



Exploration & Production

GENERAL SPECIFICATION

HVAC

GS EP HVA 223

Kitchen Hood(s)

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Rev.	Date	Notes



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1. Scope

The purpose of this document is to define the minimum requirements for design, construction and supply of kitchen hood associated to a cooking equipment.

The words and expressions in capital characters and italic are defined inside the general specification **GS EP HVA 801**.

When other words require a definition only to be used in the present document, then the definition is given in a dedicated paragraph of the present document and the defined word, when used, is marked in small and *italic* letters.

2. Reference documents

The reference documents listed below form an integral part of this General Specification. Unless otherwise stipulated, the applicable version of these documents, including relevant appendices and supplements, is the latest revision published at the effective date of the CONTRACT.

Order of precedence of documents is defined in **GS EP HVA 100**.

Notes:

- In case of discrepancy between documents (whatever the documents and / or whatever origins), the most expensive solution must be quoted by the *BIDDER*. During the studies (Basic Engineering and/or Detailed Engineering) *CONTRACTOR(s)* shall raise the discrepancy in question to the *COMPANY's HVAC SPECIALIST* who will then review and advise which document(s) is (are) to be specified for the project.
- The *HVAC VENDOR* or *CONTRACTOR* may propose proven improvements to the reference documents but must obtain written approval of the *COMPANY* prior to implementation.
- An International Standard is a good "engineering practice" which shall be recognised and taken into consideration by *VENDOR*, *SUPPLIER*, *MANUFACTURER* and/or *CONTRACTOR*. If required, the translation of the standards must be included into *HVAC* scope.
- The latest revision of Standards, codes, regulations and the published errata if any must be used and applied by *VENDOR*, *SUPPLIER*, *MANUFACTURER* and *CONTRACTOR*.

Standards

Reference	Title
EMC standards EN 10204 ISO 15607	Metallic materials - Types of inspection documents Specification and qualification of welding procedures for metallic materials - General rules



Reference	Title
ISO 15614-2	Specification and qualification of welding procedures for metallic materials - Welding procedure tests - Part 2: Arc welding of aluminium and its alloys
ISO 15614-8	Specification and qualification of welding procedures for metallic materials - Welding procedure tests - Part 8: Welding of tubes to tube-plate joints

Professional Documents

Reference	Title
USPHS - Revised draft February 2001	U.S Public Health Service - Recommended shipbuilding construction guidelines for cruise vessels destined to call on U.S. ports - Vessel for sanitation program, national center for environment health, center for disease control and prevention

Regulations

Reference	Title
UL	Underwriters Laboratories

Codes

Reference	Title
IMO Resolution A.754 (18)	IMO resolution for testing
MED directive	Compliance with Marine Equipment Directive (MED) 96/98/EC as modified by Commission Directives 98/85/EC, 2001/53/EC and 2002/75/EC
SOLAS	International convention for Safety Of Life At Sea 1974 and amendments of November 1981, June 1983. Consolidated Edition 2004

Other documents

Reference	Title
Not applicable	

**Total General Specifications**

Reference	Title
GS EP HVA 000	List of HVAC specifications
GS EP HVA 100	Basis of design
GS EP HVA 212	Fire Damper(s) Pneumatically Actuated
GS EP HVA 801	Terminology, definitions, abbreviations

3. Definitions

Part (of hood): for different reasons (construction, transportation, handling, installation, ...) the hood can be composed of modules which are juxtaposed and connected together to constitute the hood. Each module must be regarded as a *part*.

4. Construction

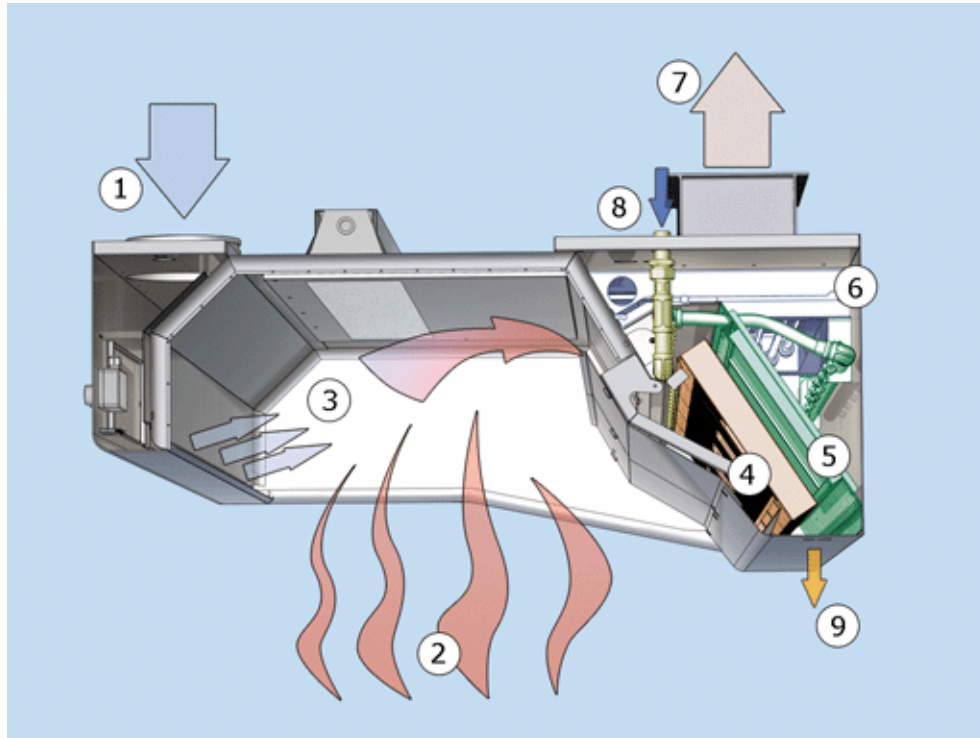
GS EP HVA 010 is not applicable for this equipment.

All parts shall be constructed of stainless steel sheet AISI 304 (thickness 1.25-2.0 mm) with a polished finish. The inside corners of the hood shall be rounded for easy cleaning according to USPHS requirements. The joints at the lower edges of the device shall be welded watertight. All visible screws shall be thumb screw type. The hood shall be equipped with a drain connection for removing the dirty water. A service hatch shall be foreseen in hood (each part of hood) for easy access above the hood. Passivation and polishing of welding shall be done at end of construction. The surface of hood (inner and outer) shall be polished after construction.

The sizes of hood (length and width) shall be at least 200 mm more, (on each side), than the length and width of the complete cooking island.

The hood shall be designed to avoid the build-up of grease deposits, in accordance with USPHS requirements.

Main description:

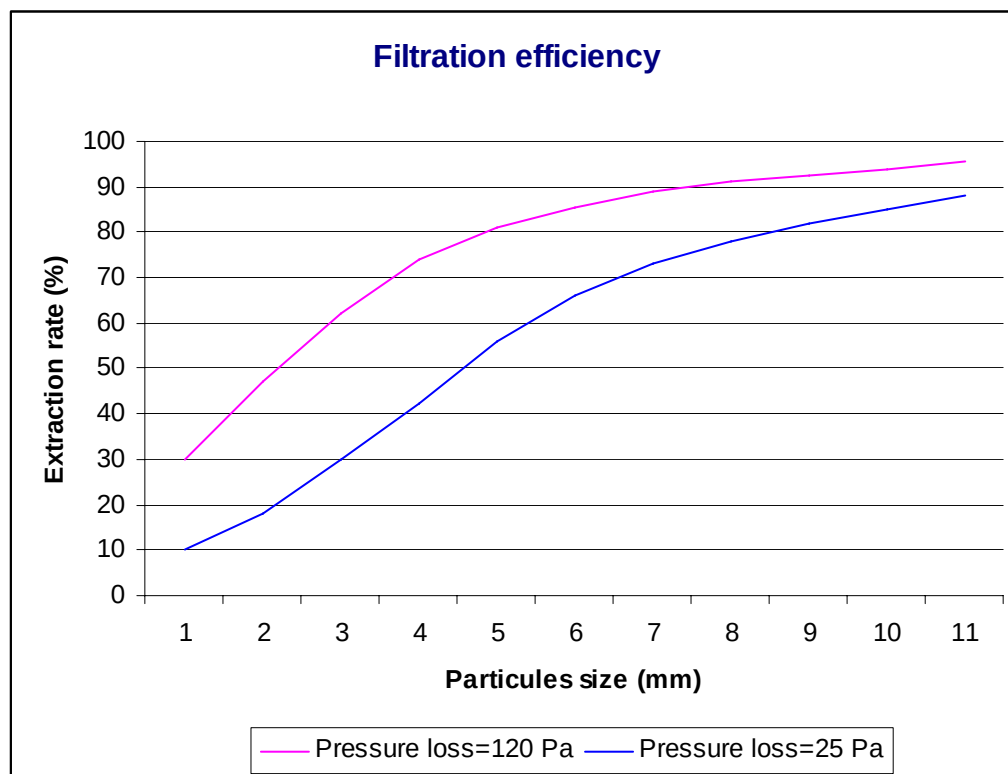


1. Air supply to the capture jet plenum
2. Grease and vapours rising from the cooking appliances
3. Grease and vapours are directed into the hood by Capture Jet technology
4. First filtration stage
5. Second filtration stage
6. Remaining grease eliminated with Halton's Capture Ray ultraviolet light technology
7. Exhaust air containing small amounts of Ozone which further cleans the ducts downstream
8. Washing system
9. Drain connection.

4.1 Filtration

A two filtration stages concept shall be designed. The filtration stages shall include a combination of KSA filter (developed by Halton Marine) and a fine filter. Filters material shall be stainless steel AISI 304.

The minimum efficiency of the two first filtration stages must be as following:



A third stage filtration, the Halton's Capture Ray ultraviolet-light technology, shall destroy the grease particles downstream the two filtration stages. It shall result in a clean exhaust ductwork.

Concentration of ozone inside the hood casing must be lower than 6 parts per million, when Capture Ray system is operating in association with ventilation.

The contact time between remaining grease particles and ultraviolet rays shall be sufficient to obtain a complete grease particles destruction.

4.2 Capture jet system

The hood shall be equipped with a "Capture Jet System" to increase the efficiency of grease and vapour exhaust and to reduce the exhausted air volume by the exhaust fan(s). The target of the capture jet system shall be to increase the induction effect on vapour and greases in order to avoid their exhaust out of the hood (containment efficiency).

The capture jet plenum shall be insulated with sealed glass wool to avoid condensation risk on the external faces of the hood. Plenum must be accessed through a maintenance hatch(es).

The capture jets shall be supplied from external equipment (fan or air handling unit) which is not included within the hood's *MANUFACTURER* package.

4.3 Washing system

The hood shall be equipped with an automatic washing system for grease filters and Capture Ray System cleaning. The washing system shall be supplied with hot water (out of hood's *MANUFACTURER* package) mixed with detergent delivered from the hood washing system



cabinet. Water and detergent shall be sprayed by pump, inside the hood via nozzles installed on a stainless steel AISI 304 piping. The pump and piping accessories like water filter, solenoid valve, detergent / water mixer, water heater, must be located in a dedicated washing cabinet. The cleaning system shall be designed to avoid any manual cleaning of exhaust plenum, filters and Capture Ray System.

The waste water must be removed from the hood by a direct drain connection. The kitchen hood design must include the slopes of gutters to avoid water stagnation.

The casings of the control cabinet and washing cabinet shall be constructed of stainless steel sheet AISI 304.

Electrical devices (circuit breakers, timers, relays, ...) required for the washing system automation, must be included in a control cabinet designed in accordance with the [EMC standard](#).

The periodic washing cycle must be chosen by operator on a weekly programmable clock. A possibility to manually start a washing cycle must be allowed to operator by action on a push button located on the door of washing system control cabinet.

The following interlocking with *FIRE AND GAS SYSTEM* will be included within the control cabinet: free voltage contact (change-over type) must be activated from the cabinet in order to require the closure of fire dampers located on air exhaust.

A second interlocking with *HVAC* system must inhibit operation of the galley air-conditioning.

4.4 Lighting

The hood must be delivered with fluorescent lighting fixture providing an average illuminance of minimum 250 lux at the work surfaces of the cooking appliances.

The lighting device(s) must be suitable for a single-phase 230 VAC power supply and must be IP65.

The ballast and capacitor shall be located within the light housing. The lighting devices must be wired to a junction box (one per *part* of hood) via stainless steel sheet AISI 304 tubing. The junction boxes shall be located above the hood to allow an access from the suspended ceiling space. Cables between the lighting devices and the junction boxes shall be flame-retardant type. The tubing shall be welded at the hood casing penetration.

The light housing shall be hinged to allow access to the hood roof.

On/off lighting switch is out of the hood *MANUFACTURER* scope.

4.5 Access hatch(es)

The hood shall be provided with access hatch(es) made of stainless steel AISI 304 with a shock-resistant plastic window. It shall be foreseen a minimum of one hatch per *part* of hood.

The hatch window shall be resistant to 120°C at least. The hatch shall be fixed on the hood with screws designed in accordance with USPHS screws.

4.6 Duct connections

The hood shall be provided by the *MANUFACTURER* including the duct connections for air supply (Capture Jets) and air exhaust. In order to obtain the maximum performances on grease

and vapour exhaust, each *part* of hood must be equipped with an air supply connection and an air exhaust connection. Each duct connection shall be equipped with a balancing damper.

The duct connections and balancing dampers shall be made of stainless steel AISI 304 and shall be fixed to the hood casing by flanges including fire resistant gaskets.

The air balancing on each hood *part* must be done by guillotine integrated to the hood.

The supply air damper shall be adjustable via service hatches.

Air flow measurement devices shall be included on supply and exhaust spigot. Silicone tubing or stainless steel AISI 304 tubing shall be installed to allow a measurement from the space located above the cooking island. A differential pressure / air flow rate converting table shall be provided for supply and exhaust ducting connections.

4.7 Fire fighting system

The hood shall be equipped with an extinguishing system allowing a release of extinguishing agent. The extinguishing system is not included within the hood *MANUFACTURER* scope.

However, the fire fighting system must be agreed by (in ascending order):

- The hood *MANUFACTURER*
- The Certifying Body (when building where the hood is located has to be controlled by a Certifying body)
- *COMPANY*'s Safety Specialist.

The details regarding the extinguishing system have to be provided to the hood *MANUFACTURER* by the *MANUFACTURER* who is in charge to provide and to install it.

Battery limits:

Are included within hood *MANUFACTURER* scope:

- Integration of the anchoring system dedicated to the extinguishing system
- Integration of the hood penetration(s) for extinguishing system pipes
- Integration of extinguishing system details in documentation
- Coordination with the extinguishing system *MANUFACTURER*.

Are included within extinguishing system *MANUFACTURER* scope:

- Supply of anchoring system, to the hood *MANUFACTURER* (the extinguishing system has to be in accordance with the USPHS requirements)
- Supply and installation of extinguishing system.

In addition to the extinguishing system, the hood shall be equipped with fire damper(s) located at the hood outlet(s). The fire damper(s) shall be located between the top of hood and each exhaust ducting connection. The fire damper(s) shall be in accordance with the General specification **GS EP HVA 212** (the temperature release of the frangible bulb must be 140°C instead of a "maximum temperature release... of 74°C" as indicated within the above specification).

The fire damper(s) must be provided from the fire dampers *MANUFACTURER* supplying the other fire dampers of the plant and must be of the same type.



The fire damper(s) shall be fully accessible for maintenance and replacement, from the ceiling of the hood. The minimum fire damper(s) classification shall be A0.

Note: The fire damper specification requires terminals to connect the local manual tripping switches of the fire damper (located on the both sides of the wall on which the fire damper is installed). Due to the specific hood arrangement, only two terminals must be available for connecting the local tripping switch. A strap must be placed on the remaining terminals which will be not used.

4.8 Interlocking

During the automatic hood washing, the following operations have to be activated:

- Closure of fire damper(s) (at the hood outlet(s))
- Stopping of exhaust from the hood.

To ensure this automatic sequence, the following contacts shall be delivered by the washing system control cabinet:

- Interlocking with fire & gas system to require the closure of the fire damper(s)
- Interlocking with *HVAC* system to open the air exhaust by-pass shut-off damper during the washing period.

In order to reduce the risk of discrepancy regarding the interlocking contacts, these contacts shall be issued from a same relay.

5. Characteristics

Subject		Performance
Contact for interlocking with fire & gas system (issued from the washing system control cabinet):	Contact type:	Change over
	Status:	Open during the washing cycle
Contact for interlocking with HVAC system (issued from the washing system control cabinet):	Contact type:	Change over
Fire damper solenoid valve voltage:		Refer to Pneumatic fire dampers
Minimum degree of protection for washing system control cabinet:		IP55
Temperature of water supplied to the washing system:		55 to 75°C
Pressure range required on water supply to the washing system:		3 to 6 bar
UV lighting minimum life time:		8000 hours

6. Documents to provide

6.1 Submission of documents

The documents are submitted for Approval, Comment or Information. The following table lists the category of each document. Definitions of the submission class of documents are indicated below:

- Category A: document required for approval; VENDOR must not proceed until receipt of the Purchaser's approval or first working day after the end of the document review cycle (first coming).
- Category B: document required for comment; VENDOR must be allowed to proceed before the end of the document review cycle, but shall take into account at no cost/schedule impact any Purchaser's comment(s) issued within the review cycle.
- Category C: document required for information.

6.2 Documents to provide

The following documents have to be provided by the *VENDOR*:

Item	Document Title	Categ.	With Bid
MANAGEMENT			
MGT01	<i>VENDOR</i> Document Schedule - VDS	A	Mandatory
MGT02	Organisation Brief	B	Mandatory
MGT04	Planning showing Engineering, Procurement, Fabrication, Testing, Delivery	B	Mandatory
QUALITY			
QAC01	Project Quality Plan	B	
QAC02	Quality Manual	B	Mandatory
QAC03	QC Inspection Plan	A	
QAC04	QC Procedures	A	
HEALTH, SAFETY, ENVIRONMENT			
HSE02	Material Safety and product Data sheets	B	
INTERFACE			
INT02	Electrical & Instrumentation wiring drawings	B	
INT03	Equipment Data Sheets	B	Mandatory
INT05	Performance curves (filtration efficiency)	B	Mandatory
INT07	Functional description	B	Mandatory
INT08	General arrangements drawings	B	Mandatory
INT09	Mechanical Equipment List	B	
INT10	Electrical Equipment List	B	
INT11	Control & Instrument List	B	
INT12	Interface Block diagrams	B	
INT13	Junction box termination drawings	B	
INT14	Functional logic diagram	A	
INT15	P&ID's	A	
INT16	Utility Consumption List	B	Mandatory
INT19	Earthing details	B	
INT20	Weight / Centre of gravity drawings & data's	B	
INT22	Anchor bolt details drawings (incl. size, type, locations relative to the equipment centre-lines in three planes)	B	



Item	Document Title	Categ.	With Bid
ENGINEERING			
ENG04	Detailed design/fabrication drawings	B	
ENG06	Assembly drawings	B	
ENG07	Design calculation notes	B	
ENG10	Piping routing	B	
ENG13	Electrical cables routing (including junction boxes)	B	
ENG16	Electrical control schematics	B	
ENG17	Instrument & Control Detailed Specifications (one per component)	B	
ENG18	Instrument cables routing (incl. cable trays & junction boxes)	B	
ENG19	Instrument equipment location drawings (incl. provisions for operational and maintenance access)	B	
ENG22	Instrument control schematics	B	
ENG23	Instrument mounting & housing instructions	C	
ENG24	Power distribution & consumption (air supply)	B	
ENG27	Insulation mounting drawings	B	
PROCUREMENT			
PRO01	Procurement procedure (covering Purchase, Expediting, QC)	A	Mandatory
PRO02	List of sub-suppliers (table giving: part of equipment, tag no, sub-supplier reference)	A	Mandatory
PRO03	Unpriced copy of sub-orders	C	
MANUFACTURING			
MAN01	Weighting procedure	B	
MAN02	Surface preparation and painting procedures	B	
MAN04	Welding procedure specification (including repair procedures)	B	
MAN05	Welder qualification procedure	B	
TESTING			
TES01	Pneumatic Testing Procedure (Tightness test)	B	
TES02	Performances & Functional Test Procedure	B	Mandatory



Item	Document Title	Categ.	With Bid
RECORDS, REPORTS & CERTIFICATES			
RRC01	Material Inspection Certificate (EN 10204 , DIN 50049)	C	
RRC02	Testing Authority Approval Certificate	C	
RRC05	Conformity Certificates and Temporary Certificates	C	
RRC10	Detailed <i>NDT</i> reports	B	
RRC11	Weld/ <i>NDT</i> Identification Diagram	B	
RRC12	Dimensional Control Reports	B	
RRC16	Pressure Test Reports/Certificates	B	
RRC17	Functional Test Report/certificates	B	
RRC22	Cable continuity and resistance test reports	B	
RRC27	Certified Weight certificates	B	
INSTALLATION			
INS02	Sub-assembly Documentation	C	
INS03	Sub-assembly Drawings	C	
INS04	Erection/Installation & Tie-in Documentation	B	
INS05	Erection/Installation & Tie-in Drawings	B	
INS06	Lifting Procedure (Onshore/Offshore)	B	
INS07	Name Plate Documents	C	
INS08	Handling, Transportation & Storage Instructions	C	
INS09	Unpacking & Inspection Instructions	C	
INS10	Packing List	C	
OPERATION & MAINTENANCE			
OPM01	Operating Instructions	C	
OPM02	Maintenance Instructions	C	
OPM03	Commissioning & Start-up Manual	C	
OPM04	List of Spare Parts Commissioning & Start-up	C	Mandatory
OPM05	List of Spare Parts 2 Years Operation	C	Mandatory
OPM06	List of Special Tools	C	Mandatory

6.3 Quantities of documents

The hereafter indicated values are minimum. In case of more important quantity of copies required by the Contract, the values indicated hereafter must be increased as per requirement.

For Review:

- Drawings: 3 hard-copy + 1 electronic
- Documents: 3 hard-copy + 1 electronic
- *VENDOR's* Book: 2 sets + 1 electronic.

Final Submission (Certified Finals)

- Drawings: 6 hard-copy + 2 electronic (CD-Rom)
- Documents: 12 hard-copy + 2 electronic (CD-Rom)
- Data Books: 3 Original + 3 copies + 2 electronic (CD-Rom).

In addition, a complete final documentation (1 CD-Rom, with native files for drawings), including spare parts lists, must be provided by *MANUFACTURER* to the *HVAC SPECIALIST*.

6.4 Format of documents

6.4.1 Electronic copy

An electronic copy of all project specific documents must be submitted in Native File Format (.doc, .xls & .dwg preferred). Standard documentation may be .pdf or .tif format. Data must be provided on CD.

6.4.2 Hard Copy

All documents must be full size based on 'A' series sizes, A0 size is not acceptable.

All documents shall be checked before submission, unchecked documents may be returned un-reviewed.

All documents submitted must be clearly marked with the Purchase Order No., Item No, *VENDOR* Job No., Equipment/Tag No. (if applicable), *VENDOR* Document No., Purchasers Document No.

All documents and technical data must be in the English language (unless otherwise stated) with dimensions and units in accordance with ISO.

A3 and A4 documents must be submitted with a project document front sheet, which will carry the Purchaser's review status on return to the *VENDOR*.

All document prints larger than A4 must be folded to A4 size with identification data visible at the bottom right.

The documents provided by the *VENDOR* must be typed. Hand-written correspondence will be rejected.

7. Equipment inspection

For the fire damper(s), the *COMPANY* requires an equipment inspection according to the following table:

Level 0	[]	No inspection required
Level 1	[X]	Final inspection prior to shipment and <i>FAT</i> with <i>MANUFACTURER</i> and <i>COMPANY HVAC SPECIALIST</i> (from Exploration & Production division, Technology department).
Level 2	[]	Progress surveillance, meetings, all witness and hold points. Final inspection prior to shipment and <i>FAT</i> with <i>MANUFACTURER</i> and <i>COMPANY HVAC SPECIALIST</i> (from Exploration & Production division, Technology department).
Level 3	[]	Continuous monitoring by resident inspector. Final inspection prior to shipment and <i>FAT</i> with <i>MANUFACTURER</i> and <i>COMPANY HVAC SPECIALIST</i> (from Exploration & Production division, Technology department).

8. Data sheet

A data sheet must be filled and transmitted to *COMPANY*.

9. Spare parts list

A spare part list for start-up and two years maintenance must be provided by the *MANUFACTURER*.

Except when otherwise stated in General Specifications or in Project documents, the spare parts list must be filled on a form according to the present model (refer to next page).

By its acceptance of purchase order, the equipment *MANUFACTURER* contracts to provide exhaustive spare parts lists including the designation and reference of each component, as mentioned in catalogue of the originator *MANUFACTURER* of this component.

Equipment spare parts list can be required by *COMPANY's HVAC SPECIALIST* as soon as equipment is provided by the *MANUFACTURER*. In this case the *COMPANY's HVAC SPECIALIST* requirement prevails on other specification, delay or request mentioned in the other Projects documents.

