

## Liquid Sample Recovery System

### LRS 1100 series

#### Introduction

The LRS-1100 series sample recovery systems are designed specifically to collect liquid effluent, or spent sample from analysers and return this to the process line, or any other suitable location.

This system is ideal for use in applications where it is undesirable to discharge hydrocarbons or chemicals into sewage drains. The standard unit is designed for liquid hydrocarbons with a density of min.  $0,6 \text{ kg/dm}^3$  and viscosity of  $0,3 \text{ cS}$  at operating temperature. A wide range of optional equipment can be made available to meet specific requirements with respect to discharge pressure, liquid specifications, sample wetted material and system lay-out. The unit is skid mounted and of rigid design, ensuring extended periods of unattended and trouble free operation. The unit is ideal for use in combination with our standard GRS-40 gas recovery system in wall mounting execution, installed above the LRS unit. This setup allow a complete sample system, requiring no more than one metre outer wall spacing of your analyser shelter.

#### Description

The system is comprising of :

- sample collecting vessel, with magnetic level indicator and level switches
- pump unit with block valving and suction filter
- control unit to control the operation of the discharge pump

The system is mounted in an open skid, made of U-channel and angle iron. The skid is suitable for wall- and floor mounting and standard in galvanised execution.

Spent sample from analysers or by-pass streams is let into the container via the  $\frac{1}{2}$ " NPT-F connection welded in the left side wall of the container. The top entry is plain and plugged off. This entry is intended as additional entry, or as (additional) vent connection. An  $\frac{1}{2}$ " NPT-F overflow connection is welded in the left side wall of the container and is to be connected to a suitable oil drain- and vent system via flame arrestors as required.

The pump suction is connected to a slightly elevated connection in the right-hand side wall of the collecting vessel, thus preventing debris and sediment entering the pump suction. A drain plug is located at the lowest point of the container to allow flushing/cleaning of the container. Container material: Galvanised sheet metal. The magnetic level indicator is mounted on the side of the container via flanged tube ends.

The level switches and the optionally available alarm switches are clipped on the level indicator and activated by the magnetic float. The switches are fully adjustable over the full length of the indicator. The switches are connected to barrier relays, mounted in the control unit. The loop is intrinsically safe according (EEx-IA)-IIC. Space is provided for an additional set of relays for max 2 off alarm level switches. As the standard level switches, these alarm switches are fully adjustable and the loop is [EEx-Ia)-IIC. These switches are optionally available. The control unit provides a DOL starter relay with thermal overload protection for the pump motor, all required switching for automatic operation of the unit and a manual override via a spring return push button mounted in the front cover of the EEx-d housing.

## Pumpunit

The pumpunit will be selected and sized per application, is based on criteria as discharge pressure, physical properties of sample, and required capacity.

## Finish

All carbon steel parts will be coated with a two-pack epoxy paint. Colour RAL 7032. Stainless steel and non-ferrous materials will remain untreated.

## Testing

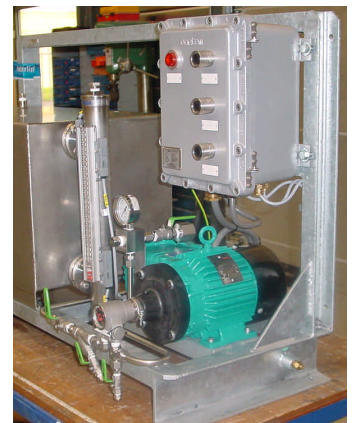
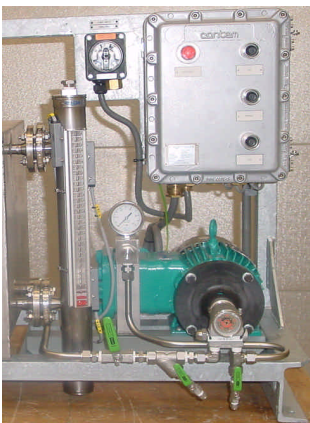
The unit is fully functionally tested, using a limited quantity of diesel fuel (or any other suitable hydro-carbon liquid). Liquid levels are simulated by manual operation of the level switches. The container will be leak tested, using instrument air at 0,1 Barg pressure.

## Specification

<b>Sample container</b>	vol. 65 litre, effective vol. 50 litre max
<b>Density</b>	min. 0,6 kg/dm <sup>3</sup> (reduced density of 0,5 kg/dm <sup>3</sup> upon request)
<b>Viscosity</b>	min. 0.3 cS max 120 cS at operating temperature
<b>Design limit</b>	250 cS
<b>Operating temperature</b>	min. -15°C max. +40°C design limit 250°C
<b>Area classification</b>	Zone 1-IIB-T3 according CENELEC standards
<b>Power supply</b>	400 VAC/ 50 Hz - 3 ph + Neutral
<b>Power consumption</b>	0,3 kW (may vary with the pump unit installed) 3 wire execution and different voltages are optionally available
<b>Pump unit</b>	selected on application specific requirements
<b>Overall dimensions</b>	1000*450*800 mm (w*d*h)

## Available options

<b>Sample container size</b>	100 litre or 200 litre
<b>Material</b>	AISI-304L stainless steel
<b>Heated sample container</b>	100L sample collecting vessel with steam heater coil Material AISI-304L, coil AISI-316
<b>High temperature execution</b>	up to 250°C
<b>Frame</b>	Stainless steel AISI-304
<b>Alarms</b>	HiHi / LoLo alarm (combined) voltfree SPDT contacts (250VAC - 30UDC/2A)
<b>Power supplies</b>	415 VAC/50-60 Hz - 3 wire 400 VAC/50-60 Hz - 3 wire 230 VAC/50 Hz (EEx-e execution for zone 2 only)
<b>Dual power supply</b>	1Ph 110 or 220 Vac for control unit 3Ph 400 or 415 Vac for pump unit
<b>Area classification</b>	CENELEC Zone 1 - IIC T4 or Zone 1 - IIB T4 ATEX I 1G EEx-d [iA] IIC T3

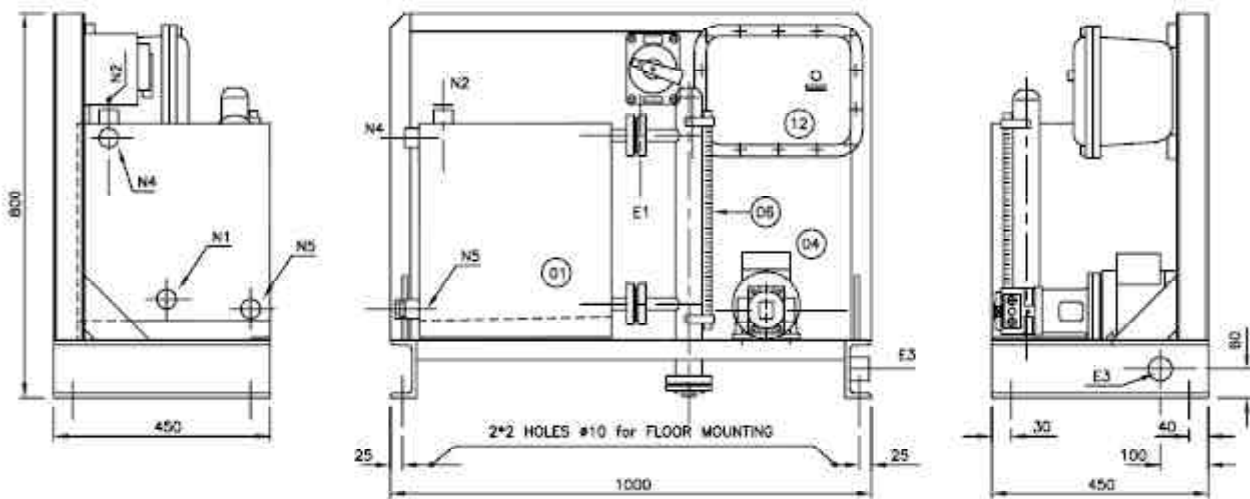
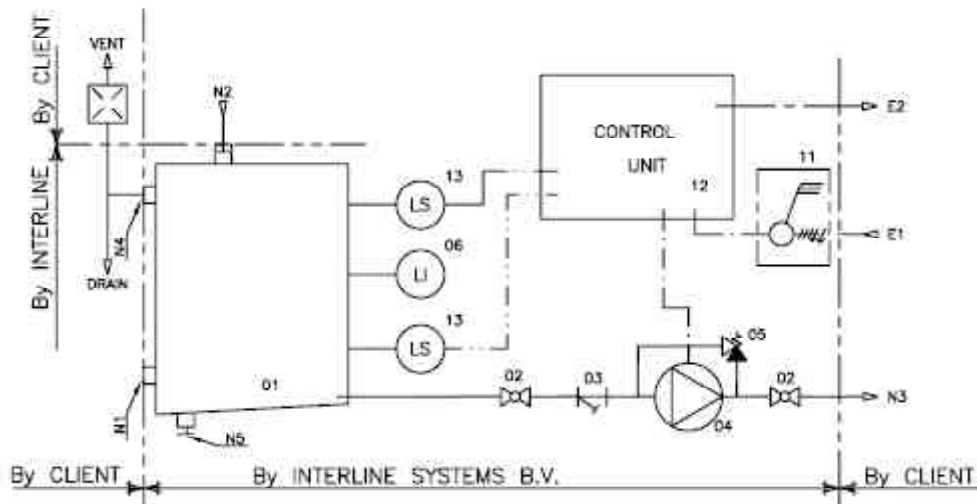


## Connections

N1	Sample entry	1/2" NPT-F
N2	Sample entry (plugged)	1/4" NPT-F
N3	Sample return	1/2" NPT-F
N4	Vent	1" NPT-F
N5	Tank drain (plugged)	1" NPT-F
E1	Power supply	M20 x 1,5
E2	Signal out (option)	M20 x 1,5
E3	Earth stud	M10

## Part description drawing

01	Sample container
02	Ball valve
03	Y-strainer
04	Pump unit
05	Relief valve
06	Level indicator
11	Main power switch
12	Control unit
13	Level switch



*Interline Systems BV has adopted the policy of continuous product development. Although this bulletin has been compiled with great care, current standard executions may deviate.*



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