2012

ConTent - A Integrated Container/Tent Solution

Technical Description

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Normeca As

History

Normeca AS (www.normeca.no) has since its start in 1983 and until 1993 primarily been engaged in selling to the domestic health care market in Norway. The main areas have been anesthesia, ICU, CCU and emergency care. Products have been imported primarily from Denmark, Sweden, Germany, England and USA.








Normeca AS has been the leading Norwegian supplier of anesthesia machines and ventilators since 1983 and until around 2000. During most of these years our market share was approx. 90-97 %. Normeca AS was in many years the only company in Norway that was able to offer a complete range of gas-related medical equipment, from centralized gas supply systems to the tube in the patients' mouth.

For many years, Normeca AS had agreements with 65-70 % of the Norwegian hospitals for preventive maintenance on anesthesia machines and ventilators. This is carried out once or twice per year depending on the specific requirements.

Normeca AS has had an extensive program of courses relating to anesthesia and to a lesser extent heart monitoring. A total of approx. 2.300 doctors, nurses and medical-technical personnel have attended these courses. Our course "Safety during anesthesia" was a part of a curriculum for anesthesiologists in Norway. The course is today being arranged by the Norwegian Government.

In addition Normeca AS has arranged a number of seminars on field hospitals both in Norway and abroad. These have been attended by approx. 1.500 people. Local seminars has been held in countries like amongst others Japan, South Korea, China, Malaysia, Philippines, Thailand, Indonesia, Taiwan, India, United Arab Emirates, Hungary, Czech Republic, Poland, Great Britain, Portugal, U.S.A., Venezuela, Romania, Slovakia and Norway.

Today Normeca has become a disaster expert. Partly in cooperation with different NGOs and Governments around the world, amongst them the Japanese Red Cross, the Ministry of Health in Cuba, MSF, with more Normeca has delivered mobile and/or semi-permanent hospitals to disaster and/or war areas in countries like Afghanistan, Albania, Kosovo, Pakistan, India, Thailand, Japan, Haiti, Iran, Indonesia and many more countries. The summer of 2010 Normeca AS built a semi-permanent (container based) Mother & Child Hospital for the Medicines Sans Frontiers (MSF) from Holland in Port-au-Prince, Haiti. In 2009 it delivered the two most sophisticated mobile hospitals in the world, to Saudi-Arabia's Ministry of Finance, for use at the annual Hajj in Mecca. The MultiSpace solution is our own design, based on expandable semitrailers.

The company's aim

The company's aim has changed substantially during the last years. Today its aim can be divided into categories as follows:

- To export mobile- and semi-permanent hospitals, primarily to the world-wide "defence & emergency relief" markets.
- The company's aim is to be a leader in the world within storing mobile hospital and mobile clinics on behalf of GO and NGO.
- To export ambulances, ambulance boats and floating hospitals and clinics.
- To provide complete management and administration program related to ambulance, hospital and clinic deliveries.
- To sell medical equipment and disposables to the health care sector in Norway. Primary areas are anaesthesia, ICU, CCU, emergency areas and the operating theatre.
- To develop www.medclub.no as the leader of web shop in the field of medical equipment and disposables to doctor's office, nursing home, private health centres, etc. in Norway and later on in Sweden and Denmark.


Management System
Certificate

NS-EN ISO 9001:2008

Normeca AS
SUPPLIER OF MOBILE HOSPITALS

Supplier of mobile and semi-permanent turn-key hospitals, medical clinics and camps for use in all environments, including medical- and related equipment, management and maintenance

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Rapid deployable shelter - ConTent

The rapid deployable shelter is a developed 20 ft ISO container, which can be used for hospitals, Mobile headquarters, accommodation, kitchens and mobile dining solutions etc. The shelter will also have a wide range of usage in emergency areas such as Haiti (Earthquake in 2010) and Japan (Earthquake and Tsunami in 2011).
The shelter consists of a 20 feet ISO container (15 m2) and two inflatable tents (2 x 60 m2) 135 m2 in total when deployed. During transportation the tents are easily stored on two ramps on the side of the container. Both tents can be deployed within 1 hour by use of the onboard compressor which can be driven by the onboard generator.

→ All equipment for Accommodation, Kitchen and First Aid station e.g. can be packed inside the container during transport.
→ All solutions have their own generator, compressor, water purifier and hot water system.
→ All solutions can be COLPRO/ NBC protected

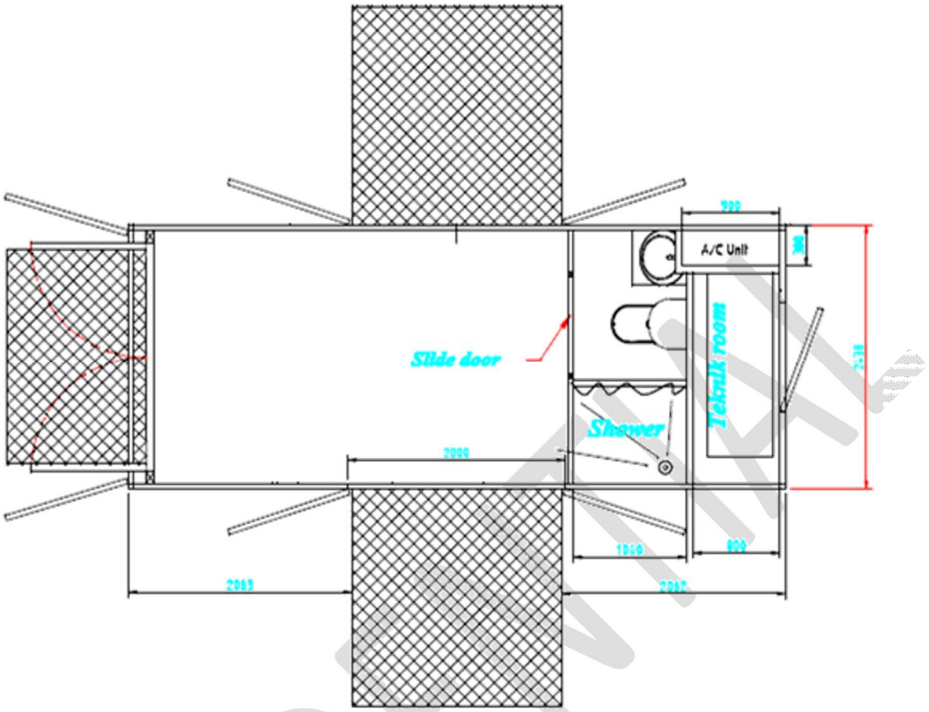
Container

The main container area is used as the primary access for the two tent sections. It is also the entrance room for the sanitary facilities.
An aluminium ramp ensures easy access for personnel and loading items to the container and the tents.
The bathroom contains full water supply, a sink, toilet and a shower cabin.
The technical room contains all the necessary equipment to run the water and electricity supply for the entire container and two tents, like AC, compressor, power generator, fuel tank and an electrical switch box which makes it possible to run the system independently.

Overall Configuration of Container

- Dimensions: ISO 1C 20' container (6.058 x 2.438 x 2.438 mm) ISO 668 compliant
- Sanitary room with toilet and shower cabin
- Technical room with AC, Generator, Power Generator
- Weight: 8.000 kg
- CSC approved
- Transportability: Suitable for transport by truck, train, navy and by air (C130J)
- Temperature: STANAG 4073 -46 ^{0}C (C2) – +44 ^{0}C (A2)
- Side ramps: for entrance to tents. Open/close via electric motor and wires. Tent is placed on ramp during transportation

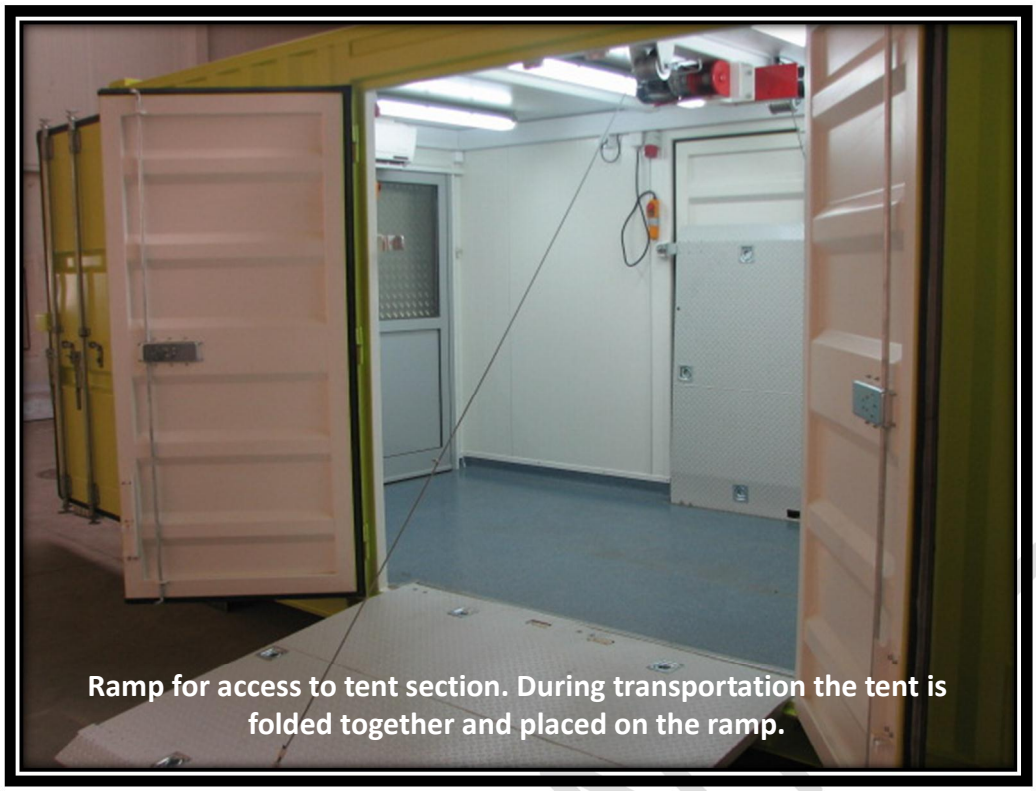
- Rear end ramp: Manual open/close
- Electrical system: External power / Onboard Panda Generator
    - Power socket of the container is 32A 230V 230 V/50 Hz
    - Painting: According to specifications



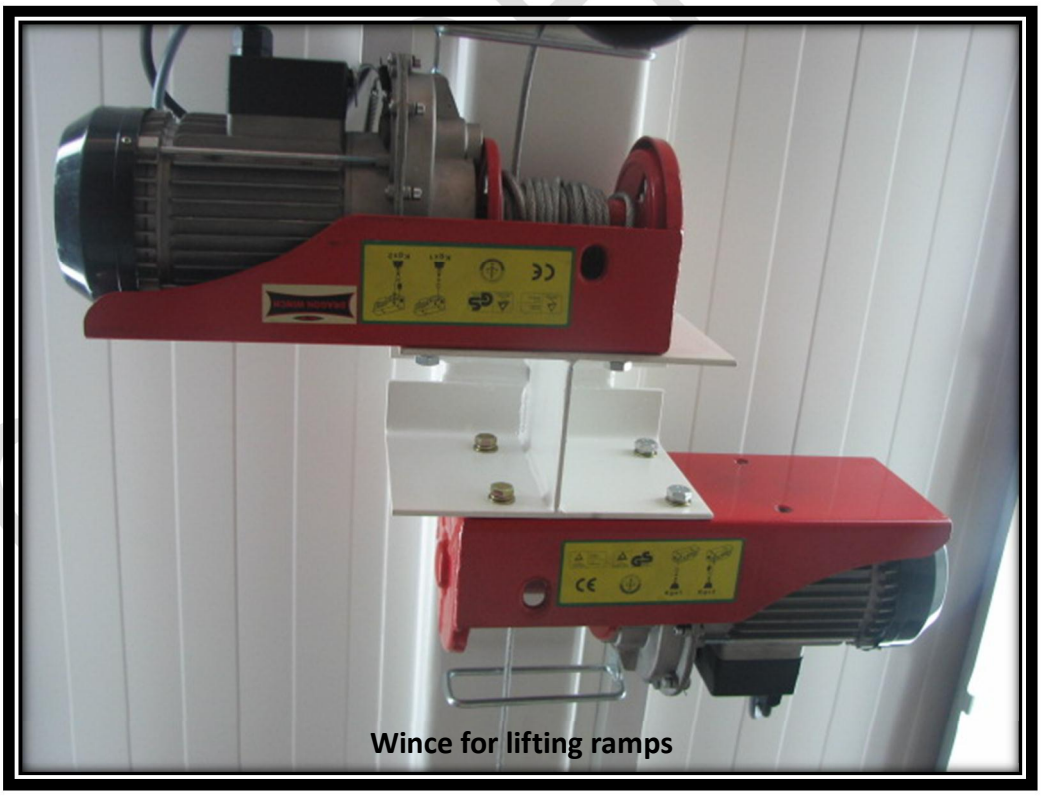
Main container room

The main container room is used as the primary access for the two tent sections. It is also the entrance room for the sanitary facilities.


Aluminium ramp ensures easy access for personal and pallets.



Ramp for access to tent section. During transportation the tent is folded together and placed on the ramp.



Wince for lifting ramps

Technical room with AC, compressor, power generator, fuel tank and electrical switch box

Rear end with door section

Side door with ramp and front end door with ventilation grills

Sanitary facilities

External water inlet and sewer pipe

Technical Room in Front end

Air Conditioning

An LG AC R410A is installed in the container. Designed with energy saving and environment in mind, LG's INVERTER V adopts R410A refrigerant which is zero Ozone Depletion Potential. This "greener" operation comes with innovative airflow design and 4D Protection System which makes the world's quietest, coolest, pleasant and comfortable indoor air conditioning solution.

Connection container/tent

The tent is connected directly to the container from the ramp it is stored on during transportation. There is an outlet on top of the container wall for easy connection to the air compressor.

Tents

The ConTent system can be installed with one or two inflatable tents –A preferred solution when low weight, rapid deployment and high comfort are of importance.

Key features:

- Climate: A I - A3, B I - B2, CO - C I in accordance with STANAG 2895
- Assembly time: approx. 10 minutes by 2 persons
- Lightweight one side special-coated fabrics water repellent and fungicide finish, oil and dirt repellent finish, > 1000 mm water column
- Reduced risk of humidity inside
- Doors: 1,10 x 2,10 meter with replaceable zippers
- Detachable doorstep
- Connectible door-door to next tent delivered as standard
- Four Air-Inlet/service openings 0 450 mm
- Flexible inflatable structure with 6-8 BAR high pressure 4" arches
- Inflatable structure not influenced by temperature changes
- Simple logistics
- Horizontal tubes give even more stability and better stretch support on the floor– increased user comfort.

RAPID 600-series is designed based on user requirements asking for lightweight soft shelters that may easily be deployed with a minimum of logistic support and within the shortest possible time. The lightweight design makes the RAPID 600 especially suitable for rapid response units and groups that need to maintain a high mobility. With 6 meters width the RAPID 600-series is specially designed to accommodate beds.

The tents can be delivered in several sizes

RAPID 610 60mz
6 meters with, 10 meters length

RAPID 608
6 meters with, 8 meters length

RAPID 606
6 meters with, 6 meters length

ADVANTAGES:

- Lightweight breathable fabric preventing interior humidity and avoiding water penetrating from outside can also be delivered in PVC fabric upon request.
- Low weight and waterproof
- Single point air filling with compressor or high pressurized air-bottle
- Quick setup time, approx. 10 minutes by two persons
- Simple erection – no special tools required
- Simple maintenance in field operations
- Three layer windows allowing natural ventilation
- Curtains inside for easy sun protection operated from inside.
- Roof vents for increased natural ventilation
- Integrated PVC- anti-skid flooring protecting against surface water and reptiles/ bugs

The tent may be easily split in sections by means of separation walls, creating joint accommodation areas for teams/ groups. The tent is fully integrated, meaning that sidewalls, roof, gables and floor are in one piece. The inflatable structure has high- pressure 4" arches, making the tent unaffected to temperature fluctuations. Tent design and anchoring system provide high stability and wind resistance.
The RAPID 600-series tents are equipped with air- inlet and service openings, enabling placement of AC and heater. Inside the tent there are possibilities of mounting equipment such as lighting, and personal effects.
For best possible ventilation, we introduce a new type of fabric, extremely resistant to water, with a water column of 1000 mm, but nevertheless with a breathing characteristic that ensures the best possible comfort in tropic areas. Ventilation through three layer windows with curtain operated from inside ads further to the comfort level when exposed to extreme heat.

For use as examination room or operation theatre, the RAPID 600-series provides sufficient work space for the medical staff performing their duties. The tent may be easily split in sections by means of separation walls, creating treatment- and functions areas necessary in a Field Hospital concept.
The tent is designed to assure a clean environment. Use of air distribution hose in the roof provides evenly distribution of the cooled or heated air throughout the tent.

The shape and size of the arches provide sufficient space for placing field beds or bunk beds across of each other, leaving a spacious walkway in the middle for easy access.

When deployed in field operations for longer periods, we recommend providing each person with cabins/ room separation for increased privacy.
Details like easy fixation of accessories such as separation walls, inner cabins, lighting, etc., increase the comfort level for the users.

Packed in transport cover one large and two small pcs. Both pcs. are strapped to a electric operated ramp inside the container for easy installation and avoiding heavy lifting.
ROR RAPID 610 6/2 size 60 ml L: 160xW:120xH:90 cm = 1,53m^3 / 238 kg.

Lightening for the tents

ALDEBARAN Series 1000 with Emergency Function 2 x 36 W ALDEBARAN with emergency function

The series 1000 supplied with 2 x 36 W has been equipped with an additional emergency function. Once the battery is fully charged after a charging time of max. 24 hours the lamp operates in case of a power failure with an emergency light function for about 2 hours supplying approximate 20% of the capacity of a 36 W tube (equivalent of a 40 W filament bulb). The change over time from mains operation to battery operation is less than 0,3 seconds. The emergency light function can be interrupted by pressing a built-in push button. This function can only be activated again in case of a further power failure. This lamp features integrated low-loss ballast in order to keep the intrinsic temperature under 40 °C thus ensuring a longer lifetime of the lamp.

All lamps are also available with different standard contact plugs.

Compressor for the tents

Air compressor for rapid inflatable tent mounted in the technical room of the containers. There are hoses going directly from the compressor to each of the tents making the complete system plug and play. The compressor is small size, low weight and has robust construction. It is oil free for air transport, low noise, high output, it is user friendly and has roll bar with integrated tank. The compressor both inflates and deflates the tents.

Compressor pump		Oil free - Single phase
Motor voltage	V/Hz	230/50
Displacement	l/min	260
Free air displacement*	l/min	350
Free air displacement*	l/sek	5,83
Working pressure max.	bar	10
Tank receiver	l	5
Sound level	dB (A)	71
Motor power	kW (hk)	1,45 (2,0)
Motor speed	r.p.m.	1400
Dimensions LxWxH	mm	590x340x380
Weight	kg	23

Fly sheets for the tents

Both the tents are equipped with flysheet from 70 % polyester and 30 % aluminium, 185 g/m^2, colour: silver incl. flexible aluminium poles and ropes.

COLPRO System – collective protection in NBC - conditions

A highly mobile collective protection system as an add-on solution that may be installed in regular soft shelters as Rapid 600 or 500 series tent.

Key features

- The most flexible and mobile system known to market today.
- Can withstand any known chemical or liquid threats in at least 48 hours.
- Rapid deployment, can be installed by two persons in less than 2 hours
- Inflatable high pressurized arches for easy and fast erection.
- One pedestrian and two stretcher openings to enter TFA zone through airlock
- Solid doors in airlock give you easy, fast and secure entrance into TFA
- AFU units and climate control scaled for your needs
- TFA available in both two and four openings for flexible configuration
- Stable overpressure in TFA units even in windy conditions
- AFU units with coal filtration remove all known poison gas / war gas

The AFUs will be coupled to the COLPRO liner. The liner is maintained at a positive pressure and therefore is safe from the ingress of harmful airborne agents.

A 2 step airlock is located at the entrance of the configuration, allowing ingress and egress, designed for evacuation purpose only.
The PIU allows monitoring of the over-pressure within the Toxic Free Area (TFA) and Inner Airlocks.

It is proposed to provide Clean Filtered Air using our fully developed and in-service AC-110A4 Portable CBRN Filtration Units each capable of providing 300m^3/h of Clean Filtered Air.

To support 50 persons within the COLPRO liner we would recommend a minimum of 17M^3 /h of fresh air per person. As such a minimum of 850m^3/h is required to support the 50 persons

Based on recommendation of 5 air changes in no more than 3 minutes through the airlock chamber, and basing the airlock on being a 60m^2 tent, split into the 2 airlock sections with each section being 16m^3 in volume, we need 1600m^3 per hour of air through the airlock to give 5 changes in 3 minutes.

Considering leakages from the shelter before air reaches the airlock, we have assumed a 25% leak of air from each AFU in each section; - with 12 sections this gives a leakage of 900m^3/h, and thus additional systems to cover this leakage. Last considerations are made to be able to change filters and have 100% redundancy in the event of failure of a single AFU.

We would like to point out that each section has the ability for Air filtration units to be connected to ensure the complex can be made in other configurations and is universal.

Please note that the given number of filters will allow:

- AFU Filters to be changed without undue loss of over pressure within the TFA. • 100% redundancy in the event of failure of a single AFU.
- Provide sufficient air flow for recommended 5 air changes within entry airlock, over a period not exceeding 3 minutes. (A single AFU will not achieve this recommended time)
- Greater allowance for damage and wear to liner before system is unable to maintain overpressure.

Air is supplied from the AFU through a 100mm diameter hose, 5 m in length.

Air conditioning Unit (ACU) — See page 20

In order to provide either heating or cooling of the air entering the liner we propose to use a single AC- M18 CBRN per 2 tents for the COLPRO area.
AC-M18 CBRN is a split type air conditioner; when deployed without need for CBRN protection, the AC is set up outside the tent, while during deployment with COLPRO installed, the AC is split with the condenser placed outside the tent and the evaporator inside, close to the air inlet from the AFU, as illustrated in the Fig 4.

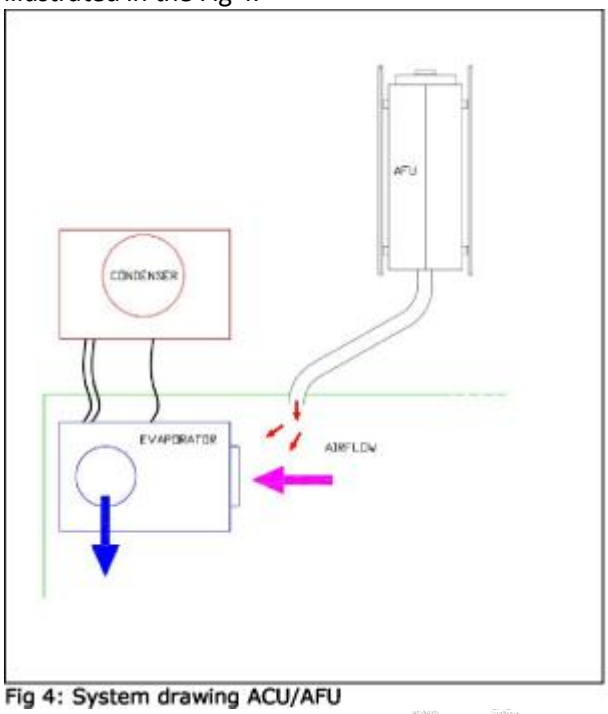


Fig 4: System drawing ACU/AFU

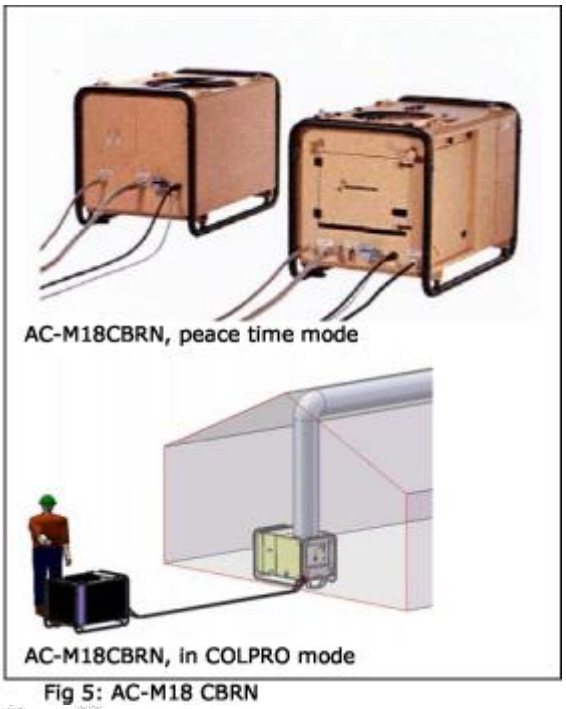


Fig 5: AC-M18 CBRN

CBRN Liner - See Figures 6 A+B

The CBRN protective liner is made from a split film semi permeable polyethylene material, supported by end frames and ribs and separated into areas.

The liner provides CBRN protection from airborne contaminants by being maintained at an overpressure by the AFUs and therefore preventing any ingress of any airborne contaminants.
The Liner is not chemically hardened to protect against any liquid threats.

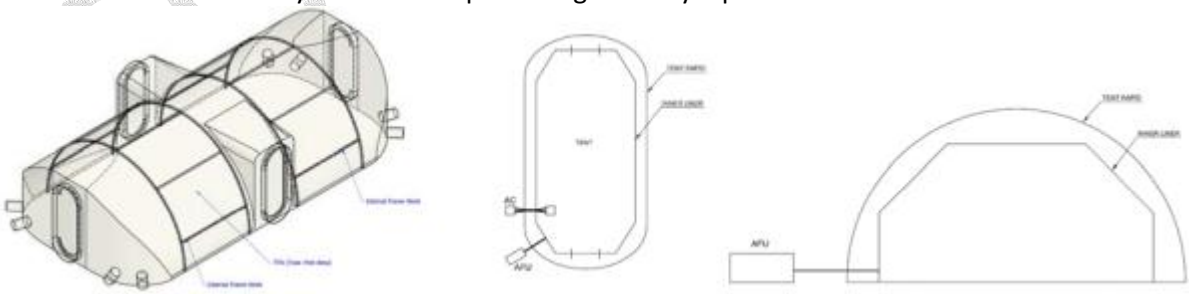


Figure 6A+B, CBRN Liner Overview, please see enclosed drawings showing liner for 4-door tent

The entry and exit airlocks are located at one end of the configuration. Air from the AFU enters the Liners at one end, where it is mixed with the air returning to the ACU evaporator. The position of the airlock at one end of the hospital complex promotes good airflow throughout the Liners.

Operation

The liner is intended to be maintained at an overpressure of 125Pa. This enables sufficient cascading pressures through the inner and outer airlocks. With the TFA at 125Pa Over Pressure, the Inner Airlock should be maintained at 50-80 Pa and the Outer Airlock at 5 Pa.

If personnel decontamination* is required, an additional Air-lock system with decontamination equipment must be installed. The set-up is based on the Air-lock being used for evacuation only.

*In such decon- system the following design would be required:

Liquid Hazard Area (LHA)

- The LHA is outside the Liner but inside the Outer Tent. Personnel decontamination and removal of their external equipment.

Vapor Hazard Area (VHA/Outer Airlock)

- This is the area for personnel to remove/ replace their CBRN protective suit (having already been de-contaminated in the LHA).

Inner Airlock

The inner airlock presents a vapor barrier. Personnel must wait a sufficient time in the airlock to ensure 5 full air changes have completed, thus ensuring any vapor hazard has been purged from the airlock.

It is recommended that the 5 air changes should occur through the airlock in no more than 3 minutes. The proposed airlocks, at 3,5m long x 2m wide x 2m tall gives a volume of 14m 3.

With 2 airlocks and a total of 10 AFU's assumed to be providing a de-rated 300m'/h of air each, each air lock will receive 5 air changes in 3 minutes giving faster entry and exit times and allows for a greater degradation in AFU performance before filters require changing.

It should be noted that both airlocks should not be opened simultaneously as this will cause a large drop is the overpressure and therefore protection of the liner.

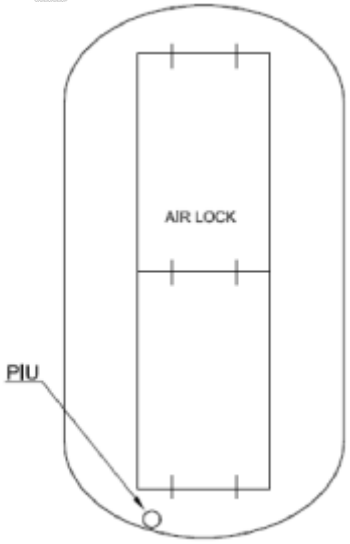


Fig 7 – 2 step Air Lock and PIU

Toxic Free Area (TFA)

The TFA enables personnel to be without full Individual Protective Equipment (IPE).
A Pressure Indicating Unit is positioned at the entry/exit airlock of the hospital complex, to enable monitoring of the pressure within the TFA and inner airlock, allowing the marshal to regulate entry/exit from the TFA.

Pressure indicating Unit (PIU) – See Figure 8
With Entry/exit air locks located at the entrance of the COLPRO configuration, a PIU is needed to enable marshals to monitor the pressures within the TFA and inner airlocks and regulate the entry/exit of personnel to and from the TFA.

Each PIU consists of a two Pressure Gauges. The PIU is mounted to the support frame at the ends of the liner. Small nylon tubes fitted through the liner provide static pressure readings to the PIU.

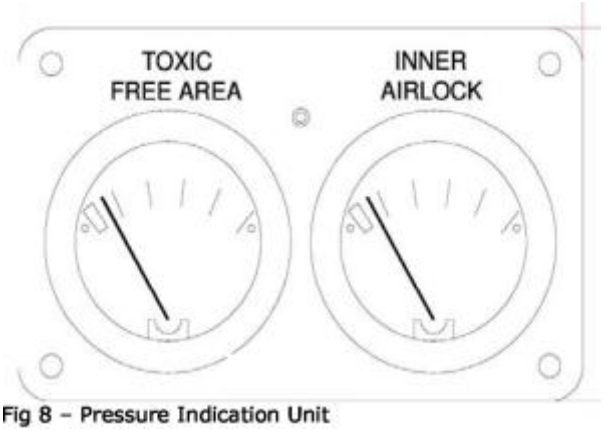


Fig 8 – Pressure Indication Unit

COLPRO Collective Protection chemical agent resistant materials

The C250 series is a range of high performance multi-layer composite barrier membranes incorporating a closely woven Flame Retardant high tenacity reinforcement to provide good tensile strength and puncture resistance. It features a lightweight yet strong construction with excellent mechanical and performance properties.
It has been tested by the Chemical Hardening Group at Dstl Chemical and Biological Sciences, Porton Down and US Army, SBCCOM, Natick, USA. The material is approved for UCPS (Unhardened Collective Protection System) applications and it is in service with the British Armed Forces.
It is fully heat-weldable (hot air and/or hot wedge). Extra wide 2.0m width rolls result in fewer joins. Factory welded giant panels can also be supplied for finishing. C 250 can also be laminated to other materials depending upon customer requirements.

Detail		Test Method	C250S FRFR	C250S FRUV	C250S FR	Units
Mechanical	Colours		Ivory	Ivory	Ivory	
	Fabric		Flame retardant HDPE	Flame retardant HDPE	Flame retardant HDPE	
	CW Hardened		One side	One side	Both side	
	Weight fabric		117	117	117	Gsm
	Weight total	NEN 965	270	270	300	Gsm
	Thickness	NEN 964	360	360	390	Micron
	Warp directions:					
	✓ Tensile strength	EN 13859	1,300	1,300	1,600	N/50mm
	✓ Tear strength	EN 13859	500	500	240	Newtons
	✓ Extension	EN 13859	20	20	23	%
	Weft directions:					
	✓ Tensile strength	EN 13859	1,200	1,200	1,100	N/50mm
	✓ Tear strength	EN 13859	500	500	270	Newtons
	✓ Extension	EN 13859	16	16	31	%
	Puncture Resistance	CBR	3,2	3,2	3,4	Kn
Performance	Dstl Porton Down	HD Mustard	No penetration	No penetration	No penetration	
	Liquid CW	G series nerve agent	Within 48 hrs	Within 48 hrs	Within 48 hrs	
	Penetration test	H series nerve agent				
	Dstl Porton Down	HD Mustard	No penetration	No penetration	No penetration	
	Vapour CW	G series nerve agent	Within 24 hrs	Within 24 hrs	Within 24 hrs	
	Penetration test	H series nerve agent				
	MIL-STD-282	HD Mustard	No break within 72 hrs	No break within 72 hrs	No break within 72 hrs	
	Method 204 & 206	GD nerve agent	No break within 72 hrs	No break within 72 hrs	No break within 72 hrs	
		VX nerve agent				
	Temperature		-40 to + 70	-40 to + 70	-40 to + 70	°C
	Range					
	UV stabilized		No	No	No	

Factors for use of COLPRO System

Protect against;

- Dstl Porton Down Liquid CW penetration test;
  - HD mustard
  - G series nerve agent — No penetration within 48 hrs
  - V series nerve agent
- Dstl Porton Down Vapour CW penetration test:
  - HD mustard
  - GD nerve agent — No penetration within 24 hrs
  - VX nerve agent
- MIL-STD-282 method 204 and 206
  - HD mustard — No break within 72 hrs
  - GB nerve agent

- Overpressure from 30-125 pa
- No contamination will penetrate even with a wind speed of 45km/h (12,5m/s)
- For use inside tents, building or stand alone
- Inside frame for use without overpressure
- 2 and 4 way connections
- Easy mounting and connections between tents with zippers and velcro
- Mounting during establishing of the camp
- Protected area with overpressure 125 pa after 30 min

Each tent / Colpro can be separated from the other area and delivered with

- Airlock 2 step
- 2 stretcher airlock
- 2 stretcher chamber

Air Conditioner ACM 18 CBRN

The ACM 18 CBRN Air Conditioner is a transportable unit, developed primarily to provide air conditioning in temporary or transportable buildings or tents. It is a small light weight unit made out of aluminum and built into a rigid steel frame. The unit is designed to operate on COLPRO applications with the evaporator module placed inside the shelter and the condenser module placed outside. The two modules are interconnected by 5 m long refrigerant hoses, power and control cables. The interconnections are all equipped with quick disconnect components for quick and safe setup and take down. The HVAC unit can also operate with both modules placed outside, with supply air and return air ducted to one tent. A dual filtration system for the internal air path is available for selective filtration.

The function of the ACM 18 CBRN is based on a cooling circuit and two powerful fans. The evaporator section contains the evaporator and a radial fan, which draws warm internal air of the tent through the cold evaporator and blows out the cooled air either through the side or top of the unit. The condenser section contains two condenser coils and a large axial fan, returning the heat taken from the internal air to the outside atmosphere. The ACM 18 CBRN can be equipped with an electric heating coil, to provide heating for example for night time when temperatures can fall under 20°C. All sheet metal parts are protected against corrosion by a minimum 80µm top coat.

Features

• The ACM 18 is built into a strong metal frame with insulated panels where relevant, powder coated.
• Top finish painting is standard sand color
• Designed for air conditioning when the temperature is above 20°C. It can provide cooling at ambient temperatures up to +60°C Option with built in heating will heat when ambient temperature is below 20°C.
• Scroll compressor for a high degree of reliability and low noise level.
• Automatic phase surveillance
• Environment-friendly R134a refrigerant.
• HP/LP pres sostat switches ensuring long compressor lifetime.
• Controlled by a room thermostat placed inside the tent (accessory)
• G3 filtration of the internal air
• Dual filters in front of internal air intake as an option
• Four way fork lift handling.
• Easy strap down on air cargo pallets and stackable (two units on top of each other)
• Insulated flexible hoses Ø400 mm for air transport (accessory)
• Low voltage control circuit
• CE-marked

Accessories

• Remote thermostat with 15 m cable and cooling/heating selector switch
• Insulated, flexible hose Ø400 mm x 3 m incl. storage bag
• Uninsulated, flexible hose Ø400 mm x 5 m incl. storage bag
• Air distribution hose Ø400 mm x 6 m
• F 7 filter

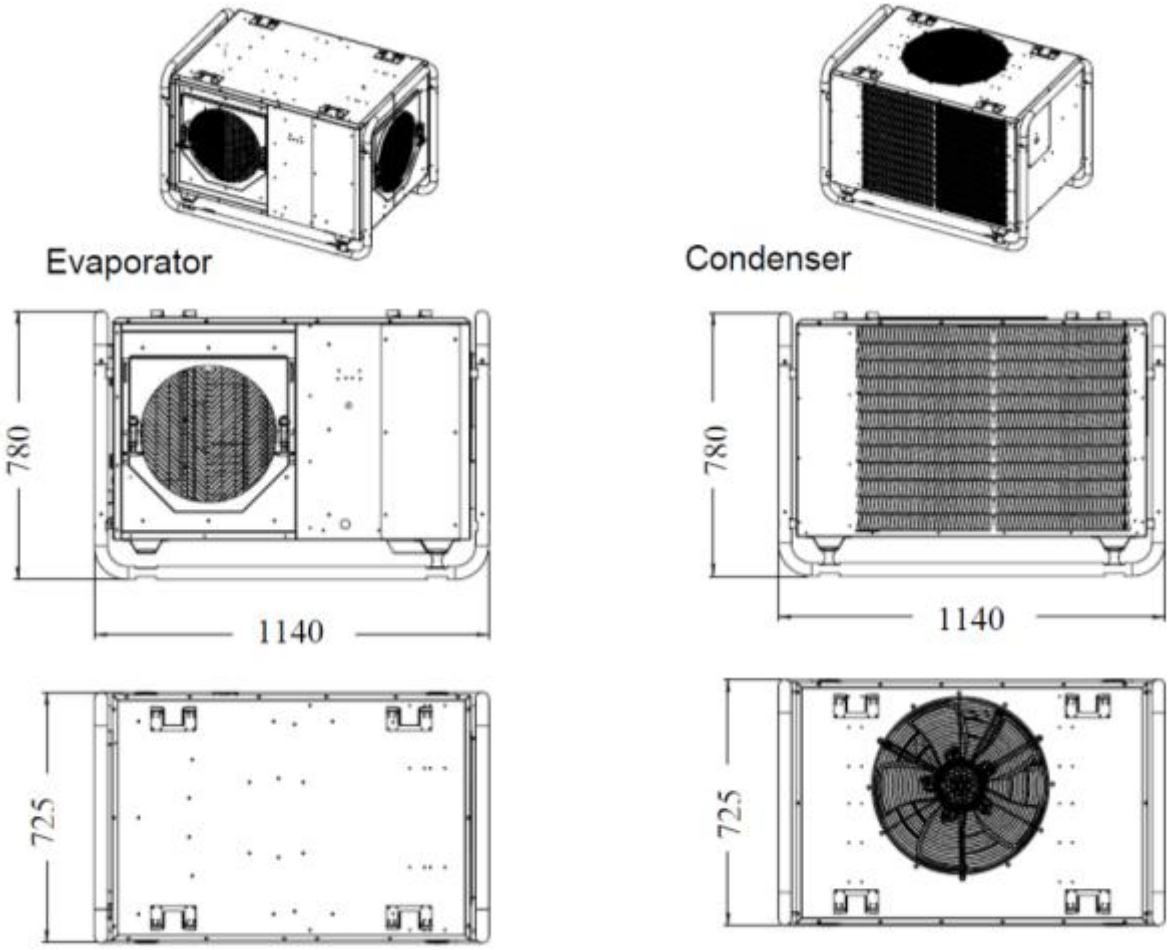
Technical data

Nato Stock Number w/o heat		4120-22-618-1245
Nato Stock Number with 6/16 kW heat and softstarter	NSN	4120-22-615-5383
Operating range, cooling	°C	+20 - +60
Operating range, heating	°C	-32 - +20
Airflow, internal, with hoses	m^3/h	2500
Airflow, external	m^3/h	5600
Cooling capacity*	kW	13,7
Heating capacity optional	kW	10/20
Power supply	V/Hz	3x400 / 50
Max. running current (cooling/heating)	A	16 / (dependant on heating capacity)
Start up current**	A	101
Generator requirement***	kVA	30
Max. power consumption (cooling/heating)	W	8300
Refrigerant		R 134a
Refrigerant connection hoses stainless steel	m	5
Filter material	EN 779	G3 + optional
Protection class	IP	X5
Hose connection	ømm	400
Noise level, 1,5 m distance	dB(A)	72
Weight (without accessories and heating)	kg	220

*Calculated @ 50°C outdoor /35° indoor
** Soft starter available
*** Generator with 300% start allowance

Dimensions

The picture is shown without the supply air opening in the top of the evaporator module.



NBC Unit for the container

The Dräger AFU 100 is a modular design to allow for the available options to be adapted to any area of application and for customers to obtain the complete package "NBC protection" from Dräger as a single source.

In the development of the AFU 100 Dräger placed great importance on a low power consumption. A power consumption of 260 W in NBC mode comes very close to the physical limits. This minimum consumption is of particular advantage in small vehicles.

The weight of the basic unit AFU 100 is about 26 kilograms. At the same time the AFU is very robust.

The volume flow of the AFU 100 during NBC mode is 105 m³ per hour. This is adequate for five to twelve individuals, depending on the specific circumstances.

In fresh air mode the system can generate 200 m³ per hour

System, components and filters have been certified in accordance with NATO specification AEP54. In addition there is a version meeting the Bundeswehr requirements (BW-TL).

Using an electronic control unit, with integrated pressure monitoring station the relative pressure in the protected inside area can be measured. Also the airflow and filter status is being controlled. To adjust the pressure individually there is a pressure relief valve.