

ZÁKAZNÍK / CUSTOMER

AIR LIQUIDE AGS GmbH

Stupeň / Level

Dátum / Date

Kód / Code

Realizačná dokumentácia
Construction design

April 2005

792.87497

2. Výkaz výmer
Bill of quantities

792.87497

HS HSV s.r.o. KOŠICE
Technický úsekFREIGABE
FOR CONSTRUCTION

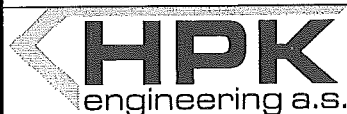
Ra 04.08.05

Realization documentation elaborated under No. 3821.2.002

AIR LIQUIDETMVÝKAZ VÝMER
VÝPOČTOVENIA

F								
E								
D								
C								
B								
A								
0	07/2005	Ing.Šenkovič		Ing.Ivanecká		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. 9Němcovej 30
042 18 KOŠICE, SLOVAKIAObjekt / Unit : UNIT 1 – COMPRESOR BUILDING
CONSTRUCTION DESIGN

Prev. celok / Unit : SO 002 -KOMPRESOROVÁ STANICA

Prev. súbor / Unit : SO 002 - UNIT 1 - COMPRESOR BUILDING

Profesia / Profession :
Prev. jednotka / P. Unit:VZDUCHOTECHNIKA
AIR VENTILATION

A

Number and name of unit (or ČPS): **SO 002 -KOMPRESOROVÁ STANICA**

CODE No.: 792.87497

JOB: AIR SEPARATION UNIT No. 9

P.č.	Č.položky	Price list item No.	Brief Description	Unit meas.	Amount	Weight	
						unit	total
1	2	3	4	5	6	7	8
			<u>Room No.</u> - (Room for main compressor and finish pressing air compressor) – heat gain removal				
			<u>(EQUIPMENT No. 1)</u>				
			<u>Air outlet:</u>				
	1.01	Elektrode sign	Axial-flow fan to the Electro-design piping TCBT/4-800G, $Q_v=6.9\text{m}^3\text{s}^{-1}$, $p=380\text{Pa}$, $P=6.90\text{ kW}$, 400V, 50Hz, 11,6A,	pc	3	81	243
			Accessories to be ordered to the fan:				
	1.01a	Elektrode sign	Suction nozzle TAD 800	pc	3	3	9
	1.02	Frivent SK	Anti-noise louvre Frivent „Klasik“ 1400/1600/O - RAL 9010 (Without wall frame)	pc	6	233	1398
	1.03	Frivent SK	Control damper close „klasik“ – 1400/1600/H (delivery of servo-drive open-close – is within the scope of the Electro project)	pc	3	26	78
	1.04		Pass from piping of class III. PR 11 1400x1600-800/300.1 – both fixed flanges	pc	3	95	285
	1.05		Atypical – air ventilation pipe of class III of inside diameter 1400x1600 and length 900mm made of sheet metal of thickness 4mm. 1 piece of anti-noise louver (position No. 1.02) is inserted and anchored to this pipe. At the same time this pipe is anchored to the roof pass by means of an angle 100x100mm welded on the external side. Roof pass forms a part of the OK (Steel structures) project delivery. The lower flange is free and will be mounted only when setting this pipe into the roof pass from bottom.	pc	3	270	810
Vypracoval : Ing.Šenkovič			Číslo revízie	0	1	2	3
			Dátum	07/2005			Strana
							1

Number and name of unit (or ČPS): **SO 002 -KOMPRESOROVÁ STANICA**
CODE No.: 792.87497
JOB: AIR SEPARATION UNIT No. 9

P.č.	Č.položky	Price list item No.	Brief Description	Unit meas.	Amount	Weight	
						unit	total
1	2	3	4	5	6	7	8
	1.06		Atypical – air ventilation pipe of class III of inside diameter 1400x1600 and length 400 made of sheet metal of thickness 4mm. 1 piece – (the second piece) of anti-noise louver (position No. 1.02) is inserted and anchored to this pipe.	pc	3	92	276
	1.07		Atypical square head for wind blast 1400x1600 – realize according to the dimensioned sketch in the drawing. (Note: Anti-rain louvers are set to the head from all directions – per 2 pieces position No. 1.08, 1.09. There is this head covered by a saddle back coping.	pc	3	420	1260
	1.08		Anti-rain louver IMOS-PŽ P-1400x400-R1	pc	6	15	90
	1.09		Anti-rain louver IMOS-PŽ P-1600x400-R1	pc	6	16	96
	1.10		Inter-flange sheet metal of thickness 4mm – it serves for supporting and anchoring of upper anti-noise louver.	pc	6	5	30
	1.11 up to 1.19		Not occupied				
			Air inlet:				
			Incoming as well as outlet equipments are fully similar, apart from: - fan rotation (outlet fan blows outside, and incoming fan blows inside) - outlet fan has got a suction nozzle for sucking position No. 1.01a, and incoming fan has got an outlet nozzle position No. 1.01b.				
			Position numbers are stated identical for inlet as well outlet, if the item for air inlet and outlet is the same – number of pieces is stated separately for inlet and outlet equipments.				
	1.01	Elektrode sign	Axial-flow fan to the Electro-design piping TCBT/4-800G, $Q_v=6.9\text{m}^3\text{s}^{-1}$, $p=380\text{Pa}$, $P=6.90\text{ kW}$, 400V, 50Hz, 11.6A,	pc	3	81	243
Vypracoval : Ing.Šenkovič			Číslo revízie	0	1	2	3
			Dátum	07/2005			
						Strana	
						2	

ZOZNAM STROJOV A ZARIADENÍ

Number and name of unit (or ČPS): **SO 002 -KOMPRESOROVÁ STANICA**

CODE No.: 792.87497

JOB: AIR SEPARATION UNIT No. 9

P.č.	Č.položky	Price list item No.	Brief Description	Unit meas	Amount	Weight	
						unit	total
1	2	3	4	5	6	7	8
	1.01b		Exhaust nozzle – to be realized from piping of class I. Shape is identical to the reducing element of piping PR 11 1600x560-800/300 – only with one circular flange.	pc	3	18	54
	1.02	Frivent SK	Anti-noise louver Frivent „Klasik“ 1400/1600/O - RAL 9010 (Without wall frame)	pc	6	233	1398
	1.03	Frivent SK	Control damper close „klasik“ – 1400/1600/H (delivery of servo-drive open-close – is within the scope of the Electro project)	pc	3	26	78
	1.04		Pass from piping of class III. PR 11 1400x1600-800/300.1 – both fixed flanges	pc	3	95	285
	1.05		Atypical – air ventilation pipe of class III of inside diameter 1400x1600 and length 900mm made of sheet metal of thickness 4mm. 1 piece of anti-noise louver (position No. 1.02) is inserted and anchored to this pipe. At the same time this pipe is anchored to the roof pass by means of an angle 100x100mm welded on the external side, Roof pass forms a part of the OK project delivery. The lower flange is free and it will be mounted only when setting this pipe into the roof pass from bottom side.	pc	3	270	810
	1.06		Atypical – air ventilation pipe of class III of inside diameter 1400x1600 and length of 400 made of sheet metal of thickness 4mm. 1 piece – (the second piece) anti-dust louver (position No. 1.02) is inserted and anchored into this pipe.	pc	3	92	276
	1.07		Atypical square head for wind blast 1400x1600 – to be realized according to the dimensioned sketch in the drawing – from the view of construction to be solved in assembly. (Note: Anti-rain louvers are set to the head from all directions – per 2 pieces position No. 1.08, 1.09. There is this head covered by a saddle back coping.	pc	3	420	1260
	1.08		Anti-rain louver IMOS-PŽ P-1400x400-R1	pc	6	15	90
	1.09		Anti-rain louver IMOS-PŽ P-1600x400-R1	pc	6	16	96
Vypracoval : Ing.Šenkovič			Číslo revízie	0	1	2	3
			Dátum	07/2005			Strana 3

Number and name of unit (or ČPS): **SO 002 -KOMPRESOROVÁ STANICA**

CODE No.: 792.87497

JOB: AIR SEPARATION UNIT No. 9

P.č.	Č. položky	Price list item No.	Brief Description	Unit meas	Amount	Weight	
						unit	total
1	2	3	4	5	6	7	8
	1.10		Inter-flange sheet metal of thickness 4mm – it serves for supporting and anchoring of upper anti-noise louver.	pc	6	5	30
	1.11 up to 1.19		Not occupied				
			Room No. - (Room for GAN compressors) - heat gain removal				
			(EQUIPMENT No. 2)				
			Air outlet:				
	2.01	Elektrode sign	Axial-flow fan to the Electro-design piping TCBT/4-560H, 2x 2.8m ³ s ⁻¹ , p=180Pa, P=1.52 kW, 400V, 50Hz, 2.8A,	pc	2	35	70
			Accessories to be ordered to the fan:				
	2.01a	Elektrode sign	Suction nozzle TAD 560	pc	2	3	6
	2.02	Frivent SK	Anti-noise louver Frivent „Klasik“ 1000/1000/O - RAL 9010 (Without wall frame)	pc	4	111	444
	2.03	Frivent SK	Control damper close „klasik“ – 1000/1000/H (delivery of servo-drive open-close – is within the scope of the Electro project)	pc	2	18	36
	2.04		Pass from piping of class III. PR 11 1000x1000-560/300.1 – both fixed flanges	pc	2	40	80
	2.05		Atypical – air ventilation pipe of class III of inside diameter 1000x1000 and length 900mm made of sheet metal of thickness 4mm. 1 piece of anti-noise louver (position No. 2.02) is inserted and anchored to this pipe. At the same time this pipe is anchored to the roof pass by means of an angle 100x100mm welded from the external side. Roof pass forms a part of the OK project delivery. The lower flange is free and it will be mounted only when setting this pipe into the roof pass from bottom.	pc	2	160	320
Vypracoval : Ing.Šenkovič			Číslo revízie	0	1	2	3
			Dátum	07/2005			
						Strana	
						4	

ZOZNAM STROJOV A ZARIADENÍ

Number and name of unit (or ČPS): **SO 002 -KOMPRESOROVÁ STANICA**

CODE No.: 792.87497

JOB: AIR SEPARATION UNIT No. 9

P.č.	Č. položky	Price list item No.	Brief Description	Unit meas.	Amount	Weight	
						unit	total
1	2	3	4	5	6	7	8
	2.06		Atypical – air ventilation pipe of class III of inside diameter 1000x1000 and length 400 made of sheet metal of thickness 4mm. 1 piece - (the second piece) anti-noise louver (position No. 2.02) is inserted and anchored to this pipe.	pc	2	40	80
	2.07		Atypical square head for wind blast 1000x1000 – to be realized according to the dimensioned sketch in the drawing. (Note: Anti-rain louvers are set to this head from all directions – per 4 pieces position No. 2.08. There is this head covered by a saddle back coping there.	pc	2	300	600
	2.08		Anti-rain louver IMOS-PŽ P-1000x250-R1	pc	8	8	64
	2.09		Not occupied				
	2.10		Inter-flange sheet metal of thickness 4mm – it serves for supporting and anchoring of the upper anti-noise louver.	pc	2	3	6
	2.11 up to 2.19		Not occupied				
			Air inlet:				
			Incoming as well as outlet equipments are fully similar, apart from: - fan rotation (outlet fan blows outside, and incoming fan blows inside), - outlet fan has got a suction nozzle for sucking position No. 2.01a, incoming fan has got an outlet nozzle position No. 2.01b				
			Position numbers are stated similar for inlet and outlet if the item is identical for air inlet and outlet – numbers of pieces are stated separately for inlet and outlet equipments.				
	2.01	Elektrode sign	Axial-flow fan to the Electro-design piping TCBT/4-560H, 2x 2.8m ³ s ⁻¹ , p=180Pa, P=1.52 kW, 400V, 50Hz, 2.8A,	pc	2	35	70
	2.01b		Exhaust nozzle – to be realized from piping of class I. Shape is identical to the reducing element of piping PR 11 1400x315-560/300 – only with one circular	pc	2	12	24
Vypracoval : Ing. Šenkovič			Číslo revízie	0	1	2	3
			Dátum	07/2005			5
						Strana	

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CODE No.: 792.87497

JOB: AIR SEPARATION UNIT No. 9

P.č.	Č.položky	Price list item No.	Brief Description	Unit meas	Amount	Weight	
						unit	total
1	2	3	4	5	6	7	8
			flange.				
	2.02	Frivent SK	Anti-noise louver Frivent „Klasik“ 1000/1000/O - RAL 9010 (Without wall frame)	pc	4	111	444
	2.03	Frivent SK	Control damper close „klasik“ – 1000/1000/H (delivery of servo-drive open-close – is within the scope of Electro project)	pc	2	18	36
	2.04		Pass from piping of class III PR 11 1000x1000-560/300.1 – both fixed flanges	pc	2	40	80
	2.05		Atypical – air ventilation pipe of class III of inside diameter 1000x1000 and length 900mm made of sheet metal of thickness 4mm. 1 piece of anti-noise louver (position No. 2.02) is inserted and anchored to this pipe. At the same time this pipe is anchored to the roof pass by means of an angle 100x100mm welded from the external side. Roof pass forms a part of the OK project delivery. The upper flange is free and it is mounted only when setting this pipe to the roof pass from the bottom side.	pc	2	160	320
	2.06		Atypical – air ventilation pipe of class III of inside diameter 1000x1000 and length 400 made of sheet metal of thickness 4mm. 1 piece of anti-noise louver (position No. 2.02) – (the second piece) is inserted and anchored to this pipe.	pc	2	40	80
	2.07		Atypical square head for wind blast 1000x1000 – to be realized according to the dimensioned sketch in the drawing. (Note: Anti-rain louvers are set to this head from all directions – 4 pieces position No. 2.08. There is this head covered by a saddle back coping there.	pc	2	300	600
	2.08		Anti-rain louver IMOS-PŽ P-1000x250-R1	pc	8	8	64
	2.09		Not occupied				
	2.10		Inter-flange sheet metal of thickness 4 mm – it serves for supporting and anchoring the upper anti-noise louver.	pc	2	3	6
	2.11 up to 2.19		Not occupied				
Vypracoval : Ing.Šenkovič			Číslo revízie	0	1	2	3
			Dátum	07/2005			Strana
							6

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						unit	total
1	2	3	4	5	6	7	8
			<u>Anti-noise and thermal insulations:</u>				
			Insulations in total for all equipments				
			Anti-noise insulation NOBAFON – insulating boards of thickness 50mm	m2	60		
			Insulation for inside lining of piping – see drawing				
			<u>Suspension and supporting steel constructions:</u>				
			Profiled steel – it is solved in details by the assembling company in installation				
			In total – roughly	kg	200		200
			<u>Coating of air ventilation pipes:</u>				
			1x base coat	m ²	170		
			2x finish coat (RAL 9002 – grey-white)	m ²	320		
			<u>Coating of suspension and supporting constructions:</u>				
			1x base coat	m ²	10		
			2x finish coat (RAL 9002 – grey-white)	m ²	20		
			<u>Coating compositions:</u>				
			(pipes also suspension and supporting constructions)				
			Base coat S 2000 (0.117 kg.m ²)	kg	22		
			Finishing coating S 2013 - colour shade grey-white RAL 9002 (0.150 kg.m ²)	kg	51		
			Diluting agent (for base coat and finishing coat) S 6001 (20% from coating composition)	kg	15		
Vypracoval : Ing.Šenkovič			Číslo revízie	0	1	2	3
			Dátum	07/2005			Strana 7



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

ZOZNAM STROJOV A ZARIADENÍ

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						unit	total
1	2	3	4	5	6	7	8
			Scaffolds:				
			Scaffold spatially heavy (up to max. height 22m and loading 300kg.m ² of floor area) (width x height = m ³)				
			Erection of scaffold spatially heavy w x l x h - 2 x 14 x 7	m ³	196		
			Erection of scaffold spatially heavy w x l x h - 2 x 7 x 4	m ³	56		
			Dismounting of scaffold spatially heavy w x l x h - 2 x 14 x 7	m ³	196		
			Dismounting of scaffold spatially heavy w x l x h - 2 x 7 x 4	m ³	56		
			Erection of scaffold floor	m ²	50		
			Dismounting of scaffold floor	m ²	50		
			Lease of scaffold - 1.0 month	m ³	70		
Vypracoval : Ing.Šenkovič			Číslo revízie	0	1	2	3
			Dátum	07/2005			Strana
							8