

Technical sheet :

# ES 412

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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
	<b>Weight</b>		
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
	<b>Wheels</b>		
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
	<b>Dimensions</b>		
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
	<b>Performances</b>		
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
	<b>Engine</b>		
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
	<b>Miscellaneous</b>		
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

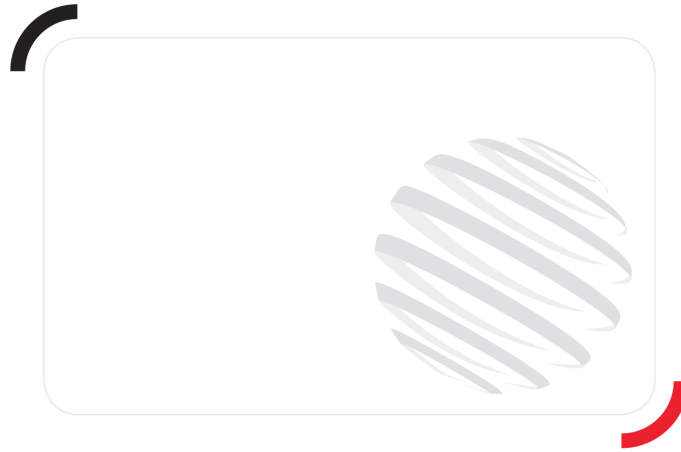
Central Cylinder Duplex (CCD)		CCD 26	CCD 29	CCD 34
h1 - Mast lowered height	mm	1782	1932	2182
h2 - Mast free lift	mm	140	140	140
h3 - Mast lifting height	mm	2550	2850	3350
h4 - Mast extended height	mm	3068	3368	3868
Residual capacity at max height	kg	1200	1200	900

Central Cylinder Simplex (CCS)		CCS 15	CCS 17
h1 - Mast lowered height	mm	1932	2182
h2 - Mast free lift	mm	1420	1670
h3 - Mast lifting height	mm	1420	1670
h4 - Mast extended height	mm	1938	2188
Residual capacity at max height	kg	1200	1200

Full Visibility Duplex (FVD)		FVD 29	FVD 34	FVD 38
h1 - Mast lowered height	mm	1932	2182	2382
h3 - Mast lifting height	mm	2850	3350	3750
h4 - Mast extended height	mm	3368	3868	4268
Residual capacity at max height	kg	1200	1000	800

Free Lift Duplex (FLD)		FLD 29	FLD 34
h1 - Mast lowered height	mm	1932	2182
h2 - Mast free lift	mm	1420	1670
h3 - Mast lifting height	mm	2845	3345
h4 - Mast extended height	mm	3363	3863
Residual capacity at max height	kg	1200	950

Free Lift Triplex (FLT)		FLT 42
h1 - Mast lowered height	mm	1890
h2 - Mast free lift	mm	1380
h3 - Mast lifting height	mm	4160
h4 - Mast extended height	mm	4678
Residual capacity at max height	kg	650

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