Mines Branch Information Circular IC 203
(Supersedes Information Circulars IC 131, August 1961
and IC 163, August 1964)

LIST OF CERTIFIED ELECTRICAL APPARATUS, CERTIFIED FIRE-RESISTANT CONVEYOR BELTING AND CERTIFIED DIESEL ENGINES FOR COAL MINE USE (Third Edition)

G.K. Brown*

ABSTRACT

The principal information presented in this circular is a complete list of the electrical apparatus which has been certified by the Department of Energy, Mines and Resources as being suitable for use in coal mines. In addition to the electrical apparatus there is a list of conveyor belting which has been certified fire-resistant by the Department, as well as details of diesel engines certified for use in an underground locomotive. The period covered is from the opening of the certification service, in September 1955, until April 10, 1968. This report is the third of a series of lists of certified apparatus which will be issued from time to time. The scope and background of the certification service are covered briefly in the preface, and references are given for those interested in obtaining more detailed information.

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Direction des mines, Circulaire d'Information IC 203
(Supplante les circulaires d'information IC 131, d'août 1961
et IC 163, d'août 1964)

LISTE DES APPAREILS ÉLECTRIQUES CERTIFIÉS, DES COURROIES TRANSPORTEUSES IGNIFUGES CERTIFIÉES ET DES MOTEURS DIESEL CERTIFIÉS POUR UTILISATION DANS LES HOUILLÈRES (Troisième Édition)

G.K. BROWN*

RÉSUMÉ

Les principaux renseignements contenus dans la présente circulaire prennent la forme d'une liste complète des appareils électriques que le ministère de l'Énergie, des Mines et des Resources a approuvés pour utilisation dans les houillères. En plus des appareils électriques, il s'y trouve une liste des courroies transporteuses que le Ministère a déclarées ignifuges, de même que des détails relatifs des moteurs diesel certifiés pour usage dans les locomotives souterraines. La période visée s'étend depuis la mise sur pied du service, en septembre 1955, jusqu'au 10 avril 1968. La présente circulaire est la troisième d'une nomenclature d'appareils certifiés à être publiée de temps à autre. Le champ d'action et les antécédents du service de certification sont brièvement passés en revue dans la préface, et l'auteur mentionne des ouvrages de référence à l'intention de ceux qui pourraient désirer de plus amples informations.

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PREFACE

In the summer of 1955 the Department of Mines and Technical Surveys (now the Department of Energy, Mines and Resources) announced the start of a certification service with respect to electrical apparatus for use in coal mines, and the opening of a laboratory equipped to test such apparatus in explosive atmospheres. In establishing these services the Department was fulfilling the wishes expressed, at conferences of provincial Ministers of Mines, for central certification facilities in Canada. In addition to certifying* electrical apparatus for coal mines, the Department is conducting research which it is hoped will provide useful contributions to the existing information about explosive atmospheres and the means by which electrical or other apparatus can be safely used in such hazardous locations. Contacts have been established and maintained with recognized certification establishments at home and abroad, and since 1956 the Certification Officer has been chairman of the committee on "Electrical Apparatus for Use in Explosive Gas Atmospheres", of the Canadian National Committee of the International Electrotechnical Commission.

The certification laboratory has co-operated with the Canadian Standards Association in the latter's investigations of electrical apparatus for hazardous locations other than mines by testing several hundred items in explosive atmospheres to C.S.A. specifications. Other organizations have been assisted

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*See Appendix for interpretation of terms.

by the laboratory in developing apparatus for use in hazardous areas such as the oil fields in western Canada.

Two booklets--designated Certification Memorandum No. 1 and Certification Memorandum No. 2--have also been published to supply detailed information on how to make application for (No. 1) certification of electrical apparatus for coal mines and (No. 2) certification of fire-resistant conveyor belting. The interpretations of terms such as "certification", "flameproof" and "fire-resistant" are also contained in the memoranda; however, these interpretations have been reprinted in the Appendix of this circular. The above publications are available upon request.

The certification memoranda mentioned have stated that lists of certified apparatus will be published from time to time, and the following pages comprise the third of these lists--complete to April 10, 1968.

CERTIFICATION LISTING

ASSEMBLIES
(Coal Mining Machines, Compressors, Conveyor Controls)

1.

Holder of Certificate: Canadian Ingersoll Rand Co., Limited,
800 Birks Bldg.,
Phillips Square,
Montreal 2, Quebec.

1.1 Apparatus:- 3 CML 100 "Borecut" Continuous Mining and Loading Machine

Electrical Supply: 550 Volts, 3 Phase, 60 Cycles

Certificate No.: 10A

Date Certified: December 12, 1958

2.

Holder of Certificates: Dominion Steel and Coal Corp.,
Trenton Industries Division,
Trenton, Nova Scotia.

2.1 Apparatus: "Dosco Miner" Continuous Mining Machine and Associated Safety Circuit Centers

Electrical Supply: 550 Volts, 3 Phase, 60 Cycles

Certificate Nos.: 7 A and 18 S

Date Certified: August 6, 1959

Date of Supplementary Certificate: October 25, 1960

3.

Holder of Certificate: The Crow's Nest Pass Coal Co., Ltd., Fernie, British Columbia.

3.1 Apparatus: "Borecut"II Coal Mining Machine (1 only)

Electrical Supply: 550 Volts, 3 Phase, 60 Cycles

Certificate No.: 19 A

Date Certified: February 9, 1961

3.2 Apparatus: Modified 3 CML "Borecut" Continuous Mining and Loading Machine

Electrical Supply: 550 Volts, 3 Phase, 60 Cycles

Certificate No.: 29 A

Date Certified: August 31, 1962

4.

Holder of Certificates: Joy Manufacturing Co. (Canada) Ltd., P.O. Box 100, Galt, Ontario.

4.1 Apparatus: Joy Class WL-80C Model 100 "UNITAIR" Air Compressors (four)

Electrical Supply: 550 Volts, 3 Phase, 60 Cycles

Certificate No.: 62 A

Date Certified: June 24, 1965

4.2	Apparatus:	Electrical Components for a 36-Inch-Wide, 850-Ft-Long Belt Conveyor
	Electrical Supply:	550 Volts, 3 Phase, 60 Cycles
	Certificate No.:	63 A
	Date Certified:	June 24, 1965
4.3	Apparatus:	Electrical Components for Controller CD 2889
	Electrical Supply:	550 Volts, 3 Phase, 60 Cycles
	Certificate No.:	67 A
	Date Certified:	October 26, 1965
	Extension Date:	April 5, 1968
4.4	Apparatus:	Electrical Components for Controllers CD 2977 and CD 2988 used with a Joy Limberope Conveyor
	Electrical Supply:	550 Volts, 3 Phase, 60 Cycles
	Certificate No.:	68 A
	Date Certified:	December 9, 1965
4.5	Apparatus:	Electrical Assembly, Comprised of Controller CD 3030 and Associated Electrical Components, for a Boom Car Loader
	Electrical Supply:	550 Volts, 3 Phase, 60 Cycles
	Certificate No.:	76 A
	Date Certified:	May 26, 1966

4.6	Apparatus:	Electrical Assembly, Comprised of Controllers CD 3271 and CD 3342 and Associated Electrical Components, for a Conveyor System
	Electrical Supply:	550 Volts, 3 Phase, 60 Cycles
	Certificate Nos.:	82 A and 109 S
	Date Certified:	January 27, 1967
	Extension Date:	January 25, 1968
4.7	Apparatus:	Electrical Assembly, Comprising Controllers CD 3270 and CD 3342 and Associated Electrical Components for a Conveyor System, also Controllers CD 3269 and CD 3342 and Associated Electrical Components for a Conveyor System
	Electrical Supply:	550 Volts, 3 Phase, 60 Cycles
	Certificate Nos.:	83 A, 110 S and 114 S
	Date Certified:	January 27, 1967
	Extension Dates:	June 28, 1967, January 25, 1968 and March 28, 1968
4.8	Apparatus:	Joy Class WL-80C Model 100 "Unitair" Air Compressor
	Electrical Supply:	550 Volts, 3 Phase, 60 Cycles
	Certificate No.:	78 A
	Date Certified:	April 12, 1967
	Extension Dates:	November 7, 1967 and January 24, 1968

4.9	Apparatus:	Electrical Assembly for Bridge Conveyor, CD 3413
	Electrical Supply:	550 Volts, 3 Phase, 60 Cycles
	Certificate No.:	89 A
	Date Certified:	May 15, 1967
4.10	Apparatus:	Electrical Assembly for Bridge Conveyor, Controller CD 3556
	Electrical Supply:	550 Volts, 3 Phase, 60 Cycles
	Certificate No.:	90 A
	Date Certified:	September 29, 1967
4.11	Apparatus:	Electrical Assembly Comprised of Controllers CD 3765 and CD 3770 and Associated Electrical Components for Conveyor Control
	Electrical Supply:	550 Volts, 3 Phase, 60 Cycles
	Certificate No.:	98 A
	Date Certified:	October 12, 1967

5.

Holder of Certificate:		Demag Aktiengesellschaft, Duisburg, Germany. Canadian Agent: Demag Industrial Equipment, Ltd., P.O. Box 1240, 2400 Highway 122, Clarkson, Ontario.
5.1	Apparatus:	Demag Face Heading Machine "UNICORN" Serial Number VS 1/E - 13
	Electrical Supply:	550 Volts, 3 Phase, 60 Cycles
	Certificate No.:	92 A
	Date Certified:	April 10, 1968

BATTERIES

1.

Holder of Certificate:	National Carbon Co., Division of Union Carbide Canada Limited, 805 Davenport Road, Toronto 4, Ontario.
1.1 Apparatus:	"Eveready" W-594 Battery (24 Volts), for use only with intrinsically safe signalling circuits requiring a certified source of direct current
Certificate No.:	I.S. 2
Date Certified:	June 27, 1956

DRY CELLS

1.

Holder of Certificate:	Cipel (Canada) Limited, P.O. Box 173, Valleyfield, Quebec.
1.1 Apparatus:	Cipel Type 524 CL Primary Dry Cell (1 1/2 Volts) for use in banks of 16 (not more) with intrinsically safe signalling circuits requiring a certified source of direct current
Certification No.:	I.S. 1
Date Certified:	June 8, 1956

ENGINES (DIESEL)

1.

Holder of Certificate: Orenda Industrial Ltd.,
17 Haas Road,
Rexdale, Ontario.

1.1 Apparatus: Style LE4, 4 Cylinder, 100 B.H.P. Diesel Engine, manufactured by the National Gas and Oil Co., Limited, Ashton-under-Lyne, England.

Certificate No.: 11 D

Date Certified: January 4, 1960

FIRE-RESISTANT CONVEYOR BELTING

1.

Holder of Certificates: Uniroyal (1966) Ltd.,
formerly:
Dominion Rubber Co., Limited,
P.O. Box 130,
Place d'Armes,
Montreal, Quebec.

	Style	Certificate	Date Certified
1.1	2776-32 oz	FR 1	Dec. 19, 1957
1.2	2276-EN	FR 1	Dec. 19, 1957
1.3	2776-EN	8 S	June 24, 1959
1.4	2776 (anti-static)	8 S	June 24, 1959
1.5	3606	13 FR	May 9, 1960
1.6	2908-XN (6 ply)	14 FR	May 9, 1960
1.7	2908-XN (4 ply)	16 FR	Sept. 14, 1960
1.8	2352-SN (4 ply)	17 FR	Sept. 14, 1960
1.9	2276-EN (4 ply) 1/8 " top cover	22 FR	June 29, 1961
1.10	2908-XN (4 ply) variation	23 FR	Dec. 4, 1962
1.11	2908-XN (4 ply) variation	51 S	March 3, 1964

	Style	Certificate	Date Certified
1.12	4800-ZN (4 ply)	31 FR	Dec. 4, 1962
1.13	4800-ZN (4 ply) variation	32 FR	Dec. 4, 1962
1.14	4800-ZN (4 ply) variation	52 S	March 3, 1964
1.15	Nyply (3 ply)	66 FR	Oct. 5, 1965
1.16	Nyply 210 (3 ply) (anti-static)	72 FR	April 5, 1966
1.17	4800-ZN (4 ply) variation	77 S	Sept. 21, 1966
1.18	2776 (4 ply) (anti-static); also variations in Belting covered by Certificates 23 FR, 31 FR, 32 FR, 51 S, 52 S, 66 FR, 72 FR and 77 S	86 FR	April 12, 1967

2.

Holder of Certificates: The Goodyear Tire and Rubber Co. of Canada Limited,
3050 Lakeshore Blvd., West,
Toronto 14, Ontario.

	Style	Certificate	Date Certified
2.1	42 HDNF (4 ply)	26 FR	Jan. 12, 1962
2.2	42 HDNF (4 ply) variation	49 S	Feb. 11, 1964

	Style	Certificate	Date Certified
2.3	60 HDNF (4 ply)	27 FR	Jan. 12, 1962
2.4	60 HDNF (4 ply) variation	50 S	Feb. 11, 1964

3.

Holder of Certificate: Mintex Federal Limited,
189 Rexdale Blvd.,
Rexdale, Ontario.

	Style	Certificate	Date Certified
3.1	Scandura "Thin Line" "Gold Line" "Heavy Duty Gold Line"	28 FR	Jan. 30, 1962

4.

Holder of Certificates: BTR Industries,
Herga House,
Vincent Square,
London S.W. 1, England.

	Style	Certificate	Date Certified
4.1	Pluvicor	37 FR	May 16, 1963
4.2	Pluvicor variation	48 S	Jan. 17, 1964
4.3	Pluvicor variation	57 S	May 15, 1964
4.4	Pluvicor variation	64 S	July 26, 1965

	Style	Certificate	Date Certified
4.5	Pluvicor variation	70 S	Feb. 28, 1966
4.6	Pluvicor variation	102 S	Nov. 7, 1967
4.7	Pluvicor variation	111 S	Feb. 7, 1968

5.

Holder of Certificates: Dunlop Canada Limited,
870 Queen St., East,
Toronto, Ontario.

	Style	Certificate	Date Certified
5.1	(60 Oz.) Dunlop Fire-Resistant (4 ply)	69 FR	Feb. 8, 1966
5.2	(42 Oz.) Dunlop Fire-Resistant (4 ply)	71 FR	Apr. 5, 1966
5.3	(60 Oz.) Dunlop Fire-Resistant (4 ply) (variation)	79 FR	Oct. 25, 1966
5.4	(80 Oz.) Dunlop Fire-Resistant (4 ply)	80 FR	Nov. 7, 1966
5.5	(80 Oz.) Dunlop Fire-Resistant NN-80 P.V.C. (5 ply)	104 FR	Dec. 18, 1967
5.6	(60 Oz.) Dunlop Fire-Resistant (4 ply) (variation)	112 S	Mar. 13, 1968

6.

Holder of Certificate: J.H. Fenner & Co., Limited,
Hull, England.
Canadian Agent:
Acme Chain & Gear Limited,
1025 Sixth Avenue,
Lachine, Montreal, Quebec.

Style	Certificate	Date Certified
6.1 Fenaplast Diamond Type, Flame-Resistant, Anti-Static (2500; 2700; 3000; 3500; 4500; 5000; 6000)	74 FR	Apr. 13, 1966

7.

Holder of Certificate: Bando Rubber Manufacturing Co., Ltd.,
Kobe, Japan,
Tokyo Branch: 6-2-Chome,
Nishi Hatchobori,
Chuo-Ku, Tokyo, Japan.
Factory Representative: Mr. Leo Ash,
1916 Connaught St.,
Regina, Saskatchewan.

Style	Certificate	Date Certified
7.1 Bando Fire-Resistant Type No. 300 (4 ply)	81 FR	Dec. 8, 1966

8.

Holder of Certificate: Tokai Rubber Industries, Limited,
Komaki, Japan.
Canadian Agent:
Sumitomo Shoji Canada Limited,
116, 510 West Hastings Street,
Vancouver 2, British Columbia.

Style	Certificate	Date Certified
8.1 "Safe" Brand (4 ply)	84 FR	Feb. 24, 1967

8.

	Style	Certificate	Date Certified
8.2	"Safe" Brand (4 ply) variation	91 FR	May 15, 1967
8.3	"Safe" Brand (4 ply) V388	103 FR	Dec. 5, 1967

9.

Holder of Certificates: Telleborgs Gummifabrik A B,
Telleborg, Sweden.
Canadian Agent:
Mine Equipment Co., Limited,
32 Progress Ave.,
Scarborough, Ontario.

	Style	Certificate	Date Certified
9.1	5 RP 16, 5/32" x 3/64" Antiflame C (5 ply)	85 FR	Apr. 10, 1967

10.

Holder of Certificate: Mitsuboshi Belting Limited,
P.O. Box 535, Kobe, Japan.
Canadian Agent:
City Machinery Co., Limited,
783 Main Street, Winnipeg 4, Manitoba.

	Style	Certificate	Date Certified
10.1	NN-120 "Start" Brand	87 FR	Apr 24, 1967

Holder of Certificate: Mitsuboshi Belting Limited,
P.O. Box 535, Kobe, Japan.
Canadian Agent:
Mitsubishi International Corp.,
P.O. Box 143,
Toronto 1, Ontario.

	Style	Certificate	Date Certified
10.2	VFN-260 (7 ply) Neoprene Fire-Resistant	105 FR	Jan. 22, 1968
10.3	VFN-450 (4 ply) Neoprene Fire-Resistant	106 FR	Jan. 22, 1968

11.

Holder of Certificate: Bridgestone Tire & Rubber Company,
No. 1, 1-Chome, Kyobaski, Chuo-Ku,
Tokyo, Japan.
Canadian Agent:
United Tire & Rubber Co.(Canada) Ltd.,
150 Brockport Drive,
Rexdale, Ontario.

	Style	Certificate	Date Certified
11.1	FR "A" Fire-Resistant	99 FR	Oct. 30, 1967
11.2	FR "B" Fire-Resistant	100 FR	Oct. 30, 1967
11.3	FR "C" Fire-Resistant	107 FR	Jan. 23, 1968
11.4	FR "D" Fire-Resistant	108 FR	Jan. 23, 1968

12.

Holder of Certificate: Hewitt-Robins Incorporated,
240 Kensington Ave.,
Buffalo, New York, U.S.A.

	Style	Certificate	Date Certified
12.1	Hewitt Mineveyor Style 200	101 FR	Nov. 7, 1967

13.

Holder of Certificate: Turner Bros. Asbestos Co. Ltd.,
P.O. Box No. 40,
Rochdale, Lancashire, England.
Canadian Agent:
Atlas Asbestos Co.,
5600 Hochelaga Street,
Montreal 5, P.Q.

	Style	Certificate	Date Certified
13.1	CBF 218 (4 ply)	113 FR	Mar. 21, 1968

LAMPS (ELECTRIC)

1.

Holder of Certificate: Ward Leonard of Canada, Ltd.,
1070 Birchmount Road,
Box 70, O'Connor Postal Station,
Toronto 16, Ontario.

1.1 Apparatus: Explosion-Proof "SAFTLITE" 509 A/E X 2

Electrical Supply: 110 Volts, 1 Phase, 60 Cycles, and self-contained emergency battery

Certificate No.: 9 FP

Date Certified: August 26, 1959

2.

Holder of Certificates: Nickel Alkaline Battery Division,
The Electric Storage Battery Co.,
169 Main Street,
West Orange,
New Jersey, U.S.A.
Canadian Agent:
Mine Safety Appliances Co. of Canada Limited,
500 MacPherson Avenue,
Toronto 4, Ontario.

2.1 Apparatus: Edison Model S Electric Cap Lamp

Certificate Nos.: 12 L, 20 S and 45 S

Date Certified: March 11, 1960

Date of Supplementary Certificates: February 20, 1961
December 9, 1963

3.

Holder of Certificate:		Mine Safety Appliances Co., 201 North Braddock Avenue, Pittsburgh 8, Pa., U.S.A. Canadian Agent: Mine Safety Appliances Co.of Canada Limited, 500 MacPherson Avenue, Toronto 4, Ontario.
3.1	Apparatus:	MSA Minespot Electric Cap Lamp
	Certificate No.:	39 L
	Date Certified:	September 18, 1963
3.2	Apparatus:	MSA Minespot Electric Cap Lamp ML-2
	Certificate No.:	93 L
	Date Certified:	February 7, 1968

4.

Holder of Certificate:		Koehler Manufacturing Co., Marlboro, Massachusetts, 01752, U.S.A.
4.1	Apparatus:	Miners' Cap Lamps Models 282-1A and 5100 and 5200
	Certificate Nos.:	61 L and 97 S
	Date Certified:	April 6, 1965 October 10, 1967

5.

Holder of Certificate:		Société des Accumulateurs Fixes et de Traction, Romainville, France. Canadian Agent: ECP Electro Chemical Products Ltd., 2220 Midland Avenue, Scarborough, Ontario.
5.1	Apparatus:	"Saft" Portable Miner's Cap Lamp Type 3 VR 10
	Certificate No.:	73 L
	Date Certified:	April 20, 1966

METHANE DETECTORS

1.

Holder of Certificate:		Mine Safety Appliances Co. Limited, Queenslie Industrial Estate, New Edinburgh Road, Glasgow, Scotland. Canadian Agent: Mine Safety Appliances Co. of Canada Limited, 500 MacPherson Avenue, Toronto 4, Ontario.
1.1	Apparatus:	M.S.A. General Purpose Methanometer
	Certificate Nos.:	24 M and 33 S
	Date Certified:	June 5, 1961
	Date of Supplementary Certificate:	February 14, 1963

2.

Holder of Certificate:		Sigma Instrument Co., Limited, Letchworth, England. Canadian Agent: George Kent (Canada) Ltd., 389 Horner Avenue, Toronto 14, Ontario.
2.1	Apparatus:	Sigma Recording Flame Methanometer, Type 208/C
	Certificate No.:	56 M
	Date Certified:	June 16, 1964

MISCELLANEOUS FLAMEPROOF APPARATUS
INCLUDING SAFETY CIRCUIT CENTERS

1.

Holder of Certificates: The Crow's Nest Pass Coal Co. Limited, Fernie, British Columbia.

1.1 Apparatus: Enclosure on an oil-pressure-operated switch, rated 115 volts to 550 volts

Certificate No.: 25 FP

Date Certified: March 14, 1962

1.2 Apparatus: Modified Reyrolle Form JBR 1 Cable Coupler, 3300 volts, 200 Amps

Certificate No.: 30

Date Certified: August 1, 1962

1.3 Apparatus: Enclosure of electrical controls for conveyor belt

Electrical Supply: 550 Volts, Single Phase, 60 Cycles

Certificate No.: 42 FP

Date Certified: September 30, 1963

1.4 Apparatus: Enclosure of a solenoid valve, 110 Volts, Single Phase, 60 Cycles

Certificate No.: 44 FP

Date Certified: November 20, 1963

1.5	Apparatus:	Enclosure of electrical controls for extensible belt
	Electrical Supply:	550 Volts, 3 Phase, 60 Cycles
	Certificate No.:	46 FP
	Date Certified:	January 15, 1964
1.6	Apparatus:	Modified Motor, 100 HP, 550 Volts, 3 Phase, 60 Cycles
	Certificate No.:	47 FP
	Date Certified:	January 15, 1964
1.7	Apparatus:	Enclosure of electrical control switch, 110 to 220 Volts, Single Phase, 60 Cycles
	Certificate No.:	55 FP
	Date Certified:	June 15, 1964
1.8	Apparatus:	Headlight of a "Demag" Mining Machine
	Certificate No.:	75 L (applies only to the one lamp investigated)
	Date Certified:	April 15, 1966

2.

Holder of Certificate: Joy Manufacturing Co.(Canada) Limited, P.O. Box 100, Galt, Ontario.

2.1 Apparatus: Flameproof Conveyor Controller for 20 HP

Electrical Supply: 550 Volts, 3 Phase, 60 Cycles

Certificate No.: 88 FP

Date Certified: May 2, 1967

2.2 Apparatus: 6 variations of flameproof "Safety Circuit Centers" all include components for earth leakage protection and intrinsically safe pilot circuits.

Electrical Supply: 600 Volts, 3 Phase, 60 Cycles

SCC 546273
1 input: 180 A(continuous rating)
4 circuit breakers
4 outlets: 2 @ 35 A, 2 @ 90 A

SCC 546330
1 input: 180 A(continuous rating)
4 circuit breakers
4 outlets: 1 @ 35 A; 3 @ 90 A

SCC 546274
1 input: 35 A(continuous rating)
4 circuit breakers
4 outlets: 4 @ 35 A

SCC 546273-1
1 input: 180 A(continuous rating)
4 circuit breakers
5 outlets: 2 @ 35 A; 2 @ 90 A; 1 @ 180 A

SCC 546335
1 input: 180 A(continuous rating)
4 circuit breakers
4 outlets: 2 @ 35 A; 1 @ 90 A; 1 @ 180 A

2.2 (cont'd)

SCC 546348	1 input: 180 A(continuous rating) 4 circuit breakers 4 outlets: 4 @ 65 A
Certificate No.:	94 FP
Date Certified:	September 28, 1967

2.3

Apparatus:	Model LA "Safety Circuit Center" Includes components for earth leakage protection and intrinsically safe pilot leads
Electrical Supply:	600 Volts, 3 Phase, 60 Cycles 1 input: 180 A(continuous rating) 1 circuit breaker 1 output: 180 A
Certificate No.:	95 FP
Date Certified:	October 2, 1967

2.4

Apparatus:	3 Flameproof Motor Controllers which include circuit breaker, motor starter and components for intrinsically safe pilot leads
Electrical Supply:	550 Volts, 3 Phase, 60 Cycles Controller CD 3589: 7 1/2 HP Controller CD 3593: 15 HP Controller CD 3635: 20 HP
Certificate No.:	96 FP
Date Certified:	October 2, 1967

MOTORS

1.

Holder of Certificates:		Canada Iron Foundries Limited, Tamper Division, 160 St. Joseph Street, Lachine, Montreal 32, Quebec.
1.1	Apparatus:	50 H.P., 550 Volts, 3 Phase, 60 Cycles Fan-Cooled Induction Motor, Assembled on Frame 365 U, with Special End-Bracket for Hydraulic Pump
	Certificate Nos.:	4 FP and 15 S
	Date Certified:	July 30, 1958
	Date of Supplementary Certificate:	June 14, 1960
1.2	Apparatus:	Series of 550 Volts, 3 Phase, 60 Cycles, Fan-Cooled Induction Motors, Assembled on C.E.M.A. Frames 180 to 445. Ratings of 1/2 to 100 h.p., with speeds of 900 to 3600 r.p.m.
	Certificate Nos.:	6 FP, 43 S, 54 S
	Date Certified:	November 19, 1958
	Dates of Supplementary Certificates:	October 9, 1963 April 24, 1964

2.

Holder of Certificate: Canadian Westinghouse Co. Limited,
Box 510,
Hamilton, Ontario.

2.1 Apparatus: 25 H.P., 550 Volts, 3 Phase, 60 Cycles, 1200 RPM, T.E.F.C. Induction Motor, Frame 365-U, with 30-Ampere Socket

Certificate No.: 35 FP

Date Certified: April 17, 1963

2.2 Apparatus: 30 H.P., 550 Volts, 3 Phase, 60 Cycles, 1800 RPM, T.E.F.C. Induction Motor, Frame 326-U, with 30-Ampere Socket

Certificate No.: 36 FP

Date Certified: August 14, 1963

2.3 Apparatus: A series of Ribbed, Totally Enclosed, Polyphase Induction Motors, Frames 182 to 506, Voltages 600 or less

Certificate No.: 38 FP

Date Certified: July 11, 1963

2.4 Apparatus: 100 H.P., 550 Volts, 3 Phase,60 Cycles, 1770 RPM, T.E.F.C. Induction Motor, Frame 440 U.S., with Cable-Entry Gland and 10 ft of Cable

Certificate No.: 40 FP

Date Certified: October 10, 1963

2.5	Apparatus:	5 H.P., 550 Volts, 3 Phase, 60 Cycles, 1735 RPM, T.E.F.C. Induction Motor, Frame 215, with Cable-Entry Gland and 10 ft of Cable
	Certificate No.:	41 FP
	Date Certified:	December 11, 1963

SEISMITRON

1.

Holder of Certificate:		Walter Nold Company, 34 Birch Road, Natick, Mass., U.S.A.
1.1	Apparatus:	Seismitron Model ZA-4
	Power Supply:	Battery-Operated
	Certificate Nos.:	34 I.S. and 60 S
	Date Certified:	May 6, 1963 October 6, 1964

SWITCHES

1.

Holder of Certificate: Crouse-Hinds Company of Canada Limited, 1160 Birchmount Road, Scarborough, Ontario.

1.1 Apparatus: EFS and EFD Series Tumbler Switch Condulets, Furnished with Tumbler Switches (Certified for Conduit Installations Only). See List Below.

Certificate No.: 5 FP

Date Certified: July 31, 1958

Dead End Single-Gang Cat. No.	Through Feed Single-Gang Cat. No.	Switch Information				
		Style	Amperes		H.P. at	Size Hub
			125 V.	250 V.	230-V. A.C.	
EFS1129	EFSC1129	1-Pole	20T	10	-	
EFS118	EFSC118	2-Pole	20T	20	2	
EFS1130	EFSC1130	3-Way	15T	10	-	1/2
EFS1140	EFSC1140	4-Way	5T	2	-	
EFS2129	EFSC2129	1-Pole	20T	10	-	
EFS218	EFSC218	2-Pole	20T	20	2	
EFS2123	EFSC2123	3-Pole	10	5	1/2	3/4
EFS2130	EFSC2130	3-Way	15T	10	-	
EFS2140	EFSC2140	4-Way	5T	2	-	
EFS3129	EFSC3129	1-Pole	20T	10	-	
EFD3591	EFDC3591	1-Pole	30T	30	-	
EFS318	EFSC318	2-Pole	20T	20	2	
EFD3593	EFDC3593	2-Pole	30T	30‡	2	
EFS3123	EFSC3123	3-Pole	10	5	1/2	
EFS3130	EFSC3130	3-Way	15T	10	-	
EFD3594	EFDC3594	3-Way	30T	30	-	1
EFS3140	EFSC3140	4-Way	5T	2	-	
EFD3590	EFDC3590	4-Way	20T	10	-	
EFS3540	EFSC3540	DP DT-no "OFF"	10	5	-	
EFS3539	EFSC3539	DP DT-with "OFF"	20	10§	2	
EFS3424	EFSC3424	3P DT-with "OFF"	10	5	1/2	

(Cont'd)

‡ Also rated at 20 amperes, 600 volts. § Also rated at 5 amperes, 600 volts.

EFS and EFD Series Tumbler Switch Condulets (Cont'd)

Furnished With Tumbler Switches

Dead End Two-Gang Cat. No.	Through Feed Two-Gang Cat. No.	Switch Information				
		Style	Amperes		H.P. at	Size
			125 V.	250 V.	230-V. A.C.	Hub
EFS1229	EFSC1229	1-Pole	20T	10	-	
--	EFSC128	2-Pole	20T	20	2	
--	EFSC1230	3-Way	15T	10	-	1/2
--	EFSC1240	4-Way	5T	2	-	
EFS2229	EFSC2229	1-Pole	20T	10	-	
--	EFSC228	2-Pole	20T	20	2	
--	EFSC2223	3-Pole	10	5	1/2	3/4
EFS2230	EFSC2230	3-Way	15T	10	-	
--	EFSC2240	4-Way	5T	2	-	
EFS3229	EFSC3229	1-Pole	20T	10	-	
EFD3691	EFDC3691	1-Pole	30T	30	-	
EFS328	EFSC328	2-Pole	20T	20	2	
--	EFD3693	2-Pole	30T	30‡	2	
--	EFSC3223	3-Pole	10	5	1/2	1
EFS3230	EFSC3230	3-Way	15T	10	-	
EFD3694	EFD3694	3-Way	30T	30	-	
EFS3240	EFSC3240	4-Way	5T	2	-	
EFD3690	EFDC3690	4-Way	20T	10	-	

For Surface Mounting	For Flush Mounting					
Plain Finish	Chromium Plated Cover	Style	Amperes			
Cat. No. (Single Switch)	Cat. No. (Single Switch)		125 Volts	250 Volts		Size
EFS1101	EFS1121	1-Pole	10T	5		1/2
EFS1100	EFS1120	2-Pole	10T	10		1/2
EFS1107	EFS1119	3-Way	10T	5		1/2
EFS1108	EFS1124	4-Way	5T	2		1/2
EFS2101	EFS2121	1-Pole	10T	5		3/4
EFS2100	EFS2120	2-Pole	10T	10		3/4
EFS2107	EFS2119	3-Way	10T	5		3/4
EFS2108	EFS2124	4-Way	5T	2		3/4
EFSC1101	EFSC1121	1-Pole	10T	5		1/2
EFSC1100	EFSC1120	2-Pole	10T	10		1/2
EFSC1107	EFSC1119	3-Way	10T	5		1/2
EFSC1108	EFSC1124	4-Way	5T	2		1/2

‡ Also rated at 20 amperes, 600 volts.

(Cont'd)

EFS and EFD Series Tumbler Switch Condulets (Concluded)

Furnished With Tumbler Switches

For Surface Mounting	For Flush Mounting	Style	Amperes			Size
Plain Finish	Chromium Plated Cover					
Cat. No. (Single Switch)	Cat. No. (Single Switch)		125 Volts	250 Volts		
EFSC2101	EFSC2121	1-Pole	10T	5		3/4
EFSC2100	EFSC2120	2-Pole	10T	10		3/4
EFSC2107	EFSC2119	3-Way	10T	5		3/4
EFSC2108	EFSC2124	4-Way	5T	2		3/4
Cat. No. (Duplex Switch)	Cat. No. (Duplex Switch)					
EFS1109	EFS1125	1-Pole	10T	5		1/2
EFS2109	EFS2125	1-Pole	10T	5		3/4
EFS2110	EFS2126	2-Pole	10T	10		3/4
EFS2113	EFS2127	3-Way	10T	5		3/4
EFS3114	EFS3128	4-Way	5T	2		1
EFSC1109	EFSC1125	1-Pole	10T	5		1/2
EFSC1110	EFSC1126	2-Pole	10T	10		1/2
EFSC1113	EFSC1127	3-Way	10T	5		1/2
EFSC1114	EFSC1128	4-Way	5T	2		1/2
EFSC2109	EFSC2125	1-Pole	10T	5		3/4
EFSC2110	EFSC2126	2-Pole	10T	10		3/4
EFSC2113	EFSC2127	3-Way	10T	5		3/4
EFSC2114	EFSC2128	4-Way	5T	2		3/4
Cat. No. (Triple Switch)	Cat. No. (Triple Switch)					
EFS1115	EFS1131	1-Pole	10T	5		1/2
EFS2115	EFS2131	1-Pole	10T	5		3/4
EFS3116	EFS3132	2-Pole	10T	10		1
EFS3117	EFS3133	3-Way	10T	5		1
EFSC1115	EFSC1131	1-Pole	10T	5		1/2
EFSC1116	EFSC1132	2-Pole	10T	10		1/2
EFSC2115	EFSC2131	1-Pole	10T	5		3/4
EFSC2116	EFSC2132	2-Pole	10T	10		3/4
EFSC2117	EFSC2133	3-Way	10T	5		3/4
EFSC2118	EFSC2134	4-Way	5T	2		3/4

2.

Holder of Certificate: The National Acme Co., Cleveland, Ohio, U.S.A.

2.1 Apparatus: A series of Snap-Lock, Explosion-Proof Switches, types SL2X-C, SL2X-C1, SL2X-C2, SL2X-C3, SL2X-C4, SL2X-C5, SL2X-C6, SL2X-C7, SL2X-C8

Electrical Ratings:

(1) When supplied with trailing cable specified in the schedule associated with the certificate:

A.C. Volts	Amperes
125	20

D.C. Volts	Amperes
125	5

(2) When supplied for conduit installations:

A.C. Volts	Amperes
125	20
250	15
480	10
600	5

D.C. Volts	Amperes
250	1.5
125	5

(3) When supplied for installations as part of an assembly (on a mining machine or other apparatus) where the switch cable is completely enclosed by metallic protection:

Electrical rating the same as for (2).

Certificate No.: 21 FP

Date Certified: May 15th, 1961

3.

Holder of Certificate: Pyle-National (Canada) Limited,
2560 South Sheridan Way,
Clarkson, Ontario.

3.1 Apparatus:
(Note:-
Certified only
for locations
in coal mines
where conduit
installations
are permitted)

A series of enclosures (for motor starters, or combination motor starters and circuit breakers, or circuit breakers) designated

(a) EMS Series Model 60
Motor Starter Pylets
(b) ECS Series Model 60
Combination Motor Starter Pylets
(c) ECB Series Model 60
Circuit Breaker Pylets

Electrical Ratings: Motor starters and/or circuit breakers used in these enclosures shall have prior certification by CSA Testing Laboratories. The sizes shall be in agreement with information on the listed drawings of the certification schedule. In no case shall the motor starter be larger than size 4 or the voltage rating exceed 600 Volts.

Certification No.: 65 FP

Date Certified: August 19, 1965

TELEPHONES

1.

Holder of Certificate:		A.T. & E. (Bridgnorth) Limited, Bridgnorth, Shropshire, England. Canadian Agent: A.T.E. of Canada Limited, 120 Eglinton Avenue, East, Toronto 12, Ontario.
1.1	Apparatus:	Type TGR 1 and TGR 2 Inductorfones
	Power Supply (TGR 1):	6 Volt nickel-cadmium accumulator
	Power Supply (TGR 2):	3 cap lamp batteries in series (12 Volts)
	Certificate No.:	58 I.S.
	Date Certified:	September 21, 1964

ELECTRICAL INSTRUMENTS
(Experimental Applications)

The following instruments were developed, modified or adapted by the Department of Energy, Mines and Resources for use in research into underground stress phenomena. The certification applies only to single specific instruments, which are identified in Letters of Certification. Changes were covered by Supplementary Letters of Certification. The holder of these letters is the Mining Research Centre of the Mines Branch, Department of Energy, Mines and Resources, Ottawa, Ontario.

Instrument	Certificate No.	Date
Strain Indicator	Letter #1	Feb. 14th, 1956
Electrical Resistivity Unit, Model 2A	Letter #2	Feb. 14th, 1956
Modified Strain Indicator	Letter Supp. to #1	April 16th, 1956
Load Cell Bridge, Model 2A	Letter #3	Feb. 14th, 1956
Load Cell Bridge, Model 2A, Modified	Letter Supp. to #3	Nov. 30th, 1966
Load Cell Orienting Unit	Letter #4	Feb. 28th, 1956
Load Cell Orienting Unit #2	Letter #5	April 20th, 1956
Baldwin SR4 Type N Portable Strain Indicator, Serial No. 443246	Letter #6	Oct. 31st, 1958
Modified Baldwin SR4 Type N Portable Strain Indicator	Letter Supp. to #6	Jan. 28th, 1960

Instrument	Certificate No.	Date
Baldwin SR4 Type N Portable Strain Indicator, Serial No. 443702	Letter #6	Oct. 31st, 1958
Modified Baldwin SR4 Type N Portable Strain Indicator	Letter Supp. to #6	Jan. 28th, 1960
Baldwin SR4 Type N Portable Strain Indicator, Serial No. 562900	Letter Supp. to #6	May 6th, 1960
Load Cell Switch Unit	Letter #7	May 6th, 1960
Vibrating Wire Comparator	Letter #8	Feb. 14th, 1961
Modified Vibrating Wire Comparator	Letter Supp. to #8	Oct. 11th, 1963
Seismitron	Letter #9	May 7th, 1963

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APPENDIX

Extract From Certification Memorandum No. 1

INTERPRETATION

In this memorandum:

Certificate means the certificate issued over the signature of the Certification Officer.

Certification means that the apparatus concerned has been judged to be safe and suitable for use underground in coal mines by the certifying authority provided it is installed and maintained in a correct manner. It does not include permission for installation, and use anywhere and the acceptance or rejection for use of certified apparatus in any location will remain the responsibility of the properly constituted authorities. In Canada this responsibility rests with Provincial authorities.

Certifying Authority means the Department of Energy, Mines and Resources, Ottawa, represented by the officer duly appointed by the Minister to make certifications under the name and style of "Certification Officer".

Explosion-proof means in an "Explosion-proof Enclosure" which shall have the same meaning as "Flameproof Enclosure" for certification purposes.

Flameproof means in a "Flameproof Enclosure" which is an enclosure for electrical apparatus that will withstand, without injury, any explosion of the prescribed inflammable gas that may occur within it under practical conditions of operation within the rating of the apparatus (and recognized overloads, if any, associated therewith) and will prevent the transmission of flame such as would ignite the prescribed inflammable gas which may be present in the surrounding atmosphere.

Registered Mark means the certification mark, registered at the Canadian Trade Marks Office, which may be put on certified apparatus and which carries the initials FP, standing for "Flameproof", and E.M. and R., standing for "Department of Energy, Mines and Resources, Ottawa".

Extract From Certification Memorandum No. 2

INTERPRETATION

In this memorandum:

Certificate means the certificate issued over the signature of the Certification Officer.

Certification means that the conveyor belting concerned has been judged to be fire-resistant to the extent that samples have passed the requirements prescribed in this memorandum. It does not include permission for installation and use anywhere. The acceptance or rejection for use of certified fire-resistant belting in any location remains the responsibility of the properly constituted authorities. In Canada this responsibility rests with Provincial authorities.

Certifying Authority means the Department of Energy, Mines and Resources, Ottawa, represented by the officer duly appointed by the Minister to make certifications under the name and style of "Certification Officer".

Fire-Resistant means that samples of the conveyor belting provided by the applicant as being representative of the conveyor belting being investigated have successfully met the requirements prescribed in this memorandum.

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