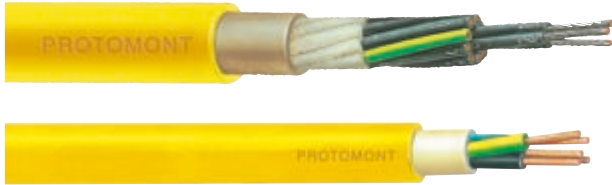


## Heavy Duty Flexible for Aggressive Environments



### APPLICATION

- 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

### 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. The cable is in accordance with the Australian Standard AS 1125, AS 3116, 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

### TENSILE STRENGTH

The maximum allowable tensile stress is 15 N/mm<sup>2</sup>. This ensures no conductor damage will occur in operation.

## VOLTAGE RATING

- Rated Voltage:  $U_0/U = 0.6/1kV$
- Maximum operating voltages in:
  - 3 phase AC operation  $U_0/U = 0.7/1.2kV$
  - DC operation  $U_0/U = 0.9/1.8kV$
- 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
- Multicore: - black insulation sequentially numbered including a green/yellow earth core

## Selection and Ordering Data

	No. of Cores x Conductor Size	Part No.	Approx. No. of Strands x Max. Strand	Diameter of Bare Conductor	Cable Overall Diameter		Cable Weight	Unenclosed	
					Min	Max		Spaced	Touching
	mm <sup>2</sup>		mm	mm	mm	mm	kg/km	A	A
<b>PROTOMONT with black core insulation</b>	<b>1 x 16</b>	<b>5DL1 112</b>	122 x 0.41	6.3	10.5	12.5	255	110	86
	<b>1 x 25</b>	<b>5DL1 113</b>	188 x 0.41	7.8	13.0	15.0	283	150	115
	<b>1 x 35</b>	<b>5DL1 114</b>	265 x 0.41	9.2	14.5	16.5	493	185	145
	<b>1 x 50</b>	<b>5DL1 115</b>	379 x 0.41	11.0	16.0	18.5	670	230	175
	<b>1 x 70</b>	<b>5DL1 116</b>	539 x 0.41	13.0	18.0	20.5	900	290	225
	<b>1 x 95</b>	<b>5DL1 117</b>	716 x 0.41	15.1	21.0	23.5	1140	360	280
	<b>1 x 120</b>	<b>5DL1 118</b>	915 x 0.41	17.0	22.5	25.5	1430	420	325
	<b>1 x 150</b>	<b>5DL1 120</b>	1138 x 0.41	19.0	24.5	27.5	1740	485	375
	<b>1 x 185</b>	<b>5DL1 121</b>	1390 x 0.41	21.0	27.5	31.0	2150	570	435
	<b>1 x 240</b>	<b>5DL1 122</b>	1844 x 0.41	24.0	31.0	34.5	2760	680	520
	<b>1 x 300</b>	<b>5DL1 123</b>	2301 x 0.41	27.0	34.5	38.0	3480	790	610
<b>PROTOMONT including green/yellow earth core</b>	<b>3 x 1.5*</b>	<b>5DL1 304</b>	28 x 0.26	1.8	11.5	13.5	210	20	19
	<b>3 x 2.5*</b>	<b>5DL1 305</b>	45 x 0.26	2.6	12.5	15.0	273	28	26
	<b>3 x 4*</b>	<b>5DL1 306</b>	50 x 0.31	3.2	15.5	18.0	408	38	35
	<b>3 x 6*</b>	<b>5DL1 307</b>	75 x 0.31	3.9	17.0	19.5	510	48	45



## Selection and Ordering Data

	No. of Cores x Conductor Size	Part No.	Approx. No. of Strands x Max. Strand Diameter	Diameter of Bare Conductor		Cable Overall Diameter		Cable Weight	Current Carrying	Capacity
				mm	mm	Min mm	Max mm		free in air	direct installed
	mm <sup>2</sup>		mm	mm	mm	mm	kg/km	A	A	
<b>PROTOMONT including green/ yellow earth core</b>	<b>4 x 1.5*</b>	<b>5DL1 404</b>	28 x 0.26	1.8	12.0	14.0	239	20	19	
	<b>4 x 2.5*</b>	<b>5DL1 405</b>	45 x 0.26	2.6	14.5	17.0	364	28	26	
	<b>4 x 4*</b>	<b>5DL1 406</b>	50 x 0.31	3.2	16.5	19.0	477	38	35	
	<b>4 x 6*</b>	<b>5DL1 407</b>	75 x 0.31	3.9	18.0	20.5	600	48	45	
	<b>4 x 10*</b>	<b>5DL1 410</b>	77 x 0.41	5.1	22.0	25.0	920	66	62	
	<b>4 x 16*</b>	<b>5DL1 412</b>	122 x 0.41	6.3	26.5	30.0	1370	88	83	
	<b>4 x 25*</b>	<b>5DL1 413</b>	190 x 0.41	7.8	31.5	35.5	2010	120	110	
	<b>4 x 35*</b>	<b>5DL1 414</b>	267 x 0.41	9.2	34.5	38.5	2530	145	135	
	<b>4 x 50*</b>	<b>5DL1 415</b>	383 x 0.41	11.0	40.5	45.0	3520	180	170	
	<b>3 x 70/35*</b>	<b>5DL1 716</b>	544 x 0.41	13.1	44.5	49.0	4280	230	215	
	<b>3 x 95/50*</b>	<b>5DL1 717</b>	722 x 0.41	15.1	51.5	57.0	5710	285	265	
	<b>3 x 120/95*</b>	<b>5DL1 718</b>	925 x 0.41	17.0	57.5	63.5	7010	330	305	
	<b>5 x 1.5</b>	<b>5DL1 504</b>	28 x 0.26	1.8	13.0	15.0	266	20	19	
	<b>5 x 2.5</b>	<b>5DL1 505</b>	45 x 0.26	2.6	16.0	18.0	403	28	26	
	<b>5 x 4</b>	<b>5DL1 506</b>	50 x 0.31	3.2	18.0	20.5	540	38	35	
	<b>5 x 6</b>	<b>5DL1 507</b>	75 x 0.31	3.9	20.0	23.0	720	48	45	
	<b>5 x 10</b>	<b>5DL1 510</b>	77 x 0.41	5.1	24.0	27.0	1050	66	62	
	<b>5 x 16</b>	<b>5DL1 512</b>	122 x 0.41	6.3	29.0	32.5	1580	88	83	
<b>5 x 25</b>	<b>5DL1 513</b>	190 x 0.41	7.8	34.5	38.5	2320	120	110		
<b>6 x 1.5*</b>	<b>5DL1 945</b>	28 x 0.26	1.8	14.0	15.0	315	20	19		
<b>7 x 1.5*</b>	<b>5DL1 933</b>	28 x 0.26	1.8	16.0	18.5	416	20	19		
<b>8 x 1.5*</b>	<b>5DL1 931</b>	28 x 0.26	1.8	17.3	19.1	462	20	19		
<b>10 x 1.5*</b>	<b>5DL1 878</b>	28 x 0.26	1.8	18.5	21.0	540	20	19		
<b>11 x 1.5*</b>	<b>5DL1 903</b>	28 x 0.26	1.8	19.3	20.7	580	20	19		
<b>7 x 2.5</b>	<b>5DL1 911</b>	45 x 0.26	2.6	18.0	21.0	530	28	26		
<b>10 x 2.5*</b>	<b>5DL1 748</b>	45 x 0.26	2.6	21.6	23.6	760	28	26		
<b>12 x 2.5</b>	<b>5DL1 755</b>	45 x 0.26	2.6	22.5	25.0	800	28	26		
<b>12 x 2.5*</b>	<b>5DL1 923</b>	45 x 0.26	2.6	22.5	25.0	830	28	26		
<b>18 x 2.5</b>	<b>5DL1 937</b>	45 x 0.26	2.6	26.0	30.0	1140	28	26		

\*This construction can be used for submersion in aggressive liquids