SAFEBACK | SMART AQUACULTURE | GUANGZHOU, CHINA

3 kW Pneumatic Fish Feeder

TK-FS3000 · high-pressure air conveying · 3.0 kW · 40 m nominal · 360° spreading

Six-hopper capacity · machine on the bund, feed to the pond centre

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



Fig. 1 TK-FS3000: six HDPE hoppers, stainless-steel frame, digital control panel

Same body as TK-FS2000; the difference is the blower, 2.0 kW raised to 3.0 kW

1. Overview

The TK-FS3000 is the higher-power version of the TK-FS2000: same stainless-steel frame, same six equal-volume hoppers, same 360° rotary spreading head. Only the blower changes, from 2.0 kW to 3.0 kW.

Why raise it. The limit on any pneumatic feeder is the pipeline: longer runs, more bends and denser pellets all add resistance. A 2.0 kW blower is comfortable to 30 m; beyond that it works on margin, and damp or crumbled feed tends to build up at the bends. The 3.0 kW unit restores that margin: 40 m nominal conveying, with more tolerance for bends and rises.

One point stated up front: the 3 kW upgrade buys reach, not tonnage. Discharge rate is set by the metering unit, not the blower, so it stays at about 8 minutes per 25 kg bag, or 180–190 kg/h. A higher output requires a larger metering unit, which is a separate configuration to be quoted individually.

For the Vietnamese requirement. A complete 3 kW pneumatic feeding arrangement — hopper, blower, pipeline and spreading head — is what larger Vietnamese farms ask for, together with a clear statement of 3 kW suitability. The TK-FS3000 is that machine: the blower rating matches, and the package ships complete, so the customer does not have to source pipe, frame and controls separately.

The machine works from the bank. It stands on the bund or the farm track, feed travels through the hose and is thrown from above the water. Nobody wades in, pushes a boat or carries bags to the edge.

2. Key features

- **3.0 kW high-pressure blower** — 40 m nominal conveying (pending prototype measurement), about a third further than the 2.0 kW version, so the machine can sit further back.
- **Feed stays dry, people stay dry** — pneumatic conveying from the track to the pond centre, ideal where the bund is narrow and vehicles cannot reach the water.
- **360° continuous spreading** — no dead corners; one position covers a circle of about 30 m diameter (≈700 m^2).
- **Six independent hoppers** — ≈160 kg of sinking feed or ≈100 kg of floating feed per filling.
- **More blockage margin** — the extra pressure head copes better with damp feed, crumble and long runs with bends (field figures to be confirmed).
- **Single-phase 220 V** — about 14 A on a dedicated 20 A circuit, so no three-phase supply is needed; 380 V three-phase available to order.
- **Same frame as the 2.0 kW unit** — hoppers, hose, spreading head and panel are common, so a

farm running both needs one set of spares.

- **System-ready** — the panel runs timed cycles on its own; add the TK-4G-GW for phone control, alongside DO probes and DC 48 V power.

3. TK model family and code structure

Every SAFEBACK aquaculture product carries the TK prefix: TK – category code + specification number. The two-letter code is the product category; the number is the single most telling figure — rated power in watts for mains-powered equipment, parameter count ×100 for sensors, screen size for terminals.

Category codes in use: YL impeller aerator, YC waterwheel aerator, FS pneumatic feeder, 150D two-bag feeder, DO/PH/ORP probes, MP500 multi-parameter probe, 4G-GW control terminal, R12 twelve-way control board, 4G-GW IoT gateway, FA module power supplies.

This model is coded TK-FS3000: FS for pneumatic feeding, 3000 for the 3000 W rating. It forms the upper rung of the pneumatic line with the TK-FS2000, and the choice between them comes down to pipe length: up to 30 m take the 2000, beyond 30 m or with several bends take the 3000.

Model	Category	Power	Output	Reach	Energy
TK-YL1500	Impeller, AC	1.5 kW	≥2.3 kg/h	2000–4000 m²	AC 220/380 V
TK-YL1500SP	Impeller, solar	1.5 kW	≥2.3 kg/h	2000–4000 m²	96 V DC PV/grid
TK-YC750SP	Waterwheel, PV	0.75 kW	≥1.2 kg/h	666–3330 m²	96 V DC PV/grid
TK-FS3000	Pneumatic 3 kW	3.0 kW	≈180–190 kg/h	≈40 m	AC 220/380 V
TK-FS2000	Pneumatic 2 kW	2.0 kW	≈180–190 kg/h	≈30 m	AC 220 V
TK-150D	Two-bag feeder	200 W	≈300–375 kg/h	8–17 m throw	AC 220 V

Aerators handle oxygen, feeders handle feed, and the sensors and terminals let you see the numbers in the pond. Buy them separately or as a package; the interfaces and protocols are the same either way.

4. Technical specifications

Category	Item	Specification
Basic	Model	TK-FS3000
	Product type	Six-hopper high-pressure pneumatic automatic feeder
	Net weight	≈70 kg (3 kW blower with frame reinforcement; to be measured)
	Overall dimensions	Confirmed by measurement after crating

Category	Item	Specification
	Hopper quantity	6 independent hoppers, all of equal volume
	Load per hopper	One bag of feed, up to 40 kg
Capacity	Hopper capacity, sinking feed	≈160 kg per full load (all six hoppers)
	Hopper capacity, floating feed	≈100 kg per full load (all six hoppers)
	Discharge rate	≈8 min per 25 kg bag (independent of blower power)
	Effective output	≈180–190 kg/h
Feeding	Spreading angle	360° continuous rotation
	Feeding zone	Ø ≈30 m (≈700 m^2) per position
	Pneumatic conveying distance	≈40 m nominal (pending prototype measurement)
	Blower power	3.0 kW
	Blower type	High-pressure centrifugal (standard); Roots type on request
	Suitable feed	Sinking pellets, floating pellets, crumble
Power	Rated power	3.0 kW blower, plus metering and spreading motors
	Power supply	220 V 50/60 Hz single phase, ≈14 A; 380 V three-phase optional to order
	Circuit requirement	Dedicated circuit, 20 A breaker + 30 mA RCD; cable sized for the run
	Blower speed control	Fixed speed, no VFD
	Control	Digital panel, timed and manual feeding
	Remote control	Local panel; phone access requires the TK-4G-GW
Construction	Frame	Stainless steel
	Hoppers	HDPE, UV-stabilised
Delivery	Standard supply	Feeder, 40 m feed hose (per configuration), operation manual
Service	Warranty	1 year on the whole machine from the date of manufacture
	Wear parts	No spare-parts kit in the standard scope; kits available to order

5. What the 3 kW actually changes

The two machines differ only in the blower, so it is worth setting out plainly what changes and what does not — otherwise a customer reads 3 kW and expects three times the tonnage.

TK-FS3000 against TK-FS2000:

Item	TK-FS2000 (2.0 kW)	TK-FS3000 (3.0 kW)	Change
Blower power	2.0 kW	3.0 kW	+50%
Conveying distance	≈30 m	≈40 m (to be measured)	about +1/3
Discharge rate	≈8 min per 25 kg bag	≈8 min per 25 kg bag	unchanged
Effective output	≈180–190 kg/h	≈180–190 kg/h	unchanged
Spreading zone	Ø ≈30 m	Ø ≈30 m	unchanged
Operating current	≈9 A	≈14 A	+5 A
Net weight	≈60 kg	≈70 kg (to be measured)	≈ +10 kg
Working hose length	≤30 m	≤40 m	+10 m
Blockage margin	Standard	Higher, for damp feed and crumble	improved

Two different limits. The blower decides whether feed reaches a given spot; the metering unit decides how much leaves per hour. The 3 kW upgrade addresses only the first.

- **Longer runs, machine set further back** — choose the TK-FS3000; this is what it is for.
- **More tonnes per hour** — a larger or twin metering unit, a custom configuration.
- **Short runs under 30 m** — the TK-FS2000 costs less and the extra margin goes unused.

The real gains from 3 kW sit in three places: a 40 m hose, so the machine need not hug the water's edge; more tolerance for bends and rises, so routing is less fussy; and a lower chance of blocking with sinking, damp or crumbled feed. The third point is field experience rather than a published figure, so no number is claimed until the factory measures it.

6. How it works

Four steps, the same as the TK-FS2000 apart from the larger blower and longer hose.

- **Load** — open the hopper lids and fill with pellets; six hoppers take ≈160 kg of sinking or ≈100 kg of floating feed.
- **Meter** — the control panel releases feed at the set rate and time, on a timer or manually.
- **Convey** — the 3.0 kW blower pushes the pellets through the ≈40 m hose.
- **Spread** — the rotating head throws the feed through 360°, building an even circle of about 30 m diameter.

7. Installation and operating conditions

- **Foundation** — hard, level surface able to carry ≈70 kg of machine plus ≈160 kg of feed.

- **Height** — above the maximum flood level, panel clear of standing water and direct rain.
- **Power** — dedicated 220 V circuit, 20 A breaker and 30 mA RCD; size the cable for the run, and confirm with us where the supply run is long.
- **Hose routing** — gentle bends only, no kinks, no vehicle traffic; keep the run as short as the site allows.
- **Clearance** — at least 1 m around the frame for servicing; the spreading head must discharge over open water.
- **Weather** — anchor the frame against wind and keep hopper lids closed so feed stays dry.

Note: 3 kW on single-phase 220 V demands more of the supply than 2 kW. Where the farm transformer is small or the supply run exceeds about 100 m, take the 380 V three-phase version to avoid excessive starting volt-drop and tripping.

8. Suitable feed and species

Sinking pellets, floating pellets and crumble can all be used (pellet size range per the factory parameter sheet). Typical species in Vietnam and southern China:

- **Pangasius / basa (cá tra), hybrid catfish** — large-pond intensive culture.
- **Tilapia (cá rô phi), snakehead (cá lóc), climbing perch** — mainstream pond species.
- **Grass carp, common carp, crucian carp** — freshwater polyculture.
- **Clusters of small ponds, family farms, cooperatives** — one machine serving several ponds.
- **Shrimp ponds and very fine crumble** — confirm settings with us before ordering.

9. Model comparison

Item	TK-FS3000	TK-FS2000	TK-150D
Feeding method	Pneumatic conveying + 360° rotary spread	Same	Direct high-speed throw, 110° fan
Blower power	3.0 kW	2.0 kW	None (direct throw)
Conveying distance	≈40 m (to be measured)	≈30 m	—
Hopper	6 equal hoppers, ≈160 kg sinking	Same	Two-bag hopper, ≈80 kg sinking
Output	≈180–190 kg/h	≈180–190 kg/h	≈300–375 kg/h
Reach	Ø ≈30 m spread	Ø ≈30 m spread	8–17 m throw
Power supply	220 V single phase ≈14 A / 380 V optional	220 V single phase ≈9 A	220 V, 200 W class
Weight	≈70 kg	≈60 kg	≈20 kg, 57 × 57 × 85 cm
Best for	Long runs, machine set well back, sinking and damp feed	Bund-side feeding, runs up to 30 m	Small and medium ponds with direct access, highest tonnage

10. 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

10.1 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.

10.2 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.

10.3 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.

10.4 Running cost at local tariffs

- **3.0 kW blower, 8–9 kWh a day** — At 3 hours a day and 300 days, about 2,700 kWh a year.
- **Annual cost at local tariffs (2025 public data, tax included)** — Vietnam about USD 215–255; Thailand 340; Indonesia 210–240; the Philippines 310–360; Malaysia 270–380.
- **380 V three-phase is the precondition** — Only the 380 V three-phase version of the FS3000 drops into most target markets directly; a single-phase machine needs a VFD or a different motor. Confirm the pond service before ordering.

10.5 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.

10.6 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.

10.7 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.

11. Frequently asked questions

- **Does 3 kW mean more tonnage?** — No. Output is set by the metering unit; both machines run at ≈180–190 kg/h. The 3 kW buys distance and blockage margin.
- **Does it need three-phase power?** — No, 220 V single phase at about 14 A, but it must be a dedicated circuit with a 20 A breaker.
- **Is 40 m verified?** — 40 m is the nominal figure; prototype measurement is under way and the tested value will be published before shipping.
- **Can it feed floating pellets?** — Yes; floating feed loads to about 100 kg because of its lower bulk density.
- **How much pond does one machine cover?** — A circle of about 30 m diameter, roughly 700 m^2, per position.
- **Can it handle crumble or powder?** — Crumble yes; for powder confirm particle size and moisture first, as powder tends to build up at bends.
- **Will it run unattended?** — Yes, the panel runs timed cycles. For bag-by-bag manual feeding, see the TK-150D.
- **Can it be monitored remotely?** — The panel is local only; add the TK-4G-GW for phone control and records.
- **What type of blower is fitted?** — High-pressure centrifugal as standard. A Roots blower can be specified, subject to confirmation of model, pressure, noise and price.

12. Packing, delivery and commercial terms

- **Packing** — export packing; carton or crate agreed with the order. Dimensions and gross weight confirmed after crating, with a packing list supplied.
- **Container loading** — 20GP / 40HQ quantities calculated from the final packing dimensions; our loading plan applies.
- **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; wear-part kits available.
- **Voltage versions** — 220 V/50 Hz standard; 220 V/60 Hz, 110 V/60 Hz and 380 V three-phase built to order.

13. 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.