

Heavy duty flexible for aggressive environments

HD Rubber Flexible Cables for use in Mining and Industry



APPPLICATION

- Extra heavy duty flexible
- Stackers & reclaimer cabling
- Draglines, shovels & hoists
- Conveyors
- Open cut mine trailing cable
- Heavy industry & construction sites
- Submersion in polluted liquids
- Single core for festoon cranes
- Suitable for hazardous locations

DESIGN

PROTOMONT HD heavy duty elastomer flexible cables are designed for aggressive environments in open cut mining and quarries, industry and construction sites as well as agricultural use where heavy mechanical stresses occur.

PROTOMONT HD cables consist of finely stranded tinned copper conductors laid up to provide a flexible design.

R-EP-90 elastomer insulation enables improved current capacities and a specially compounded XHD-PCP-90 outer sheath resists hard and abrasive surfaces. Designed in accordance with the Australian Standard AS 1125, AS/NZS 5000-1, AS 3191 and DIN VDE 0250 pt 812 for NSSHoeu. Flame retardant to VDE and MSHA.

OPERATING TEMPERATURE

- Minimum permissible ambient temperature -40°C
- Maximum permissible conductor temperature 90°C
- Maximum permissible short circuit temperature 250°C
- Minimum ambient temperature for optimum fully flexible operation -25°C

MINIMUM BENDING RADII

The following minimum bending radii should be observed to ensure operating reliability.

- For fixed installation 4 x cable diameter
- When freely flexing 5 x cable diameter

CURRENT CARRYING CAPACITY

Current ratings are based on a continuous operating ambient temperature of 40°C. At other temperatures, these values must be converted using the following table

°C	15	20	25	30	35	40	45	50	55	60	65	70	75	80
Factor	1.26	1.20	1.15	1.10	1.05	1.00	0.94	0.88	0.81	0.73	0.65	0.57	0.47	0.34

The values are valid for permanent operation with DC or AC with 50 up to 60 Hz. Touching a surface, two or three cores loaded, multi-core cables all cores loaded.

TENSILE STRENGTH

The maximum allowable tensile stress is 15 N/mm².
 This ensures no conductor damage will occur in operation.

VOLTAGE RATING

- Rated voltage: U_o/U = 0.6/1kV
- Maximum operating voltages in:
 - 3 phase AC operation U_o/U = 0.7/1.2kV
 - DC operation U_o/U = 0.9/1.8kV
- AC test voltage = 3kV

CORE COLOUR IDENTIFICATION

- Single core: - black
- 3 core: - blue, brown and **green/yellow**
- 4 core: - blue, brown, black and **green/yellow**
- 5 core: - blue, brown, black, **green/yellow** and black
- Multi core: - black insulation sequentially numbered including a **green/yellow** earth core

Selection and Ordering Data

Current ratings are based on AS/NZS 3008.1.1:2017.

	No. of cores x conductor size	Part No.	Nominal of strands and strand diameter	Nominal of diameter conductor	Nominal cable diameter	Approx. net cable weight	Unenclosed Spaced
	mm ²		mm	mm	mm	kg/km	A
PROTOMONT with black core insulation	1 x 16	5DL1 112	126 x 0.40	5.3	11.2	231	106
	1 x 25	5DL1 113	196 x 0.40	6.6	13.4	349	142
	1 x 35	5DL1 114	276 x 0.40	7.8	14.5	443	177
	1 x 50	5DL1 115	396 x 0.40	9.3	16.4	601	223
	1 x 70	5DL1 116	546 x 0.40	10.9	18.5	814	283
	1 x 95	5DL1 117	724 x 0.40	12.6	20.5	1041	341
	1 x 120	5DL1 118	926 x 0.40	14.2	23.0	1325	406
	1 x 150	5DL1 120	1156 x 0.40	15.9	25.2	1615	470
	1 x 185	5DL1 121	1406 x 0.40	17.5	28.3	1997	540
	1 x 240	5DL1 122	1862 x 0.40	20.2	31.5	2575	651
	1 x 300	5DL1 123	1456 x 0.50	22.3	35.7	3244	752
PROTOMONT including green/yellow earth core	3 x 1.5*	5DL1 304	30 x 0.25	1.6	11.9	185	24
	3 x 2.5*	5DL1 305	50 x 0.25	2.1	13.0	235	32
	3 x 4*	5DL1 306	56 x 0.30	2.6	16.2	380	43
	3 x 6*	5DL1 307	84 x 0.30	3.2	17.6	447	55

Selection and ordering data

Current ratings are based on AS/NZS 3008.1.1:2017.

	No. of cores x conductor size	Part No.	Nominal of strands and strand diameter	Nominal of diameter conductor	Nominal cable diameter	Approx. net cable weight	Unenclosed Spaced 
	mm ²		mm	mm	mm	kg/km	A
PROTOMONT including green/ yellow earth core	4 x 1.5*	5DL1 404	30 x 0.25	1.6	12.6	215	20
	4 x 2.5*	5DL1 405	50 x 0.25	2.1	15.1	319	27
	4 x 4*	5DL1 406	56 x 0.30	2.6	16.7	411	36
	4 x 6*	5DL1 407	84 x 0.30	3.2	17.9	508	46
	4 x 10*	5DL1 410	80 x 0.40	4.2	22.1	803	66
	4 x 16*	5DL1 412	126 x 0.40	5.3	26.7	1181	87
	4 x 25*	5DL1 413	196 x 0.40	6.6	31.3	1721	116
	4 x 35*	5DL1 414	276 x 0.40	7.8	34.2	2176	144
	4 x 50*	5DL1 415	396 x 0.40	9.3	39.6	3022	182
	4 x 70*	5DL1 416	546 x 0.40	10.9	43.6	3939	230
	4 x 95*	5DL1 417	724 x 0.40	12.6	50.2	5335	275
	4 x 120*	5DL1 418	926 x 0.40	14.2	56.6	6758	327
	4 x 150*	5DL1 420	1156 x 0.40	15.9	62.8	8021	375
	4 x 185*	5DL1 421	1406 x 0.40	17.5	69.3	10154	428
	4 x 240*	5DL1 422	1862 x 0.40	20.2	75.7	10621	511
	3 x 50/25*	5DL1 715	396 x 0.40	9.3	39.9	2874	182
	3 x 70/35*	5DL1 716	546 x 0.40	10.9	43.8	3714	230
	3 x 95/50*	5DL1 717	724 x 0.40	12.6	50.1	4899	275
	3 x 120/95*	5DL1 718	926 x 0.40	14.2	56.6	6482	327
	3 x 150/70*	5DL1 722	1156 x 0.40	15.9	62.0	7568	375
	3 x 185/95*	5DL1 721	1406 x 0.40	17.5	69.3	9328	428

*This construction can be used for submersion in aggressive liquids

Selection and ordering data

Current ratings are based on AS/NZS 3008.1.1:2017.

	No. of cores x conductor size	Part No.	Nominal of strands and strand diameter	Nominal of diameter conductor	Nominal cable diameter	Approx. net cable weight	Unenclosed Spaced 
	mm ²		mm	mm	mm	kg/km	A
PROTOMONT including green/yellow earth core	5 x 1.5	5DL1 504	30 x 0.25	1.6	13.5	250	20
	5 x 2.5	5DL1 505	50 x 0.25	2.1	16.2	363	27
	5 x 4	5DL1 506	56 x 0.30	2.6	28.0	482	36
	5 x 6	5DL1 507	84 x 0.30	3.2	20.1	633	46
	5 x 10	5DL1 510	80 x 0.40	4.2	24.0	956	66
	5 x 16	5DL1 512	126 x 0.40	5.3	28.9	1396	87
	5 x 25	5DL1 513	196 x 0.40	6.6	33.9	2051	116
	5 x 35	5DL1 514	276 x 0.40	7.8	38.4	2743	144
	6 x 1.5*	5DL1 982	30 x 0.25	1.6	14.5	315	20
	7 x 1.5*	5DL1 933	30 x 0.25	1.6	16.2	364	20
	8 x 1.5*	5DL1 931	30 x 0.25	1.6	17.6	419	20
	10 x 1.5*	5DL1 878	30 x 0.25	1.6	18.7	476	20
	11 x 1.5*	5DL1 903	30 x 0.25	1.6	20.0	516	20
	7 x 2.5	5DL1 911	50 x 0.25	2.1	18.4	497	27
	10 x 2.5*	5DL1 748	50 x 0.25	2.1	22.0	671	27
	12 x 2.5	5DL1 755	50 x 0.25	2.1	22.2	735	27
	12 x 2.5*	5DL1 923	50 x 0.25	2.1	22.2	765	27
	18 x 2.5	5DL1 937	50 x 0.25	2.1	26.0	1034	27
	24 x 2.5	5DL1 842	50 x 0.25	2.1	29.8	1300	27
	7 x 4	5DL1 750	56 x 0.30	2.6	21.5	698	36
	12 x 4	5DL1 957	56 x 0.30	2.6	27.1	1070	36
	14 x 4	5DL1 892	56 x 0.30	2.6	27.2	1130	36