



ICIC

شرکت سرمایه‌گذاری صنایع شیمیایی ایران  
IRAN CHEMICAL INDUSTRIES INVESTMENT CO

Completing the Remaining Documents of  
Design and Engineering Services for LAB2 Unit

**SUBSTATION NO.05 HVAC MATERIAL TAKE OFF**



شرکت طرح نواندیشان

Contract No.: 6258

LRP

TNA

HV

19

MTO

0001

03

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## 1 INTRODUCTION

Iran Chemical Industries Investment Company (ICIIC) was established in 1984. The executive operation in the area of 3,420,000 square meters in the northwest industrial region of Isfahan began in 1990 to create a Linear Alkyl Benzene (LAB) Complex with 50,000 tons of LAB and 46,000 tons of normal paraffin capacity.

With the increase in domestic consumption and also the improvement of the consumer market in the region, the implementation of the company's development plan for the annual production of 75,000 tons of linear alkyl benzene and 140,000 tons of normal paraffin was strengthened. Utilizing the existing knowledge and applying the scientific and experimental skills of the specialized forces, this company succeeded in successfully completing its development plan in 2003. Iran Chemical Industries Investment Company to reduce the production of Heavy Alkylate By-product (HAB) and also to improve the quality and increase the production of alkyl benzene line (LAB) in cooperation with Sinopec company to successfully operate the selective Hydrogenation of Dyalphins (DSH) in 2008.

## 2 PURPOSE

The purpose of this document is to list all materials of the heating, ventilation and air conditioning and plumbing system, to serve SUBSTATION NO.05 OF "LAB2 UNIT" in SHAHIN-SHAHR , ISFAHAN , IRAN:

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### 3 BULK MATERIAL TAKE OFF

NO	DESCRIPTION	UNIT	Q'TY	REMARK
1	<b>DUCT WORK</b>			
1.1	<b>SHEET METAL</b>			
	GALVANIZED STEEL SHEET METAL, ASTM A653M, COATING ZZ75, ASTM A924M THICKNESS = 0.6 MM	m <sup>2</sup>	340	
	GALVANIZED STEEL SHEET METAL, ASTM A653M, COATING ZZ75, ASTM A924M THICKNESS = 0.75 MM	m <sup>2</sup>	285	
1.2	<b>INSULATION</b>			
	Glass wool with aluminum foil covering for supply & return indoor duct insulation ,with 25 mm thickness , glass wool with 24 kg/m <sup>3</sup> density minimum having thermal conductivity of 0.036 w/mk or less at mean temperature of 24°c with aluminum foil reinforced craft facing.	m <sup>2</sup>	605	
1.3	<b>WEATHER PROTECTION</b>			
	ALUMINIUM SHEET FOR WEATHER PROTECTION OF OUTDOOR INSULATION, 0.4 MM. THICKNESS.	m <sup>2</sup>	200	
1.4	<b>FLEX CONNECTION</b>			
	PVC FABRIC ON CANVAS FOR ROOF TOP PACKAGED UNIT'S DUCTS CONNECTIONS	m <sup>2</sup>	5	
1.5	<b>AIR DEVICE</b>			
	4WAY ALUMINIUM SQUARE DIFFUSER WITH DAMPER 450MM X 450 MM	QTY	16	
	1WAY ALUMINIUM SQUARE DIFFUSER WITH DAMPER 450 MM X 300 MM	QTY	3	
	ALUMINIUM EXHAUST GRILLE 600 MM X 300 MM	QTY	1	
	ALUMINIUM EXHAUST GRILLE 600 MM X 450 MM	QTY	1	
	ALUMINIUM RETURN GRILLE 600 MM X 450MM	QTY	6	
1.6	<b>SAND TRAP</b>			
	ALUMINIUM SAND TRAP LOUVER 1.5 mm thickness 900 MM X 1050 MM	QTY	1	

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NO	DESCRIPTION	UNIT	Q'TY	REMARK
	ALUMINIUM SAND TRAP LOUVER 1.5 mm thickness 1800 MM X 1800 MM	QTY	1	
1.7	<b>VOLUME DAMPER</b>			
	VOLUME DAMPER, OPPOSED BLADE, DAMPER CASING & BLADE FABRICATED OF 1.6MM STEEL 250 MM X 200 MM	QTY	1	
	VOLUME DAMPER, OPPOSED BLADE, DAMPER CASING & BLADE FABRICATED OF 1.6MM STEEL 350 MM X 150 MM	QTY	1	
	VOLUME DAMPER, OPPOSED BLADE, DAMPER CASING & BLADE FABRICATED OF 1.6MM STEEL 500 MM X 150 MM	QTY	1	
	VOLUME DAMPER, OPPOSED BLADE, DAMPER CASING & BLADE FABRICATED OF 1.6MM STEEL 500 MM X 300 MM	QTY	1	
	VOLUME DAMPER, OPPOSED BLADE, DAMPER CASING & BLADE FABRICATED OF 1.6MM STEEL 650 MM X 500 MM	QTY	1	
	VOLUME DAMPER, OPPOSED BLADE, DAMPER CASING & BLADE FABRICATED OF 1.6MM STEEL 650 MM X 600 MM	QTY	1	
	VOLUME DAMPER, OPPOSED BLADE, DAMPER CASING & BLADE FABRICATED OF 1.6MM STEEL 900 MM X 400 MM	QTY	1	
1.8	<b>MOTORIZED DAMPER</b>			
	MOTORIZED DAMPER, ACCORDING TO THE HVAC EQUIPMENT SPECIFICATION (DIMENSIONS SHALL BE SUPPLY BY VENDOR)	QTY	8	
1.9	<b>MOTORIZED FIRE DAMPER</b>			
	MOTORIZED FIRE DAMPER, FRAMES AND BLADES FABRICATED OF HOT DIPPED GALVANIZED, ACTUATED WITH FUSIBLE LINK WHICH SHALL BE SET FOR 70 DEG C AND LEAKAGE RATE SHALL NOT EXCEED 0.03 M3/S.M2 AREA OF DAMPER AT 2000 Pa DIFFERENTIAL PRESSURE. (ACCORDING TO THE HVAC EQUIPMENT	QTY	2	

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NO	DESCRIPTION	UNIT	Q'TY	REMARK
	SPECIFICATION) 950 MM X 600 MM			
	MOTORIZED FIRE DAMPER, FRAMES AND BLADES FABRICATED OF HOT DIPPED GALVANIZED, ACTUATED WITH FUSIBLE LINK WHICH SHALL BE SET FOR 70 DEG C AND LEAKAGE RATE SHALL NOT EXCEED 0.03 M3/S.M2 AREA OF DAMPER AT 2000 Pa DIFFERENTIAL PRESSURE. (ACCORDING TO THE HVAC EQUIPMENT SPECIFICATION) 350 MM X 150 MM	QTY	1	
	MOTORIZED FIRE DAMPER, FRAMES AND BLADES FABRICATED OF HOT DIPPED GALVANIZED, ACTUATED WITH FUSIBLE LINK WHICH SHALL BE SET FOR 70 DEG C AND LEAKAGE RATE SHALL NOT EXCEED 0.03 M3/S.M2 AREA OF DAMPER AT 2000 Pa DIFFERENTIAL PRESSURE. (ACCORDING TO THE HVAC EQUIPMENT SPECIFICATION) 500 MM X 150 MM	QTY	1	
	MOTORIZED FIRE DAMPER, FRAMES AND BLADES FABRICATED OF HOT DIPPED GALVANIZED, ACTUATED WITH FUSIBLE LINK WHICH SHALL BE SET FOR 70 DEG C AND LEAKAGE RATE SHALL NOT EXCEED 0.03 M3/S.M2 AREA OF DAMPER AT 2000 Pa DIFFERENTIAL PRESSURE. (ACCORDING TO THE HVAC EQUIPMENT SPECIFICATION) 250 MM X 200 MM	QTY	1	
	MOTORIZED FIRE DAMPER, FRAMES AND BLADES FABRICATED OF HOT DIPPED GALVANIZED, ACTUATED WITH FUSIBLE LINK WHICH SHALL BE SET FOR 70 DEG C AND LEAKAGE RATE SHALL NOT EXCEED 0.03 M3/S.M2 AREA OF DAMPER AT 2000 Pa DIFFERENTIAL PRESSURE. (ACCORDING TO THE HVAC EQUIPMENT SPECIFICATION) 300 MM X 250 MM	QTY	1	
	MOTORIZED FIRE DAMPER, FRAMES AND BLADES FABRICATED OF HOT DIPPED GALVANIZED, ACTUATED WITH FUSIBLE LINK WHICH SHALL BE SET FOR 70 DEG C AND LEAKAGE RATE SHALL NOT EXCEED 0.03 M3/S.M2 AREA OF DAMPER AT 2000 Pa DIFFERENTIAL PRESSURE.	QTY	1	

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NO	DESCRIPTION	UNIT	Q'TY	REMARK
	(ACCORDING TO THE HVAC EQUIPMENT SPECIFICATION) 450 MM X 300 MM			
1.10	<b>DUCT SUPPORT</b>			
	DUCT SUPPORT	KG	1400	
2	<b>PLUMBING</b>			
2.1	<b>PIPE</b>			
	PEX-AL-PEX, ANSI/ASTM F1281/F2262 3/4"	m	5	
	PEX-AL-PEX, ANSI/ASTM F1281/F2262 1,1/2"	m	5	
2.2	<b>GATE VALVE</b>			
	GATE VALVE, BRONZE BODY, THREADED END, CLASS 150LB 3/4"	QTY	1	
	GATE VALVE, BRONZE BODY, THREADED END, CLASS 150LB 1,1/2"	QTY	1	
2.3	<b>CHECK VALVE</b>			
	CHECK VALVE, BRONZE BODY, THREADED END, CLASS 150LB 3/4"	QTY	1	
	CHECK VALVE, BRONZE BODY, THREADED END, CLASS 150LB 1,1/2"	QTY	1	
2.4	<b>PLUMBING APPURTENANCES</b>			
	HOSE BIBB., 1/2"	QTY	1	
	FLOOR DRAIN, PVC, SQUARE SHAPE, WITH SIPHON 10x10 CM, WITH PVC PLATE AND SIPHON, 3" DIA. DISCHARGE	QTY	2	
	RAIN DRAIN, CAST IRON, SQUARE SHAPE, , 4" DIA. DISCHARGE	QTY	3	
	EYE WASH	QTY	1	
2.5	<b>PIPE SUPPORT</b>			
	PIPE SUPPORT	KG	20	
3	<b>HVAC PIPING</b>			
3.1	<b>PIPE</b>			

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	BLACK STEEL PIPE, ASTM A53 ,1-1/2"	m	40	
3.2	<b>GATE VALVE</b>			
	GATE VALVE, BRONZE BODY, THREADED END, CLASS 150LB 1-1/2"	QTY	2	
3.3	<b>GLOBE VALVE</b>			
	GLOBE VALVE, BRONZE BODY, THREADED END, CLASS 150LB 1-1/2"	QTY	2	
3.4	<b>3WAY MOTORIZED VALVE</b>			
	3WAY MOTORIZED VALVE, ACCORDING TO THE HVAC EQUIPMENT SPECIFICATION (DIMENSIONS SHALL BE SUPPLY BY VENDOR)	QTY	2	
3.5	<b>HVAC PIPE INSULATION</b>			
	ELASTOMERIC FOAM WITH ALUMINUM CLADDING, 1-1/2" PIPE	m	40	
3.6	<b>PIPE SUPPORT</b>			
	PIPE SUPPORT	KG	60	
4	<b>SEWAGE</b>			
4.1	PIPE			
	UPVC pipes Schedule 80, ASTM D1785 or PE (polyethylene) O.D.=63 mm	m	2	
	UPVC pipes Schedule 80, ASTM D1785 or PE (polyethylene) O.D.=110 mm	m	5	
	GALVANIZED STEEL PIPE, ASTM A53/A53M-SCH40 STANDARD 4"	m	40	
4.2	<b>PIPE SUPPORT</b>			
	PIPE SUPPORT	KG	40	