

SYSTEM	PIPING SYSTEM CLASS:		III	HYDROSTATIC TEST PRESSURE:		4,5 Bar			
	DESIGN WORKING PRESSURE:		3 Bar	JOINTS NDT:		-			
	DESIGN WORKING TEMPERATURE:		-	PIPING MATERIAL:		STEEL			
	SYSTEM PRESSURE CLASS:		PN10	YARD SYSTEM TAG:					
PIPING SPECIFICATION	Nominal Diameter (ND)	Pipe Type	Standard	Material	Type	Standard	Rating (bar)		
	≤40	STEEL PIPES	ANSI B 36	ASTM A53 GR.B	FLANGED	EN - 1092	PN 10		
ANSI B 36 SEAMLESS STEEL PIPES	Nominal diameter		ND20	ND25	ND32	ND40	ND50	ND65	ND80
	Outer diameter		26,6	33,4	42,1	48,3	60,3	73,0	88,9
	Wall thickness, general (Schedule 40)		2,9	3,3	3,6	3,7	3,9	5,2	5,5
	Wall thickness, in tanks (Schedule 80)				4,8	5,1	5,5	7,0	7,6

- Remarks: Minimum wall thickness of pipes shall be in accordance with Part 4, Chapter 2, Table 2.2.2 of IRS Rules.
- GENERAL NOTES:**
- THIS DRAWING IS AN INDICATIVE SCHEMATIC ONLY.
 - PIPES SHALL BE SEAMLESS, GALVANIZED, SC.80 FOR FIRE LINES, PIPES WITHIN THE TANKS. FOR PIPES WHICH ARE EXPOSED/ACCESSIBLE SCH.40 CAN BE USED.
 - PENETRATION PIECE OF SCH.80 PIPE TO BE PROVIDED FOR PIPES PASSING THRU' W.T. BHD/TANKTOP/DECK.
 - MATERIAL OF OVERBOARD VALVES SHALL BE CAST STEEL AS PER RULES. HOWEVER STEEL/GREY CAST IRON MAY BE USED FOR OTHER VALVES COMPLYING TO CLASS RULES.
 - THE CASING OF PUMPS TO BE CAST BRONZE. THE TRIM OF PUMPS TO BE STAINLESS STEEL/BRONZE.
 - ALL PIPING FOR FIRE HYDRANTS SHALL BE ROUTED FROM OUTSIDE THE ACCOMMODATION.
 - SUCTION LIFT OF FWD AND AFT BILGE PUMPS SHALL NOT BE MORE THAN 7.3 m.
 - INTERNATIONAL SHORE CONNECTION, COMPLYING WITH CLASS RULES SHALL BE PROVIDED.
 - THE HYDRANT AND HOSE COUPLING SHALL BE INSTANTANEOUS TYPE.
 - HANDLE WHEELS OF SDNR VALVES SHOULD EXTEND ABOVE THE FLOOR PLATE.
 - DISTANCE PIECES BETWEEN SEA INLET VALVES/SEA CHEST PLATING AND OVERBOARD VALVES/SIDE SHELL ARE TO HAVE SUBSTANTIAL WALL THICKNESS (PREFERABLY EQUAL TO SHELL THICKNESS).
 - SEA INLET AND OVERBOARD VALVES ARE TO BE OF FLANGED TYPE AND CLASS CERTIFIED.
 - MATERIALS READILY RENDERED INEFFECTIVE BY HEAT ARE NOT TO BE USED FOR FIRE MAINS AND HYDRANTS.
 - RELIEF VALVES ARE TO BE PROVIDED IN CONNECTION WITH ALL FIRE PUMPS IF THE PUMPS ARE CAPABLE OF DEVELOPING A PRESSURE EXCEEDING THE DESIGN PRESSURE OF THE WATER SERVICE PIPES, HYDRANTS AND HOSES. THESE VALVES ARE TO BE SO PLACED AND ADJUSTED AS TO PREVENT EXCESSIVE PRESSURE IN ANY PART OF THE FIRE MAIN SYSTEM.
 - FO SERVICE TANK FOR EMERGENCY FIRE PUMP SHALL CONTAIN SUFFICIENT FUEL TO RUN THE PUMP ON FULL LOAD FOR ATLEAST 3 HRS. SUFFICIENT RESERVE FUEL SHALL BE PROVIDED TO ENABLE THE PUMP TO RUN AT FULL LOAD FOR ADDITIONAL 15 HRS.

PIPE DIMENSIONS		PUMPS CAPACITY		
Dim. main bilge pipe: (IRS SVR-2020 PT.4 CH.3 SEC.2)		Dim. main bilge pump:		
dm=1.68 √[L(B+D)+25 mm]		IRS SVR Pt.4 Ch.3 Sec.2		
dm=1.68 √[31.3(12+5.4)+25 mm]		Q = 5.75 x 10 ⁻³ x d ² [m ³ /hour]		
dm= 64.09 mm.		Q = capacity of bilge pump [m ³ /hour]		
Nearest commercial size: ND65.		d = rule diameter of bilge main [mm].		
		Q = 5.75 x 10 ⁻³ x 64.09 ² [m ³ /hour]		
		Q = 24[m ³ /hour]		
		Selected pump capacity : 35m ³ /hr		
Dim. branch bilge pipe:		Dim. main fire pump:		
db=2.15 √[C(B + D) + 25mm]		IRS Pt.6 Ch.3 Sec.4.		
dm = internal diameter of bilge main [mm];		Q _f = 4/3 x Q [m ³ /hour]		
db = internal diameter of branch bilge [mm];		Q _f = capacity of fire pump [m ³ /hour]		
L = Rule length of ship [m];		Q = capacity of bilge pump [m ³ /hour]		
B = Moulded breadth of ship [m];		Q _f = 4/3 x 24 [m ³ /hour]		
C = Length of the compartment [m];		Q _f = 32 [m ³ /hour]		
D = Moulded depth to bulkhead deck [m].		Selected pump capacity : 35m ³ /hr		

NSFI	QTY	DESCRIPTION	CAPACITY	TYPE	LOCATION
803.101.01	1	BILGE PUMP	35 m ³ /hr, 3 Bar	POSITIVE DISPLACEMENT TYPE	ENGINE ROOM
803.102.no	2	BILGE HAND PUMP	3 m ³ /hr	SEMI ROTARY	MAIN DECK
813.101.no	1	FIRE PUMP	35 m ³ /hr, 3 Bar	CENTRIFUGAL, SELF PRIMING	ENGINE ROOM
813.101.03	1	EMERGENCY FIRE PUMP	25 m ³ /hr, 3 Bar	CENTRIFUGAL, DIESEL DRIVEN	AUX. M/C ROOM

**SEE LETTER
E-125692-180626
REVIEWED**




**11-SEP-2021
PLAN ENDORSED
FOR IN-PRINCIPLE
APPROVAL**

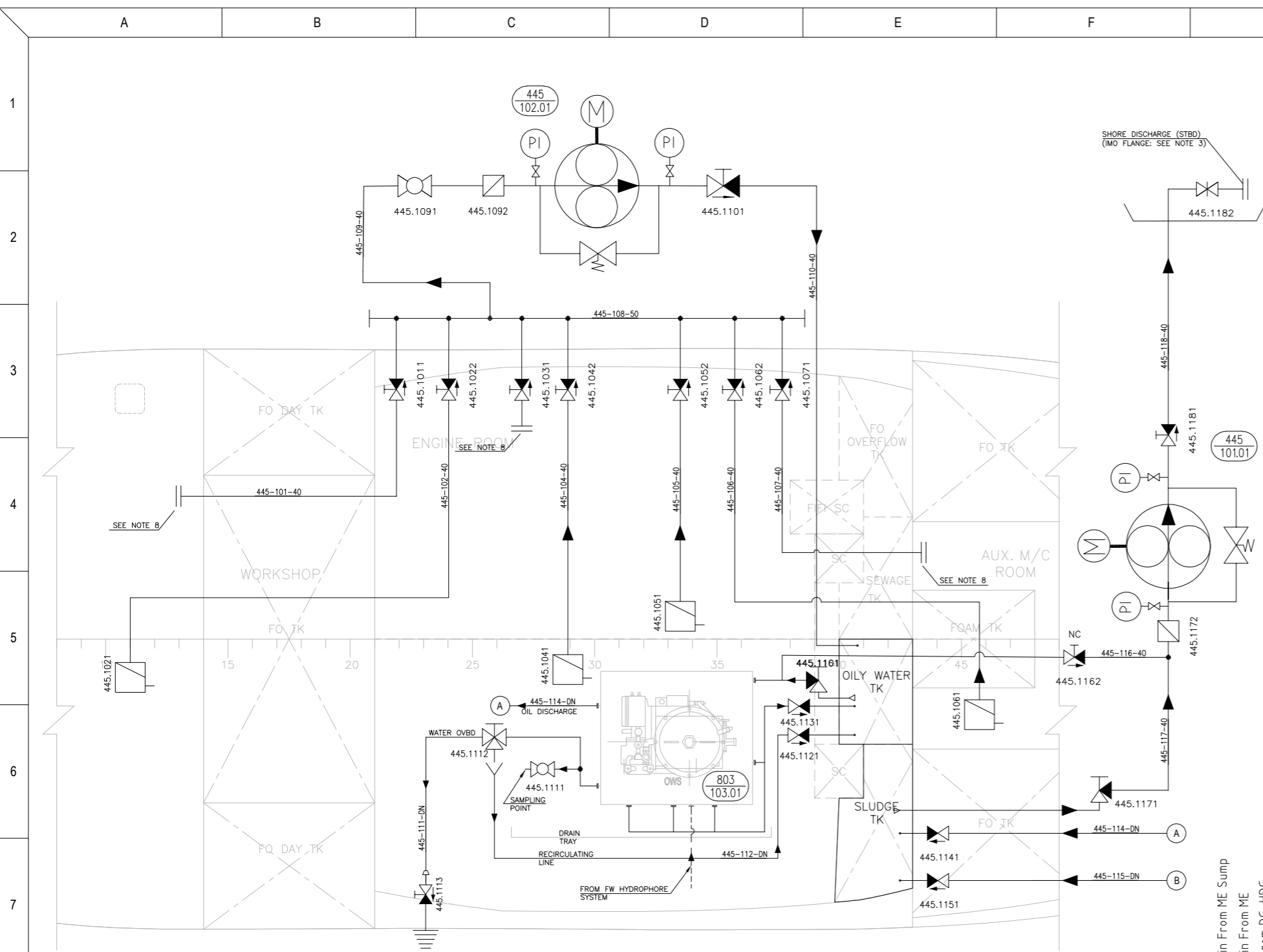
ARMATURE AND FITTINGS LEGEND				REFERENCE DRAWINGS	
Symbol	Designation	Symbol	Designation	Drawing No.	Drawing title
☒	SDNR VALVE	⊕	LEVEL ALARM HIGH	CT3370-101-001	GENERAL ARRANGEMENT
☒	NON RETURN VALVE	⊕	LEVEL SWITCH	CT3370-445-001	OILY WATER & SLUDGE OIL SYSTEM
☒	GATE VALVE	⊕	HOSE COUPLING		
☒	STRAINER	☒	BUTTERFLY VALVE		
☒	STRUM BOX	☒	FIRE HYDRANT		
☒	CENTRIFUGAL PUMP	☒	HAND PUMP		

MAIN PARTICULARS

LENGTH O.A.....	abt 33.0 [m]
LENGTH B.P.....	abt 31.3 [m]
BREADTH (MLD).....	abt 11.9 [m]
DEPTH (MLD).....	abt 5.4 [m]
DRAFT (HULL).....	abt 4.2 [m]
COMPLEMENT.....	14 PERSONS
BOLLARD PULL	70 T @100% MCR
INSTALLED POWER	abt 4100 [kW]
CLASS NOTATION.....	IRS - SWASTIKA SUL,TUG SWASTIKA IY, AGNI 1 (2400m ³ /hr)

Rev. I	30-Aug-2021	For publishing on IPA website	VKM	AK	NFC
No:	Date	Description	Drawn	Checked	Approved
ASTDS		70T BP TUG			
		TITLE			
DESIGN NO: CT3370		BILGE & FIRE SYSTEM			
 COCHIN SHIPYARD LIMITED P.O. Bag 1653, COCHIN-682015, INDIA		1:200	A3	CT3370	CT3370-803-001
		Scale	Format	Project No.	Dwg. no.

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SYSTEM	PIPING SYSTEM CLASS:	III	HYDROSTATIC TEST PRESSURE:	6 Bar
	DESIGN WORKING PRESSURE:	4 Bar	JOINTS NDT:	-
	DESIGN WORKING TEMPERATURE:	-	PIPING MATERIAL:	STEEL
	SYSTEM PRESSURE CLASS:	PN10	YARD SYSTEM TAG:	
	MEDIA FLASHPOINT:	-		

PIPING SPECIFICATION	Nominal Dia. (ND)	Piping			Connections		
		Pipe Type	Standard	Material	Type	Standard	Rating (bar)
	≤40	STEEL PIPES	ANSI B 36	ASTM A53 GR.B	FLANGED	EN 1092	PN 10
	>40/≤150	STEEL PIPES	ANSI B 36	ASTM A53 GR.B	FLANGED	EN 1092	PN 10
>200	STEEL PIPES	ANSI B 36	ASTM A53 GR.B	FLANGED	EN 1092	PN 10	
Remarks For wall thickness on pipes in general, in tanks, on weather deck and for overboard pipes see respective pipe charts.							

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	Outer diameter	26,6	33,4	42,1	48,3	60,3	73,0	88,9		
	Wall thickness, general (Schedule 40)	2,9	3,3	3,6	3,7	3,9	5,2	5,5		
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REMARKS:										

- GENERAL NOTES:**
- THIS DRAWING IS AN INDICATIVE SCHEMATIC ONLY. ALL DETAILING INCLUDING EQUIPMENT RATING, PIPE SIZE, FITTINGS MAY BE UPDATED DURING DESIGN PROGRESS.
 - MATERIAL OF OVERBOARD VALVES SHALL BE CAST STEEL/DUCTILE CAST IRON AS PER RULES.
 - SHORE DISCHARGE CONNECTION SHALL BE AS PER MARPOL ANNEX I, REG 13 FLANGE.
 - OILY WATER SEPARATOR TO BE OF TYPE APPROVED BY FLAG ADMINISTRATION IN ACCORDANCE WITH IMO RES. MEPC. 107(49) AS AMENDED.
 - THE SAMPLING POINT SHOULD BE PROVIDED IN A VERTICAL SECTION OF THE WATER EFFLUENT PIPING AS CLOSED AS IS PRACTICABLE TO THE 15PPM BILGE SEPARATOR OUTLET.
 - SLUDGE TANK CAPACITY SHALL BE IN ACCORDANCE WITH ANNEX I OF MARPOL 73/78.
 - OILY WATER SEPARATOR INSTALLED ONBOARD SHALL BE IN COMPLIANCE WITH REG. 14.6, ANNEX I OF MARPOL 73/78.
 - ONE EACH FLEXIBLE HOSE (APPROX. 8m), WITH FOOT VALVE SHALL BE PROVIDED LOOSE IN ENGINE ROOM, AUXILIARY MACHINERY ROOM AND THRUSTER ROOM.

NSFI	QTY	DESCRIPTION	CAPACITY	REMARK
445/101.01	1	SLUDGE TRANSFER PUMP	2 m³/hr, 4 Bar	SCREW/GEAR
445/102.01	1	OILY BILGE TRANSFER PUMP	2 m³/hr, 2 Bar	SCREW/GEAR
803/103.01	1	OILY WATER SEPARATOR	approx. 0.1m³/hr	O/B OIL CONTENT < 15 PPM

SEE LETTER E-125692-180626

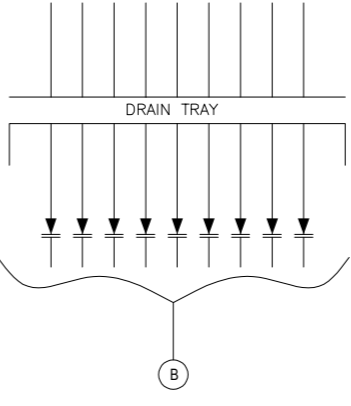
REVIEWED



11-SEP-2021

PLAN ENDORSED FOR IN-PRINCIPLE APPROVAL

- LO Drain From ME Sump
- FO Drain From ME
- Drain From DG, HDG
- From FO Transfer Pump
- From FO Filter
- Drain From LO Tanks
- Drain From FO Tanks
- From Sludge Transfer Pump
- Drain from OWS tray



MAIN PARTICULARS

LENGTH O.A.....	abt 33.0 [m]
LENGTH B.P.....	abt 31.3 [m]
BREADTH (MLD).....	abt 11.9 [m]
DEPTH (MLD).....	abt 5.4 [m]
DRAFT (HULL).....	abt 4.2 [m]
COMPLEMENT.....	14 PERSONS
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INSTALLED POWER	abt 4100 [kW]
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Rev. I	30-Aug-2021	For publishing on IPA website	VKM	AK	NFC
No:	Date	Description	Drawn	Checked	Approved

ASTDS	70T BP TUG				
DESIGN NO: CT3370	TITLE OILY WATER AND SLUDGE OIL SYSTEM				

COCHIN SHIPYARD LIMITED P.O. Bag 1653, COCHIN-682015, INDIA	1:100	A3	CT3370	CT3370-445-001
	Scale	Format	Project No.	Dwg. no.

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ARMATURE AND FITTINGS LEGEND						REFERENCE DRAWINGS		PIPE AND FITTING TAGS	
Symbol	Designation	Symbol	Designation	Symbol	Designation	Drawing No.	Drawing title	SFI CODE	PIPE NUMBER
	SDNR VALVE		3-WAY VALVE		HOPPER	CT3370-101-001	GENERAL ARRANGEMENT	XXXX	XXXX
	BALL VALVE		STRAINER		REDUCER	CT3370-803-001	BILGE & FIRE SYSTEM	XXXX	XXXX
	GATE VALVE		MUD BOX		FLANGE	CT3370-701-001	FUEL OIL SYSTEM	XXXX	XXXX
	PRESSURE RELIEF VALVE		GEAR PUMP			CT3370-711-001	LUBE OIL SYSTEM	XXXX	XXXX
	CHECK VALVE		PRESSURE INDICATOR					XXXX	XXXX
	ANGLE SDNR VALVE		ELECTRIC MOTOR					XXXX	XXXX