

(19)



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Office européen des brevets



(11)

EP 0 649 326 B2

(12)

NEW EUROPEAN PATENT SPECIFICATION

(45) Date of publication and mention
of the opposition decision:
21.06.2006 Bulletin 2006/25

(45) Mention of the grant of the patent:
01.04.1998 Bulletin 1998/14

(21) Application number: **93914756.7**

(22) Date of filing: **02.07.1993**

(51) Int Cl.:
A62C 3/10 (2006.01) A62C 35/00 (2006.01)

(86) International application number:
PCT/FI1993/000282

(87) International publication number:
WO 1994/001179 (20.01.1994 Gazette 1994/03)

(54) **INSTALLATION FOR FIGHTING FIRE**

FEUERBEKÄMPFUNGSEINRICHTUNG

INSTALLATION DE LUTTE CONTRE L'INCENDIE

(84) Designated Contracting States:
**AT BE CH DE DK ES FR GB GR IE IT LI LU MC NL
PT SE**

(30) Priority: **03.07.1992 FI 923092**

(43) Date of publication of application:
26.04.1995 Bulletin 1995/17

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EP 0 649 326 B2

Description

[0001] The present invention relates to a hydraulic system for a unit, such as a ship.

[0002] In many ships a number of important regular functions are performed by means of a hydraulic system for which oil has been used as the drive medium. In those known ships a separate installation has been used for fighting fire.

[0003] US-A-4786239 discloses a pumping system for shipboard use comprising a submersible centrifugal pump driven by a high pressure hydraulic motor mounted directly on the submersible pump. The hydraulic motor is connected by a hose to a hydraulic pump which is located on deck and driven by a standby fire pump.

[0004] The aim of the present invention is to provide a hydraulic system in a unit which can also be used for fighting fire.

[0005] Accordingly, the present invention provides a hydraulic system according to claim 1.

[0006] It will of course be understood that the water employed in the system of the present invention can include certain additives, for example anti-corrosion additives. The power source of the hydraulic system is preferably a hydraulic pump having a high operating pressure and a high volume capacity. The pump is usually driven by a main power source, such as an electric generator.

[0007] In a preferred embodiment at least some of the sprinklers or spray heads are connected to a pressure line of the hydraulic system.

[0008] Some of the sprinklers or spray heads can be connected to a return line of the hydraulic system, the return line being arranged to be closed downstream of the last sprinkler or spray head when the hydraulic system is activated.

[0009] Use of the present invention means that double pipe systems and double power sources are not necessary since the same system can be utilized for fire fighting as well as for performing the regular hydraulic functions. In addition to considerable savings in installation hardware and installation work, a significant reduction in weight is also achieved; this being of particular advantage in high-speed ships.

[0010] In some cases it may be of advantage to connect at least some of the sprinklers or spray heads to the power source through at least one further line separate from the at least one line of the hydraulic system.

[0011] In such an embodiment the subsidiary lines can be utilized for performing certain additional functions essential when a fire has broken out, such as closing fire doors, driving elevators, etc.. If the regular main power source, usually an electric generator, fails in a fire, an emergency generator, often having less power than the regular generator, can be capable of providing sufficient power for fighting the fire and for performing at least a limited number of additional important functions. The main lines can then if necessary be disconnected.

[0012] The inventive concept can generally be consid-

ered to be that the same system is utilized for fire fighting in addition to other regular hydraulic functions.

[0013] Hydraulic systems in ships and the like generally have a high operating pressure, for example 100 bar or more. The use of sprinklers or spray heads disclosed in International patent application nos. PCT/FI92/00060 and PCT/FI92/00155 (publication nos. WO92/15370 and WO92/20453) is recommended. Those sprinklers and spray heads capable of operating at a high pressure provide effective fire extinguishing with small amounts of water and can be made to produce concentrated fog-like sprays having a good penetration power.

[0014] The installation of such sprinklers or spray heads in a hydraulic system is considered to fall within the normal skill of a person skilled in the art and is therefore not described in detail in the present patent application.

[0015] In an oil tanker the hydraulic system of the present invention can be utilized for spraying a fog of water droplets, having a typical diameter size of from 30 to 150 microns, into the oil tanks for fire extinguishing and cooling, respectively.

[0016] Although the invention is principally intended to be used in ships and other comparable units, the invention can also be employed in other units of which steel plants and mines are examples.

Claims

1. A hydraulic system in a unit, the hydraulic system being to drive regular hydraulic functions of the unit and including a drive medium, a power source for driving the drive medium, and a pressure line and a return line for conducting the drive medium through the hydraulic system; **characterised in that** the drive medium is water and **in that** the hydraulic system further includes sprinklers or spray heads connected to the power source via the pressure line and optionally the return line, the sprinklers or spray heads utilizing the water of the hydraulic system as a fire-extinguishing medium and being adapted to fight fire in the unit, whereby the hydraulic system can be utilised for fire fighting as well as for the regular hydraulic functions of the unit.
2. The hydraulic system as claimed in claim 1, wherein at least some of the sprinklers or spray heads are connected to the pressure line of the hydraulic system.
3. The hydraulic system as claimed in claim 2, wherein at least some of the sprinklers or spray heads are connected to the return line of the hydraulic system, the return line being arranged to be closed downstream of the last sprinkler or spray head when the hydraulic system is activated.

4. The hydraulic system as claimed in claim 1, wherein at least some of the sprinklers or spray heads are connected to the power source through at least one further line separate from the said pressure line or the said return line of the hydraulic system.
5. The hydraulic system as claimed in claim 4, wherein the at least one further line is configured to provide a number of functions in the event of a fire, such as closing fire doors.
6. The hydraulic system as claimed in claim 1, wherein the power source has an operating pressure of at least 100 bar.
7. The hydraulic system as claimed in claim 6, wherein the power source comprises a high pressure and high volume pump.

Patentansprüche

1. Hydraulisches System in einer Einheit, wobei das hydraulische System dazu dient, reguläre hydraulische Funktionen der Einheit zu betreiben, und ein Antriebsmedium, eine zum Antreiben des Antriebsmediums dienende Energiequelle sowie eine Druckleitung und eine Rückleitung enthält, die dazu dienen, das Antriebsmedium durch das hydraulische System zu leiten; **dadurch gekennzeichnet, dass** das Antriebsmedium Wasser ist, und dass zu dem hydraulischen System ferner Sprinkler oder Sprühköpfe gehören, die über die Druckleitung und optional über die Rückleitung mit der Energiequelle verbunden sind, wobei die Sprinkler oder Sprühköpfe das Wasser des hydraulischen Systems als Brandlöschmittel nutzen und zum Bekämpfen eines Brandes in der Einheit geeignet sind, wobei das hydraulische System sowohl für eine Brandbekämpfung als auch für die regulären hydraulischen Funktionen der Einheit verwendet werden kann.
2. Hydrauliksystem nach Anspruch 1, bei dem wenigstens einige der Sprinkler oder Sprühköpfe an eine Druckleitung des Hydrauliksystems angeschlossen sind.
3. Hydrauliksystem nach Anspruch 2, bei dem wenigstens einige der Sprinkler oder Sprühköpfe an eine Rückleitung des Hydrauliksystems angeschlossen sind, wobei die Rückleitung so gestaltet ist, dass sie stromabwärts des letzten Sprinklers oder Sprühkopfes zu schließen ist, wenn das Hydrauliksystem aktiviert ist.
4. Hydrauliksystem nach Anspruch 1, bei dem wenigstens einige der Sprinkler oder Sprühköpfe an die Energiequelle über wenigstens eine weitere Leitung

angeschlossen sind, die von der von der Druckleitung oder der Rückleitung des Hydrauliksystems getrennt ist.

5. Hydrauliksystem nach Anspruch 4, bei dem die wenigstens eine weitere Leitung so gestaltet ist, dass sie im Brandfalle eine Reihe von Funktionen erbringt, wie z.B. das Schließen von Brandschutztüren.
6. Hydrauliksystem nach Anspruch 1, bei dem die Energiequelle einen Betriebsdruck von wenigstens 100 bar aufweist.
7. Hydrauliksystem nach Anspruch 6, bei dem die Energiequelle eine Pumpe mit hohem Druck und großem Fördervolumen aufweist.

Revendications

1. Système hydraulique dans une unité, le système hydraulique étant destiné à entraîner des fonctions hydrauliques régulières de l'unité et comprenant un fluide moteur, une source de puissance pour entraîner le fluide moteur, et une ligne de pression et une ligne de retour pour conduire le fluide moteur à travers le système hydraulique, **caractérisé en ce que** le fluide moteur est de l'eau, et **en ce que** le système hydraulique inclut en outre des sprinklers ou des têtes de pulvérisation connectés à la source de puissance via la ligne de pression et en option via la ligne de retour, les sprinklers ou les têtes de pulvérisation utilisant l'eau du système hydraulique comme agent d'extinction anti-incendie et étant adaptés à lutter contre un incendie dans l'unité, de sorte que le système hydraulique peut être utilisé pour la lutte anti-incendie ainsi que pour les fonctions hydrauliques régulières de l'unité.
2. Système hydraulique selon la revendication 1, dans lequel au moins certains des sprinklers et ou des têtes de pulvérisation sont connectés à la ligne de pression du système hydraulique.
3. Système hydraulique selon la revendication 2, dans lequel au moins certains des sprinklers ou des têtes de pulvérisation sont connectés à la ligne de retour du système hydraulique, la ligne de retour étant agencée pour être fermée en aval du dernier sprinkler ou de la dernière tête de pulvérisation lorsque le système hydraulique est activé.
4. Système hydraulique selon la revendication 1, dans lequel au moins certains des sprinklers ou des têtes de pulvérisation sont connectés à la source de puissance via au moins une autre ligne séparée de ladite ligne de pression ou de ladite ligne de retour du système hydraulique.

5. Système hydraulique selon la revendication 4, dans lequel ladite au moins une autre ligne est configurée de manière à assurer un certain nombre de fonctions dans le cas d'un incendie, comme la fermeture des portes anti-incendie.

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6. Système hydraulique selon la indication 1, dans laquelle la source de puissance a une pression de fonctionnement d'au moins 100 bar.

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7. Système hydraulique selon la revendication 6, dans lequel la source de puissance comprend une pompe à haute pression et à volume élevé.

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