



3D torsion robot control cable

# Torsion-Resistant Robot Control Cable

 $\pm 360^\circ/\text{m}$  3D torsion-resistant PUR control cable for 6-axis robots $\pm 360^\circ/\text{m}$  3D Torsion

300/500 V (UL 600 V)

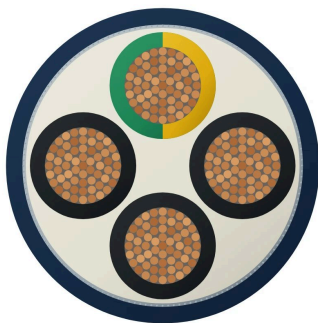
Weld-Spatter PUR

## Application

Engineered for 6-axis robot dress packs (Axes 1–6) with extra-fine 0.05–0.07 mm copper strands, PTFE friction-reducing layers, optional spiral D-screen and weld-spatter-resistant matte black PUR sheath rated for  $\geq 5$  million  $\pm 360^\circ/\text{m}$  torsion cycles.

**Typical uses:** 6-Axis Automotive Body-in-White Robots, Arc & Spot Welding Robot Cells, End-of-Arm Tooling (EOAT) & Grippers, Vision-Guided Cobots & Palletisers, Automated Dispensing & Deburring

## Construction



Cross-section, not to scale

- 1 Torsion-relieved copper conductor
- 2 High-modulus core insulation
- 3 Central torsion buffer
- 4 PTFE anti-friction sliding tape
- 5 Optional spiral D-shield (DP)
- 6 Weld-spatter PUR jacket

## Technical data

Typical values

|                             |                                                                     |                                 |                                                |
|-----------------------------|---------------------------------------------------------------------|---------------------------------|------------------------------------------------|
| Rated voltage U0/U          | 300/500 V (UL/CSA 600 V)                                            | AC test voltage                 | 3000 V AC (50 Hz, 5 min)                       |
| Screen / Field control      | Unscreened (P) or ≥ 85 % helical Cu D-screen (DP)                   | Insulation resistance           | ≥ 200 MΩ·km at 20 °C                           |
| Temperature, flexing        | −40 °C to +80 °C                                                    | Temperature, fixed installation | −50 °C to +80 °C                               |
| Max. conductor temperature  | +80 °C                                                              | Weld-spatter resistance         | Short-term hot particle contact up to +150 °C  |
| Torsional stress            | ±360°/m (unscreened P) · ±180°/m (screened DP)                      | Torsion endurance               | ≥ 5,000,000 torsion cycles                     |
| Min. bending radius, moving | 7.5 × OD (3D robot & drag chain)                                    | Min. bending radius, fixed      | 4 × OD                                         |
| Max. acceleration           | Up to 30 m/s <sup>2</sup> (3D wrist) · 50 m/s <sup>2</sup> (linear) | Oil resistance                  | DIN EN 50363-10-2 · UL Oil Res I & II          |
| Flame retardance            | IEC 60332-1-2 · UL 1581 VW-1 / FT1                                  | Halogen-free / Smoke density    | IEC 60754-1/2 halogen-free                     |
| Silicone & LABS             | 100 % free of silicone and paint-wetting substances                 | Standards                       | DIN VDE 0285 / ISO 10218 robot dress-pack spec |

## Sizes

17 standard constructions

Tick the sizes you need and send this page to [info@tebaoflex.com](mailto:info@tebaoflex.com) or WhatsApp +86 185 9591 3361.

| Order designation                                                         | Cores × mm <sup>2</sup> | Cross-section        | Max. torsion per 1 m | Outer Ø ≈ mm | Copper kg/km | Weight ≈ kg/km | Min. bend R moving mm |
|---------------------------------------------------------------------------|-------------------------|----------------------|----------------------|--------------|--------------|----------------|-----------------------|
| 0.25 mm <sup>2</sup> robot sensor & gripper I/O cores (DIN 47100) 5 sizes |                         |                      |                      |              |              |                |                       |
| <input type="checkbox"/> ROBOT-900 4×0.25                                 | 4×0.25                  | 0.25 mm <sup>2</sup> | ±360°/m              | 4.8          | 11           | 31             | 36                    |
| <input type="checkbox"/> ROBOT-900 8×0.25                                 | 8×0.25                  | 0.25 mm <sup>2</sup> | ±360°/m              | 6.2          | 21           | 52             | 46                    |
| <input type="checkbox"/> ROBOT-900 12×0.25                                | 12×0.25                 | 0.25 mm <sup>2</sup> | ±360°/m              | 7.1          | 31           | 71             | 53                    |
| <input type="checkbox"/> ROBOT-900 18×0.25                                | 18×0.25                 | 0.25 mm <sup>2</sup> | ±360°/m              | 8.3          | 46           | 98             | 62                    |
| <input type="checkbox"/> ROBOT-900 25×0.25                                | 25×0.25                 | 0.25 mm <sup>2</sup> | ±360°/m              | 9.8          | 64           | 134            | 74                    |
| 0.50 mm <sup>2</sup> robot valve & actuator control cores 5 sizes         |                         |                      |                      |              |              |                |                       |
| <input type="checkbox"/> ROBOT-900 4G0.5                                  | 4G0.5                   | 0.5 mm <sup>2</sup>  | ±360°/m              | 5.6          | 20           | 44             | 42                    |
| <input type="checkbox"/> ROBOT-900 7G0.5                                  | 7G0.5                   | 0.5 mm <sup>2</sup>  | ±360°/m              | 6.9          | 35           | 69             | 52                    |
| <input type="checkbox"/> ROBOT-900 12G0.5                                 | 12G0.5                  | 0.5 mm <sup>2</sup>  | ±360°/m              | 8.9          | 60           | 114            | 67                    |
| <input type="checkbox"/> ROBOT-900 18G0.5                                 | 18G0.5                  | 0.5 mm <sup>2</sup>  | ±360°/m              | 10.5         | 90           | 162            | 79                    |
| <input type="checkbox"/> ROBOT-900 25G0.5                                 | 25G0.5                  | 0.5 mm <sup>2</sup>  | ±360°/m              | 12.6         | 125          | 228            | 94                    |
| 0.75 mm <sup>2</sup> robot dress-pack control cores 4 sizes               |                         |                      |                      |              |              |                |                       |
| <input type="checkbox"/> ROBOT-900 4G0.75                                 | 4G0.75                  | 0.75 mm <sup>2</sup> | ±360°/m              | 6.2          | 30           | 56             | 46                    |
| <input type="checkbox"/> ROBOT-900 7G0.75                                 | 7G0.75                  | 0.75 mm <sup>2</sup> | ±360°/m              | 7.7          | 52           | 92             | 58                    |
| <input type="checkbox"/> ROBOT-900 12G0.75                                | 12G0.75                 | 0.75 mm <sup>2</sup> | ±360°/m              | 10.0         | 89           | 152            | 75                    |
| <input type="checkbox"/> ROBOT-900 18G0.75                                | 18G0.75                 | 0.75 mm <sup>2</sup> | ±360°/m              | 11.9         | 134          | 218            | 89                    |
| 1.00 mm <sup>2</sup> heavy-duty robot auxiliary cores 3 sizes             |                         |                      |                      |              |              |                |                       |
| <input type="checkbox"/> ROBOT-900 4G1.0                                  | 4G1.0                   | 1.0 mm <sup>2</sup>  | ±360°/m              | 6.7          | 40           | 68             | 50                    |
| <input type="checkbox"/> ROBOT-900 7G1.0                                  | 7G1.0                   | 1.0 mm <sup>2</sup>  | ±360°/m              | 8.3          | 70           | 114            | 62                    |
| <input type="checkbox"/> ROBOT-900 12G1.0                                 | 12G1.0                  | 1.0 mm <sup>2</sup>  | ±360°/m              | 10.8         | 119          | 188            | 81                    |

– To order the spiral copper D-screened EMC execution (rated ±180°/m), specify suffix '-DP' (e.g. ROBOT-900-DP 12G0.75).

## Electrical parameters by cross-section

4 sizes

| Cross-section        | Copper filament Ø | Max. DC R @ 20 °C<br>Ω/km | Ampacity<br>3-loaded (A) | Ampacity<br>12-core (A) | AC test<br>V <sub>rms</sub> |
|----------------------|-------------------|---------------------------|--------------------------|-------------------------|-----------------------------|
| 0.25 mm <sup>2</sup> | 0.05 mm superfine | 79.0                      | 4.5                      | 2.5                     | 3,000                       |
| 0.50 mm <sup>2</sup> | 0.07 mm superfine | 39.0                      | 9.0                      | 5.0                     | 3,000                       |
| 0.75 mm <sup>2</sup> | 0.07 mm superfine | 26.0                      | 12.0                     | 6.5                     | 3,000                       |
| 1.00 mm <sup>2</sup> | 0.07 mm superfine | 19.5                      | 15.0                     | 8.5                     | 3,000                       |

– Ultra-fine 0.05 mm and 0.07 mm copper filaments provide superior rotational fatigue life compared to standard 0.15 mm Class 6 wires.

## Standards and approvals

- ✓ CE & RoHS 2 / REACH Compliant
- ✓ UL AWM Style 20939 / 21223 (80 °C 600 V)
- ✓ VW PV 3.10.7 LABS-Free (Paint-Shop Approved)

## Certifications



Management systems: ISO 9001, ISO 14001, ISO 45001

### Request a quotation

Send the size, length and destination. An application engineer replies within 2 business hours.

WhatsApp / phone

**+86 185 9591 3361**

Email

**info@tebaoflex.com**

Web

**tebaoflex.com/cables/torsion-resistant-robot-control-cable**



Typical values for this cable type, based on DIN VDE 0285 / UL AWM Style 20939. Values for your order are confirmed in the quotation. Subject to change without notice. Jiangsu Tebaoflex Special Cable Co., Ltd., Taicang, Jiangsu, China.