

Type Approval Certificate

This is to certify that the undernoted product(s) has/have been tested with satisfactory results in accordance with the relevant requirements of the Lloyd's Register Type Approval System.

Manufacturer	DESMI Pumping Technology (Suzhou) Co.,Ltd.
Address	No.108 Houdai Street, SIP, Suzhou City, 215000, China
Place of Production	DESMI Pumping Technology (Suzhou) Co.,Ltd. No.108 Houdai Street, SIP, Suzhou City, 215000, China
Type	Pumps
Description	Marine Centrifugal Pumps
Trade Name	ESL65-180 NSL125-265 NSL200-330 NSL250-415 NSL300-415 NSL300-525
Application	Marine piping systems for exhaust gas cleaning system with sea water and fresh water.
Specified Standard	LR Rules and Regulations for the Classification of Ships, July 2019 GB/T 3458-1992 GB/T 3216-2016 GB/T 10832-2008
Ratings	See Appendix Specification 1 & Specification 2 for ratings See Appendix Specification 3 for materials

19th Floor, 550 Yan An dong Road, Shanghai,
Huangpu District, China

Qing Dong

Specialist to Lloyd's Register Classification
Society (China) Co Ltd
A member of the Lloyd's Register group

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Other Conditions

1. The pumps are to be made, installed and tested in accordance with Part 5, Chapter 1 of LR Rules and Regulations for the Classification of Ships, and to the attending Surveyor's satisfaction.
2. Motor and control box are excluded from this appraisal.
3. In all cases the materials are to be suitable for their intended service conditions.
4. The installation and maintenance are to be in accordance with the manufacture's instruction.
5. Individual pumps should be certified by the manufacture with satisfactory results of performance tests.

This certificate is not valid for equipment, the design, ratings or operating parameters of which have been varied from the specimen tested. The manufacturer should notify Lloyd's Register Classification Society (China) Co Ltd of any modification or changes to the equipment in order to obtain a valid Certificate.

The Design Appraisal Document LR21451856TA and its supplementary Type Approval Terms and Conditions form part of this Certificate.

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Appendix

Specification 1 for 50Hz

No.	Model	Capacity (m ³ /h)	Head (mH ₂ O)	Rated Rev. (rpm)	Shaft Power (kW)	Minimum Cavitation Allowance (NPSHr)
1	ESL65-180	0~120	0~63	600/750/1000/1500 /3000	0~16.5	0~12.5
2	NSL125-265	0~488	0~160	600/750/1000/1500 /3000	0~200	0~21
3	NSL200-330	0~1150	0~100	600/750/1000/1500 VFD Max. to 2400	0~198	0~32.4
4	NSL250-415	0~1380	0~140	600/750/1000/1500 VFD Max. to 2200	0~400	0~23.6
5	NSL300-415	0~2000	0~115	600/750/1000/1500 VFD Max. to 2000	0~420	0~45.3
6	NSL300-525	0~2200	0~185	600/750/1000/1500 VFD Max. to 2000	0~900	0~32

Specification 2 for 60Hz

No.	Model	Capacity (m ³ /h)	Head (mH ₂ O)	Rated Rev. (rpm)	Shaft Power (kW)	Minimum Cavitation Allowance (NPSHr)
1	ESL65-180	0~120	0~63	720/900/1200/1800 /3600	0~16.5	0~12.5
2	NSL125-265	0~488	0~160	720/900/1200/1800 /3600	0~200	0~21
3	NSL200-330	0~1150	0~100	720/900/1200/1800 VFD Max. to 2400	0~198	0~32.4
4	NSL250-415	0~1380	0~140	720/900/1200/1800 VFD Max. to 2200	0~400	0~23.6
5	NSL300-415	0~2000	0~115	720/900/1200/1800 VFD Max. to 2000	0~420	0~45.3
6	NSL300-525	0~2200	0~185	720/900/1200/1800 VFD Max. to 2000	0~900	0~32

Specification 3 for materials

No.	Model	Casing	Shaft	Impeller	Cover
1	ESL65-180	Ni-Al bronze /1.4436/GG20/1 .4410/GGG40/R G5	1.4460/1.4410	SAF2507/1.4410/1.4462/ 1.4436/Ni-Al bronze	Ni-Al bronze/RG5/GGG40/GG2 0/1.4410/1.4436
2	NSL125-265	1.4436/1.4410/R G5/GG25/ Ni-Al bronze/GGG40/ RG10/GG20	1.4460/Monel40 0/SAF2507/1.44 10	1.4410/1.4462/GGG40/C uSn10-C/AISI316/RG5/ Ni-Al bronze/GG20	AISI316/1.4410/ Ni-Al bronze/CuSn12- C/GG25/GGG40/RG10/RG5 /GG20/1.4436
3	NSL200-330	GGG40/GG20/1. 4410/1.4436/ Ni-Al bronze/RG5	1.4460/1.4410	1.4410/1.4462/1.4436/R G5/ Ni-Al bronze/GG20	Ni-Al bronze/1.4436/1.4410/GG G40/RG10/GG25/CuSn12- C/RG5/GG20
4	NSL250-415	1.4436/1.4410/ Ni-Al bronze/RG5/GG 20/GGG40	1.4460/1.4410	1.4410/1.4462/GGG40/1. 4436/RG5/ Ni-Al bronze/GG20	Ni-Al bronze/1.4436/1.4410/RG 10/GG25/GGG40/RG5/GG2 0
5	NSL300-415	1.4436/1.4410/ Ni-Al bronze/RG5/GG 20/GGG40	1.4460/1.4410	SAF2507/1.4410/1.4462/ 1.4436/RG5/ Ni-Al bronze/GG20	Ni-Al bronze/1.4436/1.4410/RG 10/GG25/GGG40/RG5/GG2 0
6	NSL300-525	1.4436/1.4410/ Ni-Al bronze/RG5/GG G40/GG20	1.4460/1.4410	1.4410/1.4462/1.4436/R G5/ Ni-Al bronze/GGG40	Ni-Al bronze/1.4436/1.4410/RG 10/GGG40/RG5/GG20