming radius Wa 1516 mm .49 Height tiller min. / max. h14 / h14 920 mm / 1425 mm Perfomances .5.1 Travel speed (laden / unladen) 6 km/h / 6 km/h .5.2 Lifting speed (laden / unladen) 0.14 m/s / 0.24 m/s .5.3 Lowering speed (laden / unladen) 8 % / 10 % .5.8 Max Gradeability (laden / unladen) 8 % / 10 % .5.1 Service brake Electro magnetic Engine .5.1 Drive motor rating S2 60 min 1.20 kW .5.2 Lift motor rating 32 50 min 3 kW .5.3 Battery according to DIN 43531/35/36 A, B, C DIN 43535-B .5.4 Battery onlage / capacity 24 V / 160 Ah .5.5 Battery weight (+/- 5%) 155 kg Miscellaneous 8.1 Type of drive control AC <td>4.24</td> <td></td> <td></td> <td>680 mm</td>	4.24			680 mm
.33 Aisle Width for pallets 1000 x 1200 crossways Ast 2605 mm .34 Aisle Width for pallets 800 x 1200 crossways Ast 2518 mm .35 Tuming radius Wa 1516 mm 4.9 Height tiller min. / max. h14 / h14 920 mm / 1425 mm Performances 5.1 Travel speed (laden / unladen) 6 km/h / 6 km/h 5.2 Lifting speed (laden / unladen) 0.14 m/s / 0.24 m/s 5.3 Lowering speed (laden / unladen) 0.30 m/s / 0.20 m/s 5.8 Max Gradeability (laden / unladen) 8 % / 10 % 5.8 Max Gradeability (laden / unladen) 8 % / 10 % 6.10 Service brake Electro magnetic Engine 6.1 Drive motor rating \$2.60 min 1.20 kW 6.2 Lift motor rating at \$3.15% 3 kW 6.3 Battery according to DIN 43531/35/36 A, B, C DIN 43535-B 6.4 Battery weight (+/- 5%) 24 V / 160 Ah 6.5 Battery weight (+/- 5%) 24 V / 160 Ah 6.5 Battery weight (+/- 5%) 165 kg Miscellaneous	4.31	Ground clearance below mast	m1	35 mm
Ast 2518 mm Tuming radius Height tiller min. / max. Perfomances 5.1 Travel speed (laden / unladen) 5.2 Lifting speed (laden / unladen) 5.3 Lowering speed (laden / unladen) 5.8 Max Gradeability (laden / unladen) 5.9 Service brake Engine 6.1 Drive motor rating \$2 60 min 6.2 Lift motor rating at \$3 15% 6.3 Battery according to DIN 43531/35/36 A, B, C 6.4 Battery voltage / capacity 6.5 Battery weight (+/- 5%) Miscellaneous 8.1 Type of drive control Acc Wa 1516 mm Wa 1516 mm 144 / h14 920 mm / 1425 mm 6 km/h / 6 km/h 6	4.32	Ground clearance at centre of wheelbase	m2	30 mm
Ast 2518 mm Tuming radius Height tiller min. / max. Perfomances 5.1 Travel speed (laden / unladen) 5.2 Lifting speed (laden / unladen) 6.3 Lowering speed (laden / unladen) 6.8 Max Gradeability (laden / unladen) 6.8 Max Gradeability (laden / unladen) 6.1 Drive motor rating \$2.60 min 6.2 Lift motor rating at \$3.15% 6.3 Battery according to DIN 43531/35/36 A, B, C 6.4 Battery voltage / capacity 6.5 Battery weight (+/- 5%) Miscellaneous 8.1 Type of drive control Max Ast 2518 mm Wa 1516 mm 144 / h14 920 mm / 1425 mm 6 km/h / 6 km/h 920 mm / 1425 mm 6 km/h / 6 km/h 920 mm / 1425 mm 6 km/h / 6 km/h 920 mm / 1425 mm 6 km/h / 6 km/h 920 mm / 1425 mm 6 km/h / 6 km/h 920 mm / 1425 mm 6 km/h / 6 km/h 920 mm / 1420 mm 6 km/h / 6 km/h 920 mm / 1420 mm 6 km/h / 6 km/h 920 mm / 1425 mm 6 km/h / 6 km/h 920 mm / 1420 mm 6 km/h / 6 km/h 920 mm / 1420 mm 6 km/h / 6 km/h 920 mm / 14	4.33	Aisle Width for pallets 1000 x 1200 crossways	Ast	2605 mm
3.35 Tuming radius Wa 1516 mm 4.9 Height tiller min. / max. h14 / h14 920 mm / 1425 mm Performances 5.1 Travel speed (laden / unladen) 6 km/h / 6 km/h 5.2 Lifting speed (laden / unladen) 0.14 m/s / 0.24 m/s 5.3 Lowering speed (laden / unladen) 0.30 m/s / 0.20 m/s 5.8 Max Gradeability (laden / unladen) 8 % / 10 % 5.8 Max Gradeability (laden / unladen) 8 % / 10 % 5.8 Electro magnetic Engine 1.20 kW 6.1 Drive motor rating \$2 60 min 1.20 kW 6.2 Lift motor rating at \$3 15% 3 kW 6.3 Battery according to DIN 43531/35/36 A, B, C DIN 43535-B 6.4 Battery voltage / capacity 24 V / 160 Ah 6.5 Battery weight (+/- 5%) 165 kg Miscellaneous 8.1 Type of drive control AC	4.34	,	Ast	2518 mm
Height tiller min. / max.	4.35		Wa	1516 mm
Performances 5.1 Travel speed (laden / unladen) 6 km/h / 6 km/h 5.2 Lifting speed (laden / unladen) 0.14 m/s / 0.24 m/s 5.3 Lowering speed (laden / unladen) 8 % / 10 % 5.8 Max Gradeability (laden / unladen) 8 % / 10 % 5.10 Service brake Electro magnetic Engine 6.1 Drive motor rating \$2 60 min 1.20 kW 6.2 Lift motor rating at \$3 15% 3 kW 6.3 Battery according to DIN 43531/35/36 A, B, C DIN 43535-B 6.4 Battery voltage / capacity 24 V / 160 Ah 6.5 Battery weight (+/- 5%) 165 kg Miscellaneous 8.1 Type of drive control AC	4.9	•		
5.1 Travel speed (laden / unladen) 6 km/h / 6 km/h 5.2 Lifting speed (laden / unladen) 0.14 m/s / 0.24 m/s 5.3 Lowering speed (laden / unladen) 0.30 m/s / 0.20 m/s 5.8 Max Gradeability (laden / unladen) 8 % / 10 % 6.10 Service brake Electro magnetic Engine 6.1 Drive motor rating \$2 60 min 1.20 kW 6.2 Lift motor rating at \$3 15% 3 kW 6.3 Battery according to DIN 43531/35/36 A, B, C DIN 43535-B 6.4 Battery voltage / capacity 24 V / 160 Ah 6.5 Battery weight (+/- 5%) 165 kg Miscellaneous 8.1 Type of drive control AC		•		
5.2 Lifting speed (laden / unladen) 0.14 m/s / 0.24 m/s 5.3 Lowering speed (laden / unladen) 0.30 m/s / 0.20 m/s 5.8 Max Gradeability (laden / unladen) 8 % / 10 % 5.10 Service brake Electro magnetic Engine 6.1 Drive motor rating S2 60 min 1.20 kW 6.2 Lift motor rating at S3 15% 3 kW 6.3 Battery according to DIN 43531/35/36 A, B, C DIN 43535-B 6.4 Battery voltage / capacity 24 V / 160 Ah 6.5 Battery weight (+/- 5%) 165 kg Miscellaneous 8.1 Type of drive control AC	5.1			6 km/h / 6 km/h
5.3 Lowering speed (laden / unladen) 0.30 m/s / 0.20 m/s 5.8 Max Gradeability (laden / unladen) 8 % / 10 % 5.8 Electro magnetic 6.1 Drive motor rating S2 60 min 1.20 kW 6.2 Lift motor rating at S3 15% 3 kW 6.3 Battery according to DIN 43531/35/36 A, B, C DIN 43535-B 6.4 Battery voltage / capacity 24 V / 160 Ah 6.5 Battery weight (+/- 5%) 165 kg Miscellaneous AC	5.2	,		
5.8 Max Gradeability (laden / unladen) 8 % / 10 % 5.10 Service brake Electro magnetic 6.1 Drive motor rating S2 60 min 1.20 kW 6.2 Lift motor rating at S3 15% 3 kW 6.3 Battery according to DIN 43531/35/36 A, B, C DIN 43535-B 6.4 Battery voltage / capacity 24 V / 160 Ah 6.5 Battery weight (+/- 5%) 165 kg Miscellaneous AC	5.3			
Electro magnetic Electro magnetic Electro magnetic	5.8			
Engine Companies 6.1 Drive motor rating S2 60 min 1.20 kW 6.2 Lift motor rating at S3 15% 3 kW 6.3 Battery according to DIN 43531/35/36 A, B, C DIN 43535-B 6.4 Battery voltage / capacity 24 V / 160 Ah 6.5 Battery weight (+/- 5%) 165 kg Miscellaneous 8.1 Type of drive control AC	5.10			
6.1 Drive motor rating S2 60 min 1.20 kW 6.2 Lift motor rating at S3 15% 3 kW 6.3 Battery according to DIN 43531/35/36 A, B, C DIN 43535-B 6.4 Battery voltage / capacity 24 V / 160 Ah 6.5 Battery weight (+/- 5%) 165 kg Miscellaneous 8.1 Type of drive control AC				· · · · · · · · · · · · · · · · ·
6.2 Lift motor rating at S3 15% 3 kW 6.3 Battery according to DIN 43531/35/36 A, B, C DIN 43535-B 6.4 Battery voltage / capacity 24 V / 160 Ah 6.5 Battery weight (+/- 5%) 165 kg Miscellaneous 8.1 Type of drive control AC	6.1	-		1.20 kW
6.3 Battery according to DIN 43531/35/36 A, B, C 6.4 Battery voltage / capacity 6.5 Battery weight (+/- 5%) Miscellaneous 8.1 Type of drive control DIN 43535-B 24 V / 160 Ah 165 kg AC	6.2			
6.4 Battery voltage / capacity 24 V / 160 Ah 6.5 Battery weight (+/- 5%) 165 kg Miscellaneous 8.1 Type of drive control AC	6.3			
6.5 Battery weight (+/- 5%) 165 kg Miscellaneous 8.1 Type of drive control AC	6.4			
Miscellaneous Type of drive control AC	6.5			
8.1 Type of drive control AC				100 kg
~	8.1			ΔC:
	8.4	Sound level at the driver's ear according to DIN 12 053		65 dB

ES 410 - Dimensional drawing



Characteristics of masts and residual capacities

Full Visibility Duplex (FVD)		FVD 29	FVD 34	FVD 38
h1 - Mast lowered height	mm	1940	2190	2390
h3 - Mast lifting height	mm	2940	3440	3840
h4 - Mast extended height	mm	3365	3865	4265
Residual capacity at max height	kg	1000	900	750

Free Lift Duplex (FLD)		FLD 29	FLD 34
h1 - Mast lowered height	mm	1940	2190
h2 - Mast free lift	mm	1510	1760
h3 - Mast lifting height	mm	2935	3435
h4 - Mast extended height	mm	3365	3865
Residual capacity at max height	ka	1000	900

Free Lift Triplex (FLT)	FLT 42	
h1 - Mast lowered height	mm	1965
h2 - Mast free lift	mm	1470
h3 - Mast lifting height	mm	4240
h4 - Mast extended height	mm	4735
Residual capacity at max height	kg	550





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