ÖLFLEX®

HITRONIC®

A2: Highly Flexible FD Cables - for use in power chains or robot applications

<u>® LAPP GROUP</u>

Use in power chains or robot applications
For industrial machinery to EN 60204, part 1//DE 0113 For frequency-converter driven servo drives For servo motor, low capacitance For encoders, feedback systems, sensors For free arm robots/ torsion load Restricted guidance over rollers, motor drums For indoor application For outdoor application For load to rasmission, RGB signal transmission For North America with UL + CSA approvals For use in injle mylinoments, enhanced oil resistance For use in areas with bio oils Temperature 105°C 100°C
For encoders, feedback systems, sensors For free arm robots/torsion load Restricted guidance over rollers, motor drums For indoor application For field bus systems For video transmission, RGB signal transmission For North America with UL + CSA approvals For use in oily environments, enhanced oil resistance For use in oil environments, enhanced oil environments, enhanced oil environments, enhanced oil environments, enhanced oi
Restricted guidance over rollers, motor drums For indoor application For field bus systems For outdoor transmission, RGB signal transmission For North America with UL + CSA approvals For use in oily environments, enhanced oil resistance For use in a reas with bio oils Temperature +105 ° C +90 ° C +80 ° C +5 ° C -5 ° C -10 ° C -10 ° C -20 ° C -30 ° C -40 ° C -50 ° C -50 ° C -50 ° C -10 °
For outdoor application For field bus systems For video transmission, RGB signal transmission For North America with UL + CSA approvals For use in oily environments, enhanced oil resistance For use in a reas with bio oils Temperature +105 °C +90 °C +80 °C +70 °C +80 °C -5 °C -10 °C -20 °C -30 °C -40 °C -50
For video transmission, RGB signal transmission For North America with UL + CSA approvals For use in oily environments, enhanced oil resistance For use in areas with bio oils Temperature +105 °C +90 °C +80 °C -70 °C +60 °C -5° °C -10 °C -20 °C -30 °C -40 °C -50 °C -5
For use in oily environments, enhanced oil resistance For use in areas with bio oils Temperature +105 °C +90 °C +88 °C +70 °C +60 °C -5 °C -5 °C -10 °C -20 °C -30 °C -40 °C -50 °C -50 °C -50 °C -10
Temperature +105°C +90°C +80°C +70°C +60°C +5°C -5°C -10°C -20°C -30°C -40°C -50°C Minimum bending radius factor for continuous flexing 5 x D 6.5 x D 7.5 x D 10 x D 112.5 x D 15 x D 20 x D
+105 °C +90 °C +80 °C +70 °C +60 °C +5 °C -5 °C -10 °C -20 °C -30 °C -40 °C -50 °C Minimum bending radius factor for continuous flexing 5 × D 6.5 × D 7.5 × D 10 × D 112.5 × D 20 × D
+80 °C +70 °C +60 °C +50 °C -50 °C -10 °C -20 °C -30 °C -40 °C -50 °C
+70 ° C +60 ° C +5 ° C -5 ° C -5 ° C -20 ° C -30 ° C -40 ° C -50 ° C Minimum bending radius factor for continuous flexing S x D
+5 °C -5 °C -10 °C -20 °C -30 °C -40 °C -50 °C Minimum bending radius factor for continuous flexing 5 x D 6.5 x D 7.5 x D 10 x D 112.5 x D 20 x D
-5 ° C -10 ° C -20 ° C -30 ° C -40 ° C -50 ° C Minimum bending radius factor for continuous flexing 5 × D 6.5 × D 7.5 × D 10 × D 112.5 × D 15 × D 20 × D
-20 ° C
-30 °C -40 °C -50 °C Minimum bending radius factor for continuous flexing 5 x D 6.5 x D 7.5 x D 10 x D 112.5 x D 20 x D
-40 °C -50 °C Minimum bending radius factor for continuous flexing 5 x D 6.5 x D 7.5 x D 10 x D 12.5 x D 20 x D
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5 x D 6.5 x D 7.5 x D 10 x D 12.5 x D 15 x D 20 x D
7.5 x D 10 x D 12.5 x D 15 x D 20 x D
10 x D 12.5 x D 15 x D 20 x D
12.5 x D 15 x D 20 x D
20 x D
For chains with small radii
For chains with restricted space For low cable weight in the chain
For low cable weight in the chain For 24-hour operation at high numbers of cycles
For high acceleration values > 10 m/s ²
For very high acceleration up to 50 m/s ² For travel speeds up to 5 m/s, up to 10 m travel length
For travel speeds up to 10 m/s, up to 10 m travel length
For travel speeds up to 5 m/s, up to 100 m travel length
Movementt parameters 350 Vss
30/300 V AC
300/500 V AC
600/1000 V AC 600 V acc. to UL/CSA
Make-up
Fine wire VDE class 5, copper stranded conductor
Superfine wire VDE class 6, copper stranded conductor Ultra fine wire VDE class 6, copper stranded conductor
PVC/special PVC, core insulation
Elastomer core insulation
PE/cellular PE foam skin Polyethylene/Polypropylene
TPÉ core insulation ● ● ● ● ● ● ○ ● ○ ● ○ ● ○ ● ○ ● ○ ● ○ ●
Special TPE (P4/11) core insulation Halogen free compound
Number printing
VDE colour code
DIN 47100 colour code/special colour code ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ●
Pair screening PiCV / PiME / STD
Pair screening PiCY/PiMF/STP • • • • • • • • • • • • • • • • • • •
Total screening • • • • • • • • • • • • • • • • • • •
Total screening Special PVC sheath PUR sheath, wear resistant, cutting resistant
Total screening • • • • • • • • • • • • • • • • • • •

- = Principal application
- Application not customary, but possible, or alternative design available in the range
- Temperature range for flexible laying
 ☑ Temperature range for static and flexible laying
 □ Temperature range for static laying

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Application Criteria												Cab	le a	nd l	eac	De	sign	atio	n										
Use in power chains or robot applications Application	SERVO cable acc. to LENZE Standard	Special Encoder & Resolver Cables	ÖLFLEX® FD 855 P	ÖLFLEX® FD 855 CP	ÖLFLEX® FD 90	ÖLFLEX® FD 90 CY	ÖLFLEX® FD 891	ÖLFLEX® FD 891 CY	ÖLFLEX® CHAIN 879	ÖLFLEX® CHAIN 879 CY	ÖLFLEX® FD 891 P	ÖLFLEX® FD 891 CP	ÖLFLEX® ROBOT 900 P	ÖLFLEX® ROBOT 900 DP	ÖLFLEX® ROBOT F1	UNITRONIC® FD	UNITRONIC® FD CY	UNITRONIC® FD P plus	UNITRONIC® FD CP plus	UNITRONIC® FD CP (TP) plus	UNITRONIC® FD CP (TP) plus	UNITRONIC® BUS IBS FD P	UNITRONIC® BUS LD FD P	UNITRONIC® BUS PB FD P	UNITRONIC® BUS DN FD P	KOAXIAL-KABEL RGB-FD	ÖLFLEX® CRANE NSHTÖU	HITRONIC® POF SIMPLEX/DUPLEX FD PE-PUR	ÖL EL EX® CRANE PLIP
For industrial machinery to EN 60204. part 1/VDE 0113 For frequency-converter driven servo drives For servo motor, low capacitance For encoders, feedback systems, sensors For free arm robots/torsion load Restricted guidance over rollers, motor drums For indoor application For outdoor application For field bus systems For video transmission, RGB signal transmission For North America with UL + CSA approvals For use in oily environments, enhanced oil resistance For use in areas with bio oils Temperature	•	•	•	•	•	•	•	•	•	•	•	•	•	•	• • • • • • • • • • • • • • • • • • • •	000	•	•	•	•	•	•	•	•	•	•	•	•	
+105°C +90°C +80°C +70°C +60°C +5°C -5°C -10°C -20°C -30°C -40°C -50°C																	•		•	•					•			•	
Minimum bending radius factor for continuous flexing 5 x D 6,5 x D 7.5 x D 10 x D 12.5 x D 15 x D 20 x D	•	•	•	•	•	•	•	•	0	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
Laying For chains with small radii For chains with restricted space For low cable weight in the chain For 24-hour operation at high numbers of cycles For high acceleration values > 10 m/s² For very high acceleration up to 50 m/s² For travel speeds up to 5 m/s, up to 10 m travel length For travel speeds up to 5 m/s, up to 10 m travel length For travel speeds up to 5 m/s, up to 100 m travel length		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
Movementt parameters 350 Vss 30/300 V AC 300/500 V AC 600/1000 V AC 600 V ACC 600 V ACC 600 W AC	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•		
Fine wire VDE class 5, copper stranded conductor Superfine wire VDE class 6, copper stranded conductor Ultra fine wire VDE class 6, copper stranded conductor PVC/special PVC, core insulation Elastomer core insulation PE/cellular PE/cellular PE foam skin Polyethylene/Polypropylene TPE core insulation	00000	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
Special TPE (P4/11) core insulation Halogen free compound Number printing VDE colour code DIN 47100 colour code/special colour code Pair screening PiCY/PiMF/STP Total screening Special PVC sheath	0 0000	000	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	
PUR sheath, wear resistant, cutting resistant Rubber sheath TPE (P4/11) sheath bio oil resistant Halogen free compound	0	•	•	•							•	•	•	•	•			•	•	•	•	•	•		•	•	•	•	

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