

SOLAS II-2

REVISED 2007-02-21			
CHAPTER	REGULATION	PARAGRAPH	INTERPRETATION
			All marine equipment placed onboard shall be according to SJÖFS 2003:2
			SWEDEN
II-2 - Construction - fire protection, fire detection and fire extinction			GUIDANCE ON THE SPECIAL REQUIREMENTS, INTERPRETATIONS AND GENERAL ADVICE OF SWEDISH ADMINISTRATION APPROVALS REQUIRED BY SOLAS CHAPTER II-2 IMPLEMENTED IN NATIONAL REGULATION SJÖFS 2004:31
Part A	1- Application	3,2	Interpretation can be found in MSC. Circ.1120.
		4,1	Reference is made to MSC/Circ.606
		6.2.1.2	The foam concentrates for use in chemical tankers shall be according to the requirements in MSC/Circ.799
		6,5	Referens is made to MSC/Circ. 353 amended by MSC/Circ.387
	3- Definitions		Dining room: Are public spaces containing coffemachine, toaster, dishwasher, microwave, waterboiler, induction-tops and similar equipment with a power rating not more than 5 kW for each device. A dining room can also include electrical hotplates and plates for keeping the food warm with a power rating not more than 2 kW for each device and temperatures not exceeding 150 °C.
			Pentry: same definition as above
Part B	4 - Probability of ignition	2.1.4	General advice: An approved installation according to 2.1.4 should fulfil the requirements in 2.1.3.3.2-2.1.3.3.4 . Reference is made to Res. A.565(14)
		2.2.1	Regulations regarding illumination in servicespaces on ships is regulated in chapter 2 paragraph 1 and chapter 5 paragraph 10 in 2003:438

SOLAS II-2

2.2.3.4	General advice: The controls for remote operation of the valve for the emergency generator fuel tank and controls for remote operation of the valve for fuel tanks placed in machinery spaces does not need to be placed in separate spaces.
2.2.3.5.1	Permitted
2.2.3.5.2.2	Flat glasses are permitted
2.2.5.1	Flexible pipes shall fulfil the requirements in ISO standard 15540:1999 and ISO 15541:1999.
2.2.5.6	Administration may permit. Pipes shall be of steel or equivalent material
2.3.3	The administration can accept that pipes for lubricating oil is routed thru accommodation or service spaces only if its not practically possible to arrange the pipes in different ways. Such pipes shall be made of steel or equivalent material.
2.4	Swedish regulations about thermal-oil units can be found in SJÖFS 1997:15
3	Regulation for pressure vessels is found in AFS 2001:4 (swedish regulation for working environment).
4.5	The administration permits the conveying of oil and combustible liquids through the accommodation and service spaces, if it is not possible to arrange the pipes in another way. Such pipes shall be made of steel or equivalent material.
5.1.1	Recess is permitted
5.1.3	May be permitted
5.1.4.4	Cargo oil lines placed in special ducts are permitted only if these can be cleaned and ventilated in a sufficient way. General advice: Special duct spaces should be cleaned and ventilated as specified in paragraph 5.3
5.1.6	General advice: Guidelines for stern loading and unloading arrangements can be found in IBC code chapter 3.
5.2.2	Permitted. Gastightness test for navigational bridge external door is interpreted in MSC/Circ. 1120

SOLAS II-2

		5.3.3	Reference made to MSC.Circ.677(19),MSC/Circ.731(20), MSC/Circ.1009(21).
		5.4.1	General advise: Design of non sparking fans should follow IACS Requirement F29.
		5.5.1.1	The administration permits other fixed installations designed according to regulation 17.
		5.5.2.1	Reference is made to Res A.567(14)
	5 - Fire growth potential	2.3.1	For periodically unattended machinery spaces, special consideration shall be given, approved by the Administration, to maintaining the fire integrity equal to the fire integrity in manned machinery spaces and that it can be activated equally fast: <ul style="list-style-type: none"> - the fire integrity of the machinery space - the location and centralization of the fire extinguishing system controls - the required shutdown arrangements e.g. ventilation, fuel pumps, etc. - the fire extinguishing appliances and other fire fighting equipment - the number of breathing apparatus.
		3,3	Permitted
Part C	7 -Detection and alarm	3,2	Referens is made to MSC/Circ. 850
		5.3	The administration requires that control stations is protected either by a sprinklersystem or a fixed fire detection and alarm system.
		6	The administration can give exception to the rule if the ship is engaged on short voyages
		9	Resolution A.830(19) shall be fulfilled
	8 - Control of smoke spread	2	The administration may dispens. Interpretation can be found in MSC/Circ.1120
	5	General advice: Guidelines for smoke control and ventilation systems for internal assembly stations and atriums on new passanger ship should be designed according to MSC/Circ.1034	

SOLAS II-2

9 - Containment of fire	2.1	The fireinsulation shall be arranged on that side where the insulation is tested in accordance with the Ordinance regarding Marine Equipment(SJÖFS 2003:2). General advice: An area which is divided by a bulkhead or deck which have different insulation standard, the most efficient insulation shall continue on that bulkhead or deck with the less effective insulation to a distance of at least 450 mm.
	2.2.1.5.1	Service spaces and ship stores may be located on ro-ro decks only if they are protected in accordance with applicable regulations e.g regulation 20.3.2
	2.2.2.2.1	At newbuilding this is always practicly possible.
	2.2.3.2.2(5)	The following area is added to category 5: Weatherdeck used for cargo with low fire risk.
	2.2.3.2.2(7)	The following area is added to category 7: Diet kitchens with no open flames(is equal to pentrys that do not contain any cocking aplliances.)
	2.2.3.2.2.(11)	The following areas is added to category 11: Weather decks used for cargo other than cargo with low fire risk. Spaces for electrical distribution plant for electrical power propulsion
	2.2.3.2.5	For divisions between areas of category 5 and ends of deckhouses and superstructures, the integrity requirements in table 9.1 need not be fulfilled with the permission from the Administration. For weather deck the integrity requirements in table 9.2 need not be fulfilled to a certain degree. In no case shall the requirements of category (5) of tables 9.1 or 9.2 necessitate enclosure of open spaces to be enclosed.
	2.2.4.2.2(8)	The following area is added to category (8) cargo spaces: Weather deck used for cargo other than cargo with low fire risk.
	2.2.4.2.2(10)	The following area is added to category (10) open decks: Weather deck used for cargo with low fire risk.
	2.2.4.2.2(11)	The following area is added to category (11) special category spaces and ro-ro spaces: Weather deck used for cargo other than cargo with low fire risk.
	2.2.4.4	General advise:As an example of material with acceptable safety standard in doors in accordance with 2.2.4.4 is solid wood
	2.3.1.1.3	In public spaces this area may be extended to maximum 75m 2.

SOLAS II-2

	2.3.2.4	In public spaces this area may be extended to maximum 75m ² .
	2.3.3.2.2(8)	The following area is added to category (8) cargo spaces: Weather deck used for cargo other than cargo with low fire risk.
	2.3.3.2.2(10)	The following area is added to category (10) open decks: Weather deck used for cargo with low fire risk.
	2.3.3.2.2(11)	The following area is added to category (11) special category spaces and ro-ro spaces: Weather deck used for cargo other than low fire risk.
	2.3.3.4	General advice: As an example of material with acceptable safety standard in doors in accordance with 2.3.3.4 is solid wood.
	2.4.2.4	As above
	4.1.1.4.11	General advice Doors in accordance with 4.1.1.4(11) should have a clear opening to give a free passage of at least 75 cm.
	4.1.1.2	Watertight doors shall be A-O class.
	4.1.1.5	Such decks shall fulfil the requirements for integrity of class A.
	4.1.1.8	General advice Indicators in accordance with 4.1.1.8 should be arranged on both sides of the division.
	4.1.2.3	Administration do not accept combustible materials in doors separating cabins from the individual interior sanitary spaces such as showers.
	4.1.2.4.1	Such decks shall fulfil the requirements for integrity of class B.
	4.2.1	Administration do not accept combustible materials in doors separating cabins from the individual interior sanitary spaces such as showers.
	5.1.1	The requirements in 5.1.1 is applicable on all types of machinery spaces

SOLAS II-2

	7.3.2	General advice: The steel sheet sleeves should cover 450 mm on each side of the bulkhead unless the duct is of steel.
	7.5.1	Exhaust ducts from galley ranges, frying tables and frying pans shall fulfil the requirements in 7.2.1.2.1 and 7.2.1.2.2 and shall be equipped with.....
	7.5.1.3	A fixed fire extinguishing system for fires within the duct that fulfill the requirements in SJÖFS 2001:6, Co2 systems or equivalent fire extinguishing system
	7.5.2.1	Where exhaust ducts from galley ranges, frying tables and frying pans pass through accommodation spaces or spaces containing combustible materials, they shall be constructed of "A" class divisions. Each exhaust duct shall be fitted with:
	7.5.2.1.4	A fixed fire extinguishing system for fires within the duct that fulfill the requirements in SJÖFS 2001:6, Co2-systems or equivalent fire extinguishing systems
10 - Fire Fighting	2.1.2.1.3	Paragraph 1.1 and 1.2 shall be fulfilled
	2.1.2.2.1	Devices for remote start of the firepumps shall be arranged on the navigation bridge, at one fire control station and in the engine control room
	2.1.3	General advice: Fire main should have a diameter in accordance with the following table: Ships length(m) Diameter (mm) Less than 50m: 75mm Up to 50m but not 100m: 100mm Up to 100m but not 200m: 125mm Up to 200m but not 300m: 150mm Up to 300m or more: >150mm Branch pipes should have a diameter of at least 60 mm. Short branchpipes for only one fire hydrant should have a diameter of at least 50 mm.
	2.2.1	General advice: Pumps which occasionally are used for transfer or pumping of oil fuel or other oil should not be used as fire pump.
	2.2.3.2.2	General advice An example on a reasonable gastight door, is a steel door with gasket which can be closed tight.

SOLAS II-2

2.3.1.2	General advice: Despite what is said above, all hose connections should be so designed that they can be connected to all hydrants, nozzles or other hoses.
2.3.2.3	In cargo ship there shall be one firehose to each fire hydrant.
2.3.3.4	The nozzles shall be in accordance with the national Swedish Standard SS 3500 or equivalent standard.
3.2.1	Accommodation spaces, service spaces and control stations shall be provided with portable fire extinguishers for every 70 m ² of the area concerned. Portable fire extinguishers in accommodation spaces shall be AB extinguishers of at least class 21A 183B. In galleys, radiostations and steering gear room, the fire extinguishers shall be a carbon dioxide extinguisher of class 55B.
4.1.1.3	General advice: The fixed fire extinguishing system in 4.1.1.3 should be tested according to the requirements for equivalent sprinkler systems in the FSS code
4.1.3	Can be found in regulation 2002:187
5.1.2.2	There shall be at least two portable foam extinguishers, or of type 233 BC, in each firing space in each boiler room and in each space in which a part of the oil fuel installation is situated. General advice: Equivalent fire extinguishers in accordance with 5.1.2.2 is a powder extinguisher with not less than 50 kilo powder.
5.1.2.3	In each firing space there shall be - a receptacle containing at least 0.1m ³ sand, impregnated with soda or - a portable fire extinguisher of type 233 B/BC.
5.2.2.2	General advice: Equivalent fire extinguishers in accordance with 5.2.2.2 could be portable fire extinguishers of type 233 B/BC.
5.3.2.1	General advice Equivalent fire extinguishers in accordance with 5.3.2.1 could be portable fire extinguishers of type 233 B/BC.

SOLAS II-2

5.3.2.2	General advice Equivalent fire extinguishers in accordance with 5.3.2.2 could be portable fire extinguishers of type 233 B/BC.
5,4	In main and emergency swichboard rooms and other engine spaces that are not mentioned in 5.1-5.3, there shall be provided in, or adjacent to, that space such a number of approved portable fire extinguishers of type 55 B or other means of fire extinction as the Administration may deem sufficient.
5.5	As in SOLAS included footnote
5.6.2	The system shall be designed according to MSC/Circ. 913. General advice: Also In continuously manned machinery spaces, an automatic release of the extinguishing system should be arranged.
6.3.2	Flammable liquid lockers shall be protected by an appropriate fire extinguisher arrangement in accordance with 6.3.1
6.4	Fire extinguishing system shall be designed according to ISO 15371:2000
6.5	Portable fire extinguishers: The amount of portable fire extinguishers can be found in 3.2.1
7.1.4	Reference is made to MSC/Circ.671
7,2	Regulations for transporting dangerous goods se Reg.19. Interpretation can be found in MSC/Circ 1120
8.2	Correspond to regulation 1.6.2.1 in SOLAS Chapter II-2. Foam concentrates shall be according to MSC/ Circ.799 General advice: Recommended firefighting media for chemicals to which neither the IBC nor BCH Codes apply can be found in MSC/ Circ. 553.

SOLAS II-2

		10.2.4	Cargo ships shall have the following number of fire fighters outfit and personal equipment: Cargo ship: <4 000 BRT total number of fire fighters outfit- 2pcs, additional number of personal equipment 1 pcs. >4 000 total -number of fire fighters outfit 4pcs, additional number of personal equipment 2pcs Tanker ship: <30 000 BRT total number of fire fighters outfit- 4pcs, additional number of personal equipment 2pcs >30 000 total number of fire fighters outfit- 6pcs, additional number of personal equipment 3pcs
		10.3.1	General advice: A fire station should have direct access from open deck or from a control station. The boundaries between the fire station and spaces where a fire could occur should be insulated to "A-60" class standard. It should be fitted with a heater. The fire station should also be large enough to enable for the crew to fit on there personal equipment and breathing apparatus in the room.
	11 - Structural integrity	3,1	Interpretation is made in MSC/Circ 1120
		4.1	Crowns and casings of machinery spaces of category A shall be of steel construction and shall be insulated as required by tables 9.1, 9.3, 9.5, 9.7.
		4.2	Normal passageways meaning; main passageways and escape routes.
Part D	12- Escape	1	General advice: Guidance for general design of alarms and indicators can be found in Resolution A.830(19).
Part D	13 - Means of Escape	3.1.3	The Administration could approve other equivalent frame constructions on condition that material equivalent to steel is used.
		3.1.4	General advise: If one of the escape ways is a porthole or a window this should have a free opening of at least 400X600 mm.
		3.2.1.1	The Administration may dispense
		3.3.6	The Administration may dispense

SOLAS II-2

		3.4.1	General advice: Emergency escape breathing devices should follow the guidelines in MSC/ Circ.1081
		4.1.3	The Administration may dispense
		4.2.2	The Administration may dispense
		4.3.1	General advice: Guidance and interpretation for location and amount of emergency escape breathing device can be found in MSC/ Circ. 1081
		5.1	Equal safety level on ro-ro deck can be achieved by ensuring that the doors to the vehicles are not blocked. To avoid this there shall on one side of the vehicles be arranged for a free passage of at least 600mm. At approximately every 24 meter there shall be arranged for a free passage with a width of at least 600mm in order to provide access to the means of escape from every vehicle. The escape ways from ro-ro decks shall be so located that there is at least one escape way on each side of the deck in connection to every main vertical fire zone on the deck above.
		7.4	General advice: A evacuation analysis should be conducted according to the guidelines in MSC/ Circ.1033
Part E	14- Operational readiness and maintenance	2.2.1	Maintenance, testing and inspection shall be carried out based on the guidelines in appendix 4(SJÖFS 2004:31).
		2.2.3	Service and maintenance of portable fire extinguishers shall be performed according to SS 3656 or equivalent standard.
Part E	15 - Instructions, on-board training and drills	2.3.4	General advice: The training manual should be designed as a separate manual. The manual can also be a part of the ISM manual on condition that the requirements for availability are fulfilled.
		2.4.1	The text in plans and booklets shall be in Swedish as well as English or French. General advice: Fire control plans should be according to ISO 17631:2002 or Resolution A. 952(23)
		2.4.2	General advice: The fire control plans shall be stored as defined in MSC/ Circ. 451

SOLAS II-2

Part G	19 - Carriage of dangerous goods	2	General requirements about carriage of dangerous goods is found in SJÖFS 2005:15
		2,1	General advise: For "open top" container ships special regulations about fire fighting and dangerous goods can be found in MSC/Circ. 608/ Rev 1.
		3.1.3	This area should not be greater then it is possible to cool down the whole area with one fire hose. General advice: Fixed fire extinguishing systems for special category spaces that fulfil the requirements in 3.1.3 should be designed according to Resolution A.123(V).
		3,2	Electrical equipment fitted in such spaces shall be designed according to IEC 60092 or if its possible to completely isolate the electrical system, eg. by removal of links in the system or by a lockable protective swich located outside the space where the dangerous goods are kept. General advise: There should be a sign with the text: "The swich shall be in off position when the ship is carrying dangerous goods of an explosive or flammable character" located outside the space where the dangerous goods are kept. Interpretation also made in MSC/Circ.1203
		3.3	General advice: The fire detection system should use smoke detectors or a combination of smoke– and flame detectors or, for open roro cargo spaces where it is not suitable to install smoke detectors, other types of detection can be installed. The detection sections in these spaces may be fitted with a device e.g. a time relay for disconnecting the detector sections during loading/unloading on condition that the manually operated call points are not disconnected with the same device. It shall be indicated on the control panel when detector sections are disconnected and the disconnection time shall be suitable to the loading/unloading.
		3.4.1	General advice: To comply with the requirements in 3.4.1 and the requirements for hygienic limit values in ro-ro cargospaces regulated in AFS 2000:3 the ventilation system should be designed according to MSC/Circ.729
		3.4.2	General advice: Wire mesh guards in 3.4.2 should be maximum 13X13 mm. The fans should be designed according to IACS UR F29(non sparking fans).
		3.9	General advice: Fixed fire extinguishing systems that fulfills the requirements in 3.9 should be designed according to Resolution A.123(V).

SOLAS II-2

20 - Protection of vehicle, special category and ro-ro spaces	3.1.1	General advice: Design guidelines and operational recommendations for ventilation systems in ro-ro cargo spaces can be found in MSC/ Circ. 729
	3.1.3	General advice: This arrangement can be replaced by an alarm which activates in the event of a cut out or fault of the starting relay for the fan motor.
	3.2.1	General advice Electrical equipment and cables in enclosed ro-ro cargo spaces, vehicle spaces and special category spaces should fulfil the requirements in SS-IEC 60079. Electrical equipment and cables should be approved for use in zone 1 and be of at least explosion group IIA and temperature class T3.
	3.2.2	In case of other than special category spaces below the bulkhead deck, notwithstanding the provisions in paragraph 3.2.1, above a height of 450 mm from the deck and from each platform for vehicles, if fitted, except platforms with openings of sufficient size permitting penetration of petrol gases downwards, electrical equipment of a type so enclosed and protected as to prevent the escape of sparks <i>should be of a type approved for use in zone 2 (at least IP 55 and temperature class T3)</i> on condition that the ventilation system is so designed and operated as to provide continuous ventilation of the cargo spaces at the rate of at least ten air changes per hour whenever vehicles are on board.
	3.3	General advice: Electrical equipment in 3.3 should be type approved according to SS-IEC 60079 in that zone where the intake is placed. When positioned at ventilations ducts inlet guidances can be found in IEC 92-506.
	4.1	The system shall be capable of rapidly detecting the onset of fire by smoke detectors or a combination of smoke and flame detectors. General advice: In the system required in 4.1 the smoke detector sections in vehicle, special category, and ro-ro spaces may be provided with an arrangement, (e.g. a timer) for disconnecting detector sections during loading and unloading of vehicles to avoid "false" alarms. The time of disconnection should be adapted to the time of loading/unloading. The central unit should indicate whether the detector sections are disconnected or not. However, manual call points should not be capable of being disconnected by the arrangements referred to above.

SOLAS II-2

		6.1.2	General advice: Fixed pressure water spraying systems should fulfil the requirements in Resolution A.123(V)
		6.1.3	Full scale test in 6.1.3 should be according to guidelines stated in MSC/ Circ. 914
FSS CODE	3- Personell protection	2.1.1	General advice: Explosion proof type safety lamps should at least be of explosion proof type IIA and temperature class T3 according to SS-EN 60529
	4- Portable fire extinguishers	3.2	General advice: The appropriate foam liquid according to the requirements in MSC/Circ. 582 and MSC/Circ. 582/ Corr. 1
	5- Fixed gas fire extinguishing systems	2.1.1	General advice: For inertgas systems the outlet from the starting air receiver safety valves should always be led directly to the open air.
		2.1.1.4	Containers for the storage of fixed gas extinguishing medium and associated pressure components shall be designed to pressure codes regulated in AFS 2002:1
	6- Fixed foam fire extinguishing systems	2.2.2.3	General advice: If the foam generator are supplied with water for appropriate foam production by the ships emergency fire pump, the pump should at the same time be able to provide the fire main with 25 m ³ /h at the nominal pressure.
	9- Fixed fire detection and fire alarm system	2.3	General advice: Detectors operated by other factors indicative of incipient fires should fulfil the requirements in MSC/ Circ.1035
	10- Sample extraction smoke detection systems	2.1.2	The interval between scanning the same position twice gives an overall respons time not exeeding 2 minutes.
		2.2.2	Respons time shall not exeed 15 seconds.
	13- Arrangement of means of escape	2.2.2	General advice: Stairs that are designed for less than 90 people should also be aligned fore and aft.
	14- Fixed deck foam systems	2.2.1	General advice: Performance and testing criteria of low expansion foam concentrates should follow the requirements in MSC/ Circ. 582 and MSC/ Circ.582/ Corr. 1 and for medium expansion concentrates MSC/ Circ. 798

SOLAS II-2

	15- Inert gas systems	2.2.1.1	Administration may permit
		2.2.1.4	Administration may permit
		2.2.3.1	Administration may permit
		2.4	General advice: Instruction manuals covering safety, maintenance requirements and occupational health should be according to MSC/ Circ. 353 and MSC/ Circ. 387.