DNV·GL

Certificate No:
TAE00000MX

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Electric Power Cable

with type designation(s)
BOSTRIG-125 Type P, ….PN-,

Issued to
Draka Industry & Specialty Offshore MOG Houston
Houston TX, United States

is found to comply with
DNV GL rules for classification – Ships and offshore units

Application :

Instrumentation and communication
Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.

Type	Voltage class (kV)	Temp. class (°C)
BOSTRIG-125 Type P, ….PN-	**0,6/1**	**95**

This Certificate is valid until **2020-12-19**.

Issued at **Høvik** on **2015-12-20**

for **DNV GL**

DNV GL local station: **New York**

Approval Engineer: **Marta Alonso Pontes**

Marit Laumann
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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Job Id: **262.1-004532-5**
Certificate No: **TAE00000MX**

Product description

Construction:
Conductor: Tinned stranded copper
Insulation: XLPO (Type P)
Shield: Individual shield (I/S) and/or overall shield (OS)
Aluminium mylar with a drain wire
Tinned copper wire braid
Filler: Flame Retardant, non hygroscopic (as needed)
Outer sheath: SP1 (Type N)

Number of cores x conductor cross-section		Type designation
mm^2	AWG	
1 x 2 x 0,61	20	TP(OS)20PN-1
2 x 2 x 0,61	20	TP(I/S)20PN-2
3 x 2 x 0,61	20	TP(I/S)20PN-3
4 x 2 x 0,61	20	TP(I/S)20PN-4
5 x 2 x 0,61	20	TP(I/S)20PN-5
6 x 2 x 0,61	20	TP(I/S)20PN-6
7 x 2 x 0,61	20	TP(I/S)20PN-7
8 x 2 x 0,61	20	TP(I/S)20PN-8
10 x 2 x 0,61	20	TP(I/S)20PN-10
12 x 2 x 0,61	20	TP(I/S)20PN-12
16 x 2 x 0,61	20	TP(I/S)20PN-16
19 x 2 x 0,61	20	TP(I/S)20PN-19
20 x 2 x 0,61	20	TP(I/S)20PN-20
24 x 2 x 0,61	20	TP(I/S)20PN-24
25 x 2 x 0,61	20	TP(I/S)20PN-25
1 x 2 x 0,96	18	TP(OS)18PN-1
2 x 2 x 0,96	18	TP(I/S)18PN-2
3 x 2 x 0,96	18	TP(I/S)18PN-3
4 x 2 x 0,96	18	TP(I/S)18PN-4
5 x 2 x 0,96	18	TP(I/S)18PN-5
6 x 2 x 0,96	18	TP(I/S)18PN-6
7 x 2 x 0,96	18	TP(I/S)18PN-7
8 x 2 x 0,96	18	TP(I/S)18PN-8
10 x 2 x 0,96	18	TP(I/S)18PN-10
12 x 2 x 0,96	18	TP(I/S)18PN-12
14 x 2 x 0,96	18	TP(I/S)18PN-14
16 x 2 x 0,96	18	TP(I/S)18PN-16
20 x 2 x 0,96	18	TP(I/S)18PN-20
24 x 2 x 0,96	18	TP(I/S)18PN-24
1 x 2 x 1,23	16	TP(OS)16PN-1
2 x 2 x 1,23	16	TP(I/S)16PN-2
3 x 2 x 1,23	16	TP(I/S)16PN-3
4 x 2 x 1,23	16	TP(I/S)16PN-4
5 x 2 x 1,23	16	TP(I/S)16PN-5
6 x 2 x 1,23	16	TP(I/S)16PN-6
7 x 2 x 1,23	16	TP(I/S)16PN-7
8 x 2 x 1,23	16	TP(I/S)16PN-8
10 x 2 x 1,23	16	TP(I/S)16PN-10

Number of cores x conductor cross-section		Type designation
mm^2	AWG	
12 x 2 x 1,23	16	TP(I/S)16PN-12
15 x 2 x 1,23	16	TP(I/S)16PN-15
16 x 2 x 1,23	16	TP(I/S)16PN-16
20 x 2 x 1,23	16	TP(I/S)16PN-20
22 x 2 x 1,23	16	TP(I/S)16PN-22
24 x 2 x 1,23	16	TP(I/S)16PN-24
1 x 2 x 1,94	14	TP(OS)14PN-1
2 x 2 x 1,94	14	TP(I/S)14PN-2
3 x 2 x 1,94	14	TP(I/S)14PN-3
4 x 2 x 1,94	14	TP(I/S)14PN-4
5 x 2 x 1,94	14	TP(I/S)14PN-5
6 x 2 x 1,94	14	TP(I/S)14PN-6
7 x 2 x 1,94	14	TP(I/S)14PN-7
8 x 2 x 1,94	14	TP(I/S)14PN-8
10 x 2 x 1,94	14	TP(I/S)14PN-10
12 x 2 x 1,94	14	TP(I/S)14PN-12
16 x 2 x 1,94	14	TP(I/S)14PN-16
20 x 2 x 1,94	14	TP(I/S)14PN-20
24 x 2 x 1,94	14	TP(I/S)14PN-24
1 x 3 x 0,96	18	TT(OS)18PN-1
2 x 3 x 0,96	18	TT(I/S)18PN-2
3 x 3 x 0,96	18	TT(I/S)18PN-3
4 x 3 x 0,96	18	TT(I/S)18PN-4
5 x 3 x 0,96	18	TT(I/S)18PN-5
6 x 3 x 0,96	18	TT(I/S)18PN-6
7 x 3 x 0,96	18	TT(I/S)18PN-7
8 x 3 x 0,96	18	TT(I/S)18PN-8
12 x 3 x 0,96	18	TT(I/S)18PN-12
16 x 3 x 0,96	18	TT(I/S)18PN-16
1 x 3 x 1,23	16	TT(OS)16PN-1
2 x 3 x 1,23	16	TT(I/S)16PN-2
3 x 3 x 1,23	16	TT(I/S)16PN-3
4 x 3 x 1,23	16	TT(I/S)16PN-4
5 x 3 x 1,23	16	TT(I/S)16PN-5
6 x 3 x 1,23	16	TT(I/S)16PN-6
8 x 3 x 1,23	16	TT(I/S)16PN-8
12 x 3 x 1,23	16	TT(I/S)16PN-12

Number of cores x conductor cross-section		Type designation
mm²	AWG	
16 x 3 x 1,23	16	TT(I/S)16PN-16
2 x 2 x 0,61	20	TP(I/S-OS)20PN-2
3 x 2 x 0,61	20	TP(I/S-OS)20PN-3
4 x 2 x 0,61	20	TP(I/S-OS)20PN-4
5 x 2 x 0,61	20	TP(I/S-OS)20PN-5
6 x 2 x 0,61	20	TP(I/S-OS)20PN-6
7 x 2 x 0,61	20	TP(I/S-OS)20PN-7
8 x 2 x 0,61	20	TP(I/S-OS)20PN-8
10 x 2 x 0,61	20	TP(I/S-OS)20PN-10
12 x 2 x 0,61	20	TP(I/S-OS)20PN-12
16 x 2 x 0,61	20	TP(I/S-OS)20PN-16
20 x 2 x 0,61	20	TP(I/S-OS)20PN-20
24 x 2 x 0,61	20	TP(I/S-OS)20PN-24
2 x 2 x 0,96	18	TP(I/S-OS)18PN-2
3 x 2 x 0,96	18	TP(I/S-OS)18PN-3
4 x 2 x 0,96	18	TP(I/S-OS)18PN-4
5 x 2 x 0,96	18	TP(I/S-OS)18PN-5
6 x 2 x 0,96	18	TP(I/S-OS)18PN-6
7 x 2 x 0,96	18	TP(I/S-OS)18PN-7
8 x 2 x 0,96	18	TP(I/S-OS)18PN-8
10 x 2 x 0,96	18	TP(I/S-OS)18PN-10
12 x 2 x 0,96	18	TP(I/S-OS)18PN-12
14 x 2 x 0,96	18	TP(I/S-OS)18PN-14
16 x 2 x 0,96	18	TP(I/S-OS)18PN-16
20 x 2 x 0,96	18	TP(I/S-OS)18PN-20
24 x 2 x 0,96	18	TP(I/S-OS)18PN-24
2 x 2 x 1,23	16	TP(I/S-OS)16PN-2
3 x 2 x 1,23	16	TP(I/S-OS)16PN-3
4 x 2 x 1,23	16	TP(I/S-OS)16PN-4
5 x 2 x 1,23	16	TP(I/S-OS)16PN-5
6 x 2 x 1,23	16	TP(I/S-OS)16PN-6
7 x 2 x 1,23	16	TP(I/S-OS)16PN-7
8 x 2 x 1,23	16	TP(I/S-OS)16PN-8
10 x 2 x 1,23	16	TP(I/S-OS)16PN-10
12 x 2 x 1,23	16	TP(I/S-OS)16PN-12
16 x 2 x 1,23	16	TP(I/S-OS)16PN-16
20 x 2 x 1,23	16	TP(I/S-OS)16PN-20
24 x 2 x 1,23	16	TP(I/S-OS)16PN-24
2 x 2 x 1,94	14	TP(I/S-OS)14PN-2
3 x 2 x 1,94	14	TP(I/S-OS)14PN-3
4 x 2 x 1,94	14	TP(I/S-OS)14PN-4
5 x 2 x 1,94	14	TP(I/S-OS)14PN-5
6 x 2 x 1,94	14	TP(I/S-OS)14PN-6
7 x 2 x 1,94	14	TP(I/S-OS)14PN-7
8 x 2 x 1,94	14	TP(I/S-OS)14PN-8
10 x 2 x 1,94	14	TP(I/S-OS)14PN-10

Number of cores x conductor cross-section		Type designation
mm²	AWG	
12 x 2 x 1,94	14	TP(I/S-OS)14PN-12
16 x 2 x 1,94	14	TP(I/S-OS)14PN-16
20 x 2 x 1,94	14	TP(I/S-OS)14PN-20
24 x 2 x 1,94	14	TP(I/S-OS)14PN-24
14 x 2 x 1,00	18	TP(I/S-OBS)18PN-14
2 x 3 x 0,96	18	TT(I/S-OS)18PN-2
3 x 3 x 0,96	18	TT(I/S-OS)18PN-3
4 x 3 x 0,96	18	TT(I/S-OS)18PN-4
5 x 3 x 0,96	18	TT(I/S-OS)18PN-5
6 x 3 x 0,96	18	TT(I/S-OS)18PN-6
7 x 3 x 0,96	18	TT(I/S-OS)18PN-7
8 x 3 x 0,96	18	TT(I/S-OS)18PN-8
12 x 3 x 0,96	18	TT(I/S-OS)18PN-12
16 x 3 x 0,96	18	TT(I/S-OS)18PN-16
2 x 3 x 1,23	16	TT(I/S-OS)16PN-2
3 x 3 x 1,23	16	TT(I/S-OS)16PN-3
4 x 3 x 1,23	16	TT(I/S-OS)16PN-4
5 x 3 x 1,23	16	TT(I/S-OS)16PN-5
6 x 3 x 1,23	16	TT(I/S-OS)16PN-6
8 x 3 x 1,23	16	TT(I/S-OS)16PN-8
12 x 3 x 1,23	16	TT(I/S-OS)16PN-12
16 x 3 x 1,23	16	TT(I/S-OS)16PN-16
2 x 2 x 0,61	20	TP(OS)20PN-2
3 x 2 x 0,61	20	TP(OS)20PN-3
4 x 2 x 0,61	20	TP(OS)20PN-4
5 x 2 x 0,61	20	TP(OS)20PN-5
6 x 2 x 0,61	20	TP(OS)20PN-6
7 x 2 x 0,61	20	TP(OS)20PN-7
8 x 2 x 0,61	20	TP(OS)20PN-8
10 x 2 x 0,61	20	TP(OS)20PN-10
12 x 2 x 0,61	20	TP(OS)20PN-12
16 x 2 x 0,61	20	TP(OS)20PN-16
20 x 2 x 0,61	20	TP(OS)20PN-20
24 x 2 x 0,61	20	TP(OS)20PN-24
2 x 2 x 0,96	18	TP(OS)18PN-2
3 x 2 x 0,96	18	TP(OS)18PN-3
4 x 2 x 0,96	18	TP(OS)18PN-4
5 x 2 x 0,96	18	TP(OS)18PN-5
6 x 2 x 0,96	18	TP(OS)18PN-6
7 x 2 x 0,96	18	TP(OS)18PN-7
8 x 2 x 0,96	18	TP(OS)18PN-8
10 x 2 x 0,96	18	TP(OS)18PN-10
12 x 2 x 0,96	18	TP(OS)18PN-12
14 x 2 x 0,96	18	TP(OS)18PN-14
16 x 2 x 0,96	18	TP(OS)18PN-16

Number of cores x conductor cross-section		Type designation
mm²	AWG	
20 x 2 x 0,96	18	TP(OS)18PN-20
24 x 2 x 0,96	18	TP(OS)18PN-24
2 x 2 x 1,23	16	TP(OS)16PN-2
3 x 2 x 1,23	16	TP(OS)16PN-3
4 x 2 x 1,23	16	TP(OS)16PN-4
5 x 2 x 1,23	16	TP(OS)16PN-5
6 x 2 x 1,23	16	TP(OS)16PN-6
7 x 2 x 1,23	16	TP(OS)16PN-7
8 x 2 x 1,23	16	TP(OS)16PN-8
10 x 2 x 1,23	16	TP(OS)16PN-10
12 x 2 x 1,23	16	TP(OS)16PN-12
16 x 2 x 1,23	16	TP(OS)16PN-16
20 x 2 x 1,23	16	TP(OS)16PN-20
24 x 2 x 1,23	16	TP(OS)16PN-24
2 x 2 x 1,94	14	TP(OS)14PN-2
3 x 2 x 1,94	14	TP(OS)14PN-3
4 x 2 x 1,94	14	TP(OS)14PN-4
5 x 2 x 1,94	14	TP(OS)14PN-5
6 x 2 x 1,94	14	TP(OS)14PN-6
7 x 2 x 1,94	14	TP(OS)14PN-7
8 x 2 x 1,94	14	TP(OS)14PN-8
10 x 2 x 1,94	14	TP(OS)14PN-10
12 x 2 x 1,94	14	TP(OS)14PN-12
16 x 2 x 1,94	14	TP(OS)14PN-16
20 x 2 x 1,94	14	TP(OS)14PN-20
24 x 2 x 1,94	14	TP(OS)14PN-24
2 x 2 x 0,61	20	TP(OBS)20PN-2
3 x 2 x 0,61	20	TP(OBS)20PN-3
4 x 2 x 0,61	20	TP(OBS)20PN-4
5 x 2 x 0,61	20	TP(OBS)20PN-5
6 x 2 x 0,61	20	TP(OBS)20PN-6
7 x 2 x 0,61	20	TP(OBS)20PN-7
8 x 2 x 0,61	20	TP(OBS)20PN-8
10 x 2 x 0,61	20	TP(OBS)20PN-10
12 x 2 x 0,61	20	TP(OBS)20PN-12
16 x 2 x 0,61	20	TP(OBS)20PN-16
20 x 2 x 0,61	20	TP(OBS)20PN-20
24 x 2 x 0,61	20	TP(OBS)20PN-24
1 x 2 x 0,96	18	TP(OBS)18PN-1
2 x 2 x 0,96	18	TP(OBS)18PN-2
3 x 2 x 0,96	18	TP(OBS)18PN-3
4 x 2 x 0,96	18	TP(OBS)18PN-4
5 x 2 x 0,96	18	TP(OBS)18PN-5
6 x 2 x 0,96	18	TP(OBS)18PN-6
7 x 2 x 0,96	18	TP(OBS)18PN-7
8 x 2 x 0,96	18	TP(OBS)18PN-8

Number of cores x conductor cross-section		Type designation
mm²	AWG	
9 x 2 x 0,96	18	TP(OBS)18PN-9
10 x 2 x 0,96	18	TP(OBS)18PN-10
12 x 2 x 0,96	18	TP(OBS)18PN-12
14 x 2 x 0,96	18	TP(OBS)18PN-14
15 x 2 x 0,96	18	TP(OBS)18PN-15
16 x 2 x 0,96	18	TP(OBS)18PN-16
20 x 2 x 0,96	18	TP(OBS)18PN-20
24 x 2 x 0,96	18	TP(OBS)18PN-24
2 x 2 x 1,23	16	TP(OBS)16PN-2
3 x 2 x 1,23	16	TP(OBS)16PN-3
4 x 2 x 1,23	16	TP(OBS)16PN-4
5 x 2 x 1,23	16	TP(OBS)16PN-5
6 x 2 x 1,23	16	TP(OBS)16PN-6
7 x 2 x 1,23	16	TP(OBS)16PN-7
8 x 2 x 1,23	16	TP(OBS)16PN-8
10 x 2 x 1,23	16	TP(OBS)16PN-10
12 x 2 x 1,23	16	TP(OBS)16PN-12
16 x 2 x 1,23	16	TP(OBS)16PN-16
20 x 2 x 1,23	16	TP(OBS)16PN-20
24 x 2 x 1,23	16	TP(OBS)16PN-24
2 x 2 x 1,94	14	TP(OBS)14PN-2
3 x 2 x 1,94	14	TP(OBS)14PN-3
4 x 2 x 1,94	14	TP(OBS)14PN-4
5 x 2 x 1,94	14	TP(OBS)14PN-5
6 x 2 x 1,94	14	TP(OBS)14PN-6
7 x 2 x 1,94	14	TP(OBS)14PN-7
8 x 2 x 1,94	14	TP(OBS)14PN-8
10 x 2 x 1,94	14	TP(OBS)14PN-10
12 x 2 x 1,94	14	TP(OBS)14PN-12
16 x 2 x 1,94	14	TP(OBS)14PN-16
20 x 2 x 1,94	14	TP(OBS)14PN-20
24 x 2 x 1,94	14	TP(OBS)14PN-24
3 x 0,61	20	C20(OS)PN-3
4 x 0,61	20	C20(OS)PN-4
5 x 0,61	20	C20(OS)PN-5
6 x 0,61	20	C20(OS)PN-6
3 x 0,96	18	C18(OS)PN-3
4 x 0,96	18	C18(OS)PN-4
5 x 0,96	18	C18(OS)PN-5
6 x 0,96	18	C18(OS)PN-6
7 x 0,96	18	C18(OS)PN-7
12 x 0,96	18	C18(OS)PN-12
20 x 0,96	18	C18(OS)PN-20
25 x 0,96	18	C18(OS)PN-25
3 x 1,23	16	C16(OS)PN-3

Number of cores x conductor cross-section		Type designation
mm²	AWG	
4 x 1,23	16	C16(OS)PN-4
5 x 1,23	16	C16(OS)PN-5
6 x 1,23	16	C16(OS)PN-6
12 x 1,23	16	C16(OS)PN-12
15 x 1,23	16	C16(OS)PN-15
3 x 1,94	14	C14(OS)PN-3
4 x 1,94	14	C14(OS)PN-4
5 x 1,94	14	C14(OS)PN-5
6 x 1,94	14	C14(OS)PN-6
7 x 1,94	14	C14(OS)PN-7
14 x 1,94	14	C14(OS)PN-14
19 x 1,94	14	C14(OS)PN-19
30 x 1,94	14	C14(OS)PN-30
44 x 1,94	14	C14(OS)PN-44
60 x 1,94	14	C14(OS)PN-60
91 x 1,94	14	C14(OS)PN-91
4 x 5,53	10	C10(OS)PN-4
3 x 0,61	20	C20(OBS)PN-3
4 x 0,61	20	C20(OBS)PN-4
5 x 0,61	20	C20(OBS)PN-5
6 x 0,61	20	C20(OBS)PN-6
3 x 0,96	18	C18(OBS)PN-3
4 x 0,96	18	C18(OBS)PN-4
5 x 0,96	18	C18(OBS)PN-5

Number of cores x conductor cross-section		Type designation
mm²	AWG	
6 x 0,96	18	C18(OBS)PN-6
7 x 0,96	18	C18(OBS)PN-7
12 x 0,96	18	C18(OBS)PN-12
20 x 0,96	18	C18(OBS)PN-20
25 x 0,96	18	C18(OBS)PN-25
3 x 1,23	16	C16(OBS)PN-3
4 x 1,23	16	C16(OBS)PN-4
5 x 1,23	16	C16(OBS)PN-5
6 x 1,23	16	C16(OBS)PN-6
12 x 1,23	16	C16(OBS)PN-12
15 x 1,23	16	C16(OBS)PN-15
2 x 1,94	14	C14(OBS)PN-2
3 x 1,94	14	C14(OBS)PN-3
4 x 1,94	14	C14(OBS)PN-4
5 x 1,94	14	C14(OBS)PN-5
6 x 1,94	14	C14(OBS)PN-6
7 x 1,94	14	C14(OBS)PN-7
14 x 1,94	14	C14(OBS)PN-14
19 x 1,94	14	C14(OBS)PN-19
30 x 1,94	14	C14(OBS)PN-30
44 x 1,94	14	C14(OBS)PN-44
60 x 1,94	14	C14(OBS)PN-60
91 x 1,94	14	C14(OBS)PN-91
4 x 5,53	10	C10(OBS)PN-4

Name and place of manufacturer:

Draka Cableteq USA
North Dighton
MA 02764
USA

Application/Limitation

The cable may be installed and sized according to IEC 60092-352, except for the 2 conditions listed below.

1. Cables with flexible rope stranded conductors are to be installed on continuous cable trays (vented or non-vented) such as to prevent undue sag, and if horizontal, on the top of the tray giving support of the cable, when used for permanent installation. Cables intended for flexing service may be installed on festooned systems or articulating cableways.
2. Cable ends with flexible rope stranded conductors are to be terminated using approved compression terminals intended and designed for these conductors.

The requirements of SOLAS Amendments 1981 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 60332-3-22	2009-02	Tests on electric and optical fibre 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.
IEEE 1580	2010	table 16; Type T Item 5.17.8 IEEE recommended practice for marine cable for use on shipboard and fixed or floating platforms	IRM 902 oil at: 100 °C ± 1 °C for 96 hours OR: 60 °C ± 1 °C for 60 days

Marking of product

Draka 32 BOSTRIG-125 Type P – Type designation - Number and size of conductors - Voltage.

Periodical assessment

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

The main elements of the periodical assessment are:

- Inspection on factory samples, selected at random from the production line (where practicable)
- Results from Production Sample Tests (PST) and Routines (RT) checked (if not available tests according to PST and RT to 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 to be performed at least every second year.