

Vacuum Systems

Vacuum Systems are a combination of steam ejectors and condensers in order to create low vacuum pressures. As the compression ratio of a single stage steam ejector is limited, the arrangement of more than one ejector with condensers between them can result low vacuums.

<u>General Usage</u>	<u>Typical Applications in Industries</u>
When low vacuum pressure is required and it is not achievable by means of a single stage steam ejector.	<ul style="list-style-type: none"> ❖ Creating the vacuum pressure of condensers in <u>power plants</u> ❖ <u>chemical reactors</u> working under vacuum ❖ Drying under vacuum in chemical process industries like <u>food, pharmaceutical, agricultural, textile, paper & pulp</u> ❖ Vacuum distillation in <u>oil refining</u> ❖ Crystallization in <u>chemical, food and pharmaceutical industry</u> ❖ Deodorization in <u>edible oil industry</u> ❖ Degassing and deaeration in <u>food industry, plastic extrusion, high quality steel alloy production, oil and beverage production</u> ❖ Evaporating in <u>food and beverage industry, pharmaceutical industry, sulfate process</u> ❖ Rectification of <u>crude oil</u>

<u>Advantages</u>	
	<ul style="list-style-type: none"> ❖ No moving parts ❖ Low maintenance cost ❖ working with all types of fluids ❖ Long lifetime ❖ Safe and reliable operation ❖ Manufactured from various materials

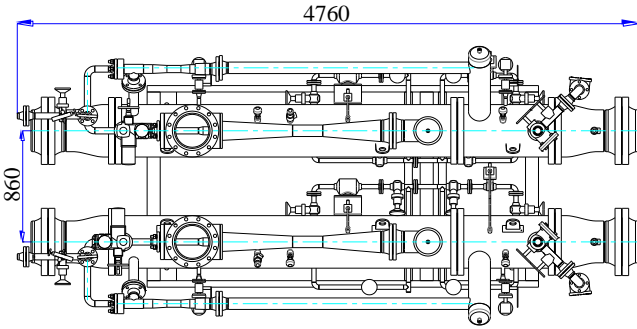
<u>Applicable Materials</u>	<u>Different Arrangements</u>
<ul style="list-style-type: none"> ❖ Stainless Steel body ❖ Carbon Steel body ❖ Brass tubes ❖ SS tubes ❖ CS tubes ❖ Copper tubes 	<ul style="list-style-type: none"> ❖ Condensation system with direct contact condenser ❖ Condensation with surface condenser ❖ Two-stage vacuum system for suction pressure down to approximately 4 kPa ❖ Three-stage vacuum system for suction pressure down to approximately 1 kPa ❖ four-stage vacuum system for suction pressure down to approximately 0.05 kPa ❖ Five-stage vacuum system for suction pressure down to approximately 0.001 kPa

<u>Design Codes/ Standards</u>	<u>Quality Assurance</u>
<ul style="list-style-type: none"> ❖ HEI Standard for Steam Jet Vacuum Systems ❖ ASME Sec. VIII ❖ ASME B.31.1 ❖ ASME B.31.3 	

Kara Vacuum Systems Advantages:

- ❖ Custom design
- ❖ Performance Test at shop
- ❖ Ability to produce with different types of materials proportional to corrosive/erosive medium or environment

Specifications of one Type

Item	Holding System		
Project	Parand Combined Cycle Power Plant Vacuum Package		
Purchaser	MAPNA Group		
Suction Flow Rate	Kg/hr	116	
Suction Pressure	kPa	3.4	
Suction Connection	in	10	



Previous Projects

Equipment photos / Operation photos / Applications photos