

Biogas plant

Anaerobic Digester for Dairies

Version A



FAN Separator GmbH

Röhren- und Pumpenwerk BAUER Gesellschaft m.b.H.

Kowaldstraße 2

A-8570 Voitsberg/Austria

Tel.: +43/3142/200-0

Fax: +43/3142/200-205

E-Mail: bauer@bauer-at.com

www.Bauer-at.com

Directory (Version A)

Anaerobic Digester for Dairies

Specification..... 2 - 3

Pictures (3D) 4 - 6

Flow sheet 7

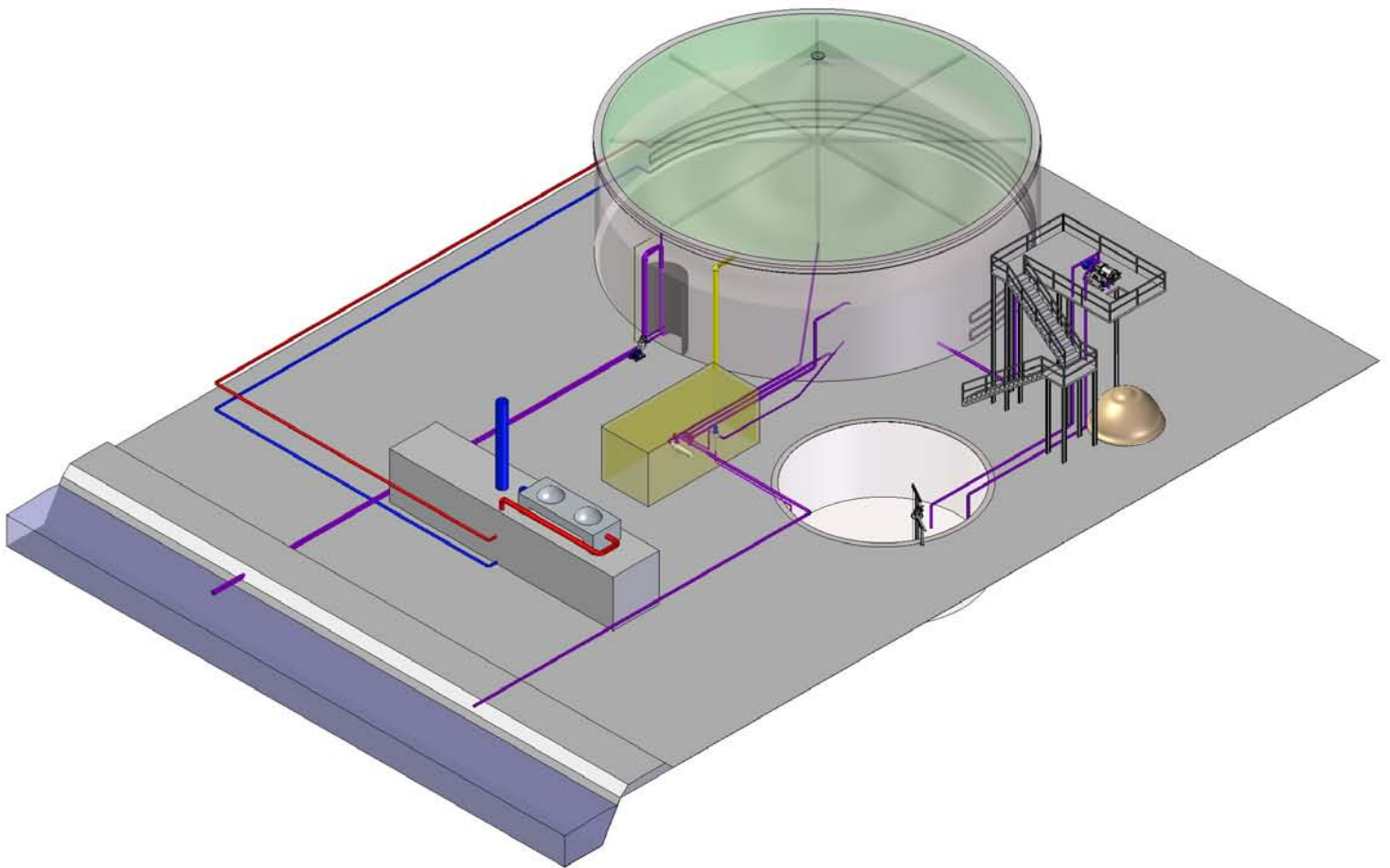
Example

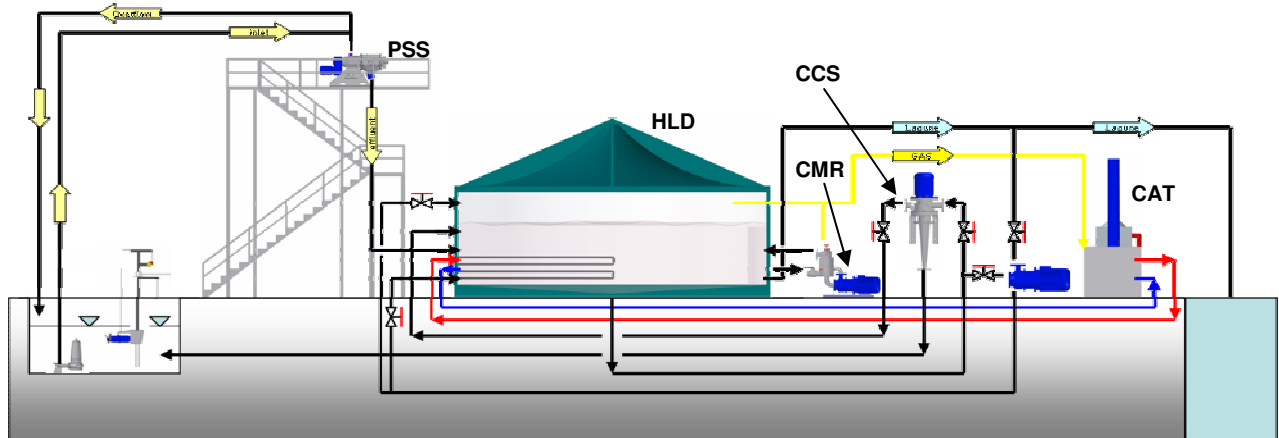
2.000 milking cows with FAN (BRU) 8 - 11

Questionnaire 12

Biogas plant

Version A Anaerobic Digester for Dairies



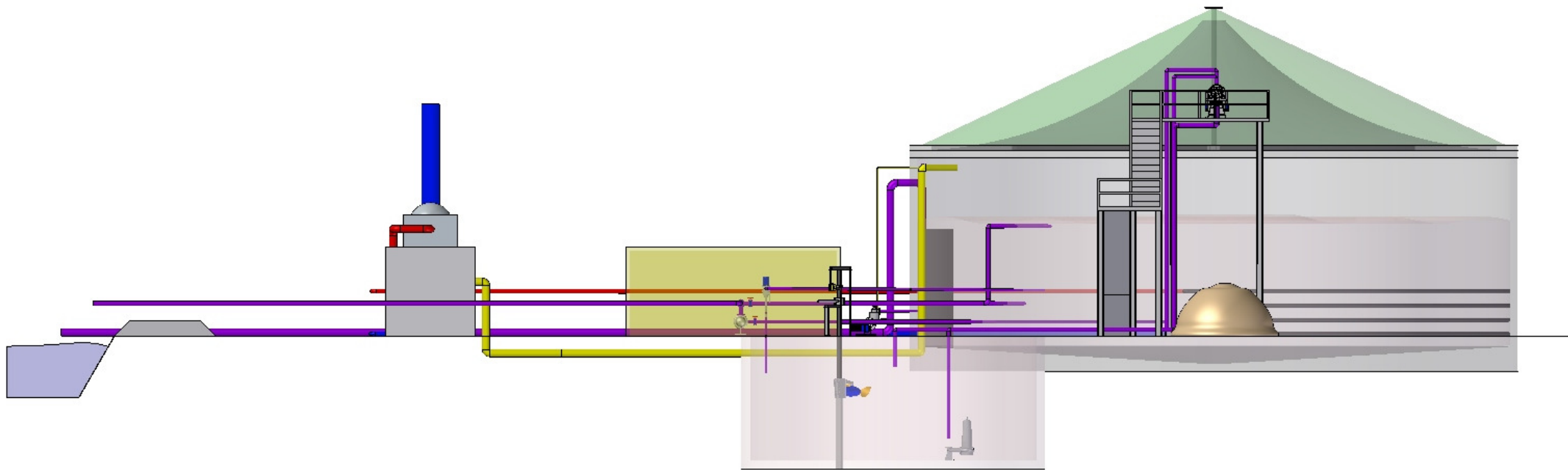


PSS – Press Screw Separator
 CCS – Centrifugal Classifier Separator
 CAT – Caterpillar
 CMR – Cavitation Microbubble Reactor
 HLD – High Load Digester

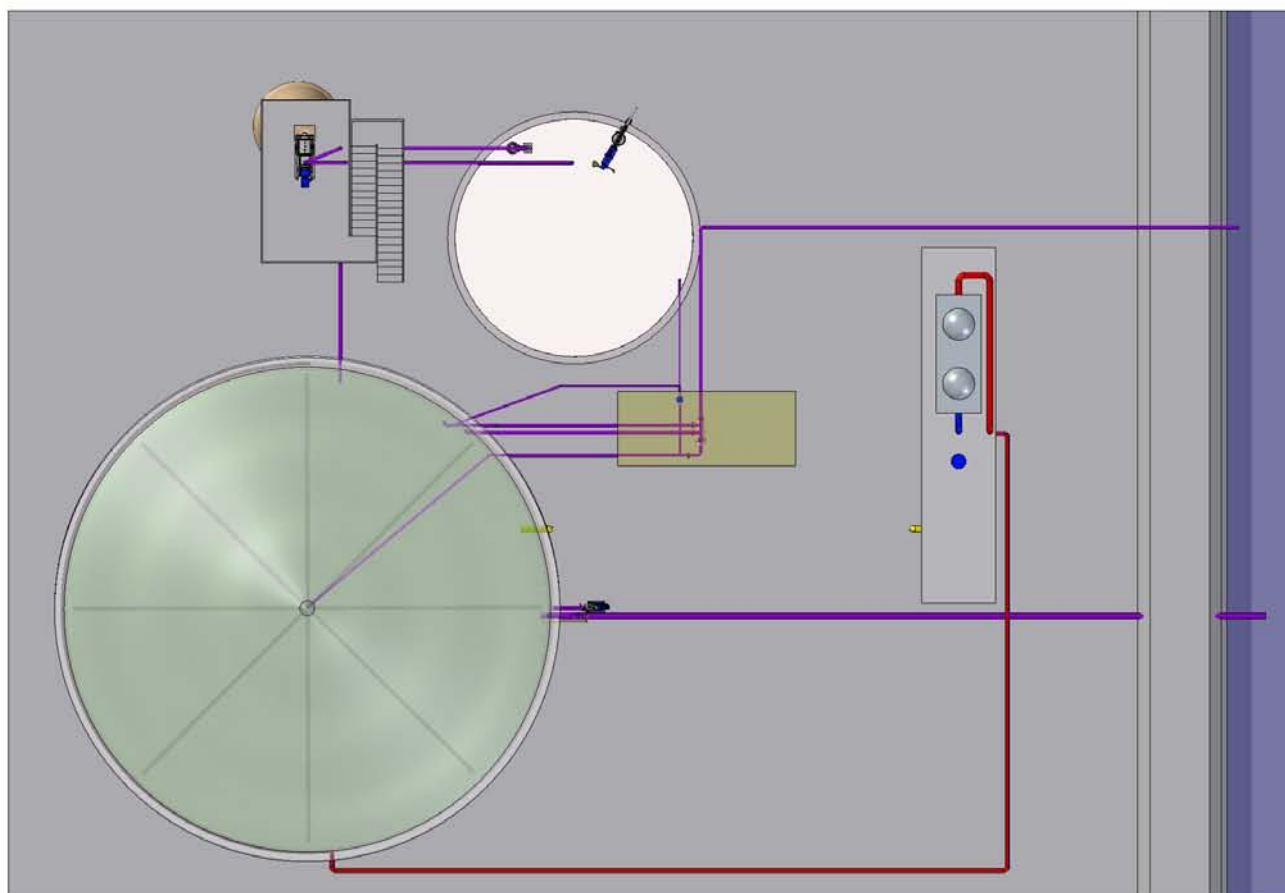
Specifications

- 1000 to 5000 cows and 10.000 – 50.000 pigs, 100 to 500 kW electrical power
- Fermenting only separated manure, no other inputs
- Liquid feeding by submersible pumps
- Fully mixed one stage concrete digester
- Double membrane roof with integrated gas storage
- Biomass concentration with gas flotation and centrifuge
- High Load Digester for higher gas production (patent pending)
- Better gas quality by gas stripping
- Mixing with external pumps, no moving parts in digester
- Separate gas engine and generator unit
- Optional heat recovery
- Complete odor control, nutrient recovery by separation
- Independent electrical power supply

Version A



Version A



03.03.2006

Engineering by



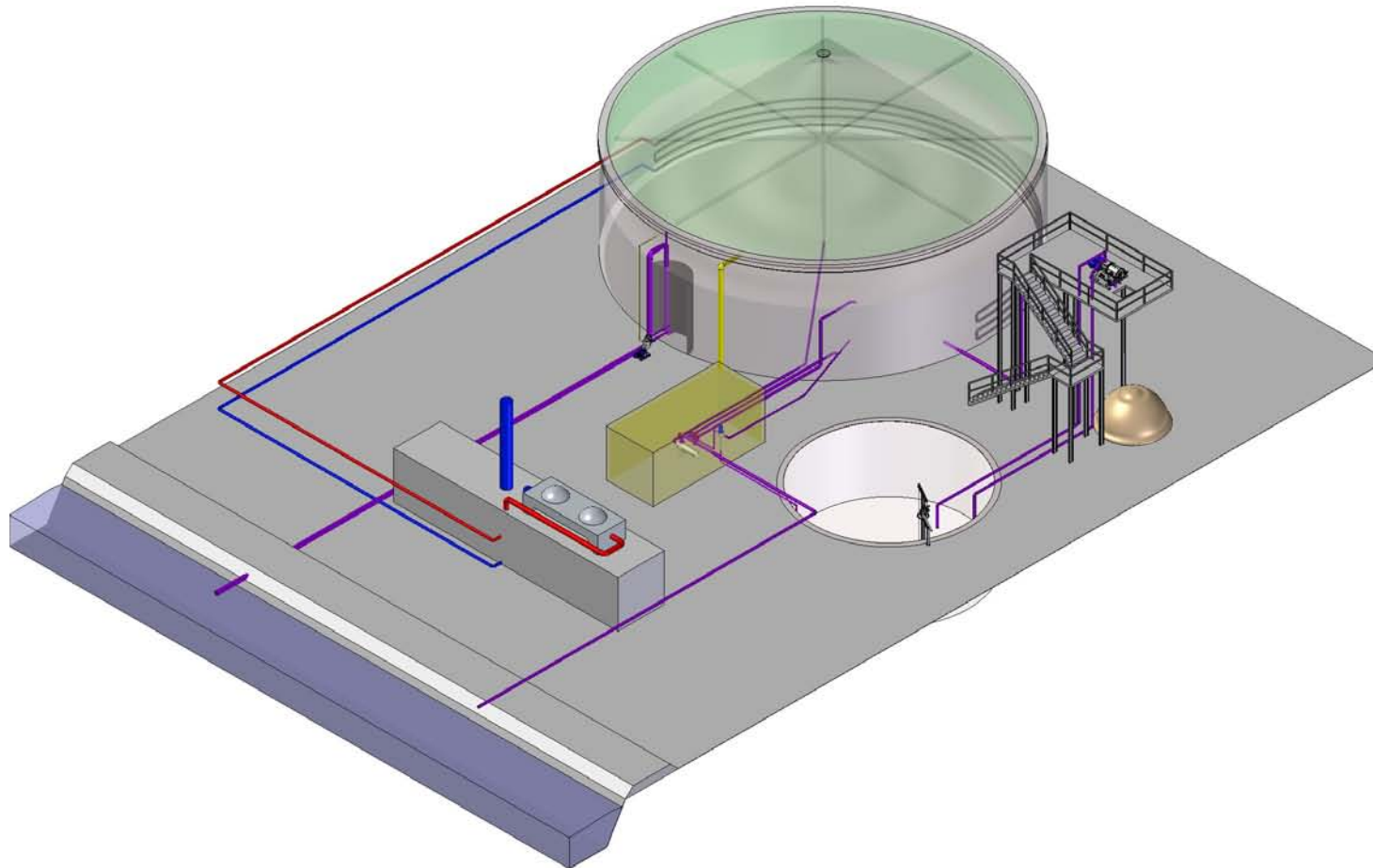
A company of **BAUER Group**



FOR A GREEN WORLD

BAUER

Version A



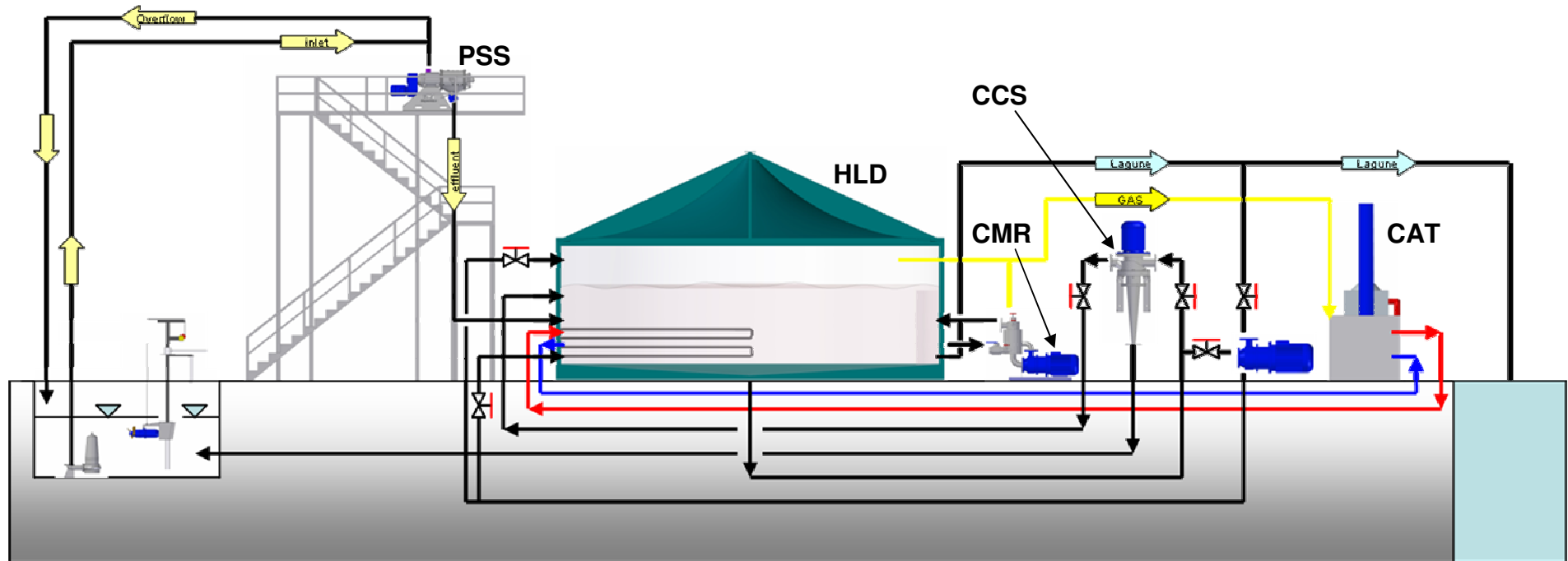
03.03.2006

Engineering by



A company of **BAUER Group**

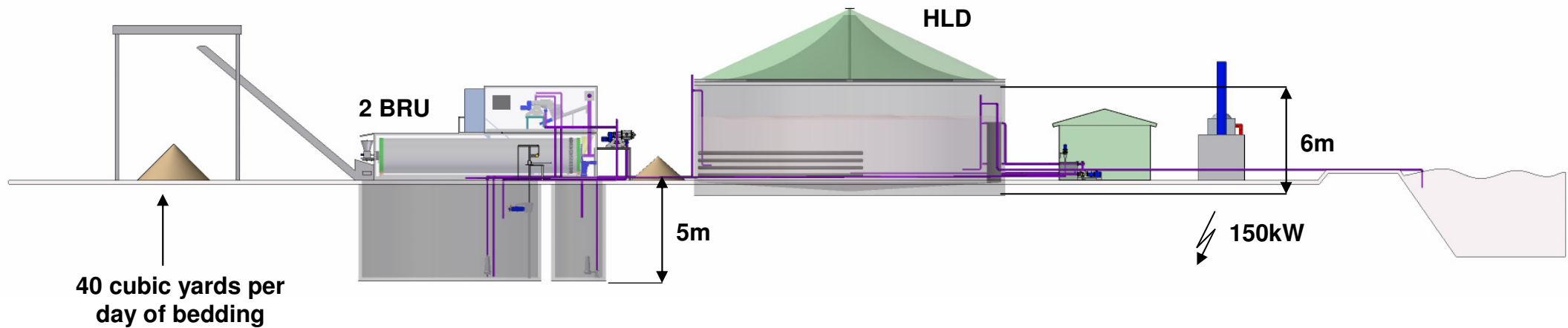
Version A



PSS – Press Screw Separator
 CCS – Centrifugal Classifier Separator
 CAT – Caterpillar
 CMR – Cavitation Microbubble Reaktor
 HLD – High Load Digester

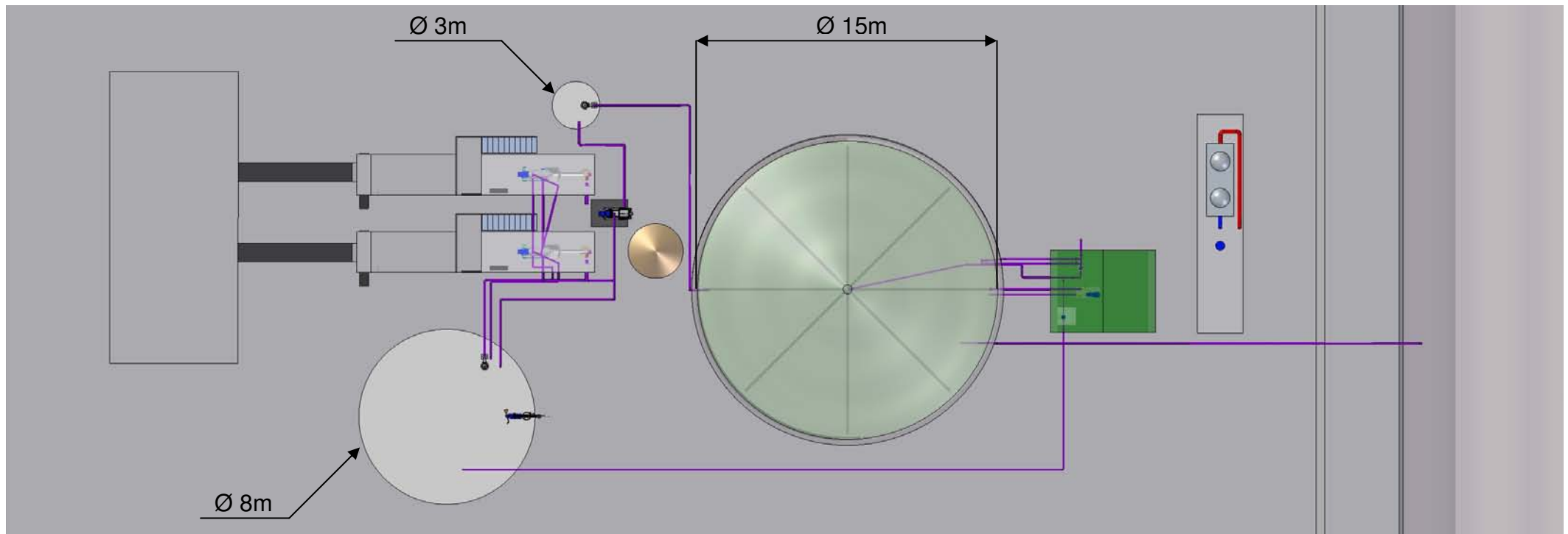
Version A

Example for 2.000 milking cows with FAN Bedding Recovery Unit (BRU)



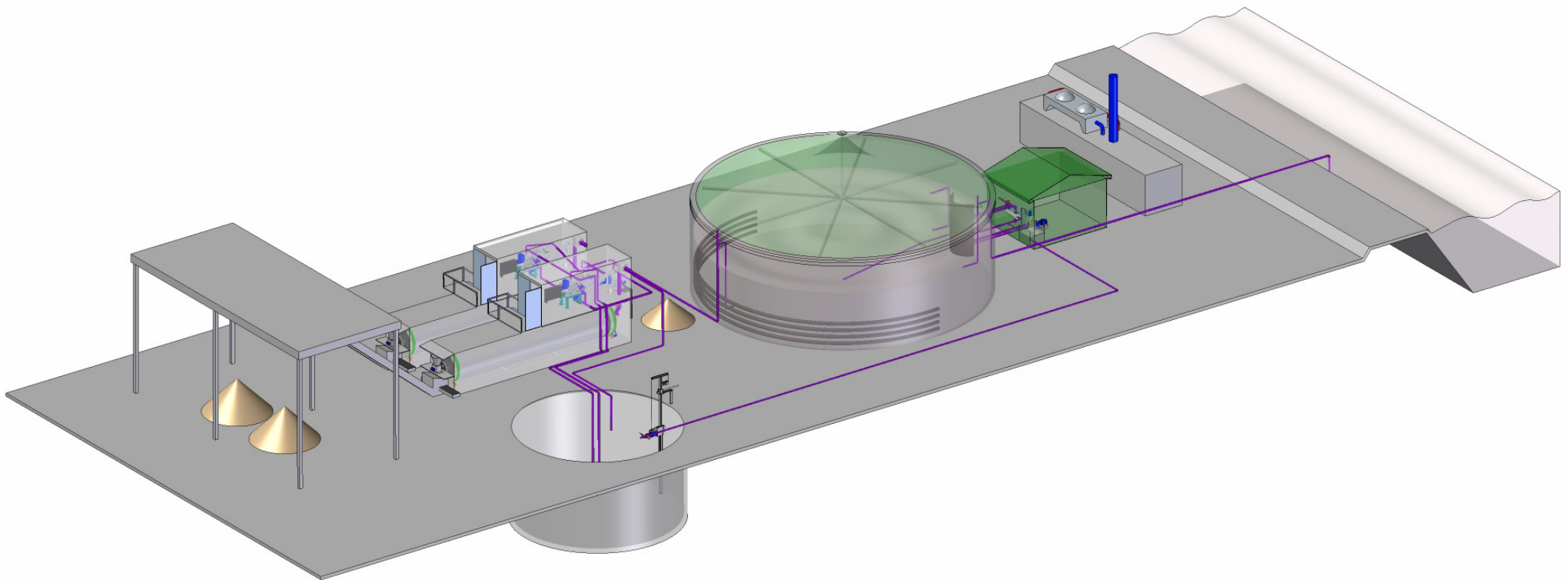
Version A

Example for 2.000 milking cows with FAN Bedding Recovery Unit (BRU)



Version A

Example for 2.000 milking cows with FAN Bedding Recovery Unit (BRU)



03.03.2006

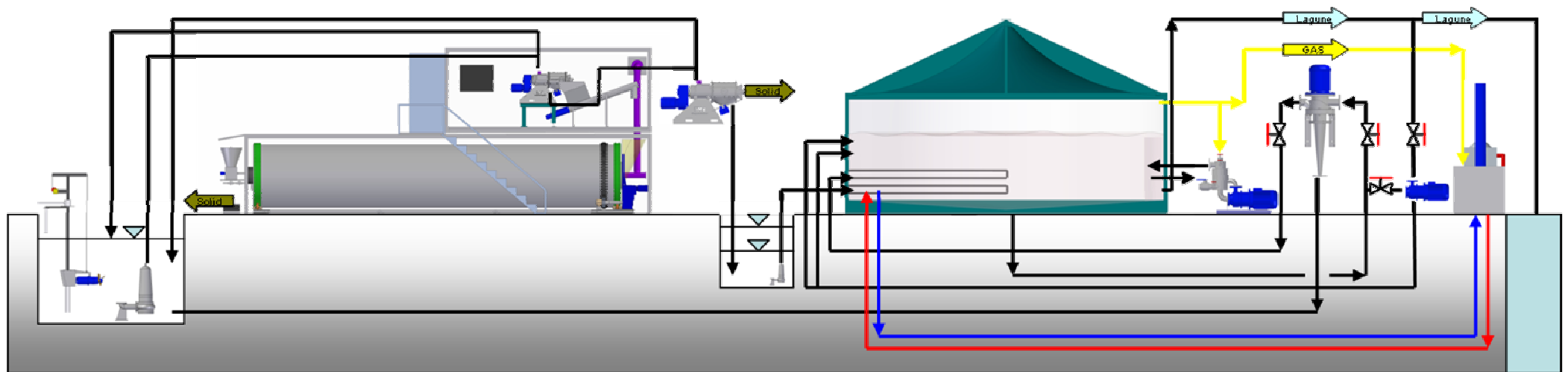
Engineering by



A company of **BAUER Group**

Version A

Example for 2.000 milking cows with FAN Bedding Recovery Unit (BRU)



Questionnaire (Version A)

Name/Address/Phone/Fax/E-mail

Acreage: _____ acre

• Lifestock

Lifestock	Number [unit/place]	Animal units	Existing manure [gpy]	Period of storage [month]	% total solids
1					
2					
3					

Bedding material: _____ amount: _____

• Farm Electricity consumption

Quantity (kWh/year): _____
 Maximum daily peak (kW): _____
 Elec. connected load (kW): _____
 Price per kWh: _____ or costs per annum (US \$): _____
 Notes: _____

• Farm Heat consumption

	Energy source	Consumption per annum	Costs or Price	Notes
a)				
b)				
c)				

Do you have potential heat customer (greenhouse or industry) within 1500 ft radius?

☐ No ☐ Yes consumption per annum: _____ kWh

• Notes

Calorific Value

Methane	7,60	kWh/yd ³
Biogas	5	kWh/yd ³
Diesel	36,30	kWh/gal

Biogas Yield

Cattle manure at 8 % TS	26	yd ³ gas / ton of substrate
Cattle manure at 4 % TS	13	yd ³ gas / ton of substrate
Hog manure at 6 % TS	24	yd ³ gas / ton of substrate
Corn silage	215	yd ³ gas / ton of substrate

How much substrate do I need for a 500 kW generator?

Animal Units	5.500	AU	<i>with 1000 lbs per AU</i>
Number of cows	5.000	cows	<i>with 1100 lbs per cow</i>
Number of hogs	44.000	hogs	<i>with 125 lbs per hog</i>
Corn silage	15.000	ton/a	<i>with 30 % TS</i>
Corn silage	875	acre	<i>with 17 ton/acre</i>

How much electrical power do I get with:

1.000 cows	100	kW
10.000 hogs	114	kW
100 acre corn silage	57	kW

How much kWh do I get with:

1 cow	800	kWh/a
1 hog	91	kWh/a
1 acre corn silage	4.550	kWh/a