

# POLAR JET

## TANK CLEANING MACHINES



## History and Activities

POLARMARINE was established in 1978 and has been one of the world's leading manufacturers of tank cleaning equipments for marine and industrial applications. It was the daughter company of Polarmarine International which was established in 1966.

Polarmarine got involved in the tank cleaning business in 1967 when we as representatives sold the first Single Nozzle Tank Cleaning Machines to Shell UK. Since 1978, Polarmarine have designed, produced and delivered more than 100,000 Polar Jet® tank cleaning machines to shipyards and ship owners all over the world. All our programmable models have been designed around the rack and pinion control system, which has proved to be so efficient and reliable that it has become the industry's main standard.

In 1980, Polarmarine invented the first Tank Cleaning Machine with pitch control.

In 1988, Polarmarine invented the Multi-stage Single Nozzle Tank Cleaning Machines. This machine holds worldwide patent.

In 2000, Polarmarine invented the Tank Cleaning Machine with Pitch, Speed and Angle Control.

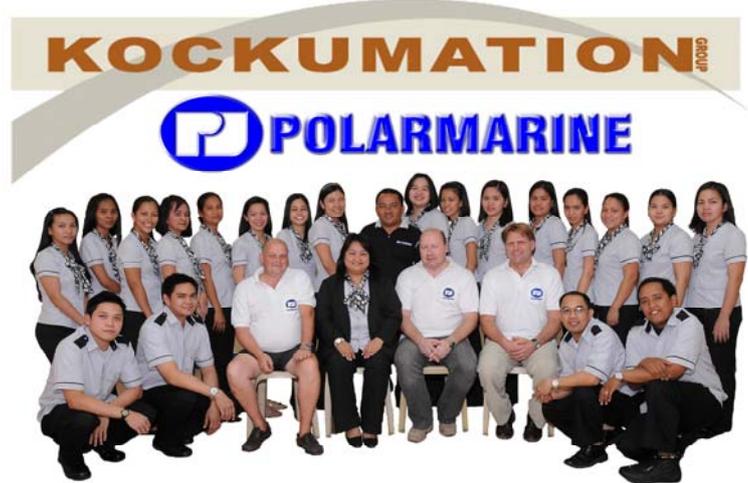
In 2004, Samsung Heavy Industries in Korea has awarded Polarmarine the Samsung-Q Silver Mark Award; this showed that our Polar Jet®'s quality is far ahead of nearest tank cleaning maker on market.

In 2007, Polarmarine joined Kockum Sonics Marine and Texon Automation by being part of the Kockumation Group expanding its market in the marine industry.

In 2009, Polarmarine developed the Polar Jet® Eco. The basic principle of the new and improved tank cleaning machine is that the cleaning media is spread as equal as possible inside the tank. This design is applicable for the models Polar Jet® PJ15 and Polar Jet® PJ30 upon request. Polarmarine also included in their product line-up the Polar Jet® Gas Freeing Fan, Electronic Gas Ventilation Fan and Cargo Hold Gun.

In 2010, Polarmarine came up with a solution of water canon defense system using tank cleaning technology against piracy attacks. This is the Polar Jet® Blaster which has multi-nozzle and has 100% coverage and can be powered by existing pumps.

Today, Polarmarine are able to offer you a full range of Polar Jet® Tank Cleaning Models for any type of marine or industrial application.





competitive range of services. Our products are always delivered with relevant and updated documentation such as instruction and service manuals and upon request, shadow diagrams and crude-oil washing manuals.

We support the need of our customers for new products. Our more than thirty (30) years of experience becomes our platform for new designs of tank cleaning machines. We are continuously developing new products as well as improving our existing models.

As with all our operations, the production conforms to the ISO 9001. DNV has certified Polarmarine according to ISO 9001:2000.

## Research and Development

The success of the Polar Jet® products is the result of determined and focused product development, according to customer requirements.

Polarmarine has developed the Polar Jet® series of tank cleaning machines in accordance to the tough requirements



from our customers, as well as all legal requirements. We have also used our own long experience in the tank cleaning business as a basis for developing new products and refining the existing products. Our development team is stationed both in Sweden and in our Far East office. We can quickly adapt to new requirements and launch new or modified products.

We have had continuous focus on developing products with the user in mind throughout our history. Reliability is one of our main concerns. This means, for example, that no other tank cleaning equipment on the market has so few moving parts as our Polar Jet®. Every customer knows that each additional moving part

means an added potential risk for breakdown.

## Technology

We have had a continuous focus on developing products with the user in mind throughout our history.

Polar Jet® programmable multi nozzle tank cleaning units are specially designed for cleaning in difficult to clean areas in slop tanks, wing tanks and under stringer platforms e.g. as in conventional tankers.

The Polar Jet® tank cleaning units are flange mounted in the tank top or deck. Movement of the nozzle is fully controlled by integrated turbine driven control units, via a central turning and lifting rod in the cleaning unit.



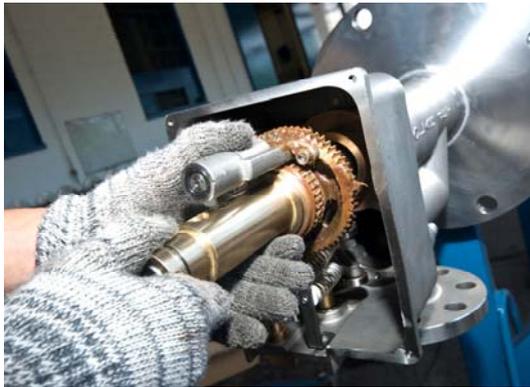
The nozzle movement is in principle a rotation in the horizontal plane, combined with a very slow vertical movement. This means that the nozzle performs helical patterns.”



The low number of moving parts means that our equipment is extremely easy to service and requires a minimum of maintenance and a minimum of spare parts.

## Production

Polarmarine has its production facility in the Philippines and its head office in Sweden. The management in the Far East operations is Swedish. They ensure that the high levels of quality, delivery precision and service that the customers can expect from Polarmarine are upheld.



We have created a Philippine company with a Swedish management. This gives us the opportunity to focus entirely on quality. We can assign enough resources for the continuous quality improvement and quality control. Much of the staff in our production has been recruited from the closed US Naval Base in Subic Bay, Philippines. They have been trained as a highly skilled workforce in the US Naval workshops.

With our production in the center of the Far East region we can easily supply our customers with new products as well as with service and spare parts.

## Quality Policy

Polarmarine aims to be the preferred supplier of tank cleaning equipment to the shipping industry and to the industrial sector. Polarmarine is committed to meet customer's expectation through:

- Meeting all contractual delivery times
- Compliance with customer's need in accordance with the contract and/or purchase order and specifications
- Continuous improvement of our product
- Continuous development of core competences

Our benchmark for quality is customer satisfaction. For Polarmarine, excellence is 100% customer satisfaction.



The Quality Policy is communicated throughout the organization. It shall be reviewed for continued suitability.

**KOCKUMATION** GROUP

 **Kockum Sonics** *Texon*  **POLARMARINE**

**POLARMARINE**  
Box 1035, SE-212 10 Malmö  
SWEDEN  
TEL: +46 - 31-965900 / FAX: +46 - 31-965969  
E-mail: [project\\_inquiry@polarmarine.com.ph](mailto:project_inquiry@polarmarine.com.ph)  
[sales@polarmarine.se](mailto:sales@polarmarine.se)  
Website: [www.polarmarine.se](http://www.polarmarine.se) / [www.kockumation.se](http://www.kockumation.se)



# **POLAR JET®**

## **Tank Cleaning Machine**



## TANK CLEANING EQUIPMENT



### POLAR JET® PJ 15

The Polar Jet® PJ 15 is a fully programmable, single nozzle Tank Cleaning machine equipped with pitch and speed control.

A twin nozzle version of the PJ 15 is also available, (PJ 15CPT) which has dual nozzles mounted symmetrically opposed instead of one.

Nozzle movement is fully controlled by the integrated turbine driven control unit, which controls both the vertical pitch and rotation speed.

Nozzle movement is, in principle, a controlled rotation in the horizontal plane, combined with a slow, controlled vertical movement. This means that the nozzle performs helical patterns.

The PJ 15 comes with two controls for vertical Pitch and rotation Speed. There are two Speed Settings and three Pitch Settings of approximately 2, 4 and 9 degrees providing six basic cleaning programs.

Angle adjustment allows pre-setting of the Pitch at the start of either the upward or downward cycle for optimal cleaning of specific areas such as bottom only or side only cleaning requirements.

The PJ 15 can also be equipped with a magnetic transmission which prevents the risk of exposing the tank to the outside environment. Thus, allowing the Control Unit to be removed without accidental leakage since the Turbine Shaft does not directly go through the Inlet Housing.

The PJ 15 can also be fitted for Industrial purposes, also known as PJ 15i. Thus, Polarmarine has developed new design main pipe to fit for the smallest opening, which is about 76.2mm. Data sheet for PJ 15i is as shown below.

Polarmarine provide in-house Shadow Diagrams using 3-Dimensional CAD for model Selection, Quantity, Positioning and Main Pipe Lengths to optimize cleaning coverage per unit.



# DATA SHEET PJ 15

## SMALLEST DECK OPENING 130 mm

### INLET FLANGE

CONNECTION TO FIT  
JIS STANDARD

PCD 120 mm.  
8 Holes  $\varnothing 19$  mm.

CONNECTION TO FIT  
DIN STANDARD

PCD 125 mm.  
4 Holes  $\varnothing 19$  mm.

CONNECTION TO FIT  
ANSI STANDARD

PCD 4 3/4 in.  
4 Holes  $\varnothing 3/4$  in.

### DECK FLANGE

CONNECTION TO FIT  
JIS STANDARD

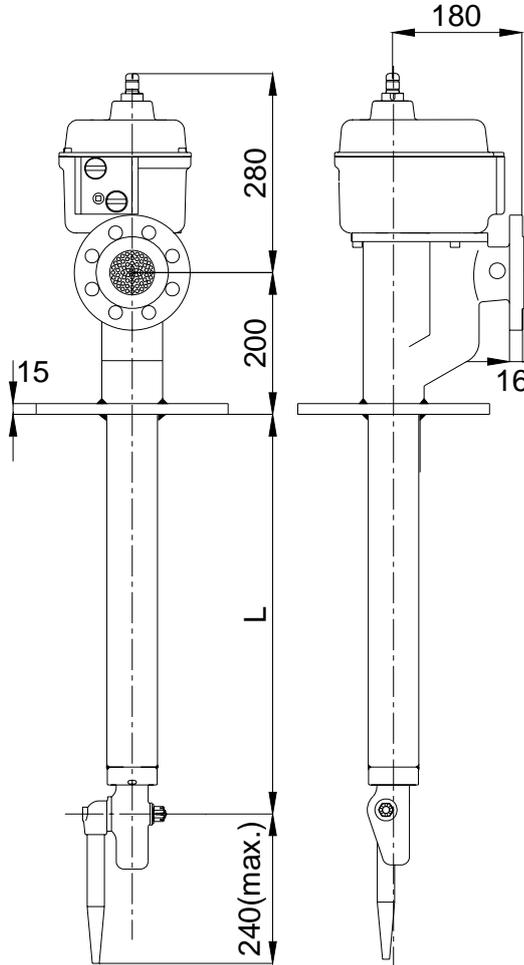
O.D. 270 mm.  
PCD 225 mm.  
8 Holes  $\varnothing 19$  mm.

CONNECTION TO FIT  
DIN STANDARD

O.D. 265 mm.  
PCD 225 mm.  
8 Holes  $\varnothing 19$  mm.

CONNECTION TO FIT  
ANSI STANDARD

O.D. 8 1/2 in.  
PCD 7.0 in.  
8 Holes  $\varnothing 3/4$  in.



APPROX. WEIGHTS	
L (m)	Weight (Kg)
1.0	42
2.0	49
3.0	56
4.0	63
5.0	70

SHIPYARD SUPPLY
DECK FLANGE CONN.
GASKETS
STUDS
NUTS
WASHERS

## PERFORMANCE DATA FOR POLAR JET® PJ 15

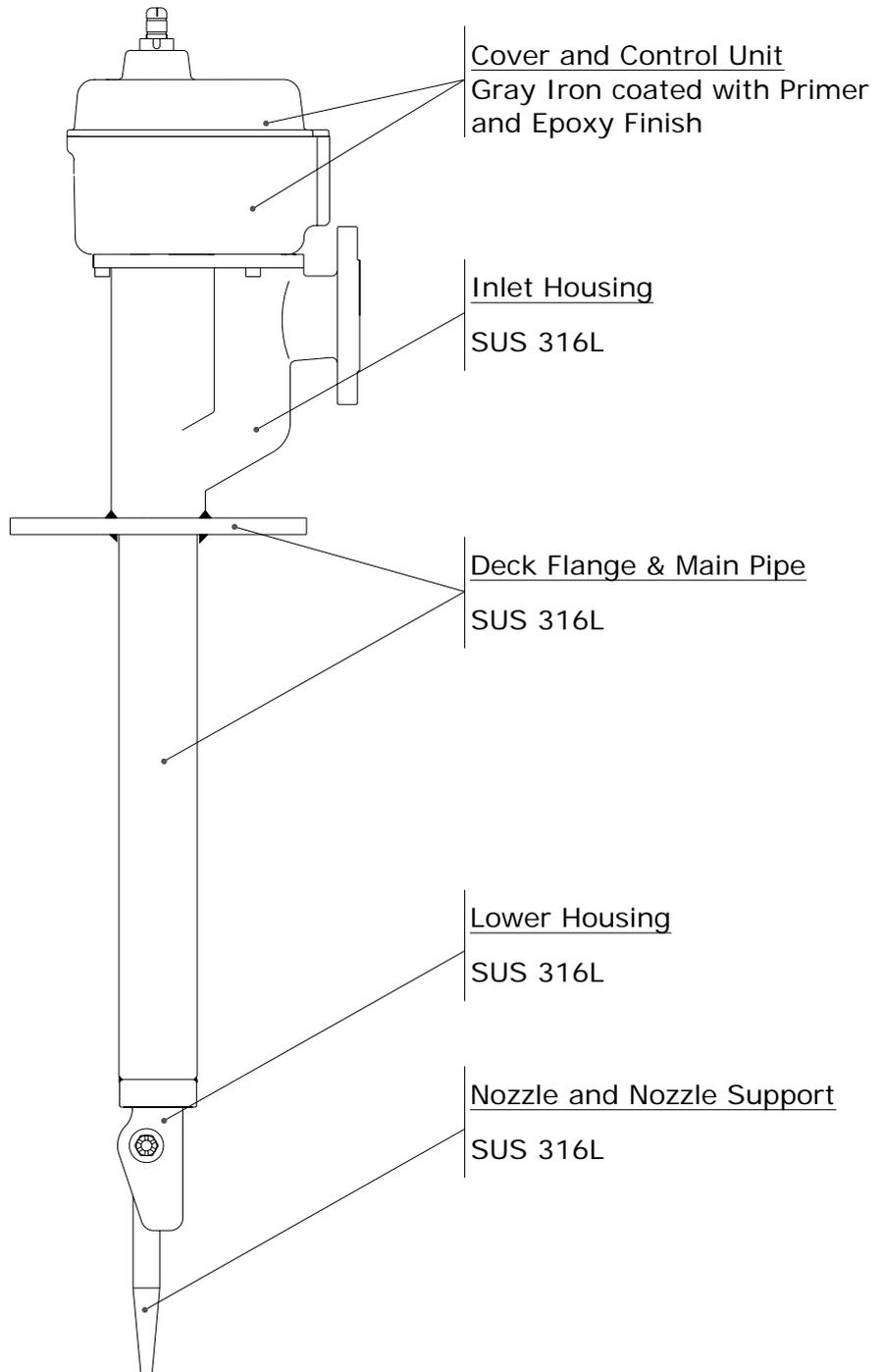
PRESSURE, NOZZLE DIAMETER, THROUGHPUT AND JET LENGTH

Press	Nozzle $\varnothing 8$ mm.		Nozzle $\varnothing 9$ mm.		Nozzle $\varnothing 10$ mm.		Nozzle $\varnothing 12$ mm.		Nozzle $\varnothing 13$ mm.		Nozzle $\varnothing 14$ mm.		Nozzle $\varnothing 16$ mm.	
	Bar	m <sup>3</sup> /h	mete r	m <sup>3</sup> /h	mete r	m <sup>3</sup> /h	mete r	m <sup>3</sup> /h	mete r	m <sup>3</sup> /h	mete r	m <sup>3</sup> /h	mete r	m <sup>3</sup> /h
12	6.5	19.5	10.0	20.5	13.0	21.5	18.0	23.0	22.0	23.5	26.0	24.0	33.5*	26.0
11	6.0	18.5	9.0	20.0	12.0	20.5	17.0	22.5	21.0	23.0	25.0	23.5	32.5	25.5
10	5.5	18.0	8.0	19.0	11.0	20.0	16.0	21.5	20.0	22.5	23.0	23.0	31.0	24.5
9	5.0	17.0	7.5	18.0	10.5	19.0	15.0	20.5	18.5	21.5	22.0	22.0	29.0	23.5
8	4.5	16.0	7.0	17.0	10.0	18.0	14.0	19.5	17.0	20.0	20.5	21.0	27.0	22.5
7	4.0	15.0	6.0	16.0	9.0	17.0	13.0	18.5	16.0	19.0	19.5	20.0	25.5	21.5
6	3.5	14.0	5.5	15.0	8.0	16.0	12.0	17.5	15.0	18.0	18.0	19.0	24.0	20.5

\* At this high capacity for Polar Jet PJ 15 machine has, we suggest considering using PJ 30. Refer to Data Sheet of PJ 30.



## PJ15 – Material Specification



\*Paint specification is Polarmarine Standard. Modification of paint specification is subject for additional charge.

\*\*Also available with SUS316L Control Unit and Cover upon request and subject to additional charge.

\*\*\*PJ 15 equipped with magnetic coupling also available upon request and subject to additional charge.



# DATA SHEET PJ 15i (INDUSTRIAL)

**SMALLEST DECK OPENING 76.2 mm**

**INLET FLANGE**

CONNECTION TO FIT  
JIS STANDARD

PCD 120 mm.  
8 Holes Ø19 mm.

CONNECTION TO FIT  
DIN STANDARD

PCD 125 mm.  
4 Holes Ø18 mm.

CONNECTION TO FIT  
ANSI STANDARD

PCD 4 3/4 in.  
4 Holes Ø3/4 in.

**DECK FLANGE**

CONNECTION TO FIT  
JIS STANDARD

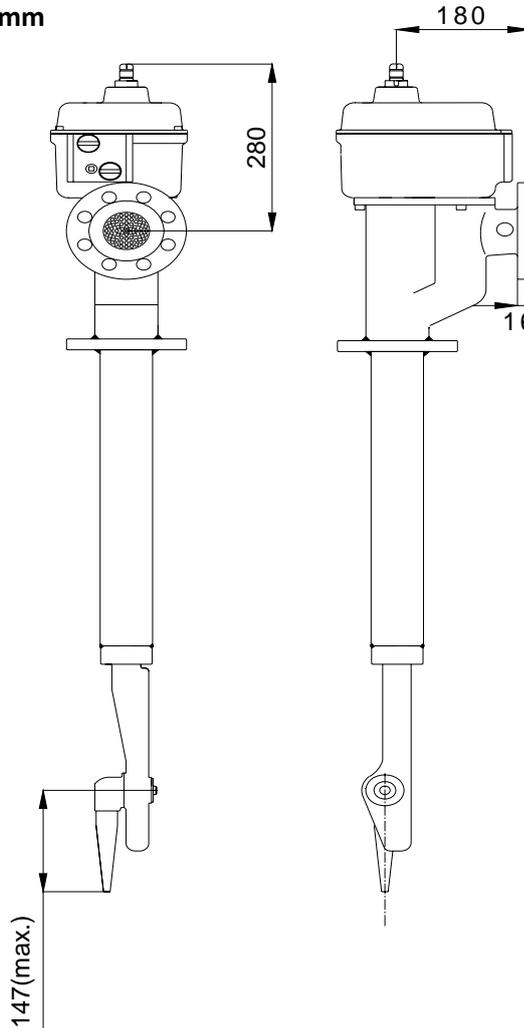
PCD 120 mm.  
8 Holes Ø19 mm.

CONNECTION TO FIT  
DIN STANDARD

PCD 125 mm.  
4 Holes Ø18 mm.

CONNECTION TO FIT  
ANSI STANDARD

PCD 4 3/4 in.  
4 Holes Ø3/4 in.



APPROX. WEIGHTS	
L (m)	Weight (Kg)
1.0	42
2.0	49
3.0	56
4.0	63
5.0	70

SHIPYARD SUPPLY
DECK FLANGE CONN.
GASKETS
STUDS
NUTS
WASHERS

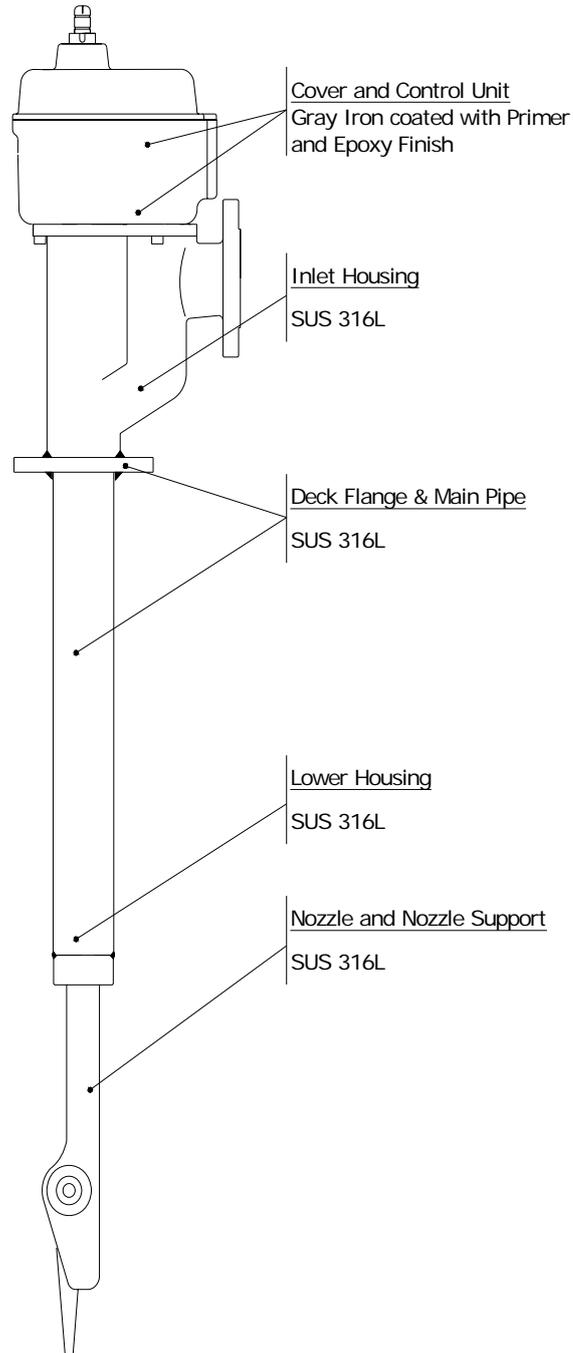
## PERFORMANCE DATA FOR POLAR JET® PJ 15i

PRESSURE, NOZZLE DIAMETER, THROUGHPUT AND JET LENGTH

Press	Nozzle Ø8mm.		Nozzle Ø9mm.		Nozzle Ø10mm.		Nozzle Ø12mm.		Nozzle Ø13mm.		Nozzle Ø14mm.	
	Bar	m <sup>3</sup> /h meter										
12	6.5	19.5	10.0	20.5	13.0	21.5	18.0	23.0	22.0	23.5	26.0	24.0
11	6.0	18.5	9.0	20.0	12.0	20.5	17.0	22.5	21.0	23.0	25.0	23.5
10	5.5	18.0	8.0	19.0	11.0	20.0	16.0	21.5	20.0	22.5	23.0	23.0
9	5.0	17.0	7.5	18.0	10.5	19.0	15.0	20.5	18.5	21.5	22.0	22.0
8	4.5	16.0	7.0	17.0	10.0	18.0	14.0	19.5	17.0	20.0	20.5	21.0
7	4.0	15.0	6.0	16.0	9.0	17.0	13.0	18.5	16.0	19.0	19.5	20.0
6	3.5	14.0	5.5	15.0	8.0	16.0	12.0	17.5	15.0	18.0	18.0	19.0



# PJ15i – Material Specification



\*Paint specification is Polarmarine Standard. Modification of paint specification is subject for additional charge.

\*\*Also available with SUS316L Control Unit and Cover upon request and subject to additional charge.

\*\*\*PJ 15i can equipped with magnetic coupling also available upon request and subject to additional charge.

## POLARMARINE

Box 1035

SE-212 10 Malmö

SWEDEN

TEL: +46 - 31-965900

E-mail: sales@polarmarine.se



## TANK CLEANING EQUIPMENT



### **POLAR JET® PJ 15 CPT TWIN NOZZLE**

The Polar Jet® PJ 15 CPT (Twin Nozzle with Controllable Pitch) is a fully programmable, twin nozzle Tank Cleaning machine equipped with pitch and speed control.

A twin nozzle version of the PJ 15 which has dual nozzles mounted asymmetrically opposed instead of one. Nozzle movement is fully controlled by the Integrated Turbine Driven Control Unit, which controls both the vertical pitch and rotation speed. Nozzle movement is, in principle, a controlled rotation in the horizontal plane, combined with a slow, controlled vertical movement. This means that the nozzle performs helical patterns.

The PJ 15 CPT comes with two controls for vertical pitch and rotation speed. There are two Speed Settings and three Pitch Settings of approximately 2, 4 and 9 degrees providing six basic cleaning programs.

Angle adjustments allows pre-setting of the Pitch at the start of either the upward or downward cycle for optimal cleaning of the specific areas such as bottom only or side only cleaning requirements.



# DATA SHEET PJ 15 CPT

**SMALLEST DECK OPENING 130 mm**

**INLET FLANGE**

CONNECTION TO FIT  
JIS STANDARD

PCD 120 mm.  
8 Holes  $\varnothing$ 19 mm.

CONNECTION TO FIT  
DIN STANDARD

PCD 125 mm.  
4 Holes  $\varnothing$ 19mm.

CONNECTION TO FIT  
ANSI STANDARD

PCD 4 3/4 in.  
4 Holes  $\varnothing$ 3/4 in.

**DECK FLANGE**

CONNECTION TO FIT  
JIS STANDARD

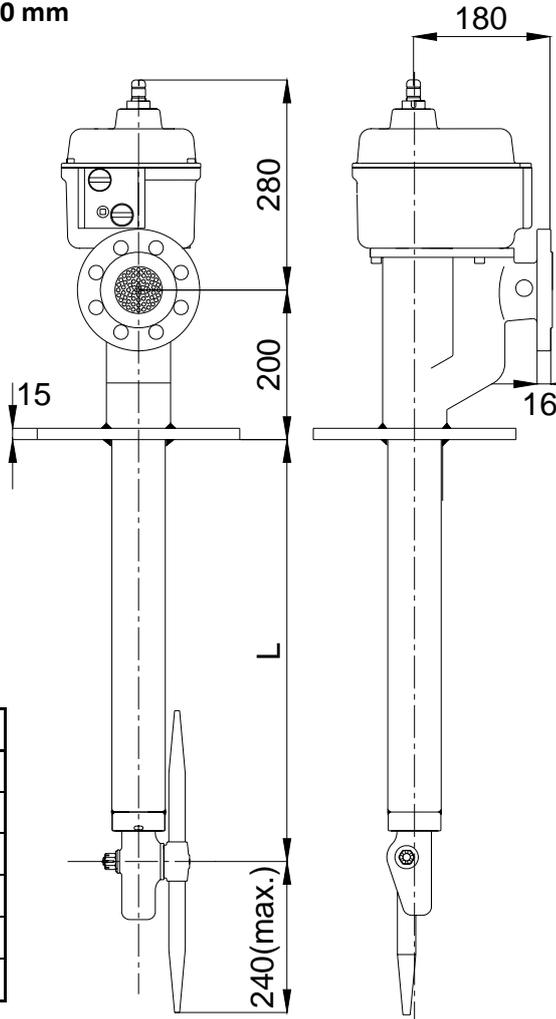
O.D. 270 mm.  
PCD 225 mm.  
8 Holes  $\varnothing$ 19 mm.

CONNECTION TO FIT  
DIN STANDARD

O.D. 265 mm.  
PCD 225 mm.  
8 Holes  $\varnothing$ 19 mm.

CONNECTION TO FIT  
ANSI STANDARD

O.D. 8 1/2 in.  
PCD 7.0 in.  
8 Holes  $\varnothing$ 3/4 in.



APPROX. WEIGHTS	
L (m)	Weight (Kg)
1.0	42
2.0	49
3.0	56
4.0	63
5.0	70

SHIPYARD SUPPLY
DECK FLANGE CONN.
GASKETS
STUDS
NUTS
WASHERS

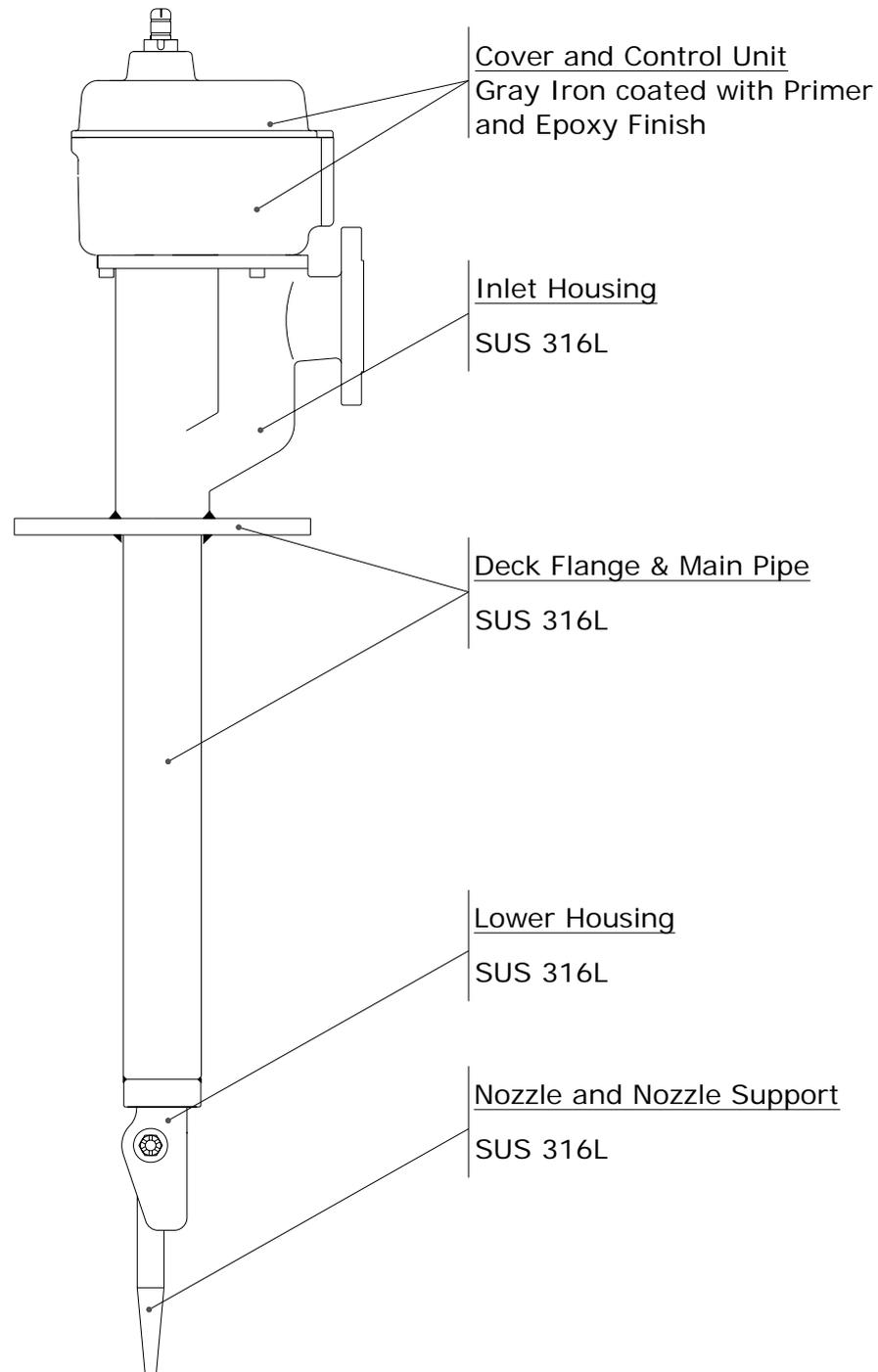
## PERFORMANCE DATA FOR POLAR JET® PJ 15 CPT

PRESSURE, NOZZLE DIAMETER, THROUGHPUT AND JET LENGTH

Press Bar	Nozzle $\varnothing$ 6mm.		Nozzle $\varnothing$ 8mm.		Nozzle $\varnothing$ 10mm.		Nozzle $\varnothing$ 12mm.	
	m <sup>3</sup> /h	meter	m <sup>3</sup> /h	meter	m <sup>3</sup> /h	meter	m <sup>3</sup> /h	meter
12	9.0	18.5	18.0	19.5	27.0	21.5	38.0	23.0
11	8.5	18.0	17.0	18.5	25.5	20.5	36.5	22.5
10	8.0	17.0	16.0	18.0	24.5	20.0	34.5	21.5
9	7.5	16.0	15.0	17.0	23.0	19.0	33.0	20.5
8	7.0	15.0	14.0	16.0	21.5	18.0	31.5	19.5
7	6.5	14.0	13.0	15.0	20.5	17.0	29.5	18.5
6	6	13.0	12.0	14.0	19.0	16.0	28.0	17.5



## PJ15 CPT – Material Specification



\*Paint specification is Polarmarine Standard. Modification of paint specification is subject for additional charge.

\*\*Also available with SUS316L Control Unit and Cover upon request and subject to additional charge.

### **POLARMARINE**

Box 1035

SE-212 10 Malmö

SWEDEN

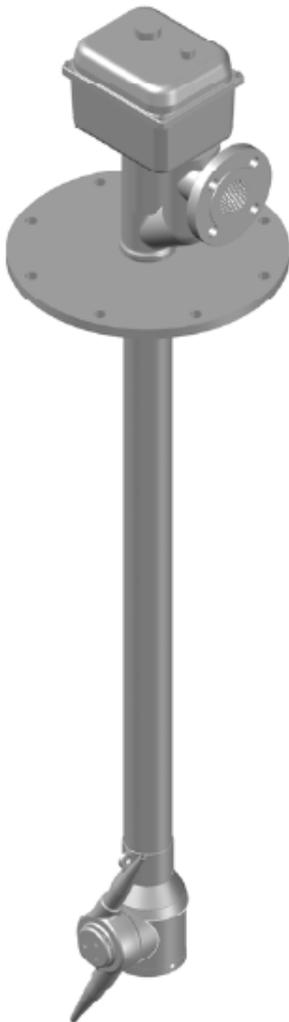
TEL: +46 - 31-965900

E-mail: sales@polarmarine.se



## TANK CLEANING EQUIPMENT

### POLAR JET® PJ 20



The Polar Jet® PJ 20 is a twin nozzle, non-programmable tank cleaning machine ideal for fixed installation in marine, offshore and industrial application.

Furthermore as the machine been developed “with user in mind” it means that all rotating parts been keep to an absolutely minimum. By this solution the need for service and spare part been reduced to an absolutely minimum.

The symmetrical opposed nozzles are driven by an integrated turbine and gearing unit providing safe, reliable starting and stable speed control. One full cycle will take approximately 30 minutes.

Polarmarine provide in-hose Shadow Diagram using 3-Dimensional CAD for model Selection, Quantity, Positioning and Main Pipe Lengths to optimized cleaning coverage per unit.



# DATA SHEET PJ 20

**SMALLEST DECK OPENING 180mm**

**TO FIT IN THE STANDARD INLET FLANGE**  
JIS STANDARD

PCD 160 mm.  
8 Holes  $\varnothing 23$  mm.

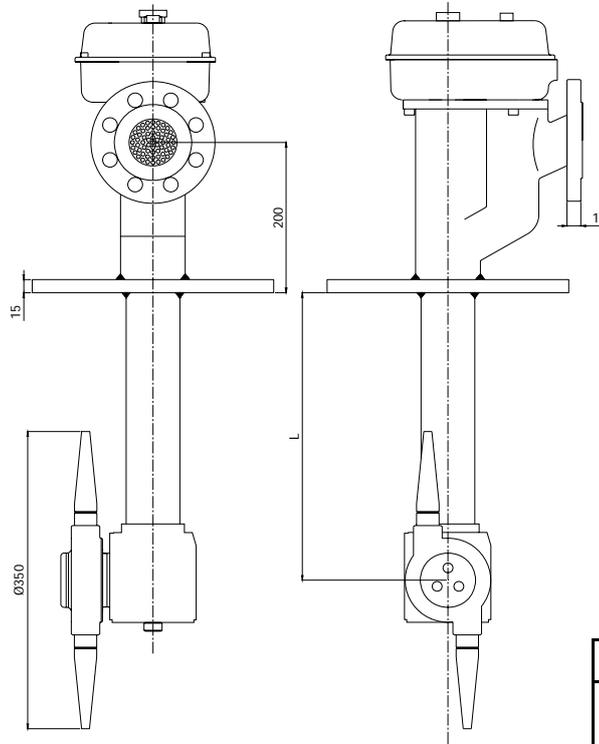
DIN STANDARD

PCD 160 mm.  
8 Holes  $\varnothing 19$  mm.

ANSI STANDARD

PCD 6.0 in.  
4 Holes  $\varnothing 3/4$  in.

BALL VALVE CONNECTION ON REQUEST AVAILABLE



**DECK FLANGE**

JIS STANDARD

O.D. 270 mm.  
PCD 225 mm.  
8 Holes  $\varnothing 19$  mm.

DIN STANDARD

O.D. 265 mm.  
PCD 225 mm.  
8 Holes  $\varnothing 19$  mm.

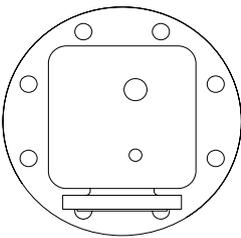
ANSI STANDARD

O.D. 10 in.  
PCD 8 1/2 in.  
8 Holes  $\varnothing 7/8$  in.

APPROX. WEIGHTS	
L (m)	Weight (Kg)
1.0	40.0
2.0	45.0
3.0	50.0
4.0	55.0
5.0	60.0

SHIPYARD SUPPLY
DECK FLANGE CONN.
GASKETS
STUDS
NUTS
WASHERS

**DECK FLANGE**



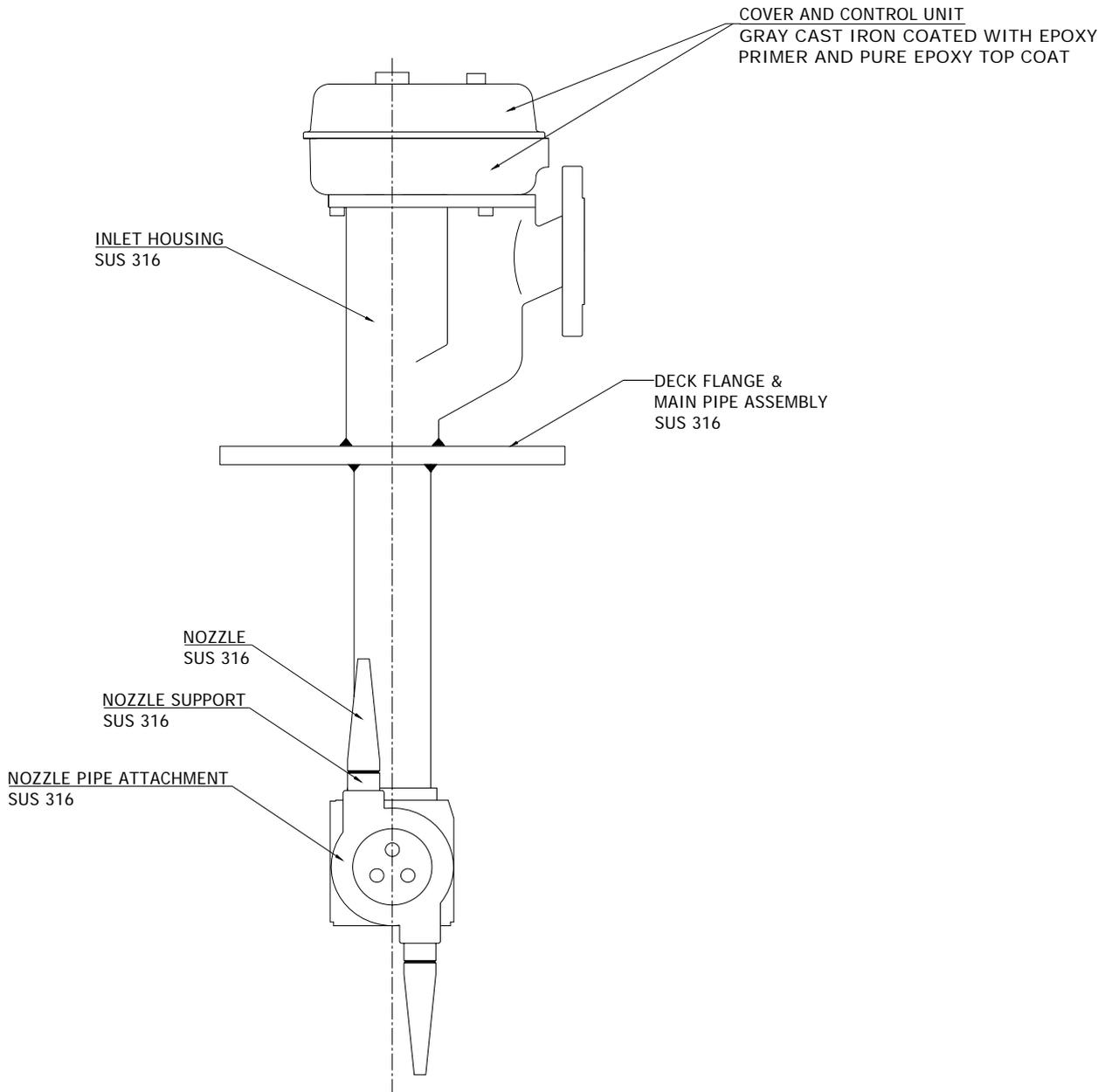
## PERFORMANCE DATA FOR POLAR JET® PJ 20

PRESSURE, NOZZLE DIAMETER, THROUGHPUT AND JET LENGTH

Press	NOZZLE DIA $\varnothing 8$ mm		NOZZLE DIA $\varnothing 9$ mm		NOZZLE DIA $\varnothing 10$ mm		NOZZLE DIA $\varnothing 12$ mm		NOZZLE DIA $\varnothing 14$ mm		NOZZLE DIA $\varnothing 16$ mm	
	m <sup>3</sup> /h	meter	m <sup>3</sup> /h	meter	m <sup>3</sup> /h	meter	m <sup>3</sup> /h	meter	m <sup>3</sup> /h	meter	m <sup>3</sup> /h	meter
12	9.0	18.5	18.0	20.0	27.0	21.5	38.0	23.0	52.0	25.0	64.0	26.5
11	8.5	18.0	17.0	19.5	25.5	21.0	36.5	22.5	49.5	24.5	62.0	26.0
10	8.0	17.0	16.0	18.5	24.5	20.5	34.5	22.0	47.0	23.5	58.5	25.0
9	7.5	16.0	15.0	17.5	23.0	19.5	33.0	21.0	44.5	22.5	55.5	24.0
8	7.0	15.0	14.0	16.5	21.5	18.5	31.5	20.0	42.0	21.5	52.0	23.0
7	6.5	14.0	13.0	15.5	20.5	17.5	29.5	19.0	39.5	20.5	49.0	22.0
6	6.0	13.0	12.0	14.5	19.0	16.5	28.0	18.0	37.0	19.5	46.0	21.0



## PJ 20 – Material Specification



\*Paint specification is Polarmarine Standard. Modification of paint specification is subject for additional charge.

\*\*Also available with SUS316L Control Unit and Cover upon request and subject to additional charge.

### POLARMARINE

Box 1035  
SE-212 10 Malmö  
SWEDEN  
TEL: +46 - 31-965900  
E-mail: sales@polarmarine.se



## TANK CLEANING EQUIPMENT



### **POLAR JET® PJ 30**

The Polar Jet® PJ 30 is a fully programmable, single nozzle Tank Cleaning machine equipped with pitch and speed control.

Nozzle movement is fully controlled by the integrated turbine driven control unit, which controls both the vertical pitch and rotation speed.

Nozzle movement is, in principle, a controlled rotation in the horizontal plane, combined with a slow, controlled vertical movement. This means that the nozzle performs helical patterns.

The PJ 30 can also be equipped with a magnetic transmission which prevents the risk of exposing the tank to the outside environment. Thus, allowing the Control Unit to be removed without accidental leakage since the Turbine Shaft does not directly go through the Inlet Housing.

The PJ 30 comes with operator-friendly controls to set both vertical Pitch and rotation Speed. There are two Speed Settings and three Pitch Settings of approximately 1.5, 3 and 7 degrees providing six basic programs.

Angle adjustment allows pre-setting of the Pitch at the start of either the upward or downward cycle for optimal cleaning of specific areas such as bottom only or side only cleaning requirements.

Polarmarine provide in-house Shadow Diagrams using 3-Dimensional CAD for model Selection, Quantity, Positioning and Main Pipe Lengths to optimize cleaning coverage per unit.



# DATA SHEET PJ 30

**SMALLEST DECK OPENING 180mm.**

### INLET FLANGE

CONNECTION TO FIT  
JIS STANDARD

PCD 120mm.  
8 Holes Ø19mm.

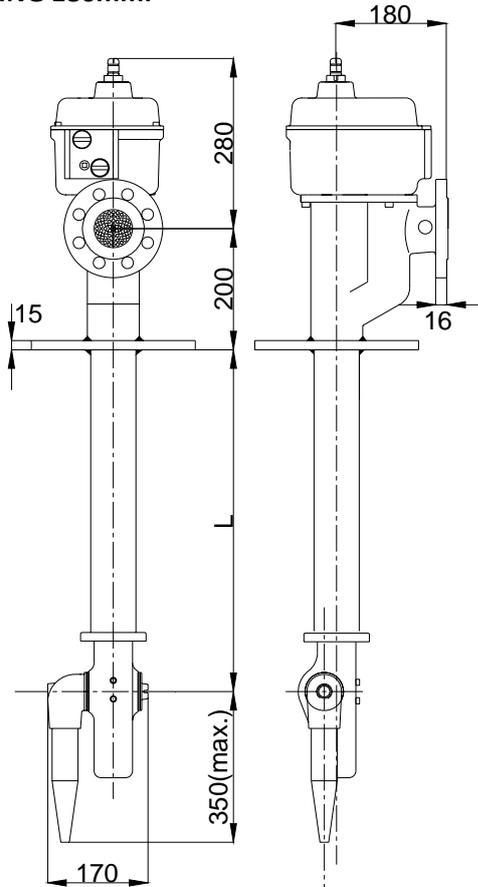
CONNECTION TO FIT  
DIN STANDARD

PCD 125mm.  
4 Holes Ø19mm.

CONNECTION TO FIT  
ANSI STANDARD

PCD 4 3/4 in.  
4 Holes Ø3/4 in.

APPROX. WEIGHTS	
L (m)	Weight (Kg)
1.0	49
2.0	56
3.0	63
4.0	70
5.0	77



### DECK FLANGE

CONNECTION TO FIT  
JIS STANDARD

O.D. 270mm.  
PCD 225mm.  
8 Holes Ø19mm.

CONNECTION TO FIT  
DIN STANDARD

O.D. 265mm.  
PCD 225mm.  
8 Holes Ø19mm.

CONNECTION TO FIT  
ANSI STANDARD

O.D. 10 in.  
PCD 8 1/2 in.  
8 Holes Ø7/8 in.

SHIPYARD SUPPLY
DECK FLANGE CONN.
GASKET
STUDS
NUTS
WASHER

## PERFORMANCE DATA FOR POLAR JET® PJ 30

PRESSURE, NOZZLE DIAMETER, THROUGHPUT AND JET LENGTH

Pressure	Nozzle Ø12mm.		Nozzle Ø14mm.		Nozzle Ø16mm.		Nozzle Ø18mm.		Nozzle Ø20mm.	
	m <sup>3</sup> /h	meter								
12	19.0	25.0	27.0	26.5	35.0	28.5	44.0	29.5	54.0	31.5
11	18.0	24.5	26.0	26.0	33.5	27.5	42.0	29.0	51.0	31.0
10	17.0	23.5	24.0	25.5	32.0	27.0	39.0	28.5	48.0	30.5
9	16.0	22.5	23.0	24.5	30.0	26.0	37.0	27.5	45.0	29.5
8	15.0	21.5	22.0	23.5	28.5	25.0	34.5	26.5	42.5	28.5
7	14.0	20.5	20.0	22.5	27.0	24.0	32.0	25.5	40.0	27.5
6	13.0*	19.5	19.0	21.5	25.0	23.0	30.0	24.5	37.0	26.5

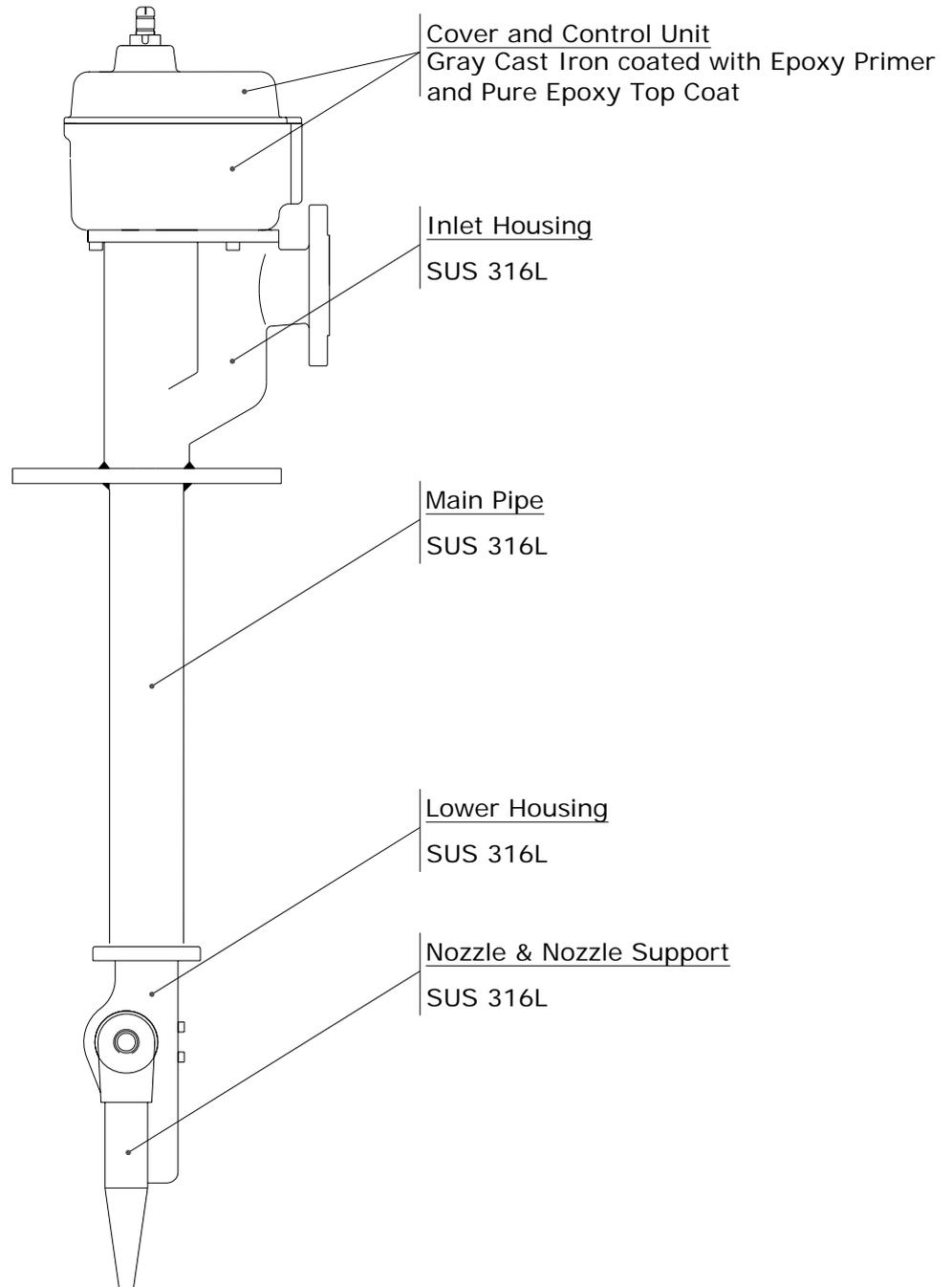
Pressure	Nozzle Ø22mm.		Nozzle Ø24mm.	
	m <sup>3</sup> /h	meter	m <sup>3</sup> /h	meter
12	60.0	33.0	69.0**	35.0
11	57.0	32.5	65.5	34.5
10	54.0	32.0	62.0	33.5
9	51.0	31.0	58.0	32.5
8	48.0	30.0	54.5	31.5
7	45.0	29.0	51.0	30.5
6	42.0	28.0	47.0	29.5

\*At this low capacity of Polar Jet PJ 30 has, we suggest considering using PJ 15. Refer to Polar Jet PJ 15 Data Sheet.

\*\* At this high capacity of Polar Jet PJ 30 has, we suggest considering using PJ 120. Refer to Polar Jet PJ 120 Data Sheet.



# PJ 30 – Material Specification



\*Paint specification is Polarmarine Standard. Modification of paint specification is subject for additional charge.

\*\*Also available with SUS316L Control Unit and Cover upon request and subject to additional charge.

\*\*\***PJ30 with magnetic coupling** also available upon request and subject to additional charge.

## POLARMARINE

Box 1035

SE-212 10 Malmö

SWEDEN

TEL: +46 - 31-965900

E-mail: sales@polarmarine.se

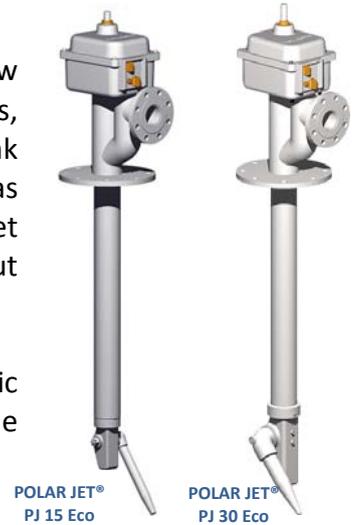


# POLAR JET® ECO

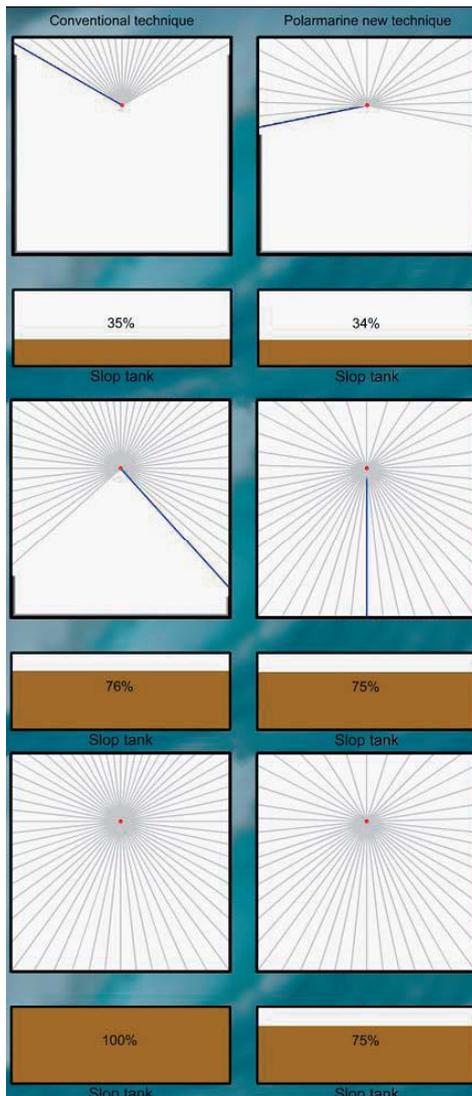
POLAR JET® PJ 15 Eco & POLAR JET® PJ 30 Eco

Polarmarine has in close cooperation with users developed a new generation of tank cleaning machines with the tank geometry in focus, Polar Jet® Eco. The basic principle of the new and improved tank cleaning machine is that the cleaning media is spread as equal as possible inside the tank. All tank cleaning machines in the market until now are designed for a fixed cleaning pattern without consideration to the design of the tank.

The PJ 15 Eco & PJ 30 Eco can also be equipped with a magnetic transmission which prevents the risk of exposing the tank to the outside environment. Thus, allowing the Control Unit to be removed without accidental leakage since the Turbine Shaft does not directly go through the Inlet Housing.



The images show conventional tank cleaning compared with:



## Polar Jet® Eco:

*Time saved = 25%*

When tank cleaning with Polar Jet® Eco is done (100%), the conventional tank cleaning is only 75% finished.

*25% less slop*

When tank cleaning is finished for both Polar Jet® Eco and conventional technique, it is 25% less slop with Polar Jet® Eco.

*25% reduction of tank cleaning water (FW/TFW)*

Since the time used is saved by 25%, also the amount of Fresh Water is 25% less as well.

Other features are:

- Easy to install (no need for dry docking)
- Quick payback of the investment
- Polar Jet® Eco is available as retrofit on all existing
- Polar Jet® PJ 15 and Polar Jet® PJ 30 installations.

This design is available upon request for new buildings and as spare part.

## POLARMARINE

Box 1035  
SE-212 10 Malmö  
SWEDEN  
TEL: +46 - 31-965900  
E-mail: sales@polarmarine.se



## TANK CLEANING EQUIPMENT



### **POLAR JET® PJ 120**

#### **Standard**

The Polar Jet® PJ 120 is a deck mounted, fully programmable, single nozzle Tank Cleaning machine equipped with speed and angle limit controls. Movement of the nozzle can be set to work continuously between any angles from 0 to 180 degrees.

For example, the PJ 120 can be set to work between 0 to 45 degrees with reverse direction for concentrated bottom cleaning – or any other angle parameters of 30 degrees or more

Nozzle movement is controlled by the integrated turbine driven control unit providing a controlled rotation in the horizontal plane, combined with a slow, controlled vertical movement. This means that the nozzle performs helical wash patterns.

The Turbine driven with automatic nozzle pitch for the PJ 120 is 3 degrees. Adjustable guide vanes located in front of the turbine control speed, which should be between 1 and 2.5 rpm.

Polarmarine provide in-house Shadow Diagrams using 3-Dimensional CAD for model Selection, Quantity, Positioning and Main Pipe Lengths to optimize cleaning coverage per unit.



# DATA SHEET PJ 120

SMALLEST DECK OPENING 190 mm.

## INLET FLANGE

**CONNECTION TO FIT**  
JIS STANDARD

PCD 160 mm.  
8 Holes  $\varnothing 23$  mm.

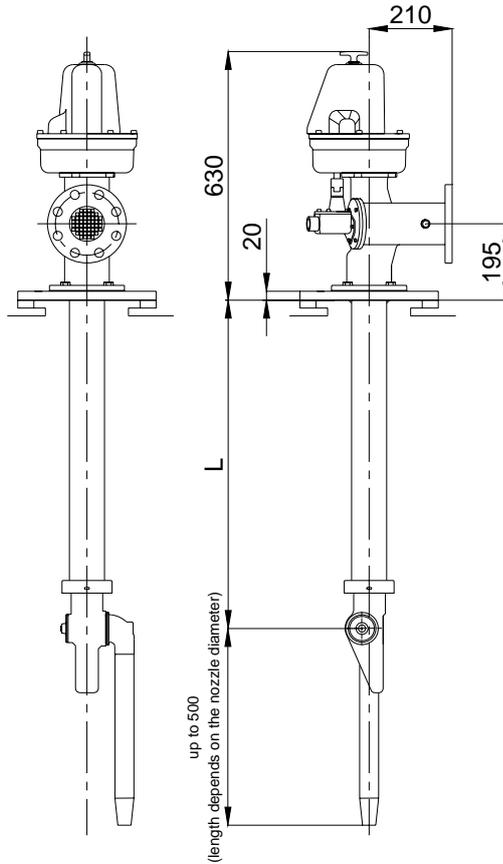
**CONNECTION TO FIT**  
DIN STANDARD

PCD 160 mm.  
8 Holes  $\varnothing 19$  mm.

**CONNECTION TO FIT**  
ANSI STANDARD

PCD 6.0 in.  
4 Holes  $\varnothing 3/4$  in.

APPROX. WEIGHTS	
L (m)	Weight (Kg)
1.0	90
2.0	105
3.0	120
4.0	135
5.0	150



## DECK FLANGE

**CONNECTION TO FIT**  
JIS STANDARD

O.D. 320 mm.  
PCD 280 mm.  
8 Holes  $\varnothing 23$  mm.

**CONNECTION TO FIT**  
DIN STANDARD

O.D. 340 mm.  
PCD 295 mm.  
12 Holes  $\varnothing 23$  mm.

**CONNECTION TO FIT**  
ANSI STANDARD

O.D. 13 1/2 in.  
PCD 11 3/4 in.  
8 Holes  $\varnothing 7/8$  in.

SHIPYARD SUPPLY
DECK FLANGE CONN.
GASKETS
STUDS
NUTS
WASHERS

## PERFORMANCE DATA FOR POLAR JET® PJ 120

PRESSURE, NOZZLE DIAMETER, THROUGHPUT AND JET LENGTH

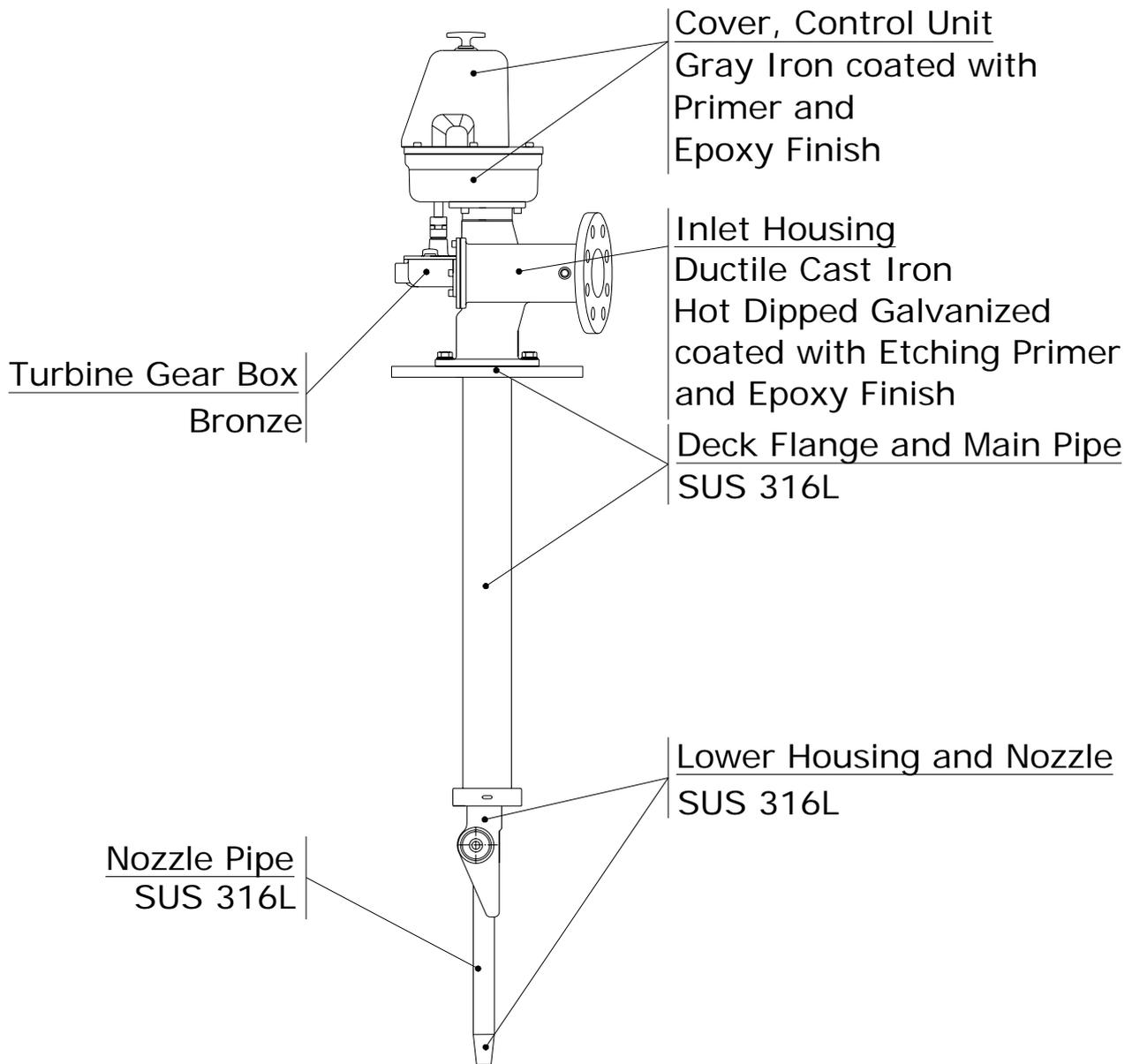
Pressure	Nozzle Diameter $\varnothing 25$ mm.		Nozzle Diameter $\varnothing 26$ mm.		Nozzle Diameter $\varnothing 28$ mm.		Nozzle Diameter $\varnothing 29$ mm.	
	m <sup>3</sup> /h	meter						
12	74.0	40.0	80.0	41.0	89.0	42.5	97.0	43.5
11	70.0	39.5	76.0	40.5	84.5	42.0	92.0	43.0
10	66.0	39.0	72.0	40.0	80.0	41.5	87.5	42.5
9	62.5	38.0	66.0	39.0	76.0	40.5	82.5	41.5
8	59.0	37.0	64.0	38.0	72.0	39.5	78.0	40.5
7	55.0	35.5	60.0	36.5	68.0	38.0	73.0	39.0
6	51.0*	34.0	56.0	35.0	63.0	36.5	68.5	37.5

Pressure	Nozzle Diameter $\varnothing 30$ mm.		Nozzle Diameter $\varnothing 31$ mm.		Nozzle Diameter $\varnothing 32.5$ mm.		Nozzle Diameter $\varnothing 35$ mm.	
	m <sup>3</sup> /h	meter	m <sup>3</sup> /h	meter	m <sup>3</sup> /h	meter	m <sup>3</sup> /h	meter
12	105.0	44.5	114.0	45.5	126.0	46.5	149.0	48.0
11	100.0	44.0	108.0	45.0	119.0	46.0	141.0	47.5
10	94.0	43.5	102.0	44.5	112.0	45.5	132.0	47.0
9	89.0	42.5	96.0	43.5	105.0	44.5	123.0	46.0
8	84.0	41.5	90.0	42.5	98.0	43.5	114.0	45.0
7	78.5	40.0	84.0	41.0	91.0	42.0	104.0	43.5
6	73.0	38.5	78.0	39.5	84.0	40.5	95.0	42.0

\* At this low capacity for Polar Jet PJ 120 machine has, we suggest considering using PJ 30. Refer to Data Sheet of PJ 30.



# PJ 120 – Material Specification



\*Paint specification is Polarmarine Standard. Modification of paint specification is subjected for additional charge.

\*\*Also available with SUS316L Inlet Housing upon request and subjected to additional charge.

\*\*\* We can also supply Bronze Washing Unit as Optional

+ **PJ 120 equipped with magnetic coupling** also available upon request subjected to additional charge.

## POLARMARINE

Box 1035

SE-212 10 Malmö

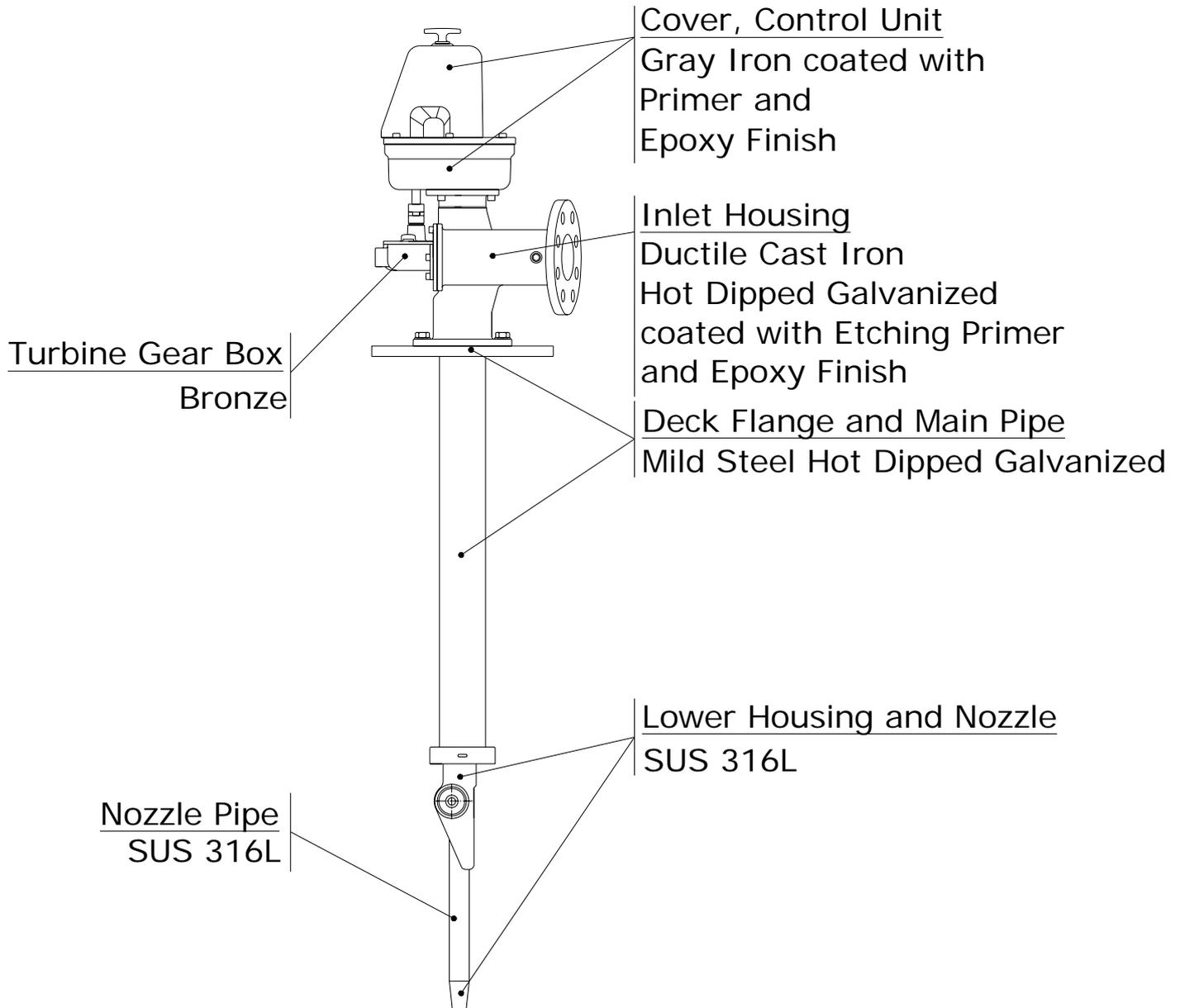
SWEDEN

TEL: +46 - 31-965900

E-mail: sales@polarmarine.se



# PJ 120 – Material Specification



\*Paint specification is Polarmarine Standard. Modification of paint specification is subjected for additional charge.

\*\*Also available with SUS316L Inlet Housing upon request and subjected to additional charge.

\*\*\* We can also supply Bronze Washing Unit as Optional

+ **PJ 120 equipped with magnetic coupling** also available upon request subjected to additional charge.

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SWEDEN

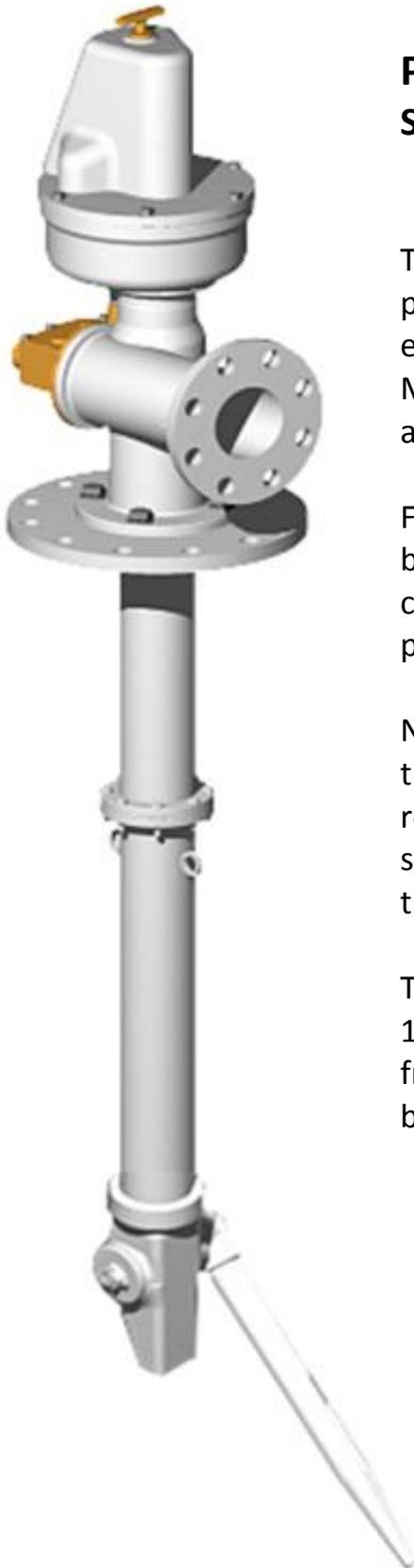
TEL: +46 - 31-965900

E-mail: sales@polarmarine.se



## TANK CLEANING EQUIPMENT

### **POLAR JET® PJ 120 SPLIT TYPE**



The POLAR JET® PJ 120 is a deck mounted, fully programmable, single nozzle Tank Cleaning machine equipped with speed and angle limit controls. Movement of the nozzle can be set to work between any angles from 0 to 180 degrees.

For example, the PJ 120 can be set to work only between 0 to 45 degrees with reverse direction for concentrated bottom cleaning – or any other angle parameters of 30 degrees or more.

Nozzle movement is controlled by the integrated turbine driven control unit providing a controlled rotation in the horizontal plane, combined with a slow, controlled vertical movement. This means that the nozzle performs helical wash patterns.

The Turbine driven automatic nozzle pitch for the PJ 120 is 3 degrees. Adjustable guide vanes located in front of the turbine control speed, which should be between 1 and 2.5 RPM.



# DATA SHEET PJ 120

**SMALLEST DECK OPENING 190mm.**

**INLET FLANGE  
CONNECTION TO FIT  
JIS STANDARD**

PCD 160 mm.  
8 Holes  $\varnothing 23$  mm.

**CONNECTION TO FIT  
DIN STANDARD**

PCD 160 mm.  
8 Holes  $\varnothing 19$  mm.

**CONNECTION TO FIT  
ANSI STANDARD**

PCD 6.0 in.  
4 Holes  $\varnothing 3/4$  in.

**DECK FLANGE  
CONNECTION TO FIT  
JIS STANDARD**

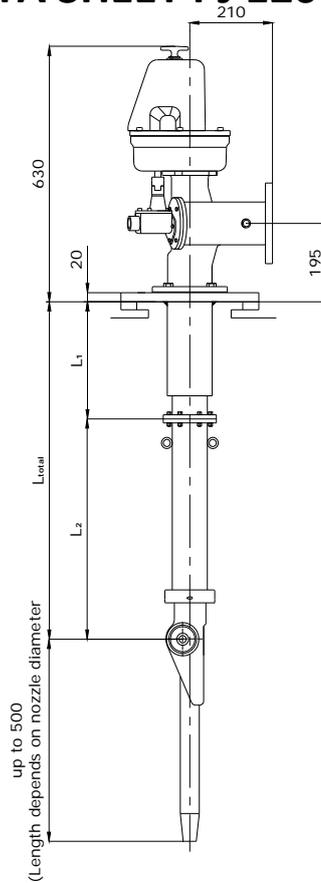
O.D. 320 mm.  
PCD 280 mm.  
8 Holes  $\varnothing 23$  mm.

**CONNECTION TO FIT  
DIN STANDARD**

O.D. 340 mm.  
PCD 295 mm.  
12 Holes  $\varnothing 23$  mm.

**CONNECTION TO FIT  
ANSI STANDARD**

O.D. 13 1/2 in.  
PCD 11 3/4 in.  
8 Holes  $\varnothing 7/8$  in.



APPROX. WEIGHTS	
L (m)	Weight (Kg)
1.0	90
2.0	105
3.0	120
4.0	135
5.0	150

SHIPYARD SUPPLY
DECK FLANGE CONN.
GASKETS
STUDS
NUTS
WASHERS

## PERFORMANCE DATA FOR POLAR JET® PJ 120

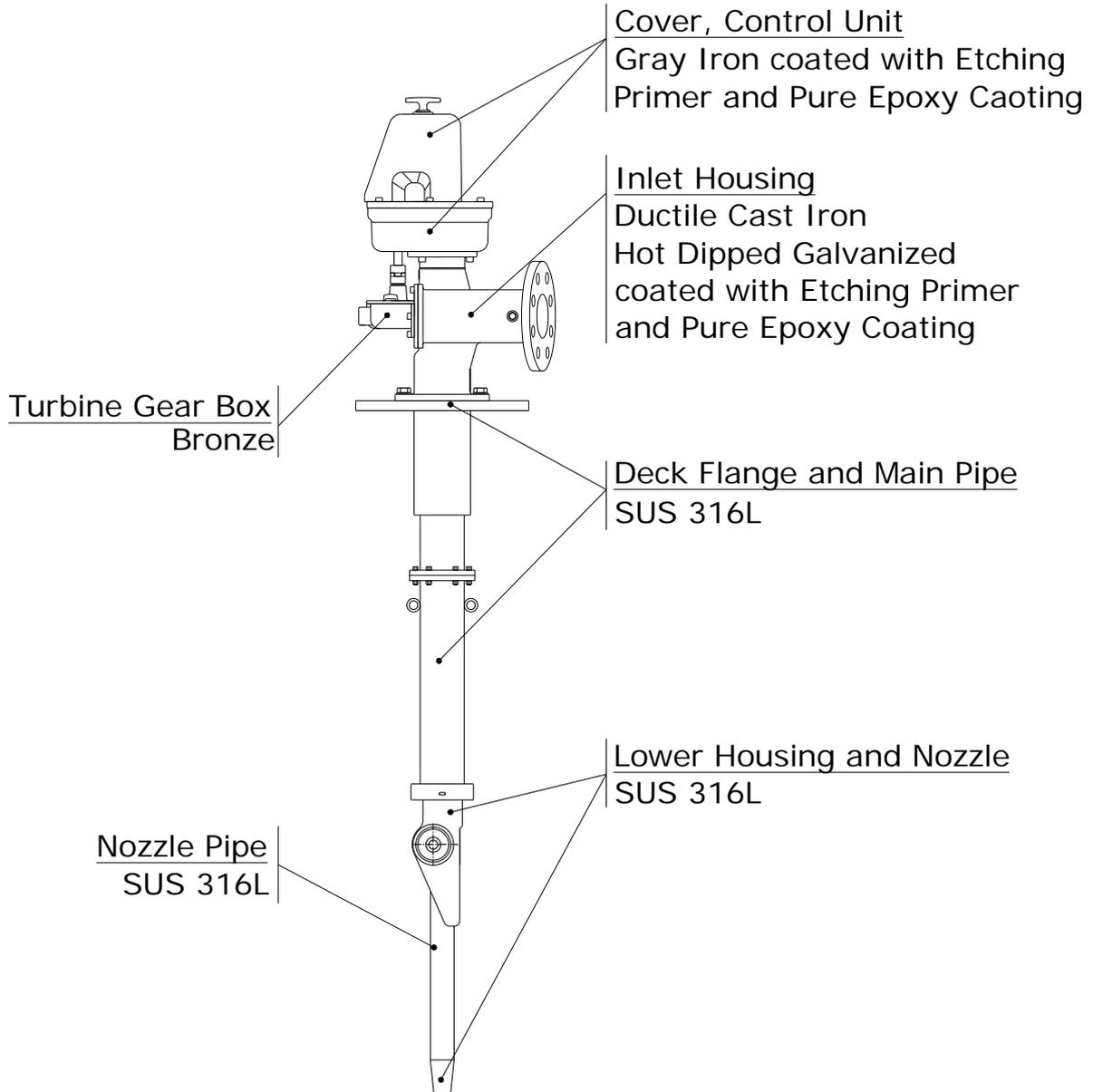
PRESSURE, NOZZLE DIAMETER, THROUGHPUT AND JET LENGTH

Pressure Bar	Nozzle Diameter $\varnothing 25$ mm.		Nozzle Diameter $\varnothing 26$ mm.		Nozzle Diameter $\varnothing 28$ mm.		Nozzle Diameter $\varnothing 29$ mm.	
	m <sup>3</sup> /h	meter						
12	74.0	40.0	80.0	41.0	89.0	42.5	97.0	43.5
11	70.0	39.5	76.0	40.5	84.5	42.0	92.0	43.0
10	66.0	39.0	72.0	40.0	80.0	41.5	87.5	42.5
9	62.5	38.0	66.0	39.0	76.0	40.5	82.5	41.5
8	59.0	37.0	64.0	38.0	72.0	39.5	78.0	40.5
7	55.0	35.5	60.0	36.5	68.0	38.0	73.0	39.0
6	51.0	34.0	56.0	35.0	63.0	36.5	68.5	37.5

Pressure Bar	Nozzle Diameter $\varnothing 30$ mm.		Nozzle Diameter $\varnothing 31$ mm.		Nozzle Diameter $\varnothing 32.5$ mm.		Nozzle Diameter $\varnothing 35$ mm.	
	m <sup>3</sup> /h	meter	m <sup>3</sup> /h	meter	m <sup>3</sup> /h	meter	m <sup>3</sup> /h	meter
12	105.0	44.5	114.0	45.5	126.0	46.5	149.0	48.0
11	100.0	44.0	108.0	45.0	119.0	46.0	141.0	47.5
10	94.0	43.5	102.0	44.5	112.0	45.5	132.0	47.0
9	89.0	42.5	96.0	43.5	105.0	44.5	123.0	46.0
8	84.0	41.5	90.0	42.5	98.0	43.5	114.0	45.0
7	78.5	40.0	84.0	41.0	91.0	42.0	104.0	43.5
6	73.0	38.5	78.0	39.5	84.0	40.5	95.0	42.0



# PJ 120 Split Type – Material Specification



\*Paint specification is Polarmarine Standard. Modification of paint specification is subjected for additional charge.

\*\*Also available with SUS316L Inlet Housing upon request and subjected to additional charge.

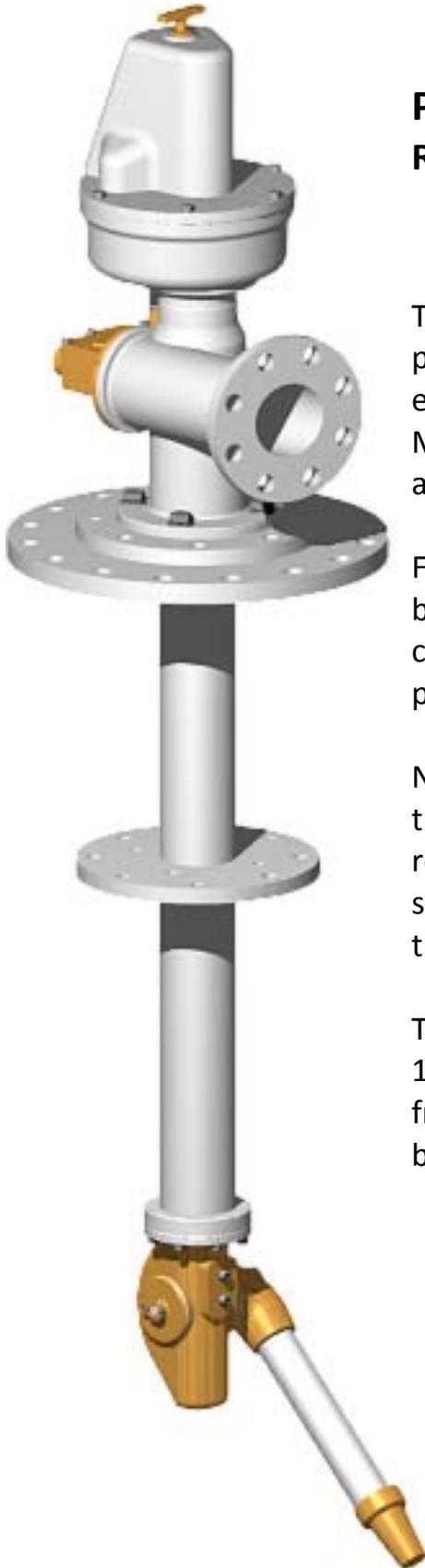
\*\*\*Also available with Bronze Washing Unit upon request and subjected to additional charge.

## POLARMARINE

Box 1035  
SE-212 10 Malmö  
SWEDEN  
TEL: +46 - 31-965900  
E-mail: sales@polarmarine.se



## TANK CLEANING EQUIPMENT



### **POLAR JET® PJ 120 RETRACTABLE TYPE**

The POLAR JET® PJ 120 is a deck mounted, fully programmable, single nozzle Tank Cleaning machine equipped with speed and angle limit controls. Movement of the nozzle can be set to work between any angles from 0 to 180 degrees.

For example, the PJ120 can be set to work only between 0 to 45 degrees with reverse direction for concentrated bottom cleaning – or any other angle parameters of 30 degrees or more.

Nozzle movement is controlled by the integrated turbine driven control unit providing a controlled rotation in the horizontal plane, combined with a slow, controlled vertical movement. This means that the nozzle performs helical wash patterns.

The Turbine driven automatic nozzle pitch for the PJ 120 is 3 degrees. Adjustable guide vanes located in front of the turbine control speed, which should be between 1 and 2.5 RPM.



# DATA SHEET PJ 120

**SMALLEST DECK OPENING 300 mm.**

**INLET FLANGE  
CONNECTION TO FIT  
JIS STANDARD**

PCD 160 mm.  
8 Holes Ø23 mm.

**CONNECTION TO FIT  
DIN STANDARD**

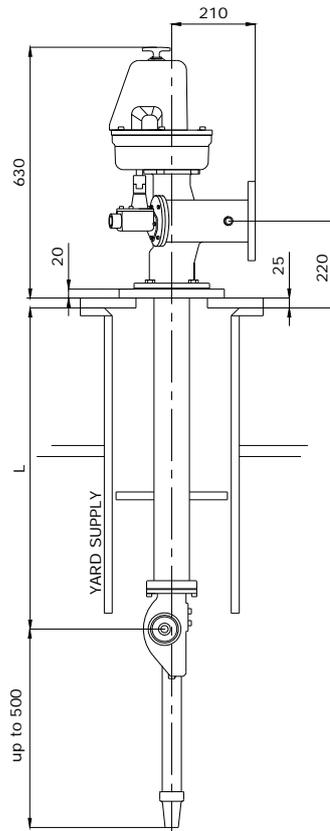
PCD 160 mm.  
8 Holes Ø19mm.

**CONNECTION TO FIT  
ANSI STANDARD**

PCD 6.0 in.  
4 Holes Ø3/4 in.

**SLIP-ON FLANGE  
CONNECTION TO FIT  
JIS STANDARD**

O.D. 430 mm.  
PCD 380 mm.  
12 Holes Ø25 mm.



APPROX. WEIGHTS	
L (m)	Weight (Kg)
1.0	90
2.0	105
3.0	120
4.0	135
5.0	150

SHIPYARD SUPPLY
DECK FLANGE CONN.
GASKETS
STUDS
NUTS
WASHERS

## PERFORMANCE DATA FOR POLAR JET® PJ 120

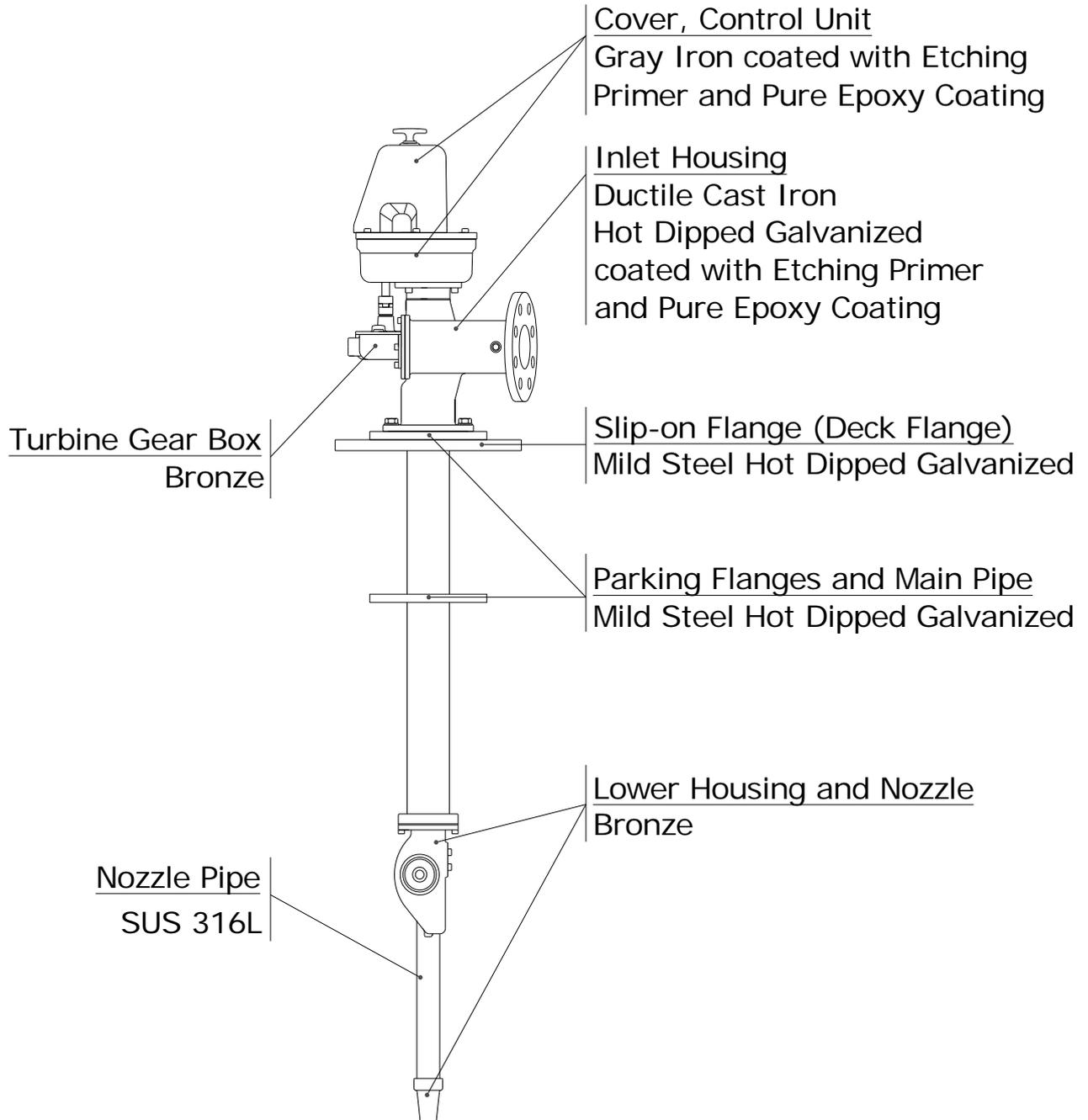
PRESSURE, NOZZLE DIAMETER, THROUGHPUT AND JET LENGTH

Pressure	Nozzle Diameter Ø25 mm.		Nozzle Diameter Ø26 mm.		Nozzle Diameter Ø28 mm.		Nozzle Diameter Ø29 mm.	
	m <sup>3</sup> /h	meter						
12	74.0	40.0	80.0	41.0	89.0	42.5	97.0	43.5
11	70.0	39.5	76.0	40.5	84.5	42.0	92.0	43.0
10	66.0	39.0	72.0	40.0	80.0	41.5	87.5	42.5
9	62.5	38.0	66.0	39.0	76.0	40.5	82.5	41.5
8	59.0	37.0	64.0	38.0	72.0	39.5	78.0	40.5
7	55.0	35.5	60.0	36.5	68.0	38.0	73.0	39.0
6	51.0	34.0	56.0	35.0	63.0	36.5	68.5	37.5

Pressure	Nozzle Diameter Ø30 mm.		Nozzle Diameter Ø31 mm.		Nozzle Diameter Ø32.5 mm.		Nozzle Diameter Ø35 mm.	
	m <sup>3</sup> /h	meter	m <sup>3</sup> /h	meter	m <sup>3</sup> /h	meter	m <sup>3</sup> /h	meter
12	105.0	44.5	114.0	45.5	126.0	46.5	149.0	48.0
11	100.0	44.0	108.0	45.0	119.0	46.0	141.0	47.5
10	94.0	43.5	102.0	44.5	112.0	45.5	132.0	47.0
9	89.0	42.5	96.0	43.5	105.0	44.5	123.0	46.0
8	84.0	41.5	90.0	42.5	98.0	43.5	114.0	45.0
7	78.5	40.0	84.0	41.0	91.0	42.0	104.0	43.5
6	73.0	38.5	78.0	39.5	84.0	40.5	95.0	42.0



## PJ 120 – Material Specification



\*Paint specification is Polarmarine Standard. Modification of paint specification is subjected for additional charge.

\*\*Also available with SUS316L Inlet Housing upon request and subjected to additional charge.

### POLARMARINE

Box 1035  
SE-212 10 Malmö  
SWEDEN  
TEL: +46 - 31-965900  
E-mail: sales@polarmarine.se



## TANK CLEANING EQUIPMENT

### **POLAR JET® PJ 120 SWINGABLE DESIGN**



The POLAR JET® PJ 120 is a deck mounted, fully programmable, single nozzle Tank Cleaning machine equipped with speed and angle limit controls for cleaning of Bulk Carriers. Movement of the nozzle can be set to work between any angles from 0 to 180 degrees.

For example, the PJ 120 can be set to work only between 0 to 45 degrees with reverse direction for concentrated bottom cleaning – or any other angle parameters of 30 degrees or more.

Nozzle movement is controlled by the integrated turbine driven control unit providing a controlled rotation in the horizontal plane, combined with a slow, controlled vertical movement. This means that the nozzle performs helical wash patterns.

The Turbine driven automatic nozzle pitch for the PJ 120 is 3 degrees. Adjustable guide vanes located in front of the turbine control speed, which should be between 1 and 2.5 RPM.



# DATA SHEET PJ 120

**INLET FLANGE  
CONNECTION TO FIT  
JIS STANDARD**

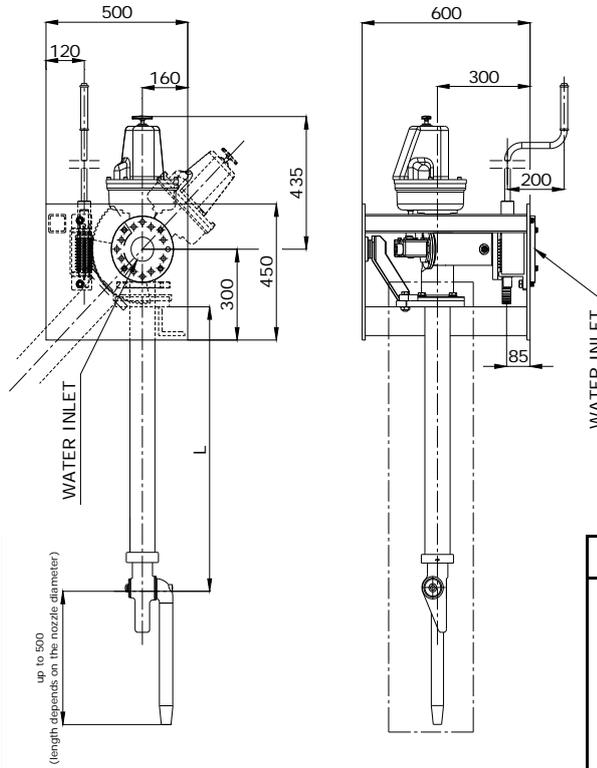
PCD 160 mm.  
8 Holes  $\varnothing 23$  mm.

**CONNECTION TO FIT  
DIN STANDARD**

PCD 160 mm.  
8 Holes  $\varnothing 19$  mm.

**CONNECTION TO FIT  
ANSI STANDARD**

PCD 6.0 in.  
4 Holes  $\varnothing 3/4$  in.



APPROX. WEIGHTS	
L (m)	Weight (Kg)
1.0	90
2.0	105
3.0	120
4.0	135
5.0	150

SHIPYARD SUPPLY
DECK FLANGE CONN.
GASKETS
STUDS
NUTS
WASHERS

## PERFORMANCE DATA FOR POLAR JET® PJ 120

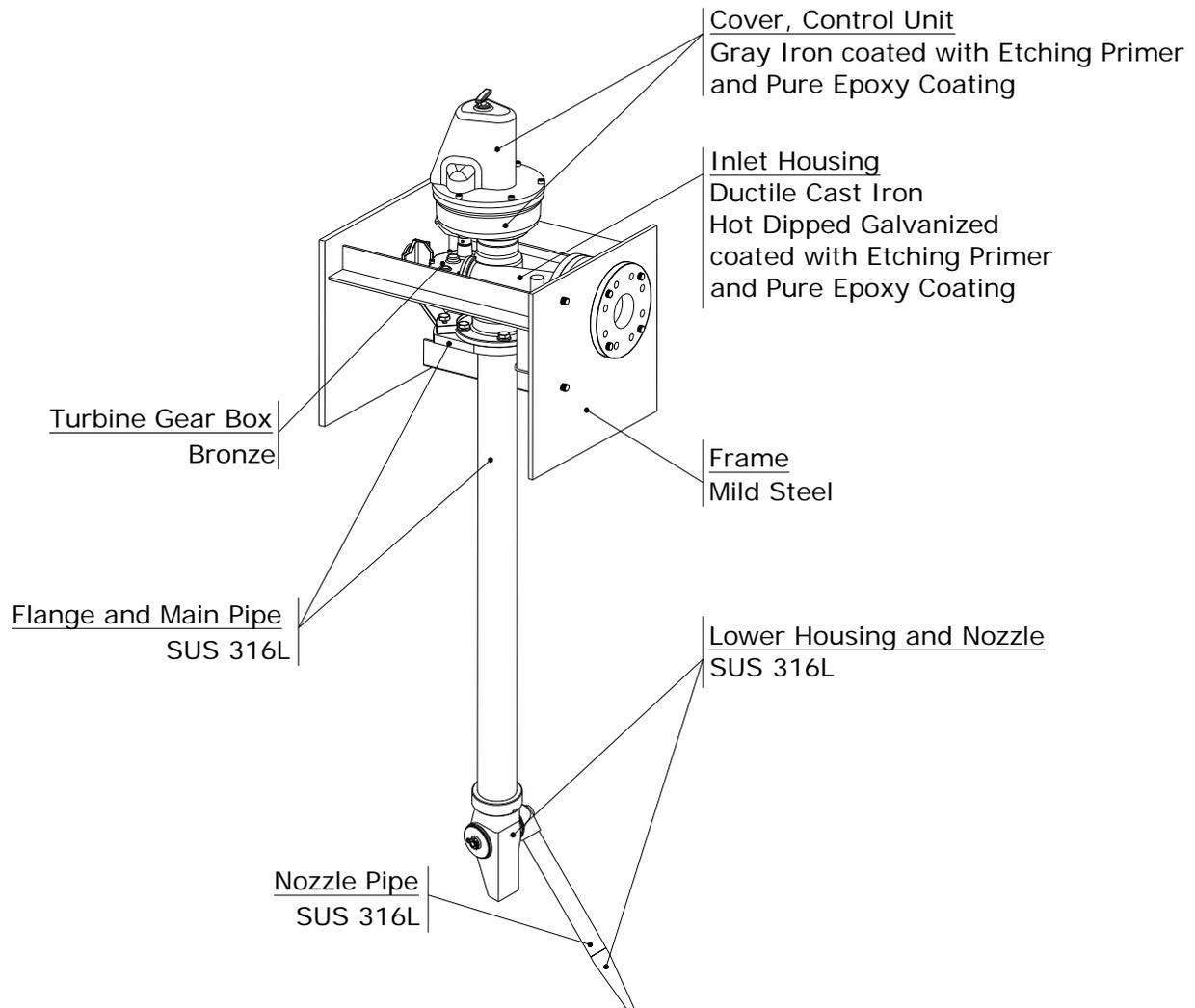
PRESSURE, NOZZLE DIAMETER, THROUGHPUT AND JET LENGTH

Pressure	Nozzle Diameter $\varnothing 25$ mm.		Nozzle Diameter $\varnothing 26$ mm.		Nozzle Diameter $\varnothing 28$ mm.		Nozzle Diameter $\varnothing 29$ mm.	
	m <sup>3</sup> /h	meter						
12	74.0	40.0	80.0	41.0	89.0	42.5	97.0	43.5
11	70.0	39.5	76.0	40.5	84.5	42.0	92.0	43.0
10	66.0	39.0	72.0	40.0	80.0	41.5	87.5	42.5
9	62.5	38.0	66.0	39.0	76.0	40.5	82.5	41.5
8	59.0	37.0	64.0	38.0	72.0	39.5	78.0	40.5
7	55.0	35.5	60.0	36.5	68.0	38.0	73.0	39.0
6	51.0	34.0	56.0	35.0	63.0	36.5	68.5	37.5

Pressure	Nozzle Diameter $\varnothing 30$ mm.		Nozzle Diameter $\varnothing 31$ mm.		Nozzle Diameter $\varnothing 32.5$ mm.		Nozzle Diameter $\varnothing 35$ mm.	
	m <sup>3</sup> /h	meter	m <sup>3</sup> /h	meter	m <sup>3</sup> /h	meter	m <sup>3</sup> /h	meter
12	105.0	44.5	114.0	45.5	126.0	46.5	149.0	48.0
11	100.0	44.0	108.0	45.0	119.0	46.0	141.0	47.5
10	94.0	43.5	102.0	44.5	112.0	45.5	132.0	47.0
9	89.0	42.5	96.0	43.5	105.0	44.5	123.0	46.0
8	84.0	41.5	90.0	42.5	98.0	43.5	114.0	45.0
7	78.5	40.0	84.0	41.0	91.0	42.0	104.0	43.5
6	73.0	38.5	78.0	39.5	84.0	40.5	95.0	42.0



# PJ 120 Swingable Design– Material Specification



\*Paint specification is Polarmarine Standard. Modification of paint specification is subjected for additional charge.

\*\*Also available with SUS316L Inlet Housing upon request and subjected to additional charge.

\*\*\*Also available with Bronze Washing Unit upon request and subjected to additional charge.

## **POLARMARINE**

Box 1035  
SE-212 10 Malmö  
SWEDEN  
TEL: +46 - 31-965900  
E-mail: sales@polarmarine.se



## TANK CLEANING EQUIPMENT



### **POLAR JET® PJ 120 CPA**

#### **SPEED, PITCH AND ANGLE SECTOR CONTROL**

The Polar Jet PJ 120 is a deck mounted, fully programmable, single nozzle Tank Cleaning machine equipped with pitch, speed and angle limit controls. Movement of the nozzle can be set to work continuously any angles from 0 to 180 degrees.

**The pitch per revolution can be set to 1.5 or 3 degrees.**

**The nozzles can be set to work between any angle from 0 to 180 degrees.**

The PJ 120CPA can be set to work between 0 to 45 degrees with automatic reverse direction for concentrated bottom cleaning – or any other suitable angles. The nozzle angle can also be manually fixed for concentrated spot cleaning.

Nozzle movement is a variable rotation speed in the horizontal plane combined with a changeable vertical pitch

Polarmarine provide in-house Shadow Diagrams using 3-dimensional CAD for model Selection, Quantity, Positioning and Main Pipe Length to optimize cleaning coverage per unit.



# DATA SHEET PJ 120

**SMALLEST DECK OPENING 190 mm.**

## INLET FLANGE

**CONNECTION TO FIT**  
JIS STANDARD

PCD 160 mm.  
8 Holes  $\varnothing 23$  mm.

## CONNECTION TO FIT

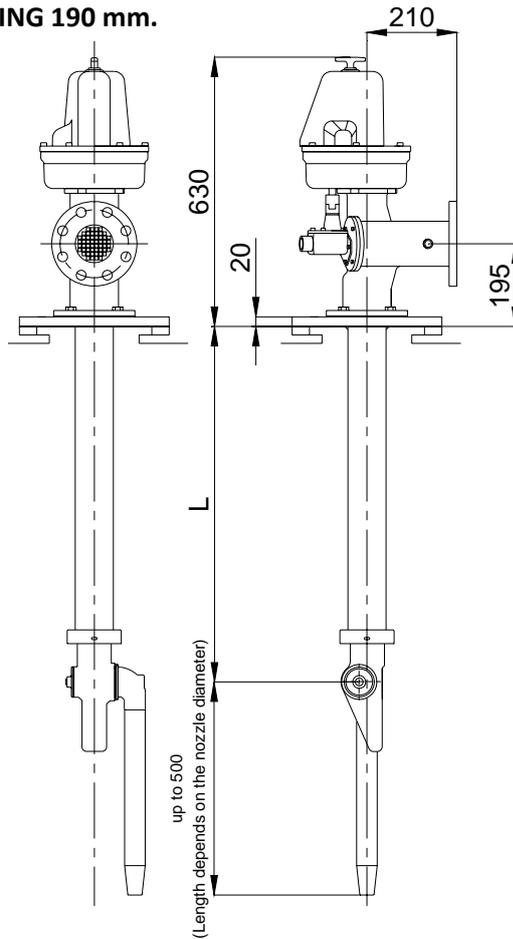
DIN STANDARD

PCD 160 mm.  
8 Holes  $\varnothing 19$  mm.

## CONNECTION TO FIT

ANSI STANDARD

PCD 6.0 in.  
4 Holes  $\varnothing 3/4$  in.



## DECK FLANGE

**CONNECTION TO FIT**  
JIS STANDARD

O.D. 320 mm.  
PCD 280 mm.  
8 Holes  $\varnothing 23$  mm.

## CONNECTION TO FIT

DIN STANDARD

O.D. 340 mm.  
PCD 295 mm.  
12 Holes  $\varnothing 23$  mm.

## CONNECTION TO FIT

ANSI STANDARD

O.D. 13 1/2 in.  
PCD 11 3/4 in.  
8 Holes  $\varnothing 7/8$  in.

APPROX. WEIGHTS	
L (m)	Weight (Kg)
1.0	90
2.0	105
3.0	120
4.0	135
5.0	150

SHIPYARD SUPPLY
DECK FLANGE CONN.
GASKETS
STUDS
NUTS
WASHERS

## PERFORMANCE DATA FOR POLAR JET® PJ 120

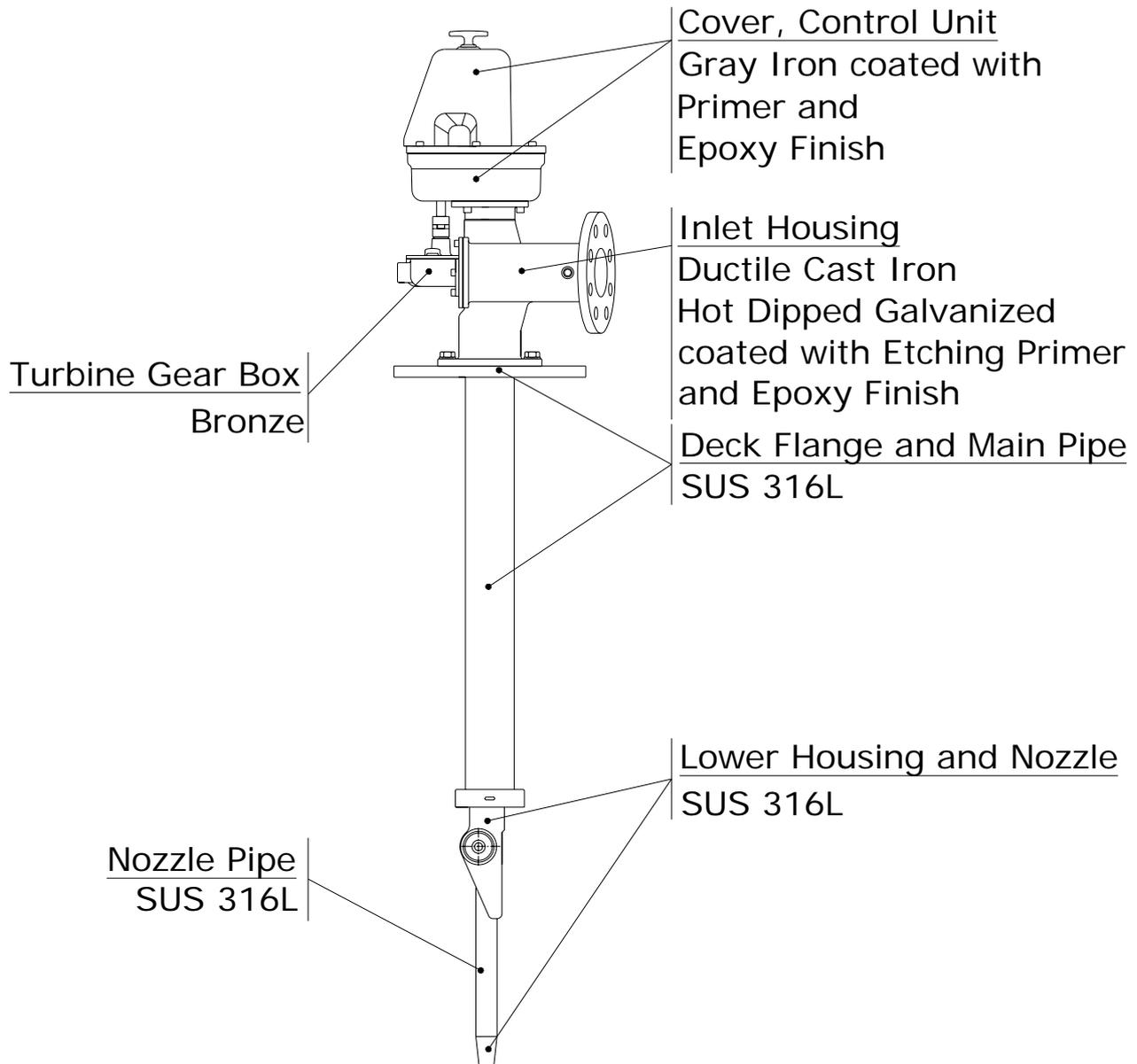
PRESSURE, NOZZLE DIAMETER, THROUGHPUT AND JET LENGTH

Pressure	Nozzle Diameter $\varnothing 25$ mm.		Nozzle Diameter $\varnothing 26$ mm.		Nozzle Diameter $\varnothing 28$ mm.		Nozzle Diameter $\varnothing 29$ mm.	
	m <sup>3</sup> /h	meter						
12	74.0	40.0	80.0	41.0	89.0	42.5	97.0	43.5
11	70.0	39.5	76.0	40.5	84.5	42.0	92.0	43.0
10	66.0	39.0	72.0	40.0	80.0	41.5	87.5	42.5
9	62.5	38.0	66.0	39.0	76.0	40.5	82.5	41.5
8	59.0	37.0	64.0	38.0	72.0	39.5	78.0	40.5
7	55.0	35.5	60.0	36.5	68.0	38.0	73.0	39.0
6	51.0	34.0	56.0	35.0	63.0	36.5	68.5	37.5

Pressure	Nozzle Diameter $\varnothing 30$ mm.		Nozzle Diameter $\varnothing 31$ mm.		Nozzle Diameter $\varnothing 32.5$ mm.		Nozzle Diameter $\varnothing 35$ mm.	
	m <sup>3</sup> /h	meter	m <sup>3</sup> /h	meter	m <sup>3</sup> /h	meter	m <sup>3</sup> /h	meter
12	105.0	44.5	114.0	45.5	126.0	46.5	149.0	48.0
11	100.0	44.0	108.0	45.0	119.0	46.0	141.0	47.5
10	94.0	43.5	102.0	44.5	112.0	45.5	132.0	47.0
9	89.0	42.5	96.0	43.5	105.0	44.5	123.0	46.0
8	84.0	41.5	90.0	42.5	98.0	43.5	114.0	45.0
7	78.5	40.0	84.0	41.0	91.0	42.0	104.0	43.5
6	73.0	38.5	78.0	39.5	84.0	40.5	95.0	42.0



## PJ 120 – Material Specification



\*Paint specification is Polarmarine Standard. Modification of paint specification is subject for additional charge.

\*\*Also available with SUS316L Inlet Housing upon request and subject to additional charge.

### POLARMARINE

Box 1035  
SE-212 10 Malmö  
SWEDEN  
TEL: +46 - 31-965900  
E-mail: sales@polarmarine.se



## TANK CLEANING EQUIPMENT

### POLAR JET® PJ 123



The Polar Jet® PJ 123 is a deck mounted, fully programmable, multi-stage, single nozzle Tank Cleaning Machine. This model can be supplied with 2, 3, 4, or more nozzles according to the specific cleaning requirements of the tank configuration.

Movement of the nozzles can be set to work between any angles from 0 to 180 degrees. For example, the PJ 123 can be set to work only between 0 to 45 degrees with reverse direction for concentrated bottom cleaning – or any other suitable angles.

Nozzle movement is controlled by the integrated turbine driven control unit, providing a controlled rotation in the horizontal plane, combined with a slow, controlled vertical movement. This means that the nozzle performs helical patterns.

The Turbine driven nozzle pitch for the PJ 123 is 3 degrees. Adjustable guide vanes located in front of the turbine control speed, which should be between 1 and 2.5 RPM.

Polarmarine provide in-house Shadow Diagrams using 3-Dimensional CAD for model Selection, Quantity, Positioning and Main Pipe Lengths to optimize cleaning coverage per unit.



## DATA SHEET PJ 123

**SMALLEST DECK OPENING 190mm**

**INLET FLANGE  
CONNECTION TO FIT  
JIS STANDARD**

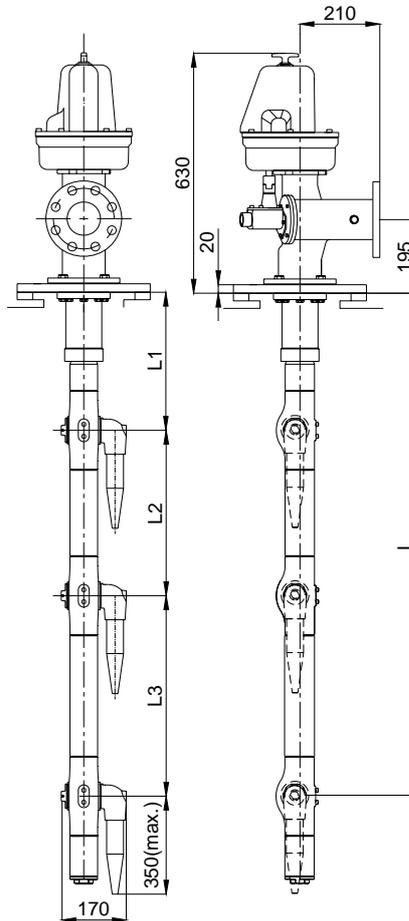
PCD 160mm.  
8 Holes  $\varnothing 23\text{mm.}$

**CONNECTION TO FIT  
DIN STANDARD**

PCD 160mm.  
8 Holes  $\varnothing 19\text{mm.}$

**CONNECTION TO FIT  
ANSI STANDARD**

PCD 6 in.  
4 Holes  $\varnothing 3/4$  in.



**DECK FLANGE  
CONNECTION TO FIT  
JIS STANDARD**

O.D. 350mm.  
PCD 305mm.  
12 Holes  $\varnothing 25\text{mm.}$

**CONNECTION TO FIT  
DIN STANDARD**

O.D. 340mm.  
PCD 295mm.  
12 Holes  $\varnothing 23\text{mm.}$

**CONNECTION TO FIT  
ANSI STANDARD**

O.D. 13 1/2 in.  
PCD 11 3/4 in.  
8 Holes  $\varnothing 7/8$  in.

APPROX. WEIGHTS	
L (m)	Weight (Kg)
1.0	90
2.0	97
3.0	114
4.0	121
5.0	128

*Note: Add 7kls for every meter length*

SHIPYARD SUPPLY
DECK FLANGE CONN.
GASKETS
STUDS
NUTS
WASHER

### PERFORMANCE DATA FOR POLAR JET® PJ 123

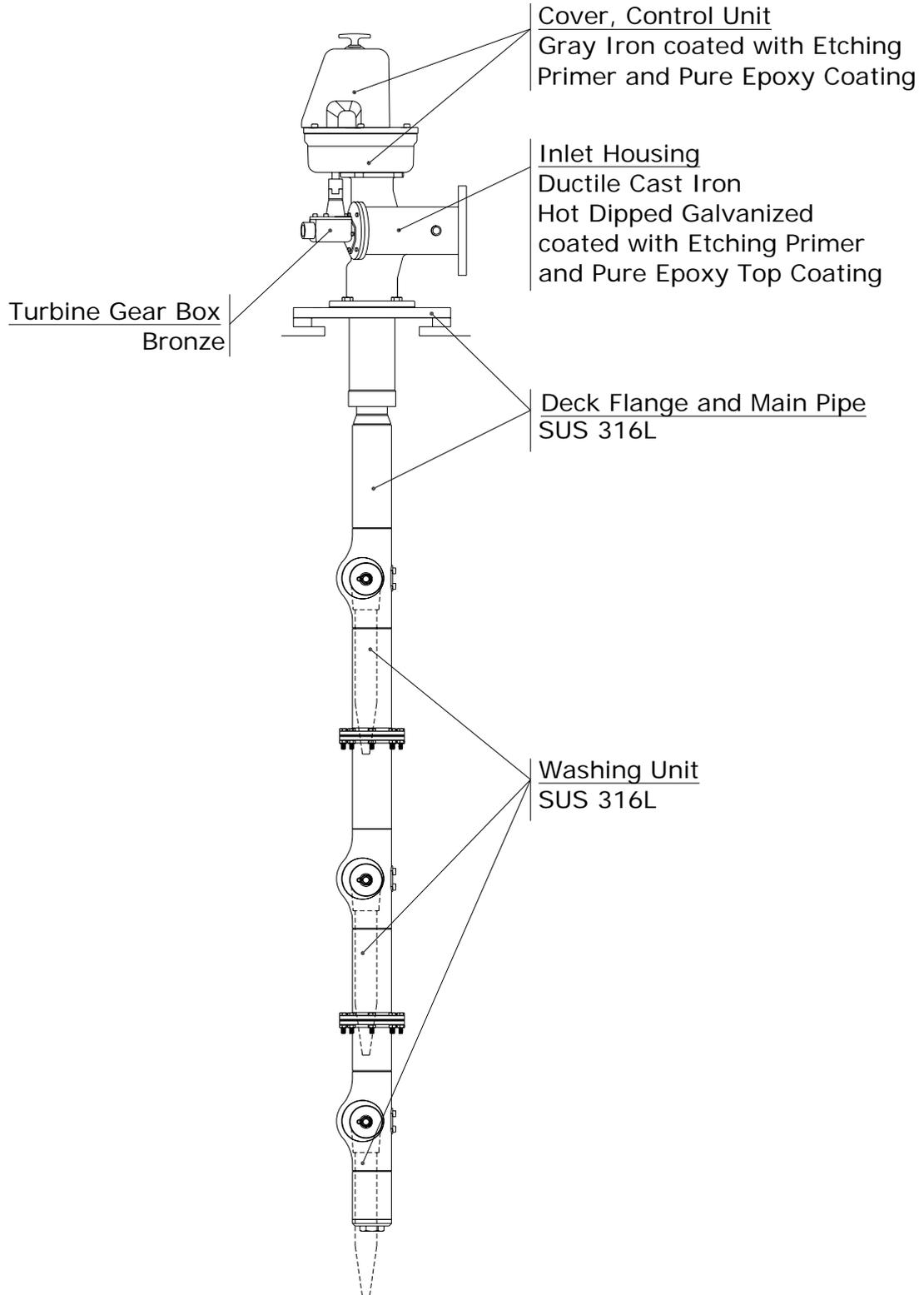
PRESSURE, NOZZLE DIAMETER, THROUGHPUT AND JET LENGTH

*(Note: Data below is for each nozzle only)*

Press Bar	Nozzle $\varnothing 12\text{mm.}$		Nozzle $\varnothing 14\text{mm.}$		Nozzle $\varnothing 16\text{mm.}$		Nozzle $\varnothing 18\text{mm.}$		Nozzle $\varnothing 20\text{mm.}$		Nozzle $\varnothing 22\text{mm.}$	
	$\text{m}^3/\text{h}$	mete r										
12	19.0	25.0	27.0	26.5	35.0	28.5	44.0	29.5	54.0	31.5	60.0	33.0
11	18.0	24.5	26.0	26.0	33.5	27.5	42.0	29.0	51.0	31.0	57.0	32.5
10	17.0	23.5	24.0	25.5	32.0	27.0	39.0	28.5	48.0	30.5	54.0	32.0
9	16.0	22.5	23.0	24.5	30.0	26.0	37.0	27.5	45.0	29.5	51.0	31.0
8	15.0	21.5	22.0	23.5	28.5	25.0	34.5	26.5	42.5	28.5	48.0	30.0
7	14.0	20.5	20.0	22.5	27.0	24.0	32.0	25.5	40.0	27.5	45.0	29.0
6	13.0	19.5	19.0	21.5	25.0	23.0	30.0	24.5	37.0	26.5	42.0	28.0



# PJ 123 – Material Specification



\*Paint specification is Polarmarine Standard. Modification of paint specification is subject for additional charge.

\*\*Also available with SUS316L Inlet Housing upon request and subject to additional charge.

## POLARMARINE

Box 1035

SE-212 10 Malmö

SWEDEN

TEL: +46 - 31-965900

E-mail: sales@polarmarine.se



## TANK CLEANING EQUIPMENT

### POLAR JET® PJ 303

The Polar Jet® PJ 303 is a fully programmable, multi-stage, single nozzle Tank Cleaning machine equipped with pitch and speed control.

Nozzle movement is fully controlled by the integrated turbine driven control unit, which controls both the vertical pitch and rotation speed.

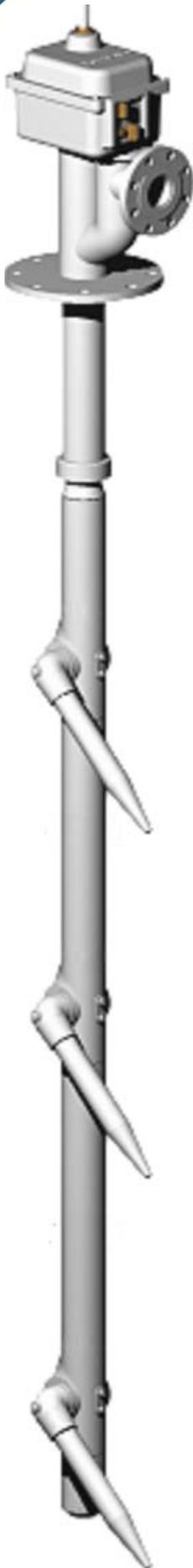
Nozzle movement is, in principle, a controlled rotation in the horizontal plane, combined with a slow, controlled vertical movement. This means that the nozzle performs helical patterns.

The PJ 303 comes with operator-friendly controls to set both vertical Pitch and rotation Speed. There are two Speed Settings and three Pitch Settings of approximately 1.5, 3 and 7 degrees providing six basic programs.

Angle adjustment allows pre-setting of the Pitch at the start of either the upward or downward cycle for optimal cleaning of specific areas such as bottom only or side only cleaning requirements.

Polarmarine provide in-house Shadow Diagrams using 3-Dimensional CAD for model Selection, Quantity, Positioning and Main Pipe Lengths to optimize cleaning coverage per unit. The Shadow Diagrams are made according to DNV ETC, Effective Tank Cleaning.

Standard material is according to SUS 316L. As optional with higher grade, Stainless Steel with Molybdenum equal or higher than 2.5% is also offered.





# DATA SHEET PJ 303

## SMALLEST DECK OPENING 180 mm

**INLET FLANGE**  
CONNECTION TO FIT  
JIS STANDARD

PCD 120mm.  
8 Holes Ø19mm.

**CONNECTION TO FIT**  
DIN STANDARD

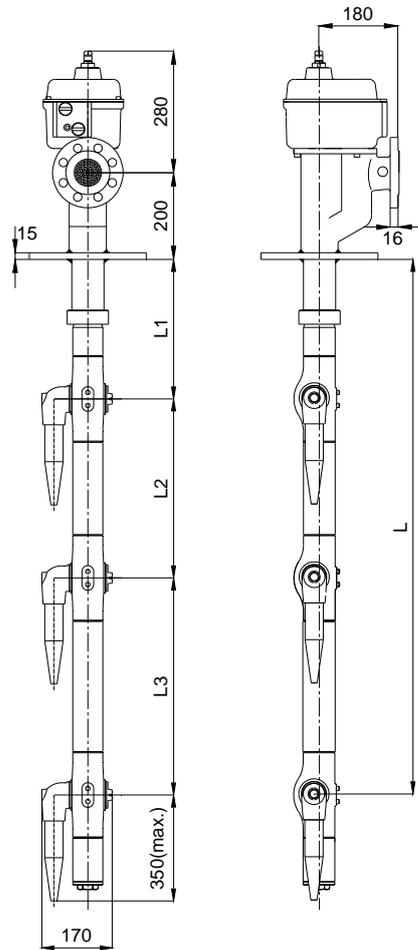
PCD 125mm.  
4 Holes Ø19mm.

**CONNECTION TO FIT**  
ANSI STANDARD

PCD 4 3/4 in.  
4 Holes Ø3/4 in.

APPROX. WEIGHTS	
L (m)	Weight (Kg)
1.0	49
2.0	56
3.0	63
4.0	70
5.0	77

Note: Add 7kls for every meter length



**DECK FLANGE**  
CONNECTION TO FIT  
JIS STANDARD

O.D. 270mm.  
PCD 225mm.  
8 Holes Ø19mm.

**CONNECTION TO FIT**  
DIN STANDARD

O.D. 265mm.  
PCD 225mm.  
8 Holes Ø19mm.

**CONNECTION TO FIT**  
ANSI STANDARD

O.D. 10 in.  
PCD 8 1/2 in.  
8 Holes Ø7/8 in.

### SHIPYARD SUPPLY

DECK FLANGE CONN.  
GASKETS  
STUDS  
NUTS  
WASHER

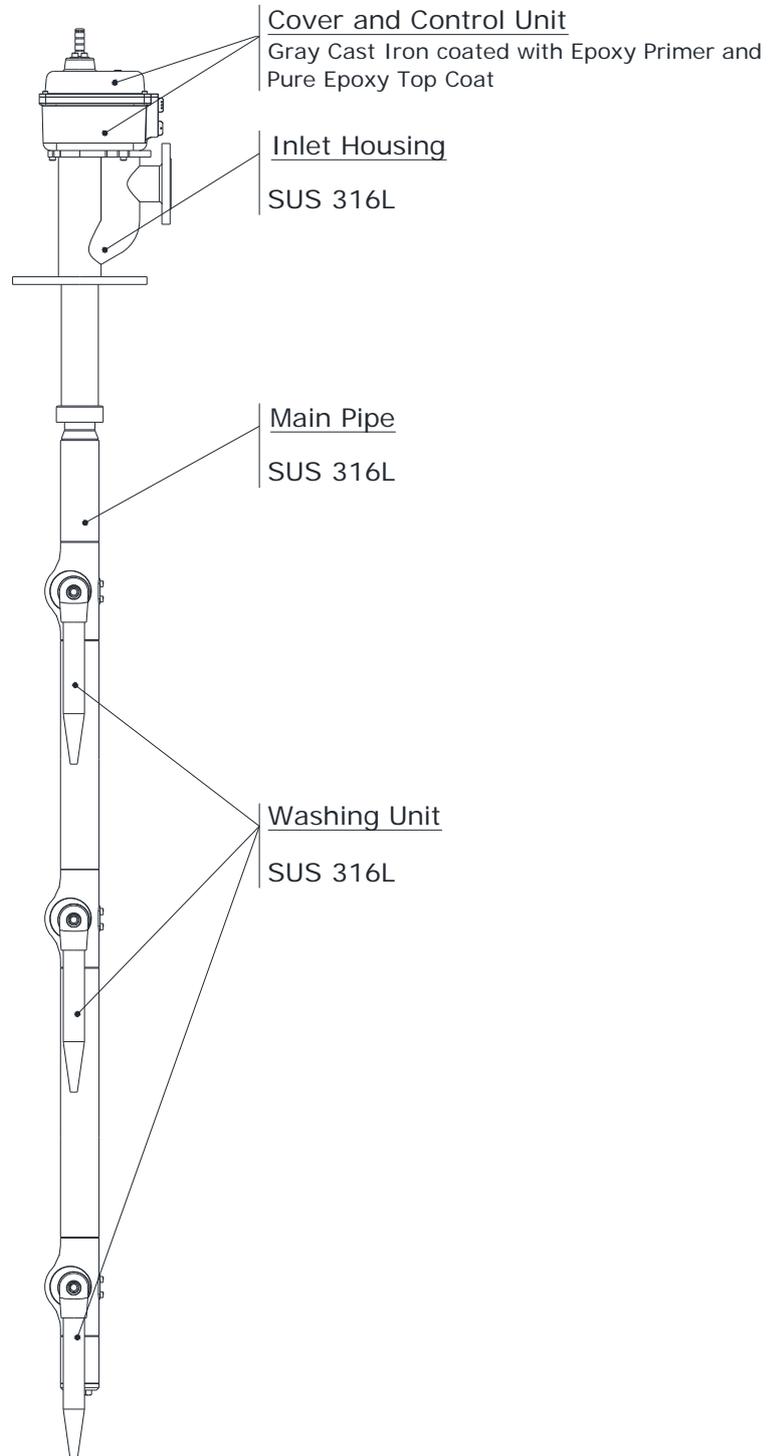
## PERFORMANCE DATA FOR POLAR JET® PJ 303

PRESSURE, NOZZLE DIAMETER, THROUGHPUT AND JET LENGTH

Pressure	Nozzle Diameter Ø8 mm		Nozzle Diameter Ø9 mm		Nozzle Diameter Ø10 mm		Nozzle Diameter Ø12 mm		Nozzle Diameter Ø14 mm		Nozzle Diameter Ø16 mm	
	m <sup>3</sup> /hr	meter	m <sup>3</sup> /hr	meter	m <sup>3</sup> /hr	meter	m <sup>3</sup> /hr	meter	m <sup>3</sup> /hr	meter	m <sup>3</sup> /hr	meter
12	6.5	19.5	10.0	20.5	13.0	21.5	19.0	25.0	27.0	26.5	35.0	28.5
11	6.0	18.5	9.0	20.0	12.0	20.5	18.0	24.5	26.0	26.0	33.5	27.5
10	5.5	18.0	8.0	19.0	11.0	20.0	17.0	23.5	24.0	25.5	32.0	27.0
9	5.0	17.0	7.5	18.0	10.5	19.0	16.0	22.5	23.0	24.5	30.0	26.0
8	4.5	16.0	7.0	17.0	10.0	18.0	15.0	21.5	22.0	23.5	28.5	25.0
7	4.0	15.0	6.0	16.0	9.0	17.0	14.0	20.5	20.0	22.5	27.0	24.0
6	3.5	14.0	5.5	15.0	8.0	16.0	13.0	19.5	19.0	21.5	25.0	23.0



# PJ 303 – Material Specification



\*Paint specification is Polarmarine Standard. Modification of paint specification is subject for additional charge.

\*\*Also available with SUS316L Control Unit and Cover upon request and subject to additional charge.

## **POLARMARINE**

Box 1035  
SE-212 10 Malmö  
SWEDEN  
TEL: +46 - 31-965900  
E-mail: sales@polarmarine.se



## TANK CLEANING EQUIPMENT

### POLAR JET® PJ 25

The Polar Jet PJ 25 is a twin nozzle, non-programmable tank cleaning machine ideal for portable use. Particularly suitable for corrugated tanks where cleaning is required at more than one level without the use of fixed multi-stage systems.

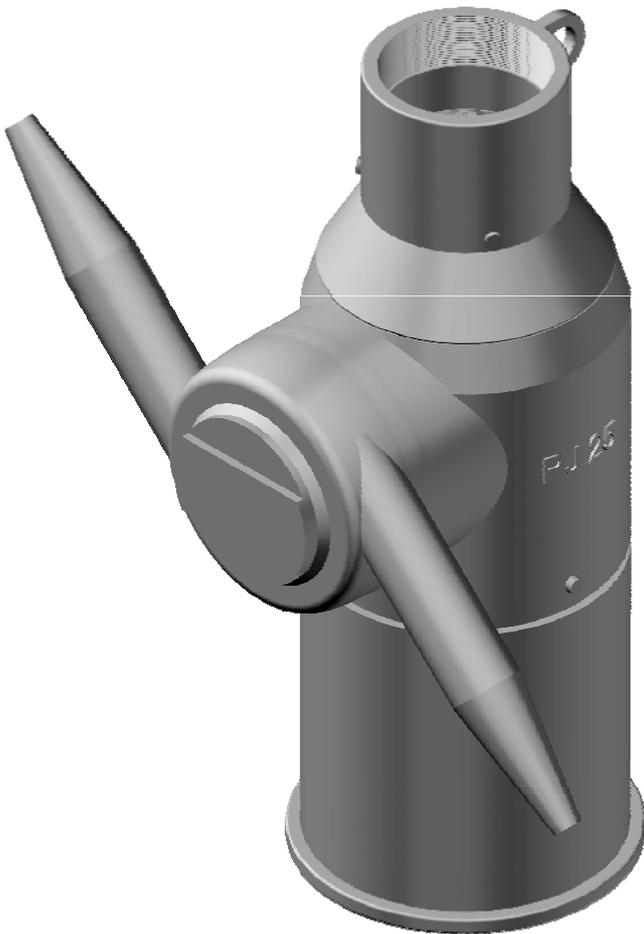
It can also be used as a fixed installation either mounted on a standpipe from deck or submerged, installed in the bottom of the tanks as an effective compliment to any deck-mounted machine.

The symmetrically opposed nozzles are driven by an integrated turbine and gearing unit providing safe and reliable starting and stable speed control.

Rotation in the horizontal plane combined with vertical movement provides an almost spherical cleaning pattern. Speed will vary slightly according to nozzle size and pressure with one full cycle taking approximately 30 minutes.

The PJ 25 can be supplied complete with tank cleaning hose, deck flange, hose saddle and deck pipe coupling.

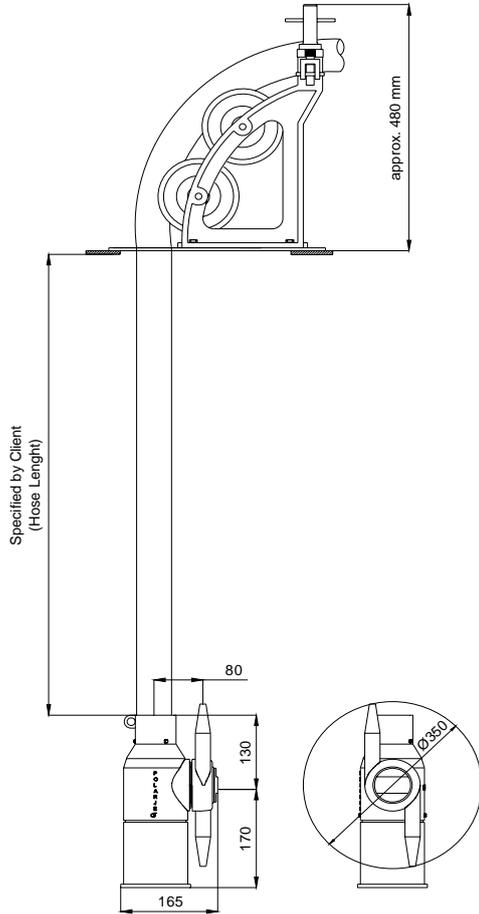
Polarmarine provide in-house Shadow Diagrams using 3-Dimensional CAD for model Selection, Quantity, Positioning and Main Pipe Lengths to optimize cleaning coverage per unit.





## DATA SHEET PJ 25

**SMALLEST DECK OPENING 180mm**



**NOTE: A two inch female pipe thread is provided as standard modified to suit shipyard as required.**

**: Detail of Hose Saddle Flange, Hose, Hose Connection to ship to be specified by shipyard as applicable.**

**WEIGHT 9.0 Kg.**

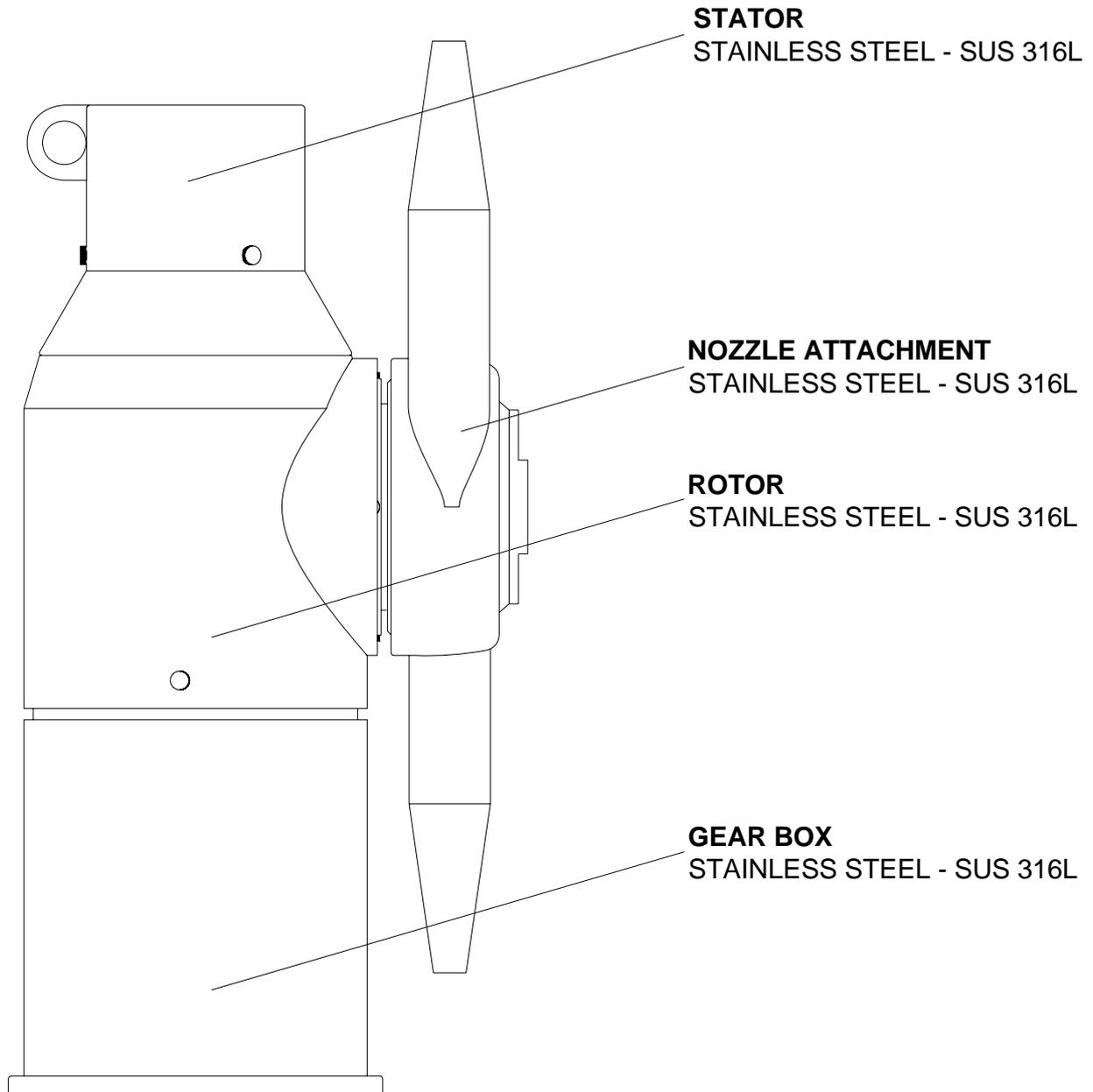
### PERFORMANCE DATA FOR POLAR JET® PJ 25

PRESSURE, NOZZLE DIAMETER, THROUGHPUT AND JET LENGTH

Press	NOZZLE DIA 8 mm		NOZZLE DIA 9 mm		NOZZLE DIA 10 mm		NOZZLE DIA 12 mm		NOZZLE DIA 14 mm		NOZZLE DIA 16 mm	
	m <sup>3</sup> /h	meter										
12	9.0	18.5	18.0	20.0	27.0	21.5	38.0	23.0	52.0	25.0	64.0	26.5
11	8.5	18.0	17.0	19.5	25.5	21.0	36.5	22.5	49.5	24.5	62.0	26.0
10	8.0	17.0	16.0	18.5	24.5	20.5	34.5	22.0	47.0	23.5	58.5	25.0
9	7.5	16.0	15.0	17.5	23.0	19.5	33.0	21.0	44.5	22.5	55.5	24.0
8	7.0	15.0	14.0	16.5	21.5	18.5	31.5	20.0	42.0	21.5	52.0	23.0
7	6.5	14.0	13.0	15.5	20.5	17.5	29.5	19.0	39.5	20.5	49.0	22.0
6	6.0	13.0	12.0	14.5	19.0	16.5	28.0	18.0	37.0	19.5	46.0	21.0

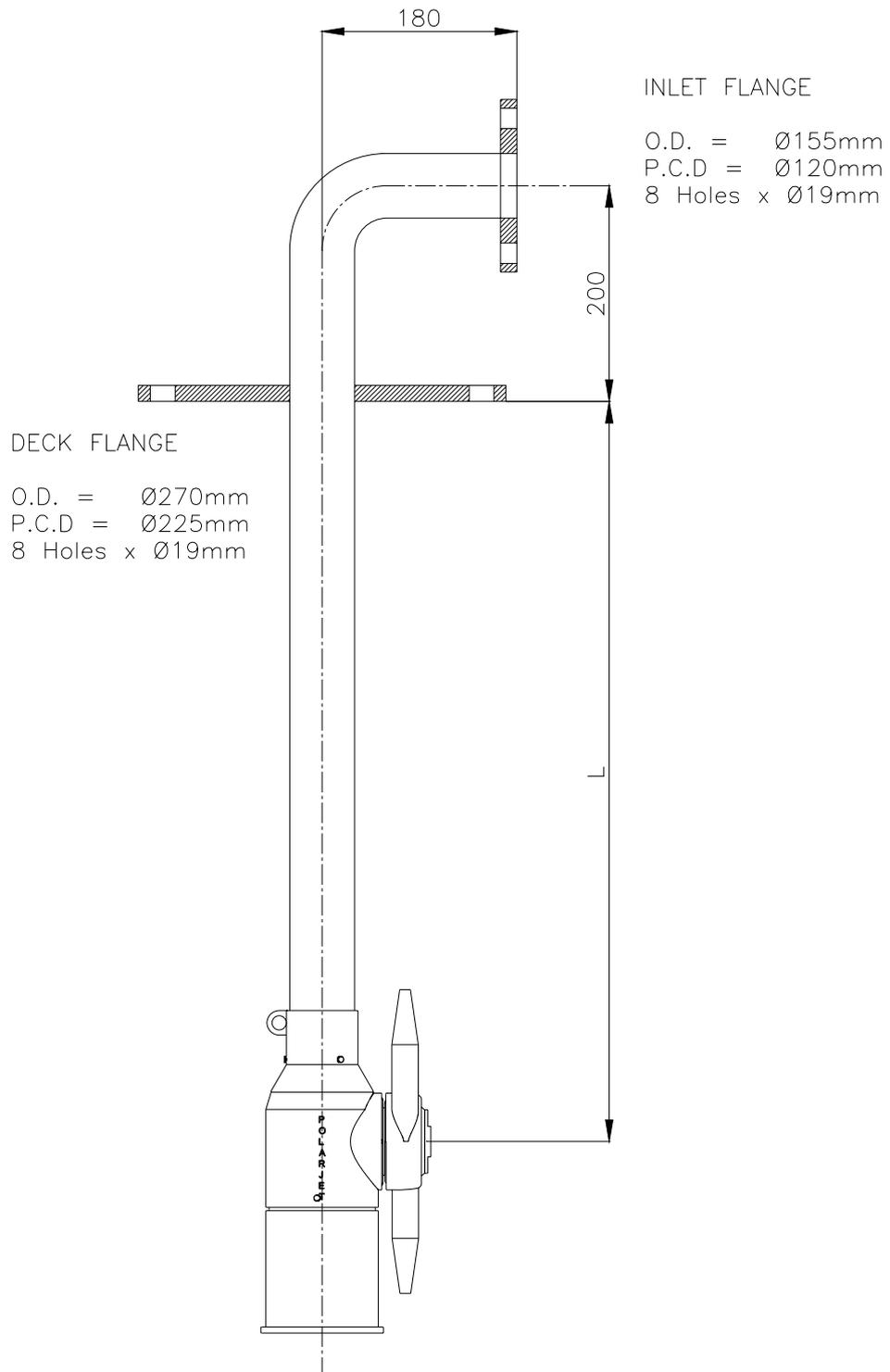


## PJ 25 – Material Specification



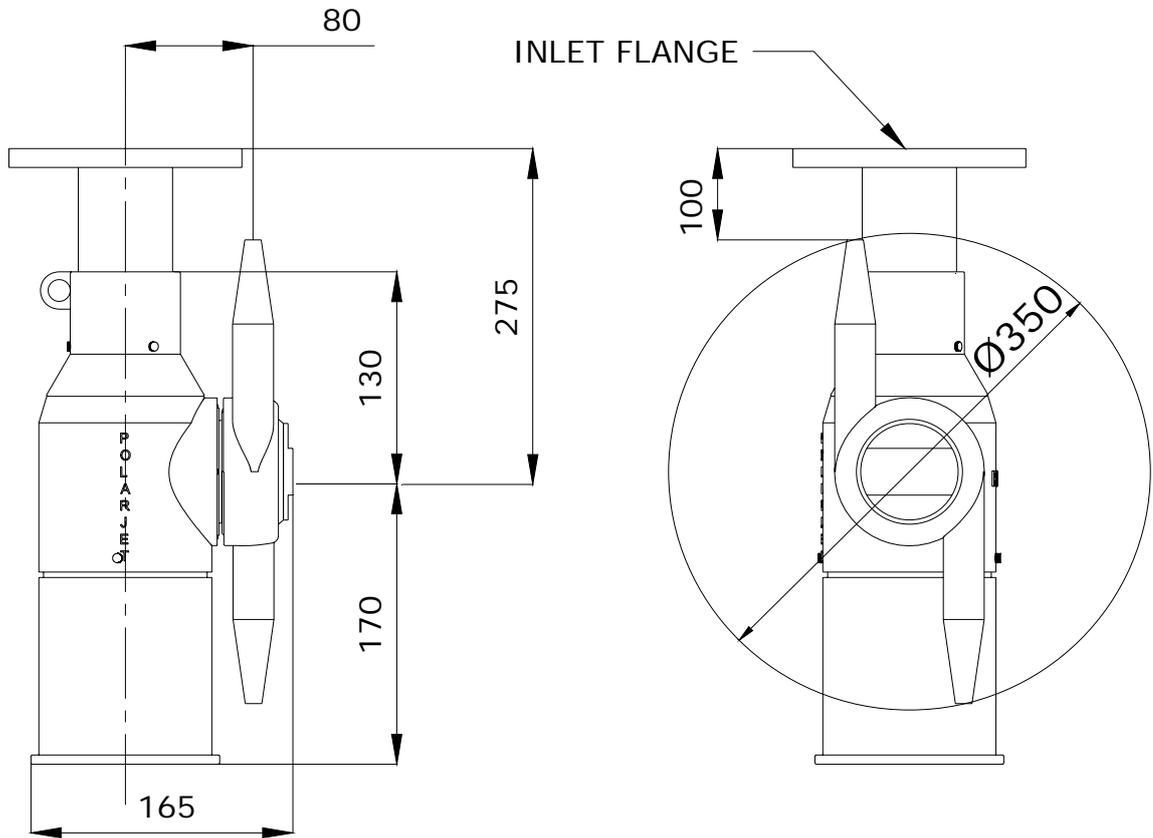


## PJ 25 – DECK MOUNTED TANK CLEANING MACHINE



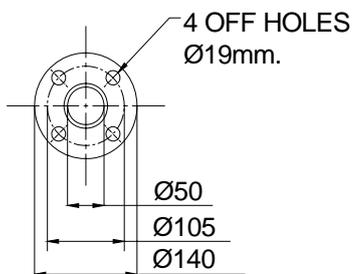


## PJ25 – SUBMERGED TANK CLEANING MACHINE

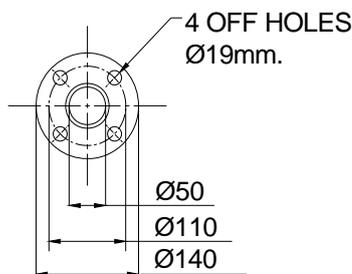


### INLET FLANGE

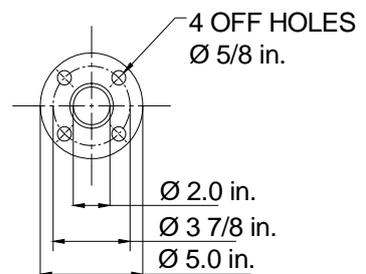
CONNECTION TO FIT  
JIS STANDARD



CONNECTION TO FIT  
DIN STANDARD



CONNECTION TO FIT  
ANSI STANDARD





## TANK CLEANING HOSE

Ship Connection

(This end to be specified by Yard)

CLIENT/YARD to specify exact size, specification and standard of coupling and hose required for ships connection.

**HOSE:**

- Lay Flat Hose  
 Rigid Hose

**HOSE DIAMETER**

- 1.5"  
 2"

**HOSE LENGTH:**

\_\_\_\_\_

**COUPLINGS:**

- Female Camlock  
 Male Camlock  
 Female Coupling  
 Male Coupling  
 Nakajima Coupling  
 Storz Coupling  
 Others (*Please Specify*)

\_\_\_\_\_  
\_\_\_\_\_

**COUPLING DIAMETER:**

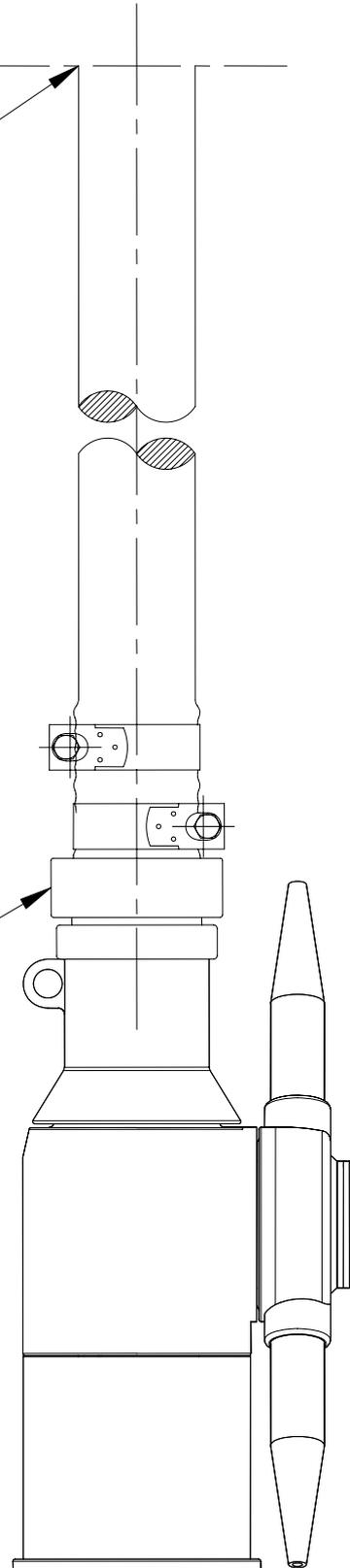
- 1.5"     2"     2.5"

Withworth Pipe Thread  
2" Female Coupling

(This end by POLARMARINE to suit  
Tank Cleaning Machine)

**POLARMARINE**

Box 1035  
SE-212 10 Malmö  
SWEDEN  
TEL: +46 (0)40 671 88 00  
E-mail: [project\\_inquiry@polarmarine.com.ph](mailto:project_inquiry@polarmarine.com.ph)  
[sales@polarmarine.se](mailto:sales@polarmarine.se)  
Website: [www.polarmarine.se](http://www.polarmarine.se)

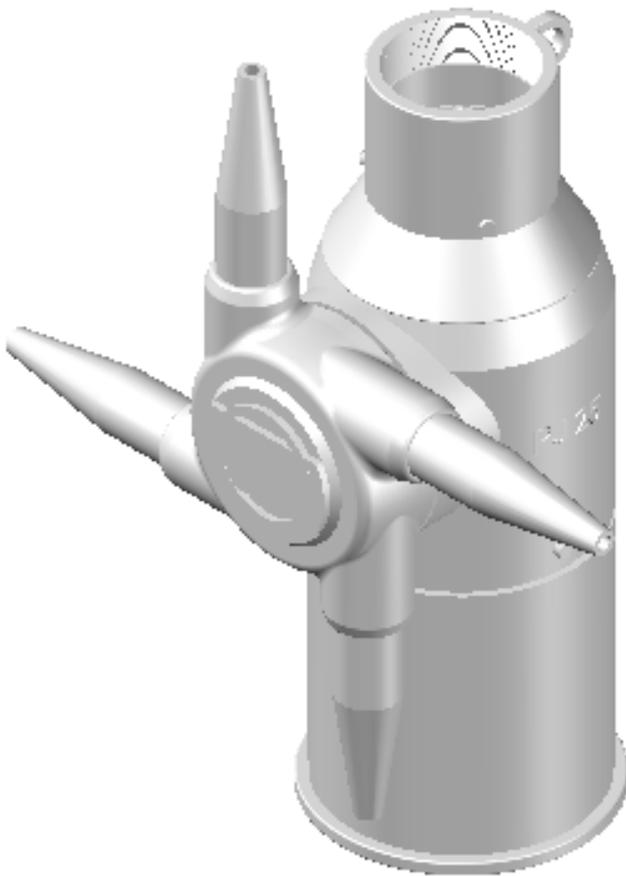




## TANK CLEANING EQUIPMENT

### **POLAR JET® PJ 25 with Four Nozzles**

The Polar Jet PJ 25 with Four Nozzle, non-programmable tank cleaning machine ideal for industrial use. Particularly it is suitable for large tanks and more, where thorough cleaning is required.



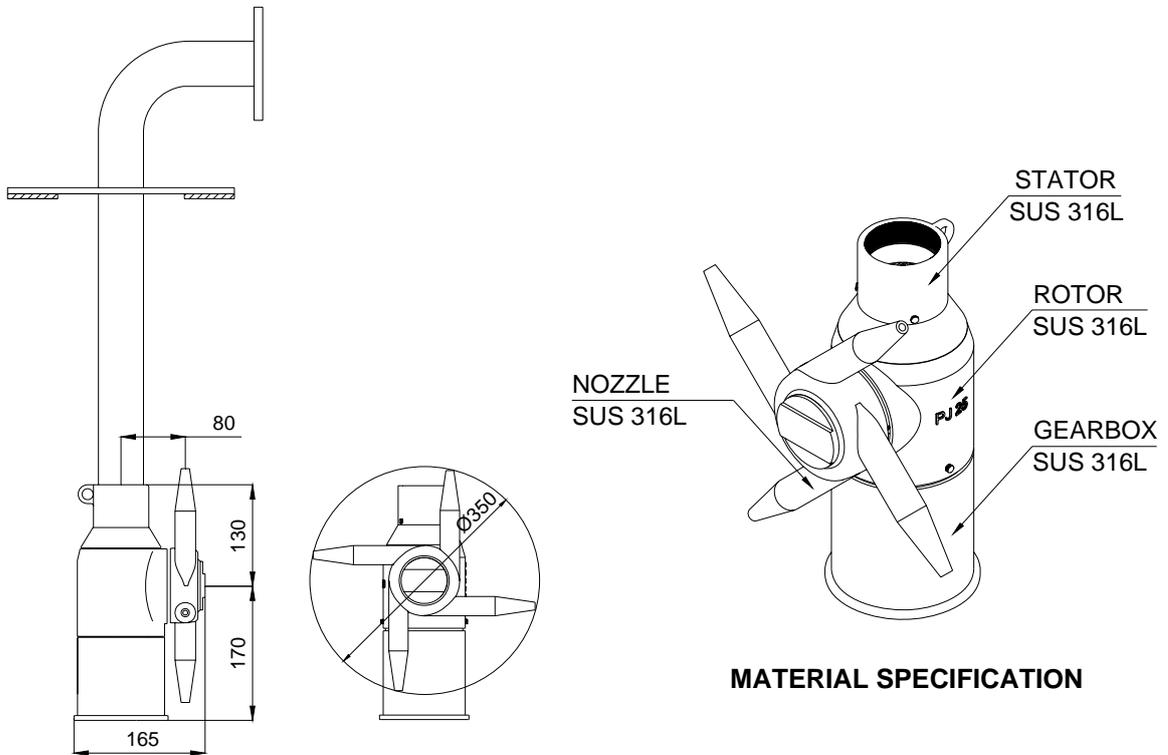
It can be used as a fixed installation either mounted on a standpipe or as a portable basis when desired by customer.

The symmetrically opposed nozzles are driven by an integrated turbine and gearing unit providing safe and reliable starting and stable speed control.

Rotation in housing in the horizontal plane combined with rotating of nozzles provides an almost spherical cleaning pattern. Speed will vary slightly according to nozzle size and pressure with one full cycle taking about 14 minutes. It can be divided in four steps depending on wanted cleaning demand.



## DATA SHEET PJ 25



**SMALLEST DECK OPENING 180mm**

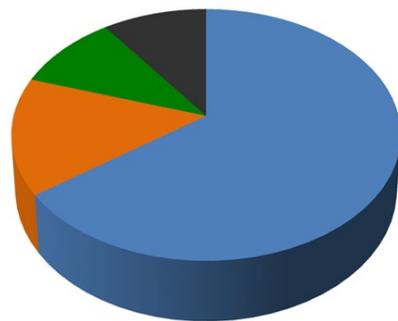
### PERFORMANCE DATA FOR POLAR JET® PJ 25 PRESSURE, NOZZLE DIAMETER, THROUGHPUT AND JET LENGTH

Pressure Bar	NOZZLE DIA Ø6 mm		NOZZLE DIA Ø8 mm		NOZZLE DIA Ø9 mm		NOZZLE DIA Ø10 mm	
	m <sup>3</sup> /h	meter	m <sup>3</sup> /h	meter	m <sup>3</sup> /h	meter	m <sup>3</sup> /h	meter
12	19	17	35	18.5	42	20	54	21.5
11	17.5	16.5	34	18	40	19.5	51	21
10	17	15.5	33	17	38	18.5	49	20.5
9	16.5	14.5	31	16	36	17.5	46	19.5
8	15	13.5	29	15	34	16.5	43	18.5
7	13.5	12.5	28	14	32	15.5	41	17.5
6	12	11.5	26	13	30	14.5	38	16.5
5	11	10.5	24	12	28	13.5	35	15.5
4	9	9.5	22	11	26	12.5	32	14.5

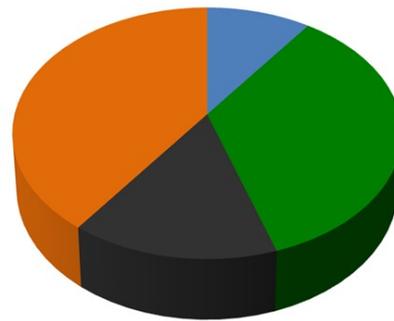


## THE SINNER'S CIRCLE

**PJ 25 (4 NOZZLES)**



**SPRAY BALL**



■ Mechanical Force   ■ Chemical Action   ■ Temperature   ■ Time

Sinner's Circle describes the four factors that can be manipulated in any cleaning scenario.

According to Dr. Herbert Sinner, a former chemical engineer, he formulated the four basic primary of cleaning in 1959 and also known as the Sinner's Circle. These are Temperature, Chemical Reaction, Time and Mechanical Action. This explains that one factor is inversely proportional to the other three factors, which means that when the effectiveness of any factor is increased, it should be counterbalanced by decreasing the other factors. The PJ 25 with four nozzles increases the Mechanical Action and decreases other factors such as the Chemical Reactions, Temperature and Time.

### **POLARMARINE**

Box 1035

SE-212 10 Malmö

SWEDEN

TEL: +46 (0)40 671 88 00

E-mail: [project\\_inquiry@polarmarine.com.ph](mailto:project_inquiry@polarmarine.com.ph)

[sales@polarmarine.se](mailto:sales@polarmarine.se)

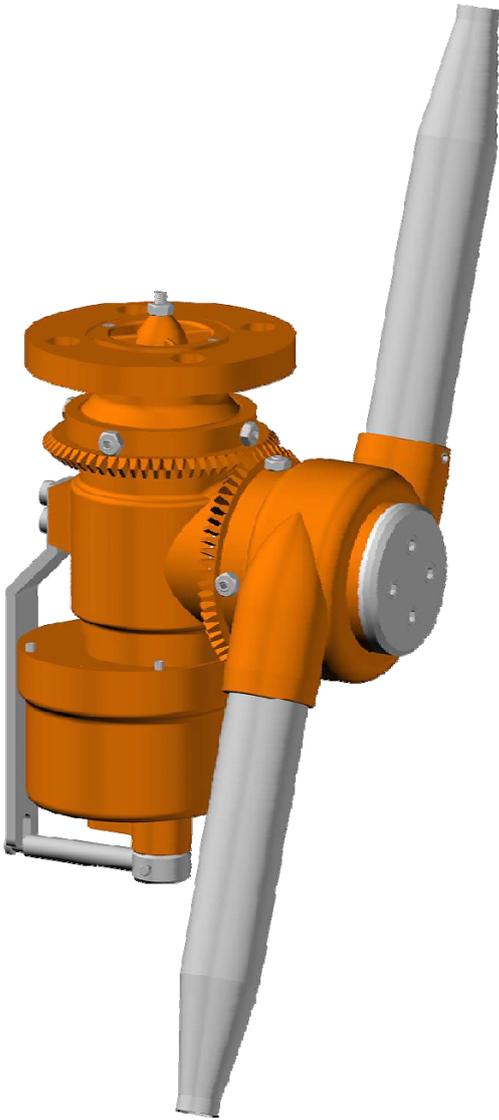
Website: [www.polarmarine.se](http://www.polarmarine.se)



## TANK CLEANING EQUIPMENT

### POLAR JET® PJ 50

The Polar Jet® PJ 50 is a non-programmable, twin nozzle Tank Cleaning machine for use in Crude Oil, Product Tankers and many other industrial applications.



The asymmetrically opposed nozzles are driven by an integrated turbine and gearing unit. The specially designed turbine gives safe and reliable starting and stable speed control.

The PJ 50 can be flange mounted on a standpipe either vertically, from the tank deck or bottom, or horizontally from the sides.

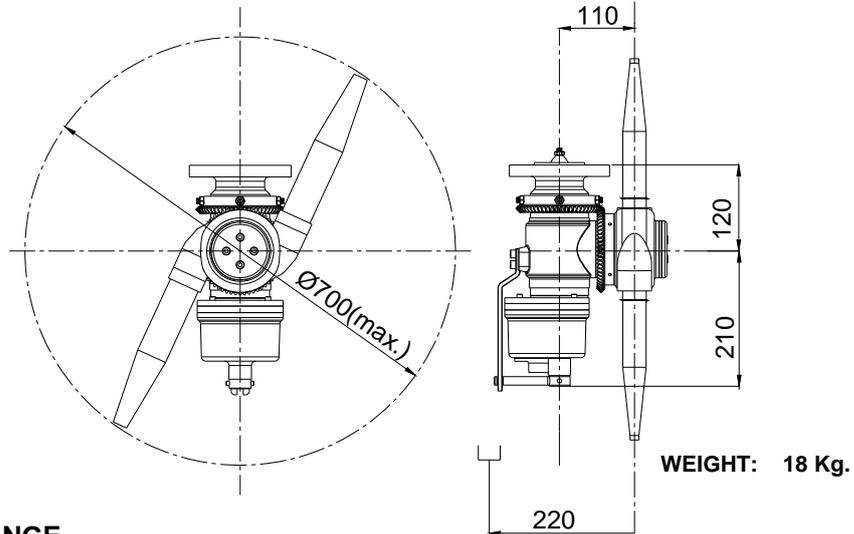
The Polar Jet PJ 50 non-programmable twin nozzle units can be installed submerged down into the tanks as an effective and cost efficient complement to any deck-mounted machines.

Polarmarine provides in-house Shadow Diagrams using 3-Dimensional CAD for model Selection, Quantity, Positioning and Main Pipe Lengths to optimize cleaning coverage per unit.

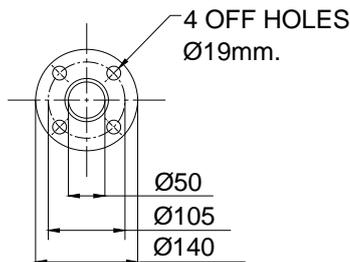


## DATA SHEET PJ 50

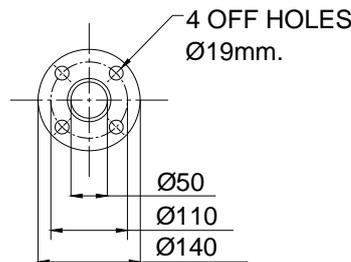
**SMALLEST DECK OPENING 250 mm**



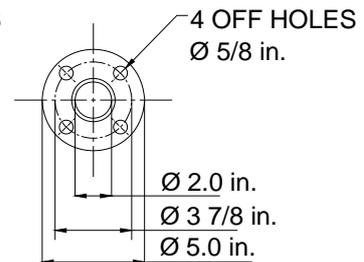
**INLET FLANGE**  
CONNECTION TO FIT  
JIS STANDARD



CONNECTION TO FIT  
DIN STANDARD



CONNECTION TO FIT  
ANSI STANDARD



### PERFORMANCE DATA FOR POLAR JET® PJ 50

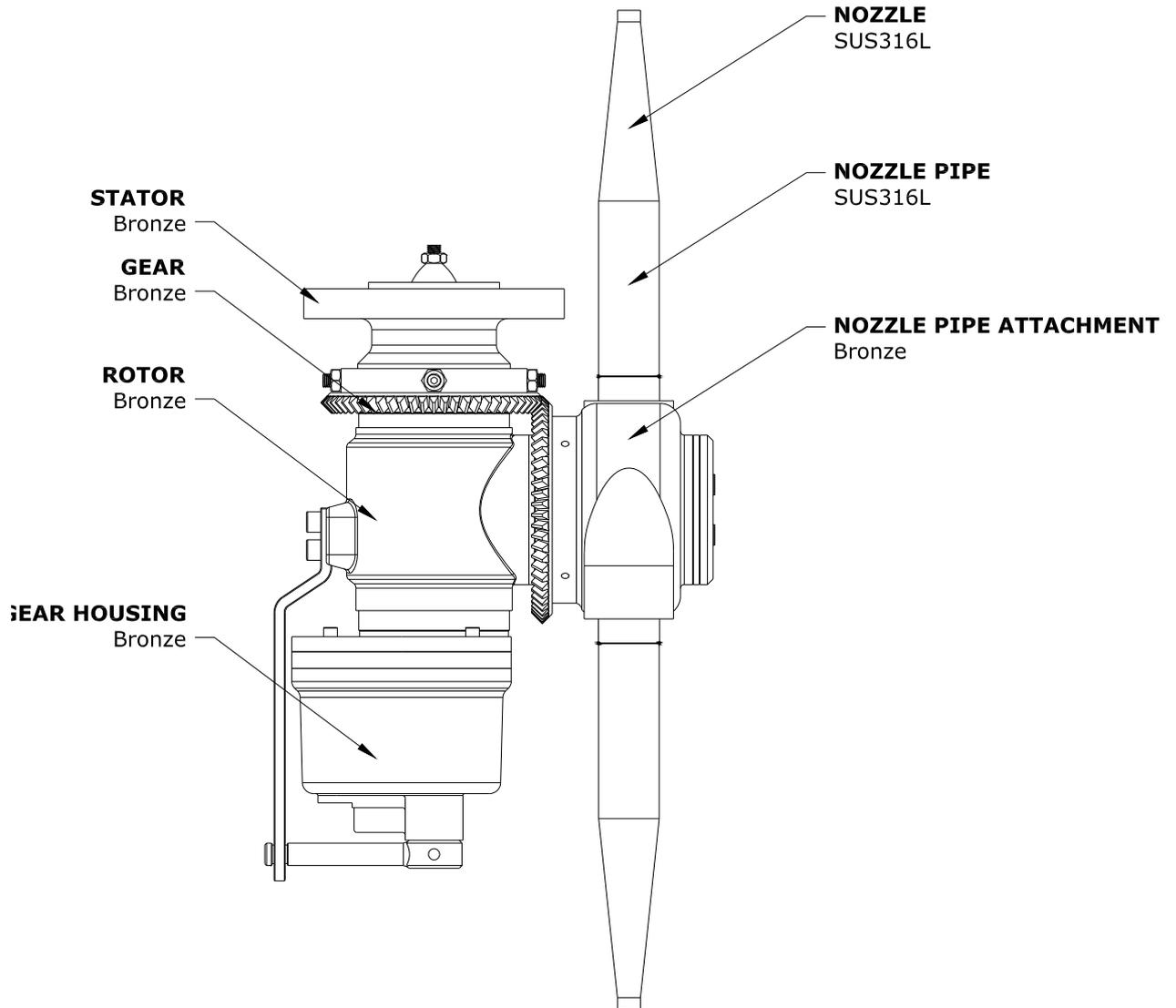
PRESSURE, NOZZLE DIAMETER, THROUGHPUT AND JET LENGTH

Pressure	Nozzle Diameter Ø10 mm		Nozzle Diameter Ø12 mm		Nozzle Diameter Ø13 mm		Nozzle Diameter Ø14 mm		Nozzle Diameter Ø16 mm		Nozzle Diameter Ø18 mm	
	m <sup>3</sup> /hr	meter										
12	27.0	21.5	45.0	25.0	50.0	26.5	56.0	27.5	70.0	30.0	80.0	32.0
11	25.5	21.0	42.5	24.5	47.5	25.5	53.5	27.0	66.5	29.5	78.0	31.5
10	24.5	20.5	40.0	24.0	45.0	25.0	51.5	26.5	62.5	29.0	74.0	31.0
9	23.0	19.5	37.5	23.0	42.5	24.0	48.0	25.5	59.0	28.0	70.0	30.0
8	21.5	18.5	35.0	22.0	40.0	23.0	45.0	24.5	55.0	27.0	66.0	29.0
7	20.5	17.5	32.5	21.5	37.5	22.0	42.5	23.5	52.0	26.0	62.0	28.0
6	19.0	16.5	30.0	20.0	35.0	21.0	40.0	22.5	48.0	25.0	58.0	27.0
5	17.5	15.5	27.5	18.5	32.5	20.0	37.5	21.5	44.0	23.5	54.0	26.0
4	16.0	14.5	25.0	17.5	30.0	19.0	35.0	21.0	41.0	23.0	51.0	25.0

Shipyards Supply: Eventual Deck Flange connections, Gaskets, Studs, Bolts, Nuts and Washers



# PJ 50 – Material Specification



**POLARMARINE**  
Box 1035  
SE-212 10 Malmö  
SWEDEN  
TEL: +46 - 31-965900  
E-mail: sales@polarmarine.se



# **POLAR JET®**

## **Anti-Pirate Machine**



## POLAR JET BLASTER

### Anti-pirate Machine



The oceans have always been our main channel for shipping goods between countries. At any one time there can be billions of dollars of cargo at sea. For as long as we have been trading by sea pirates and piracy have always been a problem, a problem that still exists today and one that has recently attracted the attention on the world. Hijacking, ransom and, in some cases, physical assault have become common place again. Our crews and their cargo are now facing a modern day, well armed pirate and in certain regions of our vast oceans constantly in fear of attack.

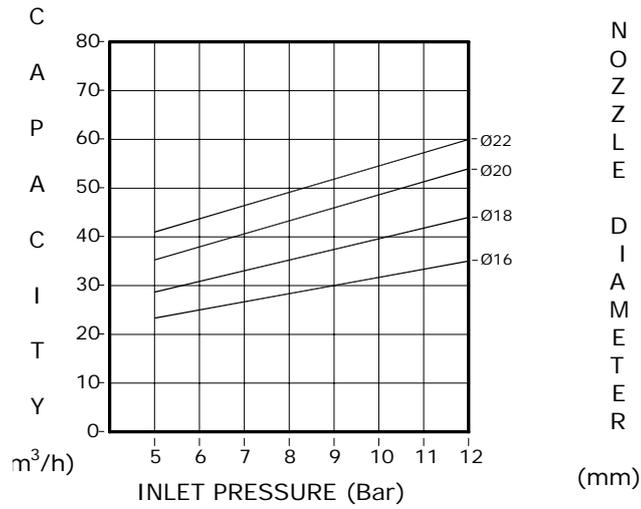
Most successful piracy attacks are executed under 15 minutes. It takes 10-15 minutes to activate a helicopter on standby, so unless a military task force is nearby its role becomes one of observing and reporting. Once onboard, pirates need only capture the crew and they are in an effective bargaining position to negotiate for a ransom. As manufacture of POLAR JET Tank Cleaning Machine, we come up with the solution of water cannon defense system using our tank cleaning technology. Polar Jet Blaster will defend the crews and whole vessel, making the pirates boarding at sea literally impossible. The system will be mounted on each side, around the vessel in order to obtained 100% coverage and can be often powered by existing pumps. It will create a high pressure moving curtain of water which is very difficult to penetrate on a vessel in transit on the high seas. The system can be remotely and safely operated from any look out post around the vessel.



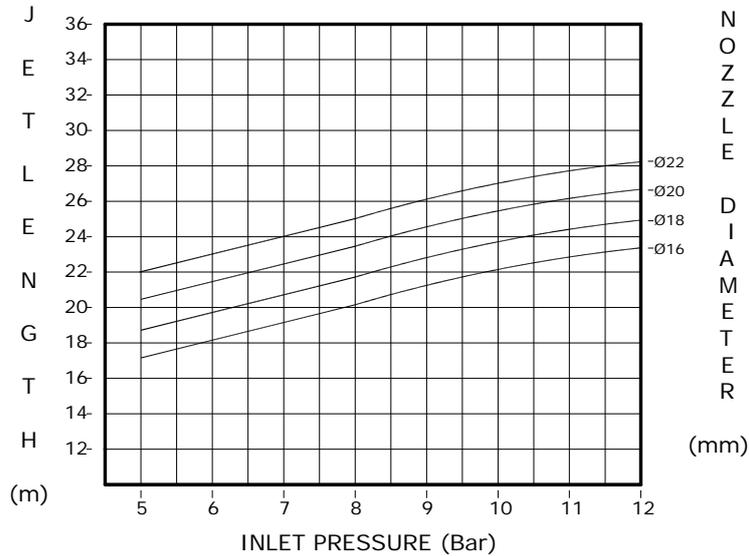
When the attackers approach the vessel, the system can be remotely and safely operated from the look-out post around the vessel so the crew and cargo remains safe. And will also work continuously in dark and night-time conditions.



## DATE SHEET FOR POLAR JET® BLASTER



**Capacity, Inlet Pressure & Nozzle Diameter**



**Jet Length, Inlet Pressure & Nozzle Diameter**

## PERFORMANCE DATA FOR POLAR JET® BLASTER

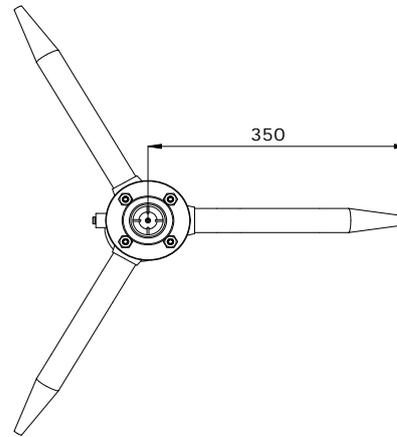
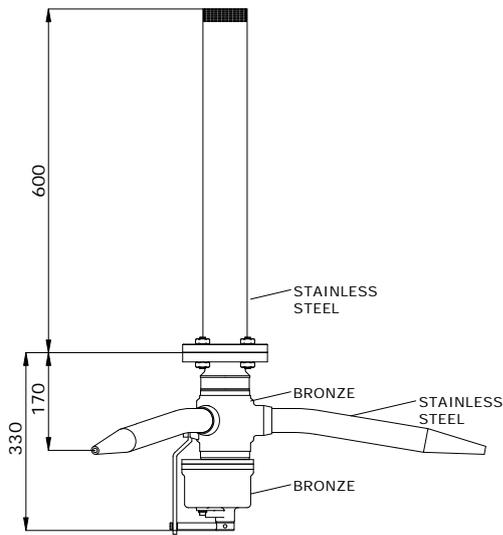
PRESSURE, NOZZLE DIAMETER, THROUGHPUT AND JET LENGTH

Pressure Bar	Nozzle Ø16mm.		Nozzle Ø18mm.		Nozzle Ø20mm.		Nozzle Ø22mm.	
	m³/h	meter	m³/h	meter	m³/h	meter	m³/h	meter
12	35.0	26.0	44.0	27.0	54.0	28.5	60.0	30.0
11	33.5	25.0	42.0	26.5	51.0	28.0	57.0	29.5
10	32.0	24.0	39.0	26.0	48.0	27.5	54.0	29.0
9	30.0	23.5	37.0	25.0	45.0	27.0	51.0	28.0
8	28.5	22.5	34.5	24.0	42.5	26.0	48.0	27.0
7	27.0	22.0	32.0	23.0	40.0	25.0	45.0	26.0
6	25.0	21.0	30.0	22.0	37.0	24.0	42.0	25.5
5	23.0	16.5	29.0	18.5	36.0	20.0	41.5	21.5

**Shipyard Supply: Eventual Deck Flange connections, Gaskets, Studs, Bolts, Nuts and Washers.**



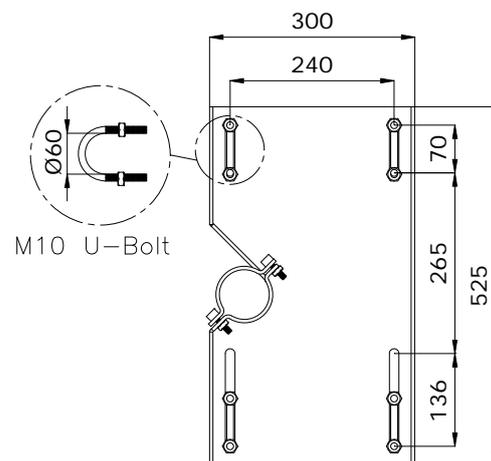
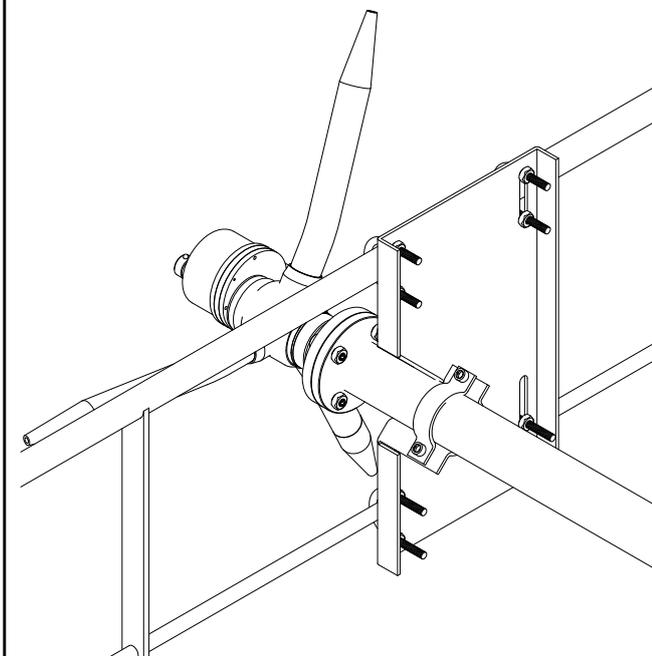
## MATERIAL SPECIFICATION FOR POLAR JET® BLASTER



- (1) Deck flange connection, gaskets, studs, nuts, and washers are yard supplies.
- (2) All dimensions are in millimeter.

**Weight: Approx. 20kg.**

### BRACKET



#### POLARMARINE

Box 1035  
SE-212 10 Malmö  
SWEDEN

TEL: +46 - 31-965900

E-mail: [sales@polarmarine.se](mailto:sales@polarmarine.se)



# **POLAR JET®**

## **Gas Freeing Fans**



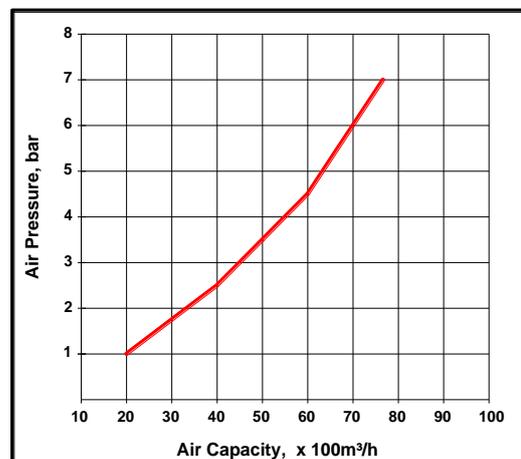
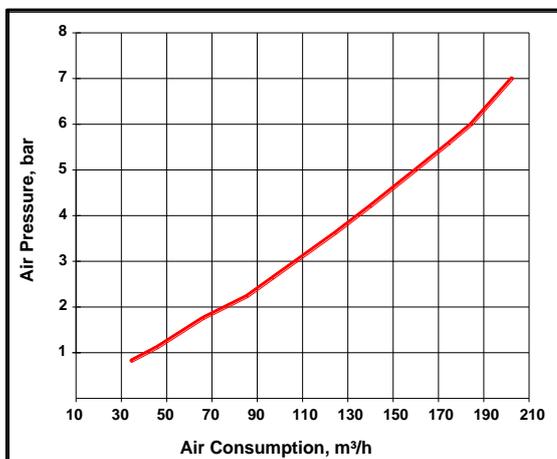
## POLAR JET® GAS FREEING FAN PJ 300A Air Driven



*Polar Jet® Gas Freeing Fan* is mechanical ventilation of hazardous zones and cargo tanks onboard ships. To be mounted into tank openings on deck. This designed primarily for mechanical ventilation of cargo tanks and other places where explosive fumes occur; reducing the risk of vapor pocket build up within the tank and reduces the time spent gas freeing. The rugged construction makes the *Polar Jet® Gas Freeing Fan* ideally suited to the marine environment and yet it can be easily maneuvered and positioned by one man, a particular advantage on the smaller tonnage where deck space is limited. *Polar Jet® Gas Freeing Fan* is spark proof with compressed air driven. You can choose from water and air as the drive medium for you fan allowing you to decide on the most cost effective and practical method for you circumstances.

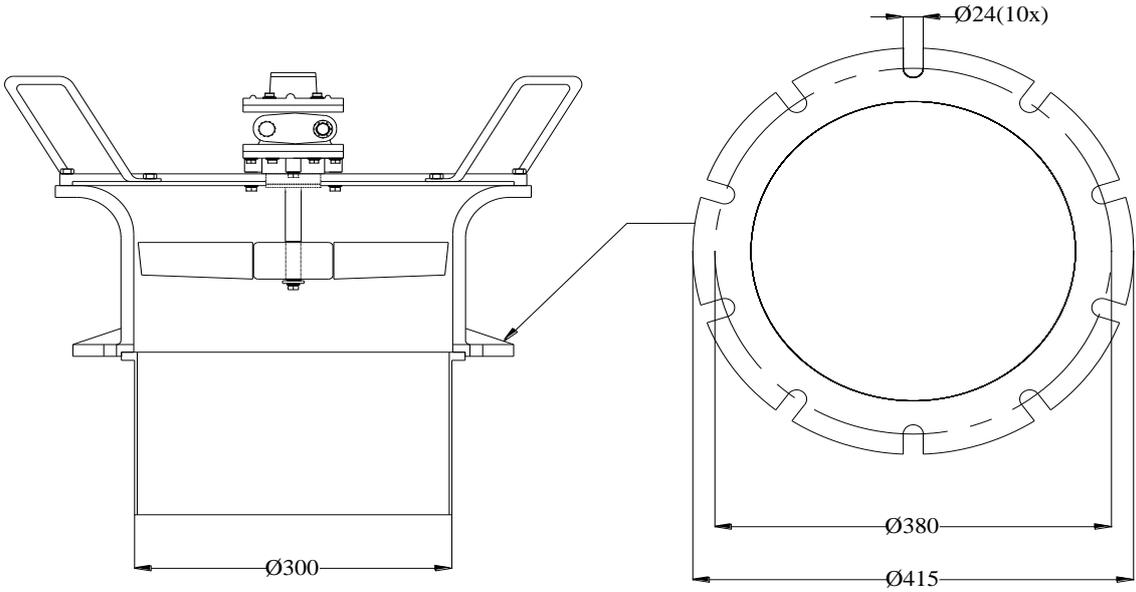
	Polar Jet® 300A
Max height	830 mm
Max width	500mm
Approx. weight	35 kg
Outlet bore diameter	300mm
Air Pressure	1-7 bars
Ambient Temperature	-22-55°C
Relative Humidity of the air	≤95%
Sustained Horizontal Tilting	+15°C
Sustained Vertical Tilting	+10°C
Supply Connection	Standard 3/4" (19mm) claw type

### Performance Graph



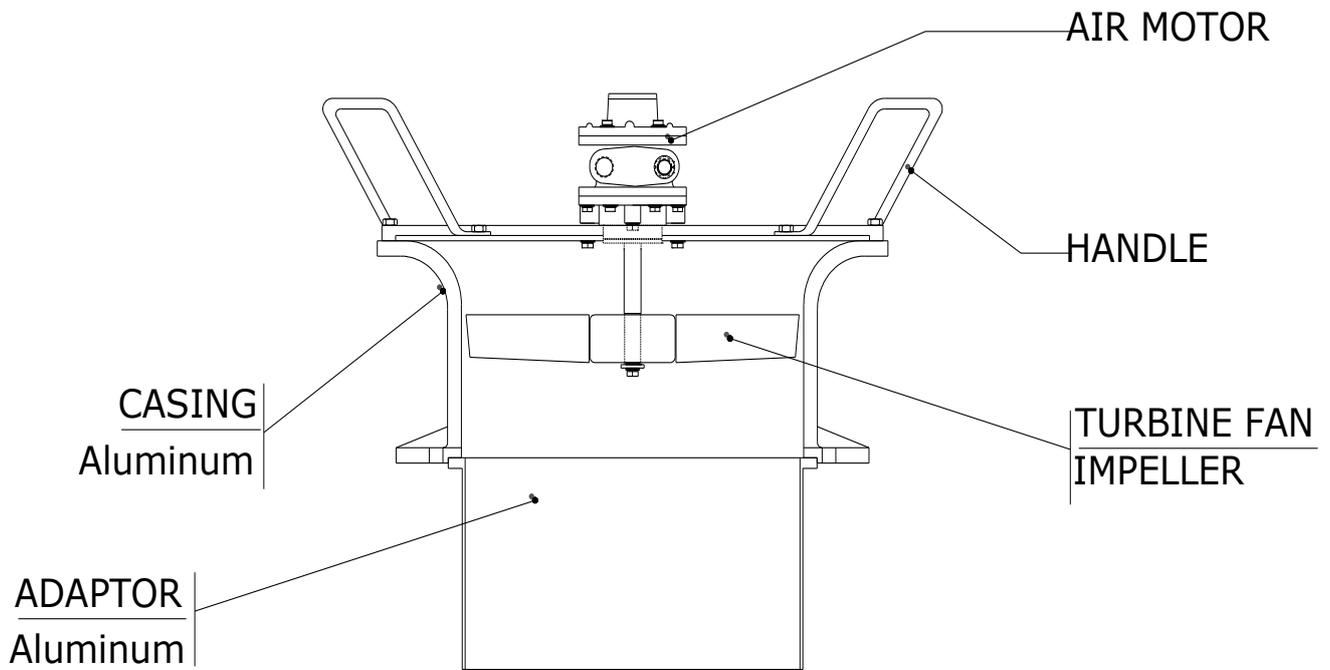


# FLANGE CONNECTION





**MATERIAL SPECIFICATIONS**





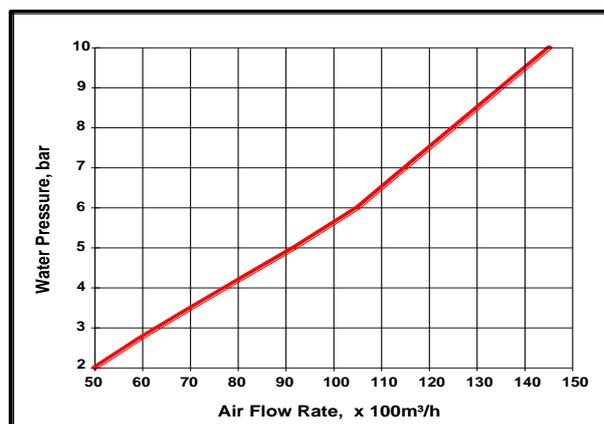
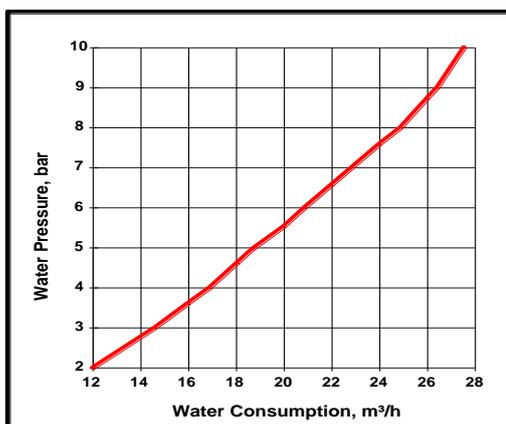
## POLAR JET® GAS FREEING FAN PJ 300W Water Driven



*Polar Jet® Gas Freeing Fan* is mechanical ventilation of hazardous zones and cargo tanks onboard ships. To be mounted into tank openings on deck. This designed primarily for mechanical ventilation of cargo tanks and other places where explosive fumes occur; reducing the risk of vapor pocket build up within the tank and reduces the time spent gas freeing. The rugged construction makes the *Polar Jet® Gas Freeing Fan* ideally suited to the marine environment and yet it can be easily maneuvered and positioned by one man, a particular advantage on the smaller tonnage where deck space is limited. *Polar Jet® Gas Freeing Fan* is spark proof with water driven motor. You can choose from water and air as the drive medium for you fan allowing you to decide on the most cost effective and practical method for your circumstances.

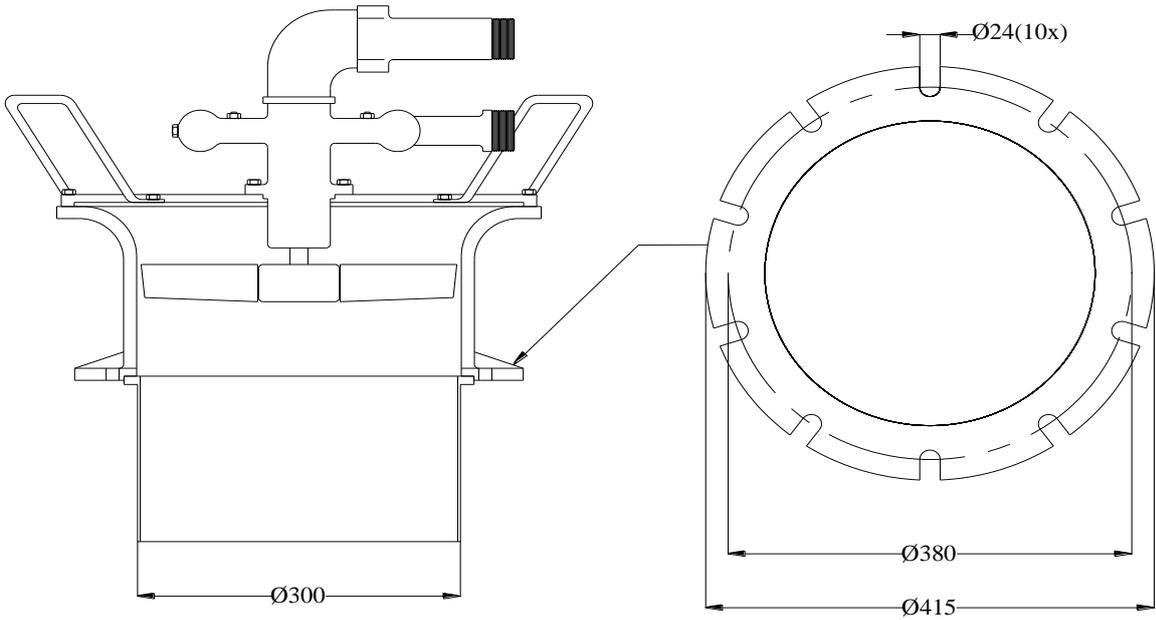
	Polar Jet® 300W
Max height	830 mm
Max width	500mm
Approx. weight	35 kg
Outlet bore diameter	3 00mm
Water Pressure	2-10 bars
Ambient Temperature	-22-55°C
Relative Humidity of the air	≤95%
Sustained Horizontal Tilting	±15°C
Sustained Vertical Tilting	±10°C
Supply Connection	2" BSP Male Coupling (11 TPI)
Discharge Connection	2" BSP Female Coupling (11 TPI)

### Performance Graph



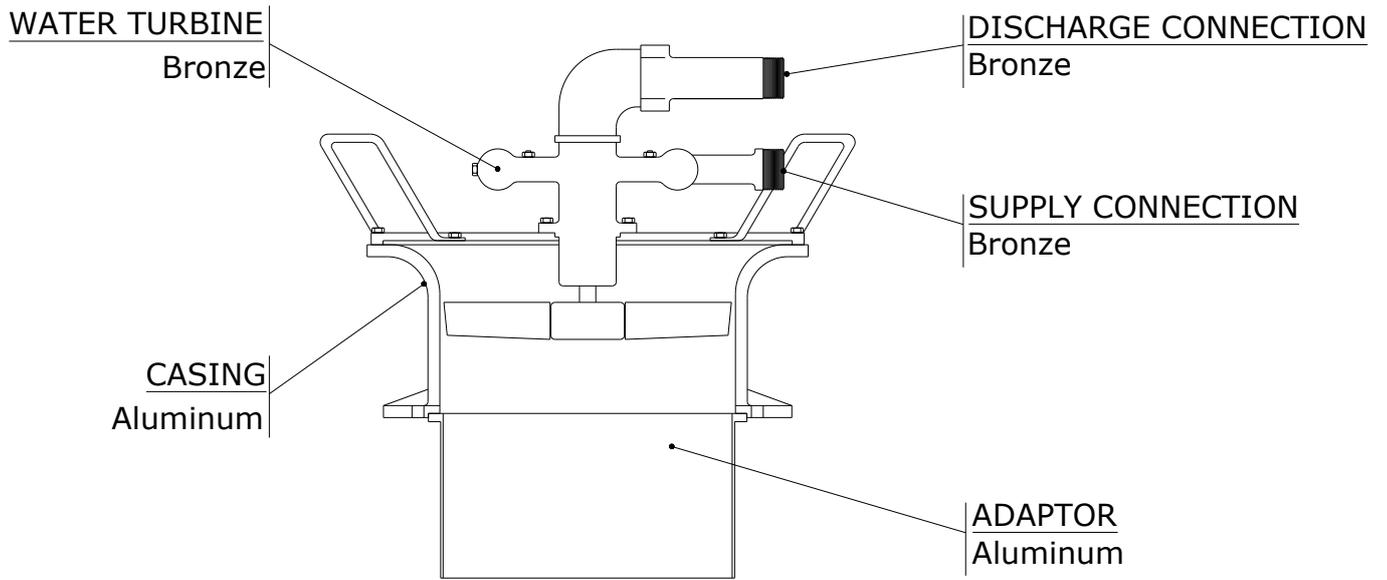


# FLANGE CONNECTION





## MATERIAL SPECIFICATIONS





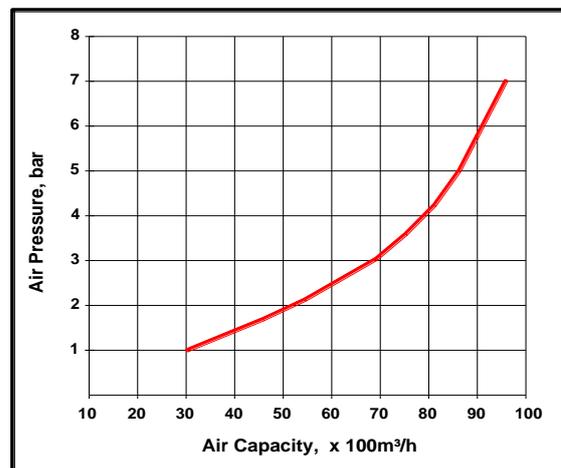
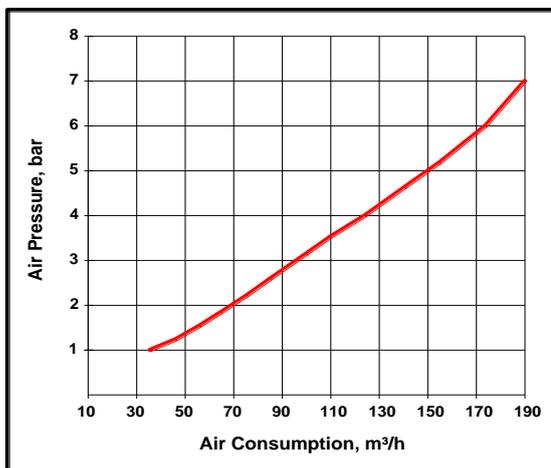
## POLAR JET® GAS FREEING FAN PJ 400A Air Driven



*Polar Jet® Gas Freeing Fan* is mechanical ventilation of hazardous zones and cargo tanks onboard ships. To be mounted into tank openings on deck. This designed primarily for mechanical ventilation of cargo tanks and other places where explosive fumes occur; reducing the risk of vapor pocket build up within the tank and reduces the time spent gas freeing. The rugged construction makes the *Polar Jet® Gas Freeing Fan* ideally suited to the marine environment and yet it can be easily maneuvered and positioned by one man, a particular advantage on the smaller tonnage where deck space is limited. *Polar Jet® Gas Freeing Fan* is spark proof with compressed air driven. You can choose from water and air as the drive medium for you fan allowing you to decide on the most cost effective and practical method for your circumstances.

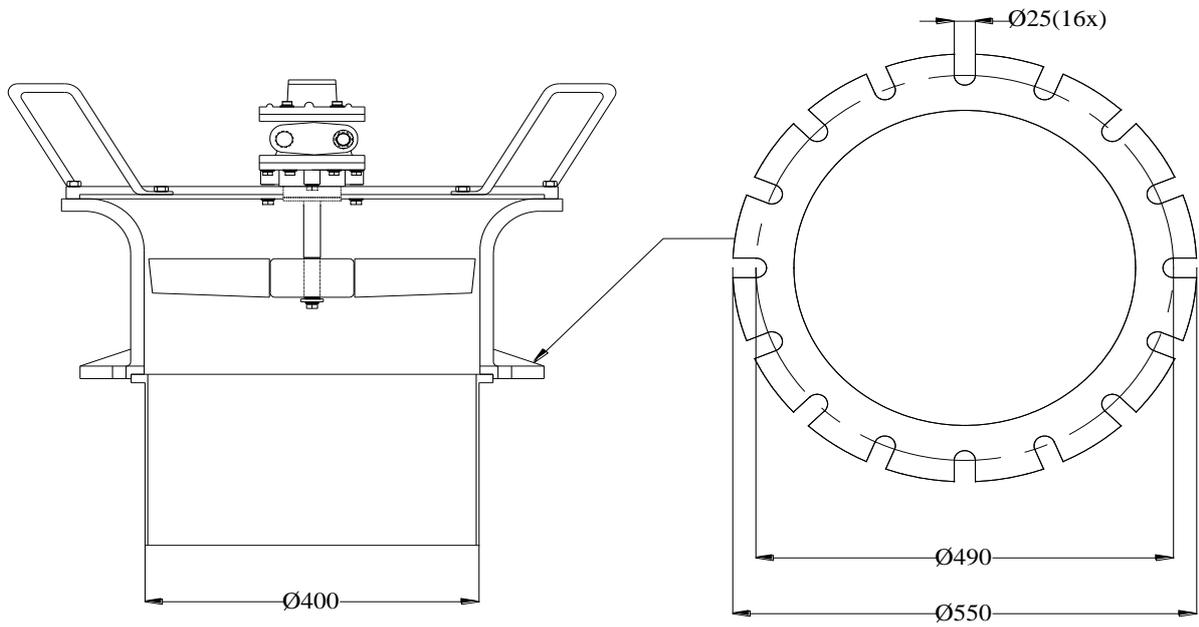
	Polar Jet® 400A
Max height	830 mm
Max width	600mm
Approx. weight	40 kg
Outlet bore diameter	400mm
Water Pressure	1-7 bars
Ambient Temperature	-22-55°C
Relative Humidity of the air	≤95%
Sustained Horizontal Tilting	±15°C
Sustained Vertical Tilting	±10°C
Supply Connection	Standard ¾" (19mm) claw type

### Performance Graph



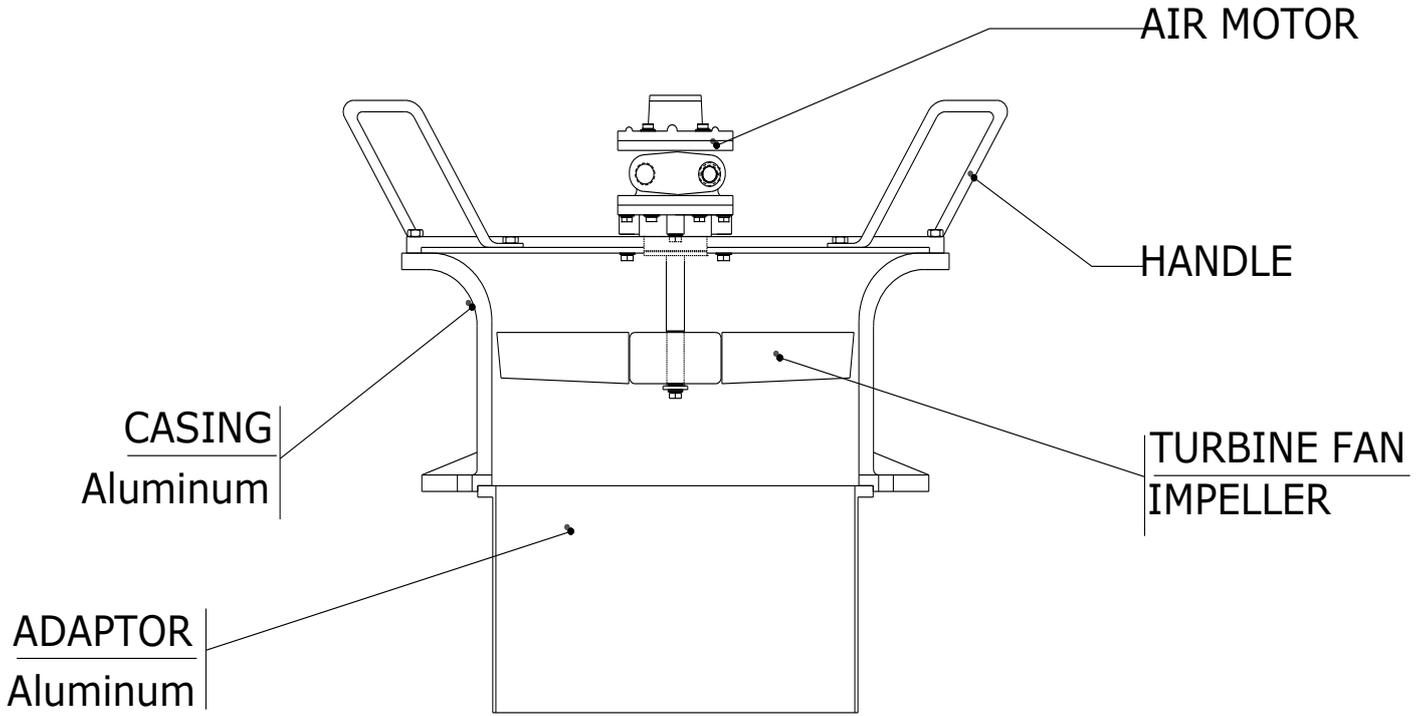


# FLANGE CONNECTION





MATERIAL SPECIFICATIONS





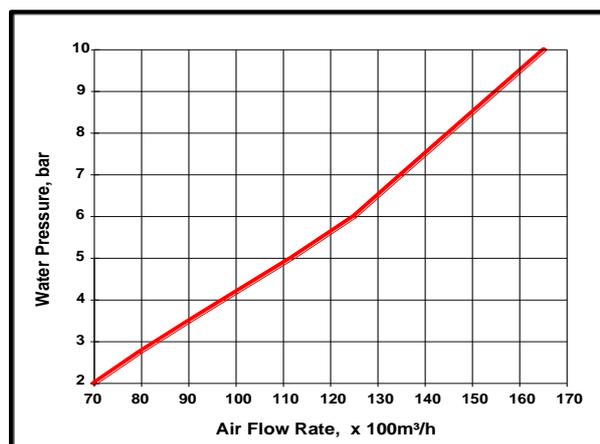
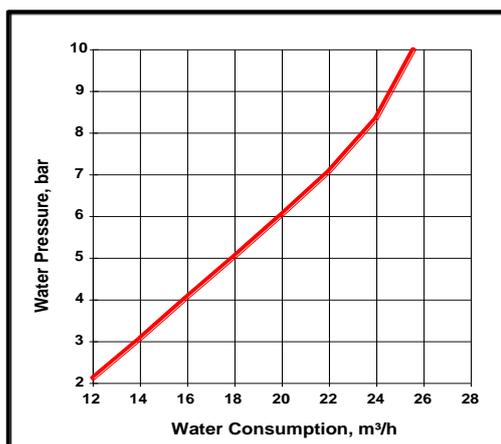
## POLAR JET® GAS FREEING FAN PJ 400W Water Driven



*Polar Jet® Gas Freeing Fan* is mechanical ventilation of hazardous zones and cargo tanks onboard ships. To be mounted into tank openings on deck. This designed primarily for mechanical ventilation of cargo tanks and other places where explosive fumes occur; reducing the risk of vapor pocket build up within the tank and reduces the time spent gas freeing. The rugged construction makes the *Polar Jet® Gas Freeing Fan* ideally suited to the marine environment and yet it can be easily maneuvered and positioned by one man, a particular advantage on the smaller tonnage where deck space is limited. *Polar Jet® Gas Freeing Fan* is spark proof with water driven motor. You can choose from water and air as the drive medium for you fan allowing you to decide on the most cost effective and practical method for your circumstances.

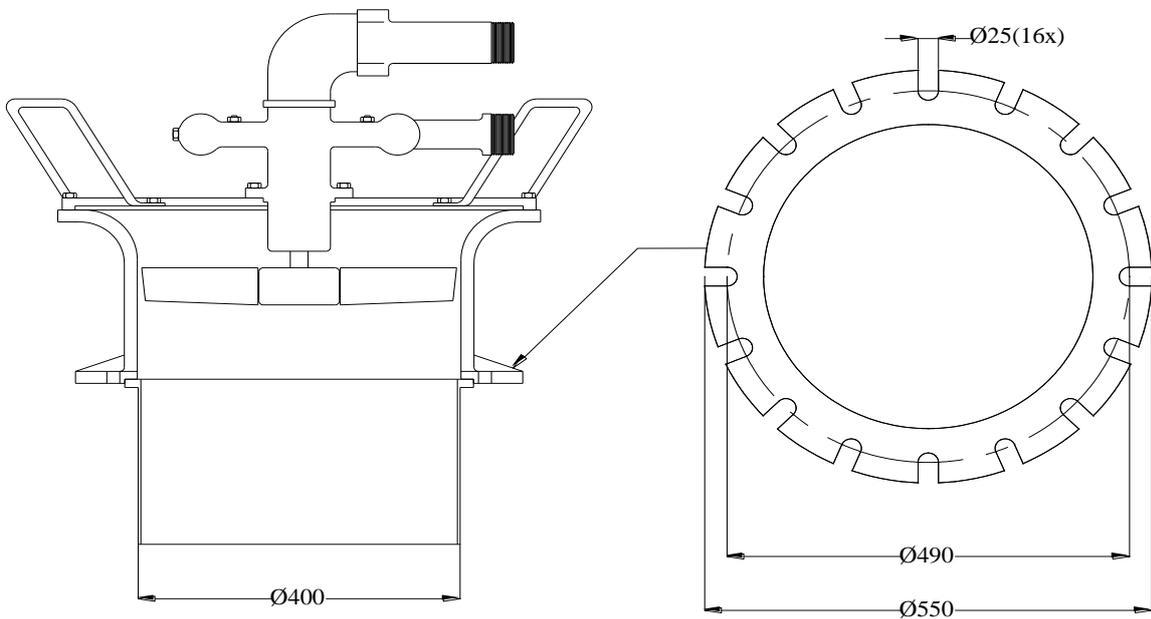
	Polar Jet® 400W
Max height	830 mm
Max width	600mm
Approx. weight	40 kg
Outlet bore diameter	400mm
Water Pressure	2-10 bars
Ambient Temperature	-22-55°C
Relative Humidity of the air	≤95%
Sustained Horizontal Tilting	±15°C
Sustained Vertical Tilting	±10°C
Supply Connection	2" BSP Male Coupling (11 TPI)
Discharge Connection	2" BSP Female Coupling (11 TPI)

### Performance Graph



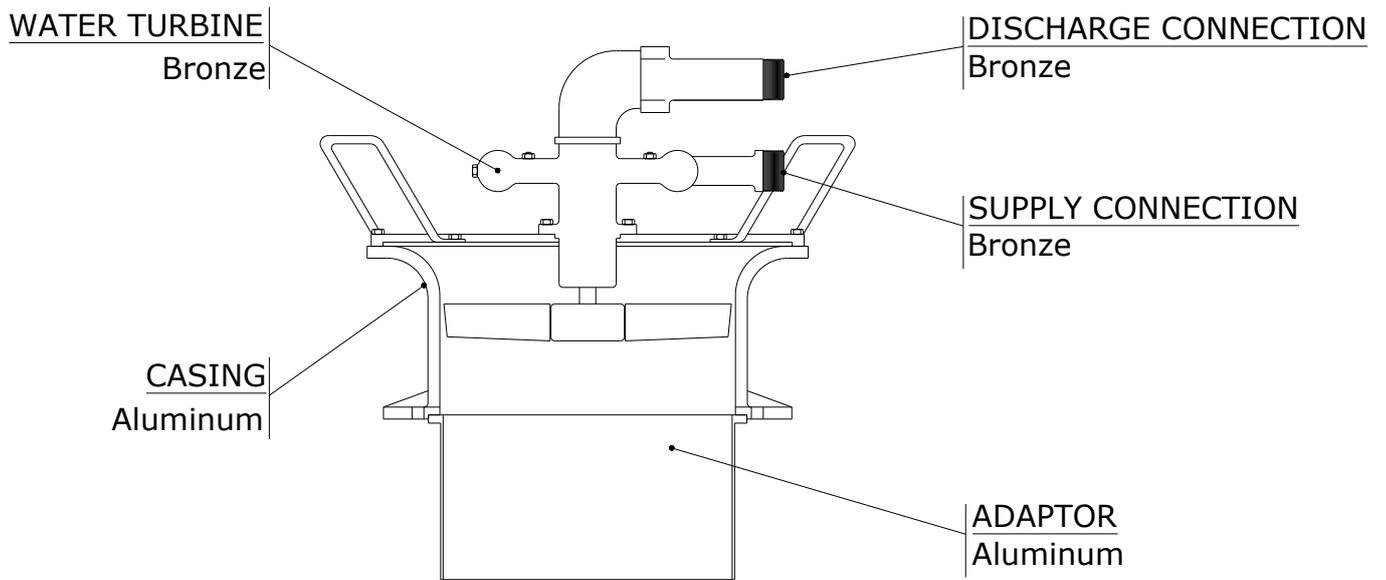


# FLANGE CONNECTION





## MATERIAL SPECIFICATIONS





## Polar Jet® Electric Portable Ventilation Fans



Use to ventilate hot air and harmful gases from a tank or work area. It supplies fresh air and oxygen. Furnish for a 110 volt or 220 volt power supply.

MODEL	CASE DIAMETER
PJ 200EL	200mm
PJ 280EL	280mm
PJ 400EL	400mm

## Polar Jet® Flexible Duct



Flexible ventilation tubes made of PVC tarpaulin canvas. Tubes are lightweight, highly flexible duct idea for improving the efficiency of blowers especially in confined areas.

### Spiral Type

MODEL	TUBE DIAMETER	LENGTH
PJ 200FD	200mm	5M
		10M
PJ 300FD	300mm	5M
		10M
PJ 400FD	300mm	5M
		10M

Other features are:

- Easy to install (no need for dry docking)
- Quick payback of the investment
- Polar Jet® Eco is available as retrofit on all existing
- Polar Jet® PJ 15 and Polar Jet® PJ 30 installations.

This design is available upon request for new buildings and as spare part.

### POLARMARINE

Box 1035  
SE-212 10 Malmö  
SWEDEN  
TEL: +46 - 31-965900  
E-mail: sales@polarmarine.se



# **POLAR JET®**

## **Cargo Hold Gun**



## **POLAR JET® CARGO HOLD GUN 20** **Cargo Hold Water Jet Gun in Tripod**

The cargo holds of today's bulk carriers must be cleaned on a regular basis. Rust scales and cargo residues should not be allowed to accumulate over time.

More sensitive cargos, such as grain, must not be contaminated in any way and demands high quality cleaning. In other cases residues may start unwanted, and potentially dangerous, chemical processes.

The Polar Jet® Cargo Hold Gun 20 in Tripod operates with high pressure water and compressed air. The use of high pressure water along with air generates a compressed jet of water reaching up to 35-40 meters.

The Polar Jet® Cargo Hold Gun 20 is also available without the Tripod.

### **TECHNICAL DATA FOR POLAR JET® CHG20**

RANGE	30 – 40 meters
ESTIMATED WATER FLOW	18 – 20 m <sup>3</sup> /h
RECOMMENDED WATER PRESSURE	7 – 10 bar
WATER CONNECTION	2" Storz Coupling
REQUIRED AIR FLOW	2.5 m <sup>3</sup> /min
RECOMMENDED AIR PRESSURE	7 – 10 bar
AIR CONNECTION	3/4" Claw Coupling

#### **POLARMARINE**

Box 1035  
SE-212 10 Malmö  
SWEDEN  
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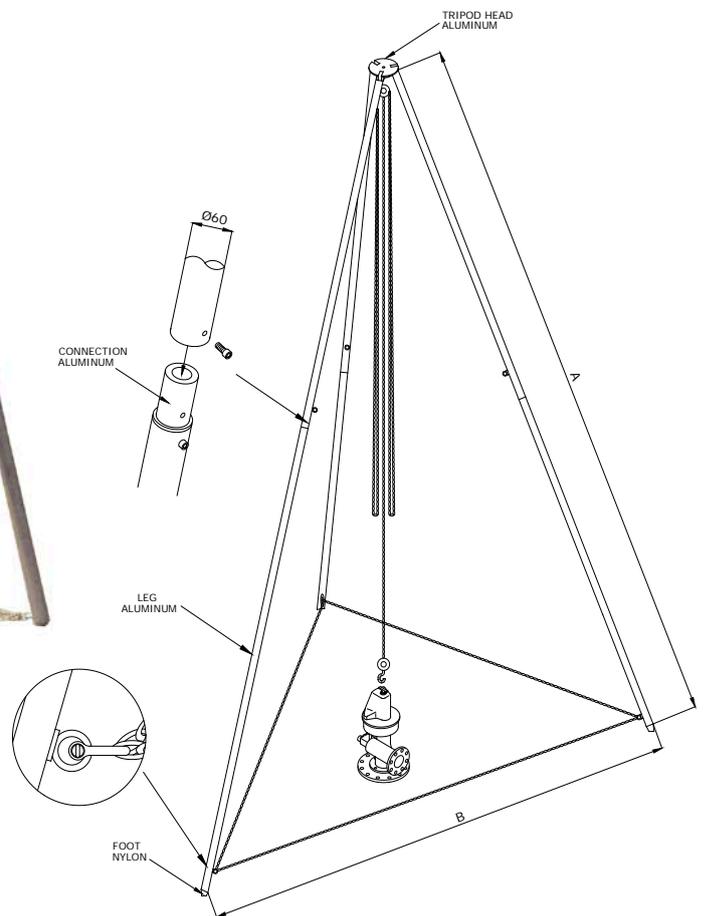
# **ACCESSORIES**



# TRIPOD



- Tripod Type: Split type
- Chain block included
- Material: Aluminum
- Length: 4.5m and 6m





## FLANGE – BALL VALVE – MALE CAMLOCK



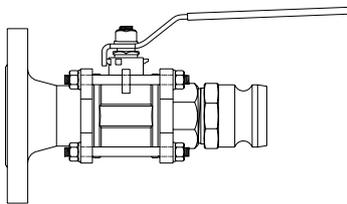
- Material is Stainless Steel SUS316L.
- Available sizes are 1.5" and 2".
- Also available Flange – Ball Valve – Female Camlock.
- Comes with Dust Cap for Male Camlock and Dust Plug for Female Camlock.
- Can be mounted to the Fixed Tank Cleaning Machine.

We declare to deliver according to the specifications mentioned above.

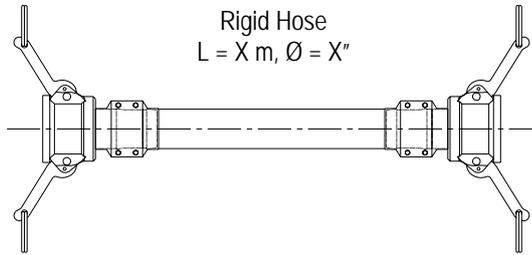


# HOSE BALL VALVE ASSEMBLY

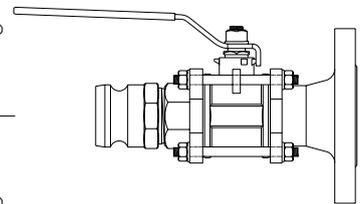
To TCM Connection



Rigid Hose  
 $L = X \text{ m}$ ,  $\varnothing = X''$



To Shipyard Connection



**POLARMARINE**

Box 1035

SE-212 10 Malmö

SWEDEN

TEL: +46 - 31-965900

E-mail: sales@polarmarine.se



## LIST OF AVAILABLE CAMLOCKS AND COUPLINGS



### FEMALE CAMLOCK

- Can be used in both Layflat and Rigid Hose.
- Can be used in Ball Valves.
- Available sizes are 1.5" and 2".
- Accessory: Dust Plug; available sizes are 1.5" and 2".



### MALE CAMLOCK

- Can be used in both Layflat and Rigid Hose.
- Can be used in Ball Valves.
- Available sizes are 1.5" and 2".
- Accessory: Dust Cap; available sizes are 1.5" and 2".



### NAKAJIMA COUPLING

- Conform to Japanese JIS 7335.
- Two halves are identical and a quarter turn locks the couplings together.
- Can be used in both Lay Flat and Rigid Hose.
- Available sizes are 1.5", 2" and 2.5".



### STORZ COUPLING

- Conform to German Standard DIN 14302 and 14303.
- A quarter turn mates the two identical halves.
- Can be used in both Layflat and Rigid Hose.
- Available sizes are 2" and 2.5".



### FEMALE COUPLING

- Standard hose connection for Portable Tank Cleaning Machine.
- Can be BSP Threaded or ANSI Threaded.
- Can be used in both Lay Flat and Rigid Hose.
- Available sizes are 1.5", 2" and 2.5"



### MALE COUPLING

- Can be BSP Threaded or ANSI Threaded.
- Can be used in both Lay Flat and Rigid Hose.
- Available sizes are 1.5", 2" and 2.5"

\*\*Other coupling designs available upon request.

### POLARMARINE

Box 1035  
SE-212 10 Malmö  
SWEDEN  
TEL: +46 - 31-965900  
E-mail: sales@polarmarine.se



## NAKAJIMA COUPLING



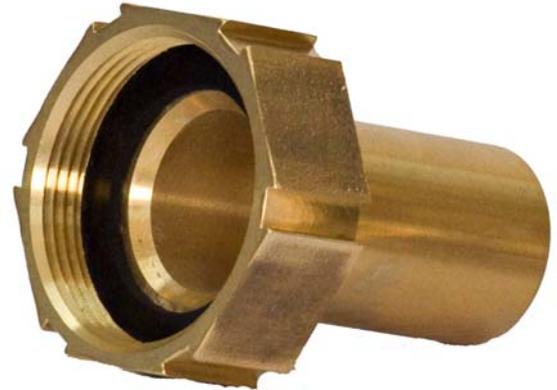
- Conform to Japanese JIS 7335.
- Two halves are identical and a quarter turn locks the couplings together.
- Can be use in both Lay Flat and Rigid Hose.
- Available sizes are 1.5", 2" and 2.5".

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SE-212 10 Malmö  
SWEDEN  
TEL: +46 - 31-965900  
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## MALE AND FEMALE COUPLINGS



### MALE COUPLING

- Can be BSP Threaded or ANSI Threaded.
- Can be use in both Lay Flat and Rigid Hose.
- Available sizes are 1.5", 2" and 2.5".

### FEMALE COUPLING

- Standard hose connection for Portable Tank Cleaning Machine.
- Can be BSP Threaded or ANSI Threaded.
- Can be use in both Lay Flat and Rigid Hose.
- Available sizes are 1.5", 2" and 2.5"

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## MALE AND FEMALE CAMLOCKS



### MALE CAMLOCK

- Can be use in both Layflat and Rigid Hose.
- Can be use in Ball Valves.
- Available sizes are 1.5" and 2".
- Accessory: Dust Cap; available sizes are 1.5" and 2".

### FEMALE CAMLOCK

- Can be use in both Layflat and Rigid Hose.
- Can be use in Ball Valves.
- Available sizes are 1.5" and 2".
- Accessory: Dust Plug; available sizes are 1.5" and 2".

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SWEDEN  
TEL: +46 - 31-965900  
E-mail: sales@polarmarine.se



## STORZ COUPLING



- Conform to German Standard DIN 14302 and 14303.
- A quarter turn mates the two identical halves.
- Material is Bronze.
- Can be used in both Layflat and Rigid Hose.
- Available sizes are 2" and 2.5"



## DOUBLE ENDED MALE ADAPTOR

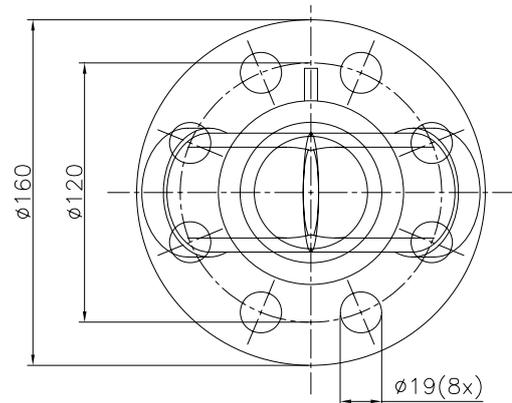
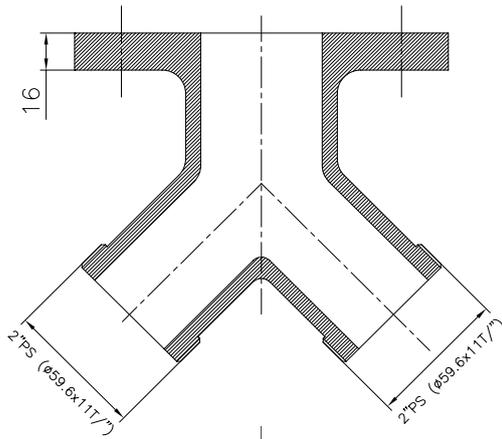


- Material is Bronze
- Can be BSP Threaded, ANSI Threaded or ASA Threaded.
- Available sizes are 2" and 2.5"

**POLARMARINE**  
Box 1035  
SE-212 10 Malmö  
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## TWO WAY Y-NIPPLE



- Material is Bronze.
- Equipped with End Cap.
- Also available in Three-way Y-nipple.
- Can be ANSI or BSP Threaded.

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## TANK CLEANING HOSE (Lay-Flat Hose)



**Construction:** Synthetic single jacket fully woven polyester reinforcement and completely encapsulated with a NBR/PVC (nitrile) with lining and cover, made in a single extrusion eliminating risks of separation or blistering.

**Great Durability:** The hose provides high pressure capability together with superior resistance to sea-water, oils and hydrocarbon fuels, water, acids, and chemicals, ozone. Excellent abrasion, puncture, weathering and ozone/u.v. resistance.

**Electrical performance:** 2 electrical copper tin covered wires with a cross section of 0.5 mm<sup>2</sup> each one and protected with a braided sheet of polyester yarn, is incorporated against the buildup of static electricity for hose whose value should not exceed 70.000 ohms per foot. (According to U.L. and U.L.C)

Diameters:	mm	38 and 52 ± 1.5			
	inch	1½ and 2			
Lengths:	m.	15, 20, 30 m. ~ Up to 200 m. on			
	ft.	50, 66, 100 ft. ~ Up to 660 ft. on request			
Minimum burst pressure:	bar	63			
	p.s.i.	900			
Maximum working pressure:	bar	20.5			
	p.s.i.	300			
Temperature range:	°C	-20 to +80 normal service			
	°F	-4 to +176 normal service			
	°C	+120 for punctual service			
	°F	+248 for punctual service			
Minimum bend radius in m. (ft) and pressure in bar (p.s.i.)	bar/p.s.i	5 / 75	10 / 150	15 / 225	20 / 300
	m.				
	Ft.				
Thickness	mm.	3.5			
	inch	9/64			
Approximate weights (without couplings)	g/m	38 mm 485 and 52 mm 650			
	lb/ft	38 mm 0.352 and 52 mm 0.470			
Coil diameter (length/diameter)	m./mm.	20/500	30/650		
	ft./inch	66/20	100/26		
Color:		Yellow			
Electrical wire units		2			
Section of one wire	mm <sup>2</sup>	0.5			
	inch <sup>2</sup>	0.00078			
Electrical resistance for Hose of 30 m / 100 ft / per wire	Ω	1 to 15			



## TANK CLEANING HOSE (Rigid Hose)



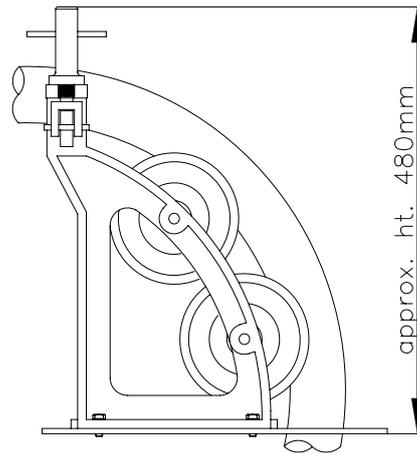
Tank cleaning hose designed for the cleaning of tanks by using a rotating head. Due to its peculiar structure the hose in working condition is not subject to elongation. Hose is provided with yellow rings at 5 meter intervals.

Norm	: DIN 7715, for tolerance dimensions
Tube	: EPDM black, smooth
Cover	: EPDM black, smooth, ozone- and ageing resistant, fabric finish
Insertions	: High strength textile plies and two stainless steel wires, trailing
Working pressure	: 20 bar
Burst pressure	: > 62 bar
Temperature range	: -30 °C / +95° C
Sizes	: 38 x 54 mm. and 51 x 67 mm.
Electrical resistance	: R < 1 Mega Ohm, when static-wire connected
Print	: yellow rings each 5 meters.

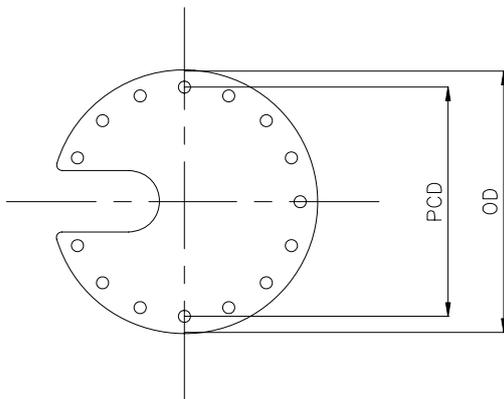
We declare to deliver according to the specifications mentioned above



# HOSE SADDLE



- For handling of Tank Cleaning Hoses.
- Aluminum Material Hose Support and Position Clamp.
- Bronze Material Wing Nut.
- Mild Steel Epoxy Coated Hose Saddle Flange
- Choice of Hose Saddle Flange sizes
- Weight Approx. 14 kg.



### Saddle Flange

Outer Diameter (OD) : \_\_\_\_\_  
 No. of Holes : \_\_\_\_\_  
 Size of Holes : \_\_\_\_\_  
 PCD of Holes : \_\_\_\_\_  
 No. of Units : \_\_\_\_\_

We declare to deliver according to the specifications mentioned above



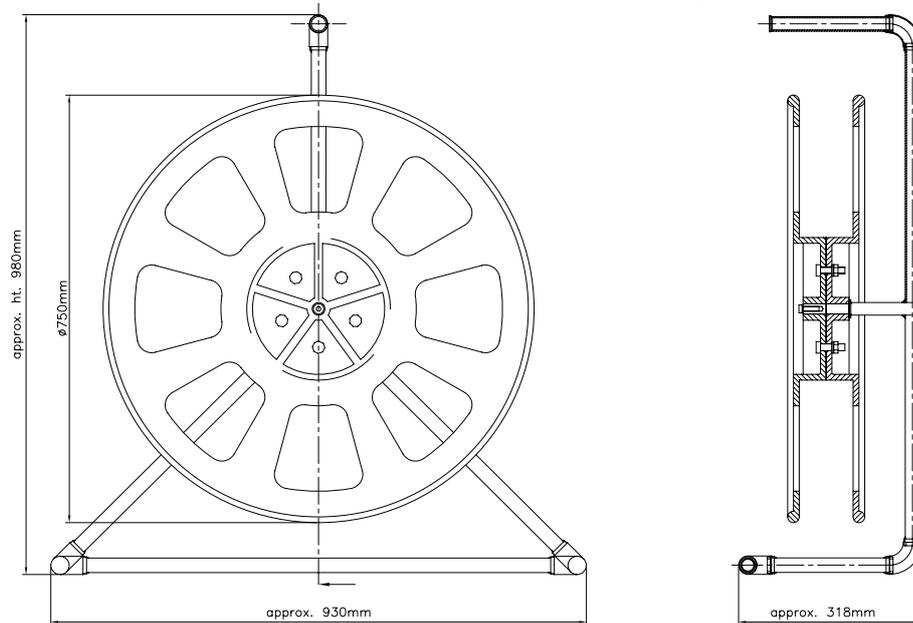
## HOSE SPANNER



- Standard material is Mild Steel with Epoxy Primer.
- Also available in Bronze upon request.
- Used in tightening the couplings.
- Applicable on 1.5", 2" and 2.5" coupling.



## HOSE REEL



- For handling of Tank Cleaning Hoses.
- Hose Wheel material is Aluminum.
- Hose Wheel Support material is Stainless Steel.
- Weight Approx. 26 kg.

### **POLARMARINE**

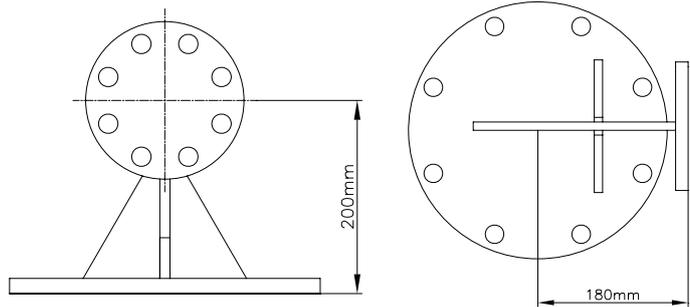
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SE-212 10 Malmö  
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## DUMMY



- For Fixed Tank Cleaning Machine.
- Material is Mild Steel with Epoxy Primer.
- Approximate weight is 13kgs.



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