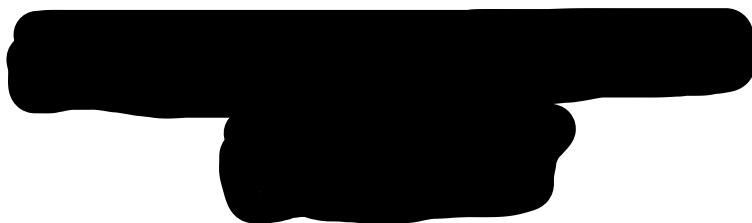


Project:



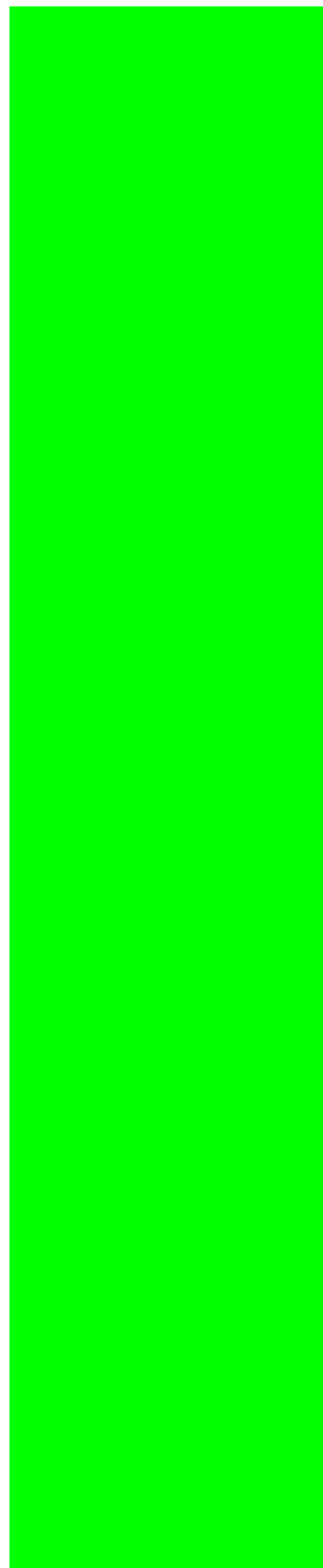
Project No.:



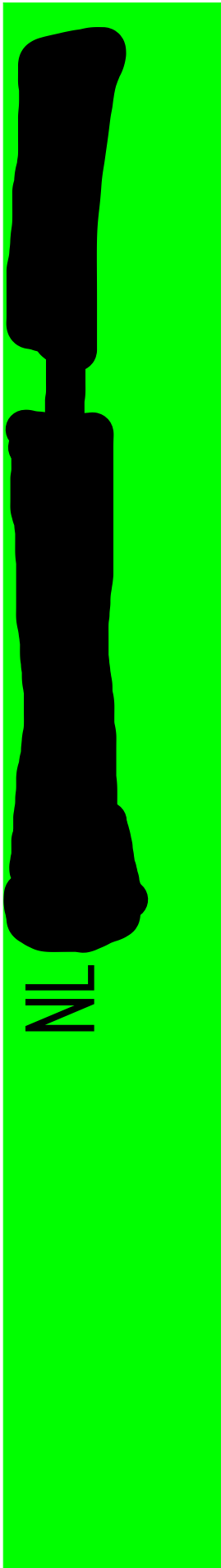
Customer:



grünbeck



8	02.11.17	Sandmaier Klaus	potable water inlet adapted and potablewater tank 8 m3 added
7	27.06.17	Sandmaier Klaus	see revision clouds; as delivered
6	01.06.17	Sandmaier Klaus	CIP mobil added
Index	Date	Name	Last Modified



NL

grünbeck

P&ID

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Component list

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2

Legend

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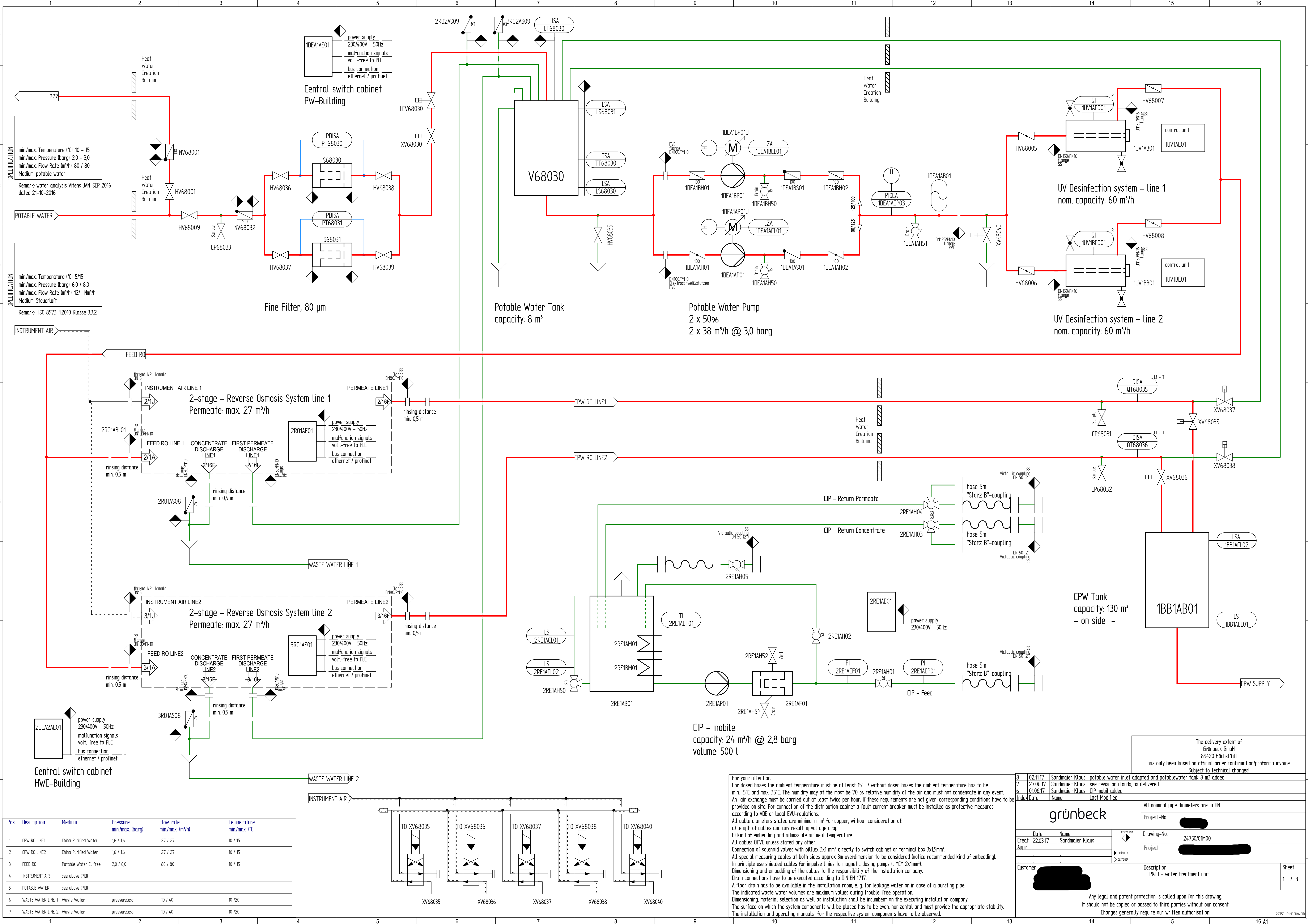
7

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P&ID



Pos.	Description	Medium	Pressure min./max. (barg)	Flow rate min./max. (m³/h)	Temperature min./max. (°C)
1	CPW RO LINE1	China Purified Water	16 / 16	27 / 27	10 / 15
2	CPW RO LINE2	China Purified Water	16 / 16	27 / 27	10 / 15
3	FEED RO	Potable Water Cf line	2.0 / 6.0	80 / 80	10 / 15
4	INSTRUMENT AIR	see above (PID)			
5	POTABLE WATER	see above (PID)			
6	WASTE WATER LINE 1	Waste Water	pressureless	10 / 40	10 / 20
7	WASTE WATER LINE 2	Waste Water	pressureless	10 / 40	10 / 20

For your attention:
For dosed bases the ambient temperature must be at least 15°C / without dosed bases the ambient temperature has to be min. 5°C and max. 35°C. The humidity may at the most be 70 % relative humidity of the air and must not condensate in any event. An air exchange must be carried out at least twice per hour. If these requirements are not given, corresponding conditions have to be provided on site. For connection of the distribution cabinet a fault current breaker must be installed as protective measures according to VDE or local EVU-regulations.
All cable diameters stated are minimum mm² for copper, without consideration of:
a) length of cables and any resulting voltage drop
b) kind of embedding and admissible ambient temperature
All cables OPVC unless stated any other.
Connection of solenoid valves with oilflex 3x1 mm² directly to switch cabinet or terminal box 3x15mm².
All special measuring cables at both sides approx 3m overdimension to be considered (notice recommended kind of embedding). In principle use shielded cables for impulse lines to magnetic dosing pumps (LIYCY 2x1mm²).
Dimensioning and embedding of the cables to the responsibility of the installation company.
Drain connections have to be executed according to DIN EN 1717.
A floor drain has to be available in the installation room, e.g. for leakage water or in case of a bursting pipe.
The indicated waste water volumes are maximum values during trouble-free operation.
Dimensioning, material selection as well as installation shall be incumbent on the executing installation company.
The surface on which the system components will be placed has to be even, horizontal and must provide the appropriate stability.
The installation and operating manuals for the respective system components have to be observed.

802.11.17

27.06.17

01.06.17

Index

Date

Name

Last Modified

Sandmaier Klaus

Sandmaier Klaus

Sandmaier Klaus

potable water inlet adapted and

see revision clouds, as delivered

CIP mobil added

grünbeck

All nominal pipe diameters are in DN

Project-No.

Drawing-No.

Project

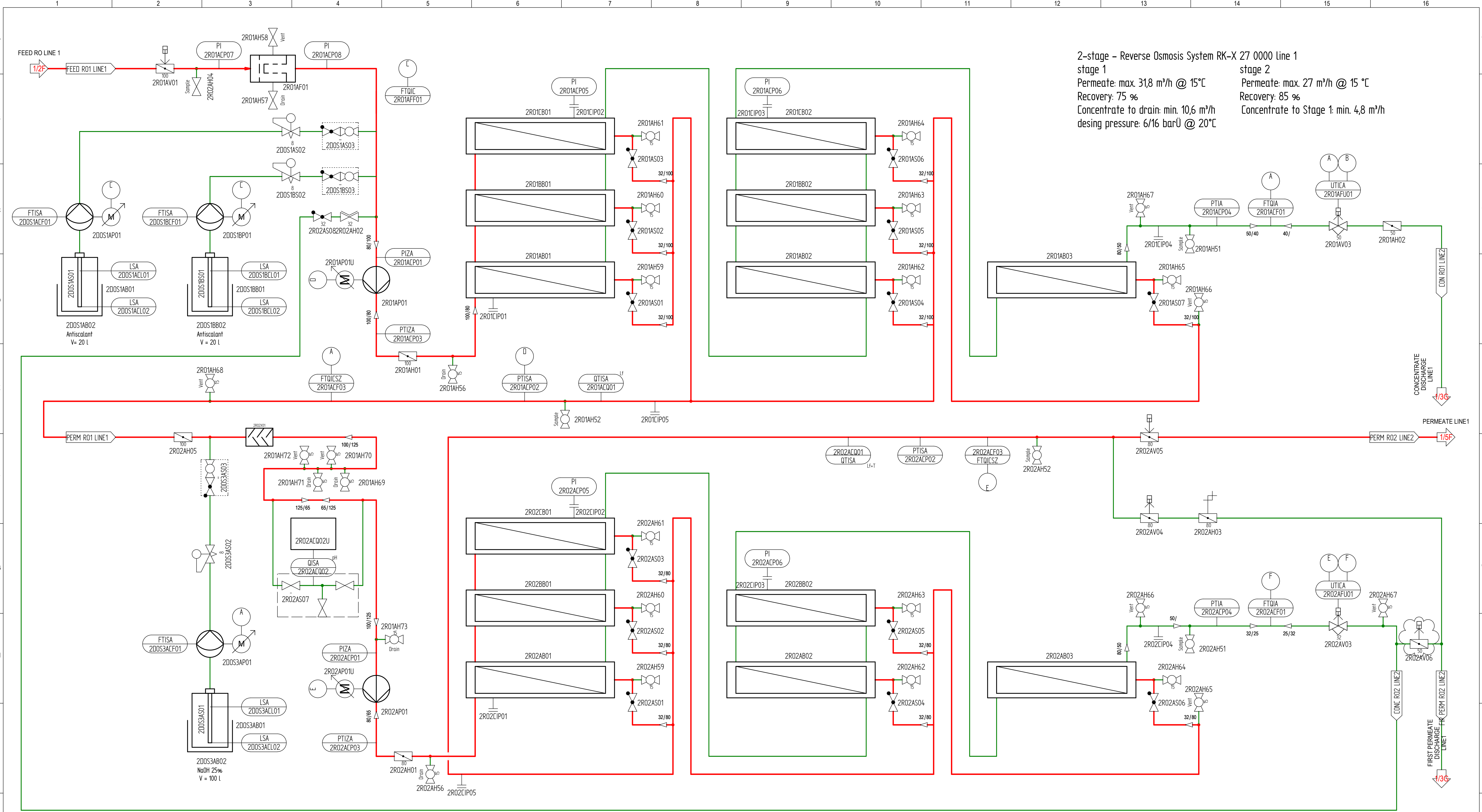
Description

Sheet

The delivery extent of Grünbeck GmbH 89420 Höchststadt has only been based on official order confirmation/proforma invoice. Subject to technical changes!

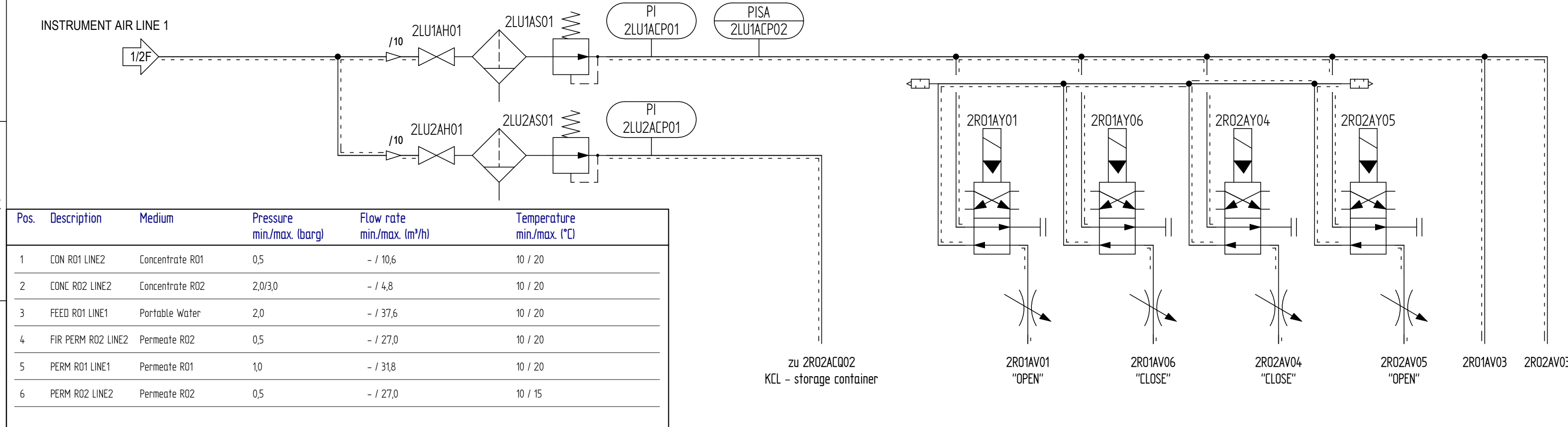
Any legal and patent protection is called upon for this drawing. It should not be copied or passed to third parties without our consent! Changes generally require our written authorisation!

24750_01MK008-PI0



2-stage – Reverse Osmosis System RK-X 27 0000 Line 1
stage 1
Permeate: max. 31,8 m³/h @ 15°C
Recovery: 75 %
Concentrate to drain: min. 10,6 m³/h
desing pressure: 6/16 barÜ @ 20°C

stage 2
Permeate: max. 27 m³/h @ 15 °C
Recovery: 85 %
Concentrate to Stage 1: min. 4,8 m³/h



Pos.	Description	Medium	Pressure min./max. (barg)	Flow rate min./max. (m³/h)	Temperature min./max. (°C)
1	CON R01 LINE2	Concentrate R01	0,5	- / 10,6	10 / 20
2	CONC R02 LINE2	Concentrate R02	2,0/3,0	- / 4,8	10 / 20
3	FEED R01 LINE1	Portable Water	2,0	- / 37,6	10 / 20
4	FIR PERM R02 LINE2	Permeate R02	0,5	- / 27,0	10 / 20
5	PERM R01 LINE1	Permeate R01	1,0	- / 31,8	10 / 20
6	PERM R02 LINE2	Permeate R02	0,5	- / 27,0	10 / 15

For your attention:
For dosed bases the ambient temperature must be at least 15°C / without dosed bases the ambient temperature has to be min. 5°C and max. 35°C. The humidity may at the most be 70 % relative humidity of the air and must not condensate in any event. An air exchange must be carried out at least twice per hour. If these requirements are not given, corresponding conditions have to be provided on site. For connection of the distribution cabinet a fault current breaker must be installed as protective measures according to VDE or local EVU-regulations.
All cable diameters stated are minimum mm² for copper, without consideration of:
a) length of cables and any resulting voltage drop
b) kind of embedding and admissible ambient temperature
All cables OPVC unless stated any other.
Connection of solenoid valves with oilflex 3x1 mm² directly to switch cabinet or terminal box 3x15mm².
All special measuring cables at both sides approx 3m overdimension to be considered inotice recommended kind of embedding.
In principle use shielded cables for impulse lines to magnetic dosing pumps (LIYCY 2x1mm²).
Dimensioning and embedding of the cables to the responsibility of the installation company.
Drain connections have to be executed according to DIN EN 1717.
A floor drain has to be available in the installation room, e.g. for leakage water or in case of a bursting pipe.
The indicated waste water volumes are maximum values during trouble-free operation.
Dimensioning, material selection as well as installation shall be incumbent on the executing installation company.
The surface on which the system components will be placed has to be even, horizontal and must provide the appropriate stability.
The installation and operating manuals for the respective system components have to be observed.

8

02.11.17

Sandmaier Klaus

potable water inlet adapted and potablewater tank 8 m³ added

7

27.06.17

Sandmaier Klaus

see revision clouds, as delivered

6

01.06.17

Sandmaier Klaus

CIP mobil added

Index Date

Name

Last Modified

grünbeck

All nominal pipe diameters are in DN

Project-No.

Drawing-No. 24750/01M00

Project

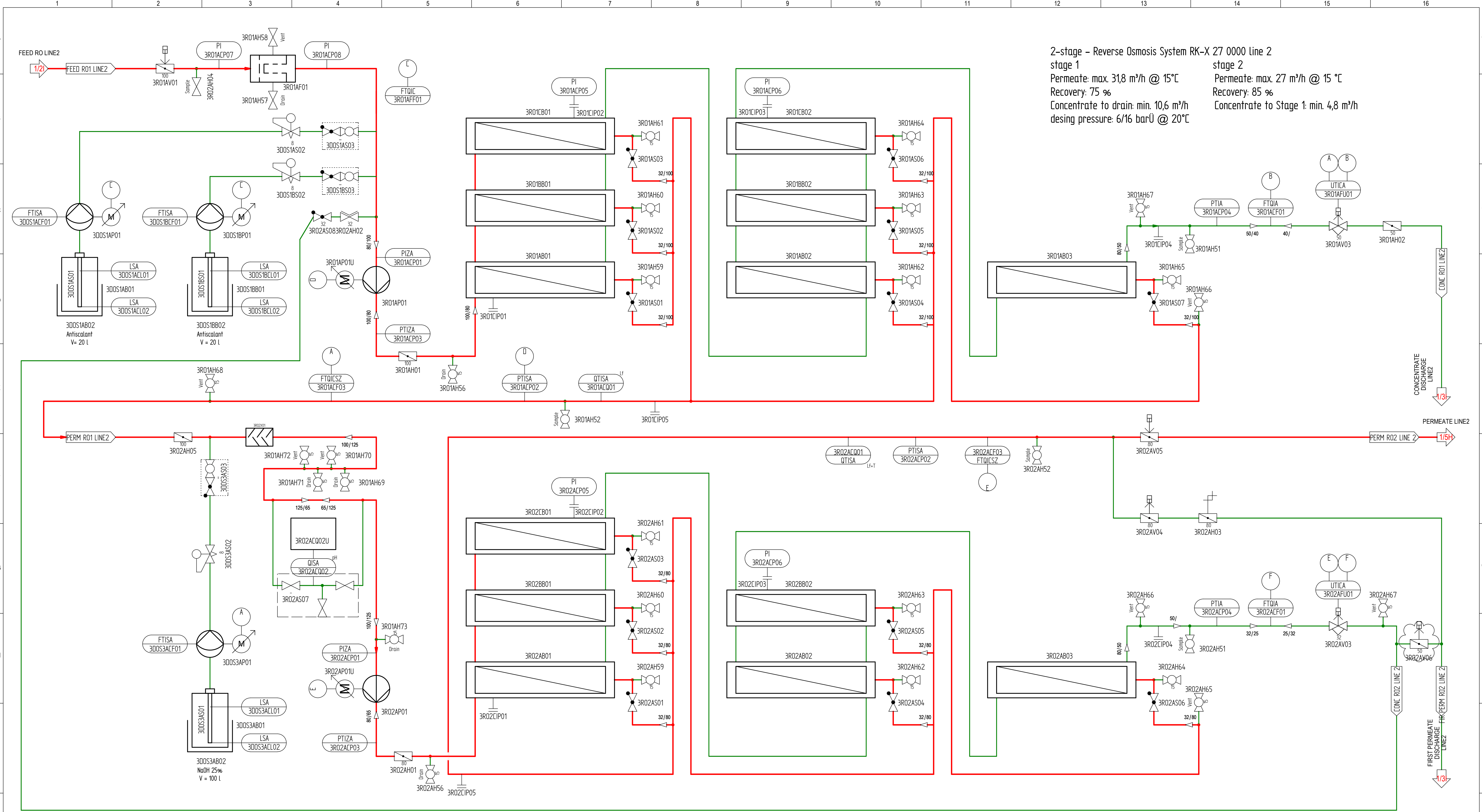
Description P&ID - 2-stage - Reverse Osmosis System; Line 1

Sheet 2 / 3

The delivery extent of Grünbeck GmbH 89420 Höchststadt has only been based on official order confirmation/proforma invoice. Subject to technical changes!

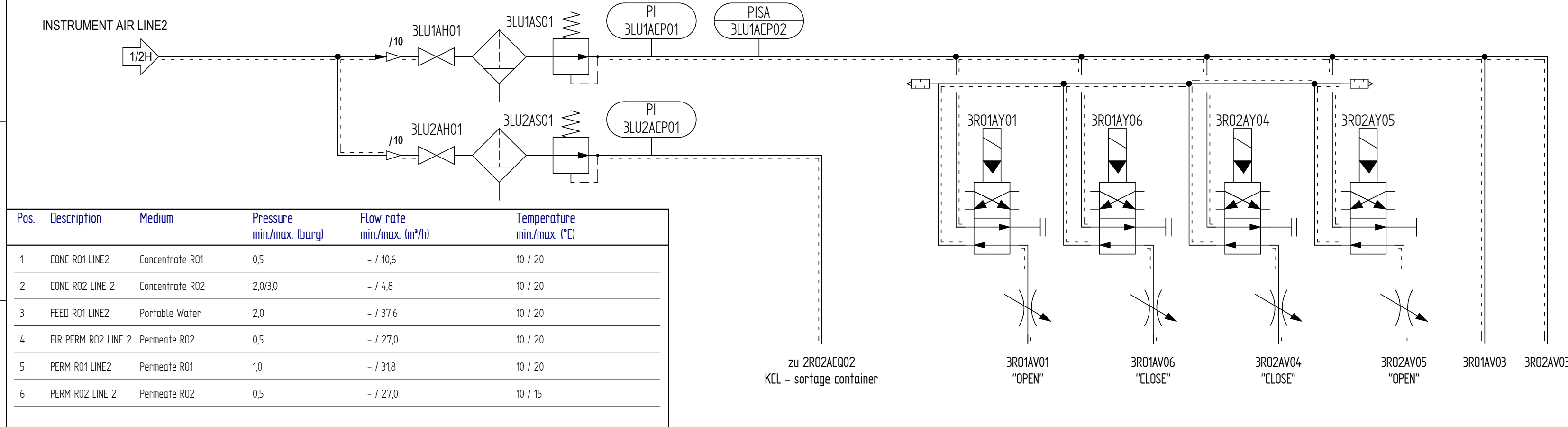
Any legal and patent protection is called upon for this drawing. It should not be copied or passed to third parties without our consent! Changes generally require our written authorisation!

24750_01M00B-PID



2-stage - Reverse Osmosis System RK-X 27 0000 line 2
stage 1
Permeate: max. 31,8 m³/h @ 15°C
Recovery: 75 %
Concentrate to drain: min. 10,6 m³/h
desing pressure: 6/16 barÜ @ 20°C

stage 2
Permeate: max. 27 m³/h @ 15 °C
Recovery: 85 %
Concentrate to Stage 1: min. 4,8 m³/h



Pos.	Description	Medium	Pressure min./max. (barg)	Flow rate min./max. (m³/h)	Temperature min./max. (°C)
1	CONC R01 LINE2	Concentrate R01	0,5	- / 10,6	10 / 20
2	CONC R02 LINE 2	Concentrate R02	2,0/3,0	- / 4,8	10 / 20
3	FEED R01 LINE2	Portable Water	2,0	- / 37,6	10 / 20
4	FIR PERM R02 LINE 2	Permeate R02	0,5	- / 27,0	10 / 20
5	PERM R01 LINE2	Permeate R01	1,0	- / 31,8	10 / 20
6	PERM R02 LINE 2	Permeate R02	0,5	- / 27,0	10 / 15

For your attention:
For dosed bases the ambient temperature must be at least 15°C / without dosed bases the ambient temperature has to be min. 5°C and max. 35°C. The humidity may at the most be 70 % relative humidity of the air and must not condensate in any event. An air exchange must be carried out at least twice per hour. If these requirements are not given, corresponding conditions have to be provided on site. For connection of the distribution cabinet a fault current breaker must be installed as protective measures according to VDE or local EVU-regulations.
All cable diameters stated are minimum mm² for copper, without consideration of:
a) length of cables and any resulting voltage drop
b) kind of embedding and admissible ambient temperature
All cables OPVC unless stated any other.
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All special measuring cables at both sides approx 3m overdimension to be considered inotice recommended kind of embedding!
In principle use shielded cables for impulse lines to magnetic dosing pumps (LIYCY 2x1mm²).
Dimensioning and embedding of the cables to the responsibility of the installation company.
Drain connections have to be executed according to DIN EN 1717.
A floor drain has to be available in the installation room, e.g. for leakage water or in case of a bursting pipe.
The indicated waste water volumes are maximum values during trouble-free operation.
Dimensioning, material selection as well as installation shall be incumbent on the executing installation company.
The surface on which the system components will be placed has to be even, horizontal and must provide the appropriate stability.
The installation and operating manuals for the respective system components have to be observed.

8

02.11.17

Sandmaier Klaus

potable water inlet adapted and potablewater tank 8 m3 added

7

27.06.17

Sandmaier Klaus

see revision clouds, as delivered

6

01.06.17

Sandmaier Klaus

CIP mobil added

Index

Date

Name

Last Modified

grünbeck

Date

22.03.17

Name

Sandmaier Klaus

Appr.

Customer

All nominal pipe diameters are in DN

Project-No.

Drawing-No.

24750/01M00

Project

Description

P&ID - 2-stage - Reverse Osmosis System; line 2

Sheet

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The delivery extent of Grünbeck GmbH 89420 Höchststadt has only been based on official order confirmation/proforma invoice. Subject to technical changes!

Any legal and patent protection is called upon for this drawing. It should not be copied or passed to third parties without our consent! Changes generally require our written authorisation!

24750_01M00R-PID

Component list

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Component List

Project

Project-No.:

Drawing-No.:

8

Sandmaier Klaus

02.11.17

potable water inlet adapted and potablewater tank 8 m3 added

7

Sandmaier Klaus

27.06.17

see revision clouds; as delivered

6

Sandmaier Klaus

01.06.17

CIP mobil added

Rev.:

Creat.:

Date:

Last Modified:

Pos.

Rev.

Comp.-Name

Amount

Article No.

Description

Bemerkung

Hersteller

Ref.

125

1

2R01AS03

1

Non-return valve

part of order number 755027.

2/7B

126

1

2R01AS04

1

Non-return valve

part of order number 755027.

2/10D

127

1

2R01AS05

1

Non-return valve

part of order number 755027.

2/10C

128

1

2R01AS06

1

Non-return valve

part of order number 755027.

2/10B

129

1

2R01AS07

1

Non-return valve

part of order number 755027.

2/13D

130

1

2R01AS08

1

85515151

3-way-bleeding/venting valve

AIRVALVE Flow Control GmbH

1/3G

131

1

2R01AV01

1

85282689

Lug-type butterfly valve type 481, DN 100, normally closed (NC) type ASR

GEMÜ

2/2A

132

1

2R01AV03

1

24750/01/01-56062

Regulating valve, KKa R01 DN 50 type 514/1434

GEMÜ

2/15C

133

1

2R01AY01

1

85552163

5470 R single valve, extendable 5470-G04, 0 24 V

Bürkert

2/6K

134

1

2R01AY06

1

85552163

5470 R single valve, extendable 5470-G04, 0 24 V

Bürkert

2/6K

135

1

2R01BB01

1

24750/01/01-55879

BEL pressure pipe 8" GRP 300psi 4M 3x3"

BEL Composite Iberica S. L.

2/6C

136

1

2R01BB02

1

24750/01/01-55879

BEL pressure pipe 8" GRP 300psi 4M 3x3"

BEL Composite Iberica S. L.

2/9C

137

1

2R01CB01

1

24750/01/01-55878

BEL pressure pipe 8" GRP 300psi 4M 3x3" 1x2"

BEL Composite Iberica S. L.

2/6B

138

1

2R01CB02

1

24750/01/01-55881

BEL pressure pipe 8" GRP 300psi 4M 3x3" 1x2"

BEL Composite Iberica S. L.

2/9B

139

1

2R02AB01

1

24750/01/01-55878

BEL pressure pipe 8" GRP 300psi 4M 3x3" 1x2"

BEL Composite Iberica S. L.

2/6H

140

1

2R02AB02

1

24750/01/01-55880

BEL pressure pipe 8" GRP 300psi 4M 3x3"

BEL Composite Iberica S. L.

2/9H

141

1

2R02AB03

1

24750/01/01-55877

BEL pressure pipe 8" GRP 300psi 4M 2x3"

BEL Composite Iberica S. L.

2/12H

142

1

2R02ACF01

1

18039/01/01-42162

Magneto-inductive flow meter DN 25

Endress+Hauser

2/14H

143

1

2R02ACF03

1

24750/01/01-55993

Flow meter H250/RR/M40/ESK DN 80

Krohne

2/11F

144

1

2R02ACP01

1

18346/01/01-39372

Diaphragm pressure switch 0.1 – 1 bar 600 bar 42 V

Scheuffele GmbH & Co. KG

2/4H

145

1

2R02ACP02

1

24750/01-55936

Pressure transducer 0 – 4 bar

Endress+Hauser

2/10F

146

1

2R02ACP03

1

24750/01-55937

Pressure transducer 0 – 40 bar

Endress+Hauser

2/4I

147

1

2R02ACP04

1

24750/01-55937

Pressure transducer 0 – 40 bar

Endress+Hauser

2/14H

148

1

2R02ACP05

1

89929315

Bourdon gauge with glycerol filling NG 63, 0 – 16 bar, thread G1/4 on the rear side

ika

2/7F

149

1

2R02ACP06

1

89929315

Bourdon gauge with glycerol filling NG 63, 0 – 16 bar, thread G1/4 on the rear side

ika

2/9G

150

1

2R02ACQ01

1

10200/10-17717

Conductivity measuring cell 202924, k = 0.01, 76 mm R3/4"

JUMO

2/10F

151

2R02ACQ01

1

93302025

Conductivity measuring transducer type ecoTrans Lf03

JUMO

2/10F

152

1

2R02ACQ02

1

17228/01/01-27648

Combined pH electrode TecLine pH

JUMO

2/4G

153

2R02ACQ02

1

17228/01/01-27698

KCl connection for combined pH electrode

JUMO

2/4G

154

2R02ACQ02

1

17228/01/01-27699

KCl storage vessel for combined pH KCl

JUMO

2/4G

155

1

2R02ACQ02U1

93201220

pH measuring transducer AQUIS in wall with analogue output

JUMO

2/3F

Date: 03.11.2017

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	Component List						8	Sandmaier Klaus	02.11.17	potable water inlet adapted and potablewater tank 8 m3 added						
	Project [REDACTED]						7	Sandmaier Klaus	27.06.17	see reviscion clouds; as delivered						
	Project-No.: [REDACTED]						6	Sandmaier Klaus	01.06.17	CIP mobil added						
	Drawing-No.: [REDACTED]						Rev.:	Creat.:	Date:	Last Modified:						
B	Pos.	Rev.	Comp.-Name	Amount	Article No.	Description	Bemerkung				Hersteller				Ref.	
	156	1	2R02AFU01	1		Recovery of RO	calculation of SPC								2/15G	
	157	1	2R02AH01	1	85282508	Lug-type butterfly valve type 487, DN 80, with locking handle					GEMÜ				2/5I	
	158	1	2R02AH02	1	85433663	PP diaphragm valve type R677, DN 32 2/2-way, manually operated					GEMÜ				2/4C	
	159	1	2R02AH03	1	85282568	Lug-type butterfly valve type 487, DN 80, fine adjustment					GEMÜ				2/14F	
C	160	1	2R02AH04	1	22699/01/01-54397	PEMS sampling DN 6 1/2"					Kieselmann				2/2B	
	161	1	2R02AH05	1	85282509	Lug-type butterfly valve type 487, DN 100, with locking handle					GEMÜ				2/2F	
	162	1	2R02AH51	1	22699/01/01-54397	PEMS sampling DN 6 1/2"					Kieselmann				2/13H	
	163	1	2R02AH52	1	22699/01/01-54397	PEMS sampling DN 6 1/2"					Kieselmann				2/12F	
	164	1	2R02AH56	1	85531618	Mini ball valve with clamp handle female thread/male thread 1/2", PN 63 V4A					Heco				2/5I	
D	165	1	2R02AH59	1	85531618	Mini ball valve with clamp handle female thread/male thread 1/2", PN 63 V4A					Heco				2/7H	
	166	1	2R02AH60	1	85531618	Mini ball valve with clamp handle female thread/male thread 1/2", PN 63 V4A					Heco				2/7G	
	167	1	2R02AH61	1	85531618	Mini ball valve with clamp handle female thread/male thread 1/2", PN 63 V4A					Heco				2/7G	
	168	1	2R02AH62	1	85531618	Mini ball valve with clamp handle female thread/male thread 1/2", PN 63 V4A					Heco				2/10H	
	169	1	2R02AH63	1	85531618	Mini ball valve with clamp handle female thread/male thread 1/2", PN 63 V4A					Heco				2/10G	
E	170	1	2R02AH64	1	85531618	Mini ball valve with clamp handle female thread/male thread 1/2", PN 63 V4A					Heco				2/13H	
	171	1	2R02AH65	1	85531618	Mini ball valve with clamp handle female thread/male thread 1/2", PN 63 V4A					Heco				2/14H	
	172	1	2R02AH66	1	85531618	Mini ball valve with clamp handle female thread/male thread 1/2", PN 63 V4A					Heco				2/13G	
	173	1	2R02AH67	1	85531618	Mini ball valve with clamp handle female thread/male thread 1/2", PN 63 V4A					Heco				2/16G	
	174	1	2R02AP01	1	24750/01/01-55885	High-pressure pump 33SV4 N 110 T/P HYDROVAR					Xylem				2/4H	
F	175	1	2R02AP01U	1		Frequency converter HYDROVAR	part of pump 2R02AP01				ITT				2/4H	
	176	1	2R02AS01	1		Non-return valve	part of order number 755027.								2/7H	
	177	1	2R02AS02	1		Non-return valve	part of order number 755027.								2/7H	
	178	1	2R02AS03	1		Non-return valve	part of order number 755027.								2/7G	
	179	1	2R02AS04	1		Non-return valve	part of order number 755027.								2/10H	
F	180	1	2R02AS05	1		Non-return valve	part of order number 755027.								2/10H	
	181	1	2R02AS06	1		Non-return valve	part of order number 755027.								2/13H	
	182	1	2R02AS07	1	19952/01/01-43582	PP flow fitting					M F Technik GmbH & Co. KG				2/3G	
	183	1	2R02AS08	1	85454303	PP angle seat check valve SRV 303 DN 32, d = 40 mm, PN 10					ASV Stübbe				2/4C	
	184	1	2R02AS09	1	85515151	3-way-bleeding/venting valve					AIRVALVE Flow Control GmbH				1/6A	
	185	1	2R02AV03	1	24750/01/01-56063	Regulating valve, KRü R02 DN 32 type 514/1434					GEMÜ				2/15H	
	186	1	2R02AV04	1	85282628	Lug-type butterfly valve type 481, DN 80, normally open (NO) type ASR					GEMÜ				2/13F	
Date: 03.11.2017																
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Filename: 24750_01M00R8-PID																
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Component List

Project

Project-No. Drawing-No.

8

Sandmaier Klaus

02.11.17

potable water inlet adapted and potablewater tank 8 m3 added

7

Sandmaier Klaus

27.06.17

see reviscion clouds; as delivered

6

Sandmaier Klaus

01.06.17

CIP mobil added

Rev.:

Creat.:

Date:

Last Modified:

Pos.	Rev.	Comp.-Name	Amount	Article No.	Description	Bemerkung	Hersteller	Ref.
311	1	3R02AH56	1	85531618	Mini ball valve with clamp handle female thread/male thread 1/2", PN 63 V4A		Heco	3/5I
312	1	3R02AH59	1	85531618	Mini ball valve with clamp handle female thread/male thread 1/2", PN 63 V4A		Heco	3/7H
313	1	3R02AH60	1	85531618	Mini ball valve with clamp handle female thread/male thread 1/2", PN 63 V4A		Heco	3/7G
314	1	3R02AH61	1	85531618	Mini ball valve with clamp handle female thread/male thread 1/2", PN 63 V4A		Heco	3/7G
315	1	3R02AH62	1	85531618	Mini ball valve with clamp handle female thread/male thread 1/2", PN 63 V4A		Heco	3/10H
316	1	3R02AH63	1	85531618	Mini ball valve with clamp handle female thread/male thread 1/2", PN 63 V4A		Heco	3/10G
317	1	3R02AH64	1	85531618	Mini ball valve with clamp handle female thread/male thread 1/2", PN 63 V4A		Heco	3/13H
318	1	3R02AH65	1	85531618	Mini ball valve with clamp handle female thread/male thread 1/2", PN 63 V4A		Heco	3/14H
319	1	3R02AH66	1	85531618	Mini ball valve with clamp handle female thread/male thread 1/2", PN 63 V4A		Heco	3/13G
320	1	3R02AH67	1	85531618	Mini ball valve with clamp handle female thread/male thread 1/2", PN 63 V4A		Heco	3/16G
321	1	3R02AP01	1	24750/01/01-55885	High-pressure pump 33SV4 N 110 T/P HYDROVAR		Xylem	3/4H
322	1	3R02AP01U	1		Frequency converter HYDROVAR	part of pump 3R02AP01	ITT	3/4H
323	1	3R02AS01	1		Non-return valve	part of order number 755027.		3/7H
324	1	3R02AS02	1		Non-return valve	part of order number 755027.		3/7H
325	1	3R02AS03	1		Non-return valve	part of order number 755027.		3/7G
326	1	3R02AS04	1		Non-return valve	part of order number 755027.		3/10H
327	1	3R02AS05	1		Non-return valve	part of order number 755027.		3/10H
328	1	3R02AS06	1		Non-return valve	part of order number 755027.		3/13H
329	1	3R02AS07	1	19952/01/01-43582	PP flow fitting		M F Technik GmbH & Co. KG	3/3G
330	1	3R02AS08	1	85454303	PP angle seat check valve SRV 303 DN 32, d = 40 mm, PN 10		ASV Stübbe	3/4C
331	1	3R02AS09	1	85515151	3-way-bleeding/venting valve		AIRVALVE Flow Control GmbH	1/7A
332	1	3R02AV03	1	24750/01/01-56063	Regulating valve, KRü R02 DN 32 type 514/1434		GEMÜ	3/15H
333	1	3R02AV04	1	85282628	Lug-type butterfly valve type 481, DN 80, normally open (NO) type ASR		GEMÜ	3/13F
334	1	3R02AV05	1	85282688	Lug-type butterfly valve type 481, DN 80, normally closed (NC) type ASR		GEMÜ	3/13F
335	1	3R02AV06	1	85282626	Lug-type butterfly valve type 481, DN 50, normally open (NO) type ASR		GEMÜ	3/16H
336	1	3R02AY04	1	85552163	5470 R single valve, extendable 5470-G04, 0 24 V		Bürkert	3/7K
337	1	3R02AY05	1	85552163	5470 R single valve, extendable 5470-G04, 0 24 V		Bürkert	3/8K
338	1	3R02BB01	1	24750/01/01-55879	BEL pressure pipe 8" GRP 300psi 4M 3x3"		BEL Composite Iberica S. L.	3/6G
339	1	3R02BB02	1	24750/01/01-55881	BEL pressure pipe 8" GRP 300psi 4M 3x3" 1x2"		BEL Composite Iberica S. L.	3/9G
340	1	3R02CB01	1	24750/01/01-55878	BEL pressure pipe 8" GRP 300psi 4M 3x3" 1x2"		BEL Composite Iberica S. L.	3/6G
341	1	3R02X01	1	533157	Static mixer DN 100, d = 110 mm, PN 10 PP, PP flange on both sides		Kwerk	3/3F

Date: 03.11.2017

Kwerk

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Filename: 24750_01M00R8-PID

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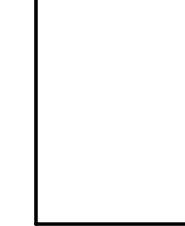
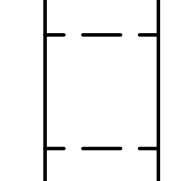
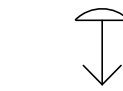
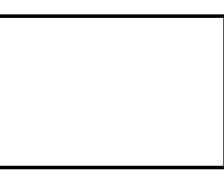
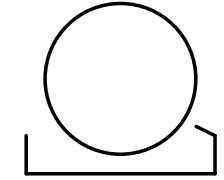
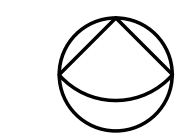
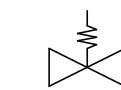
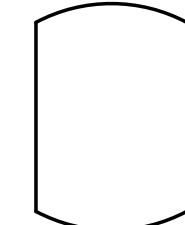
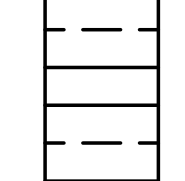
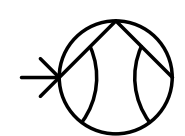
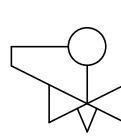
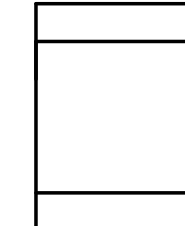
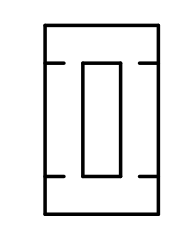
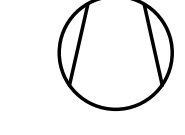
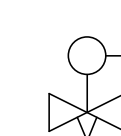
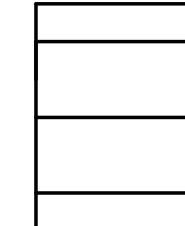
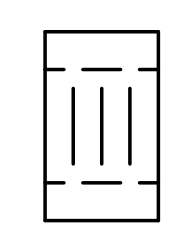
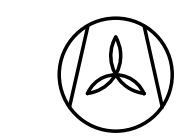
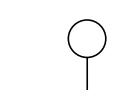
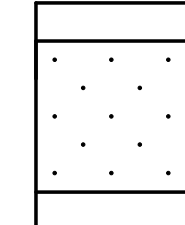
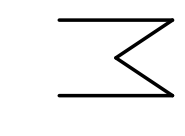
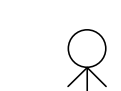
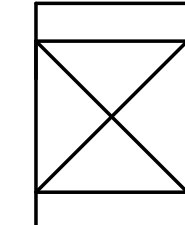
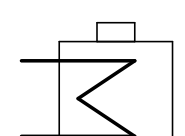
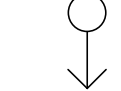
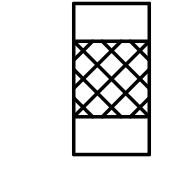
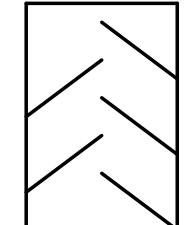
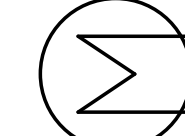
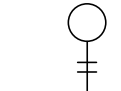
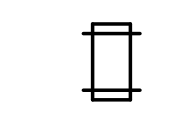
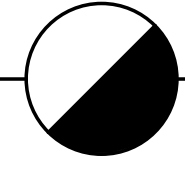
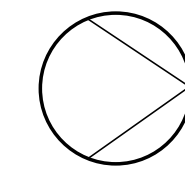
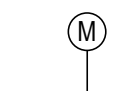
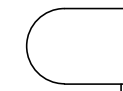
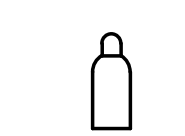
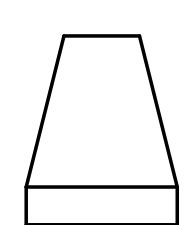
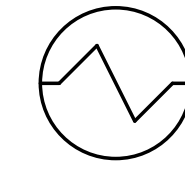
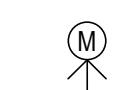
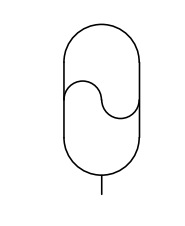
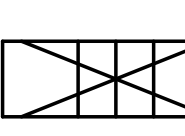
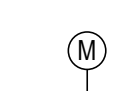
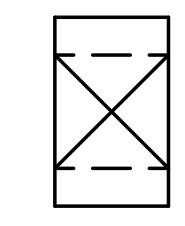
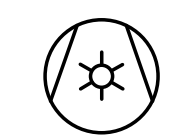
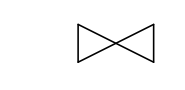
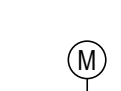
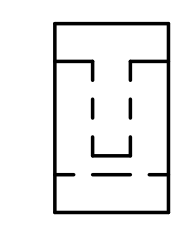
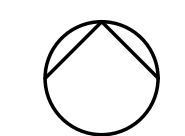
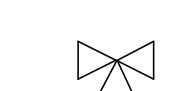
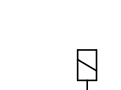
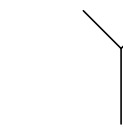
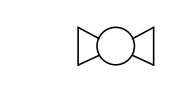
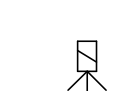
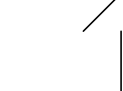
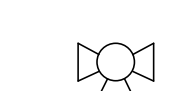
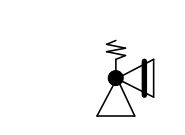
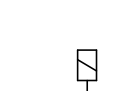
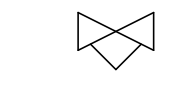
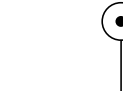
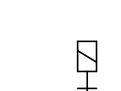
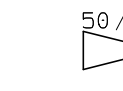
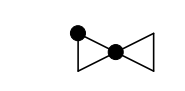
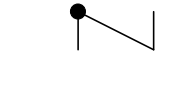
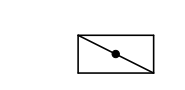
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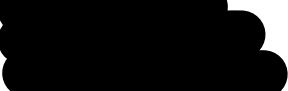
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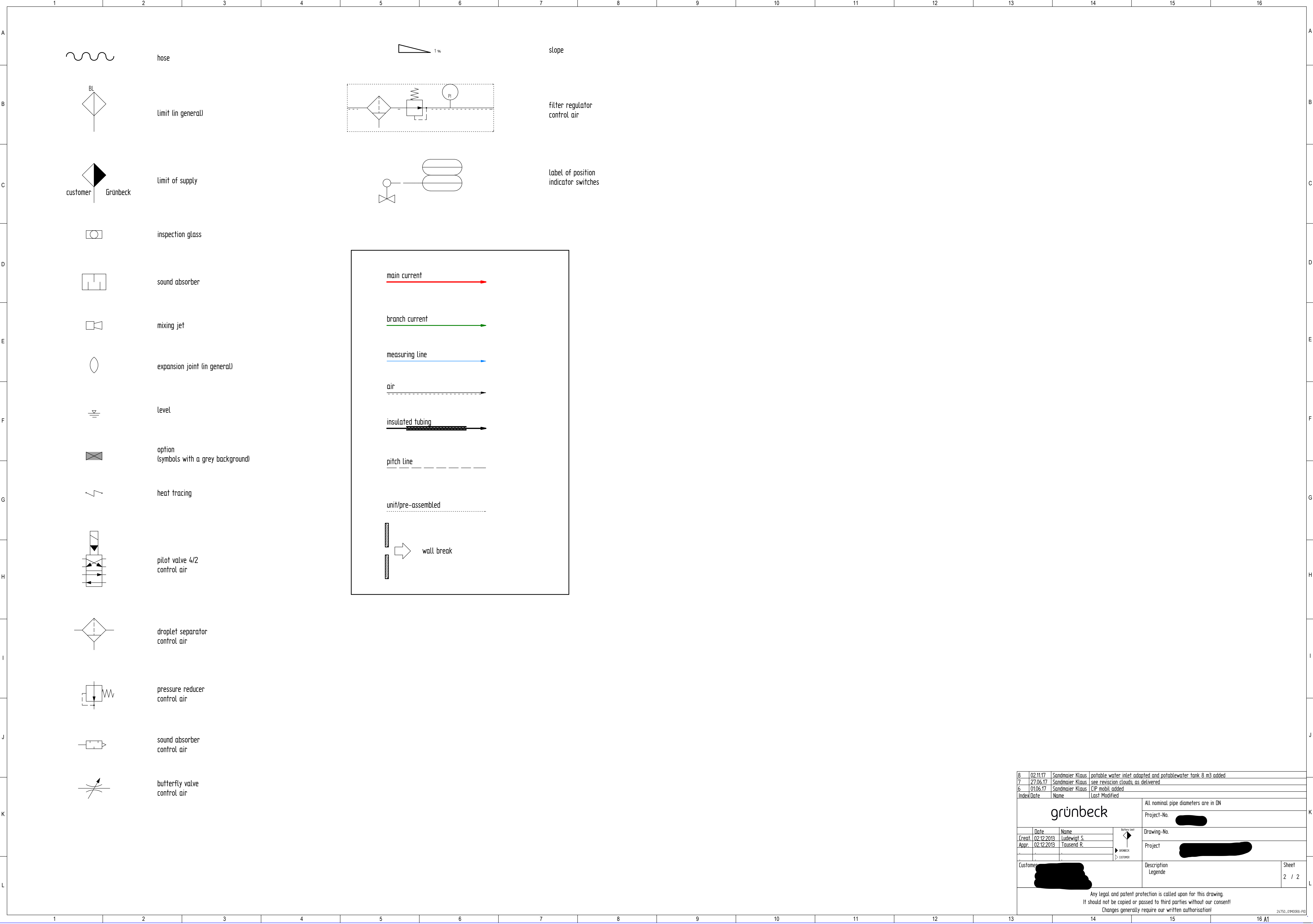
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Legend

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
A																
B																
C																
D																
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F																
G																
H																
I																
J																
K																
L																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
		tank (in general)			liquid filter (in general)			eccentric screw pump			check valve			diaphragm drive normally closed		
		tank (in general)			rotary drum filter, rotary disc filter			diaphragm pump			spring-loaded valve			diaphragm drive remains in the last position		
		vessel with dished ends			ion exchanger filter			liquid jet pump with feeding for the propellant			constant-pressure valve, controlled by inlet pressure			drive with fine adjustment		
		vessel (in general) (column in general)			activated carbon filter			compressor vacuum pump (in general)			constant-pressure valve controlled by outlet pressure			gear drive		
		vessel with column plates (plate column in general)			gravel filter			ventilator (in general)			actuator (in general)			electric motor (in general)		
		vessel with fluidised bed			sieving machine (in general) rake (in general)			facility for heating and cooling (in general)			actuator (in general), opens in case of failure of the auxiliary power supply			powered by electric motor with FC (frequency converter)		
		vessel with fixed bed			separator (in general)			condensor			actuator (in general), closes in case of failure of the auxiliary power supply			powered by electric motor for pump drive		
		vessel with irregular packing			mixing section			heat exchanger (in general)			actuator (in general), remains in case of failure of the auxiliary power supply in present position			on-site measurement		
		barrel, bucket			condensate trap, flanged			pressure diaphragm pump			electric drive			on-site measurement		
		gas bottle			cooling tower (in general)			heat exchanger (in general)			electric drive normally opened			measurement with transfer to process control room		
		tank with flat cover			expansion vessel			plate heat exchanger			electric drive normally closed			injector		
		fixed bed filter (in general), packed bed filter			liquid ring compressor, liquid vacuum pump			shut-off device (in general)			electric drive remains in the last position			stirrer (in general)		
		cartridge filter			pump (in general)			three-way valve (in general)			electromagnetic drive normally opened			drain/funnel		
					centrifugal pump			ball valve			electromagnetic drive remains in the last position			outlet for steam/gas		
								three-way ball valve (in general)			piston drive			earthing		
								spring-loaded safety valve			piston drive normally opened			inlet/outlet		
								valve with progressive adjustment characteristic			piston drive normally closed			throttle plate		
								diaphragm valve			diaphragm drive			reduction (in general)		
								check valve			diaphragm drive normally opened					
								check valve (in general)								
								butterfly valve								

8	02.11.17	Sandmaier Klaus	potable water inlet adapted and potablewater tank 8 m3 added
7	27.06.17	Sandmaier Klaus	see revision clouds, as delivered
6	01.06.17	Sandmaier Klaus	CIP mobil. added
	Index	Date	Name
		All nominal pipe diameters are in DN	
		Project-No. 	
	Date	Name	  
	10.03.2013	Max Roffelder	
	10.03.2013	Tausend R.	Project 
Customer 		Description Legende	
		Sheet 1 / 2	
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8	02.11.17	Sandmaier Klaus	potable water inlet adapted and potablewater tank 8 m3 added
7	27.06.17	Sandmaier Klaus	see revision clouds, as delivered
6	01.06.17	Sandmaier Klaus	CIP mobil added
Index	Date	Name	Last Modified
grünbeck		All nominal pipe diameters are in DN	
		Project-No.	
	Date	Name	Battery Unit
creat.	02.12.2013	Ludewig S.	
appr.	02.12.2013	Tausend R.	
			
Customer:		Drawing-No.	
		Project	
		Description	
		Legende	
		Sheet	
		2 / 2	
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