

Item	Material	Description	Qty	U/M	Unit Price	Tot Price
10	1001143151	VBARF,SFST,CL1500,CS,316, DN25,RJ	9.00	EA		
		Flanged soft seated iso ball valves				
		Design spec ISO 17292				
		Design spec, face to face dim. ASME B16.10				
		Service SOUR				
		Service requirement NACE MR-01-75 (VERSION 2002)				
		Temperature range MINUS 20 °C TO PLUS 120 °C				
		Pressure designation ASME CL 1500				
		Fugitive emission tightness cl B				
		Type of bore REDUCED BORE				
		Type of pattern SHORT				
		Facing, flange RING JOINT				
		Mat, body CARBON STEEL				
		Mat, trim AISI 316/PEEK				
		Mat spec, body and insert/conn ASTM A105 NORMALISED				
		ASTM A216 GRADE WCB				
		ASTM A216 GRADE WCC				
		Mat spec, stem ASTM A182 GRADE F 316				
		ASTM A182 GRADE F 316L				
		ASTM A276 TYPE 316				
		ASTM A276 TYPE 316L				
		Mat spec, bolt(s) ASTM A193 GRADE B7M				
		Mat spec, nut(s) ASTM A194 GRADE 2HM				
		Size DN 25				
		Type of end connection FLANGED				
		Type of closure member FLOATING BALL				
		Type of construction END ENTRY				
		Type of bonnet/cover INTEGRAL (NON-EXTENDED)				
		Type of seat SOFT				
		Uni/bi-directional BI-DIRECTIONAL				
		Mat, seals GRAPHITE THERMOPLASTIC				
		Mat spec, gland flange ASTM A105 NORMALISED				
		ASTM A216 GRADE WCB				
		ASTM A216 GRADE WCC				
		Mat spec, gland ring ASTM A479 -321				
		Mat spec, closure member ASTM A182 GRADE F 316				
		ASTM A182 GRADE F 316L				
		ASTM A276 TYPE 316				
		ASTM A276 TYPE 316L				
		ASTM A351 -CF3M				
		ASTM A351 -CF8M				
		Mat spec, seat PEEK				
		Mat spec, static primary seal VIRGIN/FILLED/MODIFIED PTFE				
		Mat spec, static sec seal GRAPHITE				
		Mat spec, dynamic primary seal PEEK VIRGIN/FILLED/MODIFIED				
		PTFE				
		Mat spec, dynamic sec seal(s) BRAIDED GRAPHITE				
		BRAIDED GRAPHITE PLUS PTFE				
		LUB				
		DIE FORMED GRAPHITE				
		DIE FORMED GRAPHITE PLUS				
		PTFE LUB				
		Mat spec, bolts/studs ASTM A193 GRADE B7M				
		Mat spec, nuts ASTM A194 GRADE 2HM				
		Additional requirements MESC SPE 77/110 2008				
		MESC SPE 77/211 2008				
		MESC SPE 77/300A 2008				
		MESC SPE 77/302 2008				
		MESC SPE 77/312 2007				
		MESC SPE 85/203 2008				
		MESC SPE 85/204 2008				

VBARF = Valve, ball, reduced bore, flanged ends
SFST = Soft Seat

Additional note :

1.#Protective Coating of Valve# Applicable only for Carbon steel Valves

##Valves shall be coated as per para 3.2.1.1 in specification SES 47.1 Rev. 07 and final colour shall be Yellow (Colour Code BS 4800, 10-E-53).

2.#Coating of Fasteners# NOT applicable for SS Stud bolts

##All external fasteners (including those connecting the gearbox, handle or handwheel to the valve) with the exception of stainless steel grades B8/B8M and 8/8M shall have a zinc/nickel electroplated base coat in accordance with ES/313 for corrosion resistance and a fluoropolymer topcoat to reduce torque-up friction.

##The fastener shall be suitable for service condition number 4 as defined in Table 5 of ES/313. The zinc/nickel anti-corrosion basecoat shall be minimum thickness 5 microns. Testing shall be as per Section 11 of ES/313 with acceptance criteria as per Table 5

##The anti-friction top coat shall be fluoropolymer (PTFE) such as Xylan 1014 with minimum DFT of 20 microns. The topcoat shall be checked for adhesion to the basecoat by carrying out a suitable tape test

The Order is to be delivered according to the following delivery schedule

Qty	Unit	Deliv. date
9.000	EA	31.01.2012
20	1001222732	VBA DN25 CL1500 FL RB CS 316/PEEK
		Valves, Ball
		Nominal size DN 25
		Design spec, pressure rating ASME CL 1500
		Design spec ISO 17292
		Design spec, f to f (e to e) ASME B16.10
		Length, f to f (e to e) 254 mm
		Type of end connection FLANGED
		Type of face RAISED FACE
		Type of pattern LONG
		Type of closure member FLOATING BALL
		Type of bore REDUCED
		Type of construction TWO/THREE PIECE
		Type of bonnet/cover INTEGRAL (NON-EXTENDED)
		Type of seat SOFT-FULLY RATED TO 150 deg C
		Uni/bi-directional BI-DIRECTIONAL
		Service(s) SOUR
		Mat requirement, sour service NACE MR-01-75 (VERSION 2002)
		Temperature, min MINUS 20 deg C
		Temperature, max PLUS 150 deg C
		Emission class B
		Mat, body CARBON STEEL
		Mat, trim AISI 316/PEEK
		Mat, seals GRAPHITE
		Mat, seals THERMOPLASTIC
		Mat spec, body ASTM A216 GRADE WCC
		Mat spec, body ASTM A216 GRADE WCB
		Mat spec, body ASTM A105 NORMALISED
		Mat spec, insert ASTM A216 GRADE WCC
		Mat spec, Insert ASTM A216 GRADE WCB

Mat spec, insert	ASTM A105 NORMALISED
Mat spec, gland flange	ASTM A216 GRADE WCB
Mat spec, gland flange	ASTM A105 NORMALISED
Mat spec, gland flange	ASTM A216 GRADE WCC
Mat spec, gland ring	ASTM A276 TYPE 316L
Mat spec, gland ring	ASTM A182 GRADE F 316L
Mat spec, gland ring	ASTM A479 -321
Mat spec, gland ring	ASTM A276 TYPE 316
Mat spec, gland ring	ASTM A182 GRADE F 316
Mat spec, closure member	ASTM A182 GRADE F 316L
Mat spec, closure member	ASTM A182 GRADE F 316
Mat spec, closure member	ASTM A276 TYPE 316
Mat spec, closure member	ASTM A276 TYPE 316L
Mat spec, closure member	ASTM A351 -CF3M
Mat spec, closure member	ASTM A351 -CF8M
Mat spec, stem	ASTM A182 GRADE F 316
Mat spec, stem	ASTM A182 GRADE F 316L
Mat spec, stem	ASTM A276 TYPE 316
Mat spec, stem	ASTM A276 TYPE 316L
Mat spec, seat	PEEK
Mat spec, static primary seal	VIRGIN PTFE
Mat spec, static primary seal	MODIFIED PTFE
Mat spec, static primary seal	FILLED PTFE
Mat spec, static sec seal	METAL TO METAL
Mat spec, static sec seal	GRAPHITE
Mat spec, dynamic primary seal	MODIFIED PTFE
Mat spec, dynamic primary seal	PEEK
Mat spec, dynamic primary seal	VIRGIN PTFE
Mat spec, dynamic primary seal	FILLED PTFE
Mat spec, dynamic sec seal(s)	BRAIDED GRAPHITE + PTFE LUB
Mat spec, dynamic sec seal(s)	BRAIDED GRAPHITE
Mat spec, dynamic sec seal(s)	DIE FORMED GRAPHITE + PTFE LUB
Mat spec, dynamic sec seal(s)	DIE FORMED GRAPHITE
Mat spec, bolts/studs	ASTM A193 GRADE B7M
Mat spec, nuts	ASTM A194 GRADE 2HM
Additional requirements	MESC SPE 77/211 2008
Additional requirements	MESC SPE 85/203 2010
Additional requirements	MESC SPE 77/312 2010
Additional requirements	MESC SPE 85/204 2008
Additional requirements	MESC SPE 77/110 2010
Additional requirements	MESC SPE 77/300A 2008
Additional requirements	MESC SPE 77/302 2010
Caps code	BARF CP11
Inspection category	IC-I
Tec classification code	BA-FL-ST-BD-SB-IB-XX-I17292-ST
MESC code	7700252051

The Order is to be delivered according to the following delivery schedule

<u>Qty</u>	<u>Unit</u>	<u>Deliv. date</u>		
2.000	EA	31.01.2012		
30	1001199718	VBA, DN25, CL150, FL, RB, AIBR, AIBR/PTFE	2.00	EA
		Ball valve		
		Nominal size	DN 25	
		Design spec, pressure rating	ASME CL 150	
		Design spec	ISO 17292	
		Design spec, face to face dim.	ASME B16.10	
		Type of end connection	FLANGED	
		Type of face	FLAT FACE	
		Type of pattern	SHORT	
		Type of closure member	FLOATING BALL	
		Type of bore	REDUCED	
		Type of construction	END ENTRY	
		Type of bonnet/cover	INTEGRAL (NON-EXTENDED)	
		Type of seat	SOFT	

Uni/bi-directional	BI-DIRECTIONAL
Service(s)	WATER
Temperature, min	MINUS 20 deg C
Temperature, max	PLUS 150 deg C
Mat, body	ALUMINIUM BRONZE
Mat, trim	ALUMINIUM BRONZE/PTFE
Mat, seals	GRAPHITE
	THERMOPLASTIC
Mat spec, body	ASTM B148 UNS C95400
	ASTM B148 UNS C95500
	ASTM B148 UNS C95800
Mat spec, insert	ASTM B148 UNS C95400
	ASTM B148 UNS C95500
	ASTM B148 UNS C95800
Mat spec, gland flange	ASTM B148 UNS C95400
	ASTM B148 UNS C95500
	ASTM B148 UNS C95800
Mat spec, gland ring	ASTM B148 UNS C95400
	ASTM B148 UNS C95500
	ASTM B148 UNS C95800
Mat spec, closure member	ASTM B148 UNS C95400
	ASTM B148 UNS C95500
	ASTM B148 UNS C95800
Mat spec, stem	ASTM B148 UNS C95400
	ASTM B148 UNS C95500
	ASTM B148 UNS C95800
Mat spec, seat	VIRGIN/FILLED/MODIFIED PTFE
Mat spec, static primary seal	VIRGIN/FILLED/MODIFIED PTFE
Mat spec, static sec seal	GRAPHITE
	METAL TO METAL
Mat spec, dynamic primary seal	VIRGIN/FILLED/MODIFIED PTFE
Mat spec, dynamic sec seal(s)	BRAIDED GRAPHITE
	BRAIDED GRAPHITE + PTFE LUB
	DIE FORMED GRAPHITE
	DIE FORMED GRAPHITE + PTFE LU

B

Mat spec, bolts/etuds	ASTM A193 GRADE B7
Mat spec, nuts	ASTM A194 GRADE 2H
Additional requirements	MESC SPE 77/110 2008
	MESC SPE 77/211 2008
	MESC SPE 77/300A 2008
	MESC SPE 77/302 2008
	MESC SPE 77/312 2007
	MESC SPE 85/203 2008
	MESC SPE 85/204 2008

Caps code	BARP NF04
Tec classification code	BA-FL-SS-BD-EE-IB-XX-117292-S

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Identification code	DX 42
MESC code	7706040051

The Order is to be delivered according to the following delivery schedule

<u>Qty</u>	<u>Unit</u>	<u>Deliv. date</u>
2,000	EA	15.01.2012

Flanged soft seated iso ball valves
 Design spec ISO 17292
 Design spec, end flanges ASME B16.5
 Design spec, face to face dim. ASME B16.10
 Service SOUR
 Service requirement NACE MR-01-75 (VERSION 2002)
 Temperature range MINUS 20 TO PLUS 120 deg C
 Pressure designation ASME CL 150
 Fugitive emission tightness cl B
 Construction, body ONE PIECE + SCREWED INSERT
 Construction, ball FLOATING
 Type of bore REDUCED
 Type of pattern LONG
 Facing, flange RAISED FACE
 Finish, flange facing RA: 3.2-6.4 MICRON
 Mat, body STAINLESS STEEL 316
 Mat, trim STAINLESS STEEL 316
 STAINLESS STEEL 316L
 Mat, stem STAINLESS STEEL 316
 STAINLESS STEEL 316L
 Mat, ball STAINLESS STEEL 316
 STAINLESS STEEL 316L
 Mat, seats FILLED PTFE
 PEEK
 Mat, seals, inserts and rings VITON B
 Mat spec, body and insert/conn ASTM A182 GRADE F 316
 ASTM A351 -CF8M
 Mat spec, stem ASTM A182 GRADE F 316
 ASTM A182 GRADE F 316L
 Mat spec, ball ASTM A182 GRADE F 316
 ASTM A182 GRADE F 316L
 ASTM A276 TYPE 316
 ASTM A276 TYPE 316L
 ASTM A351 -CF3M
 ASTM A351 -CF8M
 Mat spec, seat retainer rings ASTM A240 TYPE 316
 ASTM A240 TYPE 316L
 Mat spec, springs ASTM B637 UNS N07718
 Mat spec, bolt(s) ASTM A193 GRADE B8-CLASS 1
 ASTM A193 GRADE B8M-CLASS
 Mat spec, nut(s) ASTM A194 GRADE 8A
 ASTM A194 GRADE 8MA
 Mandatory add reqmnts MESC SPE 77/110 2007
 MESC SPE 77/200 2007
 MESC SPE 77/211 2008
 MESC SPE 77/300A 2007
 MESC SPE 77/302 2007
 MESC SPE 77/312 2007
 MESC SPE 85/200 2007
 MESC SPE 85/202 2007
 MESC SPE 85/203 2007
 Caps code BARF-SS21
 Identification code DV 76
 Length, f to f 117 mm
 Size DN 20
 Mat, packing, stem, gland SPE 85/200 TYPE 1C
 SPE 85/200 TYPE 3A
 MESC code 7703260041

The Order is to be delivered according to the following delivery schedule

Qty	Unit	Deliv. date
9.000	EA	31.01.2012
50	1001075038	BAFLSF, CL150,RB,316,316, DN25
		1.00 EA
		Flanged soft seated iso ball valves
		Design spec ISO 17292
		Design spec, end flanges ASME B16.5
		Design spec, face to face dim. ASME B16.10
		Service SOUR
		Service requirement NACE MR-01-75 (VERSION 2002)
		Temperature range MINUS 20 TO PLUS 120 deg C
		Pressure designation ASME CL 150
		Fugitive emission tightness cl B
		Construction, body ONE PIECE + SCREWED INSERT
		Construction, ball FLOATING
		Type of bore REDUCED
		Type of pattern LONG
		Facing, flange RAISED FACE
		Finish, flange facing RA: 3.2-6.4 MICRON
		Mat, body STAINLESS STEEL 316
		Mat, trim STAINLESS STEEL 316
		STAINLESS STEEL 316L
		Mat, stem STAINLESS STEEL 316
		STAINLESS STEEL 316L
		Mat, ball STAINLESS STEEL 316
		STAINLESS STEEL 316L
		Mat, seats FILLED PTFE
		PEEK
		Mat, seals, inserts and rings VITON B
		Mat spec, body and insert/conn ASTM A182 GRADE F 316
		ASTM A351 -CF8M
		Mat spec, stem ASTM A182 GRADE F 316
		ASTM A182 GRADE F 316L
		Mat spec, ball ASTM A182 GRADE F 316
		ASTM A182 GRADE F 316L
		ASTM A276 TYPE 316
		ASTM A276 TYPE 316L
		ASTM A351 -CF3M
		ASTM A351 -CF8M
		Mat spec, seat retainer rings ASTM A240 TYPE 316
		ASTM A240 TYPE 316L
		Mat spec, springs ASTM B637 UNS N07718
		Mat spec, bolt(s) ASTM A193 GRADE B8-CLASS 1
		ASTM A193 GRADE B8M-CLASS
		Mat spec, nut(s) ASTM A194 GRADE 8A
		ASTM A194 GRADE 8MA
		Mandatory add reqmnts MESC SPE 77/110 2007
		MESC SPE 77/200 2007
		MESC SPE 77/211 2006
		MESC SPE 77/300A 2007
		MESC SPE 77/302 2007
		MESC SPE 77/312 2007
		MESC SPE 85/200 2007
		MESC SPE 85/202 2007
		MESC SPE 85/203 2007
		Caps code BARF SS21
		Identification code DV 76
		Length, f to f 127 mm
		Size DN 25

Mat, packing, stem, gland SPE 85/200 TYPE 1C
 SPE 85/200 TYPE 3A
 MESG code 7703260051

The Order is to be delivered according to the following delivery schedule

Qty	Unit	Deliv. date
1.000	EA	31.01.2012
60	1001217494	VBA DN20 CL1500 FL RB DPX DPX/PEEK
		Valves, Ball
		Nominal size DN 20
		Design spec, pressure rating ASME CL 1500
		Design spec ISO 17292
		Design spec, f to f (e to e) ASME B16.10
		Length, f to f (e to e) 229 mm
		Type of end connection FLANGED
		Type of face RAISED FACE
		Type of pattern LONG
		Type of closure member FLOATING BALL
		Type of bore REDUCED
		Type of construction TWO/THREE PIECE
		Type of bonnet/cover INTEGRAL (NON-EXTENDED)
		Type of seat SOFT-FULLY RATED TO 150 deg C
		Uni/bi-directional BI-DIRECTIONAL
		Service(s) SOUR
		Mat requirement, sour service NACE MR-01-75 (VERSION 2002)
		Temperature, min MINUS 50 deg C
		Temperature, max PLUS 150 deg C
		Emission class B
		Special requirements EXTENDED BONNET NOT REQUIRED
		Mat, body DUPLEX STAINLESS STEEL
		Mat, trim DUPLEX STAINLESS STEEL/PEEK
		Mat, seals GRAPHITE
		Mat, seals THERMOPLASTIC
		Mat spec, body ASTM A890 GRADE 4A
		Mat spec, body ASTM A182 GRADE F 51
		Mat spec, insert ASTM A890 GRADE 4A
		Mat spec, insert ASTM A182 GRADE F 51
		Mat spec, gland flange ASTM A890 GRADE 4A
		Mat spec, gland flange ASTM A182 GRADE F 51

Mat spec, gland ring ASTM B575 UNS N10276
 Mat spec, gland ring ASTM A276 UNS S31803
 Mat spec, gland ring ASTM A182 GRADE F 51
 Mat spec, closure member ASTM A182 GRADE F 51
 Mat spec, closure member ASTM A890 GRADE 4A
 Mat spec, closure member ASTM A276 UNS S31803
 Mat spec, stem ASTM A276 UNS S31803
 Mat spec, stem ASTM A182 GRADE F 51
 Mat spec, seat PEEK
 Mat spec, static primary seal FILLED PTFE
 Mat spec, static primary seal MODIFIED PTFE
 Mat spec, static primary seal VIRGIN PTFE
 Mat spec, static sec seal GRAPHITE
 Mat spec, static sec seal METAL TO METAL
 Mat spec, dynamic primary seal VIRGIN PTFE
 Mat spec, dynamic primary seal FILLED PTFE
 Mat spec, dynamic primary seal MODIFIED PTFE
 Mat spec, dynamic sec seal(s) DIE FORMED GRAPHITE + PTFE LUB
 Mat spec, dynamic sec seal(s) BRAIDED GRAPHITE
 Mat spec, dynamic sec seal(s) BRAIDED GRAPHITE + PTFE LUB
 Mat spec, dynamic sec seal(s) DIE FORMED GRAPHITE
 Mat spec, bolts/studs ASTM A193 GRADE B8M-CLASS 1
 Mat spec, nuts ASTM A194 GRADE 8MA
 Additional requirements MESC SPE 85/204 2008
 Additional requirements MESC SPE 77/302 2010
 Additional requirements MESC SPE 77/300A 2008
 Additional requirements MESC SPE 77/312 2010
 Additional requirements MESC SPE 85/203 2010
 Additional requirements MESC SPE 77/211 2008
 Additional requirements MESC SPE 77/110 2010
 Caps code BVRF DP31
 Inspection category IC-III
 Tec classification code BA-FL-ST-BD-SB-IB-XX-I17292-VH
 MESC code 7703442041

Additional note :

Product type Low Temperature Test (LTT) is NOT required

The Order is to be delivered according to the following delivery schedule

Qty	Unit	Deliv. date
3,000	EA	31.01.2012
70	1001217484	VBA DN20 CL600 FL RB DPX DPX/PTFE
		Valves, Ball
		Nominal size DN 20
		Design spec, pressure rating ASME CL 600
		Design spec ISO 17292
		Design spec, f to f (e to e) ASME B16.10
		Length, f to f (e to e) 190 mm
		Type of end connection FLANGED
		Type of face RAISED FACE
		Type of pattern LONG
		Type of closure member FLOATING BALL
		Type of bore REDUCED
		Type of construction END ENTRY
		Type of bonnet/cover INTEGRAL (NON-EXTENDED)

Type of seat	SOFT-FULLY RATED TO 150 deg C
Uni/bi-directional	BI-DIRECTIONAL
Service(s)	SOUR
Mat requirement	sour service NACE MR-01-75 (VERSION 2002)
Temperature, min	MINUS 50 deg C
Temperature, max	PLUS 150 deg C
Emission class	B
Special requirements	EXTENDED BONNET NOT REQUIRED
Mat, body	DUPLEX STAINLESS STEEL
Mat, trim	DUPLEX SS/FILLED PTFE
Mat, seals	GRAPHITE
Mat, seals	THERMOPLASTIC
Mat spec, body	ASTM A890 GRADE 4A
Mat spec, body	ASTM A182 GRADE F 51
Mat spec, insert	ASTM A890 GRADE 4A
Mat spec, insert	ASTM A182 GRADE F 51
Mat spec, gland flange	ASTM A890 GRADE 4A
Mat spec, gland flange	ASTM A182 GRADE F 51
Mat spec, gland ring	ASTM B575 UNS N10276
Mat spec, gland ring	ASTM A276 UNS S31803
Mat spec, gland ring	ASTM A182 GRADE F 51
Mat spec, closure member	ASTM A182 GRADE F 51
Mat spec, closure member	ASTM A890 GRADE 4A
Mat spec, closure member	ASTM A276 UNS S31803
Mat spec, stem	ASTM A276 UNS S31803
Mat spec, stem	ASTM A182 GRADE F 51
Mat spec, seat	FILLED PTFE
Mat spec, static primary seal	FILLED PTFE
Mat spec, static primary seal	MODIFIED PTFE
Mat spec, static primary seal	VIRGIN PTFE
Mat spec, static sec seal	GRAPHITE
Mat spec, static sec seal	METAL TO METAL
Mat spec, dynamic primary seal	VIRGIN PTFE
Mat spec, dynamic primary seal	FILLED PTFE
Mat spec, dynamic primary seal	MODIFIED PTFE
Mat spec, dynamic sec seal(s)	DIE FORMED GRAPHITE + PTFE LUB
Mat spec, dynamic sec seal(s)	BRAIDED GRAPHITE
Mat spec, dynamic sec seal(s)	BRAIDED GRAPHITE + PTFE LUB
Mat spec, dynamic sec seal(s)	DIE FORMED GRAPHITE
Mat spec, bolts/studs	ASTM A193 GRADE B8M-CLASS 1
Mat spec, nuts	ASTM A194 GRADE 8MA
Additional requirements	MESC SPE 85/204 2008
Additional requirements	MESC SPE 77/302 2010
Additional requirements	MESC SPE 77/300A 2008
Additional requirements	MESC SPE 77/312 2010
Additional requirements	MESC SPE 85/203 2010
Additional requirements	MESC SPE 77/211 2008
Additional requirements	MESC SPE 77/110 2010
Caps code	BVRF DP31
Inspection category	IC-III
Tec classification code	BA-FL-ST-BD-EE-IB-XX-I17292-VH
MESC code	7703441041

Additional note :

Product type Low Temperature Test (LTT) is NOT required

The Order is to be delivered according to the following delivery schedule.

<u>Qty</u>	<u>Unit</u>	<u>Deliv. date</u>		
9.000	EA	31.01.2012		
80	1001180228	VBARF, CL150,AIBRZ,AIBRZ, DN25,FF,127mm	3.00	EA
		Flanged soft seated bs ball valves		
		Design spec BS 5351		
		Body, rating BS 5154 SERIES A		
		Construction, body ONE-PIECE		
		Construction, ball SEAT SUPPORTED		
		Type of bore REDUCED		
		Type of pattern SHORT		
		Design spec, end flanges ASME B16.5		
		Pressure designation ASME CL 150		
		Facing, flange FLAT FACE		
		Finish, flange facing RA: 3.2 µm TO 6.4 µm		
		Mat, body ALUMINIUM BRONZE		
		NICKEL-ALUMINIUM BRONZE		
		Mat, trim ALUMINIUM BRONZE		
		NICKEL-ALUMINIUM BRONZE		
		Mat spec, body and insert/conn ASTM B148 -UNS C95400		
		ASTM B148 -UNS C95500		
		ASTM B148 -UNS C95800		
		Mat spec, ball ASTM B148 -UNS C95400		
		ASTM B148 -UNS C95500		
		ASTM B148 -UNS C95800		
		Mat spec, gland ASTM B148 -UNS C95400		
		ASTM B148 -UNS C95500		
		ASTM B148 -UNS C95800		
		Mat spec, stem ASTM B148 -UNS C95400		
		ASTM B148 -UNS C95500		
		ASTM B148 -UNS C95800		
		Mat, seat rings FILLED PTFE		
		NYLON POLYAMIDE (PA) 12/G		
		POLYOXYMETHYLENE (POM)		
		ZYFLON		
		Mat, primary seal, body insert FILLED PTFE		
		NYLON POLYAMIDE (PA) 12/G		
		POLYOXYMETHYLENE (POM)		
		ZYFLON		
		Mat, packing, stem, gland SPE 85/200 TYPE 1C		
		SPE 85/200 TYPE 2A		
		SPE 85/200 TYPE 3A		
		Mat spec, bolt(s) and nut(s) ASTM A193 GRADE B7		
		ASTM A194 GRADE 2H		
		Mandatory add reqmts MESG SPE 77/100 2006		
		MESC SPE 77/211 2006		
		MESC SPE 77/300A 2007		
		MESC SPE 77/302 2007		
		MESC SPE 85/200 2007		
		MESC SPE 85/202 2007		
		MESC SPE 85/203 2007		
		Temperature range 0 TO PLUS 100 °C		
		Caps code BARF NF04		
		Identification code DP 65		
		Length, f to f 127 mm		
		Size DN 25		
		VBARF = Valve, ball, reduced bore, flanged ends		

The Order is to be delivered according to the following delivery schedule

<u>Qty</u>	<u>Unit</u>	<u>Deliv. date</u>
3.000	EA	31.01.2012

Flanged soft seated bs ball valves

Design spec BS 5351

Body, rating BS 5154 SERIES A

Construction, body ONE-PIECE

Construction, ball SEAT SUPPORTED

Type of bore REDUCED

Type of pattern SHORT

Design spec, end flanges ASME B16.5

Pressure designation ASME CL 150

Facing, flange FLAT FACE

Finish, flange facing RA: 3.2 µm TO 6.4 µm

Mat, body ALUMINIUM BRONZE
NICKEL-ALUMINIUM BRONZE

Mat, trim ALUMINIUM BRONZE
NICKEL-ALUMINIUM BRONZE

Mat spec, body and Insert/conn ASTM B148 -UNS C95400
ASTM B148 -UNS C95500
ASTM B148 -UNS C95800

Mat spec, ball ASTM B148 -UNS C95400
ASTM B148 -UNS C95500
ASTM B148 -UNS C95800

Mat spec, gland ASTM B148 -UNS C95400
ASTM B148 -UNS C95500
ASTM B148 -UNS C95800

Mat spec, stem ASTM B148 -UNS C95400
ASTM B148 -UNS C95500
ASTM B148 -UNS C95800

Mat, seat rings FILLED PTFE
NYLON POLYAMIDE (PA) 12/G
POLYOXYMETHYLENE (POM)
ZYFLON

Mat, primary seal, body insert FILLED PTFE
NYLON POLYAMIDE (PA) 12/G
POLYOXYMETHYLENE (POM)
ZYFLON

Mat, packing, stem, gland SPE 85/200 TYPE 1C
SPE 85/200 TYPE 2A
SPE 85/200 TYPE 3A

Mat spec, bolt(s) and nut(s) ASTM A193 GRADE B7
ASTM A194 GRADE 2H

Mandatory add reqmnts MESG SPE 77/100 2006
MESG SPE 77/211 2006
MESG SPE 77/300A 2007
MESG SPE 77/302 2007
MESG SPE 85/200 2007
MESG SPE 85/202 2007
MESG SPE 85/203 2007

Temperature range 0 TO PLUS 100 °C

Caps code BARF NF04

Identification code DP 65

Length, f to f 178 mm

Size DN 50

VBARF = Valve, ball, reduced bore, flanged ends

The Order is to be delivered according to the following delivery schedule

Qty	Unit	Deliv. date
2.000	EA	31.01.2012

Ball valves
 Nominal size DN 20
 Design spec, pressure rating ASME CL 300
 Design spec ISO 17292
 Design spec, f to f (e to e) ASME B16.10
 Length, f to f (e to e) 152 mm
 Type of end connection FLANGED
 Type of face RAISED FACE
 Type of pattern SHORT
 Type of closure member FLOATING BALL
 Type of bore REDUCED
 Type of construction END ENTRY
 Type of bonnet/cover INTEGRAL (NON-EXTENDED)
 Type of seat SOFT-FULLY RATED TO 150 °C
 Uni/bi-directional BI-DIRECTIONAL
 Service(s) SOUR
 Mat requirement, sour service NACE MR-01-75 (VERSION 2002)
 Temperature, min -50 °C
 Temperature, max +150 °C
 Emission class B
 Special requirements EXTENDED BONNET NOT REQUIRED
 Special requirements SEAT RATING TO B16.34 AT
 150 °C
 Mat, body DUPLEX STAINLESS STEEL
 Mat, trim DUPLEX SS / FILLED PTFE
 Mat, seals THERMOPLASTIC
 GRAPHITE
 Mat spec, body ASTM A182 GRADE F 51
 ASTM A890 GRADE 4A
 Mat spec, insert ASTM A182 GRADE F 51
 ASTM A890 GRADE 4A
 Mat spec, gland flange ASTM A182 GRADE F 51
 ASTM A890 GRADE 4A
 Mat spec, gland ring ASTM B575 UNS N10276
 ASTM A182 GRADE F 51
 ASTM A276 UNS S31803
 Mat spec, closure member ASTM A182 GRADE F 51
 ASTM A276 UNS S31803
 ASTM A890 GRADE 4A
 Mat spec, stem ASTM A182 GRADE F 51
 ASTM A276 UNS S31803
 Mat spec, seat FILLED PTFE
 MODIFIED PTFE
 Mat spec, static primary seal VIRGIN PTFE
 FILLED PTFE
 MODIFIED PTFE
 Mat spec, static sec seal GRAPHITE
 METAL TO METAL
 Mat spec, dynamic primary seal VIRGIN PTFE
 FILLED PTFE
 MODIFIED PTFE
 Mat spec, dynamic sec seal(s) BRAIDED GRAPHITE + PTFE LUB
 BRAIDED GRAPHITE
 DIE FORMED GRAPHITE + PTFE LU
 B
 DIE FORMED GRAPHITE
 Mat spec, bolts/studs ASTM A193 GRADE B8M-CLASS 1
 Mat spec, nuts ASTM A194 GRADE 8MA
 Additional requirements MESG SPE 77/110 2010
 MESG SPE 77/211 2008
 MESG SPE 77/300A 2008
 MESG SPE 77/302 2010

MESC SPE 77/312 2010
 MESC SPE 85/204 2008
 MESC SPE 85/203 2010

Caps code BVRF DP33
 Inspection category IC-III
 Tec classification code BA-FL-ST-BD-EE-IB-XX-I17292-V
 H
 MESC code 7703443541

Additional note:

Product type Low Temperature Test (LTT) is NOT required

The Order is to be delivered according to the following delivery schedule

Qty	Unit	Deliv. date
1.000	EA	31.01.2012
110	1000849500	BAFLSF, CL150, RB, CS, 316, DN20
		Flanged soft seated iso ball valves
		Design spec ISO 17292
		Design spec, end flanges ASME B16.5
		Design spec, face to face dim. ASME B16.10
		Service SOUR
		Service requirement NACE MR-01-75 (VERSION 2002)
		Temperature range MINUS 20 TO PLUS 150 deg C
		Pressure designation ASME CL 150
		Fugitive emission tightness cl B
		Construction, body ONE PIECE + SCREWED INSERT
		Construction, ball FLOATING
		Type of bore REDUCED
		Type of pattern LONG
		Facing, flange RAISED FACE
		Finish, flange facing RA: 3.2-6.4 MICRON
		Mat, body CARBON STEEL
		Mat, trim STAINLESS STEEL 316
		STAINLESS STEEL 316L
		Mat, stem STAINLESS STEEL 316
		STAINLESS STEEL 316L
		Mat, ball STAINLESS STEEL 316
		STAINLESS STEEL 316L
		Mat, seats FILLED PTFE
		PEEK
		Mat, seals, Inserts and rings VITON B
		Mat spec, body and Insert/conn ASTM A105 NORMALISED
		ASTM A216 GRADE WCB
		ASTM A216 GRADE WCC
		Mat spec, stem ASTM A182 GRADE F 316
		ASTM A182 GRADE F 316L
		Mat spec, ball ASTM A182 GRADE F 316
		ASTM A182 GRADE F 316L
		ASTM A276 TYPE 316
		ASTM A276 TYPE 316L
		ASTM A351 -CF3M
		ASTM A351 -CF8M
		Mat spec, seal retainer rings ASTM A240 TYPE 316

ASTM A240 TYPE 316L
 Mat spec, springs ASTM B637 UNS N07718
 Mat spec, bolt(s) ASTM A193 GRADE B7M
 Mat spec, nut(s) ASTM A194 GRADE 2HM
 Mandatory add reqmnts MESC SPE 77/110 2007
 MESC SPE 77/200 2007
 MESC SPE 77/211 2006
 MESC SPE 77/300A 2007
 MESC SPE 77/302 2007
 MESC SPE 77/312 2007
 MESC SPE 85/200 2007
 MESC SPE 85/202 2007
 MESC SPE 85/203 2007
 Caps code BARF CS09
 Identification code DV 68
 Length, f to f 117 mm
 Size DN 20
 Mat, packing, stem, gland SPE 85/200 TYPE 1C
 SPE 85/200 TYPE 3A
 MESC code 7700250041

The Order is to be delivered according to the following delivery schedule

Qty	Unit	Deliv. date
1.000	EA	30.01.2012

120 1001217399 VBA DN20 CL150 FL RB DPX DPX/PTFE 1.00 EA
 Valves, Ball
 Nominal size DN 20
 Design spec, pressure rating ASME CL 150
 Design spec ISO 17292
 Design spec, f to f (e to e) ASME B16.10
 Length, f to f (e to e) 117 mm
 Type of end connection FLANGED
 Type of face RAISED FACE
 Type of pattern SHORT
 Type of closure member FLOATING BALL
 Type of bore REDUCED
 Type of construction END ENTRY
 Type of bonnet/cover INTEGRAL (NON-EXTENDED)
 Type of seat SOFT-RATED TO SPE TABLE 1
 Uni/bi-directional UNI-DIRECTIONAL
 Service(s) SOUR
 Mat requirement, sour service NACE MR-01-75 (VERSION 2002)
 Temperature, min MINUS 50 deg C
 Temperature, max PLUS 150 deg C
 Emission class B
 Special requirements BODY CAVITY RELIEF
 Special requirements EXTENDED BONNET NOT REQUIRED
 Mat, body DUPLEX STAINLESS STEEL
 Mat, trim DUPLEX STAINLESS STEEL/PTFE
 Mat, seals THERMOPLASTIC
 Mat, seals GRAPHITE
 Mat spec, body ASTM A890 GRADE 4A
 Mat spec, body ASTM A182 GRADE F 51
 Mat spec, insert ASTM A182 GRADE F 51
 Mat spec, insert ASTM A890 GRADE 4A
 Mat spec, gland flange ASTM A182 GRADE F 51

Mat spec, gland flange	ASTM A890 GRADE 4A
Mat spec, gland ring	ASTM A276 UNS S31803
Mat spec, gland ring	ASTM B575 UNS N10276
Mat spec, gland ring	ASTM A182 GRADE F 51
Mat spec, closure member	ASTM A182 GRADE F 51
Mat spec, closure member	ASTM A276 UNS S31803
Mat spec, closure member	ASTM A890 GRADE 4A
Mat spec, stem	ASTM A182 GRADE F 51
Mat spec, stem	ASTM A276 UNS S31803
Mat spec, seat	MODIFIED PTFE
Mat spec, seat	FILLED PTFE
Mat spec, seat	VIRGIN PTFE
Mat spec, static primary seal	VIRGIN PTFE
Mat spec, static primary seal	MODIFIED PTFE
Mat spec, static primary seal	FILLED PTFE
Mat spec, static sec seal	METAL TO METAL
Mat spec, static sec seal	GRAPHITE
Mat spec, dynamic primary seal	FILLED PTFE
Mat spec, dynamic primary seal	VIRGIN PTFE
Mat spec, dynamic primary seal	MODIFIED PTFE
Mat spec, dynamic sec seal(s)	BRAIDED GRAPHITE + PTFE LUB
Mat spec, dynamic sec seal(s)	BRAIDED GRAPHITE
Mat spec, dynamic sec seal(s)	DIE FORMED GRAPHITE + PTFE LUB
Mat spec, dynamic sec seal(s)	DIE FORMED GRAPHITE
Mat spec, bolts/studs	ASTM A193 GRADE B8M-CLASS 1
Mat spec, nuts	ASTM A194 GRADE 8MA
Additional requirements	MESC SPE 77/110 2010
Additional requirements	MESC SPE 77/211 2008
Additional requirements	MESC SPE 85/204 2008
Additional requirements	MESC SPE 85/203 2010
Additional requirements	MESC SPE 77/300A 2008
Additional requirements	MESC SPE 77/302 2010
Additional requirements	MESC SPE 77/312 2010
Caps code	BVRF DP31
Inspection category	IC-III
Tec classification code	BA-FL-ST-UD-EE-IB-XX-I17292-VH
MESC code	7703440041

Additional note :

Coating for Carbon Steel Valves shall be as per para 3.2.1.1 in specification SES 47.1 and final colour shall be yellow (Colour Code BS 4800 10-E-53)

The Order is to be delivered according to the following delivery schedule

<u>Qty</u>	<u>Unit</u>	<u>Deliv. date</u>
1,000	EA	04.11.2011

130	1000849500	BAFLSF. CL150,RB,CS,316, DN20	4.00	EA
		Flanged soft seated iso ball valves		
		Design spec		ISO 17292
		Design spec, end flanges		ASME B16.5
		Design spec, face to face dim.		ASME B16.10
		Service		SOUR
		Service requirement		NACE MR-01-75 (VERSION 2002)
		Temperature range		MINUS 20 TO PLUS 150 deg C
		Pressure designation		ASME CL 150
		Fugitive emission tightness cl B		
		Construction, body		ONE PIECE + SCREWED INSERT
		Construction, ball		FLOATING
		Type of bore		REDUCED
		Type of pattern		LONG

Facing, flange	RAISED FACE
Finish, flange facing	RA: 3.2-6.4 MICRON
Mat, body	CARBON STEEL
Mat, trim	STAINLESS STEEL 316 STAINLESS STEEL 316L
Mat, stem	STAINLESS STEEL 316 STAINLESS STEEL 316L
Mat, ball	STAINLESS STEEL 316 STAINLESS STEEL 316L
Mat, seats	FILLED PTFE PEEK
Mat, seals, inserts and rings	VITON B
Mat spec, body and insert/conn	ASTM A105 NORMALISED ASTM A216 GRADE WCB ASTM A216 GRADE WCC
Mat spec, stem	ASTM A182 GRADE F 316 ASTM A182 GRADE F 316L
Mat spec, ball	ASTM A182 GRADE F 316 ASTM A182 GRADE F 316L ASTM A276 TYPE 316 ASTM A276 TYPE 316L ASTM A351 -CF3M ASTM A351 -CF8M
Mat spec, seat retainer rings	ASTM A240 TYPE 316 ASTM A240 TYPE 316L
Mat spec, springs	ASTM B637 UNS N07718
Mat spec, bolt(s)	ASTM A193 GRADE B7M
Mat spec, nut(s)	ASTM A194 GRADE 2HM
Mandatory add reqmnts	MESC SPE 77/110 2007 MESC SPE 77/200 2007 MESC SPE 77/211 2006 MESC SPE 77/300A 2007 MESC SPE 77/302 2007 MESC SPE 77/312 2007 MESC SPE 85/200 2007 MESC SPE 85/202 2007 MESC SPE 85/203 2007
Caps code	BARF CS09
Identification code	DV 68
Length, f to f	117 mm

Size DN 20
Mat, packing, stem, gland SPE 85/200 TYPE 1C
SPE 85/200 TYPE 3A
MESO code 7700250041

Additional note :

1.#Protective Coating of Valve

##Valves shall be coated as per para 3.2.1.1 in specification SES 47.1
Rev. 07 and final colour shall be Yellow (Colour Code BS 4800, 10-E-53).

2.#Coating of Fasteners

##All external fasteners (including those connecting the gearbox, handle
or handwheel to the valve) with the exception of stainless steel grades
B8/B8M and 8/8M shall have a zinc/nickel electroplated base coat in
accordance with ES/313 for corrosion resistance and a fluoropolymer
topcoat to reduce torque-up friction.

##The fastener shall be suitable for service condition number 4 as defined
in Table 5 of ES/313. The zinc/nickel anti-corrosion basecoat shall be
minimum thickness 5 microns. Testing shall be as per Section 11 of
ES/313 with acceptance criteria as per Table 5

##The anti-friction top coat shall be fluoropolymer (PTFE) such as Xylan
1014 with minimum DFT of 20 microns. The topcoat shall be checked for
adhesion to the basecoat by carrying out a suitable tape test.

The Order is to be delivered according to the following delivery schedule

<u>Qty</u>	<u>Unit</u>	<u>Deliv. date</u>
4,000	EA	31.01.2012