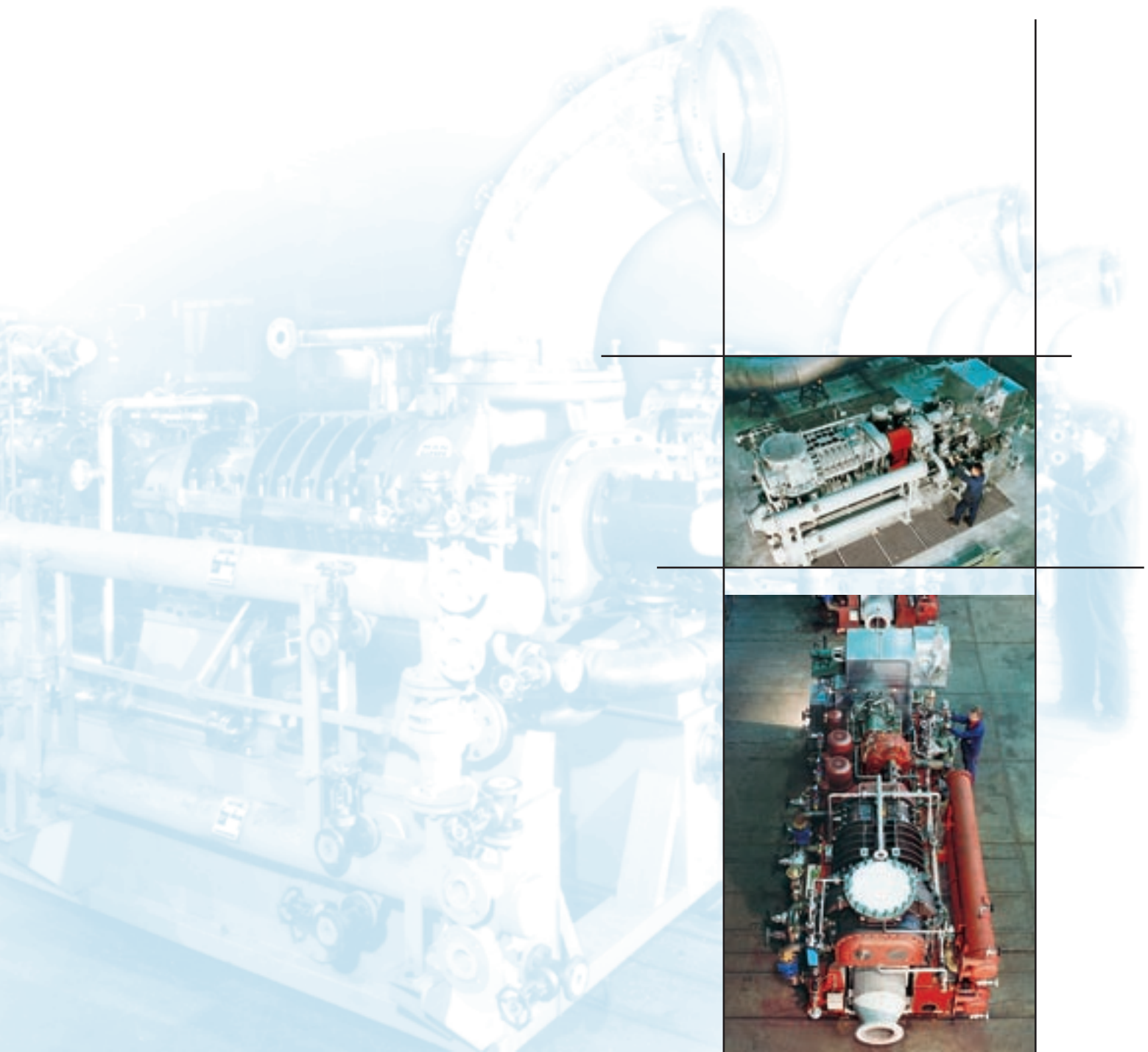




Screw Compressor Units for Sodium Carbonate Production (Soda Ash)



Application

Sodium carbonate or soda ash is mainly required for the production of glass, detergents and paper. As an alternative to the procedure of refining trona ore into soda ash, Ernest Solvay developed about 140 years ago a process for the industrial production of soda ash using common salt, ammonia, carbon dioxide and lime.

Process Information

Within this process, 3 compressors are normally required to compress a mixture of CO₂ and inert gas coming out of the lime kiln and the calcination plants. The CO₂ content of these gases vary between 35 and 80%. Due to the washer and cooler installed in front of the compressors, there is always a slight vacuum on the suction side. The required discharge pressure varies between 2.8 and 4.5 bar abs. To adapt the compressor performance to the process requirements a large turndown in compressor flow is mandatory.



Customer benefits

New plants nearly exclusively use screw compressors for this application. Compared to the former used reciprocating type, screw compressors offer a much higher reliability.

With the injection of large amounts of water screw compressors can handle a dust content up to 300 mg/m³ without problems. Centrifugal compressors have also been used for this service, however, the sensitivity to dust and liquid droplets means a much higher degree of preconditioning of the gas is required. The variation from 35% to 100% gas flow is accompanied by a similar variation in compressor speed and power demand.

Identical screw compressor sizes can be used for all three duties. Mostly back pressure steam turbines drivers are used, although high speed electric motors have also been used in the past.

Leading technology - Powered by experience

MAN TURBO offers the most comprehensive turbomachinery product range in the world.

Incorporating 200 years of technological achievements we supply state-of-the-art products and services for every industrial process.

Tailor-made solutions by MAN TURBO are based on a unique spectrum of compressors and turbines - from single machines to total train capability.



Product line:

- Compressors (axial, centrifugal, pipeline, gear type, isotherm, process-gas screw)
- Vacuum blower
- Expanders
- Gas turbines
- Steam turbines
- Turbolog[®] control and monitoring system

After sales service.

MAN Turbomaschinen AG
Steinbrinkstr.1
46145 Oberhausen
Germany
Telefon +49.208.692-2985
Telefax +49.209.692-2154
dieter.schmidt@de.manturbo.com
www.manturbo.com

Typical Project Data

Installation	NIRMA LTD, India		
Type:	SKUEL643	SKUEL643	SKUEL643
Gas:	Bottom Gas	Middle Gas	Cleaning Gas
Volume flow [m ³ /h]:	10,915 to 37,297	11,269 to 28,970	11,040 to 19,267
Suction pressure [bar (a)]:	0.88	0.9	0.9
Discharge pressure [bar (a)]:	4.2	2.95	4.1
Speed [rpm]:	1,190 to 3,275	1,190 to 2,560	1,190 to 1,870
Driver power [kW]:	827 to 2,488	588 to 1,405	810 to 1,314

A 4th screw compressor unit is used as a common spare, handling all of the above duty points.