Amendment on 27 June 2024
Resolved by Technical Committee on 30 January 2024

Capacities of Air Compressors Used to Start Main Engines

Object of Amendment

Rules for the Survey and Construction of Steel Ships Part D
Rules for High Speed Craft
Rules for the Survey and Construction of Inland Waterway Ships

Reason for Amendment

IACS Unified Requirement (UR) M61(Rev.1) specifies requirements for the number and capacity of air compressors used to start main engines. This includes requirements for those cases in which one of the air compressors being used is driven by a prime mover that is not main propulsion machinery and that also has a capacity not less than 50 % of the total capacity specified in relevant requirements. These requirements have already been incorporated into the NK Rules.

There are, however, some designs in which main air reservoirs are also being used for control systems, and in such cases a third air compressor with a smaller capacity may be installed in addition to two air compressors of almost the same capacity in order to minimise voltage fluctuation when the air compressors start (e.g. total capacity is divided by a ratio of 40:40:20). IACS recently decided to review such designs as it was not clear whether they complied with relevant requirements.

Although IACS's review confirmed that the above-mentioned designs are acceptable, the review also found that such designs could possibly come into conflict with parts UR M61(Rev.1). IACS, therefore, adopted UR M61(Rev.2) in August 2023 to clarify requirements related to air compressor capacity.

Accordingly, relevant requirements are amended, and other editorial changes are made as needed in accordance with UR M61(Rev.2).

Outline of Amendment

Clarifies requirements for the total capacity of air compressors used for starting main engines.

Effective Date and Application

This amendment applies to ships for which the date of contract for construction is on or after 1 January 2025.
Notwithstanding the above, this draft amendment may be applied in advance of the effective date upon shipowner request.

ID: DD23-23

An asterisk (*) after the title of a requirement indicates that there is also relevant information in the corresponding Guidance.

Amended-Original Requirements Comparison Table (Capacities of Air Compressors Used to Start Main Engines)

Amended	Original	Remarks
RULES FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS **Part D MACHINERY INSTALLATIONS** **Chapter 4 GAS TURBINES** **4.4 Associated Installations** **4.4.3 Starting Arrangements*** **3** Gas turbines which are arranged for electrical starting are to comply with the requirements specified in **Part H**, in addition to the following **(1)** to **(3)**: (1) Two separate batteries are to be fitted to the starting arrangement for main propulsion machinery. The arrangement is to be such that the batteries cannot be connected in parallel, and each battery is to be capable of starting the main propulsion machinery under cold and ready-to-start conditions. The combined capacity of the batteries is to be sufficient (without recharging) to provide the number of consecutive starts specified in **-2** above within 30 *minutes*.	**RULES FOR THE SURVEY AND CONSTRUCTION OF STEEL SHIPS** **Part D MACHINERY INSTALLATIONS** **Chapter 4 GAS TURBINES** **4.4 Associated Installations** **4.4.3 Starting Arrangements*** **3** Gas turbines which are arranged for electrical starting are to comply with the requirements specified in **Part H**, in addition to the following **(1)** to **(3)**: (1) Two separate batteries are to be fitted to the starting arrangement for main propulsion machinery. The arrangement is to be such that the batteries cannot be connected in parallel, and each battery is to be capable of starting the main propulsion machinery under cold and ready-to-start conditions. The capacity of each battery is to be sufficient (without recharging) to provide the number of consecutive starts specified in **-2** above within 30 *minutes*.	URM61(Rev.2) M61.2.1

Amended-Original Requirements Comparison Table (Capacities of Air Compressors Used to Start Main Engines)

Amended	Original	Remarks
Chapter 13 PIPING SYSTEMS **13.13 Pneumatic Piping Systems** **13.13.3 Number and Total Capacity of Air Compressors** **2** At least one of the air compressors specified in **-1** above is to be independently driven by a prime mover that is not the main propulsion machinery. In addition, either the capacity of one of the independently driven compressor or the combined capacity of all independently driven compressors is to be not less than 50 % of the total capacity specified in **-3**.	**Chapter 13 PIPING SYSTEMS** **13.13 Pneumatic Piping Systems** **13.13.3 Number and Total Capacity of Air Compressors** **2** One of the air compressors specified in **-1** above is to be driven by a prime mover that is not the main propulsion machinery. Such compressor is to have a capacity not less than 50 % of the total capacity specified in **-3**.	UR M61(Rev.2) M61.1.2

Amended-Original Requirements Comparison Table (Capacities of Air Compressors Used to Start Main Engines)

Amended	Original	Remarks
RULES FOR HIGH SPEED CRAFT **Part 9 MACHINERY INSTALLATIONS** **Chapter 3 GAS TURBINES** **3.4 Associated Installations** **3.4.2 Starting Arrangements*** **3** Gas turbines which are arranged for electrical starting are to comply with the following **(1)** to **(3)**: (1) Two separate batteries are to be fitted to the starting arrangement for main propulsion machinery. The arrangement is to be such that the batteries cannot be connected in parallel, and each battery is to be capable of starting the main propulsion machinery under cold and ready-to-start conditions. The combined capacity of the batteries is to be sufficient (without recharging) to provide the number of consecutive starts specified in **-2** above within 30 *minutes*.	**RULES FOR HIGH SPEED CRAFT** **Part 9 MACHINERY INSTALLATIONS** **Chapter 3 GAS TURBINES** **3.4 Associated Installations** **3.4.2 Starting Arrangements*** **3** Gas turbines which are arranged for electrical starting are to comply with the following **(1)** to **(3)**: (1) Two separate batteries are to be fitted to the starting arrangement for main propulsion machinery. The arrangement is to be such that the batteries cannot be connected in parallel, and each battery is to be capable of starting the main propulsion machinery under cold and ready-to-start conditions. The capacity of each battery is to be sufficient (without recharging) to provide the number of consecutive starts specified in **-2** above within 30 *minutes*.	URM61(Rev.2) M61.2.1

Amended-Original Requirements Comparison Table (Capacities of Air Compressors Used to Start Main Engines)

Amended	Original	Remarks
RULES FOR THE SURVEY AND CONSTRUCTION OF INLAND WATERWAY SHIPS **Part 7 MACHINERY INSTALLATIONS** **Chapter 11 PIPING SYSTEMS** **11.13 Pneumatic Piping Systems** **11.13.3 Number and Total Capacity of Air Compressors** **2** At least one of the air compressors specified in **-1** above is to be independently driven by a prime mover that is not the main propulsion machinery. In addition, either the capacity of one of the independently driven compressor or the combined capacity of all independently driven compressors is to be not less than 50 % of the total capacity specified in **-3**. EFFECTIVE DATE AND APPLICATION **1.** The effective date of the amendments is 1 January 2025. **2.** Notwithstanding the amendments to the Rules, the current requirements apply to ships for which the date of contract for construction* is before the effective date. **3.** Notwithstanding the provision of preceding **2.**, the amendments to the Rules may apply to the surveys for which the application is submitted to the Society	**RULES FOR THE SURVEY AND CONSTRUCTION OF INLAND WATERWAY SHIPS** **Part 7 MACHINERY INSTALLATIONS** **Chapter 11 PIPING SYSTEMS** **11.13 Pneumatic Piping Systems** **11.13.3 Number and Total Capacity of Air Compressors** **2** One of the air compressors specified in **-1** above is to be driven by a prime mover that is not the main propulsion machinery. Such compressor is to have a capacity not less than 50 % of the total capacity specified in **-3**.	UR M61(Rev.2) M61.1.2

Amended	Original	Remarks
before the effective date upon request by the owner. * "contract for construction" is defined in the latest version of IACS Procedural Requirement (PR) No.29. IACS PR No.29 (Rev.0, July 2009) **1.** The date of "contract for construction" of a vessel is the date on which the contract to build the vessel is signed between the prospective owner and the shipbuilder. This date and the construction numbers (i.e. hull numbers) of all the vessels included in the contract are to be declared to the classification society by the party applying for the assignment of class to a newbuilding. **2.** The date of "contract for construction" of a series of vessels, including specified optional vessels for which the option is ultimately exercised, is the date on which the contract to build the series is signed between the prospective owner and the shipbuilder. For the purpose of this Procedural Requirement, vessels built under a single contract for construction are considered a "series of vessels" if they are built to the same approved plans for classification purposes. However, vessels within a series may have design alterations from the original design provided: (1) such alterations do not affect matters related to classification, or (2) If the alterations are subject to classification requirements, these alterations are to comply with the classification requirements in effect on the date on which the alterations are contracted between the prospective owner and the shipbuilder or, in the absence of the alteration contract, comply with the classification requirements in effect on the date on which the alterations are submitted to the Society for approval. The optional vessels will be considered part of the same series of vessels if the option is exercised not later than 1 year after the contract to build the series was signed. **3.** If a contract for construction is later amended to include additional vessels or additional options, the date of "contract for construction" for such vessels is the date on which the amendment to the contract, is signed between the prospective owner and the shipbuilder. The amendment to the contract is to be considered as a "new contract" to which **1.** and **2.** above apply. **4.** If a contract for construction is amended to change the ship type, the date of "contract for construction" of this modified vessel, or vessels, is the date on which revised contract or new contract is signed between the Owner, or Owners, and the shipbuilder. Note: This Procedural Requirement applies from 1 July 2009.		