Advantage

INDUSTRIAL

CENTRAL VACUUM SYSTEMS

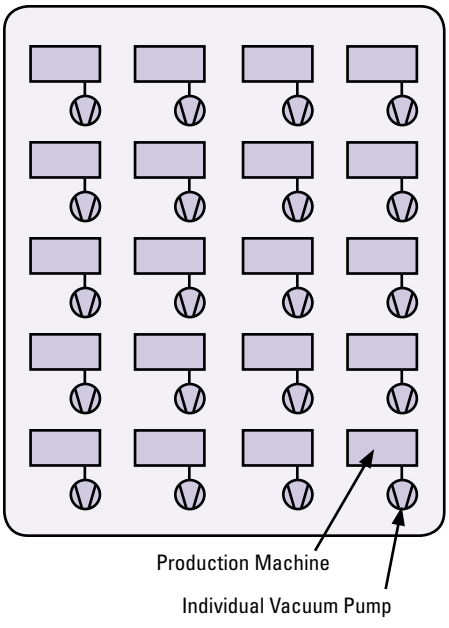
BECKER

CENTRALIZING THE MODERN MANUFACTURING PLANT

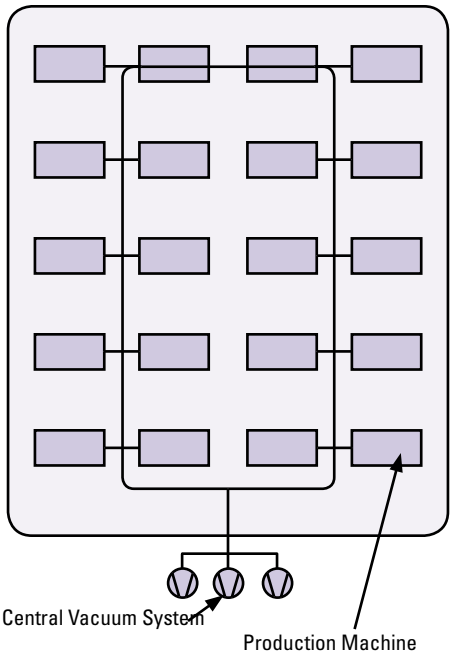
WHY BECKER?

Central vacuum systems are becoming increasingly more popular as manufacturers are looking for new ways to trim operating expenses and increase efficiency. Centralizing the vacuum needs eliminates the necessity for personnel to perform periodic maintenance or repair on myriad pumps around the facility. It also permits continuous, uninterrupted operation because a central system usually includes a reserve, or back-up, pump that comes on-stream automatically should a primary pump fail to operate. Without a central system, should a pump fail or be down for maintenance, the machine associated with it would be out of service until another pump can be brought in and connected.

Centralizing also makes it more comfortable for the employees—an ever increasing concern in today's business world. Removing pumps from the immediate work area reduces the noise level and heat generated by the pumps and motors. If the pumps were oil lubricated or water cooled, centralizing removes the potentially hazardous situation of oil or water on the floor, which might cause someone to slip, causing injury.



Typical Manufacturing Plant



Typical Central Vacuum Arrangement

Centralizing minimizes maintenance and eliminates from the workplace: noise, heat, and potentially hazardous oil and water on the floor

OPTIONS

In the past, there were generally two types of systems available: oil-sealed and water sealed. All types of systems—regardless of brand—have a preferred range of operation. Oil-sealed systems permitted operation at higher vacuum levels, usually 20"Hg to over 29"Hg, while water sealed systems were ideal for lower vacuum levels of 15"Hg to 25"Hg.

Oil sealed systems require periodic filling or changing of the oil, and require separation methods to remove the oil and oil mist from the discharge air. While they do have the advantage of operation at higher vacuum levels, commonly 20"Hg or above, they are limited at the lower end of the scale due to the poor efficiency of the separator elements in removing the oil mist, or aerosols.

Water sealed systems offer the ability to operate at these lower vacuum levels, but are limited at higher levels due to vapor pressure limitations, which can cause cavitation and subsequent damage to the pump. These systems, however, are more complex, and require the use of another utility—water (alternate fluids are available, but these can be quite expensive). Annual water and sewer costs can often equal the cost of the entire system—year after year! Should a loss of the water supply occur, the facility could be out of operation.

SOLUTIONS

The word "choice" now seems to be the catch word of the 21st century; now, Becker offers real choice in the question of what type of system to purchase. In addition to oil sealed vacuum systems using our trusted Dekatorr pumps, we provide a complete line of the world's first oil-less systems for those applications where operation may be atmospheric pressure to as much as 27"Hg.

You are no longer limited to only oil sealed or water sealed systems. Now, nearly maintenance-free oil-less Advantage-D systems accompany our oil-flooded Advantage-L systems to give you real choice. You no longer have to "make do" with an oil-lubricated system at marginal operating levels just because you don't want to use water.

The Advantage-L systems utilize the dependable Dekatorr pump. Total capacities are available up to 2540 CFM. Design configurations range from simplex and duplex tank mounted systems, to modular/expandable stacked systems with up to six pumps. The Dekatorr pumps can operate at vacuum levels up to 29.84"Hg (2 torr).

Advantage-D systems use the Becker oil-less pumps in the world's first complete factory standard line of totally dry central vacuum systems. These systems may be operated on a continuous basis at any vacuum level from atmospheric pressure up to as much as 27"Hg, depending on the model. They are available in the same configurations as the Advantage-L units, with total capacities up to 2118 CFM.

You need to look no further than Becker for the answer to your needs

Industry specific central vacuum systems, like our Advantage-W systems for woodworking router table applications, are offered. These are designed with definite features needed by users of these machines. Features like a space saving vertical design for up to three pumps, and triple filtration and dust separation options.

Graphic arts users are not left out either. Becker makes a full line of patented variable speed systems for printing and bindery facilities. These include our VAS, VACS, and VADS packages. Details are covered in another brochure. Call 888-633-1083 and request our VariAir Intelligent Components and Systems catalog.

Advantage-D Advantage-L Advantage-W

FEATURES and BENEFITS

Automatic Alternation

The lead and lag pumps automatically alternate on a first on-first off basis; this ensures that all pumps share the duty cycle equally. The first pump will not run again until all other pumps in the system run. This extends the life of the pumps and the service interval.

Bleed Valves

On all Advantage-L systems, we include inlet bleed valves to vent the vacuum in the inlet line and permit removal of the inlet filter cover for service–something forgotten by most other brands (Advantage-D systems are self-venting).

Lead/Lag Operation

All multiplex systems feature a cascading control system enabling operation of only those pumps necessary to meet demand, thereby saving energy.

Pressure Transducer

All multiplex systems use a pressure transducer. This keeps the vacuum system operating between two fixed set points, unlike systems that use multiple mechanical vacuum switches, each of which has different set points. A transducer provides high accuracy and repeatability.

Redundant Transformers (Optional)

If your requirement is for redundant low voltage reducing devices, be aware not all methods are truly redundant. Ours uses a relay to automatically switch from the failed unit to the backup unit; in addition, we provide an indicator light to warn when the system is operating on the backup transformer (something most other brands do not provide).

Expandable

All systems (other than tank mounted units) are expandable and grow as your facility grows, and all expand from duplex to sextuplex (6-pump system). Expansion can be done in about a hour without shutting down the system, and no parts are discarded when expanding. Inexpensive control and pump modules are available from stock.

Inlet Filters

Every system includes inlet filters before each pump to prevent pump damage due to foreign particles.

Modular

Our expandable systems are modular, with no section wider than the opening of a standard 36" doorway, on most models. Modules quickly bolt together, and are designed to mix and match to meet specific requirements.

Programmable Controller Operated

All functions in every Becker multiplex system are controlled by a programmable controller. No new EEPROM is ever needed when expanding—once programmed, always programmed. If the PLC ever needs replacing, the system can be operated in manual mode.

Convenient Service Points

All service points are easily accessible. No dangerous crawling over components is necessary.

Compact

Our expandable units have a footprint that is among the smallest of any system on the market, and expand vertically to save valuable space.

Single Point Service Connections

Once the unit is placed in position and fastened together, only one inlet, discharge (optional), and electrical connection is required.

Quiet

Rotary operation has no pulsations, and sound reducing technology is built-in, resulting in some of the quietest pumps in the world.

Vibration-Free

Smooth running rotary vane pumps require no special foundations; in fact, a nickel can be placed on edge on a running pump.

Air Cooled

All Becker pumps are air cooled, meaning no water is ever needed for cooling and operation.

Reserve Pump Alarm

An alarm, which signals when the reserve pump is in operation by a red light and steady 95 dBA tone, is standard equipment in our control panel. It can also indicate, with a flashing light, an optional low vacuum, low oil level, high exhaust filter pressure, high discharge temperature, or other alarm. A push-to-silence button is included. An auxiliary dry contact for remote signaling is standard equipment.

Emergency Stop Button

If an emergency should arise, the push of a single button will stop the operation of the entire system.

High Efficiency Motors

Most of our pumps use heavy duty high efficiency motors with class-F insulation as standard equipment.

Tank Drain Assembly

A standard manually or optional automatically operated tank drain assembly is offered. Also as an option is a full receiver bypass that permits servicing of the receiver without interrupting the vacuum supply.

No Water

None of our systems use water for any reason. Water and sewer charges are eliminated and water pollution is never a problem. Furthermore, your dependence on another utility is eliminated.

No Oil

Advantage-D and Advantage-W systems are 100% oil-less; therefore, there is no oil to fill, drain, change, or discard. No oil aerosols are ever present in the discharge air.

NFPA 99 Option

We manufacture systems to meet the current version of the NFPA 99 Health Care Facilities requirements for medical/surgical vacuum systems. Request our Hospital catalog.

Becker Advantage-D Dry Central Vacuum Systems

Advantage-D systems can operate all the way from atmospheric pressure to as much as 27"Hg; all our multiplex systems are PC operated, and all (except tank mounted units) are fully expandable to a sextuplex!

Our dry vacuum pumps have long had the best reputation in the industry; now, we proudly introduce the world's first standard line of 100% oil-less central vacuum systems. Advantage-D systems are ideal for use where any of the following conditions are a problem:

- Where any oil mist, or aerosols, present in the discharge air could contaminate the workplace, or damage roofing membranes.
- Where oil filling, changing, and disposal is an inconvenience, or a hazard.
- If oil leaks persist.
- Where water and sewage charges add to your cost of operation.
- If water pollution is a concern.
- If you would like to minimize your maintenance requirements due to personnel downsizing.

Tank Mounted Models

Systems are available in both simplex and duplex tank mounted versions. These are the most cost effective units, offering capacities adequate for many facilities, while providing the basic functions of automatic operation controlled by a programmable controller. They are compact in design due to the pump being mounted on top of the receiver.

Included are all of the necessary accessories such as inlet check valves, isolation valves, inlet filters, flexible connectors and vibration isolators. Controls permit automatic first-on/first-off, lead/lag operation that remains within two preset vacuum levels.

Modular/Expandable Models

These are the premier Becker central vacuum systems. They are available as duplex, triplex, quadruplex, pentaplex, or sextuplex systems, with additional capacity upon request. Except for the latter, all are expandable up to a sextuplex using standard factory modules. As with the tank mounted units, all come with the basic accessories; mounting, however, is vertical. Each pump is mounted on its own stand, which stacks, one above the other. Each pump is connected to a central manifold, which is plumbed to a vertical receiver.

The control panel employs a programmable controller to determine the operating sequence of the pumps. Automatically alternating lead/lag, or “cascading”, controls operate on a first-on/first-off basis. This ensures that each pump will have approximately the same amount of running time. This evens the wear on all pumps and prevents the reserve pump from deteriorating due to lack of use. Minimum run timers on all pumps prevent excessive wear on motors due to a high frequency of starts. Another feature of the control panel is the inclusion of a lag pump, or reserve pump alarm, that can also serve as an alarm for other optional switches.

The entire system can be upgraded with additional capacity by adding a pump

Advantage DS80D3

and electrical module. This can be performed quickly with no interruption to the integrity of the vacuum system. Individual disconnects are provided for each motor, and isolation valves are already installed for up to 6 pumps. Since the system is vertically oriented, additional floor space may not be required. All service points are easily accessible without crawling over piping and pumps.

Many industrial facilities are being serviced by vacuum pumps that may not be the most ideal, simply because of the fact that there was no "ideal" solution. The majority of pumps used in the past required either oil or water for operation. Oil provides lubrication and cooling, but is not without its penalties. If operation is continuously below about 20" Hg, oil aerosols may be emitted, causing "smoking". This fouls equipment or discharge piping, and can be damaging to roof membranes. Water, on the other hand, requires dependence upon another utility, adding cost, and may cause contamination of the water supply. We often make compromises because there is no alternative.

The introduction of the Advantage-D dry central vacuum systems means that there is an alternative. One that can be operated at all vacuum levels from atmospheric to as high as 27"Hg, depending on model; one that is air cooled and requires no oil or water for operation; one that doesn't require oil filling, changes, draining or disposal; one that is self lubricated and minimizes any routine maintenance, thus freeing up personnel for other tasks.

Of course, not everyone prefers a dry system. Some prefer to operate at higher vacuum levels, and some may want a pump with higher efficiency—especially if operating at higher elevations. An oil flooded system, such as one of our Advantage-L systems shown on page 8 and 9, may then be a better choice. But, if your preference is for a system that requires a minimum of maintenance, then the Advantage-D may be the ideal choice.

A call to our factory will put you in touch with an expert to help you determine the exact system you need.

Advantage-D

Becker Advantage-L Lubricated Central Vacuum Systems

Advantage-L systems are among the most efficient available, with CFM per HP ratios among the highest in the industry; all multiplex systems are PC operated, and all (except tank mounted units) are expandable to a sextuplex!

Our Dekatorr oil flooded vacuum pumps have long been a favorite in facilities where quiet, dependable pumps are needed. Advantage-L systems employ the Becker Dekatorr pumps and are ideal for use where any of the following may apply:

- Where dry pumps may not be preferred due to slightly lower capacity at higher vacuum levels.
- Where water and sewage charges add to your cost of operation.
- If water pollution is a concern.

The Advantage-L systems are available in a wide variety of designs to fill any requirement you may have.

Tank Mounted Models

Systems are available in both simplex and duplex tank mounted versions. These are the most cost effective units, offering capacities adequate for many facilities. They are compact in design due to the pumps being mounted on top of the receiver. Included are all of the necessary accessories such as inlet check valves, isolation valves, inlet filters, flexible connectors and vibration isolators. A receiver bypass is optional, which permits servicing of the receiver without interruption to the system. All duplex systems employ computer controlled automatic alternating controls for first-on/first-off, lead/lag operation.

Modular/Expandable Models

These are the premier Becker central vacuum systems. They are available as duplex through sextuplex systems, with additional capacity upon request. All are expandable up to a sextuplex, using standard factory modules. As with the tank mounted units, all come with the basic accessories; mounting, however, is vertical. Each pump is mounted on its own stand, which are vertically stacked. Each pump is connected to a central manifold, which is plumbed to a vertical receiver.

A tank drain, designed as an integral part of the system as standard equipment, allows draining of the receiver with no interruption to the vacuum system. An optional receiver bypass line permits full servicing of the receiver without interruption of the system.

The control panel utilizes a programmable controller to determine the operating sequence of the pumps. Automatically alternating lead/lag, or “cascading”, controls ensure that each pump will have approximately the same amount of running time. This evens the wear on all pumps. All pumps operate on a first-on/first-off sequence—a pump can not start again until all other pumps have run. Minimum run timers on all pumps prevent excessive wear on motors due to a high frequency of starts.

Another feature of the control panel is the inclusion of a lag pump, or reserve pump alarm. The entire system can be upgraded with additional capacity by adding a pump and electrical module. This procedure can be performed quickly

Advantage DS630L3

with no interruption to the integrity of the vacuum system. Individual disconnects are provided for each motor, and isolation valves are already installed for up to 6 pumps. Since the system is vertically oriented, additional floor space may not be required. All service points are easily accessible without crawling over piping and pumps.

Advantage-L central vacuum systems give you an alternative to liquid ring systems: they can be operated at vacuum levels from about 19" Hg to as high as 29.84" Hg (2 torr) with no danger of cavitation; they are air cooled and require no water for operation; they do not depend upon another utility; they do not foul or contaminate our water supply.

Everyone may not want an oil flooded vacuum system. Some may prefer pumps that are more maintenance-free, or where changing oil periodically is not practical. In these cases you may want to consider one of our Advantage-D dry central vacuum systems that employs 100% oil-less pumps, shown on pages 6 and 7.

A call to our factory will put you in touch with an expert to help you determine the exact system you need.

Advantage-L

Becker Advantage-W Dry Central Vacuum Systems for Woodworking/Routers

A Becker Exclusive!

Advantage-W systems have been specifically designed for the changing needs of those in the woodworking field.

Becker oil-less, dry vacuum pumps have long been the most popular brand and type of pump used in product hold down for vacuum tables. With no oil or water use, any risk of product contamination is eliminated, and operational and maintenance costs are reduced to a minimum; in fact, these are the most maintenance-free systems available.

Becker has designed a full line of central vacuum systems, called the Advantage-W, that are specifically designed to meet the changing needs of those in the woodworking field. These systems are designed for spoil board applications, faster cutting speeds, and shorter changeover due to their flexibility.

Advantage-W systems employ our well respected VTLF series of pumps with individual capacities of 130, 173, 280, and 353 CFM (total capacities ranging from 260 to 706 CFM) and a continuous operating vacuum level as high as 25"Hg, which provides plenty of hold-down force—over 12 pounds of force per square inch of surface area. That's a total force of nearly a ton for a 12" x 12" piece!

The new Advantage-W systems can be operated incrementally to match your production demand. This means that you run only the necessary pumps, thus saving precious energy and reducing operating costs.

Advantage-W systems are available in 4 Duplex and 2 Triplex models in a space-saving vertical arrangement, which also gives easy access to any part of the pump. Each pump in the system includes its own built-in inlet filter, and each pump is connected to an integral manifold that eliminates unsightly piping arrangements and minimizes losses due to piping leaks. In addition, Becker includes, as standard equipment, a central inlet filter for primary filtration.

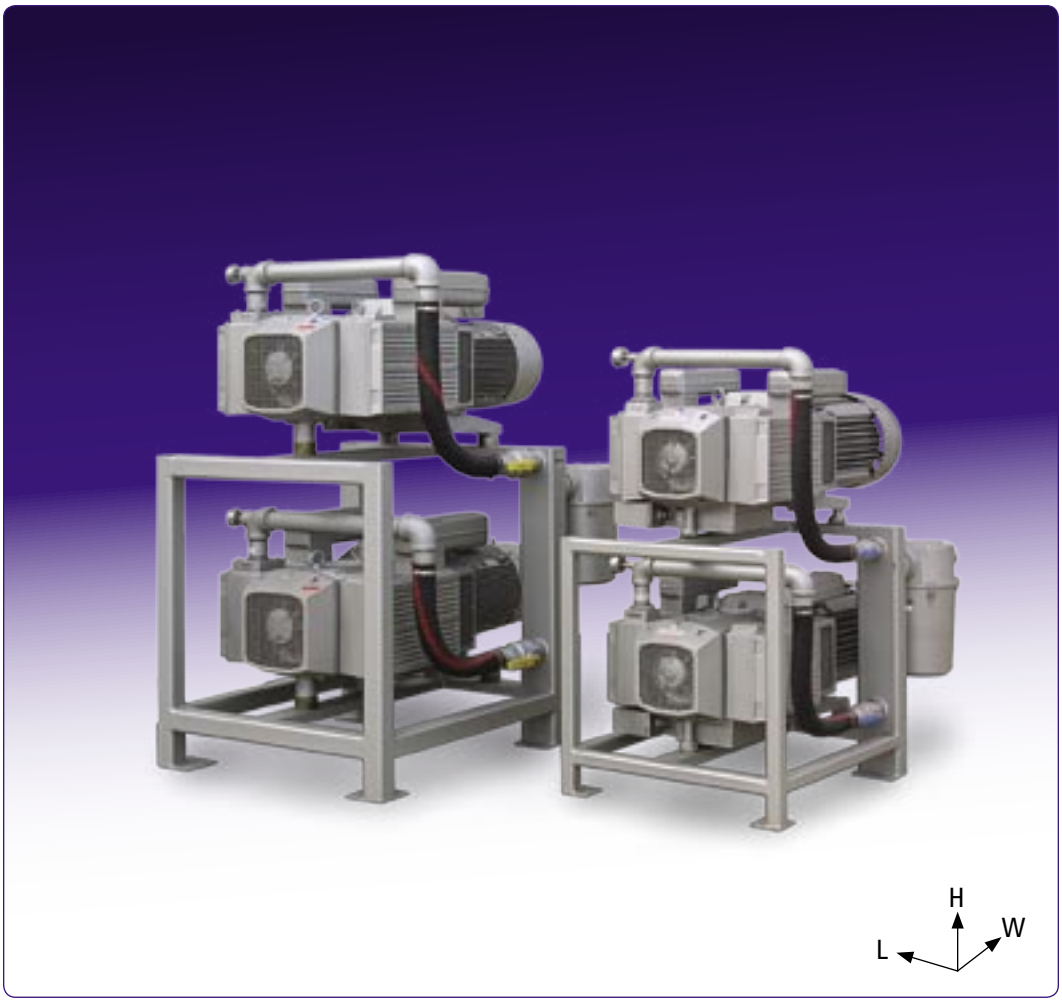
As an additional benefit to our customers, an optional dust trap is offered that separates and removes the bulk of any product particles that may enter the vacuum system. This dust trap has a fine screen to remove larger particles that can clog standard inlet filters, and a transparent housing to permit visual observation of the amount of debris that is collected so that workers can easily tell when the separator needs cleaning.

Since any product eventually needs servicing, you will appreciate the fact that no other pump is so easy to service. Becker pumps can be serviced by nearly anyone using standard tools. Filters are conveniently located at the side of the pump; and should vanes need replacing, it can be done in a few minutes by removing a few bolts at the end of the pump. As an aid, Becker provides a liquid filled vacuum gauge at the inlet of each pump in the system. By closing the standard isolation valve, the pump operating vacuum can be easily determined.

To make installation easy, a single inlet connection point is provided. Each pump

can be isolated from the manifold for service without affecting the operation of the other pump(s).

Becker offers a variety of electrical control options, ranging from manually operated motor starters mounted on the motors, to custom designed controls for automatic start/stop operation.



Advantage DS400W and DS250SKW

Advantage-W
Dry Woodworking Systems

MODEL	SCFM (Total System Capacity*) 0"Hg	18"Hg	22"Hg	Horsepower*	Tank (Gal's)	Overall Dimensions Length (in.)	Width (in.)	Height (in.)
Stack Mounted Duplex Systems								
DS200W	260	92.4	55.4	15	—	35.5	50.8	58.8
DS250SKW	346	123.2	73.6	20	—	35.5	50.8	58.8
DS400W	560	199.4	119.2	36	—	42.5	60.5	72.5
DS500SKW	706	251.4	150.4	48	—	42.5	60.5	72.5
Stack Mounted Triplex Systems								
TS200W	390	138.6	83.1	22.5	—	35.5	50.8	87
TS250SKW	519	184.4	110.4	30	—	35.5	50.8	87

* Total of all pumps in the system; see note on page 12.

Advantage-W

Advantage-L Lubricated Systems

MODEL	SCFM (Total System Capacity*) 0"Hg	20"Hg	25"Hg	Horsepower*	Tank (Gal's)	Overall Dim's ** Length (in.)	Depth (in.)	Height (in.)
Horizontal Tank Mounted Simplex Systems								
ST20L	12.4	5.9	2.9	1.2	60	50	29	45
ST40L	28.8	9.6	4.7	1.8	60	50	29	45
ST70L	49	16.2	7.9	3	120	71	32	50
ST100L	71	23.4	11.5	5	120	71	32	50
ST165L	113	37.3	18.3	5	120	71	32	56
ST190L	129	42.5	20.9	7.5	120	71	32	56
ST250L	168	55.4	27.2	10	240	88	32	62
Horizontal Tank Mounted Duplex Systems								
DT20L3	24.8	11.8	5.8	2.4	60	61	30	50
DT40L3	57.6	19.2	9.4	3.6	60	61	30	50
DT70L3	98	32.4	15.8	6	120	86	30	55
DT100L3	142	46.8	23	10	120	86	30	55
DT165L3	226	74.6	36.6	10	120	86	34	55
DT190L3	258	85	41.8	15	120	86	36	55
DT250L3	336	110.8	54.4	20	240	100	44	62
Modular/Expandable Duplex Systems								
DS20L3	24.8	11.8	5.8	2.4	120	48	44	91
DS40L3	57.6	19.2	9.4	3.6	120	48	44	91
DS70L3	98	32.4	15.8	6	120	56	44	91
DS100L3	142	46.8	23	10	120	56	44	91
DS165L3	226	74.6	36.6	10	240	68	54	109
DS190L3	258	85	41.8	15	240	68	54	109
DS250L3	336	110.8	54.4	20	240	68	54	109
DS400L3	580	191.2	94	30	240	60	104	100
DS630L3	880	290.8	143	50	240	60	104	100
Modular/Expandable Triplex Systems								
TS20L3	37.2	17.7	8.7	3.6	120	48	44	91
TS40L3	86.4	28.8	14.1	5.4	120	48	44	91
TS70L3	147	48.6	23.7	9	120	56	44	91
TS100L3	213	70.2	34.5	15	120	56	44	91
TS165L3	339	111.9	54.9	15	240	68	54	109
TS190L3	387	127.5	62.7	22.5	240	68	54	109
TS250L3	504	166.2	81.6	30	240	68	54	109
TS400L3	870	287	141	45	2x240	128	104	119
TS630L3	1320	436	215	75	2x240	128	104	119
Modular/Expandable Quadruplex Systems								
QS20L3	49.6	23.6	11.6	4.8	120	68	44	91
QS40L3	115.2	38.4	18.8	7.2	120	68	44	91
QS70L3	196	64.8	31.6	12	120	84	44	91
QS100L3	284	93.6	46	20	120	84	44	91
QS165L3	452	149.2	73.2	20	240	102	54	109
QS190L3	516	170	83.6	30	240	102	54	109
QS250L3	672	221.6	108.8	40	240	102	54	109
QS400L3	1160	382.5	188	60	2x240	128	104	119
QS630L3	1760	582	286	100	2x240	128	104	119

* For all systems, data is for all pumps in the system running. If a reserve, or back-up, pump is desired, use the total number of pumps in the system, minus 1 (see Simplex data for performance of individual pumps). For example, a Triplex TS100D3 would then be designed for 2 pumps with a total flow of 46.8 SCFM at 20"Hg, and total HP of 10. The reserve pump would produce 23.4 SCFM and use a 5 HP motor.

** These dimensions are for estimates of the overall system envelope and should *not* be depended on for installation details. The dimensions are subject to change without notice. Contact the factory for certified dimensional drawings.

Pentaplex and Sextuplex Systems are available as a factory standard design–contact the factory. Custom designed systems also available.

Advantage-D Dry Systems

MODEL	SCFM (Total System Capacity*) 0"Hg	15"Hg	22"Hg†	Horsepower*	Tank (Gal's)	Overall Dim's ** Length (in.)	Depth (in.)	Height (in.)
Horizontal Tank Mounted Simplex Systems								
ST25D	18	8.0	3.3	1.2	60	50	29	45
ST40D	28	12.4	5.2	2	60	50	29	45
ST60D	39	18.1	8.3	3	120	71	32	50
ST80D	48	22.2	10.2	5	120	71	32	50
ST100D	69	32	14.7	5	120	71	32	50
ST140D	95	44	20.2	7.5	120	71	32	50
ST200D	130	60.2	27.7	7.5	240	88	37	62
ST250D	173	80.1	36.8	10	240	88	37	62
Horizontal Tank Mounted Duplex Systems								
DT25D3	36	16	6.6	2.4	60	61	30	50
DT40D3	56	24.8	10.4	4	60	61	30	50
DT60D3	78	36.2	16.6	6	120	86	32	55
DT80D3	96	44.4	20.4	10	120	86	34	55
DT100D3	138	64	29.4	10	120	86	40	55
DT140D3	190	88	40.4	15	120	86	40	55
DT200D3	260	120.4	55.4	15	240	100	52	62
DT250D3	346	160.2	73.6	20	240	100	52	62
Modular/Expandable Duplex Systems								
DS25D3	36	16	6.6	2.4	120	48	44	91
DS40D3	56	24.8	10.4	4	120	48	44	91
DS60D3	78	36.2	16.6	6	120	56	44	91
DS80D3	96	44.4	20.4	10	120	56	44	91
DS100D3	138	64	29.4	10	120	56	44	91
DS140D3	190	88	40.4	15	240	68	54	109
DS200D3	260	120.4	55.4	15	240	68	54	109
DS250D3	346	160.2	73.6	20	240	68	54	109
DS400D3	560	259	116.2	36	240	48	104	100
DS500D3	706	327	150.3	48	240	48	104	100
Modular/Expandable Triplex Systems								
TS25D3	54	24	9.9	3.6	120	48	44	91
TS40D3	84	37.2	15.6	6	120	48	44	91
TS60D3	117	54.3	24.9	9	120	56	44	91
TS80D3	144	66.6	30.6	15	120	56	44	91
TS100D3	207	96	44.1	15	120	56	44	91
TS140D3	285	132	60.6	22.5	240	68	54	109
TS200D3	390	180.6	83.1	22.5	240	68	54	109
TS250D3	519	240.3	110.4	30	240	68	54	109
TS400D3	840	389	178.8	54	2x240	128	104	119
TS500D3	1059	490	225.5	72	2x240	128	104	119
Modular/Expandable Quadruplex Systems								
QS25D3	72	32	13.2	4.8	120	68	44	91
QS40D3	112	49.6	20.8	8	120	68	44	91
QS60D3	156	72.4	33.2	12	120	84	44	91
QS80D3	192	88.8	40.8	20	120	84	44	91
QS100D3	276	128	58.8	20	120	84	44	91
QS140D3	380	176	80.8	30	240	104	54	109
QS200D3	520	240.8	110.8	30	240	104	54	109
QS250D3	692	320.4	147.2	40	240	104	54	109
QS400D3	1120	518.8	238.5	72	2x240	128	104	119
QS500D3	1412	655	300.6	96	2x240	128	104	119

† Advantage-D systems may be operated up to 27"Hg, depending on model. Contact the factory for specifications.

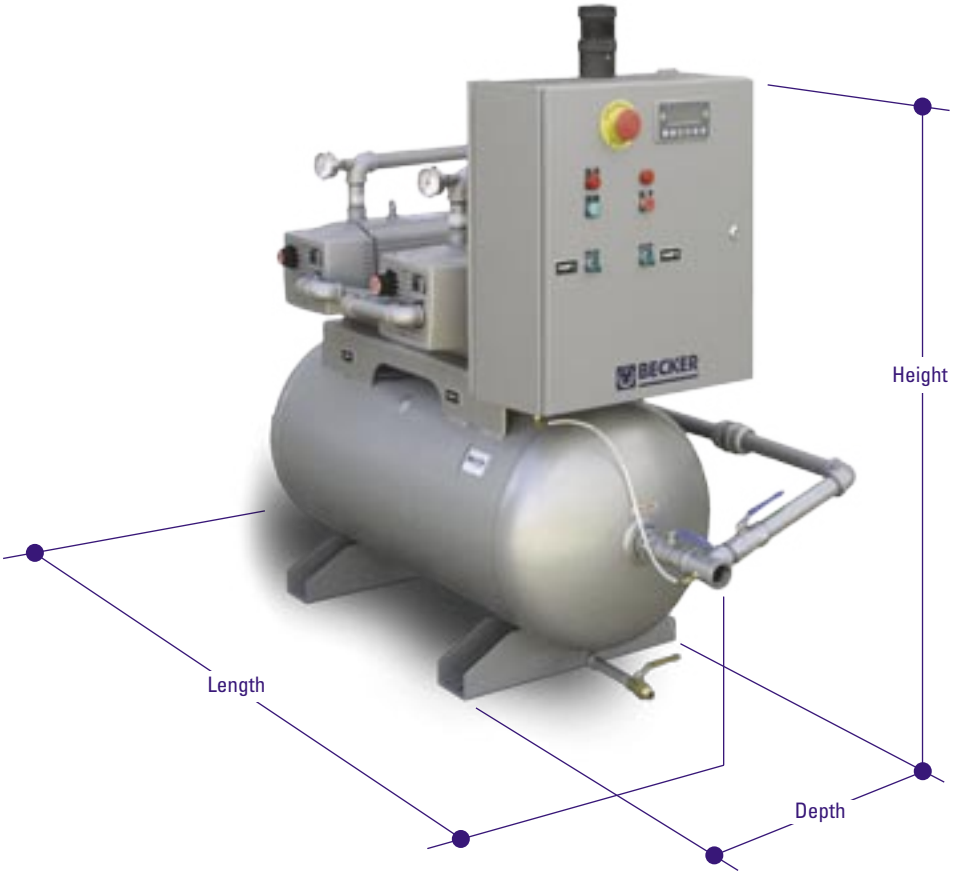
NFPA 99 compliant Medical/Surgical systems are available. Ask for catalog.

Vertical tank mounted systems are available in simplex and duplex arrangements. Contact factory for details.

Becker Pumps Corp. reserves the right to alter data without notice.

Advantage Systems
Overall Dimensions

Modular/Expandable Systems —



— Tank Mounted Systems

TECHNICAL SUPPORT REQUEST

Please take a few minutes to fill out our applications questionnaire. It will speed up the process of providing you with a solution to satisfy your need. Please fill out as much of the following information as you can.

Please fill in the blanks, and circle blue items.

Flow & Pressure Requirements

Please choose the units of pressure you are using on this form: torr in.Hg in.H_2O mbar PSI Other:_____

Desired operating pressure: _____ Is this pressure: Gauge Absolute

Minimum allowable operating pressure: _____

Maximum allowable operating pressure?: _____

Flow required at operating pressure?: _____ Units: SCFM ACFM #/hr

Pump Operation

Pump Operation: Continuous Intermittent/Cyclic

If the process is intermittent/cyclic, what is the...

Time vacuum is on: ____/____/____ (hours/minutes/seconds)

Time vacuum is off: ____/____/____ (hours/minutes/seconds)

Frequency of cycles; total time: ____/____/____ (hours/minutes/seconds)

Ambient temp at pump: Degrees F Degrees C

Altitude above sea level where pump will be located: _____ feet

Filtration

Is inlet filtration required? NO YES

What is the contaminant material? _____ Liquid Solid

Particle size: _____ microns

System or Mold Evacuation

Is pump down required? No Yes

System or mold volume (cubic ft): _____

Desired pump down time: ____/____/____ (hours/minutes/seconds)

Starting pump down pressure: _____

Final pump down pressure: _____

Do you require a receiver? NO YES

If yes, what is volume?: _____ Gallons Cubic Feet

What is your desired receiver configuration? Vertical Horizontal

Gases

What is the gas to be pumped?: Air Other(s):_____

Gas temp at pump inlet: Degrees F Degrees C

Central Systems

If you require a central vacuum system, what type do you prefer? Tank Mount Stack Mount Other: _____

Is there a special requirement for piping material? Black Iron Galv. Copper PVC Other: _____

Is it necessary to pipe the discharge away? NO YES

Motor/Electrical Requirements

What type of motor do you require? ODP TEFC EXP

If EXP: class: _____; division: _____; group: _____

What are your electrical requirements? Volts: _____; Hertz: _____; Phase: _____

Motor control center:

If you require a pump only, or a simplex system, do you want: Manual starter Auto on/off panel

If you require a multiplex system, do you want: Auto. on/off controls Expandable auto on/off controls

TECHNICAL SUPPORT REQUEST

Is there any further information that you feel would be important for us to know (please enter below)?

Please include a description of your process, including how the vacuum is (to be) used; the type, brand, and model of pumps that are currently used, if any. For pipe sizing requests, please provide a sketch (isometric style preferred) of your layout, complete with lengths of pipe runs and drops, number of ells, tees, etc., and estimated flow and pressure requirements at each point of use.

In what time is a final solution required: 1 Day* 2-3 Days* 1 Week 2 Weeks Other:_____

* Please be considerate when stating deadlines. Projects are basically prioritized on a first-come, first-served basis, with consideration given to urgent deadlines, and appropriateness of Becker products and experience. The status of each project is reviewed daily to ensure that less urgent projects do not continually get pushed to the bottom of the list. While we will sincerely attempt to reply by your deadline, staff limitations and prior obligations may prevent this. It should also be understood that factors outside our control (i.e., outside vendors) may delay our reply.

Your name:

Company:

Address:

City: State: Zip:

Phone: FAX:

E-mail:

When completed, please FAX both pages promptly to the attention of the Becker Technical Director at 330-928-7065

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