SAFEBACK | SMART AQUACULTURE | GUANGZHOU, CHINA

TK-150D 2-Bag Semi-Automatic High-Speed Feeder

Two 25 kg bags in, from about 300 kg/h out · 110° fan over 8–17 m · 200 W on 220 V

Product datasheet (EN) · Rev. 2026-10 · Vietnam market



Fig. 1 TK-150D — 2-bag hopper, high-speed throwing disc and 110° outlet, with feed-level window

1. Product overview

The TK-150D is the compact, low-cost feeder in the SAFEBACK smart-aquaculture range. A worker pours bags into the two-bag hopper and the machine's high-speed throwing disc spreads the pellets in a 110° fan over 8–17 m. At about 15 bags of 25 kg an hour, quoted as **from about 300 kg/h**, one machine does the job that otherwise means walking the bund with a sack — work that takes most of the day on even a medium pond.

The machine weighs about 20 kg and measures 57 × 57 × 85 cm, so two workers can carry it along a narrow bund or move it between ponds. It runs on 200 W of single-phase 220 V, the same standard as farms across Vietnam. The low load means a small portable generator or inverter can drive it where there is no grid supply.

Typical users are freshwater fish farms and shrimp ponds, family farms and cooperatives that want to mechanise feeding without buying a large pneumatic system.

2. Key features

- **From about 300 kg/h** — 15 × 25 kg bags gives an arithmetic ceiling of 375 kg/h; we always quote the lower bound, about 300 kg/h, never the peak. One worker and one machine replace manual bag-carrying and hand throwing.
- **Two-bag hopper** — 2 × 25 kg bags of floating feed (≈50 kg), or ≈80 kg of sinking feed because of its higher bulk density; fewer trips to refill.
- **110° fan, 8–17 m throw** — a wide, even feeding arc instead of a pile in one spot.
- **Only 200 W on 220 V** — plugs into the farm supply, and a small generator or inverter can run it on remote ponds.
- **20 kg, 57 × 57 × 85 cm** — two people move it on a narrow bund or between ponds.
- **Feed-level window** — check the remaining feed without opening the lid.
- **Rain-shedding, vented cabinet** — feed stays dry and the motor stays cool in monsoon weather.
- **Hopper lifts off for cleaning** — the whole hopper comes off and washes separately, so a feed change does not carry over.
- **Wear parts replaced singly** — throwing disc and impeller are separate parts, so a worn part does not mean a factory return.
- **Semi-automatic by design** — load by hand, the machine does the throwing; nobody has to walk the pond.

3. The TK family and model coding

Every SAFEBACK aquaculture product carries the **TK** prefix: **TK – category code + specification number**. The two-letter code identifies the category; the number carries the single most important figure for that product — rated power in watts for powered equipment, measured parameters ×100 for sensors, screen size ×100 for terminals. One coding rule across the range, so a customer can tell from the model number what a unit is and what class it belongs to.

Code	Category	Model	What the number means
GW	4G IoT gateway	**TK-4G-GW**	4G Cat.1 uplink (role-based code)
—	Two-bag feeder	**TK-150D**	150 kg/h class; D = dual hopper
FS	Pneumatic (air-blower) feeder	TK-FS2000	Rated power 2000 W, 30 m conveying
YL	Impeller aerator	TK-YL1500	Rated power 1500 W
YC	Waterwheel aerator (mains)	**TK-YC750SL**	Rated power 750 W, twin impeller
YC	Waterwheel aerator (mains)	**TK-YC1500SL**	Rated power 1500 W, four impellers
DO	Fluorescence DO sensor	TK-DO100	Single parameter
PH	pH sensor	TK-PH100	Single parameter
ORP	ORP sensor	TK-ORP100	Single parameter
MP	Multi-parameter probe	TK-MP500	Five parameters

The TK-150D and the TK-FS2000 are the two rungs of the feeder line: the 150D carries two bags, loads by hand and

throws feed directly; the FS2000 carries six hoppers, runs to a timer and reaches the middle of large ponds. The feeder handles feed, the aerator handles oxygen, and the probes with the terminal let you see both — one model code, one protocol, so you can buy in stages and add later without changing platform.

4. Technical specifications

Category	Item	Specification
Basic	Model	TK-150D
	Product type	2-bag semi-automatic high-speed fish feeder
	Net weight	≈20 kg
	Overall dimensions	57 × 57 × 85 cm (W × D × H)
Capacity	Hopper capacity, sinking feed	≈80 kg (≈3.2 × 25 kg bags)
	Hopper capacity, floating feed	≈50 kg (2 × 25 kg bags)
	Output (quoted figure)	**From ≈300 kg/h** (15 bags/h × 25 kg; ceiling ≈375 kg/h, lower bound only)
Feeding	Spreading angle	110° fan
	Throwing distance	8–17 m (nominal max; even spread ~10–12 m)
	Throwing disc / impeller	Replaceable separately (wear parts, ordered as spares)
	Suitable feed	Sinking and floating pellets
Power	Rated power	200 W
	Motor	AC motor
	Power supply	220 V AC, 50 Hz, single phase; 110 V/60 Hz version available to order
	Operating mode	Semi-automatic: manual loading, powered throwing
	No-load noise	≈76 dB(A)
Construction	Cabinet	Moulded cabinet, rain-shedding top, side ventilation, feed-level window
	Hopper	Lifts off completely for cleaning
	Mounting	Free-standing on four feet, level ground
Supply	Standard supply	Feeder, operation manual
Service	Warranty	1 year on the whole machine from the date of manufacture; wear parts excluded and available separately

Values marked "≈" are nominal. Output is rated at 15 bags per hour with 25 kg bags: 15 × 25 = 375 kg/h is the arithmetic ceiling, and continuous work has to absorb bag changes and feed-flow variation, so **we quote "from about 300 kg/h"** and never the peak. 25 kg is the standard bag at most Vietnamese feed mills; a minority pack 40 kg, where the same tonnage works out to about 9 bags an hour. The figure is checked by a 10-minute weighed run × 6.

5. How it works

1. **Load** — open the lid and pour in two 25 kg bags (≈50 kg of floating feed); sinking feed fills the same hopper to ≈80 kg.
2. **Feed down** — feed drops through the metering gate into the throwing chamber.
3. **Accelerate** — the high-speed disc picks up the pellets and throws them through the 110° outlet.
4. **Spread** — pellets land in a fan up to 8–17 m out (nominal maximum; even spread roughly 10–12

m); turn the cabinet to aim the arc at the feeding area.

6. Installation and site requirements

- **Ground:** firm and level (compacted bund or concrete pad); set the cabinet level on its four feet so the arc stays even.
- **Position:** about 1–2 m back from the water edge, with the 110° outlet aimed across the feeding area; the throw is directional, so the machine has to face the pond.
- **Power:** dedicated 220 V circuit with a 30 mA RCD; a small generator or inverter is enough where there is no grid.
- **Weather:** keep the lid closed between feeds; anchor or shelter the cabinet in strong wind.
- **Clearance:** keep 0.5 m clear around the cabinet for the vents and for servicing.

7. Feed types and target species

Sinking and floating pellets are both suitable, covering the main species farmed in Vietnam and southern China:

- Grass carp, tilapia (*cá rô phi*), common carp, crucian carp
- Pangasius / basa (*cá tra*), hybrid catfish, sea bass (*cá chẽm*)
- Snakehead (*cá lóc*) and other carnivorous species
- Shrimp ponds at reduced feeding rates, and mixed polyculture ponds

For very fine crumble or shrimp starter feed, ask us to confirm the setting before ordering.

8. Model comparison

Item	TK-150D	TK-FS2000
Feeding method	Direct high-speed throwing, 110° fan	Pneumatic conveying + 360° rotary spreading
Hopper	2-bag, ≈80 kg sinking / ≈50 kg floating	6 hoppers, ≈160 kg sinking / ≈100 kg floating
Output	From ≈300 kg/h (15 × 25 kg ceiling)	≈8 min per 25 kg bag — **≈180–190 kg/h**
Reach	8–17 m throw	30 m conveying, Ø30 m spread
Power	200 W, 220 V	≈2,000 W, 220 V
Weight / size	≈20 kg, 57 × 57 × 85 cm	≈60 kg
Best for	Small and medium ponds, shrimp ponds, farms with direct access to the water's edge	Large ponds and clustered ponds where the machine must stay on the access road

The 150D throws feed directly and therefore moves more tonnage per hour; the FS2000 spends its power on conveying 30 m and rotating 360°, so it is slower but reaches ponds where no machine can stand at the water edge. The two figures are not a misprint — they follow from the two designs.

9. Notes for regional markets

This unit is built for 220 V single-phase, 50 Hz. What differs between countries is not whether it fits, but three things: voltage level, frequency and certification — with 240 V single-phase in Malaysia and India, and 60 Hz in the Philippines, being the two that matter most. Check the table first, then

read the note for your region.

Country / region	Single-phase	Three-phase	Frequency	Relation to this unit
Vietnam	220 V	380 V	50 Hz	Identical
Thailand	220 V	380 V	50 Hz	Identical
Indonesia	220 V	380 V	50 Hz	Identical
Cambodia	220 V	380 V	50 Hz	Identical
Bangladesh	220 V	380 V	50 Hz	Identical
Mongolia	220 V	380 V	50 Hz	Identical
Myanmar	230 V	400 V	50 Hz	+5%
Singapore	230 V	400 V	50 Hz	+5%
Malaysia	240 V	415 V	50 Hz	+9%
India	230 V	400 / 415 V	50 Hz	+5–9%
Philippines	220 V	380 / 480 V	60 Hz	Frequency differs

9.1 Fully compatible — 380 V / 50 Hz

- **Vietnam, Thailand, Indonesia, Cambodia, Bangladesh, Mongolia** — These six markets use the same low-voltage system as China: 380 V three-phase, 220 V phase-to-neutral, 50 Hz. The machine connects directly — no transformer, no re-wound motor. This is where the TK series is easiest to sell against European or American equipment.
- **Vietnam is the reference market** — 0.4 kV three-phase four-wire, 380 V between phases, 220 V phase-to-neutral, 50 Hz — the same as China. Small ponds in the south often have only a single-phase 220 V service, or three-phase with too little capacity; tell us the service type, transformer rating and existing load before ordering. If a single-phase machine is required, specify the D configuration.
- **Phase loss and voltage sag** — Voltage sag at the end of a rural feeder, and phase loss, are the number-one cause of burnt motors — not the voltage level. Fit a phase-failure overload relay per machine; if you run demand-based aeration (C configuration), the control board already provides that protection.

9.2 Wide-range coverage — 400 to 528 V / 50 Hz

- **Malaysia 415 V, India 400–415 V, Singapore 400 V, the Philippines 480 V — no transformer needed** — These voltages look higher than 380 V, but they are not a problem for our machines: the control supply is a 90–528 VAC wide-range input. Single-phase 220 V, 380 V phase-to-phase, 440 / 480 V — all accepted, and 100–745 VDC as well. No step-down transformer, no country-specific model. One machine covers Southeast Asia.
- **CE covers 100–400 VAC only — say so plainly** — Operation between 480 and 528 VAC is fine,

but it sits outside the CE certification range. Quote within 400 VAC for tenders and certification files; where 480 V is genuinely used, state it in the technical deviation sheet rather than glossing over it — this is exactly what a customer's acceptance engineer will check.

- **The motor side still deserves a glance** — A wide-range control supply does not make the motor wide-range. A 380 V three-phase motor on a 415 V supply sees +9.2%, which is inside the ±10% window of IEC 60034-1 and will run; but in hot, humid pond-side enclosures the thermal margin is thin, so for continuous full-load duty confirm the actual voltage once, or take one frame size up. Same logic for 240 V single-phase in Malaysia.

9.3 Different frequency — the Philippines at 60 Hz

- **A 50 Hz motor must not be connected to a 60 Hz supply** — The Philippines runs 220 V / 60 Hz nationwide, with 380 V or 480 V three-phase for industry. On 60 Hz a 50 Hz motor turns 20% faster; for impeller and fan loads shaft power rises with the square to cube of speed, so the demand reaches 1.4–1.7 times rated power — this is not 'a bit faster', it is guaranteed overload.
- **Three ways out — decide before ordering** — ① Order a 60 Hz motor; cleanest. ② Run a VFD with the frequency clamped to 50 Hz, at the cost of about 17% of output. ③ Size up one frame and run it at 60 Hz. This has to be settled at the order stage; it cannot be fixed in the field.
- **Confirm the three-phase voltage as well** — Both 380 V and 480 V three-phase exist in the Philippines — legacy US-era projects are usually 480 V, local distribution usually 380 V. Ask the customer to photograph the panel nameplate before ordering.

9.4 Running cost — negligible

- **200 W, about 0.7 kWh a day** — An hour a day is roughly 60 kWh a year — under USD 6 anywhere in the region.
- **The cost is in bags and labour** — The two-bag design saves unpacking and carrying time, not electricity.
- **The entry model for small ponds** — For 1–3 mu ponds, or as a supplementary position on a larger pond, the 150D beats a pneumatic feeder on value.

9.5 Climate and corrosion

- **Hot and humid** — Southern Vietnam, central Thailand, the Philippines, Indonesia, Malaysia: hopper and enclosure need moisture control, desiccant inside the box; bring the machine under cover or lash it down before typhoon season.
- **Brackish and salt water** — Ca Mau, Bac Lieu, Soc Trang, Ben Tre, southern Thailand, coastal Indonesia: salt spray attacks the spreader, bolts and terminals. Clean and touch up quarterly, apply anti-oxidation grease to terminals; tell us in advance for long-term high-salinity sites.
- **Monsoon flooding** — India, Bangladesh, Myanmar: raise the machine base by at least 30 cm,

keep cable joints on the bank.

9.6 Certification and documents

- **Mandatory certification differs by country** — Vietnam CR (QCVN 4:2009/BKHCN for low-voltage equipment), Thailand TISI, Indonesia SNI, the Philippines BPS/PS or ICC, Malaysia SIRIM / ST, India BIS. Most schemes are mandatory only for certain power ranges — confirm against the local customs requirement.
- **CE and IEC reports are the passport** — Beyond the local schemes, a CE declaration and IEC test reports are the two documents customers ask for most, tenders in particular. Ask before ordering and we ship them with the goods.
- **Language of the documents** — Standard documentation is bilingual Chinese/English. Vietnamese, Thai, Indonesian or Tagalog manuals and nameplates must be requested in advance — they are typeset separately, priced separately, and extend the lead time.

9.7 Five questions before ordering

① Is the pond service three-phase or single-phase? What is the transformer rating?

② What is the measured voltage on site? — the actual reading, not the nominal figure.

③ Is the frequency 50 Hz or 60 Hz? — the Philippines must be confirmed separately.

④ Is the water fresh, brackish or salt? Roughly what salinity?

⑤ Which language do you need for the manual and the nameplate?

This table is a general judgement. Province-level differences — a rural feeder that sits low all year, an extra clearance step at a particular port, a local subsidy scheme — should be added by the local sales team to the project file. For a country not listed here, judge by the same three dimensions: voltage, frequency, certification; if in doubt, ask the factory.

10. Frequently asked questions

Is it fully automatic? No — it is semi-automatic: a worker loads the bags, the machine does the spreading. For timed feeding without an operator, choose the TK-FS2000.

How far does it throw? 8–17 m in a 110° fan, so it suits ponds where the feeding area is within that arc of the bank.

How many kg per hour is that?From about 300 kg/h. 15 bags × 25 kg = 375 kg/h is the ceiling on paper, and continuous work includes bag changes and feed-flow variation, so we quote the lower bound. With 40 kg bags the same tonnage works out to about 9 bags an hour.

How long does it take to feed one pond? At from about 300 kg/h, 100 kg of feed takes roughly 20 minutes and 200 kg roughly 40 minutes, reload pauses included — in practice it will be faster, not slower.

Can it handle floating feed? Yes, at a reduced hopper load of about 50 kg — exactly two 25 kg bags

— because of the lower bulk density.

Will it run on a generator? Yes — 200 W is within the range of a small portable generator or inverter.

Can it be used on a shrimp pond? Yes, with a reduced feeding rate and the correct pellet size; confirm the setting with us first.

Can it be monitored remotely? The feeder works alongside the SAFEBACK 4G controller and cloud platform, which handle pond monitoring and aeration control.

11. Packing, delivery and commercial terms

- **Packing:** export packing; carton or crate agreed with the order. Packing dimensions and gross weight are confirmed on the packing list.
- **Container loading:** 20GP / 40HQ quantities are calculated from the final packing dimensions; our loading plan is confirmed before the order.
- **Loading port:** Nansha / Yantian, China.
- **Lead time:** confirmed at order; stock availability quoted on request.
- **Warranty:** 1 year on the whole machine from the date of manufacture. Throwing disc, impeller, belt/coupling and switch are wear parts, not covered, and can be ordered separately.
- **Voltage versions:** 220 V/50 Hz as standard; a 110 V/60 Hz version can be built to order for other export markets (please state on the order confirmation).

12. Contact

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Specifications are subject to change without notice as the product is improved; confirm current data before tendering or volume orders.