

www.flovermotor.com



Eco-friendly electric outboard motor

FLOVER



Flover electric outboard motor / Trolling Motor

GREETING

CEO Message

For over 20 years, CSM Tech has been concentrated its energy on producing DC motor and MDPS Motors. In 2011, CSM Tech Co., Ltd acquired FLOVER brand and started to produce electric outboard motors as a manufacturer and supplier. As time passed, FLOVER is receiving positive consumer response in the marketplace.

The next steps is to provide a better service to the customer through good management and better staff training. We look forward to working with our customers by listening to the challenges, understanding the needs and opportunities and responding accordingly with the very capable Flover team we have here at CSM TECH Co, Ltd

As always, we pledge to do our best to serve our customers in the global market.

Thank you

Moon Ho, Kang / CEO

History

- 1990.09 Established CHANG SUNG Company
- 2005.05 Incorporated CHANG-SUNG CO., LTD
- 2008.02 MDPS Core & Assembly Device – patent
- 2008.02 MDPS Core & Assembly Device – patent / MDPS Core & Bobbin Device – patent
- 2009.03 MDPS Core & Winding Device – patent / Company changed its name to CSM TECH CO., LTD
- 2010.04 Acquired Electric Outboard Motor FLOVER
- 2011.11 CE Certification obtained - Registered No. K1553/E07R
ISO Certification obtained - ISO 9001 : 2008 / KS Q ISO 9001 : 2009
- 2012.01 Obtained Certification of origin by Customs Authorization - No. 030-12-200011
- 2013.05 Moved manufacturing operations from Jeongwan to Jang- An Industrial complex, Busan
- 2014. The New model , 2HP - BLDC electric outboard motor will come out at the beginning of next year

FLOVER DIV., CSM TECH CO., LTD

Company Name : CSM Tech Co., Ltd

Company website www.csmotor.biz

Flover Div. www.flovermotor.com

E mail. contact@flovermotor.com

Incorporated : May, 2005 (Established Sep, 1990)

Main Products : Flover Electric Outboard Motor, DC Motor / ATOV BLDC Electric Outboard Motor

BLDC Motor Ass'y Line / HYUNDAI, KIA MOTORS, Automatic Mechanical Equipment System



The Electric Thruster

High Sound Quality with Remarkable Capacity

Enhanced sound quality improves through the adoption of low-noise design and technical formulation in operation, reaching below 40dB. Motors function smoothly but efficiently at the level of thrust desired, based on our extensive expertise on motor industry for many years.

Telescopic Handle & Battery Gauge

The set is equipped with telescopic handle enabling the control bar to extend effectively. The LEDs armed on the control box display the remaining of the battery connected. There are more ideas and innovations coming up to address ever-changing needs of contemporary users and serve the market in a good way.

Great Mobility & Durability with Full Maneuver

The set weighing ca. 7kg exploits a newly-invented AL shaft of which the thickness is not less than 2.7mm. The housing and shaft are specially UV-coated with high precision. The motors offer a choice of five forward and three reverse speeds step by turning its control handle armed with.

Ergonomic Design & Idiosyncratic Touch

The set is ergonomically designed and armed with well-extruded bracket and control unit. With telescoping handle installed, boat drivers are able to impel leisurely. The tilt lever equipped enables to adjust the set by ten different angles.



FLOVER

Compliance Relevant with Two-year Warranty

The items produced by CSM TECH CO., LTD abide by the directives from CE, and requirements from ISO. The foundation established from its collective expertise on motors allows to present two-year warranty for the whole entire product lines.



Technical Information

Line ups

FLOVER™ TROLLING MOTOR	FLOVER 33F	FLOVER 33	FLOVER 35	FLOVER 40	FLOVER 45	FLOVER 50	FLOVER 55
Thrust in lb/kg	33/15.0	33 / 15.0	35 / 15.9	40 / 18.1	45 / 20.4	50 / 22.7	55 / 24.9
Amp	30~33A	30~33A	32~35A	36~40A	41~45A	45~50A	50~55A
Voltage	12	12	12	12	12	12	12
Prop dia x pitch in in	9 × 4	9 × 4	9 × 4	9 × 4	11 × 4	11 × 4	11 × 4
Shaft length in m	750	750	750	850	850 (1000)	850	850(1000)
Battery gauge	No	Optional	Optional	Optional	Optional	Optional	Optional
Battery (V)	12 V, 80Ah /100Ah Deep Cycle Battery						
Transom mount	10 Level lock bracket						
Control handle	Fixed	Telescopic (extendable by 14cm)					
Speeds steps	5 forwards steps / 3 reverse steps						
Shaft type	Aluminum						
Net Wt. in lb/Kg	15.0 / 6.8	15.0 / 6.8	16.0 / 6.8	16.5 / 7.8	19.0 / 8.6	19.4 / 8.8	19.8 / 9.0
Gross Wt. in lb/Kg	22.9 / 10.3	22.9 / 10.3	22.9 / 10.3	26.2 / 11.8	27.8 / 11.8	28.0 / 12.6	28.7 / 12.9
Selection	F, T, TG		T, TG	T, TG	T, TG, TGS	T, TG	T, TG, TGS
Carton size in cm	107 * 57 * 18			118 * 57 * 18 (TGS 134 * 57 * 18)			
Quantity/20' 40' GP	Mixed 260 / 560 pcs						

F : Fixed Handle Tiller / T : Telescopic Tiller / G : Battery Gauge / S : Saltwater / TG : T + G / TGS : T + G + S

Thrust(lb) to HP / Watt

	Amp Draw / hour	Voltage	approx. HP	Watt
FLOVER 33F	33	12	0.53	396
FLOVER 33	33	12	0.53	396
FLOVER 35	35	12	0.56	420
FLOVER 40	40	12	0.64	480
FLOVER 45	45	12	0.72	540
FLOVER 50	50	12	0.80	600
FLOVER 55	55	12	0.88	660

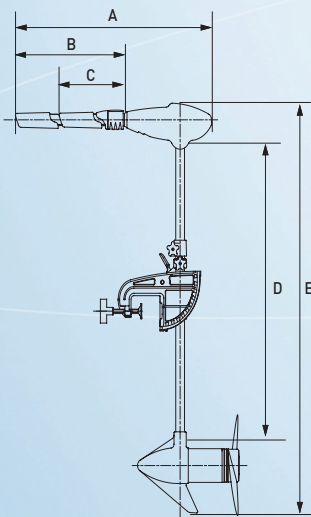
Hours of usage

	Full Amp	Amp Draw / hour	Consumption	Hours
FLOVER 33F	100	33	85%	2.58
FLOVER 33	100	33	85%	2.58
FLOVER 35	100	35	85%	2.43
FLOVER 40	100	40	85%	2.13
FLOVER 45	100	45	85%	1.89
FLOVER 50	100	50	85%	1.70
FLOVER 55	100	55	85%	1.55

i. assume we use a fully-charged deep cycle battery with a capacity of 100Amp

ii. assume we consume 85% of the battery charged

Schematics



	A	B	C	D	E
FLOVER 33F	-		185	750	1020
FLOVER 33	645	375	235	↑	↑
FLOVER 35	↑	↑	↑	↑	↑
FLOVER 40	↑	↑	↑	850	1120
FLOVER 45	↑	↑	↑	↑	↑
FLOVER 50	↑	↑	↑	↑	↑
FLOVER 55	↑	↑	↑	↑	↑
FLOVER 45/55TGS	↑	↑	↑	1000	1270

PARTS LIST

CODE	DESCRIPTION	INCLUSION	APPLICATION
F311	Seal Set	2 x seal, 1 x paper tube, 1 x retainer	F33~F55
F312	Ball Bearing	1 x ball bearing	F33~F55
F313	Bushing	1 x bushing	F33~F55
F314	E-ring	3 x e-ring	F33~F55
F315	O-ring 33-35	3 x 71mm, 3 x 81mm, 3 x 3mm	F33~F35
	O-ring 40-55	3 x 71mm, 3 x 81mm, 3 x 3mm	F40~F55
F321	Brush Plate 33-35	1 x brush plate	F33~F35
F322	Brush Plate 40-55	1 x brush plate	F40~F55
F323	Carbon Brush 33-35	2 x brush	F33~F35
F324	Carbon Brush 40-55	2 x brush	F40~F55
F325	Brush Set 33-35	1 x brush plate, 2 x brush, 2 x spring	F33~F35
F326	Brush Set 40-55	1 x brush plate, 2 x brush, 2 x spring	F40~F55
F331	Switch	1 x switch	F33~F55
F333	Battery Cable 33-35	1 x battery cable	F33~F35
F335	Battery Cable 40-55	1 x battery cable	F40~F55
F341	Bracket	1 x hinge set, 1 x bracket	F33~F55 (Freshwater)
F342	Bracket	1 x hinge set, 1 x bracket	F45TGS, F55TGS (Saltwater)
F345	Depth Collar	1 x depth collar	F33~F55 (Freshwater)
F346	Depth Collar	1 x depth collar	F45TGS, F55TGS (Saltwater)
F347	Up Cover	1 x up cover	F33~F55
F348	Up Cover	1 x up cover	F45TGS, F55TGS (Saltwater)
F349	Down Cover	1 x down cover	F33~F55
F350	Down Cover	1 x down cover	F45TGS, F55TGS (Saltwater)
F361	Prop Low	1 x prop	F33~F40
F362	Prop High	1 x prop	F45~F55
F363	Prop Nut Kit	1 x washer, 1 x pin, 1 x nut	F33~F55
F364	Prop Anode Kit	1 x zink anode, 1 x nut	F45TGS, F55TGS (Saltwater)
F411	Armature 33	1 x armature, 1 x ball bearing, 1 x e-ring	F33F, F33T, F33TG
F412	Armature 35	1 x armature, 1 x ball bearing, 1 x e-ring	F35T, F35TG
F413	Armature 40	1 x armature, 1 x ball bearing, 1 x e-ring	F40T, F40TG, F40TGS
F414	Armature 45	1 x armature, 1 x ball bearing, 1 x e-ring	F45T, F45TG, F45TGS
F415	Armature 50	1 x armature, 1 x ball bearing, 1 x e-ring	F50T, F50TG, F50TGS
F416	Armature 55	1 x armature, 1 x ball bearing, 1 x e-ring	F55T, F55TG, F55TGS

PARTS IMAGE

