Functional specification
for
Temporary Seawater Lift Pump

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01	18.03.2016	ISSUED FOR VERIFICATION	ON	HT/KP	SN		SS
Rev.	Issued date	Description	Written by	Chk'd by	EM appr.		Statoil appr.

Company:

Statoil

Contractor:

DSME
DAEWOO SHIPBUILDING & MARINE ENGINEERING CO.,LTD.

Sub-Contractor:

AkerSolutions
Aker Solutions MMO A/S

Contractor Doc.No:
NA

Statoil Contract no:	Project title:	
4600018356	Gina Krog Topside EPCH	
Document type:	Area:	System:
KZ	A000	50/51

Document title:

Functional specification for Temporary Seawater Lift pump

Document no.:	Rev.:	Pages:
GKHU-AKSO-KZ-0035	03	6

FUNCTIONAL SPECIFICATION

1. FUNCTIONAL DESCRIPTION

General

Gina Krog is located in the central part of the North Sea. A production platform will be installed at the field and export rich gas to Sleipner with further export of sales gas to Gassled and Condansate / NGLs at Kårstø. A Flotating Storage Unit (FSU) will be used for oil transport.

Daewoo Shipbuilding and Mechanical Engineering (DSME) is the main contractor for the development of the Gina Krog platform together with Statoil. Gina Krog modules will be built in Okpo (Korea), and the Living Quarter is delivered by Apply Lervik at Stord.
Aker Solutions MMO AS is responsible for offshore Hook-up and commissioning assistance on the Gina Krog platform. That includes provision of all tools and temporary equipment for offshore work, providing necessary commissioning assistance and performing all hook-up work until MC is complete.

Scope of work

One temporary Seawater lift pump shall be installed at Gina Krog platform in order to act as seawater and Firewater(FW) supply to FW ringmain in the installation phase of Gina Krog Hook up activities. The temporary pump shall be installed in an existing FW caisson at main deck.

The seawater lift pump shall be a centrifugal vertical submersible multistage pump, equipped with diffusers, check valve and an electric submerged motor with a 45 sub cable and 20 m (BFOU 3x25) cable.

The pump capacity to be rated at 120 m3/h @145 m head, nominal rated Low seawater level L.A.T is 28,3 m below caisson flange. Design of pump Riser stack 19 barg.

The bottom pump arrangement to be equipped with a pump guiding device in order to be installed in a FW caisson with internal diameter ID= 1050 mm. Stud bolts to connect to 42 " caisson flange to be included (9 stud bolts with nuts may be sufficient ,TBA in calculation report)

The pump stack shall be in painted carbon steel and consist of 10 ea. x 3,5 m and 1 ea. x 0,5 m of Riser stacks with 6 inch flanges, gaskets /insulation gaskets, bolts and nuts, anodes, top plate for 42 "caissons flange mounting with an 6 inch penetration pipe spool, bend with 6 inch flanges, X-over (20" x 6") to connect to the existing piping system.

The pump to be equipped with installation tools such as a 6" blind flange with 6,5 T lifting lug for installation of pump stack and a clamping tool for hang-off (between stack montage).

The starting cabinet to be equipped with an external start, stop and emergency stop, and shall be ready for free delivery at AS – Hinna.

Available power supply at Gina Krog; (3 phase, 690 V, 60 HZ and 130 A)

Fabrication, NDE and painting for carbon steel pump stack parts in accordance with NORSOK.

The platform is considered as an unclassified area during the installation phase.

The pump arrangement to be supplied with a 40 m hose dia; ½ inch for hypochlorite injection to caisson, the caisson top flange to be equipped with nozzle for hose entrance to caisson. Plastic strips for montage of cable and hose along pipe.

Necessary precautions to avoid galvanic corrosion of incompatible materials shall be included for in the

design.
Vendor assistance with mechanical personnel for installation of a temporary seawater lift pump to be included.

All identified deviations from listed NORSOK standards, to be listed in Bid.

2. FUNCTIONAL DETAILS

The supplier shall test and deliver a seawater lift pump assembly as specified in this requisition and listed references. The a seawater lift pump assembly shall be complete in all respects, fully tested, certified, ready for operation, prepared for shipment and in accordance with specifications, codes, documents and other attachments to this requisition.

The delivery shall as a minimum consist of:

ITEM	QTY	UNIT	DESCRIPTION
1	1	off	Temporary seawater lift pump
2	1	off	Start cabinet with external start/stop and emergency stop.
3	1	off	Hypochlorite hose
4	1	lot	Required accessories for installation and internal lifting
5	1	lot	Documentation according to attached SDRL
6	1	lot	Commissioning and start-up spares/ spare parts for operation
7	1	lot	Packing and Marking for Shipment including dispatch documentation.
8	1	lot	Vendor assistance for installation (ATS), - Pre SJA / Safe Op. -Supervisors at day/night shift.
9	1	Lot	Performance test to EN ISO 9906 3B at Xylem Sweden, pump stack assembly mounting/verification in Stavanger.
10	1	Lot	Stud bolts and nuts for mounting to caisson flange
11	1	Lot	20 m cable BFOU(3x25)

3. FUNCTIONAL REQUIREMENTS

Documentation as listed in this specification

The Sea water lift pump to comply with
-Machinery Directive (544)
NORSOK references:
NORSOK Z-015 Temporary Equipment Chapter 1, 2, 3, 4.4.6, 4.6 & 4.8
NORSOK R-001 Mechanical equipment
NORSOK E-001 Electrical systems
NORSOK M-101 Structural Steel fabrication
NORSOK M-601 Welding and inspection of piping
NORSOK M-630 Material datasheets and element data sheets for piping
NORSOK R-002 Lifting equipment
NORSOK L-001 Piping
NORSOK M-501 Surface preparation and protecting coating
-System 7B: Applicable for all Carbon steel pipe spools externally.
-System 1A: Applicable for Carbon steel parts above top plate.

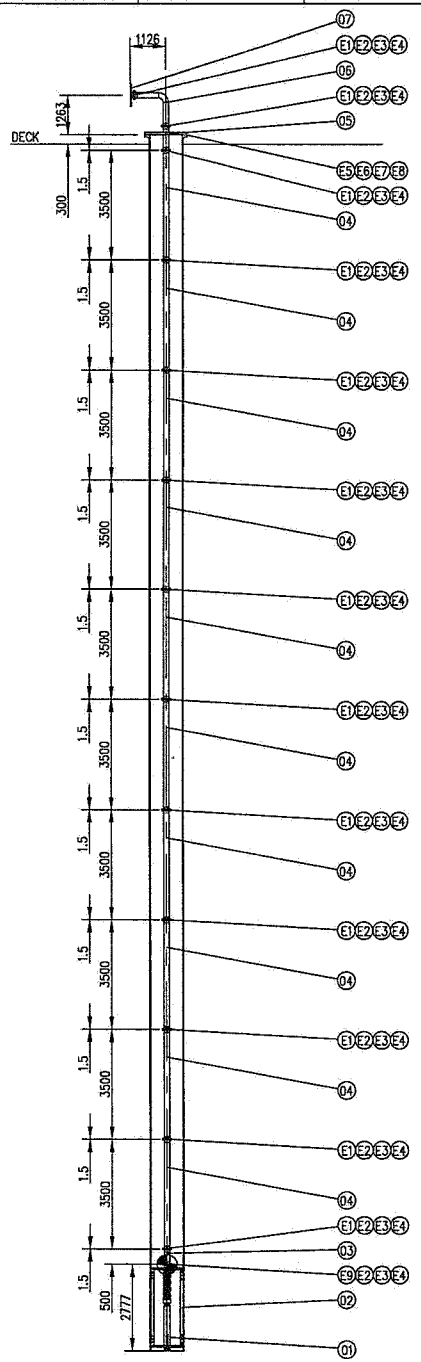
4.0 SDRL

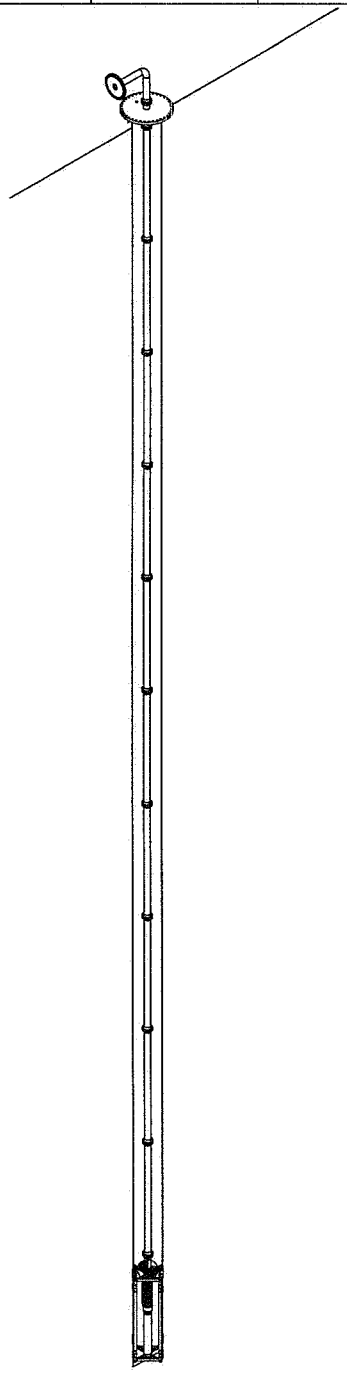
Documentation description	Wit Bid	Wit Goods	Comments
EPMS plan (Engineering, procurement, test and delivery schedule)			3 Weeks after PO
Quality plan (with reference to applicable implemented procedures)			3 Weeks after PO
General Arrangements (GA) drawings	x		To be verified by Aker Solutions AS
Starting cabinet drawing		x	To be verified by Aker Solutions AS
Sectional drawings		x	To be verified by Aker Solutions AS
Single line diagram		x	To be verified by Aker Solutions AS
Parts list		x	Included ship loose items
Mechanical Pump Data Sheet	x		To be verified by Aker Solutions AS
Riser stack calculations			3 Weeks after PO To be verified by Aker Solutions AS
Electrical Motor Data Sheet	x		To be verified by Aker Solutions AS
Lifting arrangement		x	To be verified by Aker Solutions AS
Transport, handling and lifting procedure		x	To be verified by Aker Solutions AS
Installation and operation manual including list of standard tools for installation		x	To be verified by Aker Solutions AS

Doc mentation description	With Bid	With Goods	Comments
Declaration of Conformity		x	
Norsok Z-015 check		x	
MRB	Na	Na	MRB documentation for fabricated parts(exclusive pump/motor) To be stored by supplier Fabrication drawings incl. weld locations for piping, weld and NDE log , welders certificate, WPS, material traceability list, Material certificates, calculation reports for lifting device, calculation report for clamping tool, Painting reports , Hydrostatic test reports
Lifting Certificates		x	To be verified by Aker Solutions AS
User manual for lifting device and clamping tool		x	NORSOK R-002 To be verified by Aker Solutions AS
Weight certificates		x	To be verified by Aker Solutions AS
Packing List / Final inspection		x	To include pictures of labeling and packed items for shipping.
FAT procedure/report		x	To be verified by Aker Solutions AS
Spare parts for installation and operation		x	To be verified by Aker Solutions AS
Relay protection settings for Motor protection		x	To be verified by Aker Solutions AS
List of deviation from applicable standards	x		To be verified by Aker Solutions AS

5.0 Attachment

Drw no	Text	Rev	Comments
ER433-MD-0001	General drawing riser piping GINA KROG	02	Xylem
TVS10.1-3/2B WW L8WR7502SH	Technical Data sheet, pump curve, drw. pump with motor		Xylem
GKHU-AKSO-Hold	Centrifugal pump data sheet (mark-up)	01	Gina Krog HUC
C132-KA-ER326-XD-0001-01	General arrangement for 73MF001	05	Information
C132-KA-ER302-XD-0002-01	Firewater pumps-General arrangement-FW lift pump	06	Information
C132-KA-ER302-XD-004-DT	Firewater pumps-General arrangement-surge tank	06	Information
C132-KA-N-XG-1596-02	MSF- Q100 OUTF Caisson C1,C2,C3,C4,C5,C6 and sewage –caisson supports	05	Information
C132-KA-ER302-XD-0002-01	Firewater pumps-General arrangement-FW lift pump	07	Information, Ref flange dia. caisson and bolting(TBA)





POS.	QTY.	DESCRIPTION	DRAWING
01	1	PUMPE	NA
02	1	GUIDE TOOL	NA
03	1	6" PIPING Sch. 80 L=500mm	TBA
04	10	6" PIPING Sch. 80 L=3500mm	ER433-MD-0001
05	1	TOP FLANGE	ER433-MD-0002
06	1	6" 90° BEND	ER433-MD-0004
07	1	CROSS-OVER 6" - 20" 150LBS	ER433-MD-0006
		ERECTION MATERIALS	
E1	13	6" GASKET 1,5mm	BLUEGARD CGF
E2	112	3/4" STUD BOLTS L=140mm	A193 B7
E3	448	3/4" NUT	A194 2H
E4	224	3/4" WASHER	A194 2H
E5	1	20" PIKOTK PGE ISOLATION KIT	
E6	36	STUD BOLTS (BY OTHERS)	
E7	144	NUT (BY OTHERS)	
E8	72	WASHER (BY OTHERS)	
E9	1	6" PIKOTK PGE ISOLATION KIT	

DESIGN DATA

PIPE CLASS:	AC11
PIPING MATERIAL:	A333 6 SMLS
FLANGE MATERIAL:	A350 LF2
EXTERNAL PAINTING:	M-501 system 7A
INTERNAL PAINTING:	NA
DRY WEIGHT OF PIPING BELOW 42"FLANGE:	1720 kg
DRY WEIGHT 42" FLANGE:	785 kg
DESIGN PRESSURE:	19,6 BARG
OPERATING MEDIUM:	SEA WATER

NOTE

1. ⊕ -INDICATES REFERENCE DATUM POINT
2. WEIGHTS ARE ESTIMATED
3. BOLT TORQUE FOR FLANGE CONNECTIONS ACC TO PIPECLASS
4. 2 OF ANODE INSIDE OF EACH PIPE SPOOL AND
   2 OF ANODE OUTSIDE EACH PIPE SPOOL INSIDE CASING

REFERENCE STANDARDS

NORSOK M-101
NORSOK M-601
NORSOK M-630
NORSOK R-002
NORSOK L-001
NORSOK Z-015
NORSOK M-501

REV.	ISSUE DATE	REASON FOR ISSUE/REVISION	PREPARED	CHECKED	APPROVED
01	14.04.16	ISSUED FOR BID	MKR	EMR	JER

SIZE: A1

SCALE: 1:80

DRAWING TITLE:
GENERAL DRAWING
RISER PIPING GINA KROG

DRAWING NO. ER433-MD-0001

1 OF 1 Sheet No. | 02 Rev

LOWARA
a xylem brand

Technical Data
TVS10.1-3/2B WW L8WR7502SH

Item no.
Revision number

	Receiver	From
Company Name		
official in charge		
Phone number		
FAX-Number		
E-Mail address		tommy.engholm@xyleminc.com

Operating data

1	Pumpe type	Single head pump		Fluid		Sea water
2	No. of pumps	1		Operating temperature t A	°C	4
3	Nominal flow	m³/h	120	pH-value at t A		7
4	Nominal head	m	146	Density at t A	kg/dm³	1.03
5	Static head	m	0	Kin. viscosity at t A	mm²/s	1.569
6	Inlet pressure	bar	0	Vapor pressure at t A	bar	1
7	Environmental temperature	°C	20	Solids		0
8	Available system NPSH	m	0	Altitude	m	1000

Pump data

9	Pump designation	TVS10.1-3/2B WW L8WR7502SH					
10	Design	8" pump		Impeller Ø	designed	mm	181 (3/2B)
11	Einbaulage	vertical /					
12	Operating speed	1/min	3505		Nominal	m³/h	122.6 (122.6)
13	No. of stages		3	Flow	Max-	m³/h	220.9
14	Saugoeffnung		durch Saugsieb geschuetzt		Min-	m³/h	50.2
15	Discharge flange		Rp6 / DIN 2999		Nominal	m	152.3
16	Max. casing pressure	bar	55	Head	at Qmax	m	86.8
17	Max. working pressure	bar	18.3		at Qmin	m	170.2
18	Impeller type		Semi axial impeller	Shaft power		kW	67.7 (67.7)
19	Impeller design		Closed	Max. shaft power		kW	75.5
20	Head H(Q=0)	m	180	Efficiency		%	77.42
21	Pump weight / Total weight	kg	/ 352	NPSH 3%		m	5.1

Materials

	Pump		Tauchmotor	
22				
23	IMPELLER	Duplex, 1.4517	Casing	Duplex, AISI 904L
24	Suction casing	Duplex, 1.4517	Mantelrohr	Duplex, AISI 904L
25	Discharge casing	Duplex, 1.4517	Gummiteile	NBR
26	Stage casing	Duplex, 1.4517	Cable	EPR
27	BEARING BUSH	EPDM	Wicklung	PE2/PA
28	Shaft	Duplex, 1.4462		
29				
30				
31				
32				
33				
34				
35				
37				
36				
38				

Tauchmotor

39	Manufacturer	Lowara		Type	L8WR750T405-SD HT				
40	Specific design	3 phase submersible rewindable motor High T° DUPLEX (SS1							
41	Rated power	86.3 kW		Frequency	60				
42	Corrected motor power	86.3 kW		No. starts / h	max. 20				
43	Kuehlmittelgeschwindigkeit	0.5 m/s		Weight	265 kg				
44	Rated current	80A		Electric voltage	690V				
45	Rated current	80A		Starting mode	DOL				
46	Degree of protection	IP 68		Speed	3505 1/min				
47	Motoranschluss	8" Nema		Einbaulage	vertical				

Kabel

	Cable type		
	Cable cross section	mm²	
	Environmental temperature	°C	20
	Kabellaenge	m	

Remarks

48	
49	
50	
51	
52	
53	

Accessories

Kuehlmantel	☐ yes / no
	☐ yes / no
	☐ yes / no
	☐ yes / no
	☐ yes / no
	☐ yes / no

Project	Project ID	Created by	Created on	Last update
	Gina K		2016-04-06	2016-04-08

LOWARA
a xylem brand

Hydraulic

TVS10.1-3/2B WW L8WR7502SH

Item no.

Revision number

	Receiver	From
Company Name official in charge Phone number FAX-Number E-Mail address		tommy.engholm@xyleminc.com

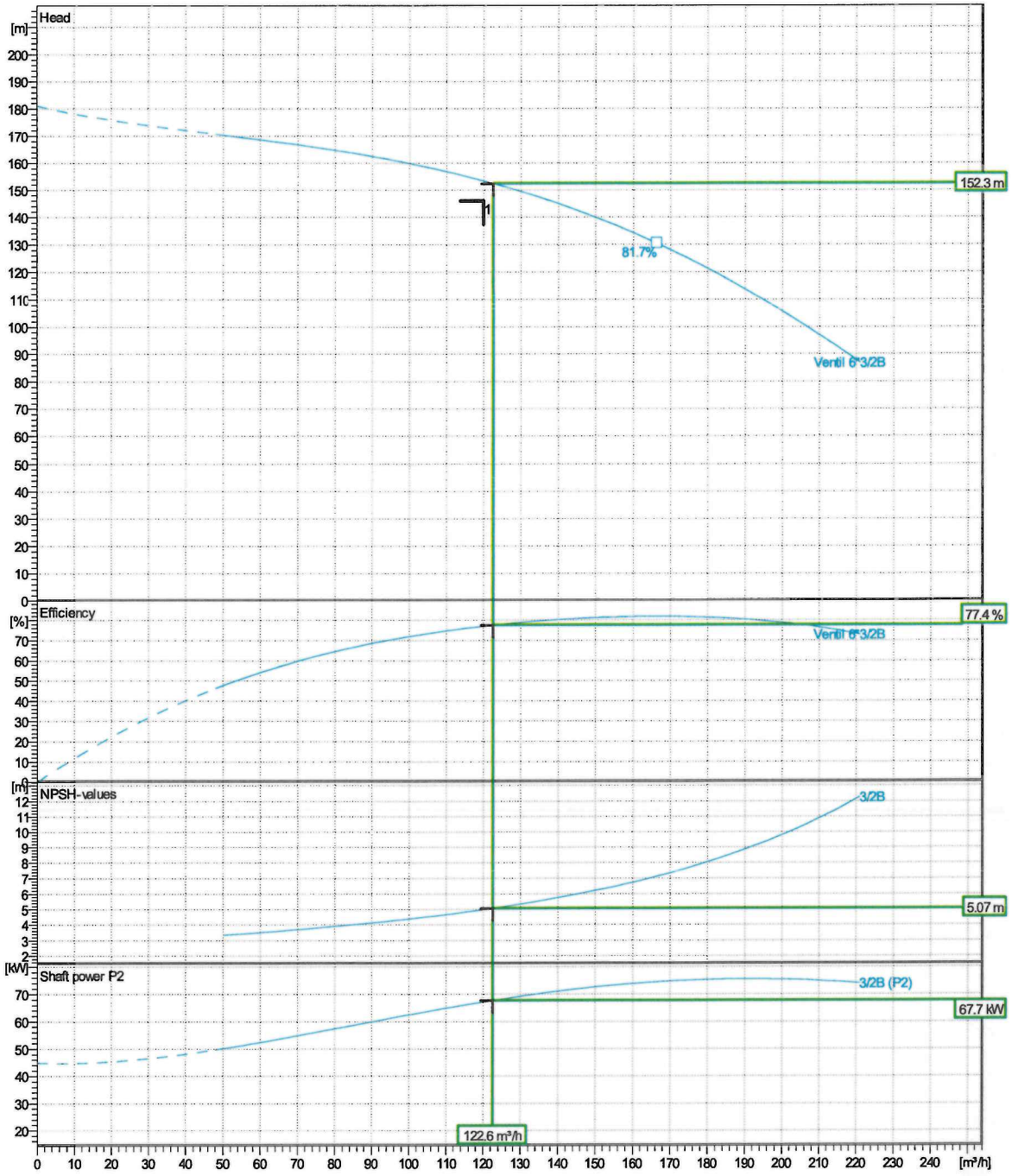
Impeller

	Ø	Flow Operating range Min.	Flow Operating range Max.	η Max.	Head H(Q=0)	η Max.	Shaft power P2 P2(Q=0)	Shaft power P2 Max.	η Max.
	mm	m³/h	m³/h	m³/h	m	m	kW	kW	kW
actual	181	50.2	220.9	166.4	180.9	130.2		75.5	74.4

Impeller type		Semi axial impeller
Impeller design		Closed
Sense of rotation		Clockwise from the drive end
Discharge width	mm	20.0
Frequency	Hz	60
Speed	1/min	3505
Rueckschlagventil		yes

Power data referred to: Sea water [100%] ; 4°C; 1.03kg/dm³; 1.57mm²/s

hydr. Performance acceptance acc. To EN ISO 9906 Class 2B



Project	Project ID	Created by	Created on	Last update
	Gina K		2016-04-06	2016-04-08

LOWARA
a xylem brand

Dimensions

TVS10.1-3/2B WW L8WR7502SH

Item no. | Revision number

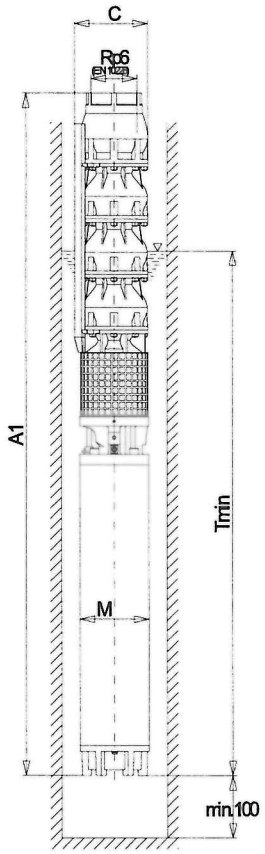
Company Name	
official in charge	
Phone number	
FAX-Number	
E-Mail address	

Receiver | **From**

tommy.engholm@xyleminc.com

Pump with motor (vertical installation)

with non-return-valve (pump and motor, vertical)



Dimensions	[mm]
A1	2752
C	258
I	263
M	192
Tmin	3215
Volumen	0.14387

Connections	[mm]
Suction flange	Discharge flange
durch Saugsieb geschuetzt	Rp6
	DIN 2999

Weight	[kg]
Pump	352.1 kg
Kabel	
Motor	265 kg
Total weight	~

Dimensions and weight without obligation

Project	Project ID	Created by	Created on	Last update
	Gina K		2016-04-06	2016-04-08

SUBCAB

Properties

The cable is designed for use with standard and explosion proof submersible products in applications where the ambient temperature does not exceed 70°C.

It complies with IEC 60245, CSA.22.2 No 49 and UL 62, is oil resistant according to IEC 60811-1-1 and flame retardent according to IEC 60332-1 and IEC 60332-2.

The cable is also EX-approved according to INERIS No.15499/00, IEC 60679-14.

The SUBCAB design has higher mechanical strength and lower water absorption than a standard cable, and high settlement to withstand the pressure at the cable entry unit point.

Construction data

1. *Outer sheathing:* black chlorinated polyethylene rubber (CPE).
2. For SUBCAB 50-185 mm²:
   Outer sheathing: black chlorinated polyethylene rubber (CPE, type: 5GM5).
3. *Conductor insulation:* Ethyleneprophylene rubber (EPR).
4. *Conductors:* copper strands.

Rated voltage

Europe:	450/750 V
North America and Canada:	600 V

Technical data

Current rating:
Europe, according to IEC 60364-5-523 table 52-C11/E
North America, according to NEC 310.16, 400-5B and CSA C 22.2 No.49.

Max. conductor temperature:	90°C
Max. continuous ambient temperature:	70°C, AWG 60°C according to CSA.

Approvals

The European version exceeds the requirements for Harmonized Cable "HAR".

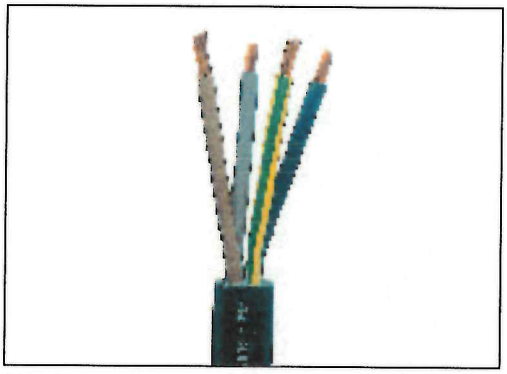
The North American version SUBCAB AWG, is MSHA (Mine Safety & Health Administration) and FM (Factural Mutural) certified and approved.

The cable SUBCAB mm² and SUBCAB AWG are also approved according to CSA C22.2, No. 49-1992, No.108-M89 and UL 62 for SOW.

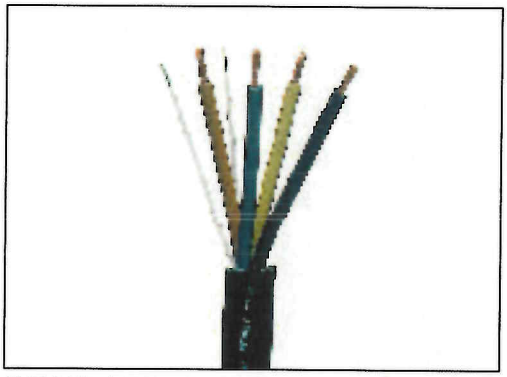
More information

For more detailed information about SUBCAB see Flygt standards M1997.47.0009, M1947.47.0004, M1947.47.0007 and M1947.47.0010.

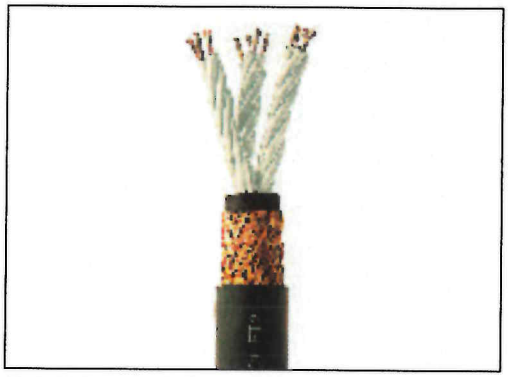
Product assortment on next page.



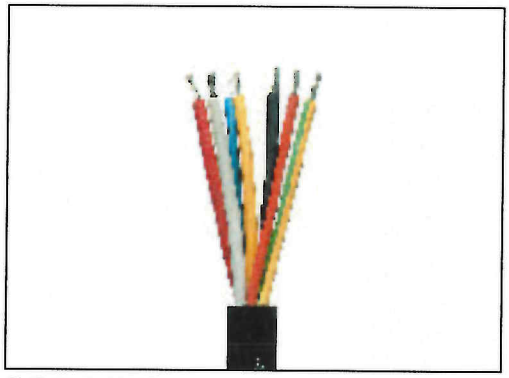
SUBCAB 4 G X



SUBCAB 4 G X+2x15



SUBCAB S12x1,5



SUBCAB AWG

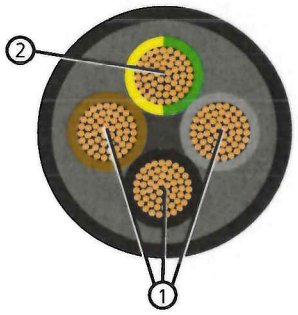
Product assortment

The table below shows the product assortment with overall diameter and nominal current capacity at 30°C according to IEC 60364-5-523. For SUBCAB AWG according to NEC 310.16 and 400-5B.

The nominal current must be adjusted according to the actual ambient temperature (see correction factor for ambient temperature, page 12) and installation.

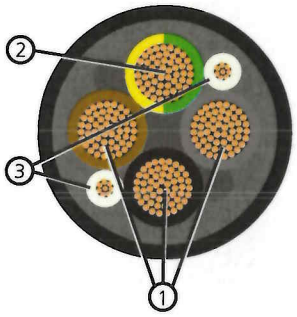
European version SUBCAB	Outer diameter mm	Nominal current capacity Amp	FLYGT Part No.
3 G 1,5	10,0 – 11,0	23	942040
4 G 1,5	10,5 – 11,5	23	942041
4 G 2,5	12,5 – 13,5	32	942042
7 G 2,5	18,0 – 20,0	32	942054
4 G 4	16,0 – 17,0	42	942043
4 G 6	18,0 – 19,0	54	942044
4 G 10	23,5 – 25,5	75	942045
4 G 16	26,0 – 28,0	100	942046
4 G 25	32,5 – 34,5	127	942047
4 G 35	36,5 – 38,5	157	942048
4 G 50	41,0 – 45,0	192	942066
4 G 70	45,0 – 49,0	246	942067
4 G 95	54,0 – 58,0	298	942068
4 G 120	56,0 – 60,0	346	942069
S3x185+3x95/3	65,0 – 69,0	475	941923
SUBCAB with control cores			
7 G 2,5 + 2x1,5	20,0 – 23,0	32	942082
7 G 4 + 2x1,5	22,0 – 26,0	42	942080
7 G 6 + 2x1,5	24,3 – 28,3	54	942081
4 G 1,5 + 2x1,5	15,0 – 16,0	23	942061
4 G 2,5 + 2x1,5	17,0 – 18,0	32	942059
4 G 4 + 2x1,5	20,0 – 22,0	42	942060
4 G 6 + 2x1,5	23,0 – 25,0	54	942056
4 G 10 + 2x1,5	26,0 – 28,0	75	942057
4 G 16 + 2x1,5	26,0 – 28,0	100	942058
4 G 25 + 2x1,5	32,5 – 34,5	127	942062
4 G 35 + 2x1,5	36,5 – 38,5	157	942063
SUBCAB control cables			
2x1,5 *	10,0 – 11,0	23	942076
7x1,5 *	15,0 – 17,0	23	941922
12x1,5 *	18,2 – 21,2	23	941920
24x1,5 *	24,9 – 28,9	23	941921
S12x1,5*	29,0 – 31,0	23	940894
S24x1,5*	35,0 – 37,0	23	940895
North American version SUBCAB AWG	**Outer diameter mm**	**Nominal current capacity Amp**	**FLYGT Part No.**
14 AWG/3	13,2 – 14,2	25	942100
14 AWG/4	14,2 – 15,2	25	942101
14 AWG/7	18,0 – 20,0	25	942102
12 AWG/4	17,0 – 18,0	30	942103
12 AWG/7	20,0 – 22,0	30	942104
10 AWG/4	18,0 – 19,7	40	942105
8 AWG/4	24,0 – 26,0	65	942107
SUBCAB AWG with control cores			
10 AWG/3-2-1-GC	20,3 – 22,3	40	942106
8 AWG/3-2-1-GC	27,2 – 29,2	65	942108
6 AWG/3-2-1-GC	30,0 – 32,0	87	942109
4 AWG/3-2-1-GC	32,8 – 34,8	114	942110
1 AWG/3-2-1-GC	40,7 – 42,7	177	942111

* No green/yellow ground core. "S" = screened cable.



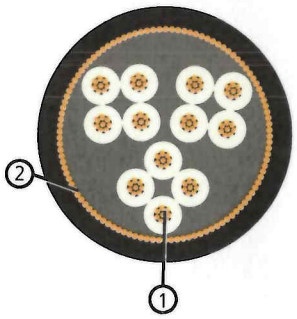
4 G X

1. Motor cores
2. Ground core, green/yellow



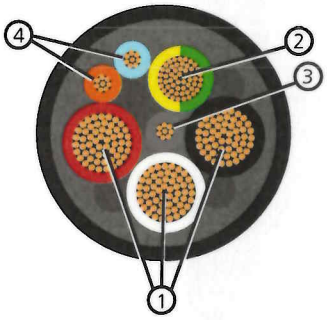
4 G X + 2x1,5

1. Motor cores
2. Ground core, green/yellow
3. Control cores, creme white, T1, T2



S 12x1,5

1. Control cores, creme white, no 1-12
2. Screen concentric between inner and outer sheath



x AWG/3-2-1-GC

1. Motor cores
2. Ground core
3. GC: Ground check core
4. Control cores, blue, orange

ARMERT PVC SLANGE (NM KVALITET)

1422-30

Produktgruppe	140
Innvendig	Transparent PVC
Utvendig	Transparent PVC
Temperatur min. °C	-20
Temperatur maks. °C	+60
Medie	Luft, vann, næringsmiddel
Innlegg	Polyester
Sikkerhetsfaktor	3:1
Egenskaper	Slange for næringsmidler, vann, luft og lette kjemikalier. Fri for phatalat.
Utførelse	Glatt, transparent

Medie

Artikkelnr.	ID mm	OD mm	WP MPa 20°C	Bøye rad. mm	Vekt kg/m	Lengde m/rull	WP BAR 20°C
14223003	5	11	2.0	25	0.06	50	20
14223004	6,3	12	2.0	30	0.08	50	20
14223005	8	14	1.8	40	0.10	50	18
14223006	10	16	1.8	55	0.12	50	18
14220106	10	16	1.8	55	0.12	30	18
14220206	10	16	1.8	55	0.12	100	18
14223008	12,5	19	1.2	75	0.16	50	12
14220108	12,5	19	1.2	75	0.16	30	12
14220208	12,5	19	1.2	75	0.16	100	12
14223010	16	22	1.0	100	0.21	50	10
14223012	19	26	1.0	120	0.3	50	10
14220112	19	26	1.0	120	0.3	30	10
14223014	22	30	0.8	150	0.37	50	8
14223016	25	33	0.8	175	0.44	25/50	8
14220116	25	33	0.8	175	0.44	30	8
14220316	25	33	0.8	175	0.44	50	8
14223020	32	42	0.8	225	0.70	25	8
14220120	32	42	0.8	225	0.70	25	8
14223024	38	48	0.8	295	0.82	25	8
14220124	38	48	0.8	295	0.82	30	8
14223032	50	62	0.8	415	1.28	25	8

Project document

Document date:	4/12/2016
Project name:	16-059273:DS_GV7
Sub name:	
Adress:	
Issuer:	
Revision:	
Other information:	

Project document content

Partnumber:	Description	Wholesalernumber:	EAN 13 code:
GV7RS100	Motorvern Mg/trm 60-100A	4320458	3389110566857

Supplier information

Supplier: Schneider Electric Norge AS
Fax: + 47 64 98 57 01
Web: http://www.schneider-electric.no
Adress: Deliveien 10, 1540 Vestby
Phone: +47 64 98 56 00
e-Mail: kundesenter@no.schneider-electric.com

H406607

Motorvern Mg/trm 60-100A

Partnumber: GV7RS100

Wholesalernumber: **4320458**

EAN 13 code: **3389110566857**

TeSys GV7 - circuit breaker - 3P - AC-3 - 60...100 A - thermal-magnetic

Technical information

Usage / Application

device application	motor

Functional

control type	rocker lever
operating rate	25 cyc/h cyc/mn

Electrical

poles description	3P
network type	AC
utilisation category	AC-3 conforming to IEC 60947-4-1
network frequency	50/60 Hz conforming to IEC 60947-4-1
motor power kW	45 kW at 400...415 V AC 50/60 Hz
	75 kW at 660...690 V AC 50/60 Hz
breaking capacity	50 kA Icu at 500 V AC 50/60 Hz conforming to IEC 60947-2
	65 kA Icu at 440 V AC 50/60 Hz conforming to IEC 60947-2
	10 kA Icu at 690 V AC 50/60 Hz conforming to IEC 60947-2
	100 kA Icu at 230...240 V AC 50/60 Hz conforming to IEC 60947-2
	70 kA Icu at 400...415 V AC 50/60 Hz conforming to IEC 60947-2
[Ue] rated operational voltage	690 V AC 50/60 Hz conforming to IEC 60947-2
[Ui] rated insulation voltage	750 V AC 50/60 Hz conforming to IEC 60947-2
[Ith] conventional free air thermal current	12...100 A conforming to IEC 60947-4-1
[Uimp] rated impulse withstand voltage	8 kV conforming to IEC 60947-2
power dissipation	5 W
power dissipation per pole	5 W W
rated duty	continuous conforming to IEC 60947-4-1

Performance

[Ics] rated service short-circuit breaking capacity	100 % at 230...240 V AC 50/60 Hz conforming to IEC 60947-2
	100 % at 400...415 V AC 50/60 Hz conforming to IEC 60947-2
	100 % at 440 V AC 50/60 Hz conforming to IEC 60947-2
	100 % at 500 V AC 50/60 Hz conforming to IEC 60947-2
	100 % at 690 V AC 50/60 Hz conforming to IEC 60947-2
mechanical durability	50000 cycles cycles
electrical durability	30000 cycles for AC-3 at 440 V In
	50000 cycles for AC-3 at 440 V In/2

Connections

connection pitch	35 mm without spreaders
	45 mm with spreaders
connections - terminals	screw
	bars
	cable with lug - external diameter : 10 mm
	bare cable connectors 1.5...95 mm²

Installation

mounting mode	by clips
	by screws
mounting support	flush
	panel mounting
	rail
	kit for fixing the switchgear
mounting position	vertical

Product identification

range	TeSys
product name	TeSys GV7
device short name	GV7R
product or component type	circuit breaker
trip unit rating	60...100 A (-25...70 °C)
trip unit technology	thermal-magnetic
suitability for isolation	yes conforming to IEC 60947-1
phase failure sensitivity	yes conforming to IEC 60947-4-1 § 7-2-1-5-2

Physical characteristics

tightening torque	10 N.m - on screw - screw M6
	15 N.m - on bare cable connectors- cable 1.5...95 mm^2
mechanical robustness	vibrations 2.5 Gn, 0...25 Hz conforming to IEC 60068-2-6
	shocks 15 Gn for 11 ms conforming to IEC 60068-2-27
height	125 mm mm
width	105 mm mm
depth	111 mm mm
product weight	2.04 kg kg

Environment

protective treatment	TC
IP degree of protection	IP405 with terminal shrouds conforming to IEC 60529
pollution degree	3
ambient air temperature for operation	-25...70 °C
ambient air temperature for storage	-55...95 °C °C
fire resistance	960 °C conforming to IEC 60695-2-1
operating altitude	2000 m

Certifications and standards

standards	EN/IEC 60947-1
	EN/IEC 60947-2
	EN/IEC 60947-4-1
	NF C 63-120
	NF C 63-650
	NF C 79-130
	VDE 0113
	VDE 0660
product certifications	CCC
	DNV
	UL

Supplier information

Supplier: Schneider Electric Norge AS
Fax: + 47 64 98 57 01
Web: http://www.schneider-electric.no
Adress: Deliveien 10, 1540 Vestby
Phone: +47 64 98 56 00
e-Mail: kundesenter@no.schneider-electric.com

SHELL GLOBAL SOLUTIONS

CERTIFICATE OF ACCEPTANCE

Company: **GPT**
Manufacturing Location: Houston; Denver US; St Neots UK
Brand: **PGE and VCS**
Technical Qualification Result: TAMAP / Project Use

Based on the Shell Global Solutions Technical Qualification carried out in December – 2013 in accordance with testing procedure SPE 85/300 has been accepted by Shell Global Solutions International B.V. based on successful Type Acceptance Testing (TAT) results for flange electrical insulating kits acc. Shell specification SPE 85/201:

Product Designation	*Pressure Class*	Size min/max	Emission class	MESC No	TAT Date
PGE	*150# 300#*	½" - 24"	B(H)	854603 xxxx	Dec. 2013
VCS	*600# thru 2500#*	½" - 24"	B(H)	854605 yyyy 854606 yyyy	Dec. 2013

The 2-STAR rating in the Shell Global Solutions Technically Accepted Manufacturers And Products (TAMAP) database is applicable to the MESC Sub-sub Groups 85AAED.

Restrictions & Conditions	
Temperature / pressure range	-100 °C / 150 max.
Sealing elements	PTFE lip seals/spring energized

Shell GSI Report No: GS.08.50080	Original acceptance: 06/11/2007
Shell GSI contract no: N.A.	Current Certificate: 02/01/2014
Acceptance Certificate no: 2014-85-02	Certificate Expiry: 02/01/2019
Issued By: W. van Maaren	

Signature: MaW Date: 02/01/2014

Group Operating System

Ver.	Status	Issue date	Made by	Checked by	Approved by
03	Re-issued Constr	2016.01.13	BJERKAAS, MATS	LINDQVIST, NADEGE	MELLEMSETER, SVEIN

General Conditions for Minor Purchases of Goods Group Supply Chain procedure

10002667219-PDC-000

Document Owner: Group Supply Chain Management

NOTES REGARDING VALIDITY OF THIS DOCUMENT:
Paper copies are uncontrolled.
This copy is valid only at the time of printing.
The controlled version of this document is available from the Company Intranet.

1. DEFINITIONS

BUYER:
The company stated as such in the PURCHASE ORDER or its successors or permitted assignees.

BUYER INFORMATION:
Drawings, documents, specifications, technical information, computer programs and other information owned or to which BUYER obtains ownership according to article 14, or provided by BUYER to SELLER for performance of WORK under a PURCHASE ORDER

BUYER GROUP:
BUYER and its parents, subsidiaries and affiliated companies, BUYER's other suppliers and contractors of any tier, to the extent they are involved in the project to which the PURCHASE ORDER relates, CLIENT, and the officers, directors, employees, agents, and representatives of such.

CLIENT:
A third party with whom BUYER has a contract with to provide the WORK.

COMPLETION:
The date of issue of BUYER's written acceptance of the WORK, in which BUYER confirms that all and any WORK is complete and in accordance with the requirements of the PURCHASE ORDER. Such acceptance does not relieve SELLER of any guarantee or warranty obligations, or other obligations and liabilities in relation to the PURCHASE ORDER.

DELIVERY:
The transfer of risk for the GOODS to BUYER as further defined in the PURCHASE ORDER and Article 6.

DELIVERY DATE(S):
The date of SELLER's DELIVERY of the WORK as stated in the PURCHASE ORDER.

DOCUMENTS:
Drawings, documentation, calculations, certificates, manuals, datasheets and all other technical, commercial or other documentation and data to be supplied by SELLER under the PURCHASE ORDER on media specified therein.

FORCE MAJEURE:
Defined in Article 11.

GOODS:
All equipment, items and materials to be delivered by SELLER pursuant to the PURCHASE ORDER other than the DOCUMENTS.

INTELLECTUAL PROPERTY:
Any and all tangible and intangible: (i) rights associated with works of authorship, including copyrights, moral rights, neighbouring rights, and derivative works thereof, (ii) trademark and trade name rights, (iii) trade secret rights, (iv) patents, design rights, and other industrial property rights, (v) know how and trade secrets, and, (vi) all other intellectual property rights (of every kind and nature however designated) whether arising by operation of law, treaty, contract, license, or otherwise, together with all registrations, initial applications, renewals, extensions, continuations, divisions or reissues thereof.

PARTY/PARTIES:
SELLER and BUYER or either of them as the context dictates.

2. INTERPRETATION

2.1. In the event of any conflict between the provisions of the PURCHASE ORDER, the various contract documents shall be given priority in the following order:

(a) Any SPECIAL CONDITIONS agreed between the PARTIES and constituted in writing.

(b) These General Conditions for Minor Purchases of Goods.

(c) The Purchase Order form.

(d) Appendices to the PURCHASE ORDER in the order they are listed, unless stated otherwise.

2.2. The governing language of the PURCHASE ORDER shall be the English language.

2.3. In the event that SELLER fails to return a signed PURCHASE ORDER to BUYER prior to or upon commencement of the WORK, said commencement of WORK by SELLER shall be deemed to constitute acceptance by SELLER of the PURCHASE ORDER issued by BUYER.

3. GENERAL OBLIGATIONS OF SELLER

3.1. SELLER shall ensure that the WORK is performed strictly in accordance with the terms of the PURCHASE ORDER and, with respect to the GOODS, in accordance with the DOCUMENTS furnished by SELLER and accepted by BUYER as detailed in the PURCHASE ORDER.

SELLER shall further ensure that the WORK is performed in accordance with high standards of engineering practice and workmanship and that the GOODS, DOCUMENTS and other deliverables are of a satisfactory quality as reasonably perceived by BUYER.

3.2. SELLER represents and warrants it has examined the PURCHASE ORDER and will examine other data supplied by BUYER from time to time. SELLER's failure to examine the PURCHASE ORDER and/or other data or to become knowledgeable about or to discover matters which SELLER ought to have known or discovered in the performance of its examination and which affect the WORK shall not relieve SELLER from its obligations under this PURCHASE ORDER

3.3. SELLER shall comply with and shall ensure SELLER GROUP complies with all applicable laws, rules and regulations of any governmental, judicial or regulatory body having jurisdiction over the WORK or any site where the WORK is performed, including without limitation laws, rules and regulations pertaining to health, safety and the environment, non-discrimination of the workforce, organisation of labour, engineering codes and standards. SELLER shall defend, indemnify and hold BUYER GROUP harmless from and against all claims, losses, damages, costs and expenses (including legal fees) arising out of SELLER's or SELLER GROUP's failure to comply with the aforesaid laws, rules and regulations.

4. PURCHASE ORDER PRICE

The PURCHASE ORDER PRICE shall be considered as fixed and firm unless expressly agreed to the contrary.

from the BUYER, rectify or replace the WORK and carry out all necessary work associated with such rectification or replacement at SELLER's sole cost.

9.2. If SELLER makes rectifications according to article 9.1, the provisions of this Article 9 shall then apply to said corrections for the greater of a period of twenty four (24) months from the completion of such corrections or the end of the basic WARRANTY PERIOD, whichever is later in time.

10. TERMINATION AND SUSPENSION

10.1. BUYER may terminate or suspend this PURCHASE ORDER for any reason and at any time by written notification to SELLER and SELLER shall comply with such direction immediately or as directed.

10.2. In the event of termination at BUYER's convenience, BUYER shall pay the unpaid balance due to SELLER for that part of the WORK performed satisfactorily up to the date of termination.

10.3. In the event of suspension at BUYER's convenience, SELLER shall maintain, store and protect the WORK and shall be entitled to compensation only for documented and necessary expenses in connection with demobilisation and mobilisation of personnel and for other substantiated costs reasonably incurred by SELLER as a direct consequence of the suspension.

10.4. An 'Event of Default' shall occur when SELLER fails in any way to fulfil its obligations pursuant to the PURCHASE ORDER, is liable for the maximum of any limitation of liability hereunder, becomes insolvent or otherwise stops its payments.

10.5. If an Event of Default occurs, BUYER may choose one or more of the following alternatives:

a) Demand DELIVERY of the wholly or partially completed WORK and have it completed, at option of BUYER, by SELLER or a third party nominated by BUYER, at SELLER's sole cost

b) in case of Event of Default caused by breach of material obligation terminate the PURCHASE ORDER for default; and/or

c) Claim compensation for losses directly related to the Event of Default, including all costs to complete the WORK and related to any termination.

11. FORCE MAJEURE

11.1. Neither of the PARTIES shall be considered in breach of an obligation to the other under the PURCHASE ORDER to the extent that the PARTY can establish that fulfilment of the obligation has been prevented by FORCE MAJEURE.

The PARTY invoking FORCE MAJEURE shall, as soon as possible, notify the other PARTY in writing of the FORCE MAJEURE situation, the cause of delay and the presumed duration thereof.

11.2. For the purposes of the PURCHASE ORDER, a FORCE MAJEURE situation shall include, but not be limited to:

a) Riot, war, invasion, acts of foreign enemies, acts of terrorism, acts of piracy, civil war, rebellion, revolution, insurrection of military or usurped power,
b) Ionising radiations or contamination by radio-activity from any nuclear fuel or from any nuclear waste from the combustion of nuclear fuel or radio-active, toxic, explosive or other hazardous properties of any explosive nuclear assembly or nuclear component hereof,

12.4. Notwithstanding anything herein to the contrary, BUYER shall defend, indemnify and hold SELLER GROUP harmless from BUYER GROUP's own Indirect Loss, and SELLER shall defend, indemnify and hold BUYER GROUP harmless from SELLER GROUP's own Indirect Loss. This applies regardless of any liability, whether strict or by negligence, in whatever form, on the part of either PARTY. Indirect Losses are defined herein as any indirect or consequential loss, any loss of production, loss of product, loss of use, loss of revenue, loss of profit or anticipated profit, and similar losses and damages, regardless of whether such losses or damages were reasonably foreseeable at the time of entering into the PURCHASE ORDER or at the commencement of the WORK.

12.5. SELLER shall procure and maintain at SELLER's expense, and for the duration of the PURCHASE ORDER until the end of the WARRANTY PERIOD, all necessary insurances required for and adapted to the operations for the performance of the WORK.

13. VARIATIONS

13.1. BUYER may order variations to the WORK as in BUYER's opinion are desirable. Variations may include an increase or decrease in the quantity, character, quality, kind of execution of the WORK as well as variations to the DELIVERY DATE(S). Variations to the WORK shall be ordered through variation orders.

13.2. When BUYER requests a variation pursuant to Art.13.1 or prior to issuing a written variation order requests SELLER to provide an estimate of the effects of such variation, SELLER shall as soon as possible and at the latest within 10 days following BUYER's request submit a written confirmation or estimate containing a description of the effects the variation will have on the execution of the WORK (including the PURCHASE ORDER PRICE and DELIVERY DATE(S)). If SELLER does not issue such estimate or written confirmation within the aforesaid time limit, the variation shall be deemed not to have any effect on the PURCHASE ORDER. SELLER shall not initiate any variation WORK until BUYER has issued the variation order in writing.

13.3. If SELLER is of the opinion that it is entitled to a variation order, due to an instruction by BUYER or other circumstances resulting in an increase or decrease in the quantity, character, quality, kind or execution of the WORK as well as changes to the DELIVERY DATES(S), then SELLER shall issue a written request for a variation order without delay and at the latest within 10 days after SELLER became aware or ought to have become aware of such situation. If SELLER has not presented a request for a variation order without delay, or at the latest within 10 days after SELLER became aware or ought to have become aware such situation has occurred, then SELLER shall lose the right to a variation order and/or the right to adjust the PURCHASE ORDER PRICE, scope of the WORK and/or the DELIVERY DATE(S). Variations must be approved by BUYER by means of a written variation order before SELLER initiates the variation work.

13.4. Any possible adjustment to the rates, costs and prices due to variation orders shall be determined either by using the rates, cost or prices described in the PURCHASE ORDER, or if no comparable rates, costs or prices have been set, the PARTIES shall agree on a price that reflects the general level of pricing described in the PURCHASE ORDER. If a variation entails cost saving for SELLER, BUYER shall be credited accordingly.

13.5. A variation order shall not be allowed when the variation, revision, act of BUYER or occurrence is attributable to SELLER's breach of its performance obligations herein, or if minor revisions are required for recently completed WORK or WORK in progress. Disagreement as to effects with regards to a variation order shall not entitle SELLER to delay or withhold SELLER's DELIVERY and SELLER shall implement the variation without awaiting the final outcome of the dispute. The disagreement shall be stated in writing and confirmed by both PARTIES prior to SELLER's execution of the variation work.

16. MISCELLANEOUS

16.1. The PURCHASE ORDER constitutes the entire agreement and understanding between the PARTIES in respect of the matters dealt with in it and supersedes all prior agreements, promises, correspondence, discussions, representations and understandings relating to the WORK, except those expressly set forth herein.
Other conditions shall not apply to the PURCHASE ORDER unless BUYER has accepted these in writing.

16.2. BUYER is entitled to assign, novate or otherwise transfer his rights and obligations under the PURCHASE ORDER, fully or partly, to any affiliates or any third parties. SELLER may not assign his rights and obligations under the PURCHASE ORDER without BUYER's prior written consent.

16.3. Except as expressly provided in the PURCHASE ORDER it is agreed that the PURCHASE ORDER is not intended to and does not give any person who is not a party to this PURCHASE ORDER any rights to enforce any provision contained herein.

16.4. No waiver by BUYER of any breach of any of the terms and conditions of the PURCHASE ORDER shall be construed as a waiver of any subsequent breach whether of the same or of any other term or condition hereof. No waiver shall be validly made unless made in writing.

17. GOVERNING LAW AND RESOLUTION OF DISPUTES

17.1. Unless expressly agreed otherwise by the PARTIES, the PURCHASE ORDER shall be governed by and interpreted in accordance with Norwegian law.

17.2. Disputes arising in connection with or as a result of the PURCHASE ORDER, and which are not resolved by mutual agreement, shall be settled by court proceedings. Unless expressly agreed otherwise by the PARTIES, any court proceeding shall be brought before Oslo District Court.

Functional specification
for
Temporary Seawater Lift Pump

03	28.04.2016	RE-ISSUED FOR PURCHASE ORDER	ON	HT/KP	SN		SS
02	30.03.2016	Issued for Purchase order	ON				
01	18.03.2016	ISSUED FOR VERIFICATION	ON	HT/KP	SN		SS
Rev.	Issued date	Description	Written by	Chk'd by	EM appr.		Statoil appr.

Company:

Statoil

Contractor:

DSME

DAEWOO SHIPBUILDING & MARINE ENGINEERING CO.,LTD.

Sub-Contractor:

AkerSolutions

Aker Solutions MMO A/S

Contractor Doc.No:

NA

Statoil Contract no:	Project title:	
4600018356	Gina Krog Topside EPCH	
Document type:	Area:	System:
KZ	A000	50/51

Document title:

Functional specification for Temporary Seawater Lift pump

Document no.:	Rev.:	Pages:
GKHU-AKSO-KZ-0035	03	6

design.
Vendor assistance with mechanical personnel for installation of a temporary seawater lift pump to be included.

All identified deviations from listed NORSOK standards, to be listed in Bid.

2. FUNCTIONAL DETAILS

The supplier shall test and deliver a seawater lift pump assembly as specified in this requisition and listed references. The a seawater lift pump assembly shall be complete in all respects, fully tested, certified, ready for operation, prepared for shipment and in accordance with specifications, codes, documents and other attachments to this requisition.

The delivery shall as a minimum consist of:

ITEM	QTY	UNIT	DESCRIPTION
1	1	off	Temporary seawater lift pump
2	1	off	Start cabinet with external start/stop and emergency stop.
3	1	off	Hypochlorite hose
4	1	lot	Required accessories for installation and internal lifting
5	1	lot	Documentation according to attached SDRL
6	1	lot	Commissioning and start-up spares/ spare parts for operation
7	1	lot	Packing and Marking for Shipment including dispatch documentation.
8	1	lot	Vendor assistance for installation (ATS), - Pre SJA / Safe Op. -Supervisors at day/night shift.
9	1	Lot	Performance test to EN ISO 9906 3B at Xylem Sweden, pump stack assembly mounting/verification in Stavanger.
10	1	Lot	Stud bolts and nuts for mounting to caisson flange
11	1	Lot	20 m cable BFOU(3x25)

3. FUNCTIONAL REQUIREMENTS

Documentation as listed in this specification

The Sea water lift pump to comply with
-Machinery Directive (544)
NORSOK references:
NORSOK Z-015 Temporary Equipment Chapter 1, 2, 3, 4.4.6, 4.6 & 4.8
NORSOK R-001 Mechanical equipment
NORSOK E-001 Electrical systems
NORSOK M-101 Structural Steel fabrication
NORSOK M-601 Welding and inspection of piping
NORSOK M-630 Material datasheets and element data sheets for piping
NORSOK R-002 Lifting equipment
NORSOK L-001 Piping
NORSOK M-501 Surface preparation and protecting coating
-System 7B: Applicable for all Carbon steel pipe spools externally.
-System 1A: Applicable for Carbon steel parts above top plate.

Doc mentation description	With Bid	With Goods	Comments
Declaration of Conformity		x	
Norsok Z-015 check		x	
MRB	Na	Na	MRB documentation for fabricated parts(exclusive pump/motor) To be stored by supplier Fabrication drawings incl. weld locations for piping, weld and NDE log , welders certificate, WPS, material traceability list, Material certificates, calculation reports for lifting device, calculation report for clamping tool, Painting reports , Hydrostatic test reports
Lifting Certificates		x	To be verified by Aker Solutions AS
User manual for lifting device and clamping tool		x	NORSOK R-002 To be verified by Aker Solutions AS
Weight certificates		x	To be verified by Aker Solutions AS
Packing List / Final inspection		x	To include pictures of labeling and packed items for shipping.
FAT procedure/report		x	To be verified by Aker Solutions AS
Spare parts for installation and operation		x	To be verified by Aker Solutions AS
Relay protection settings for Motor protection		x	To be verified by Aker Solutions AS
List of deviation from applicable standards	x		To be verified by Aker Solutions AS