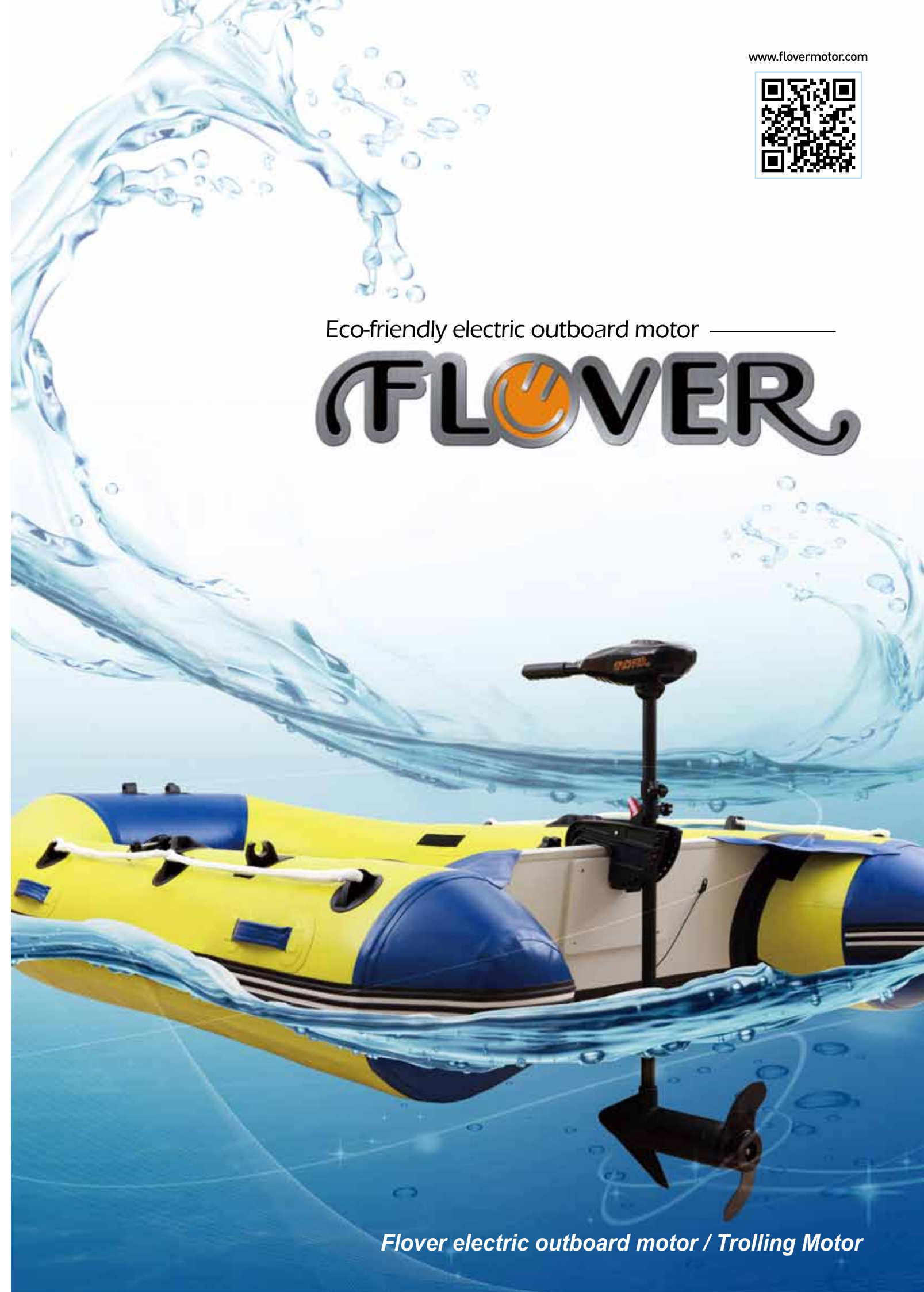




Eco-friendly electric outboard motor

FLOVER

FLOVER
Eco-friendly electric outboard motor



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 Certification of origin by Customs Authorization
Obtained Certification of origin by Customs Authorization - No. 030-12-200011
- 2013.05 Moved manufacturing operations from Jeongwan to
Jang- An Industrial complex, Busan
- 2014.03 2HP - BLDC electric outboard motor will come
out at the beginning of next year



FLOVER

Fresh water Type Trolling Motor

Flover is excellent for inflatables, canoes and fishing craft.
Light, powerful and efficient.
Just ideal for tenders, fishermen wanting to quietly prowl
around a lake, duck shooters and kayakers.



FLOVER

Salt water Type Trolling Motor

Flover is excellent for inflatables, canoes and fishing craft.
Suitable for quiet sheltered coastal water fishing.
Outboards go GREEN with flover electric outboard motors!



Line ups

| | 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 x 4 | 9 x 4 | 9 x 4 | 9 x 4 | 11 x 4 | 11 x 4 | 11 x 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) | 12V, 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 | 22.6/11.8 | 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 |

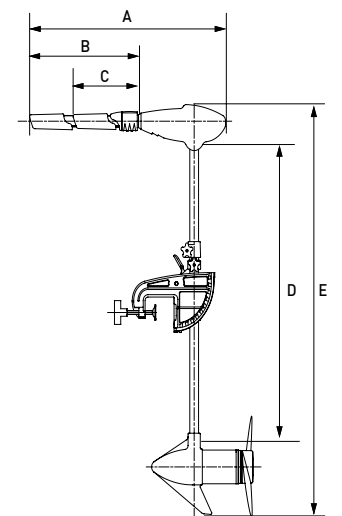
Hours of usage

| | 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 |



FLOVER 33F



PURPOSES

Trolling for game fish
a secondary means of propulsion

PERFORMANCE

| | |
|--------------------------|----------|
| Thrust | 33 pound |
| Voltage | 12V |
| Amp | 30~33A |
| Shaft Length | 750mm |
| Prop Dia x Pitch in inch | 9X4 |
| Approx. HP | 0.53 |
| Watt | 396 |
| Control Handle | Fixed |
| Battery gauge | No |

FLOVER DIV., CSM TECH CO., LTD

Trolling for game fish; a motor used for this purpose is usually a secondary means of propulsion, and mounted on the transom alongside the primary outboard motor or on a bracket made for the purpose

Primary source of propulsion for smaller water craft, such as canoes and kayaks, and on lakes where the use of a gasoline-powered engine is prohibited.

FLOVER 33T,TG



PURPOSES

Trolling for game fish
a secondary means of propulsion

PERFORMANCE

| | |
|--------------------------|-----------------|
| Thrust | 33 pound |
| Voltage | 12V |
| Amp | 30~33A |
| Shaft Length | 750mm |
| Prop Dia x Pitch in inch | 9X4 |
| Approx. HP | 0.53 |
| Watt | 396 |
| Control Handle | Telescopic type |
| Battery gauge | Optional(TG) |

FLOVER DIV., CSM TECH CO., LTD

High Sound Quality with remarkable capacity
Telescopic Handle and Battery gauge
Great Mobility and Durability
Ergonomic Design and Stylish Touch
Two-Year Warranty



FLOVER 35T,TG



PURPOSES

Trolling for game fish
a secondary means of propulsion

PERFORMANCE

| | |
|--------------------------|-----------------|
| Thrust | 35 pound |
| Voltage | 12V |
| Amp | 33-35A |
| Shaft Length | 750mm |
| Prop Dia x Pitch in inch | 9X4 |
| Approx. HP | 0.56 |
| Watt | 420 |
| Control Handle | Telescopic type |
| Battery gauge | Optional(TG) |

FLOVER DIV., CSM TECH CO., LTD

Trolling for game fish; a motor used for this purpose is usually a secondary means of propulsion, and mounted on the transom alongside the primary outboard motor or on a bracket made for the purpose

Primary source of propulsion for smaller water craft, such as canoes and kayaks, and on lakes where the use of a gasoline-powered engine is prohibited.

FLOVER 40T,TG



PURPOSES

Trolling for game fish
a secondary means of propulsion

PERFORMANCE

| | |
|--------------------------|-----------------|
| Thrust | 40 pound |
| Voltage | 12V |
| Amp | 36-40A |
| Shaft Length | 850mm |
| Prop Dia x Pitch in inch | 9X4 |
| Approx. HP | 0.64 |
| Watt | 480 |
| Control Handle | Telescopic type |
| Battery gauge | Optional(TG) |

FLOVER DIV., CSM TECH CO., LTD

High Sound Quality with remarkable capacity
Telescopic Handle and Battery gauge
Great Mobility and Durability
Ergonomic Design and Stylish Touch
Two-Year Warranty



FLOVER 45T,TG



PURPOSES

Trolling for game fish
a secondary means of propulsion

PERFORMANCE

| | |
|--------------------------|-----------------|
| Thrust | 45 pound |
| Voltage | 12V |
| Amp | 45~50A |
| Shaft Length | 850mm |
| Prop Dia x Pitch in inch | 11X4 |
| Approx. HP | 0.72 |
| Watt | 540 |
| Control Handle | Telescopic type |
| Battery gauge | Optional(TG) |

FLOVER DIV., CSM TECH CO., LTD

Trolling for game fish; a motor used for this purpose is usually a secondary means of propulsion, and mounted on the transom alongside the primary outboard motor or on a bracket made for the purpose

Primary source of propulsion for smaller water craft, such as canoes and kayaks, and on lakes where the use of a gasoline-powered engine is prohibited.

FLOVER 50T,TG



PURPOSES

Trolling for game fish
a secondary means of propulsion

PERFORMANCE

| | |
|--------------------------|-----------------|
| Thrust | 50 pound |
| Voltage | 12V |
| Amp | 45~50A |
| Shaft Length | 850mm |
| Prop Dia x Pitch in inch | 11X4 |
| Approx. HP | 0.80 |
| Watt | 600 |
| Control Handle | Telescopic type |
| Battery gauge | Optional(TG) |

FLOVER DIV., CSM TECH CO., LTD

High Sound Quality with remarkable capacity
Telescopic Handle and Battery gauge
Great Mobility and Durability
Ergonomic Design and Stylish Touch
Two-Year Warranty



FLOVER 55T,TG



PURPOSES

Trolling for game fish
a secondary means of propulsion

PERFORMANCE

| | |
|--------------------------|-----------------|
| Thrust | 50 pound |
| Voltage | 12V |
| Amp | 45~50A |
| Shaft Length | 850mm |
| Prop Dia x Pitch in inch | 11X4 |
| Approx. HP | 0.80 |
| Watt | 600 |
| Control Handle | Telescopic type |
| Battery gauge | Optional(TG) |

FLOVER DIV., CSM TECH CO., LTD

Trolling for game fish; a motor used for this purpose is usually a secondary means of propulsion, and mounted on the transom alongside the primary outboard motor or on a bracket made for the purpose

Primary source of propulsion for smaller water craft, such as canoes and kayaks, and on lakes where the use of a gasoline-powered engine is prohibited.

FLOVER 45TGS



PURPOSES

Trolling for game fish
a secondary means of propulsion

PERFORMANCE

| | |
|--------------------------|-----------------|
| Thrust | 45 pound |
| Voltage | 12V |
| Amp | 41~45A |
| Shaft Length | 1000mm |
| Prop Dia x Pitch in inch | 11X4 |
| Approx. HP | 0.72 |
| Watt | 540 |
| Control Handle | Telescopic type |
| Battery gauge | Optional(TG) |

FLOVER DIV., CSM TECH CO., LTD

High Sound Quality with remarkable capacity
Telescopic Handle and Battery gauge
Great Mobility and Durability
Ergonomic Design and Stylish Touch
Two-Year Warranty



FLOVER 55TGS



PURPOSES

Trolling for game fish
a secondary means of propulsion

PERFORMANCE

| | |
|---------------------------------|-----------------|
| Thrust | 55 pound |
| Voltage | 12V |
| Amp | 50~55A |
| Shaft Length | 1000mm |
| Prop Dia x Pitch in inch | 11X4 |
| Approx. HP | 0.88 |
| Watt | 660 |
| Control Handle | Telescopic type |
| Battery gauge | Optional(TG) |

FLOVER DIV., CSM TECH CO., LTD

Trolling for game fish; a motor used for this purpose is usually a secondary means of propulsion, and mounted on the transom alongside the primary outboard motor or on a bracket made for the purpose

Primary source of propulsion for smaller water craft, such as canoes and kayaks, and on lakes where the use of a gasoline-powered engine is prohibited.

| Model | Step | Amp Draw | Consumption | Using hour |
|-------|------|----------|-------------|------------|
| F33 | 5 | 30 | 75% | 2:30 |
| | 4 | 20 | 75% | 3:45 |
| | 3 | 14 | 75% | 5:21 |
| | 2 | 10 | 75% | 7:30 |
| | 1 | 8 | 75% | 9:22 |
| F35 | 5 | 34 | 75% | 2:12 |
| | 4 | 25 | 75% | 3:00 |
| | 3 | 20 | 75% | 3:45 |
| | 2 | 16 | 75% | 4:41 |
| | 1 | 11 | 75% | 6:49 |
| F40 | 5 | 40 | 75% | 1:52 |
| | 4 | 27 | 75% | 2:46 |
| | 3 | 20 | 75% | 3:45 |
| | 2 | 14 | 75% | 5:21 |
| | 1 | 10 | 75% | 7:30 |
| F45 | 5 | 42 | 75% | 1:47 |
| | 4 | 28 | 75% | 2:40 |
| | 3 | 22 | 75% | 3:24 |
| | 2 | 16 | 75% | 4:41 |
| | 1 | 12 | 75% | 6:15 |
| F50 | 5 | 42 | 75% | 1:47 |
| | 4 | 28 | 75% | 2:40 |
| | 3 | 22 | 75% | 3:24 |
| | 2 | 18 | 75% | 4:10 |
| | 1 | 14 | 75% | 5:21 |
| F55 | 5 | 50 | 75% | 1:30 |
| | 4 | 30 | 75% | 2:30 |
| | 3 | 24 | 75% | 3:07 |
| | 2 | 18 | 75% | 4:10 |
| | 1 | 14 | 75% | 5:21 |

PARTS LIST I – Understructure Parts

| SECTION | CODE | INCLUSION | INCLUSION | APPLICATION |
|----------------------|----------------------|---------------------|---|-----------------|
| Understructure Ass'y | F200 | ARMATURE Ass'y | 1xARMATURE Ass'y, 1xBearing 608ZD, 1xE-Ring | F33R~F33TG |
| | F201 | ARMATURE Ass'y | 1xARMATURE Ass'y, 1xBearing 608ZD, 1xE-Ring | F35T~F35TG |
| | F202 | ARMATURE Ass'y | 1xARMATURE Ass'y, 1xBearing 608ZD, 1xE-Ring | F40T~F40TGS |
| | F203 | ARMATURE Ass'y | 1xARMATURE Ass'y, 1xBearing 608ZD, 1xE-Ring | F45T~F45TGS |
| | F204 | ARMATURE Ass'y | 1xARMATURE Ass'y, 1xBearing 608ZD, 1xE-Ring | F50T~F50TGS |
| | F205 | ARMATURE Ass'y | 1xARMATURE Ass'y, 1xBearing 608ZD, 1xE-Ring | F55T~F55TGS |
| | F210 | Brush Plate Ass'y | 1xBrush Plate, 2xCarbon Brush Ass'y, 2xBrush Spring | F33R~F35TG |
| | F211 | Brush Plate Ass'y | 1xBrush Plate, 2xCarbon Brush Ass'y, 2xBrush Spring | F40T~F55TGS |
| | F220 | Carbon Brush Ass'y | 2xCarbon Brush Ass'y | F33R~F35TG |
| | F221 | Carbon Brush Ass'y | 2xCarbon Brush Ass'y | F40T~F55TGS |
| | F230 | Rear endbell Ass'y | 1xRear endbell Ass'y, 1xBrush Plate Ass'y | F33R~F35TG |
| | F231 | Rear endbell Ass'y | 1xRear endbell Ass'y, 1xBrush Plate Ass'y | F40T~F55TG |
| | F232 | Rear endbell Ass'y | 1xRear endbell Ass'y, 1xBrush Plate Ass'y | F40TGS~F55TGS |
| | F240 | Yoke Ass'y | 1xYoke Ass'y | F33R~F35TG |
| | F241 | Yoke Ass'y | 1xYoke Ass'y | F40T~F40TG |
| | F242 | Yoke Ass'y | 1xYoke Ass'y | F45T~F55TG |
| | F243 | Yoke Ass'y | 1xYoke Ass'y | F40TGS |
| | F244 | Yoke Ass'y | 1xYoke Ass'y | F45TGS~F55TGS |
| | F250 | Frontendbell Ass'y | 1 x Front end bell, 1 x Retainer, Guide 1 x bushing | F33R~F35TG |
| | 4251 | Frontendbell Ass'y | 1 x Front end bell, 1 x Retainer, Guide 1 x bushing | F40T~F55TG |
| | F252 | Frontendbell Ass'y | 1 x Front end bell, 1 x Retainer, Guide 1 x bushing | F40TGS~F55TGS |
| | F260 | Propeller Kit | 1x Nut, 1x Washer, 1x Pin | F33R~55TG |
| | F261 | Propeller Anode Kit | 1x Anode, 1x Washer, 1x Pin | F40TGS~F55TGS |
| | F270 | Propeller Anode Kit | 2x Retainer, 1x Guide | F33R~F55TGS |
| | F271 | O-Ring Kit | 1xO-Ring (A) 1xO-Ring (B) 2xO-Ring(E) | F33R~35TG |
| | F272 | O-Ring Kit | 1xO-Ring (C), 1xO-Ring (D), 2xO-Ring(E) | F40~55TGS |
| | Understructure Parts | F300 | Bearing 608ZD | 1xBearing 608ZD |
| F301 | | E-Ring | 1xE-Ring | F33R~F55TGS |
| F302 | | Steel Washer | 1xSteel Washer | F33R~F55TGS |
| F303 | | Poly Washer | 1xPoly Washer | F33R~F55TGS |
| F304 | | Brush Plate | 1xBrush Plate | F33R~F35TG |
| F305 | | Brush Plate | 1xBrush Plate | F40T~F55TGS |
| F306 | | Brush Spring | 2xBrush Spring | F33R~F35TG |
| F307 | | Brush Spring | 2xBrush Spring | F40T~F55TGS |
| F308 | | Bolt | 2xBolt | F33R~F55TGS |
| F309 | | Lead Wire(B) | 1xLead Wire(B) | F33R~F35TG |
| F310 | | Lead Wire(R) | 1xLead Wire(R) | F33R~F35TG |
| F311 | | Lead Wire(B) | 1xLead Wire(B) | F40T~F55TG |
| F312 | | Lead Wire(R) | 1xLead Wire(R) | F40T~F55TG |
| F313 | | Lead Wire(B) | 1xLead Wire(B) | F40TGS~F55TGS |
| F314 | | Lead Wire(R) | 1xLead Wire(R) | F40TGS~F55TGS |
| F315 | | Frontendbell | 1xFrontendbell | F33R~F55TG |
| F316 | | Frontendbell | 1xFrontendbell | F40T~F55TG |
| F317 | | Frontendbell | 1xFrontendbell | F40TGS~F55TGS |
| F318 | | Oilseal Retainer | 2xOilseal Retainer | F33R~F55TGS |
| F319 | | Retainer Guide | 1xRetainer Guide | F33R~F55TGS |
| F320 | | Oilless Flange Bush | 1xOilless Flange Bush | F33R~F55TGS |
| F321 | | O-Ring(A) | 1xO-Ring(A) | F33R~F35TG |
| F322 | | O-Ring(B) | 1xO-Ring(B) | F33R~F35TG |
| F323 | | O-Ring(c) | 1xO-Ring(c) | F40T~F55TG |
| F324 | | O-Ring(d) | 1xO-Ring(d) | F40T~F55TG |
| F325 | | O-Ring(e) | 2xO-Ring(e) | F33R~F55TGS |
| F326 | | Lock Bolt | 2xLock Bolt - 140 mm | F33R~F35TG |
| F327 | | Lock Bolt | 2xLock Bolt -161 mm | F40T~F40TGS |
| F328 | | Lock Bolt | 2xLock Bolt - 190 mm | F45T~F55TGS |
| F329 | | Propeller Low | 1xPropeller Low | F33R~F40TGS |
| F330 | | Propeller High | 1xPropeller High | F45T~F55TGS |
| F331 | | Propeller Pin | 1xPropeller PIN | F33R~F55TGS |
| F332 | | Propeller Nut | 1xPropeller Nut | F33R~F55TGS |
| F333 | | Propeller Anode | 1xPropeller Anode | F40TGS~F55TGS |
| F334 | Steel Washer | 1xSteel Washer | F33R~F55TGS | |

PARTS LIST II – Upperstructure Parts

| SECTION | CODE | INCLUSION | INCLUSION | APPLICATION |
|----------------------|------|---------------------|-----------------------|-------------------------|
| Upperstructure Parts | F400 | AL Shaft | 1xAL Shaft | F33R~F35TG |
| | F401 | AL Shaft | 1xAL Shaft | F40T~F55TG |
| | F402 | AL Shaft | 1xAL Shaft | F40TGS~F55TGS |
| | F403 | Bracket Ass'y | 1xBracket Ass'y | F33R~F55TG |
| | F404 | Bracket Ass'y | 1xBracket Ass'y | F40TGS~F55TGS |
| | F405 | Up Cover | 1xUp Cover | F33F~F55TG |
| | F406 | Down Cover | 1xDown Cover | F33F~F55TG |
| | F407 | Up Cover | 1xUp Cover | F40TGS~F55TGS |
| | F408 | Down Cover | 1xDown Cover | F40TGS~F55TGS |
| | F409 | Coller Depth | 1xColler Depth | F33F~F55TG |
| | F410 | Coller Depth | 1xColler Depth | F40TGS~F55TGS |
| | F411 | Control Switch | 1xControl Switch | F33F~F55TGS |
| | F412 | Battery Cable | 1xBattery Cable | F33F~F35TG |
| | F413 | Battery Cable | 1xBattery Cable | F40T~F55TGS |
| | F414 | Gauge PCB | 1xGauge PCB | F33TG~35TG, 40TG~F55TGS |
| | F415 | Sticker Large | 1xSticker Large | F33T~F33TG |
| | F416 | Sticker Large | 1xSticker Large | F35T~F35TG |
| | F417 | Sticker Large | 1xSticker Large | F40T~F40TGS |
| | F418 | Sticker Large | 1xSticker Large | F45T~F45TGS |
| | F419 | Sticker Large | 1xSticker Large | F50T~F50TGS |
| | F420 | Sticker Large | 1xSticker Large | F55T~F55TGS |
| | F421 | Sticker Small Plain | 1xSticker Small Plain | F33F,33T,35T,40T~55T |
| | F422 | Sticker Small Gauge | 1xSticker Small Gauge | F33TG~35TG,40TG~F55TGS |
| | F423 | HANDLE Ass'y | 1xHANDLE Ass'y | F33F |
| | F424 | HANDLE Ass'y | 1xHANDLE Ass'y | F33F~F55TGS |
| | F425 | Bolt 6*45 | 1xBolt 6*45 | F33F~F55TGS |
| | F426 | Nut M6 | 1xNut M6 | F33F~F55TGS |
| | F427 | Piece / 4*16 | 6xPiece / 4*16 | F33F~F55TGS |