

Rannie 37 / Gaulin 37

Introduction

The Rannie 37 / Gaulin 37 homogeniser, a positive displacement triplex, reciprocating plunger pump, is fitted with an application-specific homogenising valve assembly: single-stage with hydraulic actuation.

The Rannie 37 / Gaulin 37 homogeniser incorporates a durable slow-speed power end that reduces vibration and noise. Easy access to the hydraulic actuation system, lubrication oil and other auxiliary systems simplifies maintenance saving time and money. Liquid end options include a three-piece valve housing (Rannie) and a mono-block design (Gaulin) (ball and poppet style).

Design features of both the Rannie and Gaulin simplify routine maintenance. Materials for plungers, packings, pump valves, valve seats and seals are custom-selected for your application. APV engineers will work with you to optimise the configuration for your specific application.



STANDARD OPTIONS

- Two-stage hydraulic valve actuation (HVA)
- Single-stage automatic hydraulic system (AHS)
- Two-stage automatic hydraulic system (AHS)
- Pulsation dampener(s) on inlet and outlet
- Aseptic cylinder design
- Electronic pressure transmitter excl. display
- High-pressure outlet
- Inlet pressure gauge
- Plunger lubrication control package
- Tungsten carbide homogenising valve
- Square plunger seals and ceramic plungers (Rannie valve housing only)
- External cooling fan/main motor
- Motor starter
- Control cabinet, stainless steel
- Thermostat/oil temperature

SPECIAL OPTIONS

- Acid-proof cylinder (Gaulin valve housing only)
- Ceramic plungers with U- or V-rings
- Explosion-proof design
- Electropolished wettables
- High-temperature design
- Flow switch - power end cooling
- UFO - Unit for Filtration of Oil



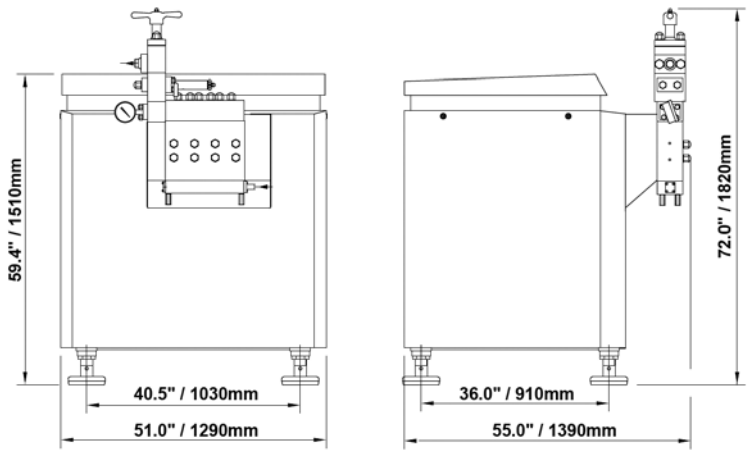
RANNIE THREE-PIECE
VALVE HOUSING



GAULIN MONO-BLOCK
DESIGN

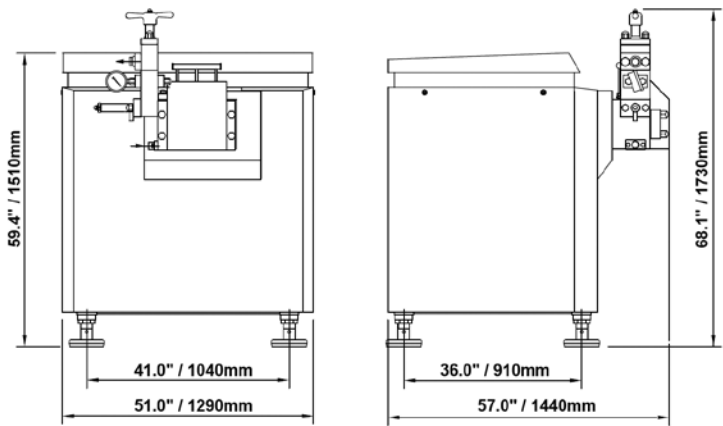
RANNIE/THREE-PIECE VALVE HOUSING
POPPET AND BALL TYPE VALVES

TYPE	US MAX. CAP./MAX. PRESS.		METRIC MAX.CAP./MAX. PRESS.	
	GPH	PSI	LPH	BAR
60.81	2170	2175	8200	150
50.81	1530	2900	5800	200
45.81	1240	3625	4700	250
42.81	1085	4300	4100	300
35.81	740	5800	2800	400
30.81	530	8700	2000	600
25.81	345	11600	1300	800
22.81	265	14500	1000	1000



GAULIN/MONO-BLOCK DESIGN

TYPE	US MAX. CAP./MAX. PRESS.		METRIC MAX.CAP./MAX. PRESS.	
	GPH	PSI	LPH	BAR
POPPET TYPE VALVES				
1.5	2960	1500	11200	100
2.5	1750	2500	6640	170
3.0	1505	3000	5700	210
5.8	740	5800	2800	400
BALL TYPE VALVES				
2.5	1375	2500	5200	170
3.0	1190	3000	4500	210
4.3	820	4300	3100	300
5.8	580	5800	2200	400
8.7	420	8700	1600	600

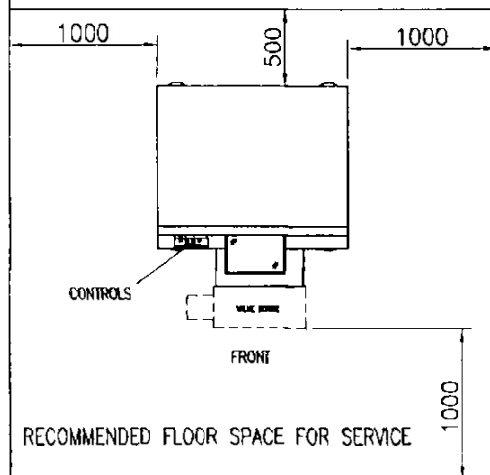
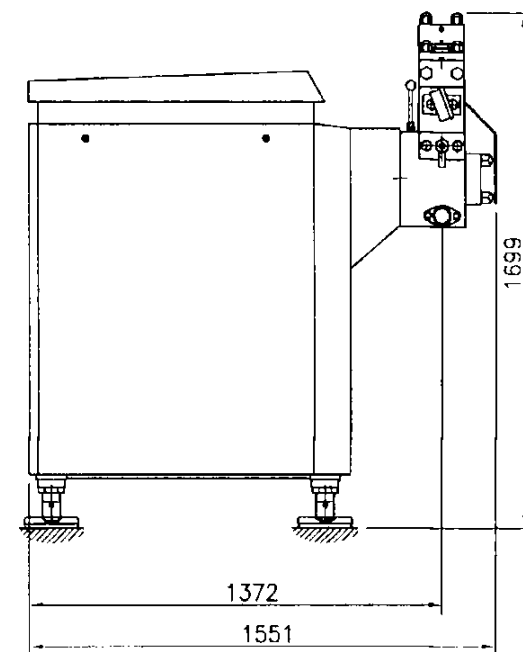
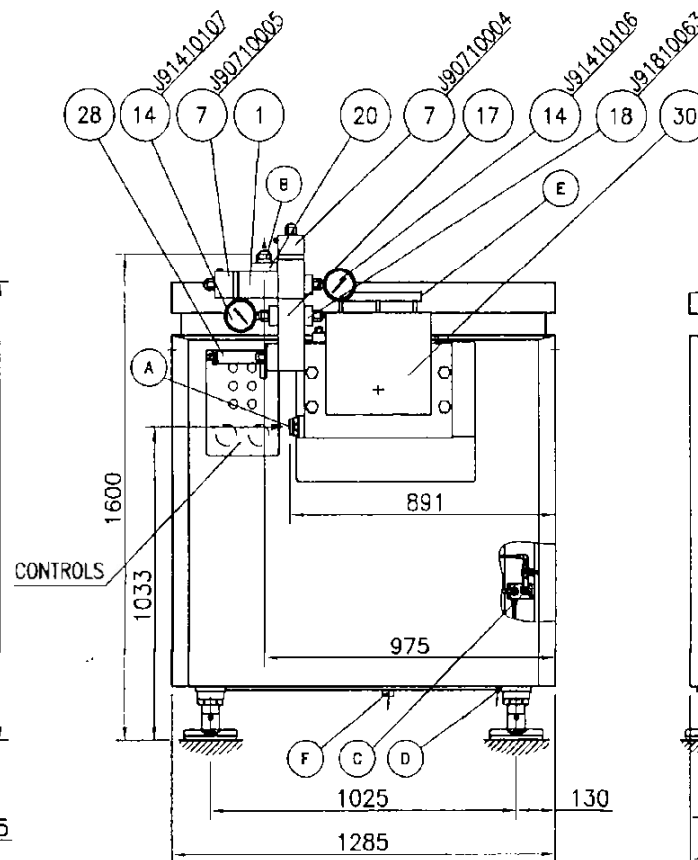
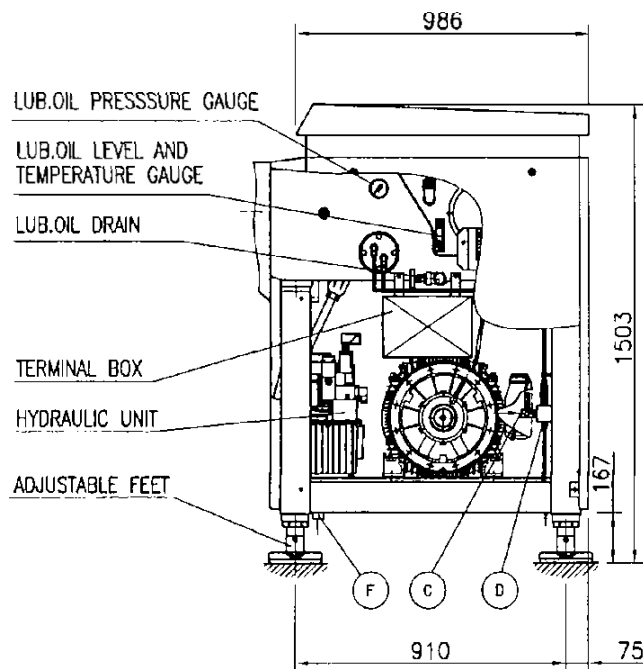


DIMENSIONS (SINGLE STAGE)

DIMENSIONS PACKED IN A CRATE LXWXH (IN.)	DIMENSIONS PACKED IN A CRATE LXWXH (CM)	CUBIC MEASURE M³	GROSS WEIGHT IN A CRATE INCL. MOTOR
70 X 62 X 82.8	176 X 155 X 207	5.7	4,850 LB./2,200 KG



SPX Flow Technology, Oestmarken 7, 2860 Soeborg, Danmark
T : (+45) 70 278 222 F : (+45) 70 278 223



MACHINE WEIGHT INCL. MOTOR APPROX.: 2100 Kg

POS.	SIZE	DESCRIPTION
A	NOM.51	PRODUCT INLET
B	NOM.38	PRODUCT OUTLET
C	R3/8"	COOLING WATER INLET
D	PIPE #8 (Cu)	COOLING WATER OUTLET
E	R3/8"	PLUNGER FLUID INLET
F	HOSE #60 (PVC)	PLUNGER WELL DRAIN LINE

NOTE 1
DIMENSIONS : +/- 20mm

GAULIN 37/D.81			
INSTALLATIONSTEGNING INSTALLATION DRAWING INSTALLATIONSZEICHNUNG DESSIN D'INSTALLATION	Ort	Sig.	Erstausf.
	Dag	06.12.05	0908/PV/16
	Kont.	7/10/05	1-05.476
	Rev.		1000000
 APV HOMOGENISERS AS COPENHAGEN			

FINAL INSPECTION REPORT

Serial No.: 1-05.476

Customer Order No.: W05088X

Machine Type: 37-3,0P

Our Order No.: 27/59355

Test Certificate: **Enclosed**

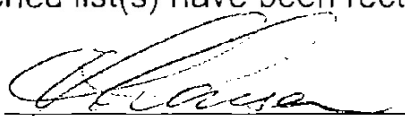
Date: 16-12-2005

This test certificate has been verified against the purchase order and its technical specifications and the unit:

☒ is released for shipment without restrictions.

☐ is not released for shipment and requires a second inspection.

☐ can be released for shipment after the points:.....
as stated on the attached list(s) have been rectified.


Production Mgr.

☐ customer, or customer's representative, has attended the factory test of this unit and accept by signature its technical release.

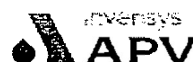
Customer/Representative

Albertslund, _____
date

Outstanding Issues

Part No.:	Description:
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____
_____	_____

Should you experience any start-up problems with this unit, please call front office at:



Products, Rannie & gaulin Homogenisers AS

Roholmsvej 8, DK-2620, Albertslund

2620, Albertslund Denmark

Tip: +45 70 278 999

Telefax: +45 70 278 998

TEST CERTIFICATE

Serial No.: 1-05.476

Machine Type: 37-3,0P

Date: 16-12-2005



Products, Rannie & Gaulin Homogenisers AS

Roholmsvej 8, DK-2620, Albertslund

Tip: +45 70 278 999

Telefax: +45 70 278 998

Test Results	1	2	3
Feed Pressure:	5 [bar]	5 [bar]	5 [bar]
Pressure, Stage 1:	20 [bar]	150 [bar]	200 [bar]
Pressure, Stage 2:	0 [bar]	30 [bar]	30 [bar]
Back Pressure:	0 [bar]	0 [bar]	0 [bar]
Capacity:	5085 [L/hr]	5002 [L/hr]	4963 [L/hr]
Pump revs:	182 [RPM]	180 [RPM]	180 [RPM]
Amp.:	28,9 [A]	47,7 [A]	56,6 [A]
Volt:	392 [V]	393 [V]	391 [V]
Net Effect:	19,61 [kW]	3241,00 [kW]	38,39 [kW]
Oil Temperature:	0 [°C]	0 [°C]	0 [°C]

Motor Specifications			
Type:	M2QA 225 S4A	Revs:	1480 [RPM]
Effect:	37 [kW]	Frequency:	50 [Hz]
Volt:	400 [V]	Cos Q:	0,85 [rad]
Amp.:	67 [A]	Efficiency:	0,92

Motor Power Consumption	
Net consumption x Cos Q x Efficiency:	30,02 [kW]

Machine Check	OK
During the test all connections were leakproof.	OK
Kite marking of parts is in accordance with the purchase order and engineering specifications.	OK
Noise emission measurements have been executed in accordance with ISO 11201/ISO 3744.	OK

We certify that the above test measurements are accomplished in full accordance with valid quality instructions for function testing of homogenisers and high-pressure pumps at APV Products /Homogenisers

Sign, electrician.....: Chr. Winholt Date.....: 16/12-05

Sign, assembler.....: [Signature] Date.....: 16-12-05

Sign, foreman.....: [Signature] Date.....: 16-12-05

SOUND EMISSION

Serial No.: 1-05.476

Machine Type: 37-3,0P

Date: 16-12-2005



Products, Rannie & Gaulin Homogenisers AS
Roholmsvej 8, DK-2620, Albertslund
Tlf: +45 70 278 999
Telefax: +45 70 278 998

This noise measuring declaration applies for the testing of the below configured unit with the specified operational parameters and carried out in the grade 2 (ISO 3744) qualified acoustic environment at APV Products / Homogenisers

Main Unit	Valve type:	Poppet valve	Standard
Configuration	Motor mark:	M2QA 225 S4A	

Test Procedure QI-5-08-05 (compliant with the Machinery Directive 89/392/EEC and the engineering methods specified in ISO 11201 and ISO 3744).

Operational Parameters

Feed pump pressure:	5 [bar]	Flow rate:	4963 [l/hr]
HMG press., 1 st stage:	200 [bar]	Pump revolency:	180 [rpm]
HMG press., 2 nd stage:	30 [bar]	Motor revolency:	1480 [rpm]

During the test, the unit was connected to rubber inlet and outlet hoses, positioned directly on a concrete floor and H₂O was applied as the test media.

Instrumentation	Sound Level Meter:	No. 80052 (Brüel & Kjaer 2222/No. 1282407).
	Microphone:	No. 80052 (Brüel & Kjaer 4176/No. 1331850).
	Sound Level Calibrator:	No. 80051 (Brüel & Kjaer 4231/No. 1821068).
	Last Calibration:	Within 1 year from current date.
	Accredited Laboratory:	Brüel & Kjaer.

Acoustic Environment	Accuracy:	Grade 2, ISO 3744.
	Reverberation Time:	< 0.6 seconds (0 - 1000 Hz).
	Point of Measure:	Most powerful noise emission measured, 1 m from unit, 1.55 m +/- 0.075 m above the reflecting plane.
	Conditions:	Air temp., barometric press. and rel. humidity not sampled.

Acoustical Test Result	Sound Pressure Level:	83,3 dB(A) re. 20 1E-6 Pa
	Sound Power Level:	0,0 dB(A) re. 20 1E-6 Pa

The test report has been accomplished in full conformity with the QA procedures for sound emission measuring at APV Products / Homogenisers

16-12-2005
Date of measurement

Signature of responsible Test Technician

Electrical Test Protocol

Test No.: 001
Revision:
Created by: DAO
Approved by: DAO
Date: 2001-08-13
Page: 1/2

Machine Type: 37 KW HMG s/n: 1-05.476

Component control:

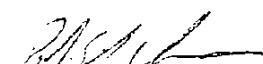
Item	Not installed	Signal test	Function test
Oil pressure switch		X	
Oil lubrication pump		X	
Cooling water valve		X	
Cooling water flowswitch	X		
Lubrication water valve	X		
Lubrication water flowswitch	X		
1st stage pressure signal		X	
2nd stage pressure signal		X	
Feed pressure signal	X		
Oil temperature	X		
Emergency stop		X	
Alarms	X		
Push buttons	X		
Motor control		X	
Hydraulic pump		X	
Relieve valve		X	
Display	X	Pressure Alarm	Pressure Alarm
Motor rotation/arrow		X	

Document control

Item	No corrections	Corrections	Remarks
Electrical drawings contra cabinet drawings	X		
Cabinet drawings contra cabinet installation	X		

Remarks

For validity and compliance with all associated test specifications

Date: 16.12.05 Signature: P.E.C. 

Electrical Test Protocol

Test No.: 001
Revision
Created by ...: DAO
Approved by ..: DAO
Date: 2001-08-13
Page: 2/2

Machine Type: 37 KW HMG s/n: 1-05.476

Component control:

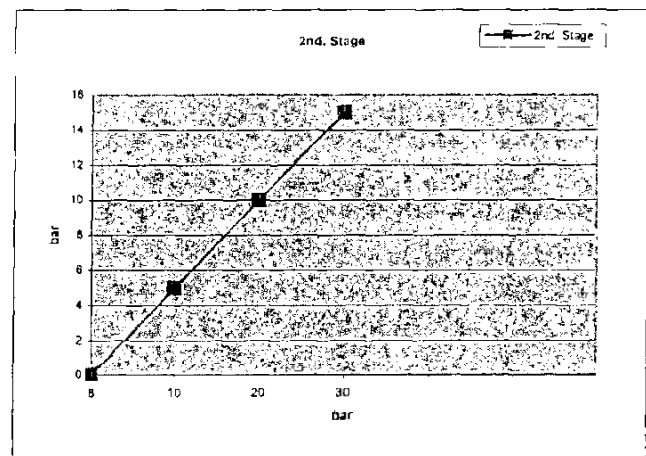
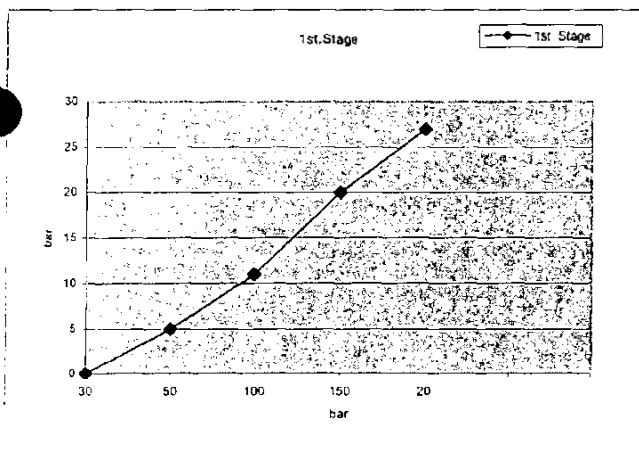
Hydraulic pump adjusted to 33 bar

1st. Stage:

HMG Pressure (bar)	Hydraulic pressure (bar)	Automatic valve (mV)	Potentiometer (position)	PID-control output (%)
30	0	30	0	
50	5	88	4	
100	11	114	6	
150	20	135	7,4	
20	27	155	9	

2nd. Stage:

HMG Pressure (bar)	Hydraulic pressure (bar)	Automatic valve (mV)	Potentiometer (position)	PID-control output (%)
8	0	30	0	
10	5	90	6	
20	10	106	7,4	
30	15	122	9	



For validity and compliance with all associated test specifications

Date: 16.12.05

Signature:

PE.C

[Signature]

Machine Type:	37 KW	Homogeniser s/n:	1-05.476
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Verification of mechanical properties and final inspection before shipment

	Item	At start-up	After 3 hours	Criteria	Comments
1.	Operation				
1.1	Easy pressure adjustment			Easy/Hard	For handwheel actuator
1.2	Pressure stability	OK	OK	Stable/unstable	
2.	PE Lubrication system				
2.1	Oil type	OMALA 220			
2.2	Oil pressure [bar]	4,5	4	2-5 [bar]	Visual reading on gauge
2.4	Oil temperature	20	37	< 45 [°C]	Visual reading on level glass
2.5	All connections leak proof	OK	OK	No leaks	
3.	PE cooling system				
3.1	All connections leak proof	OK	OK	No leaks	
4.	Plunger lub. System				
4.1	Flow to all plungers	OK	OK	Flow	Visual lubrication check
5.	Transmission				
5.1	Oil level	OK	OK	Visable in glass	
5.2	All connections leak proof	OK	OK	No leaks	
5.3	Oil Temperature	-	-	< 60 [°C]	Only after agreement
6.	HVA system				
6.1	Oil type	FLUID HF 46			
6.2	All connections leak proof	OK	OK	No leaks	
7.	Power End				
7.1	Crosshead Cover Temp.	20	42	< 45 [°C]	Measure with laser sensor
7.2	Leakage-cross head covers	OK	OK	No leak	
8.	Cabinet				
8.1	Cabinet temperature	20	34	< 45 [°C]	Measure at: Pressure switch
9.	Liquid End				
9.1	Plunger packings	OK	OK	No leaks	Droplet leak for braided pack.
9.2	Static seals/gaskets	OK	OK	No leaks	

Preparations for dispatch

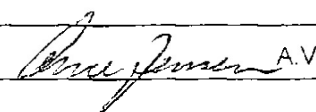
Item	Signature	Comments
Power End Oil drained - label attached	OK	
Motor grease checked and filled		Among others: ABB main motors
All product connections plugged	OK	
Liquid End drained	OK	Crankshaft rotated a few times
Cooling system cleaned with air	OK	
Rotation direction indicator on Main drive	OK	
Relief valve: Big nut against small nut	OK	

Comments:

For validity and compliance with all associated test and quality specifications

Date: 16.12.05

Signature:



DEKLARACJA ZGODNOSCI UE

My, APV

Roholmsvej 8, DK-2620 Albertslund

Dania

będąc świadomi odpowiedzialności na nas spoczywającej, oświadczamy, iż następujący produkt

Gaulin 37-3,0P
(Opis urządzenia)

1-05.476
(Nr urządzenia)

spełnia następujące dyrektywy i normy UE

- Dyrektywa o urządzeniach (98/37/EF)
- Dyrektywa o niskim napięciu (73/23/EEC, 93/68/EEC)
- Dyrektywa o zgodności elektromagnetycznej (89/336/EEC, 92/31/EEC)
- Dyrektywa o znaku zgodności EC (93/68/EEC)

Kopenhaga, dnia 19.12.05

Orderhandler
(Funkcja osoby upoważnionej)

Helle Hansen
(Imię i nazwisko osoby upoważnionej)

która jest upoważniona do złożenia wiążącego podpisu w imieniu wyżej wymienionego dostawcy


(Podpis)

WYMAGANIA TECHNICZNE

HOMOGENISATOR / POMPA

Nr Fabryczny / zamówienia:	1-05.476	
Model:	Gaulin	Typ: 37-3,0P

KONIECZNIE podać we wszelkiej korespondencji z APV

Product:	Mix for youghurt	
Wydajność:	5.000	l/godz.
Ciśnienie przy wlocie:	3-10	bar
	mała prędkość/lepkość — duża prędkość/lepkość	
Ciśnienie Homogenizowania (maks.):	200	bar
Ciśnienie na wylocie:	-	bar
Ilość wody chłodzącej:	Cylinder:	150 l/godz.
	Skrzyni korbowej/Koła zębate:	150 l/godz.
Ilość oleju:	Miska mechanizmu korbowego, ok.:	25 l
	Koła zębate, ok.:	6,5 l
	Instalacja hydrauliczna:	
	(rodzaje oleju zob. w rozdz. 5.10x)	5 l
Części stykające się z produktem:	Metalowe:	Standard
	Powierzchnia:	Ra=0.8
	Uszczelki:	Epdm/Nylon
UWAGA:	Urządzenia ze stykającymi się z produktem częściami o specjalnie wypolerowanych powierzchniach: Zob. rozdział 13.100 / CZĘŚCI ZAMIENNE .	
Hałas powietrzny:	Poziom ciśnienia dźwiękowego:	83,3 dB(A)
	Poziom ciśnienia Akustycznego:	- dB(A)
Ciężar (pompa wraz z silnikiem) ok.:		2.100 kg

Napięcie sterujące: 24 V DC

Napięcie znamionowe: 3x380-415 V 50 Hz

Dane techniczne silnika: Moc znamionowa: Rating: 37 kW 1.470 Obr./min.

Układ przenoszenia napędu:

Narastający moment obrotowy w dzielonej tulei:

Pompa napędzana od przekładni pasowej: 113 Nm

Silnik napędzający przekładnię pasową: 90 Nm

Tabela 2	Typ urządzenia:	Ilość oleju:
	Rannie/Gaulin 37	5 litry
	Rannie/Gaulin 55	6 litrów
	Rannie/Gaulin 90	12 litrów
	Rannie 315	15 litrów

8. URZĄDZENIA Z HYDRAULICZNĄ REGULACJĄ CIŚNIENIA

System hydrauliczny należy napełniać olejem **KONIECZNE** przez wlew zbiornika systemu.

GATUNKI OLEJU DLA SYSTEMU HYDRAULICZNEGO

Z uwagi na ryzyko skażenia zaleca się stosowanie oleju hydraulicznego przeznaczonego do zastosowań w przemyśle spożywczym (klasy 46 wg normy ISO), tzn. oleju hydraulicznego, który spełnia wymogi Amerykańskiego Departamentu ds. Kontroli Żywności i Leków FDA (H1).

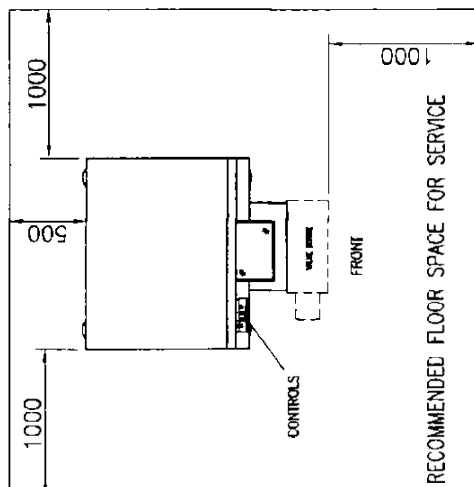
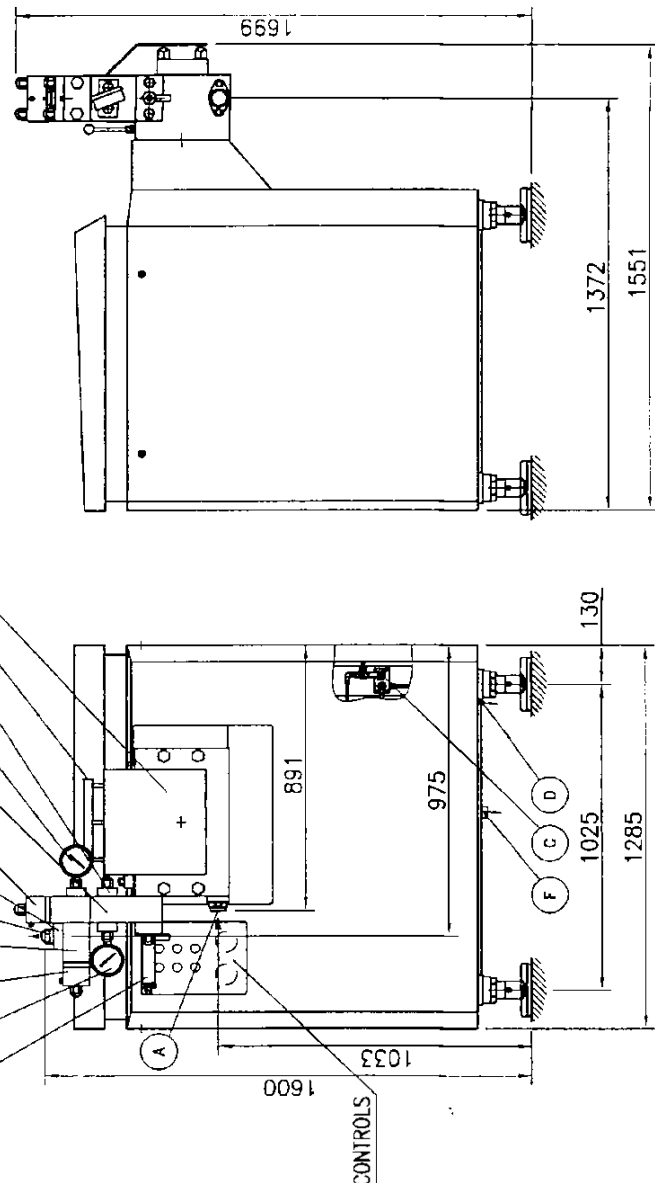
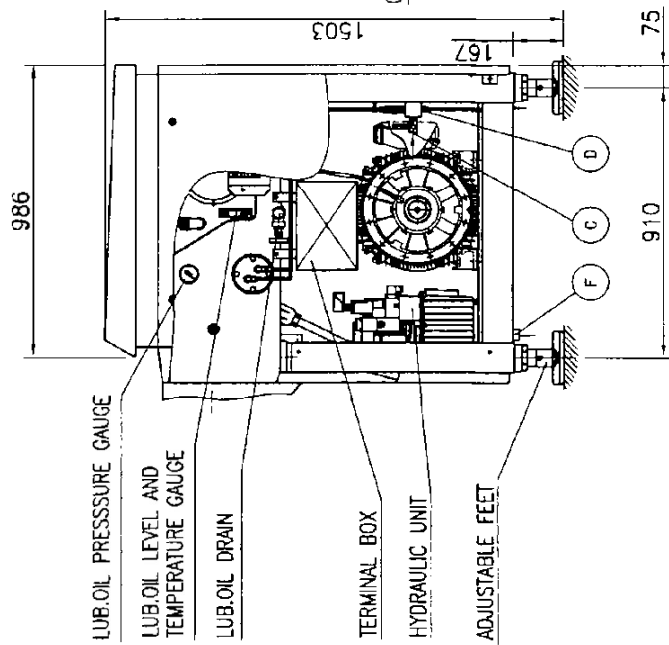
KLÜBER :	KLÜBER	/	KLÜBER-SUMMIT HYSYN FG6-46 (SYNTHETIC FOOD GRADE OIL –H1)
TEXACO :	TEXACO	/	CYGNUS HYDRAULIC PAO ISO GRAD 46 (SYNTHETIC FOOD GRADE OIL –H1)

Oleje nie przeznaczone dla przemysłu spożywczego (ISO VG 46) można stosować w maszynach do zastosowań przemysłowych.

ARAL :	VITAM DE 46	
BP :	ENERGOL HLP 46	/ ENERGOL SHF 46
CASTROL :	HYSPIN AWS 46	/ HYSPIN AWH 46 lub VARIO HDX
ESSO :	UNIVIS N 46	/
FINA :	HYDRAN H 46	/
FUCHS :	RENOLIN B 15 VG 46	/
KLÜBER :	LAMORA HLP 46	/
MOBIL :	DTE 25	/
SHELL :	TELLUS OIL 46	/ HYDROL DO 46
STATOIL :	HYDRAWAY HV 46	/
TEXACO :	RANDO OIL HD 46	/ HYDRAULIC OIL HDZ 46

Ilość oleju: 5 litrów

- 30 18 14 17 7 20 1 7 28 14
- 99181063 991410106 990710024 990710005 991410107



MACHINE WEIGHT INCL. MOTOR APPROX.: 2100 Kg

POS.	SIZE	DESCRIPTION
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F	HOSE #60 (PVC)	PUMPER WELL DRAIN LINE

NOTE 1
DIMENSIONS : +/- 20mm

GAULIN 37/D.81

INSTALLATIONSTEGERING
INSTALLATION DRAWING
INSTALLATIONSZEICHNUNG
DESSIN D'INSTALLATION

APV
PUMPER
HORIZONTALS AS
SUPERMARKET

Top 06.12.05
Rev. 1
Date 27.05.05
Proj. 1-05.476
Rev. 1
Dess. 1