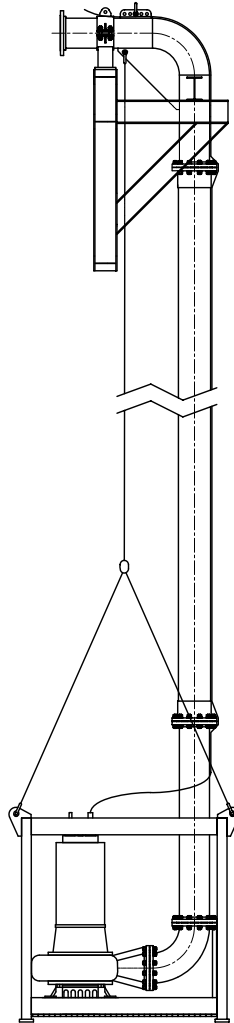
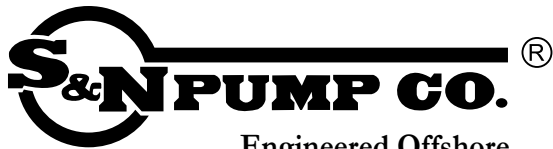


FA25 Preload Pump Unit



Installation, Operation & Maintenance Manual



Engineered Offshore
Pumping Solutions

**S&N Pump Company
Headquarters**

8002 Breen Rd.
Houston, Texas 77064
T: 281-445-2243
F: 281-445-4061

Executive V.P. Operations
Richard Draper
richarddraper@snpump.com

Human Resources Director
Carole Draper
caroledraper@snpump.com

Senior Account Executive
Cliff Alford
cliffalford@snpump.com

V.P. of Marketing
Matt Chamberlain
mattchamberlain@snpump.com

V.P. of Production/HSE
Billy Helveston
billyhelveston@snpump.com

Engineering Manager
Bob Hays
bobhays@snpump.com

Project Manager
Bruce Guillot
bruceguillot@snpump.com

Purchasing Manager
Grace Gonzales
gracegonzales@snpump.com

Service & Repair Sales
Paul Langland
paullangland@snpump.com

**S&N Pump Company
Sales Office**

10 Lumsden Park
Cupar, Fife KY15 5YL
Scotland
T: 44-1334-650769
M: 44-7793-325450

Director of Sales - Europe
Andrew Irons
andrewirons@snpump.com

**S&N Pump & Rewind, Ltd.
Service/Repair**

Swanston Rd.
Great Yarmouth, Norfolk
NR30 3NQ U.K.
T: 44-1493-332834
F: 44-1493-331787

Managing Director
Ricky Turner
buyer@snpump-rewind.co.uk

Works Manager
John Haggarty
repairs@snpump-rewind.co.uk

Accounts
Petula Holland
accounts@snpump-rewind.co.uk

**S&N Pump Africa, Lda
Sales/Service/Repair**

Estrada do Tando Zinze
Terra Nova, Cabassango
Cabinda, Angola;
P.O. Box 588
T: 244-9131-44413
E-fax: (001) 832-218-5090
M: 244-9131-45773/774

**S&N Pump Africa, Lda
Sales**

Rua Dack Doy # 19
Bairro Azul, Luanda, Angola
T: 244-9125-08642

Managing Director
Estevao Mambo
mambo@snpump.com

Director of Sales
Karen Draper
karendraper@snpump.com

Engineering Manager
David Draper
daviddraper@snpump.com

Operations Manager
Paul Humphrey
paulhumphrey@snpump.com

**S&N Pump S.E. Asia
Singapore Pte Ltd**

Sales/Service/Repair
Block 28C Penjuru Close
#01-07
Singapore 609131
T: 65-6265-7846
F: 65-6265-7847

Director
Miko Gipson
miko@snpump.com

Sales Manager
Jordan Yeong
jordanyeong@snpump.com

Technical/Service Manager
David Hale
davidhale@snpump.com

**S&N Pump Middle East FZE
Sales/Service**

P.O. Box 262785
Jebel Ali South, Dubai
U.A.E.
T: 971-4-8864854
F: 971-4-8864856
M: 971-55-7105776

Technical/Service Manager
David Hale
davidhale@snpump.com

Sales and Logistics
Jashua D'sa
dubai.sales@snpump.com

INSTALLATION OF FA25 PRELOAD PUMP UNIT

Installation of FA25 Preload Pump Unit	2
--	----------

OPERATION OF FA25 PRELOAD PUMP UNIT

Operation of FA25 Preload Pump Unit	5
-------------------------------------	----------

REMOVAL AND INSPECTION OF FA25 PRELOAD PUMP UNIT

Removal and Inspection of FA25 Preload Pump Unit	7
--	----------

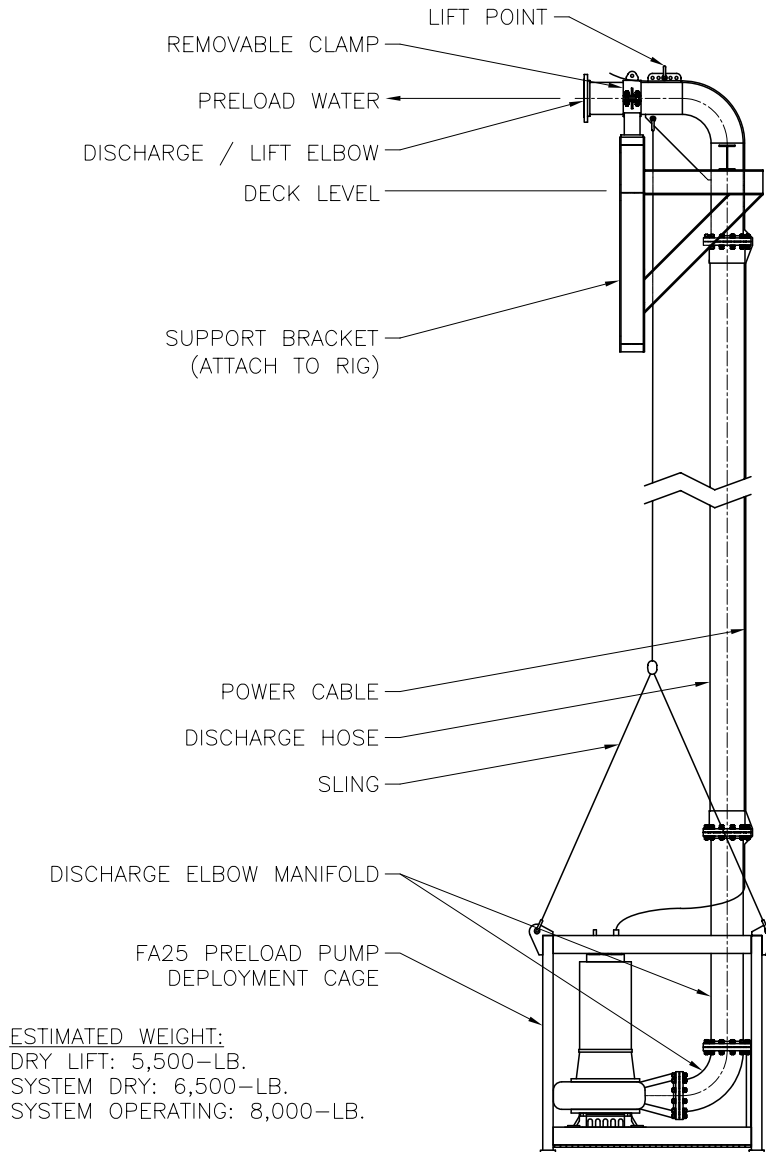




Fig. 1: General Arrangement Drawing

Installation of FA25 Preload Pump Unit

1. Review EMU pump IOM for additional information and instructions.
2. Verify that the power cable and pump winding insulation resistance leg-to-leg & leg-to-ground are within acceptable limits.
3. Install the support structure on the side of the rig hull.


	CAUTION
<p>Be sure adequate rig structure exists to support the loads and forces from the pump support structure.</p>	

4. Install the lifting sling with shackles provided.
5. Install the discharge elbow manifold onto the pump discharge flange using gaskets & bolting provided.
6. Install the power cable and attach it to the discharge pipe / hose at 10' maximum with cable tie bands provided.


	CAUTION
<p>Be sure adequate slack exists to prevent unnecessary stress on the power cable.</p>	

7. Lift unit from deck using master-link & lower unit overboard as unit assembly progresses.
8. Install the discharge hose to the elbow manifold using gasket & bolting provided.
9. Install the discharge / lift elbow onto the discharge hose using gasket & bolting provided.
10. Lower into position so that the discharge / lift elbow rests on the support bracket. Secure with bolting provided.
11. Install the removable discharge / lift elbow clamp onto the support bracket using bolting provided.
12. Attach discharge flange on the discharge / lift elbow to rig manifold piping using gasket & bolting provided.

13. Route pump power cable to junction box and connect to rig power supply.
14. Verify that correct power is supplied.

	CAUTION
Operating at incorrect frequency, with high or low voltage on any leg or single-phasing can damage the unit.	


15. Check the pump rotation with a meter or by simply verifying water production.

	CAUTION
If the pump is not producing water, it is running backwards. Reverse rotation.	

NOTE	
Pump rotation is counter clock-wise, looking down from the motor at the pump volute.	

Operation of FA25 Preload Pump Unit

1. Review EMU pump IOM for additional information & instructions.
2. The final installation should result in the pump being submerged to at least the top of the motor housing when in a wave trough.

	CAUTION
<p>Operating with less than recommended submergence can result in cavitation, vortexing and motor over-heating</p>	

3. Once the pump has reached stable operation, check for “vortexing” - the formation of whirl-pools that suck air into the pump.

NOTE
<p>Lower the pump as necessary to suppress the formation of vortices.</p>

4. Once the pump has reached stable operation, check voltage and amperage to each leg. Compare amperage to test report results.
5. Avoid excessive start - stop cycling as it can cause overheating of the motor windings and degrade the motor winding insulation.

	CAUTION
<p>Do not exceed 2 (evenly spaced) bump-start cycles per hour when dry.</p>	



CAUTION

Do not exceed 10 (evenly spaced) start - stop cycles per hour when submerged.


6. Periodically check pump production. Reduced production may indicate the pump suction is partially obstructed.

NOTE

Clean the pump suction screen as necessary.

Removal and Installation of FA25 Preload Pump Unit

1. De-energize & lock-out power supply to pump unit.
2. Disconnect pump power cable at junction box.
3. Seal ends of power cable to keep moisture out of cable.

	CAUTION
<p>Moisture in the power cable can reduce the insulation values to dangerously low levels, causing voltage leakage or short.</p>	

4. Disconnect the discharge flange on the discharge / lift elbow from the rig manifold piping. Saving the bolting for future use.
5. Attach rig crane to the discharge / lift elbow's lift point and lift completed assembly.
6. Swing the crane to place the unit on a suitable working surface / deck.
7. Disassemble in reverse order of installation process with the additional steps:
 - Wash down all wetted surfaces of the pump including inside the pump casing / volute to remove all traces of sea water.
 - Inspect unit for nicks & scratches in the protective coating / paint on the pump and skid.
 - Repair damaged areas with proper surface preparation & touch-up paint prior to storage.
 - Perform any recommended maintenance prior to storage.