

Technical sheet :

# ES 412



 **MANITOU**  
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Technical characteristics		Metric	
1.1	Manufacturer		Manitou
1.2	Model Name		ES 412
1.3	Power source		Electrical - Lead
1.4	Operator type		Pedestrian
1.5	Max. capacity	Q	1200 kg
1.6	Load center of gravity	c	600 mm
1.8	Distance from Load backrest to center of rear axle	x	683 mm
1.9	Wheelbase	y	1245 mm
Weight		Weight	
2.1	Service weight		874 kg
2.2	Weight on front axle (laden) / rear axle (laden)		729 kg / 1342 kg
2.3	Weight on front axle (Unladen) / rear axle (Unladen)		612 kg / 262 kg
Wheels		Wheels	
3.1	Tires type		Polyurethane cushion
3.3	Number of load wheels / Size of load wheels		2 / 82x70
3.4	Number of stabilizer wheels / Size of the stabilizer wheels		1 / 125x50
3.5	Number of front wheels / rear wheels		2 / 2
3.5.2	Number of drive wheels / Size of drive wheels		1/230x70
3.6	Front wheel gauge	b10	517 mm
3.7	Rear wheel gauge	b11	380 mm
Dimensions		Dimensions	
4.15	Fork height in low position	h13	85 mm
4.19	Overall length	l1	1870 mm
4.20	Length to face of forks	l2	720 mm
4.21	Overall width	b1	800 mm
4.22	Forks section / width / length	s / e / l	60 mm / 180 mm / 1150 mm
4.24	Fork carriage width	b3	680 mm
4.31	Ground clearance below mast	m1	35 mm
4.32	Ground clearance at centre of wheelbase	m2	20 mm
4.33	Aisle Width for pallets 1000 x 1200 crossways	Ast	2581 mm
4.34	Aisle width for 800 x 1200 pallet lengthways	Ast	2490 mm
4.35	Turning radius	Wa	1400 mm
Performances		Performances	
5.1	Travel speed (laden / unladen)		6 km/h / 6 km/h
5.2	Lifting speed (laden / unladen)		0.12 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		Engine	
6.1	Drive motor rating S2 60 min		1.20 kW
6.2	Lift motor rating at S3 15%		3 kW
6.4	Battery voltage / capacity		24 V / 180 Ah
6.5	Battery weight (+/- 5%)		160 kg
Miscellaneous		Miscellaneous	
8.1	Type of drive control		AC
8.4	Sound level at the driver's ear according to DIN 12 053		65 dB

## Characteristics of masts and residual capacities

Full Visibility Duplex (FVD)	FVD 29	FVD 34	FVD 38
h1 - Mast lowered height	mm	1940	2190
h3 - Mast lifting height	mm	2940	3440
h4 - Mast extended height	mm	3365	3865
Residual capacity at max height	kg	1200	1000
		2390	4265
		3840	
		1000	800

Free Lift Duplex (FLD)	FLD 29	FLD 34
h1 - Mast lowered height	mm	1940
h2 - Mast free lift	mm	1510
h3 - Mast lifting height	mm	2935
h4 - Mast extended height	mm	3365
Residual capacity at max height	kg	1200
		2190
		1760
		3435
		3865
		1000

Free Lift Triple (FLT)	FLT 42
h1 - Mast lowered height	mm
h2 - Mast free lift	mm
h3 - Mast lifting height	mm
h4 - Mast extended height	mm
Residual capacity at max height	kg
	1965
	1470
	4240
	4735
	650



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