



Certificate No. 02-002772/024735

TYPE APPROVAL CERTIFICATE

This is to certify that this product complies with the Rules for the classification of ships, Part 1 - General requirements, Chapter 3 - Type approval of products.

TYPE AND DESCRIPTION OF PRODUCT:

DIESEL ENGINE
series SF and F

MANUFACTURER:

SIEMENS ENGINES S.A.U.
Zumaia (Gipuzkoa)
Spain

THE PRODUCT MEETS FOLLOWING RULES/REGULATIONS:

Rules for the Classification of Ships, Part 9-Machines

FURTHER DETAILS OF THE PRODUCT AND CONDITIONS FOR CERTIFICATION ARE GIVEN OVERLEAF.

APPROVAL IS VALID UNTIL: **2023-07-09**

Place and date: Split, 2019-07-09

Seal

Marinko Popović, dipl.ing.

NOTE: This certificate is not valid for equipment, the design or manufacture of which has been varied or modified from the specimen tested. The manufacturer should notify Croatian Register of Shipping of any modification or changes to the product in order to obtain a valid certificate.

DETAILED PRODUCT DESCRIPTION:

Number of cylinders:	6 (SF/F180), 8 (SF/F240), 12 (SF/F360), 16 (SF/F480),
Cylinder bore (mm):	152
Stroke (mm):	165
Cylinder arrangement:	In-line (SF/F180 & SF/F240); V-angle 60° (SF/F360 & SF/F480)
Working cycle:	4- stroke, single acting
Kind of fuel:	Liquid
Valve operation:	Cam control
Fuel injection:	Direct, cam controlled
Fuel injection system:	Pump+Pipe+Injector

APPLICATION / LIMITATIONS:

Application: Propulsion

Brand	Denomination	Rated power (kW)	Rated speed (rpm)	Max firing pressure (bar)
SLE-18FN	F 180-SP	221	2000	100
SLE-18FT	F 180 T-SP	305	1900	125
	F 180 TB-SP	331	1800	125
	F 180 TA-SP	368	2000	145
	F 180 TAB-SP	404	1800	145
	F 240 TA-SP	471	1800	145
SLE-24FT	F 240 TAB-SP	478	1800	145
	F 360 TA-SP	735	2000	145
SLE-36FT	F 360 TA-SP	735	2000	145
SLE-48FT	F 480 TA-SP	1029	1800	145
SLE-18ST	SF 180 TA-SP	476	1800	175
SLE-24ST	SF 240 TA-SP	635	1800	175
SLE-36ST	SF 360 TA-SP	953	1800	175
SLE-48ST	SF 480 TA-SP	1271	1800	175

Application: Auxiliary and genset engines

Brand	Denomination	Rated speed 1800 rpm		Rated speed 1500 rpm		Rated speed 1200 rpm	
		Rated power (kW)	Max firing pressure (bar)	Rated power (kW)	Max firing pressure (bar)	Rated power (kW)	Max firing pressure (bar)
SLE-18FN	F 180-SG	195	95	180	100	N.A.	
SLE-18FT	F 180 T-SG	310	125	255	130	N.A.	
	F 180 TB-SG	325	125	280	130	N.A.	
	F 180 TA-SG	365	145	310	145	N.A.	
	F 180 TAB-SG	405	145	340	145	N.A.	
	F 240 TA-SG	465	145	410	145	N.A.	
SLE-24FT	F 240 TAB-SG	500	145	450	145	N.A.	
	F 360 TA-SG	735	145	620	145	N.A.	
SLE-48FT	F 480 TA-SG	980	145	890	145	N.A.	
SLE-18ST	SF 180 TA-SG	476	175	421	175	337	175
SLE-24ST	SF 240 TA-SG	635	175	561	175	449	175
SLE-36ST	SF 360 TA-SG	953	175	842	175	673	175
SLE-48ST	SF 480 TA-SG	1271	175	1122	175	898	175

TYPE APPROVAL DOCUMENTATION:

Approved by the Croatian Register of Shipping with letter No.(dated): 1964/TSE/IA/024735 (2019-07-09)

MARKING OF PRODUCT:

- *manufacturer's mark*
- *location and year of manufacture*
- *CRS mark*

CONDITIONS FOR CERTIFICATION:

Minimal tensile strength of crankshaft material: 780 N/mm² (42CrMo4).

Torsional vibration calculation shall be submitted for each installation in accordance with the CRS Rules.

Signalization and protection related to the engine shall be subject to CRS approval in each particular case and will depend on service applied and the degree of automation of the engine plant.