

Siemens AG Energy Sector Oil & Gas Division		Verdichter Datenblätter				DU282424600-700	
							
ERDGASSPEICHER JEMGUM – GASANLAGE (PHASEN 1a/1b)							
VERDICHTERSTRANG 4							
Verdichter Datenblätter							
TPGY - Projektnummer:		7078U					
WIHO - Bestellnummer:		32/731/45256090					
Kennnummer:		C5					
Projektdokumentenummer:		91440 SIEM/SYS 0001.01-3.00					
							
3.05	22.11.2012	Zur Kommentierung		Terstappen	Warneke		
Rev.	Datum	Status		Erstellt durch	Geprüft durch	Genehmigt durch	
Dokumentrevisionen							
							
5		22.11.2012	Terstappen	Warneke		Verdichterstrang 4	
-	-	14.04.11	Schmidt	Terstappen		Änderungsbeschreibung Description of Change	
Index Revision	Blatt Sheet	Datum Date	erstellt drawn	geprüft review	freigegeben checked	Entstanden aus: Original of:	
		Format Size	Ident-Nummer/Unterlagen-Nummer Ident-Number/Document-Number			Klassifikation: Classification:	
Klass.Nr.: Class.No.:		A4	36289216			Index Revision	Sprache Language
Dok.-Art: Doc.-Type:						5	DE
						Blatt Sheet	1/27
Eintrag der Handhabung öffentlich							
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SIEMENS

Siemens

CENTRIFUGAL AND AXIAL COMPRESSOR
DATA SHEET (API 617-7TH Chapter 2)
SI UNITS (1-1.6.5)

JOB NO.

DU282424600

ITEM NO.

V91431 / V91432

PURCHASE ORDER NO.

INQUIRY NO.

REVISION NO.

3

DATE

2012-09-13

PAGE

2

OF

27

BY

Schmidt / Terstappen

1

APPLICABLE TO:

☐ PROPOSAL

☒ Purchase

☐ As built

2

FOR

Wingas

3

SITE

Jemgum

4

SERVICE

Gas Storage Compressor

5

MANUFACTURER

Siemens

6

MODEL

STC-SV(06-6-B)

7

8

INFORMATION TO BE COMPLETED:

☐ BY PURCHASER

☐ BY MANUFACTURER

☒ MUTUAL AGREEMENT (PRIOR TO PURCHASE)

9

10

(ALL DATA ON PER UNIT BASIS)

11

SPECIFIED OPERATING CASE

11a

CASING TYPE

11b

SECTION

12

☐ GAS HANDLED (ALSO SEE PAGE 7 to 11)

13

☒ GAS PROPERTIES (1-2.1.1.4)

14

☐ Volume Flow (normal) Nm³/hOC

(DRY)

15

☐ Weight Flow kg/h

(WET) (~~DRY~~)

16

INLET CONDITIONS AT CASING FLANGE

17

☐ Pressure bar(a)

18

☐ Temperature °C

19

☐ Relative Humidity %

20

☐ Molecular Weight kg/kmol

21

☐ k AVG (~~K_T~~) OR (K_{AVG})

(NOTE 1)

22

☐ Compressibility(Z1)

(NOTE 1)

23

☐ Inlet Volume Flow m³/h

(WET) (~~DRY~~)

24

DISCHARGE CONDITIONS AT CASING FLANGE

25

☐ Pressure bar(a)

26

☐ Temperature °C

27

☐ N acc. ASME PTC 10

28

☐ Compressibility(Z2)

(NOTE 1)

29

☐ Power Requirement Internal kW

30

☐ Train Brake Required kW

31

☐ Train Brake Required incl. ext. Losses kW

32

☐ Speed rpm

33

☐ TURNDOWN (%)

34

☐ Polytropic Head kJ/kg

35

☐ Polytropic Efficiency %

36

☐ CERTIFIED POINT

37

☐ EXPECTED OPERATION AT EACH CONDITION (%)

38

☐ PERFORMANCE CURVE NUMBER (91430 SIEM/SYS 0003.01)

39

PROCESS CONTROL (1-3.4.2.1)

40

METHOD

☐ SUCTION THROTTLING

☐ VARIABLE INLET

☒ SPEED VARIATION

☐ DISCHARGE

☐ COOLED BYPASS

41

FROM

BAR (kPa abs)

GUIDE VANES

FROM 60 %

BLOWOFF

FROM

42

TO

BAR (kPa abs)

(2-2.4.1)

TO 105 %

TO

TO

43

SIGNAL

44

TYPE

☒ ELECTRONIC

☐ PNEUMATIC

☐ OTHER

45

RANGE

4 - 20 mA

BAR (kPa abs)

46

47

☒ ANTI-SURGE SYSTEM (1-3.4.2.2)

48

REMARKS:

49

NOTE 1: Power is subject to API-617 tolerance (+4%)

50

51

52

53

I-R-1	I-R-1	I-R-2	I-R-2	I-R-3	I-R-3
Proc.St.1	Proc.St.2	Proc.St.1	Proc.St.2	Proc.St.1	Proc.St.2
150000	150000	134850	134850	188000	188000
109394	109394	98345.2	98345.2	137107	137107
54,0	103,9	54,0	109,9	54,0	91,1
10,0	40,0	10,0	40,0	10,0	40,0
18,5	5,9	18,5	6,3	18,5	5,2
16.35	16.35	16.35	16.35	16.35	16.35
1.375	1.485	1.377	1.511	1.363	1.369
0.884	0.870	0.884	0.866	0.884	0.881
2578	1459	2318	1235	3231	2112
105,4	191,0	111,0	213,0	93,6	121,0
71,9	101,6	76,8	107,1	65,2	84,8
1.538	1.805	1.538	1.860	1.630	2.860
0.916	0.954	0.920	0.969	0.914	0.927
3653	4011	3568	3985	4175	4018
250		250		250	
7914		7803		8443	
13502	13502	13557	13557	14055	14055
See performance curves					
95,6	96,5	104,0	106,3	77,8	43,8
79,6	73,1	79,6	72,8	70,9	41,5
Yes	Yes	Yes	Yes	No	No
Page 2 and 3		Page 2 and 3		Page 2 and 3	

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41 FROM _____ BAR (kPa abs) GUIDE VANES FROM <u>60</u> % BLOWOFF FROM _____																																																																																																																																																																																									
42 TO _____ BAR (kPa abs) (2-2.4.1) TO <u>105</u> % TO _____ TO _____																																																																																																																																																																																									
43 SIGNAL _____																																																																																																																																																																																									
44 TYPE ☒ ELECTRONIC ☐ PNEUMATIC ☐ OTHER _____																																																																																																																																																																																									
45 RANGE <u>4 - 20</u> mA _____ BAR (kPa abs) _____																																																																																																																																																																																									
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47 ☒ ANTI-SURGE SYSTEM (1-3.4.2.2) _____																																																																																																																																																																																									
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12 ☐ GAS HANDLED (ALSO SEE PAGE 7 to 11)																																																																																																																																																																																	
13 ☒ GAS PROPERTIES (1-2.1.1.4)																																																																																																																																																																																	
14 ☐ Volume Flow (normal) Nm³/h0C (DRY)																																																																																																																																																																																	
15 ☐ Weight Flow kg/h (WET) (~~DRY~~)																																																																																																																																																																																	
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17 ☐ Pressure bar(a)																																																																																																																																																																																	
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29 ☐ Power Requirement Internal kW																																																																																																																																																																																	
30 ☐ Train Brake Required kW																																																																																																																																																																																	
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38 ☐ PERFORMANCE CURVE NUMBER (91430 SIEM/SYS 0003.01)																																																																																																																																																																																	
39 PROCESS CONTROL (1-3.4.2.1)																																																																																																																																																																																	
40 METHOD ☒ SUCTION THROTTLING ☐ VARIABLE INLET ☐ SPEED VARIATION ☐ DISCHARGE ☐ COOLED BYPASS																																																																																																																																																																																	
41 FROM _____ BAR (kPa abs) GUIDE VANES FROM <u>60</u> % BLOWOFF FROM _____																																																																																																																																																																																	
42 TO _____ BAR (kPa abs) (2-2.4.1) TO <u>105</u> % TO _____ TO _____																																																																																																																																																																																	
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44 TYPE ☒ ELECTRONIC ☐ PNEUMATIC ☐ OTHER _____																																																																																																																																																																																	
45 RANGE <u>4 - 20</u> mA _____ BAR (kPa abs) _____																																																																																																																																																																																	
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47 ☒ ANTI-SURGE SYSTEM (1-3.4.2.2) _____																																																																																																																																																																																	
48 REMARKS: _____																																																																																																																																																																																	
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1 APPLICABLE TO: ☐ PROPOSAL ☒ Purchase ☐ As built 2 FOR <u>Wingas</u> UNIT <u>V91431 / V91432</u>																																																																																																																																																																																	
3 SITE <u>Jemgum</u>		SERIAL NO. _____																																																																																																																																																																															
4 SERVICE <u>Gas Storage Compressor</u>		NO. REQUIRED <u>1</u>																																																																																																																																																																															
5 MANUFACTURER <u>Siemens</u>		DRIVER TYPE (1-3.1.1) <u>Variable Speed Drive</u>																																																																																																																																																																															
6 MODEL <u>STC-SV(06-6-B)</u>		DRIVER ITEM NO. _____																																																																																																																																																																															
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73,6	74,1	49,9	50,1	61,3	61,6																																																																																																																																																																												
69,2	65,4	77,8	77,6	76,7	73,2																																																																																																																																																																												
No	No	No	No	No	No																																																																																																																																																																												
Page 6 and 7	Page 6 and 7	Page 8 and 9																																																																																																																																																																															
11a CASING TYPE																																																																																																																																																																																	
11b SECTION																																																																																																																																																																																	
12 ☐ GAS HANDLED (ALSO SEE PAGE 7 to 11)																																																																																																																																																																																	
13 ☒ GAS PROPERTIES (1-2.1.1.4)																																																																																																																																																																																	
14 ☐ Volume Flow (normal) Nm³/h0C (DRY)																																																																																																																																																																																	
15 ☐ Weight Flow kg/h (WET) (~~DRY~~)																																																																																																																																																																																	
16 INLET CONDITIONS AT CASING FLANGE																																																																																																																																																																																	
17 ☐ Pressure bar(a)																																																																																																																																																																																	
18 ☐ Temperature °C																																																																																																																																																																																	
19 ☐ Relative Humidity %																																																																																																																																																																																	
20 ☐ Molecular Weight kg/kmol																																																																																																																																																																																	
21 ☐ k AVG (~~k1~~) OR (~~k~~ _{AVG}) (NOTE 1)																																																																																																																																																																																	
22 ☐ Compressibility(Z1) (NOTE 1)																																																																																																																																																																																	
23 ☐ Inlet Volume Flow m³/h (WET) (~~DRY~~)																																																																																																																																																																																	
24 DISCHARGE CONDITIONS AT CASING FLANGE																																																																																																																																																																																	
25 ☐ Pressure bar(a)																																																																																																																																																																																	
26 ☐ Temperature °C																																																																																																																																																																																	
27 ☐ N acc. ASME PTC 10																																																																																																																																																																																	
28 ☐ Compressibility(Z2) (NOTE 1)																																																																																																																																																																																	
29 ☐ Power Requirement Internal kW																																																																																																																																																																																	
30 ☐ Train Brake Required kW																																																																																																																																																																																	
31 ☐ Train Brake Required incl. ext. Losses kW																																																																																																																																																																																	
32 ☐ Speed rpm																																																																																																																																																																																	
33 ☐ TURNDOWN (%)																																																																																																																																																																																	
34 ☐ Polytropic Head kJ/kg																																																																																																																																																																																	
35 ☐ Polytropic Efficiency %																																																																																																																																																																																	
36 ☐ CERTIFIED POINT																																																																																																																																																																																	
37 ☐ EXPECTED OPERATION AT EACH CONDITION (%)																																																																																																																																																																																	
38 ☐ PERFORMANCE CURVE NUMBER (91430 SIEM/SYS 0003.01)																																																																																																																																																																																	
39 PROCESS CONTROL (1-3.4.2.1)																																																																																																																																																																																	
40 METHOD ☒ SUCTION THROTTLING ☐ VARIABLE INLET ☐ SPEED VARIATION ☐ DISCHARGE ☐ COOLED BYPASS																																																																																																																																																																																	
41 FROM _____ BAR (kPa abs) GUIDE VANES FROM <u>60</u> % BLOWOFF FROM _____																																																																																																																																																																																	
42 TO _____ BAR (kPa abs) (2-2.4.1) TO <u>105</u> % TO _____ TO _____																																																																																																																																																																																	
43 SIGNAL _____																																																																																																																																																																																	
44 TYPE ☒ ELECTRONIC ☐ PNEUMATIC ☐ OTHER _____																																																																																																																																																																																	
45 RANGE <u>4 - 20</u> mA _____ BAR (kPa abs) _____																																																																																																																																																																																	
46																																																																																																																																																																																	
47 ☒ ANTI-SURGE SYSTEM (1-3.4.2.2) _____																																																																																																																																																																																	
48 REMARKS: _____																																																																																																																																																																																	
49																																																																																																																																																																																	
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SIEMENS Siemens		JOB NO. <u>DU282424600</u> ITEM NO. <u>V91431 / V91432</u>	
		PURCHASE ORDER NO. _____	
CENTRIFUGAL AND AXIAL COMPRESSOR DATA SHEET (API 617-7TH Chapter 2) SI UNITS (1-1.6.5)		INQUIRY NO. _____	
		REVISION NO. <u>3</u> DATE <u>2012-09-13</u>	
		PAGE <u>6</u> OF <u>27</u> BY <u>Schmidt / Terstappen</u>	

1 APPLICABLE TO: ☐ PROPOSAL ☒ Purchase ☐ As built	UNIT <u>V91431 / V91432</u>
2 FOR <u>Wingas</u>	SERIAL NO. _____
3 SITE <u>Jemgum</u>	NO. REQUIRED <u>1</u>
4 SERVICE <u>Gas Storage Compressor</u>	DRIVER TYPE (1-3.1.1) <u>Variable Speed Drive</u>
5 MANUFACTURER <u>Siemens</u>	DRIVER ITEM NO. _____
6 MODEL <u>STC-SV(06-6-B)</u>	
7	
8 INFORMATION TO BE COMPLETED: ☐ BY PURCHASER ☐ BY MANUFACTURER ☐ MUTUAL AGREEMENT (PRIOR TO PURCHASE)	
OPERATING CONDITIONS	
10 (ALL DATA ON PER UNIT BASIS)	
11 SPECIFIED OPERATING CASE	
11a CASING TYPE	
11b SECTION	
12 ☐ GAS HANDLED (ALSO SEE PAGE 7 to 11)	
13 ☐ GAS PROPERTIES (1-2.1.1.4)	
14 ☐ Volume Flow (normal) Nm³/h0C (DRY)	
15 ☐ Weight Flow kg/h (WET) (~~DRY~~)	
16 INLET CONDITIONS AT CASING FLANGE	
17 ☐ Pressure bar(a)	
18 ☐ Temperature °C	
19 ☐ Relative Humidity %	
20 ☐ Molecular Weight kg/kmol	
21 ☐ k AVG (~~k1~~) OR (~~k~~ AVG) (NOTE 1)	
22 ☐ Compressibility(Z1) (NOTE 1)	
23 ☐ Inlet Volume Flow m³/h (WET) (~~DRY~~)	
24 DISCHARGE CONDITIONS AT CASING FLANGE	
25 ☐ Pressure bar(a)	
26 ☐ Temperature °C	
27 ☐ N acc. ASME PTC 10	
28 ☐ Compressibility(Z2) (NOTE 1)	
29 ☐ Power Requirement Internal kW	
30 ☐ Train Brake Required kW	
31 ☐ Train Brake Required incl. ext. Losses kW	
32 ☐ Speed rpm	
33 ☐ TURNDOWN (%)	
34 ☐ Polytropic Head kJ/kg	
35 ☐ Polytropic Efficiency %	
36 ☐ CERTIFIED POINT	
37 ☐ EXPECTED OPERATION AT EACH CONDITION (%)	
38 ☐ PERFORMANCE CURVE NUMBER (91430 SIEM/SYS 0003.01)	
39 PROCESS CONTROL (1-3.4.2.1)	
40 METHOD ☒ SUCTION THROTTLING ☐ VARIABLE INLET ☐ SPEED VARIATION ☐ DISCHARGE ☐ COOLED BYPASS	
41 FROM _____ BAR (kPa abs) GUIDE VANES FROM <u>60</u> % BLOWOFF FROM _____	
42 TO _____ BAR (kPa abs) (2-2.4.1) TO <u>105</u> % TO _____ TO _____	
43 SIGNAL _____	
44 TYPE ☒ ELECTRONIC ☐ PNEUMATIC ☐ OTHER _____	
45 RANGE <u>4 - 20</u> mA _____ BAR (kPa abs) _____	
46	
47 ☒ ANTI-SURGE SYSTEM (1-3.4.2.2) _____	
48	
49	
50	
51	
52	
53	

48 REMARKS: _____

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SIEMENS Siemens				JOB NO. DU282424600 ITEM NO. V91431 / V91432				
CENTRIFUGAL AND AXIAL COMPRESSOR DATA SHEET (API 617-7TH Chapter 2) SI UNITS (1-1.6.5)				REVISION NO. 3 DATE 2012-09-13				
				PAGE 7 OF 27 BY Schmidt / Terstappen				
1	OPERATING CONDITIONS (Continued) (1-2.1.1.1) (1-3.1.2) (1-3.1.3)							
2	GAS ANALYSIS:		OTHER CONDITIONS					REMARKS:
3	☐ MOL %	I-R-1	I-R-1	I-R-2	I-R-2	I-R-3	I-R-3	
4		MW	Proc.St.1	Proc.St.2	Proc.St.1	Proc.St.2	Proc.St.1	Proc.St.2
5	Methane	16,04	98,1518	98,1518	98,1518	98,1518	98,1518	98,1518
6	Ethane	30,07	0,728	0,728	0,728	0,728	0,728	0,728
7	Propane	44,09	0,212	0,212	0,212	0,212	0,212	0,212
8	Isobutane	58,12	0,039	0,039	0,039	0,039	0,039	0,039
9	n-Butane	58,12	0,035	0,035	0,035	0,035	0,035	0,035
10	Isopentane	72,15	0,007	0,007	0,007	0,007	0,007	0,007
11	n-Pentane	72,15	0,006	0,006	0,006	0,006	0,006	0,006
12	n-Hexane	86,17	0,001	0,001	0,001	0,001	0,001	0,001
13	Carbondioxide	44,01	0,03	0,03	0,03	0,03	0,03	0,03
14	Nitrogen	28,02	0,786	0,786	0,786	0,786	0,786	0,786
15	Water	18,02	0,0042	0,0042	0,0042	0,0042	0,0042	0,0042
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30	TOTAL		100.0	100.0	100.0	100.0	100.0	100.0
31	AVG. MOL. WT.		16,35	16,35	16,35	16,35	16,35	16,35
32	LOCATION: (1-2.1.8)				NOISE SPECIFICATIONS: (1-2.1.9)			
33	☒ INDOOR	☐ OUTDOOR	☒ GRADE	☒ APPLICABLE TO MACHINE:				
34	☒ HEATED	☐ UNDER ROOF	☐ MEZZANINE	SEE SPECIFICATION 92 dB(A) (Compressor Skid)				
35	☐ UNHEATED	☐ PARTIAL SIDES		☐ APPLICABLE TO NEIGHBORHOOD:				
36	☒ ELEC. AREA CLASSIFICATION (1-2.1.14)	CL	GR	IIA	Zone	2	SEE SPECIFICATION	
37	SITE DATA (1-2.1.8)				ACOUSTIC HOUSING: ☐ YES ☒ NO			
38	☐ ELEVATION	SL	m	BAROMETER	1.010	BAR	APPLICABLE SPECIFICATIONS:	
39	☒ RANGE OF AMBIENT TEMPS:				API 617, 7TH CHAPTER 1&2			
40			Inside building	Outside building	☒ VENDOR HAVING UNIT RESPONSIBILITY (1-1.5.52) (1-1.8) (1-2.1.3)			
41	NORMAL	°C			☐ GOVERNING SPECIFICATION (IF DIFFERENT)			
42	MAXIMUM	°C	+45	+35				
43	MINIMUM	°C	+5	-20				
44		°C						
45	UNUSUAL CONDITIONS: ☐ DUST ☐ FUMES				PAINTING:			
46		°C			☒ MANUFACTURER'S STD.			
47	☒ OTHER (1-2.1.8)	Marine			☒ OTHER DIN EN 12944-5 Class C5-M			
48					SHIPMENT: (1-4.4)			
49	☐ COPPER AND COPPER ALLOYS PROHIBITED (1-2.2.1.14)				☒ DOMESTIC ☐ EXPORT ☐ EXPORT BOXING REQ'D.			
50	COATING: (1-2.2.1.16)				☐ OUTDOOR STORAGE MORE THAN 6 MONTHS (1-4.4.1) MO			
51	☒ ROTATING COMPONENTS	acc Siemens Spec.:37209816		SPARE ROTOR ASSEMBLY PACKAGE (1-4.4.3.10)				
52	☒ STATIONARY COMPONENTS	acc Siemens Spec.:37209816		☐ HORIZONTAL STORAGE ☐ VERTICAL STORAGE				
53	REMARKS:							
54								
55	NACE: Not applicable							
56								
57	NOTE :							
58								
59								
60								

SIEMENS Siemens				JOB NO. DU282424600ITEM NO. V91431 / V91432 REVISION NO. 3DATE 2012-09-13 PAGE 8 OF 27 BY Schmidt / Terstappen				
CENTRIFUGAL AND AXIAL COMPRESSOR DATA SHEET (API 617-7TH Chapter 2) SI UNITS (1-1.6.5)								
OPERATING CONDITIONS (Continued) (1-2.1.1.1) (1-3.1.2) (1-3.1.3)								
GAS ANALYSIS:			OTHER CONDITIONS					REMARKS:
☐ MOL %		I-R-4	I-R-4	I-N-1	I-N-1	I-N-2	I-N-2	
	MW	Proc.St.1	Proc.St.2	Proc.St.1	Proc.St.2	Proc.St.1	Proc.St.2	
1								
2								
3								
4								
5	Methane	16,04	98,1518	98,1518	86,0444	86,0444	86,0444	
6	Ethane	30,07	0,728	0,728	8,8596	8,8596	8,8596	
7	Propane	44,09	0,212	0,212	1,9069	1,9069	1,9069	
8	Isobutane	58,12	0,039	0,039	0,144	0,144	0,144	
9	n-Butane	58,12	0,035	0,035	0,216	0,216	0,216	
10	Isopentane	72,15	0,007	0,007	0,023	0,023	0,023	
11	n-Pentane	72,15	0,006	0,006	0,019	0,019	0,019	
12	n-Hexane	86,17	0,001	0,001	0,007	0,007	0,007	
13	Carbondioxide	44,01	0,03	0,03	1,9489	1,9489	1,9489	
14	Nitrogen	28,02	0,786	0,786	0,827	0,827	0,827	
15	Water	18,02	0,0042	0,0042	0,0042	0,0042	0,0042	
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30	TOTAL		100,0	100,0	100,0	100,0	100,0	
31	AVG. MOL. WT.		16,35	16,35	18,64	18,64	18,64	
32								
33								
34								
35								
36								
37								
38								
39								
40								
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DSN 36289216 000 05 (RL) Z0006K8R 09.07.2018 11:00:02 Intern
 J:\36289216 Name: COMPRESSOR DATA SHEETS Rev: 05
 Uffor: schel06\2012\11-27 Reviewer: -- Approver: schml02n\2012\11-27

SIEMENS

Siemens

CENTRIFUGAL AND AXIAL COMPRESSOR
DATA SHEET (API 617-7TH Chapter 2)
SI UNITS (1-1.6.5)

JOB NO.

DU282424600

ITEM NO.

V91431 / V91432

REVISION NO.

3

DATE

2012-09-13

PAGE

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OF

27

BY

Schmidt / Terstappen

1

OPERATING CONDITIONS (Continued) (1-2.1.1.1) (1-3.1.2) (1-3.1.3)

GAS ANALYSIS:

MOL %

P-R-2

P-R-2

P-R-3

P-R-3

P-N-1

P-N-1

OTHER CONDITIONS

REMARKS:

Methane

16,04

98,1518

98,1518

98,1518

98,1518

86,0444

86,0444

Ethane

30,07

0,728

0,728

0,728

0,728

8,8596

8,8596

Propane

44,09

0,212

0,212

0,212

0,212

1,9069

1,9069

Isobutane

58,12

0,039

0,039

0,039

0,039

0,144

0,144

n-Butane

58,12

0,035

0,035

0,035

0,035

0,216

0,216

Isopentane

72,15

0,007

0,007

0,007

0,007

0,023

0,023

n-Pentane

72,15

0,006

0,006

0,006

0,006

0,019

0,019

n-Hexane

86,17

0,001

0,001

0,001

0,001

0,007

0,007

Carbondioxide

44,01

0,03

0,03

0,03

0,03

1,9489

1,9489

Nitrogen

28,02

0,786

0,786

0,786

0,786

0,827

0,827

Water

18,02

0,0042

0,0042

0,0042

0,0042

0,0042

0,0042

TOTAL

100.0

100.0

100.0

100.0

100.0

100.0

AVG. MOL. WT.

16,35

16,35

16,35

16,35

18,64

18,64

NOTE :

SIEMENS Siemens				JOB NO. DU282424600 ITEM NO. V91431 / V91432				
CENTRIFUGAL AND AXIAL COMPRESSOR DATA SHEET (API 617-7TH Chapter 2) SI UNITS (1-1.6.5)				REVISION NO. 3 DATE 2012-09-13				
				PAGE 11 OF 27 BY Schmidt / Terstappen				
1	OPERATING CONDITIONS (Continued) (1-2.1.1.1) (1-3.1.2) (1-3.1.3)							
2	GAS ANALYSIS:			OTHER CONDITIONS				REMARKS:
3	☐ MOL %		P-N-2	P-N-2	P-N-3	P-N-3		
4		MW	Proc.St.1	Proc.St.2	Proc.St.1	Proc.St.2		
5	Methane	16,04	86,0444	86,0444	86,0444	86,0444		
6	Ethane	30,07	8,8596	8,8596	8,8596	8,8596		
7	Propane	44,09	1,9069	1,9069	1,9069	1,9069		
8	Isobutane	58,12	0,144	0,144	0,144	0,144		
9	n-Butane	58,12	0,216	0,216	0,216	0,216		
10	Isopentane	72,15	0,023	0,023	0,023	0,023		
11	n-Pentane	72,15	0,019	0,019	0,019	0,019		
12	n-Hexane	86,17	0,007	0,007	0,007	0,007		
13	Carbondioxide	44,01	1,9489	1,9489	1,9489	1,9489		
14	Nitrogen	28,02	0,827	0,827	0,827	0,827		
15	Water	18,02	0,0042	0,0042	0,0042	0,0042		
16								
17								
18								
19								
20								
21								
22								
23								
24								
25								
26								
27								
28								
29								
30	TOTAL		100,0	100,0	100,0	100,0		
31	AVG. MOL. WT.		18,64	18,64	18,64	18,64	0,00	0,00
32								
33								
34								
35								
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56	NOTE :							
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SIEMENS Siemens		JOB NO. DU282424600 ITEM NO. V91431 / V91432	
CENTRIFUGAL AND AXIAL COMPRESSOR DATA SHEET (API 617-7TH Chapter 2) SI UNITS (1-1.6.5)		REVISION NO 3 DATE 2012-09-13	
		PAGE 12 OF 27 BY Schmidt / Terstappen	
CONSTRUCTION FEATURES : STC-SV(06-6B)			
SPEEDS:		DIAPHRAGMS:	
MAX. CONT. 13554 RPM TRIP 14230 RPM		MATERIAL S355J2+N	
MAX. TIP SPEEDS: 267 m/s @ 100% SPEED		AXIALLY SPLIT ☒ YES ☐ NO (2-2.4.8)	
281 m/s @ MAX. CONT. SPEED		☐ INTERMEDIATE MAIN PROCESS CONNECTIONS (2-2.4.5)	
LATERAL CRITICAL SPEEDS (DAMPED)		DISCH. PRESSURE (BARG)(kPaG) : MAX MIN	
FIRST CRITICAL 5500 RPM bending MODE		INLET PRESSURE (BARG)(kPaG) : MAX MIN	
SECOND CRITICAL 21580 RPM bending MODE		DIAPHRAGM MAX. ΔP (BAR)(kPa) :	
THIRD CRITICAL -- RPM MODE		IMPELLERS:	
FOURTH CRITICAL -- RPM MODE		NO. 6 DIA.(mm) 375	
☐ LATERAL ANALYSIS ADDITIONAL REQUIREMENTS (1-2.6.2.14)		NO. VANES EA. IMPELLER 15, 15, 15, 15, 17, 17	
☐ TRAIN LATERAL ANALYSIS REQUIRED (1-2.6.2.6)		TYPE (OPEN, ENCLOSED, ETC.) ENCLOSED	
☐ TRAIN TORSIONAL ANALYSIS REQUIRED (1-2.6.7.1)		TYPE FABRICATION milled and braced	
TORSIONAL CRITICAL SPEEDS:		MATERIAL X3CrNiMo13-4	
FIRST CRITICAL 857 RPM		MIN. YIELD STRENGTH (MPa) 550	
SECOND CRITICAL 4830 RPM		HARDNESS: Rc MAX 22 MIN	
THIRD CRITICAL 21151 RPM		SMALLEST TIP INTERNAL WIDTH (mm) 6,5	
FOURTH CRITICAL -- RPM		MAX. MACH. NO. @ IMPELLER EYE 0,43	
☐ LIST OF TRAIN UNDESIRABLE SPEEDS (1-2.6.1.4)		MAX. IMPELLER HEAD @ 100% SPD (N-m/kg) see curves	
☐ VIBRATION:		SHAFT:	
ALLOWABLE TEST LEVEL according API 617 μm		☒ ONE PIECE ☐ BUILT UP	
(PEAK TO PEAK)		MATERIAL 42 CrMo4	
NAMEPLATE (2-2.11.2)		DIA @ IMPELLERS (mm) 155 DIA @ COUPLING (mm) 88	
☐ US CUSTOMARY ☒ METRIC		SHAFT END: ☒ TAPERED ☐ CYLINDRICAL	
ROTATION, VIEWED FROM DRIVEN END ☐ CW ☒ CCW		☐ SPLINED ☐ INTEGRAL FLANGE	
MATERIALS INSPECTION REQUIREMENTS (1-4.2.2.1)		MIN. YIELD STRENGTH (N/m²) Rp02 500MPa	
☐ RADIOGRAPHY REQUIRED FOR as per Siemens		SHAFT HARDNESS (BNH)(Rc) max 248 HV	
☐ ULTRASONIC REQUIRED FOR inspection plan		MAX TORQUE CAPABILITY (N-m) 110000 (continuous)	
☐ MAGNETIC PARTICLE REQUIRED FOR		BALANCE PISTON:	
☐ LIQUID PENETRANT REQUIRED FOR		MATERIAL X3CrNiMo13-4 AREA 60620 (mm²)	
☐ LOW TEMPERATURE (1-2.2.1.15.3)		FIXATION METHOD shrinkfit	
MIN.DESIGN METAL TEMPERATURE (°C)		NORMAL CLEARANCE (mm) 0,1	
AT CONCURRENT PRESSURE (BARG)(kPaG)		FLOW WITH NORMAL CLEARANCE (kg/min) 33,58	
☐ OTHER TRAIN COMPONENTS (1-2.2.1.15.2)		FLOW WITH 2x NORMAL CLEARANCE (kg/min) 49.10	
CASING:		☐ PRESS. CONN. BAL LINE DOWNSTREAM (2-2.5.4.3)	
MODEL STC-SV(06-6B)		☐ SHAFT SLEEVES:	
CASING SPLIT vertical		AT INTERSTG. CLOSE MATL	
MATERIAL P355QH1		CLEARANCE POINTS	
THICKNESS (mm) 115 1 CORR. ALLOW. (mm)		AT SHAFT SEALS MATL	
MAX. ALLOWABLE PRESS 230 bara (g)		☐ ACCESSIBLE (2-2.8.3)	
TEST PRESS (bara) (g) HYDRO 345		ROTOR	
MAX. ALLOWABLE TEMPERATURE (°C) 140		☐ DISASSEMBLY AND REASSEMBLY (1-2.6.8.2.1.1)	
MAX OPER. TEMP. 140 °C MIN. OPER. TEMP. -20 °C		☐ AT SPEED BALANCING (1-2.6.8.3)	
MAX CASING CAPACITY (m³/h) --		☐ SEQUENTIAL LOW SPEED BAL. PREC. AT SPEED BAL. (1-2.6.8.6)	
☐ SYSTEM RELIEF VALVE SET PT. (2-2.3.1.1) N.A. bara (g)		☐ RESIDUAL BALANCE CHECK (1-2.6.8.7)	
☐ Q.C. OF INACCESSIBLE WELDS (1-2.3.1.11.2)		LABYRINTHS:	
☐ GUIDE VANES		INTERSTAGE	
MATERIAL		TYPE stationary MATERIAL EN AW-5083	
NO. VANES GUIDE VANE		BALANCE PISTON	
☐ IGV EXTERNAL PURGE (2-2.4.2)		TYPE stationary MATERIAL EN AW-5083	
☐ VANE CONTROL SYSTEM (2-2.4.3)			
NOTE :			
1) predominant wall thickness			

SIEMENS Siemens		JOB NO. <u>DU282424600</u> ITEM NO. <u>V91431 / V91432</u> REVISION NO <u>3</u> DATE <u>2012-09-13</u> PAGE <u>13</u> OF <u>27</u> BY <u>Schmidt / Terstappen</u>								
CENTRIFUGAL AND AXIAL COMPRESSOR DATA SHEET (API 617-7TH Chapter 2) SI UNITS (1-1.6.5)										
CONSTRUCTION FEATURES (CONTINUED) : STC-SV(06-6B)										
1 SHAFT SEALS: 2 3 ● SEAL TYPE (1-2.8.1.3) Mechanical Seal, (DGS-TL), DD120 4 ● MAX SEALING/SETTLING OUT PRES. (1-2.8.1.1)(BARG)(kPaG) 147,8 5 ● MIN. SEALING PRESSURE (BARG)(kPaG) 53,3 6 ○ SUPPLEMENTAL DEVICE REQUIRED FOR CONTACT 7 SEALS (1-2.8.3.4) TYPE 8 ○ BUFFER GAS SYSTEM REQUIRED (1-2.8.1.5) 9 ○ TYPE BUFFER GAS (1-2.8.1.5) Nitrogen 10 ☐ PRESSURE (1-2.8.1.6) (BARG)(kPaG) 11 ☐ FLOWRATE (kg/min) 12 ☐ FILTRATION 13 ○ MANIFOLD (1-2.8.1.7) 14 ○ METHOD OF CONTROL (1-2.8.1.5)		○ BUFFER GAS CONTROL SYSTEM SCHEMATIC BY VENDOR ○ PRESSURIZING GAS FOR SUBATMOSPHERIC SEALS (1-2.8.2.4) ○ EDUCTOR ○ INJECTION (1-2.8.2.3) ■ SEAL MANUFACTURER EagleBurgmann ☐ LEAKAGE TO PROCESS (m³/DAY/SEAL) N.A. BUFFER GAS REQUIRED FOR: ☐ AIR RUN-IN ☐ OTHER ■ FLOW (PER SEAL) MW 16,35 [kg/kmol]: NORM: <u>0,038</u> kg/min @ <u>54,3</u> BAR(kPa) Δ P MAX. <u>0,057</u> kg/min @ <u>54,3</u> BAR(kPa) Δ P ■ BEARING HOUSING CONSTRUCTION: TYPE (SEPARATE, INTEGRAL) <u>separate</u> SPLIT <u>horizontal</u> MATERIAL <u>GE 200</u>								
AXIAL COMPRESSOR										
STAGE		1	2	3	4	5	6	7	8	9
ROTOR										
☐ BLADE MATERIAL										
☐ BLADE ROOT TYPE										
☐ CORD WIDTH (mm)										
☐ OUTER DIAMETER (mm)										
☐ BLADE HEIGHT (mm)										
☐ BLADE QUANTITY										
STATOR										
☐ BLADE MATERIAL										
☐ TYPE (MOVABLE, FIXED, ADJUSTABLE)										
☐ CORD WIDTH (mm)										
☐ BLADE QUANTITY										
STAGE		10	11	12	13	14	15	16	17	18
ROTOR										
☐ BLADE MATERIAL										
☐ BLADE ROOT TYPE										
☐ CORD WIDTH (mm)										
☐ OUTER DIAMETER (mm)										
☐ BLADE HEIGHT (mm)										
☐ BLADE QUANTITY										
STATOR										
☐ BLADE MATERIAL										
☐ TYPE (MOVABLE, FIXED, ADJUSTABLE) (2-3.4.2.3)										
☐ CORD WIDTH (mm)										
☐ BLADE QUANTITY										
REMARKS:										
NOTE :										

SIEMENS Siemens		JOB NO. DU282424600 ITEM NO. V91431 / V91432 REVISION NO 3 DATE 2012-09-13 PAGE 14 OF 27 BY Schmidt / Terstappen					
CENTRIFUGAL AND AXIAL COMPRESSOR DATA SHEET (API 617-7TH Chapter 2) SI UNITS (1-1.6.5)							
1 CONSTRUCTION FEATURES (CONTINUED) : STC-SV(06-6B)							
2 BEARINGS AND BEARING HOUSINGS							
3 ☐ MAGNETIC BEARINGS (2-2.7.1.1.2)							
4 RADIAL		THRUST	NON-THRUST	THRUST	ACTIVE	INACTIVE	
5 ☒ TYPE		Tilting pad		☒ TYPE		Tilting pad	
6 ☒ MANUFACTURER		John Crane		☒ MANUFACTURER		Mitchell	
7 ☒ LENGTH (mm)		80		☒ UNIT LOADING (MAX) (bara)		2,5	
8 ☒ SHAFT DIA. (mm)		100		☒ UNIT LOAD (ULT.) (bara)		2,5	
9 ☒ UNIT LOAD (ACT/ALLOW) (bar)		2,5		☒ AREA (mm²)		13400	
10 ☒ BASE MATERIAL		steel		☒ NO. PADS		8	
11 ☒ BABBIT THICKNESS (mm)		manufacturer standard		☒ PIVOT: CENTER / OFFSET, %		KN	
12 ☒ NO. PADS		4		☒ PAD BASE MATL		steel	
13 ☒ LOAD: B'TWN/ON PAD		BETWEEN PAD		☐ COPPER BACKED (2-2.7.3.7)			
14 ☒ PIVOT: CTR/OFFSET, %		KN		☐ FLOODED ☒ DIRECTED (2-2.7.3.6)			
15 ☐ PAD MATERIAL ☐ (2-2.7.2.2) ☐ (2-2.7.2.3)				THRUST COLLAR: ☐ INTEGRAL ☒ REPLACEABLE			
16 ☒ BEARING SPAN 1445 mm				MATERIAL steel			
18 BEARING TEMPERATURE DETECTORS (2-3.4.7.3)				VIBRATION DETECTORS: ☐ SEE ATTACHED API-670 DATA SHEET			
19 ☐ SEE ATTACHED API-670 DATASHEET				☒ TYPE Non contact ☒ MODEL Vibor 6000			
20 ☐ THERMOCOUPLES TYPE				☒ MFR Brüel + Kjaer			
21 ☒ RESISTANCE TEMP DETECTORS				☒ NO. AT EA SHAFT BEARING 2 TOTAL NO. 4			
22 ☒ RESISTANCE MAT'L PT ☒ 100 OHMS				☒ OSCILLATOR-DETECTORS SUPPLIED BY Siemens			
23 ☒ ALARM TEMPERATURE (°C) (2-2.7.1.3) 115				☒ MFR Brüel + Kjaer ☒ MODEL Vibor 6000			
24 ☒ SHUTDOWN TEMPERATURE (°C) (2-2.7.1.3) 125				MONITOR SUPPLIED BY (2-3.4.7.2) Siemens			
25 ☐ PROVISION FOR LOCAL DISCONNECT (1-2.7.4.6)				☒ LOCATION UCS ENCLOSURE			
26 ☒ LOCATION-JOURNAL BRG				☒ MFR. Brüel + Kjaer ☒ MODEL Vibor 6000			
27 NO. EA PAD EVERY OTH PAD 2x2 PER BRG				☒ SCALE RGE 0-100 µm ALARM ☒ SET @ 58 µm			
28 OTHER				☒ SHTDWN: ☒ SET @ 70 µm ☐ TIME DELAY SEC			
29 ☒ LOCATION-THRUST BRG				☐ CASING VIBRATION TRANSDUCERS (2-3.4.7.5)			
30 NO. EA PAD EVERY OTH PAD 3x2 PER BRG				☐ CASING VIBRATION MONITORS (2-3.4.7.6)			
31 OTHER				AXIAL POSITION DETECTOR: ☐ SEE ATTACH. API-670 DATA SHEET			
32 NO. (INACT) EA PAD EVERY OTH PAD 3x2 PER BRG				☒ TYPE Non contact ☒ MODEL Vibor 6000			
33 OTHER				☒ MFR Brüel + Kjaer ☒ NO. REQUIRED 2			
34				☒ OSCILLATOR-DEMULATOR SUPPLIED BY Siemens			
35 ☒ MONITOR SUPPLIED BY (2-3.4.7.4) Siemens				☒ MFR Brüel + Kjaer ☒ MODEL DS 1053			
36 ☒ LOCATION UCS ENCLOSURE				MONITOR SUPPLIED BY (2-3.4.7.2) Siemens			
37 ☒ MFR. Siemens ☒ MODEL PCS 7				☒ LOCATION UCS ENCLOSURE			
38 ☒ SCALE RGE 0 - 200 ALARM ☒ SET @ 115 °C				☒ MFR. Brüel + Kjaer ☐ MODEL Vibor 6000			
39 ☒ SHTDWN ☒ SET @ 125 °C ☐ TIME DELAY SEC				☒ SCALE RGE -1000 / 1000 ALARM ☒ SET @ +/-100 µm			
40				☒ SHTDWN: ☒ SET @ +/-600 µm ☐ TIME DELAY SEC			
41 KEY PHASOR REQUIRED							
42 ☒ COMPRESSOR ☐ GEAR H.S. ☒ GEAR L.S.							
43 CASING CONNECTIONS (1-2.3.2.2.1)							
CONNECTION	☒ ANSI/ASME (B16.1; B16.5; B16.42; B16.47 series A, B; ISO 7005-1, -2; OTHER	☒ FACING ☐ BORE	☒ ORIENTATION	☒ FLANGED OR STUDDED (1-2.3.2.2.1)	☐ MATING FLG & GASKET BY VENDOR (1-2.3.2.2.7)	☒ GAS VELOCITY m/s	
Inlet STC-SV1/B	ASME B16.5	RTJ	UPWARDS	FLANGED		22,5	
Outlet STC-SV1/B	ASME B16.5	RTJ	UPWARDS	FLANGED		22,7	
Inlet STC-SV1/A	ASME B16.5	RTJ	UPWARDS	FLANGED		19,5	
Outlet STC-SV1/A	ASME B16.5	RTJ	UPWARDS	FLANGED		23,9	
55 ☐ BOROSCOPIC INSPECTION PORTS (2-2.3.2.4)							
56 NOTE :							
57 Forces and moments for the nozzles: 5 times NEMA SM23							
58 Nozzle material # 1500 G20Mn5 (with project specific specification and quality plan)							
59 Balance line material SS as auxiliary connections							
60 Auxiliary connections # 2500 A 182 F 316 L according WN 801 322 98							

SIEMENS Siemens			JOB NO. <u>DU282424600</u> ITEM NO. <u>V91431 / V91432</u> REVISION NO <u>3</u> DATE <u>2012-09-13</u> PAGE <u>15</u> OF <u>27</u> BY <u>Schmidt / Terstappen</u>																																																					
CENTRIFUGAL AND AXIAL COMPRESSOR DATA SHEET (API 617-7TH Chapter 2) SI UNITS (1-1.6.5)																																																								
1 OTHER FLANGE CONNECTIONS																																																								
2 SERVICE:<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th></th><th>NO.</th><th>SIZE</th><th>TYPE</th></tr></thead><tbody><tr><td>3 LUBE-OIL INLET (RL / RLAL)</td><td>2 / 2</td><td>3/4" / 1,5"</td><td>150#, RF, ASME B 16.5</td></tr><tr><td>4 LUBE OIL OUTLET (RL / RLAL)</td><td>1 / 1</td><td>3" / 6"</td><td>150#, RF, ASME B 16.5</td></tr><tr><td>5 SEAL-OIL INLET</td><td>--</td><td>--</td><td>--</td></tr><tr><td>6 SEAL-OIL OUTLET</td><td>--</td><td>--</td><td>--</td></tr><tr><td>7 SEAL GAS INLET</td><td>1</td><td>1"</td><td>2500#, RJ, ASME B 16.5</td></tr><tr><td>8 SEAL GAS OUTLET</td><td>1</td><td>1"</td><td>2500#, RJ, ASME B 16.5</td></tr><tr><td>9 CASING DRAINS</td><td>4</td><td>3/4"</td><td>2500#, RJ, ASME B 16.5</td></tr><tr><td>10 STAGE DRAINS</td><td>--</td><td>--</td><td>--</td></tr></tbody></table> 11 ☐ INDIVIDUAL STAGE DRAINS REQUIRED (1-2.3.2.1.7) 12 ☐ VALVED & BLINDED 13 ☐ VALVED & BLINDED & MANIFOLD 14 LUBRICATION AND SEALING SYSTEMS (1-2.10) (1-3.5.1.2) ☒ SEE ATTACHED API 614 DATASHEET ☒ SEPARATE ☐ COMBINED (2-2.10.1) ☐ INTEGRAL OIL RESERVOIR (1-3.3.2.11) ☒ OIL TYPE (2-2.10.2) ISO VG-46 19 ACCESSORIES 20 COUPLING AND GUARDS (3.2) 21 NOTE: SEE ROTATING ELEMENTS - SHAFT ENDS ☐ SEE ATTACHED API-671 DATA SHEET ☒ KEYLESS HYDRAULIC ☐ KEYED ☐ FLANGED ☐ OTHER _____ 23 COUPLING FURNISHED BY Siemens 24 MANUFACTURER EUROFLEX TYPE multiple disc MODEL 8GH-200-S-RM 25 COUPLING GUARD FURNISHED BY: Siemens 26 TYPE: ☒ FULLY ENCLOSED ☐ SEMI-OPEN ☐ OTHER _____ 27 COUPLING DETAILS<table border="1" style="width: 100%; border-collapse: collapse;"><thead><tr><th></th><th>Motor-Gear</th><th>Gear- Compressor</th></tr></thead><tbody><tr><td>28 MAX O.D.</td><td style="text-align: center;">300</td><td>mm</td></tr><tr><td>29 HUB WEIGHT</td><td style="text-align: center;">22,5</td><td>kg</td></tr><tr><td>30 SPACER LENGTH</td><td style="text-align: center;">582</td><td>mm</td></tr><tr><td>31 SPACER WEIGHT</td><td style="text-align: center;">17 kg (incl Gear flange)</td><td>kg</td></tr></tbody></table> ☐ PLUG AND RING GAUGES (1-3.2.5) LUBRICATION REQUIREMENTS: ☒ NON-LUBE ☐ CONT. OIL LUBE ☐ OTHER _____ QUANTITY PER HUB N.A. kg OR L/min 33 MOUNTING PLATES (1-3.3) ☒ BASEPLATES FURNISHED BY (1-3.3.2.1) Siemens ☒ COMPRESSOR ☒ DRIVER ☒ GEAR ☐ OTHER _____ ☐ NONSKID DECKING (1-3.3.2.4) ☐ SLOPED DECK (1-3.3.2.4.1) ☐ LEVELING PADS OR TARGETS (1-3.3.2.6) ☐ COLUMN MOUNTING (1-3.3.2.5) ☐ SUB-SOLE PLATES REQUIRED (1-3.3.2.10) ☐ STAINLESS STEEL SHIM THICKNESS _____ mm ☐ MACHINED MOUNTING PADS REQUIRED (1-3.3.2.9) ☐ SOLEPLATES FURNISHED BY (1-3.3.3.1) _____ mm ☐ THICKNESS _____ mm ☐ SUBSOLE PLATES REQUIRED (1-3.3.3.1.3) ☐ EXTENT OF PIPING (2-3.5.1.1) ☐ STAINLESS STEEL SHIM THICKNESS _____ mm ☐ COMPRESSOR _____ ☐ COUNTER BORE ANCHOR BOLT HOLES (1-3.3.3.1.2)							NO.	SIZE	TYPE	3 LUBE-OIL INLET (RL / RLAL)	2 / 2	3/4" / 1,5"	150#, RF, ASME B 16.5	4 LUBE OIL OUTLET (RL / RLAL)	1 / 1	3" / 6"	150#, RF, ASME B 16.5	5 SEAL-OIL INLET	--	--	--	6 SEAL-OIL OUTLET	--	--	--	7 SEAL GAS INLET	1	1"	2500#, RJ, ASME B 16.5	8 SEAL GAS OUTLET	1	1"	2500#, RJ, ASME B 16.5	9 CASING DRAINS	4	3/4"	2500#, RJ, ASME B 16.5	10 STAGE DRAINS	--	--	--		Motor-Gear	Gear- Compressor	28 MAX O.D.	300	mm	29 HUB WEIGHT	22,5	kg	30 SPACER LENGTH	582	mm	31 SPACER WEIGHT	17 kg (incl Gear flange)	kg
	NO.	SIZE	TYPE																																																					
3 LUBE-OIL INLET (RL / RLAL)	2 / 2	3/4" / 1,5"	150#, RF, ASME B 16.5																																																					
4 LUBE OIL OUTLET (RL / RLAL)	1 / 1	3" / 6"	150#, RF, ASME B 16.5																																																					
5 SEAL-OIL INLET	--	--	--																																																					
6 SEAL-OIL OUTLET	--	--	--																																																					
7 SEAL GAS INLET	1	1"	2500#, RJ, ASME B 16.5																																																					
8 SEAL GAS OUTLET	1	1"	2500#, RJ, ASME B 16.5																																																					
9 CASING DRAINS	4	3/4"	2500#, RJ, ASME B 16.5																																																					
10 STAGE DRAINS	--	--	--																																																					
	Motor-Gear	Gear- Compressor																																																						
28 MAX O.D.	300	mm																																																						
29 HUB WEIGHT	22,5	kg																																																						
30 SPACER LENGTH	582	mm																																																						
31 SPACER WEIGHT	17 kg (incl Gear flange)	kg																																																						

REMARKS:**NOTE :**

SIEMENS Siemens				JOB NO. DU282424600 ITEM NO. V91422 / V91432 REVISION NO 3 DATE 2012-09-13 PAGE 16 OF 27 BY Schmidt / Terstappen			
CENTRIFUGAL AND AXIAL COMPRESSOR DATA SHEET (API 617-7TH Chapter 2) SI UNITS (1-1.6.5)							
1	UTILITIES						
2	● UTILITY CONDITIONS:			MANUALS			
3	STEAM:			○ DRAFT MANUAL FOR REVIEW (1-5.3.5.1.2)			
4	INLET MIN N.A. BARG N.A. °C			○ TECHNICAL DATA MANUAL (1-5.3.5.4)			
5	NORM N.A. BARG N.A. °C						
6	MAX N.A. BARG N.A. °C			MISCELLANEOUS:			
7	EXHAUST. MIN N.A. BARG N.A. °C			■ RECOMMENDED STRAIGHT RUN OF PIPE DIAMETERS			
8	NORM N.A. BARG N.A. °C			BEFORE SUCTION			
9	MAX N.A. BARG N.A. °C			○ COMPRESSOR TO BE SUITABLE FOR FIELD RUN-IN ON AIR (1-2.1.16)			
10	ELECTRICITY:			○ PROVISION FOR LIQUID INJECTION (1-2.1.10)			
11	DRIVERS CONTROL SHUTDOWN			○ INJECTION MANIFOLD (2-3.5.1.2)			
12	VOLTAGE 2x4160V			○ VENDOR'S REVIEW & COMMENTS ON PURCHASER'S			
13	HERTZ 56 Hz (VSD)			CONTROL SYSTEMS (1-3.4.1.1)			
14	PHASE 3			○ SHOP FITUP OF VENDOR PROCESS PIPING (1-4.4.3.11)			
15	○ REDUCED VOLTAGE START (1-3.1.6)			○ WELDING HARDNESS TESTING (1-4.2.1.5)			
16	△ NUMBER OF STARTS (1-2.6.7.6.4) N.A. (VSD)			○ INSPECT CLEANLINESS (1-4.2.1.4)			
17	INSTRUMENT AIR:			○ DESIGN AUDIT (1-5.1.4)			
18	MAX PRESS BARG(kPaG) MIN PRESS BARG(kPaG)			○ BALANCE PISTON Δ P (1-5.3.2.1.5) (BAR) (kPa)			
19				○ PROVIDE TAIL END SCHEDULES (1-5.3.3.2)			
20	SHOP INSPECTION AND TESTS: (1-4.1.4)			VENDOR'S REPRESENTATIVE SHALL (1-2.1.13)			
21	HYDROSTATIC (1-4.3.2)			○ OBSERVE FLANGE PARTING			
22	IMPELLER OVERSPEED (1-4.3.3)			○ CHECK ALIGNMENT AT TEMPERATURE			
23	MECHANICAL RUN (1-4.3.6)(2-4.3.1)			○ BE PRESENT AT INITIAL ALIGNMENT			
24	○ CONTRACT COUPLING			■ WEIGHTS (kg): see general arrangement			
25	X OPTIONAL TESTS			COMPR. 16000 GEAR 10100 DRIVER 21500 BASE 11600			
26	X PURCHASER VIB. EQUIPMENT (2-4.3.1.1.10)			ROTORS: COMPR. 356 DRIVER 5150 GEAR 4500			
27	VARY LUBE & SEAL OIL PRESSURES			COMPRESSOR UPPER CASE N.A.			
28	AND TEMPERATURES (1-4.3.6.1.5)			MAX. FOR MAINTENANCE (BUNDLE) 3290 kg			
29	POLAR FORM VIB DATA (1-4.3.6.1.2)			TOTAL SHIPPING WEIGHT 71700 kg			
30	TAPE RECORD VIB DATA (1-4.3.6.1.3)						
31	SHAFT END SEAL INSP. (1-4.3.6.2.2)						
32	GAS LEAK TEST AT DISCH PRESS (2-4.3.2.3)						
33	POST TEST INTERNAL INSP. (1-4.3.8.5)						
34	BEFORE GAS LEAKAGE TEST						
35	AFTER GAS LEAKAGE TEST						
36	PERFORMANCE TEST (GAS) (AIR) (2-4.3.3.1.1)						
37	INTERMEDIATE HEAD/PRESSURE TOL. (2-4.3.3.1.6)			P			
38	COMPLETE UNIT TEST (2-4.3.3.2)						
39	TANDEM TEST (2-4.3.3.3)						
40	GEAR TEST (2-4.3.3.4)						
41	HELIUM LEAK TEST (1-4.3.8.2)						
42	SOUND LEVEL TEST (1-4.3.8.3)						
43	AUX. EQUIPMENT TEST (1-4.3.8.4)						
44	FULL LOAD / SPEED / PRESS TEST (1-4.3.8.6)						
45	HYDRAULIC COUPLING INSP (1-4.3.8.7)						
46	SPARE PARTS TEST (1-4.3.8.8) Rotors						
47	INSPECTOR'S CHECKLIST COMPLIANCE (1-4.1.6)						
48	GAS SEAL TEST VENDOR SHOP (1-4.3.5)						
49							
50	NOTE :						
51	1) please see Siemens quality control plan Ident. No.: 63738323						
52							
53							

API 614/ISO 10438-2 DATASHEET
SCOPE AND ATTACHMENTS
SI UNITS (kPa)

Job No.: DU282424600
Page: 17 of 27
Date: 13-Sep-2012

Item No.: V91422 / V91432
By: Rockfin / Lau
Revision: 1

Rev

1	APPLICABLE TO: ☐ Proposal ☐ Purchase ☒ As Built		
2	For <u>WINGAS</u>	Site <u>JEMGUM</u>	
3	Oil System for <u>Compressor, motor, gearbox</u>		
4	Supplier <u>SIEMENS</u>	Manufacturer <u>ROCKFIN</u>	
5	Purchase Order No. _____ Date _____	Inquiry No. _____	Requisition No. _____
6			
7	Explanations: 1. The party to complete the information is indicated as follows:		
8	☐ Purchaser ☐ Vendor ☒ Either, but by vendor if not by purchaser.		
9	2. An asterisk * specifies a requirement, value, or criterion.		
10	3. Designations in paranthesis () are explained in the cited standard; numbers without a prefix are subclause		
11	numbers; those prefixed "T" are text figure numbers; those prefixed "A" are Annex "A" Figure numbers.		
12	Overall system typical schemas (-1;4.3.1)	Figure No	Option Nos
13	☐ Combined lube, seal & control system	B.12	See SIEMENS LOS P&Ids
14	☐ Separate seal oil system		
15	☐ Seal module at equipment		
16	☐ Lube / control oil system		
17	☒ Basic oil supply module		
18	☐ Lube module at equipment		
19	☐ Drawing requirements		
20	☐ Component review		
21	Oil Requirements: See API 614/10438-1 datasheet (4.1.4, 4.1.5, 4.1.7, 4.1.8)		
22	Supply arrangement (4.1.6, 4.2.1):	Lube oil	Seal oil
23	☒ Separate console	☒	☐
24	☐ Multiple package	☐	☐
25	☐ Package no. 1		
26	☐ Package no. 2		
27	☐ Package no. 3		
28	Baseplates:		
29	☐ Point support (4.2.9)		
30	☐ Grout holes / vent holes		
31	☐ Epoxy grout precoat (4.2.7)		
32	☐ Flat decking (4.2.3)		
33			
34	Basic System Details:		
35	☐ Compressor block-in time _____ (min)	☐ Process relief valve setting _____ (kPaG)	
36	☐ Equipment coast-down time _____ (min)	☐ Shop test conditions	
37	Equipment cool off time:	☐ Field start-up / run-in conditions	
38	☐ Driver _____ (min)	☐ Other special conditions	
39	☐ _____ (min)	☐ Welding & special fabrication requirements (-1; 4.6.2)	
40	☒ Minimum start up oil temperature <u>10</u> (°C)	☐ 100% radiography	
41	Other :	☐ Magnetic particle	
42	☐ Settling out pressure _____ (kPaG) (4.1.10)	☐ Liquid penetrant	
43		☐ Heat loss analysis of system and interconnecting piping (4.3.7.7)	
44	Components		
45	Piping & Tubing:	☐ Utilities manifolded to common connections (-1; 5.1.30)	
46	☒ Material	☐ Air	
47	☐ Double block & bleeds required (4.1.16)	☐ Cooling water	
48	☐ Tight shutoff	☐ Other	
49	☒ Tubing fitting - Mfg <u>SWAGELOK</u> Model <u>SS-</u>	☐ Instrument test valves required (-1; 5.1.27)	
50	☐ Carbon steel slip-on flanges	☐ Valve heads vented to reservoir	
51	☒ Through studs required	☐ Additional purchaser specification for valves (-1; 5.1.32)	
52	☐ Heat tracing reqd by ☐ Purchaser ☐ Vendor	☒ Flanged gate valves required per ISO 10434 / API 602 (-1; 5.1.33)	
53	☐ Special requirements specified by purchaser (-1; 5.1.18)		

API 614/ISO 10438-2 DATASHEET
SCOPE AND ATTACHMENTS
SI UNITS (kPa)

Job No.: DU282424600
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Item No.: V91422 / V91432
By: Rockfin / Lau
Revision: 1

Rev

1 **APPLICABLE TO:** ☐ Proposal ☐ Purchase ☒ As Built
2 Supplier SIEMENS Manufacturer ROCKFIN
3 Purchase Order No. _____ Date _____ Inquiry No. _____ Requisition No. _____
4

Oil Conditioners:	Degassing Drum (4.11.1):	
☐ Purch. item no. _____	☐ Purchaser's item no. _____	☐ Service used in _____
☐ Service used in _____	☐ Type in accordance with Figure 4 or other spec _____	☐ Flow control _____
☐ Type _____	Operating temp. _____ (°C)	☐ Thermostat control _____
☐ Portable / fixed _____	(m³/h) normal/max. _____ / _____	☐ Material _____
☐ Rated flow(L/min) _____	Normal retention _____ minutes	☐ Interior coating _____
☐ Manufacturer _____	Norm/max. capacity _____ / _____ (m³/h)	☐ Oversized vent _____
☐ Model _____	☐ Purge gas type _____	☐ Vent relief device _____
☐ Driver for _____	☐ (m³/h) required _____	☐ Omit breather _____
☐ HP & enclosure _____	☐ Type heating device (4.11.3) _____	☐ Code construction (4.11.6) _____
☐ Volts / PH / Hz _____	☐ Corrosion allowance _____ (mm)	☐ Code stamp (4.11.6) _____
_____ / _____ / _____	☐ Design/test _____ / _____ (kPaG)	☐ Other _____
☐ Water removal rate _____	☐ Other _____	☐ Other _____
☐ Mat'l of construction _____	☐ Other _____	☐ Other _____

20 **Reservoir** ☒ Separate lube ☐ Lube/seal combined ☐ Separate seal

21 Service application:

22 ☒ Purch. Item no.	<u>B9143701</u>		
23 ☒ Figures No.	<u>B,24</u>		
24 ☒ Include Options No.	<u>C, D</u>		
25 ☒ Heater steam/electric (4.3.7.2)	<u>Electric</u>		
26 ☒ Heater in sealed tube	☒	☐	☐
27 ☒ Material	<u>316L SS</u>		
28 ☒ Normal flow (L/min)	<u>440</u>		
29 ☐ Free surface (m²)			
30 ☒ Working capacity (l)	<u>2350</u>		
31 ☒ Retention capacity (l)	<u>4710</u>		
32 ☒ Rundown capacity (l)	<u>1810</u>		
33 ☒ Normal operating range (L/min)	<u>980</u>		
34 ☒ Charge capacity (l)	<u>7500</u>		
35 ☐ Insulation clips (4.3.8)	☐	☐	☐
36 ☐ Ladder with hand rail [4.3.12.1.a]]	☐	☐	☐
37 ☐ Handrails on top [4.3.12.1.b)]	☐	☐	☐
38 ☒ Non skid decking [4.3.12.1.c)]	☒	☐	☐
39 ☒ Flanged vent	☒	☐	☐
40 ☐ Oversized flanged vent	☐	☐	☐
41 ☒ Pressure relief device	<u>Spring actuated</u>		
42 ☒ Siphon breaker	☒	☐	☐
43 ☒ Top mounted components permitted	☒	☐	☐
44 ☒ Top mounted components are:	<u>all</u>		
45 ☒ Submerged components & materials	<u>pumps</u>		
46 ☒ Dimension of tank L x W x H (m)	<u>5,0x2,0x1,15</u>		
47 ☐ Separate connection for seal oil return line [4.3.5.1.h)]			
48 ☒ Connection for oil conditioner (4.3.10.1)	☒	☐	☐

API 614/ISO 10438-2 DATASHEET SCOPE AND ATTACHMENTS SI UNITS (kPa)				Job No.: <u>DU282424600</u>		Item No.: <u>V91422 / V91432</u>		
				Page: <u>19 of 27</u>		By: <u>Rockfin / Lau</u>		
				Date: <u>13-Sep-2012</u>		Revision: <u>1</u>		
1	APPLICABLE TO: ☐ Proposal ☐ Purchase ☒ As built							Rev
2	Supplier <u>SIEMENS</u>			Manufacturer <u>ROCKFIN</u>				
3	Purchase Order No. _____ Date _____			Inquiry No. _____		Requisition No. _____		
4								
5	Pumps and Drivers:		Lube		Lube / seal		Separate seal oil	Booster seal
6	☐ Service application							
7	☒ Figures No.		<u>B.22</u>					
8	☒ Include options No.		<u>C</u>					
9	☒ Emergency pump system (4.4.3)		☒		☒		☐	☐
10	Pump Service		Main / stby	Aux	Main / stby	Emergency	Main / standby	Emergency
11	☒ Pump item no.		<u>P9143701</u>	<u>P9143702</u>				
12	☒ Pump type (4.4.1)		<u>L3MF-060/120</u>	<u>L3MF-060/120</u>				
13	☒ Pump data sheet		<u>yes</u>	<u>yes</u>				
14	☒ Horizontal or vertical (H or V)		<u>V</u>	<u>V</u>				
15	☒ Driver item no.		<u>NP9143701</u>	<u>NP9143702</u>				
16	☐ Turbine driver for							
17	☐ Turbine data sheet							
18	☒ Electric motor for (4.4.5)		<u>Main / stby</u>	<u>Aux</u>				
19	☒ Electric motor data sheet		<u>yes</u>	<u>yes</u>				
20	☐ Other driver							
21	☐ Other driver data sheet							
22	☒ Coupling type		<u>Spacer type</u>	<u>Spacer type</u>				
23	☒ Coupling guard type [4.4.27.c)]		<u>Dry</u>	<u>Dry</u>				
24	☐ Booster pumps required							
25	☐ Booster suction protection							
26	☐ Solenoid trip valve							
27	☒ Rotary pump relief valve by		<u>LESER</u>	<u>LESER</u>				
28	purchaser / vendor		<u>vendor</u>	<u>vendor</u>				
29	Filters:							
30	☒ Service application :		☒ Lube	☐ Separate	☐ Separate	☐ Booster	☐ Separate	
31			☐ Lube & seal	control oil	seal oil	pump discharge	coupling oil	
32			☐ Control			oil		
33	☒ Purchaser item no.		<u>F9143701/F9143702</u>					
34	☒ Twin		☒	☐	☐	☐	☐	
35	☐ Second filter for control oil		☐	☐	☐	☐	☐	
36	☐ Include option nos.							
37	☒ Filtration level (4.6.11)		<u>b10=10</u>					
38	☐ Non-hydroscopic filter element [4.6.6.b)]							
39	☒ Manufacturer [4.6.6.c)]		<u>Bollfilter</u>					
40	☒ Model		<u>BFD 180 900 80 08 GX</u>					
41	☒ Design pressure (kPaG)		<u>1000</u>					1
42	☒ Test pressure (kPaG)		<u>1500</u>					1
43	☒ Code construction / Code stamp (4.1.17)		☒ / ☐	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐	
44	☐ Thermal protection of offline filter (4.6.2)							
45	☐ Manifolder filter and cooler drains (4.6.3)							
46	☒ Filter vents routed to reservoir (4.6.4)		<u>yes</u>					
47	Material: case & top		<u>Stainless Steel</u>					
48	Cartridges		<u>Fibreglass</u>					
49	Furnish _____ extra sets of cartridges.		☐ per service		☐ per filter (extra over other spares)			
50								

API 614/ISO 10438-2 DATASHEET		Job No.: DU282424600	Item No.: V91422 / V91432
SCOPE AND ATTACHMENTS		Page: 20 of 27	By: Rockfin / Lau
SI UNITS (kPa)		Date: 13-Sep-2012	Revision: 1
			Rev
1	APPLICABLE TO: ☐ Proposal ☐ Purchase ☒ As built		
2	Supplier <u>SIEMENS</u> Manufacturer <u>ROCKFIN</u>		
3	Purchase Order No. _____ Date _____ Inquiry No. _____ Requisition No. _____		
4			
5	Coolers: <u>Plate</u>		
6	Service application	☒ Lube	☐ Lube/seal ☐ Separate seal
7	☒ Purch. Item Nos.	W9143701/W9143702	
8	☒ Twin units	☒	☐
9	☐ Include option nos.	not applicable	
10	☐ Water side suitable for steam heating (4.5.1.15)	☐	☐
11	☒ Details on data sheet	Yes	
12	☐ Water side corrosion allowance		
13	☐ Manufacturer	GEA ECOFLEX	
14	☐ Model	NT100X CDL-10	
15	☒ TEMA class	not applicable	
16	☐ Fouling factor water/oil side	0,00025/0,00017	
17	☐ Duty: (kJ/hr)	319	
18	☐ Tube: L/OD/BWG	not applicable	
19	☐ Design / test pressure shell side (kPaG) => water side	1000 / 1500	
20	☐ Design / test pressure tube side (kPaG) => oil side	1000 / 1500	
21	☒ Construction code / Code stamp (4.1.17)	☒ / ☐	☐ / ☐
22	☐ Twinplate frame or air coolers required (4.5.1.3, 4.4.4.2)		
23	☐ Connections for purchaser's cooler (4.5.1.4)		
24	☐ Tube water flow rate (kg/s) => water side flow rate	12,91	
25	☐ Tube water velocity (m/s)		
26	☐ Material: shell		
27	☐ Channels & covers		
28	☐ Tube sheets & tubes		
29	☐ Removable tube bundle	☐	☐
30	☐ U-bend tubes permitted (4.5.2.6)	☐	☐
31	☐ Fabricated with flanged vent and drain nozzles (4.5.1.17)	☐	☐
32	☐ Oil side vents piped to reservoir through F.I. (4.5.1.19)	☐	☐
33	☐ Cooler drains manifolded with filter clean oil drains (4.5.1.18)	☐	☐
34	☒ Oil temperature control valve	☒	☐
35	☒ 3 port valve with internal thermostat [4.5.1.13.b)]	☒	☐
36	☒ Separate thermal relief valves, each cooler (4.5.1.6)	☒	☐
37	Continuous flow transfer valve:		
38	Service application	☒ Lube oil, ☐ seal oil & ☐ control oil	☐ Separate control oil ☐ Separate seal oil ☐ Booster pump discharge oil ☐ Separate coupling oil
39			
40			
41	☐ Common for coolers & filters	☐	☐
42	☐ Tight shut off required (4.7.4)	☐	☐
43	☒ Type	2x3 way	
44	☐ Manufacturer	Alfa Valvole	
45	☐ Model	103 "L"	
46	☐ With lifting jack	☐	☐
47	Rating : (kPaG)		
48	☐ Materials : body	Stainless Steel	
49	☐ Plug or ball	Stainless Steel	
50	☐ Trim	Stainless Steel	
51			

SCOPE AND ATTACHMENTS

SI UNITS (kPa)

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Date: 13-Sep-2012

By: Rockfin / Lau

Revision: 1

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1	APPLICABLE TO: ☐ Proposal ☐ Purchase ☒ As Built				
2	Supplier <u>SIEMENS</u>		Manufacturer <u>ROCKFIN</u>		
3	Purchase Order No. _____		Date _____		Inquiry No. _____ Requisition No. _____
4					
5	Accumulators: yes				
6	Service application	Lube oil	Control oil	Seal oil	Seal-oil booster
7	☒ Purchaser's item No.	B9143702			
8	☒ Required, yes or no, and quantity	YES / 1			
9	☒ Service combined with				
10	☒ Direct contact type	☒	☐	☐	☐
11	☒ Bladder type	☒	☐	☐	☐
12	☒ Include option nos.	no option applicable			
13	☒ Rundown time (min)	1 sec			
14	☐ Oil temperature control (4.8.8)	☐	☐	☐	☐
15	☐ Constant pressure regulator (4.8.4)	☐	☐	☐	☐
16	☒ Manufacturer	HYDAC			
17	☒ Model	SB40-100A1/342U-10A			
18	☒ Nominal / usable capacity (l)	100			
19	☒ Material : Shell	316L SST			
20	☒ Bladder	NBR			
21	☒ Design / test pressure (kPaG)	1000 / 1500			
22	☒ Construction code	☒	☐	☐	☐
23	☐ Code stamp	☐	☐	☐	☐
24	Include: ☐ Fill dev. not perm. mounted	☐	☐	☐	☐
25	☒ charge pressure gauge:				
26	☒ manual charge valve (4.8.4)	☒	☐	☐	☐
27	☒ gas supply regulator	☒	☒	☐	☐
28	☐ automatic vent and reset (4.8.10)				
29					
30	Overhead tanks (Figures 2, B.17)				
31	Service application	Rundown lube	Low-pressure seal	Medium-pressure seal	High-pressure seal
32					
33	☒ Required, yes or no	YES			
34	☒ Service combined with				
35	☐ Direct contact type	☐	☐	☐	☐
36	☐ Bladder type	☐	☐	☐	☐
37	☐ Includes options no.				
38	☐ Capacity (min)				
39	☐ Capacity (l)				
40	☐ Blowdown connection				
41	Rundown tanks (Figures B.15, B.16)(4.9.2.1)	yes			
42	Overhead tanks (Figures 2, B.17)				
43	☐ Corrosion allowance	Not Applicable			
44	☒ Material	316L SST			
45	☒ Total capacity (l)	1515			
46	☒ Design / test pressure (kPaG)	Atmospheric			
47	☐ Additional coastdown time (min) (4.9.1.2)				
48	☐ Valved blowdown connection [4.9.1.4.f]]	☐	☐	☐	☐
49	☐ Code Construction (4.1.17, 4.9.1.3)	☐	☐	☐	☐
50	☐ Code stamp (4.1.17, 4.9.1.3)	☐	☐	☐	☐
51	☐ PMI testing (-1: 7.2.2.6.1)				

API 614/ISO 10438-2 DATASHEET
SCOPE AND ATTACHMENTS
SI UNITS (kPa)

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Item No.: V91422 / V91432
By: Rockfin / Lau
Revision: 1

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1	APPLICABLE TO: ☐ Proposal ☐ Purchase ☒ As built					
2	Supplier <u>SIEMENS</u>		Manufacturer <u>ROCKFIN</u>			
3	Purchase Order No. _____		Date _____		Inquiry No. _____	Requisition No. _____
4						
5	Accumulator unit (Figures B.18, B.19)	Rundown lube	Low-pressure seal	Medium-pressure seal	High-pressure seal	
6						
7	☐ Purchaser's item no.	Not Applicable				
8	☐ Corrosion allowance (mm)					
9	☐ Quantity					
10	☐ Manufacturer					
11	☐ Model					
12	☐ Material: shell					
13	☐ Bladder					
14	☐ Nominal / usable capacity (l)					
15	☐ Design / test pressure (kPaG)					
16	☐ Construction code / Code stamp (4.1.17)	☐ / ☐	☐ / ☐	☐ / ☐	☐ / ☐	
17	Traps for inner seal oil: (oil seals)	Not Applicable				
18	Service application					
19	☐ Purchaser's item no.					
20	☐ Seal gas vent piping arrangement (4.10.4)					
21	☐ Drain piped to specified location (4.10.5)					
22	☐ each drain piped separately (4.10.6)					
23	☐ Float controlled		☐	☐	☐	
24	☐ Transmitter controlled		☐	☐	☐	
25	☐ Pots only, for manual drain		☐	☐	☐	
26	☐ with valving		☐	☐	☐	
27	☐ Flush level glass		☐	☐	☐	
28	☐ High level switch		☐	☐	☐	
29	☐ Include option nos.					
30	☐ Retention (hr) / (l)					
31	☐ Construction code / Code stamp (4.1.17)		☐ / ☐	☐ / ☐	☐ / ☐	
32	Float traps	Not Applicable				
33	☐ Manufacturer					
34	☐ Model					
35	☐ Pressure rating (kPaG)					
36	☐ Materials: body					
37	☐ float / trim					
38	☐ Drain line piped to					
39	☐ Construction code / Code stamp (4.1.17)		☐ / ☐	☐ / ☐	☐ / ☐	
40	Drain pot	Not Applicable				
41	☐ Corrosion allowance					
42	☐ Material					
43	☐ Design / test pressure (kPaG)					
44	☐ Construction code (4.1.17)		☐	☐	☐	
45	☐ Code stamp (4.1.17)		☐	☐	☐	
46	Mist eliminator					
47	☐ Corrosion allowance (mm)					
48	☒ Material: shell	Stainless Steel				
49	☒ Demisting mesh	99.99% with 0.1µ				
50	☒ Design / test pressure (kPaG)	Atmospheric				
51	☐ Construction code / Code stamp (4.1.17)		☐ / ☐	☐ / ☐	☐ / ☐	

API 614/ISO 10438-2 DATASHEET SCOPE AND ATTACHMENTS SI UNITS (kPa)				Job No.: <u>DU282424600</u>	Item No.: <u>V91422 / V91432</u>	
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Date: <u>13-Sep-2012</u>				Revision: <u>1</u>		
1	APPLICABLE TO: ☐ Proposal ☐ Purchase ☒ As built					Rev
2	Supplier <u>SIEMENS</u>		Manufacturer <u>ROCKFIN</u>			
3	Purchase Order No. _____ Date _____		Inquiry No. _____		Requisition No. _____	
4						
5	Shop inspection (API 614/10438-1; 7.1.1)				Required	Witnessed
6	☒ Compliance with inspector's check list (-1; 7.1.2)				●	○
7	☒ Required for system assemblies				●	○
8	☐ Cleanliness prior to closure (-1; 7.2.3.2)				●	○
9	☒ Required for major components				○	○
10	☐ Material certification to be furnished				○	○
11	☐ Special examinations				○	○
12	☒ Construction code				●	○
13	☐ Code stamp				○	○
14	☐ Certified copies of all testlogs & data				○	○
15	☐ PMI testing (-1; 7.2.2.6.2)				○	○
16	☐ Hardness testing (-1; 7.2.2.3)				○	○
17	☐					
18	☐					
19	Shop test (API 614/10438-1; 7.1.1)				Required	Witnessed
20	☒ Cleanliness				●	○
21	☒ Four hour run				●	●
22	☐ Check controls				○	○
23	☐ Changeover filters/coolers				○	○
24	☐ One and two pump operation				○	○
25	☐ Sound level				○	○
26	☒ Hydro test assembled system				●	○
27	☐ Use during shop test of equipment (7.3.1.2)				○	○
28	☐ Use for complete unit system test (7.3.1.3)				○	○
29	☐ Certified copies of all test logs and data ☐ submit prior to shipment (-1; 8.3.3.2)				○	○
30	☐ Demonstrate pump alignment by unbolting pump inlet and discharge piping (7.3.3.11)				○	○
31	☐					
32	☒ Amount of advance notification required before a witnessed or observed inspection (-1; 7.1.2): _____ weeks. 1					
33	☐ Records or data to be kept by vendor for at least 20 years, in addition to the requirements of 10438-1, 7.2.1 [-1; 7.2.1.1.f)]					
34	☒ Surface and subsurface examination required (-1; 7.2.1.3). Examination type:					
35	☐ magnetic particle ☐ liquid penetrant ☒ radiographic 5% ☐ ultrasonic					
36	☐ One copy of manufacturer's standard instruction manual packed and shipped with equipment (-1; 7.4.7)					
37	Remarks					
38						
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DATA SHEET		Job No.: DU 282424600/-700		REV 3
		Date: 13-Sep-2012		
		Item No. V91422 / V91432		
		JEMGUM	By: R. Terstappen	
API 614 Dry Gas Seal Module		SHEET 25 OF 27		
1	Item No.	V91422 / V91432		
2	Service	Erdgasspeicher-Verdichter VE3 / VE4		
3	No. Required	2		
4	COMPONENTS			
5	Piping & tubing			
6	☒ Tight shut off required ☒ Piping, tubing, flange: 316SS/316L SS ☐ Through studs			
7	☐ Tube fittings: Manufacturer Model			
8	☒ Heat tracing ☐ by contractor ☒ by Vendor			
9	Continuous flow transfer valves:			
10	Service application	Seal gas	Separation gas	Filters:
11	☒ Tight shut off required	☒	☒	Service application
12	☐ Type			Contractor item no
13	☐ Manufacturer			☒ Twin
14	☐ Pressure rating (kPag)			☐ Option nos
15	☐ Strainer required	☐	☐	☒ Filtration level
16	☐ Body material	☐	☐	☐ Manufacturer
17	☐ Plug / ball material			☒ Model
18	☐ Trim material			☐ Design (kPag)
19				☐ Test (kPag)
20				☒ Code construction
21				☐ Code Stamp (4.2.12)
22				☒ Case material
23				☒ Cartridges
24				☐ Filter body dia. (mm)
25				
26				
27				
28				
29				
30				
31				
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DATA SHEET API 614 Dry Gas Seal Module		Job No.: DU 282424600/-700		REV 3	
		Date: 13-Sep-2012			
		Item No. V91422 / V91432			
		JEMGUM		By: R. Terstappen	
		SHEET 26 OF 27			

1	Item No.	V91422 / V91432		
2	Service	Erdgasspeicher-Verdichter VE3 / VE4		
3	No. Required	2		
4	ALARM AND SHUTDOWNS (6.2.1)			
5	Condition	Alarm	Shutdown	
6	Low seal-gas differential pressure	Yes		
7	Low seal-gas flow	Yes		
8	Low barrier-gas differential pressure	Yes		
9	Low barrier-gas flow	Yes		
10	Low buffer-gas differential pressure	Yes		
11	Low buffer-gas flow	Yes		
12	Low separation-gas differential pressure			
13	Low separation-gas flow			
14	High primary vent pressure	Yes	Yes (2oo3 voting)	
15	High primary vent flow	Yes	Yes (2oo3 voting)	
16	High seal-gas filter differential pressure	Yes		
17	High buffer/separation gas filter differential pressure	Yes		
18	High separation-gas filter differential pressure	Yes		
19	High secondary vent gas flow	Yes		
20	Low primary vent pressure	Yes	Yes (2oo3 voting)	
21	Low primary vent flow	Yes	Yes (2oo3 voting)	
22				
23				
24				
25	SHOP INSPECTION		SHOP TEST	
26	● Compliance with inspector's check list (7.1.2)	● Cleanliness ● Functional test (7.3.3.4) ● Check controls ● Changeover filters ● Pneumatic test of assembly ● Pressure test of spools (7.3.2) ● Use for unit mechanical test (7.3.1.2) ● Use for complete unit test ○ Certified test logs required ● Dynamic & static test of Dry Gas Seal at Seal Vendor shop	Required	Witness
27	● Required for system assemblies		■	□
28	● 100% RT and UT for 1st and 2nd seal line pipings		■	■
29	● Cleanliness prior to closure		■	□
30	○ Required for major components		■	□
31	● Material certification to be furnished		■	□
32	○ Special examinations		■	□
33	○ Certified test logs required		■	■
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40	Remarks:			
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DATA SHEET API 614 Dry Gas Seal Module		Job No.: DU 282424600/-700		REV 3	
		Date: 13-Sep-2012			
		Item No. V91422 / V91432			
		JEMGUM		By: R. Terstappen	
SHEET 27		OF 27			

1	Item No.	V91422 / V91432		
2	Service	Erdgasspeicher-Verdichter VE3 / VE4		
3	No. Required	2		
4	DRY GAS SEAL DESIGN			
5	Rotational speed:	13552	max. min ⁻¹	
6	Application:	new	X	retrofit
7	Rotation viewed from driver end:	clockwise		Vendor drawing no. 36290916
8	Vent gauge pressure: normal/max:	0	/	40 (kPag)
9	Equipment suction gauge pressure (min/max):	5300	/	8800 (kPag)
10	Maximum sealing gauge pressure (4.2.7):	22900	(kPag)	
11	Settle out gauge pressure:	14800	(kPag)	
12	Seal maximum working gauge pressure:	229000	(kPag)	
13	Equipment discharge temperature:	160	(°C)	
14	Process ESD "HH" setting:	20000	(kPag)	
15	LEAKAGE RATE			
16		normal operation (@ 53,3 barg)		static (@ 147,8 barg)
17	Primary vent:	79 NI/min.		121 NI/min.
18	Secondary vent:	N.A.		N.A.
19	Secondary vent for intermediate labyrinth:	3 NI/min.		2 NI/min.
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23	Note:			
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25	(-20) - (+76,8)			
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