SAFEBACK | SMART AQUACULTURE | GUANGZHOU, CHINA

Standing-Barrel 360° Feeder

TK-SB150A · 150 W · 80 kg hopper · 8–18 m throw · full-circle spreading

21 kg net - two men can lift it · no pipes, no wading

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



Fig. 1 TK-SB150A as delivered: the barrel stands on the ground, feed meters out at its base and the high-speed disc throws it outwards; 21 kg net, two men can carry it

1. Overview

TK-SB150A is a standing-barrel automatic feeder. The hopper stands on the ground, feed is metered out at its base, and a disc spinning at 2800 rpm throws it outwards. At 21 kg the whole machine can be carried to the pond edge by two men - no foundation, no piping, and nobody has to enter the water.

TK-SB150A is a Type A standing-barrel 360° feeder: 220 V/50 Hz, 150 W rated, 80 kg hopper, throwing distance >= 17 m, full-circle coverage. Type A and pneumatic Type B are two different working principles and are never mixed on one feeding line - this machine covers the Type A segment only. Item-by-item data is in chapter 4.

Type A and Type B are two different machines, not two grades of the same one. The TK feeding line splits three ways by spreading principle: TK-150D is a twin-bag direct-throw machine (110° sector, 200 W); the TK-SB150A is a ground-standing barrel with a sector pattern, the TK-YL360 is a float-type 360° full-circle machine (both Type A); TK-FS2000/FS3000 are pneumatic (Type B). Each line is selected, quoted and delivered independently.

Type A and Type B are not grades of quality, they are two ways of working. Type A is inexpensive, flexible and covers one spot; Type B is costly, needs piping and covers a large water area. Each answers its own line.

2. Key features

- **Full 360° spreading** - the disc distributes around the whole circle, about 500 m^2 per machine; on a floating platform every direction reaches water.
- **80 kg hopper** - roughly ten minutes of throwing at the 500 kg/h peak rate, so two or three refills a day.
- **8–18 m, adjustable** - constant disc speed, distance set by the deflector and disc angle.
- **21 kg net** - two men, no crane, no concrete base; moving it to another pond takes minutes.
- **220 V / 150 W** - 180 W total, under 1 A; still needs its own circuit and a 30 mA RCD.
- **LCD control box** - timer, delay-start and always-on modes.
- **Empty-hopper stop** - stops about three minutes after the hopper runs dry, protecting the disc and the motor.
- **Integrates with the TK system** - with a TK-R12 contact and a TK-4G-GW gateway it can be started remotely and linked to DO sensors (see the TK controller integration guide).
- **Fully separate from Type B** - no pipes, no blower, no shared parts with the FS range.

3. TK model family and code structure

Every SAFEBACK aquaculture machine uses the TK prefix: TK - category code - size number. The two-letter code names the category; the number carries the single most important figure - rated watts for powered equipment, parameters x 100 for sensors, screen size for terminals.

Current codes: YL impeller aerator, YC paddlewheel aerator, FS pneumatic feeder, SB standing-barrel feeder, 150D twin-bag feeder, DO/PH/ORP probes, MP500 five-parameter probe, 4G-GW control terminal, R12 twelve-way control board, 4G-GW IoT gateway, FA modular power supplies.

This machine is coded TK-SB150A: SB for standing barrel, 150 for the 150 W motor, and the A suffix marks the Type A class, so selection and quotation cannot be crossed. TK-150D also carries 150, but it is a 200 W twin-bag direct-throw machine; the two are separated by power class and type.

Model	Category	Power	Capacity	Coverage	Energy
TK-YL1500	Impeller, vertical	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/mains
TK-YC750SP	Paddlewheel	0.75 kW	>=1.2 kg/h	666–3330 m²	96 V DC PV/mains
TK-SB150A	Barrel 360°	150 W	<=500 kg/h	8–18 m throw	AC 220 V
TK-150D	Twin-bag feeder	200 W	300–375 kg/h	8–17 m throw	AC 220 V
TK-FS2000	Pneumatic 2 kW	2.0 kW	180–190 kg/h	~30 m air	AC 220 V
TK-FS3000	Pneumatic 3 kW	3.0 kW	180–190 kg/h	~40 m air	AC 220/380 V

4. Technical specifications

Group	Item	Specification
General	Model	TK-SB150A
	Type	Standing-barrel automatic feeder (Type A, 360° spreading)
	Net weight	approx. 21 kg
	Dimensions	approx. 56 x 56 x 83 cm (L x W x H)
	Hopper capacity	80 kg nominal with sinking pellets; floating pellets pack lighter, about 50–60 kg
	Shell material	UV-stabilised PP, black
	Ingress protection	IPX4 splash-proof (see nameplate)
Throwing	Throwing distance	8–18 m adjustable, >= 17 m at maximum (meets the Type A figure)
	Spreading angle	360° full circle; deflector limits to 140°–180° (option)
	Coverage per machine	approx. 500 m² in 360° mode, to be measured

Group	Item	Specification
	Peak feed rate	approx. 500 kg/h instantaneous; limited by hopper size - one 80 kg fill takes about 10 minutes
	Disc speed	2800 rpm
	Pellet breakage	<= 5%
	Feed types	sinking pellets, floating pellets, crumble (size range per factory sheet)
Power	Motor rating	150 W
	Total power	180 W including control box
	Supply	AC 220 V / 50 Hz single phase, under 1 A
	Circuit	dedicated circuit, 10 A breaker + 30 mA RCD
	Control	LCD box: timer / delay-start / always-on
	Dry-run stop	stops about 3 minutes after the hopper empties
	Remote control	no comms port on the machine; needs TK-R12 + TK-4G-GW (see the TK integration guide)
Supply	Standard scope	machine + tripod stand + power cable + manual
Service	Warranty	1 year from date of shipment
	Wear parts	disc, deflector, seals; not included, recommended with first order

Nominal figures. Throwing distance and coverage vary with pellet size, moisture, wind and deflector setting; ask us for current test data before tendering.

5. Type A versus Type B: why these are two different machines

Type A and pneumatic Type B must not appear on one selection table. Mixing two working principles leaves the buyer unable to tell which machine covers which duty, and acceptance, spares and training all follow it into confusion. So the boundary comes first.

Table 5-1 Which line each feeding system answers:

Item	Type A: TK-SB150A	Type B: FS2000/FS3000	Easily confused: TK-150D
Method	Barrel + high-speed disc	Pneumatic, blown through pipes	Twin-bag direct throw, 110° sector
Position	Bank, or a floating platform	On the bank, 30–40 m from water	Hard ground at the pond edge
Pattern	Full circle (360°) or a sector	Rotating head at pipe end, Ø30 m	One-way sector, 8–17 m
Distance	8–18 m	30/40 m air	8–17 m
Hopper	Single, 80 kg	Six boxes, about 160 kg	Two bags, about 80 kg
Rate basis	<= 500 kg/h peak	180–190 kg/h continuous	300–375 kg/h

Item	Type A: TK-SB150A	Type B: FS2000/FS3000	Easily confused: TK-150D
Power	150 W (180 W total)	2.0 / 3.0 kW	200 W
Weight	approx. 21 kg	approx. 60 / 70 kg	approx. 20 kg
Installation	Two men, any flat spot	Base, piping, VFD	Two men, any flat spot
Answers	Type A - standing barrel 360°	Type B - pneumatic	Neither line

Three rules when quoting:

- **The standing-barrel 360° segment is covered by TK-SB150A alone** - it is the only model matching "standing barrel + 360°".
- **The pneumatic segment is covered by TK-FS3000 alone** - 3 kW blower, piping and a floating spreader is a separate complete package.
- **TK-150D goes into neither line** - it may be listed as an optional addition for the same pond, but it cannot stand in for either requirement.

How it differs from the TK-150D. The 150D is a twin-bag direct-throw machine: a 110° sector, 200 W, higher output - it looks "stronger". But the Type A specification calls for a standing barrel with full-circle coverage; the 150D throws one sector, and its hopper is a two-bag structure, not an 80 kg barrel. Column by column, power class and throwing range do line up; what does not line up is the geometry of the spread - one is a full circle, the other a sector.

6. How it works

Four steps, one 150 W motor, one control box - no blower, no piping.

- **Fill** - open the lid and pour pellets in; 80 kg of sinking feed when full.
- **Meter** - the feed mechanism at the base releases pellets onto the centre of the disc at the rate set on the control box.
- **Throw** - the disc spins at 2800 rpm and throws the pellets out along the tangent; a deflector at the rim sets the height and the distance.
- **Stop** - at the set time, or about three minutes after the hopper runs dry.

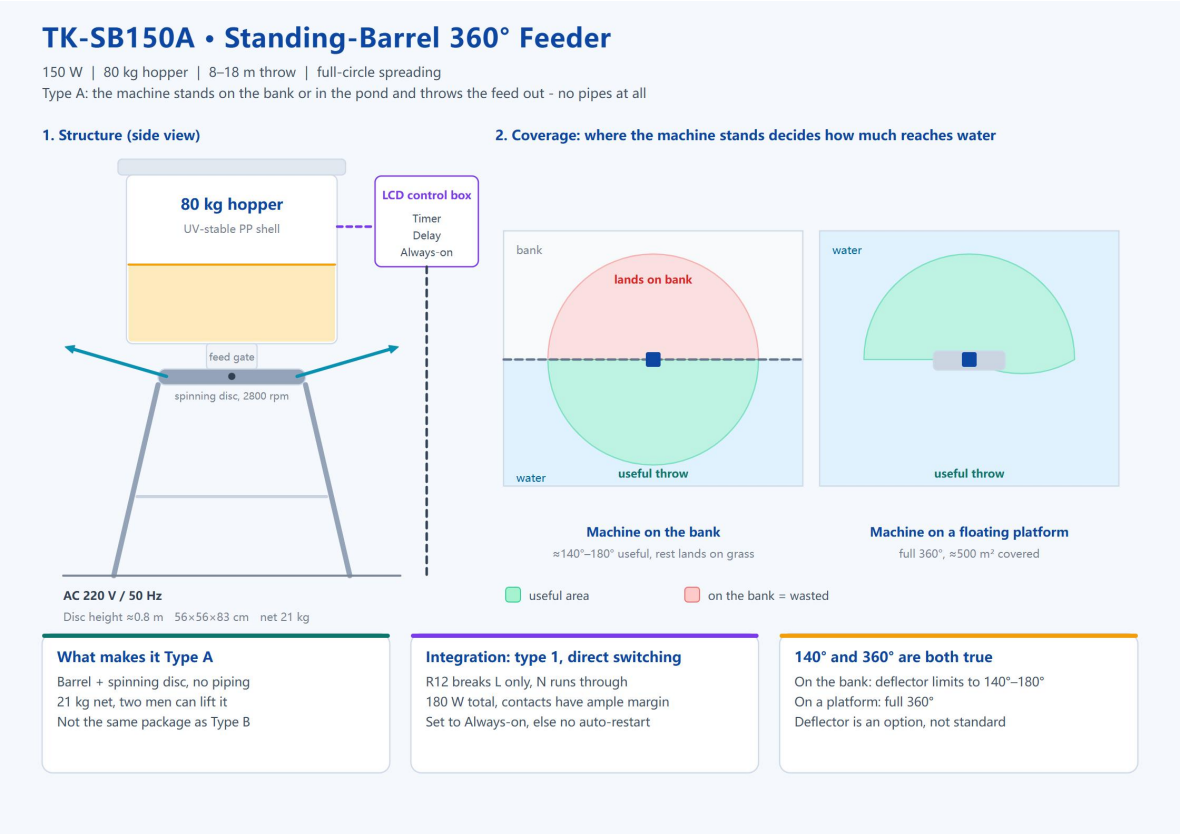


Fig. 2 Machine layout and throwing coverage: the disc can turn a full circle, but how much of it reaches water depends on whether the machine stands on the bank or on a floating platform

7. Installation and operating conditions

- **Position** - a floating platform or jetty is best, because water surrounds the disc and the full 360° is useful. On a bank, fit the deflector and limit spreading to 140°–180° facing the water, otherwise about half the feed lands on grass.
- **Base** - flat hard ground, a concrete pad or timber planks; allow for 21 kg machine plus 80 kg feed, about 101 kg. A platform needs four-point mooring.
- **Level** - level the frame with a spirit level; a tilted disc throws short on one side.
- **Power** - dedicated AC 220 V circuit, 10 A breaker plus 30 mA RCD; socket and junction box above high-water level and rain-protected.
- **Clearance** - 0.5 m around the machine for service; keep the throw away from walkways, feed stores and the neighbouring pond boundary.
- **Weather** - keep the control box out of direct rain; bring the machine in or tie it down before a typhoon - 21 kg will not hold in a storm.

The disc sits about 0.8 m above ground. If the bank is much higher than the water surface, the throw shortens; move the machine closer to the water or use a platform.

8. Suitable feed and species

Sinking pellets, floating pellets and crumble all work (size range per factory sheet). Typical duty:

- **Intensive ponds from a few to several dozen mu** - tilapia, grass carp, common carp, crucian carp, channel catfish.
- **Shrimp ponds and fry ponds** - gentle spreading, breakage <= 5%.
- **Small and terraced ponds** - the machine is light and fits a narrow bank.
- **Rotating between several ponds** - one machine, minutes to relocate.
- **Very large water bodies (over 50 mu)** - use Type B pneumatic instead; one TK-SB150A covers about 500 m^2, so a large pond needs several.

9. Model comparison

Item	TK-SB150A	TK-150D	TK-FS2000	TK-FS3000
Type	Type A barrel 360°	Twin-bag direct	Type B 2 kW	Type B 3 kW
Power	150 W	200 W	2.0 kW	3.0 kW
Hopper	80 kg single	about 80 kg	about 160 kg	about 160 kg
Rate	<= 500 kg/h peak	300–375 kg/h	180–190 kg/h	180–190 kg/h
Distance	8–18 m	8–17 m	about 30 m air	about 40 m air
Coverage	about 500 m^2 full circle	110° sector	Ø30 m	Ø30 m
Weight	about 21 kg	about 20 kg	about 60 kg	about 70 kg
Best for	Small/medium ponds, platform	Output at one spot	Bank, up to 30 m pipe	Long pipe, far from water

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 — negligible

- **150 W, under 1 kWh a day** — An hour a day comes to about 45 kWh a year — under USD 5 at any of these tariffs. The cost of this machine is feed and labour, not electricity.
- **What it actually saves is labour** — A standing-barrel unit replaces hand feeding; at local day rates it usually pays back within one season.
- **Barrel or pneumatic depends on throw distance** — 8–18 m: standing barrel. Beyond 30 m: pneumatic feeder. Choosing wrong does not cost electricity, it costs coverage.

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

- **Is it 360° or 140°?** - Both statements are true. The disc turns a full circle, but on a bank half of it faces land, so a deflector limits it to 140°–180°. On a platform it is a full 360°. Tell us where it will be installed.
- **Can it really throw 17 m?** - Yes, 8–18 m adjustable with >= 17 m at maximum. Actual distance varies with pellet size, moisture, wind and deflector setting; ask for current test data before tendering.
- **Is 80 kg real or nominal?** - Nominal, with sinking pellets. Floating pellets pack lighter, about 50–60 kg.
- **Does it need three-phase power?** - No. AC 220 V single phase, 180 W total - but it does need its own circuit with an RCD.
- **Can it connect to a controller?** - Yes. One R12 contact switches its 220 V supply and the

gateway sends the command - see the TK controller integration guide. The machine itself has no comms port.

- **Will it resume by itself after a power cut?** - Only in always-on mode. In timer and delay-start modes the start button must be pressed again. That is why the machine must be set to always-on when R12 controls it, otherwise a remote command does nothing.
- **How is this different from TK-150D?** - The 150D is a twin-bag direct-throw machine: 110° sector, 200 W, higher output. This one is a 150 W standing barrel with full-circle coverage and much lower weight.
- **Can it throw floating feed?** - Yes, but the hopper holds less (about 50–60 kg) and the lighter pellets travel a little less far.
- **How much water does one machine cover?** - About 500 m^2. Above roughly 50 mu, use Type B pneumatic or install several units.

12. Packing, delivery and commercial terms

- **Packing** - export carton to order; knock-down design, about 0.17 m^3 per unit, good container efficiency.
- **Container load** - confirmed against final packing dimensions; our loading plan governs before ordering.
- **Port** - Nansha / Yantian, China.
- **Lead time** - to be confirmed at order; ask about stock when enquiring.
- **Warranty** - 1 year from shipment; wear parts not included, recommended with the first order.
- **Voltage versions** - standard 220 V/50 Hz; 220 V/60 Hz and 110 V/60 Hz 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.