



#### COPRA AS Trohaugen 1 N-6393 Tomrefjord

Org nr: 921 074 433 MVA

Mobile: + 47 974 30 173 office@copra.no copra.no

NOTE:



We are a fully integrated HVAC supplier located on the North West Coast of Norway, established in 2005.



#### **About COPRA**

We can deliver complete HVAC plants according to class, regulations and owner's requests.

Our highly skilled team carry out calculations, engineering and procurement, installation, commissioning and delivery of complete HVAC plants. We use the best available materials and machinery and ensure air conditioned and clean air throughout the vessel, focusing on the most energy effective solutions.

Our competitive offers are based on long lasting business relationships with producers of high-quality ventilation equipment both domestic and abroad. Some of the equipment is produced according to our own drawings and specifications.

We have delivered ventilation packages to yards in Norway, Romania, Vietnam, Singapore and Brazil. In addition to this we have delivered ventilation equipment to countries like, Dubai, Indonesia, South Africa, UK, Canada etc.

#### Why Choose us?

- Long reference list with a wide range of vessels (>180)
- Dedicated and solution-oriented
- Customer focused
- Reliable company with satisfied customers
- Always delivery on time
- Quick responding and highly skilled staff
- Service-minded
- Preferred by the larger offshore companies
- Well known and reliable makes and suppliers

#### New Offices

In April 2018 we moved into our new office building in Tomrefjord. New offices and a bigger warehouse gives us the possibility to give better service to our customers with products and spareparts on stock.

We got spareparts for most of our products on stock in Tomrefjord. We also keep a high number of products on stock, in that way we can deliver our high quailty equipment without adding extra production time and expensive air freight last minute.









# Our Scope

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NOTE:



#### We deliver HVAC SERVICES that includes:

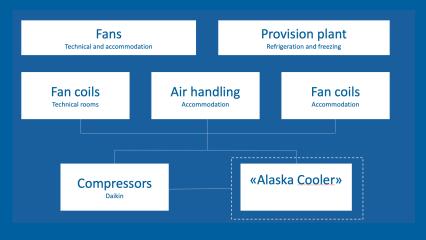


- Budget calculations and reviews
- Basic design
- Detail design
- Planning and project management
- Procurement (deliveries of materials)
- Installation of equipment
- Precommissioning/Commissioning: FAT, HAT and SAT
- Aftermarket
- Other services





#### HVAC-R Equipment Integration





#### COPRA AS

Trohaugen 1 N-6393 Tomrefjord

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### Air Handling Units

We supply Air Handling Units for all applications. SAMP is one of our suppliers.





Standard panels are available in 28, 46, and 60mm thicknesses, and are available in a range of materials including stainless steel sheets, heat-galvanised sheets, smooth or embossed aluminium sheets, and pre-painted galvanised sheets.

Two types of panel insulation are available:

- Heat-injected polyurethane foam (average density: 45/50kg/m3 and class 1 flame resistance)
- Fibre mineral wool panels (average density: 90/100kg/m3 and class 0 flame resistance).

#### Profiles

Cold bridge free profiles specially constructed using two aluminium elements, joined by glass filled polyamide bars to guarantee high mechanical resistance whilst significantly reducing the thermal bridges (achieving a thermal bridge factor of TB1 in accordance with UNI EN 1886).

These profiles are available in 40 and 70mm sizes.



We can supply customised according to our clients' requirements and uses, so to achieve the best results in terms of energy consumption, acoustics and general logistics.

AHUs can be constructed directly on site with features to include all types of non-standard layouts, materials, and accessories. In particular, if requested, we can design and manufacture:

- Units up to 200,000 m3/h
- Total pressure up to 10,000 Pa
- Sandwich panels up to 100mm thick.







### AFPRO Filters

Copra have distribution rights for Scandinavia for AFPRO filters.

www.afprofilters.com



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AFPRO manufactures all filters in-house, which enables more efficient turnaround times. The EUROVENT "certify all" programme, employed by AFPRO ensures a consistent quality of manufacture is maintained. Filters are available in both synthetic/polymer and glass fibre variants, both generously compliant with ISO16890.

Filtration levels for AFPRO Filters range from HEPA, ePM1 through to coarse, depending on customer applications and requirements. Our filters are used for pre-filter of air condition system, clean room, spray booth, pharmaceutical factory, hospital, electronic factory, food factory or other industry filtrations and so on.



#### Non-Shed:

The media of the HQ bag filter (glassfibre) series concist of a new generation super fine fibers. The material is finished with a dense membrane that prevents fiber migration. The HQ-series is ranked the best energy ratings with A-label performance.





### Fan Coil F-TYPE

Copra F-Type Fan Coils for floor mounting

#### COPRA AS Trohaugen 1 N-6393 Tomrefjord

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NOTE:









- Fan coil unit with casing
- Heating and cooling applications
- Remote controlled operation

Copra Fan Coils are made to meet the strict requirements of the marine industry. They are highly reliable and made through close cooperation with our customers. The compact size and easy installation make them easy to fit onboard your ship.

The F-Fan Coil is available in 3 different sizes, ranging from 5.4kW to 12.6kW in cooling capacities.

	Mod	el	F5.4	F7.2	F12.6	
Po	ower Supply			2	20V,60Hz,1P	h
Н				1020	1360	2380
Air Vo	olume	М	m³/h	770	1020	1790
		L		510	20V,60Hz,1Ph  1360 23  1020 17  680 17  7200 12  5978 10  4649 83  10800 18  8524 14  6697 11  46 5  134 2  1,23 2, 30 3  ZG3/4" ZG  ent copper pipe to workillic aluminum coil	1190
		Н	W	5400	7200	12600
Cooling Capacity		М	W	4483	5978	10461
		L	W	3487	220V,60Hz,1Ph 1360 1020 680 7200 5978 4649 10800 8524 6697 46 134 1,23 30 ZG3/4" ZG3/4" ent copper pipe	8136
	н			8100	10800	18900
Heating	Heating Capacity		W	6393	8524	14917
		L	W	5024	6697	11721
Noise	Н	0Pa	dB(A)	45	46	51
Power Input	Н	0Pa	w	96	134	228
Water Flo	w Volume		m³/h	0,93	1,23	2,16
Water F	ressure Drop	ping	kPa	28	30	36
Dimension	n of water (in	& out)	In	ZG3/4"	ZG3/4"	ZG3/4"
	connection pipe			ZG3/4"	ZG3/4"	ZG3/4"
	Coil		Туре	High efficient copper pipe to we hydrophilic aluminum coil		
Maximun	n Working Pre	essure	Мра	<u> </u>		
Condensatio	n Pipe Size (c	liameter)	mm		Ø21mm	



### Fan Coil W-TYPE

Copra W-Type Fan Coils for wall mounting

#### COPRA AS Trohaugen 1

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NOTE:



- Fan coil unit for wall mounting
- Heating and cooling applications
- Remote controlled operation

Copra Fan Coils are made to meet the strict requirements of the marine industry. They are highly reliable and made through close cooperation with our customers. The compact size and easy installation make them easy to fit onboard your ship.

The W-Fan Coil is available in 3 different sizes, ranging from 3.6kW to 7.2kW in cooling capacities.







Мо	del		COPRA W 3.6	COPRA W 4.5	COPRA W 7.2		
Power	Supply		220V,60Hz,1Ph				
	Н	m³/h	680	850	1360		
Air Volume	М	m³/h	510	637,5	1020		
	L	m³/h	340	425	680		
	Н	W	3618	4514	7210		
<b>Cooling Capacity</b>	М	W	3075	3837	6129		
	L	W	2352	2934	4687		
	Н	W	5418	6767	10807		
<b>Heating Capacity</b>	М	W	4605	5752	9186		
	L	W	3522	4399	7025		
Noise Lev	el	dB(A)	43/40/37	47/43/40	49/45/41		
Fan Motor	Fan Quantity		1	1	1		
	Motor Quantity		1	1	1		
	Power Input	W	62	76	134		
Water Flow Volume		kg/h	800	950	1390		
Hydraulic Resi	stance	kPa	30	30	40		
Max Working p	Max Working pressure		1,6	1,6	1,6		
Dimension/W/vDvH)	Net	mm	850×300×198	970×315×235	1100×330×235		
Dimension(W×D×H)	Packing	mm	885×360×270	1010×380×300	1140×390×300		
Net/Gross Weight		kg	12.6/14.5	15/17	20/23		
Inlet/Outlet Wa	Inlet/Outlet Water Pipe		Rc1/2"(DN15)	Rc1/2"(DN15)			
Drain Pipe			Rc1/2"(DN15)	R1/2"(DN15)			



### Fan Coil C-TYPE

Copra C-Type Fan Coils for ceiling

#### COPRA AS Trohaugen 1 N-6393 Tomrefjord

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NOTE:



- Fan coil unit with diffusor for ceiling mounting
- Heating and cooling applications
- Remote controlled operation

Copra Fan Coils are made to meet the strict requirements of the marine industry. They are highly reliable and made through close cooperation with our customers. The compact size and easy installation make them easy to fit onboard your ship.

The C-Fan Coil is available in 3 different sizes, ranging from 4.9kW to 12kW in cooling capacities.







Model				C4.9	C7.5	C12	
If electrical	heat	ing elem	ent (H)	1700W	1700W	2500W	
Mo	del o	f panel		MB-SD11K2	MB-SD11K3	MB-SD11K3	
Po	wers	supply		230V,60Hz,1Ph	230V,60Hz,1Ph	230V,60Hz,1Ph	
		Н		880	1380	2500W MB-SD11K3 230V,60Hz,1P 2200 1760 1320 0 12000 10200 8300 18600 15800 12450 51 210 2,04 42 ZG3/4" ZG3/4" hilic aluminum coi  ø26 840*840*292 950*950*40 27	
Air Volume		M	m <sup>3</sup> /h	700	230V,60Hz,1Ph 230V,60  1380 22i  1100 17i  830 13i  0 0 0  7500 120  6400 102  5200 83i  11600 186  9850 158  7750 124  46 5:  130 21  1,28 2,6  23 4:  ZG3/4" ZG3  pper pipe to wear hydrophilic aluming	1760	
		L		530	830	1320	
Static Pre	ssure	2	Pa	0	0	0	
		Н	W	4900	7500	12000	
Cooling Capac	ity	M	W	4150	6400	10200	
		L	W	3400	5200	8300	
		Н	W	7600	11600	18600	
Heating Capac	ity	M	W	6450 9850		15800	
		L	W	5100 7750		12450	
Noise	Н	0Pa	dB(A)	42	46	51	
Power Input	Н	0Pa	W	70	130	210	
Waterflow	Volu	me	m <sup>3</sup> /h	0,83	1,28	2,04	
Water Pressur	e Dro	pping	kPa	18	23 42		
Dimension of	wate	r(in &	in	ZG3/4"	ZG3/4"	ZG3/4"	
out)connect	ion p	ipe	out	ZG3/4"	ZG3/4"	ZG3/4"	
Coil			type	High efficient copp	er pipe to wear hydrop	hilic aluminum coil	
Dimension of water drain pipe		mm	ø26 ø26		ø26		
	ţ	Jnit	L×W×H	750*750*242	840*840*242	840*840*292	
Net dimension	P	anel	mm	850*850*40	950*950*40	950*950*40	
Net weight	Ų	Jnit	kg	22	25	27	
Mer weight	P	anel	kg	4,2 5	5	5	



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NOTE:



This type of fan-coil can be used in technical rooms with higher demand of cooling/heating.





Axial Fan Coils are typically used in the Maritime Industry, specifically in technical spaces which have higher heating and cooling requirements.

The COPRA Axial fan-coil (AFC) is precision engineered and has a reputation for its lightweight design accompanied by reliable functionality.

COPRA AFCs are available in either double skin galvanised steel or premium grade SS316L stainless steel casing. It is built with direct driven fan, al/al or cu/cu coil. A washable air filter is located on the inlet and the drain tray featuring two drains.

#### Cooling

COPRA recommends operating the AFC with a chilled water system between 6°C-12°C, at 11KW to 56KW.

#### Heating

COPRA recommends operating the AFC with a Hot water system set between  $80^{\circ}\text{C-}60^{\circ}\text{C}$ , at 15KW to 78KW.







### Axial Fan Coil 6/7

This small size AFC can be used in technical rooms with higher demand of cooling/heating with limited space.

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NOTE:





After close cooperation with end-users all over the world we are finally able to present the brand new AFC 6/7. For use in technical spaces, factory areas and similar where space saving is of the essence. It can be delivered in both SS316L and SS201, top-mounted or bottom-mounted and with an optional 2-speed controller for maximum comfort for the end-user.

The COPRA Axial fan-coil (AFC) is precision engineered and has a reputation for its lightweight design accompanied by reliable functionality.

COPRA AFCs are available in either double skin galvanised steel or premium grade SS316L stainless steel casing. It is built with direct driven fan, al/al or cu/cu coil. A washable air filter is located on the inlet and the drain tray featuring two drains.



#### Cooling:

COPRA recommends operating the AFC with a chilled water system between  $6^{\circ}\text{C-}12^{\circ}\text{C}$ , giving 6KW cooling.

#### Heating:

COPRA recommends operating the AFC with a Hot water system set between 80°C-60°C, giving 7KW.





# Centrifugal Fan Coils

This type of fan-coil is normally used in technical rooms with raised floor and high demand of cooling.

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NOTE:





The COPRA Centrifugal fan coil (CFC) is constructed from painted double galvanized steel. It features a direct drive fan, Al/Al coil, high quality air filter on the inlet and an condensation drip tray.

The CFC is well suited for use in raised floor switchboard rooms and other areas with sensitive electrical equipement.

The Copra CFC can be used with chilled water system (6°C-12°C), and they range from 13KW to 38KW.

The centrifugal fan coils come in 4 types:



- CFC 13 - CFC 20 - CFC 27
- CFC 38





# Centrifugal Fan Coil-EC

CFC-EC Centrifugal Fan Coil with integrated control is normally used in technical rooms with raised floor and high demand of cooling.

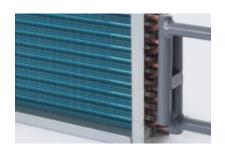
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NOTE:





The COPRA Centrifugal fan coil (CFC-EC) is constructed from galvanized sandwich panels. It features a direct drive EC-fan, Al/Al coil, high quality air filter on the inlet and a condensation drip tray. The CFC is well suited for use in raised floor switchboard rooms and other areas with sensitive electrical equipment.

The CFC-EC is equipped with integrated modbus controller of fan and valve via 0-10V. Valve is not included as the type of valve is depending on whether it is dynamic or static systems. Offer on request. The Copra CFC-EC can be used with chilled water system (6°C-12°C), and they range from 13KW to 38KW.

The centrifugal fan coils come in 4 types:



- CFC 13 - CFC 20 - CFC 27 - CFC 38

As standard the CFC-EC has direct downwards flow for pressurizing of raised floor arrangements, but on request, the CFC-EC can be delivered with air outlets both on sides as well as in the lower front.





### Circular Duct Fans

The CDF is an in-line centrifugal duct fan with high capacity, low noise and excellent reliability.

#### COPRA AS Trohaugen 1 N-6393 Tomrefjord

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NOTE:





The straight through radial exhaust fan is compact and very easy to install. It can cope with high pressure and long duct runs, whilst still operating at low noise levels.

The fan speed can be controlled by voltage variation regulators. Several fans can be connected to the same controller providing the total rating of the controller is not exceeded.

The motors are an external rotor type asynchrony motor. They have maintenance free sealed ball bearings and are protected from overheating by thermo contacts.

Our fans can be supplied in either galvanized steel or flame retardant plastic.

Our stock sizes are 100, 125, 160, 200, 250, 315, 355 mm.







## Rectangular Duct Fan

The RDF is a duct fan with high capacity, low noise and excellent reliability.

#### COPRA AS Trohaugen 1 N-6393 Tomrefjord

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NOTE:





The rectangular duct fan is normally used as an exhaust fan and it can extract polluted indoor air and transport it for long distances. This makes it ideal for large ships, hotels, clubs, restaurants, offices and other places which requires exhaust air.

Our company's product is designed to make the fan as effective as possible. The dimensions of inlet and outlet is according to the standard ventilation pipes on the market today, and it can be directly connected to the pipes. This makes the installation process very simple.

The duct fan is compact in size, with low weight, low noise, long life and high efficiency.



		Static					
Model	Airflow	Pressure	Speed	Noise	Voltage	Frequency	Weight
	m3/h	Pa	Rpm	dB	V	Hz	Kg
500x250	2273	332	1398	51	230	50	22,5
500x300	2418	378	1435	62	230	50	27,3
600x350	3383	565	1430	66	230	50	39,8

<sup>\*</sup> Can also be used with 60 Hz input, please contact us for specifications





### Self Contained Units

Generate and deliver constant chilled air within technical spaces

#### COPRA AS Trohaugen 1 N-6393 Tomrefjord

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NOTE:





Copra's range of quality maritime Self-Contained Units are designed to generate and deliver constant chilled air within technical spaces, ensuring an cool environment is maintained.

A choice of 9 standard models, ranging from a 7kw to 45kw cooling capacity, all feature painted and aluminium casings and incorporate a compressor, condenser, evaporator and fan built into a compact casing unit. Other features include a digital display, with all electrical wiring and refrigerant piping included.

Bespoke models can be made-to-order, with options including heating batteries, subject to customer requirements.

Quality, market-leading components featured in Copra's Self-Contained Units:





#### **Component**

Compressor
Expansion Valve
Flexible Connectors
Solenoid
Filter Dryer
Evaporator
Fan
Motor
EL Control
High & Low Pressure Switch

#### Manufacturer/ Brand

Panasonic/ Hitachi Emerson Castel Drive Castel Emerson Telewin Nicotra Siemens Syslab Saginomiya











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NOTE:



COPRA deliver a full range of Circular and Rectangular Fire Dampers. These products are approved by all major Classification Societies, Class A0-A60, for use in marine ventilation systems.





COPRA supplies a complete range of circular and rectangular Fire Dampers, specifically designed for the maritime industry to provide a high level of fire integrity.

COPRA Fire Dampers are precision engineered and are available for duct-, bulkhead- and deck installations. All Fire Dampers supplied are approved by the major Classification Societies, Classes A0-60 for use in marine ventilation systems.

Circular Fire Dampers can be delivered in the following standard dimensions:

- Single blade max DN400
- Multiple blade max DN1800.

Standard specification Rectangular Fire Dampers are available up to 1250x1250mm dimensions, with customised orders available as per your requirements.

All Fire Dampers can be manual with automatic fuse or automatic electrical type and can be delivered in either Galvanised, Painted steel, or 201 Stainless-steel variants.











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NOTE:

### Grills

Copra deliver a wide range of grills, both fixed and adjustable types.





Copra NG Grills are designed to have a clean and minimalistic look. They are delivered in white finish, but most colors can be available at special requests.

NGF is a rectangular fixed blade position grill with square grids. It has a clean and simple look and produces minimal air flow noise. The NGF is suitable both for supply and return air.

NGA is a rectangular grill with adjustable blade positioning both horizontally and vertically. This ensures that the air flow can be adjusted in the direction most suitable for your needs. The NGA is for supply air only.



We always have a substantial amount on stock of both NGF and NGA in the dimensions 400x200 and 500x300 for quick delivery. Other sizes are also available.

Please contact us and we will find a solution to fit your needs.





### Cabin Units

Copra Cabin units offers an easy solution for air distribution and temperature control.

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NOTE:



Copra offers a range of efficient, reliable manually operated single duct Marine Cabin Units, designed for use in marine air conditioning systems and feature pre-installed heating coils.

A powder coated diffusor is specifically designed to deliver and maintain even, near-silent airflow distribution throughout the cabin.

Cabin Unit options include either 100 or 125 diameter inlet pipes, with a 200-diameter outlet as standard. 400w, 800w and 1200w heating element options are also available, depending on client specification and requirements.

The Cabin Unit casing is constructed using high standard galvanised steel plating, complete with glass fibre and dust-proof fibre cloth inner insulation. Cabin unit air flow can be easily adjusted via an air volume adjustment function. The cabin units can also be connected to a room thermostat which activates the heating battery when needed.

The standard voltage is 230V- 60 Hz. Copra Cabin Units are available as either ceiling or floor mounted units.







### DurkeeSox

Copra AS have distribution rights in Scandinavia and Europe for all DurkeeSox products.

http://www.durkeesox.com/en/

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NOTE:





DurkeeSox is a next-generation air dispersion system which delivers multiple ventilation benefits to marine clients, when compared to traditional aliminium ducts, specifically:

- Significant reduction in weight
- Noise from air flow is significantly lower
- More economical transportation costs
- Dramatically less storage space required (DurkeeSox has ability to 'flat-pack')

DurkeeSox is the only air dispersal system with both MEDs 'B' and 'D' certifications.

DurkeeSox is available in fully round, half-round and in dimensions and colours to your requirements.







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NOTE:

# Pipe Construction and Special Parts





Together with our partners we can offer prefabricated pipe systems and special steel parts. Based on your documentation we can either give a fixed price or a price based on quantity. The work will be carried out by certified personnel, in workshops containing all primary and auxiliary equipment necessary for prefabrication of pipes. Our inspection team will make sure that the work is carried out in compliance with applicable standards and you will receive regular production and progress reports.

Amongst others we have delivered prefabricated pipe packages for the following systems:

- Low Pressure Hydraulic Pipes
- Engine Room System Piping
- Cargo System Piping
- Exhaust Piping

When it comes to special steel parts, we can deliver rollers, pressure vessels, structural steel, etc. Together with our partners we are dedicated to the production of high quality custom metal fabrication with on-time delivery that meets the customers expectations.







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NOTE:

### References

We have a long history as a ventilation wholesaler in the maritime industry and we have been the chosen supplier for many prestigious projects. Our clients has very high standards and are also governed by strict regulations that we must comply with.



Photo: Vard















































# Contact Information

Contact us for spesifications and more information about our products

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NOTE:





- Come visit us in Tomrefjord! Trohaugen 1 N-6393 Tomrefjord



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