

## External Fire Fighting **System** (Fi-Fi System)

**External Fire Fighting System is used for , Fire Fighting Vessels, Escort Tugs, fisheries supervision vessel, Patrol vessels etc. We provides external fire fighting systems(FiFi class I/II/III systems) for all kinds of vessels.**

The Global Leader  
in Maritime Communication & Safety System

**XC** ICCT  
NETWORK SYSTEM



 **ILJIN AI**  
KEEP SAFER AND SMARTER

## FEATURE

- Forefront manufacturer of External Firefighting system in JASON since 1974.
- 100% full in-house technology, R&D from JASON Norway.
- 100% full Europe products with good quantity at competitive prices.
- FiFi ¼ to FIFI III, Deluge systems, Foam generating systems, Telescopic elevating masts - completely in accordance with class notations.
- State of the art JASON monitors has undivided waterway (single flow path) with electro & hydraulic remote control where could react to different fire condition which is good advantage to the owners/ end-users in term of durability & reliability.
- **A easy serviceable design – Maintenance friendly – all major components are easy accessible: Low lifecycle cost**

1. ILJIN AND'S Total System & Solution

2. Rule & Regulation

3. Scope of supply

4. Schematic diagram

5. Comparison table

6. Technical data (Water monitor)

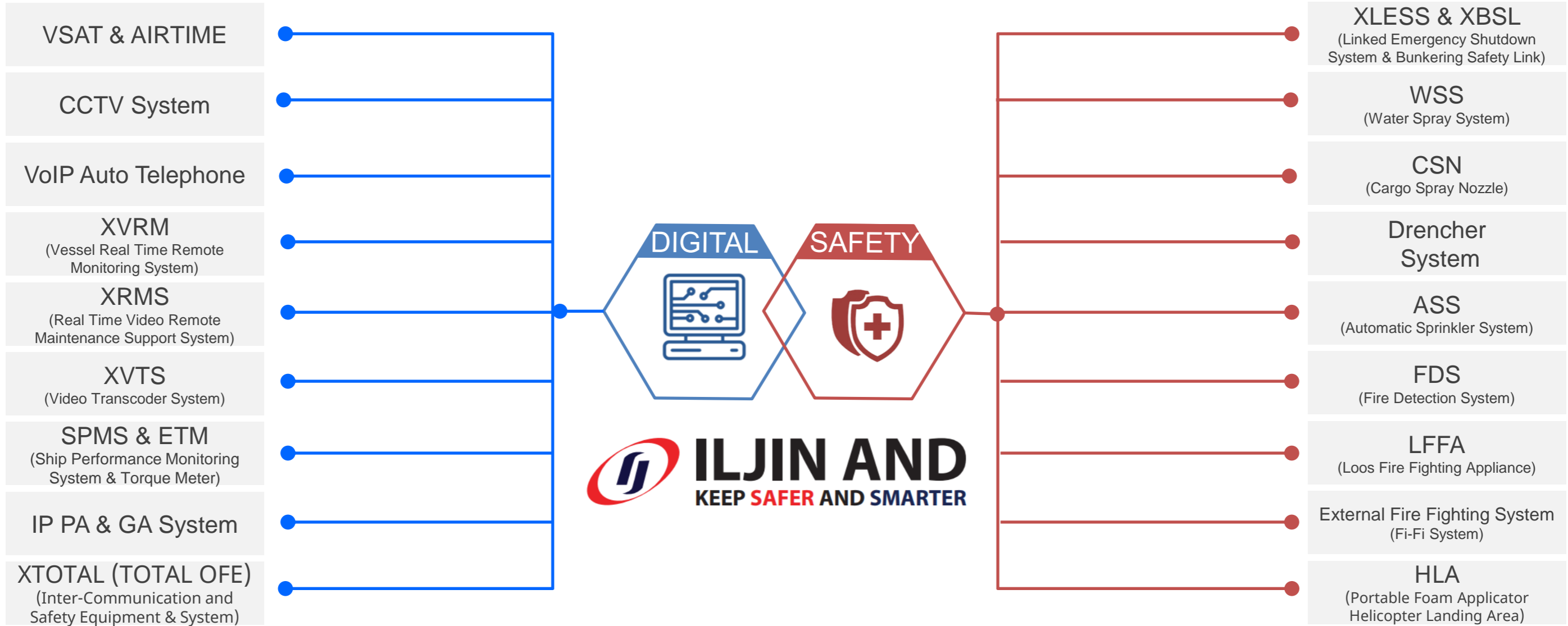
7. Video

8. System components

9. Image

10. Reference list

## “Total ICT Integration and Safety Solution Provider”

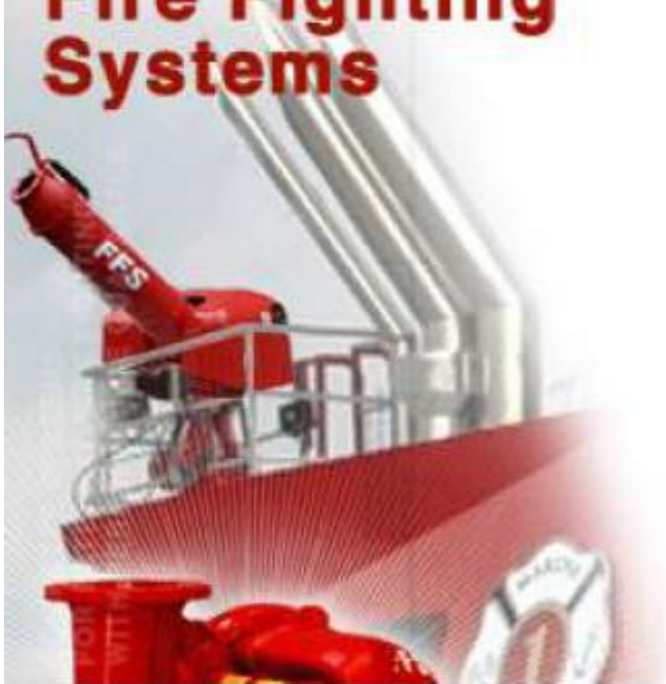


# FFS

## Fire Fighting Systems

### Design and supply of marine

### External Fire Fighting Systems



#### Fi-Fi CLASS REQUIREMENT

Fire fighter 1 ( or 2 or 3 ) are class notations granted to vessels built and equipped in compliance with the relevant class requirements. These requirements are based upon experience and an appraisal of future vessels, size of object to be protected and available fire fighting equipment.

The following matters are covered by the classification:

- The vessel's fire fighting capability.
- The vessel's stability and its ability to keep position when the fire fighting monitors are in operation.
- The vessel's ability for self protection.

Class Notation	FiFi1	FiFi2		FiFi3		
		2 (DNV)	3	4	3	4
No. of Monitors	2	2 (DNV)	3	4	3	4
Monitor capacity (m3/h)	1200	3600	2400	1800	3200	2400/ 2500
No. of Pumps	1-2	2	2-4		2	2-4
Total pump capacity (m3/h)	2400	7200	7200		9600	9600/ 10000
Throw length (m)	120	180 (from bow)	150		180 (From bow)	150
Throw height (m)	45	110 at 70m	70		110 at 70m	70

## Fi-Fi I

The class notation FiFi I means that the vessel is to be equipped with **minimum 2 fire monitors, able to throw water to a minimum distance of 120 meters from the vessel and to a height of minimum 45 meters.**

The monitors are to be remote controlled from the wheelhouse.

Since the fire pumps and related equipment are located in the engine room these are also normally remote controlled, FiFi I Systems are normally installed on Escort tugs, Fire fighting vessels etc.

## Fi-Fi II

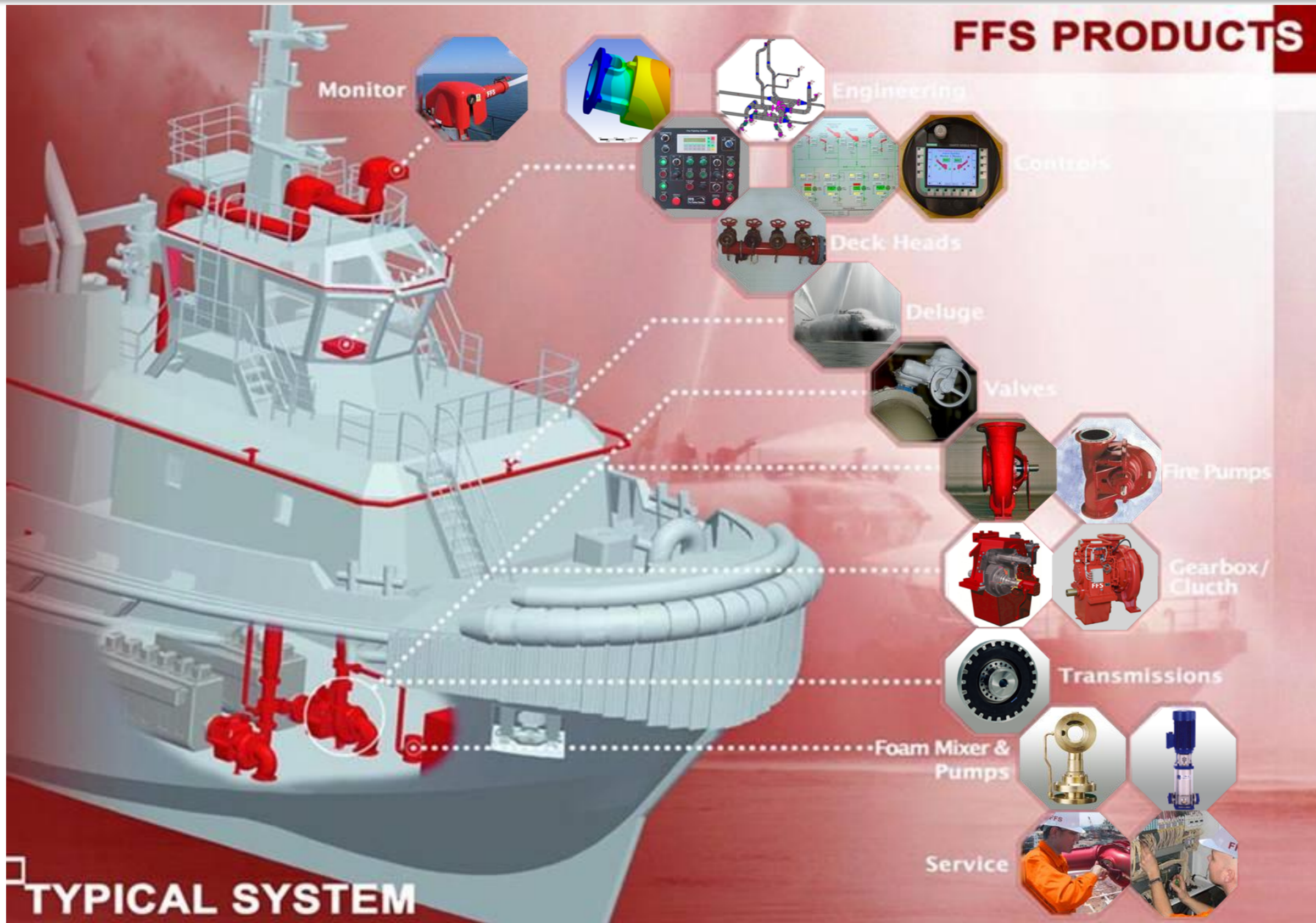
The class notation FiFi II means that the vessel is to be equipped with **minimum 2 fire monitors, (DNV rules) able to throw water to a minimum distance of 180 meters from the vessel and to a height of minimum 110 meters, or if other classification for the vessel (i.e. LRS, ABS, R.I.N.A, BV, GL etc), the vessel is to be equipped with 3 or 4 fire monitors, able to throw water to a minimum distance of 150 meters from the vessel and to a height of minimum 70meters**, Whatever configuration is chosen for the **FiFi II vessel the total water capacity shall be not less than 7200 m<sup>3</sup>/h**, The monitors are to be remote controlled from the wheelhouse, Since the fire pumps and related equipment are located in the engine room these are also normally remote controlled. FiFi II Systems are normally installed on offshore vessels like Anchor-handling tug / supply vessels, or other specialised vessels.



## Fi-Fi III

The class notation FiFi III means that the vessel is to be equipped with **minimum 3 fire monitors, (DNV rules) able to throw water to a minimum distance of 180 meters from the vessel and to a height of minimum 110 meters, or if other classification for the vessel (i.e. LRS, ABS, R.I.N.A, BV, GL etc), the vessel is to be equipped with 4 fire monitors, able to throw water to a minimum distance of 150 meters from the vessel and to a height of minimum 70 meters**, Whatever configuration is chosen for the **FIFI III vessel the total water capacity shall be not less than 9600 m<sup>3</sup>/h**, The monitors are to be remote controlled from the wheelhouse, Since the fire pumps and related equipment are located in the engine room these are also normally remote controlled. FiFi III Systems are not so common, but are normally installed **on larger offshore vessels, or other specialised vessels.**

## FFS PRODUCTS



**TYPICAL SYSTEM**

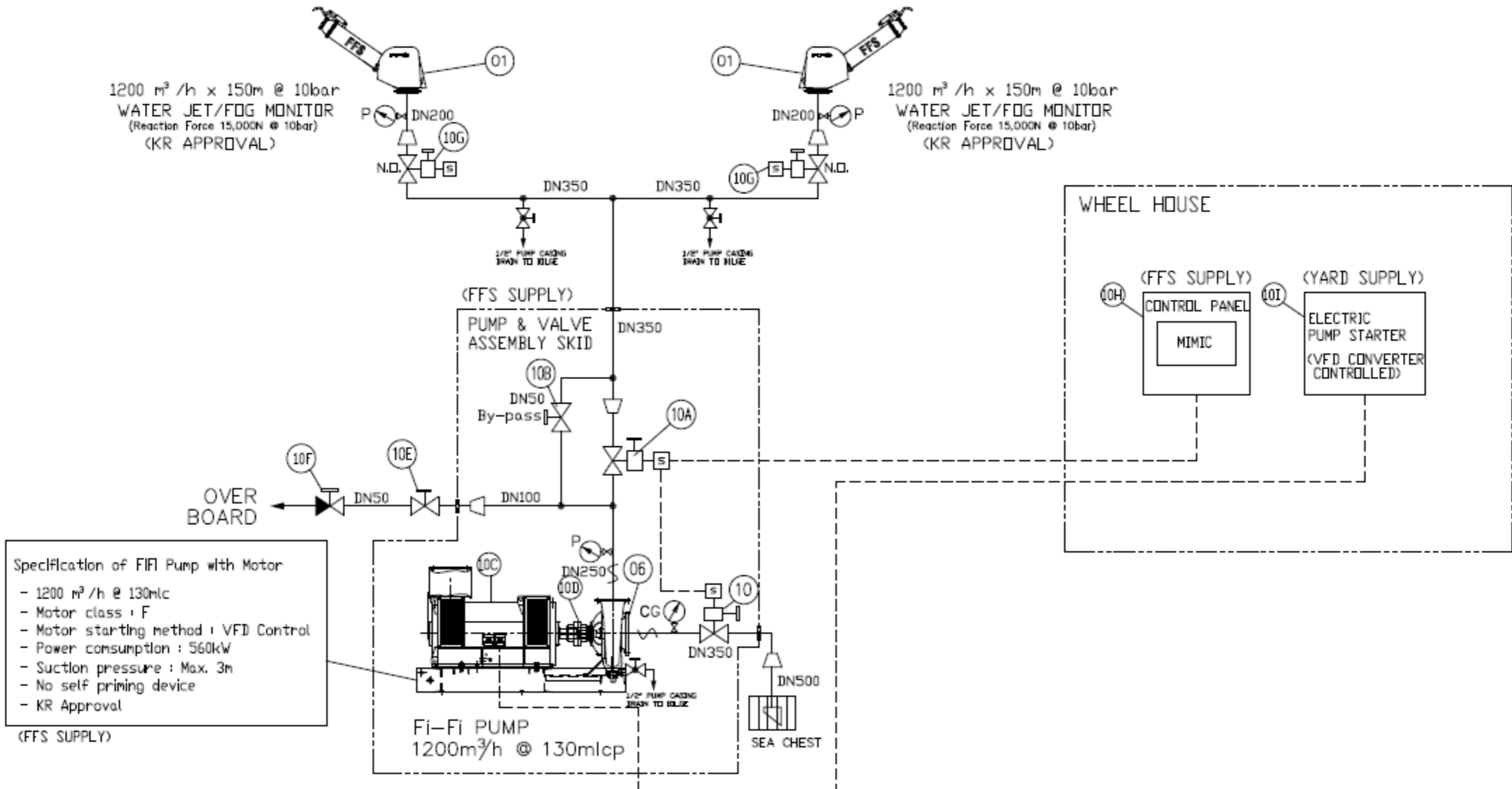
## FFS Products Designed and Made in Scandinavia



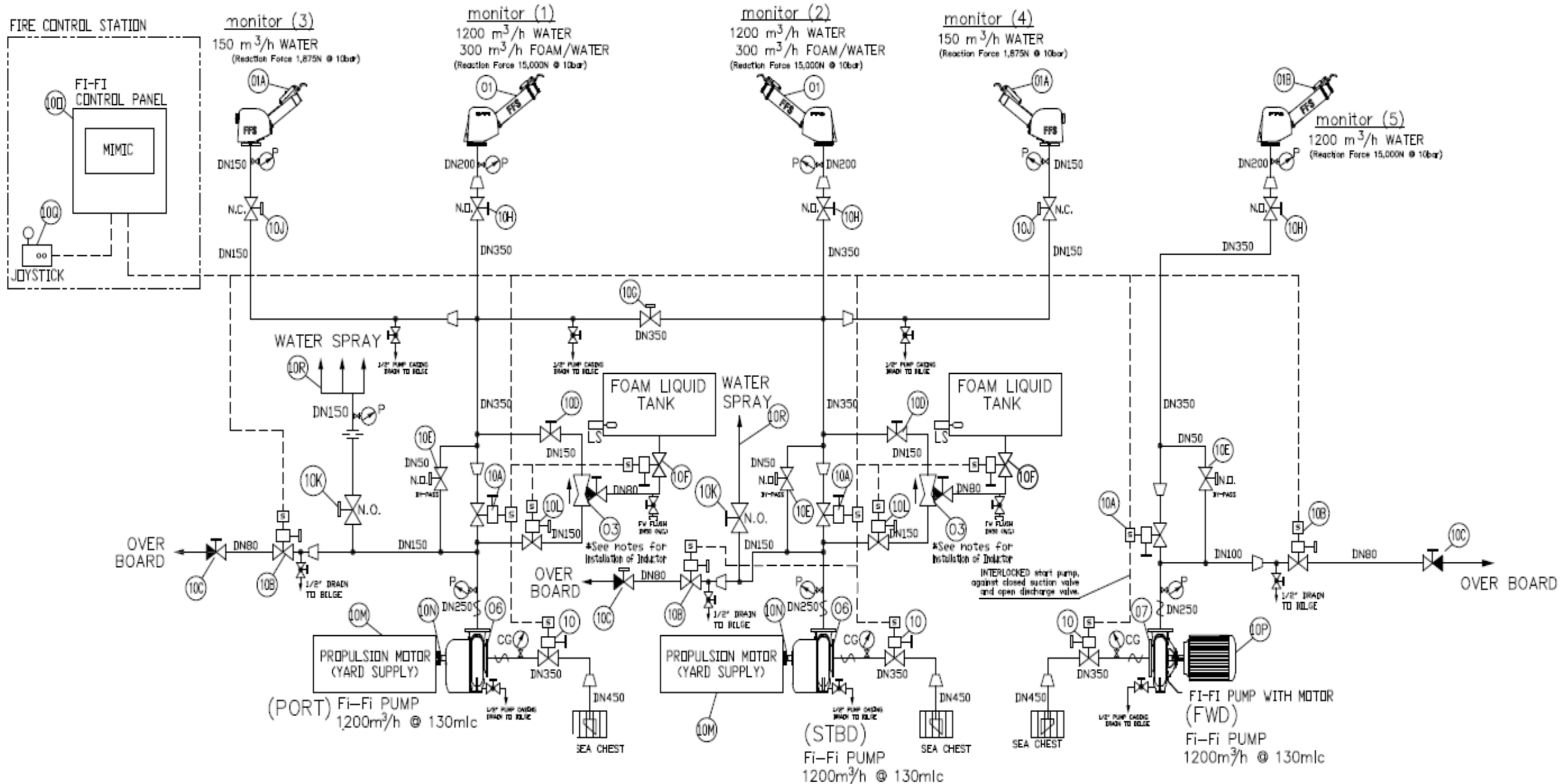
**FFS Products  
Designed and  
Made in Scandinavia**



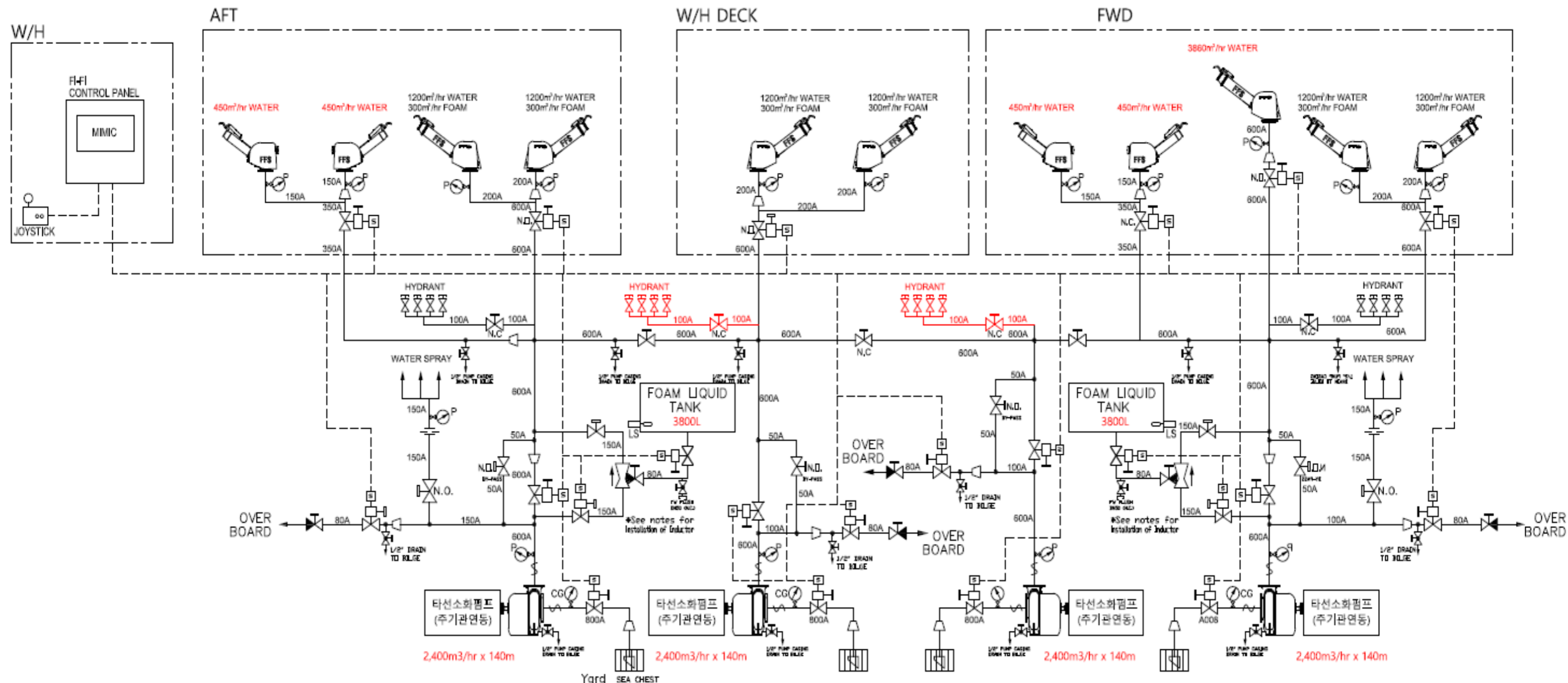
### < 어업지도선 >



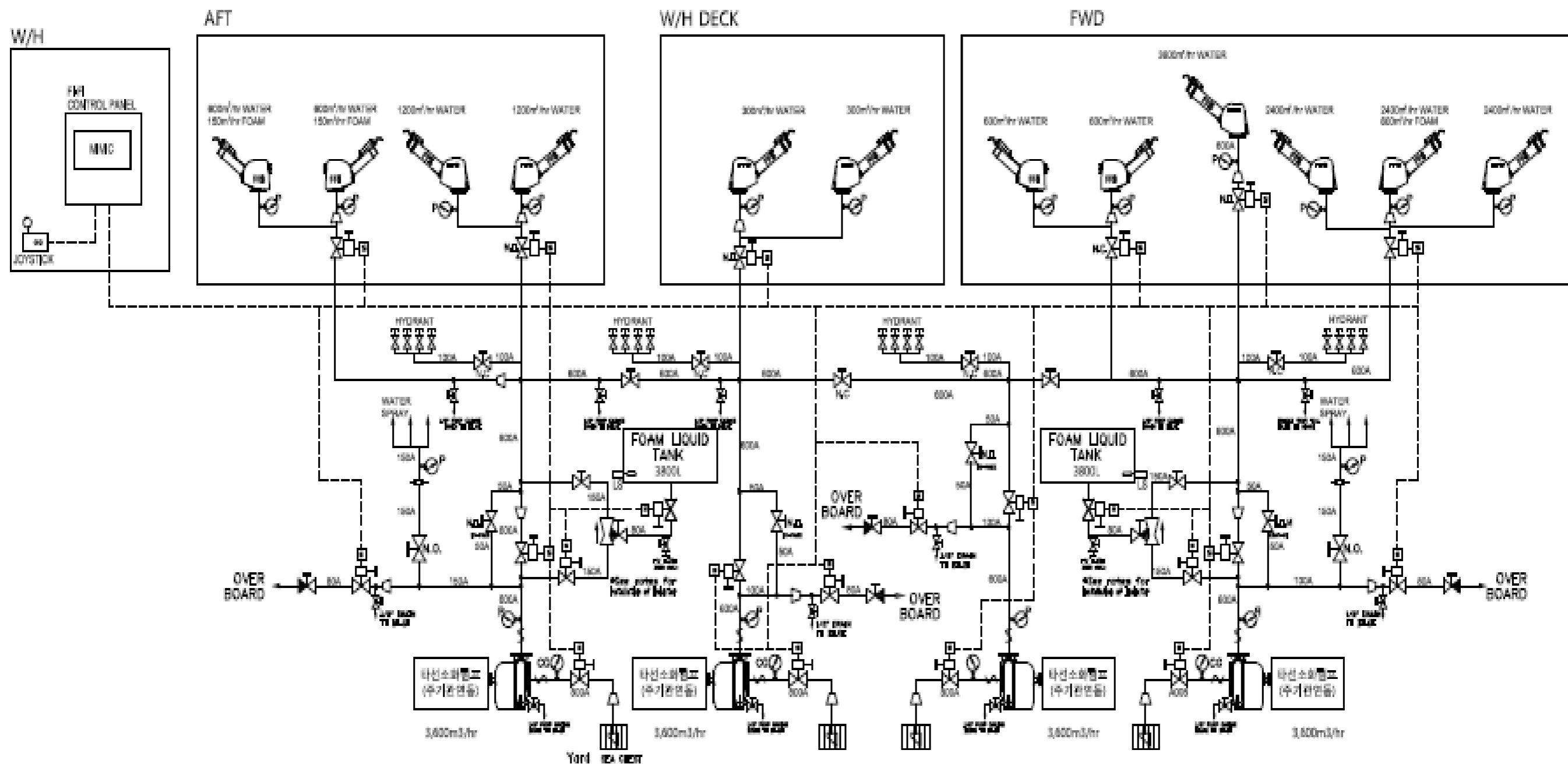
### < 해경 경비정 >





< FDNY FIREBOAT >



< SCDF FIREBOAT >



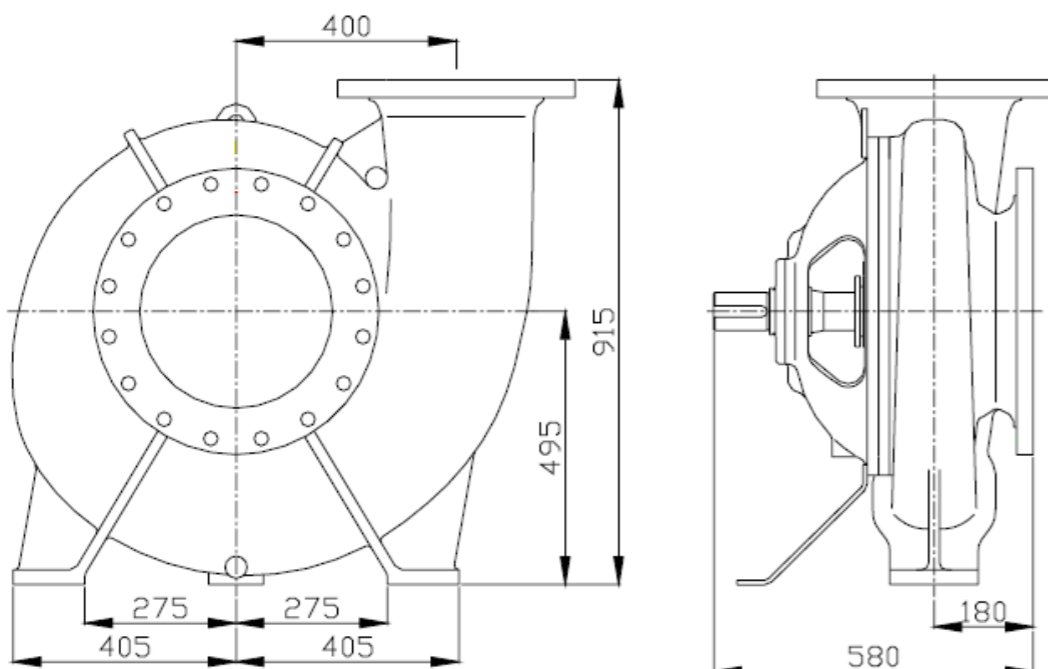


Performance Deviations for Fi-Fi System				
No.	DESCRIPTION	SCDF FIREBOAT	FDNY FIREBOAT	Remark
A	Main machinery	 <p>Main engine : 4 x 1,840kW at 1,800rpm</p>	 <p>Main engine : 4 x 1,343kW</p>	
B	<b>FIRE PUMP</b>			
-1	Capacity	<p>4 X 3600m<sup>3</sup> /hr  <b>Total Pump Capacity : 14,000m<sup>3</sup> /hr</b></p>	<p>4 X 2400m<sup>3</sup> /hr  <b>Total Pump Capacity : 9,600m<sup>3</sup> /hr</b></p>	
C	<b>FIRE MONITOR</b>			
-1	Capacity	<p>1 X 3,600m<sup>3</sup> /hr  2 X 2,400m<sup>3</sup> /hr  1 X 2,400m<sup>3</sup> /hr, 600m<sup>3</sup> /h (Foam)  2 X 1,200m<sup>3</sup> /hr  2 X 600m<sup>3</sup> /hr, 150m<sup>3</sup> /h (Foam)  2 X 600m<sup>3</sup> /hr  2 X 300m<sup>3</sup> /hr</p> <p><b>Total Q'ty : 12ea</b>  <b>Total Monitor Capacity : 16,200m<sup>3</sup> /hr</b></p>	<p>1 X 3,860m<sup>3</sup> /hr  6 X 1,200m<sup>3</sup> /hr, 300m<sup>3</sup> /hr (Foam)  4 X 450m<sup>3</sup> /hr</p> <p><b>Total Q'ty : 11ea</b>  <b>Total Monitor Capacity : 12,860m<sup>3</sup> /hr</b></p>	

업체 비교표					
구분	(K)사	(F)사	FFS	비고	
펌프	성능	<ul style="list-style-type: none"> <li>Capacity : 1200m<sup>3</sup>/h X 150m (수두)</li> <li>Speed : 1,784rpm</li> <li>NPSHr : 6.2m</li> <li>Power consumption : 622kw</li> </ul>	<ul style="list-style-type: none"> <li>Capacity : 1200m<sup>3</sup>/h X 150m (수두)</li> <li>Speed : 1,784rpm</li> <li>NPSHr : -</li> <li>Power consumption : 630kw</li> </ul>	<ul style="list-style-type: none"> <li><b>Capacity : 1200m<sup>3</sup>/h X 130m (수두)</b></li> <li>Speed : 1,750rpm</li> <li>NPSHr : 6.3m</li> <li><b>Power consumption : 539kw</b></li> </ul>	
	제원	<ul style="list-style-type: none"> <li>1080mm X 1110mm X 596mm</li> <li>무게 : Approx. 650kg</li> </ul>	<ul style="list-style-type: none"> <li>865mm X 1050mm X 580mm</li> <li>무게 : Approx. 450kg</li> </ul>	<ul style="list-style-type: none"> <li><b>810mm X 915mm X 580mm</b></li> <li><b>무게 : Approx. 420kg</b></li> </ul>	
	재질	<ul style="list-style-type: none"> <li>Casing : Ni-Al-Bronze</li> <li>Impeller : Ni-Al-Bronze</li> <li>Shaft : Stainless steel AISI329</li> <li>Seal : Mechanical Seal</li> </ul>	<ul style="list-style-type: none"> <li>Casing : Ni-Al-Bronze</li> <li>Impeller : Ni-Al-Bronze</li> <li>Shaft : AISI329</li> <li>Seal : Mechanical Seal</li> </ul>	<ul style="list-style-type: none"> <li>Casing : Ni-Al-Bronze</li> <li><b>Impeller : Duplex stainless steel</b></li> <li><b>Shaft : Duplex stainless steel</b></li> <li>Seal : Mechanical Seal</li> </ul>	
	제조범위	<ul style="list-style-type: none"> <li>별도 구매</li> </ul>	<ul style="list-style-type: none"> <li>별도 구매</li> </ul>	<ul style="list-style-type: none"> <li><b>FFS 자체 제작</b></li> </ul>	
모니터	성능	<ul style="list-style-type: none"> <li>Capacity : 1200m<sup>3</sup>/Hr(water) 300m<sup>3</sup>/Hr (foam)</li> <li>Throw length : Approx. 150m @13bar (water) Approx. 60m @15~17bar (foam)</li> <li>Rotation : +170° ~ -170°</li> <li>Elevation : -30° ~ +75°</li> </ul>	<ul style="list-style-type: none"> <li>Capacity : 1200m<sup>3</sup>/Hr(water) 300m<sup>3</sup>/Hr (foam)</li> <li>Throw length : Approx. 150m @13bar (water) Approx. 50m @13bar (Foam)</li> <li>Rotation : +170° ~ -170°</li> <li>Elevation : -30° ~ +75°</li> </ul>	<ul style="list-style-type: none"> <li>Capacity : 1200m<sup>3</sup>/Hr(water) 300m<sup>3</sup>/Hr (foam)</li> <li><b>Throw length : Approx. 150m @10bar (water) Approx. 75m @10bar (Foam)</b></li> <li>Rotation : 300° (Option 360°)</li> <li>Elevation : -20° ~ +85°</li> </ul>	
	제원	<ul style="list-style-type: none"> <li>2474mm X 1370mm X 1090mm</li> <li>무게 : Approx. 490kg</li> </ul>	<ul style="list-style-type: none"> <li>1520mm X 1115mm X 1160mm</li> <li>무게 : Approx. 180kg</li> </ul>	<ul style="list-style-type: none"> <li>1440mm X 1315mm X 1061mm</li> <li>무게 : Approx. 180kg</li> </ul>	
	재질	<ul style="list-style-type: none"> <li>Waterway : SUS316 &amp; ALBC3</li> <li>Gear box : SC480</li> <li>Water/Foam Nozzle : SUS304 &amp; SUS316</li> </ul>	<ul style="list-style-type: none"> <li>Waterway : Bronze and high grade SS</li> <li>Gear box : Nodular cast iron</li> <li>Water/Foam Nozzle : Bronze and high grade SS</li> </ul>	<ul style="list-style-type: none"> <li><b>Waterway : Ni-Al-Bronze</b></li> <li><b>Gear box : Ni-Al-Bronze</b></li> <li><b>Water/Foam Nozzle : Ni-Al-Bronze</b></li> </ul>	



## Dimensions



## Technical data

Pump weight

420 kg

Direction of rotation

CW and CCW

**Pump casing materials** Standard

Standard: Nodular cast iron

Optional: Stainless steel **and nickel-aluminium-bronze**

**Impeller and pump shaft**

**Duplex stainless steel**

Shaft seal

Standard: Gland packing

Optional: Mechanical seal

Static seal

Moulded O-ring

Wear rings

Renewable wear rings in pump casing and pump cover

Coating

External red colour coating (RAL 3002)

Static pressure

testing 24 bar for all pressure exposed parts

Performance testing

All pumps individually tested

Pump head/capacity curve

Each curve based upon factory testing

Nominal speed

1800 rpm

Nominal capacity

1641 m<sup>3</sup>/h

Nominal head

140 mlc

Inlet flange

DN350/PN16 (DIN 2526 Form A)

Outlet flange

DN250/PN25 (DIN 2526 Form A)

	Rev. Design change	Date	Sign.	Checked
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**View Y**

**FiFi Pump SFP250x350 HD**

**Tooth Coupling MT-125**

**Electric Motor C3W 400 LX 4 B3**

**View X**

Pump flanges		
Corresponding: ISO 2084		
	N(size)	PN(bar)
Suction	ø350	16
Discharge	ø250	25

Material key for skid  
DIN / RSt. 37-2  
EN / S235JRG2  
ASTM / A284C

**Design data:**  
Location: T B A  
Pump cap. 1200 m3/h at 130m head  
Rated power : 560kW  
Input speed, n1: 1790 rpm  
Weight : Approx. 3300kg total  
Direction of rotation seen towards input shaft of pump: CW

2 x earth bar M12 bolt – diagonally mounted on skid

6x ø34 M30 Bolts to be used. Grade 8.8 or better. Shim any gap larger than 0,5mm.

**NOTE:**  
IF INCLUDED IN SKID MANUFACTURER'S SCOPE TO ASSEMBLE COMPONENTS HEREIN;  
– THIS COMPANY MUST APPLY GREASE TO TOOTH COUPLING ACC. TO RELEVANT INSTRUCTIONS AFTER ALIGNMENT!

Final on-site alignment check must be done by customer acc. to FFS instructions

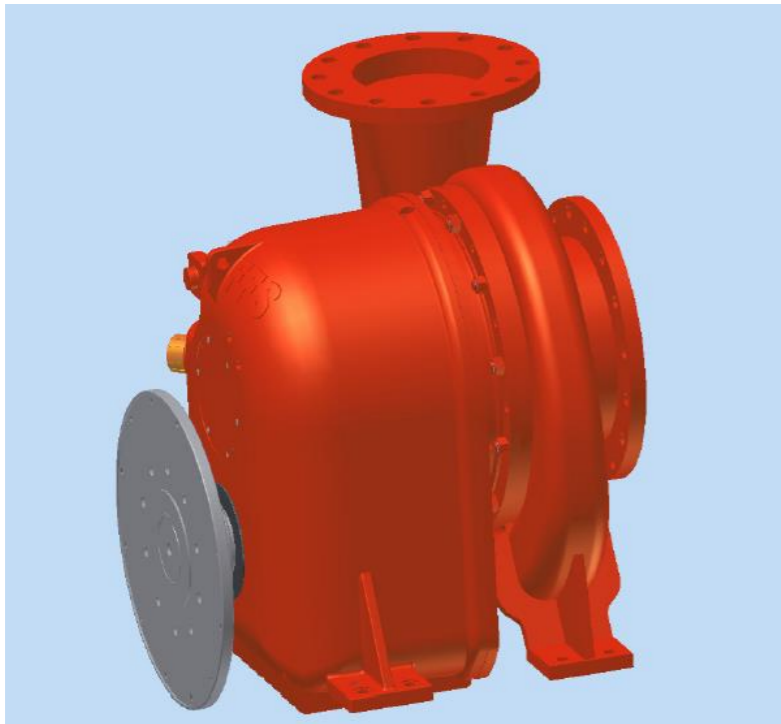
All views show only motor's approximate outline. Refer to motor vendor's drawings for info.

PRELIMINALY

**3D sketch view**

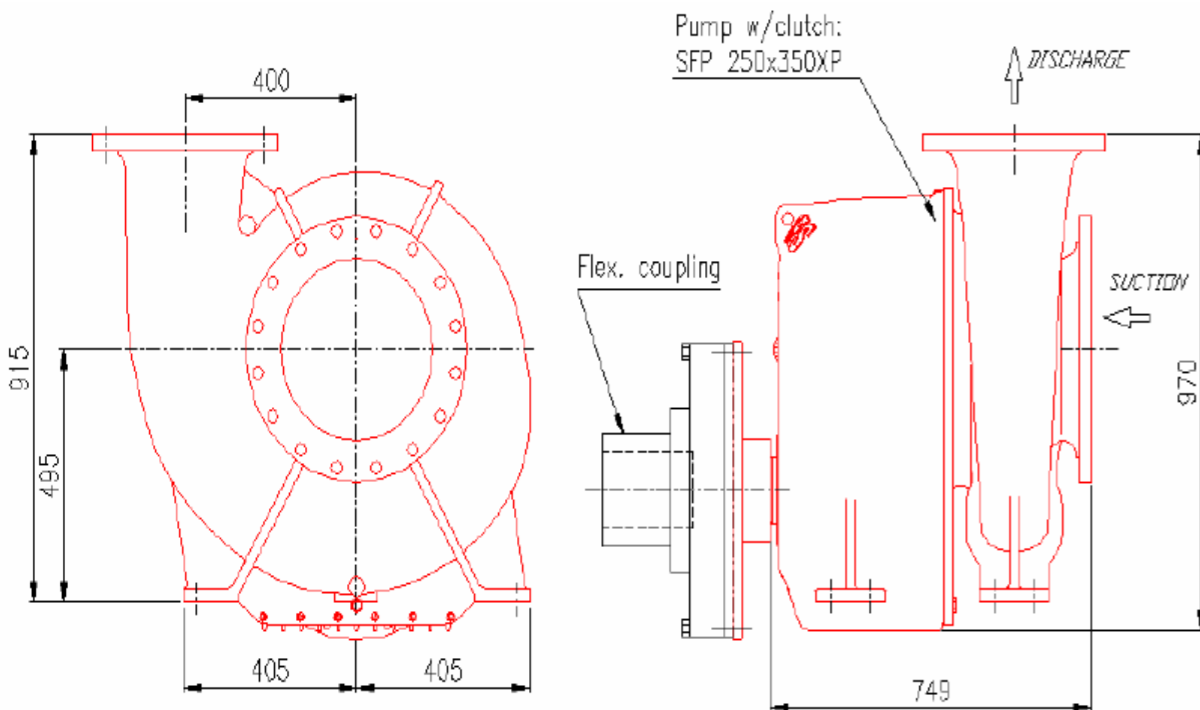
Customer:	Revised Date:	Issued by:	Approved by:	Projection:	
	00 02.09.2013	BSI	RS		
Mail no:	Description:			Drawing no:	
	PUMP SKID W.EL.MOTOR Engineroom arrangement			E253R	
Project no:	System:	Place of issue:	Scale:	Origin:	
	External Fr-Fi	Moss	1:12	A2	



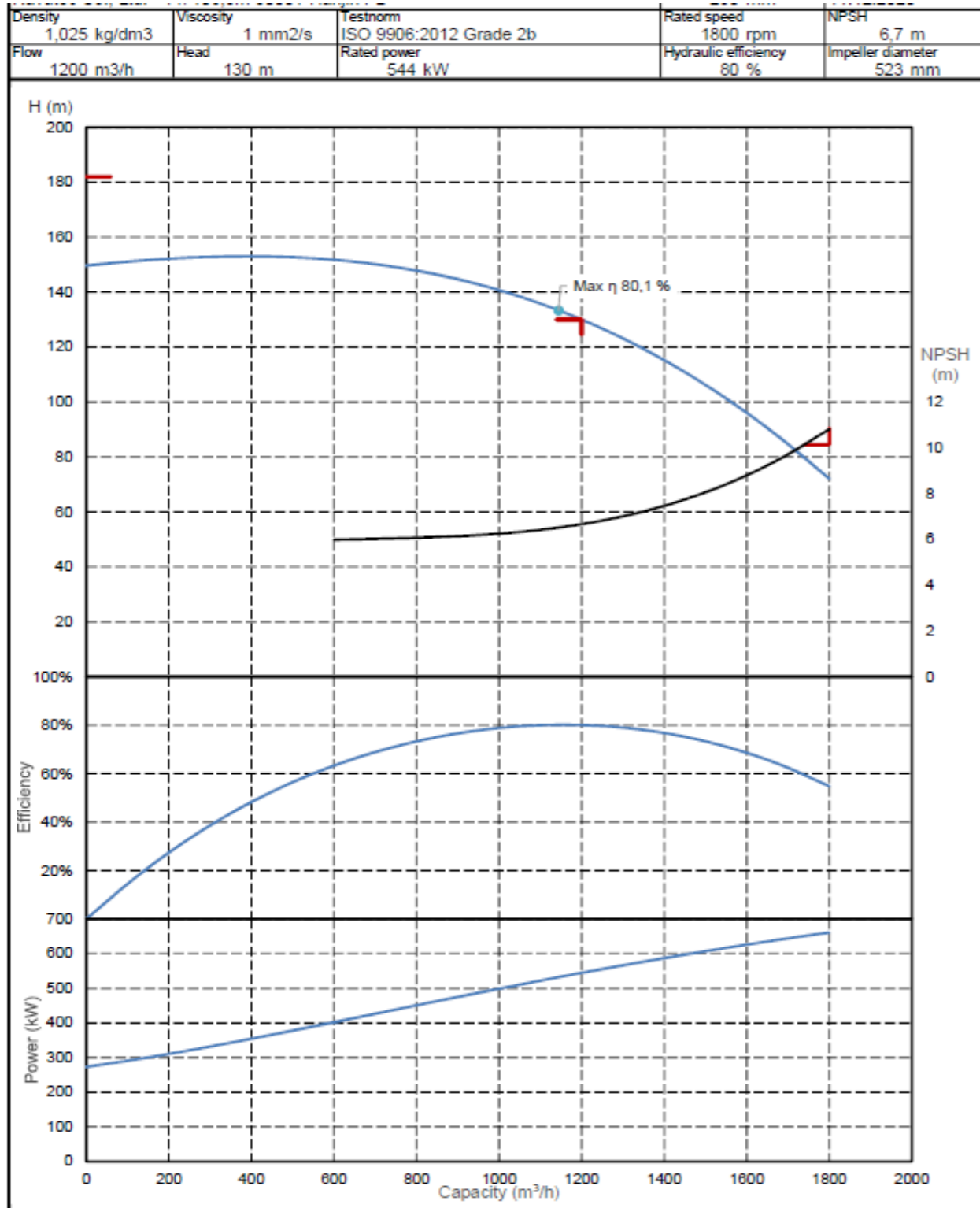
## Technical data

Product name	SFP 250X350XP
Max nom. Capacity	1850m <sup>3</sup> /h at 166m
Max nom. Torque in	135000Nm
Driven speed	Project specified
Weight total	900kg
Power supply solenoid	24Vdc
Pump Casing	Nodular cast iron
<b>Impeller</b>	<b>Duplex stainless steel</b>
<b>Shaft water exposed</b>	<b>Duplex stainless steel</b>
Shaft seals	Non-leaking-seals
Wear rings	Bronze, renewable
Coating	External red (RAL 3002)
Inlet flange	DN350/PN16 (DIN2626-A)
Outlet flange	DN250/PN25 (DIN2626-A)
Static test pressure	24bar for water exposed parts
Pump head/Capacity	Curve based on individual factory test

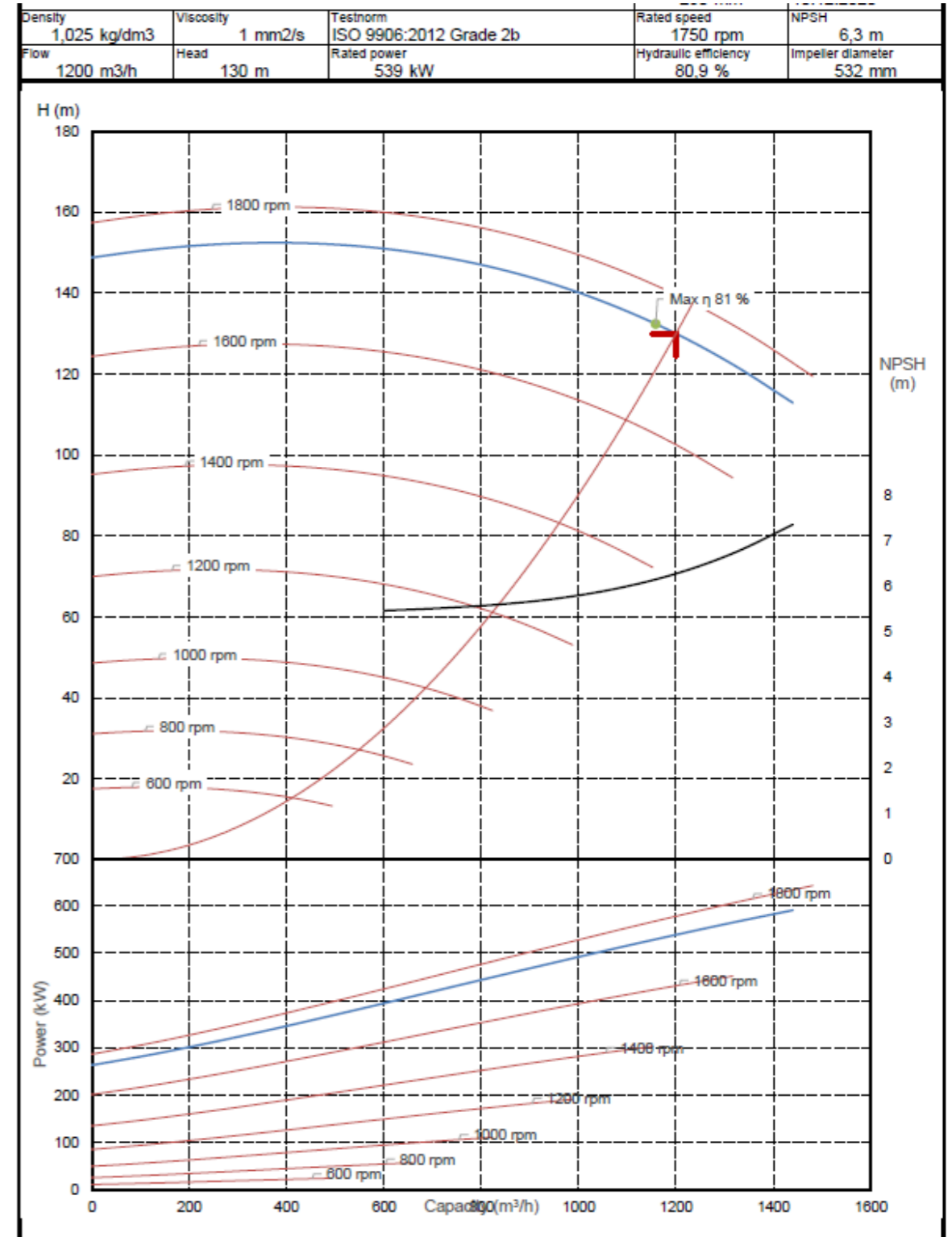
### Dimensions



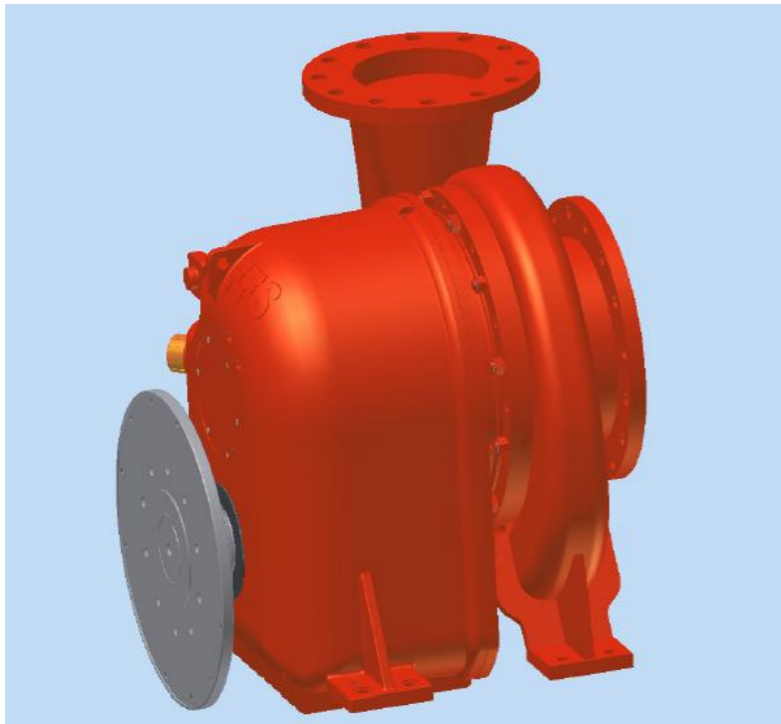
# Pump performance curve (SFP 250x350HD)



FFS Pump Selector 1.1.9 2020-11-24



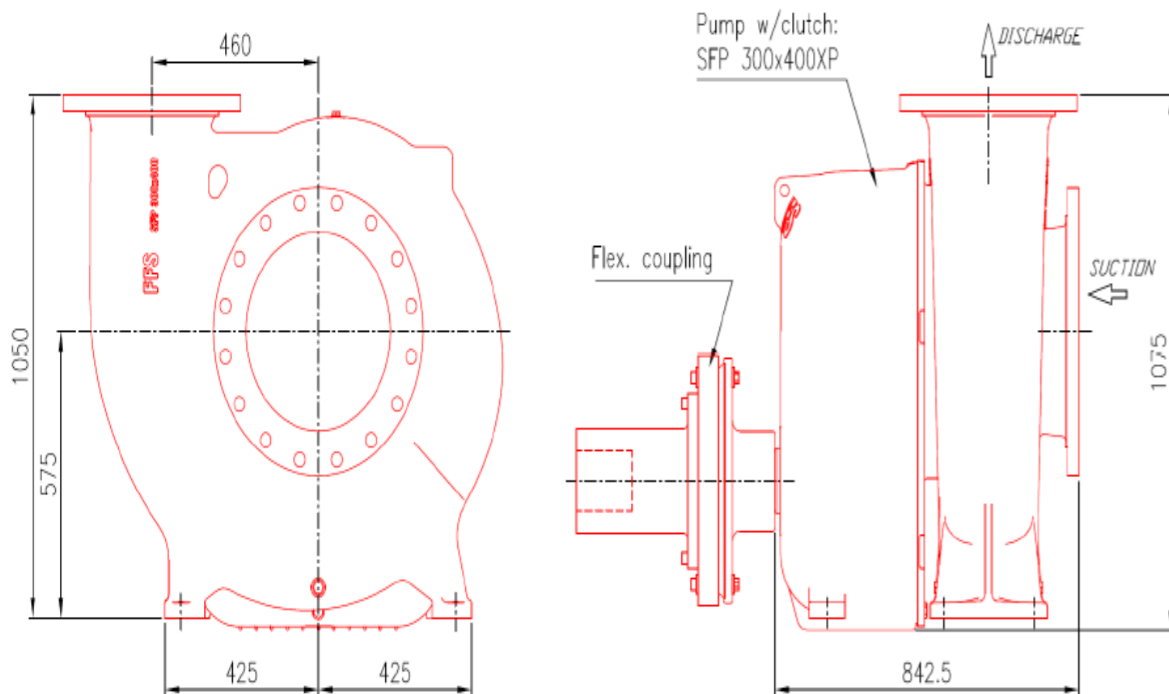
FFS Pump Selector 1.1.9 2020-11-24

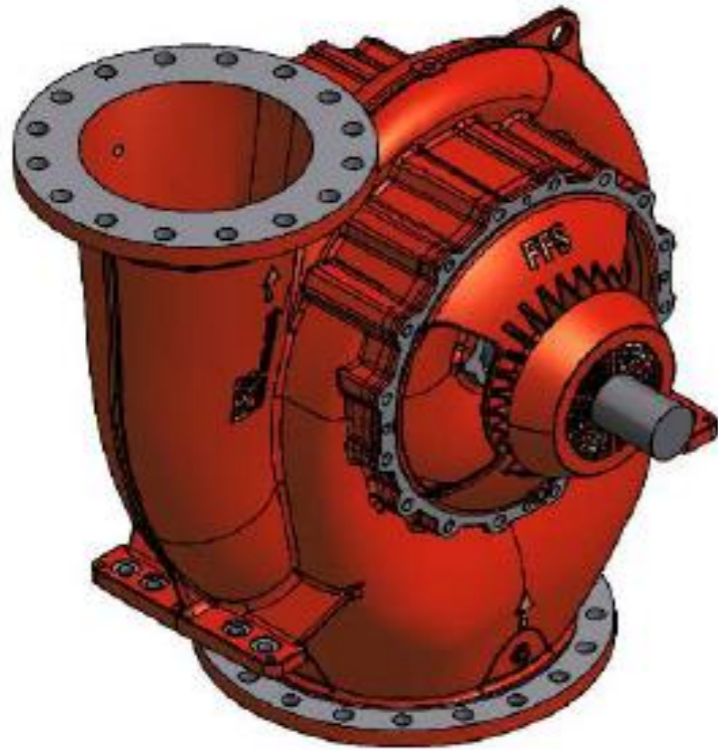


## Technical data

Product name	SFP 300X400XP
Max nom. Capacity	<b>2804m<sup>3</sup>/h at 155m</b>
Max nom. Torque in	19000Nm
Driven speed	Project specified
Weight total	1250kg
Power supply solenoid	24Vdc
Pump Casing	<b>Nickel-aluminium-bronze</b>
Impeller	<b>Duplex stainless steel</b>
Shaft water exposed	<b>Duplex stainless steel</b>
Shaft seals	Non-leaking-seals
Wear rings	Bronze, renewable
Coating	External red (RAL 3002)
Inlet flange	DN350/PN16 (DIN2626-A)
Outlet flange	DN250/PN25 (DIN2626-A)
Static test pressure	24bar for water exposed parts
Pump head/Capacity	Curve based on individual factory test

### Dimensions

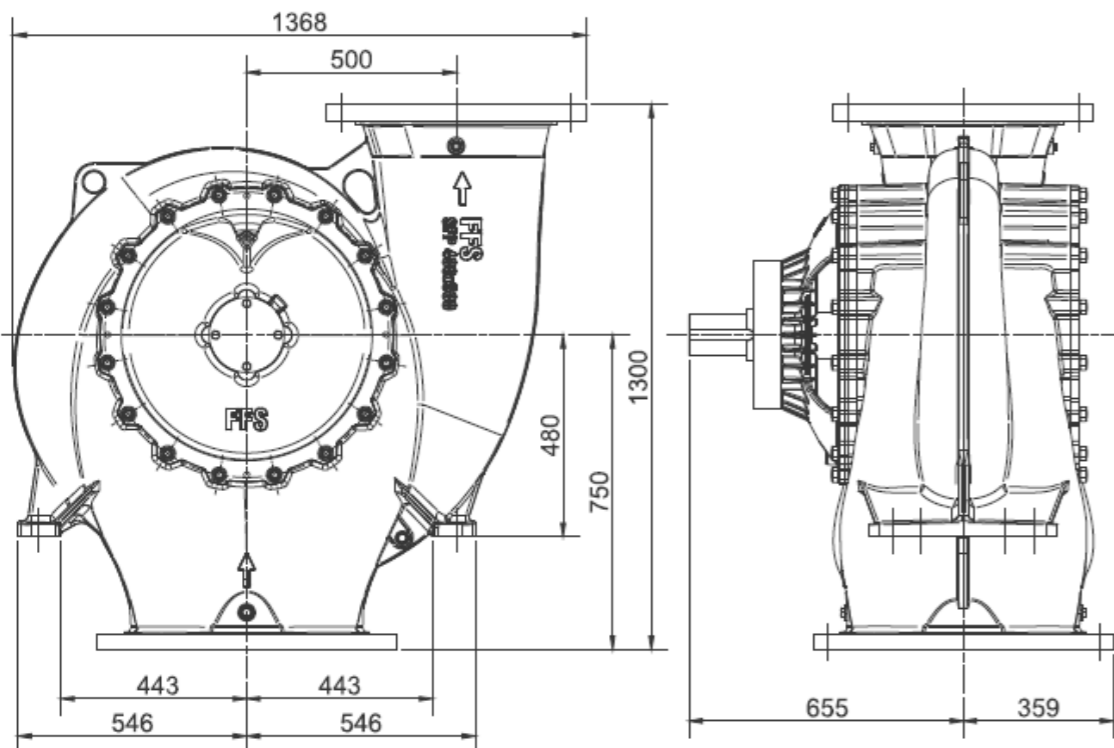




## Technical data

Product name	SFP 400X500XP
Max nom. Capacity	<b>4200m<sup>3</sup>/h at 165m</b>
Driven speed	Project specified
Weight total	1085kg
Power supply solenoid	24Vdc
Pump Casing	<b>Nickel-aluminium-bronze</b>
Impeller	<b>Duplex stainless steel</b>
Shaft water exposed	<b>Duplex stainless steel</b>
Shaft seals	Non-leaking-seals
Wear rings	Bronze, renewable
Coating	External red (RAL 3002)
Inlet flange	DN350/PN16 (DIN2626-A)
Outlet flange	DN250/PN25 (DIN2626-A)
Static test pressure	24bar for water exposed parts
Pump head/Capacity	Curve based on individual factory test

### Dimensions







# Technical data

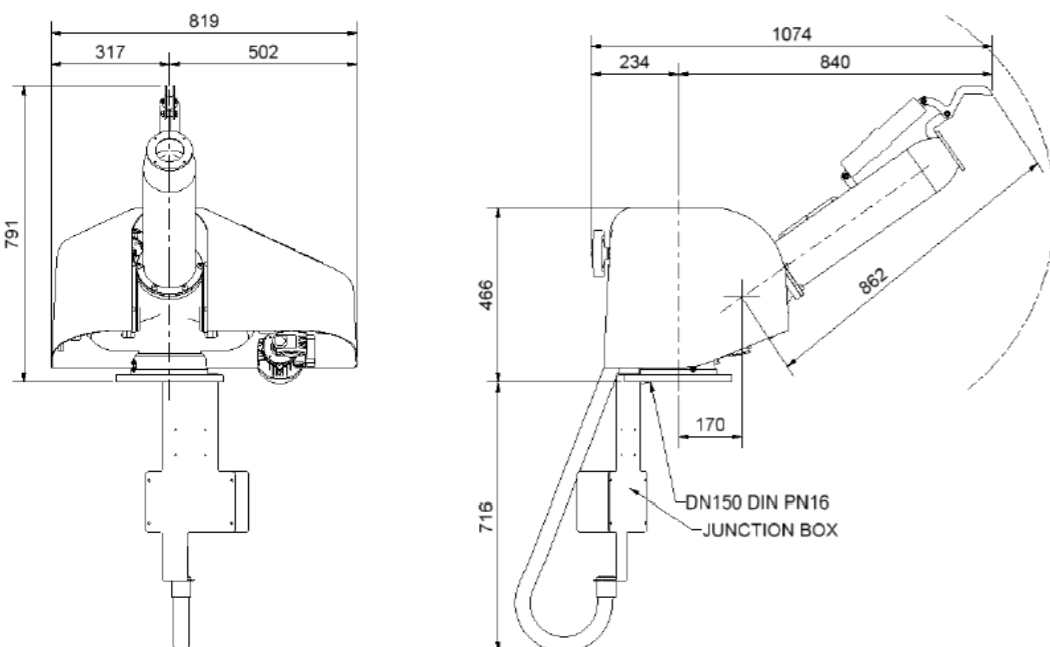
Weight (standard execution)	65 kg
Nominal capacity	<b>600 m<sup>3</sup>/hour</b>
Reduced capacity	150 m <sup>3</sup> /hour (Option)
Elevation sector	-20° to +80°
Horizontal sector	300° (Option 360°)
Horizontal/elevation operation	Electrical with manual override
Dual flow	Electrical operation on/off (Option Stepless)
Spray deflector	Remote electrical operation
Limit switches	Easily adjustable

Inlet pressure	Selected from performance curve
Static pressure testing	Factory tested at 1.5x max working pressure

Power supply	380-440V/3 phase/50 or 60 Hz + 24V DC
Inlet flange	DN150/PN16 (DIN 2526 Form A)

Materials in internal wetted parts	Stainless steel / <b>Ni-Al bronze</b> /composites
Monitor cover	Glass fibre reinforced polyester
Seals	Moulded nitrile O-rings
Coating	External red colour coating (RAL 3002)

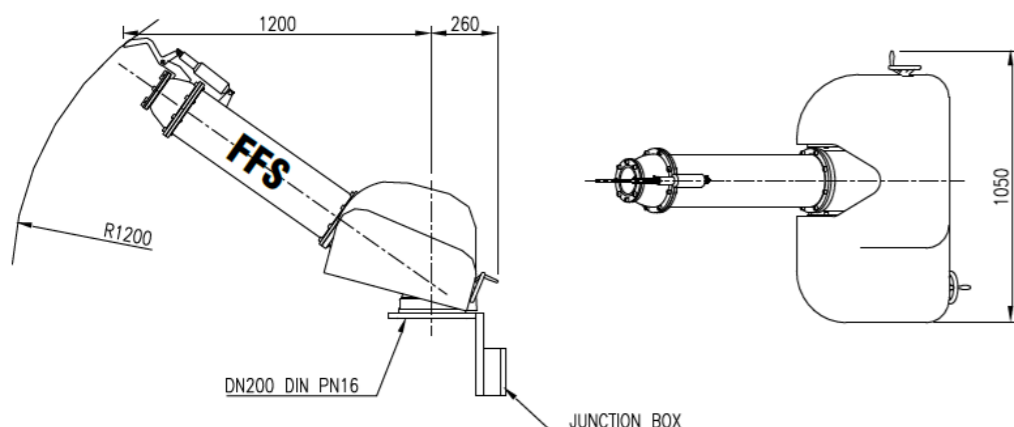
## Dimensions



## Technical data



### Dimensions

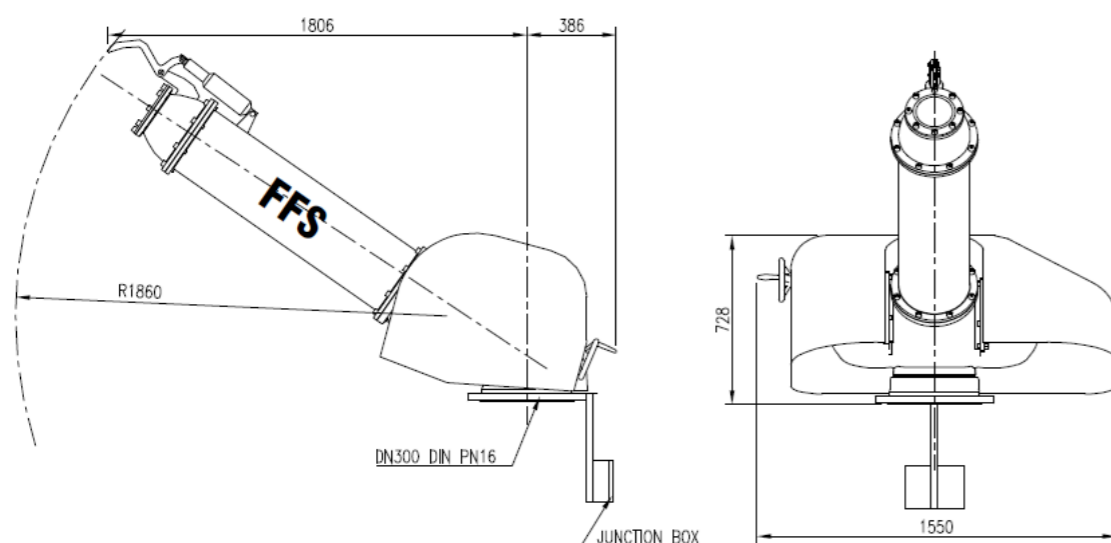


Weight (standard execution)	170 kg
Weight (long barrel execution)	180 kg
Nominal capacity	<b>1200 m<sup>3</sup>/hour</b>
Reduced capacity	300 m <sup>3</sup> /hour
Elevation sector	-20° to +80°
Horizontal sector	300° (Option 360°)
Horizontal/elevation operation	Electrical with manual override
Dual flow	On/off or stepless electrical operation
Spray deflector	Remote electrical operation
Limit switches	Easily adjustable
Inlet pressure	Selected from performance curve
Static pressure testing	Factory tested at 1.5x max working pressure
Power supply	220-240V, 380-440V/3 phase/50 or 60 Hz + 24VDC
Inlet flange	DN200/PN16 (DIN 2526 Form E)
Materials in internal wetted parts	Stainless steel / <b>Ni-Al bronze</b> /composites
Monitor cover	Glass fibre reinforced polyester
Seals	Moulded nitrile O-rings
Coating	External red colour coating (RAL 3002)

## Technical data

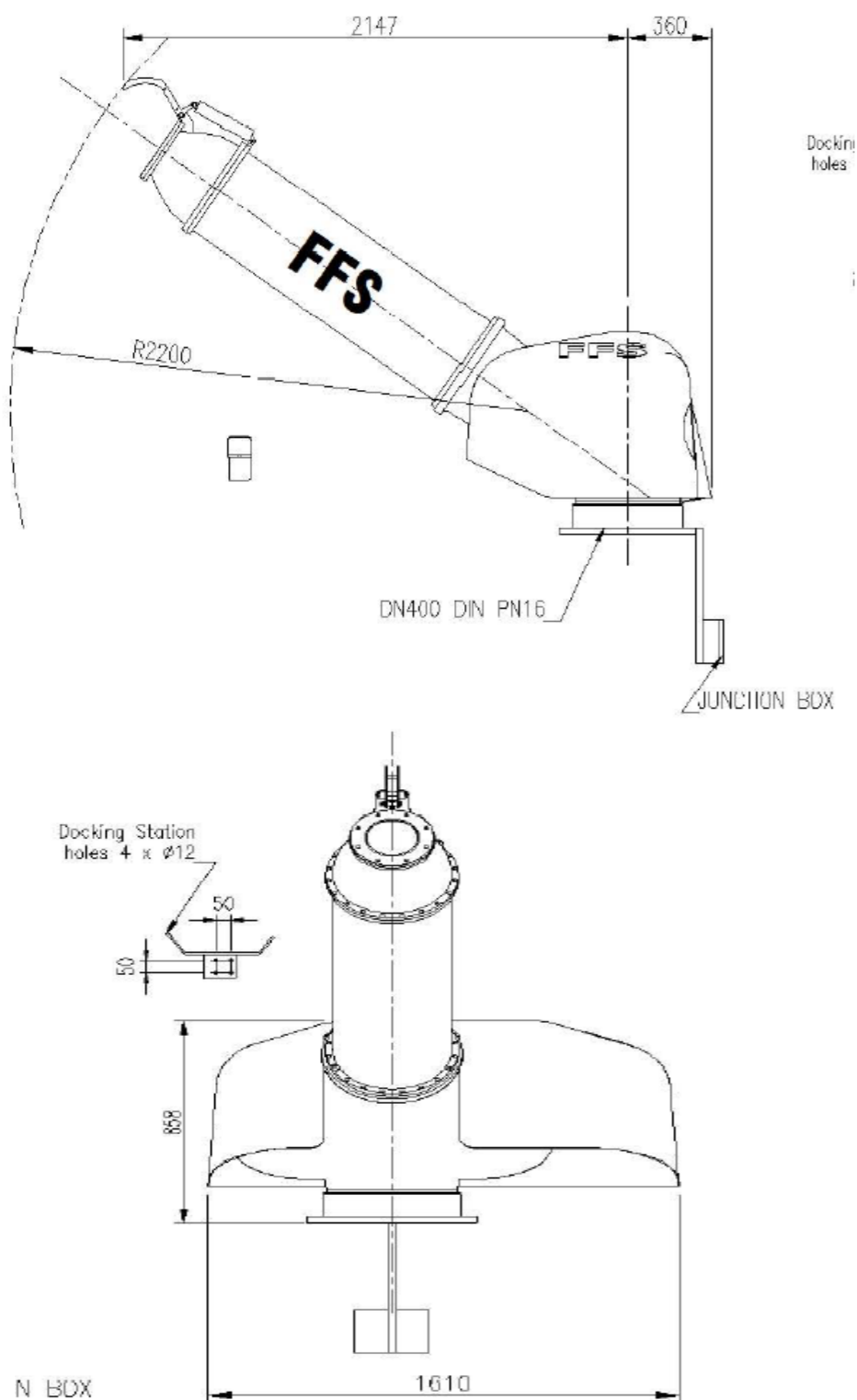


### Dimensions



Weight	350 kg
Nominal capacity	<b>2400 m<sup>3</sup>/hour</b>
Reduced capacity	600 m <sup>3</sup> /hour
Elevation sector	-20° to +70°
Horizontal sector	+,-180°
Horizontal/elevation operation	Electrical with manual override
Dual flow	On/off or stepless electrical operation
Spray deflector	Remote electrical operation
Limit switches	Easily adjustable
Inlet pressure	Selected from performance curve
Static pressure testing	Factory tested at 24bar
Power supply	380-440V/3 phase/50 or 60 Hz + 24VDC
Inlet flange	DN300/PN16 (DIN 2526 Form A)
Materials in internal wetted parts	Stainless steel / <b>Ni-Al bronze</b> /composites
Monitor cover	Glass fibre reinforced polyester
Seals	Moulded nitrile O-rings
Coating	External red colour coating (RAL 3002)

## Dimensions



## Technical data

Weight (standard execution)

Approx 700 kg

Nominal capacity

**3600 m<sup>3</sup>/hour**

Elevation sector

-20° to +80°

Horizontal sector

+,- 180°

Horizontal/elevation operation

Electrical with manual override

Spray deflector

Remote electrical operation

Limit switches

Easily adjustable

Inlet pressure

Selected from performance curve

Static pressure testing

Factory tested at 24bar

Power supply

380-440V/3 phase/50 or 60 Hz + 24V DC

Inlet flange

DN400/PN16 (DIN 2526 Form A)

Materials in internal wetted parts

Stainless steel / **Ni-Al bronze** /composites

Monitor cover

Glass fibre reinforced polyester

Seals

Moulded nitrile O-rings

Coating

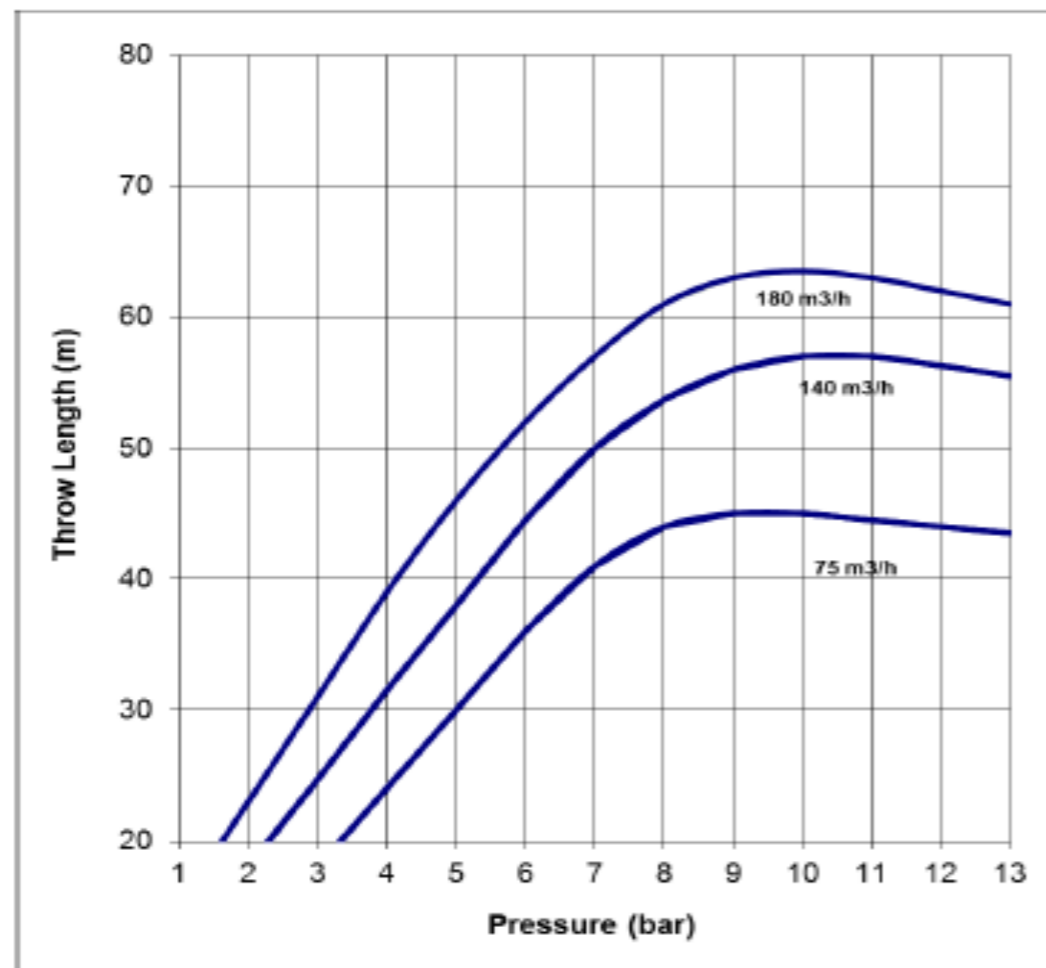
External red colour coating (RAL 3002)

FFS-640  
Rev.01

## FI-FI MONITOR THROW CURVE

**MODEL:** FFS300  
**SEA WATER FLOW:** 180, 140 and 75 m<sup>3</sup>/h

HORIZONTAL RANGE AT OPTIMAL WIND CONDITIONS

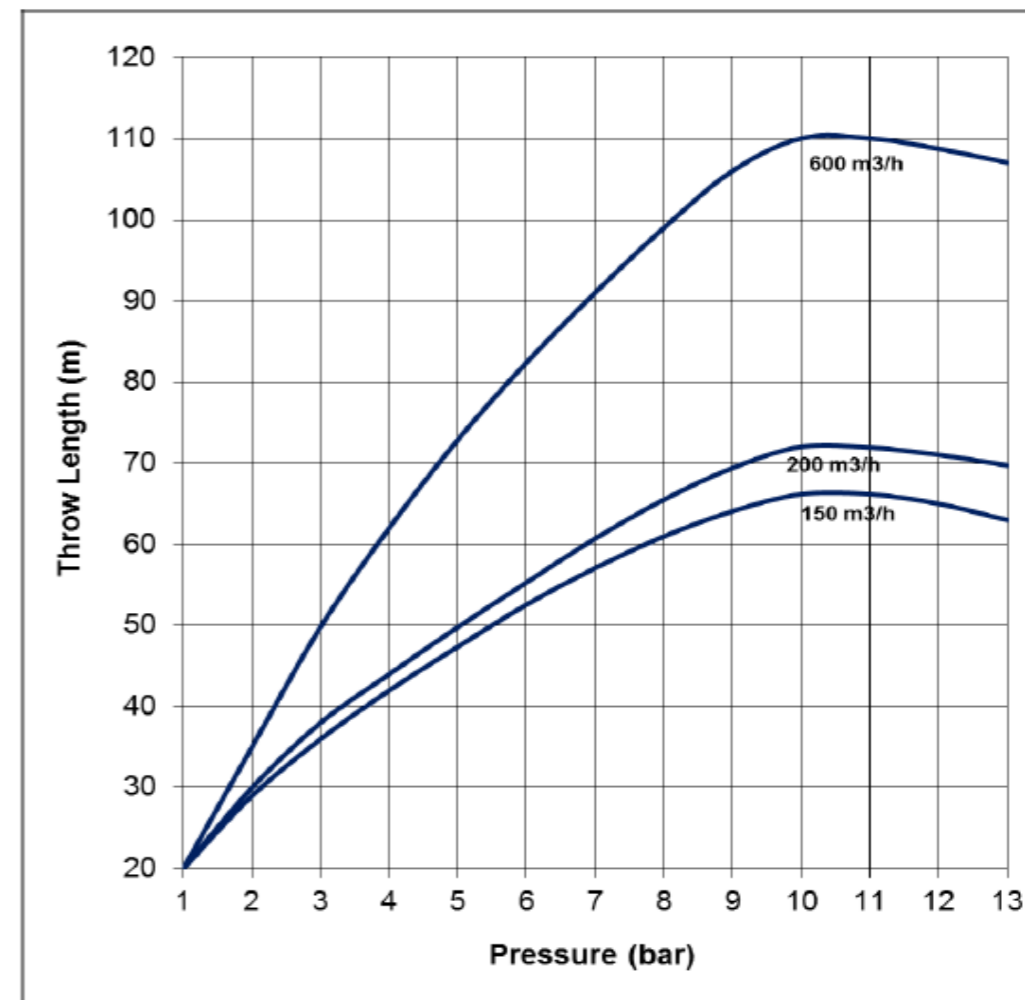


FFS-333  
Rev. 03

## FI-FI MONITOR THROW CURVE

**MODEL:** FFS600/150LB  
**SEA WATER FLOW:** 600, 200 and 150 m<sup>3</sup>/h

THEORETICAL HORIZONTAL RANGE AT WIND STILL CONDITIONS

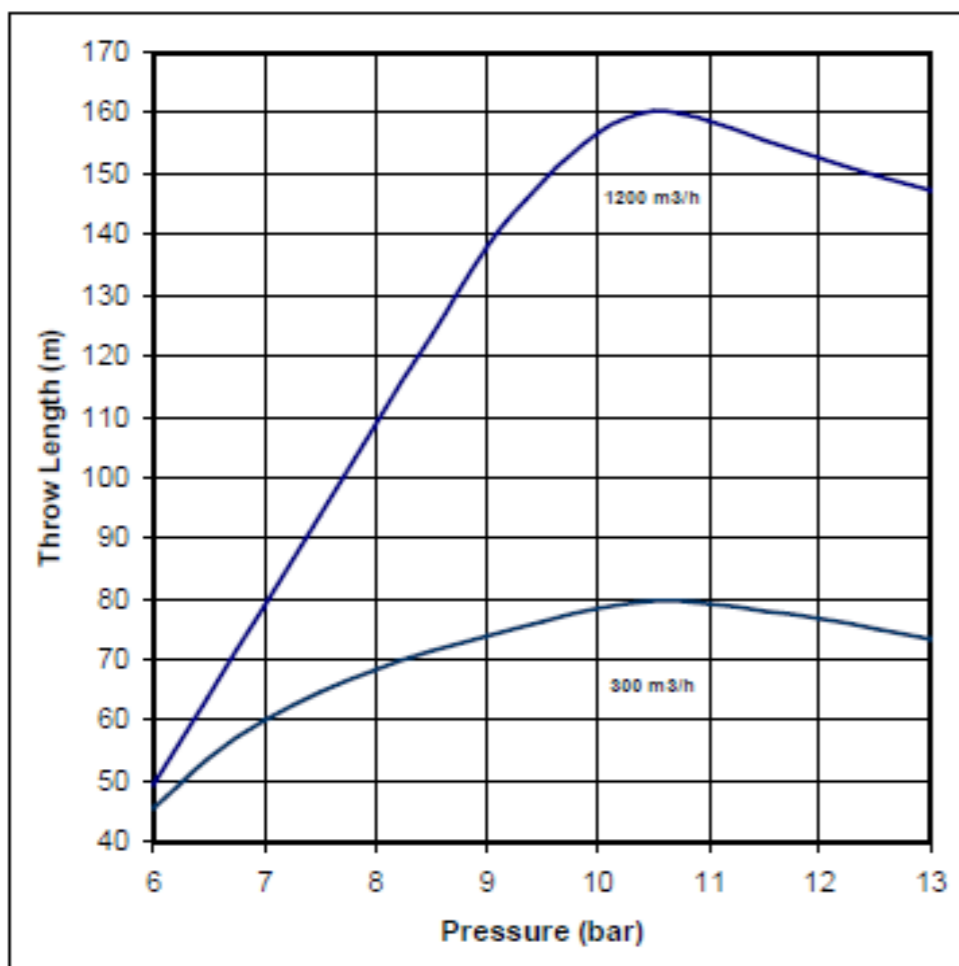


FFS-329  
Rev.01

## FI-FI MONITOR THROW CURVE

MODEL: FFS1200/300 LB  
SEA WATER FLOW: 1200 and 300 m<sup>3</sup>/h

HORIZONTAL RANGE AT OPTIMAL WIND CONDITIONS

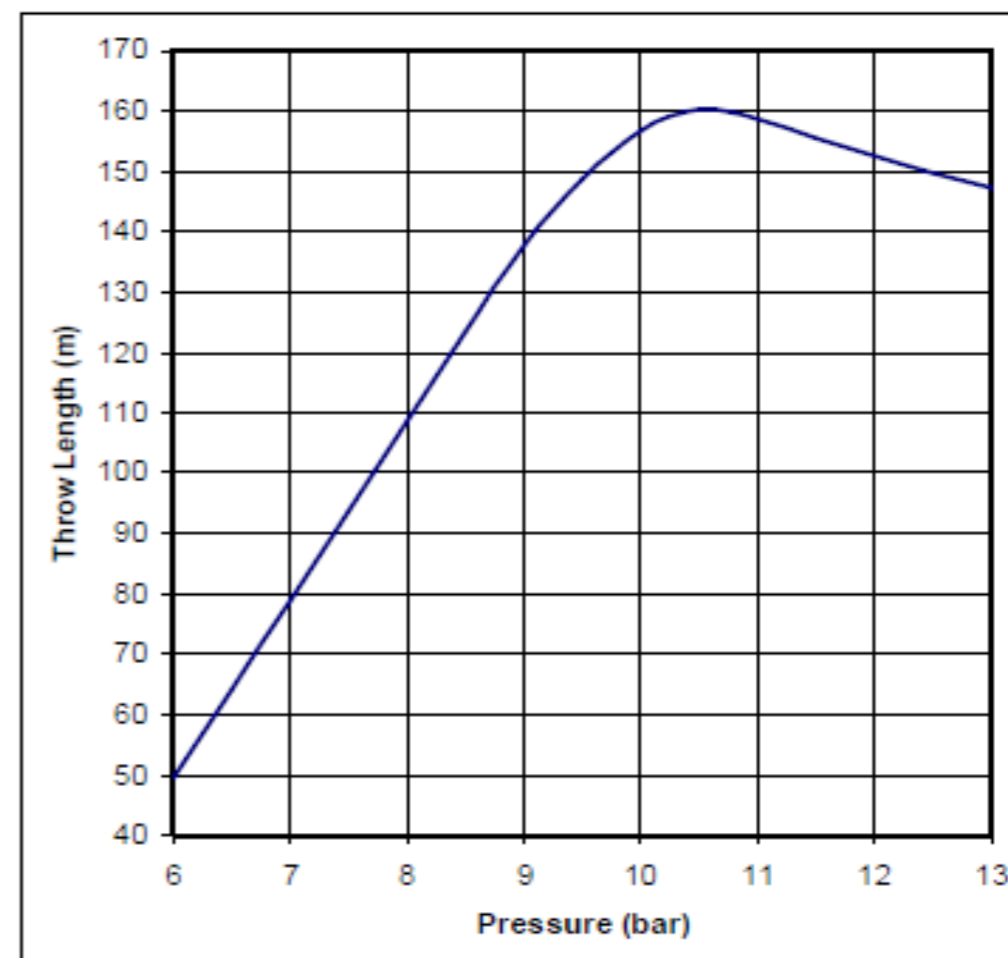


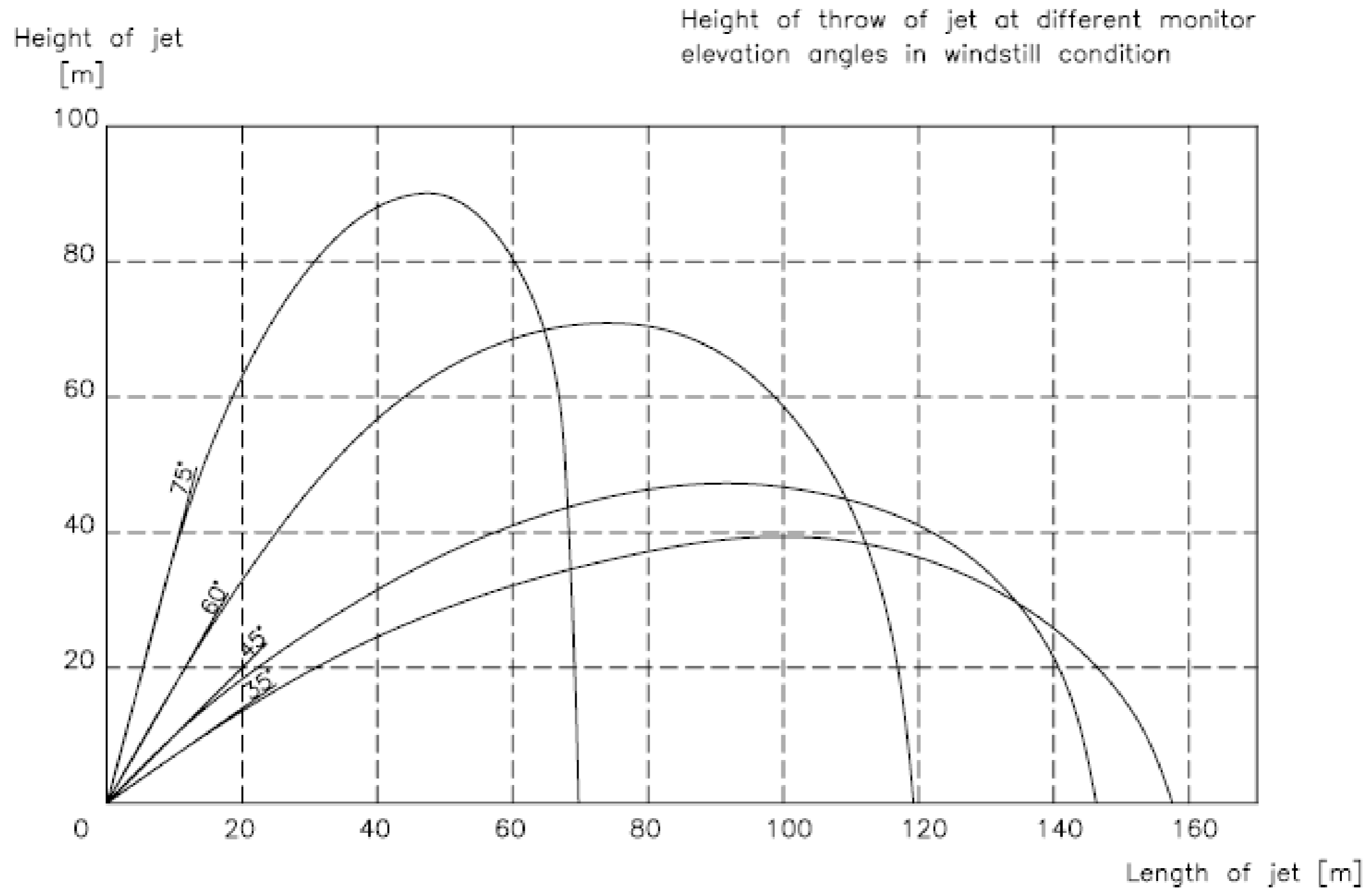
FFS-328  
Rev.01

## FI-FI MONITOR THROW CURVE

MODEL: FFS1200 LB  
SEA WATER FLOW: 1200 m<sup>3</sup>/h

HORIZONTAL RANGE AT OPTIMAL WIND CONDITIONS





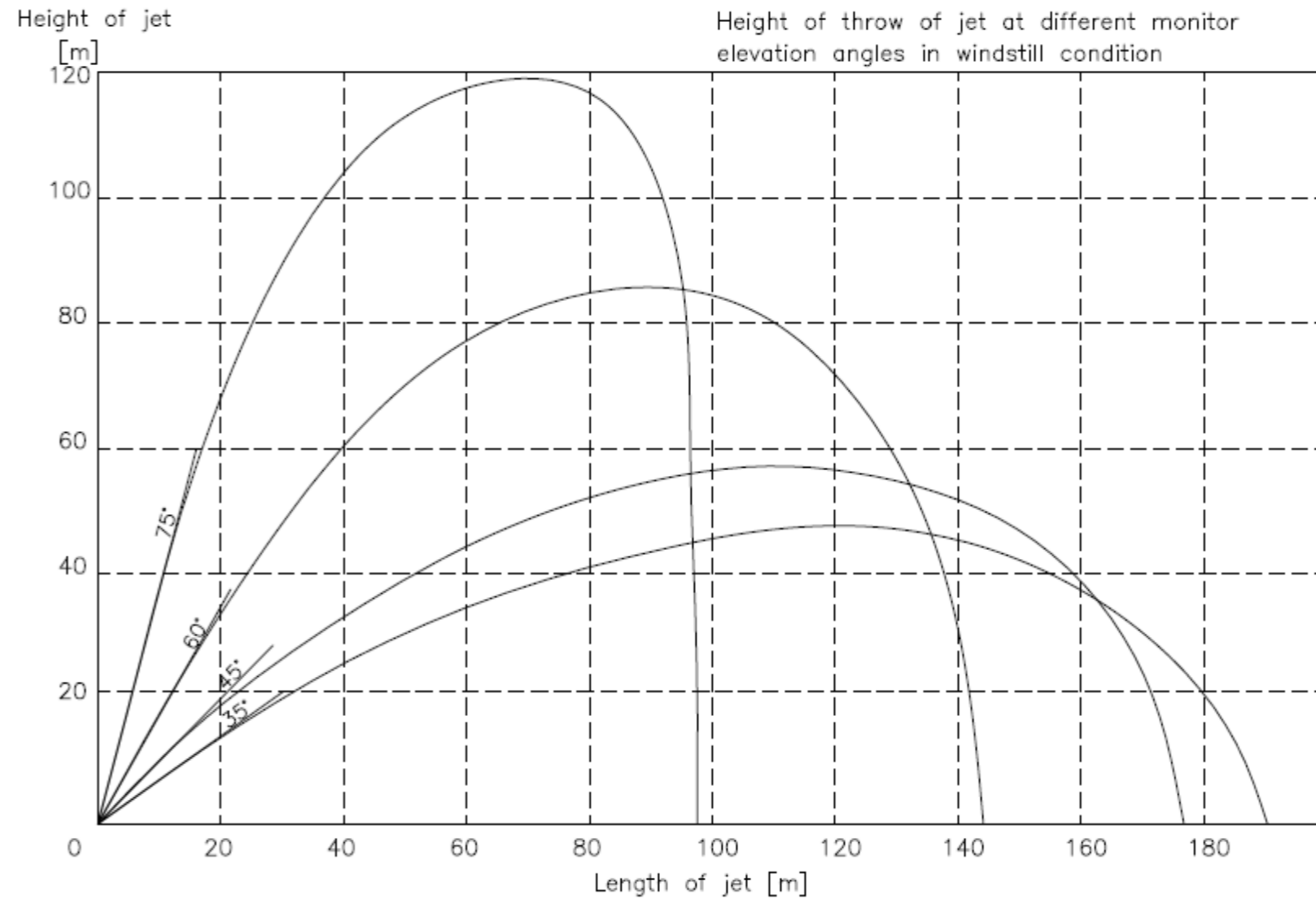
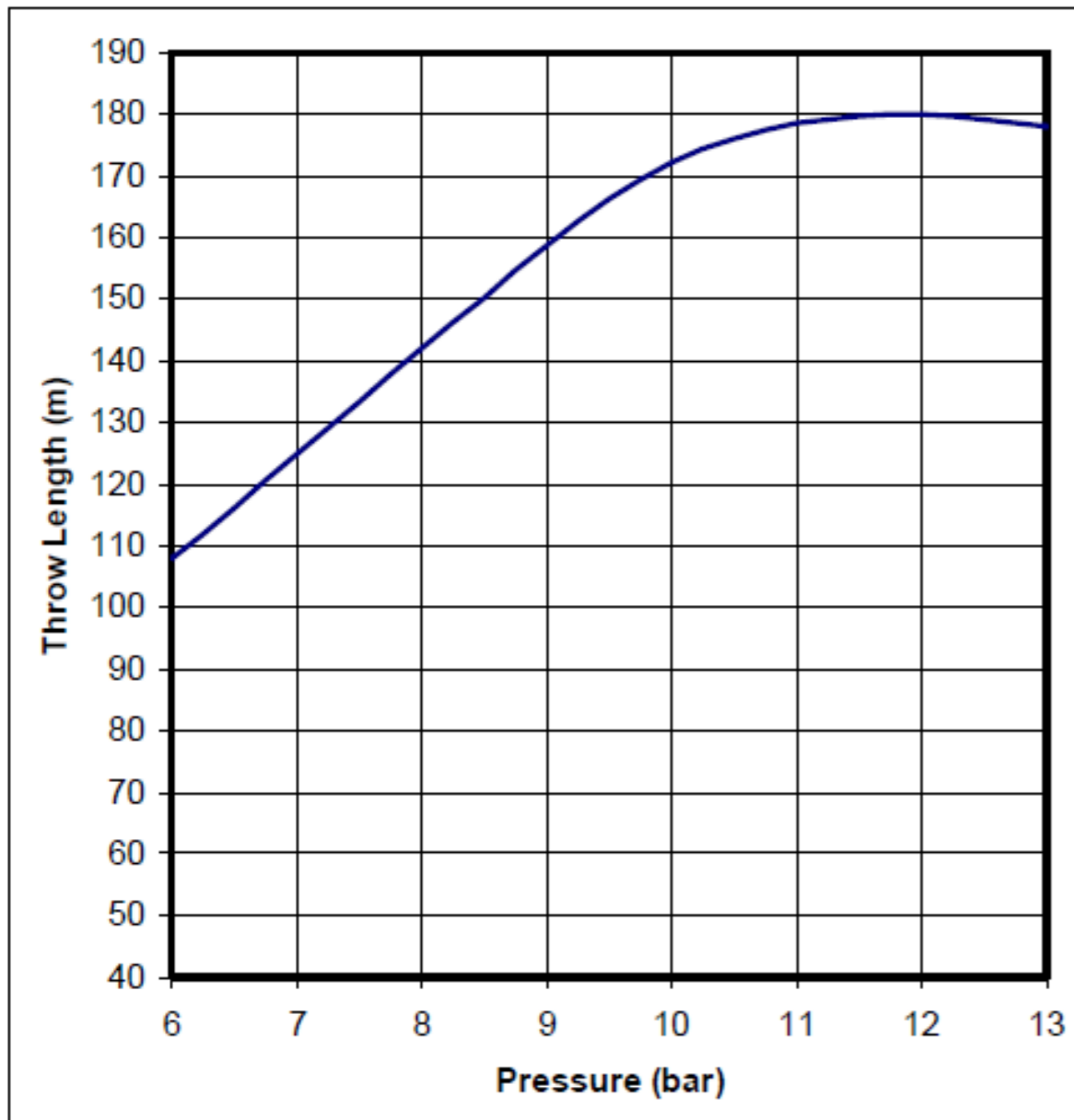
Water capacity : 1200m<sup>3</sup>/h at appr. 10.5 bar

## FI-FI MONITOR THROW CURVE

MODEL: FFS 2400

SEA WATER FLOW: 2400 m<sup>3</sup>/h

MINIMUM HORIZONTAL RANGE AT WIND STILL CONDITIONS



Water capacity 2400m<sup>3</sup>/h at appr. 12bar



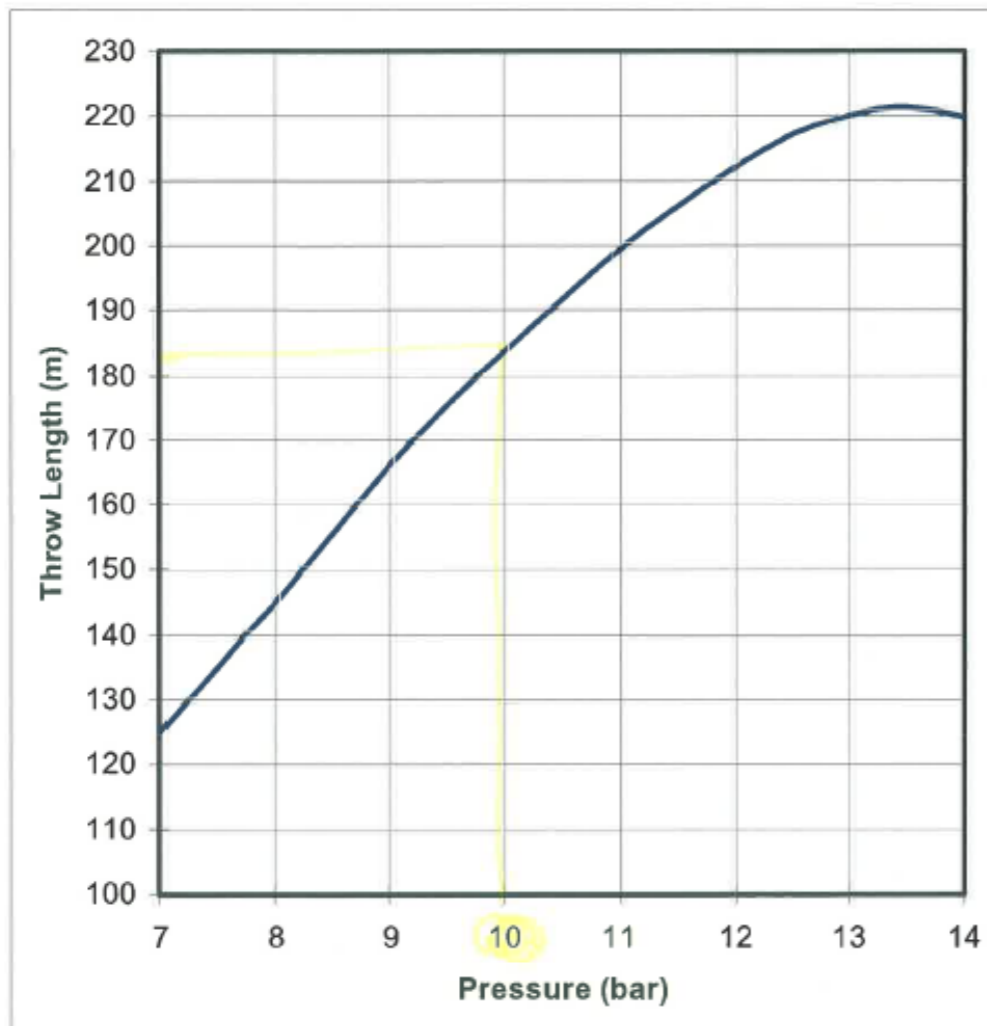
FFS-337  
April 2009

### FI-FI MONITOR THROW CURVE

MODEL: FFS 3600

SEA WATER FLOW: 3600 m<sup>3</sup>/h

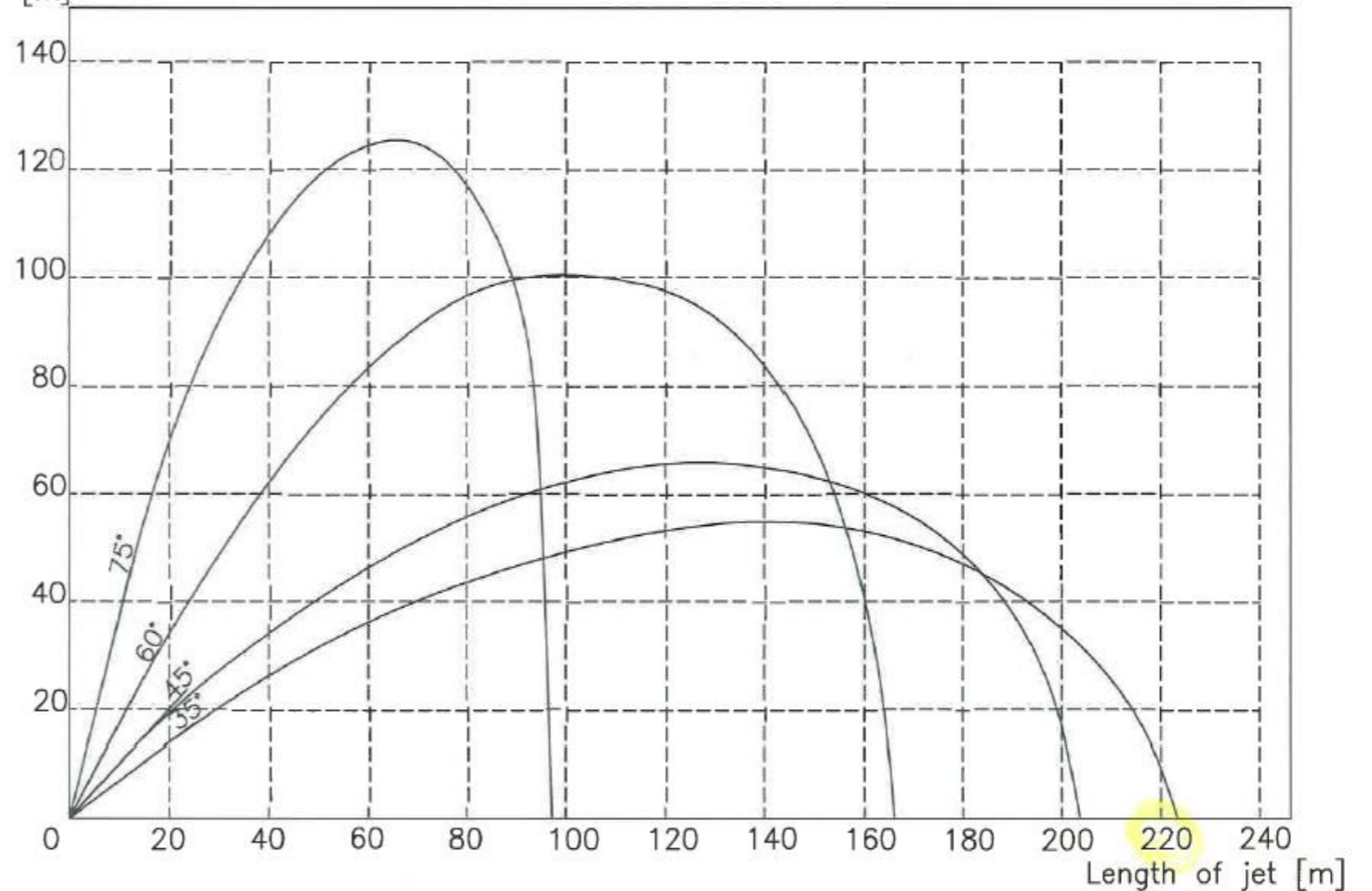
MINIMUM HORIZONTAL RANGE AT WIND STILL CONDITIONS



Height of jet

[m]

Height of throw of jet at different monitor elevation angles in windstill condition



Water capacity : 3600m<sup>3</sup>/h at appr. 13 bar

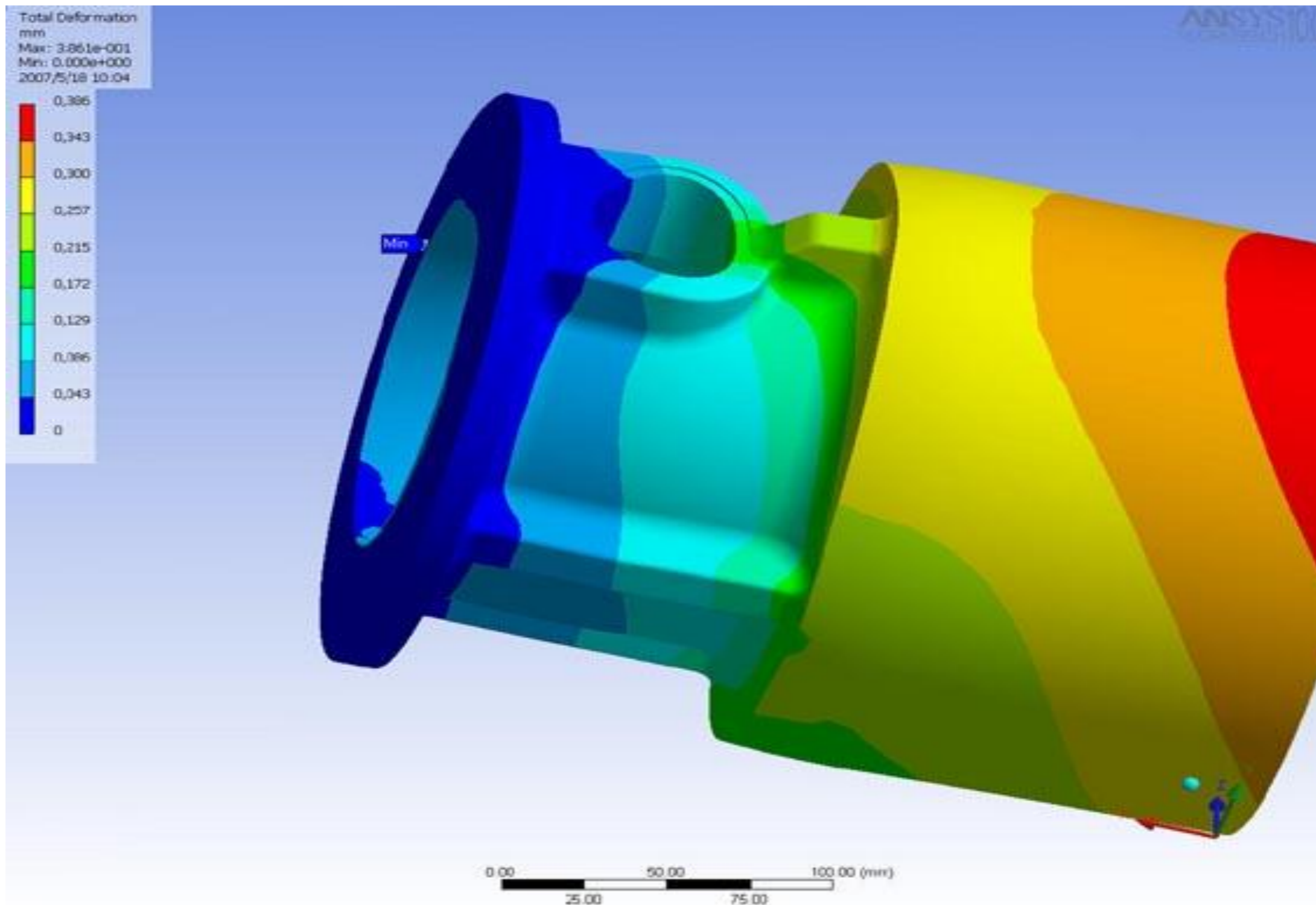


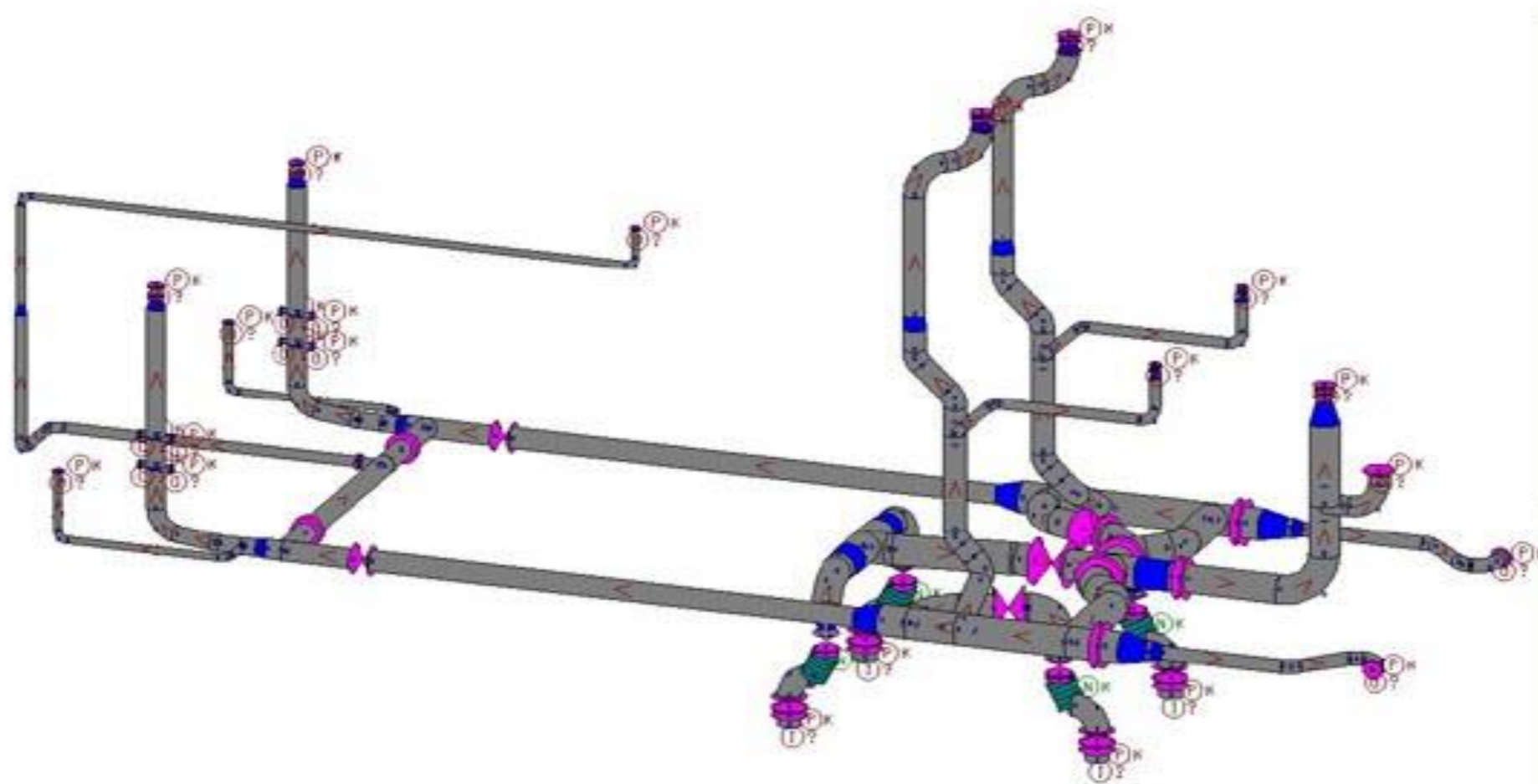






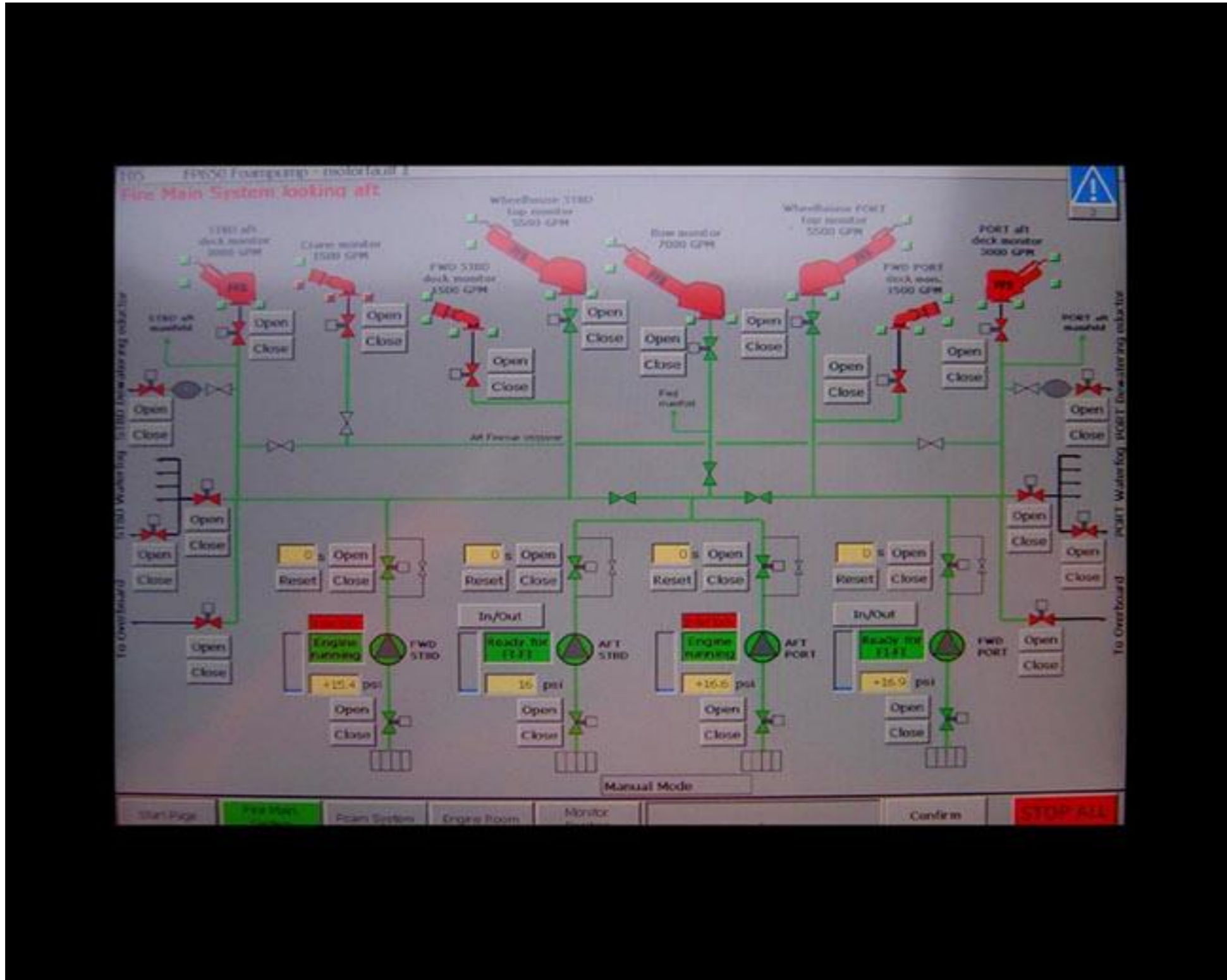
















Control panel



Portable monitor joystick panel

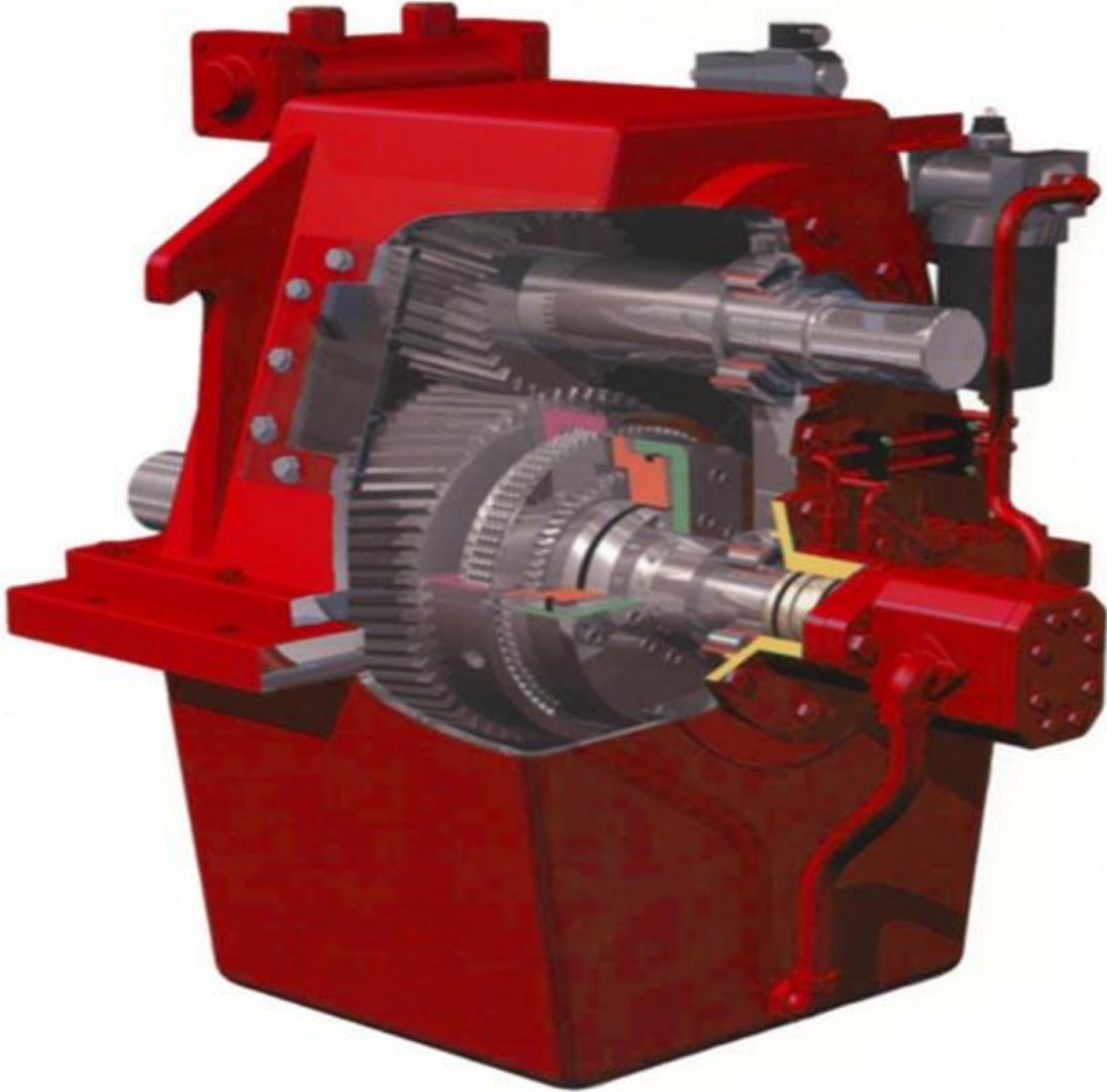


































## Reference List: Fire Fighting System (Far East) Pte Ltd

Country	Project No.	Yard	Hull No.	Owner	Vessel	FiFi Notation	Class	Year
Singapore	10-898A	Asian Sealand Engineering Pte Ltd	V10004		71.33m, Patrol Vessel	Half FiFi (1P+2M+WS)	-	2010
Taiwan	11-550A	Jong Shyn Shipbuilding Co., Ltd	JY118		119m, ROC Patrol Craft	-(1P+4M+WS)	DNV/CR	2011
Taiwan	11-550B	Jong Shyn Shipbuilding Co., Ltd	JY119		119m, ROC Patrol Craft	-(1P+4M+WS)	DNV/CR	2011
Indonesia	F500817A	PT Dumas Shipyard	125	PT Putindo	60m, Fast Patrol Boat	Qtr FiFi (2P+2M+WS)	RINA	2014
Indonesia	F500817B	PT Dumas Shipyard	126	PT Putindo	60m, Fast Patrol Boat	Qtr FiFi (2P+2M+WS)	RINA	2014
Taiwan	F501385A	Lung Teh Shipbuilding Co., Ltd	NB510	SCDF	19m, Fireboat	Qtr FiFi (2P+2M+WS+DH)	BV	2016
Taiwan	F501385B	Lung Teh Shipbuilding Co., Ltd	NB511	SCDF	19m, Fireboat	Qtr FiFi (2P+2M+WS+DH)	BV	2016
Singapore	F501892A	ST Marine Ltd	BO680	SCDF	50m, HFV (Fireboat)	FFV 3 (4P+12M+WS+DH)	ABS	2016
Singapore	F501893A	Penguin Shipyard International Pte Ltd	H303	SCDF	35m, MRV (Fireboat)	FiFi 1 (2P+3M+WS+DH)	BV	2016
Singapore	F501894A	Penguin Shipyard International Pte Ltd	H305	SCDF	40m, HRV (Fireboat)	FiFi 1 (2P+2M+WS+DH)	BV	2016
China	F502166A	Yizheng Xinyang Shipbuilding Co., Ltd	XYCB2014-20	Qingdao Fire Department	61.8m, 1200Ton Fire Fighting Boat	FiFi 2 (4P+9M+WS+DH)	CCS	2017
China	F502167A	Yizheng Xinyang Shipbuilding Co., Ltd	XYCB2014-19	Qingdao Fire Department	41.3m, 350Ton Fire Fighting Boat	FiFi 1 (2P+7M+WS+DH)	CCS	2017
Singapore	F502264A	ST Marine Ltd	BO682	SPCG	23m, SPCG Fast Petrol Boats	Qtr FiFi (1P+1M+WS)	LR	2019
Singapore	F502264B	ST Marine Ltd	BO683	SPCG	23m, SPCG Fast Petrol Boats	Qtr FiFi (1P+1M+WS)	LR	2019
Singapore	F502264C	ST Marine Ltd	BO684	SPCG	23m, SPCG Fast Petrol Boats	Qtr FiFi (1P+1M+WS)	LR	2019
Singapore	F502264D	ST Marine Ltd	BO685	SPCG	23m, SPCG Fast Petrol Boats	Qtr FiFi (1P+1M+WS)	LR	2019
Singapore	F502264E	ST Marine Ltd	BO686	SPCG	23m, SPCG Fast Petrol Boats	Qtr FiFi (1P+1M+WS)	LR	2019
Singapore	F502264F	ST Marine Ltd	BO687	SPCG	23m, SPCG Fast Petrol Boats	Qtr FiFi (1P+1M+WS)	LR	2019
Singapore	F502264G	ST Marine Ltd	BO688	SPCG	23m, SPCG Fast Petrol Boats	Qtr FiFi (1P+1M+WS)	LR	2019
Singapore	F502264H	ST Marine Ltd	BO689	SPCG	23m, SPCG Fast Petrol Boats	Qtr FiFi (1P+1M+WS)	LR	2019
Singapore	F502264I	ST Marine Ltd	BO690	SPCG	23m, SPCG Fast Petrol Boats	Qtr FiFi (1P+1M+WS)	LR	2019
Singapore	F502264J	ST Marine Ltd	BO691	SPCG	23m, SPCG Fast Petrol Boats	Qtr FiFi (1P+1M+WS)	LR	2019
Singapore	F502264K	ST Marine Ltd	BO692	SPCG	23m, SPCG Fast Petrol Boats	Qtr FiFi (1P+1M+WS)	LR	2019
Singapore	F502264L	ST Marine Ltd	BO693	SPCG	23m, SPCG Fast Petrol Boats	Qtr FiFi (1P+1M+WS)	LR	2019
Singapore	F502264M	ST Marine Ltd	BO696	SPCG	23m, SPCG Fast Petrol Boats	Qtr FiFi (1P+1M+WS)	LR	2019
Singapore	F502264N	ST Marine Ltd	BO697	SPCG	23m, SPCG Fast Petrol Boats	Qtr FiFi (1P+1M+WS)	LR	2019
Singapore	F502264O	ST Marine Ltd	BO698	SPCG	23m, SPCG Fast Petrol Boats	Qtr FiFi (1P+1M+WS)	LR	2019
Singapore	F502264P	ST Marine Ltd	BO699	SPCG	23m, SPCG Fast Petrol Boats	Qtr FiFi (1P+1M+WS)	LR	2019
Singapore	F502264Q	ST Marine Ltd	BO700	SPCG	23m, SPCG Fast Petrol Boats	Qtr FiFi (1P+1M+WS)	LR	2019
Singapore	F502264R	ST Marine Ltd	BO701	SPCG	23m, SPCG Fast Petrol Boats	Qtr FiFi (1P+1M+WS)	LR	2019
Singapore	F502264S	ST Marine Ltd	BO702	SPCG	23m, SPCG Fast Petrol Boats	Qtr FiFi (1P+1M+WS)	LR	2019
Singapore	F502264T	ST Marine Ltd	BO703	SPCG	23m, SPCG Fast Petrol Boats	Qtr FiFi (1P+1M+WS)	LR	2019
Singapore	F502264U	ST Marine Ltd	BO704	SPCG	23m, SPCG Fast Petrol Boats	Qtr FiFi (1P+1M+WS)	LR	2019
Singapore	F502264V	ST Marine Ltd	BO705	SPCG	23m, SPCG Fast Petrol Boats	Qtr FiFi (1P+1M+WS)	LR	2019
Singapore	F502264W	ST Marine Ltd	BO706	SPCG	23m, SPCG Fast Petrol Boats	Qtr FiFi (1P+1M+WS)	LR	2019
Singapore	F502264X	ST Marine Ltd	BO707	SPCG	23m, SPCG Fast Petrol Boats	Qtr FiFi (1P+1M+WS)	LR	2019
China	F502271A	Jianglong Boat Technology Co., Ltd	JL39.20-GL-01	Chongqing Fire Department	39.2m, Command Fireboat	Qtr FiFi (1P+1M)	CCS	2018
Taiwan	F502494A	Lung Teh Shipbuilding Co., Ltd	NB530		18.5m, Fireboat	Qtr FiFi (2P+2M+WS+DH)	BV	2018
China	F502910A	Guangdong Yuexin Ocean Engineering Co., Ltd	YX8001	Chongqing Fire Department	48m, Main Fireboat	FiFi 1 (2P+7M+WS+DH)	CCS	2018
China	F502910B	Guangdong Yuexin Ocean Engineering Co., Ltd	YX8002	Chongqing Fire Department	48m, Main Fireboat	FiFi 1 (2P+7M+WS+DH)	CCS	2018
China	F502910C	Guangdong Yuexin Ocean Engineering Co., Ltd	YX8003	Chongqing Fire Department	55m, Integrated Fireboat	FiFi 1 (2P+7M+WS+DH)	CCS	2018
China	F502910D	Guangdong Yuexin Ocean Engineering Co., Ltd	YX8005	Chongqing Fire Department	55m, Integrated Fireboat	FiFi 1 (2P+7M+WS+DH)	CCS	2018
China	F503258A	Jianglong Boat Technology Co., Ltd	JL38.50S-GL-01	Guangzhou Fire Department	38.86m, Fireboat	FiFi 1 (2P+4M+WS+DH)	CCS	2019
China	F503762A	Jianglong Shipbuilding Co., Ltd	JL48.00S-GL-01	Huizhou Daya Bay Zone Petrochemical Fire Guildance Center	48m, Daya Bay 800Ton Coastal Fireboat	FiFi 2 (3P+7M+3FP+3BP+WS)	CCS	2020

## Reference List - External Fire Fighting System

Year	Shipyard	Hull No	Project	CLASS NOTATION	Class
2009	SAEKWANG	H1187	86m Multifunctional Anchor Handling/Tug/Supply/Service vessel (UT-786CD)	FIRE FIGHTER II	DNV
2009	SAEKWANG	H1188	86m Multifunctional Anchor Handling/Tug/Supply/Service vessel (UT-786CD)	FIRE FIGHTER II	DNV
2010	SAEKWANG	H1189	86m Multifunctional Anchor Handling/Tug/Supply/Service vessel (UT-786CD)	FIRE FIGHTER II	DNV
2010	SAEKWANG	H1190	86m Multifunctional Anchor Handling/Tug/Supply/Service vessel (UT-786CD)	FIRE FIGHTER II	DNV
2014	HHI	H2652	154.9m Salt AV Accommodationvessel	FIRE FIGHTER II	DNV
	HHI	H2649	150.05m Multi-Purpose Offshore Construction Vessel	FIRE FIGHTER II	DNV
	SPP	S1552	MOSS 919 84m 220T BO Anchor handling tug supply vessel	FIRE FIGHTER II	DNV+RINA

# THANK YOU

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