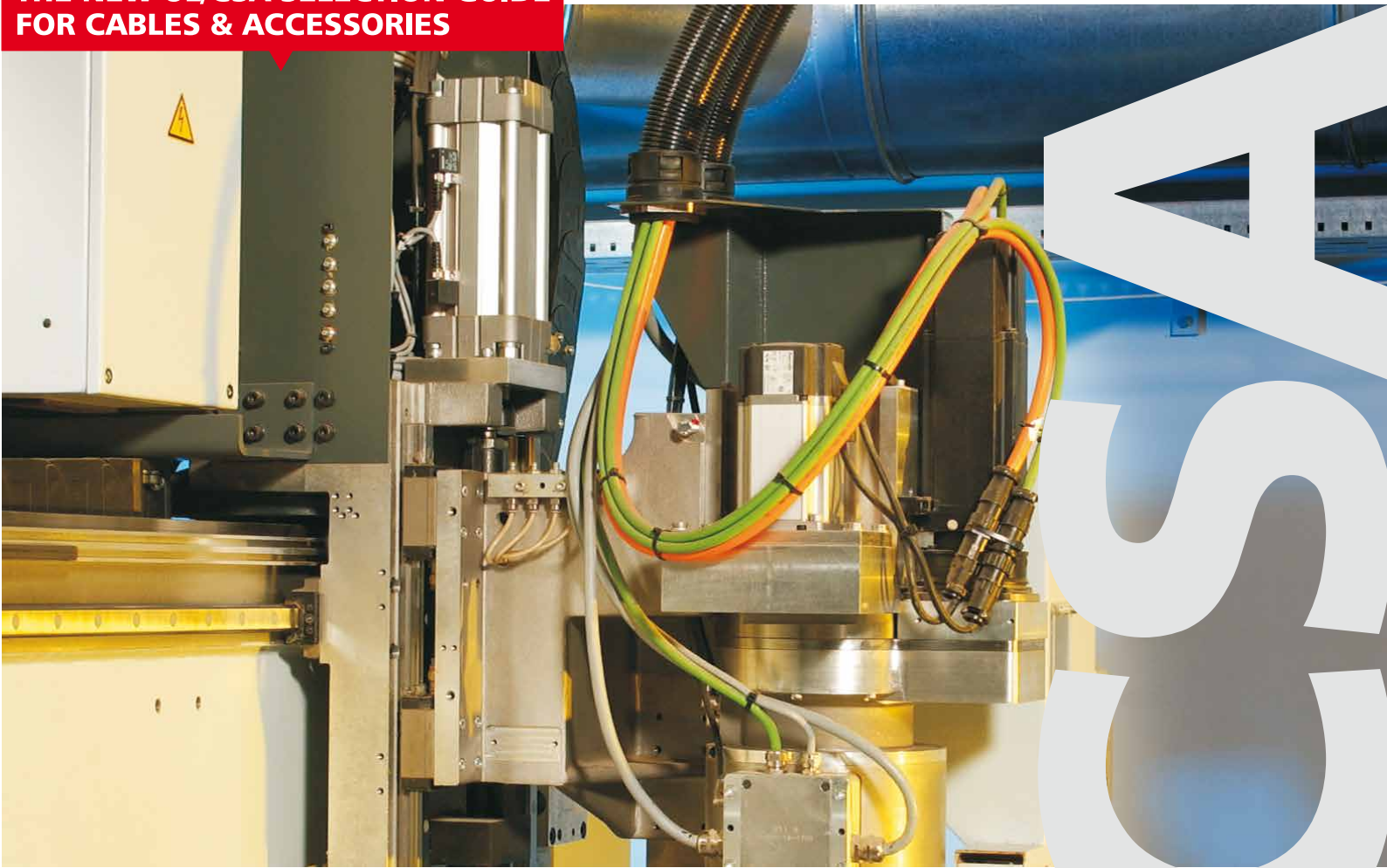




HELUKABEL®

**THE NEW UL/CSA SELECTION GUIDE
FOR CABLES & ACCESSORIES**



 Industrial Cables

Cables & Accessories Selection Guide

CABLE	Standard	Flame Tested	Voltage (V)	Temperature (°C)	Flame Test	Class / Group	Voltage (V)	Temperature (°C)	Oil Res	Sun Res	Chemical Res	Flexible = F High Flex = HF
			USA		CANADA				USA + CANADA			

Multi Core

Technical Properties

TRAYCONTROL 300	CM	X	300	105	FT 4	I / II	300	105	X (II)		X	F
TRAYCONTROL 500	2277	X	1000	90	FT 4	I / II	1000	90	X (II)		X	F
TRAYCONTROL 530	2277	X	1000	90	FT 4	I / II	1000	90	X (II)		X	F
TRAYCONTROL 600	2277	X	1000	90	FT 4	I / II	1000	90	X (I)	X	X	F
TRAYCONTROL 670 HDP	2277	X	1000	105	FT 4	I / II	1000	105	X (II)	X	X	F
JZ-604 TC	1277	X	600	90	FT 4	I / II	600	90	X (II)	X	X	F
MULTIFLEX 600	2277	X	1000	90	FT 4	I / II	1000	90	X (II)	X	X	HF
TOPFLEX 600 VFD	2277	X	1000	90	FT 4	I / II	1000	90	X (II)	X	X	F
TOPFLEX 620 VFD	2277	X	1000	90	FT 4	I / II	1000	90	X (II)	X	X	F
TOPFLEX 650 VFD	2277	X	1000	105	FT 4	I / II	1000	105	X (II)	X	X	F
TOPFLEX 1000 VFD	2277	X	1000	90	FT 4	I / II	1000	90	X (II)	X	X	F
TOPSERV 600 VFD	2277	X	1000	105	FT 4	I / II	1000	105	X (II)		X	HF
TOPSERV 650 VFD	2277	X	1000	105	FT 4	I / II	1000	105	X (II)		X	HF
HELUKAT 155 UL	444			75	FT 1			75				
HELUKAT 200 UL	444			75	FT 1			75				F
HELUKAT 300 UL	444			75	FT 1			75				F
PROFInet Type A	CMG*		600*	75	FT 4		600*	75*	X	X		
PROFInet Type B	CMG*			75	FT 4		600*	75*	X	X		F
PROFInet Type C	CMX*	X		75	FT 1			75	X		X	HF
Profibus L2 Torsion + Festoon	444*			75*	FT 4*			75*	X*	X*		F+HF*
Profibus SK	CMG*		600*	75*	FT 4*		600*	75*	X*	X*		F+HF*
DeviceNet	CMG*			75*	FT 4*			75*	X*	X*		F+HF*

Single Core

UL-Style 1015	1015	X	600	105	FT 1	I	600	105				F
FIVENORM	1063	X	600	105	FT 1	I	600	105				F
THHN/THWN	1408	X	600	90	FT 1	I	600	90	X	X	X	

* - Construction Dependent

X - Passes Test; X (I) - Oil Res I; X (II) - Oil Res II

UL-listed Cables:

UL-listed cables are suitable to the factory wiring of electrical equipment and machinery, as well as for "field wiring" on site.

UL-listed cables already have approval for use, i.e. confirmed compliance with applicable safety regulations by UL standards.

The construction must no longer be verified in the field.

CABLE	Style	Flame Tested	Voltage (V)	Temperature (°C)	Flame Test	Class / Group	Voltage (V)	Temperature (°C)	Oil Res	Sun Res	Chemical Res	Flexible = F High Flex = HF

Technical Properties

JZ-602	2587	X	600	90	FT 1	I/II A/B	600	90	X		X	F
JZ-602 RC	20939	X	600	80	FT 1	I/II A/B	600	80	X	X	X	HF
JZ-603	2587	X	600	90	FT 1	I/II A/B	600	90	X		X	F
MEGAFLEX 500	20939	X	600	80	FT 1	I/II A/B	600	80	X	X	X	F
MEGAFLEX 600	20234	X	1000	80	FT 1	I/II A/B	1000	80	X	X	X	F
COMMAND CABLE UL	2464	X	300	80	FT 1	I/II A/B	300	80	X		X	F
MULTISPEED 500-PVC	21179	X	600	80	FT 1	I/II A/B	600	80	X		X	HF
SUPERTRONIC-310-PVC	2464	X	300	80	FT 1	I/II A/B	300	80	X		X	HF
MULTISPEED TRONIC-PUR	20233	X	300	80	FT 1	I/II A/B	300	80	X	X	X	HF
TOPSERV 108 PVC	2570	X	1000	80	FT 1	I/II A/B	1000	80	X		X	F
TOPGEBER 511 PVC	20233	X	300	80	FT 1	I/II A/B	300	80	X		X	F
TOPSERV Hybrid	21223	X	1000	80	FT 1	I/II A/B	1000	80	X	X	X	HF

X - Passes Test

Note: The above UL-recognized cables are an abridged list. For a complete list of UL-recognized cables, please reference the Cables & Wires catalog or contact a local HELUKABEL® representative.

RECOGNIZED CABLES

The products included in this category are intended as factory-installed or factory-provided components of complete equipment submitted for approval, rather than for direct separate installation in the field. The final acceptance of the component depends on its installation and use in or with complete equipment submitted to authorities having jurisdiction (AHJ). Recognized cables type AWM are regulated by clause 12.9 of NFPA79 2012.

HELUKABEL® UL/CSA CABLE ACCESSORIES PRODUCTS

CABLE GLAND/ CONDUIT CONNECTOR	UR	UL	CSA	TUBING/CONDUIT	UR	UL	CSA	CABLE TIE	UR	UL	CSA
HELUTOP HT Series***		X	X**	HELUcond PA6	X			E Series		X	
HSK Series	X	X	X**	Anaconda Sealtite HTDL		X	X	Q-tie	X		
T&B Series		X	X	Anaconda Sealtite CNP LFNC-A		X	X	TY-Rap	X		
LT Series		X	X					TYH	X		
								TYZ	X		
								Type T	X		
								Type W	X		

X - Passes Test

** - Model Dependent

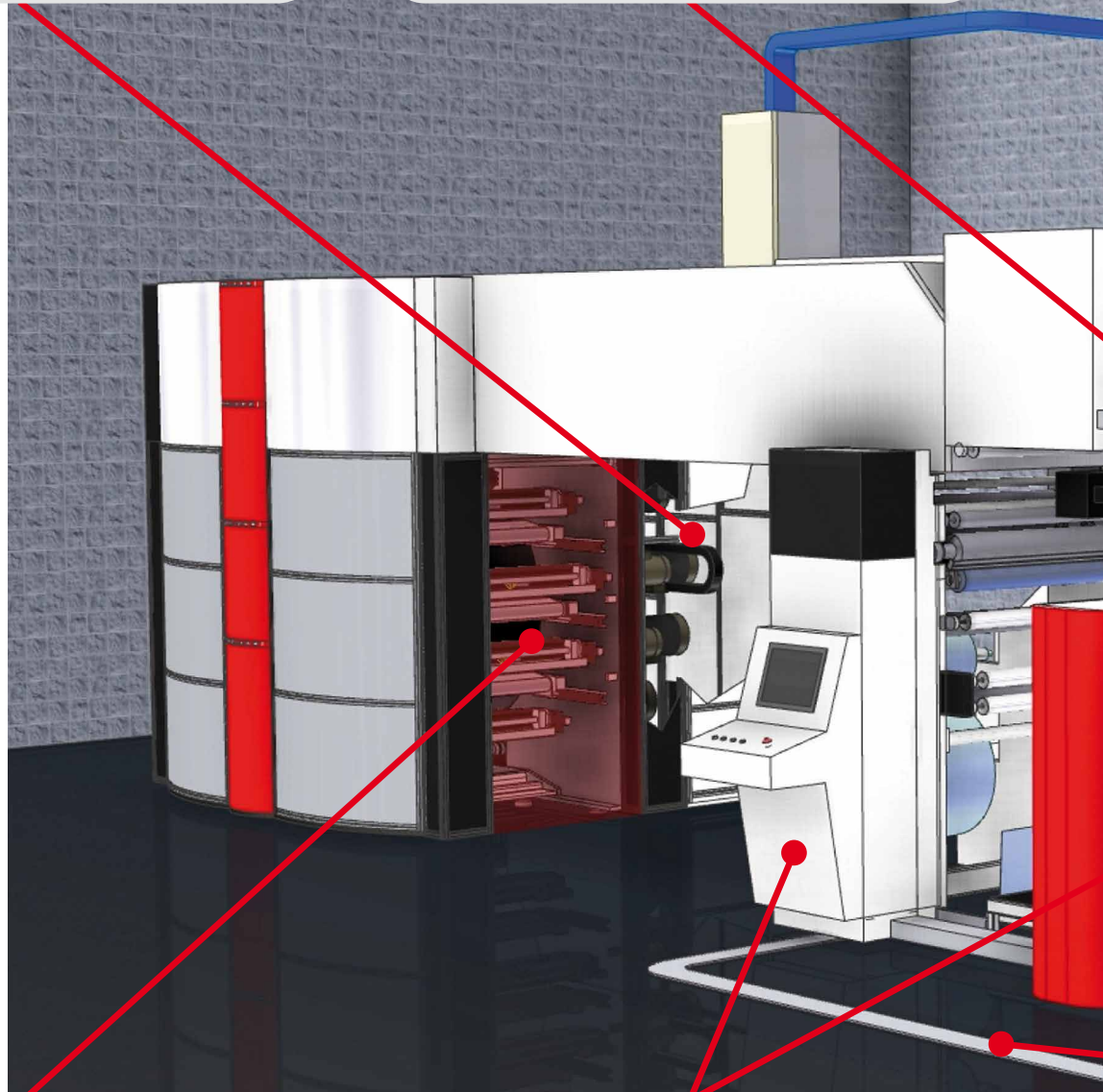
*** - MFDE and MS-E models are not certified

HIGH FLEX, POWER APPLICATION

USA	CANADA
UL cable marked "flexing"	cUL or CSA cable marked "flexing"
New for NFPA 2012*	New for NFPA 2012*
UR AWM-type cable for flexing application or chain	cUR or CSA-type cable for flexing application or chain

CLOSED CABLE TRAY

USA	CANADA
Cable type: TC-ER, TC, MTW, THHN	Cable type: TC, TEW, CIC



HAZARDOUS LOCATION

USA	CANADA
Cable suitable for use in hazardous location.	
Attention: Cable selection depends on the area classification	

CONTROL APPLICATION

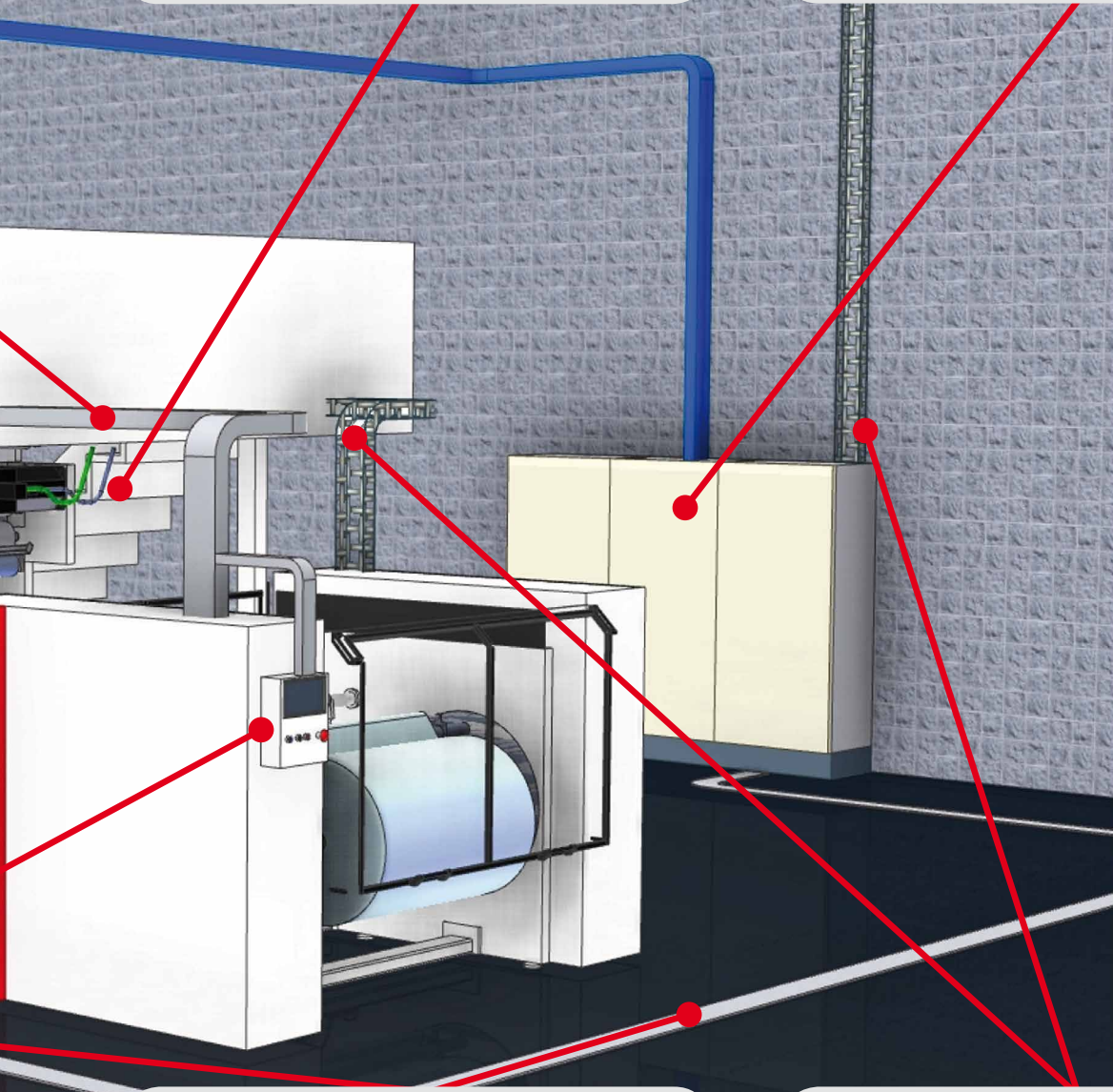
USA	CANADA
Cable type: CMG, CM, CMX, ITC, PLTC	Cable type: CMG, CM, CIC, CMX

FIXED, POWER APPLICATION

USA	CANADA
Cable type: TC-ER	Cable type: TC
New for NFPA 2012*	New for NFPA 2012*
UR AWM cable for flexing application + conduit listed (ex. LFNC)	UR AWM cable for flexing application + conduit listed (ex. LFNC)

INDUSTRIAL CONTROL PANEL

USA	CANADA
Single core, AWM cable UL-Style 1015 Single core, MTW cable	Single core, AWM cable UL-Style 1015 Single core, TEW cable



IN-FLOOR CABLE TRAY

USA	CANADA
TC-type cable marked "Dir Bur" (Direct Burial)	TC-type cable marked "Dir Bur" (Direct Burial)
TC-type cable inside raceway listed for direct burial	TC-type cable inside raceway listed for direct burial

OPEN CABLE TRAY

USA	CANADA
Cable type: TC-ER	Cable type: TC

* uR & cUR cable will comply with clause 12.9 of NFPA79

CABLE	TC-ER	ITC/PLTC	DIR BUR	FLEXING	MTW	AWMI	HAZ LOC	CMX	CMI	CMG	TC	TEW	CIC	AWMI	CE
Multi Core															
Ratings															
TRAYCONTROL 300		X				X	X**		X	X	X			X	X
TRAYCONTROL 500	X	X**	X	X	X	X	X				X		X	X	X
TRAYCONTROL 530	X	X**	X	X	X	X	X				X		X	X	X
TRAYCONTROL 600	X	X**	X	X	X	X	X				X		X	X	X
TRAYCONTROL 670 HDP	X	X**	X	X	X	X	X				X		X	X	X
JZ-604 TC	X		X	X	X	X					X			X	X
MULTIFLEX 600	X	X**	X	X	X	X	X				X		X	X	X
TOPFLEX 600 VFD	X	X**	X	X	X	X	X				X		X	X	X
TOPFLEX 620 VFD	X	X**	X	X	X	X	X				X		X	X	X
TOPFLEX 650 VFD	X	X**	X	X	X	X	X				X		X	X	X
TOPFLEX 1000 VFD	X	X**	X	X	X	X	X				X		X	X	X
TOPSERV 600 VFD	X	X**	X	X	X	X	X				X		X	X	X
TOPSERV 650 VFD	X	X**	X	X	X	X	X				X		X	X	X
HELUKAT 155 UL									X						X
HELUKAT 200 UL									X						X
HELUKAT 300 UL									X						X
PROFINet Type A		X*				X				X*					X
PROFINet Type B		X*		X		X		X*		X*				X*	X
PROFINet Type C				X				X							X
Profibus L2 Torsion + Festoon				X		X		X*		X*					X
Profibus SK				X		X		X		X				X*	X
DeviceNet		X*		X				X		X					X
Single Core															
UL-Style 1015				X	X	X						X		X	X
FIVENORM				X	X	X						X		X	X
THHN/THWN					X	X								X	X

X - Passes Test
 * - Construction Dependent
 ** - Location Dependent

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USA / CANADA ACRONYMS AND DEFINITIONS

TC:	Tray Cable, suitable for cable tray (Art. 336 NEC, Sec. 12 CEC, Table 19 CEC)
ER:	Exposed Run, suitable for exposed installation (180 cm for USA, 30 cm for Canada, refers to TC cable)
ITC:	Instrumentation Tray Cable, for use only in industrial environments (Art. 727 NEC)
PLTC:	Power-Limited Tray Cable (Art. 725 NEC)
DIR BUR:	Direct Burial, suitable for direct burial in the ground
MTW:	Machine Tool Wire
AWM:	Appliance Wiring Materials
HAZ LOC:	Hazardous Location (Art. 500 NEC, Sec. 18 CEC)
CMX:	Communications cable, limited use (Art. 800 NEC, Sec. 60 CEC, Table 19 CEC)
CM:	Communications cable, general-purpose (Art. 800 NEC, Sec. 60 CEC, Table 19 CEC)
CMG:	Communications cable, general-purpose (Art. 800 NEC, Sec. 60 CEC, Table 19 CEC)
TEW:	Thermoplastic-Insulated Equipment Wire
CIC:	Control and Instrumentation Cable, non-armoured (Table 19 CEC)
THHN:	Thermoplastic-Insulated Wire, indicates a single conductor having flame-retardant and heat-resistant thermoplastic insulation with a jacket of extruded nylon or equivalent material. The wire is rated 90°C dry only.
THWN:	Thermoplastic-Insulated Wire, indicates a single conductor having flame-retardant, moisture- and heat-resistant thermoplastic insulation with a jacket of extruded nylon or equivalent material. The wire is rated 75°C wet or dry.
LFNC:	Liquid-Tight Flexible Nonmetallic Conduit (Art. 356 NEC)
STYLE:	Defines a family of conductors with certain ratings.

FLAME RATING:

- Wire:**
 - H (Horizontal flame: internal wire)
 - V (Vertical flame: external wire)
- Cable:**
 - Cable flame test 1061 of UL 1581
 - FT 1 (Vertical flame), test in accordance with Section 1060 of UL 1581
 - FT 4 (Vertical flame), test in accordance with UL 1685

- CLASS:**
 - I (internal wiring)
 - II (external wiring)

- GROUP :** Crushing resistance
 - A (not evaluated: internal wire)
 - B (Evaluated: external wire)

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Subject to technical alternations

USA / CANADA STANDARD REFERENCE FOR CABLE

USA

UL 508A Industrial Control Panel

Clause 28: *Field wiring*

Clause 29: *Internal wiring*

NFPA79-2007 Industrial Machinery

Chapter 12: *Conductors, Cables and Flexible Cords*

12.7 *Conductors and cables used for flexing application*

NEW FOR NFPA79-2012

12.9 *Special cables and conductors*

NEC 2011

Art. 310 Conductors for General Wiring

Art. 320 Armoured Cable : Type AC

Art. 324 Flat-Conductor Cable: Type FCC

Art. 328 Medium Voltage Cable: Type MV

Art. 330 Metal-Clad Cable: Type MC

Art. 332 Mineral-Insulated, Metal-Sheathed Cable: Type MI

Art. 336 Power and Control Tray Cable: Type TC

Art. 340 Underground Feeder and Branch-Circuit Cable:
Type UF

Art. 344 Rigid Metal Conduit

Art. 348 Flexible Metal Conduit

Art. 350 Liquid-Tight Flexible Metal Conduit (LFMC)

Art. 356 Liquid-Tight Flexible Non-Metallic Conduit (LFNC)

Art. 358 Electrical Metallic Tubing: Type EMT

Art. 376 Metal Wireways

Art. 390 Underfloor Raceways

Art. 392 Cable Trays

Art. 400 Flexible Cords and Cables

Art. 409 Industrial Control Panels

Art. 500 Hazardous (Classified) Location, Classes I, II, III,
Division 1 and 2

Art. 522 Control Systems for Permanent Amusement
Attractions

Art. 610 Crane and Hoist

Art. 645 Information Technology Equipment

Art. 670 Industrial Machinery

Art. 725 Class 1, Class 2, and Class 3 Remote-Control,
Signaling, and Power.Limited Circuits

Art. 727 Instrumentation Tray Cable: Type ITC

Art. 770 Optical Fiber Cables and Raceways

Art. 800 Communication Circuits

CANADA (CEC 2012)

Section 4 – Conductors

Section 12 – Wiring methods

12-100 *Conductors*

12-600 *Armoured cable*

12-800 *Flat conductor cable Type FCC*

12-900 *Raceways*

12-1000 *Rigid and flexible metal conduit*

12-1300 *Liquid-tight flexible conduit*

12-1400 *Electrical metallic tubing*

12-1600 *Surface raceways*

12-1700 *Underfloor raceways*

12-2100 *Wireways*

12-2200 *Cable trays*

12-2250 *Cablebus*

12-3000 *Installation of boxes, cabinets, outlets and
terminal fittings*

Section 16 – Class 1 and Class 2 circuit

Section 18 – Hazardous locations

Section 34 – Sign and outline lighting

Section 54 – Community antenna distribution and radio
and television installations

Section 56 – Optical fiber cables

Section 60 – Electrical communication system

Section 64 – Renewable energy system

Section 66 – Amusement parks, midways, carnivals, film
and TV sets, remote TV broadcasting
location, and travelling system