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1 Introduction

The purpose of this document is to define the requirements for standardisation of equipment and materials within the Johan Castberg project.

2 Definitions

FA: Company Frame Agreement

Castberg FA: Johan Castberg Frame Agreement

3 Appointed brands and frame agreements

Degree of standardization:

- a)** Contractor may propose alternative solution.
- b)** Contractor shall use the Frame Agreement(s), supplier or appointed Brands Listed by Company.

No approval needed by Company if listed subcontractors or appointed brands are used, brands produced under licence to be agreed with Company.

4 Frame agreements

4.1 Detectors, field Instrumentation, instrument bulk, condition maintenance.

Package number	Description of subsupply	Approved manufacturers	Contact Person(s)	Agreement Number	Degree of standardization	Comments:
BI673	Fire & Gas Detectors and Manual Call Points	Autronica	Kate.Aspnes@autronicafire.no	Castberg FA:4600023071	b	
BI675	Level gauges/glass	Process Partner	Per@processpartner.no	Castberg FA: 4600023072	a	
BI672	Temperature and Pressure transmitters	Emerson Process Management	Jarle.Knutsen@emerson.com	Castberg FA: 4600023070	b	
	Instruments for monitoring of flare pilot flame	IR-principle: LumaSense's E ² T Quasar Temperature: Thermocouple		NA	a	Applies to one package only, to be deleted on others
BI671	Flow Instruments	Krohne Instrumentation Norway AS	t.torkildsen@krohne.com	Castberg FA: 4600023068	a	
BI684	Tubing, clamps, manifolds, compression fittings and instrument valves etc.	MRC Global Norway	Kjell.wold@mrcglobal.com	Castberg FA: 4600023074	b	
EI171	Safety and Automation System - SAS	ABB		Castberg FA:4600022782	b	Company Provided Item (CPI)
EI181	Field instrumentation for vibration monitoring	GE Measurements& Control: System 1 > 500 KW Bently Nevada trend master pro (25-500 KW)	Rune.knoff-baldersheim@ge.com	FA: 4600017368	b	
EI182	Valve Monitoring	MRC Global	trond.maland@mrcglobal.com	Castberg FA: 4600023622	b	Only for selected valves
EI198	Analysers & Manual sampling stations	Process Control AS	fredrik.pettersen@processcontrol.no	Castberg FA: 4600023559	b	Only applicable for hull and topside

4.2 Electrical

Package number	Description of subsupply	Approved manufacturers	Contact Person(s)	Agreement Number	Degree of standardization	Comments:
BE560	Low voltage motors and LV VSD	Siemens AG, Statoil Lanne Elektriske Verksted (ATB) ABB may be used for DOL motors outdoor	erlend.ekvold@siemens.com jan.egil.lanne@lanne.no, vibeke.lanne@lanne.no, jan.sveahaugen@no.abb.com	Castberg FA:4600023285 Castberg FA:4600023286 FA: 4600015765	a) Indoor b) outdoor or with VSD.	All motors with LV VSD shall be from Lanne or Siemens, both will supply Siemens VSD.
EE058	Frequency converters (High voltage)	ABB	jan.garlid@no.abb.com	Castberg FA: 4600023106	b	
EE056	LV Transformers	Trasfor	beatrice.russo@ch.abb.com +41 58 588 46 69	Castberg FA: 4600023238	b	
EE042	690V Switchboards	Siemens AS	gaute.nessa@siemens.com	Castberg FA: 4600023382	b	
EE047	230/400V Distribution Board	Siemens AS	gaute.nessa@siemens.com	Castberg FA: 4600023288	b	
EE049	230/400V Distribution Board EX	Stahl Syberg AS	Terje@stahl-syberg.no	Castberg FA: 4600023287	b	
BE555	Lighting Fixtures	Glamox	gb@glamox.com	Castberg FA:4600022971	b	LED
BE541	Junction Boxes, Socket Outlets and Push Buttons. Including: - 690V, 400V and 230V sockets and plugs - 230V Junction boxes - Control panels and start/stop buttons	Stahl-Tranberg AS	Terje Færevik terje@stahl-tranberg.com	Castberg FA: 4600023101	b – for 690V, 400V and 230V sockets and plugs a <230V	This agreement will be updated to include GRP junction boxes.
BE543	Heat tracing cables & Accessories	Pentair	andreas.dahl@pentair.com	Castberg FA: 4600023707	b	
BE545	Cable glands and accessories	CMP- Products	alan.charlton@cmp-products.com	Castberg FA: 4600023194	a	

BE531	Cables	LS Cable, Korea Draka, Netherlands / Norway Nexans, France / Norway Kukdong Cable, Korea TMC Korea	wonkim@lscns.com OR hckwon@lscns.com	Castberg FA: 4600023108	b	Multiple choice for equipment packages, single source for contracts.
BE533	Cable trays, ladders and accessories	Oglaend Systems AS	tjo@oglaend-system.com + 47 (0) 51 78 81 10	Castberg FA: 4600023112	a	

4.3 Piping Valves

Package number	Description of subsupply	Approved manufacturers	Contact Person(s)	Agreement Number	Degree of standardization	Comments:
BL762	Gate/ Globe/ Check ≤2"	BFE S.r.l. LVF S.p.A.	smagni@bfe.it. ivan.airoldi@lvf.it	FA: 4600017045 FA: 4600017044	b	
BL761	Gate/ Globe/ Check >2"	Petrolvalves S.r.l. Orion S.p.A	Terje.formo@petrolvalves.no Perini, Franco sales@orionvalves.com	FA: 4600017307 FA: 4600017308	b	
BL755	Floating & Trunnion Mounted Ball (all sizes)	Pentair Flow Control Technologies (FCT), Petrolvalves S.r.l. Pibiviesse S.r.l.	Ludovic.Chambard@pentair.com Terje.formo@petrolvalves.no roberto.vasini@circor.com	FA: 4600017222 FA: 4600017223 FA:4600017224	b	Petrolvalves agreement will not be prolonged by Company, but can be used for Johan Castberg. For DIB : Any supplier listed in www.TR2000.NO --> Doc space
BL756	Floating and Tr. Mounted Ball Valves =< 4"	Erreesse S.r.l. ≤4" BFE S.r.l. ≤4"	manuela.marion@erreesse-valves.com smagni@bfe.it.	FA:4600023587 FA: 4600023577	b	For DIB : Any supplier listed in www.TR2000.NO --> Doc space
BL764	Through Conduit Gate	Orion S.p.A Valvitalia S.r.l.	(sales@orionvalves.com) marc.giles@valvitalia.com	FA: 4600020299 FA: 4600020298	b	

BL766	Modular valves	BFE S.r.l. LVF S.p.A.	smagni@bfe.it. james.haeusler@lvf.it	FA: 4600018700 FA 4600018701	b	
EI210	Control & choke valves	KOSO Kent Introl Ltd IMI CCI: Severn Glocon Emerson: Mokveld Valves BV:	Chris.Bowers@Kentintrol.com Michael.Pedigo@ccivalve.at Alan.Wright@severnunival.co.uk egon.steinseide@emerson.com Enid.quartier@mokveld.com	Castberg FA: 4600023243 FA: 4600021290 FA: 4600021274 FA: 4600021273 FA: 4600021809	b	Multiple choice for equipment packages, single source for contracts.
EI212	Pressure Safety Valves and rupture disks	Tai Milano Pentair	icontu@taimilano.it Richard.Bates@pentair.com	Castberg FA: 4600023244 FA: 4600012548	b	Multiple choice for equipment packages, single source for contracts.
	Valve Distributors	Score AS, Valvision AS,	STV.StatoilServices@Score-group.com mortenr@valvision.no	FA: 4600019116 FA: 4600021765	b	These agreements will not be prolonged by Statoil, but may be used for Johan Castberg if pre-approved by Company.
BL759	Butterfly Valves	Valvision AS: Score	mortenr@valvision.no erik.madland@score-group.com	FA: 4600021765 FA: 4600019116	a	Distributors, several makes.
BL759	Butterfly Valves for hull	Center Tech Westad Curtiss Wright Wouter Witzel			a	
BL753	Dual disc Wafer Check for hull	Goodwin Crane Stockham			a	

4.4 Piping bulk

Package Number	Description of sub-supply	Approved manufacturers	Contact Person(s)	Agreement Number	Degree of standardization	Comments:
	Pipes, fittings, flanges and tubing <i>Material in accordance with M-650 qualification</i>	Scandinavian Fittings and Flanges AS MRC Global Norwegian Piping AS	taf@sffgroup.com halvor.helland@mrcglobal.com eirik@norwegianpiping.com	FA:4600011415 FA:4600011416 FA:4600011417	b	
BL777	Spring Support	Carpenter & Paterson Ltd.	Tel: +44 1938 551524 Steve.lewis@cp-ltd.uk	Castberg FA: 4600023130	a	
BL773	Inline Filters and Strainers	Mento AS Barton Firtop	bad@mento.no nicolat@bartonfirtop.co.uk	FA: 4600021346 Castberg FA: 4600023129	a	
BL789	Special piping Items	Scandinavian Fittings and Flanges AS, MRC Global Norwegian Piping AS	See above for frame agreements and contact persons.		a and b	b for M-650, a for other materials.

4.5 Telecommunication

Package number	Description of sub-supply	Approved manufacturers	Contact Person(s)	Agreement Number	Degree of standardization	Comments:
BT840	PAGA bulk material	Zenitel Norway AS	sveiningar.damre@zenitel.com	Castberg FA: 4600022862	b	
ET381	Telephone and Data Network bulk	Intelecom Group AS	kenneth.lovik@intele.com	Castberg FA: 4600023333	b	
ET384	Misc. Radio Equipment	Nor Electronics AS	paal.olufsen@nor-electronics.no	Castberg FA: 4600023367	b	
ET385	UHF Radio and Paging System	TC Connect AS	ansgar.birkeland@tcconnect.no	Castberg FA: 4600023264	b	
ET386	Audio and Video Entertainment System	Nor Electronics AS	paal.olufsen@nor-electronics.no	Castberg FA: 4600023343	b	

ET389	CCTV	Hernis Scan Systems AS	EspenChristensen@eaton.com	Castberg FA: 4600023269	b	
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4.6 Safety

Package Number	Description of su-b-supply	Approved manufacturers	Contact Person(s)	Agreement Number	Degree of standardization	Comments:
ES105	Fire Fighting Equipment	Fire Protection Engineering	stein.madland@fpe.no	Castberg FA: 4600023421	b	
ES107	Misc. Safety Equipment	Dräger Safety Norge AS	kurt.parkstad@draeger.com	Castberg FA: 4600023330	b	
ES101	Life Boats	Harding	Sap46@harding.no	FA: 4600020405	b	
	Man overboard boats	Mare Safety Norway Norsafe Norway	geirove@mare.no greger.lovås@norsafe.com	FA: 4600015151	b	

4.7 Miscellaneous

Package Number	Description	Manufacturers and nominated make	Contact Person(s)	Agreement Number	Degree of standardization	Comments:
ER329	Misc. material handling	Certex Scan Tech	certex.bergen@certex.no ine@scan-tech.no	FA: 4600020446 Castberg FA: 4600023797	b	Certex bought Giertsen Racks to be sourced from Scan Tech.
	Offloading hose segment (API 17K)	Dunlop oil and marine	sam.johnson@fluid.contitech.co.uk	FA: 4600022815	b	
BC523	Galley, Laundry and Coffee bar	Norrøna Storkjøkken AS, Norway	salg@norrøna.net	FA: 4600020850	b	
BC513	Furniture for Hull and LQ	Senab Eikeland Norway	stavanger@senabeikeland.no	FA: 4600021570	*	* Refer to separate equipment list for degree of standardization.

BC524	Information, Safety and ID Signs	Rumag Skilt og Reklame AS	Morten Tjeldflåt Morten@rumag.com +47 975 23 500	Castberg FA: 4600023247	b	
EC011	Heavy duty fire rated doors	Rapp Bomek AS Kvitberget 5, 8012 Bodø, Norway	Andrew Annely aa@rappbomek.com +47 905 88 344	Castberg FA: 4600023336	b	
EC012	Medium Duty Doors	Baggerød AS 3192 Horten, Norway OR same supplier as for Heavy duty doors.	bba@baggerod.no	N/A	b	
ER341	Utility Stations	Mento	bad@mento.no	Castberg FA: 4600023270	b	
ER242	Printed Circuit Heat Exchanger	Heatric Ltd, Statoil	Colin.grady@meggitt.com	FA: 4600010937	b	
ER240	Plate and Spiral Heat Exchangers	Alfa Laval, Statoil	arild.pedersen@alfalaval.com	FA: 4600012437	b - for process heat-exchangers a - for utility/equipment packages	
BL769	Mechanical Joints	Scandinavian Fittings and Flanges AS	taf@sffgroup.com	Castberg FA: 4600023371	b	
	Statoil Standard Cabins	Almaco Group Finland Pikkio Works, FA Finland	Liljeström, Mikael Virta, Aki	FA-4600021333 FA-4600021334	b	
BL794	Fire Nuts, Elastopipe	Trelleborg	morten.kristensen@trelleborg.com	FA: 4600021749	b	
NA	Verification and Certification (Initial control) of non-complex and Complex lifting equipment: E.g. <ul style="list-style-type: none"> ▪ Offshore pedestal cranes (Equipment category G5/TR1727) ▪ Lifting equipment related to drilling operations, e.g. BOP cranes, gantry cranes, wireline cranes and personnel winches (Equipment category D.1-D.6/TR2145) ▪ Monorails and padeyes (TR2145) Equipment category is defined in NORSOK standard R-002	Axess DNV GL	therese.monsas@axessgroup.com +47 98243607 Robert.Anfinn.Oftedal@dnvgl.com +4799476420	FA: 4600021907 FA 4600022577	b	
NA	Verification and Certification (Initial control) of Non-complex lifting (TR2145) <ul style="list-style-type: none"> ▪ EOT cranes (Equipment category G4) ▪ Simple hydraulic cranes (Equipment category G20) 	Oceaneering Asset Integrity, Westcon Løfteteknikk ,	caandersen@oceaneering.com +47 90852364 Bjørn-Andre Haukås bjorn.andre.haukas@westcon.no	FA: 4600021910 FA: 4600021911	b	

<ul style="list-style-type: none"> ▪ Permanent and loose trolleys and hoists (Equipment category G7/G10) ▪ Lifting gear (Equipment category G11) ▪ Launching equipment for life saving equipment (Equipment category A.1-A.7) ▪ SDLA/Drilling lifting accessories (Equipment category D.7) ▪ Monorails and padeyes <p>Equipment category is defined in NORSOK standard R-002</p>		+47 95215256			
Master Key and locking system	Senab Eikeland Norway	stavanger@senabeikeland.no	FA: 4600021570	b	Trio Ving

5 Appointed brands

Description of subsupply	Approved manufacturers	Contact Person(s)	Agreement Number	Degree of standardization	Comments:
Heating of gangways	Thermon			a	
Hydraulic and pneumatic actuators for on/off valves	According to TR2000, to be selected and supplied by chosen valve supplier			b	Tr2000.no → Document space The list claims to be cancelled and is replaced by a new TR, but should be used for Castberg.
Electrical Actuators for on/off valves	Rotork			b	
Solenoid valves (Pneumatic)	Parker Lucifer Midland ACS			a	
Solenoid valves (Hydraulic)	Scana Rotator			a	
Positioner for control valves	Fisher Fieldvue DVC 6200 PD			a	To be decided in cooperation with Company
Limit Switches	Pepperl Fuchs			b	
Air filter regulators	Fischer, Bifold, Fairchild Hoke, Norgren AS, Rotork Midland-ACS			a	
Escape chute, life rafts	Viking Life-Saving Equipment			b	
On/Off Safety Valves condition maintenance	Solberg Andersen: ValveWatch Emerson: AMS DM & ValveLink			b	

	Fisher Valvelink to be used if on/off valve has Fisher SIS Fieldvue pos. installed. Also compatible with Rotork and Biffi electrical actuators				
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Package Number	Description of subsupply	Approved manufacturers	Contact Person(s)	Agreement Number	Degree of standardization	Comments:
BI676	Level Profilers - Intrusive gamma profiler	Tracerco	Graham.Barker@tracerco.com +44 (0) 1642 375534		b	Applies to Separators only.(EC)
BI674	Level transmitters	Endress & Hauser Emerson Rosemount VEGA Tracerco MRC Hypteck (Magnetrol)			b	
	Cage induction motor (High voltage)	Siemens ABB Brush Laurence Scott WEG			b	
	Synchronous Motors & Generators	Siemens ABB Converteam Brush Alstom Leroy Somer			b	
	Multi Cable Transits SS316 frame	MCT Brattberg AB Roxtec			b	
	Electrical heaters for cabinets etc.	Tranberg IKM Bartec Schramm Stahl			b	

	Equipment and piping insulation	Kaefer Beerenberg Bilfinger	kontrakt.ke@kaefer.no rogkje@beerenberg.com leif.helge.eriksen@bis-industrier.no		b	Bilfinger to be included for main contracts. leif.helge.eriksen@bis-industrier.no
	Mechanical Seal Systems	John Crane or Eagel Burgman			b	
	Hazop	Lilleaker Consulting DNV Lloyds register Norway	post@lilleaker.com frank.moen@dnvgl.com norway@lr.org		b	

BN801	Steel plate	POSCO DongKuk Dillinger NSSMC Japan JFE Steel Japan Hyundai Steel Korea			a	
	Steel Shape	JFE Steel Japan Hyundai Steel Korea NSSMC Japan ARCELORMITTAL Germany/Singapore Tata (Corus) UK			a	
BN805	Steel Seamless Tubular /RHS	NSSMC Japan JFE Steel Japan Vallourec Germany/France			a	
BN815	Aluminium Outfittings	Marine Aluminium			a	
BN834	FRP Grating	Strongwell			a	
BC511	Deck Screed	Akrylicon			a	
	Thrusters	Rolls Royce Wartsila			b	

Package	Description of Subsupply	manufacturers	Contact person(s)	Degree of standardization	Comments
EI175	Navigation Aids	Tideland Signal Ltd. UK	andi@tidelandsignal.com	a	
	Helicopter deck	Bayards Marine Aluminium Aluminum Offshore		b	
	Fresh water maker ORCA 40	Alfa Laval Sweden	Carl Knudtzen +47 916 09 828 CarlChristian.knudtzen@alfalaval.com	b	Identical to Njord Future, technical options to be clarified with Company.
	Cargo offloading arrangement	MacGregor Scana Offshore Vestby AS NOV Norway		b	
EH131	HVAC system	AF Offshore AeronMollier Novenco Callenberg Teknotherm	Oystein.Lobekk@afgruppen.no T +47 51 96 26 00 http://www.novenco-marine.com/en.aspx http://callenberg.com/contact/hvac/ Mats Udèn +46 734 456 812 mats.uden@teknothem.no	b	
	Air handling units	Covent AS Novenco		a	
	Louvres	WIDE AS		a	
	Pneumatic dampers	BAAS Halton		a	
	Stainless steel Ducting	GMC Ventistål		a	

Package	Description of Subsupply	manufacturers	Contact person(s)	Degree of standardization	Comments
	Stainless Sound attenuator	GMC Ventistål Acoustics AS		a	
	Jet Hoods	GMC Ventistål Acoustics AS		a	
	Kitchen extract hood	Halton Vianen KVS		a	
	LQ Air devices	Trox Halton Polmans Lindab		a	
	LQ Balancing dampers	Halton Lindab Flaktwoods		a	
	Electric control damper for workshops	Rotork		b	
	Extract air Control system for laboratories	Netavent		a	
	Refrigeration systems	Teknoherm S&R		a	
	Shunt groups/Control valve assemblys	Norshunt TA Hydraulics		a	
	Hot Potable water heater tanks	CTC OSO Norway		a	Heater tanks to be included in complete skid delivery
HR327	Personnel and goods lift	Lutz Kone Schindler HeisTek		a	Company will establish options for hull in topside contract for lift

Package	Description of Subsupply	manufacturers	Contact person(s)	Degree of standardization	Comments
	Cargo tank measurement and overflow protection for system 33 and ballast	Emerson and VEGA and Endress+Hauser Servo float/displacer: guided Enraf	https://www.km.kongsberg.com	b	
		OR Kongsberg Maritime			
BN828	Paint	Carboline Hempel International Jotun PPG		a	
BN830	Deck coating	Carboline Hempel International Jotun PPG Hummervoll		a	
BL783	Pipe insulation	Amacell Aspen aerogels Beerenberg Corp. AS Kaimann L'isolante K-Flex Morgan Thermal Ceramics Paroc group Pittsburg Corning Rockwool A/S Stenca Trading Trelleborg Industrier Unifrax		a	
HR353	Cargo oil pumps	Wartsila Marflex Eureka		a	
HR349	Slop pumps and slop treatment charge pumps	Wartsila Marflex Eureka		a	
HR355	Tank cleaning machines	Polar Marine Scanjet Alfa Laval		a	

Package	Description of Subsupply	manufacturers	Contact person(s)	Degree of standardization	Comments
HR349	Ballast pumps	Wartsila Marflex Eureka		a	
	Gas sampling system for ballast tanks and void spaces	Consilium Omicron Autronica		a	
HR266	Inert exhaust gas plant	Alfa Laval Wartsila Marine Protection		a	
	Diesel coalescer package	Westfalia Alfa Laval		a	
HR349	Slop water treatment	Westfalia Alfa Laval		a	
	Centrifugal pumps	Allweiler Wartsila		a	
	Screw pumps and low shear pumps	Allweiler IMO		a	
HR342	Hose Loading Station	Techflow marine NOV		a	
	Hull stress monitoring	Ligh Structures.		b	http://www.lightstructures.no
HR288	Electrical heaters for vessels and tanks with process liquid, e.g. open drain, TEG etc	Exheat Ltd		b	
	High pressure hot water cleaning unit	Kärcher		a	