

# HELUCONTROL® ROBOFLEX® PUR UL/CSA

Control cable



## TECHNICAL DATA

PUR robot cable acc. to UL-Std. 758 (AWM) Style 21209, CSA-Std. C22.2 No. 210 - AWM I/II A/B

<b>Temperature range</b>	flexible -30°C to +90°C fixed -40°C to +90°C
<b>Nominal voltage</b>	VDE AC U <sub>0</sub> /U 300/500 V UL (AWM) AC 600 V
<b>Test voltage core/core</b>	2000 V
<b>Minimum bending radius</b>	fixed 5x Outer-Ø flexible: see properties

## CABLE STRUCTURE

- Copper wire bare, extra finely stranded acc. to DIN VDE 0295 Class 6 / IEC 60228 Class 6
- Core insulation: PP
- Core identification acc. to DIN VDE 0293-334, black cores with consecutive labeling in white digits
- G = with protective conductor GN-YE, x = without protective conductor
- Stranding:  
2 - 8 core(s): cores stranded into one layer with an optimally matched lay length  
12 - 41 core(s): cores stranded into bundles with optimally matched lay lengths; bundles stranded together around a tensile core
- Fleece wrapping
- Outer sheath: Special grade of full polyurethane acc. to DIN VDE 0207-363-10-2 / DIN EN 50363-10-2 (compound type Tmpu)
- Sheath colour: black (RAL 9005)
- Length marking: in metres

## PROPERTIES

- resistant to: oil, UV radiation, ozone, oxygen, weathering effects, hydrolysis, microbes, coolants, hydraulic fluids, acids, alkalis, greases, seawater and wastewater
- highly abrasion-resistant, notch-resistant, tear-resistant, cut-resistant, wear-resistant, low adhesion
- smooth, high-quality core insulation for eased sliding and optimized core stranding ensure long service-life within applications that request combined bending and torsion movements
- for outdoor use

- torsion rated
- suitable for use in drag chains
- Torsion parameters  
Acceleration (max.): 60 °/s<sup>2</sup>  
Velocity (max.): 180 °/s  
Minimum bending radius: 10x Outer-Ø  
Torsional stress up to 180 °/m: 10 Mio. Cycles (max.)  
Torsional stress up to 360 °/m: 5 Mio. Cycles (max.)
- Drag chain parameters  
Acceleration (max.): 10 m/s<sup>2</sup>  
Velocity (max.), unsupported: 3 m/s  
Velocity (max.), gliding: 2 m/s  
Traverse path (max.): 10 m  
Minimum bending radius (Traverse path ≤ 3m): 10x Outer-Ø  
Minimum bending radius (Traverse path > 3m): 12.5x Outer-Ø  
Bending cycles (max.): 10 Mio.
- halogen-free
- the materials used during manufacturing are cadmium-free, contain no silicone and are free from substances harmful to the wetting properties of lacquers

## TESTS

- halogen-free acc. to DIN VDE 0482-754-1 / DIN EN 60754-1 / IEC 60754-1
- flame-retardant acc. to DIN VDE 0482-332-1-2 / DIN EN 60332-1-2 / IEC 60332-1-2, UL VW-1, CSA FT1
- oil-resistant acc. to DIN VDE 0473-811-404 / DIN EN 60811-404 / IEC 60811-404
- UV-resistant acc. to DIN EN ISO 4892-2
- weather-resistant acc. to DIN EN ISO 4892-2

## APPLICATION

Control cable to transmit control signals specifically designed for combined torsion and bending movements; for use in assembly and welding robots, in material handlings and automation centres, in transport and conveyor systems, on rotary and swivel tables and wherever a defined cable routing with only alternating bending movements is not applicable, but 3D-movements and torsional load have an impact on the cable; for applications with the highest requirements on mechanical, chemical and thermal resilience.

## NOTES

- the conductor is metrically (mm<sup>2</sup>) constructed, AWG numbers are approximated, and are for reference only
- for use in energy supply systems:  
1) the assembly instructions must be observed  
2) for special applications, we recommend contacting us and using our data entry form for energy supply systems

Part no.	No. cores x cross-sec. mm <sup>2</sup>	AWG, approx.	Outer Ø mm, approx.	Cu-weight kg/km	Weight kg/km, approx.
11022017	12 G 0.5	20	10.9	60.7	141.0
11022018	16 G 0.5	20	12.6	81.0	181.0
11022019	18 G 0.5	20	13.1	91.1	200.0
11022022	25 G 0.5	20	15.1	126.5	260.0

Part no.	No. cores x cross-sec. mm <sup>2</sup>	AWG, approx.	Outer Ø mm, approx.	Cu-weight kg/km	Weight kg/km, approx.
11022024	4 G 0.75	19	6.8	28.8	63.0
11022026	7 G 0.75	19	8.6	50.4	104.0
11022039	12 G 0.75	19	12.0	91.1	184.0
11022040	14 G 0.75	19	13.1	106.3	210.0

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Part no.	No. cores x cross-sec. mm <sup>2</sup>	AWG, approx.	Outer Ø mm, approx.	Cu-weight kg/km	Weight kg/km, approx.
11022041	2 x 1	18	6.5	19.2	51.0
11022042	3 G 1	18	6.8	28.8	63.0
11022043	4 G 1	18	7.4	38.4	78.0
11022044	7 G 1	18	9.3	67.2	129.0
11022045	12 G 1	18	13.0	121.4	220.0
11022046	18 G 1	18	15.6	182.2	321.0
11022047	25 G 1	18	18.4	253.0	435.0
11022048	34 G 1	18	22.7	344.1	600.0

Part no.	No. cores x cross-sec. mm <sup>2</sup>	AWG, approx.	Outer Ø mm, approx.	Cu-weight kg/km	Weight kg/km, approx.
11022049	41 G 1	18	25.0	414.9	724.0
11022050	3 G 1.5	16	7.5	43.2	84.0
11022051	4 G 1.5	16	8.1	57.6	102.0
11022052	5 G 1.5	16	8.8	72.0	125.0
11022053	8 G 1.5	16	11.1	115.2	191.0
11022054	12 G 1.5	16	14.6	182.2	300.0
11022055	18 G 1.5	16	18.2	273.2	463.0
11023004	25 G 1.5	16	21.4	379.5	628.0