Technical sheet :

ES 412



MANITOU
HANDLING YOUR WORLD

	Technical characteristics		Metric	Imperial
1.1	Manufacturer		Manitou	Manitou
1.2	Model Name		ES 412	ES 412
1.3	Power source		Electrical	Electrical
1.4	Operator type		Pedestrian	Pedestrian
1.5	Max. capacity	Q	1200 kg	2646 lb
1.6	Load center of gravity	c	600 mm	24 in
1.8	Distance from Load backrest to center of rear axle	x	683 mm	27 in
1.9	Wheelbase	y	1245 mm	49 in
	Weight			
2.1	Service weight		874 kg	1927 lb
2.2	Weight on front axle (laden) / rear axle (laden)		729 kg / 1342 kg	1607 lb / 2959 lb
2.3	Weight on front axle (Unladen) / rear axle (Unladen)		612 kg / 262 kg	1349 lb / 578 lb
	Wheels			
3.1	Tires type		Polyurethane	Polyurethane
3.3	Number of load wheels / Size of load wheels		2 / 82x70	2 / 82x70
3.4	Number of stabilizer wheels / Size of the stabilizer wheels		1 / 125x50	1 / 125x50
3.5	Number of front wheels / rear wheels		2 / 2	2 / 2
3.5.2	Number of drive wheels / Size of drive wheels		1/230x70	1/230x70
3.6	Front wheel gauge	b10	517 mm	20 in
3.7	Rear wheel gauge	b11	380 mm	15 in
	Dimensions			
4.15	Fork height in low position	h13	85 mm	3 in
4.19	Overall length	l1	1870 mm	74 in
4.20	Length to face of forks	l2	720 mm	28 in
4.21	Overall width	b1	800 mm	31 in
4.22	Forks section / width / length	s / e / l	60 mm / 180 mm / 1150 mm	2 in / 7 in / 45 in
4.24	Fork carriage width	b3	680 mm	27 in
4.31	Ground clearance below mast	m1	35 mm	1 in
4.32	Ground clearance at centre of wheelbase	m2	20 mm	0.79 in
4.35	Turning radius	Wa	1400 mm	55 in
	Performances			
5.1	Travel speed (laden / unladen)		6 km/h / 6 km/h	4 mph / 4 mph
5.2	Lifting speed (laden / unladen)		0.12 m/s / 0.24 m/s	0.39 ft/s / 0.79 ft/s
5.3	Lowering speed (laden / unladen)		0.30 m/s / 0.20 m/s	0.98 ft/s / 0.66 ft/s
5.8	Max Gradeability (laden / unladen)		8 % / 10 %	8 % / 10 %
5.10	Service brake		Electro magnetic	Electro magnetic
	Engine			
6.1	Drive motor rating S2 60 min		1.20 kW	1.20 kW
6.2	Lift motor rating at S3 15%		3 kW	3 kW
6.4	Battery voltage / capacity		24 V / 180 Ah	24 V / 180 Ah
6.5	Battery weight (+/- 5%)		160 kg	353 lb
	Miscellaneous			
8.1	Type of drive control		AC	AC
8.4	Sound level at the driver's ear according to DIN 12 053		65 dB	65 dB

Characteristics of masts and residual capacities

Full Visibility Duplex (FVD)		FVD 29	FVD 34	FVD 38
h1 - Mast lowered height	in (mm)	76.4 (1940)	86.2 (2190)	94.1 (2390)
h3 - Mast lifting height	in (mm)	115.7 (2940)	135.4 (3440)	151.2 (3840)
h4 - Mast extended height	in (mm)	132.5 (3365)	152.2 (3865)	167.9 (4265)
Residual capacity at max height	lb (kg)	2646 (1200)	2205 (1000)	1764 (800)

Free Lift Duplex (FLD)		FLD 29	FLD 34
h1 - Mast lowered height	in (mm)	76.4 (1940)	86.2 (2190)
h2 - Mast free lift	in (mm)	59.4 (1510)	69.3 (1760)
h3 - Mast lifting height	in (mm)	115.6 (2935)	135.2 (3435)
h4 - Mast extended height	in (mm)	132.5 (3365)	152.2 (3865)
Residual capacity at max height	lb (kg)	2646 (1200)	2205 (1000)

Free Lift Triplex (FLT)		FLT 42
h1 - Mast lowered height	in (mm)	77.4 (1965)
h2 - Mast free lift	in (mm)	57.9 (1470)
h3 - Mast lifting height	in (mm)	166.9 (4240)
h4 - Mast extended height	in (mm)	186.4 (4735)
Residual capacity at max height	lb (kg)	1433 (650)

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