DNV·GL

Certificate No:
TAE000026M

TYPE APPROVAL CERTIFICATE

This is to certify:

That the Low Voltage Cable

with type designation(s)
CHYJOP92, CHYJOP3-92

Issued to
Hebei Huatong Wires & Cables Group Co., Ltd.
Tangshan, China

is found to comply with
DNV GL rules for classification – Ships, offshore units, and high speed and light craft

Application :

Product(s) approved by this certificate is/are accepted for installation on all vessels classed by DNV GL.
Rated voltage (V) 150/250
Temp. class (°C) 90

Issued at **Hamburg** on **2017-08-10**
This Certificate is valid until **2022-08-09**.
DNV GL local station: **Tianjin**

Approval Engineer: **Carsten Hunsalz**

for **DNV GL**

Duy Nam Le
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.

© DNV GL 2014. DNV GL and the Horizon Graphic are trademarks of DNV GL AS.

Product description

Type: CHYJOP92 and CHYJOP3-92 150/250 V

Construction:

Conductors:	Plain or tinned stranded copper
Core insulation:	XLPE
Screen:	Copper wire braid (P92) or Aluminium-plastic tape (P3-92)
Inner sheath:	SHF2
Metal covering:	Galv. steel wire braid
Outer sheath:	SHF2

CHYJOP92

Number of cores x conductor cross-section	Overall Dia-meter min.	Overall Dia-meter max.
CHYJOP92		
2 x 0,5	8,4	10,5
3 x 0,5	8,6	10,5
4 x 0,5	9,2	11,0
5 x 0,5	9,4	11,5
6 x 0,5	10,0	12,0
7 x 0,5	10,0	12,0
8 x 0,5	10,5	12,5
10 x 0,5	12,0	14,5
12 x 0,5	12,0	14,5
14 x 0,5	13,0	15,5
16 x 0,5	13,0	15,5
19 x 0,5	14,0	17,0
24 x 0,5	16,0	19,0
27 x 0,5	16,5	19,5
30 x 0,5	17,0	20,0
37 x 0,5	18,0	21,0
2 x 0,75	9,2	11,0
3 x 0,75	9,6	11,5
4 x 0,75	10,0	12,0
5 x 0,75	10,5	13,0
6 x 0,75	11,5	13,5
7 x 0,75	11,5	13,5
8 x 0,75	12,0	14,5
10 x 0,75	14,0	16,5
12 x 0,75	14,5	17,0
14 x 0,75	15,0	18,0
16 x 0,75	15,0	18,0
19 x 0,75	16,5	19,5
24 x 0,75	18,5	22,0
27 x 0,75	19,0	22,5
30 x 0,75	20,0	23,5
37 x 0,75	21,0	24,5
2 x 1,0	9,4	11,5
3 x 1,0	9,8	12,0
4 x 1,0	10,0	12,5
5 x 1,0	11,0	13,5

Number of cores x conductor cross-section	Overall Dia-meter min.	Overall Dia-meter max.
CHYJOP92		
6 x 1,0	11,5	14,5
7 x 1,0	11,5	14,5
8 x 1,0	13,0	15,5
10 x 1,0	14,5	18,0
12 x 1,0	15,0	18,0
14 x 1,0	16,0	19,0
16 x 1,0	16,0	19,0
19 x 1,0	17,0	20,5
24 x 1,0	19,5	23,5
27 x 1,0	20,0	24,0
30 x 1,0	20,5	24,5
37 x 1,0	22,0	26,0
2 x 1,5	10,0	12,5
3 x 1,5	11,0	13,0
4 x 1,5	11,5	14,0
5 x 1,5	13,0	15,5
6 x 1,5	13,5	16,5
7 x 1,5	13,5	16,5
8 x 1,5	15,0	18,0
10 x 1,5	17,0	20,5
12 x 1,5	17,5	21,0
14 x 1,5	18,0	21,5
16 x 1,5	18,0	21,5
19 x 1,5	20,0	24,0
24 x 1,5	23,0	27,0
27 x 1,5	23,0	27,5
30 x 1,5	24,0	28,5
37 x 1,5	26,0	30,5
2 x 2,5	11,5	14,0
3 x 2,5	12,0	14,5
4 x 2,5	13,0	16,0
5 x 2,5	14,0	17,0
6 x 2,5	15,5	18,5
7 x 2,5	15,5	18,5
8 x 2,5	16,5	19,5
10 x 2,5	18,5	22,0

CHYJOP92		
12 x 2,5	19,0	23,0
14 x 2,5	20,5	24,0
16 x 2,5	20,5	24,0
19 x 2,5	22,0	26,0
24 x 2,5	25,5	30,0
27 x 2,5	26,0	30,5
30 x 2,5	27,0	31,5
37 x 2,5	29,0	34,0
2 x 2 x 0,5	11,0	13,0
3 x 2 x 0,5	11,5	13,5
4 x 2 x 0,5	12,0	14,5
5 x 2 x 0,5	13,5	16,0
6 x 2 x 0,5	14,5	17,0
7 x 2 x 0,5	14,5	17,0
8 x 2 x 0,5	15,5	18,5
10 x 2 x 0,5	18,0	21,0
12 x 2 x 0,5	18,0	21,5
14 x 2 x 0,5	19,0	22,5
16 x 2 x 0,5	19,0	22,5
19 x 2 x 0,5	21,0	24,5
24 x 2 x 0,5	24,0	28,0
27 x 2 x 0,5	24,5	28,5
30 x 2 x 0,5	25,5	29,5
37 x 2 x 0,5	27,0	31,5
2 x 2 x 0,75	12,5	14,5
3 x 2 x 0,75	13,5	16,0
4 x 2 x 0,75	14,5	17,0
5 x 2 x 0,75	15,5	18,5
6 x 2 x 0,75	17,0	20,0
7 x 2 x 0,75	17,0	20,0
8 x 2 x 0,75	18,0	21,0
10 x 2 x 0,75	20,5	24,0
12 x 2 x 0,75	21,5	24,5
14 x 2 x 0,75	22,0	25,5
16 x 2 x 0,75	22,0	25,5
19 x 2 x 0,75	24,5	28,5
24 x 2 x 0,75	28,5	33,0
27 x 2 x 0,75	29,0	33,5
30 x 2 x 0,75	30,0	34,5
37 x 2 x 0,75	32,5	37,0
2 x 2 x 1,0	13,0	16,0
3 x 2 x 1,0	13,5	16,5
4 x 2 x 1,0	15,0	18,0
5 x 2 x 1,0	16,0	19,5
6 x 2 x 1,0	17,5	21,0
7 x 2 x 1,0	17,5	21,0
8 x 2 x 1,0	18,5	22,0
10 x 2 x 1,0	21,5	25,5
12 x 2 x 1,0	22,0	26,0

CHYJOP92		
14 x 2 x 1,0	23,0	27,5
16 x 2 x 1,0	23,0	27,5
19 x 2 x 1,0	25,5	30,5
24 x 2 x 1,0	29,5	35,0
27 x 2 x 1,0	30,0	35,5
30 x 2 x 1,0	31,0	37,0
37 x 2 x 1,0	33,5	39,5
2 x 2 x 1,5	15,0	18,0
3 x 2 x 1,5	16,0	19,0
4 x 2 x 1,5	17,5	20,5
5 x 2 x 1,5	18,5	22,0
6 x 2 x 1,5	20,0	24,0
7 x 2 x 1,5	20,0	24,0
8 x 2 x 1,5	21,5	25,5
10 x 2 x 1,5	25,0	29,5
12 x 2 x 1,5	26,0	30,5
14 x 2 x 1,5	27,0	31,5
16 x 2 x 1,5	27,0	31,5
19 x 2 x 1,5	30,0	35,0
24 x 2 x 1,5	35,5	41,5
27 x 2 x 1,5	36,5	42,5
30 x 2 x 1,5	37,5	44,0
37 x 2 x 1,5	40,5	47,5
2 x 2 x 2,5	17,0	20,0
3 x 2 x 2,5	17,5	21,0
4 x 2 x 2,5	19,0	22,5
5 x 2 x 2,5	20,5	24,5
6 x 2 x 2,5	22,5	26,5
7 x 2 x 2,5	22,5	26,5
8 x 2 x 2,5	24,0	28,5
10 x 2 x 2,5	28,0	33,0
12 x 2 x 2,5	29,0	34,0
14 x 2 x 2,5	30,0	35,5
16 x 2 x 2,5	30,0	35,5
19 x 2 x 2,5	34,5	40,5
24 x 2 x 2,5	40,0	47,0
27 x 2 x 2,5	41,0	48,0
30 x 2 x 2,5	42,5	49,5
37 x 2 x 2,5	46,0	53,5
2 x 3 x 0,5	12,0	14,0
3 x 3 x 0,5	12,5	14,5
4 x 3 x 0,5	13,5	16,0
5 x 3 x 0,5	15,0	17,5
6 x 3 x 0,5	16,0	19,0
7 x 3 x 0,5	16,0	19,0
8 x 3 x 0,5	17,0	20,5
10 x 3 x 0,5	19,5	23,0
12 x 3 x 0,5	20,0	23,5

CHYJOP92		
2 x 3 x 0,75	13,5	16,5
3 x 3 x 0,75	14,5	17,5
4 x 3 x 0,75	16,0	19,0
5 x 3 x 0,75	17,0	20,0
6 x 3 x 0,75	18,5	21,5
7 x 3 x 0,75	18,5	21,5
8 x 3 x 0,75	20,0	23,5
10 x 2 x 0,75	23,0	26,5
12 x 3 x 0,75	23,5	27,0
2 x 3 x 1,0	14,5	17,5
3 x 3 x 1,0	15,0	18,5
4 x 3 x 1,0	16,5	19,5
5 x 3 x 1,0	17,5	21,5
6 x 3 x 1,0	19,0	22,5
7 x 3 x 1,0	19,0	22,5
8 x 3 x 1,0	20,5	24,5
10 x 3 x 1,0	24,0	28,5
12 x 3 x 1,0	24,5	29,0
2 x 3 x 1,5	16,5	19,5
3 x 3 x 1,5	17,5	21,0
4 x 3 x 1,5	19,0	22,5
5 x 3 x 1,5	20,5	24,5
6 x 3 x 1,5	22,0	26,0
7 x 3 x 1,5	22,0	26,0
8 x 3 x 1,5	24,0	28,5
10 x 3 x 1,5	28,0	33,0
12 x 3 x 1,5	29,0	34,0
2 x 3 x 2,5	18,0	21,5
3 x 3 x 2,5	19,0	22,5
4 x 3 x 2,5	21,0	25,0
5 x 3 x 2,5	23,0	27,0
6 x 3 x 2,5	24,5	29,0
7 x 3 x 2,5	24,5	29,0
8 x 3 x 2,5	26,5	31,5
10 x 3 x 2,5	31,0	36,5
12 x 3 x 2,5	32,5	38,0

CHYJOP92		
2 x 4 x 0,5	14,0	17,0
3 x 4 x 0,5	15,0	18,0
4 x 4 x 0,5	16,5	19,5
5 x 4 x 0,5	17,5	21,0
6 x 4 x 0,5	19,0	22,0
7 x 4 x 0,5	19,0	22,0
2 x 4 x 0,75	16,5	19,5
3 x 4 x 0,75	17,5	20,5
4 x 4 x 0,75	19,0	22,0
5 x 4 x 0,75	20,5	24,0
6 x 4 x 0,75	22,0	25,5
7 x 4 x 0,75	22,0	25,5
2 x 4 x 1,0	17,0	20,5
3 x 4 x 1,0	18,0	21,5
4 x 4 x 1,0	19,5	23,5
5 x 4 x 1,0	21,0	25,5
6 x 4 x 1,0	23,0	27,5
7 x 4 x 1,0	23,0	27,5
2 x 4 x 1,5	20,0	23,5
3 x 4 x 1,5	21,0	25,0
4 x 4 x 1,5	23,0	27,0
5 x 4 x 1,5	25,0	29,0
6 x 4 x 1,5	27,0	31,5
7 x 4 x 1,5	27,0	31,5
2 x 4 x 2,5	22,0	26,0
3 x 4 x 2,5	23,0	27,5
4 x 4 x 2,5	25,5	30,0
5 x 4 x 2,5	27,5	32,5
6 x 4 x 2,5	30,0	35,5
7 x 4 x 2,5	30,0	35,5

CHYJOP3-92

Number of cores x conductor cross-section	Overall Dia-meter min.	Overall Dia-meter max.
CHYJOP3-92		
2 x 2 x 0,5	10,5	12,5
3 x 2 x 0,5	11,0	13,5
4 x 2 x 0,5	12,0	14,5
5 x 2 x 0,5	13,0	15,5
6 x 2 x 0,5	14,0	17,0
7 x 2 x 0,5	14,0	17,0
8 x 2 x 0,5	15,0	18,0
10 x 2 x 0,5	17,5	20,5
12 x 2 x 0,5	17,5	21,0
14 x 2 x 0,5	18,5	22,0

Number of cores x conductor cross-section	Overall Dia-meter min.	Overall Dia-meter max.
CHYJOP3-92		
2 x 2 x 1,5	14,5	17,5
3 x 2 x 1,5	15,5	18,5
4 x 2 x 1,5	17,0	20,0
5 x 2 x 1,5	18,0	21,5
6 x 2 x 1,5	19,5	23,5
7 x 2 x 1,5	19,5	23,5
8 x 2 x 1,5	21,0	25,0
10 x 2 x 1,5	24,5	29,0
12 x 2 x 1,5	25,5	30,0
14 x 2 x 1,5	26,5	31,0

16 x 2 x 0,5	18,5	22,0
19 x 2 x 0,5	20,5	24,0
24 x 2 x 0,5	23,5	27,5
27 x 2 x 0,5	24,0	28,0
30 x 2 x 0,5	24,5	29,0
37 x 2 x 0,5	26,5	31,0
2 x 2 x 0,75	12,0	14,5
3 x 2 x 0,75	13,0	15,5
4 x 2 x 0,75	14,0	16,5
5 x 2 x 0,75	15,0	18,0
6 x 2 x 0,75	16,5	19,0
7 x 2 x 0,75	16,5	19,0
8 x 2 x 0,75	17,5	20,5
10 x 2 x 0,75	20,0	23,5
12 x 2 x 0,75	21,0	24,0
14 x 2 x 0,75	21,5	25,0
16 x 2 x 0,75	21,5	25,0
19 x 2 x 0,75	24,0	28,0
24 x 2 x 0,75	27,5	32,0
27 x 2 x 0,75	28,5	33,0
30 x 2 x 0,75	29,5	34,0
37 x 2 x 0,75	31,5	36,5
2 x 2 x 1,0	13,0	15,5
3 x 2 x 1,0	13,5	16,0
4 x 2 x 1,0	14,5	17,5
5 x 2 x 1,0	15,5	19,0
6 x 2 x 1,0	17,0	20,5
7 x 2 x 1,0	17,0	20,5
8 x 2 x 1,0	18,0	21,5
10 x 2 x 1,0	21,0	25,0
12 x 2 x 1,0	21,5	25,5
14 x 2 x 1,0	22,5	27,0
16 x 2 x 1,0	22,5	27,0
19 x 2 x 1,0	25,0	29,5
24 x 2 x 1,0	29,0	34,5
27 x 2 x 1,0	29,5	35,0
30 x 2 x 1,0	30,5	36,0
37 x 2 x 1,0	33,0	39,0
CHYJOP3-92		
6 x 3 x 0,75	18,0	21,0
7 x 3 x 0,75	18,0	21,0
8 x 3 x 0,75	19,0	22,5
10 x 2 x 0,75	22,5	26,0
12 x 3 x 0,75	23,0	26,5
2 x 3 x 1,0	14,0	17,0
3 x 3 x 1,0	14,5	17,5
4 x 3 x 1,0	16,0	19,0
5 x 3 x 1,0	17,5	21,0
6 x 3 x 1,0	18,5	22,0
7 x 3 x 1,0	18,5	22,0
8 x 3 x 1,0	20,0	24,0
10 x 3 x 1,0	23,0	27,5
12 x 3 x 1,0	24,0	28,5

16 x 2 x 1,5	26,5	31,0
19 x 2 x 1,5	29,5	34,5
24 x 2 x 1,5	35,0	41,0
27 x 2 x 1,5	35,5	42,0
30 x 2 x 1,5	37,0	43,5
37 x 2 x 1,5	40,0	46,5
2 x 2 x 2,5	16,0	19,5
3 x 2 x 2,5	17,0	20,5
4 x 2 x 2,5	18,5	22,0
5 x 2 x 2,5	20,0	24,0
6 x 2 x 2,5	21,5	25,5
7 x 2 x 2,5	21,5	25,5
8 x 2 x 2,5	23,5	27,5
10 x 2 x 2,5	27,5	32,0
12 x 2 x 2,5	28,5	33,5
14 x 2 x 2,5	29,5	35,0
16 x 2 x 2,5	29,5	35,0
19 x 2 x 2,5	33,0	39,0
24 x 2 x 2,5	39,5	46,0
27 x 2 x 2,5	40,5	47,5
30 x 2 x 2,5	42,0	49,0
37 x 2 x 2,5	45,0	52,5
2 x 3 x 0,5	11,5	14,0
3 x 3 x 0,5	12,0	14,5
4 x 3 x 0,5	13,5	16,0
5 x 3 x 0,5	14,5	17,0
6 x 3 x 0,5	15,5	18,0
7 x 3 x 0,5	15,5	18,0
8 x 3 x 0,5	16,5	19,5
10 x 3 x 0,5	19,0	22,0
12 x 3 x 0,5	19,5	23,0
2 x 3 x 0,75	13,5	16,0
3 x 3 x 0,75	14,5	17,0
4 x 3 x 0,75	15,5	18,0
5 x 3 x 0,75	16,5	19,5
CHYJOP3-92		
2 x 4 x 0,5	14,0	16,5
3 x 4 x 0,5	14,5	17,5
4 x 4 x 0,5	16,0	19,0
5 x 4 x 0,5	17,0	20,5
6 x 4 x 0,5	18,5	21,5
7 x 4 x 0,5	18,5	21,5
2 x 4 x 0,75	16,0	19,0
3 x 4 x 0,75	17,0	20,0
4 x 4 x 0,75	18,5	21,5
5 x 4 x 0,75	20,0	23,5
6 x 4 x 0,75	21,5	25,0
7 x 4 x 0,75	21,5	25,0
2 x 4 x 1,0	16,5	20,0
3 x 4 x 1,0	17,5	21,0

2 x 3 x 1,5	16,0	19,0
3 x 3 x 1,5	17,0	20,5
4 x 3 x 1,5	18,5	22,0
5 x 3 x 1,5	20,0	24,0
6 x 3 x 1,5	21,5	25,5
7 x 3 x 1,5	21,5	25,5
8 x 3 x 1,5	23,5	27,5
10 x 3 x 1,5	27,0	32,0
12 x 3 x 1,5	28,5	33,5
2 x 3 x 2,5	17,5	21,0
3 x 3 x 2,5	18,5	22,0
4 x 3 x 2,5	20,5	24,5
5 x 3 x 2,5	22,5	26,5
6 x 3 x 2,5	24,0	28,5
7 x 3 x 2,5	24,0	28,5
8 x 3 x 2,5	26,0	31,0
10 x 3 x 2,5	30,5	36,0
12 x 3 x 2,5	31,5	37,0

4 x 4 x 1,0	19,0	22,5
5 x 4 x 1,0	20,5	25,0
6 x 4 x 1,0	22,5	27,0
7 x 4 x 1,0	22,5	27,0
2 x 4 x 1,5	19,0	22,5
3 x 4 x 1,5	20,5	24,0
4 x 4 x 1,5	22,0	26,0
5 x 4 x 1,5	24,5	28,5
6 x 4 x 1,5	26,5	31,0
7 x 4 x 1,5	26,5	31,0
2 x 4 x 2,5	21,5	25,5
3 x 4 x 2,5	22,5	27,0
4 x 4 x 2,5	25,0	29,5
5 x 4 x 2,5	27,0	32,0
6 x 4 x 2,5	29,5	35,0
7 x 4 x 2,5	29,5	35,0

Application/Limitation

Control. Instrumentation and communication.

Type Approval documentation

Tests carried out

Standard	Release	General description	Limitation
IEC 60092-350	2014-08	General construction and test methods of power, control and instrumentation cables for shipboard and offshore applications	
IEC 60092-376	2017-05	Cables for control and instrumentation circuits 150/250 V (300 V)	
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.	

Marking of product

Hebei Huatong Wires & Cables Group Co.,Ltd. – CHYJOP92 or CHYJOP3-92 - size – 150/250 V – Lot no.

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) checked (if not available tests according to 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 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