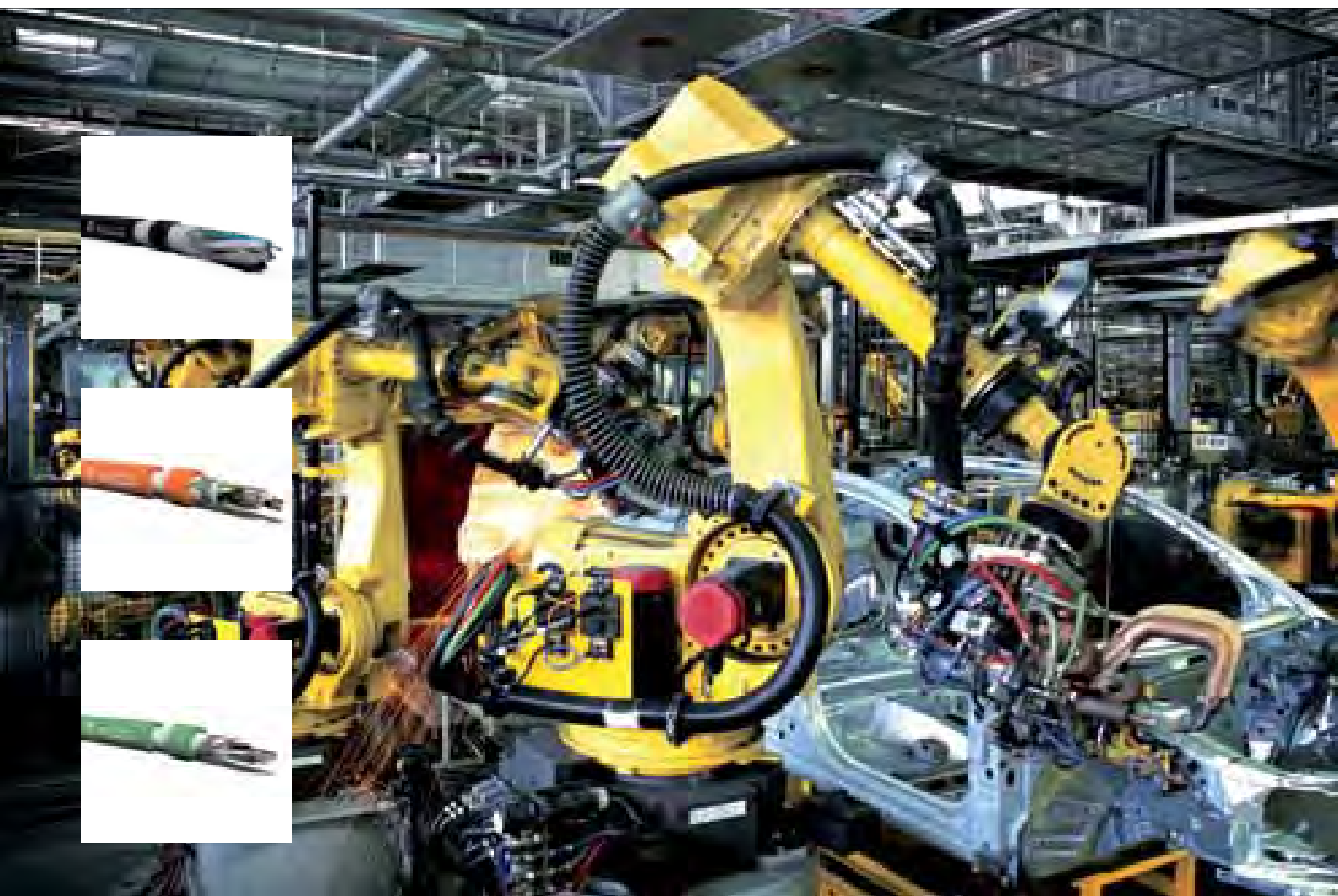


# FLAMAR STANDARD CABLES > FOR INDUSTRIAL AUTOMATION



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### Legend



The background of the top section is a photograph of an industrial manufacturing facility. It features large yellow robotic arms and complex machinery, with a worker visible in the background. The lighting is bright, highlighting the metallic surfaces and the scale of the equipment.

**OUR PROVEN EXPERIENCE IN  
CABLE MANUFACTURING  
ASSURES EXCELLENT PERFORMANCE,  
QUALITY AND DURABILITY IN THE  
INDUSTRIAL SECTOR**

**Flamar was founded in 1975 and over the years has developed a significant know-how in the design and manufacturing of cables for Industrial Automation.**

**The company is equipped with state-of-the-art extrusion lines and back-torsion cabling machines which are essential to meet top quality expectations of key market players. The internal Reliability & Testing Laboratory performs mechanical, electrical, flame resistance, drag chain tests and validates new cable developments in compliance with many agency approvals.**



## Industrial Automation cables for machine builder application

Flamar, a Molex company since 2014, proposes a brand-new set of cables designed to cover the broadest range of applications for machine builders and system integrators:

- **Signal & Control**  
to connect sensors, actuators, valves, control cabinets and distribution boxes
- **Servo Motor**  
for power and encoder/resolver connection
- **Network**  
for I/O modules and connection to PLC
- **Hybrid**  
composite multicore cables whenever an extremely compact solution is required



## Signal & Control

Series	Environment	Installation	Halogen Free	Temperature Rating °C (flexible installation)		Voltage Rating V	Bending Radius (flex. install. at 20°C)
155210	Standard	Flexible	No	+5°C	+80°C	300V	> 15xOD
155211	Standard	Flexible	No	+5°C	+80°C	300V	> 15xOD
155220	Severe	Drag Chain	No	-25°C	+80°C	600V	> 7,5xOD
155221	Severe	Drag Chain	No	-25°C	+80°C	600V	> 7,5xOD
155230	Harsh	Drag Chain	Yes	-40°C	+80°C	1000V	> 7,5xOD
155231	Harsh	Drag Chain	Yes	-40°C	+80°C	1000V	> 7,5xOD
155240	Severe	Drag Chain	No	-40°C	+105°C	300V	> 10xOD
155241	Severe	Drag Chain	No	-40°C	+105°C	300V	> 10xOD

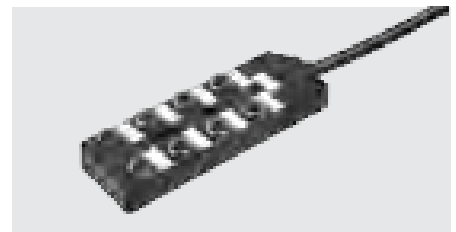
## Typical Applications



Sensors



Actuators, valves,  
control cabinets



Distribution Boxes

## Jacket choice criteria

- PVC: The most cost-effective solution for flexible and static installation.
- WSOR: Weld-Slag and Oil-Resistant Cable, a single-cable solution designed to withstand the severe environments found in automotive and industrial factory floors. Suitable for drag chain applications.
- PUR (Polyurethane): Ensures top mechanical performance, withstands harsh environments, abrasion resistant. Suitable for drag chain applications
- TPE: Cables defined according to the US/Canadian market requirements (UL «PLTC»). Suitable for drag chain application.

Selecting the right cable for your application is very important to ensure a reliable, problem-free installation. Careful consideration of mechanical abrasion, fluid/chemical exposure, flexibility (C-track, torsion), temperature resistance and flame retardancy requirements is required to select the cable that will provide performance and reliability in service.



## Flamar Cables for Signal & Control Applications

Jacket Material	Shielded	Approval	Flame Resistance	Oil & Lubricants Resistance	Abrasion Resistance	Page No.
PVC	No	UL AWM 2464 / CSA	Good	Limited	Limited	8
PVC	Yes	UL AWM 2464 / CSA	Good	Limited	Limited	18
WSOR	No	UL AWM 21215 / CSA	Good	Good	Medium	20
WSOR	Yes	UL AWM 21215 / CSA	Good	Good	Medium	30
PUR	No	UL AWM 21223 / CSA	Good	Excellent	Excellent	32
PUR	Yes	UL AWM 21223 / CSA	Good	Excellent	Excellent	42
TPE	No	UL Listed PLTC	Excellent	Good	Medium	44
TPE	Yes	UL Listed PLTC	Excellent	Good	Medium	52



**Cables with PVC jacket, suitable for flexible installation in standard environments.**

**Typically used for sensors (position, pressure, temperature, motion...) and optical switches in combination with M8 and M12 connectors.**

## Flamar Signal & Control

**155210** Sensor Cables  
Flexible Installation  
PVC Jacket  
Unshielded  
+5°C/+80°C 300V

### Specifications

Application: Standard Environment  
Installation: Flexible  
Halogen Free: No  
Temp. rating (flexible installation):  
+5°C/+80°C  
Voltage rating: 300V  
Bending radius (flex. install. at 20°C):  
> 15xOD  
Insulation material: TPE  
Jacket material: PVC

Shielded: No  
Approval: UL AWM 2464 / CSA  
Marking: acc. to UL/CSA  
Silicone, Pb,Cd,Hg & FCKW free: Yes  
Flame resistance:  
Good (VW1/FT1 & IEC60332-1)  
Key factor:  
Cost-effective solution for less demanding environments (limited exposure to oil and lubricants)



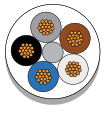

Cross Section		No. of Circuits	Diameter in mm	Jacket Color	Packaging Size	Packaging Composition	Standard Order No	Sketch
mm <sup>2</sup>	AWG							
0,25	24	3	4,5	Black	S	3x200m	155210-0001	
					M	1x800m	155210-0002	
					L	1x1500m	155210-0003	
				Grey	S	3x200m	155210-0004	
					M	1x800m	155210-0005	
					L	1x1500m	155210-0006	
				Yellow	S	3x200m	155210-0007	
					M	1x800m	155210-0008	
					L	1x1500m	155210-0009	
				Orange	S	3x200m	155210-0010	
					M	1x800m	155210-0011	
					L	1x1500m	155210-0012	
	4	4,8	4	Black	S	3x200m	155210-0013	
					M	1x800m	155210-0014	
					L	1x1500m	155210-0015	
				Grey	S	3x200m	155210-0016	
					M	1x800m	155210-0017	
					L	1x1500m	155210-0018	
				Yellow	S	3x200m	155210-0019	
					M	1x800m	155210-0020	
					L	1x1500m	155210-0021	
				Orange	S	3x200m	155210-0022	
					M	1x800m	155210-0023	
					L	1x1500m	155210-0024	
5	5,3	5	Black	S	3x200m	155210-0025		
				M	1x800m	155210-0026		
				L	1x1500m	155210-0027		
			Grey	S	3x200m	155210-0028		
				M	1x800m	155210-0029		
				L	1x1500m	155210-0030		
			Yellow	S	3x200m	155210-0031		
				M	1x800m	155210-0032		
				L	1x1500m	155210-0033		



**155210** Sensor Cables  
Flexible Installation  
PVC Jacket  
Unshielded  
+5°C/+80°C 300V

Cross Section		No. of Circuits	Diameter in mm	Jacket Color	Packaging Size	Packaging Composition	Standard Order No	Sketch	
mm <sup>2</sup>	AWG								
0,25	24	8	6,4	Black	S	3x100m	155210-0034		
					M	1x500m	155210-0035		
					L	1x1000m	155210-0036		
				Grey	S	3x100m	155210-0037		
					M	1x500m	155210-0038		
					L	1x1000m	155210-0039		
	Yellow	S	3x100m	155210-0040					
		M	1x500m	155210-0041					
		L	1x1000m	155210-0042					
		Black	S	3x100m		155210-0043			
			M	1x500m		155210-0044			
			L	1x1000m		155210-0045			
Grey	S	3x100m	155210-0046						
	M	1x500m	155210-0047						
	L	1x1000m	155210-0048						
	Yellow	S	3x100m	155210-0049					
		M	1x500m	155210-0050					
		L	1x1000m	155210-0051					
0,34	22	3	4,8	Black	S	3x200m	155210-0052		
					M	1x800m	155210-0053		
					L	1x1500m	155210-0054		
				Grey	S	3x200m	155210-0055		
					M	1x800m	155210-0056		
					L	1x1500m	155210-0057		
				Yellow	S	3x200m	155210-0058		
					M	1x800m	155210-0059		
					L	1x1500m	155210-0060		
	Orange	S	3x200m	155210-0061					
		M	1x800m	155210-0062					
		L	1x1500m	155210-0063					
	4	5,1	4	5,1	Black	S	3x200m	155210-0064	
						M	1x800m	155210-0065	
						L	1x1500m	155210-0066	
					Grey	S	3x200m	155210-0067	
						M	1x800m	155210-0068	
						L	1x1500m	155210-0069	
Yellow					S	3x200m	155210-0070		
					M	1x800m	155210-0071		
					L	1x1500m	155210-0072		
Orange	S	3x200m	155210-0073						
	M	1x800m	155210-0074						
	L	1x1500m	155210-0075						

**155210** Sensor Cables  
Flexible Installation  
PVC Jacket  
Unshielded  
+5°C/+80°C 300V

Cross Section		No. of Circuits	Diameter in mm	Jacket Color	Packaging Size	Packaging Composition	Standard Order No	Sketch
mm <sup>2</sup>	AWG							
0,34	22	5	5,5	Black	S	3x200m	155210-0076	
					M	1x800m	155210-0077	
					L	1x1500m	155210-0078	
				Grey	S	3x200m	155210-0079	
					M	1x800m	155210-0080	
					L	1x1500m	155210-0081	
				Yellow	S	3x200m	155210-0082	
					M	1x800m	155210-0083	
					L	1x1500m	155210-0084	
				Orange	S	3x200m	155210-0085	
					M	1x800m	155210-0086	
					L	1x1500m	155210-0087	
		5	5,5	Black	S	3x200m	155210-0088	
					M	1x800m	155210-0089	
					L	1x1500m	155210-0090	
				Grey	S	3x200m	155210-0091	
					M	1x800m	155210-0092	
					L	1x1500m	155210-0093	
				Yellow	S	3x200m	155210-0094	
					M	1x800m	155210-0095	
Orange	L	1x1500m	155210-0096					
	S	3x200m	155210-0097					
	M	1x800m	155210-0098					
L	1x1500m	155210-0099						

### Related Products

#### Field Attachable Connectors



**120091** – Brad® Nano-Change® (M8)  
Field Attachable Connectors



**120071** – Brad® Micro-Change® (M12)  
Field Attachable Connector



**120085** – Brad® Ultra-Lock® (M12)  
Field Attachable Connectors

#### Overmolded Connectors



**120027, 120028, 120086, 120087** –  
Brad® Nano-Change® (M8)  
Single-Ended and Double Ended Cordsets



**120006** – Brad® Micro-Change® (M12)  
Single-Ended Cordsets

**120009** – Brad® Micro-Change® (M12)  
Cordsets with Knurled Hexnuts



**120065, 120066** – Brad® Micro-Push® (M12)  
Single-Ended and Double Ended Cordsets

**Cables with PVC jacket, suitable for flexible installation in standard environments.**

**The right choice for actuators (valves, slides, cylinders...) and control cabinets in combination with DIN, M16, M23 or heavy duty connectors.**

**155210** Control Cables

Flexible Installation

PVC Jacket

Unshielded

+5°C/+80°C 300V

### Specifications

Application: Standard environment

Installation: Flexible

Halogen Free: No

Temp. rating (flexible installation):  
+5°C/+80°C

Voltage rating: 300V

Bending radius (flex. install. at 20°C):  
> 15xOD

Insulation material: TPE

Jacket material: PVC

Shielded: No

Approval: UL AWM 2464 / CSA

Marking: acc. to UL/CSA

Silicone, Pb,Cd,Hg & FCKW free: Yes

Flame resistance:

Good (VW1/FT1 & IEC60332-1)








Key factor:

Cost-effective solution for less demanding environments (limited exposure to oil and lubricants)

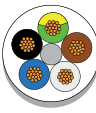
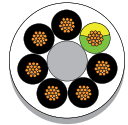
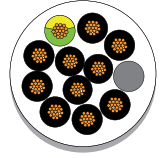
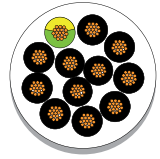
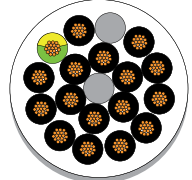
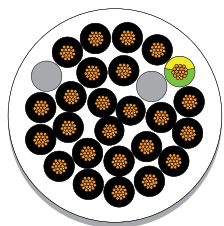


Cross Section		No. of Circuits	Diameter in mm	Jacket Color	Packaging	Packaging Composition	Standard Order No	Sketch
mm <sup>2</sup>	AWG							
0,5	21	2	5,2	Black	S	3x200m	155210-0100	
					M	1x800m	155210-0101	
					L	1x1500m	155210-0102	
				Grey	S	3x200m	155210-0103	
					M	1x800m	155210-0104	
					L	1x1500m	155210-0105	
		3	5,6	Black	S	3x100m	155210-0106	
					M	1x500m	155210-0107	
					L	1x1000m	155210-0108	
				Grey	S	3x100m	155210-0109	
					M	1x500m	155210-0110	
					L	1x1000m	155210-0111	
				Orange	S	3x100m	155210-0112	
					M	1x500m	155210-0113	
					L	1x1000m	155210-0114	
		4	5,9	Black	S	3x100m	155210-0115	
					M	1x500m	155210-0116	
					L	1x1000m	155210-0117	
				Grey	S	3x100m	155210-0118	
					M	1x500m	155210-0119	
					L	1x1000m	155210-0120	
		5	6,2	Black	S	3x100m	155210-0121	
					M	1x500m	155210-0122	
					L	1x1000m	155210-0123	
Grey	S			3x100m	155210-0124			
	M			1x500m	155210-0125			
	L			1x1000m	155210-0126			
12	8,7	Black	S	1x200m	155210-0127			
			M	1x500m	155210-0128			
			L	1x1000m	155210-0129			
		Grey	S	1x200m	155210-0130			
			M	1x500m	155210-0131			
			L	1x1000m	155210-0132			

**155210** Control Cables  
Flexible Installation  
PVC Jacket  
Unshielded  
+5°C/+80°C 300V

Cross Section		No. of Circuits	Diameter in mm	Jacket Color	Packaging	Packaging Composition	Standard Order No	Sketch
mm <sup>2</sup>	AWG							
0,75	19	2	6,0	Black	S	3x100m	155210-0133	
					M	1x500m	155210-0134	
					L	1x1000m	155210-0135	
				Grey	S	3x100m	155210-0136	
					M	1x500m	155210-0137	
					L	1x1000m	155210-0138	
		3	6,4	Black	S	3x100m	155210-0139	
					M	1x500m	155210-0140	
					L	1x1000m	155210-0141	
				Grey	S	3x100m	155210-0142	
					M	1x500m	155210-0143	
					L	1x1000m	155210-0144	
		4	7,0	Black	S	3x100m	155210-0145	
					M	1x500m	155210-0146	
					L	1x1000m	155210-0147	
Grey	S			3x100m	155210-0148			
	M			1x500m	155210-0149			
	L			1x1000m	155210-0150			
5	7,5	Black	S	3x100m	155210-0151			
			M	1x500m	155210-0152			
			L	1x1000m	155210-0153			
		Grey	S	3x100m	155210-0154			
			M	1x500m	155210-0155			
			L	1x1000m	155210-0156			
1,00	18	2	6,7	Black	S	3x100m	155210-0157	
					M	1x500m	155210-0158	
					L	1x1000m	155210-0159	
				Grey	S	3x100m	155210-0160	
					M	1x500m	155210-0161	
					L	1x1000m	155210-0162	
		3	7,1	Black	S	3x100m	155210-0163	
					M	1x500m	155210-0164	
					L	1x1000m	155210-0165	
				Grey	S	3x100m	155210-0166	
					M	1x500m	155210-0167	
					L	1x1000m	155210-0168	
		4	7,6	Black	S	3x100m	155210-0169	
					M	1x500m	155210-0170	
					L	1x1000m	155210-0171	
				Grey	S	3x100m	155210-0172	
					M	1x500m	155210-0173	
					L	1x1000m	155210-0174	

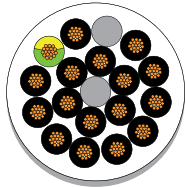
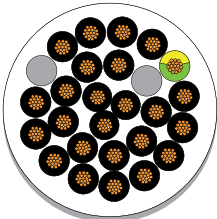



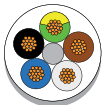
**155210** Control Cables  
Flexible Installation  
PVC Jacket  
Unshielded  
+5°C/+80°C 300V

Cross Section		No. of Circuits	Diameter in mm	Jacket Color	Packaging	Packaging Composition	Standard Order No	Sketch
mm <sup>2</sup>	AWG							
1,0	18	5	8,3	Black	S	1x200m	155210-0175	
					M	1x500m	155210-0176	
					L	1x1000m	155210-0177	
				Grey	S	1x200m	155210-0178	
					M	1x500m	155210-0179	
					L	1x1000m	155210-0180	
		7	9,6	Black	S	1x200m	155210-0181	
					M	1x500m	155210-0182	
					L	1x1000m	155210-0183	
				Grey	S	1x200m	155210-0184	
					M	1x500m	155210-0185	
					L	1x1000m	155210-0186	
		11	11,5	Black	S	1x100m	155210-0187	
					M	1x500m	155210-0188	
					L	1x1000m	155210-0189	
				Grey	S	1x100m	155210-0190	
					M	1x500m	155210-0191	
					L	1x1000m	155210-0192	
		12	11,5	Black	S	1x100m	155210-0193	
					M	1x500m	155210-0194	
					L	1x1000m	155210-0195	
				Grey	S	1x100m	155210-0196	
					M	1x500m	155210-0197	
					L	1x1000m	155210-0198	
17	13,4	Black	S	1x100m	155210-0199			
			M	1x500m	155210-0200			
			L	1x1000m	155210-0201			
		Grey	S	1x100m	155210-0202			
			M	1x500m	155210-0203			
			L	1x1000m	155210-0204			
25	16,0	Black	S	1x100m	155210-0205			
			M	1x250m	155210-0206			
			L	1x500m	155210-0207			
		Grey	S	1x100m	155210-0208			
			M	1x250m	155210-0209			
			L	1x500m	155210-0210			

**155210** Control Cables  
Flexible Installation  
PVC Jacket  
Unshielded  
+5°C/+80°C 300V

Cross Section		No. of Circuits	Diameter in mm	Jacket Color	Packaging	Packaging Composition	Standard Order No	Sketch
mm <sup>2</sup>	AWG							
1,5	16	2	7,1	Black	S	3x100m	155210-0211	
					M	1x500m	155210-0212	
					L	1x1000m	155210-0213	
				Grey	S	3x100m	155210-0214	
					M	1x500m	155210-0215	
					L	1x1000m	155210-0216	
		3	7,3	Black	S	3x100m	155210-0217	
					M	1x500m	155210-0218	
					L	1x1000m	155210-0219	
				Grey	S	3x100m	155210-0220	
					M	1x500m	155210-0221	
					L	1x1000m	155210-0222	
		4	7,9	Black	S	3x100m	155210-0223	
					M	1x500m	155210-0224	
					L	1x1000m	155210-0225	
				Grey	S	3x100m	155210-0226	
					M	1x500m	155210-0227	
					L	1x1000m	155210-0228	
		4	7,9	Black	S	3x100m	155210-0229	
					M	1x500m	155210-0230	
					L	1x1000m	155210-0231	
				Grey	S	3x100m	155210-0232	
					M	1x500m	155210-0233	
					L	1x1000m	155210-0234	
		5	8,6	Black	S	1x200m	155210-0235	
					M	1x500m	155210-0236	
					L	1x1000m	155210-0237	
				Grey	S	1x200m	155210-0238	
M	1x500m				155210-0239			
L	1x1000m				155210-0240			
7	10,5	Black	S	1x100m	155210-0241			
			M	1x500m	155210-0242			
			L	1x1000m	155210-0243			
		Grey	S	1x100m	155210-0244			
			M	1x500m	155210-0245			
			L	1x1000m	155210-0246			
11	12,7	Black	S	1x100m	155210-0247			
			M	1x500m	155210-0248			
			L	1x1000m	155210-0249			
		Grey	S	1x100m	155210-0250			
			M	1x500m	155210-0251			
			L	1x1000m	155210-0252			
12	12,7	Black	S	1x100m	155210-0253			
			M	1x500m	155210-0254			
			L	1x1000m	155210-0255			
		Grey	S	1x100m	155210-0256			
			M	1x500m	155210-0257			
			L	1x1000m	155210-0258			

**155210** Control Cables  
Flexible Installation  
PVC Jacket  
Unshielded  
+5°C/+80°C 300V

Cross Section		No. of Circuits	Diameter in mm	Jacket Color	Packaging	Packaging Composition	Standard Order No	Sketch
mm <sup>2</sup>	AWG							
1,5	16	17	14,7	Black	S	1x100m	155210-0259	
					M	1x500m	155210-0260	
					L	1x1000m	155210-0261	
				Grey	S	1x100m	155210-0262	
					M	1x500m	155210-0263	
					L	1x1000m	155210-0264	
	25	17,7	Black	S	1x100m	155210-0265		
				M	1x250m	155210-0266		
				L	1x500m	155210-0267		
			Grey	S	1x100m	155210-0268		
				M	1x250m	155210-0269		
				L	1x500m	155210-0270		
2,5	14	2	8,8	Black	S	1x200m	155210-0271	
					M	1x500m	155210-0272	
					L	1x1000m	155210-0273	
				Grey	S	1x200m	155210-0274	
					M	1x500m	155210-0275	
					L	1x1000m	155210-0276	
		3	9,3	Black	S	1x200m	155210-0277	
					M	1x500m	155210-0278	
					L	1x1000m	155210-0279	
				Grey	S	1x200m	155210-0280	
					M	1x500m	155210-0281	
					L	1x1000m	155210-0282	
	4	10,1	Black	S	1x100m	155210-0283		
				M	1x500m	155210-0284		
				L	1x1000m	155210-0285		
			Grey	S	1x100m	155210-0286		
				M	1x500m	155210-0287		
				L	1x1000m	155210-0288		
	5	11,3	Black	S	1x100m	155210-0289		
				M	1x500m	155210-0290		
				L	1x1000m	155210-0291		
			Grey	S	1x100m	155210-0292		
				M	1x500m	155210-0293		
				L	1x1000m	155210-0294		

**155210** Control Cables  
Flexible Installation  
PVC Jacket  
Unshielded  
+5°C/+80°C 300V

Cross Section		No. of Circuits	Diameter in mm	Jacket Color	Packaging	Packaging Composition	Standard Order No	Sketch
mm <sup>2</sup>	AWG							
2,5	14	7	13,3	Black	S	1x100m	155210-0295	
					M	1x500m	155210-0296	
					L	1x1000m	155210-0297	
				Grey	S	1x100m	155210-0298	
					M	1x500m	155210-0299	
					L	1x1000m	155210-0300	
		11	15,7	Black	S	1x100m	155210-0301	
					M	1x250m	155210-0302	
					L	1x500m	155210-0303	
				Grey	S	1x100m	155210-0304	
					M	1x250m	155210-0305	
					L	1x500m	155210-0306	
		12	15,9	Black	S	1x100m	155210-0307	
					M	1x250m	155210-0308	
					L	1x500m	155210-0309	
				Grey	S	1x100m	155210-0310	
					M	1x250m	155210-0311	
					L	1x500m	155210-0312	
		17	18,5	Black	S	1x100m	155210-0313	
					M	1x250m	155210-0314	
L	1x500m				155210-0315			
Grey	S			1x100m	155210-0316			
	M			1x250m	155210-0317			
	L			1x500m	155210-0318			
25	22,3	Black	S	1x350m	155210-0319			
			Grey	S	1x350m		155210-0322	

### Related Products

#### Field Attachable Connectors



**121201, 121207** – Brad® mPm® DIN Valve Connectors, Form A, External Thread

**121202, 121208** – Brad® mPm® DIN Valve Connector, Form B - Industrial, External Thread

**121205, 121211** – Brad® mPm® DIN Valve Connector, Form C - Industrial, External Thread



**120071** – Brad® Micro-Change® (M12) Field Attachable Connectors

#### Field Attachable Connectors



**120085** – Brad® Ultra-Lock® (M12) Field Attachable Connectors

**93601** - GWconnect® Heavy Duty Connectors

#### Overmolded Connectors



**120094** – Brad® M23 Single-Ended Cordsets



**Cables with PVC jacket, suitable for flexible installation in standard environments.  
Select this cable for distribution boxes ("MPIS") and safety barriers in combination with M23 signal connectors.**

**155210** Distribution Boxes  
Flexible Installation  
PVC Jacket  
Unshielded  
+5°C/+80°C 300V

### Specifications

Application: Standard environment

Installation: Flexible

Halogen Free: No

Temp. rating (flexible installation):  
+5°C/+80°C

Voltage rating: 300V

Bending radius (flex. install. at 20°C):  
> 15xOD

Insulation material: TPE

Jacket material: PVC

Shielded: No

Approval: UL AWM 2464 / CSA

Marking: acc. to UL/CSA

Silicone, Pb,Cd,Hg & FCKW free: Yes

Flame resistance:

Good (VW1/FT1 & IEC60332-1)

Key factor:

Cost-effective solution for less demanding environments (limited exposure to oil and lubricants)



Cross Section		No. of Circuits	Diameter in mm	Jacket Color	Packaging	Packaging Composition	Standard Order No	Sketch
mm²	AWG							
3x0,75 + 4x0,34	3x AWG 19 + 4x AWG 22	7 (3+4)	7,8	Black	S	3x100m	155210-9001	
					M	1x500m	155210-9002	
					L	1x1000m	155210-9003	
				Grey	S	3x100m	155210-9004	
					M	1x500m	155210-9005	
					L	1x1000m	155210-9006	
3x0,75 + 6x0,34	3x AWG 19 + 6x AWG 22	9 (3+6)	8,5	Black	S	1x200m	155210-9007	
					M	1x500m	155210-9008	
					L	1x1000m	155210-9009	
				Grey	S	1x200m	155210-9010	
					M	1x500m	155210-9011	
					L	1x1000m	155210-9012	
3x0,75 + 8x0,34	3x AWG 19 + 8x AWG 22	11 (3+8)	8,5	Black	S	1x200m	155210-9013	
					M	1x500m	155210-9014	
					L	1x1000m	155210-9015	
				Grey	S	1x200m	155210-9016	
					M	1x500m	155210-9017	
					L	1x1000m	155210-9018	
3x0,75 + 16x0,34	3x AWG 19 + 16x AWG 22	19 (3+16)	10,2	Black	S	1x100m	155210-9019	
					M	1x500m	155210-9020	
					L	1x1000m	155210-9021	
				Grey	S	1x100m	155210-9022	
					M	1x500m	155210-9023	
					L	1x1000m	155210-9024	

### Related Products

#### Field Attachable Connectors



**120230** – Brad® M23 Signal Connectors

**120233** – Brad® M23 Power Connectors

#### Overmolded Connectors



**120094** – Brad® M23  
Single-Ended Cordsets

**Cables with PVC jacket, suitable for flexible installation in standard environments.  
Shielded cable for sensors (position, pressure, temperature, motion...) and optical switches in combination with M8 and M12 connectors.**

**155211** Sensor Cables  
Flexible Installation  
PVC Jacket  
Shielded  
+5°C/+80°C 300V

### Specifications

Application: Standard environment  
Installation: Flexible  
Halogen Free: No  
Temp. rating (flexible installation):  
+5°C/+80°C  
Voltage rating: 300V  
Bending radius (flex. install. at 20°C):  
> 15xOD  
Insulation material: TPE  
Jacket material: PVC

Shielded: Yes  
Approval: UL AWM 2464 / CSA  
Marking: acc. to UL/CSA  
Silicone, Pb,Cd,Hg & FCKW free: Yes  
Flame resistance:  
Good (VW1/FT1 & IEC60332-1)  
Key factor:  
Cost-effective solution for less  
demanding environments (limited  
exposure to oil and lubricants)



Cross Section		No. of Circuits	Diameter in mm	Jacket Color	Packaging	Packaging Composition	Standard Order No	Sketch	
mm <sup>2</sup>	AWG								
0,34	22	3	5,4	Black	S	3x200m	155211-0001		
					M	1x800m	155211-0002		
					L	1x1500m	155211-0003		
				Grey	S	3x200m	155211-0004		
					M	1x800m	155211-0005		
					L	1x1500m	155211-0006		
				Yellow	S	3x200m	155211-0007		
					M	1x800m	155211-0008		
					L	1x1500m	155211-0009		
				Orange	S	3x200m	155211-0010		
					M	1x800m	155211-0011		
					L	1x1500m	155211-0012		
	4	5,7	4	5,7	Black	S	3x100m	155211-0013	
						M	1x500m	155211-0014	
						L	1x1000m	155211-0015	
					Grey	S	3x100m	155211-0016	
						M	1x500m	155211-0017	
						L	1x1000m	155211-0018	
					Yellow	S	3x100m	155211-0019	
						M	1x500m	155211-0020	
						L	1x1000m	155211-0021	
					Orange	S	3x100m	155211-0022	
						M	1x500m	155211-0023	
						L	1x1000m	155211-0024	
5	6,1	5	6,1	Black	S	3x100m	155211-0025		
					M	1x500m	155211-0026		
					L	1x1000m	155211-0027		
				Grey	S	3x100m	155211-0028		
					M	1x500m	155211-0029		
					L	1x1000m	155211-0030		
				Yellow	S	3x100m	155211-0031		
					M	1x500m	155211-0032		
					L	1x1000m	155211-0033		
				Orange	S	3x100m	155211-0034		
					M	1x500m	155211-0035		
					L	1x1000m	155211-0036		

**155211** Sensor Cables  
Flexible Installation  
PVC Jacket  
Shielded  
+5°C/+80°C 300V

Cross Section		No. of Circuits	Diameter in mm	Jacket Color	Packaging	Packaging Composition	Standard Order No	Sketch
mm <sup>2</sup>	AWG							
0,34	22	5	6,1	Black	S	3x100m	155211-0037	
					M	1x500m	155211-0038	
					L	1x1000m	155211-0039	
				Grey	S	3x100m	155211-0040	
					M	1x500m	155211-0041	
					L	1x1000m	155211-0042	
				Yellow	S	3x100m	155211-0043	
					M	1x500m	155211-0044	
					L	1x1000m	155211-0045	
				Orange	S	3x100m	155211-0046	
					M	1x500m	155211-0047	
					L	1x1000m	155211-0048	

### Related Products

#### Field Attachable Connectors



**120091** – Brad® Nano-Change® (M8)  
Field Attachable Connectors



**120071** – Brad® Micro-Change® (M12)  
Field Attachable Connectors



**120085** – Brad® Ultra-Lock® (M12)  
Field Attachable Connectors

#### Overmolded Connectors



**120027, 120028, 120086, 120087** –  
Brad® Nano-Change® (M8)  
Single-Ended and Double Ended Cordsets



**120006, 12009** – Brad® Micro-Change® (M12)  
Single-Ended and Double Ended Cordsets



**120065, 120066** – Brad® Micro-Push® (M12)  
Single-Ended and Double Ended Cordsets

**Cables with Weld-Slag and Oil-Resistant "WSOR" jacket cover the broadest range of industrial applications, allowing the reduction of inventory costs. Suitable for drag chain applications. Typically used for sensors (position, pressure, temperature, motion...) and optical switches in combination with M8 and M12 connectors.**

**155220** Sensor Cables  
Drag Chain Installation  
WSOR Jacket  
Unshielded  
-25°C/+80°C 600V

### Specifications

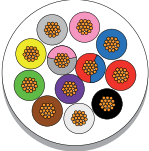
Application: Severe environment  
Installation: Drag Chain  
Halogen Free: No  
Temp. rating (flexible installation):  
-25°C/+80°C  
Voltage rating: 600V  
Bending radius (flex. install. at 20°C):  
> 7,5xOD  
Insulation material: TPE  
Jacket material: WSOR

Shielded: No  
Approval: UL AWM 21215 / CSA  
Marking: acc. to UL/CSA  
Silicone, Pb,Cd,Hg & FCKW free: Yes  
Flame resistance:  
Good (VW1/FT1 & IEC60332-1)  
Key factor:  
Weld-Slag and Oil-Resistant. A single cable solution for automotive lines and industrial applications.

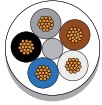



Cross Section		No. of Circuits	Diameter in mm	Jacket Color	Packaging	Packaging Composition	Standard Order No	Sketch
mm <sup>2</sup>	AWG							
0,25	24	3	4,5	Black	S	3x200m	155220-0001	
					M	1x800m	155220-0002	
					L	1x1500m	155220-0003	
				Grey	S	3x200m	155220-0004	
					M	1x800m	155220-0005	
					L	1x1500m	155220-0006	
		Yellow	S	3x200m	155220-0007			
			M	1x800m	155220-0008			
			L	1x1500m	155220-0009			
			Orange	S	3x200m	155220-0010		
				M	1x800m	155220-0011		
				L	1x1500m	155220-0012		
	4	4,8		Black	S	3x200m	155220-0013	
					M	1x800m	155220-0014	
					L	1x1500m	155220-0015	
			Grey	S	3x200m	155220-0016		
				M	1x800m	155220-0017		
				L	1x1500m	155220-0018		
	Yellow	S	3x200m	155220-0019				
		M	1x800m	155220-0020				
		L	1x1500m	155220-0021				
		Orange	S	3x200m	155220-0022			
			M	1x800m	155220-0023			
			L	1x1500m	155220-0024			
5	5,3		Black	S	3x200m	155220-0025		
				M	1x800m	155220-0026		
				L	1x1500m	155220-0027		
		Grey	S	3x200m	155220-0028			
			M	1x800m	155220-0029			
			L	1x1500m	155220-0030			
Yellow	S	3x200m	155220-0031					
	M	1x800m	155220-0032					
	L	1x1500m	155220-0033					

**155220** Sensor Cables  
 Drag Chain Installation  
 WSOR Jacket  
 Unshielded  
 -25°C/+80°C 600V

Cross Section		No. of Circuits	Diameter in mm	Jacket Color	Packaging	Packaging Composition	Standard Order No	Sketch	
mm <sup>2</sup>	AWG								
0,25	24	8	6,4	Black	S	3x100m	155220-0034		
					M	1x500m	155220-0035		
					L	1x1000m	155220-0036		
				Grey	S	3x100m	155220-0037		
					M	1x500m	155220-0038		
					L	1x1000m	155220-0039		
		Yellow	S	3x100m	155220-0040				
			M	1x500m	155220-0041				
			L	1x1000m	155220-0042				
		12	6,9	Black	S	3x100m	155220-0043		
					M	1x500m	155220-0044		
					L	1x1000m	155220-0045		
	Grey			S	3x100m	155220-0046			
				M	1x500m	155220-0047			
				L	1x1000m	155220-0048			
	Yellow	S	3x100m	155220-0049					
		M	1x500m	155220-0050					
		L	1x1000m	155220-0051					
0,34	22	3	4,8	Black	S	3x200m	155220-0052		
					M	1x800m	155220-0053		
					L	1x1500m	155220-0054		
				Grey	S	3x200m	155220-0055		
					M	1x800m	155220-0056		
					L	1x1500m	155220-0057		
		Yellow	S	3x200m	155220-0058				
			M	1x800m	155220-0059				
			L	1x1500m	155220-0060				
		Orange	S	3x200m	155220-0061				
			M	1x800m	155220-0062				
			L	1x1500m	155220-0063				
	4	5,1	Black	S	3x200m	155220-0064			
				M	1x800m	155220-0065			
				L	1x1500m	155220-0066			
			Grey	S	3x200m	155220-0067			
				M	1x800m	155220-0068			
				L	1x1500m	155220-0069			
Yellow	S	3x200m	155220-0070						
	M	1x800m	155220-0071						
	L	1x1500m	155220-0072						
Orange	S	3x200m	155220-0073						
	M	1x800m	155220-0074						
	L	1x1500m	155220-0075						

**155220** Sensor Cables  
 Drag Chain Installation  
 WSOR Jacket  
 Unshielded  
 -25°C/+80°C 600V

Cross Section		No. of Circuits	Diameter in mm	Jacket Color	Packaging	Packaging Composition	Standard Order No	Sketch	
mm <sup>2</sup>	AWG								
0,34	22	5	5,5	Black	S	3x200m	155220-0076		
					M	1x800m	155220-0077		
					L	1x1500m	155220-0078		
				Grey	S	3x200m	155220-0079		
					M	1x800m	155220-0080		
					L	1x1500m	155220-0081		
				Yellow	S	3x200m	155220-0082		
					M	1x800m	155220-0083		
					L	1x1500m	155220-0084		
				Orange	S	3x200m	155220-0085		
					M	1x800m	155220-0086		
					L	1x1500m	155220-0087		
				Black	S	3x200m	155220-0088		
					M	1x800m	155220-0089		
					L	1x1500m	155220-0090		
					Grey	S	3x200m		155220-0091
						M	1x800m		155220-0092
						L	1x1500m		155220-0093
					Yellow	S	3x200m		155220-0094
						M	1x800m		155220-0095
						L	1x1500m		155220-0096
				Orange	S	3x200m	155220-0097		
					M	1x800m	155220-0098		
					L	1x1500m	155220-0099		

### Related Products

#### Field Attachable Connectors



**120091** – Brad® Nano-Change® (M8)  
Field Attachable Connectors



**120071** – Brad® Micro-Change® (M12)  
Field Attachable Connectors



**120085** – Brad® Ultra-Lock® (M12)  
Field Attachable Connectors

#### Overmolded Connectors



**120027, 120028, 120086, 120087** –  
Brad® Nano-Change® (M8)  
Single-Ended and Double Ended Cordsets



**120006** – Brad® Micro-Change® (M12)  
Single-Ended and Double Ended Cordsets

**120009** – Brad® Micro-Change®  
M12 Cordsets with Knurled Hexnuts



**120065, 120066** – Brad® Micro-Push® (M12)  
Single-Ended and Double Ended Cordsets

**Cables with Weld-Slag and Oil-Resistant "WSOR" jacket cover the broadest range of industrial applications, allowing the reduction of inventory costs. Suitable for drag chain applications. The right choice for actuators (valves, slides, cylinders...) and control cabinets in combination with DIN, M16, M23 or heavy duty connectors.**

**155220** Control Cables  
 Drag Chain Installation  
 WSOR Jacket  
 Unshielded  
 -25°C/+80°C 600V

### Specifications

Application: Severe environment  
 Installation: Drag Chain  
 Halogen Free: No  
 Temp. rating (flexible installation):  
 -25°C/+80°C  
 Voltage rating: 600V  
 Bending radius (flex. install. at 20°C):  
 > 7,5xOD  
 Insulation material: TPE  
 Jacket material: WSOR

Shielded: No  
 Approval: UL AWM 21215 / CSA  
 Marking: acc. to UL/CSA  
 Silicone, Pb,Cd,Hg & FCKW free: Yes  
 Flame resistance:  
 Good (VW1/FT1 & IEC60332-1)  
 Key factor:  
 Weld-Slag and Oil-Resistant. A single cable solution for automotive lines and industrial applications.



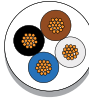
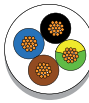

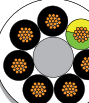
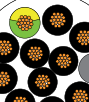
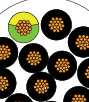


Cross Section		No. of Circuits	Diameter in mm	Jacket Color	Packaging	Packaging Composition	Standard Order No	Sketch
mm <sup>2</sup>	AWG							
0,5	21	2	5,2	Black	S	3x200m	155220-0100	
					M	1x800m	155220-0101	
					L	1x1500m	155220-0102	
				Grey	S	3x200m	155220-0103	
					M	1x800m	155220-0104	
					L	1x1500m	155220-0105	
		3	5,6	Black	S	3x100m	155220-0106	
					M	1x500m	155220-0107	
					L	1x1000m	155220-0108	
				Grey	S	3x100m	155220-0109	
					M	1x500m	155220-0110	
					L	1x1000m	155220-0111	
		Orange	S	3x100m	155220-0112			
			M	1x500m	155220-0113			
			L	1x1000m	155220-0114			
		4	5,9	Black	S	3x100m	155220-0115	
					M	1x500m	155220-0116	
					L	1x1000m	155220-0117	
				Grey	S	3x100m	155220-0118	
					M	1x500m	155220-0119	
					L	1x1000m	155220-0120	
		5	6,2	Black	S	3x100m	155220-0121	
					M	1x500m	155220-0122	
					L	1x1000m	155220-0123	
Grey	S			3x100m	155220-0124			
	M			1x500m	155220-0125			
	L			1x1000m	155220-0126			
12	8,7	Black	S	1x200m	155220-0127			
			M	1x500m	155220-0128			
			L	1x1000m	155220-0129			
		Grey	S	1x200m	155220-0130			
			M	1x500m	155220-0131			
			L	1x1000m	155220-0132			

Cross Section		No. of Circuits	Diameter in mm	Jacket Color	Packaging	Packaging Composition	Standard Order No	Sketch
mm <sup>2</sup>	AWG							
0,75	19	2	6,0	Black	S	3x100m	155220-0133	
					M	1x500m	155220-0134	
					L	1x1000m	155220-0135	
				Grey	S	3x100m	155220-0136	
					M	1x500m	155220-0137	
					L	1x1000m	155220-0138	
		3	6,4	Black	S	3x100m	155220-0139	
					M	1x500m	155220-0140	
					L	1x1000m	155220-0141	
				Grey	S	3x100m	155220-0142	
					M	1x500m	155220-0143	
					L	1x1000m	155220-0144	
		4	7,0	Black	S	3x100m	155220-0145	
					M	1x500m	155220-0146	
					L	1x1000m	155220-0147	
Grey	S			3x100m	155220-0148			
	M			1x500m	155220-0149			
	L			1x1000m	155220-0150			
5	7,5	Black	S	3x100m	155220-0151			
			M	1x500m	155220-0152			
			L	1x1000m	155220-0153			
		Grey	S	3x100m	155220-0154			
			M	1x500m	155220-0155			
			L	1x1000m	155220-0156			
1,00	18	2	6,7	Black	S	3x100m	155220-0157	
					M	1x500m	155220-0158	
					L	1x1000m	155220-0159	
				Grey	S	3x100m	155220-0160	
					M	1x500m	155220-0161	
					L	1x1000m	155220-0162	
		3	7,1	Black	S	3x100m	155220-0163	
					M	1x500m	155220-0164	
					L	1x1000m	155220-0165	
				Grey	S	3x100m	155220-0166	
					M	1x500m	155220-0167	
					L	1x1000m	155220-0168	
		4	7,6	Black	S	3x100m	155220-0169	
					M	1x500m	155220-0170	
					L	1x1000m	155220-0171	
				Grey	S	3x100m	155220-0172	
					M	1x500m	155220-0173	
					L	1x1000m	155220-0174	
5	8,3	Black	S	1x200m	155220-0175			
			M	1x500m	155220-0176			
			L	1x1000m	155220-0177			
		Grey	S	1x200m	155220-0178			
			M	1x500m	155220-0179			
			L	1x1000m	155220-0180			










**155220** Control Cables  
 Drag Chain Installation  
 WSOR Jacket  
 Unshielded  
 -25°C/+80°C 600V

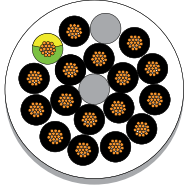
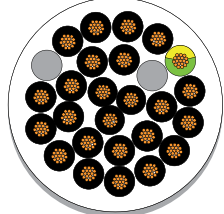
Cross Section		No. of Circuits	Diameter in mm	Jacket Color	Packaging	Packaging Composition	Standard Order No	Sketch
mm <sup>2</sup>	AWG							
1,00	18	7	9,6	Black	S	1x200m	155220-0181	
					M	1x500m	155220-0182	
					L	1x1000m	155220-0183	
				Grey	S	1x200m	155220-0184	
					M	1x500m	155220-0185	
					L	1x1000m	155220-0186	
		11	11,5	Black	S	1x100m	155220-0187	
					M	1x500m	155220-0188	
					L	1x1000m	155220-0189	
				Grey	S	1x100m	155220-0190	
					M	1x500m	155220-0191	
					L	1x1000m	155220-0192	
		12	11,5	Black	S	1x100m	155220-0193	
					M	1x500m	155220-0194	
					L	1x1000m	155220-0195	
				Grey	S	1x100m	155220-0196	
					M	1x500m	155220-0197	
					L	1x1000m	155220-0198	
		17	13,4	Black	S	1x100m	155220-0199	
					M	1x500m	155220-0200	
					L	1x1000m	155220-0201	
				Grey	S	1x100m	155220-0202	
					M	1x500m	155220-0203	
					L	1x1000m	155220-0204	
25	16,0	Black	S	1x100m	155220-0205			
			M	1x250m	155220-0206			
			L	1x500m	155220-0207			
		Grey	S	1x100m	155220-0208			
			M	1x250m	155220-0209			
			L	1x500m	155220-0210			
1,5	16	2	7,1	Black	S	3x100m	155220-0211	
					M	1x500m	155220-0212	
					L	1x1000m	155220-0213	
				Grey	S	3x100m	155220-0214	
					M	1x500m	155220-0215	
					L	1x1000m	155220-0216	
		3	7,3	Black	S	3x100m	155220-0217	
					M	1x500m	155220-0218	
					L	1x1000m	155220-0219	
				Grey	S	3x100m	155220-0220	
					M	1x500m	155220-0221	
					L	1x1000m	155220-0222	

Cross Section		No. of Circuits	Diameter in mm	Jacket Color	Packaging	Packaging Composition	Standard Order No	Sketch
mm <sup>2</sup>	AWG							
1,5	16	4	7,9	Black	S	3x100m	155220-0223	
					M	1x500m	155220-0224	
					L	1x1000m	155220-0225	
				Grey	S	3x100m	155220-0226	
					M	1x500m	155220-0227	
					L	1x1000m	155220-0228	
		4	7,9	Black	S	3x100m	155220-0229	
					M	1x500m	155220-0230	
					L	1x1000m	155220-0231	
				Grey	S	3x100m	155220-0232	
					M	1x500m	155220-0233	
					L	1x1000m	155220-0234	
		5	8,6	Black	S	1x200m	155220-0235	
					M	1x500m	155220-0236	
					L	1x1000m	155220-0237	
				Grey	S	1x200m	155220-0238	
					M	1x500m	155220-0239	
					L	1x1000m	155220-0240	
		7	10,5	Black	S	1x100m	155220-0241	
					M	1x500m	155220-0242	
					L	1x1000m	155220-0243	
				Grey	S	1x100m	155220-0244	
					M	1x500m	155220-0245	
					L	1x1000m	155220-0246	
		11	12,7	Black	S	1x100m	155220-0247	
					M	1x500m	155220-0248	
					L	1x1000m	155220-0249	
				Grey	S	1x100m	155220-0250	
					M	1x500m	155220-0251	
					L	1x1000m	155220-0252	
		12	12,7	Black	S	1x100m	155220-0253	
					M	1x500m	155220-0254	
					L	1x1000m	155220-0255	
				Grey	S	1x100m	155220-0256	
					M	1x500m	155220-0257	
					L	1x1000m	155220-0258	
17	14,7	Black	S	1x100m	155220-0259			
			M	1x500m	155220-0260			
			L	1x1000m	155220-0261			
		Grey	S	1x100m	155220-0262			
			M	1x500m	155220-0263			
			L	1x1000m	155220-0264			
25	17,7	Black	S	1x100m	155220-0265			
			M	1x250m	155220-0266			
			L	1x500m	155220-0267			
		Grey	S	1x100m	155220-0268			
			M	1x250m	155220-0269			
			L	1x500m	155220-0270			

**155220** Control Cables  
 Drag Chain Installation  
 WSOR Jacket  
 Unshielded  
 -25°C/+80°C 600V

Cross Section		No. of Circuits	Diameter in mm	Jacket Color	Packaging	Packaging Composition	Standard Order No	Sketch
mm <sup>2</sup>	AWG							
2,5	14	2	8,8	Black	S	1x200m	155220-0271	
					M	1x500m	155220-0272	
					L	1x1000m	155220-0273	
				Grey	S	1x200m	155220-0274	
					M	1x500m	155220-0275	
					L	1x1000m	155220-0276	
		3	9,3	Black	S	1x200m	155220-0277	
					M	1x500m	155220-0278	
					L	1x1000m	155220-0279	
				Grey	S	1x200m	155220-0280	
					M	1x500m	155220-0281	
					L	1x1000m	155220-0282	
		4	10,1	Black	S	1x100m	155220-0283	
					M	1x500m	155220-0284	
					L	1x1000m	155220-0285	
				Grey	S	1x100m	155220-0286	
					M	1x500m	155220-0287	
					L	1x1000m	155220-0288	
		5	11,3	Black	S	1x100m	155220-0289	
					M	1x500m	155220-0290	
					L	1x1000m	155220-0291	
				Grey	S	1x100m	155220-0292	
					M	1x500m	155220-0293	
					L	1x1000m	155220-0294	
7	13,1	Black	S	1x100m	155220-0295			
			M	1x500m	155220-0296			
			L	1x1000m	155220-0297			
		Grey	S	1x100m	155220-0298			
			M	1x500m	155220-0299			
			L	1x1000m	155220-0300			
11	15,7	Black	S	1x100m	155220-0301			
			M	1x250m	155220-0302			
			L	1x500m	155220-0303			
		Grey	S	1x100m	155220-0304			
			M	1x250m	155220-0305			
			L	1x500m	155220-0306			
12	15,9	Black	S	1x100m	155220-0307			
			M	1x250m	155220-0308			
			L	1x500m	155220-0309			
		Grey	S	1x100m	155220-0310			
			M	1x250m	155220-0311			
			L	1x500m	155220-0312			

**155220** Control Cables  
 Drag Chain Installation  
 WSOR Jacket  
 Unshielded  
 -25°C/+80°C 600V

Cross Section		No. of Circuits	Diameter in mm	Jacket Color	Packaging	Packaging Composition	Standard Order No	Sketch
mm <sup>2</sup>	AWG							
2,5	14	17	18,5	Black	S	1x100m	155220-0313	
					M	1x250m	155220-0314	
					L	1x500m	155220-0315	
		Grey	S	1x100m	155220-0316			
			M	1x250m	155220-0317			
			L	1x500m	155220-0318			
25	22,3	Black	S	1x350m	155220-0319			
			Grey	S	1x350m		155220-0322	

### Related Products

#### Field Attachable Connectors



**121201, 121207** – Brad® mPm® DIN Valve Connectors, Form A, External Thread

**121202, 121208** – Brad® mPm® DIN Valve Connector, Form B - Industrial, External Thread

**121205, 121211** – Brad® mPm® DIN Valve Connector, Form C - Industrial, External Thread



**120071** – Brad® Micro-Change® (M12) Field Attachable Connectors



**120085** – Brad® Ultra-Lock® (M12) Field Attachable Connectors



**93601** - GWconnect® Heavy Duty Connectors

#### Overmolded Connectors



**120094** – Brad® M23 Single-Ended Cordsets

**Cables with Weld-Slag and Oil-Resistant "WSOR" jacket cover the broadest range of industrial applications, allowing the reduction of inventory costs. Suitable for drag chain applications. Select this cable for distribution boxes ("MPIS") and safety barriers in combination with M23 signal connectors.**

**155220** Distribution Boxes  
Drag Chain Installation  
WSOR Jacket  
Unshielded  
-25°C/+80°C 600V

### Specifications

Application: Severe environment  
Installation: Drag Chain  
Halogen Free: No  
Temp. rating (flexible installation):  
-25°C/+80°C  
Voltage rating: 600V  
Bending radius (flex. install. at 20°C):  
> 10xOD  
Insulation material: TPE  
Jacket material: WSOR

Shielded: No  
Approval: UL AWM 21215 / CSA  
Marking: acc. to UL/CSA  
Silicone, Pb,Cd,Hg & FCKW free: Yes  
Flame resistance:  
Good (VW1/FT1 & IEC60332-1)  
Key factor:  
Weld-Slag and Oil-Resistant. A single cable solution for automotive lines and industrial applications.



Cross Section		No. of Circuits	Diameter in mm	Jacket Color	Packaging	Packaging Composition	Standard Order No	Sketch
mm <sup>2</sup>	AWG							
3x0,75 + 4x0,34	3x AWG19 + 4x AWG22	7 (3+4)	7,8	Black	S	3x100m	155220-9001	
					M	1x500m	155220-9002	
					L	1x1000m	155220-9003	
				Grey	S	3x100m	155220-9004	
					M	1x500m	155220-9005	
					L	1x1000m	155220-9006	
3x0,75 + 6x0,34	3x AWG19 + 6x AWG22	9 (3+6)	8,5	Black	S	1x200m	155220-9007	
					M	1x500m	155220-9008	
					L	1x1000m	155220-9009	
				Grey	S	1x200m	155220-9010	
					M	1x500m	155220-9011	
					L	1x1000m	155220-9012	
3x0,75 + 8x0,34	3x AWG19 + 8x AWG22	11 (3+8)	8,5	Black	S	1x200m	155220-9013	
					M	1x500m	155220-9014	
					L	1x1000m	155220-9015	
				Grey	S	1x200m	155220-9016	
					M	1x500m	155220-9017	
					L	1x1000m	155220-9018	
3x0,75 + 16x0,34	3x AWG19 + 16x AWG22	19 (3+16)	10,2	Black	S	1x100m	155220-9019	
					M	1x500m	155220-9020	
					L	1x1000m	155220-9021	
				Grey	S	1x100m	155220-9022	
					M	1x500m	155220-9023	
					L	1x1000m	155220-9024	

### Related Products

#### Field Attachable Connectors



**120230** – Brad® M23 Signal Connectors

**120233** – Brad® M23 Power Connectors

#### Overmolded Connectors



**120094** – Brad® M23 Single-Ended Cordsets

**Cables with Weld-Slag and Oil-Resistant "WSOR" jacket cover the broadest range of industrial applications, allowing the reduction of inventory costs. Suitable for drag chain applications. Shielded cable for sensors (position, pressure, temperature, motion...) and optical switches in combination with M8 and M12 connectors.**

**155221** Sensor Cables  
Drag Chain Installation  
WSOR Jacket  
Shielded  
-25°C/+80°C 600V

### Specifications

Application: Severe environment  
Installation: Drag Chain  
Halogen Free: No  
Temp. rating (flexible installation):  
-25°C/+80°C  
Voltage rating: 600V  
Bending radius (flex. install. at 20°C):  
> 7,5xOD  
Insulation material: TPE  
Jacket material: WSOR

Shielded: Yes  
Approval: UL AWM 21215 / CSA  
Marking: acc. to UL/CSA  
Silicone, Pb,Cd,Hg & FCKW free: Yes  
Flame resistance:  
Good (VW1/FT1 & IEC60332-1)  
Key factor:  
Weld-Slag and Oil-Resistant. A single cable solution for automotive lines and industrial applications.



Cross Section		No. of Circuits	Diameter in mm	Jacket Color	Packaging	Packaging Composition	Standard Order No	Sketch
mm <sup>2</sup>	AWG							
0,34	22	3	5,4	Black	S	3x200m	155221-0001	
					M	1x800m	155221-0002	
					L	1x1500m	155221-0003	
				Grey	S	3x200m	155221-0004	
					M	1x800m	155221-0005	
					L	1x1500m	155221-0006	
		Yellow	S	3x200m	155221-0007			
			M	1x800m	155221-0008			
			L	1x1500m	155221-0009			
			Orange	S	3x200m	155221-0010		
				M	1x800m	155221-0011		
				L	1x1500m	155221-0012		
4	5,7	4	5,7	Black	S	3x100m	155221-0013	
					M	1x500m	155221-0014	
					L	1x1000m	155221-0015	
				Grey	S	3x100m	155221-0016	
					M	1x500m	155221-0017	
					L	1x1000m	155221-0018	
		Yellow	S	3x100m	155221-0019			
			M	1x500m	155221-0020			
			L	1x1000m	155221-0021			
		Orange	S	3x100m	155221-0022			
			M	1x500m	155221-0023			
			L	1x1000m	155221-0024			
5	6,1	5	6,1	Black	S	3x100m	155221-0025	
					M	1x500m	155221-0026	
					L	1x1000m	155221-0027	
				Grey	S	3x100m	155221-0028	
					M	1x500m	155221-0029	
					L	1x1000m	155221-0030	
		Yellow	S	3x100m	155221-0031			
			M	1x500m	155221-0032			
			L	1x1000m	155221-0033			
		Orange	S	3x100m	155221-0034			
			M	1x500m	155221-0035			
			L	1x1000m	155221-0036			

**155221** Sensor Cables  
 Drag Chain Installation  
 WSOR Jacket  
 Shielded  
 -25°C/+80°C 600V

Cross Section		No. of Circuits	Diameter in mm	Jacket Color	Packaging	Packaging Composition	Standard Order No	Sketch
mm <sup>2</sup>	AWG							
0,34	22	5	6,1	Black	S	3x100m	155221-0037	
					M	1x500m	155221-0038	
					L	1x1000m	155221-0039	
				Grey	S	3x100m	155221-0040	
					M	1x500m	155221-0041	
					L	1x1000m	155221-0042	
				Yellow	S	3x100m	155221-0043	
					M	1x500m	155221-0044	
					L	1x1000m	155221-0045	
				Orange	S	3x100m	155221-0046	
					M	1x500m	155221-0047	
					L	1x1000m	155221-0048	

### Related Products

#### Field Attachable Connectors



**120091** – Brad® Nano-Change® (M8)  
Field Attachable Connectors



**120071** – Brad® Micro-Change® (M12)  
Field Attachable Connectors



**120085** – Brad® Ultra-Lock® (M12)  
Field Attachable Connectors

#### Overmolded Connectors



**120027, 120028, 120086, 120087** –  
Brad® Nano-Change® (M8)  
Single-Ended and Double Ended Cordsets



**120006** – Brad® Micro-Change® (M12) Single-  
Ended and Double Ended Cordsets

**120009** – Brad® Micro-Change® (M12)  
Cordsets with Knurled Hexnuts



**120065, 120066** – Brad® Micro-Push® (M12)  
Single-Ended and Double Ended Cordsets

**Cables with Polyurethane (PUR, TPU) jacket ensure top mechanical performance, withstand harsh environments and resist to abrasion. Suitable for drag chain applications. Typically used for sensors (position, pressure, temperature, motion...) and optical switches in combination with M8 and M12 connectors.**

**155230** Sensor Cables  
 Drag Chain Installation  
 PUR Jacket  
 Unshielded  
 -40°C/+80°C 1000V

### Specifications

Application: Harsh environment  
 Installation: Drag Chain  
 Halogen Free: Yes  
 Temp. rating (flexible installation):  
 -40°C/+80°C  
 Voltage rating: 1000V  
 Bending radius (flex. install. at 20°C):  
 > 7,5xOD  
 Insulation material: TPE  
 Jacket material: PUR

Shielded: No  
 Approval: UL AWM 21223 / CSA  
 Marking: acc. to UL/CSA  
 Silicone, Pb,Cd,Hg & FCKW free: Yes  
 Flame resistance:  
 Good (VW1/FT1 & IEC60332-1)  
 Key factor:  
 Excellent resistance to oil and abrasion. Ensures top mechanical performances.

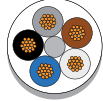
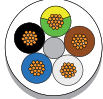


Cross Section		No. of Circuits	Diameter in mm	Jacket Color	Packaging	Packaging Composition	Standard Order No	Sketches	
mm <sup>2</sup>	AWG								
0,25	24	3	4,5	Black	S	3x200m	155230-0001		
					M	1x800m	155230-0002		
					L	1x1500m	155230-0003		
				Grey	S	3x200m	155230-0004		
					M	1x800m	155230-0005		
					L	1x1500m	155230-0006		
		Yellow	S	3x200m	155230-0007				
			M	1x800m	155230-0008				
			L	1x1500m	155230-0009				
		Orange	S	3x200m	155230-0010				
			M	1x800m	155230-0011				
			L	1x1500m	155230-0012				
	4	4,8	4	4,8	Black	S	3x200m	155230-0013	
						M	1x800m	155230-0014	
						L	1x1500m	155230-0015	
					Grey	S	3x200m	155230-0016	
						M	1x800m	155230-0017	
						L	1x1500m	155230-0018	
Yellow			S	3x200m	155230-0019				
			M	1x800m	155230-0020				
			L	1x1500m	155230-0021				
Orange			S	3x200m	155230-0022				
			M	1x800m	155230-0023				
			L	1x1500m	155230-0024				
5	5,3	5	5,3	Black	S	3x200m	155230-0025		
					M	1x800m	155230-0026		
					L	1x1500m	155230-0027		
		Grey	S	3x200m	155230-0028				
			M	1x800m	155230-0029				
			L	1x1500m	155230-0030				
		Yellow	S	3x200m	155230-0031				
			M	1x800m	155230-0032				
			L	1x1500m	155230-0033				



**155230** Sensor Cables  
 Drag Chain Installation  
 PUR Jacket  
 Unshielded  
 -40°C/+80°C 1000V

Cross Section		No. of Circuits	Diameter in mm	Jacket Color	Packaging	Packaging Composition	Standard Order No	Sketches	
mm²	AWG								
0,25	24	8	6,4	Black	S	3x100m	155230-0034		
					M	1x500m	155230-0035		
					L	1x1000m	155230-0036		
				Grey	S	3x100m	155230-0037		
					M	1x500m	155230-0038		
					L	1x1000m	155230-0039		
		Yellow	S	3x100m	155230-0040				
			M	1x500m	155230-0041				
			L	1x1000m	155230-0042				
		12	6,9	Black	S	3x100m	155230-0043		
					M	1x500m	155230-0044		
					L	1x1000m	155230-0045		
	Grey			S	3x100m	155230-0046			
				M	1x500m	155230-0047			
				L	1x1000m	155230-0048			
	Yellow	S	3x100m	155230-0049					
		M	1x500m	155230-0050					
		L	1x1000m	155230-0051					
0,34	22	3	4,8	Black	S	3x200m	155230-0052		
					M	1x800m	155230-0053		
					L	1x1500m	155230-0054		
				Grey	S	3x200m	155230-0055		
					M	1x800m	155230-0056		
					L	1x1500m	155230-0057		
		Yellow	S	3x200m	155230-0058				
			M	1x800m	155230-0059				
			L	1x1500m	155230-0060				
		Orange	S	3x200m	155230-0061				
			M	1x800m	155230-0062				
			L	1x1500m	155230-0063				
	4	5,1	Black	S	3x200m	155230-0064			
				M	1x800m	155230-0065			
				L	1x1500m	155230-0066			
			Grey	S	3x200m	155230-0067			
				M	1x800m	155230-0068			
				L	1x1500m	155230-0069			
Yellow	S	3x200m	155230-0070						
	M	1x800m	155230-0071						
	L	1x1500m	155230-0072						
Orange	S	3x200m	155230-0073						
	M	1x800m	155230-0074						
	L	1x1500m	155230-0075						

Cross Section		No. of Circuits	Diameter in mm	Jacket Color	Packaging	Packaging Composition	Standard Order No	Sketch
mm <sup>2</sup>	AWG							
0,34	22	5	5,5	Black	S	3x200m	155230-0076	
					M	1x800m	155230-0077	
					L	1x1500m	155230-0078	
				Grey	S	3x200m	155230-0079	
					M	1x800m	155230-0080	
					L	1x1500m	155230-0081	
				Yellow	S	3x200m	155230-0082	
					M	1x800m	155230-0083	
					L	1x1500m	155230-0084	
		Orange	S	3x200m	155230-0085			
			M	1x800m	155230-0086			
			L	1x1500m	155230-0087			
		5	5,5	Black	S	3x200m	155230-0088	
					M	1x800m	155230-0089	
					L	1x1500m	155230-0090	
				Grey	S	3x200m	155230-0091	
					M	1x800m	155230-0092	
					L	1x1500m	155230-0093	
Yellow	S			3x200m	155230-0094			
	M			1x800m	155230-0095			
	L			1x1500m	155230-0096			
Orange	S	3x200m	155230-0097					
	M	1x800m	155230-0098					
	L	1x1500m	155230-0099					

### Related Products

#### Field Attachable Connectors



**120091** – Brad® Nano-Change® (M8)  
Field Attachable Connectors



**120071** – Brad® Micro-Change® (M12)  
Field Attachable Connectors



**120085** – Brad® Ultra-Lock® (M12)  
Field Attachable Connectors

#### Overmolded Connectors



**120027, 120028, 120086, 120087** –  
Brad® Nano-Change® (M8) Single-Ended and  
Double Ended Cordsets



**120006** – Brad® Micro-Change® (M12) Single-  
Ended and Double Ended Cordsets

**120009** – Brad® Micro-Change® (M12)  
Cordsets with Knurled Hexnuts



**120065, 120066** – Brad® Micro-Push® (M12)  
Single-Ended and Double Ended Cordsets

**Cables with Polyurethane (PUR, TPU) jacket ensure top mechanical performance, withstand harsh environments and resist to abrasion. Suitable for drag chain applications. The right choice for actuators (valves, slides, cylinders...) and control cabinets in combination with DIN, M16, M23 or heavy duty connectors.**

**155230** Control Cables  
 Drag Chain Installation  
 PUR Jacket  
 Unshielded  
 -40°C/+80°C 1000V

### Specifications

Application: Harsh environment  
 Installation: Drag Chain  
 Halogen Free: Yes  
 Temp. rating (flexible installation):  
 -40°C/+80°C  
 Voltage rating: 1000V  
 Bending radius (flex. install. at 20°C):  
 > 7,5xOD  
 Insulation material: TPE  
 Jacket material: PUR

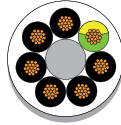
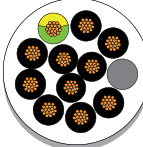
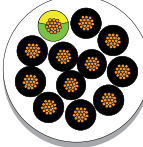
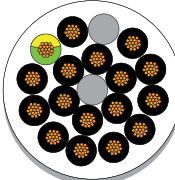
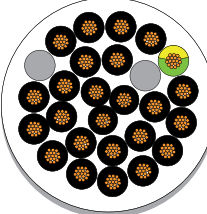
Shielded: No  
 Approval: UL AWM 21223 / CSA  
 Marking: acc. to UL/CSA  
 Silicone, Pb,Cd,Hg & FCKW free: Yes  
 Flame resistance:  
 Good (VW1/FT1 & IEC60332-1)  
 Key factor:  
 Excellent resistance to oil and abrasion. Ensures top mechanical performances.










Cross Section		No. of Circuits	Diameter in mm	Jacket Color	Packaging	Packaging Composition	Standard Order No	Sketch
mm²	AWG							
0,5	21	2	5,2	Black	S	3x200m	155230-0100	
					M	1x800m	155230-0101	
					L	1x1500m	155230-0102	
				Grey	S	3x200m	155230-0103	
					M	1x800m	155230-0104	
					L	1x1500m	155230-0105	
		3	5,6	Black	S	3x100m	155230-0106	
					M	1x500m	155230-0107	
					L	1x1000m	155230-0108	
				Grey	S	3x100m	155230-0109	
					M	1x500m	155230-0110	
					L	1x1000m	155230-0111	
		Orange	S	3x100m	155230-0112			
			M	1x500m	155230-0113			
			L	1x1000m	155230-0114			
		4	5,9	Black	S	3x100m	155230-0115	
					M	1x500m	155230-0116	
					L	1x1000m	155230-0117	
				Grey	S	3x100m	155230-0118	
					M	1x500m	155230-0119	
					L	1x1000m	155230-0120	
		5	6,2	Black	S	3x100m	155230-0121	
					M	1x500m	155230-0122	
					L	1x1000m	155230-0123	
Grey	S			3x100m	155230-0124			
	M			1x500m	155230-0125			
	L			1x1000m	155230-0126			
12	8,7	Black	S	1x200m	155230-0127			
			M	1x500m	155230-0128			
			L	1x1000m	155230-0129			
		Grey	S	1x200m	155230-0130			
			M	1x500m	155230-0131			
			L	1x1000m	155230-0132			

Cross Section		No. of Circuits	Diameter in mm	Jacket Color	Packaging	Packaging Composition	Standard Order No	Sketch
mm <sup>2</sup>	AWG							
0,75	19	2	6,0	Black	S	3x100m	155230-0133	
					M	1x500m	155230-0134	
					L	1x1000m	155230-0135	
				Grey	S	3x100m	155230-0136	
					M	1x500m	155230-0137	
					L	1x1000m	155230-0138	
		3	6,4	Black	S	3x100m	155230-0139	
					M	1x500m	155230-0140	
					L	1x1000m	155230-0141	
				Grey	S	3x100m	155230-0142	
					M	1x500m	155230-0143	
					L	1x1000m	155230-0144	
		4	7,0	Black	S	3x100m	155230-0145	
					M	1x500m	155230-0146	
					L	1x1000m	155230-0147	
Grey	S			3x100m	155230-0148			
	M			1x500m	155230-0149			
	L			1x1000m	155230-0150			
5	7,5	Black	S	3x100m	155230-0151			
			M	1x500m	155230-0152			
			L	1x1000m	155230-0153			
		Grey	S	3x100m	155230-0154			
			M	1x500m	155230-0155			
			L	1x1000m	155230-0156			
1,00	18	2	6,7	Black	S	3x100m	155230-0157	
					M	1x500m	155230-0158	
					L	1x1000m	155230-0159	
				Grey	S	3x100m	155230-0160	
					M	1x500m	155230-0161	
					L	1x1000m	155230-0162	
		3	7,1	Black	S	3x100m	155230-0163	
					M	1x500m	155230-0164	
					L	1x1000m	155230-0165	
				Grey	S	3x100m	155230-0166	
					M	1x500m	155230-0167	
					L	1x1000m	155230-0168	
		4	7,6	Black	S	3x100m	155230-0169	
					M	1x500m	155230-0170	
					L	1x1000m	155230-0171	
				Grey	S	3x100m	155230-0172	
					M	1x500m	155230-0173	
					L	1x1000m	155230-0174	
5	8,3	Black	S	3x100m	155230-0175			
			M	1x500m	155230-0176			
			L	1x1000m	155230-0177			
		Grey	S	3x100m	155230-0178			
			M	1x500m	155230-0179			
			L	1x1000m	155230-0180			

**155230** Control Cables  
 Drag Chain Installation  
 PUR Jacket  
 Unshielded  
 -40°C/+80°C 1000V

Cross Section		No. of Circuits	Diameter in mm	Jacket Color	Packaging	Packaging Composition	Standard Order No	Sketch
mm <sup>2</sup>	AWG							
1,00	18	7	9,6	Black	S	1x200m	155230-0181	
					M	1x500m	155230-0182	
					L	1x1000m	155230-0183	
				Grey	S	1x200m	155230-0184	
					M	1x500m	155230-0185	
					L	1x1000m	155230-0186	
		11	11,5	Black	S	1x100m	155230-0187	
					M	1x500m	155230-0188	
					L	1x1000m	155230-0189	
				Grey	S	1x100m	155230-0190	
					M	1x500m	155230-0191	
					L	1x1000m	155230-0192	
		12	11,5	Black	S	1x100m	155230-0193	
					M	1x500m	155230-0194	
					L	1x1000m	155230-0195	
				Grey	S	1x100m	155230-0196	
					M	1x500m	155230-0197	
					L	1x1000m	155230-0198	
		17	13,4	Black	S	1x100m	155230-0199	
					M	1x500m	155230-0200	
					L	1x1000m	155230-0201	
				Grey	S	1x100m	155230-0202	
					M	1x500m	155230-0203	
					L	1x1000m	155230-0204	
25	16,0	Black	S	1x100m	155230-0205			
			M	1x250m	155230-0206			
			L	1x500m	155230-0207			
		Grey	S	1x100m	155230-0208			
			M	1x250m	155230-0209			
			L	1x500m	155230-0210			

**155230** Control Cables  
 Drag Chain Installation  
 PUR Jacket  
 Unshielded  
 -40°C/+80°C 1000V

Cross Section		No. of Circuits	Diameter in mm	Jacket Color	Packaging	Packaging Composition	Standard Order No	Sketch
mm <sup>2</sup>	AWG							
1,5	16	2	7,1	Black	S	3x100m	155230-0211	
					M	1x500m	155230-0212	
					L	1x1000m	155230-0213	
				Grey	S	3x100m	155230-0214	
					M	1x500m	155230-0215	
					L	1x1000m	155230-0216	
		3	7,3	Black	S	3x100m	155230-0217	
					M	1x500m	155230-0218	
					L	1x1000m	155230-0219	
				Grey	S	3x100m	155230-0220	
					M	1x500m	155230-0221	
					L	1x1000m	155230-0222	
		4	7,9	Black	S	3x100m	155230-0223	
					M	1x500m	155230-0224	
					L	1x1000m	155230-0225	
				Grey	S	3x100m	155230-0226	
					M	1x500m	155230-0227	
					L	1x1000m	155230-0228	
		4	7,9	Black	S	3x100m	155230-0229	
					M	1x500m	155230-0230	
					L	1x1000m	155230-0231	
				Grey	S	3x100m	155230-0232	
					M	1x500m	155230-0233	
					L	1x1000m	155230-0234	
		5	8,6	Black	S	1x200m	155230-0235	
					M	1x500m	155230-0236	
					L	1x1000m	155230-0237	
				Grey	S	1x200m	155230-0238	
M	1x500m				155230-0239			
L	1x1000m				155230-0240			
7	10,5	Black	S	1x100m	155230-0241			
			M	1x500m	155230-0242			
			L	1x1000m	155230-0243			
		Grey	S	1x100m	155230-0244			
			M	1x500m	155230-0245			
			L	1x1000m	155230-0246			
11	12,7	Black	S	1x100m	155230-0247			
			M	1x500m	155230-0248			
			L	1x1000m	155230-0249			
		Grey	S	1x100m	155230-0250			
			M	1x500m	155230-0251			
			L	1x1000m	155230-0252			

**155230** Control Cables  
 Drag Chain Installation  
 PUR Jacket  
 Unshielded  
 -40°C/+80°C 1000V

Cross Section		No. of Circuits	Diameter in mm	Jacket Color	Packaging	Packaging Composition	Standard Order No	Sketch
mm <sup>2</sup>	AWG							
1,5	16	12	12,7	Black	S	1x100m	155230-0253	
					M	1x500m	155230-0254	
					L	1x1000m	155230-0255	
				Grey	S	1x100m	155230-0256	
					M	1x500m	155230-0257	
					L	1x1000m	155230-0258	
		17	14,7	Black	S	1x100m	155230-0259	
					M	1x500m	155230-0260	
					L	1x1000m	155230-0261	
				Grey	S	1x100m	155230-0262	
					M	1x500m	155230-0263	
					L	1x1000m	155230-0264	
		25	17,7	Black	S	1x100m	155230-0265	
					M	1x250m	155230-0266	
					L	1x500m	155230-0267	
				Grey	S	1x100m	155230-0268	
					M	1x250m	155230-0269	
					L	1x500m	155230-0270	
2,5	14	2	8,8	Black	S	1x200m	155230-0271	
					M	1x500m	155230-0272	
					L	1x1000m	155230-0273	
				Grey	S	1x200m	155230-0274	
					M	1x500m	155230-0275	
					L	1x1000m	155230-0276	
		3	9,3	Black	S	1x200m	155230-0277	
					M	1x500m	155230-0278	
					L	1x1000m	155230-0279	
				Grey	S	1x200m	155230-0280	
					M	1x500m	155230-0281	
					L	1x1000m	155230-0282	
		4	10,1	Black	S	1x100m	155230-0283	
					M	1x500m	155230-0284	
					L	1x1000m	155230-0285	
				Grey	S	1x100m	155230-0286	
					M	1x500m	155230-0287	
					L	1x1000m	155230-0288	
		5	11,3	Black	S	1x100m	155230-0289	
					M	1x500m	155230-0290	
					L	1x1000m	155230-0291	
				Grey	S	1x100m	155230-0292	
					M	1x500m	155230-0293	
					L	1x1000m	155230-0294	

**155230** Control Cables  
 Drag Chain Installation  
 PUR Jacket  
 Unshielded  
 -40°C/+80°C 1000V

Cross Section		No. of Circuits	Diameter in mm	Jacket Color	Packaging	Packaging Composition	Standard Order No	Sketch
mm <sup>2</sup>	AWG							
2,5	14	7	13,3	Black	S	1x100m	155230-0295	
					M	1x500m	155230-0296	
					L	1x1000m	155230-0297	
				Grey	S	1x100m	155230-0298	
					M	1x500m	155230-0299	
					L	1x1000m	155230-0300	
		11	15,7	Black	S	1x100m	155230-0301	
					M	1x250m	155230-0302	
					L	1x500m	155230-0303	
				Grey	S	1x100m	155230-0304	
					M	1x250m	155230-0305	
					L	1x500m	155230-0306	
		12	15,9	Black	S	1x100m	155230-0307	
					M	1x250m	155230-0308	
					L	1x500m	155230-0309	
				Grey	S	1x100m	155230-0310	
					M	1x250m	155230-0311	
					L	1x500m	155230-0312	
		17	18,5	Black	S	1x100m	155230-0313	
					M	1x250m	155230-0314	
L	1x500m				155230-0315			
Grey	S			1x100m	155230-0316			
	M			1x250m	155230-0317			
	L			1x500m	155230-0318			
25	22,3	Black	S	1x350m	155230-0319			
			S	1x350m	155230-0322			

### Related Products

#### Field Attachable Connectors



**121201, 121207** – Brad® mPm® DIN Valve Connectors, Form A, External Thread

**121202, 121208** – Brad® mPm® DIN Valve Connector, Form B - Industrial, External Thread

**121205, 121211** – Brad® mPm® DIN Valve Connector, Form C - Industrial, External Thread



**120071** – Brad® Micro-Change® (M12) Field Attachable Connectors

#### Field Attachable Connectors



**120085** – Brad® Ultra-Lock® (M12) Field Attachable Connectors



**93601** - GWconnect® Heavy Duty Connectors

#### Overmolded Connectors



**120094** – Brad® M23 Single-Ended Cordsets



**Cables with Polyurethane (PUR, TPU) jacket ensure top mechanical performance, withstand harsh environments and resist to abrasion. Suitable for drag chain applications. Select this cable for distribution boxes ("MPIS") and safety barriers in combination with M23 signal connectors.**

**155230** Distribution Boxes  
Drag Chain Installation  
PUR Jacket  
Unshielded  
-40°C/+80°C 1000V

### Specifications

Application: Harsh environment  
Installation: Drag Chain  
Halogen Free: Yes  
Temp. rating (flexible installation):  
-40°C/+80°C  
Voltage rating: 1000V  
Bending radius (flex. install. at 20°C):  
> 10 x OD  
Insulation material: TPE  
Jacket material: PUR

Shielded: No  
Approval: UL AWM 21223 / CSA  
Marking: acc. to UL/CSA  
Silicone, Pb,Cd,Hg & FCKW free: Yes  
Flame resistance:  
Good (VW1/FT1 & IEC60332-1)  
Key factor:  
Excellent resistance to oil and abrasion. Ensures top mechanical performances.



### Distribution Boxes

Cross Section		No. of Circuits	Diameter in mm	Jacket Color	Packaging	Packaging Composition	Standard Order No	Sketch
mm <sup>2</sup>	AWG							
3x0,75 + 4x0,34	3x AWG19 + 4x AWG22	7 (3+4)	7,8	Black	S	3x100m	155230-9001	
					M	1x500m	155230-9002	
					L	1x1000m	155230-9003	
				Grey	S	3x100m	155230-9004	
					M	1x500m	155230-9005	
					L	1x1000m	155230-9006	
3x0,75 + 6x0,34	3x AWG19 + 6x AWG22	9 (3+6)	8,5	Black	S	1x200m	155230-9007	
					M	1x500m	155230-9008	
					L	1x1000m	155230-9009	
				Grey	S	1x200m	155230-9010	
					M	1x500m	155230-9011	
					L	1x1000m	155230-9012	
3x0,75 + 8x0,34	3x AWG19 + 8x AWG22	11 (3+8)	8,5	Black	S	1x200m	155230-9013	
					M	1x500m	155230-9014	
					L	1x1000m	155230-9015	
				Grey	S	1x200m	155230-9016	
					M	1x500m	155230-9017	
					L	1x1000m	155230-9018	
3x0,75 + 16x0,34	3x AWG19 + 16x AWG22	19 (3+16)	10,2	Black	S	1x100m	155230-9019	
					M	1x500m	155230-9020	
					L	1x1000m	155230-9021	
				Grey	S	1x100m	155230-9022	
					M	1x500m	155230-9023	
					L	1x1000m	155230-9024	

### Related Products

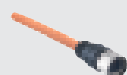
#### Field Attachable Connectors



**120230** – Brad® M23 Signal Connectors

**120233** – Brad® M23 Power Connectors

#### Overmolded Connectors



**120094** – Brad® M23  
Single-Ended Cordsets

**Cables with Polyurethane (PUR, TPU) jacket ensure top mechanical performance, withstand harsh environments and resist to abrasion. Suitable for drag chain applications. Shielded cable for sensors (position, pressure, temperature, motion...) and optical switches in combination with M8 and M12 connectors.**

## Flamar Signal & Control

**155231** Sensor Cables  
 Drag Chain Installation  
 PUR Jacket  
 Shielded  
 -40°C/+80°C 1000V

### Specifications

Application: Harsh environment  
 Installation: Drag Chain  
 Halogen Free: Yes  
 Temp. rating (flexible installation):  
 -40°C/+80°C  
 Voltage rating: 1000V  
 Bending radius (flex. install. at 20°C):  
 > 7,5xOD  
 Insulation material: TPE  
 Jacket material: PUR

Shielded: Yes  
 Approval: UL AWM 21223 / CSA  
 Marking: acc. to UL/CSA  
 Silicone, Pb,Cd,Hg & FCKW free: Yes  
 Flame resistance:  
 Good (VW1/FT1 & IEC60332-1)  
 Key factor:  
 Excellent resistance to oil and abrasion. Ensures top mechanical performances.




Cross Section		No. of Circuits	Diameter in mm	Jacket Color	Packaging	Packaging Composition	Standard Order No	Sketch
mm <sup>2</sup>	AWG							
0,34	22	3	5,4	Black	S	3x200m	155231-0001	
					M	1x800m	155231-0002	
					L	1x1500m	155231-0003	
				Grey	S	3x200m	155231-0004	
					M	1x800m	155231-0005	
					L	1x1500m	155231-0006	
				Yellow	S	3x200m	155231-0007	
					M	1x800m	155231-0008	
					L	1x1500m	155231-0009	
		Orange	S	3x200m	155231-0010			
			M	1x800m	155231-0011			
			L	1x1500m	155231-0012			
0,34	22	4	5,7	Black	S	3x100m	155231-0013	
					M	1x500m	155231-0014	
					L	1x1000m	155231-0015	
				Grey	S	3x100m	155231-0016	
					M	1x500m	155231-0017	
					L	1x1000m	155231-0018	
				Yellow	S	3x100m	155231-0019	
					M	1x500m	155231-0020	
					L	1x1000m	155231-0021	
		Orange	S	3x100m	155231-0022			
			M	1x500m	155231-0023			
			L	1x1000m	155231-0024			
0,34	22	5	6,1	Black	S	3x100m	155231-0025	
					M	1x500m	155231-0026	
					L	1x1000m	155231-0027	
				Grey	S	3x100m	155231-0028	
					M	1x500m	155231-0029	
					L	1x1000m	155231-0030	
				Yellow	S	3x100m	155231-0031	
					M	1x500m	155231-0032	
					L	1x1000m	155231-0033	
Orange	S	3x100m	155231-0034					
	M	1x500m	155231-0035					
	L	1x1000m	155231-0036					


**155231** Sensor Cables  
 Drag Chain Installation  
 PUR Jacket  
 Shielded  
 -40°C/+80°C 1000V


Cross Section		No. of Circuits	Diameter in mm	Jacket Color	Packaging	Packaging Composition	Standard Order No	Sketch
mm <sup>2</sup>	AWG							
0,34	22	5	6,1	Black	S	3x100m	155231-0037	
					M	1x500m	155231-0038	
					L	1x1000m	155231-0039	
				Grey	S	3x100m	155231-0040	
					M	1x500m	155231-0041	
					L	1x1000m	155231-0042	
				Yellow	S	3x100m	155231-0043	
					M	1x500m	155231-0044	
				Orange	L	1x1000m	155231-0045	
					S	3x100m	155231-0046	
					M	1x500m	155231-0047	

### Related Products


#### Field Attachable Connectors


 **120091** – Brad® Nano-Change® (M8) Field Attachable Connectors

 **120071** – Brad® Micro-Change® (M12) Field Attachable Connectors


 **120085** – Brad® Ultra-Lock® (M12) Field Attachable Connectors

#### Overmolded Connectors

 **120027, 120028, 120086, 120087** – Brad® Nano-Change® (M8) Single-Ended and Double Ended Cordsets

 **120006** – Brad® Micro-Change® (M12) Single-Ended and Double Ended Cordsets

**120009** – Brad® Micro-Change® (M12) Cordsets with Knurled Hexnuts

 **120065, 120066** – Brad® Micro-Push® (M12) Single-Ended and Double Ended Cordsets

**UL Listed cables with TPE (Thermoplastic Elastomer) jacket, defined according to the US/Canadian market requirements. Excellent flame resistance. Suitable for drag chain applications.**

**Typically used for sensors (position, pressure, temperature, motion...) and optical switches in combination with M8 and M12 connectors.**

**155240** Sensor Cables  
Drag Chain Installation  
TPE Jacket  
Unshielded  
-40°C/+105°C 300V

### Specifications

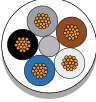

Application: Severe environment  
Installation: Drag Chain  
Halogen Free: No  
Temp. rating (flexible installation):  
-40°C/+105°C  
Voltage rating: 300V  
Bending radius (flex. install. at 20°C):  
> 10xOD  
Insulation material: PVC  
Jacket material: TPE  
Shielded: No

Approval: UL Listed PLTC  
Marking: acc. to UL/CSA  
Silicone, Pb,Cd,Hg & FCKW free: Yes  
Flame resistance:  
Excellent (FT4 & VW1/FT1 & IEC60332-3A)  
Key factor:  
Designed in accordance with North American market requirements.  
Good resistance to oil.



Cross section		No. of Circuits	Diameter in mm	Jacket Color	Packaging	Packaging Composition	Standard Order No	Sketch
mm <sup>2</sup>	AWG							
0,34	22	3	5,1	Black	S	3x200m	155240-0001	
					M	1x800m	155240-0002	
					L	1x1500m	155240-0003	
				Grey	S	3x200m	155240-0004	
					M	1x800m	155240-0005	
					L	1x1500m	155240-0006	
		Yellow	S	3x200m	155240-0007			
			M	1x800m	155240-0008			
			L	1x1500m	155240-0009			
			Orange	S	3x200m	155240-0010		
				M	1x800m	155240-0011		
				L	1x1500m	155240-0012		
4	5,4	4	5,4	Black	S	3x200m	155240-0013	
					M	1x800m	155240-0014	
					L	1x1500m	155240-0015	
				Grey	S	3x200m	155240-0016	
					M	1x800m	155240-0017	
					L	1x1500m	155240-0018	
		Yellow	S	3x200m	155240-0019			
			M	1x800m	155240-0020			
			L	1x1500m	155240-0021			
		Orange	S	3x200m	155240-0022			
			M	1x800m	155240-0023			
			L	1x1500m	155240-0024			

**155240** Sensor Cables  
 Drag Chain Installation  
 TPE Jacket  
 Unshielded  
 -40°C/+105°C 300V

Cross section		No. of Circuits	Diameter in mm	Jacket Color	Packaging	Packaging Composition	Standard Order No	Sketch
mm²	AWG							
0,34	22	5	5,8	Black	S	3x100m	155240-0025	
					M	1x500m	155240-0026	
					L	1x1000m	155240-0027	
				Grey	S	3x100m	155240-0028	
					M	1x500m	155240-0029	
					L	1x1000m	155240-0030	
				Yellow	S	3x100m	155240-0031	
					M	1x500m	155240-0032	
					L	1x1000m	155240-0033	
		Orange	S	3x100m	155240-0034			
			M	1x500m	155240-0035			
			L	1x1000m	155240-0036			
		5	5,8	Black	S	3x100m	155240-0037	
					M	1x500m	155240-0038	
					L	1x1000m	155240-0039	
				Grey	S	3x100m	155240-0040	
					M	1x500m	155240-0041	
					L	1x1000m	155240-0042	
Yellow	S			3x100m	155240-0043			
	M			1x500m	155240-0044			
	L			1x1000m	155240-0045			
Orange	S	3x100m	155240-0046					
	M	1x500m	155240-0047					
	L	1x1000m	155240-0048					

### Related Products

#### Field Attachable Connectors



**120091** – Brad® Nano-Change® (M8)  
Field Attachable Connectors



**120071** – Brad® Micro-Change® (M12)  
Field Attachable Connectors



**120085** – Brad® Ultra-Lock® (M12)  
Field Attachable Connectors

#### Overmolded Connectors



**120027, 120028, 120086, 120087** –  
Brad® Nano-Change® (M8) Single-Ended and  
Double Ended Cordsets



**120006** – Brad® Micro-Change® (M12) Single-  
Ended and Double Ended Cordsets

**120009** – Brad® Micro-Change® M12 Cordsets  
with Knurled Hexnuts



**120065, 120066** – Brad® Micro-Push® (M12)  
Single-Ended and Double Ended Cordsets

**UL Listed cables with TPE (Thermoplastic Elastomer) jacket, defined according to the US/Canadian market requirements. Excellent flame resistance. Suitable for drag chain applications.**

**The right choice for actuators (valves, slides, cylinders...) and control cabinets in combination with DIN, M16, M23 or heavy duty connectors.**

## Specifications

Application: Severe environment  
 Installation: Drag Chain  
 Halogen Free: No  
 Temp. rating (flexible installation):  
 -40°C/+105°C  
 Voltage rating: 300V  
 Bending radius (flex. install. at 20°C):  
 > 10xOD  
 Insulation material: PVC  
 Jacket material: TPE  
 Shielded: No

Approval: UL Listed PLTC  
 Marking: acc. to UL/CSA  
 Silicone, Pb,Cd,Hg & FCKW free: Yes  
 Flame resistance:  
 Excellent (FT4 & VW1/FT1 & IEC60332-3A)  
 Key factor:  
 Designed in accordance with North American market requirements.  
 Good resistance to oil.

## Flamar Signal & Control

**155240** Control Cables  
 Drag Chain Installation  
 TPE Jacket  
 Unshielded  
 -40°C/+105°C 300V



Cross Section		No. of Circuits	Diameter in mm	Jacket Color	Packaging	Packaging Composition	Standard Order No	Sketch
mm <sup>2</sup>	AWG							
0,5	21	2	5,6	Black	S	3x100m	155240-0049	
					M	1x500m	155240-0050	
					L	1x1000m	155240-0051	
				Grey	S	3x100m	155240-0052	
					M	1x500m	155240-0053	
					L	1x1000m	155240-0054	
		3	6,0	Black	S	3x100m	155240-0055	
					M	1x500m	155240-0056	
					L	1x1000m	155240-0057	
				Grey	S	3x100m	155240-0058	
					M	1x500m	155240-0059	
					L	1x1000m	155240-0060	
	4	6,4	Orange	S	3x100m	155240-0061		
				M	1x500m	155240-0062		
				L	1x1000m	155240-0063		
			Black	S	3x100m	155240-0064		
				M	1x500m	155240-0065		
				L	1x1000m	155240-0066		
	5	6,9	Grey	S	3x100m	155240-0067		
				M	1x500m	155240-0068		
				L	1x1000m	155240-0069		
			Black	S	3x100m	155240-0070		
				M	1x500m	155240-0071		
				L	1x1000m	155240-0072		
12	9,0	Black	S	3x100m	155240-0073			
			M	1x500m	155240-0074			
			L	1x1000m	155240-0075			
			S	1x200m	155240-0076			
		Grey	M	1x500m	155240-0077			
			L	1x1000m	155240-0078			
			S	1x200m	155240-0079			
			L	1x1000m	155240-0081			

**155240** Control Cables  
 Drag Chain Installation  
 TPE Jacket  
 Unshielded  
 -40°C/+105°C 300V







Cross Section		No. of Circuits	Diameter in mm	Jacket Color	Packaging	Packaging Composition	Standard Order No	Sketch
mm <sup>2</sup>	AWG							
0,75	19	2	6,5	Black	S	3x100m	155240-0082	
					M	1x500m	155240-0083	
					L	1x1000m	155240-0084	
				Grey	S	3x100m	155240-0085	
					M	1x500m	155240-0086	
					L	1x1000m	155240-0087	
		3	7,0	Black	S	3x100m	155240-0088	
					M	1x500m	155240-0089	
					L	1x1000m	155240-0090	
				Grey	S	3x100m	155240-0091	
					M	1x500m	155240-0092	
					L	1x1000m	155240-0093	
		4	7,7	Black	S	3x100m	155240-0094	
					M	1x500m	155240-0095	
					L	1x1000m	155240-0096	
Grey	S			3x100m	155240-0097			
	M			1x500m	155240-0098			
	L			1x1000m	155240-0099			
5	8,3	Black	S	1x200m	155240-0100			
			M	1x500m	155240-0101			
			L	1x1000m	155240-0102			
		Grey	S	1x200m	155240-0103			
			M	1x500m	155240-0104			
			L	1x1000m	155240-0105			
1,00	18	2	7,5	Black	S	3x100m	155240-0106	
					M	1x500m	155240-0107	
					L	1x1000m	155240-0108	
				Grey	S	3x100m	155240-0109	
					M	1x500m	155240-0110	
					L	1x1000m	155240-0111	
		3	7,9	Black	S	3x100m	155240-0112	
					M	1x500m	155240-0113	
					L	1x1000m	155240-0114	
				Grey	S	3x100m	155240-0115	
					M	1x500m	155240-0116	
					L	1x1000m	155240-0117	
		4	8,6	Black	S	1x200m	155240-0118	
					M	1x500m	155240-0119	
					L	1x1000m	155240-0120	
				Grey	S	1x200m	155240-0121	
					M	1x500m	155240-0122	
					L	1x1000m	155240-0123	
5	9,3	Black	S	1x200m	155240-0124			
			M	1x500m	155240-0125			
			L	1x1000m	155240-0126			
		Grey	S	1x200m	155240-0127			
			M	1x500m	155240-0128			
			L	1x1000m	155240-0129			

**155240** Control Cables  
 Drag Chain Installation  
 TPE Jacket  
 Unshielded  
 -40°C/+105°C 300V

Cross Section		No. of Circuits	Diameter in mm	Jacket Color	Packaging	Packaging Composition	Standard Order No	Sketch
mm <sup>2</sup>	AWG							
1,0	18	7	11,0	Black	S	1x100m	155240-0130	
					M	1x500m	155240-0131	
					L	1x1000m	155240-0132	
				Grey	S	1x100m	155240-0133	
					M	1x500m	155240-0134	
					L	1x1000m	155240-0135	
		11	13,0	Black	S	1x100m	155240-0136	
					M	1x500m	155240-0137	
					L	1x1000m	155240-0138	
				Grey	S	1x100m	155240-0139	
					M	1x500m	155240-0140	
					L	1x1000m	155240-0141	
		12	13,0	Black	S	1x100m	155240-0142	
					M	1x500m	155240-0143	
					L	1x1000m	155240-0144	
				Grey	S	1x100m	155240-0145	
					M	1x500m	155240-0146	
					L	1x1000m	155240-0147	
		17	15,0	Black	S	1x100m	155240-0148	
					M	1x250m	155240-0149	
L	1x500m				155240-0150			
Grey	S			1x100m	155240-0151			
	M			1x250m	155240-0152			
	L			1x500m	155240-0153			
25	18,0	Black	S	1x100m	155240-0154			
			M	1x250m	155240-0155			
			L	1x500m	155240-0156			
		Grey	S	1x100m	155240-0157			
			M	1x250m	155240-0158			
			L	1x500m	155240-0159			



**155240** Control Cables  
 Drag Chain Installation  
 TPE Jacket  
 Unshielded  
 -40°C/+105°C 300V

Cross Section		No. of Circuits	Diameter in mm	Jacket Color	Packaging	Packaging Composition	Standard Order No	Sketch
mm <sup>2</sup>	AWG							
1,5	16	2	8,0	Black	S	1x200m	155240-0160	
					M	1x500m	155240-0161	
					L	1x1000m	155240-0162	
				Grey	S	1x200m	155240-0163	
					M	1x500m	155240-0164	
					L	1x1000m	155240-0165	
		3	8,5	Black	S	1x200m	155240-0166	
					M	1x500m	155240-0167	
					L	1x1000m	155240-0168	
				Grey	S	1x200m	155240-0169	
					M	1x500m	155240-0170	
					L	1x1000m	155240-0171	
		4	9,3	Black	S	1x200m	155240-0172	
					M	1x500m	155240-0173	
					L	1x1000m	155240-0174	
				Grey	S	1x200m	155240-0175	
					M	1x500m	155240-0176	
					L	1x1000m	155240-0177	
		4	9,3	Black	S	1x200m	155240-0178	
					M	1x500m	155240-0179	
					L	1x1000m	155240-0180	
				Grey	S	1x200m	155240-0181	
					M	1x500m	155240-0182	
					L	1x1000m	155240-0183	
		5	10,0	Black	S	1x100m	155240-0184	
					M	1x500m	155240-0185	
					L	1x1000m	155240-0186	
				Grey	S	1x100m	155240-0187	
M	1x500m				155240-0188			
L	1x1000m				155240-0189			
7	11,8	Black	S	1x100m	155240-0190			
			M	1x500m	155240-0191			
			L	1x1000m	155240-0192			
		Grey	S	1x100m	155240-0193			
			M	1x500m	155240-0194			
			L	1x1000m	155240-0195			

Cross Section		No. of Circuits	Diameter in mm	Jacket Color	Packaging	Packaging Composition	Standard Order No	Sketch
mm <sup>2</sup>	AWG							
1,5	16	11	14,2	Black	S	1x100m	155240-0196	
					M	1x500m	155240-0197	
					L	1x1000m	155240-0198	
				Grey	S	1x100m	155240-0199	
					M	1x500m	155240-0200	
					L	1x1000m	155240-0201	
		12	14,2	Black	S	1x100m	155240-0202	
					M	1x500m	155240-0203	
					L	1x1000m	155240-0204	
				Grey	S	1x100m	155240-0205	
					M	1x500m	155240-0206	
					L	1x1000m	155240-0207	
	17	16,6	Black	S	1x100m	155240-0208		
				M	1x250m	155240-0209		
				L	1x500m	155240-0210		
			Grey	S	1x100m	155240-0211		
				M	1x250m	155240-0212		
				L	1x500m	155240-0213		
25	20,0	Black	S	1x350m	155240-0214			
			S	1x350m	155240-0217			
2,5	14	2	9,8	Black	S	1x200m	155240-0220	
					M	1x500m	155240-0221	
					L	1x1000m	155240-0222	
				Grey	S	1x200m	155240-0223	
					M	1x500m	155240-0224	
					L	1x1000m	155240-0225	
		3	10,5	Black	S	1x100m	155240-0226	
					M	1x500m	155240-0227	
					L	1x1000m	155240-0228	
				Grey	S	1x100m	155240-0229	
					M	1x500m	155240-0230	
					L	1x1000m	155240-0231	
		4	11,6	Black	S	1x100m	155240-0232	
					M	1x500m	155240-0233	
					L	1x1000m	155240-0234	
				Grey	S	1x100m	155240-0235	
					M	1x500m	155240-0236	
					L	1x1000m	155240-0237	
	5	12,6	Black	S	1x100m	155240-0238		
				M	1x500m	155240-0239		
				L	1x1000m	155240-0240		
			Grey	S	1x100m	155240-0241		
				M	1x500m	155240-0242		
				L	1x1000m	155240-0243		

**155240** Control Cables  
 Drag Chain Installation  
 TPE Jacket  
 Unshielded  
 -40°C/+105°C 300V

Cross Section		No. of Circuits	Diameter in mm	Jacket Color	Packaging	Packaging Composition	Standard Order No	Sketch
mm²	AWG							
2,5	14	7	15,2	Black	S	1x100m	155240-0244	
					M	1x250m	155240-0245	
					L	1x500m	155240-0246	
				Grey	S	1x100m	155240-0247	
					M	1x250m	155240-0248	
					L	1x500m	155240-0249	
		11	18,4	Black	S	1x100m	155240-0250	
					M	1x250m	155240-0251	
					L	1x500m	155240-0252	
				Grey	S	1x100m	155240-0253	
					M	1x250m	155240-0254	
					L	1x500m	155240-0255	
		12	18,4	Black	S	1x100m	155240-0256	
					M	1x250m	155240-0257	
					L	1x500m	155240-0258	
				Grey	S	1x100m	155240-0259	
					M	1x250m	155240-0260	
					L	1x500m	155240-0261	
		17	21,4	Black	S	1x350m	155240-0262	
					S	1x350m	155240-0265	
25	25,6	Black	S	1x250m	155240-0268			
			S	1x250m	155240-0271			

### Related Products

#### Field Attachable Connectors



**121201, 121207** – Brad® mPm® DIN Valve Connectors, Form A, External Thread

**121202, 121208** – Brad® mPm® DIN Valve Connector, Form B - Industrial, External Thread

**121205, 121211** – Brad® mPm® DIN Valve Connector, Form C - Industrial, External Thread



**120071** – Brad® Micro-Change® (M12) Field Attachable Connectors

#### Field Attachable Connectors



**120085** – Brad® Ultra-Lock® (M12) Field Attachable Connectors



**93601** - GWconnect® Heavy Duty Connectors

#### Overmolded Connectors



**120094** – Brad® M23 Single-Ended Cordsets

**UL Listed cables with TPE (Thermoplastic Elastomer) jacket, defined according to the US/Canadian market requirements. Excellent flame resistance. Suitable for drag chain applications.**

**Shielded cable for sensors (position, pressure, temperature, motion...) and optical switches in combination with M8 and M12 connectors.**

**155241** Sensor Cables  
Drag Chain Installation  
TPE Jacket  
Shielded  
-40°C/+105°C 300V

### Specifications

Application: Severe environment  
Installation: Drag Chain  
Halogen Free: No  
Temp. rating (flexible installation):  
-40°C/+105°C  
Voltage rating: 300V  
Bending radius (flex. install. at 20°C):  
> 10xOD  
Insulation material: PVC  
Jacket material: TPE  
Shielded: Yes

Approval: UL Listed PLTC  
Marking: acc. to UL/CSA  
Silicone, Pb,Cd,Hg & FCKW free: Yes  
Flame resistance:  
Excellent (FT4 & VW1/FT1 & IEC60332-3A)  
Key factor:  
Designed in accordance with North American market requirements.  
Good resistance to oil.



Cross section		No. of Circuits	Diameter in mm	Jacket Color	Packaging	Packaging Composition	Standard Order No	Sketch
mm <sup>2</sup>	AWG							
0,34	22	3	5,7	Black	S	3x100m	155241-0001	
					M	1x500m	155241-0002	
					L	1x1000m	155241-0003	
				Grey	S	3x100m	155241-0004	
					M	1x500m	155241-0005	
					L	1x1000m	155241-0006	
				Yellow	S	3x100m	155241-0007	
					M	1x500m	155241-0008	
					L	1x1000m	155241-0009	
		Orange	S	3x100m	155241-0010			
			M	1x500m	155241-0011			
			L	1x1000m	155241-0012			
0,34	22	4	6,0	Black	S	3x100m	155241-0013	
					M	1x500m	155241-0014	
					L	1x1000m	155241-0015	
				Grey	S	3x100m	155241-0016	
					M	1x500m	155241-0017	
					L	1x1000m	155241-0018	
				Yellow	S	3x100m	155241-0019	
					M	1x500m	155241-0020	
					L	1x1000m	155241-0021	
		Orange	S	3x100m	155241-0022			
			M	1x500m	155241-0023			
			L	1x1000m	155241-0024			
0,34	22	5	6,4	Black	S	3x100m	155241-0025	
					M	1x500m	155241-0026	
					L	1x1000m	155241-0027	
				Grey	S	3x100m	155241-0028	
					M	1x500m	155241-0029	
					L	1x1000m	155241-0030	
				Yellow	S	3x100m	155241-0031	
					M	1x500m	155241-0032	
					L	1x1000m	155241-0033	
Orange	S	3x100m	155241-0034					
	M	1x500m	155241-0035					
	L	1x1000m	155241-0036					

**155241** Sensor Cables  
 Drag Chain Installation  
 TPE Jacket  
 Shielded  
 -40°C/+105°C 300V

Cross section		No. of Circuits	Diameter in mm	Jacket Color	Packaging	Packaging Composition	Standard Order No	Sketch
mm <sup>2</sup>	AWG							
0,34	22	5	6,4	Black	S	3x100m	155241-0037	
					M	1x500m	155241-0038	
					L	1x1000m	155241-0039	
				Grey	S	3x100m	155241-0040	
					M	1x500m	155241-0041	
					L	1x1000m	155241-0042	
				Yellow	S	3x100m	155241-0043	
					M	1x500m	155241-0044	
					L	1x1000m	155241-0045	
				Orange	S	3x100m	155241-0046	
					M	1x500m	155241-0047	
					L	1x1000m	155241-0048	

### Related Products

#### Field Attachable Connectors



**120091** – Brad® Nano-Change® (M8)  
Field Attachable Connectors



**120071** – Brad® Micro-Change® (M12)  
Field Attachable Connectors



**120085** – Brad® Ultra-Lock® (M12)  
Field Attachable Connectors

#### Overmolded Connectors



**120027, 120028, 120086, 120087** –  
Brad® Nano-Change® (M8) Single-Ended and  
Double Ended Cordsets



**120006** – Brad® Micro-Change® (M12) Single-  
Ended and Double Ended Cordsets

**120009** – Brad® Micro-Change® (M12)  
Cordsets with Knurled Hexnuts



**120065, 120066** – Brad® Micro-Push® (M12)  
Single-Ended and Double Ended Cordsets



## Servo Motor

Series	Environment	Installation	Halogen Free	Temperature Rating °C (flexible installation)		Voltage Rating V	Bending Radius (flex. install. at 20°C)
155311	Standard	Flexible	No	+5°C	+80°C	1000V power 600V feedback	> 15xOD
155321	Severe	Drag Chain	No	-25°C	+80°C	1000V power 600V feedback	> 10xOD
155331	Harsh	Drag Chain	Yes	-40°C	+80°C	1000V power 600V feedback	> 10xOD

## Typical Applications



Motors



Encoder / Resolver

## Jacket choice criteria

- PVC: The most cost-effective solution for flexible and static installation.
- WSOR: Weld-Slag and Oil-Resistant Cable, a single-cable solution designed to withstand the severe environments found in automotive and industrial factory floors. Suitable for drag chain applications.
- PUR (Polyurethane): Ensures top mechanical performance, withstands harsh environments, abrasion resistant. Suitable for drag chain applications

Selecting the right cable for your application is very important to ensure a reliable, problem-free installation. Careful consideration of mechanical abrasion, fluid/chemical exposure, flexibility (C-track, torsion), temperature resistance and flame retardancy requirements is required to select the cable that will provide performance and reliability in service.



## Flamar Cables for Servo Motor Applications

Jacket Material	Shielded	Approval	Flame Resistance	Oil & Lubricants Resistance	Abrasion Resistance	Page No.
PVC	Yes	UL AWM 2570 / CSA	Good	Limited	Limited	56
WSOR	Yes	UL AWM 21939 / CSA power UL AWM 21215 / CSA feedback	Good	Good	Medium	58
PUR	Yes	UL AWM 21223 / CSA	Good	Excellent	Excellent	60



**Cables with PVC jacket, suitable for flexible installation in standard environments. For servo motors power supply in combination with M23 power connector.**  
**Available with or without shielded pairs, in case brakes or thermal sensors (PTC) might be connected.**

## Flamar Servo Motor

**155311** Power Cables  
 Flexible Installation  
 PVC Jacket  
 Shielded  
 +5°C/+80°C 1000V

### Specifications

Application: Standard environment  
 Installation: Flexible  
 Halogen Free: No  
 Temp. rating (flexible installation):  
 +5°C/+80°C  
 Voltage rating: 1000V  
 Bending radius (flex. install. at 20°C):  
 > 15xOD  
 Insulation material: TPE  
 Jacket material: PVC  
 Shielded: Yes

Approval: UL AWM 2570 / CSA  
 Marking: acc. to UL/CSA  
 Silicone, Pb,Cd,Hg & FCKW free: Yes  
 Flame resistance:  
 Good (VW1/FT1 & IEC60332-1)  
 Key factor:  
 Cost-effective solution for less demanding environments (limited exposure to oil and lubricants)



Cross Section		No. of Circuits	Diameter in mm	Jacket Color	Packaging	Packaging Composition	Standard Order No	Sketch
mm²	AWG							
(4G1,5)	(4G AWG16)	4	9,0	Orange	S	1x200m	155311-0001	
					M	1x500m	155311-0002	
					L	1x1000m	155311-0003	
(4G2,5)	(4G AWG14)	4	10,6		S	1x200m	155311-0004	
					M	1x500m	155311-0005	
					L	1x1000m	155311-0006	
(4G4,0)	(4G AWG12)	4	12,2		S	1x200m	155311-0007	
					M	1x500m	155311-0008	
					L	1x1000m	155311-0009	
(4G6,0)	(4G AWG10)	4	14,5		S	1x100m	155311-0010	
					M	1x500m	155311-0011	
					L	1x1000m	155311-0012	
(4G1,5 + 2x1,5)	(4G AWG16 + 2xAWG16)	6 (4+2)	11,1	S	1x100m	155311-1001		
				M	1x500m	155311-1002		
				L	1x1000m	155311-1003		
(4G2,5 + 2x1,5)	(4G AWG14 + 2xAWG16)	6 (4+2)	12,6	S	1x100m	155311-1004		
				M	1x500m	155311-1005		
				L	1x1000m	155311-1006		
(4G4,0 + 2x1,5)	(4G AWG12 + 2xAWG16)	6 (4+2)	14,0	S	1x100m	155311-1007		
				M	1x500m	155311-1008		
				L	1x1000m	155311-1009		
(4G6,0 + 2x1,5)	(4G AWG10 + 2xAWG16)	6 (4+2)	16,2	S	1x100m	155311-1010		
				M	1x250m	155311-1011		
				L	1x500m	155311-1012		
(4G1,5 + 2x(2x0,75))	(4 AWG16 + 2x(2xAWG19))	8 (4+2+2)	12,1	S	1x100m	155311-2001		
				M	1x500m	155311-2002		
				L	1x1000m	155311-2003		
(4G2,5 + 2x(2x1,0))	(4 AWG14 + 2x(2xAWG18))	8 (4+2+2)	14,1	S	1x100m	155311-2004		
				M	1x500m	155311-2005		
				L	1x1000m	155311-2006		
(4G4,0 + 2x(2x1,5))	(4 AWG12 + 2x(2xAWG16))	8 (4+2+2)	15,8	S	1x100m	155311-2007		
				M	1x250m	155311-2008		
				L	1x500m	155311-2009		
(4G6,0 + 2x(2x1,5))	(4 AWG10 + 2x(2xAWG16))	8 (4+2+2)	17,9	S	1x100m	155311-2010		
				M	1x250m	155311-2011		
				L	1x500m	155311-2012		



**Cables with PVC jacket, suitable for flexible installation in standard environments. To connect encoders/ resolvers by means of a M23 signal connector.**

**155311** Feedback Cables  
Flexible Installation  
PVC Jacket  
Shielded  
+5°C/+80°C 600V

### Specifications

Application: Standard environment

Installation: Flexible

Halogen Free: No

Temp. rating (flexible installation):  
+5°C/+80°C

Voltage rating: 600V

Bending radius (flex. install. at 20°C):  
> 15xOD

Insulation material: TPE

Jacket material: PVC

Shielded: Yes

Approval: UL AWM 2570 / CSA

Marking: acc. to UL/CSA

Silicone, Pb,Cd,Hg & FCKW free: Yes

Flame resistance:

Good (VW1/FT1 & IEC60332-1)

Key factor:

Cost-effective solution for less demanding environments (limited exposure to oil and lubricants)



Cross Section		No. of Circuits	Diameter in mm	Jacket Color	Packaging	Packaging Composition	Standard Order No	Sketch
mm <sup>2</sup>	AWG							
(4x2x0,25 + 2x1,00)C	(4x2xAWG24 + 2xAWG18)C	10 (8+2)	8,8	Orange	S	1x200m	155311-9001	
					M	1x500m	155311-9002	
					L	1x1000m	155311-9003	
(3x(2x0,14)D + 2x(0,50)D)C	(3x(2xAWG26)D + 2x(AWG21)D)C	8 (6+2)	9,0	Green	S	1x200m	155311-9004	
					M	1x500m	155311-9005	
					L	1x1000m	155311-9006	
(4x2x0,38 + 4x0,50)C	(4x2xAWG22 + 4xAWG21)C	12 (8+4)	9,5	Green	S	1x200m	155311-9007	
					M	1x500m	155311-9008	
					L	1x1000m	155311-9009	
(3x(2x0,14)D + 2x0,50 + 4x0,14 + 4x0,25)C	(3x(2xAWG26)D + 2xAWG21 + 4xAWG26 + 4xAWG24)C	16 (6+2+4+4)	10,0	Green	S	1x100m	155311-9010	
					M	1x500m	155311-9011	
					L	1x1000m	155311-9012	

### Related Products

#### Field Attachable Connectors



**120230** – Brad® M23 Signal Connectors

**120233** – Brad® M23 Power Connectors

#### Overmolded Connectors



**120480** – Brad® M23 Power Cordsets

**120490** – Brad® M23 Signal Cordsets

**Cables with Weld-Slag and Oil-Resistant "WSOR" jacket cover the broadest range of industrial applications, allowing the reduction of inventory costs. Suitable for drag chain applications.**

**For servo motors power supply in combination with M23 power connector. Available with or without shielded pairs, in case brakes or thermal sensors (PTC) might be connected.**

## Flamar Servo Motor

**155321** Power Cables  
 Drag Chain Installation  
 WSOR Jacket  
 Shielded  
 -25°C/+80°C 1000V

### Specifications

Application: Severe environment  
 Installation: Drag Chain  
 Halogen Free: No  
 Temp. rating (flexible installation):  
 -25°C/+80°C  
 Voltage rating: 1000V  
 Bending radius (flex. install. at 20°C):  
 > 10xOD  
 Insulation material: TPE  
 Jacket material: WSOR  
 Shielded: Yes

Approval: UL AWM 21939 / CSA  
 Marking: acc. to UL/CSA  
 Silicone, Pb,Cd,Hg & FCKW free: Yes  
 Flame resistance:  
 Good (VW1/FT1 & IEC60332-1)  
 Key factor:  
 Weld-Slag and Oil-Resistant. A single cable solution for automotive lines and industrial applications.



Cross Section		No. of Circuits	Diameter in mm	Jacket Color	Packaging	Packaging Composition	Standard Order No	Sketch
mm²	AWG							
(4G1,5)	(4G AWG16)	4	9,0	Orange	S	1x200m	155321-0001	
					M	1x500m	155321-0002	
					L	1x1000m	155321-0003	
(4G2,5)	(4G AWG14)	4	10,6		S	1x100m	155321-0004	
					M	1x500m	155321-0005	
					L	1x1000m	155321-0006	
(4G4,0)	(4G AWG12)	4	12,2		S	1x100m	155321-0007	
					M	1x500m	155321-0008	
					L	1x1000m	155321-0009	
(4G6,0)	(4G AWG10)	4	14,5		S	1x100m	155321-0010	
					M	1x500m	155321-0011	
					L	1x1000m	155321-0012	
(4G1,5 + 2x1,5)	(4G AWG16 + 2xAWG16)	6 (4+2)	11,1	S	1x100m	155321-1001		
				M	1x500m	155321-1002		
				L	1x1000m	155321-1003		
(4G2,5 + 2x1,5)	(4G AWG14 + 2xAWG16)	6 (4+2)	12,6	S	1x100m	155321-1004		
				M	1x500m	155321-1005		
				L	1x1000m	155321-1006		
(4G4 + 2x1,5)	(4G AWG12 + 2xAWG16)	6 (4+2)	14,0	S	1x100m	155321-1007		
				M	1x500m	155321-1008		
				L	1x1000m	155321-1009		
(4G6 + 2x1,5)	(4G AWG10 + 2xAWG16)	6 (4+2)	16,2	S	1x100m	155321-1010		
				M	1x250m	155321-1011		
				L	1x500m	155321-1012		
(4G1,5 + 2x(2x0,75))	(4G AWG16 + 2x(2xAWG19))	8 (4+2+2)	12,1	S	1x100m	155321-2001		
				M	1x500m	155321-2002		
				L	1x1000m	155321-2003		
(4G2,5 + 2x(2x1,0))	(4G AWG14 + 2x(2xAWG18))	8 (4+2+2)	14,1	S	1x100m	155321-2004		
				M	1x500m	155321-2005		
				L	1x1000m	155321-2006		
(4G4,0 + 2x(2x1,5))	(4G AWG12 + 2x(2xAWG16))	8 (4+2+2)	15,8	S	1x100m	155321-2007		
				M	1x250m	155321-2008		
				L	1x500m	155321-2009		
(4G6,0 + 2x(2x1,5))	(4G AWG10 + 2x(2xAWG16))	8 (4+2+2)	17,9	S	1x100m	155321-2010		
				M	1x250m	155321-2011		
				L	1x500m	155321-2012		

**Cables with Weld-Slag and Oil-Resistant "WSOR" jacket cover the broadest range of industrial applications, allowing the reduction of inventory costs. Suitable for drag chain applications. To connect encoders/ resolvers by means of a M23 signal connector.**

**155321** Feedback Cables  
Drag Chain Installation  
WSOR Jacket  
Shielded  
-25°C/+80°C 600V

### Specifications

Application: Severe environment  
Installation: Drag Chain  
Halogen Free: No  
Temp. rating (flexible installation):  
-25°C/+80°C  
Voltage rating: 600V  
Bending radius (flex. install. at 20°C):  
> 12xOD  
Insulation material: TPE  
Jacket material: WSOR  
Shielded: Yes

Approval: UL AWM 21215 / CSA  
Marking: acc. to UL/CSA  
Silicone, Pb,Cd,Hg & FCKW free: Yes  
Flame resistance:  
Good (VW1/FT1 & IEC60332-1)  
Key factor:  
Weld-Slag and Oil-Resistant. A single cable solution for automotive lines and industrial applications.



Cross Section		No. of Circuits	Diameter in mm	Jacket Color	Packaging	Packaging Composition	Standard Order No	Sketch
mm <sup>2</sup>	AWG							
(4x2x0,25 + 2x1,00)C	(4x2xAWG24 + 2xAWG18)C	10 (8+2)	8,8	Orange	S	1x200m	155321-9001	
					M	1x500m	155321-9002	
					L	1x1000m	155321-9003	
(3x(2x0,14)D + 2x(0,50)D)C	(3x(2xAWG26)D + 2x(AWG21)D)C	8 (6+2)	9,0	Green	S	1x200m	155321-9004	
					M	1x500m	155321-9005	
					L	1x1000m	155321-9006	
(4x2x0,38 + 4x0,50)C	(4x2xAWG22 + 4xAWG21)C	12 (8+4)	9,5	Green	S	1x200m	155321-9007	
					M	1x500m	155321-9008	
					L	1x1000m	155321-9009	
(3x(2x0,14)D + 2x0,50 + 4x0,14 + 4x0,25)C	(3x(2xAWG26)D + 2xAWG21 + 4xAWG26 + 4xAWG24)C	16 (6+2+4+4)	10,0	Green	S	1x100m	155321-9010	
					M	1x500m	155321-9011	
					L	1x1000m	155321-9012	

### Related Products

#### Field Attachable Connectors



**120230** – Brad® M23 Signal Connectors

**120233** – Brad® M23 Power Connectors

#### Overmolded Connectors



**120480** – Brad® M23 Power Cordsets

**120490** – Brad® M23 Signal Cordsets

**Cables with Polyurethane (PUR, TPU) jacket ensure top mechanical performance, withstand harsh environments and resist to abrasion. Suitable for drag chain applications. For servo motors power supply in combination with M23 power connector. Available with or without shielded pairs, in case brakes or thermal sensors (PTC) might be connected.**

## Flamar Servo Motor

**155331** Power Cables  
 Drag Chain Installation  
 PUR Jacket  
 Shielded  
 -40°C/+80°C 1000V

### Specifications

Application: Harsh environment  
 Installation: Drag Chain  
 Halogen Free: Yes  
 Temp. rating (flexible installation):  
 -40°C/+80°C  
 Voltage rating: 1000V  
 Bending radius (flex. install. at 20°C):  
 > 10xOD  
 Insulation material: TPE  
 Jacket material: PUR  
 Shielded: Yes

Approval: UL AWM 21223 / CSA  
 Marking: acc. to UL/CSA  
 Silicone, Pb,Cd,Hg & FCKW free: Yes  
 Flame resistance:  
 Good (VW1/FT1 & IEC60332-1)  
 Key factor:  
 Excellent resistance to oil and abrasion. Ensures top mechanical performances.



Cross Section		No. of Circuits	Diameter in mm	Jacket Color	Packaging	Packaging Composition	Standard Order No	Sketch
mm <sup>2</sup>	AWG							
(4G1,5)	(4G AWG16)	4	9,0	Orange	S	1x200m	155331-0001	
					M	1x500m	155331-0002	
					L	1x1000m	155331-0003	
(4G2,5)	(4G AWG14)	4	10,6		S	1x100m	155331-0004	
					M	1x500m	155331-0005	
					L	1x1000m	155331-0006	
(4G4,0)	(4G AWG12)	4	12,2		S	1x100m	155331-0007	
					M	1x500m	155331-0008	
					L	1x1000m	155331-0009	
(4G6,0)	(4G AWG10)	4	14,5		S	1x100m	155331-0010	
					M	1x500m	155331-0011	
					L	1x1000m	155331-0012	
4G1,5 + (2x1,5)	(4G AWG16 + (2xAWG16))	6 (4+2)	11,1	S	1x100m	155331-1001		
				M	1x500m	155331-1002		
				L	1x1000m	155331-1003		
(4G2,5 + (2x1,5))	(4G AWG14 + (2xAWG16))	6 (4+2)	12,6	S	1x100m	155331-1004		
				M	1x500m	155331-1005		
				L	1x1000m	155331-1006		
(4G4,0 + (2x1,5))	(4G AWG12 + (2xAWG16))	6 (4+2)	14,0	S	1x100m	155331-1007		
				M	1x500m	155331-1008		
				L	1x1000m	155331-1009		
(4G6,0 + (2x1,5))	(4G AWG10 + (2xAWG16))	6 (4+2)	16,2	S	1x100m	155331-1010		
				M	1x250m	155331-1011		
				L	1x500m	155331-1012		
(4G1,5 + 2x(2x0,75))	(4G AWG16 + 2x(2xAWG19))	8 (4+2+2)	12,1	S	1x100m	155331-2001		
				M	1x500m	155331-2002		
				L	1x1000m	155331-2003		
(4G2,5 + 2x(2x1,0))	(4G AWG14 + 2x(2xAWG18))	8 (4+2+2)	14,1	S	1x100m	155331-2004		
				M	1x500m	155331-2005		
				L	1x1000m	155331-2006		
(4G4 + 2x(2x1,5))	(4G AWG12 + 2x(2xAWG16))	8 (4+2+2)	15,8	S	1x100m	155331-2007		
				M	1x250m	155331-2008		
				L	1x500m	155331-2009		
(4G6 + 2x(2x1,5))	(4G AWG10 + 2x(2xAWG16))	8 (4+2+2)	17,9	S	1x100m	155331-2010		
				M	1x250m	155331-2011		
				L	1x500m	155331-2012		

**Cables with Polyurethane (PUR, TPU) jacket ensure top mechanical performance, withstand harsh environments and resist to abrasion. Suitable for drag chain applications. To connect encoders/ resolvers by means of a M23 signal connector.**

**155331** Feedback Cables  
Drag Chain Installation  
PUR Jacket  
Shielded  
-40°C/+80°C 600V

### Specifications

Application: Harsh environment  
Installation: Drag Chain  
Halogen Free: Yes  
Temp. rating (flexible installation):  
-40°C/+80°C  
Voltage rating: 600V  
Bending radius (flex. install. at 20°C):  
> 12xOD  
Insulation material: TPE  
Jacket material: PUR  
Shielded: Yes

Approval: UL AWM 21223 / CSA  
Marking: acc. to UL/CSA  
Silicone, Pb,Cd,Hg & FCKW free: Yes  
Flame resistance:  
Good (VW1/FT1 & IEC60332-1)  
Key factor:  
Excellent resistance to oil and abrasion. Ensures top mechanical performances.



Cross Section		No. of Circuits	Diameter in mm	Jacket Color	Packaging	Packaging Composition	Standard Order No	Sketch
mm <sup>2</sup>	AWG							
(4x2x0,25 + 2x1,00)C	(4x2xAWG24 + 2xAWG18)C	10 (8+2)	8,80	Orange	S	1x200m	155331-9001	
					M	1x500m	155331-9002	
					L	1x1000m	155331-9003	
(3x(2x0,14)D + 2x0,50)C	(3x(2xAWG26)D + 2x(AWG21)D)C	8 (6+2)	9,00	Green	S	1x200m	155331-9004	
					M	1x500m	155331-9005	
					L	1x1000m	155331-9006	
(4x2x0,38 + 4x0,50)C	(4x2xAWG22 + 4xAWG21)C	12 (8+4)	9,5	Green	S	1x200m	155331-9007	
					M	1x500m	155331-9008	
					L	1x1000m	155331-9009	
(3x(2x0,14)D + 2x0,50 + 4x0,14 + 4x0,25)C	(3x(2xAWG26)D + 2xAWG21 + 4xAWG26 + 4xAWG24)C	16 (6+2+4+4)	10,0	Green	S	1x100m	155331-9010	
					M	1x500m	155331-9011	
					L	1x1000m	155331-9012	

### Related Products

#### Field Attachable Connectors



**120230** – Brad® M23 Signal Connectors

**120233** – Brad® M23 Power Connectors

#### Overmolded Connectors



**120480** – Brad® M23 Power Cordsets

**120490** – Brad® M23 Signal Cordsets



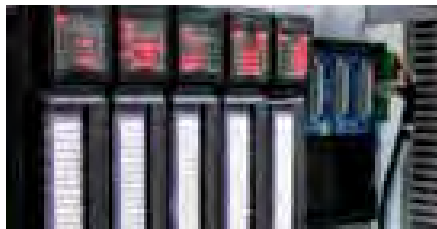
## Network

Series	Environment	Installation	Halogen Free	Temperature Rating °C (flexible installation)		Voltage Rating V	Bending Radius (flex. install. at 20°C)
155411	Standard	Flexible	No	+5°C	+60°C (CC-Link) +60°C (PROFIBUS) +70°C (PROFINET) +60°C (EtherNet/IP)	300V	>15xOD
155421	Severe	Drag Chain	No	-10°C	+60°C (CC-Link) +60°C (PROFIBUS) +70°C (PROFINET) +60°C (EtherNet/IP)	600V	> 15xOD
155431	Harsh	Drag Chain	Yes	-20°C	+60°C (CC-Link) +60°C (PROFIBUS) +70°C (PROFINET) +60°C (EtherNet/IP)	300V	> 15xOD

## Typical Applications



I/O Modules



Connections to PLC

## Jacket choice criteria

- PVC: The most cost-effective solution for flexible and static installation.
- WSOR: Weld-Slag and Oil-Resistant Cable, a single-cable solution designed to withstand the severe environments found in automotive and industrial factory floors. Suitable for drag chain applications.
- PUR (Polyurethane): Ensures top mechanical performance, withstands harsh environments, abrasion resistant. Suitable for drag chain applications

Selecting the right cable for your application is very important to ensure a reliable, problem-free installation. Careful consideration of mechanical abrasion, fluid/chemical exposure, flexibility (C-track, torsion), temperature resistance and flame retardancy requirements is required to select the cable that will provide performance and reliability in service.



## Flamar Cables for Network Applications

Jacket Material	Shielded	Approval	Flame Resistance	Oil & Lubricants Resistance	Abrasion Resistance	Page No.
PVC	Yes	UL AWM 2464 / CSA	Good	Limited	Limited	64
WSOR	Yes	UL AWM 21215 / CSA	Good	Good	Medium	68
PUR	Yes	UL AWM 20233 / CSA	Good	Excellent	Excellent	72

CC-Link

PROFI<sup>®</sup>  
BUS

PROFI<sup>®</sup>  
NET

EtherNet/IP<sup>™</sup>



**Cables with PVC jacket, suitable for flexible installation in standard environments. To connect field based devices (sensors, actuators, I/O modules, PLC) in combination with M12 and RJ45 connectors.**

## Specifications

Application: Standard environment  
 Installation: Flexible  
 Halogen Free: No  
 Temp. rating (flexible installation):  
 +5°C / +60°C  
 Voltage rating: 300V  
 Bending radius (flex. install. at 20°C):  
 >15xOD  
 Insulation material: Foam PE  
 Jacket material: PVC

Shielded: Yes  
 Approval: UL AWM 2464 / CSA  
 Marking: acc. to UL/CSA  
 Silicone, Pb,Cd,Hg & FCKW free: Yes  
 Flame resistance:  
 Good (VW1/FT1 & IEC60332-1)  
 Key factor:  
 Cost-effective solution for less demanding environments (limited exposure to oil and lubricants)

## Flamar Network Cables

**155411** Network  
 Flexible Installation  
 PVC Jacket  
 Shielded



## Network Cables - CC-Link

Cross Section		Diameter in mm	Jacket Color	Packaging	Packaging Composition	Standard Order No	Sketch
mm <sup>2</sup>	AWG						
3x0,5	3xAWG20	7,7	Red	S	3x100m	155411-2001	
				M	1x500m	155411-2002	
				L	1x100m	155411-2003	



**Cables with PVC jacket, suitable for flexible installation in standard environments. To connect field based devices (sensors, actuators, I/O modules, PLC) in combination with M12 and RJ45 connectors.**

**155411** Network  
Flexible Installation  
PVC Jacket  
Shielded

### Specifications

Application: Standard environment  
Installation: Flexible  
Halogen Free: No  
Temp. rating (flexible installation):  
+5°C / +60°C  
Voltage rating: 300V  
Bending radius (flex. install. at 20°C):  
>15xOD  
Insulation material: Foam PE  
Jacket material: PVC

Shielded: Yes  
Approval: UL AWM 2464 / CSA  
Marking: acc. to UL/CSA  
Silicone, Pb,Cd,Hg & FCKW free: Yes  
Flame resistance:  
Good (VW1/FT1 & IEC60332-1)  
Key factor:  
Cost-effective solution for less  
demanding environments (limited  
exposure to oil and lubricants)



### Network Cables - PROFIBUS "DP"

Cross Section		Diameter in mm	Jacket Color	Packaging	Packaging Composition	Standard Order No	Sketch
mm <sup>2</sup>	AWG						
2x0,34	2xAWG22	8,2	Violet	S	1x200m	155411-1004	
				M	1x500m	155411-1005	
				L	1x1000m	155411-1006	

**Cables with PVC jacket, suitable for flexible installation in standard environments. To connect field based devices (sensors, actuators, I/O modules, PLC) in combination with M12 and RJ45 connectors.**

## Specifications

Application: Standard environment  
 Installation: Flexible  
 Halogen Free: No  
 Temp. rating (flexible installation):  
 +5°C / +70°C  
 Voltage rating: 300V  
 Bending radius (flex. install. at 20°C):  
 >15xOD  
 Insulation material: PE  
 Jacket material: PVC

Shielded: Yes  
 Approval: UL AWM 2464 / CSA  
 Marking: acc. to UL/CSA  
 Silicone, Pb,Cd,Hg & FCKW free: Yes  
 Flame resistance:  
 Good (VW1/FT1 & IEC60332-1)  
 Key factor:  
 Cost-effective solution for less demanding environments (limited exposure to oil and lubricants)

## Flamar Network Cables

**155411** Network  
 Flexible Installation  
 PVC Jacket  
 Shielded



## Network Cables - PROFINET C

Cross Section		Diameter in mm	Jacket Color	Packaging	Packaging Composition	Standard Order No	Sketch
mm²	AWG						
2x2x0,34	2x2xAWG22	6,8	Green	S	3x100m	155411-5001	
				M	1x500m	155411-5002	
				L	1x100m	155411-5003	

**Cables with PVC jacket, suitable for flexible installation in standard environments. To connect field based devices (sensors, actuators, I/O modules, PLC) in combination with M12 and RJ45 connectors.**

**155411** Network  
Flexible Installation  
PVC Jacket  
Shielded

### Specifications

Application: Standard environment  
Installation: Flexible  
Halogen Free: No  
Temp. rating (flexible installation):  
+5°C / +60°C  
Voltage rating: 300V  
Bending radius (flex. install. at 20°C):  
>15xOD  
Insulation material: PE  
Jacket material: PVC

Shielded: Yes  
Approval: UL AWM 2464 / CSA  
Marking: acc. to UL/CSA  
Silicone, Pb,Cd,Hg & FCKW free: Yes  
Flame resistance:  
Good (VW1/FT1 & IEC60332-1)  
Key factor:  
Cost-effective solution for less demanding environments (limited exposure to oil and lubricants)



### Network Cables - Ethernet 5e

Cross Section		Diameter in mm	Jacket Color	Packaging	Packaging Composition	Standard Order No	Sketch
mm <sup>2</sup>	AWG						
2x2x0,14	2x2xAWG26	6,5	Teal	S	3x100m	155411-6001	
				M	1x500m	155411-6002	
				L	1x1000m	155411-6003	
4x2x0,14	4x2xAWG26	7,2		S	3x100m	155411-6004	
				M	1x500m	155411-6005	
				L	1x1000m	155411-6006	
2x2x0,25	2x2xAWG24	7,0		S	3x100m	155411-6007	
				M	1x500m	155411-6008	
				L	1x1000m	155411-6009	
4x2x0,25	4x2xAWG24	7,8	S	3x100m	155411-6010		
			M	1x500m	155411-6011		
			L	1x1000m	155411-6012		

**Cables with Weld-Slag and Oil-Resistant "WSOR" jacket cover the broadest range of industrial applications, allowing the reduction of inventory costs. Suitable for drag chain applications.**

**To connect field based devices (sensors, actuators, I/O modules, PLC) in combination with M12 and RJ45 connectors.**

## Specifications

Application: Severe environment  
 Installation: Drag Chain  
 Halogen Free: No  
 Temp. rating (flexible installation):  
 -10°C / +60°C  
 Voltage rating: 600V  
 Bending radius (flex. install. at 20°C):  
 > 15xOD  
 Insulation material: Foam PE  
 Jacket material: WSOR

Shielded: Yes  
 Approval: UL AWM 21215 / CSA  
 Marking: acc. to UL/CSA  
 Silicone, Pb,Cd,Hg & FCKW free: Yes  
 Flame resistance:  
 Good (VW1/FT1 & IEC60332-1)  
 Key factor:  
 Weld-Slag and Oil-Resistant. A single cable solution for automotive lines and industrial applications.

## Flamar Network Cables

**155421** Network  
 Drag Chain Installation  
 WSOR Jacket  
 Shielded



## Network Cables - CC-Link

Cross Section		Diameter in mm	Jacket Color	Packaging	Packaging Composition	Standard Order No	Sketch
mm²	AWG						
3x0,5	3xAWG20	7,7	Red	S	3x100m	155421-2001	
				M	1x500m	155421-2002	
				L	1x100m	155421-2003	

**155421** Network  
 Drag Chain Installation  
 WSOR Jacket  
 Shielded

**Cables with Weld-Slag and Oil-Resistant "WSOR" jacket cover the broadest range of industrial applications, allowing the reduction of inventory costs. Suitable for drag chain applications.**

**To connect field based devices (sensors, actuators, I/O modules, PLC) in combination with M12 and RJ45 connectors.**

### Specifications

Application: Standard environment

Installation: Drag Chain

Halogen Free: No

Temp. rating (flexible installation):

-10°C / +60°C

Voltage rating: 600V

Bending radius (flex. install. at 20°C):

>15xOD

Insulation material: Foam PE

Jacket material: WSOR

Shielded: Yes

Approval: UL AWM 21215 / CSA

Marking: acc. to UL/CSA

Silicone, Pb,Cd,Hg & FCKW free: Yes

Flame resistance:

Good (VW1/FT1 & IEC60332-1)

Key factor:

Weld-Slag and Oil-Resistant. A single cable solution for automotive lines and industrial applications.



### Network Cables - PROFIBUS "DP"

Cross Section		Diameter in mm	Jacket Color	Packaging	Packaging Composition	Standard Order No	Sketch
mm <sup>2</sup>	AWG						
2x0,34	2xAWG22	8,2	Violet	S	1x200m	155421-1004	
				M	1x500m	155421-1005	
				L	1x1000m	155421-1006	

**Cables with Weld-Slag and Oil-Resistant "WSOR" jacket cover the broadest range of industrial applications, allowing the reduction of inventory costs. Suitable for drag chain applications.**

**To connect field based devices (sensors, actuators, I/O modules, PLC) in combination with M12 and RJ45 connectors.**

## Specifications

Application: Severe environment  
 Installation: Drag Chain  
 Halogen Free: No  
 Temp. rating (flexible installation):  
 -10°C / +70°C  
 Voltage rating: 600V  
 Bending radius (flex. install. at 20°C):  
 > 15xOD  
 Insulation material: PE  
 Jacket material: WSOR

Shielded: Yes  
 Approval: UL AWM 21215 / CSA  
 Marking: acc. to UL/CSA  
 Silicone, Pb,Cd,Hg & FCKW free: Yes  
 Flame resistance:  
 Good (VW1/FT1 & IEC60332-1)  
 Key factor:  
 Weld-Slag and Oil-Resistant. A single cable solution for automotive lines and industrial applications.

## Flamar Network Cables

**155421** Network  
 Drag Chain Installation  
 WSOR Jacket  
 Shielded



## Network Cables - PROFINET C

Cross Section		Diameter in mm	Jacket Color	Packaging	Packaging Composition	Standard Order No	Sketch
mm²	AWG						
2x2x0,34	2x2xAWG22	6,8	Green	S	3x100m	155421-5001	
				M	1x500m	155421-5002	
				L	1x100m	155421-5003	

**Cables with Weld-Slag and Oil-Resistant "WSOR" jacket cover the broadest range of industrial applications, allowing the reduction of inventory costs. Suitable for drag chain applications.**

**To connect field based devices (sensors, actuators, I/O modules, PLC) in combination with M12 and RJ45 connectors.**

**155421 Network**  
 Drag Chain Installation  
 WSOR Jacket  
 Shielded

### Specifications

Application: Severe environment  
 Installation: Drag Chain  
 Halogen Free: No  
 Temp. rating (flexible installation):  
 -10°C / +60°C  
 Voltage rating: 600V  
 Bending radius (flex. install. at 20°C):  
 > 15xOD  
 Insulation material: PE  
 Jacket material: WSOR

Shielded: Yes  
 Approval: UL AWM 21215 / CSA  
 Marking: acc. to UL/CSA  
 Silicone, Pb,Cd,Hg & FCKW free: Yes  
 Flame resistance:  
 Good (VW1/FT1 & IEC60332-1)  
 Key factor:  
 Weld-Slag and Oil-Resistant. A single cable solution for automotive lines and industrial applications.



### Network Cables - Ethernet 5e

Cross Section		Diameter in mm	Jacket Color	Packaging	Packaging Composition	Standard Order No	Sketch
mm <sup>2</sup>	AWG						
2x2x0,14	2x2xAWG26	6,5	Teal	S	3x100m	155421-6001	
				M	1x500m	155421-6002	
				L	1x1000m	155421-6003	
4x2x0,14	4x2xAWG26	7,2		S	3x100m	155421-6004	
				M	1x500m	155421-6005	
				L	1x1000m	155421-6006	
2x2x0,25	2x2xAWG24	7,0		S	3x100m	155421-6007	
				M	1x500m	155421-6008	
				L	1x1000m	155421-6009	
4x2x0,25	4x2xAWG24	7,8	S	3x100m	155421-6010		
			M	1x500m	155421-6011		
			L	1x1000m	155421-6012		

**Cables with Polyurethane (PUR, TPU) jacket ensure top mechanical performance, withstand harsh environments and resist to abrasion. Suitable for drag chain applications. To connect field based devices (sensors, actuators, I/O modules, PLC) in combination with M12 and RJ45 connectors.**

## Specifications

Application: Harsh environment  
 Installation: Drag Chain  
 Halogen Free: Yes  
 Temp. rating (flexible installation):  
 -20°C / +60°C  
 Voltage rating: 300V  
 Bending radius (flex. install. at 20°C):  
 > 15xOD  
 Insulation material: Foam PE  
 Jacket material: PUR

Shielded: Yes  
 Approval: UL AWM 20233 / CSA  
 Marking: acc. to UL/CSA  
 Silicone, Pb,Cd,Hg & FCKW free: Yes  
 Flame resistance:  
 Good (VW1/FT1 & IEC60332-1)  
 Key factor:  
 Excellent resistance to oil and abrasion. Ensures top mechanical performances.

## Flamar Network Cables

**155431** Network  
 Drag Chain Installation  
 PUR Jacket  
 Shielded



## Network Cables - CC-Link

Cross Section		Diameter in mm	Jacket Color	Packaging	Packaging Composition	Standard Order No	Sketch
mm <sup>2</sup>	AWG						
3x0,5	3xAWG20	7,7	Red	S	3x100m	155431-2001	
				M	1x500m	155431-2002	
				L	1x1000m	155431-2003	



**Cables with Polyurethane (PUR, TPU) jacket ensure top mechanical performance, withstand harsh environments and resist to abrasion. Suitable for drag chain applications. To connect field based devices (sensors, actuators, I/O modules, PLC) in combination with M12 and RJ45 connectors.**

**155431** Network  
 Drag Chain Installation  
 PUR Jacket  
 Shielded

### Specifications

Application: Harsh environment  
 Installation: Drag Chain  
 Halogen Free: Yes  
 Temp. rating (flexible installation):  
 -20°C / +60°C  
 Voltage rating: 300V  
 Bending radius (flex. install. at 20°C):  
 >15xOD  
 Insulation material: Foam PE  
 Jacket material: PUR  
 Shielded: Yes

Approval: UL AWM 20233 / CSA  
 Marking: acc. to UL/CSA  
 Silicone, Pb,Cd,Hg & FCKW free: Yes  
 Flame resistance:  
 Good (VW1/FT1 & IEC60332-1)  
 Key factor:  
 Excellent resistance to oil and abrasion. Ensures top mechanical performances.



### Network Cables - PROFIBUS "DP"

Cross Section		Diameter in mm	Jacket Color	Packaging	Packaging Composition	Standard Order No	Sketch
mm <sup>2</sup>	AWG						
2x0,34	2xAWG22	8,2	Violet	S	1x200m	155431-1004	
				M	1x500m	155431-1005	
				L	1x1000m	155431-1006	

**Cables with Polyurethane (PUR, TPU) jacket ensure top mechanical performance, withstand harsh environments and resist to abrasion. Suitable for drag chain applications. To connect field based devices (sensors, actuators, I/O modules, PLC) in combination with M12 and RJ45 connectors.**

## Specifications

Application: Harsh environment  
 Installation: Drag Chain  
 Halogen Free: Yes  
 Temp. rating (flexible installation):  
 -20°C / +70°C  
 Voltage rating: 300V  
 Bending radius (flex. install. at 20°C):  
 > 15xOD  
 Insulation material: PE  
 Jacket material: PUR

Shielded: Yes  
 Approval: UL AWM 20233 / CSA  
 Marking: acc. to UL/CSA  
 Silicone, Pb,Cd,Hg & FCKW free: Yes  
 Flame resistance:  
 Good (VW1/FT1 & IEC60332-1)  
 Key factor:  
 Excellent resistance to oil and abrasion. Ensures top mechanical performances.

## Flamar Network Cables

**155431** Network  
 Drag Chain Installation  
 PUR Jacket  
 Shielded



## Network Cables - PROFINET C

Cross Section		Diameter in mm	Jacket Color	Packaging	Packaging Composition	Standard Order No	Sketch
mm²	AWG						
2x2x0,34	2x2xAWG22	6,8	Green	S	3x100m	155431-5001	
				M	1x500m	155431-5002	
				L	1x1000m	155431-5003	

**Cables with Polyurethane (PUR, TPU) jacket ensure top mechanical performance, withstand harsh environments and resist to abrasion. Suitable for drag chain applications. To connect field based devices (sensors, actuators, I/O modules, PLC) in combination with M12 and RJ45 connectors.**

**155431 Network**  
 Drag Chain Installation  
 PUR Jacket  
 Shielded

### Specifications

Application: Harsh environment  
 Installation: Drag Chain  
 Halogen Free: Yes  
 Temp. rating (flexible installation):  
 -20°C / +60°C  
 Voltage rating: 300V  
 Bending radius (flex. install. at 20°C):  
 > 15xOD  
 Insulation material: PE  
 Jacket material: PUR

Shielded: Yes  
 Approval: UL AWM 20233 / CSA  
 Marking: acc. to UL/CSA  
 Silicone, Pb,Cd,Hg & FCKW free: Yes  
 Flame resistance:  
 Good (VW1/FT1 & IEC60332-1)  
 Key factor:  
 Excellent resistance to oil and abrasion. Ensures top mechanical performances.



### Network Cables - Ethernet 5e

Cross Section		Diameter in mm	Jacket Color	Packaging	Packaging Composition	Standard Order No	Sketch
mm <sup>2</sup>	AWG						
2x2x0,14	2x2xAWG26	6,5	Teal	S	3x100m	155431-6001	
				M	1x500m	155431-6002	
				L	1x1000m	155431-6003	
4x2x0,14	4x2xAWG26	7,2		S	3x100m	155431-6004	
				M	1x500m	155431-6005	
				L	1x1000m	155431-6006	
2x2x0,25	2x2xAWG24	7,0		S	3x100m	155431-6007	
				M	1x500m	155431-6008	
				L	1x1000m	155431-6009	
4x2x0,25	4x2xAWG24	7,8		S	3x100m	155431-6010	
				M	1x500m	155431-6011	
				L	1x1000m	155431-6012	

**155431** Network  
Drag Chain Installation  
PUR Jacket  
Shielded

### Related Products

#### Field Attachable Connectors



**130047** – Brad® Micro-Change® (M12)  
Ethernet Field Attachable Connectors

**120100** – Brad® Micro-Change® (M12)  
Field Attachable Connectors,  
PROFIBUS Shielded

**120071** – Brad® Micro-Change® (M12)  
Field Attachable Connectors



**130034** – Brad® Mini-Change®  
Field Attachable Connectors

#### Overmolded Connectors



**130050** – Brad® RJ-Lnxx™ RJ-45 Connectors



**130048** – Brad® Micro-Change® (M12)  
Double-Ended Cordsets

**120108** – Brad® Micro-Change® (M12)  
Double-Ended Cordsets





**HYBRID CABLES >  
FOR CUSTOM SOLUTIONS**

**Flamar designs and manufactures custom made Hybrid Cables according to customer requirements and conform to market potential.**



# Flamar Hybrid Cables



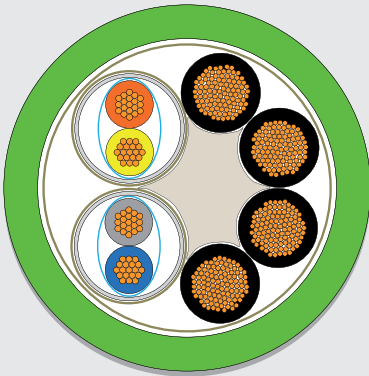
**Ideal solutions in applications with low voltage and power conductors together with coax data and transmission elements to reduce installation space and transmission elements**

### Specifications

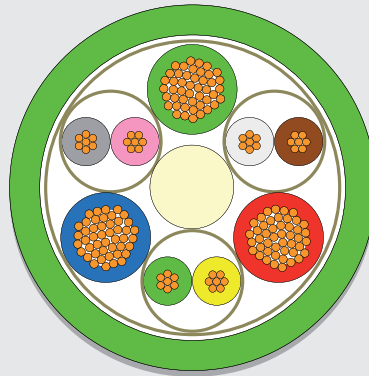
Cross section: 12-26AWG  
 Insulating Material: PE – PP – PEE  
 Pair Tape: 9/12 – 40/36  
 Pair shielding: Braid  
 Covering Material: TPV – TPO  
 Tape: 9/12 – 40/36  
 Shield: Braid  
 Jacketing Material: PVC – PUR – PE



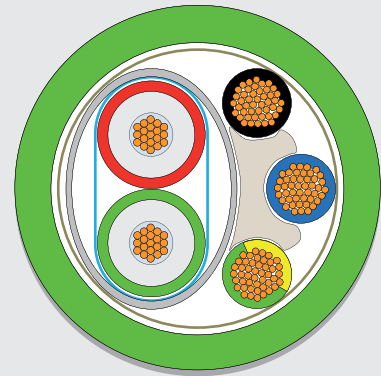
**Control + Ethernet**



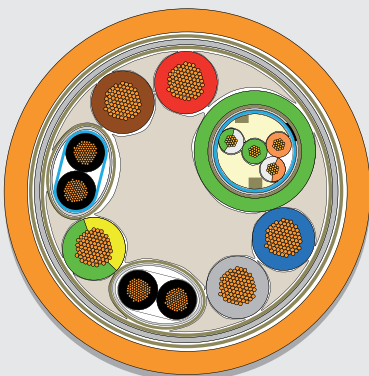
**Control + Bus**



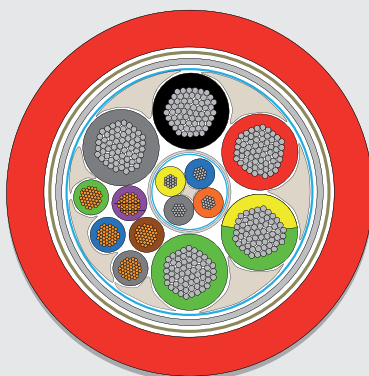
**Power + Bus**



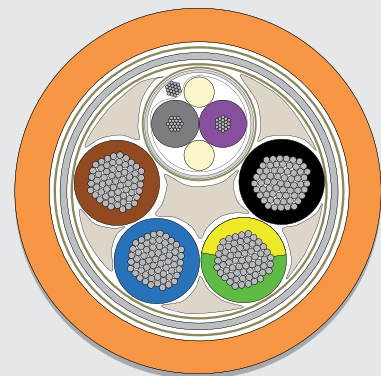
**Control + Power + Ethernet**



**Power + Ethernet**



**Servo (Power + Bus)**

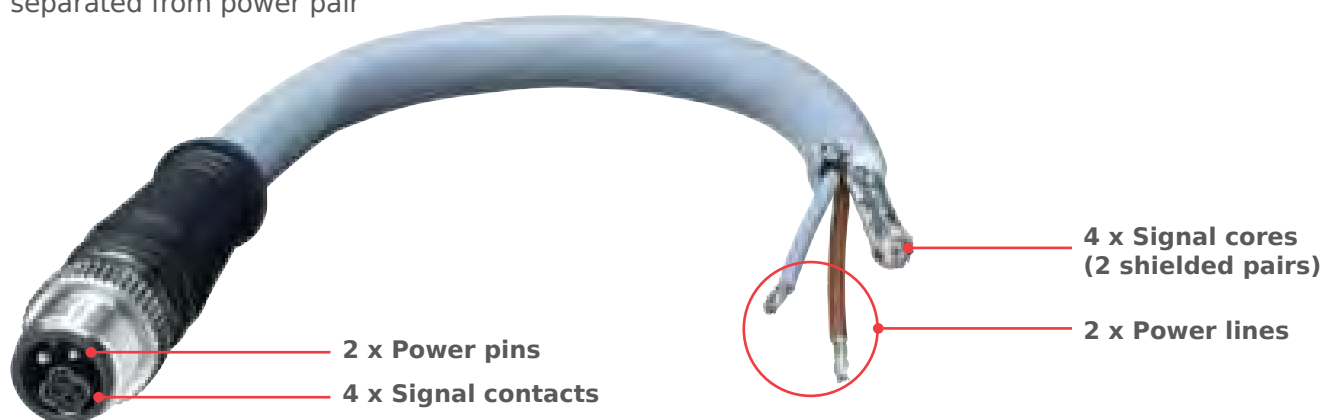




**120355** M12 CHT, 6-Pole,  
4+2 and 4+4

### Cable construction:

Shielded, 2 twisted data pair  
separated from power pair



### M12 CHT 4+2 Male-to-Male

Molded Cable Assembly:

Shielded, 2 twisted-pair data cable for best Cat5e speed  
Ethernet performance



### M12 CHT 4+4 Male-to-Male

Molded Cable Assembly:

Shielded, 4 data lines for best Cat5e speed  
Ethernet performance

**Ideal solutions in applications with low voltage and power conductors together with coax data and transmission elements.**

Flamar can design and manufacture custom solutions in order to accommodate in a unique cable coaxial elements, air tubes, multi-cores assemblies.

This allows significant space saving and reduces the number of connections needed.

### **Few examples of Hybrid cables:**



Multicore cable with air tubes



Multicore cable with coaxial cores

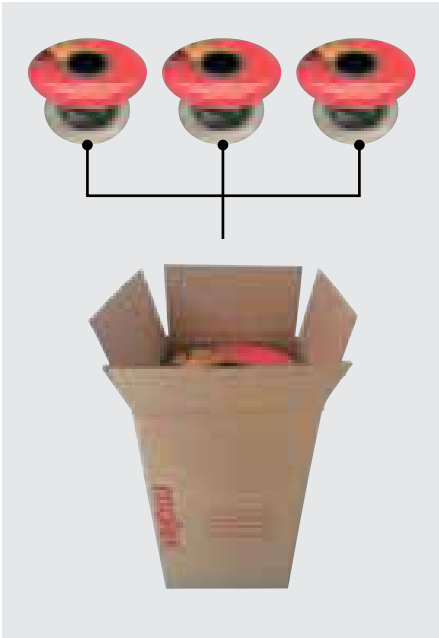




Contact us at:  
[flamar.cables@molex.com](mailto:flamar.cables@molex.com)



For our Industrial Automation standard cables we offer three different packaging types.

### 3 Packaging sizes

Small	Medium	Large
3x100m ÷ 3x200m* 3 cardboard reels inside one box	250m ÷ 800m* 1 plywood reel	500m ÷ 1500m* 1 wooden drum
		

\* Depending on cable diameter

Get more insights at: [www.molex.com/link/flamar](http://www.molex.com/link/flamar)