**ANHUI FEICHUN SPECIAL CABLE CO., LTD.**
安徽飞纯特种电缆有限公司
HIGH-FLEXIBILITY POWER & SERVO CABLE SPECIALIST · WWW.FEICHUNCABLES.COM

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**CLASS** Product Data Sheet | High-Flex Power & Servo Cables (Drag-Chain / Torsion)
**STANDARDS** VDE 0295 Class 6 | IEC 60228 | VDE 0298-4 | UL AWM

PRODUCT SPECIFICATION — HIGH-FLEXIBILITY PUR / PVC / TPE-SHEATHED POWER & SERVO CABLES FOR DRAG-CHAIN AND TORSIONAL APPLICATIONS

# KAWEFLEX 3130 SK-PUR | 5178 SC SK-PVC | 7510 SK-TPE

Three cable families covering multi-core power distribution and single-core servo/power feed duties in continuous-flex drag-chain systems.
12-core PUR · Single-core PVC · Single-core TPE | 2.5 mm² – 10 mm² | 0.6/1 kV Rated | VDE Class 6 Ultra-Fine Stranded Copper

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FC DRAG-CHAIN RATED | CLASS 6 CU | PUR / PVC / TPE | OIL-RESISTANT | 0.6/1 kV | VDE 0298-4 DERATED

★ KAWEFLEX SERIES
**5-Variant Range**
**High-Flex Power**
Multi-Core + Single-Core · 14 AWG – 8 AWG
PUR · PVC · TPE Sheaths · SK (Drag-Chain)
Feichun equivalent · VDE Class 6 · RoHS Compliant

## KAWEFLEX 3130 SK-PUR — MULTI-CORE PUR POWER CABLE

### KAWEFLEX 3130 SK-PUR 12G2.5 — OVERVIEW

The **KAWEFLEX 3130 SK-PUR** is a twelve-core, ultra-flexible power distribution cable enclosed in a **polyurethane (PUR) outer sheath**. PUR provides exceptional resistance to mechanical abrasion, mineral oils, tearing, and UV radiation — properties that make this cable the preferred choice for **heavy-duty outdoor machinery, robotic arms, and continuous-motion drag-chain systems** operating in harsh industrial environments. The "SK" designation confirms the cable is rated and tested for continuous drag-chain (Schleppketten) service.

**FEATURED SPEC — 3130 SK-PUR 12G2.5**

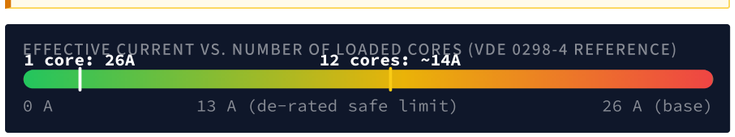
| | |
|---|---|
| Core configuration | 12G × 2.5 mm² |
| "G" designation | Includes G/Y PE earth |
| Conductor class | VDE Class 6 (ultra-fine) |
| AWG equivalent | ≈ 14 AWG |
| Outer diameter (Ø) | 18.0 – 18.8 mm |
| Cu weight | 288 kg/km |
| Total weight (approx.) | ≈ 550 kg/km |
| Rated voltage ($U_0$/U) | 0.6 / 1 kV |
| Outer sheath | PUR (oil / abrasion resistant) |
| Base current capacity (single) | 26 A @ 30 °C, free air |
| Derated current (12-core loaded) | 13 – 14 A per core* |



*12G2.5 mm²*
*11× black numbered*
*1× G/Y PE earth*
*PUR sheath (violet)*

**⚠ MULTI-CORE DE-RATING — VDE 0298-4 (CRITICAL)**

The 26 A base rating applies to a **single conductor in free air at 30 °C**. When all twelve cores are simultaneously loaded within a common PUR sheath, VDE 0298-4 requires a **de-rating factor of ≈ 0.53**. The safe operating current per core is therefore limited to **13 – 14 A**. Failure to apply this factor risks overheating the cable assembly and voiding the installation compliance.




### CORE IDENTIFICATION — 12G2.5

## KAWEFLEX 5178 SC SK-PVC — SINGLE-CORE PVC SERVO POWER

### KAWEFLEX 5178 SC SK-PVC 1G2.5 — OVERVIEW

The **KAWEFLEX 5178 SC SK-PVC** is a single-core, fine-stranded power conductor encased in an **oil-resistant PVC sheath**, designed for use as an individual servo power feed or as a constituent element of a multi-cable drag-chain harness. The "SC" designation identifies the single-core configuration. While PVC offers adequate performance in clean, temperature-controlled environments, the 7510 SK-TPE should be specified where elevated temperature, chemical exposure, or outdoor conditions are anticipated.

**FEATURED SPEC — 5178 SC SK-PVC 1G2.5**

| | |
|---|---|
| Core configuration | 1G × 2.5 mm² (single core) |
| Conductor class | VDE Class 6 (ultra-fine Cu) |
| AWG equivalent | ≈ 14 AWG |
| Outer diameter (Ø) | 4.3 – 4.8 mm |
| Cu weight | 24 kg/km |
| Total weight (approx.) | ≈ 43 kg/km |
| Outer sheath | PVC (oil-resistant) |
| Current capacity | 30 A (single, free air) |



*1G2.5 mm²*
*Class 6 bare Cu*
*PVC sheath (blue)*

## KAWEFLEX 7510 SK-TPE — SINGLE-CORE TPE SERVO POWER

### KAWEFLEX 7510 SK-TPE — OVERVIEW (THREE CROSS-SECTIONS)

The **KAWEFLEX 7510 SK-TPE** series uses a **thermoplastic elastomer (TPE) sheath** in place of standard PVC, delivering superior chemical resistance, a wider operating temperature range, and intrinsically better flex-fatigue life — making it the preferred specification for servo motor power leads, VFD output cables, and applications where the cable contacts aggressive media or must perform in low-temperature environments (down to −40 °C). The rated voltage of **0.6/1 kV** provides the margin required for VFD-driven motor installations subject to switching transients.

**CROSS-SECTION VARIANTS — 7510 SK-TPE**

| CROSS-SECTION | AWG | CURRENT CAPACITY |
|---|---|---|



## CONSOLIDATED PRODUCT VARIANT TABLE

| TYPE & SERIES | CONFIG. | AWG | Ø MM | CU WT KG/KM | TOTAL WT KG/KM | ICC (A)* |
|---|---|---|---|---|---|---|
| **KAWEFLEX 3130 SK-PUR** | 12G2.5 | 14 | 18.0–18.8 | 288 | ≈ 550 | 26 / 14† |
| **KAWEFLEX 5178 SC SK-PVC** | 1G2.5 | 14 | 4.3–4.8 | 24 | ≈ 43 | 30 A |
| **KAWEFLEX 7510 SK-TPE** | 1G2.5 | 14 | 5.3–5.8 | 24 | ≈ 48 | 30 A |
| **KAWEFLEX 7510 SK-TPE** | 1G6 | 10 | 6.8–7.3 | 60 | ≈ 96 | 54 A |
| **KAWEFLEX 7510 SK-TPE** | 1G10 | 8 | 8.0–8.5 | 96 | ≈ 145 | 74 A |

* Current ratings at 30 °C ambient, single cable in free air per VDE 0298-4. † 26 A = base (single core); 14 A = de-rated safe limit for all 12 cores simultaneously loaded (de-rating factor ≈ 0.53 per VDE 0298-4). All values are nominal; manufacturing tolerances apply.

## DRAG-CHAIN INSTALLATION REQUIREMENTS

**⚠ CRITICAL — VDE CLASS 6 PAY-OFF METHOD**

KAWEFLEX cables are manufactured with **VDE Class 6 ultra-fine stranded conductors** — a construction using a significantly higher number of thinner wire strands than Class 5. This structure delivers exceptional flex-fatigue life in continuous-motion drag-chain systems but requires **parallel (side-roll) pay-off from the drum**. The cable must never be pulled axially from the centre of the coil ("over-end" extraction), as this introduces permanent twist into the conductor bundle, degrading the symmetrical lay of the fine strands and greatly reducing service life. Always unroll the drum horizontally and feed cable parallel to its axis.

| MIN. BEND RADIUS — STATIC | MIN. BEND RADIUS — DRAG-CHAIN | TEMP. RANGE — 3130 PUR |
|---|---|---|
| **4 × Ø** | **7–10 × Ø** | **−40/+80 °C** |
| Fixed installation | Continuous flex | Static / flex rated |

- **No torsional stress:** These cables are drag-chain rated, not torsion-rated. For rotary or torsional applications (robot arm wrists), specify torsion-rated (TO) variants. Mixing SK and TO duties will accelerate insulation cracking at the conductor lay points.
- **Cable carrier fill rate:** Do not exceed 60 % of the cable carrier cross-sectional area. Overfilling restricts individual cable movement and causes intercore wear over millions of cycles.
- **Clamping:** Clamp cables at each end of the drag-chain run using strain-relief clamps, not cable ties. Secure enough cable at both fixed and moving ends to prevent tension transfer into the unsupported span.

## LOGISTICS & TRADE QUOTATION NOTE

**Cores 1 – 11** — Black insulation with continuous white printed numerals (1, 2, 3 … 11)

**Core 12 (PE)** — Green/Yellow bicolour — dedicated protective earth conductor

> **ℹ "G" DESIGNATION EXPLAINED**
>
> The notation **12G2.5** specifies 12 cores of 2.5 mm² *including* a green/yellow PE earth conductor. The notation **12×2.5** (without "G") would denote 12 numbered cores with *no* dedicated earth. Always confirm the "G" requirement before installation in circuits requiring a protective earth.

## PUR SHEATH — PERFORMANCE ADVANTAGES

- **Abrasion resistance:** PUR withstands repeated mechanical contact and surface dragging — critical in drag-chain guide systems and robotic wrist cabling where the sheath contacts cable carrier edges at every cycle
- **Oil resistance:** Resists mineral oils, cutting fluids, hydraulic media, and many cleaning agents present in CNC and press environments
- **Tear resistance:** High tensile strength of PUR compound prevents sheath splitting under pinch loads in tight cable carrier radii
- **UV & ozone stability:** Suitable for outdoor machinery and unenclosed installations without additional UV protective conduit
- **Temperature range:** −40 °C to +80 °C continuous (higher short-term tolerance than standard PVC)

*1G × mm² Class 6 bare Cu TPE sheath (black)*

| | | |
|---|---|---|
| 1G 2.5 mm² | 14 | 30 A |
| 1G 6 mm² | 10 | 54 A |
| 1G 10 mm² | 8 | 74 A |

**DIMENSIONAL & WEIGHT DATA — 7510 SK-TPE VARIANTS**

| TYPE / CROSS-SECTION | Ø MIN–MAX (MM) | CU WT (KG/KM) | TOTAL WT (KG/KM) |
|---|---|---|---|
| 7510 SK-TPE 1G2.5 | 5.3 – 5.8 | 24 kg/km | ≈ 48 kg/km |
| 7510 SK-TPE 1G6 | 6.8 – 7.3 | 60 kg/km | ≈ 96 kg/km |
| 7510 SK-TPE 1G10 | 8.0 – 8.5 | 96 kg/km | ≈ 145 kg/km |

## PVC VS. TPE SHEATH — SELECTION GUIDE

| PROPERTY | 5178 SK-PVC | 7510 SK-TPE |
|---|---|---|
| Temp. range | −30 / +80 °C | −40 / +90 °C |
| Oil resistance | Good | Very Good |
| Chemical resistance | Moderate | Excellent |
| Flex-fatigue life | Good | Superior |
| Outdoor / UV use | Limited | Suitable |
| Rated voltage | 0.6/1 kV | 0.6/1 kV (0.75 kV std) |

> **✓ APPLICATION GUIDANCE — 7510 SK-TPE FOR VFD DUTY**
>
> When connecting servo motors via variable-frequency drives (VFDs), the **TPE sheath of the 7510** withstands the elevated dielectric stress caused by switching transients and partial-discharge events at inverter output frequencies of 2–16 kHz. For the 10 mm² variant (74 A), confirm termination lug and contactor sizing before specifying.

> **CIF / DDP WEIGHT CALCULATION — USE TOTAL CABLE WEIGHT**
>
> For export freight quotations (CIF, DDP, or door-to-door sea freight to Latin America, Southeast Asia, or other mining and infrastructure markets), the **total cable weight (kg/km)** column in the specification table must be used for container loading calculations — **not** the copper weight (Cu weight). KAWEFLEX high-flex cables contain substantial internal filling materials including non-woven textile wraps, talc powder, and aramid fibre (Kevlar®) tensile carriers. These fillers are integral to the cable's flex-life performance but add significant mass. As an illustrative example, the **3130 SK-PUR 12G2.5 weighs ≈ 550 kg/km in total, while its copper content accounts for only 288 kg/km** — a difference of 262 kg/km that directly affects container payload limits and freight cost per metre calculations.

## APPLICABLE STANDARDS & PROPERTIES

- `VDE 0295 Class 6` — Ultra-fine stranded flexible copper conductor
- `IEC 60228 Class 6` — International equivalent conductor standard
- `VDE 0298-4` — Current-carrying capacity; de-rating tables for bundled cables
- `IEC 60332-1-2` — Flame retardance, single cable vertical test
- `EN 50290-2-22` — Oil-resistance classification for sheaths (PUR / TPE)
- RoHS / REACH compliant | Halogen-free options available on request

| | | |
|---|---|---|
| PUR Sheath | PVC Sheath | TPE Sheath |
| VDE Class 6 | 0.6/1 kV Rated | Flame Retardant |
| Oil-Resistant | −40 °C Capable | RoHS Compliant |

> **ORDER REFERENCE & CONTACT**
>
> Specify cables using the full type designation and cross-section, e.g. `KAWEFLEX 3130 SK-PUR 12G2.5`, `KAWEFLEX 7510 SK-TPE 1G10`. Custom drum lengths, continuous metre quantities, and alternative cross-sections (0.5 mm² – 35 mm²) available on request. Halogen-free and screened (CY) variants may be sourced to special order.
>
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All data are nominal and subject to normal manufacturing tolerances.
The company reserves the right to modify specifications without prior notice.