



**技术要求:**

1. 货油系统采用无缝钢管, 并在适当的位置加设管子支架, 其支架应设有防止摩擦产生火花;
2. 管子法兰连接应在1.5米以内加设接地线, 防止静电产生;
3. 货油系统所有管路的连接处应设有接地线;
4. 货油系统的所有法兰连接处应设有接地线, 并能提供接地电阻测试;
5. 货油舱内所有的传动装置在穿过甲板时应设置密封填料, 其结构应在货油舱外面更换填料。传动装置应设有指示阀门开或关的位置;
6. 货油舱在装卸油时应保持通风, 压力传感器应安装在货油舱, 货油舱应有进口及出口压力(详见电气材料);
7. 货油系统的所有传动装置及货油舱的轴系应设有密封填料, 应设置能从货油舱外部监测轴系密封填料的轴承和润滑油温度的温度传感器, 并当上述填料、轴承和润滑油温度过高时报警;
8. 对安装在货油舱内并驱动货油舱的轴系, 应设置能从货油舱外部监测轴系密封填料的轴承和润滑油温度的温度传感器, 并当上述填料、轴承和润滑油温度过高时报警;
9. 货油舱的注入管应伸入舱内, 其出口应尽可能接近舱底, 以减少静电的产生。

**Technical requirement:**

1. Cargo oil pipes are all seamless steel pipes, and to be class III pipes, which shall be installed with supports at proper position. The supports shall have cushions to avoid spark caused by friction.
2. Connection part of pipe flange shall be installed with earth wire when bolts are installed to avoid generation of static.
3. Spill oil trap shall be provided at the joint of shore tube and hose of cargo oil loading pipe.
4. Welding connection of cargo oil loading pipe shall be carried out according to approved standards, and shall be approved by the surveyor on the site.
5. Stuffing boxes are to be fitted where the operating rods for cargo valves in cargo tanks passes through the deck and to be so constructed that packing may be renewed from outside the cargo tanks. Indicators are to be provided at the operating hand wheels to show whether the valves are open or closed;
6. Liquid pump can be stopped both at the pump room and the cargo control room. The pressure sensors will transfer the signal to the cargo control room, where there are secondary pressure gauge for pump outlet and inlet (please refer to relevant electric files);
7. Materials used for the friction parts of the valves and operating rods of the cargo oil piping and of flexible coupling in shafts between the cargo pumps and the prime movers are such as to preclude the possibility of sparking while in operation;
8. Cargo pumps installed in pump room and driven by shafts passing through pump room bulkhead are to be fitted with temperature sensing devices for bulkhead shaft glands and shaft bearings of ballast pumps from outside of pump room. Alarm is to be initiated for excessive temperature of the above mentioned glands and bearings.
9. The filling pipes of cargo tanks are to be led to as low a level as practicable inside the tanks, so as to minimize the generation of static electricity.

**管带示例:**

货油管 ——— 舱底水管 ——— 消防水管 ———

Piping demonstrations:  
Cargo piping ——— Bilge water piping ——— Fire water piping ———

序号 NO.	用途 USES	材料 MATERIAL	直径 DN (mm)	外径壁厚 (mm)	钢号 STEEL NO.	长度 LENGTH (m)	重量 (kg/m) WEIGHT	备注 REMARK
11	消防水管 Fire water pipe	无缝钢管 Seamless Steel Pipe	50	60x4.0				镀锌 Galv.
10	舱底水管 Bilge water pipe	无缝钢管 Seamless Steel Pipe	50	60x4.0				镀锌 Galv.
9	舱底水管 Bilge water pipe	无缝钢管 Seamless Steel Pipe	65	76X5.5				镀锌 Galv.
8	舱底水管 Bilge water pipe	无缝钢管 Seamless Steel Pipe	65	76X7.0				镀锌 Galv.
7	货油管 Cargo oil pipe	无缝钢管 Seamless Steel Pipe	20	27X4.0				
6	货油管 Cargo oil pipe	无缝钢管 Seamless Steel Pipe	50	60x5.5				
5	货油管 Cargo oil pipe	无缝钢管 Seamless Steel Pipe	80	89x8.0				
4	货油管 Cargo oil pipe	无缝钢管 Seamless Steel Pipe	100	114x8.5				
3	货油管 Cargo oil pipe	无缝钢管 Seamless Steel Pipe	150	168x11				
2	货油管 Cargo oil pipe	无缝钢管 Seamless Steel Pipe	200	219X13				
1	货油管 Cargo oil pipe	无缝钢管 Seamless Steel Pipe	250	273X15				

**PLAN HISTORY 修改纪录**

MARKS 标记	MODIFICATION NO. 修改单号	MODIFICATION CAUSE 修改原因	PAGE NO. 页码	SIGN 签名	DATE 日期

1# 货油泵容量: 350m<sup>3</sup>/h @ 0.8MPa  
 2# 货油泵容量: 350m<sup>3</sup>/h @ 0.8MPa  
 3# 货油泵容量: 350m<sup>3</sup>/h @ 0.8MPa  
 4# 货油泵容量: 350m<sup>3</sup>/h @ 0.8MPa

喷射泵容量: 15m<sup>3</sup>/h @ 0.3MPa  
 Ejector capacity: 15m<sup>3</sup>/h @ 0.3MPa  
 手操泵容量: 2.88m<sup>3</sup>/h @ 0.25MPa  
 Hand pump capacity: 2.88m<sup>3</sup>/h @ 0.25MPa

**管带压力试验:**

	设计 Design	中期 Workshop	装船后 After installation
货油管 Cargo piping	0.8MPa	1.32MPa	1.32MPa
舱底水管 Bilge piping	0.4MPa	0.6MPa	0.5MPa
吸入管 Suction piping	0.4MPa	0.6MPa	0.4MPa

序号 NO.	图号或标准 DRAWING NO. OR STANDARD	名称 NAME	公称口径 DN	材料 MATERIAL	数量 QTY.	工作压力 (MPa) WORK PRESS.	重量 (kg) WEIGHT (KG)	备注 Remark
35	AS6065 CB/T 3657-94	国际通岸接头 International shore joint	65	钢 Steel	1	0.6		
34	AS16065 GB/T 587-93	截止阀 Stop valve	65	青铜 Bronze	1	1.6		
33	AS16065 GB/T 588-93	止回阀 Non-return valve	200	铸钢 Cast steel	1	1.0		CCS证书 CCS CERT.
32	AS10200G 铸CB/T3591-94	截止止回阀 Stop check valve	65	青铜 Bronze	1	1.6		CCS证书 CCS CERT.
31	AS10200G 铸CB/T3591-94	闸阀 Gate valve	200	铸钢 Cast steel	7	1.0		CCS证书 CCS CERT.
30	AS200 CB/T 497-94	可拆滤器 Moveable spool	200	钢 Steel	1	0.6		
29	AS200 CB/T 497-94	过滤器 Filter	200	钢 Steel	1			
28	AS4200 CB/T 465-1995	通海阀 Sea valve	200	铸钢 Cast steel	1	0.4		CCS证书 CCS CERT.
27	AS4200 CB/T 465-1995	闸阀 Gate valve	200	铸钢 Cast iron	1	0.4		
26	BS10080 CB1153-93	膨胀接头 Expansion joint	80	组合件 Assembly	1			CCS型式认可 CCS type approval
25	BS10250 CB1153-93	膨胀接头 Expansion joint	250	组合件 Assembly	4			CCS型式认可 CCS type approval
24	AS200 CB/T 497-94	货油滤器 Cargo oil filter	250	钢 Steel	2			
23	AS200 CB/T 497-94	船用压力传感器 Marine pressure sensor	组合件 Assembly	4				CCS证书 CCS CERT.
22	-0.1~0.1MPa	船用真空压力表 Marine vacuum press. gauge	组合件 Assembly	2				带隔离阀 With isolating valve
21	0~1.6MPa	船用压力表 Marine pressure gauge	组合件 Assembly	6				带隔离阀 With isolating valve
-20	AS505 CB/T495-1995	吸入口 Suction	50	钢 Steel	2			
19	BS1050 CB 3531-94	泥箱 Mud box	50	铸钢 Cast iron	2			
18	R65 CB 3531-94	吸入滤网 Suction filter	65	钢 Steel	2			
17	R50 CB 3531-94	吸入滤网 Suction filter	50	钢 Steel	2			
16	AS6065 GB/T 590-93	截止阀 Stop valve	65	铸钢 Cast iron	6	0.6		
15	AS16050 GB/T 590-93	截止阀 Stop valve	50	铸钢 Cast iron	1	1.6		
14	RS65 CB/T 3478-92	止回阀 Non-return valve	65	铸钢 Cast iron	2	0.6		
13	AS6050 GB/T 591-93	截止止回阀 Stop check valve	50	铸钢 Cast iron	4	0.6		
12	AS1000 CB/T495-1995	吸入口 Suction	100	钢 Steel	12			
11	AS25050 GB/T 584-1999	截止阀 Stop valve	50	铸钢 Cast steel	4	2.5		CCS证书 CCS CERT.
10	AS10080G 铸CB/T3591-94	闸阀 Gate valve	80	铸钢 Cast steel	5	1.0		CCS证书 CCS CERT.
9	AS25020 GB/T 584-1999	截止阀 Stop valve	20	铸钢 Cast steel	4	2.5		CCS证书 CCS CERT.
8	AS10150G 铸CB/T3591-94	闸阀 Gate valve	150	铸钢 Cast steel	12	1.0		CCS证书 CCS CERT.
7	AS10100G 铸CB/T3591-94	闸阀 Gate valve	100	铸钢 Cast steel	2	1.0		CCS证书 CCS CERT.
6	AS10250G 铸CB/T3591-94	止回阀 Non-return valve	250	铸钢 Cast steel	2	1.0		CCS证书 CCS CERT.
5	AS10250G 铸CB/T3591-94	闸阀 Gate valve	250	铸钢 Cast steel	15	1.0		CCS证书 CCS CERT.
4	AS200Y CB/T495-1995	吸入口 Suction	200	钢 Steel	12			
3	AS100Y CB/T495-1995	吸入口 Suction	100	钢 Steel	12			
2	BS10200G 铸CB/T3591-94	闸阀 Gate valve	200	铸钢 Cast steel	10	1.0		CCS证书 CCS CERT.
1	BS10100G 铸CB/T3591-94	闸阀 Gate valve	100	铸钢 Cast steel	10	1.0		CCS证书 CCS CERT.

**NanTong Best Marine Engineering CO.,LTD**  
 南通贝斯特船舶与海洋工程设计有限公司

3500DWT PRODUCT OIL TANKER  
 3500吨 成品油船

CARGO OIL LOADING & UNLOADING PIPE SYSTEM  
 液货装卸管系原理图

DESIGNED 设计 DATE 日期  
 CHECKED 校对 DATE 日期  
 VERIFIED 审核 DATE 日期  
 APPROVED 批准 DATE 日期

REV. NO. 版本号 WEIGHT 重量 SCALE 比例  
 0 Kg NA

图号 (DWG. NO.): JSH1005-88-00  
 船号 (HULL NO.): JSH1005-88-00

设计阶段: 详细设计  
 生产设计

SHIPYARD 船厂  
 施工单号

MASTER TEL 负责人电话

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