MSC 127mm Series

Vertical Medium Screw Compressors

8 - 225 TR (28 - 791 kW) : 186 - 335 CFM : 80 - 200 HP

DUNHAM-BUSH

Products that perform... By people who care

INTRODUCTION

Backed by over 40 years of experience, the Dunham-Bush MSC - Medium Screw Compressors, are available from in the following ranges:

- 8 to 225 TR (28 to 791 kW)
- 80 - 200 HP
- 186 to 335 CFM
- –50°F (-46°C) to 50°F (10°C) SST
- 65°F (18°C) to 145° F (63°C) SDT

TABLE OF CONTENTS

STANDARD FEATURES

- Small Footprint
- Designed for refrigeration, air conditioning,
- Applicable R22, R134a, R404A, R407C, R507, R410A, R434A and other HFCs
- Helium, Neon, and Other Alternate Gas Applications
- Built-in, High Efficiency Oil Separator
- Low oil carry-over rate of less than 0.2% of total discharge flow
- UL Recognized
- Optional vapor injection to enhance capacity and EER/COP
- Smooth, quiet rotary motion

NOMENCLATURE

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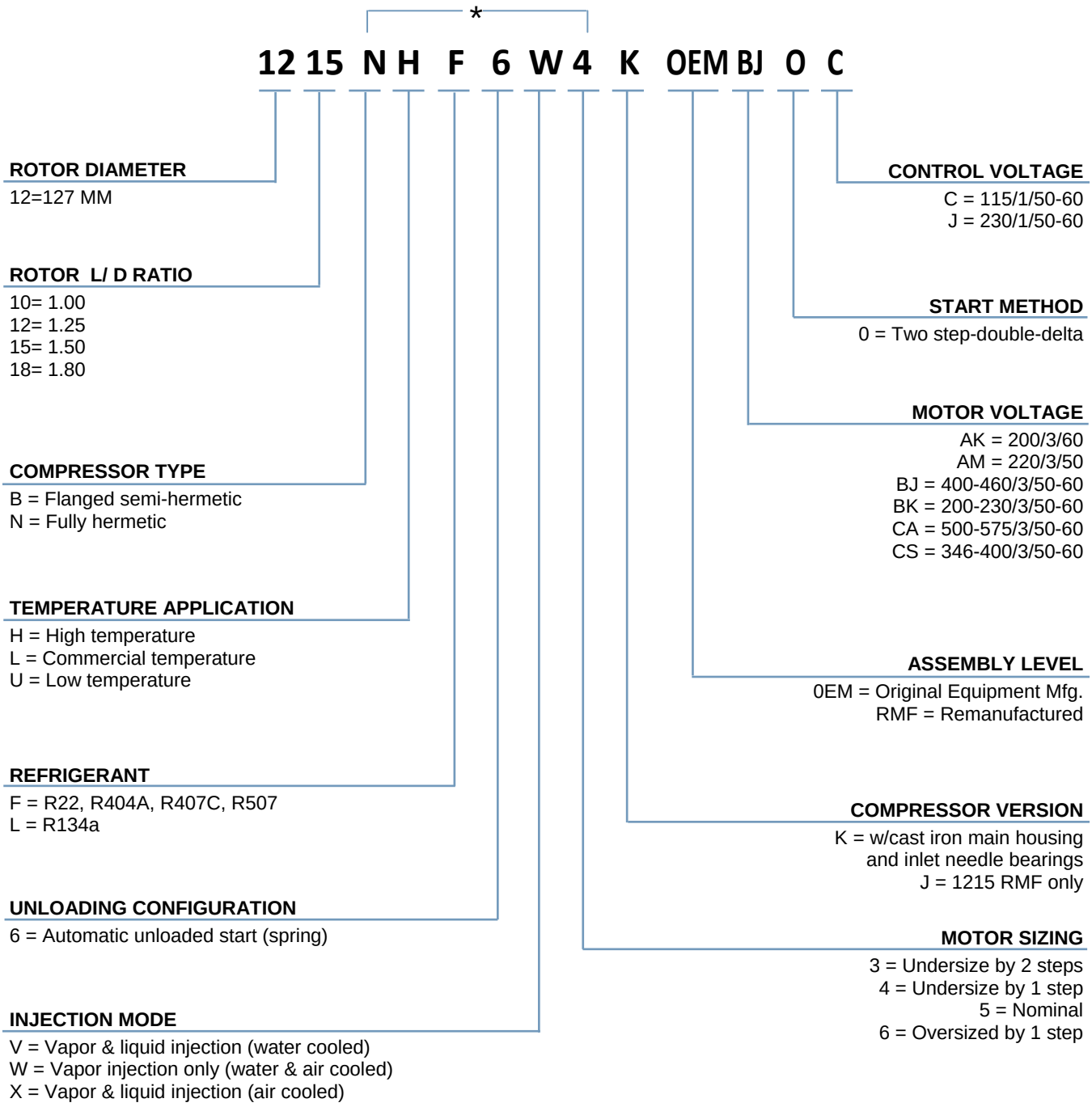
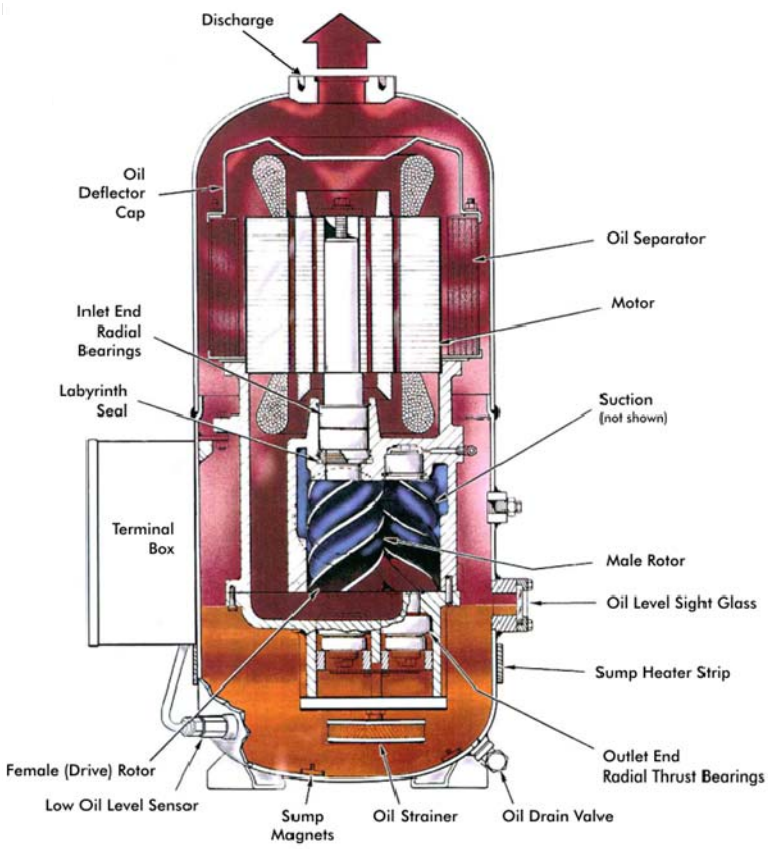


* For special engineered compressors, these six characters would be replaced by “SE”.
Example: 1215SE1271KOEMBJO

COMPONENTS



BENEFITS

Slide-Valve Capacity Control	Capacity control from 100% to 20% of full load
Solid State Motor Protector	Thermal motor protection
Unloading Solenoid Valves	Energizes load/unload mechanism
Optical Oil Level Sensor	Electronic low oil level safety, mounted externally
Oil Sump Heater	Prevents refrigerant migration
XL or 2 Step Motor Start	Choice of motor starting method
Built-in Suction Check Valve	Prevents rotors from spinning backwards
Suction Filter	Serviceable filter for compressor protection
Standard Voltages	200/3/50Hz; 230/3/60Hz; 400/3/50Hz; 460/3/60Hz
Oil Strainer	Located in the oil sump to filter oil continuously
Liquid Injection	Standard on air-cooled applications for oil cooling

COMPRESSOR SPECIFICATIONS - US Standard

Model	Refrigerant	Motor nominal HP	Displacement @ 60 Hz (CFM)	Rotor L/D	SST range		SDT range		Estimated Weight (Lb.)
					Min (°F)	Max (°F)	Min (°F)	Max (°F)	
1210NHF6X6K	R22, R407C	120	186	1.00	0	50	65	145	1010
1210NHF6W4K	R22, R407C	80			20*	50	65	115	968
1210NHF6W3K	R22, R407C	60			20*	50	65	110	948
1210NHL6V5K	R134a	60			0	50	65	145	867
1210NLF6V5K	R22, R404A, R507	100			0	20	65	125	990
1210NUF6V5K	R22, R404A, R507	100			-50	0	65	125	990
1212NHF6X6K	R22, R407C	150	233	1.25	0	50	65	145	1020
1212NHF6W4K	R22, R407C	100			20*	50	65	115	983
1212NHF6W3K	R22, R407C	80			20*	50	65	110	963
1212NHL6V5K	R134a	80			0	50	65	145	884
1212NLF6V5K	R22, R404A , R507	120			0	20	65	125	1002
1212NUF6V5K	R22, R404A,, R507	120			-50	0	65	125	1002
1215NHF6X6K	R22, R407C	175	279	1.50	0	50	65	145	1265
1215NHF6W4K	R22, R407C	120			20*	50	65	115	1225
1215NHF6W3K	R22, R407C	100			20*	50	65	110	1205
1215NHL6V5K	R134a	100			0	50	65	145	1109
1215NLF6V5K	R22, R404A, R507	150			0	20	65	125	1250
1215NUF6V5K	R22, R404A, R507	150			-50	0	65	125	1250
1218NHF6X6K	R22, R407C	200	335	1.80	0	50	65	145	1260
1218NHF6W4K	R22, R407C	150			20*	50	65	115	1230
1218NHF6W3K	R22, R407C	120			20*	50	65	110	1214
1218NHL6V5K	R134a	120			0	50	65	145	1120

"NHF6W4" and "NHF6W3" models can operate down to 10°F SST, however, the maximum allowable SDT is 105°F.

For R410A applications, please contact compressor engineering department.

COMPRESSOR SPECIFICATIONS - Metric

Model	Refrigerant	Motor nominal kW	Displacement @ 50 Hz (m^3/hr)	Rotor L/D	SST range		SDT range		Estimated Weight (kG)
					Min (°C)	Max (°C)	Min (°C)	Max (°C)	
1210NHF6X6K	R22, R407C	89	262	1.00	-18	10	18	63	459
1210NHF6W4K	R22, R407C	60			-7*	10	18	46	440
1210NHF6W3K	R22, R407C	45			-7*	10	18	43	431
1210NHL6V5K	R134a	45			-18	10	18	63	394
1210NLF6V5K	R22, R404A, R507	75			-18	-7	18	52	450
1210NUF6V5K	R22, R404A, R507	75			-46	-18	18	52	450
1212NHF6X6K	R22, R407C	112	329	1.25	-18	10	18	63	464
1212NHF6W4K	R22, R407C	75			-7*	10	18	46	447
1212NHF6W3K	R22, R407C	60			-7*	10	18	43	438
1212NHL6V5K	R134a	60			-18	10	18	63	402
1212NLF6V5K	R22, R404A , R507	89			-18	-7	18	52	455
1212NUF6V5K	R22, R404A,, R507	89			-46	-18	18	52	455
1215NHF6X6K	R22, R407C	130	394	1.50	-18	10	18	63	575
1215NHF6W4K	R22, R407C	89			-7*	10	18	46	557
1215NHF6W3K	R22, R407C	75			-7*	10	18	43	548
1215NHL6V5K	R134a	75			-18	10	18	63	504
1215NLF6V5K	R22, R404A, R507	112			-18	-7	18	52	568
1215NUF6V5K	R22, R404A, R507	112			-46	-18	18	52	568
1218NHF6X6K	R22, R407C	149	473	1.80	-18	10	18	63	573
1218NHF6W4K	R22, R407C	112			-7*	10	18	46	559
1218NHF6W3K	R22, R407C	89			-7*	10	18	43	552
1218NHL6V5K	R134a	89			-18	10	18	63	509
1218NUF6V5K	R22, R404A, R507	130			-46	-18	18	52	569

* "NHF6W4" and "NHF6W3" models can operate down to –12°C SST, however, the maximum allowable SDT is 41°C.

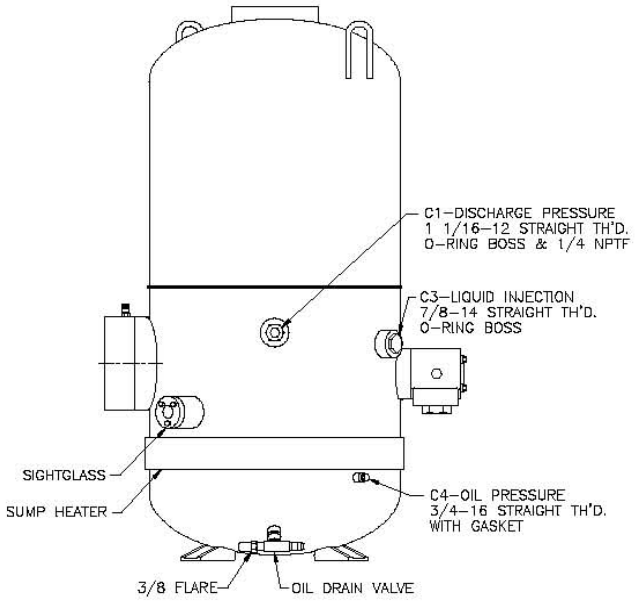
PERFORMANCE DATA - using vapor injection

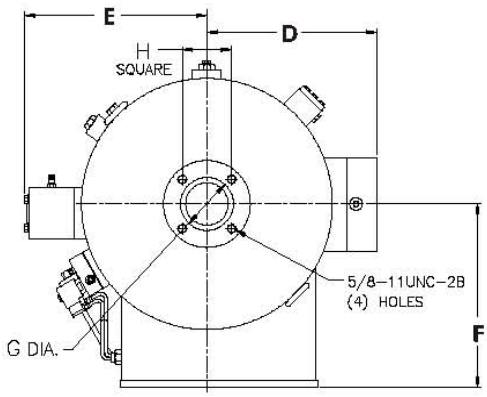
Capacity (tons), Power (kW), and EER (energy efficiency rating) 60Hz, R22													
Saturated Suction Temp °F	Saturated Discharge Temp °F	1210			1212			1215			1218		
		Capacity TR	Power kW	EER	Capacity TR	Power kW	EER	Capacity TR	Power kW	EER	Capacity TR	Power kW	EER
5	100	55	79	11.2	70	97	11.6	86	116	11.9	102	137	12.0
	120	51	98	8.4	65	121	8.6	80	144	8.9	95	170	9.0
	140	47	124	6.1	60	152	6.4	74	181	6.6	88	214	6.6
15	100	67	82	13.1	85	100	13.7	104	120	13.9	124	142	14.1
	120	63	101	10.0	80	124	10.4	98	148	10.7	117	175	10.8
	140	59	126	7.5	75	155	7.8	92	185	8.0	109	218	8.0
25	100	79	80	15.9	100	98	16.4	124	124	16.1	147	146	16.2
	120	75	103	11.7	95	127	12.0	117	151	12.5	139	178	12.6
	140	70	129	8.7	90	158	9.2	111	188	9.5	131	222	9.5
35	100	94	78	19.4	118	95	20.0	145	112	20.8	174	135	20.7
	120	88	105	13.5	112	129	14.0	138	154	14.4	164	181	14.6
	140	83	130	10.3	107	160	10.8	131	191	11.0	155	224	11.1
45	100	114	75	24.5	142	92	24.8	173	110	25.3	204	130	25.3
	120	104	106	15.8	133	130	16.5	163	155	16.9	194	183	17.1
	140	99	131	12.2	126	162	12.5	155	193	12.9	185	227	13.1
55	100	141	72	31.5	171	89	30.9	204	108	30.4	239	125	30.8
	120	123	108	18.3	157	132	19.1	194	157	19.9	230	186	19.9
	140	118	133	14.3	150	163	14.8	185	195	15.3	220	229	15.5

Data based on 5°C subcooling/5°C superheat.

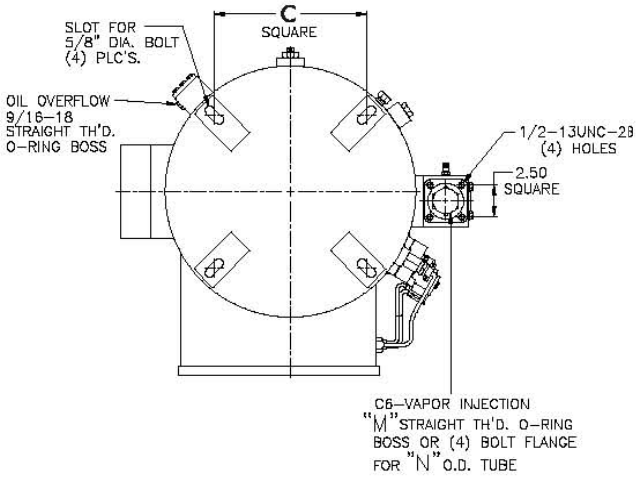
NOTE: Performance data on this page is adequate for preliminary selections.
For detailed information on specific applications contact Hartford Compressors Inc.

DIMENSIONS

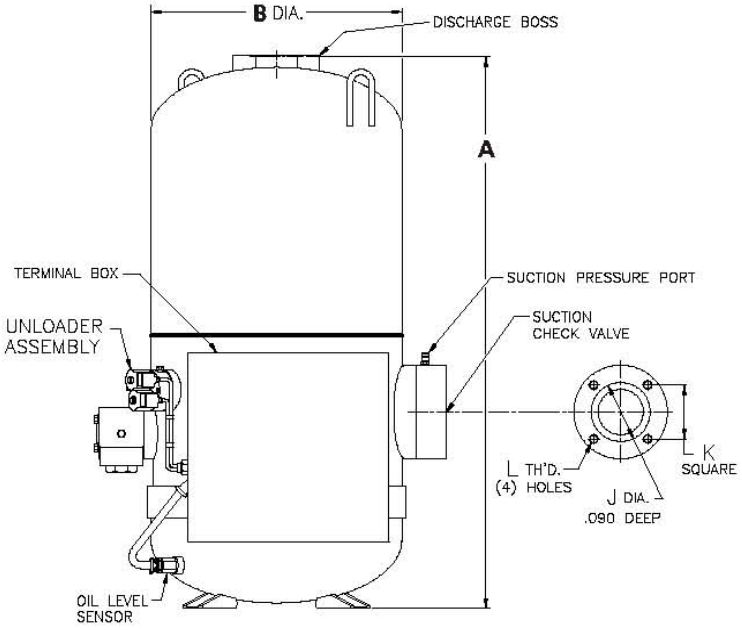




BACK VIEW



FRONT VIEW



Compressor Dimensions in inches (mm)						
Models	**A**	**B**	**C**	**D**	**E**	**F**
1210K/1212K	43.4 (1102)	19.8 (502)	12.0 (305)	13.1 (332)	14.3 (364)	14.4 (366)
1215K/1218K	47.3 (1200)	21.8 (555)	14.0 (356)	14.2 (361)	15.3 (389)	16.5 (419)

CAPABILITIES

Comprehensive service and support from design to application…….

APPLICATION ENGINEERING

Comprehensive customer technical support from pre-sales to mass production.

Together our Applications and Customer Service departments have combined to make Dunham-Bush a pleasant and responsive company to deal with.

Providing technical support aids in the understanding and specification of our products into your system applications. Our services range from discussion of possible applications of our compressors or components, answering detailed questions on product performance, to overseeing all details of custom or semi-custom prototype production for your specific product requirements.

CUSTOM ENGINEERING

Long term partnership and commitment to the successful collaborative development of a customized solution.

While incorporating the OEM customers own set of requirements, Dunham-Bush is able to create and drive technologies providing extended product life cycles, product change management, early access to equipment, engineering support, and ultimately reduced time to market.

All Dunham-Bush compressors are engineered with the highest attention to detail. Whether you choose a standard model or one specifically designed to your specifications, we give you the features you want and the benefits you need. The option of a dedicated serial/model number provides complete product traceability to maintain the quality of performance throughout life of your equipment.

OEM TESTING FACILITY

Custom designed testing to meet customer specification.

We perform positive displacement testing of system performance using sophisticated instrumentation and procedures. We also test a variety of other compressor characteristics such as noise, vibration and mechanical reliability.

Our testing procedures are in accordance with ASHRAE Standard 23. All instrumentation is calibrated in accordance with the National Institute of Standards and Technology (NIST). Testing can be done using test most refrigerants available today: R134a, R407c, R507, R410A, and R717.

WAREHOUSING PROGRAM

Your compressor when you need it, without delay.

The Dunham-Bush Warehousing Program allows you to purchase a “standby” compressor before you need it. Beneficial for critical applications, the program ensures you have your compressor when needed without delay.

…Dunham-Bush welcomes the opportunity to partner with your company in the engineering and development of your projects.

ROTARY MOTION OPERATION

For clarity reasons, the compressor operation description will be limited to one lobe on the male rotor (right) and one interlobe space of the female rotor (left). In actual operation, as the rotors turn all of the male lobes and female interlobe spaces interact with a uniform gas flow.

Suction Phase

As a lobe of the male rotor begins to unmesh from an interlobe space in the female rotor, a void is created and suction gas is drawn in through the inlet port. As the rotors continue to turn the interlobe space increases in size, and gas flows continuously into the compressor. Suction is sealed off when the interlobe space reaches its maximum volume.

Compression Phase

As rotation continues, the gas in the interlobe space is carried around the circumference of the compressor housing. Further rotation meshes male and female lobes thus reducing interlobe volume. Positive displacement compression continues in the direction of the discharge port.

Discharge Phase

At a point determined by the designed “built-in” compressor volume ratio (V), the discharge port is uncovered and the compressed gas is discharged by further meshing of the male and female interlobe space. While the meshing point of a pair of lobes is moving axially, the next charge is being drawn into the unmeshed portion and the working phase of the compressor cycle are repeated.

COMPANY INFORMATION

Dunham-Bush designs, manufactures, and supports an extensive range of rotary screw compressors and reciprocating compressors for use in air conditioning and refrigeration systems.

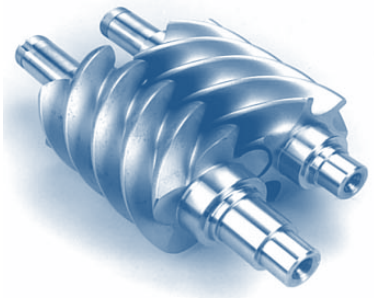
With decades of experience in developing innovative products for commercial, industrial, and marine applications, Dunham-Bush sets the standard for precision engineering, optimum performance, and customer satisfaction.

Our latest generation of medium and large screw compressors have been designed for long life, low noise and vibration levels, improved reliability, and lower operating costs. They are compatible with environmentally friendly refrigerants and gases with zero ozone depletion potential (ODP) and zero global warming potential (GWP).

A continuing program of in-house laboratory testing has resulted in screw compressors with the best combination of economy and efficiency available today.

With fewer moving parts and smooth rotary motion, screw compressors provide reliable, non-pulsating positive displacement compression. Paired male and female helically profiled rotors are machined with extreme accuracy of pitch and thread form, to obtain tight uniform clearances. This ensures proper sealing and dynamic balance necessary for quiet and efficient performance. Positive displacement compression results in stable operation at partial or full load. A built in separator (MSC only) creates a full self-contained unit.

All of our products are engineering with the highest attention to detail. Whether choosing a standard model or one specially engineered, we provide needed features and benefits. With this philosophy, Dunham-Bush proudly presents the entire line of compressors which illustrate all aspects of engineering excellence.



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