Gardner Denver

POSITIVE DISPLACEMENT BLOWERS & VACUUM PUMPS

HeliFlow®
Industrial Series

JC CROSS CO.

It's all about...

the HeliFlow

The HeliFlow Series integrates proven experience with blower design and manufacturing techniques to create an innovative helical tri-lobe blower. Gardner Denver has created a low noise solution for positive displacement blower and vacuum pump applications.

BACKED BY A

2 YEAR

WARRANTY

From date of initial use or
30 months from date of shipment

HELIFLOW DELIVERS

- Pressure to 18 psig
- Vacuum to 17 inHg
- Airflow to 4,500 cfm

JC CROSS CO.

4" MODELS
406, 408, 412

5" MODEL
514

Results

Durability

Innovation

Trust

QUIET

Tradition

Strength

Quality

Efficiency

Performance

6″ MODELS
616, 624

8″ MODEL
825, 817

It's all about...

the Savings

RUGGED CONSTRUCTION

Reduces maintenance and downtime

GREATER EFFICIENCY

Lowers operating costs

QUIETER OPERATION

Reduces enclosure and hearing protection requirements

Lower Cost + Higher Revenue

SAVES MONEY

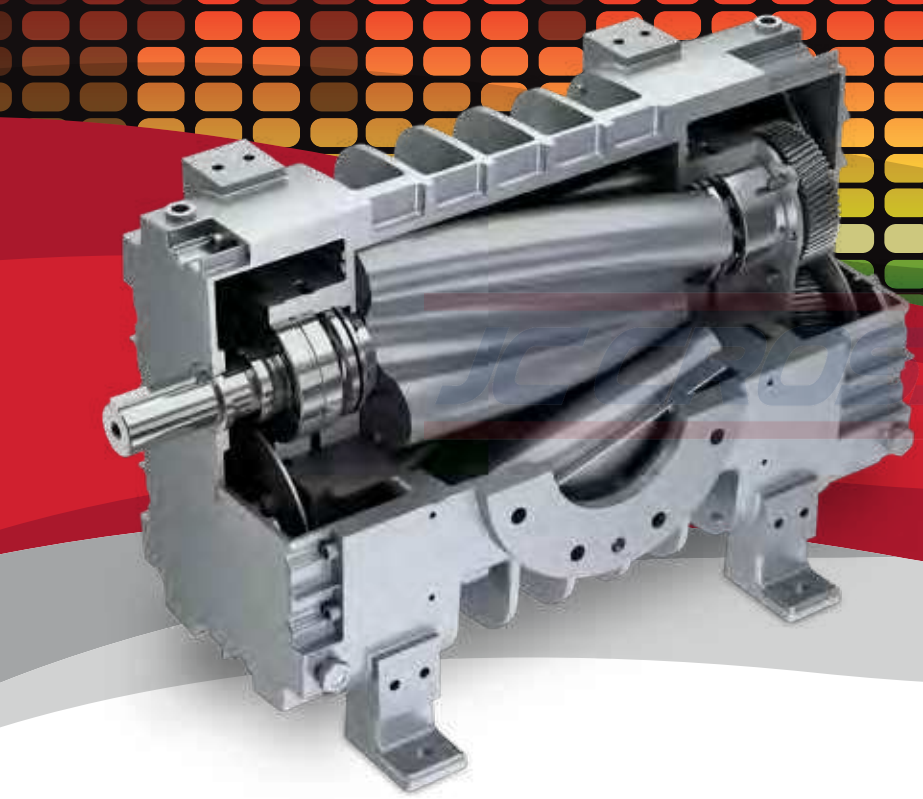
HIGHER REVENUE

PERFORMANCE

Higher pressure, vacuum and temperature limits

It's all about...

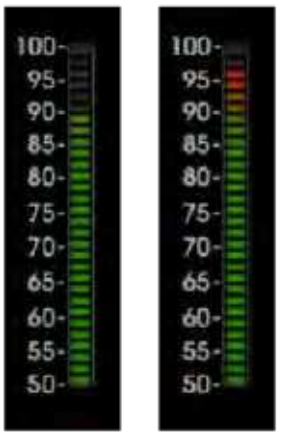
the PULSE



REDUCES NOISE LEVELS

Up to 4–7 dBA

Noise Levels dBA



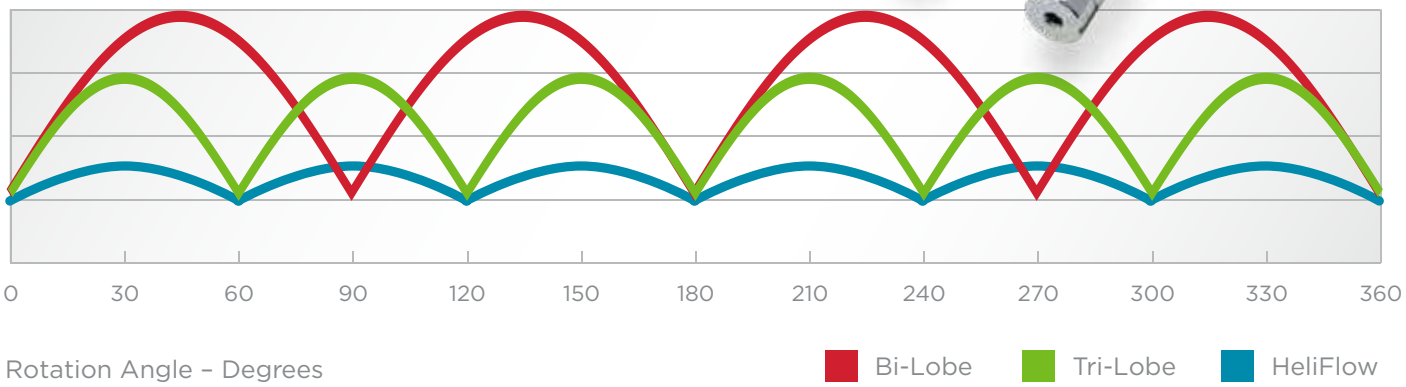
HeliFlow

Typical Lobe Blower

Protect your ears,

Protect your WORKFORCE

CHANGE IN PRESSURE PULSE



The HeliFlow Series

REDUCED PULSE = LOWER NOISE = QUIETER OPERATION

JC CROSS CO.

Lower Noise

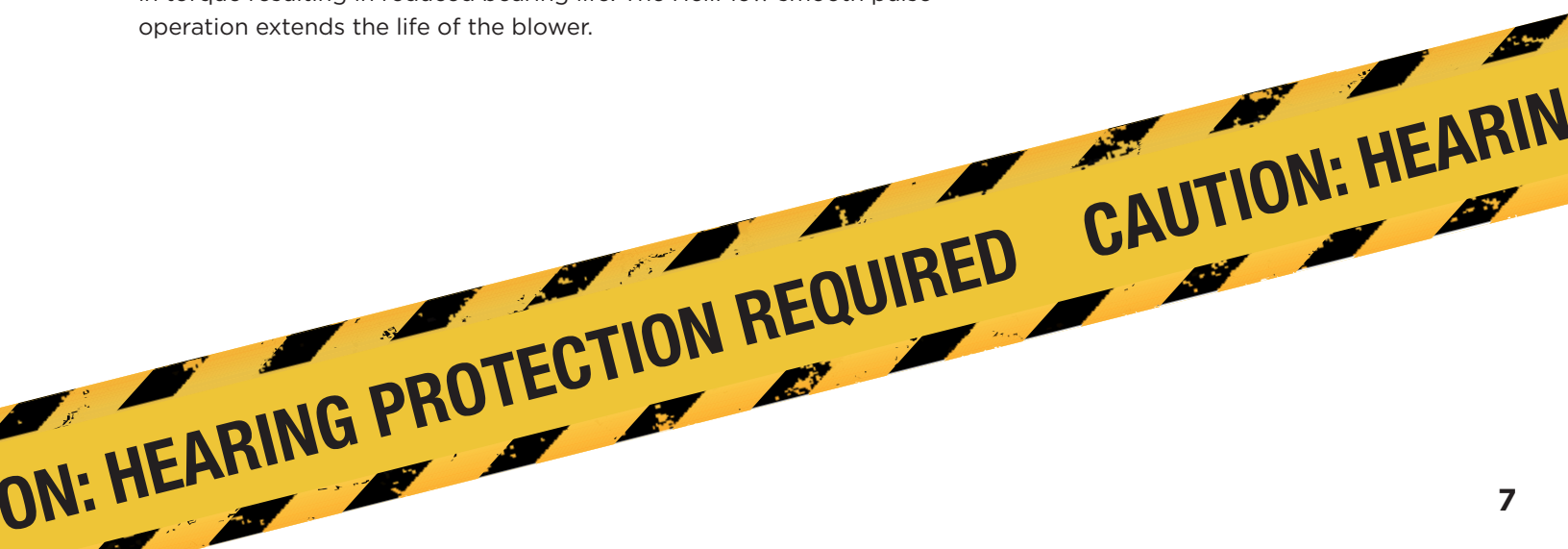
Discharge pulsation is the chief contributor to high noise levels. HeliFlow provides the lowest pressure pulse in the lobe blower market. This reduces noise levels by 4–7 dBA over similar sized, straight-lobe blowers.

Reduced Pulsations

HeliFlow provides more consistent flow variation, reducing the potential for damage to downstream valves and instrumentation.

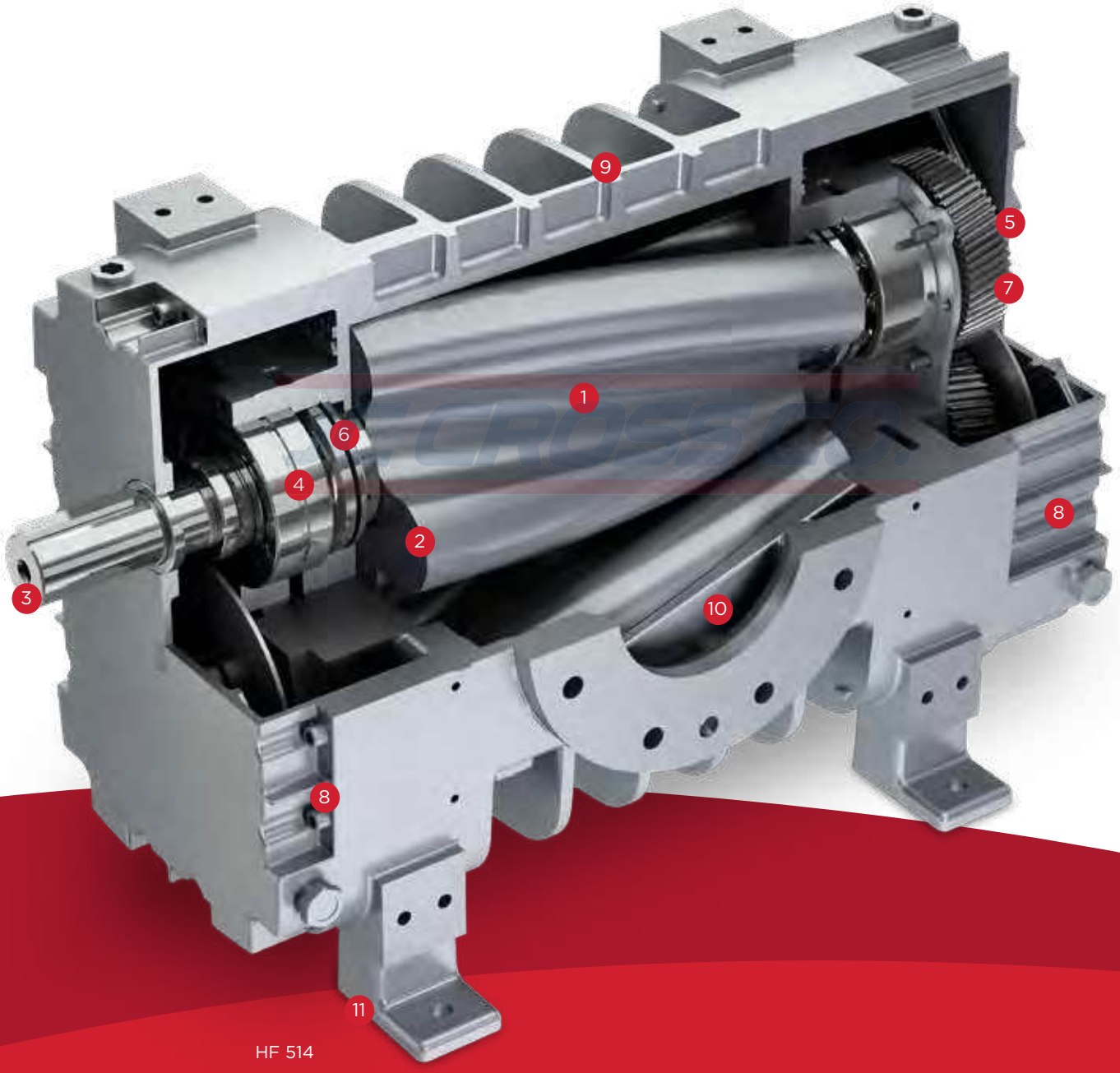
Higher Reliability

Discharge pressure pulsation causes axial thrust and higher variations in torque resulting in reduced bearing life. The HeliFlow smooth pulse operation extends the life of the blower.



It's all about...

an Innovative Design



HF 514

HeliFlow Design Advantages

1. Innovative, proprietary, smooth-running, helical rotor profile significantly reduces pulsations and discharge noise levels for quieter operation

2. Solid rotor design eliminates the potential for vibration caused when hollow rotors become unbalanced due to build-up of ingested material inside the rotor cavities

   - Rotors and shafts are machined from high-strength ductile iron and are dynamically balanced to ISO Grade 6.3 as standard

3. Large diameter shafts provide superior overhung load capacity compared to competitive models

4. Oversized spherical roller bearings for superior reliability

   - Precision fit bearings mounted on large diameter shafts provide longer blower service life

5. Refined timing and gear locking device

   - Grip rings expand against the bore of the gear and compress on the shaft for a secure, mechanical shrink fit

   - 4″ & 8″ models use tapered press fit gears

6. Advanced piston ring oil and air seals provide leak-free operation

   - 1 air and 2 oil seals

   - 2 air and 2 oil seals (8″ model)

7. Helical alloy steel timing gears, featured on 5″ & 6″ models provide quiet and smooth mechanical operation at all speeds

8. Dual splash lubrication for reduced maintenance intervals and superior durability

9. The single piece cylinder incorporates large external fins for heat dissipation and structural integrity

10. The unique triangular tuned ports and extra cylinder mass provides greater strength and noise attenuation

11. Flexible design allows mounting feet to be attached inward or outward based on installation requirements (not available on 8″ model)

   - Offers the ability to connect units in a variety of configurations

JOHNSON CO.

Raising the Bar with Cutting Edge Technology

It's all about...

the Advantages

PRODUCT DESIGN	HELIFLOW 514/616/624/624/825	COMPETITOR A	COMPETITOR B	HELIFLOW ADVANTAGES
CYLINDER & RIB DESIGN	One piece with integral ribs	One piece without ribs	One piece without ribs	■ Noise & pulsation dampening ■ Improves heat dissipation ■ Reduces stress on cylinder ■ Ensures better tip clearance accuracy
DRIVE & GEAR END BEARINGS	Spherical roller	Cylindrical roller (drive) Double row ball (gear)	Cylindrical roller	■ Increases bearing life ■ Better equipped to handle radial & axial loads commonly caused by misaligned V-belt drives
GEAR TYPE	Helical	Helical	Spur	■ Quiet & smooth mechanical operation ■ Reduces backlash ■ Allows tighter clearances
GEAR ATTACHMENTS	Grip rings Press fit gears (825)	Keyed interference fit	Taper gear fit	■ Improves reliability & eliminates timing loss ■ Easier to rebuild ■ Easily adjustable & release-able mechanical shrink fit
ROTOR PROFILE	Solid, Helical Tri-Lobe	Hollow, Dual-Lobe	Hollow, Dual-Lobe	■ Reduces noise & pulsations ■ Improves blower life ■ Eliminates the potential for unbalanced rotors due to product contamination
OIL SEALS	Two piston ring seals with slinger & groove	Lip seal	Lip seal	■ Superior oil sealing ■ Dependable supply of oil-free air ■ Extends maintenance intervals

JC CROSS CO.

PRODUCT DESIGN	HELIFLOW 514/616/624/624/825	COMPETITOR A	COMPETITOR B	HELIFLOW ADVANTAGES
MAX. OVERHUNG LIMIT (IN-LBS)	514 = 8100 616/624 = 13500 825 = 19,500	3200 <7999 18,000	1600 <7999 NA	■ More resistant to overhung loads ■ Will not require a jack shaft at higher HP
PRESSURE CAPABILITY (PSIG)	514 = 15 624 = 12 825 = 15	10 10 15	13 10 NA	■ Increased pressure capability
TEMPERATURE RISE LIMITS (°F)	624 = 250 825 = 265	230 230	230 NA	■ Improved ability to withstand extreme operating conditions
APPROXIMATE WEIGHT (LBS)	514 = 667 616 = 865 624 = 1145 825 = 1,820	410 650 775 1,330	615 650 775 NA	■ Extra cylinder mass for reduced noise & pulsations ■ More robust design

JC CROSS CO.

It's all about...

the Applications

THE HELIFLOW PROVIDES REVOLUTIONARY

Sound Levels | Durability | Performance

Ideal Applications:

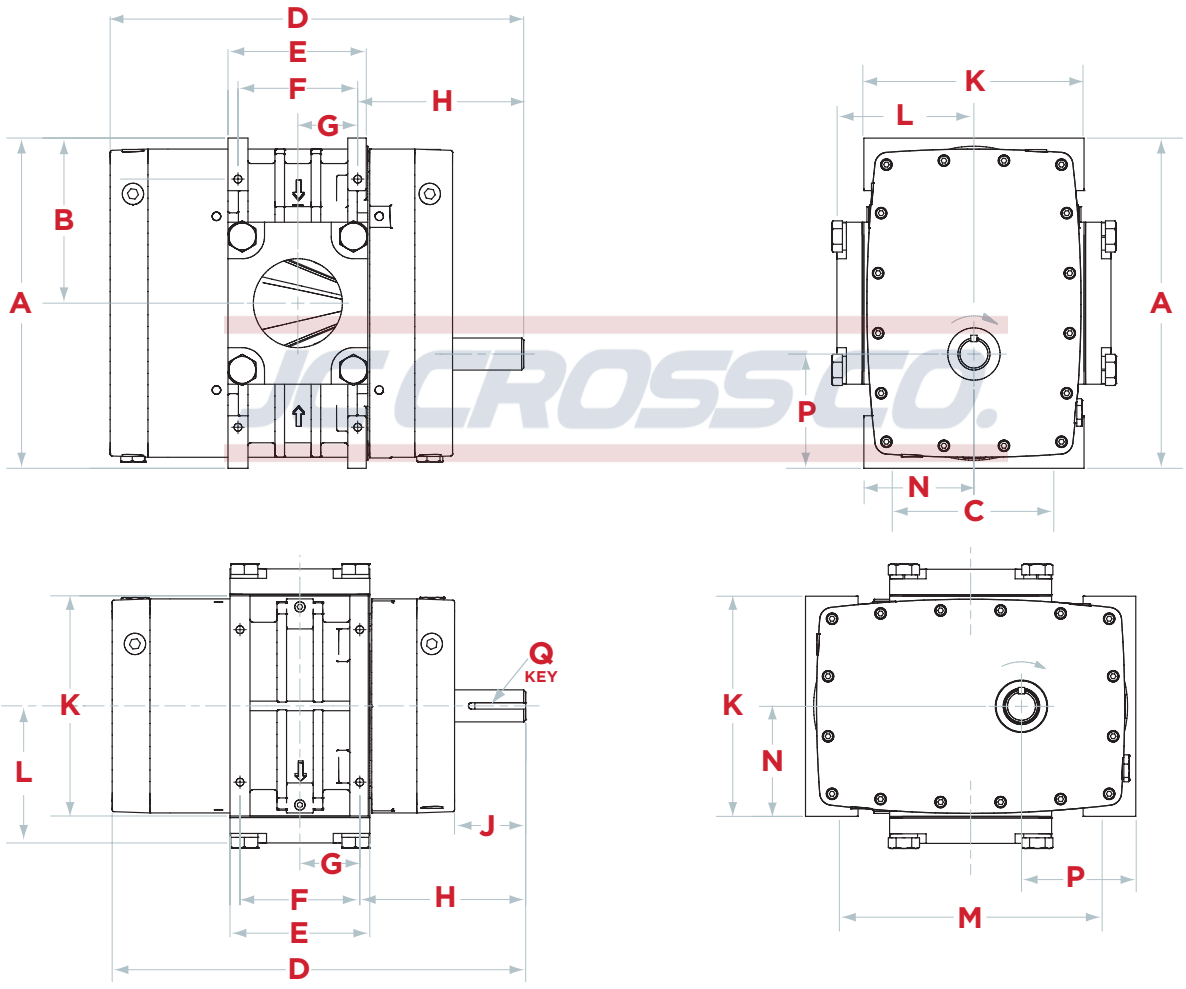
- Wastewater
- Carpet Cleaning
- Pneumatic Conveying
- Milling
- Plastics ...and MANY more!

JC CROSS CO.

406 & 408 Dimensional Data

MODEL	WEIGHT	SHAFT DIAM.	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q
HF 406	173	1.25	13.0	6.5	6.0	16.27	5.5	4.71	2.36	6.53	2.8	8.66	5.39	9.76	4.33	4.5	0.25 × 0.25 × 2.0
HF 408	201	1.25	13.0	6.5	6.0	18.77	7.94	7.21	3.61	6.53	2.8	8.66	6.36	9.76	4.33	4.5	0.25 × 0.25 × 2.0

Dimensions shown in inches. Weights are in pounds and approximate (packaging materials included).
Dimensions for installation purposes provided upon request.
406 = 3" NPT Flange, 408 = 4" NPT Flange; Mounting holes 3/8–16 UNC



JCROSSCO.

406 & 408 Performance Data

PRESSURE

MODEL	RPM	5 PSI		7 PSI		10 PSI		12 PSI		15 PSI	
		CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP
HF 406	1760	147	4.7	136	6.4	120	9.0	111	10.8		
	2190	198	6.0	187	8.2	171	11.5	161	13.8		
	2620	248	7.6	236	10.3	220	14.3	211	17.0	198	21.0
	3600	357	12.0	345	15.7	328	21.3	318	25.1	305	30.7
	4000	399	14.2	387	18.3	370	24.5	360	28.7	346	35.0
HF 408	1760	223	7.1	211	9.7	193	13.4	182	15.7	170	20.1
	2190	297	9.2	284	12.5	265	17.2	253	20.2	240	25.6
	2620	369	11.5	356	15.4	336	21.1	324	24.8	307	31.4
	3600	529	16.8	515	22.3	493	30.3	479	35.5	458	45.1
	4000	592	19.2	577	25.3	555	34.2	541	40.0	516	50.5

VACUUM

MODEL	RPM	10 inHG		12 inHG		14 inHG		16 inHG	
		CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP
HF 406	1760	135	4.2	125	5.0	113	5.8		
	2190	187	5.5	176	6.5	164	7.5	152	8.5
	2620	236	7.0	226	8.2	214	9.4	201	10.6
	3600	345	11.0	333	12.7	321	14.4	308	16.1
	4000	387	13.0	375	14.8	362	16.7	349	18.6
HF 408	1760	217	6.3	204	7.6	189	8.9		
	2190	292	8.1	278	9.6	264	11.1	247	12.8
	2620	364	10.1	351	11.8	337	13.6	321	15.4
	3600	523	15.3	511	17.5	497	19.8	482	22.1
	4000	584	17.7	573	20.1	560	22.6	545	25.1

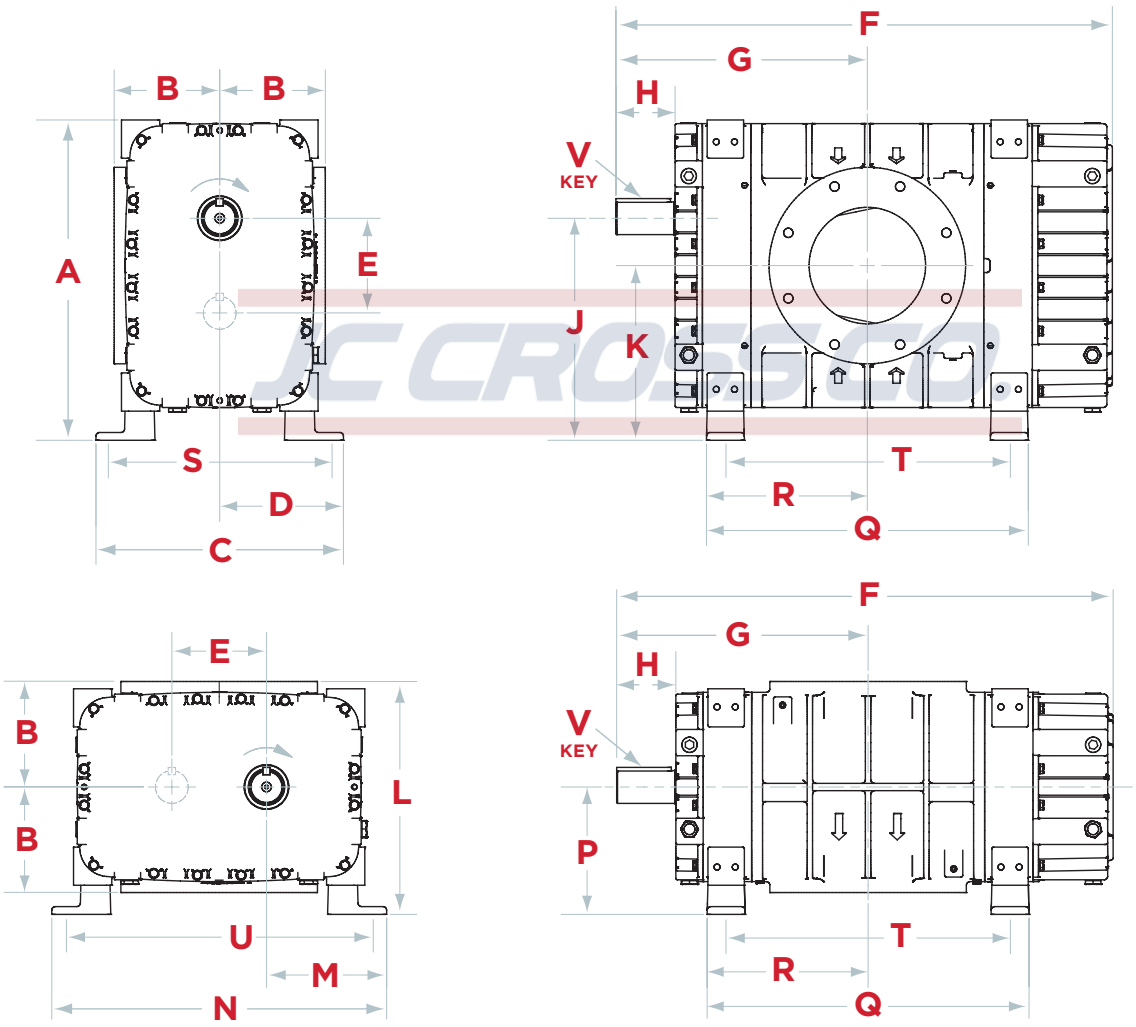
Performance based on inlet air at standard temperature of 68° F, an ambient pressure of 14.7 psia and 36% relative humidity.
For performance at non-standard conditions, contact your authorized Gardner Denver representative.

JC CROSS CO.

412, 514, 616 & 624 Dimensional Data

MODEL	WEIGHT	SHAFT DIAM.	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U	V
HF 412	291	1.5	13.32	4.81	9.62	4.81	4	23.98	13.29	3.89	8.66	6.66	9.62	4.66	13.32	4.81	13.32	6	7	10.75	11	.375 × .375 × 3.50
HF 514	667	1.875	19.1	6.37	15.0	7.5	5.5	31.6	16.29	3.53	12.0	10.56	14.18	7.5	20.5	7.81	19.92	9.96	13.0	17.31	18.5	0.5 × 0.5 × 3.25
HF 616	866	2.25	22.0	7.25	17.0	8.5	6.5	34.1	17.27	4.07	15.25	12.0	16.0	8.25	23.0	8.75	22.11	11.05	15.0	19.5	21.0	0.5 × 0.5 × 3.75
HF 624	1144	2.25	22.0	7.25	17.0	8.5	6.5	42.1	21.27	4.07	15.25	12.0	16.0	8.25	23.0	8.75	30.11	15.05	15.0	27.5	21.0	0.5 × 0.5 × 3.75

Dimensions shown in inches. Weights are in pounds and approximate. Dimensions for installation purposes provided upon request.
412 = 6" flange, 514 = 6" flange, 616 = 8" flange (150# flange connections 8x ¾ -10 UNC); 624 = 10" flange (150# flange connections 12x 7/8 -9 UNC);
Hold down bolt hole diameter = .59"



JC CROSSCO

412, 514, 616, 624 Performance Data

PRESSURE

MODEL	RPM	5 PSI		7 PSI		10 PSI		12 PSI		15 PSI	
		CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP
HF 412	1760	349	10.8	331	14.4	305	20.3	288	24.4		
	2190	460	14.0	442	18.7	415	26.0	398	31.1	374	39.1
	2620	570	17.5	551	23.1	523	31.9	506	38.1	481	47.6
	3600	815	25.8	795	33.8	766	46.0	747	54.4	721	67.3
	4000	913	29.5	892	38.4	863	52.0	844	61.3	817	75.6
	4500	1034	34.2	1013	44.3	982	59.6	963	70.1	935	86.1
HF 514	1000	252	9.5	224	13.0	187	18.5	165	22.2		
	1600	519	15.2	492	21.1	457	29.9	435	35.9	407	45.0
	2200	783	21.5	757	29.6	723	41.9	702	50.1	676	62.6
	2800	1043	28.4	1019	38.8	986	54.4	966	65.0	941	80.9
	3300	1258	34.6	1234	46.8	1202	65.3	1184	77.7	1160	96.5
	4000	1554	43.8	1532	58.7	1502	81.2	1485	96.3	1463	119.0
HF 616	1000	444	16.3	405	21.7	353	30.1	322	35.8		
	1600	879	25.4	840	34.7	787	48.7	757	58.3	717	72.8
	2200	1305	36.3	1265	49.3	1212	69.1	1180	82.4	1140	102.7
	2800	1720	48.9	1679	65.7	1625	91.2	1594	108.3	1553	134.3
	3300	2058	60.7	2017	80.7	1962	110.9	1930	131.2	1889	161.9
HF 624	1000	672	23.2	619	31.5	546	44.5	502	53.6		
	1600	1310	37.7	1258	51.8	1187	73.5	1144	88.3		
	2200	1946	54.3	1896	74.1	1826	104.5	1784	125.0		
	2800	2581	72.7	2531	98.3	2464	137.3	2423	163.7		
	3300	3108	89.6	3060	120.0	2994	166.2	2954	197.4		

VACUUM

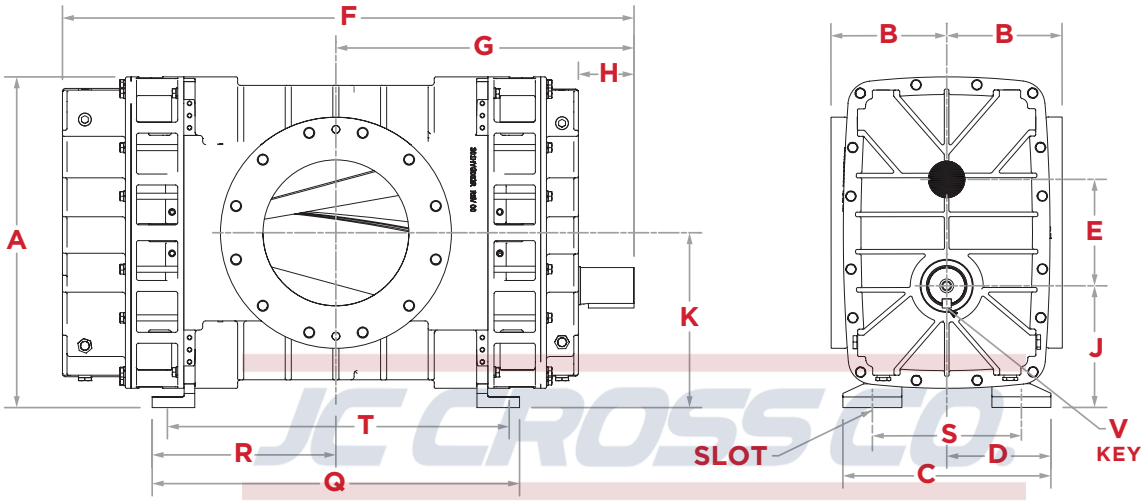
MODEL	RPM	10 inHG		12 inHG		14 inHG		16 inHG	
		CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP
HF 412	1760	328	10.5	306	12.4	282	14.3		
	2190	439	13.4	418	15.7	394	17.9	369	20.0
	2620	549	16.6	528	19.2	504	21.7	479	24.2
	3600	791	24.9	771	28.2	748	31.5	723	34.8
	4000	887	28.7	867	32.3	844	36.0	820	39.6
	4500	1005	33.7	985	37.8	962	41.8	938	45.9
HF 514	1000	237	9.3	211	11.2	185	13.1		
	1600	503	14.9	478	17.8	453	20.7	427	23.7
	2200	766	20.9	743	24.8	719	28.8	694	32.8
	2800	1028	27.3	1006	32.3	983	37.3	960	42.4
	3300	1244	33.1	1223	38.9	1201	44.8	1179	50.7
	4000	1544	41.7	1525	48.7	1504	55.8	1484	63.0
HF 616	1000	468	15.8	419	18.5	357	21.2	284	23.9
	1600	904	25.8	863	30.1	810	34.4	745	38.8
	2200	1334	36.7	1302	42.7	1258	48.7	1201	54.8
	2800	1760	48.8	1736	56.4	1700	64.1	1653	71.8
	3300	2111	59.6	2094	68.7	2065	77.7	2025	86.8
HF 624	1000	657	23.8	608	27.7	562	31.2	520	34.5
	1600	1341	38.4	1299	45.0	1261	51.4	1226	57.5
	2200	2013	53.8	1979	63.3	1949	72.4	1921	81.3
	2800	2675	70.0	2648	82.4	2625	94.4	2605	106.0
	3300	3218	84.3	3197	98.9	3180	113.3	3167	127.3

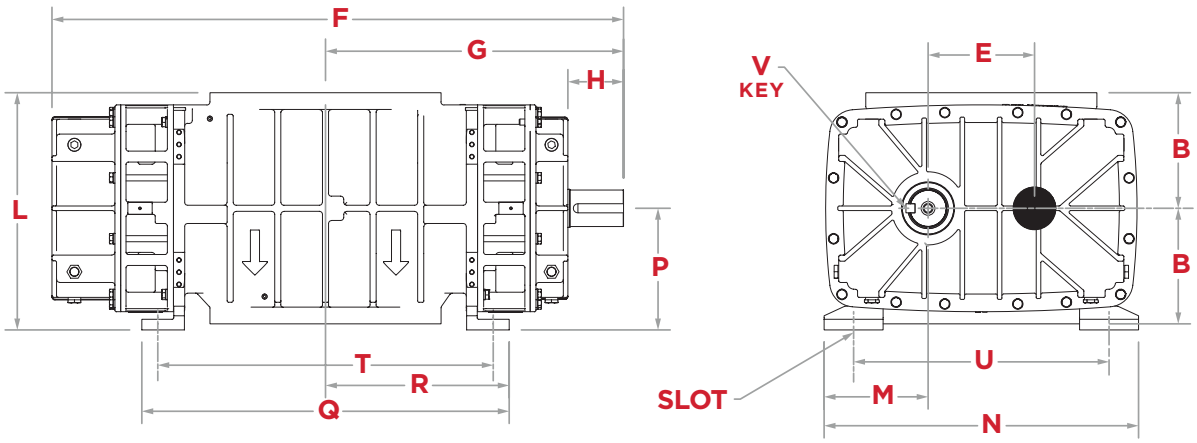
Performance based on inlet air at standard temperature of 68° F, an ambient pressure of 14.7 psia and 36% relative humidity.
For performance at non-standard conditions, contact your authorized Gardner Denver representative.

817, 825 Dimensional Data

MODEL	WEIGHT	SHAFT DIAM.	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q	R	S	T	U	V	SLOT
HF 817	1400	3	27.18	9.50	17.10	8.55	8.75	38.99	20.51	4.58	10	14.38	19.50	8.55	25.85	10	22.20	11.10	15	20	23	.75×.75×4.13	1.00×1.38
HF 825	1820	3	27.18	9.50	17.10	8.55	8.75	46.99	24.51	4.58	10	14.38	19.50	8.55	25.85	10	30.20	15.10	15	28	23	.75×.75×4.13	1.00×1.38

Dimensions shown in inches. Weight is in pounds and approximate.
HF817: 10" Flange for Inlet/discharge connections (150 # flange connections). Hold down slot diameter 1.00"
HF825: 12" Flange for Inlet/discharge connections (150 # flange connections). Hold down slot diameter 1.00"





JE CROSS CO.

817, 825 Performance Data

PRESSURE

MODEL	RPM	5 PSI		7 PSI		10 PSI		12 PSI		15 PSI		18 PSI	
		CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP
HF 817	1000	1006	30.7	965	42.5	910	60.2	879	72	838	89.6	806	107.2
	1200	1281	36.5	1241	50.8	1187	72.3	1155	86.5	1116	108	1085	129.3
	1500	1690	46.3	1650	64.4	1597	91.5	1567	109.5	1528	136.5	1499	163.6
	1800	2093	57.3	2054	79.2	2003	112	1973	133.8	1936	166.5	1907	199.1
	2200	2622	74	2585	100.9	2535	141.2	2507	168	2471	208.2	2444	248.5
	2650	3207	95.3	3171	128	3124	176.7	3096	209.1	3062	257.9	3037	306.6
HF 825	1000	1470	44.4	1400	61.5	1310	87.7	1255	105.3	1180	132.1		
	1200	1870	53.9	1805	74.7	1715	106.1	1665	127.5	1590	159.4		
	1500	2460	69.0	2400	95.1	2315	134.6	2265	161.1	2200	201.4		
	1800	3045	85.1	2985	116.5	2905	164.0	2860	196.1	2800	244.5		
	2200	3805	107.9	3750	146.5	3675	204.7	3630	243.7	3575	302.8		
	2500	4365	126.1	4310	169.9	4240	236.2	4200	280.7	4150	348.0		

VACUUM

MODEL	RPM	10 inHG		12 inHG		14 inHG		16 inHG		17 inHG	
		CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP	CFM	BHP
HF 817	1000	981	31.5	935	38.6	885	44.9	835	48.6		
	1200	1252	37.1	1205	45.2	1156	52.8	1106	58.1		
	1500	1657	46	1611	55.7	1562	65.1	1512	73		
	1800	2063	55.5	2017	66.7	1967	78	1918	88.5	1895	92.3
	2200	2603	69	2557	82.2	2508	96.2	2459	109.7	2436	115.8
	2650	3211	85.3	3165	100.9	3116	117.7	3067	135	3045	143.3
HF 825	1000	1415	46.5	1340	56.5	1265	64.6	1195	67.6		
	1200	1820	55.3	1750	67.0	1675	77.1	1605	82.7		
	1500	2420	68.6	2350	82.7	2280	96.0	2210	105.5		
	1800	3010	82.1	2940	98.6	2870	114.9	2800	128.4	2775	132.6
	2200	3785	100.5	3715	120.3	3645	140.7	3575	159.3	3550	166.8
	2500	4350	114.5	4285	136.8	4215	160.2	4150	182.9	4120	192.6

Performance based on inlet air at standard temperature of 68° F, an ambient pressure of 14.7 psia and 36% relative humidity.
For performance at non-standard conditions, contact your authorized Gardner Denver representative.

NEW!

HeliFlow 825 Series provides:

- Higher Flow Capabilities
- Unmatched Noise Reduction
- Optimized Heat Transfer
- Increased Shaft Strength vs. the Competition

The leader in every market we serve

by continuously improving all business processes

with a focus on innovation and velocity

JC CROSS CO.

Gardner Denver®

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