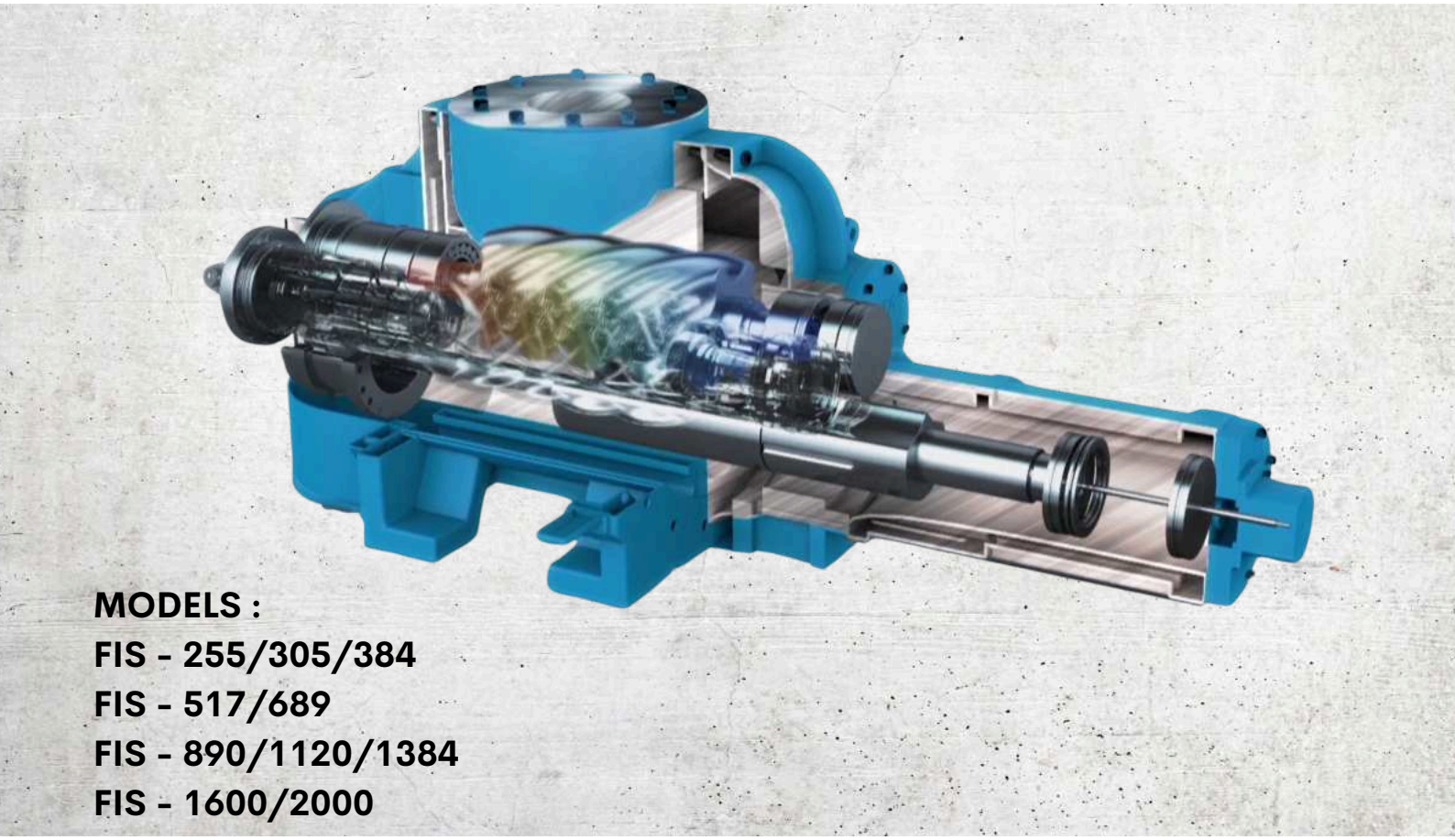
FRICK INDIA ENERGY SAVING, FULLY AUTOMATED ROTARY TWIN SCREW COMPRESSOR PACKAGES

FOR INDUSTRIAL REFRIGERATION

MBM SERIES

You still can't Beat the System when it's all FRICK INDIA



MODELS :
FIS - 255/305/384
FIS - 517/689
FIS - 890/1120/1384
FIS - 1600/2000

WORLD CLASS ROTARY TWIN SCREW COMPRESSOR BLOCKS

Frick India presents Twin Screw Compressor Blocks that are highly energy-efficient, available in capacities from 433 CMH to 3398 CMH at 2950 RPM. These blocks are manufactured in our high-precision facility in Faridabad, certified to ISO 9001:2015, and equipped with a world-class performance testing facility that meets ISO 917 standards.

CAPACITY CONTROL

Capacity control is achieved by using a movable slide valve. The slide valve moves axially with the rotors to provide fully modulating capacity control from 10% to 100% of full load capacity.

INHERENT DESIGN ADVANTAGES

"N" Profile Rotors are manufactured by M/s Holroyd using the latest technology.

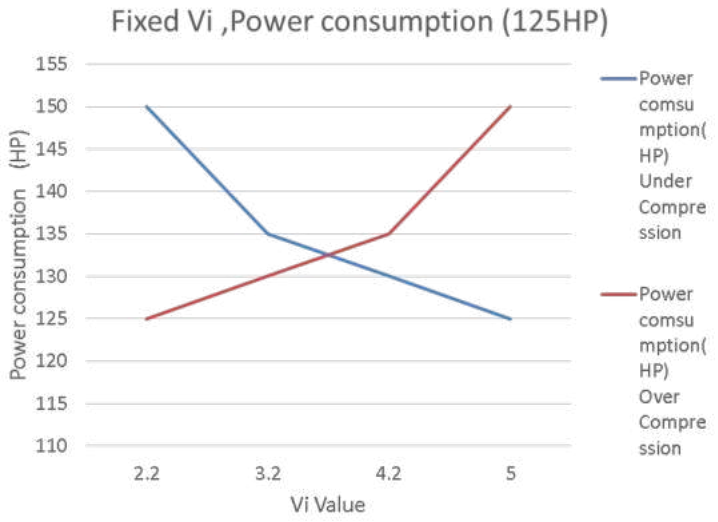
- Advanced bearing technology
- Stepless Variable Volume Control
- Variable Capacity Control System
- Highly efficient three-stage Oil Separation System
- Fully automatic control by the Frick India Microtech System
- Proven Reliability
- TENDAM Single and Double Mechanical Seal

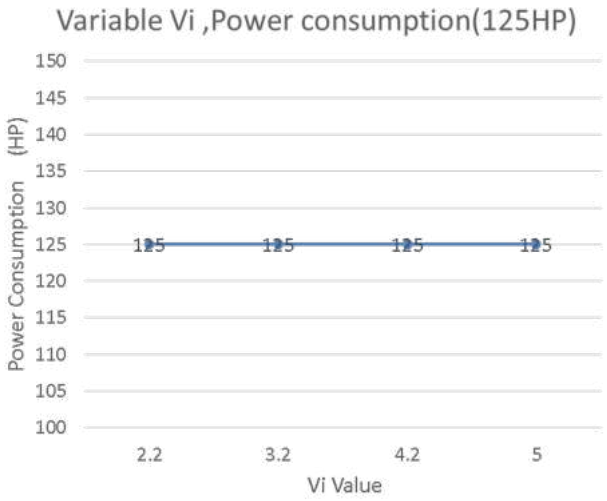
REFRIGERANTS USED

- Ammonia (R-717)
- Chlorodifluoromethane (R-22)
- Propane (R-290)
- 1,1,1,2 Tetra Fluoroethane (R-134a)
- Hydrofluorocarbons Blends (R-404a; R-407c; R-507)
- Iso-butane (R-600a)
- Propylene (R-1270)
- Chloroethene (Vinyl Chloride Monomer)

FULLY AUTOMATIC VARIABLE VOLUME RATIO CONTROL

Frick India screw packages are designed to function efficiently under a diverse range of operating conditions, with maximum power savings delivered by using Frick Variable Vi Technology, which matches external and internal pressure ratios. As per test records, fully automatic, variable volume-controlled packages can save between 5 to 15% in total power consumption relative to fixed Vi Screw packages available in the market.





ADVANCED "N" PROFILE ROTORS

CITY UNIVERSITY LONDON

PTG HOLROYD PRECISION ROTORS

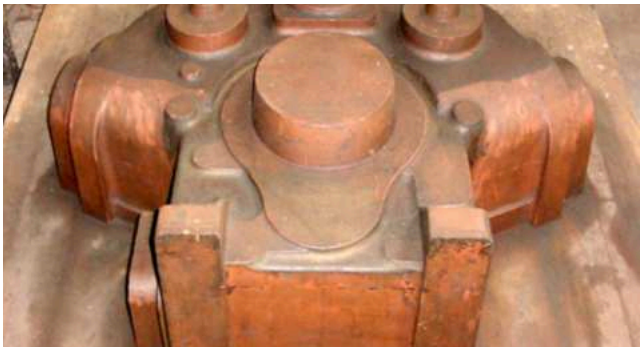
john crane

TÜV INDIA SOC EC Declaration

The rotors are made from low-carbon steel forgings AISI 1045 to the exacting tolerance of the latest "N" profile manufactured by renowned U.K. company M/s Holroyd by using the latest technology under the technical know-how of "City University, London". The four-lobed male rotors are directly connected to the drivers. The six-lobe female rotor is driven by the male rotor on a thin oil film.

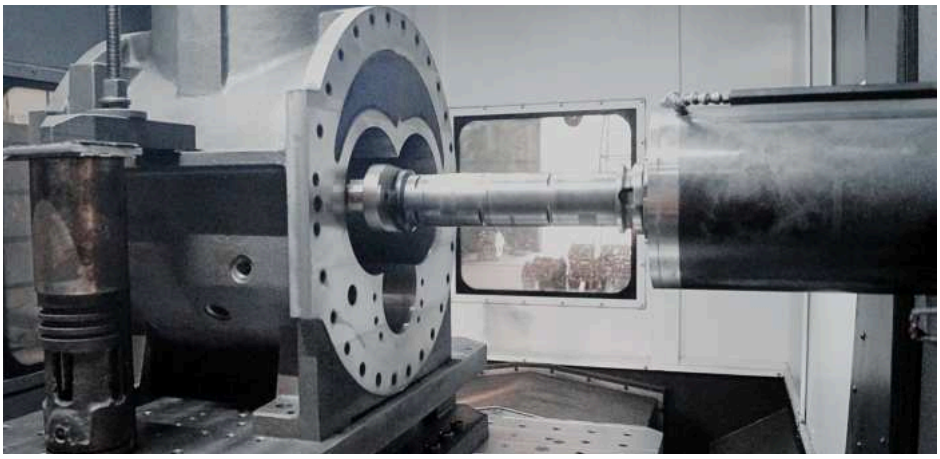
ADVANCED DE-SULPHURISING COMPOSITION AND TEMPERATURE CONTROLLED FOUNDRY

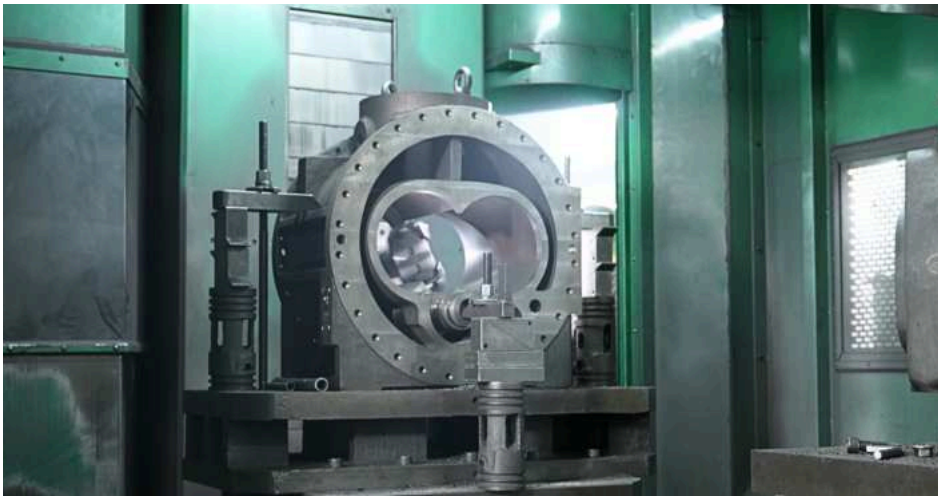
- In house NABL Certified Lab to check quality of casting
- Grey C.I. Castings possess Close Grain properties, meeting ASTM A278 CL-40/ASTM A48 standards
- Assured Structural Integrity, mechanical and thermal stability under all operating conditions
- Monthly production capacity 50,000 kg (50 MT)
- Optionally Ductile iron (ASTM A795 60-40-18) and Cast steel (ASTM A352 LCB) for high pressure rating up to 40 bar
- Energy Efficient Induction Furnaces (750 kg-1 No, 1000 kg -1 No & 2000 kg-1 No)
- Computer Controlled Chemical Analyzer "V- smart" to control Chemical, tensile and Hardness



HIGH PRECISION MACHINING CENTER

Frick India uses HMC, CNC and VMC machines to meet the highest possible accuracy in order to produce high-efficiency compressors. Our state-of-the-art horizontal machining centre to produce casing in order to achieve accuracy.

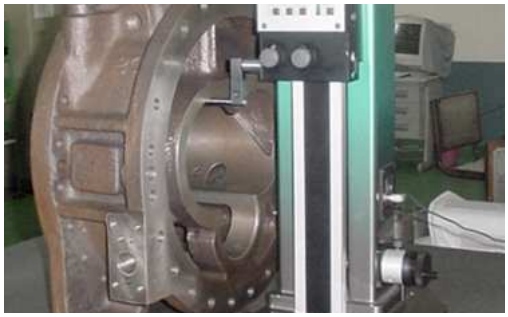




QUALITY ASSURANCE

Our facility for internal inspections is equipped with precision measuring tools and a NABL-approved laboratory dedicated to chemical testing. We ensure 100% inspection of screw compressor parts; quality and machining parameters are consistently monitored and evaluated with our high-precision in-house Coordinate Measuring Machine (CMM). Moreover, we utilise a spectrometer to evaluate chemical composition of materials.

Frick India will do performance tests of all Compressors to measure efficiency, noise and vibration as per ISO 917:1090 (E) and IS 10431 standards



ASSEMBLY SECTION FOR SCREW COMPRESSOR BLOCKS

Technical engineers at our factory have executed the assembly of high-efficiency screw blocks and packages within an advanced and upgraded manufacturing facility.

FIS 255 **336.2 kW** **433 m3/hr.** **@-5°CSST &** **40°C SDT;** **50 Hz.**	**FIS 305** **395.5 kW** **518 m3/hr.** **@-5°C SST &** **40°C SDT;** **50 Hz.**	**FIS 384** **497.7 kW** **652 m3/hr.** **@-5°C SST &** **40°C SDT;** **50 Hz.**	**FIS 517** **666.2 kW** **878 m3/hr.** **@-5°C SST &** **40°C SDT;** **50 Hz.**	**FIS 689** **888.7 kW** **1171 m3/hr.** **@-5°C SST &** **40°C SDT;** **50 Hz.**

FIS 890 **1200 kW** **1512 m3/hr.** **@-5°C SST &** **40°C SDT;** **50 Hz.**	**FIS 1120** **1511 kW** **1903 m3/hr.** **@-5°C SST &** **40°C SDT;** **50 Hz.**	**FIS 1384** **1867.6 kW** **2351 m3/hr.** **@-5°C SST &** **40°C SDT;** **50 Hz.**	**FIS 1600** **2150.6 kW** **2718 m3/hr.** **@-5°C SST &** **40°C SDT;** **50 Hz.**	**FIS 2000** **2708.2 kW** **3398 m3/hr.** **@-5°C SST &** **40°C SDT;** **50 Hz.**

CUSTOM BUILT FRICK INDIA SCREW COMPRESSOR PACKAGES

- Standard units are designed for use on ammonia, halocarbon, and hydrocarbon refrigerants at pressure ratios up to 26:1 and for economical operations with a ratio of 20:1
- The oil separator is a horizontal, three-stage design with an integral sump. Two sight glasses are located in the reservoir section and one in the coalescing section. Two 1000-watt heaters maintain oil temperature at a minimum of 40 Deg C during compressor shutdown in the winter season and are replaceable without shutting the compressor down
- Coalescer filter elements are provided for the final gas/oil separation of particles down to less than 1 micron
- The compact, vibration-free Frick India rotary screw compressor packages are designed for all industrial refrigeration and air-conditioning requirements.
- Superior quality Two numbers of microfilters are located downstream of the pump to eliminate dust particles and are cleanable without shutting down the compressor
- Frick India offers MBM Series Rotary Twin Screw Compressor Packages in ten high-efficiency models, ranging in capacity from 433 CMH to 3398 CMH at 2950 RPM as well as 521 CMH to 4089 CMH at 3550 RPM
- Lubrication System: The standard high-stage unit is furnished with a close-coupled positive displacement pre-lube pump for start-up only. The cycling full-lube pump operates only when the suction-discharge differential is not sufficient to provide adequate lubrication and will shut off automatically to conserve pump motor power when not required
- Variable Volume Ratio Control: Using volume ratio technology to operate based on operating parameters saves energy. Low maintenance and fewer moving parts
- The speed of the compressors is automatically controlled by VFDs
- Premium-efficient (IE4) motors will be supplied as an option
- All critical and operating parameters are automatically controlled by the Frick India Microtech System.
- Three-Stage Oil Separation System
- High-quality micro-oil filtration
- Dual Safety Valve and Frick India Oil Filter
- Compact Design

FRICK INDIA MICROTECH SYSTEM

Frick India offers the Microtech System for fully automated plants. This system works with high efficiency and high performance either in automatic or manual mode, which is extremely safe and easy. The main advantages are:

- Improve quality and precision
- Increase productivity
- Cost reduction
- Reliable performance
- Maintain an accurate temperature
- Control power efficiency
- Read and capture data
- Run system in ideal condition
- Reduce plant breakdown
- More safety for a plant
- Avoid monotonous work

GENUINE SPARE PARTS

Frick India offers maintenance, operational support, and training, along with readily accessible spare parts necessary for the optimal performance and efficiency of refrigeration systems.

For longer life and low power costs, always use Frick India Genuine Spares.

SERVICING & SALES NETWORK

Frick India is equipped with a team of experienced engineers and technicians, specifically trained and available 24/7 on a dedicated support basis to handle all varieties of industrial refrigeration and air conditioning tasks that we have installed.

VIZAG
PATNA
MUMBAI
COCHIN
CHENNAI
KOLKATA
NEW DELHI
JALANDHAR
HYDERABAD
AHMEDABAD
BANGALORE

APPLICATIONS 5°C TO (-) 60°C

MBM 1120 x 1, MBM 890 x 2, MBM 305 x 5, MBM 689 x 1, MBM 305 x 2, MBM 517 x 2, MBM 689 x4, MBM 384 x 3, MBM 689 x 3 -1526 TR in Dairy Plant

MBM 1120 TR 428 (-)6°C SST & 38°C SDT MBM 890E TR 330 (-)9°C SST & 38°C SDT in Brewery Plant

10 TR of TUNA Freezing plant at (-)65°C with ammonia as Refrigerant

Methanol Chilling Plant 20 TR of Methanol Chilling at (-)55°C

2000 TR ammonia refrigeration system for chilled water cold rooms for various application (-)10, (-)5, (-)2 and (-)15°C

7500 MT Multi commodity , Multi Temperature (-)25°C to 4°C fully automated Cold Storage with racking system

INDUSTRIES

Milk, Dairy and Ice Cream Industry

Food and Agriculture Industry

Beverages, Brewery and Distillery Industry

Meat and Poultry Industry

Fisheries and Seafood Industry

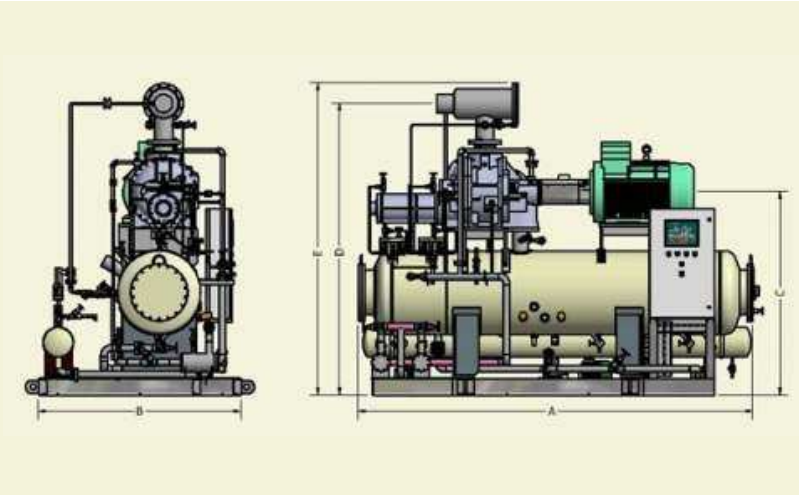
Chemical and Pharmaceutical Industry

SPECIFICATIONS

	High Stage (50 Hz.)				High Stage (60 Hz.)				Low Stage (Booster) 50 Hz					Low Stage (Booster) 60 Hz			
Refrigerant	Ammonia (NH3)																
	@ -5°C SST & 40°C SDT				@ -5°C SST & 40°C SDT				@ -40°C SST & -5°C SDT					@ -40°C SST & -5°C SDT			
Models	CMH	kW	BkW	BkW/kW	CMH	kW	BkW	BkW/kW	Models	CMH	kW	BkW	BkW/kW	CMH	kW	BkW	BkW/kW
MBM 255	433	336.86	87.47	0.91	521	405.37	105.26	0.91	MBM 255B	433	86.48	23.17	0.94	521	104.07	27.88	0.94
MBM 255E	433	373.93	91.09	0.86	521	450.00	109.61	0.86									
MBM 305	518	396.30	102.91	0.91	624	476.91	123.84	0.91	MBM 305B	518	101.75	27.26	0.94	624	122.43	32.80	0.94
MBM 305E	518	439.91	107.16	0.86	624	529.38	128.95	0.86									
MBM 384	652	498.85	129.57	0.91	785	600.32	155.93	0.91	MBM 384B	652	128.26	34.33	0.94	785	154.36	41.32	0.94
MBM 384E	652	553.65	134.94	0.86	785	666.26	162.39	0.86									
MBM 517	878	667.84	165.78	0.87	1057	803.70	199.50	0.87	MBM 517B	878	171.74	43.67	0.89	1057	206.66	52.55	0.89
MBM 517E	878	741.03	172.61	0.82	1057	891.77	207.72	0.82									
MBM 689	1171	890.47	221.03	0.87	1409	1071.56	265.98	0.87	MBM 689B	1171	228.99	58.22	0.89	1409	275.56	70.06	0.89
MBM 689E	1171	988.10	230.17	0.82	1409	1189.06	276.98	0.82									
MBM 890	1512	1202.64	288.91	0.85	1820	1447.25	347.68	0.85	MBM 890B	1512	305.52	75.44	0.87	1820	367.63	90.78	0.87
MBM 890E	1512	1334.49	300.88	0.79	1820	1605.93	362.07	0.79									
MBM 1120	1903	1514.39	363.82	0.85	2290	1822.37	437.82	0.85	MBM 1120B	1903	384.65	94.94	0.87	2290	462.87	114.26	0.87
MBM 1120E	1903	1680.53	378.87	0.79	2290	2022.35	455.93	0.79									
MBM 1384	2351	1871.36	449.58	0.85	2830	2251.97	541.01	0.85	MBM 1384B	2351	475.32	117.33	0.87	2830	572.00	141.19	0.87
MBM 1384E	2351	2076.68	468.17	0.79	2830	2499.07	563.40	0.79									
MBM 1600	2718	2154.94	518.11	0.85	3271	2593.22	623.49	0.85	MBM 1600B	2718	547.35	135.11	0.87	3271	658.66	162.59	0.87
MBM 1600E	2718	2332.96	539.09	0.81	3271	2807.48	648.74	0.81									
MBM 2000	3398	2713.61	652.43	0.85	4089	3265.50	785.13	0.85	MBM 2000B	3398	689.15	170.14	0.87	4089	829.34	204.74	0.87
MBM 2000E	3398	2937.93	678.87	0.81	4089	3535.46	816.94	0.81									

Notes : a) Allow 48 inch / 122 Cm free Space required on motor end to pull out Coalescer element.
b) Dimension and Performance Data given is for Ammonia Units Only. For other refrigerants use FISCom Software or Contact Factory.
c) All Specifications are subject to Change without Notice

DIMENSIONS



DIMENSIONS (mm) & Weight (Kgs.)						
MODEL	A	B	C	D	E	Pkg. Wt. (w/o motor)
MBM-255	3060	1650	1465	2175	2330	3300
MBM-305	3060	1650	1465	2175	2330	3450
MBM-384	3060	1650	1465	2175	2330	3700
MBM-517	3555	1800	1610	2320	2475	4460
MBM-689	3610	1800	1610	2320	2475	4650
MBM-890	3610	1850	1850	2660	2850	5600
MBM-1120	3610	1850	1850	2660	2850	6300
MBM-1384	3610	1850	1850	2660	2850	7120
MBM-1600	3933	1950	2070	2967	3180	7775
MBM-2000	4272	2036	2253	3160	3370	8694

Manufacturing Unit: 21.5 Km., Main Mathura Road, Faridabad, Haryana 121003
Contact: 0129 2275691/94, 2270547, 2254103

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