

NORSOK STANDARD

HVAC
HEATING, VENTILATION AND AIR-CONDITIONING

H-001
Rev. 3, July 1998

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FOREWORD

NORSOK (The competitive standing of the Norwegian offshore sector) is the industry initiative to add value, reduce cost and lead time and eliminate unnecessary activities in offshore field developments and operations.

The NORSOK standards are developed by the Norwegian petroleum industry as a part of the NORSOK initiative and supported by OLF (The Norwegian Oil Industry Association) and TBL (Federation of Norwegian Engineering Industries). NORSOK standards are administered and issued by NTS (Norwegian Technology Standards Institution).

The purpose of NORSOK standards is to contribute to meet the NORSOK goals, e.g. by replacing individual oil company specifications and other industry guidelines and documents for use in existing and future petroleum industry developments.

The NORSOK standards make extensive references to international standards. Where relevant, the contents of a NORSOK standard will be used to provide input to the international standardisation process. Subject to implementation into international standards, the NORSOK standard will be withdrawn.

Annexes A and B are normative.

INTRODUCTION

Revision 3 mainly includes changes to:

- Technical Requirements (Clause 4)
- IEC 6187- Part 7: Hazardous areas replace FEAM 1990
- Table 2 Ductwork insulation is added
- New flange standards and data sheets (Annex A and B)
- Data sheets HDS-016, 017 and 018 added
- Revisions to remaining data sheets are shaded

This revision of NORSOK Standard H-001 replaces H-CR-001 rev. 2, January 1996

1 SCOPE

This standard identifies the basic requirements for the design of heating, ventilation and air conditioning systems.

2 NORMATIVE REFERENCES

The following standards include provisions which, through reference in this text, constitute provisions of this NORSOK standard. Latest issue of the references shall be used unless otherwise agreed. Other recognized standards may be used provided it can be shown that they meet or exceed the requirements of the standards referenced below.

AMCA 201	Fan application manual.
AMCA 300-96	Reverberant room method for sound testing of fans.
AT 391	Arbeidslokaler og personalrom.
AT 420	Luftforurensing ved buesveising.
AT 444	Klima og luftkvalitet på arbeidplassen. (Order no. 516, Climate and air quality in the workplace)
ASHRAE	Handbook of fundamentals.
BS 5970	Code of practice for Thermal insulation of pipework and equipment.
CIBSE	Commissioning codes, series A, air distribution.
EN 288	Specification and qualification of welding procedures for metallic materials.
EN 378	Refrigerating systems and heat pumps - Safety and environmental requirements
EN12238	Ventilation for buildings. Air terminal devices. Aerodynamic testing and rating for mixed flow applications.
EN12239	Ventilation for buildings. Air terminal devices. Aerodynamic testing and rating for displacement flow applications
ENV 12097	Ventilation for buildings – Ductwork – Requirements for ductwork components to facilitate maintenance of ductwork systems
Eurovent 2/2	Air leakage rate in sheet metal air distribution systems.
Eurovent 2/3	Sheet metal air ducts - Standard for dimensions.
Eurovent 2/4	Sheet metal air ducts - Standard for fittings.
Eurovent 4/5	Method of testing air filters used in general ventilation.
FEB	Forskrifter for elektriske bygningsinstallasjoner m.m.
HVCA DW 142	Specification for sheet metal ductwork
IEC 79-13	Electrical apparatus for explosive gas atmospheres. Part 13: Construction and use of rooms or buildings protected by pressurisation.
IEC 61892-7	Mobile and fixed offshore units- Electrical installations- Part 7: Hazardous areas
ISO 1461	Metallic coatings – Hot dip galvanized coatings on fabricated ferrous products - Requirements
ISO 5135	Acoustics – Determination of sound power levels of noise from air terminal units, dampers and valves by measurement in a reverberation room.

ISO 5136	Acoustics – Determination of sound power radiated into a duct by fans and other air moving devices – In-duct method
ISO 7235	Acoustics measurement procedures for ducted silencers - insertion loss, flow noise and for total pressure loss.
NFPA 96	Standard for ventilation control and fire protection of commercial cooking operations.
NORSOK C-001	Living Quarters area
NORSOK C-002	Architectural Components and Equipment
NORSOK S-002	Working environment.
NORSOK O-001	Life Cycle Cost for systems and equipment (Presently O-CR-001)
NS 3421	Description of technical installations.
NS 5575	Ventilation ducts. Identification colours.
SMACNA	Rectangular industrial duct construction standard.
SMACNA	Round industrial duct construction standard.
UNS S31600	Austenitic stainless steel (type 316)
UNS S31603	Austenitic stainless steel (type 316L)

3 DEFINITIONS AND ABBREVIATIONS

3.1 Definitions

Normative references	Shall mean normative (a requirement) in the application of NORSOK Standards.
Shall	Verbal form used to indicate requirements strictly to be followed in order to conform to the standard and from which no deviation is permitted, unless accepted by all involved parties.
Should	Verbal form used to indicate that among several possibilities one is recommended as particularly suitable, without mentioning or excluding others, or that a certain course of action is preferred but not necessarily required.
May	Verbal form used to indicate a course of action permissible within the limits of the standard.
Can	Verbal form used for statements of possibility and capability, whether material, physical or casual.

All terms and phrases within the scope of this standard shall be regarded as defined in the regulations and international codes and standards referred to in this document.

3.2 Abbreviations

AMCA	Air Movement and Control Association, Inc.
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
AT	Arbeidstilsynet (Directorate of Labour Inspection, Norway)
BS	British Standard
CCR	Central Control Room

CIBSE	The Chartered Institution of Building Services
EN	European Standard
ENV	European Prestandard
FEB	Forskrifter for elektriske bygningsinstallasjoner m.m (Issued by PE)
HVCA	Heating and Ventilating Contractors` Association
IEC	International Electrotechnical Commission
ISO	International Organization for Standardization
LCC	Life Cycle Cost
LEL	Lower Explosion Limit
NFPA	National Fire Protection Association
NS	Norsk Standard (Norwegian Standard)
PE	Norwegian Directorate for Product and Electrical Safety
SMACNA	Sheet Metal and Air Conditioning Contractors National Association
UNS	Unified Numbering System
WPS	Welding Procedure Specification

4 TECHNICAL REQUIREMENTS

4.1 General

The ventilation systems shall be designed to:

- Maintain acceptable working and living environment for personnel and non- destructive conditions for equipment.
- Prevent formation of any combustible mixture and maintain an atmosphere where the gas/air mixture is kept below LEL during normal operation.
- Prevent entry of hydrocarbons into closed non-hazardous areas.
- Prevent smoke spreading and keep enclosed escapeways free of smoke in case of fire.
- Comply with the overall Black Start Philosophy.

The design shall take into account both normal and emergency operation requirements.

The HVAC design and choice of equipment should be chosen to benefit the overall Life Cycle Cost (LCC). The method of calculation is described in NORSOK O-001.

As guidance the calculation for the purposed guarantee period should at least cover the following:

- Capital costs including construction, installation and commissioning
- Operational costs including preventive maintenance, critical failures and energy consumption

A plan demonstrating how to verify compliance with the specified functional requirements described in this standard, shall be provided at the start of the design process, currently updated and used in the commissioning phase.

4.2 Design temperatures

For design of the HVAC systems the following ambient temperatures shall be used:

Summer: The temperature that in average is not exceeded more than 50 hours per year.
Winter: The medium of the lowest temperatures for three following days.

For internal room temperatures reference is made to NORSOK standard S-002.

For occupied areas the minimum and maximum temperatures shall be suitable for the actual areas/rooms (ref. AT 444).

4.3 Natural ventilation

Minimum requirements for natural ventilation shall be that a local gas leakage rate of 0,05 kg/sec. in hazardous areas shall correspond to less than 20% LEL for the total area volume. The requirement shall be met for 95% of the year.

Ventilation openings shall be optimised with respect to sizes, shapes and positions and give the necessary level of weather protection to improve the working environment. Potential stagnant zones shall be evaluated

4.4 Mechanical ventilation

The HVAC systems shall be designed to prevent contamination between areas.

For practical reasons systems may be separated for the following areas:

- Non-hazardous areas.
- Hazardous areas.
- Living Quarters.
- Areas to be in operation during emergency situations.
- Auxiliary systems for naturally ventilated areas.
- Drilling areas.
- Substructure.
- Areas with contaminated air (separate extract) such as mud tanks, production laboratories, paint store/shop etc.

The minimum ventilation air volumes shall be documented.

4.5 Fire/smoke ventilation

The HVAC design shall comply with the overall fire and smoke control philosophy.

In a fire situation, the ventilation shall continue to operate. Where fire dampers are installed, these shall be activated manually or by the temperature sensor.

The above actions shall close fire dampers in both supply and exhaust ducts to avoid excessive over/under pressure in the room.

Mechanically ventilated enclosed escapeways shall have overpressure against neighbouring areas.

When fire extinguishing gases or inert gases are used for fire fighting in a room, the fire dampers shall be controlled by the Fire & Gas system.

4.6 Emergency/shut-down operation

All systems shall in normal operation be powered from the main power system. Systems to be in operation during emergency situations shall also be powered from the emergency power system. Such systems, with dual fan installation, should have the starter equipment split between the main and emergency switchboard.

HVAC systems serving areas where area classification depends on ventilation or where operational aspects require extensive ventilation availability should have back-up capacity.

For HVAC systems with back-up fans, these fans shall start automatically on failure of duty fans.

The system shall ensure that all vital equipment in operation during a shut-down will have the necessary cooling.

4.7 Heating/cooling

4.7.1 Pre-heating/cooling

All air supplied by the mechanical ventilation systems shall be preheated to maintain a minimum of 5°C in non occupied areas. Seawater can be used for both pre-heating and cooling of the ventilation air.

Where refrigeration machinery is used for cooling, requirements as stated in EN 378 shall be complied with.

In areas with high cooling or heating loads, the use of local placed recirculation units for heating or cooling should be evaluated instead of increased ventilation air volumes.

Water condensate on cooling coils and droplet eliminators shall be properly drained. Water condensate shall not be transferred into the ductwork. The design shall be based on the extreme ambient conditions regarding temperature and humidity.

4.7.2 Heating

Heating of ventilation air can be based on the main heating medium system. This can be used directly or via separate low pressure/low temperature water systems. The type of reheating shall correspond to the ventilation principle chosen.

4.8 Room air distribution

Displacement ventilation is recommended and the final design shall comply with normal comfort standard and requirement for early smoke/gas detection for the relevant rooms and applications.

4.9 Filtration

If required, the air intake should be provided with prefilters with filter class EU3 (G80) according to EUROVENT 4/5 and equipped for mist and droplet collection. For dust filtration, reference is made to AT 444.

Space for installation of temporary prefilters shall be provided where necessary to reduce intrusion of sandblast grit, diesel exhaust, etc., during hook-up and commissioning phases.

4.10 Ventilation fans

Fans shall be direct driven, however belt driven fans can be evaluated if shown to be technically attractive. To secure the availability of stand-by fans, both fans shall have approximately the same running hours.

Fans extracting from contaminated areas should be duct connected on both suction and discharge side.

4.11 HVAC control system

4.11.1 Central monitoring and control

The HVAC system shall as a minimum have the following facilities:

- Auto/manual operation selecting facilities.
- Start/stop of fans.
- Fan and damper status/alarm.
- Alarm for loss of pressurization/flow.
- Auto/stand-by selecting facilities for fans.
- Temperature status/alarm for temperature sensitive areas.

The system logic shall be equipped with manual reset.

4.11.2 Field instrumentation

The HVAC system shall as a minimum have the following field instruments:

- Pressure-drop indicator across all filters.
- Temperature indicators in main supply ducts.

4.11.3 Fire dampers

All fire dampers shall be actuator operated and fail-safe. All fire dampers shall be closed by direct activation of the temperature sensor. Manual opening and closing shall be implemented. Limit switch for closed indication shall be provided.

4.11.4 Monitoring of areas

For monitoring of pressurised areas reference is made to IEC Publication 79-13 and FEB § 808.7.10.1.

5 SYSTEM REQUIREMENTS**5.1 Kitchen and laundry**

The laundry room shall be provided with separate extracts with local filter sections to prevent the ductwork and equipment to be clogged.

The kitchen shall have a separate extract system including hood. Frying equipment shall have an air curtain from below to improve the working environment for the kitchen personnel.

Vent outlets from steam ovens and washing machines shall have special connections for extract if these are not located below a hood.

The kitchen extract system shall be designed according to NFPA 96 with the exception that flexible duct connection to fan will be accepted provided that the fire integrity will be maintained.

5.2 Drilling area

Spot extract shall be used for extract from mudpits and shale shakers to avoid spreading of dust, fumes, heat etc. and to reduce the amount of general ventilation. Precautions shall be taken to avoid clogging of ducts and contaminated condensate in the exhaust area.

The cooling of the cementing room shall be self-contained during emergency operation. In normal operation the room shall be connected to the general ventilation system.

5.3 Utility areas**5.3.1 Emergency generator and firepump rooms**

The cooling of these rooms shall be self-contained during emergency operation. In normal operation these rooms shall be connected to the general ventilation system.

5.3.2 Battery rooms

For ventilation of battery rooms reference is made to IEC 61892-7.

5.3.3 HVAC rooms

Structural maintenance to be considered when free suction fans are installed in HVAC Rooms.

In HVAC rooms where the differential pressure to the surroundings is over 150 Pa, air lock with air relief hatches in both doors shall be provided.

6 LAYOUT AND ARRANGEMENT

6.1 General

The main air-handling units should be located in designated HVAC areas.

Ductwork shall be located to enable simple maintenance work.

6.2 Clearance and accessibility

All equipment and ducting shall be arranged to provide required headroom and clearances for installations, operation, inspection, maintenance and dismantling with the minimum interference or removal of ducting and equipment. Accessible inspection and maintenance doors shall be installed in ductwork.

6.3 Air intakes and outlets

The air intakes shall where possible be located underneath the installation.

Systems for hazardous and non-hazardous areas may have common air intake if means are provided to prevent the spreading of gas from hazardous to non-hazardous areas. Consideration shall be taken to possible contamination sources such as:

- Ventilation extract outlets.
- Turbine and diesel engine exhaust outlets.
- Mud burning smoke.
- Gas leakage from hazardous areas.

The air intakes shall where possible be upstream of the prevailing wind. The wind influence on the air intake must be studied and documented.

Outlets from hazardous areas should be located at high level.

6.4 Air extract

From hazardous areas extract shall be arranged at both high and low level in order to take care of both light and heavy gases.

Spot extract shall be used wherever suitable to avoid spreading of dust, fumes, heat etc. and to reduce the amount of general ventilation.

6.5 Ducting

Circular ducts shall be used wherever possible.

Special attention shall be paid to ductwork connections to fan inlets and outlets in order to maximise the fan performance. See AMCA publication 201.

Flexible ducting shall be kept to a minimum and be used only for vibration damping or thermal expansion purposes.

Number of fire dampers shall be kept to a minimum.

Measuring stations shall be installed in all main ducts/ductbranches.

6.6 Inspection doors/access

Doors shall be provided in all ductwork for inspection and cleaning and in some cases to gain access for a person into the duct. The size and location of doors for inspection cleaning and access shall be in accordance with ENV 12097.

All inspection doors in heavy gauge ductwork (duct class A and D) shall be hinged.

The extract ducts from areas exposed for pollution, such as kitchen hood, tumble drier and mud tanks, shall be fitted with inspection doors, suitable for complete clean out of the ducting.

7 FABRICATION

7.1 General

All duct elements shall be of aerodynamic design. Furthermore it shall be suitable for direct connection to equipment such as fans, air handling units, heaters, coolers, dampers and air terminal units.

The ductwork with fittings shall comply with EUROVENT 2/3 standard for ducts and EUROVENT 2/4 standard for fittings or as documented by ASHRAE.

7.2 Duct classes

Ductwork is classified with respect to operational conditions.

Table 1 - Duct classes

Class	Material	Thickness	Operating Conditions
A	Stainless steel UNS S31603	3mm	High strength ductwork. Ductwork exposed to weather and saliferious atmosphere Fire rated ductwork
B	Stainless steel UNS S31600	Supplier standard (Light Gauge)	Internal ductwork in corrosive environments, such as laboratories, battery rooms etc.
C	Stainless steel UNS S31600 UNS S31603	0,8 mm for $\text{ØD} \leq \text{Ø}200$ mm. 1,0 mm for $200 < \text{ØD} < 400$ mm. 1,25 mm for $400 \leq \text{ØD} < 800$ mm. 1,5 mm for $800 \text{ mm} \leq \text{ØD}$ (Note1)	Internal ductwork in production and utility Areas. External ductwork protected from mechanical strain.
D	Carbon steel painted or hot dipped galvanized. (Note 2)	4mm	High strength ductwork Fire rated ductwork
E	Pre-galvanized sheet Steel	Supplier standard (Light Gauge)	Internal ductwork in controlled environments such as LQ

- Notes
1. For rectangular ductwork the referenced size is the longest side.
 2. Galvanising to be in accordance with ISO 1461 Metallic coatings – Hot dip galvanized coatings on fabricated ferrous products - Requirements
 3. Alternative duct class or duct material shall be qualified.

7.3 Ductwork design

The ductwork shall be true in section and not twisted or distorted.

All ducts shall be designed for actual velocities and max. operating pressures considering possibilities of fans running against closed dampers.

Flanges shall be made according to Annex A.

Stiffening of light gauge ductwork shall be according to HVCA DW142, while stiffening of heavy gauge ductwork shall be according to SMACNA.

All ducts shall be made in suitable lengths, to suit surface protection, installation, maintenance and replacement.

7.4 Welding

All welding shall be carried out in accordance with a WPS established in accordance with EN 288 or equivalent.

The throat thickness of the weld shall be defined on WPS, drawing or equivalent. All welds shall be visually examined and show evidence of good workmanship.

8 INSTALLATION

8.1 Ductwork erection

Different materials shall be isolated to prevent galvanic corrosion where applicable.

All relevant details regarding ductwork erection shall be in accordance with DW/142 and NS 3421.

Ductwork with limited access after installation should preferably be welded and/or all connections specially secured.

Duct penetrations through sound-rated walls (partitions) to noise-sensitive areas, shall have elastic caulking.

8.2 Joints

The jointing system shall be of a well-recommended system with a certified pressure class. For stainless steel flanges, bolts shall be stainless steel.

8.3 Hangers and supports

Ductwork supports shall be arranged to prevent any movement and shall be adequately sized for mechanical loads, wind loads and to accommodate the shipment and tow-out of the platform.

Supports shall not be welded to the ductwork unless specified on the drawings.

Supports, which are welded directly to the ductwork and/or equipment, shall be attached during the fabrication of the duct/equipment and shall be subject to the same inspection as the duct/equipment.

When being erected, duct runs shall not be forced into place to suit the installed support and thereby introduce undue stresses into the ductwork.

Surfaces of supports, which will be inaccessible after erection, shall receive the protective coating before assembly.

Where ducts are conveying conditioned air, packing blocks shall be installed between duct and support when externally insulated. The blocks shall be of sufficient insulating value to prevent condensation.

Ductwork in and close to noise-sensitive areas shall have a resilient support to prevent structural noise.

The addition of insulation to ducts should generally not affect the method of support, providing a vapour barrier is not required.

8.4 Ductwork insulation

For ductwork insulation, the following table 2 shall be used as a guideline.

Table 2 - Ductwork Insulation

Insulation Service	Insulation		Jacketing Note 5, 6, 7			Purpose
	Material	Thickness	Material	Thickness		
				OD≤ 1200	OD> 1200	
Heat conservation, hot	Mineral Wool or other suitable material	External ductwork. Min. thickness 50 mm. One layer. Internal ductwork. Min. thickness 50 mm. One layer.	Stainless steel	0,5	0,7	To reduce heat losses
			Aluminium alloy	0,7	0,9	
Cold conservation, cold	Cellular glass or other suitable material Mineral wool w/ vapour barrier	Temperature difference to surroundings. Max. 10°C, thickness 25 mm. Above 10°C, thickness 50 mm	Stainless steel	0,5	0,7	To maintain low temperature
			Aluminium alloy	0,7	0,9	
Fire Proofing A60	Mineral wool of “Rock” type, 110 kg/m ³	75 mm.	Stainless steel	0,5	0,7	To prevent accident escalation due to rupture of ducts during fire
			Aluminium alloy	0,7	0,9	

Fire Proofing H0	Ceramic fibre, 128 kg/m ³	2 x 25 mm	Stainless steel	0,5	0,7	To prevent accident escalation due to rupture of ducts during fire
Fire Proofing H60	Ceramic fibre, 128 kg/m ³	2 x 38 mm	Stainless steel	0,5	0,7	To prevent accident escalation due to rupture of ducts during fire
External conden- sation, cold	Cellular foam, Cellular glass or other suitable material Mineral wool w/ vapour barrier	Temperature difference to surroundings. Max. 10°C, thickness 25 mm. Above 10°C, thickness 50 mm	Stainless steel	0,5	0,7	To prevent external condensation on ductwork
			Aluminium alloy	0,7	0,9	
Acoustic insulation, ductwork internal	Mineral Wool	Design according to noise reduction requirements	Galvanised, perforated (30%) carbon steel sheet (Inside duct towards air flow	0,5		To reduce noise

Notes:

1. The thermal conductivity shall be max. 0,040 W/mK at 20 °C,
2. If alternative materials are proposed, the insulation capability shall be equivalent to or better than the capability for the specified material and thickness
3. The vapour barrier shall have a maximum vapour transmission ratio of 1,75 PERM (= ng/s x Pa⁻¹ x m⁻²). The barrier shall be a fire retardant, non toxic, factory applied cover reinforced by glass-fibre threaded tissue.
4. No insulation shall have an "open" surface allowing fibres to break off and pollute the surroundings. Factory applied cover shall be preferred to seal the insulation
5. Stainless steel jacketing shall be type UNS S31600, 2B finish.
6. Aluminium alloy jacketing shall be type AlMn1 (AA3103) or equivalent.
7. Alternatives shall be qualified.
8. All fire insulation and installation method shall be certified.
9. For heat conservation and cold conservation standard pre-insulated ductwork may be used.
10. For installation ref. is made to BS 5970.

8.5 Identification of ductwork

The ductwork shall be marked in accordance with NS 5575.

The identification symbols shall be placed on:

- Ducting in ceiling behind access points.
- Either side of major components (fans etc.).
- All ducting in HVAC plant rooms.
- Ducting in shafts behind access doors and panels.
- Ducting entering and leaving modules.
- Ducting entering or leaving local equipment/control rooms in open modules/areas.
- Both sides of fire walls where the duct penetrates.

- Each leg of a branch duct where the destination is not immediately obvious.

8.6 HVAC equipment

Equipment shall be installed in accordance with the supplier's installation instruction and/or as specified on contract drawings and/or documents.

Grilles, diffusers and louvres shall be installed so as to fit neatly in the ceiling or wall in which they are installed.

Ductwork supports shall be located such that the equipment can be removed from the system without major dismantling of ductwork.

8.7 Cleaning and protection

All ductwork, fittings and equipment shall be cleaned before erection. All protective covers on equipment shall be left in place as long as possible during erection. Equipment shall be adequately protected against damage during construction.

All duct elements shall be supplied with dustblinds immediately after fabrication. Dustblinds shall remain in place until the duct elements are actually required for installation. Ductwork terminated for later hook-up shall be equipped with a blind on the open end immediately after installation.

When the ductsystem is finally installed and ready for mechanical completion, the system shall be internally clean along the complete run. For further requirement reference is made to NORSOK Standard S-002.

Stainless steel ductwork and equipment shall be kept externally covered to avoid contamination from other sources.

8.8 Pressure testing

8.8.1 General requirements

The ductwork inclusive equipment shall be pressure tested after installation. All materials such as duct, stiffeners, gaskets, bolting etc., intended as part of the final installation, which are damaged during testing shall be replaced.

8.8.2 Preparation for pressure test

The section of the ductwork to be tested shall be prepared by blanking off duct outlets etc. All dampers in the tested ductwork shall be left in open position. Testing shall be satisfactory completed before insulation or enclosure of the ductwork and before terminal units are fitted.

8.8.3 Test requirements

The tests shall be carried out in accordance with Eurovent 2/2. All ductwork shall meet the requirements for Air Tightness Class B.

A minimum of 10% of the ductwork shall be tested, and it shall be selected by the company. If this ductwork does not pass the test, then the whole ductwork system shall be tested to the satisfaction of the company. All test devices shall be removed after the tests have been performed.

9 COMMISSIONING

9.1 General

CIBSE Commissioning codes, series A with appendixes shall generally be applied as a guideline for the commissioning.

Acceptance of the HVAC-plant shall not take place until satisfactory commissioning has been completed. The commissioning shall take place after mechanical completion of the plant.

9.2 Preliminary checks

The purpose of this check is to ensure that the plant is in a satisfactory and safe condition before starting up.

The checks shall be carried out in accordance with CIBSE Commissioning codes, series A, section A1. In addition shall instrumentation and instrument set points be checked.

9.3 Setting to work

The setting to work of the plant shall be carried out in accordance with CIBSE Commissioning codes, series A, section A2.:

- Precautions against airborne dirt.
- Precaution against frost.
- Initial running of electrically driven fan set.

9.4 Air flow adjustments

The balancing of system(s) shall be carried out in accordance with the proportional method as described in CIBSE Commissioning codes, series A, section A 2.7.

The balancing shall be carried out with the following tolerances:

The main airflow, and airflow into each room shall be within +/-10% of the specified value including errors of measurements. All measurements and settings shall be documented.

9.5 Testing of pressure conditions

A complete adjustment of the specified pressure conditions for the different rooms shall be carried out.

The measurement of pressure difference shall be between closed areas to avoid disturbance from external conditions.

9.6 Recording

During the commissioning period records shall be prepared and maintained for all activities and shall include but not limited to the following:

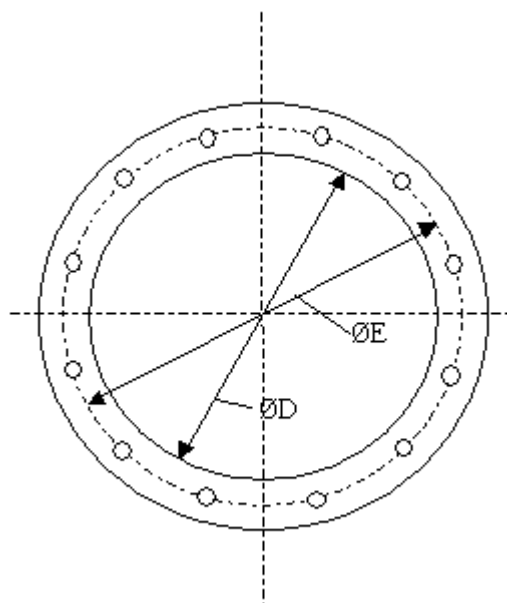
- Air-quantities.
- Temperatures.
- Pressures.
- Sound levels.

10 EQUIPMENT

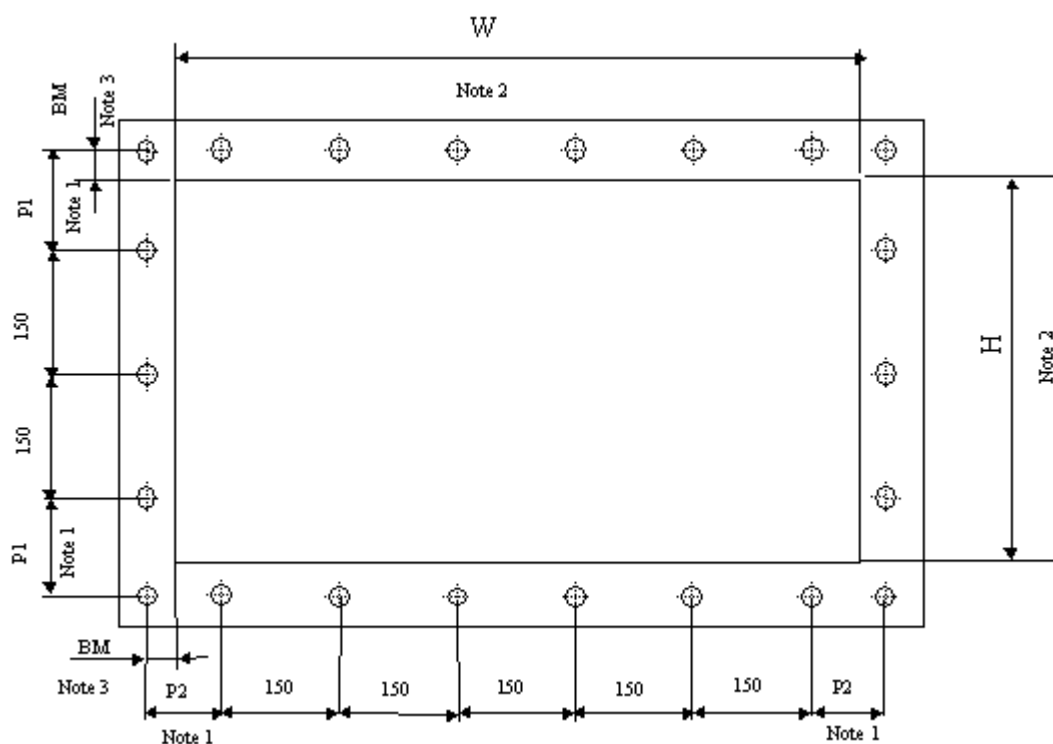
Description and technical requirements of equipment are partly found in the relevant data sheets and schedules in Annex B.

ANNEX A - FLANGE STANDARD (NORMATIVE)

STANDARD DATA CIRCULAR FLANGES					
NOMINAL DUCT SIZE (ØD) mm	BOLT CIRCLE (ØE) mm	FLANGE mm	BOLT HOLE SIZE mm	BOLT SIZE	NO OF BOLTS
100	145	40 x 4	10	M8	4
125	170				
160	205				
200	245				8
250	295				
315	360				
355	400				
400	459	50 x 5	12	M10	12
450	509				
500	559				
560	619				
630	689				16
710	769				
800	859				
900	959				24
1.000	1.059				
1.120	1.209				
1.250	1.339	80 x 8	14	M12	32
1.400	1.489				



STANDARD DATA RECTANGULAR FLANGES				
NOMINAL DUCT LONGEST SIDE	BACK MARK	FLAT BAR OR ANGLE IRON	BOLT HOLE SIZE	BOLT SIZE
	mm	mm	mm	
DUCT SIDE ≤ 350 mm	20	40 x 4 40 x 40 x 4	10	M8
350 mm < DUCT SIDE ≤ 1000 mm.	30	50 x 5 50 x 50 x 5	12	M10
1000 mm < DUCT SIDE	40	80 x 8 80 x 80 x 8	14	M12



- Notes.
1. $75 < P1$ and $P2 < 150$
 2. $W \times H = \text{NOMINAL DUCT SIZE (INTERNAL)}$.
 3. BACK MARK IS DISTANCE BETWEEN INSIDE DUCT TO CENTERLINE HOLE.
 4. FLANGES TO BE CONTINUOUSLY WELDED ON BOTH SIDES.
 5. FLANGES TO BE MADE IN THE SAME MATERIAL AS THE DUCT.

ANNEX B - DATA SHEET (NORMATIVE)**CONTENTS**

H-DS-001	Fire and gas dampers
H-DS-002	Shut-off dampers
H-DS-003	Pressure control dampers
H-DS-004	Balancing dampers
H-DS-005	Sound attenuators
H-DS-006	Supply air devices
H-DS-007	Extract air devices
H-DS-008	Electrical heating coils
H-DS-009	Filter/coalescer/separators
H-DS-010	Liquid medium coils
H-DS-011	Air handling units
H-DS-012	Fans
H-DS-013	Air filters
H-DS-014	Measuring stations
H-DS-015	Cooling unit
H-DS-016	Dehumidifier, Sorption type
H-DS-017	Louvres
H-DS-018	DX Cooling coils

NORSOK H-001	HVAC EQUIPMENT FIRE AND GAS DAMPERS DATA SHEET	HDS-001 Rev. 3, July 1998
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Package No.	Doc. No.	Rev.	Page 1 of 2
Made by.	Date:	Checked by:	Date:

Tag No.	Ref. Schedule	Location/Module	Ref. Schedule
Unit		No. req'd	
HVAC System No.	Ref. Schedule	Inquiry No.	
Size & Type	Ref. Schedule	Quote No.	
Supplier		P.O. No.	
Manufacturer		Job No.	
Model		Serial No.	

1 Technical Data			
2	Certificate no.		
3	Certifying Authority		
4			
5	Actuation (Fail safe)	Pneumatic: <u> </u>	Electric: <u> </u> Manual: <u> </u>
6	Actuator	Type:	
7		Ref. Data Sheet No:	
8	Fusible Link/Bulb	Type	
9	Release Temperature	°C	
10	Instrument Air Pressure Max/Min.	barg	
11	Power Supply	v/Hz/Ph	
12	Quick Release Valve	Make/Type	
13	Pneumatic fittings	Type	
14	Tube connection size	mm	
15	Solenoid valve	Type	
16		Ref. Data Sheet No:	
17	Limit switch	Type	
18		Ref. Data Sheet No:	
19	Non-return valve	Make/Type	
20	Junction box	Make/Type	
21	Open/closed indicator	Yes	
22	Protection cover on linkage/levers	Yes	
23	Manual opening/locking arm	Yes: <u> </u> No: <u> </u>	
24	Flange standard	Norsok H-001, Annex A	
25	Closing time (v=20 m/s, p=2000Pa)	Gas damper: <u> </u> sec. Fire damper: <u> </u> sec.	
26	Air leakage for gas dampers (Through blades, p=2000Pa), m ³ /m ² h	300	
27	Air leakage for gas dampers (to surroundings)	Eurovent 2/2, Class B	
28			

29 Materials			
30	Casing Material	UNS S31603	
31	Casing Thickness	mm	
32	Blade Material	UNS S31603	
33	Blade Thickness	mm	
34	Shaft Material		
35	Shaft Thickness	mm	
36	Linkage Material		
37	Linkage Thickness	mm	
38	Bearing Type/material		
39	Insulation Material (A-60 dampers)		
40			

41 Notes:
42
43
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NORSOK H-001			HVAC EQUIPMENT FIRE AND GAS DAMPERS DATA SHEET					HDS - 001 Rev. 3, July 1998	
Package No.			Doc. No.					Rev.	Page 2 of 2
Made by:			Date		Checked by:			Date	
Tag No.	Area	Air Flow m ³ /s	Tag No. Solenoid Valve	Tag No. Junction Box	Shaft pos. H/V	Overall length (mm)	Supplier Reference Drawing	Comments	
HVAC System No.	Fire- rating	Pressure Drop Pa	Tag No. Limit Switch	Duct Connection Width x Height (dia) mm x mm (mm)	Actuator pos. L/R/T/B	Weight Kg	D&ID Reference		

General notes:
 Shaft position H/V:
 H = Horizontal, V = Vertical
 Actuator position (L = left side, R = right side, T = top, B = bottom) is seen in direction of air flow

NORSOK H-001	HVAC EQUIPMENT SHUT-OFF DAMPERS DATA SHEET	HDS-002 Rev. 3, July 1998	
Package No.	Doc. No.	Rev.	Page 1 of 2
Made by.	Date:	Checked by:	Date:

Unit		No. req'd	Ref. Schedule
HVAC System No.	Ref. Schedule	Inquiry No.	
Size & Type	Ref. Schedule	Quote No.	
Supplier		P.O. No.	
Manufacturer		Job No.	
Model		Serial No.	

1 Technical Data			
2			
3 Actuation		Pneumatic: ____	Electric: ____ Manual: ____
4 Actuator	Type:		
5	Ref. Data Sheet No:		
6 Instrument Air Pressure Max/Min.	barg		
7 Power Supply	v/Hz/Ph		
8 Quick Release Valve	Make/Type		
9 Pneumatic fittings	Type		
10 Tube connection size	mm		
11 Solenoid valve	Type		
12	Ref. Data Sheet No:		
13 Limit switch	Type		
14	Ref. Data Sheet No:		
15 Non-return valve	Make/Type		
16 Junction box	Make/Type		
17 Open/closed indicator		Yes	
18 Protection cover on linkage/levers		Yes (Not applicable for Manual Dampers)	
19 Manual opening/locking arm		Yes: _____ No: _____	
20 Flange standard		Norsok H-001, Annex A	
21 Closing time (v=20 m/s, p=2000Pa)	sec		
22 Air leakage (Through blades, p=2000Pa)	m ³ /m ² h	300	
23 Air leakage (to surroundings)		Eurovent 2/2, Class B	
24			
25 Materials			
26 Casing Material			
27 Casing Thickness	mm		
28 Blade Material			
29 Blade Thickness	mm		
30 Shaft Material			
31 Shaft Thickness	mm		
32 Linkage Material			
33 Linkage Thickness	mm		
34 Bearing Type/material			
35			
36 Notes:			
37			
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NORSOK H-001			HVAC EQUIPMENT SHUT-OFF DAMPERS DATA SHEET					HDS - 002 Rev. 3, July 1998	
Package No.			Doc. No.					Rev.	Page 2 of 2
Made by:			Date		Checked by:			Date	
Tag No.	Area	Air Flow m³/s	Tag No. Solenoid Valve	Tag No. Junction Box	Shaft pos. H/V	Overall length (mm)	Supplier Reference Drawing	Comments	
	HVAC System No.	Pressure Drop Pa	Tag No. Limit Switch	Duct Connection Width x Height (dia) mm x mm (mm)	Actuator pos. L/R/T/B	Weight Kg	D&ID Reference		
General notes: Shaft position H/V: H = Horisontal, V = Vertical Actuator position (L = left side, R = right side, T = top, B = bottom) is seen in direction of air flow									

NORSOK H-001		HVAC EQUIPMENT PRESSURE CONTROL DAMPERS DATA SHEET		HDS-003 Rev. 3, July 1998	
Package No.		Doc. No.		Rev.	Page 1 of 2
Made by.		Date:	Checked by:	Date:	
Tag No.	Ref. Schedule		Location/Module	Ref. Schedule	
Unit			No. req'd	Ref. Schedule	
HVAC System No.	Ref. Schedule		Inquiry No.		
Size & Type			Quote No.		
Supplier			P.O. No.		
Manufacturer			Job No.		
Model			Serial No.		
1 Technical Data					
2					
3 Actuation			Pneumatic: ____ Electric: ____		
4 Actuator					
5			Ref. Data Sheet No:		
6 Instrument Air Pressure Max/Min.			barg		
7 Power Supply			v/Hz/Ph		
8 Pneumatic fittings			Type		
9 Tube connection size			mm		
10 Positioner			Type		
11			Ref. Data Sheet No:		
12 Open/closed indicator			Yes		
13 Protection cover on linkage/levers			Yes		
14 Manual opening/locking arm			Yes: No:		
15 Flange standard			Norsok H-001, Annex A		
16 Air leakage (to surroundings)			Eurovent 2/2, Class B		
17					
18 Materials					
19 Casing Material					
20 Casing Thickness			mm		
21 Blade Material					
22 Blade Thickness			mm		
23 Shaft Material					
24 Shaft Thickness			mm		
25 Linkage Material					
26 Linkage Thickness			mm		
27 Bearing Type/material					
28					
29 Notes:					
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NORSOK H-001			HVAC EQUIPMENT PRESSURE CONTROL DAMPERS DATA SHEET						HDS - 003 Rev. 3, July 1998		
Package No.			Doc. No.							Rev.	Page 2 of 2
Made by:			Date		Checked by:				Date		
Tag No.	Area	Air Flow m³/s	Tag No. Solenoid Valve	Duct Connection Width x Height (dia) mm x mm (mm)	Shaft pos. H/V	Overall length (mm)	Supplier Reference Drawing	Comments			
	HVAC System No.	Pressure Drop Pa	Tag No. Junction Box		Actuator pos. L/R/T/B	Weight Kg	D&ID Reference				

Generel notes : Shaft positio H/V: H = Horizontal, V = Vertical
Actuator position (L = left side, R = right side, T = Top, B = Bottom) is seen in direction of air flow.

NORSOK H-001	HVAC EQUIPMENT BALANCING DAMPERS DATA SHEET	HDS-004 Rev. 3, July 1998
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Package No.	Doc. No.	Rev.	Page 1 of 2
Made by.	Date:	Checked by:	Date:

Tag No.	Ref. Schedule	Location/Module	Ref. Schedule
Unit		No. req'd	Ref. Schedule
HVAC System No.	Ref. Schedule	Inquiry No.	
Size & Type	Ref. Schedule	Quote No.	
Supplier		P.O. No.	
Manufacturer	Ref. Schedule	Job No.	
Model	Ref. Schedule	Serial No.	

1	Technical Data
2	
3	
4	
5	Measuring Station Type
6	Measuring Station Material
7	Tube Connection size mm
8	Flange Standard Norsok H-001, Annex A
9	
10	
11	Notes: 1) Balancing Dampers with perforated blades should not be used
12	2) Casing thickness/material to comply with ductclasses A to E, ref. item 7.2
13	
14	
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NORSOK H-001			HVAC EQUIPMENT BALANCING DAMPERS DATA SHEET						HDS - 004 Rev. 3, July 1998	
Package No.			Doc. No.						Rev.	Page 2 of 2
Made by:			Date			Checked by:			Date	
Tag No.	Area	Air Flow m ³ /s	Manufacturer	Duct Connection Width x Height (dia) mm x mm (mm)	Shaft position H/V	Overall length mm	Supplier Reference Drawing	Comments		
	HVAC System No.	Measuring Station (Y/N)	Model	Connection Type	Weight Kg	Ductclass	D&ID Reference			
General notes : H = Horisontal, V = Vertical										

NORSOK H-001		HVAC EQUIPMENT SOUND ATTENUATORS DATA SHEET		HDS-005 Rev. 3, July 1998																													
Package No.		Doc. No.		Rev.	Page 1 of 2																												
Made by.		Date:	Checked by:	Date:																													
<table><tr><td>Tag No.</td><td>Ref. Schedule</td><td>Location/Module</td><td>Ref. Schedule</td></tr><tr><td>Unit</td><td></td><td>No. req'd</td><td>Ref. Schedule</td></tr><tr><td>HVAC System No.</td><td></td><td>Inquiry No.</td><td></td></tr><tr><td>Size & Type</td><td>Ref. Schedule</td><td>Quote No.</td><td></td></tr><tr><td>Supplier</td><td></td><td>P.O. No.</td><td></td></tr><tr><td>Manufacturer</td><td>Ref. Schedule</td><td>Job No.</td><td></td></tr><tr><td>Model</td><td>Ref. Schedule</td><td>Serial No.</td><td></td></tr></table>						Tag No.	Ref. Schedule	Location/Module	Ref. Schedule	Unit		No. req'd	Ref. Schedule	HVAC System No.		Inquiry No.		Size & Type	Ref. Schedule	Quote No.		Supplier		P.O. No.		Manufacturer	Ref. Schedule	Job No.		Model	Ref. Schedule	Serial No.	
Tag No.	Ref. Schedule	Location/Module	Ref. Schedule																														
Unit		No. req'd	Ref. Schedule																														
HVAC System No.		Inquiry No.																															
Size & Type	Ref. Schedule	Quote No.																															
Supplier		P.O. No.																															
Manufacturer	Ref. Schedule	Job No.																															
Model	Ref. Schedule	Serial No.																															

1	Technical Data	
2		
3		
4		
5	Air Leakage (to surroundings)	Eurovent 2/2, Class B
6	Flange Standard	Norsok H-001, Annex A
7		
8		
9		
10		
11	Notes:	
12	1) For noise measurements reference is made to ISO 7235	
13		
14	2) Casing thickness/material to comply with ductclasses A to E, ref. item 8.2	
15		
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NORSOK H-001	HVAC EQUIPMENT SUPPLY AIR DEVICES DATA SHEET	HDS-006 Rev. 3, July 1998
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Package No.	Doc. No.	Rev.	Page 1 of 2
Made by.	Date:	Checked by:	Date:

Tag No.	Ref. Schedule	Location/Module	Ref. Schedule
Unit		No. req'd	Ref. Schedule
HVAC System No.	Ref. Schedule	Inquiry No.	
Size & Type	Ref. Schedule	Quote No.	
Supplier		P.O. No.	
Manufacturer	Ref. Schedule	Job No.	
Model	Ref. Schedule	Serial No.	

1	Technical Data
2	Notes:
3	1: Plenum Chamber included
4	2: Damper included
5	3: Air Flow Measuring Unit included
6	4: For flow measurements reference is made to EN 12238 and EN 12239
7	For manned and intermittently manned areas isovel v = 0,2 m/s
8	For unmanned areas isovel v = 0,3 m/s
9	5: For noise measurements reference is made to ISO 5135
10	
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NORSOK H-001	HVAC EQUIPMENT EXTRACT AIR DEVICES DATA SHEET	HDS-007 Rev. 3, July 1998
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Package No.	Doc. No.	Rev.	Page 1 of 2
Made by.	Date:	Checked by:	Date:

Tag No.	Ref. Schedule	Location/Module	Ref. Schedule
Unit		No. req'd	Ref. Schedule
HVAC System No.	Ref. Schedule	Inquiry No.	
Size & Type	Ref. Schedule	Quote No.	
Supplier		P.O. No.	
Manufacturer	Ref. Schedule	Job No.	
Model	Ref. Schedule	Serial No.	

1	Technical Data
2	Notes:
3	1: Plenum Chamber included
4	2: Damper included
5	3: Air Flow Measuring Unit included
6	4: For noise measurements reference is made to ISO 5135
7	
8	
9	
10	
11	
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NORSOK H-001		HVAC EQUIPMENT ELECTRICAL HEATING COILS DATA SHEET		HDS-008 Rev. 3, July 1998	
Package No.		Doc. No.		Rev.	Page 1 of 2
Made by.		Date:	Checked by:	Date:	
Tag No.	Ref. Schedule	Location/Module		Ref. Schedule	
Unit		No. req'd		Ref. Schedule	
HVAC System No.	Ref. Schedule	Inquiry No.			
Size & Type	Ref. Schedule	Quote No.			
Supplier		P.O. No.			
Manufacturer		Job No.			
Model		Serial No.			
1 Technical Data					
2 Outdoor Conditions					
		Winter	_____ °C	_____ %RH	
		Summer	_____ °C	_____ %RH	
6 Flanged Standard		Norsok H-001, Annex A			
7 Gland		Type			
8 Overheating Thermostat		Type			
9		See Data Sheet No:			
10 Fire Thermostat		Type			
11		See Data Sheet No:			
12					
13					
14					
15					
16					
17					
18					
19 Notes: _____					
20 _____					
21 _____					
22 _____					
23 _____					
24 _____					
25 _____					
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NORSOK H-001	HVAC EQUIPMENT FILTER/COALESCER/SEPARATORS DATA SHEET	HDS-009 Rev. 3, July 1998
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Package No.	Doc. No.	Rev.	Page 1 of 1
Made by.	Date:	Checked by:	Date:

Tag No. _____	Location/Module _____
Unit _____	No. req'd _____
HVAC System No. _____	Inquiry No. _____
Size & Type _____	Quote No. _____
Supplier _____	P.O. No. _____
Manufacturer _____	Job No. _____
Model _____	Serial No. _____

1 Technical Data	
2 Outdoor Conditions:	Winter _____ °C _____ %RH
3	Summer _____ °C _____ %RH
4 Salt Particle Concentration, outdoor	0,5 to 2,0 ppm (in a 1 to 13 micros spectrum)
5 Unit Data	
6 Unit Composition	Filter: _____ Coalescer: _____ Separator: _____
7 Separation efficiency Note 1	% min. 95
8 Filter Class, Fire/heat Rating	_____
9 Air Flow	m ³ /s _____
10 Face Air Velocity	m/s _____
11 Acceptable Salt Concentration (in a 1 to 13 micros spectrum)	ppm 0,3
12 Pressure Drop (Clean Filter)	Pa _____
13 Final Pressure Drop (Clogged)	Pa _____
14 Unit Position	Horizontal: _____ Vertical: _____
15 Unit size (W x H x L)	mm _____
16 Service Side (Seen in the direction of the airflow)	_____
17 Flange Standard	Norsok H-001, Annex A
18 Water Trap Required	Yes: _____ No: _____
19 Height of seal in WaterTrap	mm _____
20 Trace Heating Required	Yes: _____ No: _____
21 Trace Heating Cable	Type _____
22 Power Supply	v/Hz/Ph _____
23 Power Consumption	W _____
24 Junction Box	Manufacture/Type _____
25 Glands	Type _____
26 Weight	kg _____

27 Materials	
28 Filter Medium	_____
29 Size of filter cassettes	_____
30 No. of filter cassettes	_____
31 Manufacturers article no.	_____
32 Coalescer Medium	_____
33 Size of coalescer cassettes	_____
34 No. of coalescer cassettes	_____
35 Manufacturers article no.	_____
36 Filter Frame Material	_____
37 Casing material	_____
38 Casing Thickness	mm _____
39 Separator Vanes Material	_____
40 Separator Vanes Thickness	mm _____
41 Drip Tray Material/Shaft Material	_____
42 Drip Tray Thickness	mm _____
43 Drain Pipe Material	_____
44 Drain Pipe Flange Type	_____
45 Drain Pipe Flange Size	_____

46 Notes:	1. Separation efficiency to be measured for droplet sizes from 30 microns and upwards for rainfall
47	of 72 l/m ² /h against vertical louvre panel.
48	

NORSOK H-001	HVAC EQUIPMENT LIQUID MEDIUM COILS DATA SHEET	HDS-010 Rev. 3, July 1998
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Package No.	Doc. No.	Rev.	Page 1 of 1
Made by.	Date:	Checked by:	Date:

Tag No.	_____	Location/Module	_____
Unit	_____	No. req'd	_____
HVAC System No.	_____	Inquiry No.	_____
Size & Type	_____	Quote No.	_____
Supplier	_____	P.O. No.	_____
Manufacturer	_____	Job No.	_____
Model	_____	Serial No.	_____

1	Technical Data		
2	Coil Application		Cooling: _____ Heating: _____
3	Air Flow	m ³ /s	
4			Summer Winter
5	Capacity	kW	
6	Air Inlet Conditions	°C/%RH	
7	Air Outlet Conditions	°C/%RH	
8	Liquid Flow Temperature	°C	
9	Liquid Return Temperature	°C	
10	Air Pressure Drop	Pa	
11	Face Air Velocity	m/s	
12	Liquid Type		
13	Liquid Flow Pressure, Static	barg	
14	Liquid Flow Rate	l/s	
15	Liquid Pressure Drop (in Coil)	kPa	
16	Coil Design Pressure	barg	
17	Coil Location		Ductwork: _____ Air Handling Unit: _____
18	Coil Position		Horisontal: _____ Vertical: _____
19	Coil Size (Face Area W x H) x L	mm	
20	Drip Tray Required		Yes: _____ No: _____
21	Droplet Eliminator Required		Yes: _____ No: _____
22	Manometric Trap Required		Yes: _____ No: _____
23	Manometric Trap Seal Depth	mm	
24	Extreme Conditions: Maximum Air Inlet conditions	°C/%RH	
25	Minimum Liquid Flow Temperature	°C	
26	Connection Position (Seen in direction of Air Flow)		Left Side: __ Right Side: __ Top: __ Bottom: __
27	Minimum Fin Distance (Centre to centre)	mm	2,5
28	Flange Standard (Duct connection)		Norsok H-001, Annex A
29	Weight - Dry	kg	
30	Weight - Wet (operating)	kg	

31	Material	
32	Casing Material	
33	Casing Thickness	mm _____
34	Tubes and Headers:	Material _____
35		Flange Type _____
36		Flange Size _____
37		Fin Material _____
38	Drain Pipes:	Material _____
39		Connection Type and Size _____
40	Drip Tray Material	UNS S31603
41	Droplet Eliminator Material	
42		

43	Notes:
44	_____
45	_____
46	_____
47	_____

NORSOK H-001		HVAC EQUIPMENT AIR HANDLING UNITS DATA SHEET				HDS-011 Rev. 3, July 1998					
Package No.		Doc. No.				Rev.	Page 1 of 2				
Made by.		Date:		Checked by:		Date:					
<table style="width:100%; border: none;"> <tr> <td style="width:50%; border: none;"> Tag No. _____ Unit _____ HVAC System No. _____ Size & Type _____ Supplier _____ Manufacturer _____ Model _____ </td> <td style="width:50%; border: none;"> Location/Module _____ No. req'd _____ Inquiry No. _____ Quote No. _____ P.O. No. _____ Job No. _____ Serial No. _____ </td> </tr> </table>								Tag No. _____ Unit _____ HVAC System No. _____ Size & Type _____ Supplier _____ Manufacturer _____ Model _____	Location/Module _____ No. req'd _____ Inquiry No. _____ Quote No. _____ P.O. No. _____ Job No. _____ Serial No. _____		
Tag No. _____ Unit _____ HVAC System No. _____ Size & Type _____ Supplier _____ Manufacturer _____ Model _____	Location/Module _____ No. req'd _____ Inquiry No. _____ Quote No. _____ P.O. No. _____ Job No. _____ Serial No. _____										
1 Unit Composition											
2	Description		Tag No.		Ref. Data Sheet No.						
3											
4											
5											
6											
7											
8											
9											
10											
11											
12											
13 Technical Data											
14	Main Data										
15	Air Flow (at density 1,2 kg/m ³)	m ³ /s	_____								
16	Required Static Pressure Increase (excl. unit)	Pa	_____								
17	Total Pressure Drop over Unit	Pa	_____								
18			<table style="width:100%; border: none;"> <tr> <td style="width:50%; text-align: center;">Summer</td> <td style="width:50%; text-align: center;">Winter</td> </tr> <tr> <td style="border: 1px solid black; height: 20px;"></td> <td style="border: 1px solid black; height: 20px;"></td> </tr> </table>					Summer	Winter		
Summer	Winter										
19	Air Inlet Conditions	°C/%RH									
20	Air Outlet Conditions	°C/%RH									
21	Fan Motor Location		Internal: _____ External: _____								
22	Casing Construction		Bolted: _____ Cleated: _____ Welded: _____								
23	Section joints Gasket	Type									
24	Inspection side (Seen in direction of Air Flow)		Left Side: _____ Right Side: _____								
25	Lifting Pad Eyes		Yes								
26	Perforated Inner Skin		No								
27	Earthing Boss		Yes								
28	Max. Allowed Air Leakage		Eurovent 2/2, Class B								
29	Flange Standard		Norsok H-001, Annex A								
30 Materials											
31	Material		Stainless steel: _____ Galv. sheet steel: _____ Other: _____								
32	Unit Frame and Casing Material		_____								
33	Base Frame Material		_____								
34	Material Thickness Outer Skin	mm	_____								
35	Material Thickness Inner Skin	mm	_____								
36	Insulation Thickness	mm	_____								
37	Insulation Density	kg/m ³	_____								
38											
39	Noise Data (at rated duty)	(Sound power Levels in dB)									
40		Octave Band Centre Frequency, Hz									
41	Type of Data	63	125	250	500	1000	2000	4000	8000	dBA	
42	Guaranteed Data to AHU outlet										
43	Guaranteed Data to AHU Inlet										
44	Guaranteed Data to Surroundings										
45	Max. Acceptable to Surroundings										
46	Max. Acceptable to AHU Outlet										

NORSOK H-001		HVAC EQUIPMENT AIR HANDLING UNITS DATA SHEET				HDS-011 Rev. 3, July 1998		
Package No.		Doc. No.				Rev.	Page 2 of 2	
Made by.		Date:		Checked by:		Date:		
47	Weight:		Dry		kg		Operating	kg
48								
49	Notes:							
50	1: For noise measurements for ducted units reference is made to ISO 5136							
51								
52	2: Measurement method for noise to the surroundings shall be stated.							
53								
54								
55								
56								
57								
58								
59								
60	Air Handling Unit Sketch							
61								
62								
63								
64								
65								
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85								
86								
87								
88								
89								
90								
91								
92								
93								
94								
95								
96								
97								
98	A	mm	F	mm	K	mm		
99	B	mm	G	mm	L	mm		
100	C	mm	H	mm	M	mm		
101	D	mm	I	mm	N	mm		
102	E	mm	J	mm	O	mm		

NORSOK H-001	HVAC EQUIPMENT FANS DATA SHEET	HDS-012 Rev. 3, July 1998	
Package No.	Doc. No.	Rev.	Page 1 of 2
Made by.	Date:	Checked by:	Date:

Tag No. _____ Unit _____ HVAC System No. _____ Size & Type _____ Supplier _____ Manufacturer _____ Model _____	Location/Module _____ No. req'd _____ Inquiry No. _____ Quote No. _____ P.O. No. _____ Job No. _____ Serial No. _____
--	---

1 Technical Data			
2	Fan Type	Axial Flow Fan: _____	Centrifugal Flow Fan: _____
3			
4	Air Flow	m ³ /s	_____
5	Total Pressure	Pa	_____
6	Static Pressure	Pa	_____
7	Fan Power Consumption	kW	_____
8	Fan Motor Speed	rpm	_____
9	Fan Impeller Speed	rpm	_____
10	Max. allowable Impeller Speed	rpm	_____
11	Fan Efficiency	%	_____
12			
13 Construction			
14	<i>Motor</i>		
15	Motor Tag No.	_____	
16	Motor Data Sheet No.	_____	
17	<i>Fan</i>		
18	Anti Spark Trak	Yes: _____	No: _____
19	Inlet Type	Single Inlet: _____	Double Inlet: _____
20	Inlet Chamber	Yes: _____	No: _____
21	Inlet Size (dia.)	mm	_____
22	Discharge Type (duct connected)	Yes: _____	No: _____
23	Angle of Discharge (ref. Eurovent)	_____	
24	Discharge Size (W x H, dia.)	mm	_____
25	Impeller Type		
26	Impeller Shaft Bearing Type	DE: _____	NDE: _____
27	Flexible Connection w/flanges	Inlet: Yes: _____	No: _____
28		Outlet: Yes: _____	No: _____
29	Earthing Boss	Yes: _____	No: _____
30	Direct Drive Details:	Coupling: _____	Impeller on Motorshaft: _____
31	Coupling Type:	_____	
32	Coupling Material:	_____	
33	Coupling Manufacturer:	_____	
34	Inlet Guard	Yes: _____	No: _____
35	Discharge Guard	Yes: _____	No: _____
36	Inspection Door Size	mm	_____
37	Casing Drain Size	mm	_____
38	Flange Standard	Norsok H-001, Annex A	
39	_____		
40	_____		
41	_____		
42	_____		
43	_____		
44	_____		
45	_____		

NORSOK H-001		HVAC EQUIPMENT FANS DATA SHEET				HDS-012 Rev. 3, July 1998				
Package No.		Doc. No.				Rev.		Page 2 of 2		
Made by.		Date:		Checked by:		Date:				
46	Inlet Guide vanes					Yes: _____		No: _____		
47	Inlet Guide vanes Details:									
48	Guide Vanes Operation					Automatic: _____		Manual: _____		
49	Actuator Type									
50						Ref. Data Sheet No.				
51	Solenoid Valve Type									
52						Ref. Data Sheet No.				
53	Limit Switch Type									
54						Ref. Data Sheet No.				
55	Vibration RMS Velocity					mm/s				
56	Vibration Monitoring					Yes: _____		No: _____		
57						Ref. Data Sheet No.				
58	Anti Vibration Mounting Details:									
59	Type									
60	Manufacturer									
61	Rating					%				
62										
63	Materials									
64	Casing Material									
65	Casing Material Thickness					mm				
66	Impeller Material									
67	Impeller Shaft Material									
68	Base Frame Material									
69	Drive Guard/Lining Material									
70	Inlet Guard Material									
71	Discharge Guard Material									
72	Inlet Cone Material									
73										
74	Noise Data					Sound power Levels SWL in dB (ref. 10 ⁻¹² W)				
75						Octave Band Centre Frequency, Hz				
76	Type of Data	63	125	250	500	1000	2000	4000	8000	dBA
77	Guaranteed Data to Surroundings									
78	Guaranteed Data to Inlet/Outlet Duct									
79	Max. Acceptable to Surroundings									
80	Max. Acceptable to Duct									
81	Notes:									
82	1: For noise measurements for ducted units reference is made to ISO 5136 and AMCA 300-96									
83										
84	2: Measurement method for noise to the surroundings shall be stated.									
85										
86										
87										
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NORSOK H-001		HVAC EQUIPMENT AIR FILTERS DATA SHEET		HDS-013 Rev. 3, July 1998	
Package No.		Doc. No.		Rev.	Page 1 of 1
Made by.		Date:	Checked by:	Date:	
Tag No.		Location/Module			
Unit		No. req'd			
HVAC System No.		Inquiry No.			
Size & Type		Quote No.			
Supplier		P.O. No.			
Manufacturer		Job No.			
Model		Serial No.			
1 Technical Data					
2 Outdoor Conditions					
		Winter	_____ °C	_____ %RH	
		Summer	_____ °C	_____ %RH	
3 _____					
4 _____					
7 Filter Data					
8 Filter		Type	_____		
9 Filter Class (Eurovent)			_____		
10 Operating condition max %RH		%	_____		
11 Dust Accumulation Capacity		g/m ²	_____		
12 Air Flow		m ³ /s	_____		
13 Face Air Velocity		m/s	_____		
14 Filter section size (W x H)		mm	_____		
15 Pressure Drop (Clean Filter)		Pa	_____		
16 Final Pressure Drop (Clogged Filter)		Pa	_____		
17 Filter Position			Horizontal: _____	Vertical: _____	
18 Service Side (Seen in direction of airflow)			_____		
19 Flange Standard			Norsok H-001, Annex A		
20 Manufacturer of cassettes/bags			_____		
21 Filter cassettes Main size			_____		
22 Size of cassettes/bags (W xH x L)		mm	_____		
23 No. of casettes/bags			_____		
24 Manufacturer of cassettes/bags			_____		
25 Filter cassettes Second size			_____		
26 Size of cassettes/bags (W xH x L)		mm	_____		
27 No. of casettes/bags			_____		
28 Manufacturer of cassettes/bags			_____		
29 Weight		kg	_____		
30 _____					
31 Materials					
32 Filter Frame Material		_____			
33 Casing Material		_____			
34 Casing Thickness		mm	_____		
35 Filter Material		_____			
36 Casing Thickness		mm	_____		
37 _____					
38 Notes:					
39 _____					
40 _____					
41 _____					
42 _____					
43 _____					
44 _____					
45 _____					
46 _____					
47 _____					

NORSOK H-001		HVAC EQUIPMENT MEASURING STATIONS DATA SHEET		HDS-014 Rev. 3, July 1998	
Package No.		Doc. No.		Rev.	Page 1 of 2
Made by.		Date:	Checked by:	Date:	
Tag No.	Ref. Schedule	Location/Module		Ref. Schedule	
Unit		No. req'd		Ref. Schedule	
HVAC System No.	Ref. Schedule	Inquiry No.			
Size & Type	Ref. Schedule	Quote No.			
Supplier		P.O. No.			
Manufacturer	Ref. Schedule	Job No.			
Model	Ref. Schedule	Serial No.			
1 Technical Data					
2 Measuring Station Material					
3 Tube Material					
4 Tube Connection Size mm					
5 Flange Standard Norsok H-001, Annex A					
6					
7					
8					
9					
10					
11 Notes:					
12 1: Casing thickness/material to comply with ductclasses A to E, ref. item 7.2					
13					
14					
15					
16					
17					
18					
19					
20					
21					
22					
23					
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[illegible]

NORSOK H-001	HVAC EQUIPMENT COOLING UNIT DATA SHEET	HDS-015 Rev. 3, July 1998	
Package No.	Doc. No.	Rev.	Page 1 of 3
Made by.	Date:	Checked by:	Date:

Tag No. _____ Unit _____ HVAC System No. _____ Size & Type _____ Supplier _____ Manufacturer _____ Model _____	Location/Module _____ No. req'd _____ Inquiry No. _____ Quote No. _____ P.O. No. _____ Job No. _____ Serial No. _____
--	---

1 Unit Composition											
2 Unit Description:											
6	Component Description	Tag No.									
7											
8											
9											
10											
11											
12											
13											
14											
15											
16											
17 Technical Data for complete Unit											
18 Main Data											
19	Cooling Capacity (Total/Sensible)	kW									
20	Air Flow Rate	m³/s									
21	Air Inlet Conditions	°C / %RH									
22	Air Outlet Conditions	°C / %RH									
23	Available fan static pressure (excl. unit)	Pa									
24	Chilled water Flow Rate	l/s									
25	Chilled water Temperature	°C									
26	Return	°C									
27	Refrigerant	Type									
28	Condenser Water Flow Rate	l/s									
29	Evaporating Temperature	°C									
30	Condensing Temperature	°C									
31	Total Power Consumption	kW									
32	Main Voltage	v/Hz/Ph									
33	Control Voltage	v/Hz/Ph									
34	Overall size (W x L x H)	mm									
35	Service Space required	mm									
36	Weight (Operating/dry)	kg									
37	Casing Material										
38	Casing insulation material/thickness										
39											
40	Noise Data (at rated duty)		(Sound power Levels in dB)								
41			Octave Band Centre Frequency, Hz								
42			63	125	250	500	1000	2000	4000	8000	dBA
43	Max. Acceptable to Surroundings										
44	Guaranteed Data to Surroundings										
45	Notes:										
46											

NORSOK H-001		HVAC EQUIPMENT COOLING UNIT DATA SHEET				HDS-015 Rev. 3, July 1998				
Package No.		Doc. No.				Rev.		Page 2 of 3		
Made by.		Date:		Checked by:		Date:				
47 Component Technical Description										
48	Filter	Type								
49	Filter Class (Eurovent)									
50	Manufacturer									
51	Manufacturers article no.									
52	No. of Filters									
53	Filter size (W x H)	mm								
54	Filter Frame Material									
55	Compressor	Type								
56	Compressor	No. of								
57	Compressor Manufacturer									
58	Compressor Speed	rpm								
59	Displacement	m ³ /h								
60	Capacity Control									
61	Capacity Heater (or Pump down function)									
62	Oil	Type								
63	Oil Charge	l								
64	Motor	Type								
65	Power Consumption	kW								
66	Moment of inertia	kgm ²								
67	Starting Current	Amp.								
68	Running Current	Amp.								
69	Evaporator/Cooling Coil	Type	DX-Coil: Water Coil:							
70	No. of coils									
71	Casing material									
72	Casing material thickness	mm								
73	Tube material									
74	Fin material									
75	Drip Tray material									
76	Water inlet temperature	°C								
77	Water outlet temperature	°C								
78	Water Flow	l/s								
79	Pressure drop (water side)	kPa								
80	Evaporating temperature	°C								
81	<i>For Free standing Evaporator/Cooling Coil;</i>									
82	Pipe Connection	Liquid line	Type/Size	mm						
83		Suction line	Type/Size	mm						
84		Water supply	Type/Size	mm						
85		Water return	Type/Size	mm						
86		Drain	Type/Size	mm						
87	Fan	No. of fans								
88		Total air flow rate	m ³ /s							
89		Power consumption	kW							
90	Controls	Valve	Type							
91		Valve actuator								
92		Valve size	mm							
93	Weight	kg								
94	Noise Data (at rated duty)	(Sound power Levels in dB)								
95	for a free standing unit	Octave Band Centre Frequency, Hz								
96	Type of Data	63	125	250	500	1000	2000	4000	8000	dBA
97	Max. Acceptable to Surroundings									
98	Guaranteed Data to Surroundings									
99	Notes:									
100										
101										

NORSOK H-001		HVAC EQUIPMENT COOLING UNIT DATA SHEET					HDS-015 Rev. 3, July 1998			
Package No.		Doc. No.					Rev.		Page 3 of 3	
Made by.		Date:			Checked by:			Date:		
102	Condenser				Type	Air Cooled: _____		Water Cooled: _____		
103	Conndenser location					Integrated in Unit: _____		Free standing: _____		
104	No of coils									
105	Casing material (free standing unit)									
106	Casing material thickness (free standing unit)				mm					
107	Tube material									
108	Fin Material									
109	Shell material:				refrigerant side					
110					water side					
111	Design pressure:				refrigerant side	bar				
112					water side	bar				
113	Pressure drop				air side	Pa				
114					water side	kPa				
115	Water supply temperature					°C				
116	For free standing Condenser:									
117	Pipe Connection sizes				Liquid line	mm				
118					Hot gas line	mm				
119					Water supply	mm				
120					Water return	mm				
121	Fan				No. of fans					
122					Total air flow rate	m ³ /s				
123					Power consumption	kW				
124					Motor Data Sheet No.:					
125	Controls				Valve	Type				
126					Valve actuator					
127					Valve size	mm				
128	Weight					kg				
129	Overall size (W x L H)					mm				
130	Noise Data (at rated duty)				(Sound power Levels in dB)					
131	for a free standing unit				Octave Band Centre Frequency, Hz					
132	Type of Data	63	125	250	500	1000	2000	4000	8000	dBA
133	Max. Acceptable to Surroundings									
134	Guaranteed Data to Surroundings									
135	Notes:									
136										
137										
138										
139										
140										
141										
142										
143										
144										
145										
146										
147										
148										
149										
150										
151										
152										
153										
154										
155										

NORSOK H-001	HVAC EQUIPMENT DEHUMIDIFIER, SORPTION TYPE DATA SHEET	HDS-016 Rev 3, July 1998	
Package No.	Doc. No.	Rev.	Page 1 of 2
Made by.	Date:	Checked by:	Date:

Tag No. _____ Unit _____ HVAC System No. _____ Size & Type _____ Supplier _____ Manufacturer _____ Model _____	Location/Module _____ No. req'd _____ Inquiry No. _____ Quote No. _____ P.O. No. _____ Job No. _____ Serial No. _____
--	---

1 Unit Composition									
2 Unit Description:									
3									
4 Component Description	Tag No.	Reference							
5 Filter, process air									
6 Filter, regeneration air									
7 Rotor Unit									
8 Fan, process/dry air									
9 Motor for process/dry air fan		Data sheet No.							
10 Fan, regeneration/wet air									
11 Motor for regeneration/wet air fan									
12 Regeneration air heater		Data sheet No.							
13									
14 Technical Data for complete Unit									
15 Main Data									
16 Function Range		From 0 % RH to 100 % RH and from - 40°C to + 40°C							
17									
18 Dehumidification capacity (at inlet condition 20°C/60%RH)	kg/h								
19 Process/dry air flow	m ³ /s								
20 Available static pressure process/dry air fan (excl. unit)	Pa								
21 Regeneration/wet air flow	m ³ /s								
22 Available static pressure regeneration/wet air fan (excl. unit)	Pa								
23 Main Voltage	v/Hz/Ph								
24 Control Voltage	v/Hz/Ph								
25 Overall size (W x L x H)	mm								
26 Service Space required	mm								
27 Weight	kg								
28									
29 Materials									
30 Unit frame material									
31 Casing Material									
32 Casing insulation material/thickness	mm								
33 Base frame material									
34 Rotor material									
35									
36 Noise Data (at rated duty) (Sound power Levels in dB)									
37 Octave Band Centre Frequency, Hz									
	63	125	250	500	1000	2000	4000	8000	dBA
39 Max. Acceptable to Surroundings									
40 Max. Acceptable to Ducts									
41 Guaranteed Data to Surroundings									
42 Guaranteed Data to Ducts									
43 Notes:									
44 _____									
45 _____									
46 _____									

NORSOK H-001		HVAC EQUIPMENT DEHUMIDIFIER, SORPTION TYPE DATA SHEET		HDS-016 Rev 3, July 1998	
Package No.		Doc. No.		Rev.	Page 2 of 2
Made by.		Date:	Checked by:	Date:	
47	Component Technical Description				
48	Filter, Process Air	Type			
49	Filter Class (Eurovent)				
50	No. of Filters				
51	Filter size (W x H)	mm			
52					
53	Filter, Regeneration Air	Type			
54	Filter Class (Eurovent)				
55	No. of Filters				
56	Filter size (W x H)	mm			
57					
58	Rotor Unit	Type/Size			
59	Rotor Motor	Type/Manufacturer			
60	Power Supply	v/Hz/Ph			
61	Rotor Belt	Type/Manufacturer			
62	Desiccant material in rotor				
63	Washable rotor	Yes: ____ No: ____			
64	Washing detergent	Type			
65					
66	Fan, process/dry air	Type/Size			
67	Air Flow	m ³ /s			
68	Drive	Direct drive: ____ Belt drive: ____			
69	Fan Power Consumption	kW			
70	Fan Motor Speed	rpm			
71	Fan Impeller Speed	rpm			
72	Max. allowable Impeller Speed	rpm			
73	Anti Spark Trak	Yes: ____ No: ____			
74					
75	Fan, regeneration/wet air	Type/Size			
76	Air Flow	m ³ /s			
77	Drive	Direct drive: ____ Belt drive: ____			
78	Fan Power Consumption	kW			
79	Fan Motor Speed	rpm			
80	Fan Impeller Speed	rpm			
81	Max. allowable Impeller Speed	rpm			
82	Anti Spark Trak	Yes: ____ No: ____			
83					
84	Regeneration air heater	Manufacturer			
85	Type	Electric: ____ Water Coil: ____			
86	Heating Capacity	kW			
87	Power Supply	v/Hz/Ph			
88	Overheating thermostat (TSH/auto reset)	Type			
89		Setpoint °C			
90	Safety thermostat (TSHH/manual reset)	Type			
91		Setpoint °C			
92	Water inlet temperature	°C			
93	Water outlet temperature	°C			
94	Water Flow	l/s			
95	Pressure drop (water side)	kPa			
96	Casing	material/thickness			
97	Tube material				
98	Notes:				
99					

NORSOK H-001	HVAC EQUIPMENT LOUVRES DATA SHEET	HDS-017 Rev 3, July 1998	
Package No.	Doc. No.	Rev.	Page 1 of 1
Made by.	Date:	Checked by:	Date:

Tag No.		Location/Module	
Unit		No. req'd	
HVAC System No.		Inquiry No.	
Size & Type		Quote No.	
Supplier		P.O. No.	
Manufacturer		Job No.	
Model		Serial No.	

1 Technical Data			
2			
3	Airflow	m ³ /s	
4	Separation Efficiency		
5	Face Velocity	m/s	
6	Pressure Drop	Pa	
7	Louvre Size/duct connection size	Width	mm
8		Height	mm
9	Unit length		mm
10	Drain Outlet (Note 1)		Left: _____ Right: _____
11	Drain Outlet size		mm
12	Meshscreen	Yes: _____	No: _____
13	Lifting Lugs	Yes: _____	No: _____
14	Unit Weight	kg	
15			
16			
17 Materials			
18	Casing	Material	
19		Thickness	mm
20	Blades	Material	
21		Thickness	mm
22	Flange		Norsok H-001, Annex A
23	Meshscreen	Material	
24		Mesh Size	mm
25	Drain	Material	
26		Size	mm
27			
28			
29			
30 Notes:			
31	1 Seen in the direction of the air flow		
32			
33			
34			
35			
36			
37			
38			
39			
40			
41			
42			
43			
44			
45			
46			

NORSOK H-001	HVAC EQUIPMENT DX COOLING COILS DATA SHEET	HDS-018 Rev. 3, July 1998	
Package No.	Doc. No.	Rev.	Page 1 of 2
Made by.	Date:	Checked by:	Date:

Tag No. _____	Location/Module _____
Unit _____	No. req'd _____
HVAC System No. _____	Inquiry No. _____
Size & Type _____	Quote No. _____
Supplier _____	P.O. No. _____
Manufacturer _____	Job No. _____
Model _____	Serial No. _____

1 Technical Data			
2 General			
3	Total Cooling Capacity (Design)	kW	_____
4	Refrigerant Type _____		
5 Airside			
6	Air Flow	m ³ /s	_____
7	Air Inlet Conditions	°C/%RH	_____
8	Air Outlet Conditions	°C/%RH	_____
9	Extreme Conditions: (Maximum Air Inlet conditions)	°C/%RH	_____
10	Air Pressure Drop	Pa	_____
11	Coil Face Velocity	m/s	_____
12 Refrigerant Side			
13	Evaporating Temperature	°C	_____
14	Evaporating Pressure	kPa	_____
15	Refrigerant Coil Leaving Temp	°C	_____
16	Working Pressure	kPa	_____
17	Design Pressure	kPa	_____
18	Test Pressure (Nitrogen)	kPa	_____
19 Thermostatic Expansion Valve (TEV)			
20	Number of TEV's _____		
21	TEV Manufacturer/Type _____		
22	TEV's Superheat setting's _____		
23	TEV's Spring Range's	kPa	_____
24	Number of Solenoid Valves	kPa	_____
25	Solenoid Valve Manufacturer/Type _____		
26 Capacity control			
27	No of Cooling Stages _____		
28	Minimum Cooling Load - % Total Load	%	_____
29	Hot Gas Injection Required	Yes: _____	No: _____
30	Hot Gas Header Required	Yes: _____	No: _____
31 Construction			
32	Coil Size (Face Area W x H) x L	mm	_____
33	Coil Location	Ductwork: _____	Air Handling Unit: _____
34	Coil Position	Horizontal: _____	Vertical: _____
35	Tube Bundles Removeable	Yes: _____	No: _____
36	Isolation Valves Fitted	Yes: _____	No: _____
37	Drip Tray Required	Yes: _____	No: _____
38	Droplet Eliminator Required	Yes: _____	No: _____
39	Manometric Trap Required	Yes: _____	No: _____
40	Trap Refill Point Required	Yes: _____	No: _____
41	Manometric Trap Seal Depth	mm	_____
42	Connection Position (Seen in direction of Air Flow)	Left Side: _____	Right Side: _____
43	Minimum Fin Distance (Centre to centre)	mm	2,5 _____
44	Flange Standard (Duct connection)	Norsok H-001, Annex A _____	
45	Weight - Dry	kg	_____
46	Weight - Wet (operating)	kg	_____

NORSOK H-001		HVAC EQUIPMENT DX COOLING COILS DATA SHEET		HDS-018 Rev. 3, July 1998	
Package No.		Doc. No.		Rev.	Page 2 of 2
Made by.		Date:	Checked by:	Date:	
47	Material				
48	Casing	Material			
49		Thickness	mm		
50	Tubes:	Material			
51		Thickness	mm		
52	Fins	Material			
53		Thickness	mm		
54	Hot Gas Header	Connection Type and Size			
55		Material	mm		
56		Thickness			
57	Inlet (Distributor)	Connection Type and Size			
58		Material			
59		Thickness	mm		
60	Discharge Header	Connection Type and Size			
61		Material			
62		Thickness	mm		
63	Drain Pipes:	Material			
64		Connection Type and Size			
65	Drip Tray Material			UNS S31603	
66	Droplet Eliminator Material				
67					
68					
69					
70					
71					
72					
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