Amendment to Guidance for Prevention Systems of Pollution from Ships

(Development Verification)

2024. 02.

Machinery Rule Development Team

- Main Amendments -

(1) Request for Establishment/Revision of Classification Technical Rules

〈Ships contracted for construction on or an application for survey or after 2024/07/01〉

◉ Amendment to Hull Air Lubrication System (Chapter 6)

- 204. (Auxiliaries and Piping Arrangement) Adding means to prevent ingress of water
- 206.(Control, Alarm and Safety Systems) Transferring some clauses to Section 3
- 301.(General/Additional requirements) Requiring remote control station in W/H or engine control station
- 304.(Control, Alarm and Safety Systems) Transferring from 206. and clarifying the requirement
- Editorial improvement in Section 4

Existing	Amendment	Remark
CHAPTER 6 Hull Air Lubrication System **Section 2 Basic Requirements for Hull Air Lubrication System** **204. Auxiliaries and Piping Arrangement** **1.** Piping systems of hull air lubrication systems are to comply with **Pt 5, Ch 6** of **Rules for the Classification of Steel Ships**, unless otherwise specified in this section. In this case, air supply pipings in the hull air lubrication system are regarded as compressed air piping. ***(New)*** **2.** Air injection valves for hull air lubrication system can be arranged in double bottom ballast tanks, voids and so on. And Indicators are to be provided local to the valves or cocks showing whether they are open or shut. **3.** Power operated air injection valves are to be arranged for manual operation in the event of failure of the power supply. **4.** Distance pieces connected an air chamber to an air injection valve are to comply with **301. 2 of Pt 5, Ch 6** of **Rules for the Classification of Steel Ships**. Where applicable, adequate arrangements are to be provided to prevent galvanic corrosion due to the use of dissimilar metals. **5.** Pressure vessels including heat exchangers are to comply with the requirements specified in **Pt 5, Ch 5, Sec 3** of **Rules for the Classification of Steel Ships**. (**403. Table 6.4.1**) *(2024)* *(Omitted)*	**CHAPTER 6 Hull Air Lubrication System** **Section 2 Basic Requirements for Hull Air Lubrication System** **204. Auxiliaries and Piping Arrangement** **1.** Piping systems of hull air lubrication systems are to comply with **Pt 5, Ch 6** of **Rules for the Classification of Steel Ships**~~, unless otherwise specified in this section. In this case, air supply pipings in the hull air lubrication system are regarded as compressed air piping.~~ **2.** Efficient means such as non-return valves or equivalent are to be provided in air supply piping system to prevent ingress of water through air chamber. **3.** Air injection valves for hull air lubrication system can be arranged in double bottom ballast tanks, voids and so on. And Indicators are to be provided local to the valves or cocks showing whether they are open or shut. **4.** Power operated air injection valves are to be arranged for manual operation in the event of failure of the power supply. **5.** Distance pieces connected an air chamber to an air injection valve are to comply with **301. 2 of Pt 5, Ch 6** of **Rules for the Classification of Steel Ships**. Where applicable, adequate arrangements are to be provided to prevent galvanic corrosion due to the use of dissimilar metals. **6.** Pressure vessels including heat exchangers are to comply with the requirements specified in **Pt 5, Ch 5, Sec 3** of **Rules for the Classification of Steel Ships**. (**403. Table 6.4.1**) *(2024)* *(Omitted)*	(*) Clarifying req. 1. The last sentence may lead to misunderstanding or misapplication as if the piping system only applies requirements related to compressed air piping. 2. Adding to require means of non-return flow from outside.

Existing	Amendment	Remark
CHAPTER 6 Hull Air Lubrication System **Section 2 Basic Requirements for Hull Air Lubrication System** **206. Control, Alarm and Safety Systems** **1.** Control, alarm and safety systems are to be designed to avoid a single failure event leading to a potentially dangerous situation for human safety and/or the ship. **2.** Control, alarm and safety systems are to be designed based on the fail-safe principle. **3.** The parameters for the operation of air lubrication system are to be available at the local and remote stations and include, but not exhaustive, the following: (1) Operation status of air compressors (2) Status(open/close) of air injection valves (3) Operational status (e.g. run, alarm and shutdown) **4.** Hull air lubrication system is to be controllable from the local when the system is a failure. **5.** The safety system for hull air lubrication system is to be designed independently as practicable. **6.** An emergency shutdown system is to be provided at the local and remote control stations *(Omitted)*	**CHAPTER 6 Hull Air Lubrication System** **Section 2 Basic Requirements for Hull Air Lubrication System** **206. Control, Alarm and Safety Systems** **1.** Control, alarm and safety systems are to be designed to avoid a single failure event leading to a potentially dangerous situation for human safety and/or the ship. **2.** Control, alarm and safety systems are to be designed based on the fail-safe principle. ~~**3.** The parameters for the operation of air lubrication system are to be available at the local and remote stations and include, but not exhaustive, the following:~~ ~~(1) Operation status of air compressors~~ ~~(2) Status(open/close) of air injection valves~~ ~~(3) Operational status (e.g. run, alarm and shutdown)~~ ~~**4.** Hull air lubrication system is to be controllable from the local when the system is a failure.~~ **5.** The safety system for hull air lubrication system is to be designed independently as practicable. ~~**6.** An emergency shutdown system is to be provided at the local and remote control stations~~ *(Omitted)*	(*) Move to Sec.3 The existing provisions look like requiring separate remote control stations, but remote stations can indicate locations where equipment is controlled and be separated. (Adding the new clause to require remote station on W/H or engine control station.)

Existing	Amendment	Remark
CHAPTER 6 Hull Air Lubrication System **Section 3 Additional Requirements for Hull Air Lubrication System** **301. General** **1.** This section provides additional requirements for equipment and systems for hull air lubrication system such as air compressor(s), pressure vessel(s), piping system and electrical equipment. **2.** The ships complied with this section can be assigned a notation **ES-ALS1**, in addition to the **Sec 2**. **3.** When ships are assigned the **ES-ALS1** notation, equipment and systems for hull air lubrication system are to be certified by the Society in accordance with **Table 6.4.1**. ***(New)*** *(Omitted)* **304. Control, Alarm and Safety System** **1.** Control, alarm and safety systems are to comply with the requirements of **Pt 6, Ch 2** of **Rules for the Classification of Steel Ships**, as applicable for Category I systems, in accordance with **Pt 6, Ch 2, Table 6.2.2** of **Rules for the Classification of Steel Ships**. **2.** Certification of the control, alarm and safety systems is to be in accordance with **Table 6.4.1**.	**CHAPTER 6 Hull Air Lubrication System** **Section 3 Additional Requirements for Hull Air Lubrication System** **301. General** **1.** This section provides additional requirements for equipment and systems for hull air lubrication system such as air compressor(s), pressure vessel(s), piping system and electrical equipment. **2.** The ships complied with this section can be assigned a notation **ES-ALS1**, in addition to the **Sec 2**. **3.** When ships are assigned the **ES-ALS1** notation, equipment and systems for hull air lubrication system are to be certified by the Society in accordance with **Table 6.4.1**. **4.** The hull air lubrication system is to be monitored and controlled from wheel house or engine control station other than the equipment side, providing to control operation of the air compressor and air injection valves at least for the hull air lubrication system. *(Omitted)* **304. Control, Alarm and Safety System** **1.** Control, alarm and safety systems are to comply with the requirements of **Pt 6, Ch 2** of **Rules for the Classification of Steel Ships**, as applicable for Category I systems, in accordance with **Pt 6, Ch 2, Table 6.2.2** of **Rules for the Classification of Steel Ships**. **2.** Certification of the control, alarm and safety systems is to be in accordance with **Table 6.4.1**.	(*) To require remote station on W/H or engine control station

Existing	Amendment	Remark
CHAPTER 6 Hull Air Lubrication System **Section 3 Additional Requirements for Hull Air Lubrication System** **304. Control, Alarm and Safety System** **1.** Control, alarm and safety systems are to comply with the requirements of **Pt 6, Ch 2** of **Rules for the Classification of Steel Ships**, as applicable for Category I systems, in accordance with **Pt 6, Ch 2, Table 6.2.2** of **Rules for the Classification of Steel Ships**. ***(New)*** **2.** Certification of the control, alarm and safety systems is to be in accordance with **Table 6.4.1**.	**CHAPTER 6 Hull Air Lubrication System** **Section 3 Additional Requirements for Hull Air Lubrication System** **304. Control, Alarm and Safety System** **1.** Control, alarm and safety systems are to comply with the requirements of **Pt 6, Ch 2** of **Rules for the Classification of Steel Ships**, as applicable for Category I systems, in accordance with **Pt 6, Ch 2, Table 6.2.2** of **Rules for the Classification of Steel Ships**. **2.** The parameters for the operation of air lubrication system are to be available at the local and remote stations in **301. 4.** and include, but not exhaustive, the following: (1) Operation status of air compressors (2) Status(open/close) of air injection valves (3) Operational status (e.g. run, alarm and shutdown) **3.** Hull air lubrication system is to be controllable from the local when the contorl an monitoring system at remote control station in **301. 4.** is a failure. **4.** An emergency shutdown system for stopping air compressor and closing air injection valves is to be provided at remote control stations in **301. 4.**. **5.** Certification of the control, alarm and safety systems is to be in accordance with **Table 6.4.1**.	(*) Transferred from Section 2 (*) Clarifying required action of em'cy shutdown system

Existing	Amendment	Remark
CHAPTER 6 Hull Air Lubrication System **Section 4 Survey** **402. Drawings and documents to be submitted** **1. For ES-ALS notation** (1) The following drawings and documents associated with the hull air lubrication system and shipboard installation are to be submitted to the Society for approval. (A) General arrangement of hull air lubrication system (B) Documentation detailing the effect on Stability (where necessary, Refer to **203.**) (C) Piping diagram *(Omitted)* (2) Drawings and documents for reference (A) Specification of hull air lubrication system (B) Calculation of ventilation for installed place of hull air lubrication system **2. For ES-ALS1 notation** (1) In addition to the drawings and documents in 1, the following are to be submitted for the ES-ALS1 notation: (A) Detail of air compressor (rated output 100kW and above) (Refer to **210. of Pt 5, Ch 1** of **Rules for the Classification of Steel Ships**) (B) Detail of Cooling pump (rated output 100kW and above) (Refer to **210. of Pt 5, Ch 1** of **Rules for the Classification of Steel Ships**) (2) Drawings and materials for reference (A) Operating scenario	**CHAPTER 6 Hull Air Lubrication System** **Section 4 Survey** **402. Drawings and documents to be submitted** **1. For ES-ALS notation** ~~(1)~~ The following drawings and documents associated with the hull air lubrication system and shipboard installation are to be submitted to the Society ~~for approval~~. (1) Drawings and documents for approval (A) General arrangement of hull air lubrication system (B) Documentation detailing the effect on Stability (where necessary, Refer to **203.**) (C) Piping diagram *(Omitted)* (2) Drawings and documents for reference (A) Specification of hull air lubrication system (B) Calculation of ventilation for installed place of hull air lubrication system **2. For ES-ALS1 notation** ~~(1)~~ In addition to the drawings and documents in 1, the following are to be submitted for the ES-ALS1 notation: (1) Drawings and documents for approval (A) Detail of air compressor (rated output 100kW and above) (Refer to **210. of Pt 5, Ch 1** of **Rules for the Classification of Steel Ships**) (B) Detail of Cooling pump (rated output 100kW and above) (Refer to **210. of Pt 5, Ch 1** of **Rules for the Classification of Steel Ships**) (2) Drawings and materials for reference (A) Operating scenario	(*) Editorial improvement (*) Editorial improvement

Existing	Amendment	Remark
CHAPTER 6 Hull Air Lubrication System **Section 4 Survey** **403. Production Survey** **1. For ES-ALS notation** *(Omitted)* (4) Air chamber and air supplying piping including air injection valve of hull air lubrication system are to complying with **Pt 2, Ch 1** and **Pt 5, Ch 6** of **Rules for the Classification of Steel Ships**. (5) Construction and materials of distance pieces of hull air lubrication system are to complying with **Pt 5 Ch 6** of **Rules for the Classification of Steel Ships**. *(New / From 403.3)* *(Omitted)* **3. Non-destructive test** (1) Ships installed hull air lubrication system are to be carreid out non-destructive testing at the welded joints of air chamber to hull, structural members and piping system in accordance with **Pt 2, Ch 2, Annex 2-7 "Guidance for non-destructive testing of ship hull steel welds" of the Rules for the Classification of Steel Ships** or other approved code. The non-destructive inspection scope and methods are to be submitted with the design drawings.	**CHAPTER 6 Hull Air Lubrication System** **Section 4 Survey** **403. Production Survey** **1. For ES-ALS notation** *(Omitted)* (4) Air chamber and air supplying piping including air injection valve of hull air lubrication system are to complying with **Pt 2, Ch 1** and **Pt 5, Ch 6** of **Rules for the Classification of Steel Ships**. (5) ~~Construction and materials of~~ Distance pieces of hull air lubrication system are to complying with **Pt 5 Ch 6** of **Rules for the Classification of Steel Ships**. (6) Non-destructive test Ships installed hull air lubrication system are to be carreid out non-destructive testing at the welded joints of air chamber to hull, structural members and piping system in accordance with **Pt 2, Ch 2, Annex 2-7 "Guidance for non-destructive testing of ship hull steel welds"** of the **Rules for the Classification of Steel Ships** or other approved code. The non-destructive inspection scope and methods are to be submitted with the design drawings. *(Omitted)* ~~**3. Non-destructive test**~~ ~~(1) Ships installed hull air lubrication system are to be carreid out non-destructive testing at the welded joints of air chamber to hull, structural members and piping system in accordance with **Pt 2, Ch 2, Annex 2-7 "Guidance for non-destructive testing of ship hull steel welds" of the Rules for the Classification of Steel Ships** or other approved code. The non-destructive inspection scope and methods are to be submitted with the design drawings.~~	(*) Editorial improvement Transferred from 403. 3

Existing	Amendment	Remark
CHAPTER 6 Hull Air Lubrication System **Section 4 Survey** **404. Installation Survey** The following items are to be verified by the attending Surveyor: **1. Installation and arrangement** (1) Hull air lubrication system is to be installed according to the approved drawings, and attending Surveyor is to confirm the following items. (A) Piping systems including air supply pipes of hull air lubrication system is to complying with **Pt.5, Ch.6** of **Rules for the Classification of Steel Ships**. (B) Visual inspection for welded connection of installation for air chamber (C) Non-destructive testing in accordance with **403. 3** **2. Testing** Testing for hull air lubrication system is to follow the approved testing procedures and is to include at least the following items: (1) For **ES-ALS** notation: (A) Operation of air injection valves (B) Operation of Fire detection system and fire fighting system (if installed) (C) General examination of machinery, piping, and electrical equipment (see Ch 2) (D) Operational tests of machinery, electrical units, and control systems	**CHAPTER 6 Hull Air Lubrication System** **Section 4 Survey** **404. Installation Survey** The following items are to be verified by the attending Surveyor: ~~**1. Installation and arrangement**~~ ~~(1) Hull air lubrication system is to be installed according to the approved drawings, and attending Surveyor is to confirm the following items.~~ ~~(A) Piping systems including air supply pipes of hull air lubrication system is to complying with **Pt.5, Ch.6** of **Rules for the Classification of Steel Ships**.~~ ~~(B) Visual inspection for welded connection of installation for air chamber~~ ~~(C) Non-destructive testing in accordance with **403. 3**~~ ~~**2. Testing**~~ ~~Testing for hull air lubrication system is to follow the approved testing procedures and is to include at least the following items:~~ ~~(1) For **ES-ALS** notation:~~ ~~(A) Operation of air injection valves~~ ~~(B) Operation of Fire detection system and fire fighting system (if installed)~~ ~~(C) General examination of machinery, piping, and electrical equipment (see Ch 2)~~ ~~(D) Operational tests of machinery, electrical units, and control systems~~ **1.** Visual inspection for welded connection of installation for air chamber **2.** Non-destructive testing in accordance with **403. 3** **3.** Operation of air injection valves **4.** Operation of Fire detection system and fire fighting system (if installed) **5.** Operational tests of machinery, electrical units, and control systems	(*) Editorial improvement

Existing	Amendment	Remark
CHAPTER 6 Hull Air Lubrication System **Section 4 Survey** **405. Sea trials** 1. For **ES-ALS** notation, the followings are to be verified. (1) Operation of air injection valves (2) Visual check of air chambers from inside of ships (as possible) (3) Function test of the safety systems (4) Function test of emergency stops (5) Operational tests of machinery, electrical units, and control systems **406. Annual survey** 1. For **ES-ALS** notation, the followings are to be included in the annual survey. (1) Operation of air injection valves (2) Visual check of air chambers from inside of ships (as possible) **407. Special Surveys** 1. For **ES-ALS** notation, in addition to the annual survey items in **406**, special survey shall include the following items, at least : (1) Outer part of air chambers (2) Distance pieces connecting air injection valve to air chamber (if installed) (3) Function test of the safety systems (4) Function test of emergency stops (5) Operational tests of machinery, electrical units, and control systems	**CHAPTER 6 Hull Air Lubrication System** **Section 4 Survey** **405. Sea trials** ~~1. For **ES-ALS** notation, the followings are to be verified.~~ (1) Operation of air injection valves (2) Visual check of air chambers from inside of ships (as possible) (3) Function test of the safety systems (4) Function test of emergency stops (5) Operational tests of machinery, electrical units, and control systems **406. Annual survey** ~~1. For **ES-ALS** notation, the followings are to be included in the annual survey.~~ (1) Operation of air injection valves (2) Visual check of air chambers from inside of ships (as possible) **407. Special Surveys** ~~1. For **ES-ALS** notation, in addition to the annual survey items in **406**, special survey shall include the following items, at least :~~ (1) Outer part of air chambers (2) Distance pieces connecting air injection valve to air chamber (if installed) (3) Function test of the safety systems (4) Function test of emergency stops (5) Operational tests of machinery, electrical units, and control systems	(*) Editorial improvement