Lloyd's Register Group Limited (LR) Klas Notasyonları ve Açıklamaları Listesi

Örnek Notasyon:

Tekne Notasyonu:
✠ 100A1 BULK CARRIER, ESP, Ice Class 1C FS, SHIPRIGHT (SDA, FDA), LI, SERS, IHM, *IWS

Makine Notasyonu
✠ LMC, UMS, SCM

✠ - Tekne Notasyonunun önüne geldiğinde, Geminin tekne kısmının LR Kuralları altında, LR gözetiminde ve LR Onaylı malzeme ve Kaynak prosedürleri altında imal edildiğini gösteren ibaredir (Dümenin kendisi kabuk Notasyonuna dahildir).
100 – Denizde servise uygun olan gemilere verilen notasyondur.
A – Geminin LR Kuralları altında yapıldığının ya da LR klasına Kabul edildiğini gösteren semboldür.
1 – Ekipman Notasyonudur, Geminin iyi kondisyonda çapa ve bağlama ekipmanlarına sahip olduğunu gösterir.

Bulk Carrier – Gemi tipini belirten ibaredir.
Ice Class 1C FS – Soğuk ve Buzlu denizlerde servise uygun teknelere verilen notasyondur. Çok çeşitli olmakla beraber detayları ekli dokümanda bulunabilir.
Shipright SDA, FDA – Gemi inşa aşamasında talep edilen Structural Design Assessment – Fatigue Design Assessment Raporlarının LR'a sunulduğunu belirten notasyondur. Bu raporlar sonlu elemanlar yöntemi kullanılarak düzenlenen raporlardır.
LI – Loading Instrument – Yükleme Yazılımı – Geminin Onaylı yükleme yazılımı ve bilgisayarına sahip olduğunu belirtir.
SERS – Ship Emergency Respond Service – Geminin, kara tarafından sağlanan, karaya oturma ve hasar durumlarında teknik destek aldığı acil yardım hizmetidir. Geminin yüzdürülmesi ve kurtarılması amacıyla kullanılır.
IHM – Inventory of Hazardous Material – Tehlikeli Madde envanteri çıkartılmış gemilere verilen notasyondur.
***IWS –** Inwater Survey – Su altı sörvey için uygun olan teknelere verilen notasyondur. Ara sörveylerde karaya çekilemeyen teknelere uygulanan sörvey biçimidir.

✠ **LMC –** Ana Makine Notasyonudur, Geminin makine ve teçhiz kısmının (Elektrik, Pervane ve Şaft dahil olmak üzere) LR Kuralları altında, LR gözetiminde ve LR Onaylı malzeme ve Ekipman kullanılarak imal edildiğini ve gemiye montajının sağlandığını gösteren ibaredir.
UMS – İnsansız Makine Dairesi notasyonudur. Alarm ve Kontrol sistemleriyle donatılmış gemilerde uygulanır.
SCM – Screw Shaft Monitoring – Şaft kondisyonunun gemi personeli tarafından sürekli izlenmesi ve raporlanması sebebiyle verilen notasyondur. Bu şekilde şaft ara sörveylerinde şaftın çekilme zorunluluğu ortadan kalkar.

Servis Alanı İşaretlerini aşağıda ayrıca belirtiyorum;

PROTECTED WATERS SERVICE. Sığ su ve korunaklı bölgelerde, iç denizlerde kullanılan tekneler için belirtilen seyir kısıtlamasıdır. Örnek: `Protected Waters Service at Storebaelt Bridge'.
EXTENDED PROTECTED WATERS SERVICE. Sığ ve korunaklı sular ve ayrıca kısa mesafe liman seferleri yapabilen teknelere verilen notasyondur (Genellikle 15 mili aşmayan)`Extended Protected Waters Service from the Port of Lagos'.
SPECIFIED COASTAL SERVICE. Kıyı Seferi yapan gemilere verilen notasyondur, seyir uzaklığı 21 mili aşmayan gemilere verilir. İdare tarafından ayrıca sınırlandırılmadıysa, coğrafik bölge olarak nitelendirilir. Örnek: `Indonesian coastal service'.
SPECIFIED ROUTE SERVICE. Belirlenen iki liman arasında sefer yapacak gemilere verilen notasyondur.
Örnek olarak;
• `London to Rotterdam service'
• `London, Rotterdam and Hamburg service'.
2.3.10 SPECIFIED OPERATING AREA SERVICE. Bir ya da birden fazla servis alanı olan gemilere özel verilen seyir kısıtlama bilgisidir,
Örnek olarak :
• `Pacific Tropical Zone service'
• `Great Lakes and St.Lawrence to Pt. du Monts service'
• `Red Sea, Eastern Mediterranean and Black Sea service'.

Lloyd's Register Özel Servis Tekneleri Kuralları referansıyla, Yat, Pilot Bot, Araştırma Gemisi, Yüksek Hızlı Tekneler (HSC) etc.; Seyir kısıtlaması sebebiyle aşağıdaki özel karakterler kullanılmaktadır.

(d) G1 Service Group 1 - Sığ su ve kapalı göl, resif, korunaklı iki ada arasında yapılan servisler için verilen kısıtlı seyir notasyonudur.
(e) G2 Service Group 2 - 20 Mili aşmayan, iyi deniz/hava kondüsyonunda seyir yapan teknelere verilen seyir kısıt notasyonudur. Genelde kıyı seferi yapan teknelere verilir, ya da özel bir rota armatör ve LR tarafından atanır.
(f) G2A Service Group 2A - 60 Mili aşmayan, iyi deniz/hava kondüsyonunda seyir yapan teknelere verilen seyir kısıt notasyonudur
(g) G3 Service Group 3 - 150 Mili aşmayan seyir kısıtlama notasyonudur. Coğrafik bölge LR'ye bildirilmelidir.
(h) G4 Service Group 4 - 250 Mili aşmayan seyir kısıtlama notasyonudur. Coğrafik bölge LR'ye bildirilmelidir.
(i) G5 Service Group 5 - 350 Mili aşmayan seyir kısıtlama notasyonudur. Coğrafik bölge LR'ye bildirilmelidir.
(j) G6 Service Group 6 – Sınırsız Seyir Notasyonudur

- *Tonnage - International Convention on Tonnage Measurement of Ships, 1969*
- *IBC Code - International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in BulkAmended by Resolution MEPC.225(64)*
- *2014 IGC Code - International Code for the Construction and Equipment of Ships Carrying Liquefied Gases in Bulk*
- *IMSBC Code – International Maritime Solid Bulk Cargoes Code – Resolution MSC.268(85)*
- *Maritime Labour Convention.*

The Classification Committee requires the applicable Convention and Code Certificates to be issued by authorities as follows:

- Cargo Ship Radio Certificates, Safety Management Certificates, International Ship Security Certificates and Maritime Labour Certificates, if required, must have been issued by a recognised organisation authorised by the National Administration with which the ship is registered.
- all other mandatory statutory certificates must have been issued by LR or by a National Administration or by an IACS Member when so authorised by the National Administration with which the ship is registered.

In the case of dual-classed ships, Convention Certificates may be issued by the other Classification Society with which the ship is classed, provided this is recognised in a formal Dual Class Agreement with LR and provided the other Classification Society is also authorised by the National Administration.

In the event of a National Administration withdrawing any ship's Convention Certificate (referred to in this Section), then the Classification Committee may suspend the ship's class. If a ship is removed from the National Administration's Registry for the non-compliance with the Conventions or Classification Requirements referred to herein, then the Classification Committee will suspend the ship's class. In the event of *ISM Code - International Management Code and Revised Guidelines on Implementation of the ISM Code* certification being withdrawn from a ship or Operator, then the Classification Committee will suspend the ship's class.

1.1.10 Where an onboard computer system having longitudinal strength computation capability, which is required by the Rules, is provided on a new ship, or newly installed on an existing ship, then the system is to be certified in respect of longitudinal strength in accordance with LR's document entitled *Approval of Longitudinal Strength and Stability Calculation Programs*, *see also Pt 3, Ch 4, 8 Loading guidance information*

1.1.11 Where an onboard computer system having stability computation capability is provided on a new ship, then the system is to be certified in respect of stability aspects in accordance with LR's document entitled, *Approval of Longitudinal Strength and Stability Calculation Programs*. When provided, an onboard computer system having stability computation capability is to carry out the calculations and checks necessary to assess compliance with all the stability requirements applicable to the ship on which it is installed.

1.1.12 Where a ship has been detained by Port State Control the Owner is to advise LR immediately in order to arrange the attendance of a Surveyor.

1.2 Advisory services

1.2.1 The Rules do not cover certain technical characteristics, such as stability, trim, hull vibration, etc., but advice may be given on such matters without any assumption of responsibility for such advice.

■ *Section 2*
Character of classification and class notations

2.1 Definitions

Note For the purpose of class notations, the definitions given in *Pt 1, Ch 2, 2.1 Definitions 2.1.2* to *Pt 1, Ch 2, 2.1 Definitions 2.1.12* will apply.

2.1.2 **Clear water.** Water having sufficient depth to permit the normal development of wind generated waves.

2.1.3 **Fetch.** The extent of clear water across which a wind has blown before reaching the ship.

2.1.4 **Sheltered water.** Water where the fetch is six nautical miles or less.

2.1.5 **Reasonable weather.** Wind strengths of force six or less in the Beaufort scale, associated with sea states sufficiently moderate to ensure that green water is taken on board the ship's deck at infrequent intervals only or not at all.

2.1.6 **Type notation.** A notation indicating that the ship has been arranged and constructed in compliance with particular Rules intended to apply to that type of ship. Type notations that may be assigned are listed in *Table 2.2.1 Type notations*.

Table 2.2.1 Type notations

Dry cargo	Tanker	Passenger
Anchor handler	Chemical tanker	Passenger ferry
AHTS (Anchor Handler Tug Supply)	Double hull oil tanker	Passenger/vehicle ferry
Barge	Liquefied gas carrier	Passenger ship
Bulk carrier	Liquefied gas tanker	Passenger yacht
Cable laying vessel	Moored oil storage tanker	Roll on-Roll off passenger ferry
Container ship	Moored oil storage unit	Roll on-Roll off passenger ship
Diving support vessel	Oil barge	Sailing passenger ship
Dredger	Oil or bulk carrier	
Escort tug	Oil recovery ship	
Fire fighting	Oil tanker	
Fishing vessel	Ore or oil carrier	
Hopper barge		
Hopper dredger		
Icebreaker		
Icebreaker(+)		
Launch		
Livestock carrier		
Offshore support vessel		
Offshore supply vessel		
Offshore tug		
Offshore well stimulation ship		
Ore carrier		
Pipe laying vessel		
Pontoon		
Reclamation ship		
Refrigerated cargo ship		
Research		
Roll on-Roll off cargo ship		
Seismographic support vessel		
Shipborne barge		
Subsea support vessel		
Standby vessel		
Stern trawler		
Split hopper barge		

Split hopper dredger Trawler Tug Vehicle carrier		

2.1.7 **Cargo notation.** A notation indicating that the ship has been designed, modified or arranged to carry one or more particular cargoes, e.g. sulphuric acid. Ships with one or more particular cargo notations are not thereby prevented from carrying other cargoes for which they are suitable.

2.1.8 **Special duties notation.** A notation indicating that the ship has been designed, modified or arranged for special duties other than those implied by the type and cargo notations, e.g. research. Ships with special duties notations are not thereby prevented from performing any other duties for which they may be suitable.

2.1.9 **ShipRight notation**. Where one or more of LR's ShipRight notation procedures have been satisfactorily applied, then a notation showing the associated characters of the procedure(s) within brackets will, at the Owner's request, be entered in column 4 of the *Register Book*, preceded by the word **ShipRight**, *see Pt 1, Ch 2, 2.3 Class notations (hull) 2.3.17*. Other ShipRight procedures that have been satisfactorily applied will similarly be shown as descriptive notes and will appear in column 6 of the *Register Book*, *see Pt 1, Ch 2, 2.8 Descriptive notes 2.8.2*.

2.1.10 **Special features notation.** A notation indicating that the ship incorporates special features which significantly affect the design, *see Table 2.2.2 Special features notations*.

Table 2.2.2 Special features notations

Special features notation	Description	*See also*
BC	Assigned to bulk carriers of length 150 m or above	*Pt 4, Ch 7, 1.4 Class notation for CSR bulk carriers 1.4.2*
Bottom Strengthened for (Operating Aground) (Loading and Unloading Aground)	Assigned where the bottom structure has been additionally strengthened for loading and unloading aground	*Pt 3, Ch 9, 7 Bottom strengthening for loading and unloading aground* and *Pt 4, Ch 12, 1.3 Class notations 1.3.4*
BLS	Bow Loading System. Assigned to tankers equipped with bow loading arrangements to facilitate the transfer of cargo oil from offshore loading terminals	*Pt 7, Ch 6, 1.2 Class notations 1.2.1*

BoxMax	Assigned to container vessels that have an approved onboard lashing program to calculate forces acting on a container and its container securing arrangements. The notation may be accompanied by one of the following supplementary letter sequences, **V** or **V,W** or **V,W,L** or **M**. These allow the Master to use weather dependent factors based on the environmental severity of the planned voyage to determine the forces acting on the container and the container securing arrangements, potentially increasing the flexibility of the carriage of containers onboard the ship. **V** (Voyage dependency) denotes that weather dependent factors based on an annual basis are available for selected specific voyages or routes. **W** (Weather dependency) denotes that weather dependent factors based on a seasonal basis are available for selected specific voyages or routes **L** (Limited duration voyage) denotes that weather dependent factors suitable for application to a limited duration voyage in coastal waters are available. **M** (Ship motion monitoring) denotes that the ship's Master shall select the weather dependent factors and that in-service maximum ship motion and environmental conditions will be recorded to demonstrate safe operation. LR will supply weather dependent factors applicable to the list of sea areas requested by the Owner, *see also Table 14.1.1 BoxMax notation features* .	*Pt 3, Ch 4 Longitudinal Strength* and *Pt 3, Ch 14 Cargo Securing Arrangements*
Cargo Loading on (Tank Top/ Tween/ Deck (s) Plating/ Hatch cover(s)) limited to .... tonnes/m^2	Assigned where cargo loading on tank tops, decks and/or hatch covers are limited to a specified maximum value which is less than the normal Rule loading	—
Carriage of Oils with a F.P. not exceeding 60°C	Assigned to non-oil tankers where the ship is suitably constructed and arranged for the carriage of oils with a flash point not exceeding 60°C (closed cup test)	*Pt 4, Ch 9 Double Hull Oil Tankers* *Pt 4, Ch 10 Single Hull Oil Tankers*
Carriage of Oils with a F.P. exceeding 60°C	Assigned where only the carriage of oils having a flash point exceeding 60°C (closed cup test) is contemplated	*Pt 4, Ch 9, 1.1 General 1.1.5*
(Specified Cargo(es)) only	Assigned where arrangements have been approved for the carriage of a specific product(s)	*Pt 4, Ch 9, 1.1 General 1.1.7*
CC	Assigned where structures are fitted with an approved corrosion control system	*Pt 1, Ch 3 Periodical Survey Regulations*
CCSA	Certified Container Securing Arrangements. Assigned where freight container securing arrangements are fitted, and the design and construction of the system is in accordance with LR Rules and loose fittings are supplied	*Pt 3, Ch 14 Cargo Securing Arrangements*
CG	Cargo Gear. Assigned where cargo gear is included in class at the Owner's request	*Pt 3, Ch 9, 6 Lifting appliances and support arrangements*
CL	Cargo Lift(s). Assigned where cargo lift(s) are included in class at the Owner's request	*Pt 3, Ch 9, 6 Lifting appliances and support arrangements*
CR	Cargo Ramp(s). Assigned where cargo ramp(s) are included in class at the Owner's request	*Pt 3, Ch 9, 6 Lifting appliances and support arrangements*

CRC –/– –kW –%/–%	Carriage of refrigerated containers. The CRC notation may be applied to any ship which has the ability to carry refrigerated containers operating at their design condition with a 24-hour average external ambient air temperature of 35°C The following descriptive notations may be appended, giving details of electrical power and type of cargo: –/– No. of hold-stowed refrigerated containers/No. of deck-stowed refrigerated containers e.g. 230/140 –kW Power generating capacity dedicated to supplying the container plug-in points, e.g. 2,800 kW –%/–% Stowage ratio of deep frozen and chilled cargoes, e.g. 60%/40%	*Pt 7, Ch 10, 1.1 General*
Container Cargoes in (((all) Hold (No(s)))(and on Upper Deck)((and on (all) Hatch Cover(s) (No(s))...)	Assigned where general cargo ships carry container cargoes.	*Pt 3, Ch 4 Longitudinal Strength*
Deck No(s) ... Strengthened for Carriage of Roll on-Roll off Cargoes	Assigned where it is proposed either to stow wheeled vehicles on the deck or to use wheeled vehicles for cargo handling and the deck and supporting structure has been specially considered	*Pt 3, Ch 9, 3 Decks loaded by wheeled vehicles*
DSPM4	Dual Single Point Mooring. Assigned to a ship provided with a dual mooring line arrangement at a single-point mooring	*Pt 3, Ch 13, 8 Anchor windlass design and testing*
DWA	Deep Water Anchoring. Assigned to a ship with a Rule length *L* not less than 135 m, subject to the Rules in *Pt 3, Ch 13 Ship Control Systems*, which has increased equipment for anchoring in deep waters with a depth up to 120 m	*Pt 3, Ch 13, 10 Anchoring equipment in deep and unsheltered water*
ECL(1, 2, 3)	Assigned to vessels where work spaces, movement about the ship, fall protection and working arrangements on deck have been specially considered for performing container securing, inspection and other related tasks	*Rules for Ergonomic Container Lashing, July 2020*
ELD	Assigned when ergonomic lighting design has been applied	*Pt 6, Ch 2, 23 Ergonomic Lighting Design – ELD optional notation* and *Pt 16, Ch 2, 22 Ergonomic Lighting Design – ELD optional notation*
EWP	Enhanced Weather Protection. Assigned where a vessel, subject to the Rules in *Pt 4, Ch 4 Offshore Support Vessels*, has increased scantlings for superstructure, windows and side scuttles.	*Pt 4, Ch 4, 9 Enhanced weather protection*
Fire-Fighting Ship 1, 2, 3 (with water spray)	Designed where fire protection and fire-fighting equipment is provided. Type 1, 2 or 3 signifies the capacity of the fire-fighting equipment. The total discharge capacity of the monitors in m^3/h is shown in brackets. 'With water spray' signifies that a ship is provided with a water spray system which will provide an effective cooling spray of water	*Pt 7, Ch 3 Fire-fighting Ships*
Hatch Covers omitted in Hold (No(s)) ...	Assigned where the omission of hatch covers have been specially considered based upon the model tests or alternative means to determine the quantity of water likely to ingress the cargo holds and the means by which it is effectively and safely discharged	*Pt 4, Ch 8, 11.4 Omission of hatch covers*
Heavy Deck Loads	Assigned where decks are strengthened for loading in excess of Rule basic minimum, e.g. 'Upper deck aft of Fr. 50 strengthened for load of 10 tonnes/m^2'	*Pt 3, Ch 6 Aft End Structure*

Helideck	Assigned where a designated helicopter landing platform or other deck area with fire-fighting appliances and other equipment necessary for the safe operation of helicopters are provided.	*Pt 3, Ch 9, 5 Helicopter landing areas*
Occasional Helicopter Landing Area	Assigned where an area on a ship designated for occasional or emergency landing of helicopters is provided.	*Pt 3, Ch 9, 5 Helicopter landing areas*
Hold (No(s)) ... may be empty at draughts not (less than) (exceeding) ...m	Assigned where particular loading arrangements have been specially considered	*Pt 4, Ch 7 Bulk Carriers*
Ice Class	Assigned where a ship is strengthened to navigate in specific ice conditions. Supplementary Ice Class notations are given in *Table 2.2.3 Notations for ice and cold operations*	*Pt 8, Ch 1 Application* and *Pt 8, Ch 2 Ice Operations - Ice Class*
Icebreaker	Assigned designed for icebreaking duties	*Pt 8, Ch 1 Application* and *Pt 8, Ch 2 Ice Operations - Ice Class*
LA	Mandatory Lifting Appliance(s). Assigned where the lifting appliance is considered to be an essential feature, e.g. cranes on crane barges, lifting arrangements for diving on diving support vessels, and is mandatory	*Pt 3, Ch 9, 6 Lifting appliances and support arrangements*
LȦ	Mandatory Lifting Appliance(s). Assigned where the lifting appliance is considered to be an essential feature and has been classed by a recognised classification society other than LR and later transferred into class with LR. In such cases, a new Register of Ship's Lifting Appliances & Cargo Handling Gear (LA.1) will be issued in accordance with LR's *Code for Lifting Appliances in a Marine Environment, July 2020*.	*Pt 3, Ch 9, 6 Lifting appliances and support arrangements*
LFPL	Low flash point liquids. Assigned to offshore supply vessels intended for the carriage of liquids with flashpoint below 60°C (closed cup test) in bulk	*Pt 4, Ch 4 Offshore Support Vessels*
For Liquefaction and Storage of (Methane, etc.) in Independent Gas Tanks (Type B, etc.), Maximum Vapour Pressure ( ) MPa, Minimum Temperature Minus ( ) °C	Assigned where ships of Category 1B or 2 which have process plants installed solely for the purposes of the physical liquefaction of impure feedstock gases at low temperature and the storage of the purified liquefied gases (where the chemical treatment of the impurities is an incidental process)	*Pt 7, Ch 2, 2.2 Additional notations*
LTMOOR	Long-term Terminal Mooring System	*Pt 7, Ch 8, 1.2 Classification notations 1.2.3 Pt 3, Ch 10, 16 Long-term nearshore positional mooring system* of the *Rules and Regulations for the Classification of Offshore Units, July 2020*
Machinery on deck	Assigned where machinery other than lifting appliances, and anchoring and mooring equipment is installed on deck	*Pt 3, Ch 9, 9 Strengthening for machinery on deck*
Marpol 20.1.3	Assigned to double hull oil tankers not meeting the Rule minimum double side width requirements but which comply with MARPOL Annex 1, Regulation 20.1.3	*Pt 4, Ch 9, 1.4 Class notation and applicable Rules for non-CSR Double Hull Oil Tankers 1.4.3*

Marpol 21.1.2	Assigned to double hull oil tankers of less than 5000 tonnes deadweight which have a complete double hull in accordance with MARPOL Annex I, Regulation 21.1.2	*Pt 4, Ch 9, 1.4 Class notation and applicable Rules for non-CSR Double Hull Oil Tankers 1.4.4*
Movable Decks	Assigned where all movable decks comply with LR requirements. Movable decks other than those specifically indicated in LR Rule requirements are not a classification item	*Pt 3, Ch 9, 4 Movable decks*
Oil Recovery	Assigned when a ship is equipped for oil recovery operations	*Pt 7, Ch 5, 2 Oil recovery*
Oil Recovery (F.P. >60°C)	Assigned when a ship is equipped for oil recovery operations restricted to oils with a flash point greater than 60°C	*Pt 7, Ch 5, 2 Oil recovery*
Petrol in Hold (No(s))...	Assigned to ships that can carry motor vehicles with fuel in their tanks for self-propulsion, in specified locations. It does not apply to ships that are designed primarily for the carriage of motor vehicles Specific requirements will be advised upon request	—
PL	Passenger Lift(s). Assigned where the passenger lift(s) are included in class at the Owner's request	*Pt 3, Ch 9, 6 Lifting appliances and support arrangements*
PM (T1) [or (T2) or (T3)]	For ships fitted with a positional mooring system (PM). The supplementary notation **(T1)** [or **(T2)** or **(T3)**] may be applied if the system is thruster-assisted. The encircled numeral defines the thruster allowance	*Pt 7, Ch 8, 1.2 Classification notations 1.2.1*
PMC (T1) [or (T2) or (T3)]	For ships fitted with a positional mooring system for mooring in close proximity to other ships or installations (PMC). The supplementary notation **(T1)** [or **(T2)** or **(T3)**] may be applied if the system is thruster-assisted. The encircled numeral defines the thruster allowance	*Pt 7, Ch 8, 1.2 Classification notations 1.2.1*
RD	Relative Density. Assigned where a ship has tanks appraised for a maximum permissible relative density greater than 1,025	*Pt 4, Ch 1 General Cargo Ships* *Pt 4, Ch 4 Offshore Support Vessels*
Self-Discharging (Unloading)	Assigned where a ship fitted with self-unloading equipment whose structural aspect has been specially approved	*Pt 4, Ch 12, 1 General*
SLS	Stern Loading System. Assigned to tankers equipped with stern loading arrangements to facilitate the transfer of cargo oil from offshore loading terminals	*Pt 7, Ch 6, 1 General*
Specialised for the Carriage of ...	Assigned to a vessel which has been designed for the carriage of specified cargo other than that applied by the type notation	*Pt 4, Ch 4, 1 General*
SPM4	Single Point Mooring. Assigned to a ship provided with a single mooring line arrangement at a single point mooring	*Pt 3, Ch 13, 8 Anchor windlass design and testing*
Strengthened to carry cargoes which may liquefy (IMSBC Group A)	Assigned to ore carriers which are to carry 'Group A cargo' and which have satisfied the LR requirements for Classification as a specially constructed or fitted cargo ship for confining cargo shift, as stipulated in the IMSBC Code. In accordance with the IMSBC Code, vessels with this notation are eligible for the carriage of Group A cargo where the moisture content rises above the Transportable Moisture Limit (TML) after loading. This notation is assigned at the request of the Owner.	*Pt 4, Ch 11, 1.3 Class notation 1.3.4*
Strengthened for Heavy Cargoes (any) Hold (No(s) ..... may be empty)	Assigned to a bulk carrier of less than 150 m in length or a ship designed for the carriage of heavy cargoes. If only certain holds are strengthened for heavy cargoes, they will be specified	*Pt 4, Ch 1 General Cargo Ships* and *Pt 4, Ch 7, 1 General*

HNLS	Hazardous and noxious liquids system. Assigned to Offshore Support Vessels complying with the aspects relevant to classification of the *Code for the transport and handling of hazardous and noxious liquid substances in bulk on offshore support vessels (OSV Chemical Code)/*	*Pt 4, Ch 4, 8 Transport and handling of hazardous and noxious liquid substances in bulk*
Hold No(s) ... Strengthened for Regular Discharge by Heavy Grabs	Assigned to bulk carriers where cargoes are regularly discharged by heavy grabs and the thickness of the plating of the hold inner bottom, hopper and transverse bulkhead bottom stool is increased	*Pt 3, Ch 9, 7.1 Application*
Submersible to a depth of ...m below Upper Deck in Harbour only	Assigned to a ship that is designed so that it can be submersed to a specified depth in harbour only	—
Timber Deck Cargoes	Assigned where a cargo of timber is carried on an uncovered part of the freeboard or superstructure deck (does not include wood pulp or similar cargo) and the requirements of the 1966 Load Line Convention concerning timber deck cargoes or other National Regulations are complied with	*Pt 3, Ch 9, 2 Timber deck cargoes*
TLS	Submerged Turret Loading System. Assigned to tankers equipped with submerged turret loading systems to facilitate the transfer of cargo oil from offshore loading to terminals	*Pt 7, Ch 6, 1 General*
Winterisation	Assigned to a ship that is intended to navigate in cold climates and may be exposed to low temperatures that may cause equipment to freeze due to ice accretion from atmospheric icing or sea spray or due to freezing of liquid within a system. Protection measures are provided and operational procedures are specified to ensure that equipment is suitably protected to enable operation in low temperatures. Supplementary Winterisation notations are given in *Table 2.2.3 Notations for ice and cold operations*	*Pt 8, Ch 1 Application* and *Pt 8, Ch 2 Ice Operations - Ice Class*
WDL(+)	Weather Deck Load. Assigned where the weather deck load scantlings have been approved for a loading greater than a design head of 3,5 m	*Pt 4, Ch 1 General Cargo Ships* and *Pt 4, Ch 4 Offshore Support Vessels*
W2W	Walk To Work. Assigned where a personnel transfer system is included in class at the Owner's request	*Pt 3, Ch 9, 6 Lifting appliances and support arrangements*

Table 2.2.3 Notations for ice and cold operations

Notation	Description	Conditions	Application	*See also*
Ice Class 1E	For ships with length less than 150 m	Light and very light ice conditions	Hull, Machinery	*Pt 8, Ch 2, 4 Hull requirements for light ice conditions – Ice Classes 1D and 1E* and *Pt 8, Ch 2, 5 Machinery requirements for light ice conditions – Ice Classes 1D and 1E*
Ice Class 1D	Hull strengthening in forward region only			
Ice Class 1C FS		Ice Class 1C; ships with such structure, engine output and other properties that they are capable of navigating in light ice conditions, with the assistance of icebreakers when necessary;		

Ice Class 1B FS	Finnish Swedish Ice Class Rules	Ice Class 1B; ships with such structure, engine output and other properties that they are capable of navigating in moderate ice conditions, with the assistance of icebreakers when necessary	Hull, Machinery	*Pt 8, Ch 2, 6 Hull requirements for first-year ice conditions – Ice Classes 1AS FS, 1A FS, 1B FS, 1C FS and 1D* and *Pt 8, Ch 2, 7 Machinery requirements for first-year ice conditions – Ice Classes 1AS FS, 1A FS, 1B FS and 1C FS*
Ice Class 1A FS		Ice Class 1A; ships with such structure, engine output and other properties that they are capable of navigating in difficult ice conditions, with the assistance of icebreakers when necessary		
Ice Class 1AS FS		Ice Class 1A Super; ships with such structure, engine output and other properties that they are normally capable of navigating in difficult ice conditions without the assistance of icebreakers		
Ice Class 1C FS(+)	Finnish Swedish Ice Class Rules with enhanced engine power for icebreaking capability	Ice Class 1C; ships with such structure, engine output and other properties that they are capable of navigating in light ice conditions, with the assistance of icebreakers when necessary	Hull, Machinery	*Pt 8, Ch 2, 8 Hull requirements for first-year ice conditions – Ice classes 1AS FS(+), 1A FS(+), 1B FS(+) and 1C FS(+)* and *Pt 8, Ch 2, 9 Machinery requirements for first-year ice conditions - Ice classes 1AS FS(+), 1A FS(+), 1B FS(+) and 1C FS(+)*
Ice Class 1B FS(+)		Ice Class 1B; ships with such structure, engine output and other properties that they are capable of navigating in moderate ice conditions, with the assistance of icebreakers when necessary		
Ice Class 1A FS(+)		Ice Class 1A; ships with such structure, engine output and other properties that they are capable of navigating in difficult ice conditions, with the assistance of icebreakers when necessary		
Ice Class 1AS FS(+)		Ice Class 1A Super; ships with such structure, engine output and other properties that they are normally capable of navigating in difficult ice conditions without the assistance of icebreakers		
Ice Class PC7		Summer/autumn operation in thin first-year ice which may include old ice inclusions		
Ice Class PC6		Summer/autumn operation in medium first-year ice which may include old ice inclusions		
Ice Class PC5		Year-round operation in medium first-year ice which may include old ice inclusions		

Ice Class PC4	IACS Polar Ship Rules	Year-round operation in thick first-year ice which may include old ice inclusions	Hull, Machinery	*Pt 8, Ch 2, 10 Hull strengthening requirements for navigation in multi-year ice conditions – Ice Classes PC1, PC2, PC3, PC4, PC5, PC6, PC7 and Icebreaker* and *Pt 8, Ch 2, 11 Machinery strengthening requirements for navigation in multi-year ice conditions – Ice Classes PC1, PC2, PC3, PC4, PC5, PC6, PC7 and Icebreaker*
Ice Class PC3		Year-round operation in second-year ice which may include multi-year ice inclusions		
Ice Class PC2		Year-round operation in moderate multi-year ice conditions		
Ice Class PC1		Year-round operation in all Polar waters		
Winterisation H(*t*)	Hull construction materials	Low temperature operations	Hull, materials	*Ch 1, 2 Materials for hull construction at low temperatures – Winterisation H* of the *Rules for the Winterisation of Ships, July 2020*
Winterisation C(*t*)	Short duration			
Winterisation B(*t*)	Seasonal duration		Equipment and systems	*Ch 1, 3 Materials for equipment and components at low temperatures – Winterisation M* of the *Rules for the Winterisation of Ships, July 2020*
Winterisation A(*t*)	Prolonged duration			

2.1.11 **Service restriction notation.** A notation indicating that a ship has been classed on the understanding that it will be operated only in suitable areas or conditions which have been agreed by the Classification Committee, e.g. protected waters service.

2.1.12 **Linked** means connected, while in operation, to an attendant ship (which may be on shore, submerged or afloat) by a restraining line, suspension cable or umbilical cord.

2.1.13 **Laid-up notation**. A ship not under repair or not actively employed may be assigned the laid-up notation in order to maintain the ship in class subject to agreement by the Classification Committee. A general examination of the hull and machinery is to be carried out in lieu of the Annual Survey. An Underwater Examination (UWE) is to be carried out in lieu of the Special Survey. *See Pt 1, Ch 3, 1.1 Frequency of surveys 1.1.2*, *Pt 1, Ch 3, 2.1 General 2.1.5*, *Pt 1, Ch 3, 5.1 General 5.1.6* and *Pt 1, Ch 3, 11.1 Annual, Intermediate and Bottom Surveys 11.1.2*.

2.2 Character symbols

2.2.1 All ships, when classed, will be assigned one or more character symbols as applicable. For the majority of ships, the character assigned will be **100A1**, ✠ **100A1** or ✠̇ **100A1**.

2.2.2 A full list of character symbols for which ships may be eligible is as follows:

✠ = This distinguishing mark will be assigned, at the time of classing, to new ships constructed under LR's Special Survey in compliance with the Rules, and to the satisfaction of the Classification Committee.

✠̇ = This distinguishing mark, will be assigned to ships built under supervision of another IACS member society and later assigned class with LR. For such ships the class notations will be reviewed separately and equivalent notations will be assigned.

100 = This character figure will be assigned to all ships considered suitable for sea-going service.

A = This character letter will be assigned to all ships which have been built or accepted into class in accordance with LR's Rules and Regulations, and which are maintained in good and efficient condition.

1 = This character figure will be assigned to:

= (a) Ships having on board, in good and efficient condition, anchoring and/or mooring equipment in accordance with the Rules.

= (b) Ships classed for a special service, having on board, in good and efficient condition, anchoring and/or mooring equipment approved by the Classification Committee as suitable and sufficient for the particular service.

N = This character letter will be assigned to ships on which the Classification Committee has agreed that anchoring and mooring equipment need not be fitted in view of their particular service.

T = This character letter will be assigned to ships which are intended to perform their primary designed service function only while they are anchored, moored, towed or linked, and which have, in good and efficient condition, adequately attached anchoring, mooring, towing or linking equipment which has been approved by the Classification Committee as suitable and sufficient for the intended service.

2.2.3 For classification purposes, the character figure **1**, or either of the character letters **N** or **T**, is to be assigned.

2.2.4 In cases where the anchoring and/or mooring equipment is found to be seriously deficient in quality or quantity, the class of the ship will be liable to be withheld.

2.3 Class notations (hull)

2.3.1 When considered necessary by the Classification Committee, or when requested by an Owner and agreed by the Classification Committee, a class notation will be appended to the character of classification assigned to the ship. This class notation will consist of one of, or a combination of: a type notation, a cargo notation, a special duties notation, a special features notation and/or a service restriction notation, e.g ` ✠ **100A1** Oil Tanker F.P. exceeding 60°C in No. 4 tanks ESP Baltic Service Ice Class 1B'.

2.3.2 Details of the ship types and particular cargoes for which special Rules apply are given in those Chapters of *Pt 3 Ship Structures (General)*, *Pt 4 Ship Structures (Ship Types)* and *Pt 7 Other Ship Types and Systems* which apply to such ships and cargoes.

2.3.3 Details of the more common special features and the conditions relevant to the assignment of special features notations, together with the form of such notations, are incorporated in *Pt 3 Ship Structures (General)*, *Pt 4 Ship Structures (Ship Types)* and *Pt 7 Other Ship Types and Systems* as applicable.

2.3.4 Service restriction notations will generally be assigned in one of the forms shown in *Pt 1, Ch 2, 2.3 Class notations (hull) 2.3.6* to *Pt 1, Ch 2, 2.3 Class notations (hull) 2.3.10*, but this does not preclude Owners or Shipbuilders requesting special consideration for other forms in unusual cases.

2.3.5 Where a service notation is applicable, certain exemptions may be granted. Where these affect statutory requirements, such as Load Lines, the Owner or shipbuilder is to obtain the authorisation of the Flag State. Such exemptions are to be recorded on the Class certificate and any applicable statutory certificate.

2.3.6 **Protected waters service.** Service in sheltered water adjacent to sand banks, reefs, breakwaters or other coastal features, and in sheltered water between islands, e.g. `Protected Waters Service at Storebaelt Bridge'.

2.3.7 **Extended protected waters service.** Service in protected waters and also for short distances (generally less than 15 nautical miles) beyond protected waters in `reasonable weather', e.g. `Extended Protected Waters Service from the Port of Lagos'.

2.3.8 **Specified coastal service.** Service along a coast, the geographical limits of which will be indicated in the *Register Book*, and for a distance out to sea generally not exceeding 21 nautical miles, unless some other distance is specified for `coastal service' by the Administration with which the ship is registered, or by the Administration of the coast off which it is operating, as applicable, e.g. `Indonesian coastal service'.

2.3.9 **Specified route service.** Service between two or more ports or other geographical features which will be indicated in the *Register Book*,

e.g.

- `London to Rotterdam service'
- `London, Rotterdam and Hamburg service'.

2.3.10 **Specified operating area service.** Service within one or more geographical area(s) which will be indicated in the *Register Book*,

e.g.

- `Pacific Tropical Zone service'
- `Great Lakes and St.Lawrence to Pt. du Monts service'
- `Red Sea, Eastern Mediterranean and Black Sea service'.

2.3.11 ***IWS**. This notation (In-water Survey) may be assigned to a ship where the applicable requirements of LR's Rules and Regulations are complied with, *see Pt 1, Ch 3, 4.3 In-Water Surveys*; *Pt 3, Ch 1, 5.2 Plans and supporting calculations* and *Pt 3, Ch 1, 5.3 Plans to be supplied to the ship*; *Pt 3, Ch 2, 3.5 External hull protection*; *Pt 3, Ch 13, 2.16 Pintles* and *Pt 5, Ch 6, 3.12 Sternbushes*. The notation will be withdrawn for **ESP** ships upon reaching 15 years of age.

2.3.12 **ESP**. This notation (Enhanced Survey Programme) will be assigned to oil tankers, combination carriers, chemical tankers, bulk carriers and ore carriers, as defined in *Pt 1, Ch 3, 1.5 Definitions* which are subject to an enhanced survey programme as detailed in *Pt 1, Ch 3, 3 Intermediate Surveys - Hull and machinery requirements*, *Pt 1, Ch 3, 6 Special Survey - Bulk carriers - Hull requirements*, *Pt 1, Ch 3, 7 Special Survey - Oil tankers (including ore/oil ships and ore/bulk/oil ships) - Hull requirements* and *Pt 1, Ch 3, 8 Special Survey - Chemical Tankers - Hull requirements*.

2.3.13 **CSR**. This notation will be assigned to bulk carriers and double hull oil tankers compliant with the *IACS Common Structural Rules for Bulk Carriers and Oil Tankers (CSR)*, *see Pt 4, Ch 7, 1.2 Application 1.2.1* and *Pt 4, Ch 9, 1.2 Application and ship arrangement 1.2.1*. Additional mandatory and non-mandatory class notations for CSR bulk carriers are given in *Pt 1, Ch 2, 2.3 Class notations (hull) 2.3.14*.

2.3.14 **Class notations for CSR bulk carriers**. In general, CSR bulk carriers less than 150 m in length are to comply with the requirements of *Pt 4, Ch 7, 1.4 Class notation for CSR bulk carriers* and the *IACS Common Structural Rules (CSR)* and will be eligible for one of the following mandatory class notations:

{any holds may be empty}	This class notation is normally assigned to a ship designed to carry dry bulk cargoes of cargo density 1,0 tonne/m^3 and above, with an approved arrangement of loaded holds such that any hold may be empty at the maximum draught.
{holds a, b, ... may be empty}	This class notation is normally assigned to a ship designed to carry dry bulk cargoes of cargo density 1,0 tonne/m^3 and above with specified holds empty at maximum draught.

In general, CSR bulk carriers equal to or greater than 150 m in length are to comply with the requirements of *Pt 4, Ch 7, 1.5 Class notation for non-CSR bulk carriers* and the IACS Common Structural Rules (CSR) and will be eligible for one of the following mandatory class notations:

BC-A, {holds a, b, … may be empty}	This class will be assigned for bulk carriers designed to carry dry bulk cargoes of cargo density 1,0 tonne/m^3 and above with specified holds empty at maximum draught.
BC-B	This class will be assigned for bulk carriers designed to carry dry bulk cargoes of cargo density 1,0 tonne/m^3 and above with all cargo holds loaded.
BC-C	This class will be assigned for bulk carriers designed to carry dry bulk cargoes of cargo density less than 1,0 tonne/m^3 with all cargo holds loaded.

The following additional notations and annotations are to be provided giving further detailed description of limitations to be observed during operation as a consequence of the design loading condition applied during the design:

(maximum cargo density (in tonnes/m^3))	For notations **BC-A** and **BC-B** if the maximum cargo density is less than 3,0 tonnes/m^3
(no MP)	For all notations when the vessel has not been designed for loading and unloading in multiple ports in accordance with the conditions specified in *IACS Common Structural Rules (CSR)*, Pt 1, Ch 4, Sec 8,4.2.2;
GRAB [X]	Where the net thickness of plating of inner bottom, hopper tank sloping plate, transverse lower stool, transverse bulkhead plating and inner hull up to a height of 3,0 m above the lowest point of the inner bottom, excluding bilge wells comply with IACS Common Structural Rules (CSR), Pt 2, Ch 1, 6 for BC-A and BC-B, *see IACS Common Structural Rules (CSR)*, Pt 1, Ch 1, Sec 1,3.2.1;
(allowed combination of specified empty holds)	Annotation for notation **BC-A**.

2.3.15 **ESN.** This notation (Enhanced Survivability Notation) will be assigned to non-**CSR** bulk carriers which are designed to withstand the individual flooding of all cargo holds, *see Pt 4, Ch 7, 1.3 General class notations 1.3.2*.

2.3.16 **LI.** This notation will be assigned where an approved loading instrument has been installed as a classification requirement.

2.3.17 **ShipRight( ).** Where one or more of LR's ShipRight procedures for the following have been satisfactorily applied, then a notation showing the associated characters of the procedure(s) within brackets will, at the Owner's request, be entered in column 4 of the *Register Book*, preceded by the word **ShipRight**, e.g. **ShipRight(CM, SDA, FDA plus(25,NA))**. The requirements pertaining to these notations and the ShipRight procedures are given in *Pt 3, Ch 16 ShipRight Procedures for the Design, Construction and Lifetime Care of Ships*.

ACS() This ShipRight notation (Anti-Corrosion System) will be assigned when a specified area or areas of the ship have been protected against corrosion in accordance with the relevant ShipRight procedures. The **ACS( )** notation with the extension of one or more of the following associated supplementary characters shown in brackets, detailing the specified protected area or areas, may be assigned;

- **B** for protective coating system of water ballast tanks;
- **D** for protective coating system of double-side skin spaces;
- **C** for protective coating system of cargo oil tanks;
- **C*** when corrosion resistant steel has been used in cargo oil tanks;
- **V** for protective coating system of void spaces.

CM This ShipRight notation (Construction Monitoring), which complements the ShipRight **SDA**, **FDA**, **FDA plus()** , **FDA ICE, FDA SPR**, and **WDA** notations, will be assigned when the controls in construction tolerances detailed in the relevant ShipRight procedures have been applied and verified. The ShipRight notation **CM** is mandatory upon application of any of the following ShipRight notations: **SDA, FDA, FDA plus(), FDA ICE, FDA SPR** and **WDA**

FDA This ShipRight notation (Fatigue Design Assessment) will be assigned when an appraisal has been made of the fatigue performance of the hull structure in accordance with the relevant ShipRight procedures.

FDA plus() This ShipRight notation (Fatigue Design Assessment plus) will be assigned when an appraisal has been made for a higher level of fatigue performance than that made for the assignment of **FDA**. The appraisal may be made based upon a specific trading pattern, which is to be expressed in terms of either a Worldwide trading route, as defined in the relevant ShipRight procedures, or a North Atlantic trading route (that utilises the wave data from IACS Recommendation 34). The ShipRight notation **FDA plus()** is to be followed by the number of years that the vessel has been assessed for the specific trading pattern shown in brackets, for either the Worldwide or North Atlantic trading routes, denoted by **WW** and **NA** respectively, e.g. **FDA plus (25, NA)**.

FDA ICE This ShipRight notation (Fatigue Design Ice) will be assigned when an appraisal has been made for the fatigue performance of the hull structure when navigating through ice in accordance with the relevant ShipRight procedures.

FDA SPR This ShipRight notation (Springing Fatigue Assessment) will be assigned when an appraisal has been made of the fatigue performance of the hull structure taking into account the effects due to springing (the continuous vibrational response of the hull girder due to waves) in accordance with the relevant ShipRight procedures.

MP This ShipRight notation will be assigned to ore carriers where an assessment for multiple port loading and unloading has been carried out in accordance with the relevant ShipRight procedures and the ShipRight notation **SDA** has been assigned.

SDA This ShipRight notation (Structural Design Assessment) will be assigned when direct calculations in accordance with the relevant ShipRight procedures have been applied. The ShipRight notation **SDA** is mandatory upon application of any of the following ShipRight notations: **FDA, FDA plus(), FDA ICE, FDA SPR** , **WDA1** and **WDA2**.

WDA1 This ShipRight notation (Whipping Design Assessment Level 1) will be assigned when an appraisal has been made of the dynamic response of the hull structure due to wave impact loads (Whipping) in accordance with the relevant ShipRight procedures.

WDA2 This ShipRight notation (Whipping Design Assessment Level 2) will be assigned when an appraisal has been made of the dynamic response of the hull structure due to wave impact loads (Whipping) in accordance with the relevant ShipRight procedures.

2.3.18 When the ShipRight notations **SDA, FDA, FDA plus(), FDA ICE, FDA SPR**, **WDA1**, and **WDA2** are assigned, the precise technical conditions of the appraisal will be made available to Owners.

2.3.19 **EU notations**. The following notations may be assigned to passenger ships that comply with the requirements of the European Council Directive 98/18/EC of 17 March 1998 on safety Rules and Standards for passenger ships, and subsequent revisions:

EU(A) This class notation will be assigned to a passenger ship engaged on domestic voyages other than voyages covered by Classes B, C and D.

EU(B) This class notation will be assigned to a passenger ship engaged on domestic voyages in the course of which it is at no time more than 20 miles from the line of coast, where shipwrecked persons can land, corresponding to the medium tide height.

EU(C) This class notation will be assigned to a passenger ship engaged on domestic voyages in sea areas where the probability of exceeding 2,5 m significant wave height is smaller than 10 per cent over a one-year period for all-year-round operation, or over a specific restricted period of the year for operation exclusively in such a period (e.g. summer period operation), in the course of which it is at no time more than 15 miles from a place of refuge, nor more than 5 miles from the line of coast, where shipwrecked persons can land, corresponding to the medium tide height.

EU(D) This class notation will be assigned to a passenger ship engaged on domestic voyages in sea areas where the probability of exceeding 1,5 m significant wave height is smaller than 10 per cent over a one-year period for all-year-round operation, or over a specific restricted period of the year for operation exclusively in such a period (e.g. summer period operation), in the course of which it is at no time more than 6 miles from a place of refuge, nor more than 3 miles from the line of coast, where shipwrecked persons can land, corresponding to the medium tide height.

2.3.20 The following notations may be assigned to ships that comply with standards for noise and vibration levels in different spaces at the time of delivery and during the ship's life if substantial changes to the machinery installation or interior arrangements are made.

PAC	Passenger Accommodation Comfort. This notation indicates that the passenger accommodation meets the acceptance criteria.
CAC	Crew Accommodation Comfort. This notation indicates that the crew accommodation and work areas meet the acceptance criteria.
PCAC	Passenger and Crew Accommodation Comfort. This notation indicates that the passenger and crew spaces both meet the acceptance criteria.

Following the **PAC** or **CAC** notation, numerals 1, 2 or 3 will indicate the acceptance criteria to which the noise and vibration levels have been assessed. In the case of the **PCAC** notation, two numerals will be assigned. The first will indicate the acceptance criteria for passenger accommodation, whilst the second will indicate the crew comfort criteria. These notations are optional and are primarily intended to apply to passenger ships. Spaces that comply with the minimum Rule requirement for noise levels indicated in *Pt 7, Ch 12 Passenger and Crew Accommodation Comfort*, will meet the requirements of section 4 of IMO *Resolution MSC.337(91) – Adoption of the Code on Noise Levels on Board Ships – (Adopted on 30 November 2012)The Annex below is consolidated into Resolution MSC.337(91)*, when measured in accordance with the requirements of Chapters 2 and 3 of that Resolution

2.3.21 The notation **EPN** (escort performance numeral) may be assigned to escort tugs which carry out full-scale performance trials in accordance with the requirements of *Pt 4, Ch 3, 9.3 Performance numeral and trials*. **(F,B,V,C)** may be appended to the notations where:

F	Maximum steering force, in tonnes.
B	Maximum braking force, in tonnes.
V	Speed, in knots, at which F and B are determined.
C	Time, in seconds, required for the escort tug in manoeuvring from maintained oblique position of the tug giving it a maximum steering force on one side of the assisted vessel to a mirror position on the other side.

2.3.22 The escort performance numerals in the **EPN** notation may be given the prefix **CFD**: where a Computational Fluid Dynamics prediction of the performance of the escort tug during escort operation in indirect towing mode is made in accordance with *Pt 4, Ch 3, 9.4 Computational Fluid Dynamics Predicted Performance*, in lieu of full-scale performance trials.

2.3.23 Where escort performance numerals are predicted using computational fluid dynamics, the escort performance numeral "**C**" will be omitted.

2.3.24 **RIGGING.** The **RIGGING** notation will be assigned where a new vessel is fitted with a rig used for propulsion by wind force which is in accordance with the Rules. *See Pt 3, Ch 9, 10 Wind propulsion systems*.

2.3.25 **RIGGING*.** Upon request, the **RIGGING*** notation will be assigned where an existing vessel is fitted with a rig used for propulsion by wind force which is in accordance with the Rules. *See Pt 3, Ch 9, 10 Wind propulsion systems*.

2.4 Class notations (machinery)

2.4.1 The following class notations are associated with the machinery construction and arrangement, and may be assigned as considered appropriate by the Classification Committee:

✠ **LMC** This notation will be assigned when the propelling and essential auxiliary machinery, *see Pt 1, Ch 2, 2.9 Application notes 2.9.1*, have been constructed, installed and tested under LR's Special Survey and in accordance with LR's Rules and Regulations for the Classification of Ships, *see Pt 1, Ch 2, 3.2 New construction surveys*.

[✠] **LMC** This notation will be assigned when:

- the propelling arrangements for propellers, propulsion shafting and multiple input/output gearboxes, steering systems, pressure vessels and electrical equipment for essential systems have been constructed, installed and tested under LR's Special Survey and are in accordance with LR's Rules and Regulations, *see Pt 1, Ch 2, 3.2 New construction surveys*.
- other items of machinery and gearing arrangements for propulsion and electrical power generation and other auxiliary machinery for essential services are in compliance with LR Rules and supplied with the Manufacturer's certificate. This notation is assigned subject to the conditions in *Pt 1, Ch 2, 2.9 Application notes 2.9.2* being complied with.
- the system arrangements of propelling and essential auxiliary machinery, *see Pt 1, Ch 2, 2.9 Application notes 2.9.1*, are appraised and found to be acceptable to LR.

✠ **LMC** This notation will be assigned to existing ships in service that will be accepted or transferred into LR class when:

- the propelling and essential auxiliary machinery, *see Pt 1, Ch 2, 2.9 Application notes 2.9.1*, have neither been constructed nor installed under LR's Special Survey.
- the existing machinery installation and arrangement have been tested and found to be acceptable to LR.

MCH This notation will be assigned when the:

- propelling and essential auxiliary machinery, *see Pt 1, Ch 2, 2.9 Application notes 2.9.1*, has been installed and tested under LR's survey and found to be acceptable to LR.
- propelling and essential auxiliary machinery has been supplied with a Manufacturer's certificate. This notation is assigned subject to the conditions in *Pt 1, Ch 2, 2.9 Application notes 2.9.3* being complied with.
- system arrangements of propelling and essential auxiliary machinery, *see Pt 1, Ch 2, 2.9 Application notes 2.9.1*, are appraised and found to be acceptable to LR.

IGS This notation will be assigned when a ship intended for the carriage of oil in bulk, or for the carriage of liquid chemicals in bulk, is fitted with an approved system for producing gas for inerting the cargo tanks.

2.4.2 The following class notations are associated with the machinery control and automation, and may be assigned as considered appropriate by the Classification Committee:

UMS This notation may be assigned when the arrangements are such that the ship can be operated with the machinery spaces unattended. It denotes that the control engineering equipment has been arranged, installed and tested in accordance with LR's Rules, or is equivalent thereto.

CCS This notation may be assigned when the arrangements are such that the machinery may be operated with continuous supervision from a centralised control station. It denotes that the control engineering equipment has been arranged, installed and tested in accordance with LR's Rules, or is equivalent thereto.

ICC This notation may be assigned when the arrangements are such that the control and supervision of ship operational functions are computer based. It denotes that the control engineering equipment has been arranged, installed and tested in accordance with LR's Rules, or is equivalent thereto.

IP This notation may be assigned to a ship classed with LR when the arrangements of the machinery are such that the propulsion equipment and all the essential auxiliary machinery is integrated with the power unit for operation under all normal sea-going and manoeuvring conditions. The system is to be bridge controlled and the propulsion equipment is to incorporate an emergency means of propulsion in the event of failure in the prime mover. It also denotes that the machinery and control equipment have been arranged, installed and tested in accordance with LR's Rules.

2.4.3 The following class notation is associated with vessels capable of being operated unmanned, and may be assigned as considered appropriate by the Classification Committee:

Unmanned Assigned when a vessel is designed and constructed such that it may be operated unmanned, i.e. without crew, passengers or other persons on board.

2.4.4 The following class notations are associated with dynamic positioning arrangements, and may be assigned as considered appropriate by the Classification Committee:

DP(CM) This notation may be assigned when a ship is fitted with centralised remote manual controls for position keeping and with position reference system(s) and environmental sensor(s). It denotes that the machinery and control engineering equipment has been arranged, installed and tested in accordance with LR's Rules, or is equivalent thereto.

DP(AM) This notation may be assigned when a ship is fitted with automatic main and manual standby controls for position keeping and with postition reference system(s) and environmental sensor(s). It denotes that the machinery and control engineering has been arranged, installed and tested in accordance with LR's Rules, or is equivalent thereto.

DP(AA) This notation may be assigned when a ship is fitted with automatic main and automatic standby controls for position keeping and with position reference system(s) and environmental sensor(s). It denotes that the machinery and control engineering equipment has been arranged, installed and tested in accordance with LR's Rules, or is equivalent thereto.

DP(AAA) This notation may be assigned when a ship is fitted with automatic main and automatic standby controls for position keeping, together with an additional/emergency automatic control unit located in a separate compartment and with position reference systems and environmental sensors. It denotes that the machinery and control engineering equipment has been arranged, installed and tested in accordance with LR's Rules, or is equivalent thereto.

PCR()() This rating supplements the DP() notation. This rating indicates the calculated percentage of time that a unit is capable of holding heading and position under a standard set of environmental conditions (North Sea).

Two rating numerals are calculated:

- The first numeral represents the percentage of time that the ship can remain on station when subjected to a set of standard environmental conditions (North Sea fully developed) with all thrusters operating.
- The second numeral represents the percentage of time that the ship can remain on station when subjected to a set of standard environmental conditions (North Sea fully developed) with the most effective thruster being inoperative.
- A typical rating might be (95),(70).

The foregoing dynamic positioning notations may be supplemented with a Performance Capability Rating (PCR). This rating indicates the calculated percentage of time that a ship is capable of holding heading and position under a standard set of environmental conditions (North Sea), *see Pt 7, Ch 4 Dynamic Positioning Systems*.

2.4.5 The following class notations are associated with navigation safety, and may be assigned as considered appropriate by the Classification Committee:

NAV1 This notation will be assigned when the bridge layout and level of equipment are such that the ship is considered suitable for safe periodic operation under the supervision of a single watchkeeper on the bridge. It denotes that the navigational installation has been arranged, installed and tested in accordance with LR's Rules, or is equivalent thereto.

IBS This additional notation will be assigned where an integrated bridge system is fitted to provide electronic chart display, track planning and automatic track following, centralised navigation information display, and bridge alarm management. It denotes that the integrated bridge system has been arranged, installed and tested in accordance with LR's Rules, or is equivalent thereto. For assignment of this notation, in addition to satisfying LR Rules, or equivalent thereto, for navigational function integration:

(a) the layout of the bridge and the equipment located on the bridge is to satisfy the requirements of a relevant International or National Ergonomic or Human-centred Design Standard, or an acceptable equivalent, to the satisfaction of LR; or

(b) the notation **NAV1** is also to be assigned; or

(c) where the bridge is not intended to operate a periodic one man watch, the layout of the bridge and the equipment on the bridge are to satisfy the requirements for the assignment of the notation **NAV1** to the satisfaction of LR with the exception of requirements identified by LR Rules that may be relaxed in such cases.

2.4.6 Machinery class notations will not be assigned to ships the hulls of which are not classed or intended to be classed with LR.

2.4.7 The notations ✠ **LMC**, [✠]**LMC**, ✠ **LMC** and **MCH** will, in general, not be assigned to non-propelled craft, but individual cases will be considered on their merits.

Table 2.2.4 Machinery Class Notations

Machinery Notations *See Pt 1, Ch 2, 2.4 Class notations (machinery), Pt 1, Ch 2, 2.5 Class notations (machinery special features), Pt 1, Ch 2, 2.6 Class notations (refrigerated cargo installations (RMC), controlled atmosphere (CA) systems and carriage of refrigerated containers (CRC))*		
✠ **LMC** Propulsion and essential machinery	**OPS** Operation of Services by connection to an external electrical Power Supply	✠ **Lloyd's LMC** Refrigerated Machinery
[✠] **LMC** Propulsion and essential machinery	**PM** Positional Mooring System	**Lloyd's LMC** Refrigerated Machinery
✠ **LMC** Propulsion and essential machinery	**PMC** Positional Mooring System for mooring in Close proximity to other vessels or installations	‡ Double Dagger – Suitable for carriage of fruit

MCH Propulsion and essential machinery	**LTMOOR** Long-term Terminal Mooring System for nearshore mooring	✠ **Lloyd's RMC (LG)** Reliquefaction and/or refrigeration equipment is fitted
	LFPF( ) Machinery installation fuelled by low flashpoint fuel	
IGS Inert Gas System	**PMR** Propulsion System Redundancy	**Lloyd's RMC (LG)** Reliquefaction and/or refrigeration equipment is fitted
UMS Unattended Machinery Spaces	**PSMR** Propulsion and Steering System Redundancy	✠ **Lloyd's RMC (BC)** Refrigerated Chemical tanker
CCS Centralised Control Station	**PSMR*** Propulsion and Steering System Redundancy in Separate Compartments	**Lloyd's RMC (BC)** Refrigerated Chemical Tanker
ICC Integrated Computer Control	**PMRL** Propulsion System Redundancy with Limited Capacity	**TC** Chemical Tanker temperature Control Systems
IP Integrated Propulsion	**PMRL*** Propulsion System Redundancy in Separate Compartments with Limited Capacity	**(CA)** Controlled Atmosphere
DP(CM) Dynamic Position (Centralised Remote Manual Controls)	**SMRL** Steering System Redundancy with Limited Capacity	**CA (%O_2, %CO_2)** Controlled Atmosphere
DP(AM) Dynamic Position (Automatic main and Manual standby Controls)	**SMRL*** Steering System Redundancy in Separate Compartments with Limited Capacity	**RH** Relative Humidity
DP(AA) Dynamic Position (Automatic main and Automatic standby Controls)	**PSMRL** Propulsion and Steering System Redundancy with Limited Capacity	**EGCS( )** Exhaust Gas Cleaning System
DP(AAA) Dynamic Positioning (Automatic main and Automatic standby controls with additional/ emergency Automatic control)	**PSMRL*** Propulsion and Steering System Redundancy in Separate Compartments with Limited Capacity	**BWTS** Ballast Water Treatment System
PCR()() Performance Capability Rating	**CAC1(1 or 2 or 3)** Crew Accommodation Comfort	**BWTS*** Type Approved Ballast Water Treatment System
NAV1 Navigation Equipment	**PAC1 (or 2 or 3)** Passenger Accommodation Comfort	
IBS Integrated Bridge System	**PCAC1 (or 2 or 3), 1 (or 2 or 3)** Passenger and Crew Accommodation	

2.5 Class notations (machinery special features)

2.5.1 The following class notation is associated with onshore power supply arrangements and may be assigned as considered appropriate by the Classification Committee, upon application from the Owners:

OPS Assigned when the machinery, electrical and control engineering arrangements installed on board to permit continued operation of services by connection to an external electrical power supply have been assessed.

2.5.2 The following class notations are associated with positional mooring systems, or thruster-assisted positional mooring systems, and may be assigned as considered appropriate by the Classification Committee:

PM Assigned when a positional mooring system is fitted. This notation can be supplemented by a Thrust-Assisted notation **(T1)** [or **(T2)** or **(T3)**].

PMC Assigned when a positional mooring system for mooring in close proximity to other vessels or installations is fitted. This notation can be supplemented by a Thrust-Assisted notation **(T1)** [or **(T2)** or **(T3)**].

LTMOOR Assigned when a positional mooring system is fitted to a nearshore, inshore or at-shore terminal which complies with the requirements of *Pt 3, Ch 10, 16 Long-term nearshore positional mooring system* of the *Rules and Regulations for the Classification of Offshore Units, July 2020*.

Note

This notation is not intended to apply to vessels where station-keeping capabilities may be suspended for short periods during adverse weather conditions, unless they are planned to do so, and a subsequent loss of position allowed.

2.5.3 The following class notations are associated with machinery redundancy and may be assigned as considered appropriate by the Classification Committee:

PMR This notation will be assigned where the main propulsion systems are arranged such that, in the event of a single failure in equipment, the ship will retain not less than 50 per cent of the installed prime mover capacity and not less than 50 per cent of the installed propulsion systems. It also denotes that the installation has been arranged, installed and tested in accordance with LR Rules.

PMR* This notation will be assigned where the main propulsion systems are arranged such that, in the event of a single failure in equipment, the ship will retain not less than 50 per cent of the installed prime mover capacity and not less than 50 per cent of the installed propulsion systems and where the machinery is installed in separate compartments such that, in the event of the loss of one compartment, the ship will retain availability of propulsion power. It also denotes that the installation has been arranged, installed and tested in accordance with LR Rules.

SMR This notation will be assigned where the steering systems for manoeuvring are arranged so that steering capability will continue to be available in the event of a single failure in the steering gear equipment or loss of power supply or control system for any steering system. It also denotes that the installation has been arranged, installed and tested in accordance with LR's Rules.

SMR* This notation will be assigned where the steering systems for manoeuvring are arranged so that steering capability will continue to be available in the event of a single failure in the steering gear equipment or loss of power supply or control system for any steering system and where the steering systems are installed in separate compartments such that, in the event of the loss of one compartment, steering capability will continue to be available. It also denotes that the installation has been arranged, installed and tested in accordance with LR's Rules.

PSMR This notation will be assigned where the main propulsion and steering systems are configured such that, in the event of a single failure in equipment, the ship will retain not less than 50 per cent of the installed prime mover capacity and not less than 50 per cent of the installed propulsion systems and retain steering capability. It also denotes that the installation has been arranged, installed and tested in accordance with LR's Rules.

PSMR* This notation will be assigned where the main propulsion and steering systems are configured such that, in the event of a single failure in equipment, the ship will retain not less than 50 per cent of the installed prime mover capacity and not less than 50 per cent of the installed propulsion systems and retain steering capability. The propulsion and steering arrangements are to be installed in separate compartments such that, in the event of the loss of one compartment, the ship will retain availability of propulsion power and manoeuvring capability. It also denotes that the installation has been arranged, installed and tested in accordance with LR's Rules.

The foregoing machinery redundancy notations may be supplemented with the additional **L** character which indicates a limited capability.

2.5.4 The following class notations are associated with comfort control and may be assigned as considered appropriate by the Classification Committee:

CAC1 (or **2** or **3**)
Assigned when noise and vibration levels in crew accommodation and work areas have been assessed. Numerals **1** or **2** or **3** indicate the acceptance criterion to which the noise and vibration levels have been assessed. Primarily intended to apply to passenger ships. If requested, however, any ship can be assessed for compliance.

PAC1 (or **2** or **3**)
Assigned when noise and vibration levels in passenger accommodation have been assessed. Numerals **1** or **2** or **3** indicate the acceptance criterion to which the noise and vibration levels have been assessed. Primarily intended to apply to passenger ships. If requested, however, any ship can be assessed for compliance.

PCAC1 (or **2** or **3**), (**1** or **2** or **3**)
Assigned when noise and vibration levels in passenger and crew spaces have been assessed. Numerals **1** or **2** or **3** indicate the acceptance criterion to which the noise and vibration levels have been assessed. Two numerals will be assigned, the first for the acceptance criteria for passenger accommodation, the second for crew comfort criteria. Primarily intended to apply to passenger ships. If requested, however, any ship can be assessed for compliance.

2.5.5 The following class notation is associated with low flashpoint fuelled vessels and may be assigned as considered appropriate by the Classification Committee:

LFPF( ) Assigned where the main propelling and/or auxiliary machinery is designed to operate using a low flashpoint fuel in accordance with the applicable LR Rules and Regulations. As a minimum, the **LFPF( )** notation is to be appended by associated characters **GC** or **GF** and one two letter fuel identifier, and will be entered in column 4 of the *Register Book*;

GC Assigned to liquefied gas carriers or tankers, where the main propelling and/or auxiliary machinery is designed to operate on a low flashpoint fuel. The notation also indicates that the gas-fuelled machinery has been constructed, arranged, installed and tested in accordance with the relevant requirements of *Use of Cargo as Fuel* of LR's Rules for Ships for Liquefied Gases, or is equivalent thereto.

GF Assigned to ships other than liquefied gas carriers or tankers, where the main propelling and/or auxiliary machinery is designed to operate on a low flashpoint fuel, or a combination of low flashpoint fuel and standard marine oil fuel. The notation also indicates that the low flashpoint fuelled machinery has been constructed, arranged, installed and tested in accordance with the LR Rules and Regulations applicable to the fuel(s) used.

The low flashpoint fuel (or fuels) that the ship is designed to use is (are) indicated in the notation using a two letter identifier:

NG Natural Gas

EG Ethane Gas

LP Liquid Petroleum Gas (LPG is considered to include pure propane or Butane or any mixture of the two)

HG Hydrogen Gas

ML Methanol

2.5.6 The following class notations are associated with Ballast Water Treatment Systems and may be assigned as considered appropriate by the Classification Committee:

BWTS Assigned to ships with a Ballast Water Treatment System (BWTS) which is approved and installed in accordance with LR's Rules and Regulations.

BWTS* Assigned to ships with a BWTS which is Type Approved in accordance with LR's Type Approval procedures and approved and installed in accordance with LR's Rules and Regulations.

2.5.7 The following notation associated with the equipment fitted for the abatement of combustion machinery SO_x emissions may be assigned as considered appropriate by the Classification Committee:

EGCS This notation will be assigned where the SO_x emissions abatement plant has been designed, constructed, arranged, installed and tested in accordance with LR's Rules and Regulations. Application of the EGCS notation does not infer that the installation will meet the statutory requirements for emissions regulation. This notation is to be supplemented by one of the following associated notations depending on the type of emissions abatement plant that is installed (*see Pt 5, Ch 24, 1.2 Class notation and descriptive note 1.2.1* to *Pt 5, Ch 24, 1.2 Class notation and descriptive note 1.2.3* for more information):

(Open) Open loop wet scrubber installed with no capacity to operate in zero discharge mode;
(Closed) Closed loop wet scrubber installed only capable of operating in zero discharge mode;
(Hybrid) The installed wet scrubber is able to operate in both open loop and closed loop modes; or
(Dry) Dry scrubber installed.

2.5.8 The following notation associated with the equipment fitted for the abatement of combustion machinery NO_x emissions may be assigned as considered appropriate by the Classification Committee:

EGCN This notation will be assigned where the NO_x emissions abatement plant has been designed, constructed, arranged, installed and tested in accordance with LR's Rules and Regulations. Application of the **EGCN** notation does not infer that the installation will meet the statutory requirements for emissions regulation.This notation is to be supplemented by the following associated notation(s) (*see Pt 5, Ch 24, 1.2 Class notation and descriptive note 1.2.4* to *Pt 5, Ch 24, 1.2 Class notation and descriptive note 1.2.7* for more information):

(SCR) Selective catalytic reduction installed.

(EGR) Exhaust gas recirculation installed.

2.5.9 The following class notations are associated with hybrid electrical power systems and may be assigned as considered appropriate by the Classification Committee:

Hybrid Power Assigned to ships with an electrical power system utilising a combination of two or more different types of power source or utilising stored electrical energy to satisfy the ship's main power demand. The system and its component parts are in accordance with the existing applicable requirements of the Rules and the requirements of *Pt 6, Ch 2, 24 Hybrid electrical power systems*.

Hybrid Power (+) Assigned to ships meeting the requirements for **Hybrid Power** and the additional optional requirements for **Hybrid Power (+)** specified within *Pt 6, Ch 2, 24 Hybrid electrical power systems*. The additional optional requirements aim to provide for enhanced performance of the electrical power system achieved through the consideration of system simulation, system integration and the dependability of the electrical power system during normal or reasonably foreseeable abnormal operation.

2.6 Class notations (refrigerated cargo installations (RMC), controlled atmosphere (CA) systems and carriage of refrigerated containers (CRC))

2.6.1 The following class notations may be assigned as considered appropriate by the Classification Committee, on application from the Owners:

✠ **Lloyd's RMC** This notation will be assigned when a refrigerated cargo installation has been constructed, installed and tested under LR's Special Survey and in accordance with the relevant requirements of the Rules.

Lloyd's RMC This notation will be assigned when the arrangements of the refrigerated cargo installation have been found to be equivalent to Rule requirements, and the installation has been tested in accordance with the relevant requirements of the Rules.

‡ This symbol will be assigned to installations considered suitable for the carriage of fruit. It indicates that the following parameters have been assessed and found satisfactory:

(a) The rate of air circulation and the air refreshing arrangements through the refrigerated spaces or chambers, or to containers.
(b) The temperature controls and monitoring arrangements.
(c) The installation's capability to cool down a complete cargo of fruit to its carrying temperature within a specified time. The symbol will also be assigned to fishing vessels that have the refrigerating capacity to freeze down their catch.

✠ **Lloyd's RMC (LG)** This notation will be assigned to a classed liquefied gas carrier or tanker, in which reliquefaction or refrigeration equipment is approved and fitted for cargo temperature and pressure control where the equipment has been constructed, installed and tested in accordance with the relevant requirements of the Rules.

Lloyd's RMC (LG) This notation will be assigned to a classed liquefied gas carrier or tanker, in which reliquefaction or refrigeration equipment is fitted for cargo temperature and pressure control, where the equipment has been found equivalent to Rule requirements and tested in accordance with the relevant requirements of the Rules.

✠ **Lloyd's RMC (BC)** Assigned to a classed chemical tanker in which refrigeration equipment has been constructed, installed and tested, in accordance with the relevant requirements of the Rules.

Lloyd's RMC (BC) Assigned to a classed chemical tanker where the equipment has been found equivalent to Rule requirements and tested in accordance with the relevant requirements of the Rules.

TC Assigned to a classed chemical tanker where the temperature control systems have been found equivalent to Rule requirements and tested in accordance with the relevant requirements of the Rules.

2.6.2 The following class notations are associated with controlled atmospheres and may be assigned as considered appropriate by the Classification Committee, on application from Owners, *see also Pt 7, Ch 1 Controlled Atmosphere Systems*:

(CA)	This notation may be assigned when a ship is fitted with arrangements for maintaining airtightness in CA zones and for the ready connection to a gas system in accordance with the relevant requirements of the Rules.
CA (%O_2, %CO_2)	This notation may be assigned when a ship is provided with a CA system which will achieve and maintain specified ranges of oxygen and carbon dioxide levels in accordance with the relevant requirements of the Rules.
RH	This notation may be assigned when a ship can maintain a specified relative humidity in the CA zones.
RPA	Assigned to ships where the Refrigeration Machinery for Provision Stores and Air-conditioning comply with the applicable requirements of *Pt 7, Ch 15 Refrigeration Systems and Equipment Serving Provision Stores and Air-Conditioning Installations*.

Before assignment of any of the above notations it is a prerequisite that the refrigeration installation is assigned an **RMC** class notation.

2.6.3 The following class notation is associated with the carriage of refrigerated cargo containers and may be assigned as considered appropriate by the Classification Committee, on application from Owners, *see also Pt 7, Ch 10 Carriage of Refrigerated Containers*:

✠ **CRC** This notation may be assigned when a ship is provided with a ventilation system which is approved, installed and tested in accordance with the relevant requirements of the Rules.

2.6.4 The class notation assigned will additionally specify the temperature conditions and other relevant characteristics for which the equipment has been approved, *see Pt 6, Ch 3 Refrigerated Cargo Installations*.

2.6.5 The class notation assigned will be maintained as long as the installation is found, at the prescribed Periodical Surveys, to be in a fit and efficient condition, and in accordance with the requirements of the Rules.

2.6.6 The Classification Committee will give consideration to ships engaged on voyages of short duration, to installations of small capacity, or to other special circumstances. In such cases the class may include a service limitation or other restriction.

2.6.7 Refrigerating installations designed to supply refrigerated air to insulated containers in ships' holds aboard container ships, are eligible for classification. The installation is to include the refrigerating machinery, supply and return air ducting, and the flexible couplings between containers and the duct system. Where the arrangements are such that cell air conditioning is essential to the carriage of the containers, the air conditioning equipment and/or insulation of the hold, deckheads, sides and tank tops are to be included in the classification.

2.6.8 Other methods of carrying refrigerated cargoes in containers aboard container ships will be considered for classification on application.

2.7 Class notations (Environmental Protection)

2.7.1 The following class notations are associated with the design and operation of a ship and may be assigned as considered appropriate by the Classification Committee, on application from the Owners:

ABN( )	This notation will be assigned where a vessel has had its airborne noise measured and certified in accordance with LR's *ShipRight Additional Design and Construction Procedure for the determination of airborne noise emissions from marine vessels*, and the sound power and sound pressure are found to be less than the assessment criterial limits it contains. The parentheses are to contain the characters associated with the most stringent assessment criteria limits that the airborne noise of the vessel satisfies.
ECO	This notation will be assigned when a ship is designed and operated in accordance with the relevant requirements of the Rules.
ECO(TOC)	This notation will be assigned when the environmental protection arrangements are in accordance with the requirements of another recognised classification society and are essentially equivalent to Rule requirements and the ship is operated in accordance with the relevant requirements of the Rules.

UWN-M This notation will be assigned where a vessel has had its underwater radiated noise measured and certified in accordance with LR's *ShipRight Procedure Additional Design and Construction Procedure for the Determination of a Vessel's Underwater Radiated Noise.*

UWN-L( ) This notation will be assigned where a vessel has had its underwater radiated noise measured and certified in accordance with LR's *ShipRight Procedure Additional Design and Construction Procedure for the Determination of a Vessel's Underwater Radiated Noise* and the profile of the underwater radiated noise curve(s) are found to be less than the limits contained in the ShipRight Procedure. The parentheses are to contain the limit set in accordance with the ShipRight Procedure and listed therein.

2.8 Descriptive notes

2.8.1 In addition to any class notations, an appropriate descriptive note may be entered in column 6 of the *Register Book* indicating the type of ship in greater detail than is contained in the class notation, and/or providing additional information about the ship's design and construction. This descriptive note is not an LR class notation and is provided solely for information.

2.8.2 **ShipRight()**. Where one or more of LR's ShipRight procedures for the following have been satisfactorily applied, then a descriptive note showing the associated characters of the procedure(s) within brackets will, at the Owner's request, be entered in column 6 of the *Register Book*, preceded by the word **ShipRight**, e.g. **ShipRight(IHM, SERS)**. The requirements pertaining to these descriptive notes and the ShipRight procedures are given in *Pt 3, Ch 16 ShipRight Procedures for the Design, Construction and Lifetime Care of Ships* and *Pt 5, Ch 21 Requirements for Condition Monitoring and Condition-Based Maintenance Systems*, or directly within the relevant *ShipRight Procedure* document.

ShaftRight() This ShipRight descriptive note will be assigned when the main propulsion shafting alignment has been carried out in accordance with ShipRight Procedure *ShaftRight: Main Propulsion Shafting Alignment Procedure*, which LR considers to be best practice during design, construction and trials. The **ShaftRight()** descriptive note with the extension of one or more of the following associated supplementary characters shown in brackets, may be assigned:

E Existing design. Applicable to vessels having main propulsion shafting and hull arrangements which have been previously implemented and, for which, proven satisfactory service experience is demonstrated;

N New design. Applicable to a new main propulsion shafting arrangement within a new, or previously implemented, hull design.

BWMP() This ShipRight descriptive note (Ballast Water Management Plan) will be assigned, when the requirements in accordance with the relevant ShipRight procedures have been complied with. The descriptive note **BWMP()** with the extension of one or more of the following associated supplementary characters shown in brackets, detailing the method(s) used, may be assigned:

S sequential method;

F flow through method;

D dilution method;

T treatment method.

DIST() This ShipRight descriptive note (Machinery suitable for operation on Distillate Fuels) will be assigned when specified machinery items are suitable for operation on distillate fuels, in accordance with the relevant ShipRight procedures. The **DIST()** descriptive note with the extension of one or more of the following associated supplementary characters shown in brackets, detailing the specified machinery items, may be assigned:

M main engine(s);

AB auxiliary engines and boiler;

I incinerator;

IG inert gas generator.

E This ShipRight descriptive note (Evidence) will be assigned, where evidence exists that supporting calculations have been performed in accordance with hull structural finite element and fatigue analysis procedures of a recognised classification society. This descriptive note can be assigned to vessels transferring class or to new builds where the design has been appraised by another recognised classification society.

ES() This ShipRight descriptive note (Enhanced Scantlings) will be assigned, where scantlings in excess of the approved Rule minimum are fitted at defined locations in accordance with the relevant ShipRight procedures. The added thickness measurement in mm is to be shown with a description of the location(s) in brackets e.g. **ShipRight(ES(+1 Strength Deck, +2 Bottom Shell))**.

IHM This ShipRight descriptive note (Inventory of Hazardous Materials) will be assigned when the requirements in accordance with the relevant ShipRight procedures have been complied with.

PCWBT() This ShipRight descriptive note (Protection Coatings in Water Ballast Tanks) will be assigned, to indicate that all sea-water ballast spaces having boundaries formed by the hull envelope have a corrosion protection coating applied, and that the coating remains efficient and is maintained in good condition. The month and year that the coating is approved is to be appended to the descriptive note within brackets.

SEA() This descriptive note (Ship Event Analysis) will be assigned, where hull surveillance systems for monitoring of the ship's hull girder stresses and motions have been fitted and are in compliance with the relevant ShipRight procedures. The ShipRight descriptive note is to be appended by **HSS** followed by the number of strain gauges fitted shown in brackets. In addition the extension of one or more of the following associated supplementary characters may be shown e.g. **ShipRight(SEA(HSS-2, VDR))**:

L The display of the relevant information in the cargo control area;

M The display and recording of the ship's motion;

N The facility to display and record navigational information;

VDR An interface with the ship's voyage data recorder system to enable the recording of hull stress, ship motion and hull pressure information.

SEA ICE This ShipRight descriptive note (Ship Event Analysis Ice) will be assigned when the ship has been provided with a hull surveillance system that can display and record local ice load induced stresses from a series of strain gauges in the bow region.

SERS This ShipRight descriptive note (Ship Emergency Response Service) will be assigned when a Ship is registered with LR's Ship Emergency Response Service.

SCM This ShipRight descriptive note (Screwshaft Condition Monitoring) will be assigned where an Owner adopts the requirements for monitoring of the screwshaft. The descriptive note will indicate that equipment and procedures are in place to determine the physical and operational condition of that equipment.

SRtP This ShipRight descriptive note (Safe Return to Port and Orderly Evacuation) is to be applied where the design appraisal and survey of the vessel has been performed in accordance with the relevant ShipRight procedures for vessels required to comply with Safe Return to Port and Orderly Evacuation.

TCM This ShipRight descriptive note (Main Steam Turbine Condition Monitoring) will be assigned where an Owner adopts the requirements for monitoring of the main steam turbine. The descriptive note will indicate that equipment and procedures are in place to determine the physical and operational condition of that equipment. Further information is provided in the LR document *ShipRight Procedure Machinery Planned Maintenance and Condition Monitoring*.

ThCM Thruster Condition Monitoring. This ShipRight descriptive note (Thruster Condition Monitoring) will be assigned where an Owner adopts the requirements for monitoring of selected Thrusters and/or Podded Propulsors. The descriptive note will indicate that equipment and procedures are in place to determine the physical and operational condition of that equipment. Further information is provided in the LR document *ShipRight Procedure Machinery Planned Maintenance and Condition Monitoring*.

Note Not applicable where a single thruster, or podded propulsor, is solely responsible for the propulsion and/or steering of the vessel.

MPMS() This ShipRight descriptive note (Machinery Planned Maintenance Scheme) will be assigned where an Owner operates, as part of the Continuous Survey Machinery (CSM) cycle, a Machinery Planned Maintenance Scheme which is approved in accordance with LR's ShipRight Procedures for Machinery Planned Maintenance and Condition Monitoring. The descriptive note will indicate that procedures and documentation are in place to control and record the inspection and maintenance routines of all machinery and equipment in the ship.

CM This ShipRight descriptive note (Condition Monitoring) will be assigned where an Owner operates, as part of the Continuous Survey Machinery (CSM) cycle, a Machinery Planned Maintenance Scheme which uses monitoring techniques and equipment are used to record the condition against agreed acceptable limits and the scheme is approved in accordance with LR's ShipRight Procedures for Machinery Planned Maintenance and Condition Monitoring. The descriptive note will indicate that equipment, procedures and documentation are in place to monitor, control and record the physical and operational condition of the equipment on the ship and control the maintenance routines accordingly. For the design and installation of machinery condition monitoring systems which form part of a Machinery Planned Maintenance Scheme approved by LR for the assignment of the descriptive note, the requirements of *Pt 5, Ch 21 Requirements for Condition Monitoring and Condition-Based Maintenance Systems* are applicable.

PT This ShipRight descriptive note (Predictive Techniques) will be assigned where an Owner operates, as part of the Continuous Survey of Machinery (CSM) cycle, a Machinery Planned Maintenance Scheme which uses the output from machine learning and complex algorithms to determine acceptability for continued service and maintenance requirements and the scheme is approved in accordance with LR's ShipRight Procedures for Machinery Planned Maintenance and Condition Monitoring. The descriptive note will indicate that equipment, procedures and documentation are in place to monitor, control and review the output from machinery maintenance systems using Predictive Techniques. The requirements of *Pt 5, Ch 21 Requirements for Condition Monitoring and Condition-Based Maintenance Systems* are applicable.

RBM This ShipRight descriptive note (Risk Based Maintenance) will be assigned where an Owner operates, as part of the Continuous Survey Machinery (CSM) cycle, a Machinery Planned Maintenance Scheme based on the use of Risk Based Maintenance (RBM) which is approved in accordance with LR's ShipRight Procedures for Machinery Planned Maintenance and Condition Monitoring. The descriptive note will indicate that procedures and documentation are in place to control and record the inspection and maintenance routines of machinery and equipment based on the output from a Risk Based study. The Scheme is to be based on a risk assessment and an RBM In-Service Inspection Plan, both approved by LR.

RCM This ShipRight descriptive note (Reliability Centred Maintenance) will be assigned where an Owner operates, as part of the Continuous Survey Machinery (CSM) cycle, Machinery Planned Maintenance Scheme based on the use of Reliability Centred Maintenance which is approved in accordance with LR's ShipRight Procedures for Machinery Planned Maintenance and Condition Monitoring. The descriptive note will indicate that procedures and documentation are in place to control and record the inspection and maintenance routines of all machinery and equipment in the ship, and that they are based on acceptable and applicable methodology.

VECS This ShipRight descriptive note (Vapour Emission Control System) will be assigned to a ship that has a vapour emission control system fitted which has been designed and constructed in accordance with the requirements of USCG 46, CFR 39 or the IMO Standards for Vapour Emission Control Systems (MSC Circular 585).

VECS-L This ShipRight descriptive note (Vapour Emission Control System – Lightering) will be assigned to a ship that has a vapour emission control system that complies with the requirements for the **VECS** Descriptive Note and which has also been designed and constructed to meet the requirements for vapour balancing in accordance with USCG 46, CFR 39.40 for service vessels. If a ship has been assigned the **ECO** notation then it will not be eligible for the **VECS-L** Descriptive Note. Instead, **VECS** for lightering will be referenced in the **ECO** notation, i.e. **ECO(VECS-L)**.

HCD1() This ShipRight descriptive note (Human-Centred Design Level 1) will be assigned when the development and operation of specified ship system(s) has been carried out in accordance with the process for 'Level 1 – Reactive' detailed in the *ShipRight procedure for Human-centred Design*. The names of the systems which meet the requirements will be listed as a suffix to the character, e.g. **HCD1**(mooring area, ECDIS).

2.8.3 Where an approved loading instrument is provided as an Owner's requirement, a descriptive note **LI** may be entered in column 6 of the *Register Book*, *see also Pt 1, Ch 2, 2.3 Class notations (hull) 2.3.16*.

2.8.4 Where container securing arrangements are designed and constructed in accordance with *Pt 3, Ch 14 Cargo Securing Arrangements*, but where the Initial and Periodical Survey requirements for loose fittings are not requested, the ship will be eligible to be assigned the descriptive note **CSA** (container securing arrangement) and for an entry to be made in column 6 of the *Register Book*.

2.8.5 **EDD**. Vessel is eligible for the Owner/Operator to apply to the Flag Administration for the vessel to be placed on a pilot Extended Dry-Docking regime. The relevant Flag Administration may elect to impose requirements additional to those defined as per this descriptive note. Vessels are to comply with the LR Guidance notes on Extended Dry- Dockings.

2.8.6 **STV**. Where a sailing vessel is used for the offshore training of cadets or trainee seamen, a sailing training vessel **STV** descriptive note may be entered in column 6 of the *Register Book*.

2.8.7 **GR**. Assigned to ships other than LNG carriers, detailing the aspects of design and construction that are prepared for gas fuel operation in accordance with LR's Rules and Regulations in force on the date of 'contract for construction'. If a ship has been assigned the **LFPF(GF, NG)** notation then it will not be eligible for the **GR** descriptive note. The descriptive note **GR**, with the extension of one or more of the following associated characters shown in brackets, may be entered in column 6 of the *Register Book*.

A	The design of the gas fuel system has been approved in principle.
S	Enhanced structural reinforcement and appropriate materials have been fitted to support the proposed gas storage tank.
T	Fuel storage arrangements installed in accordance with an approved design.
P	Gas fuel piping arrangements installed in accordance with an approved design.
E	Engineering systems have been installed in accordance with an approved design. Additional letters will be assigned in brackets to identify which items may be gas-fuelled: **M** = main engine(s) **A** = auxiliary engines **B** = boiler **I** = incinerator

See LR's *Rules and Regulations for the Classification of Ships using Gases or other Low-flashpoint Fuels*, *2 General* for further detail.

2.8.8 **EGCS-R()**. Assigned to ships with the extension of one or more of the following associated characters shown in brackets, detailing the aspects of design and construction that are prepared for installation of SO_x emissions abatement plant for combustion machinery in accordance with LR's Rules and Regulations in force on the date of 'contract for construction' (*see Pt 5, Ch 24, 1.2 Class notation and descriptive note 1.2.1* to *Pt 5, Ch 24, 1.2 Class notation and descriptive note 1.2.3* for more information):

A Preliminary assessment of the proposed SO_x emissions abatement plant including its arrangement on board has been completed satisfactorily;

S Enhanced structural reinforcement and structural modifications necessary for the function of the proposed SO_x emissions abatement plant have been fitted under survey;

T The relevant tank(s) needed for operation of the proposed SO_x emissions abatement plant (e.g. chemical and/or residue storage tanks as applicable) have been installed under survey.

2.8.9 **EGCN-R().** Assigned to ships with the extension of one or more of the following associated characters shown in brackets, detailing the aspects of design and construction that are prepared for installation of NO_x emissions abatement plant for combustion machinery in accordance with LR's Rules and Regulations in force on the date of 'contract for construction' (*see Pt 5, Ch 24, 1.2 Class notation and descriptive note 1.2.4* to *Pt 5, Ch 24, 1.2 Class notation and descriptive note 1.2.6* for more information):

A Preliminary assessment of the proposed NO_x emissions abatement plant including its arrangement on board has been completed satisfactorily;

S Enhanced structural reinforcement and structural modifications necessary for the function of the proposed NO_x emissions abatement plant have been fitted under survey;

T The relevant tank(s) needed for operation of the proposed NO_x emissions abatement plant (e.g. chemical tanks) have been installed under survey in accordance with approved design.

2.9 Application notes

2.9.1 **Propelling and essential auxiliary machinery** includes machinery, equipment and systems installed for the ship to be under seagoing conditions and that are necessary for the following:

(a) Maintaining the watertight and weathertight integrity of the hull and spaces within the hull.
(b) The safety of the ship, machinery and personnel on board.
(c) The functioning and dependability of propulsion, steering and electrical systems.
(d) The operation and functioning of control engineering systems for the monitoring and safety of propulsion and steering systems.
(e) The operation and functioning of emergency machinery and equipment.

2.9.2 **Manufacturer's certificate** for assignment of the [✠] **LMC** notation. Acceptance of the manufacturer's certificate for items of machinery for propulsion (including propulsion gearing with single input/output arrangements) and for electrical power generation and for other auxiliary machinery for essential services is subject to the following:

(a) The ship is a cargo ship of less than 500 gross tonnage or is a ship of 500 gross tonnage or greater and is not required to comply with international conventions applicable to a ship with unrestricted service.
(b) Propulsion power is provided by engines or gas turbines which have been type approved in accordance with LR requirements for marine application.
(c) Electrical power is provided by generators driven by engines or gas turbines which have been type approved in accordance with LR requirements for marine application.
(d) The design and manufacture standards for all machinery and associated engineering systems are the applicable LR Rules.
(e) The machinery and equipment is manufactured under a recognised quality control system.
(f) Propellers, propulsion shafting and multiple input/output gearboxes are not included within the scope of propulsion arrangements for acceptance of a manufacturer's certificate.

2.9.3 **Manufacturer's certificate** for assignment of the **MCH** notation. Acceptance of the manufacturer's certificate for propelling and essential auxiliary machinery is subject to the following:

(a) The ship is a cargo ship of less than 500 gross tonnage or is a ship of 500 gross tonnage or greater and is not required to comply with the international conventions applicable to a ship with unrestricted service.
(b) Propulsion power is provided by engines or gas turbines which have been type approved in accordance with LR requirements for marine application.
(c) Electrical power is provided by generators driven by engines or gas turbines which have been type approved in accordance with LR requirements for marine application.
(d) The power of any prime mover is less than 2,250 kW and the cylinder bore or any engine is not greater than 300 mm.
(e) The design and manufacture standards for machinery and associated systems are the applicable LR Rules or other marine standards acceptable to LR.
(f) The machinery and equipment is manufactured under a recognised quality control system in accordance with the requirements of *Pt 5, Ch 1, 1.3 Alternative approach for product assurance*.
(g) Individual components manufactured under *Pt 1, Ch 2, 2.9 Application notes 2.9.3.(f)* are to be delivered with a manufacturer's statement confirming that the scantlings comply with the applicable LR Rule requirements.

■ *Section 3*
Surveys - General

3.1 Statutory surveys

3.1.1 The Classification Committee will act, when authorised on behalf of Governments, in respect of National and International statutory safety and other requirements for passenger and cargo ships.

3.1.2 The Classification Committee will also act, when authorised, in respect of National Safety and other requirements relating to ships used for offshore mineral exploration and exploitation.

3.2 New construction surveys

3.2.1 When it is intended to build a ship for classification with LR, constructional plans and all necessary particulars relevant to the hull, equipment and machinery, as detailed in the Rules, are to be submitted for approval before the work is commenced. Proposals for any subsequent modifications or additions to the scantlings, arrangements or equipment shown on the approved plans are also to be submitted in writing and on plans for approval.