

DEF STAN 02-517 Part 1 Issue 2 / Pressureâ€“Tight Ethylene Propylene Rubber (EPR) or Silicone Rubber Insulated, Chlorosulphonated Polyethylene(CSP) Limited Fire Hazard (LFH) Sheathed â€“ Watertightness â€“ Testing Equipment

Description

6.3.4.12 Watertightness

a) A 1.5 m length of completed cable with its ends unsealed shall be installed through a gland in a test tank with approximately 150 mm of the cable protruding into the tank. The gland to be used for this test shall be of the type fitted in submarine pressureâ€“tight bulkheads as shown on Vickers Drawing No. SSN07/P/305/00/0001. Both ends of the gland shall be packed with polychloroprene pre-moulded collars as shown on SDN 006 003 815 and the gland nuts tightened with the appropriate torque:

Minimum cable diameter up to 17 mm 13.6 Nm
Minimum cable diameter 18 mm to 27 mm 27.0 Nm
Minimum cable diameter 28 mm to 40 mm 40.0 Nm
Minimum cable diameter above 40 mm 54.0 Nm

b) The test tank shall be capable of maintaining a continuous water pressure of 2.4 MN/m². Where the cable has been ordered in lengths greater than 100 m, both ends shall be tested and failure of either sample shall involve rejection of the length.

c) The cable installed in accordance with Clauses 6.3.4.12a. and 6.3.4.12b. shall be subjected to the following test:

1) With water in the tank at 20Â°C Â±5Â°C the pressure shall be raised to 2.4 MN/m² in not more than 5 minutes and maintained at this value for 4 hours. The water leakage through the cable during this period shall not exceed the values given in Table 10 and Table 11. If the leakage after 2 hours does not exceed 20 per cent of the appropriate value the cable shall be deemed to have met the requirements of this Clause.

Table 10 — Water Leakage Values for Tables of Dimensions, Table D.1 to Table D.5.

Specified Diameter (min) over Sheath of Cable mm	Total Water Leakage at End of Test ml			
	Extruded Insulation			Taped Insulation
	Up to and including 10 cores	Above 10 cores up to and including 24 cores	Above 24 cores	All types
Up to and including 12.5	40	-	-	130
Above 12.5 up to and including 25.0	80	180	260	260
Above 25.0 up to and including 37.5	160	340	520	520
Above 37.5 up to and including 43.7	-	-	-	870
Above 43.7	-	-	-	1300

NOTE The leakage of cable NSN 6145â€“99â€“521â€“6968 is not to exceed 520 ml. The leakage of cables NSN 6145â€“99â€“521â€“6944 and NSN 6145â€“99â€“521â€“6965 shall be recorded only.

Table 11 — Water Leakage Values for Tables of Dimensions, Table D.6 to Table D.8

Specified Diameter (min) over Sheath of Cable mm	Maximum Total Water Leakage ml		
	Extruded Insulation		
	Up to and including 20 cores	Above 20 cores	Cables with Metallic Screen
Up to and including 15.0	40	-	80
Above 15.0 up to and including 25.0	80	-	160
Above 25.0 up to and including 35.0	120	240	240
Above 35.0 up to and including 40.0	240	360	-
Above 40.0	480	-	-

Table D.1 — Single, Twin and Multicore, Pressure-Tight Cables, Silicone Rubber Insulated, CSP (LFH) Sheathed

1 NSN 6145-99-	2 No of cores	3 Conductor			4 Insulation Radial Thickness		5 Diameter of Cores		6 No. of cores per layer	7 Diameter over filled and sheathed laid up cores mm	8 CSP sheath radial thickness mm	9 Overall diameter mm	10 Voltage Test V	11 Maximum conductor resistance per km at 20°C ohm	12 Minimum insulation resistance per km at 20°C megohm	13 Length on drum m	14 Rating	
		Nominal area sq mm	Strand mm	Diameter (filled) mm	Extruded mm	Taped mm	Glass braid and varnish mm	Taped mm									Voltage Test V	Current A
521-6934	1	120	37/2.03	14.71	-	1.4	-	17.51	1	20.11	1.6	24.0	3500	0.15	40	200	440	380
521-6935	2	1.5	7/0.5	1.50	0.5	-	2.90	-	2	8.26	1.2	11.3	1500	13.6	100	200	440	23
521-6936	2	2.5	7/0.67	2.01	0.6	-	3.61	-	2	9.68	1.2	12.8	1500	7.41	100	200	440	33
521-6937	2	8	7/1.04	3.12	0.7	-	4.92	-	2	12.30	1.3	15.7	1500	3.08	100	200	440	55
521-6938	2	10	19/0.85	4.25	0.9	-	6.45	-	2	15.60	1.4	19.2	1500	1.7	100	200	440	79
521-6939	2	16	19/1.04	5.20	0.9	-	7.40	-	2	17.90	1.5	21.7	1500	1.13	100	200	440	100
521-6940	2	25	19/1.35	7.00	-	1.1	-	9.20	2	21.50	1.7	25.7	3500	0.673	65	200	440	140
521-6941	2	35	19/1.53	7.90	-	1.1	-	10.10	2	24.20	1.8	28.7	3500	0.524	45	200	440	165
521-6942	3	1	7/0.4	1.20	0.5	-	2.60	-	F.3	8.10	1.2	11.3	1500	21.2	100	200	440	17
521-6943	3	1.5	7/0.5	1.50	0.5	-	2.90	-	F.3	8.74	1.2	11.9	1500	13.6	100	200	440	23
521-6944	3	4	7/0.85	2.55	0.6	-	4.15	-	F.3	11.45	1.3	14.9	1500	4.61	100	200	440	43
521-6945	3	16	19/1.04	5.20	0.9	-	7.40	-	F.3	19.12	1.6	23.2	1500	1.13	100	200	440	100
521-6946	3	25	19/1.35	7.00	-	1.1	-	9.20	F.3	23.41	1.7	27.2	3500	0.673	55	200	440	140
521-6947	3	35	19/1.53	7.90	-	1.1	-	10.10	F.3	25.90	1.8	30.4	3500	0.524	45	200	440	165
521-6948	3	70	19/2.14	10.95	-	1.1	-	13.15	F.3	32.50	2.1	37.6	3500	0.268	40	200	440	250
521-6949	3	95	37/1.78	12.96	-	1.4	-	15.76	F.3	39.10	2.4	44.9	3500	0.199	40	200	440	315
521-6950	3	120	37/2.03	14.71	-	1.4	-	17.51	F.3	42.90	2.5	49.0	3500	0.153	40	200	440	380
521-6951	3	150	37/2.25	16.25	-	1.4	-	19.05	F.3	46.20	2.6	52.5	3500	0.124	35	200	440	420
521-6952	3	185	37/2.52	18.14	-	1.4	-	20.94	F.3	50.30	2.8	57.0	3500	0.0991	30	200	440	480
521-6953	4	1	7/0.4	1.20	0.5	-	2.60	-	F.4	8.81	1.2	12.0	3500	21.2	100	200	440	17
521-6954	7	1	7/0.4	1.20	0.5	-	2.60	-	F.7	11.24	1.2	14.5	3500	21.2	100	200	440	17
521-6955	14	1	7/0.4	1.20	0.5	-	2.60	-	F.4 F.10	15.77	1.4	19.4	3500	21.2	100	200	440	17
521-6956	18	1	7/0.4	1.20	0.5	-	2.60	-	F.6 F.12	17.75	1.5	21.5	3500	21.2	100	200	440	17
521-6957	24	1	7/0.4	1.20	0.5	-	2.60	-	F.8 F.15	20.30	1.6	24.4	3500	21.2	100	200	440	17
521-6958	30	1	7/0.4	1.20	0.5	-	2.60	-	F.4 F.10 F.16	23.53	1.7	27.8	1500	21.2	100	200	440	17
521-6959	36	1	7/0.4	1.20	0.5	-	2.60	-	F.5 F.12 F.19	25.33	1.8	29.8	1500	21.2	100	200	440	17
521-6960	44	1	7/0.4	1.20	0.5	-	2.60	-	F.8 F.14 F.22	28.00	1.8	32.7	1500	21.2	100	200	440	17
521-6961	24	1.5	7/0.5	1.50	0.5	-	2.90	-	F.9 F.15	22.07	2.4	26.3	1500	13.6	100	200	440	23
521-6962	30	1.5	7/0.5	1.50	0.5	-	2.90	-	F.4 F.10 F.16	25.45	3	29.9	1500	13.6	100	200	440	23
521-6963	18	4	7/0.85	2.55	0.6	-	4.15	-	F.6 F.12	26.40	1.5	31.1	1500	4.61	100	200	440	43
521-6964	14	16	19/1.04	5.20	0.9	-	7.40	-	F.4 F.10	40.30	-	46.2	1500	1.13	100	200	440	100
521-6965	14	35	19/1.53	7.90	-	1.1	-	10.10	F.4 F.10	53.90	-	61.1	3500	0.524	45	200	440	140
527-8143	6	6	7/1.04	3.12	0.7	-	4.92	-	F.6	17.75	-	21.7	1500	3.08	100	200	440	55

NOTE Cables NSN 6145-99-521-6958, NSN 6145-99-521-6959 and NSN 6145-99-521-6960 shall be supplied with green sheaths.

Table D.2 — Twisted Pair, Pressure-Tight Cables, Silicone Rubber Insulated, Pairs Individually Screened, CSP (LFH) Sheathed

1	2	3			4	5	6	7	8	9	10	11	12	13	14	15	16	17	
		Conductor																Rating	
NSN 5145-99-	No. of pairs	Nominal area	Size of strand	Diameter (filled)	Insulation extruded radial thickness	Diameter over glass braid and varnish	Screen braid wire diameter	Diameter over screened pair	Diameter over filled screen	No of pairs per layer	Diameter over filled and sheathed laid-up pairs	CSP sheath radial thickness	Overall diameter	Voltage Test	Maximum conductor resistance per km at 20°C	Minimum insulation resistance per km at 20°C	Length on drum	Voltage	Current
		sq mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	V	ohm	megohm	m	V	A
		521-6966	1									1	8.41	1.2	11.5				
521-6967	3	1.0	7/0.4	1.2	0.5	2.60	0.15	7.21	8.41	F.3	21.30	1.6	25.4	1500	21.6	100	200	440	17
521-6968	7									1.F.6	30.48	2.0	35.3						

NOTE Cables NSN 6145-99-521-6966, NSN 6145-99-521-6967 and NSN 6145-99-521-6968 shall be supplied with a green sheath.

Table D.3 — Three-Core, Pressure-Tight Cable, Silicone Rubber Insulated, Cores Screened, CSP (LFH) Sheathed

1	2	3			4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	
		Conductor																	Rating	
NSN 5145-99-	No. of cores	Nominal Area	Strand	Diameter (filled)	Insulation extruded radial thickness	Diameter over glass braid and varnish	Diameter over filler sheath	Screen braid wire diameter	Diameter over screen	Diameter over filler sheath	No of cores per layer	Diameter over filled and sheathed laid-up cores	Radial thickness of sheath	Overall diameter	Voltage Tests	Maximum conductor resistance per km at 20°C	Minimum insulation resistance per km at 20°C	Length on drum	Voltage	Current
		Sq mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	V	ohm	megohm	m	V	A
		533-4599	3	1.0	7/0.4	1.2	0.5	2.60	3.60	0.15	4.35	5.35	F.3	12.53	1.6	16.6	1500	21.6	100 conductor to screen 25 between screens	200

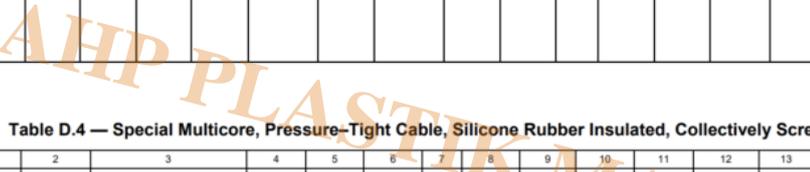


Table D.4 — Special Multicore, Pressure-Tight Cable, Silicone Rubber Insulated, Collectively Screened, CSP (LFH) Sheathed

1	2	3			4	5	6	7	8	9	10	11	12	13	14	15	16	17		
		Conductor																Rating		
NSN 5145-99-	No of cores	Nominal area	Strand	Diameter (filled)	Radial thickness of insulation	Diameter over glass braid and varnish	Diameter over filled and sheathed centre twisted pair	No of cores per layer	Diameter over filled and sheathed laid-up cores	Screen wire diameter	Diameter over screened and filled laid-up cores	Radial thickness of CSP sheath	Overall diameter of cable (nominal)	Voltage Test	Minimum insulation resistance per km at 20°C at 500V	Maximum conductor resistance per km at 20°C	Length on drum	Voltage	Current	
		sq mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	V	megohm	ohm	m	V	A	
		529-4378	11	2 (pr)	1.0	7/0.4	1.2	0.5	2.6	7.8	2.F.9	17.2	0.3	20.7	1.6	24.8	1500	100	21.2	200
	9	1.0	7/0.4	1.2	0.5	2.6	-	-	-	-	-	-	-	-	-	-	-	-	-	-

NOTE 1 Filler sheaths of the following radial thickness shall be applied:
 Over centre twisted pair 1.2 mm
 Over laid-up cores 1.2 mm
 Under screen 1.0 mm
 Over screen 1.0 mm

NOTE 2 Identification - The centre pair shall have one core uncoloured and the other core black. The core in the 1st layer shall have two coloured cores adjacent to each other, one black and the other coloured red, the remaining cores shall be uncoloured.

Table D.5 —Eighteen-Core, Pressure-Tight Thermocouple Extension Cable Silicone Rubber Insulated, CSP (LFH) Sheathed

1	2	3			4		5	6	7	8	9	10	11	12	13	14	15
		Conductor			Insulation												
NSN 6145-99-	No. of cores	Nominal area	Strand	Diameter	Radial thickness	Diameter	Diameter over glass braid	No of cores per layer	Diameter over filled laid-up cores	Radial thickness of sheath	Minimum diameter	Maximum diameter	Voltage Test	Minimum insulation resistance per km at 20°C at 500V	Maximum conductor resistance per km at 20°C	Length on drum	Voltage rating
		sq mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	mm	V	megohm	ohms	m
525-2045	18	4	7/0.85	2.53	0.6	3.75	4.15	F.6 F.12	29.9	1.9	33.7	35.1	1500	100	See Notes	100	440

Table D.6 — Single, Twin and Multicore, Pressure-Tight Cables, EPR Insulated, CSP (LFH) Sheathed

1	2	3			4	5	6	7			8	9	10	11	12					
		Nominal area	Strand	Diameter				Nominal radial thickness	Minimum diameter	Maximum diameter					Voltage Test	Minimum insulation resistance per km at 20°C at 500V megohm	Maximum conductor resistance per km at 20°C ohm	Length on drum	Rating	
																			V	A
522-2216	1	2	7/0.60	2.10	4.70	-	-	2.5	10.0	10.8	3000	840	9.70	250	1000	10				
522-2217	1	4	7/0.85	2.90	5.90	-	-	2.5	11.2	12.0	3000	740	4.60	250	1000	24				
522-2218	1	13	7/1.53	5.20	8.20	-	-	2.5	13.7	14.5	3000	470	1.41	250	1000	46				
522-2219	1	52	61/1.04	11.50	14.40	-	-	3.0	22.1	23.1	3000	230	0.350	250	1000	95				
522-2220	1	125	127/ 1.13	18.50	22.90	-	-	3.0	29.0	30.0	3000	220	0.142	250	1000	184				
522-2235	3	2	7/0.60	2.10	4.70	F.3	10.2	2.9	15.7	16.4	3000	840	9.89	250	1000	10				
522-2230	3	13	7/1.53	5.20	8.20	F.3	18.1	3.0	24.7	26.0	3000	470	1.44	250	1000	46				
522-2221	3	52	61/1.04	11.50	14.40	F.3	35.2	3.5	41.7	43.2	3000	230	0.357	100	1000	95				
522-2222	4	52	61/1.04	11.50	14.40	F.4	35.5	3.5	42.0	43.5	3000	230	0.357	100	1000	95				
522-2223	5	2	7/0.60	2.10	4.70	F.5	13.0	1.5	15.7	16.4	3000	840	9.89	100	1000	10				
522-2238	10	2	7/0.60	2.10	4.70	F.10	20.5	2.0	24.0	24.8	3000	840	9.89	100	1000	10				
522-2224	12	2	7/0.60	2.10	4.70	2.F.10	21.3	3.0	27.0	28.3	3000	840	9.89	100	1000	10				
522-2226	20	2	7/0.60	2.10	4.70	F.6.F.14	27.7	3.0	33.2	34.7	3000	840	9.89	100	1000	10				
522-2227	30	2	7/0.60	2.10	4.70	2.F.10.F.18	34.4	3.5	40.9	42.4	3000	840	9.89	100	1000	10				

Table D.7 — Twisted Triple, Pressure-Tight Cables, EPR Insulated, Unscreened and Collectively Screened, CSP (LFH) Sheathed

1	2	3			4	5	6	7	8			9	10	11	12	13					
		Nominal area	Strand	Diameter					Nominal radial thickness	Minimum diameter	Maximum diameter					Voltage Test	Minimum insulation resistance per km at 20°C at 500V megohm	Maximum conductor resistance per km at 20°C ohm	Length on drum	Rating	
																				V	A
522-2225	4	2	7/0.60	2.10	3.70	F(3 ? 4)	24.8	-	3.0	29.8	31.3	1500	590	9.89	200	600	10				
522-2228	9					F(9 ? 3)	39.0	-	3.5	45.5	47.0	1500	590	9.89	200	600	10				
522-2232	4					F(4 ? 3)	24.8	0.2	3.0	33.0	34.5	1500	590	9.89	200	600	10				

Table D.8 — Single, Twin and Three-Core, Pressure-Tight Cables, EPR Insulated, Collectively Screened, CSP (LFH) Sheathed

1	2	3			4	5	6	7	8			9	10	11	12	13					
		Nominal area	Strand	Diameter					Nominal radial thickness	Minimum diameter	Maximum diameter					Voltage Test	Minimum insulation resistance per km at 20°C at 500V megohm	Maximum conductor resistance per km at 20°C ohm	Length on drum	Rating	
																				V	A
522-2233	1	1.5	7/0.50	1.80	7.40	-	-	0.2	2.0	12.3	13.0	5000	1400	13.57	200	1000	5				
522-2231	2	2.0	7/0.60	2.10	3.70	2	9.6	0.2	1.5	13.2	14.0	1500	590	9.89	200	600	10				
522-2236	3	2.0	7/0.60	2.10	3.70	F.3	10.2	0.3	1.5	16.2	17.0	1500	590	9.89	200	600	10				



Watertightness Tester According to DEF STAN 02-517 Part 1 Issue 2 for Cables

- End seals and flange sizes according to customer request
- Touch screen control or Computer control
- Piston pump up to 50 bars
- Solenoid valves and sensors are European
- Italian pump
- Main chamber is SS304
- Automatic control and monitoring of the pressure

-
- Option 1- Computer control with reporting in MS Word
 - Option 2- Touch screen control and monitoring on the display â€“ Brief report on thermal printer
 - Training video included
-

Category

1. Equipment for Standards
2. Standards

AHP PLASTIK MAKINA