

TYPE APPROVAL CERTIFICATE

This is to certify:**That the High Voltage Cable**

with type designation(s)

**BOSTRIG MHV-5 1,8/3 kV,
BOSTRIG MHV-8 3,6/6 kV,
BOSTRIG MHV-8 6/10 kV,
BOSTRIG MHV-15 8,7/15 kV,
BOSTRIG MHV-15 12/20 kV**

Issued to

**Prysmian Cables and Systems USA, LLC
Highland Heights, KY , USA**

is found to comply with

DNV GL rules for classification – Ships, offshore units, and high speed and light craft**Application :****Power.****Products approved by this certificate are accepted for installation on all vessels classed by DNV GL.**

Type	Rated voltage (kV)	Temp. class (°C)
BOSTRIG MHV-5 1,8/3 kV	1,8/3	90
BOSTRIG MHV-8 3,6/6 kV	3,6/6	90
BOSTRIG MHV-8 6/10 kV	6/10	90
BOSTRIG MHV-15 8,7/15 kV	8,7/15	90
BOSTRIG MHV-15 12/20 kV	12/20	90

Issued at **Høvik** on **2020-09-21**This Certificate is valid until **2025-08-29**.for **DNV GL**DNV GL local station: **New York**Approval Engineer: **Ivar Bull**

Marta Alonso Pontes
Head of Section

This Certificate is subject to terms and conditions overleaf. Any significant change in design or construction may render this Certificate invalid. The validity date relates to the Type Approval Certificate and not to the approval of equipment/systems installed.

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Place of Manufacturer

Prysmian Power Cables and Systems, Taunton, MA 02780, United States

Product description

BOSTRIG MHV-5 1,8/3 kV
BOSTRIG MHV-8 3,6/6 kV
BOSTRIG MHV-8 6/10 kV
BOSTRIG MHV-15 8,7/15 kV
BOSTRIG MHV-15 12/20 kV

Construction:

Conductors: Tinned, rope stranded copper
Core insulation: EPR
Screening: Tinned copper wire braid
Outer sheath: SE1

BOSTRIG MHV-5, 1,8/3 kV					
		DRAKA Cable Type Designation	IEEE Cable Type Designation	Overall Diameter	Overall Diameter
mm ²	AWG/MCM			mm	Inches
1 x 7,57	8	MHV-5-8	SEN5KV-8	16,76	0,660
1 x 12,5	6	MHV-5-6	SEN5KV-6	18,29	0,720
1 x 18,6	5	MHV-5-5	SEN5KV-5	19,05	0,750
1 x 21,5	4	MHV-5-4	SEN5KV-4	20,07	0,790
1 x 30,7	2	MHV-5-2	SEN5KV-2	21,59	0,850
1 x 46,0	1	MHV-5-1	SEN5KV-1	24,13	0,950
1 x 56,3	1/0	MHV-5-1/0	SEN5KV-1/0	25,40	1,000
1 x 66,5	2/0	MHV-5-2/0	SEN5KV-2/0	25,91	1,020
1 x 92,1	3/0	MHV-5-3/0	SEN5KV-3/0	28,70	1,130
1 x 112,6	4/0	MHV-5-4/0	SEN5KV-4/0	29,72	1,170
1 x 133,0	262	MHV-5-262	SEN5KV-262	30,99	1,220
1 x 158,6	313	MHV-5-313	SEN5KV-313	33,27	1,310
1 x 189,3	373	MHV-5-373	SEN5KV-373	35,05	1,380
1 x 225,1	444	MHV-5-444	SEN5KV-444	37,08	1,460
1 x 271,2	535	MHV-5-535	SEN5KV-535	39,62	1,560
1 x 327,5	646	MHV-5-646	SEN5KV-646	42,67	1,680
1 x 393,8	777	MHV-5-777	SEN5KV-777	45,72	1,800
1 x 562,8	1111	MHV-5-1111	SEN5KV-1111	52,32	2,060
3 x 7,57	8	MHV3-5-8	TEN5KV-8	33,02	1,300
3 x 12,5	6	MHV3-5-6	TEN5KV-6	36,32	1,430
3 x 18,6	5	MHV3-5-5	TEN5KV-5	38,35	1,510
3 x 21,5	4	MHV3-5-4	TEN5KV-4	40,13	1,580
3 x 30,7	2	MHV3-5-2	TEN5KV-2	44,45	1,750
3 x 46,0	1	MHV3-5-1	TEN5KV-1	47,75	1,880
3 x 56,3	1/0	MHV3-5-1/0	TEN5KV-1/0	50,55	1,990
3 x 66,5	2/0	MHV3-5-2/0	TEN5KV-2/0	51,56	2,030
3 x 92,1	3/0	MHV3-5-3/0	TEN5KV-3/0	57,91	2,280
3 x 112,6	4/0	MHV3-5-4/0	TEN5KV-4/0	60,96	2,400
3 x 133,0	262	MHV3-5-262	TEN5KV-262	64,01	2,520
3 x 158,6	313	MHV3-5-313	TEN5KV-313	69,09	2,720
3 x 189,3	373	MHV3-5-373	TEN5KV-373	73,15	2,880
3 x 225,1	444	MHV3-5-444	TEN5KV-444	77,22	3,040
3 x 271,2	535	MHV3-5-535	TEN5KV-535	82,55	3,250
3 x 327,5	646	MHV3-5-646	TEN5KV-646	89,41	3,520
3 x 393,8	777	MHV3-5-777	TEN5KV-777	94,74	3,730

BOSTRIG MHV-5, 1,8/3 kV					
		DRAKA Cable Type Designation	IEEE Cable Type Designation	Overall Diameter	Overall Diameter
mm ²	AWG/MCM			mm	Inches
3 x 562,8	1111	MHV3-5-1111	TEN5KV-1111	109,73	4,320
4 x 7,57	8	MHV4-5-8	FEN5KV-8	36,83	1,450
4 x 12,5	6	MHV4-5-6	FEN5KV-6	40,64	1,600
4 x 18,6	5	MHV4-5-5	FEN5KV-5	43,18	1,700
4 x 21,5	4	MHV4-5-4	FEN5KV-4	45,72	1,800
4 x 30,7	2	MHV4-5-2	FEN5KV-2	49,28	1,940
4 x 46,0	1	MHV4-5-1	FEN5KV-1	53,34	2,100
4 x 56,3	1/0	MHV4-5-1/0	FEN5KV-1/0	56,64	2,230
4 x 66,5	2/0	MHV4-5-2/0	FEN5KV-2/0	57,40	2,260
4 x 92,1	3/0	MHV4-5-3/0	FEN5KV-3/0	65,02	2,560
4 x 112,6	4/0	MHV4-5-4/0	FEN5KV-4/0	68,33	2,690
4 x 133,0	262	MHV4-5-262	FEN5KV-262	72,14	2,840
4 x 158,6	313	MHV4-5-313	FEN5KV-313	77,72	3,060
4 x 189,3	373	MHV4-5-373	FEN5KV-373	82,30	3,240
4 x 225,1	444	MHV4-5-444	FEN5KV-444	86,87	3,420
4 x 271,2	535	MHV4-5-535	FEN5KV-535	92,96	3,660
4 x 327,5	646	MHV4-5-646	FEN5KV-646	100,58	3,960
4 x 393,8	777	MHV4-5-777	FEN5KV-777	106,68	4,200
4 x 562,8	1111	MHV4-5-1111	FEN5KV-1111	123,70	4,870

BOSTRIG MHV-8, 3,6/6 kV				
		DRAKA Cable Type Designation	Overall Diameter	Overall Diameter
mm ²	AWG/MCM		mm	Inches
1 x 12,5	6	MHV-8-6	19,56	0,770
1 x 18,6	5	MHV-8-5	20,57	0,810
1 x 21,5	4	MHV-8-4	21,08	0,830
1 x 30,7	2	MHV-8-2	23,62	0,930
1 x 46,0	1	MHV-8-1	25,15	0,990
1 x 56,3	1/0	MHV-8-1/0	26,67	1,050
1 x 66,5	2/0	MHV-8-2/0	26,92	1,060
1 x 92,1	3/0	MHV-8-3/0	29,72	1,170
1 x 112,6	4/0	MHV-8-4/0	30,99	1,220
1 x 133,0	262	MHV-8-262	32,26	1,270
1 x 158,6	313	MHV-8-313	34,54	1,360
1 x 189,3	373	MHV-8-373	36,58	1,440
1 x 225,1	444	MHV-8-444	38,10	1,500
1 x 271,2	535	MHV-8-535	40,64	1,600
1 x 327,5	646	MHV-8-646	44,20	1,740
1 x 393,8	777	MHV-8-777	46,74	1,840
1 x 562,8	1111	MHV-8-1111	53,09	2,090
3 x 12,5	6	MHV3-8-6	39,88	1,570
3 x 18,6	5	MHV3-8-5	41,91	1,650
3 x 21,5	4	MHV3-8-4	43,43	1,710
3 x 30,7	2	MHV3-8-2	47,50	1,870
3 x 46,0	1	MHV3-8-1	50,80	2,000
3 x 56,3	1/0	MHV3-8-1/0	53,59	2,110
3 x 66,5	2/0	MHV3-8-2/0	54,61	2,150
3 x 92,1	3/0	MHV3-8-3/0	60,96	2,400
3 x 112,6	4/0	MHV3-8-4/0	63,75	2,510

Job Id: **262.1-007168-12**
 Certificate No: **TAE00003Y0**

BOSTRIG MHV-8, 3,6/6 kV				
		DRAKA Cable Type Designation	Overall Diameter	Overall Diameter
mm ²	AWG/MCM		mm	Inches
3 x 133,0	262	MHV3-8-262	66,80	2,630
3 x 158,6	313	MHV3-8-313	71,88	2,830
3 x 189,3	373	MHV3-8-373	75,95	2,990
3 x 225,1	444	MHV3-8-444	80,01	3,150
3 x 271,2	535	MHV3-8-535	85,34	3,360
3 x 327,5	646	MHV3-8-646	91,19	3,590
3 x 393,8	777	MHV3-8-777	96,52	3,800
3 x 562,8	1111	MHV3-8-1111	111,76	4,400
4 x 12,5	6	MHV4-8-6	44,96	1,770
4 x 18,6	5	MHV4-8-5	47,50	1,870
4 x 21,5	4	MHV4-8-4	49,28	1,940
4 x 30,7	2	MHV4-8-2	52,58	2,070
4 x 46,0	1	MHV4-8-1	56,64	2,230
4 x 56,3	1/0	MHV4-8-1/0	60,20	2,370
4 x 66,5	2/0	MHV4-8-2/0	61,21	2,410
4 x 92,1	3/0	MHV4-8-3/0	68,33	2,690
4 x 112,6	4/0	MHV4-8-4/0	72,14	2,840
4 x 133,0	262	MHV4-8-262	75,18	2,960
4 x 158,6	313	MHV4-8-313	80,77	3,180
4 x 189,3	373	MHV4-8-373	85,34	3,360
4 x 225,1	444	MHV4-8-444	90,17	3,550
4 x 271,2	535	MHV4-8-535	96,27	3,790
4 x 327,5	646	MHV4-8-646	102,87	4,050
4 x 393,8	777	MHV4-8-777	108,71	4,280
4 x 562,8	1111	MHV4-8-1111	125,98	4,960

BOSTRIG MHV-8, 6/10 kV				
		DRAKA Cable Type Designation	Overall Diameter	Overall Diameter
mm ²	AWG/MCM		mm	Inches
1 x 18,6	5	MHV-8a-5	22,61	0,890
1 x 21,5	4	MHV-8a-4	23,37	0,920
1 x 30,7	2	MHV-8a-2	24,89	0,980
1 x 46,0	1	MHV-8a-1	26,67	1,050
1 x 56,3	1/0	MHV-8a-1/0	27,94	1,100
1 x 66,5	2/0	MHV-8a-2/0	28,45	1,120
1 x 92,1	3/0	MHV-8a-3/0	30,99	1,220
1 x 112,6	4/0	MHV-8a-4/0	32,51	1,280
1 x 133,0	262	MHV-8a-262	34,29	1,350
1 x 158,6	313	MHV-8a-313	36,07	1,420
1 x 189,3	373	MHV-8a-373	37,59	1,480
1 x 225,1	444	MHV-8a-444	39,62	1,560
1 x 271,2	535	MHV-8a-535	41,91	1,650
1 x 327,5	646	MHV-8a-646	45,72	1,800
1 x 393,8	777	MHV-8a-777	48,51	1,910
1 x 562,8	1111	MHV-8a-1111	54,10	2,130
3 x 18,6	5	MHV3-8a-5	45,21	1,780
3 x 21,5	4	MHV3-8a-4	46,74	1,840
3 x 30,7	2	MHV3-8a-2	49,78	1,960
3 x 46,0	1	MHV3-8a-1	53,34	2,100

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BOSTRIG MHV-8, 6/10 kV				
		DRAKA Cable Type Designation	Overall Diameter	Overall Diameter
mm ²	AWG/MCM		mm	Inches
3 x 56,3	1/0	MHV3-8a-1/0	56,13	2,210
3 x 66,5	2/0	MHV3-8a-2/0	57,15	2,250
3 x 92,1	3/0	MHV3-8a-3/0	63,50	2,500
3 x 112,6	4/0	MHV3-8a-4/0	66,29	2,610
3 x 133,0	262	MHV3-8a-262	70,61	2,780
3 x 158,6	313	MHV3-8a-313	74,42	2,930
3 x 189,3	373	MHV3-8a-373	78,49	3,090
3 x 225,1	444	MHV3-8a-444	82,55	3,250
3 x 271,2	535	MHV3-8a-535	88,14	3,470
3 x 327,5	646	MHV3-8a-646	93,73	3,690
3 x 393,8	777	MHV3-8a-777	100,33	3,950
3 x 562,8	1111	MHV3-8a-1111	113,28	4,460
4 x 18,6	5	MHV4-8a-5	50,29	1,980
4 x 21,5	4	MHV4-8a-4	51,82	2,040
4 x 30,7	2	MHV4-8a-2	55,37	2,180
4 x 46,0	1	MHV4-8a-1	59,69	2,350
4 x 56,3	1/0	MHV4-8a-1/0	62,99	2,480
4 x 66,5	2/0	MHV4-8a-2/0	64,52	2,540
4 x 92,1	3/0	MHV4-8a-3/0	71,63	2,820
4 x 112,6	4/0	MHV4-8a-4/0	74,93	2,950
4 x 133,0	262	MHV4-8a-262	79,25	3,120
4 x 158,6	313	MHV4-8a-313	83,57	3,290
4 x 189,3	373	MHV4-8a-373	88,65	3,490
4 x 225,1	444	MHV4-8a-444	93,22	3,670
4 x 271,2	535	MHV4-8a-535	99,31	3,910
4 x 327,5	646	MHV4-8a-646	105,92	4,170
4 x 393,8	777	MHV4-8a-777	113,03	4,450
4 x 562,8	1111	MHV4-8a-1111	127,76	5,030

BOSTRIG MHV-15, 8,7/15 kV				
		DRAKA Cable Type Designation	Overall Diameter	Overall Diameter
mm ²	AWG/MCM		mm	Inches
1 x 30,7	2	MHV-15-2	26,67	1,050
1 x 46,0	1	MHV-15-1	28,19	1,110
1 x 56,3	1/0	MHV-15-1/0	29,72	1,170
1 x 66,5	2/0	MHV-15-2/0	30,23	1,190
1 x 92,1	3/0	MHV-15-3/0	33,27	1,310
1 x 112,6	4/0	MHV-15-4/0	34,80	1,370
1 x 133,0	262	MHV-15-262	36,07	1,420
1 x 158,6	313	MHV-15-313	37,59	1,480
1 x 189,3	373	MHV-15-373	39,62	1,560
1 x 225,1	444	MHV-15-444	41,40	1,630
1 x 271,2	535	MHV-15-535	44,70	1,760
1 x 327,5	646	MHV-15-646	47,50	1,870
1 x 393,8	777	MHV-15-777	50,04	1,970
1 x 562,8	1111	MHV-15-1111	55,63	2,190
3 x 30,7	2	MHV3-15-2	53,59	2,110
3 x 46,0	1	MHV3-15-1	57,40	2,260
3 x 56,3	1/0	MHV3-15-1/0	60,71	2,390

BOSTRIG MHV-15, 8,7/15 kV				
		DRAKA Cable Type Designation	Overall Diameter	Overall Diameter
mm ²	AWG/MCM		mm	Inches
3 x 66,5	2/0	MHV3-15-2/0	61,47	2,420
3 x 92,1	3/0	MHV3-15-3/0	68,83	2,710
3 x 112,6	4/0	MHV3-15-4/0	72,14	2,840
3 x 133,0	262	MHV3-15-262	74,68	2,940
3 x 158,6	313	MHV3-15-313	78,74	3,100
3 x 189,3	373	MHV3-15-373	82,80	3,260
3 x 225,1	444	MHV3-15-444	86,87	3,420
3 x 271,2	535	MHV3-15-535	92,46	3,640
3 x 327,5	646	MHV3-15-646	98,30	3,870
3 x 393,8	777	MHV3-15-777	104,65	4,120
3 x 562,8	1111	MHV3-15-1111	117,35	4,620
4 x 30,7	2	MHV4-15-2	60,45	2,380
4 x 46,0	1	MHV4-15-1	64,77	2,550
4 x 56,3	1/0	MHV4-15-1/0	68,07	2,680
4 x 66,5	2/0	MHV4-15-2/0	69,34	2,730
4 x 92,1	3/0	MHV4-15-3/0	77,72	3,060
4 x 112,6	4/0	MHV4-15-4/0	81,28	3,200
4 x 133,0	262	MHV4-15-262	84,58	3,330
4 x 158,6	313	MHV4-15-313	88,90	3,500
4 x 189,3	373	MHV4-15-373	93,47	3,680
4 x 225,1	444	MHV4-15-444	98,30	3,870
4 x 271,2	535	MHV4-15-535	104,14	4,100
4 x 327,5	646	MHV4-15-646	110,74	4,360
4 x 393,8	777	MHV4-15-777	118,11	4,650
4 x 562,8	1111	MHV4-15-1111	132,84	5,230

BOSTRIG MHV-15, 12/20 kV				
		DRAKA Cable Type Designation	Overall Diameter	Overall Diameter
mm ²	AWG/MCM		mm	Inches
1 x 30,7	2	MHV-15a-2	28,70	1,130
1 x 46,0	1	MHV-15a-1	30,48	1,200
1 x 56,3	1/0	MHV-15a-1/0	31,75	1,250
1 x 66,5	2/0	MHV-15a-2/0	32,26	1,270
1 x 92,1	3/0	MHV-15a-3/0	35,56	1,400
1 x 112,6	4/0	MHV-15a-4/0	36,83	1,450
1 x 133,0	262	MHV-15a-262	38,10	1,500
1 x 158,6	313	MHV-15a-313	40,13	1,580
1 x 189,3	373	MHV-15a-373	42,16	1,660
1 x 225,1	444	MHV-15a-444	44,96	1,770
1 x 271,2	535	MHV-15a-535	47,24	1,860
1 x 327,5	646	MHV-15a-646	50,29	1,980
1 x 393,8	777	MHV-15a-777	52,58	2,070
1 x 562,8	1111	MHV-15a-1111	58,42	2,300
3 x 30,7	2	MHV3-15a-2	59,18	2,330
3 x 46,0	1	MHV3-15a-1	62,74	2,470
3 x 56,3	1/0	MHV3-15a-1/0	65,79	2,590
3 x 66,5	2/0	MHV3-15a-2/0	67,31	2,650
3 x 92,1	3/0	MHV3-15a-3/0	74,42	2,930
3 x 112,6	4/0	MHV3-15a-4/0	77,47	3,050

Job Id: **262.1-007168-12**
Certificate No: **TAE00003Y0**

BOSTRIG MHV-15, 12/20 kV				
		DRAKA Cable Type Designation	Overall Diameter	Overall Diameter
mm ²	AWG/MCM		mm	Inches
3 x 133,0	262	MHV3-15a-262	80,26	3,160
3 x 158,6	313	MHV3-15a-313	84,33	3,320
3 x 189,3	373	MHV3-15a-373	88,14	3,470
3 x 225,1	444	MHV3-15a-444	92,46	3,640
3 x 271,2	535	MHV3-15a-535	97,79	3,850
3 x 327,5	646	MHV3-15a-646	105,16	4,140
3 x 393,8	777	MHV3-15a-777	109,98	4,330
3 x 562,8	1111	MHV3-15a-1111	123,19	4,850
4 x 30,7	2	MHV4-15a-2	66,04	2,600
4 x 46,0	1	MHV4-15a-1	70,61	2,780
4 x 56,3	1/0	MHV4-15a-1/0	73,91	2,910
4 x 66,5	2/0	MHV4-15a-2/0	75,18	2,960
4 x 92,1	3/0	MHV4-15a-3/0	83,31	3,280
4 x 112,6	4/0	MHV4-15a-4/0	86,87	3,420
4 x 133,0	262	MHV4-15a-262	90,17	3,550
4 x 158,6	313	MHV4-15a-313	94,74	3,730
4 x 189,3	373	MHV4-15a-373	99,31	3,910
4 x 225,1	444	MHV4-15a-444	103,89	4,090
4 x 271,2	535	MHV4-15a-535	109,98	4,330
4 x 327,5	646	MHV4-15a-646	117,60	4,630
4 x 393,8	777	MHV4-15a-777	123,70	4,870
4 x 562,8	1111	MHV4-15a-1111	138,43	5,450

Application/Limitation

The requirements of SOLAS Amendments Chapter II-1, Part D, Reg. 45, 5.2 (provision to be taken to limit Fire Propagation along Bunches of Cables or Wires) are fulfilled without any additional measures.

Type Approval documentation

Tests carried out

Standard	Release	General description	Limitation
IEC 60092-350	2020-01	General construction and test methods of power, control and instrumentation cables for shipboard and offshore applications	
IEC 60092-360	2014-04	Electrical installations in ships - Part 360: Insulating and sheathing materials for shipboard and offshore units, power, control, instrumentation and telecommunication cables.	
IEC 60092-354	2014-08	Electrical installations in ships - Part 354: Single- and three-core power cables with extruded solid insulation for rated voltages 6 kV (Um = 7,2 kV) up to 30 kV (Um = 36 kV)	
IEC 60332-3-22	2018-07	Tests on electric cables under fire conditions - Part 3-22: Test for vertical flame spread of vertically mounted bunched wires or cables - Category A	Charred portion of sample does not exceed 2,5m above bottom edge of burner.

Job Id: **262.1-007168-12**
Certificate No: **TAE00003Y0**

Standard	Release	General description	Limitation
IEC 60092-350	2020-01	General construction and test methods of power, control and instrumentation cables for shipboard and offshore applications	
IEC 60502-1	2009-11	power cables with extruded insulation and their accessories for rated voltages from 1 kv (um = 1,2 kv) up to 30 kv (um = 36 kv) - part 1: cables for rated voltages of 1 kv (um = 1,2 kv) and 3 kv (um = 3,6 kv)	
IEC 60502-2	2014-03	power cables with extruded insulation and their accessories for rated voltages from 1 kv (um = 1,2 kv) up to 30 kv (um = 36 kv) - part 2: cables for rated voltages from 6 kv (um = 7,2 kv) up to 30 kv (um = 36 kv)	
ICEA S93-639	2012-01	5-46kv shielded power cable for use in the transmission and distribution of electric energy	
UL 1072	2020-04	Medium-voltage power cable	

Marking of product

Draka 32 - Type designation – Size – IEC 60332 Cat. A – Voltage class

Periodical assessment

The scope of the periodical assessment is to verify that the conditions stipulated for the Type approval are complied with and that no alterations are made to the product design or choice of materials.

The main elements of the assessment are:

- Inspection on factory samples, selected at random from the production line (where practicable)
- Results from Routine tests (RT) and selected type tests (ref. to applicable class programs) checked (if not available these tests shall be carried out)
- Review of type approval documentation
- Review of possible change in design, materials and performance
- Ensuring traceability between manufacturer's product type marking and Type Approval Certificate.

Periodical assessment is to be performed after 2 years and after 3.5 years. A renewal assessment will be performed at renewal of the certificate.

END OF CERTIFICATE