

ZÁKAZNÍK / CUSTOMER

AIR LIQUIDE AGS GmbH

Stupeň / Level
Projekt pre realizáciu stavby
Construction design

Dátum / Date
July 2005

Kód / Code

2. Technická správa (anglicky)
Technical report (english)

792.87490/001

HS HSV s.r.o. KOŠICE
Technický úsek

FREIGABE
FOR CONSTRUCTION
Ra 26.07.05

Projekt pre realizáciu stavby spracovaný pod z. č. 3821.2.002
Construction design prepared under No. 3821.2.002



AIR LIQUIDE™

PROJEKT SKUTOČNÝ
VYHOTOVENIA

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A	25.07.2005	Ing. Ďurašková	<i>JD</i>	Ing. Čepela	<i>Čepela</i>	Ing. Pavličko		
0	02/2005	Ing. Ďurašková		Ing. Čepela		Ing. Pavličko		
Rev./ Rev.	Dátum / Date	Vypracoval Originator	Sign.	Kontroloval Checked	Sign.	Schválil Approved	Sign.	Pozn. / Note

Názov zákazky / Job :

KYSLÍKOVÝ APARÁT č. 9
AIR SEPARATION UNIT No. 9



Námrovej 30
042 18 KOŠICE, SLOVAKIA

Objekt / Unit :

Prev. celok / Unit :

Prev. súbor / Unit :

UNIT 1 – COMPRESSOR BUILDING
CONSTRUCTION DESIGN

SO 002 - KOMPRESOROVÁ STANICA
COMPRESSOR BUILDING

Profesia / Profession :
Prev. jednotka / P. Unit:

OCELOVÁ KONŠTRUKCIA
STEEL STRUCTURE

A

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HPK engineering a.s.
Námrovej 30
042 18 KOŠICE, SLOVAKIA

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ZÁKAZNÍK / CUSTOMER: AIR LIQUIDE AGS GmbH

STAVBA / JOB : KYSLÍKOVÝ APARÁT č. 9 AIR SEPARATION UNIT No. 9

OBJEKT / UNIT: SO 002 - KOMPRESOROVÁ STANICA COMPRESSOR BUILDING

1. TABLE OF CONTENTS
2. STANDARDS
3. GENERAL
4. DESCRIPTION OF STRUCTURE
5. PROTECTION AGAINST CORROSION AND FIRE
6. MANUFACTURING AND ERECTION

2. STANDARDS

This part of the project has been prepared in accordance with the following standards

STN 73 0035	Load of building structures
STN 73 1401	Designing of steel structures
STN 73 2601	Manufacturing of steel structures
ON 73 2615	Guidelines of anchorage of steel structures
STN 03 8260	Protection of steel structures against atmospheric corrosion
EN ISO12944	Paints – Anticorrosive protection of steel structures using protective painting systems

3. GENERAL

This part of the realisation documentation solves the design of the steel structure for the compressor station building. Static calculation will be part of the detailed project including the detailed drawings and material specifications.

The compressor station building is a one storeyed, separately standing building with plan dimensions of 32.5 x 12.0 m. Clearance is 4.0 m in lower part and 7.0 m higher part of the building.

The project for obtaining the building permit and technological data furnished by AIR LIQUIDE were the basic documents for preparation of the construction design. Load caused by technological equipment is according to drawing No. 792.87279.A.

4. DESCRIPTION OF STRUCTURE

The supporting structure of the building consists of a steel skeleton consisting of main columns, wall puncheons and vertical and horizontal bracings. Main columns are of the hinged type. The stability of the structure is ensured by a horizontal bracing in the roof plane and by vertical bracings in the transversal and longitudinal directions. Anchorage level is ± 0.000 m. Columns are anchored using mechanical anchors (Hilti).

The roof structure consists of system of purlins and girders, which were designed as simple beams. The roof structure has a 2% slope. Trapezoid sheets with a height of 50 mm will be seated on girders. Roof insulation consists of boards from mineral wool in 2 layers with a total thickness of 140 mm and of a hydroinsulating foil. The girders form plain beams from rolled sections in a length of 12 m. Noise insulation in a thickness of 50 mm is under the roof steel structure.

Four permanent installation openings with dimensions of 4.0 x 6.5 m and 4.0 x 2.5 m are

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AIR SEPARATION UNIT No. 9



OBJEKT / UNIT: SO 002 - KOMPRESOROVÁ STANICA

COMPRESSOR BUILDING

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REVÍZIA DOKUMENTÁCIE

REVISION OF DOCUMENT

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Němcovej 30
engineering a.s. 042 18 KOŠICE, SLOVAKIA

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STAVBA / JOB : KYSLÍKOVÝ APARÁT č. 9 AIR SEPARATION UNIT No. 9

OBJEKT / UNIT: SO 002 - KOMPRESOROVÁ STANICA COMPRESSOR BUILDING

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designed in the roof above the compressors. They will be covered with roof components manufactured as a platform with complete roof structure. These components will be removable, equipped with lifting hooks for their dismantling using a crane. The weight of the largest roof part is cca 1,2 t.

The platform +5,100 m with gratings and handrails is situated on the roof. The plan of this platform is 1,3 m resp. 1,75 x 9.5 m. The posts of platform are welded to roof. Beams of platform install after completion the roof.

In the roof are openings for air-conditioning system. There are edged cca 250 mm above roof level. The top edge must be horizontal for air-condition equipment.

Peripheral walls and internal partition wall between the lower and higher part of the building are made of concrete panels in a thickness of 120 mm and 150 mm. On their interior side, the peripheral walls will be faced with noise insulation in a thickness of 50 mm. The panels will have a uniform height of 2,0 m, on the upper and bottom edge of the panel there are plates, which will be welded to the main columns and wall puncheons. The walls are ended with an attic at a level of + 5.0 and 8.0 The columns are extensioned to an attic with the legs.

There are openings for doors and gates (door frames are not included in delivery of steel structures), openings for technological equipment (pipelines and filter). Supporting beams and posts have been designed between columns according to requirements of technology for pipelines and filter.

Vertical bracings have been designed of closed sections in bays, where they will not obstruct the technological equipment.

The delivery of the steel structure contents the support for MAC Suction Silencer and stairs and handrail in the platform for filter.

The support for MAC Suction Silencer is designed as the frame construction in the both directions. The support is anchored using mechanical anchors (Hilti).

The platform for filter +0,350 m is in the exterior. It is the concrete structure with prepared steel plates for handrails and stair girders to be welded to. There are grates used on the stairs, the are the hollow sections used in the handrails.

5. PROTECTION AGAINST CORROSION AND FIRE

The structures are located in the inner environment with a degree of corrosive aggressiveness C3 taking into account the outer industrial atmosphere. The following paint system is proposed:

- * manual cleaning and degreasing, level St2
 - * epoxy prime coat 50 µm
 - * epoxy top coat 80 µm
- Trapezoid sheets are galvanized, without coatings.

The protection against corrosion for the exterior within industrial environment with the corrosion aggressiveness degree C4-high is designed to have the following composition:

- * - purification of the surface up to the degree St2
- * - base coat epoxy 100 µm
- * - top coat:epoxy 80 µm
- * - finishing coat epoxy 60 µm

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Color shade of the paintings has been proposed in the AS part of the project.

6. MANUFACTURING AND ERECTION

The structures have been categorized to the manufacturing group B and C (stairs, handrails) according to STN 73 2601.

They have been designed of rolled sections, material 11373 and 11375, strength class of steel S 235.

The anticipated consumption of steel is as follows:

39680 kg, of which trapezoid sections 3650 kg (430 m²), grates 430 kg.

The coating area is 980 m².

Košice, July 2005

Ing. Ďurašková

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