



VIKING PUMP INC,
A Unit of IDEX Corporation
406 State St, P.O. Box 8
Cedar Falls, IA 50613-0008 U.S.A.
Phone: 319-266-1741
Fax: 803-216-7718 International Fax: 803-216-7717
Internet Homepage: <http://www.vikingpump.com>

ITEM NUMBER	WORLD ENERGY TAGS
PW532C.1/1	19-P-759A
PW532C.1/2	19-P-759B
PW532C.2/1	19-P-859A
PW532C.2/2	19-P-859B

CERTIFICATE OF COMPLIANCE

CUSTOMER ORDER NO: 6055249 **DATE:** 12/22/2021
SALES ORDER NO: 762207

SOLD TO: Pye Barker Engineered Solutions
121 Royal Dr
Forest Park, GA 30297-1618
United States

SHIPPED TO: Pye Barker Engineered Solutions
121 Royal Drive
Forest Park, GA 30297
United States

ITEM NO: 7 **ITEM DESCRIPTION:** 4-2515-264C-588

QUANTITY: 4 **PUMP MODEL NO:** K4127A

PUMP SERIAL NO(S): 7887890032 - 7887890035

It is hereby certified that the materials shown herein meet the requirements of all drawings and specifications listed on the above sales order.

It is hereby certified that the articles herein have been dimensionally inspected and functionally tested in accordance with our standard quality control procedures.

Asbestos and mercury bearing instruments and/or equipment are not used in the manufacture or testing of materials furnished under this sales order.

The conditions certified above were verified prior to shipment from Viking Pump, Inc.

SIGNED: Mserck
Mikael Serck
TITLE: Quality Representative

MECHANICAL SEALS FOR VIKING PUMPS

ITEM NUMBER	WORLD ENERGY TAGS
PW532C.1/1	19-P-759A
PW532C.1/2	19-P-759B
PW532C.2/1	19-P-859A
PW532C.2/2	19-P-859B

INTRODUCTION:

The purpose of this folder is to help familiarize people selling and using Viking pumps with mechanical seals. We will discuss mechanical seal basics, environmental controls, materials of construction, seal selection and troubleshooting seal failures.

Increased emphasis on the control of environmental pollution has helped to promote the mechanical seal over packing as a shaft sealing device for liquid handling equipment. The arguments favoring seals over packing include leakage-free pump operation and less maintenance. While packing requires some leakage along the shaft for cooling and lubrication, a mechanical seal requires only a thin film of liquid between the faces. The film is about one molecule thick. Consequently any weepage across the seal faces during operation either evaporates or accumulates so slowly as to be almost unnoticeable.

Most mechanical seals once installed need not be adjusted and need no attention until worn out. Shaft packing requires periodic adjustment and may need frequent replacement.

BASICS:

In order to understand how to apply a mechanical seal it is necessary to understand the principles of sealing and the function of the various parts of the mechanical seal.

Definition: The terms mechanical seal or simply seal as used by Viking Pump denote an end face mechanical seal. The end face mechanical seal may be defined as: a mechanical device with two contacting faces mounted in a plane perpendicular to the centerline of a rotating shaft which blocks liquid escape along the shaft from the product container (housing) through which the shaft extends. The simplest sort of mechanical sealing device is shown in Figure 1 where a shoulder on the shaft runs against the end of the housing.

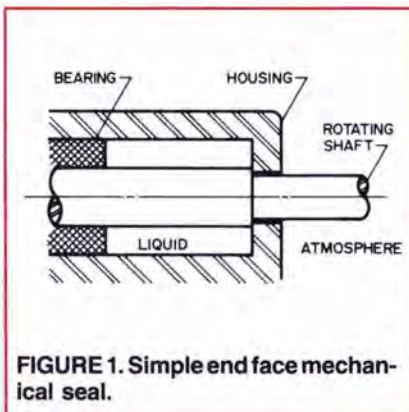


FIGURE 1. Simple end face mechanical seal.

This arrangement can be maintained as a mechanical seal as long as the two surfaces which are rubbing remain smooth, flat, parallel and in contact. Because of the difficulty in maintaining shaft alignment and because wear is associated with the rubbing contact of any two surfaces, a more sophisticated device with built-in flexibility and the ability to compensate for wear was developed. This is the mechanical seal as we know it today.

Seals have been in ever-increasing use at Viking for the past 25 years. They are now used in approximately 45% of all Viking pumps built.

Terms:

Virtually all mechanical seals have five basic elements, see Figure 2.

The rotating parts are the secondary seal, a rotating face, and a spring.

The stationary parts are the stationary seat and the seat gasket.

Principles:

Referring to Figure 2, the secondary shaft seal, an O-ring, seals off the space between the rotating face and the shaft. The flat face of the rotating face perpendicular to the shaft is held against the flat surface of the seat by the spring. The seat gasket blocks escape of liquid from be-

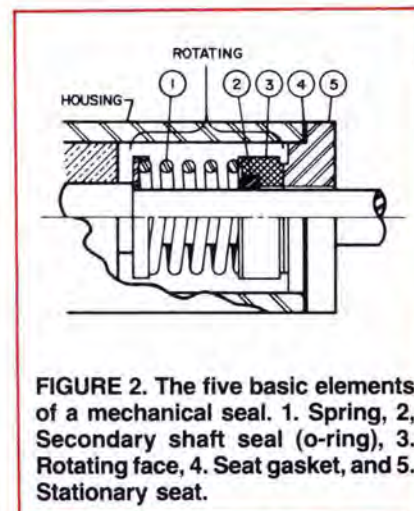


FIGURE 2. The five basic elements of a mechanical seal. 1. Spring, 2. Secondary shaft seal (O-ring), 3. Rotating face, 4. Seat gasket, and 5. Stationary seat.

tween the housing bore and the stationary seat.

The contact surfaces of the stationary seat and the rotating face are flat enough so that when pressed together atmospheric pressure is excluded and they will "wring" together. The two contact surfaces, rotating face and stationary face, are mounted in a pump so that they are perpendicular to and centered on the rotating shaft. In this manner relative motion can exist between the two faces and still exclude a flow of liquid as long as they remain smooth and parallel.

The secondary shaft seal must be flexible in order to maintain alignment of the two faces. The spring's sole function then is to provide enough force against the rotating face to keep it in contact with the stationary face so as to exclude atmospheric pressure. The mechanical seal is designed so that hydraulic pressure aids in keeping the faces closed.

During the normal course of operation, rubbing contact between the mechanical seal faces will wear one or both surfaces. Hydraulic and spring forces push the rotating face and the secondary shaft seal along the shaft to maintain contact.

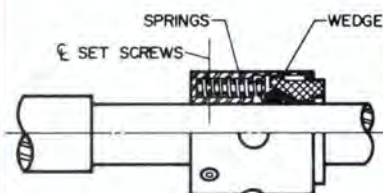


FIGURE 3. Pusher type mechanical seal with conical wedge secondary shaft seal.

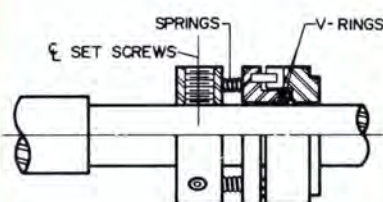


FIGURE 4. Pusher type mechanical seal with V-ring secondary shaft seal.

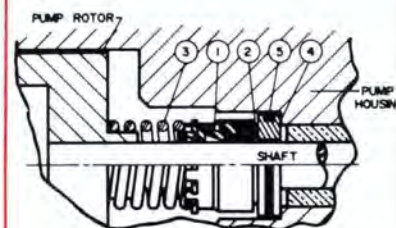


FIGURE 5. Non-pusher seal. The five basic elements are shown, 1. Bellows secondary shaft seal, 2. Rotating face, 3. Spring, 4. Stationary seat, 5. Seat gasket (O-ring).

Types:

Seals of the type just described in which the secondary shaft seal moves along the shaft as wear occurs are called **pusher** type seals. Figure 3 illustrates a more frequently used pusher type seal, a Crane Type-9. It features a conical shaped wedge as the secondary shaft seal and has multiple springs. Figure 4 illustrates a Durametallic RO-TT which utilizes V-rings as secondary shaft seal.

The rotating portions of the mechanical seals of the two previous illustrations are locked to the shaft by setscrews to maintain a positive drive. The rotating face oscillates around the secondary shaft seal to maintain parallelism between contact surfaces. In each case the rotating face travels forward along the shaft propelled by hydraulic or spring force to compensate for wear.

One of the disadvantages of the pusher type seal is the need for the secondary shaft seal to move along the shaft as the rotating face wears. To overcome this disadvantage a flexible bellows or "boot" is used as the secondary shaft seal. A **non-pusher** type seal is illustrated in Figure 5. The five basic elements of a seal are

present in this type also.

The rotating parts are the bellows secondary shaft seal, the rotating face, and the spring.

The stationary parts are the stationary seat, and the seat gasket (O-ring).

This mechanical seal is classed as a non-pusher type because the bellows can stretch or lean forward to keep the faces in contact without sliding along the shaft. Referring to Figure 6(A), the elongated cylindrical portion or tail of the bellows is an interference fit on the shaft. After the bellows has been installed for a short period of time the tail sticks to the shaft. The drive band in Figure 6(A) compresses the tail of the bellows and maintains the interference fit with the shaft. Rotation of the shaft is transmitted by friction and adhesion through the bellows to the drive band, through the retainer to the rotating face.

The stationary seat as shown in Figure 6(B) is not only sealed by the seat gasket O-ring, but is held in place by the friction between the O-ring in the seat and the bore of the housing.

Hydraulically **balanced** seals are used for high system pressure applications.

See Figure 7. Some of the hydraulic pressure forcing the faces together is "balanced out" by reducing the inside diameter of the rotating face. A balanced seal requires a stepped shaft.

An arrangement with two seals installed in a seal chamber back to back with a common spring between them is called a **double** seal. Figure 8 shows a bellows (non-pusher) type double seal. This seal arrangement requires an independent source of liquid to pressurize the area between the two seals. This pressure should be 15 to 20 psi higher than the relief valve setting.

Cartridge type mechanical seals are constructed as a one piece preassembled seal to allow for easy installation in the pump stuffing box. Cartridge seals are available in both pusher and non-pusher type seals with an O-ring used for the secondary seal. The rotating portion of the seals are setscrewed to the shaft outside of the stuffing box.

Because the seal faces of the cartridge seal are not individually installed or handled, seal failures occurring because of improper installation or handling are minimized.

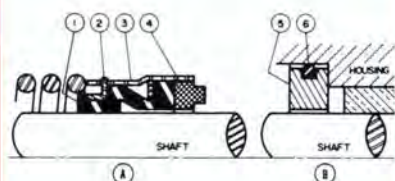


FIGURE 6. 1. Bellows. "Tail" is interference fit on the shaft, 2. Drive band, 3. Retainer, holds parts together and drives rotating washer, 4. Rotating face, 5. Stationary seat, 6. Seat gasket (O-ring).

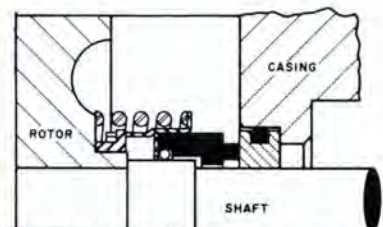


FIGURE 7. Balanced seal.

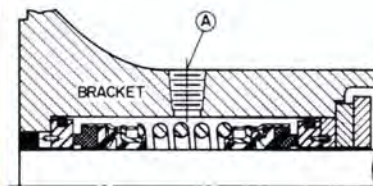


FIGURE 8. Double seal. Two seals mounted back to back on a common spring. Inlet at A is for pressurization.



FIGURE 9. Heavy-duty Viking pump with cartridge seal.

Seats:

Stationary seats can be of several types, depending upon materials used and the location in the pump. Figure 10(A) illustrates an "L" shaped cross section seat frequently used with a Crane Type 9 mechanical seal. The stationary seat has an "L" shaped cross section from which it derives its name. It is designed to be used with a rectangular cross section ring made from Teflon. Because the Teflon has an extremely low coefficient of friction, it is necessary to employ one or more pins in the seat. These anti-rotation pins are aligned with slots in the bushing.

Figure 10(B) illustrates a clamped-in seat intended for mounting at the end of the stuffing box in what would otherwise be a packed pump. Shown is a "T" shaped cross section clamped-in seat with the seat gasket compressed against the end of the stuffing box to seal off the bore.

ENVIRONMENTAL CONTROLS:

The detrimental effects of temperature extremes, high viscosity and abrasives on a mechanical seal can be moderated by controlling the environment surrounding

the seal.

Flush:

An environmental control device frequently used with Viking pumps is a flush over the seal faces. Flushing liquid can be introduced from the discharge port of the pump into the mechanical seal chamber whether located behind the rotor or in the stuffing box. See Figure 11. This type of flush is used to provide liquid flow around the mechanical seal to lubricate the seal faces, provide some cooling, and prevent gunking or build up of solids.

Stuffing box seals are often flushed from an outside source with a flow of compatible liquid. The liquid then passes through the stuffing box into the pump casing and becomes a product dilutant.

Suckback:

A suckback promotes flow of liquid from the seal chamber to the suction side of the pump and can be used either alone or in conjunction with a flush system. Several methods may be employed to produce a suckback. It may be a groove in the pump casing bypassing the rotor, an external tube from the suction port to the seal

chamber or a hole drilled through the suction port as shown in Figure 11. See AD-21, Suckback and Flush.

Barrier Liquid:

A barrier liquid can be introduced into an auxiliary chamber outboard of a mechanical seal, see Figure 12. The barrier liquid is another type of environmental control intended to block off the area outboard of the mechanical seal from the surrounding atmosphere and sometimes to dissolve and carry away weepage which gets past the mechanical seal. The introduction of a barrier liquid into the pump requires that a separate sealing device be used to contain the barrier liquid. The liquid must be compatible with the seal elastomers and provide lubrication for the bearing.

Cooling — Heating:

Seal chamber cooling is a form of environmental control. Direct cooling of the seal faces with flush liquid from pump discharge or an outside source has been previously mentioned. This cooling method will help dissipate frictional heat generated by the seal faces.

The decision to add or remove heat from the environment surrounding the mechanical seal is often complex. In the case of the product which will solidify when unheated, the stuffing box or seal chamber must be maintained at a temperature which will keep the product in a liquid state.

When seal chamber temperatures are high enough to cause damage to seal components or warpage of the faces, then auxiliary cooling becomes necessary. Some model Viking pumps feature jacketed stuffing boxes or seal chambers by which heat can be removed or added as illustrated in Figure 13. Glands which permit heating or cooling are available in many instances.

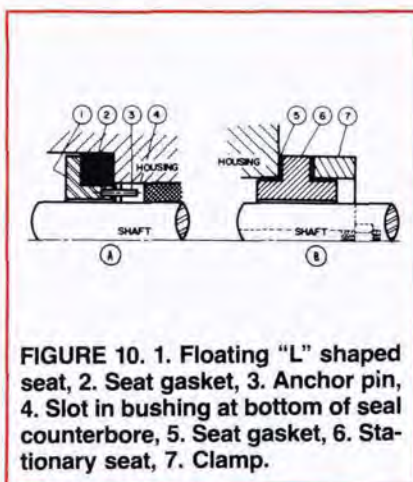


FIGURE 10. 1. Floating "L" shaped seat, 2. Seat gasket, 3. Anchor pin, 4. Slot in bushing at bottom of seal counterbore, 5. Seat gasket, 6. Stationary seat, 7. Clamp.

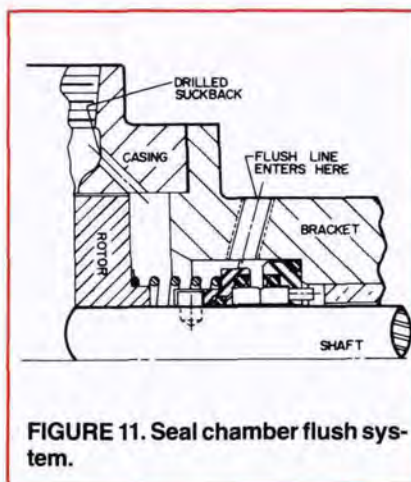


FIGURE 11. Seal chamber flush system.

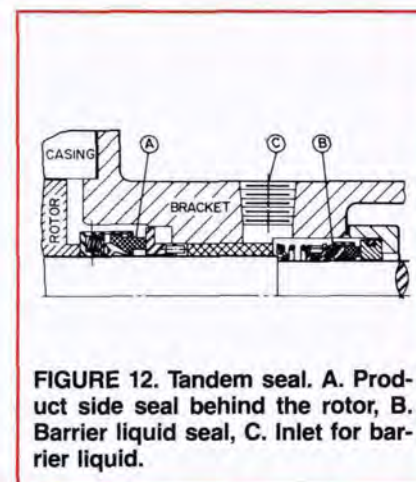


FIGURE 12. Tandem seal. A. Product side seal behind the rotor, B. Barrier liquid seal, C. Inlet for barrier liquid.

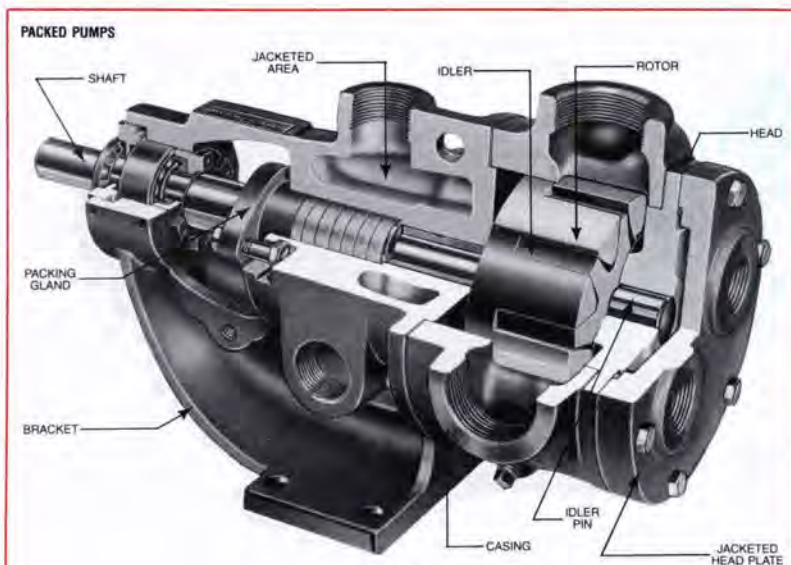


FIGURE 13. Series 225 fully jacketed pump for heating or cooling the environment.

MATERIALS OF CONSTRUCTION:

The materials of construction which will be reviewed under the different seal part headings are the most frequently used materials plus those considered as standard options. Virtually all liquids which can be pumped by catalogued Viking pumps can be adequately handled by either the standard or optional materials listed. Most seal suppliers do have special materials available for new or unusual applications as might be required.

Secondary Shaft Seals & Seat Gaskets:

A variety of synthetic rubber materials are available from which secondary shaft seals (bellows) and seat gaskets (O-rings) can be molded. The material most frequently used is Buna N, a nitrile compound. Buna N can handle a broad range of petroleum base products such as gasoline, fuel oil and aliphatic solvents plus LP-Gas, vegetable oils and most of the alcohol family. The normal temperature range for a Buna N fitted seal is from -20°F . through $+225^{\circ}\text{F}$.

Neoprene, a chloroprene synthetic rubber, is most often used for handling refrigerants and anhydrous ammonia at low temperatures. Practical temperature range for Neoprene is from -40°F . through $+225^{\circ}\text{F}$.

Viton, a fluor elastomer, can be used over a temperature range from 0°F . through $+350^{\circ}\text{F}$. with intermittent exposure to 375°F . without severe damage. Viton is used for handling petroleum base liquids, vegetable oils and heat transfer liquids when the temperature is above the capability of Buna N. Viton can also be used with toluene and xylene solvents. It

should **not** be used with any of the ketones or amines because of excessive swelling. See Figure 14.

PTFE, a fluorocarbon polymer, is chemically inert to most liquids except those in the fluorine family. The majority of PTFE fitted mechanical seals are applied between the temperature limits of 0°F . and $+450^{\circ}\text{F}$. They can withstand short time exposure to 500°F . without severe damage. With special consideration to mounting, PTFE fitted seals can be used for temperatures down to -100°F . and below. Secondary shaft seals and seat gaskets of PTFE must be completely confined within their assemblies because of PTFE's inherent tendency to cold flow. If not captured, it will creep or cold flow until the pressure on it is relieved.

Viking utilizes non-asbestos gaskets. These gaskets consist of a combination of synthetic fibers, fillers, and elastomeric binders for highest chemical stability and heat resistance to 700°F .

Rotating Face:

Seal rotating faces in general can be presented in two classes, soft and hard. The choice is usually dictated by the application conditions which will be discussed under mechanical seal selection.

Carbon graphite is the most common soft material in use. Carbon rotating face used in Viking catalogued pumps are of a good general purpose grade, useful on the majority of applications. Many grades can be made available by seal suppliers for special applications. Some carbons are specifically intended for use with high temperature heat transfer liquids. Others are available for handling special acids, heavy oils, and low temperature refriger-

ants. A detailed discussion of carbon grades is beyond the scope of this article; suffice it to say that where special grades are needed they can be obtained.

A hard rotating face can be furnished in combination with a hard stationary face for an abrasive liquid application. Silicon carbide is the most commonly used abrasive resistant material today. Several grades are available providing chemical resistance on both sides of the pH scale as well as extreme hardness.

Stationary Seat:

The stationary seat material used most extensively by Viking Pump is Ni-resist. It is an austenitic high nickel alloy of cast iron. Ni-resist is more corrosion resistant than cast iron or steel. Stellite No. 3, a cobalt base material alloyed with chromium and tungsten, is the standard seat material used with mechanical seals in stainless pumps. It has good hardness and is corrosion resistant to the same liquids which can be safely handled in a stainless steel pump. Stellite does not always stand up well in aqueous solutions.

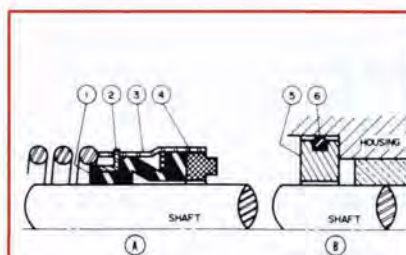


FIGURE 14. Non-pusher seal details. 1. Bellows, 2. Drive band, 3. Retainer (Holds parts together and drives rotating washer), 4. Rotating face, 5. Stationary seat, 6. Seat gasket (O-ring).

A carbon rotating face in combination with a ceramic stationary seat can be made available for a special application. This face combination is used by Viking on special acid service applications.

Tungsten carbide is extensively used as a stationary seat material in the petrochemical industry and applied on liquids that are on the basic side of the pH scale. It is an extremely hard material and in combination with a carbon rotating face provides good service in thin or mildly abrasive liquids.

There is a growing use of silicon carbide as a material for stationary seats. It ranks with tungsten carbide in hardness and is useful in either acid or basic service. Several grades of silicon carbide are

used by various seal vendors in either pusher type or bellows cartridge style seals. Viking's heavy-duty abrasive liquid pumps feature mechanical seals with a grade of silicon carbide for both rotating and stationary faces.

Metal Parts & Springs:

Catalogued pumps in iron or steel construction will have mechanical seals with plated steel* metal parts and springs. Catalogued stainless steel pumps use only mechanical seals containing 300 series stainless metal parts and springs. For special applications seal metal parts made from Monel, Carpenter 20 and the Hastelloys are available.

SEAL SELECTION:

Selection of the proper mechanical seal for a specific application depends upon knowing in detail the conditions under which the mechanical seal must operate. The product temperature, its abrasive content and the corrosive nature are all characteristics which influence selection of seal materials. Viscosity, specific gravity, operating pressure and pump speed have more effect on the design.

Temperature:

Catalogued mechanical seal pumps in cast iron construction handle applications from -20°F through $+225^{\circ}\text{F}$. Changing seal materials extends this range to -40°F . through $+450^{\circ}\text{F}$. For temperatures lower than -40°F . and higher than $+450^{\circ}\text{F}$., the seal must be mounted in the stuffing box. This location, more remote from the product, permits easier control of the seal environment.

Application Data Sheets AD-5 and 9 give additional information on seal selection for high temperatures plus a review of additional pump modifications or construction changes that may be necessary.

Abrasives:

A mechanical seal fitted with one soft face and one hard face will not stand up well in an abrasive environment. An abrasive application such as paint can be handled with an abrasive liquid seal designed with both faces, the rotating and stationary, made from silicon carbide. (The solvents necessary for thinning the paint or for flush-out after use will dictate the material of the secondary shaft seal and seat gaskets.) Pumps equipped with these abrasion resistant seals are slowed to about one-third rated catalog speed in order to avoid damaging the mechanical seal and other abrasion resistant parts of the pump and to give extended pump service life.

Mechanical seals which must be

mounted in the stuffing box are not recommended for abrasive liquid applications because the seal location leaves the main shaft support bushing exposed to the abrasive product.

Corrosion:

Mechanical seal metal parts are more sensitive to corrosive attack than would be the pump casing in a similar material because of their thin cross section and relatively large area of exposure. When considering a potentially corrosive application Viking recommends a more corrosion resistant metal for the seal construction than for the pump.

The seal seat material must resist any corrosive action of the liquid. Because there is always some heat generated at the seal face and since the portion of the seat in contact with the face is under constant stress, the liquid may attack the seat material more aggressively than standard corrosion charts would indicate. If there is any doubt about the suitability of the seat material, it is best to check with the seal supplier.

Viscosity:

A rubber bellows-type mechanical seal can handle viscosities to 15,000 SSU. This type of seal depends upon friction between the bellows I.D. and the shaft for driving force. Operation with liquid viscosities above the 15,000 SSU range may either physically tear the rubber bellows or overcome the frictional forces between the bellows and the shaft causing the shaft to spin within the bellows. See Figure 14.

For viscosities through 25,000 SSU a more positive drive system for the seal is required. A PTFE fitted type seal, locked to the shaft with setscrews, provides a more positive drive. Torque from the shaft is transmitted mechanically from the drive setscrews to the rotating washer. Viscosities above 25,000 SSU may cause the small diameter springs to gunk or "foul" and become inoperative.

With an even more rugged seal drive system, viscosities up to 75,000 SSU can be handled.

Viking's abrasive liquid seals, equipped with drive pins in the shaft, anchor pins in the seat and a large wide-open spring, work well at these viscosities if the material does not tend to stagnate or set up.

For handling viscosities above 75,000 SSU most often a packed pump is preferred. A seal with special environmental controls can sometimes be utilized.

If some dilution of the product can be tolerated, a seal can be mounted in the pump stuffing box. Then a thin liquid com-

patible with both the product and the seal is introduced into the pump at a pressure high enough to overcome product pressure. The pump operator must always be sure the seal chamber is pressurized before starting the pump.

Double seals in the stuffing box have been applied on high viscosity applications with some success. The seal chamber must be pressurized with a compatible liquid. This pressure should be 15 to 20 psi higher than the relief valve setting.

Pressures:

The maximum discharge pressure spelled out in each section of the Viking General Catalog is the maximum differential pressure the pump can be expected to develop and is based on the assumption that the suction pressure is 10 PSIG or less. The discharge pressures for which Viking catalogued pumps are designed fall within the realm of pressures usually handled by unbalanced seals.

For those applications involving high system pressures where the differential pressure across the seal (from the seal chamber to atmosphere) is higher than 250 PSIG, a balanced seal should be considered. Because the application of balanced seals requires extensive modification of the pump, details of the application should be reviewed by Viking personnel.

Standard seal face material combinations such as carbon vs. Ni-resist or carbon vs. Stellite are suitable for unbalanced seals. A face material combination of carbon vs. tungsten carbide will permit operation of unbalanced seals at higher pressures. This combination is also used for balanced seals.

Some seal manufacturers recommend the use of a balanced seal whenever handling a liquid with a specific gravity of less than 0.6 because of the high system pressure and possible vaporizing at the seal faces. It has been Viking's experience that liquids such as LP-Gas and ammonia with specific gravities between 0.5 and 0.6 can be satisfactorily handled with unbalanced seals. This success can be attributed to two factors —

1. The pressure in the seal chamber is well above the liquid vapor pressure while the pump is operating and
2. Many of the pump models for this service run at relatively low RPM's.

Normally Viking does not handle liquids having a specific gravity less than 0.5.

Shaft Speed:

Pump shaft speed (RPM) can play an important part in seal selection since the frictional heat generated at the faces is directly related to rubbing speed. On

*Stainless steel may be furnished for these seals at the supplier's option.

those applications where the generation of heat could result in localized vaporization, thus lack of lubrication, breakdown of the liquid or deterioration of the seal faces, then reduction of pump speed or use of a product flush to the seal chamber should be considered.

TROUBLESHOOTING SEAL FAILURES:

A mechanical face seal like any piece of equipment will sooner or later wear out or fail. The cause for a particular seal failure can be found among those listed under one of the following headings:

1. Failure at start up
2. Failure after long service
3. Failure related to a particular liquid or family of liquids
4. Other causes for seal leakage.

1. Failure At Start Up:

Most seal failures that occur during the first few hours of operation of a new or rebuilt pump result from either dry start, misapplication of the pump or an improperly installed seal.

Dry Start — Mechanical seal faces are frequently damaged when a pump is started dry i.e. when a valve on the suction side is left closed or for some other reason liquid is not available to the pump. The faces of the mechanical seal depend on a film of liquid for lubrication and cooling.

On a dry start up, there may not be enough lubricant left from the seal assembly to provide the necessary film and as a result, the temperature at the seal faces may rise very rapidly. This can cause seal distortion, can cause ceramics to crack from thermal shock or may cause Stellite to heat check. Heat checking of Stellite is manifested as a criss-cross pattern in the area of face contact. The hills and valleys formed by these crevices are irregular and tend to abrade away the face running against it.

Misapplication of the Pump

Start Up Flush — It is standard operating procedure in many large plants to clean and test a new system with water or some liquid other than the product. The operation of a positive displacement pump on water or other non-lubricating liquids containing dirt, pipe scale, welding beads, thread chips, etc. is definitely not recommended.

The pump and mechanical seal may suffer more damage from abrasives during this start up flush cycle than during months of operation on the intended service.

High Viscosity — As reviewed under Seal

Selection, there is a definite viscosity limit above which the different types of mechanical seals will not perform satisfactorily. On applications involving highly viscous liquids, it is absolutely essential that the pump be brought up to operating temperature before being started. Starting the pump cold or bringing in unheated liquid will result in the seal literally being torn apart from the "drag" of the viscous liquid.

There is a growing family of liquids which can be classified as thermosetting i.e. they tend to react and solidify in the presence of heat. Reaction of this type of liquid from the heat generated at the seal may cause the faces to become glued together, or the liquid viscosity may increase to the point of causing damage to the seal drive.

Some liquids such as latex emulsions have a tendency to coagulate or ball up when subjected to shearing action. Liquids of this type which are particularly sensitive to breakdown because of shearing action may require special pump modifications such as reduced speed and additional running clearances.

In some instances liquids of this type are better handled by a different pumping principle. The shearing action which takes place between the faces of a mechanical seal may cause a breakdown of shear-sensitive liquids which will make it impractical to consider further use of a pump with mechanical seal.

Improperly Installed Seal

Bellows Location — A common problem encountered when replacing mechanical seals is allowing the bellows to adhere to the shaft in the wrong place. The tail of the rubber bellows is expected to stick to the shaft shortly after it is located in its proper operating position. The inside diameter is an interference fit on the shaft. The bellows must be properly lubricated to permit it to be installed on the shaft and properly positioned. The bellows may stick in the wrong place because too little lubricant was used or because too much time elapsed between installing the bellows on the shaft and assembling the shaft into the pump. Particular attention should be given to the blind installation of double seals in the stuffing box to avoid this type of problem.

Instructions for the proper assembly procedure to follow when installing replacement seals can be found in the Technical Service Manual (TSM) bulletins or special instructions sent with each pump.

Spinning Bellows — Use of the wrong kind of lubricant, such as heavy grease, to install the seal may keep the bellows from adhering to the shaft. In this case, the

shaft will spin in the bellows with leakage occurring shortly thereafter.

Displaced Rotating Face — Another common assembly problem occurs when the carbon face slips out of the metal retainer when the rotating portion of the seal is installed on the shaft. If the drive notches in the face do not match up with the indentations in the retainer when the seal is assembled in the pump, the carbon will be cracked or cocked and the seal will leak. Most carbon rotating faces are cemented to the bellows with a temporary adhesive; in case there is no adhesive, a small amount of grease can be used to hold the carbon in place in the retainer.

It is never recommended that a new carbon face be run against a used seat or vice versa.

2. Failure After Long Service:

Abrasive Wear — A dirty liquid will abrade both the soft and hard faces of the seal in a standard catalogued pump. The soft carbon face usually wears first; particles of dirt or foreign material then become imbedded in the carbon and they in turn abrade away the harder material of the stationary seat.

Because the silicon carbide faces of an abrasive liquid seal are extremely hard they can withstand the abrasive wear of the paints and inks on which they are applied. Failure of this type seal from abrasion is due to excessive wear of the drive pins or "bayonetting" of the drive notches.

On systems where the intended purpose of the pump is to handle abrasive liquids, a flushing system from the pump discharge to the seal chamber extends the seal life by insuring that there will be no build-up of solids around the seal. This is Viking's standard approach with the heavy-duty abrasive liquid pumps. In some instances a clean liquid may be introduced from an outside source to insure that the mechanical seal is operating in a compatible environment.

Chemical Attack

Faces/Springs — Corrosion or chemical attack on the mechanical seal face materials destroys the lapped surfaces and allows the product to leak between the faces because they are no longer smooth enough to seal.

Corrosion can be especially damaging to the springs in the PTFE-type seal because they are of very small cross section and are under constant load (stress). Loss of strength or actual breaking of the springs allows leakage either because the load on the face is unbalanced or the faces separate when the seal chamber is not pressurized.

Secondary Seals That Swell — Solvents or other liquids may attack the elastomers used as secondary shaft seals and seat gaskets. Solvent attack is often seen in the form of excessive swell. Seat gaskets will exhibit cracking and shredding and grow extremely soft and flabby with excessive swell.

A swollen bellows may completely fill the cavity within the seal retainer and even extrude from beneath the drive band or push the rotating face out of the retainer. Swelling of the bellows may render the operating face immobile axially and if carried further may reduce the strength of the bellows to the point of allowing it to tear.

Secondary Seals That Shrink — Some liquids will remove the plasticizers from the elastomers used in the secondary seals. Under such attack, the elastomers will shrink and become hard and brittle.

Crystal or Residue Build-Up Outboard of the Seal:

Crystals — It is the nature of some liquids to form crystals in the presence of air or as their solvent evaporates. Since there is always a small amount of weepage across the seal faces, liquids with such characteristics can be difficult to handle because of the formation of abrasive crystals at the outside interface which abrade the seal faces.

Environmental control in the form of an external flush over the seal seat, the use of double seals with a compatible pressurizing solvent between the seals or immersion of the pump in the liquid so no seals are required are possible solutions. Application Data Sheet AD-15 has further discussions on this problem and its solutions.

Residue — Some liquids as they weep across the seal faces tend to leave a residue deposit at the seal interface. If the buildup continues at the interface until the seal faces are gradually forced open, the leakage then becomes self-perpetuating. The most practical solution to this problem is one of the environmental controls previously mentioned.

Temperature Problems

Hard Bellows — Bellows-type seals operating for long periods of time at or slightly above their maximum temperature capability will gradually experience shrinkage, hardening and cracking and will lose their effectiveness to provide secondary sealing.

PTFE Loss of Memory — The duty cycle of high temperature pumps fitted with **PTFE-type** seals sometimes presents a problem. PTFE has a tendency to "lose its memory" and change size after a number

of temperature cycles. A PTFE fitted mechanical seal may leak in high temperature service on a cold start up until the PTFE members have expanded to re-effect the secondary sealing. Leakage during start up may form deposits which cause seal hang up and damage to other parts of the pump.

Cold Seals — A mechanical seal applied on a very low temperature application or used in a pump installed in a cold room may suffer damage from deposits of ice formed at the outside of the interface. A buffer liquid such as alcohol or glycol may be applied to the outboard side of the seal to keep atmospheric moisture from coming in contact with the cold surfaces of the seal. Low temperatures tend to make elastomer seal parts inflexible.

3. Failures Relating to a Particular Liquid or Family of Liquids:

LP-Gas — Leakage of LP-Gas on a severely cold morning start up normally results from use of a seal design that loses its flexibility as the elastomer becomes stiff at low temperature. Expansion of the leaking gas produces a further refrigerating effect outboard of the seal faces which causes the elastomer to become more rigid.

Formation of ice crystals at the faces may further open and abrade the seal, making the failure self-perpetuating. Warming the seal area before start up or using a somewhat different seal design may help solve the problem.

Heavy Oils — Mechanical seals in pumps handling heavy lube oil sometimes exhibit cratering or pocking of the carbon face. This apparently is caused by oil in the pores of the carbon vaporizing and expanding when frictional heat is generated at the faces.

The seal will leak when there are enough craters to form a leakage path across the face. See Figure 14. Pocking or cratering is frequently the cause for seal failure in double seal ammonia pumps when an oil which is too viscous at low temperatures is used to pressurize the seal chamber. Refer to AD-2, Ammonia System Pumps.

Special carbons or metal washers may be required to solve this problem if the oil cannot be warmed up to reduce its viscosity or in the case of the double seals, if a lighter oil cannot be used.

Heat Transfer Liquids — Heat transfer liquids are quite thin at pumping temperatures and offer very little lubricity for the mechanical seal. Weepage from these liquids may form abrasive or "gunk" type

deposits on the shaft at the seal. These deposits clog up the clearances around the seal faces and the secondary shaft seal and may cause the seal to hang up or may actually force the seal faces apart.

Controlling the temperature on the outboard of the seal to a point at least 50°F. below the boiling point of the liquid or providing a buffer liquid can be helpful in reducing any tendency for the seal to hang up.

Scouring Agents — Solvent products tend to scour a piping system, especially at start up of a new layout. Abrasive particles not trapped in system filters often damage pumps and cause seal leakage until the system has been thoroughly purged. Ammonia and Freons are examples of scouring agents.

4. Other Causes for Seal Leakage:

Overgreasing — It is possible to force open the seal faces or disturb the seal seat in some models of pumps when lubricating the pump bracket bushing with a high pressure grease gun. While there is a fitting on the bracket to relieve excessive pressure, it may not relieve fast enough if cold or heavy grease is used.

When the mechanical seal is behind the rotor, Viking recommends that the carbon graphite casing or bracket bushing be lubricated with petrolatum (petroleum jelly) like Mobilarma #355. Grease should always be applied slowly with a hand gun. Refer to Engineering Service Bulletin ESB-515.

System Flush or Clean Out — It is not uncommon for a pumping system to have an occasional flush or cleanout for periodic maintenance or change of product. There are times when the flushing solvent or cleaning agent will attack the elastomer in a seal which was handling the normal product satisfactorily. Problems of this type can be overcome by changing the solvent or taking the pump out of the line when the system is being flushed.

Extended Storage — Occasionally a mechanical seal type pump will be put into stock as a spare or backup and will not be used for many months or years. It is possible during this time for the seal faces to stick together or for some swelling of the elastomers to take place. After extended storage, it is best to turn the pump over by hand or possibly to disassemble it to examine the seal before putting it into service.

Unpressurized Double Seals — The chamber between double seals must be pressurized to insure that the seals will

function properly. A frequent source of failure of double seals comes from forgetting to pressurize the seal chamber before starting the pump. This pressure should be 15 to 20 psi higher than the relief value setting.

Tandem Seal Lubrication — Occasionally the lubrication chamber between tandem (See Figure 11) mounted seals is pressurized on the mistaken assumption that the sealing principle is the same as for double seals. (See Figure 8) Lubrication for the tandem mounted (barrier liquid) seal should be at atmospheric pressure. Otherwise the product side seal may be forced open.

NOTE: Identification tags are attached to the seal inlet chamber on pumps built with tandem or double seals to indicate whether or not pressurization of chamber is required.

Seals have several distinct advantages over packing:

1. They are virtually leak-free; this saves product, reduces mess, reduces corrosion, eliminates possible health hazards.
2. Do not require frequent attention and adjustment.
3. Do not require outside lubrication.
4. May in some cases be less expensive.
5. Reduce inward leakage of air on vacuum applications.
6. Eliminate shaft wear.

Seals do have some disadvantages:

1. When a seal fails, the leakage is

sometimes copious and may require immediate shutdown of the pump.

2. Often times it is necessary to completely disassemble the pump to replace or repair a seal.
3. The selection of one seal type and material for use in a pump or line of pumps intended for a wide variety of services is difficult if not impossible.
4. For unusual or severe operating conditions a seal can be very expensive, sometimes exceeding the cost of the

pump.

5. Successful operation may depend upon considerable auxiliary equipment, e.g., flush lines, pressurizing systems, cooling lines, etc.

The major seal suppliers do have excellent resource material covering seal design, materials of construction, seal selection and troubleshooting. We urge, if you have interest in further information regarding these areas, that you contact a specific seal supplier.



FIGURE 15. Example of pocked or cratered carbon washer. Typical of failures seen in model 4925 pumps with heavy (viscous) oil.

VIKING PUMP, INC., A Unit of IDEX Corporation
Cedar Falls, Iowa 50613 • Telephone (319) 266-1741 • Telex 465-632
Cable "Viking" • FAX (319) 273-8157

[illegible]

ITEM NUMBER	WORLD ENERGY TAGS
PW532C.1/1	19-P-759A
PW532C.1/2	19-P-759B
PW532C.2/1	19-P-859A
PW532C.2/2	19-P-859B

VIKING PUMP[®]

CURVE GENERATOR

Pump Series

4127A

Pump Size

K

Viscosity

11

Units

cP

Differential Pressure

36

Units

PSI

Specific Gravity

☒ Speed (RPM)☐ Flow Rate

Units

GPM

Application / Liquid

337

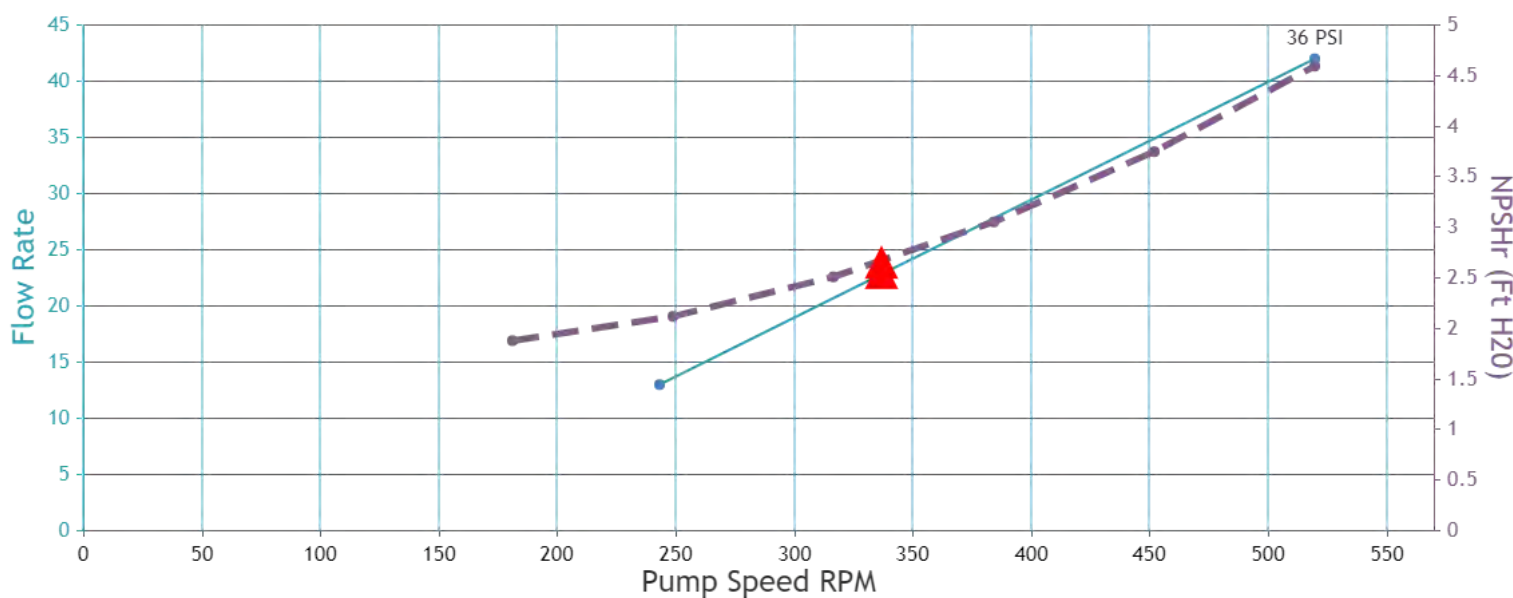
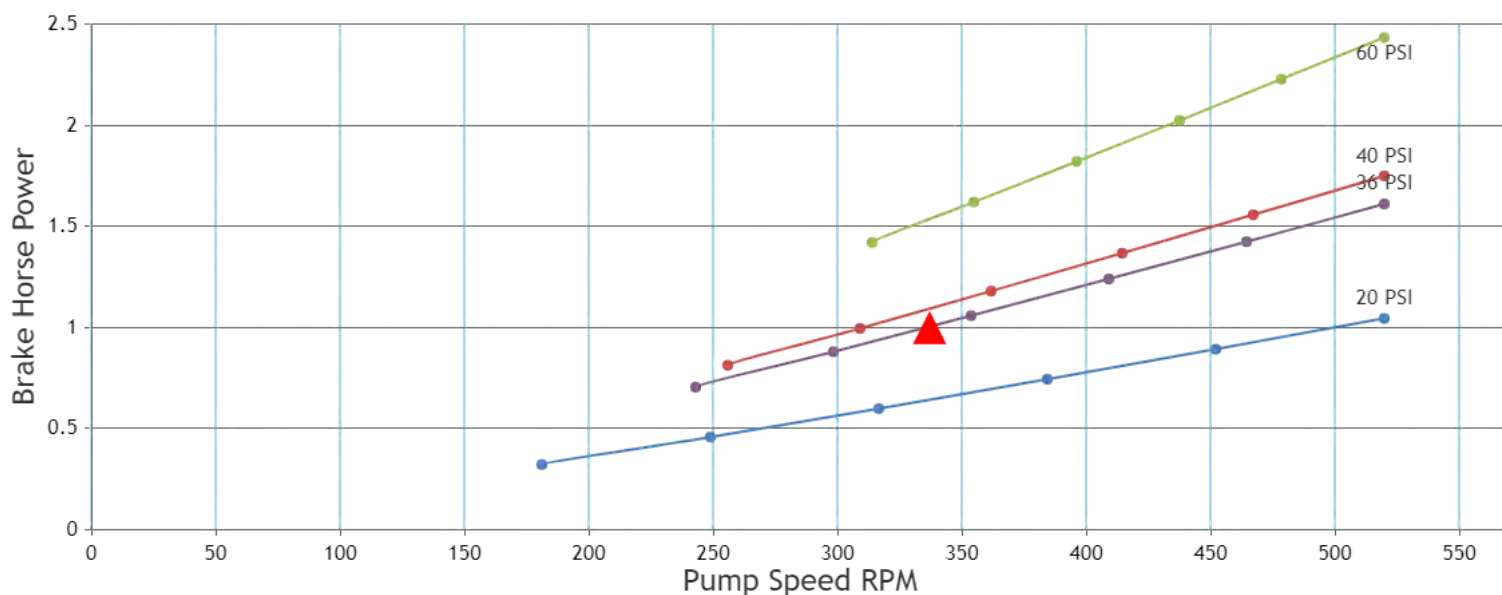
Input Speed: 337 (RPM)

Calculated Flow: 22.7 (GPM)

Power at Input Speed: 1.00 (BHP)

NPSHr: 2.7 (Ft H₂O)

PERFORMANCE CURVES



ITEM NUMBER	WORLD ENERGY TAGS
PW532C.1/1	19-P-759A
PW532C.1/2	19-P-759B
PW532C.2/1	19-P-859A
PW532C.2/2	19-P-859B



Jaw

In This Section:

- L Type
- LC Type
- Al Type - Aluminum
- SS Type - Stainless
- RRS and RRSC Types - Spacer
- C and H Type - Medium / Heavy Duty
- RRC Type - Spacer





Jaw



Safety Warning

When using Lovejoy products, you must follow these instructions and take the following precautions. Failure to do so may cause the power transmission product to break and parts to be thrown with sufficient force to cause severe injury or death.

Refer to this Lovejoy Catalog for proper selection, sizing, horsepower, torque range, and speed range of power transmission products, including elastomeric elements for couplings. Follow the installation instructions included with the product, and in the individual product catalogs for proper installation of power transmission products. Do not exceed catalog ratings.

During start up and operation of power transmission product, avoid sudden shock loads. Coupling assembly should operate quietly and smoothly. If coupling assembly vibrates or makes beating sound, shut down immediately, and recheck alignment. Shortly after initial operation and periodically thereafter, where applicable, inspect coupling assembly for: alignment, wear of elastomeric element, bolt torques, and flexing elements for signs of fatigue. Do not operate coupling assembly if alignment is improper, or where applicable, if elastomeric element is damaged, or worn to less than 75% of its original thickness.

Do not use any of these power transmission products for elevators, man lifts, or other devices that carry people. If the power transmission product fails, the lift device could fall resulting in severe injury or death.

For all power transmission products, you must install suitable guards in accordance with OSHA and American Society of Mechanical Engineers Standards. Do not start power transmission product before suitable guards are in place. Failure to properly guard these products may result in severe injury or death from personnel contacting moving parts or from parts being thrown from assembly in the event the power transmission product fails.

If you have any questions, contact the Lovejoy Engineering Department at 1-630-852-0500.



Jaw

Table of Contents

	Running Page No.	Section Page No.
Overview.....	16	JW-4
Elastomers > Overview	17	JW-5
Selection Process.....	18	JW-6
Application Service Factors > Selection Data	20	JW-8
Performance Data	21	JW-9
L Type Spiders / Hub Spline Bores > Item Selection.....	22	JW-10
L Type Inch Bore / Keyway > Item Selection	23	JW-11
L Type Metric Bore / Keyway > Item Selection	24	JW-12
LC Type Inch Bore / Keyway > Item Selection	25	JW-13
LC Type Spiders / Metric Bore / Keyway > Item Selection	26	JW-14
AL and SS Type Inch Bore / Keyway > Item Selection	27	JW-15
AL Type Spiders / Metric Bore / Keyway > Item Selection	28	JW-16
RRS and RRSC Type / Inch Bore / Keyway > Item Selection	29	JW-17
RRS Type Spacer / Metric Bore / Keyway > Item Selection	30	JW-18
C Type Cushions / Collar and Inch / Metric Bore / Keyway	31	JW-19
H Type Cushions / Collar and Inch / Metric Bore / Keyway	32	JW-20
RRC Type Spacer / Adapter Hubs.....	33	JW-21
L, AL, LC, C, H, and RRS Type Ratings > Performance Data.....	34	JW-22
Elastomers > Dimensional Data	35	JW-23
L, C and H Type > Dimensional Data	36	JW-24
LC and AL Type > Dimensional Data.....	37	JW-25
RRS and RRC Type > Dimensional Data.....	38	JW-26
RRS Type Metric Spacer, L Type Special Lengths > Dimensional Data.....	39	JW-27



Table of Contents

Jaw

Overview

JW

Jaw Type Couplings

The Jaw Type couplings from Lovejoy are offered in the industry's largest variety of stock bore/keyway combinations. These couplings require no lubrication and provide highly reliable service for light, medium, and heavy duty electrical motor and internal combustion power transmission applications.

Features

- Fail-safe – will still perform if elastomer fails
- No metal to metal contact
- Resistant to oil, dirt, sand, moisture and grease
- More than 850,000 combinations of bore sizes
- Most types available from stock in 24 hours



L Type

LC Type

Applications include power transmission to industrial equipment such as pumps, gear boxes, compressors, blowers, mixers, and conveyors. Lovejoy's Jaw Type couplings are available in 24 sizes from a minimum torque rating of 3.5 in-lbs to a maximum torque rating of 170,004 in-lbs and a bore range of .125 inches to 7 inches. Lovejoy's standard bore program covers AGMA, SAE, and DIN bore/keyway and spline bore combinations.

The Lovejoy Jaw Type coupling is available in a variety of metal hub and insert materials. Hubs are offered in sintered metal, aluminum, bronze, steel, stainless steel, and ductile iron.

L Type

- Coupling offers standard shaft-to-shaft connection for general industrial duty applications
- Standard L Type coupling hub materials are either sintered iron (L035-L190) or cast iron (L225-L276)



AL Type Jaw



SS Type

LC Type

- Uses the standard L Type hubs with a snap wrap spider and retaining ring
- Suited for applications over 1,750 RPM

AL Type

- Aluminum hubs offer light weight with low overhung load and low inertia
- Excellent resistance to atmospheric conditions, perfect for corrosive environment applications

SS Type

- The SS Type coupling provides maximum protection against harsh environmental conditions
- Sizes SS075-SS150 available from stock, other sizes available on request



RRS Type

RRS Type

- Center "drop out" section of this coupling provides proper shaft separation, while also allowing easy elastomer installation without disturbing the hubs or requiring the realignment of shafts
- Accommodates American and European industry standard pump/motor shaft separations
- The spacer is made of glass reinforced plastic, cast iron, or aluminum

SW Type

- Standard L Type coupling with a snap wrap elastomer with retaining ring
- Well suited for standard shaft to shaft connection in general industrial purpose applications under 1,750 RPM



SW Type



C & H Types

C & H Types

- Couplings provide standard shaft-to-shaft connection for medium (C) and Heavy (H) duty range applications
- Standard C coupling hub is made of cast iron, while the H is constructed of ductile iron



Elastomers In Compression

Lovejoy offers four types of elastomer designs to allow for additional flexibility in addressing specific application requirements. One piece designs are used in the “L” and “AL” models (referred to as spiders) and multiple part “load cushions” are used in the “C” and “H” model couplings. The load cushions are in sets of 6 to 14 pieces depending on coupling size.

Solid Center Spider

- The solid center design is commonly used design when shafts of the driver and driven equipment can be kept separate by a standard gap

Open Center Spider

- The open center design allows for the shafts of the driver and driven to be positioned within a short distance
- Open center spiders offer shaft positioning flexibility but have a lower RPM capacity (1,750 RPM maximum for NBR, 3,600 maximum for Urethane/Hytrel®)

Cushions

- Used exclusively for the C and H Type couplings
- Load cushions are held in place radially by a steel collar which is attached to one of the hubs

Snap Wrap Flexible Spider

- Design allows for easy removal of the spider without moving the hubs
- Allows for close shaft separation all the way up to the hubs maximum bore
- Maximum RPM is 1,750 RPM with the retaining ring, but if used with the LC Type (with collar) the normal RPM rating of the coupling applies
- Style is available in NBR and Urethane only, and in limited sizes

Note: ■ Complete technical data for the new Jaw In-Shear elastomer is contained in the next section of this catalog, labeled “JIS” on the page tabs.



Spider Materials

SOX (NBR) Rubber

- The standard material that is highly flexible material that is oil resistant
- Resembles natural rubber in resilience and elasticity, and operates effectively in temperature ranges of -40° to 212° F (-40° to 100° C)

Urethane

- Has 1.5 times greater torque capacity than NBR
- Good resistance to oil and chemicals
- Material provides less dampening effect and operates at a temperature range of -30° to 160° F

Hytrel

- Flexible elastomer designed for high torque and high temperature operations
- Operates in temperatures of -60° to 250° F (-51° to 121° C)

Bronze

- Rigid, porous, oil-impregnated metal insert exclusively for low speed (max 250 RPM) applications requiring high torque capabilities
- Not affected by water, oil, dirt, or extreme temperatures – operates in temperatures of -40° to 450° F (-40° to 232° C)



WARNING

You must refer to page JW-2 (Page 14) for Important Safety Instructions and Precautions for the selection and use of these products. Failure to follow the instructions and precautions can result in severe injury or death.



Selection Process

JW

Jaw Type Coupling Selection Process

The selection process for determining the proper jaw coupling size and elastomer requires using the charts shown on the following pages. There are three components to be selected, two hubs and one elastomer. When the shaft size of the driver and driven of the application are of the same diameter, the hubs selected will be the same. When shaft diameters differ, hubs selected will differ accordingly.

Information necessary before a coupling can be selected:

- HP (or KW) and RPM or Torque of driver
- Shaft sizes of driver and driven equipment and corresponding keyways
- Application description
- Environmental conditions (i.e. extreme temperature, corrosive conditions, space limitations)

List of Charts provided for Selection:

- Chart 1 – Application Service Factors (page JW-8)
- Chart 2 – Spider Performance Data (page JW-9)
- Chart 3 – Jaw Nominal Rated Torque (page JW-9)
- Jaw Type Performance Ratings (page JW-22)

Formulas:

$$\text{Nominal Torque} = \text{in-lb} = \frac{(\text{HP} \times 63025)}{\text{RPM}}$$

$$\text{Nm} = \frac{(\text{KW} \times 9550)}{\text{RPM}}$$

$$\text{Design Torque} = \text{Nominal Torque} \times \text{Application Service Factor}$$

Steps In Selecting A Jaw Coupling

Step 1: Determine the Nominal Torque of your application by using the following formula:

$$\text{Nominal Torque} = \text{in-lb} = \frac{(\text{HP} \times 63025)}{\text{RPM}}$$

$$\text{Nm} = \frac{(\text{KW} \times 9550)}{\text{RPM}}$$

Step 2: Using the Application Service Factors Chart 1 (page JW-8) select the service factor which best corresponds to your application.

Step 3: Calculate the Design Torque of your application by multiplying the Nominal Torque calculated in Step 1 by the Application Service Factor determined in Step 2.

$$\text{Design Torque} = \text{Nominal Torque} \times \text{Application Service Factor}$$

Step 4: Using the Spider Performance Data Chart 2 (page JW-9), select the elastomer material which best corresponds to your application.

Step 5: Using the Jaw Nominal Rated Torque Chart 3 (page JW-9), locate the appropriate elastomer material column for the elastomer selected in Step 4.

Scan down this column to the first entry where the Torque Value in the appropriate column is greater than or equal to the Design Torque calculated in Step 3.

Once this value is located, refer to the corresponding coupling size in the first column of the Jaw Nominal Rated Torque Chart 3 (page JW-9).

Refer to the maximum RPM value (page JW-22) for this elastomer torque capability to ensure that the application requirements are met. If the requirement is not satisfied at this point, another type of coupling may be required for the application. Please consult Lovejoy engineering for assistance.

Step 6: Compare the application driver/driven shaft sizes to the maximum bore size available on the coupling selected. If coupling bore size is not large enough for the shaft diameter, select the next largest coupling that will accommodate the driver/driven shaft diameters. Refer to Chart 3 (page JW-9).

Step 7: Using the UPC number selection table (pages JW-11 or JW-12), find the appropriate Bore and Keyway sizes required and locate the Lovejoy UPC number.



Selection Process

Selection Example

A coupling is needed to connect a 20 HP standard electric motor rated at 1,800 RPM to a rotary pump. The shaft size of the electric motor (driver) is 2.0 inches and the pump (driven) is 1.75 inches. There are no special environmental conditions and the general operating temperature is normal room temperature of 72° F. Less than 1° of misalignment is expected.

Step 1: Determine the Nominal Torque:

$$\begin{aligned}\text{Nominal Torque} &= \frac{(\text{HP} \times 63025)}{\text{RPM}} \\ &= \frac{(20 \times 63025)}{1800} \\ &= 700.28 \text{ in-lb}\end{aligned}$$

Step 2: Using the Application Service Factors Chart 1 (page JW-8), select the service factor which best corresponds to your application. The Application Service Factor for an electric motor with standard torque driving a rotary pump is 1.25. The value of 1.25 is found under the application category Pumps, Rotary, column: Electric Motor w/Standard Torque in Chart 1.

Step 3: Calculate the Design Torque of your application:

$$\begin{aligned}\text{Design Torque} &= \text{Nominal Torque} \times \text{Application Service Factor} \\ &= 700.28 \times 1.25 \\ &= 875.35 \text{ in-lb}\end{aligned}$$

Step 4: Using the Spider Performance Data Chart 2 (page JW-9), select the elastomer material which best corresponds to your application. Since there are no special environmental conditions, the operating temperature is 72° F and less than 1° of angular misalignment is required, the NBR elastomer material is selected.

Step 5: Using the Jaw Nominal Rated Torque Chart 3 (page JW-9), the NBR elastomer column is used to determine the proper coupling size. Scanning down the NBR column, the first entry to accommodate the Design Torque value of 875.35 in-lb is the size L150 with a nominal torque rating of 1,240 in-lb. Referring to page JW-20, the maximum RPM of 1,800 on the electric motor of the application does not exceed the 5,000 RPM maximum allowed for the L150 size coupling with an NBR elastomer.

Step 6: Compare the application driver/driven shaft size to the maximum bore available in the coupling selected (page JW-9). The electric motor (driver) of this application has a shaft size of 2.0 inches and the pump (driven) has a shaft size of 1.75 inches. The L150 coupling has a maximum bore less than the driver shaft size. Continuing down the Maximum Bore column, in Chart 3 (page JW-9), the L190 size is found to have a maximum bore size of 2.125 and is able to accommodate the driver/driven shaft sizes. Therefore, the proper coupling size for this application is a Lovejoy L190 with an NBR elastomer.

Step 7: Using the UPC number Selection table, locate the appropriate Lovejoy UPC numbers. The L Type Spider Table (page JW-10), and the L Type hub table (page JW-11), provides easy reference to the Lovejoy UPC numbers.

Locate the L Type Spider Table (page JW-10).

The spider is selected by scanning down the type column and locating the NBR (Solid) entry. Read across to the L190 column and locate the Lovejoy UPC number of 12274. This number should be prefixed with the Lovejoy UPC number of 685144.

Locate the L Type Hub Table (page JW-11).

The first bore size to be located is for the 2 inch shaft on the electric motor. Scan down the Bore/Keyway column to the 2 inch bore entry. Read across to the L190 column to locate the Lovejoy UPC number of 12303. This number should be prefixed with the Lovejoy UPC number of 685144.

The second bore size to be located is for the 1.75 inch shaft on the pump. Scan down the Bore/Keyway column to the 1-3/4 inch bore entry. Read across to the L190 column to locate the Lovejoy UPC number of 12299. This number should be prefixed with the Lovejoy UPC number of 685144.



Table of Contents

Jaw

Application Service Factors

Selection Data

Application Service Factors

Chart 1

	Service Factors						Service Factors						Service Factors					
	Electric Motor w/ Standard Torque	Electric Motor w/ High Torque	Steam Turbines & En- gines w4 or more cyl*	Reciprocating Engines*			Electric Motor w/ Standard Torque	Electric Motor w/ High Torque	Steam Turbines & En- gines w4 or more cyl*	Reciprocating Engines*			Electric Motor w/ Standard Torque	Electric Motor w/ High Torque	Steam Turbines & En- gines w4 or more cyl*	Reciprocating Engines*		
				1-Cyl	2-Cyl					1-Cyl	2-Cyl	1-Cyl				2-Cyl		
Agitators	1.00	1.25	1.00	1.7	1.3	Feeders												
Band Resaw (lumber).....	1.50	1.75	1.50	2.2	1.8	Belt, Screw	1.00	1.25	1.00	1.7	1.3		Beater, Pulper,					
Barge Haul Puller	2.00	2.25	2.00	2.7	2.3	Reciprocating	2.50	2.75	2.50	3.2	2.8		Jordans, Dresses	2.00	2.25	2.00	2.7	2.3
Beaters	1.50	1.75	1.50	2.2	1.8	Filter, Press-oil	1.50	1.75	1.50	2.2	1.8		Calenders, Dryers, Washers,					
Blowers													Thickener.....	1.50	1.75	1.50	2.2	1.8
Centrifugal	1.00	1.25	1.00	1.7	1.3	Generators							Converting Machines,					
Lobe, Vane	1.25	1.50	1.25	2.0	1.6	Not Welding.....	1.00	1.25	1.00	1.7	1.3		Conveyors	1.20	1.45	1.20	1.9	1.5
Bottling Machinery	1.25	1.50	1.25	2.0	1.6	Welding.....	2.00	2.25	2.00	2.7	2.3		Printing Presses	1.50	1.75	1.50	1.7	1.3
Brew Kettles (distilling) ..	1.25	1.50	1.25	2.0	1.6	Hoist	1.50	1.75	1.50	2.2	1.8		Pug Mill	1.75	2.00	1.75	2.0	1.6
Can Filling Machinery ..	1.00	1.25	1.00	1.7	1.3	Hammermills	2.00	2.25	2.00	2.7	2.3		Pumps					
Car Dumpers	2.50	2.75	2.50	3.2	2.8	Kilns	1.50	1.75	1.50	2.2	1.8		Centrifugal	1.00	1.25	1.00	1.7	1.3
Car Pullers	1.50	1.75	1.50	2.2	1.8	Laundry Washers —							Gear, Rotary, Vane	1.25	1.50	1.25	2.0	1.6
Card Machine	1.75	2.00	1.75	2.5	2.0	Reversing	2.00	2.25	2.00	2.7	2.3		Reciprocating:					
Chiller (oil)	1.50	2.00	1.25	2.0	2.0	Lumber Machinery							1-Cyl. Single or					
Compressors						Barkers, Edger Feeder,							Double Acting	2.00	2.25	2.00	2.7	2.3
Centrifugal	1.00	1.25	1.00	1.7	1.3	Live Roll.....	2.00	2.25	2.00	2.7	2.3		2-Cyl. Single Acting	2.00	2.25	2.00	2.7	2.3
Screw, Lobe.....	1.25	1.50	1.25	2.0	1.6	Planer, Slab Conveyor.....	2.00	2.25	2.00	2.7	2.3		2-Cyl. Double Acting	1.75	2.00	1.75	2.5	2.0
Reciprocating	See Note					Machine Tools							3 or more Cyl.....	1.50	1.75	1.50	2.2	1.8
Conveyors, Uniformly Fed						Punch Press-gear Driven,							Rubber Machinery					
Assembly, Belt, Screw ..	1.00	1.25	1.00	1.7	1.3	Plate Planer	2.00	2.25	2.00	2.7	2.3		Mixers	2.50	2.75	2.50	3.2	2.8
Bucket, Sawdust.....	1.25	1.50	1.25	2.0	1.6	Tapping Machinery,							Rubber Calender	2.00	2.25	2.00	2.7	2.3
Live Roll, Shaker,						Bending Roll	2.00	2.25	2.00	2.7	2.3		Screens					
Reciprocating	3.00	3.25	3.00	3.7	3.3	Main Drive	1.50	1.75	1.50	2.2	1.8		Air washing, Water.....	1.00	1.25	1.00	1.7	1.3
Conveyors, Not Uniformly Fed						Auxiliary Drives.....	1.00	1.25	1.00	1.7	1.3		Rotary—stone or gravel,					
Assembly, Belt,						Metal Forming Machines							Dewatering	1.50	1.75	1.50	2.2	1.8
Oven, Screw	1.20	1.45	1.20	1.9	1.5	Draw Bench-carriage							Vibrating	2.50	2.75	2.50	3.2	2.8
Reciprocating	2.50	2.75	2.50	3.2	2.8	& Main Drive.....	2.00	2.25	2.00	2.7	2.3		Grizzly.....	2.00	2.25	2.00	2.7	2.3
Shaker	3.00	3.25	3.00	3.7	3.3	Extruder, Forming Machine,							Shredders	1.50	1.75	1.50	2.2	1.8
Cookers—Brewing, Distilling,						Wire Drawing.....	2.00	2.25	2.00	2.7	2.3		Steering Gears	1.00	1.25	1.00	1.7	1.3
Food	1.25	1.50	1.25	2.0	1.6	Table Conveyors.....	2.50	2.75	2.50	3.2	2.8		Stokers	1.00	1.25	1.00	1.7	1.3
Cranes & Hoist !	2.00	2.25	2.00	2.7	2.3	Wire Winding, Coilers,							Suction Roll (paper).....	1.50	1.75	1.50	2.2	1.8
Crushers—Cane (sugar), Stone, or Ore						Slitters.....	1.50	1.75	1.50	2.2	1.8		Textile Machinery					
.....	3.00	3.25	3.00	3.7	3.3	Mills, Rotary Type							Dryers, Dyeing Machinery,					
Dredges						Ball, Kilns, Pebble,							Mangle.....	1.20	1.45	1.20	2.0	1.6
Cable reels	2.00	2.25	2.00	2.7	2.3	Rolling, Tube	2.00	2.25	2.00	2.7	2.3		Loom, Spinner,					
Conveyors, Pumps,						Cement Kilns,							Tenter frames.....	1.50	1.75	1.50	2.2	1.8
Maneuvering Winches.....	1.50	1.75	1.50	2.2	1.8	Dryers, Coolers	2.00	2.25	2.00	2.7	2.3		Tumbling Barrels	1.75	2.00	1.75	2.5	2.0
Cutter Head Drives.....	2.50	2.75	2.50	3.2	2.8	Tumbling.....	1.50	1.75	1.50	2.2	1.8		Windlass	2.00	2.25	2.00	2.7	2.3
Dynamometer	1.50	1.75	1.50	2.2	1.8	Mixers							Woodworking Mach.	1.00	1.25	1.00	1.7	1.3
Evaporators	1.00	1.25	1.00	1.7	1.3	Concrete, continuous ..	1.75	2.00	1.75	2.5	2.0							
Fans						Muller.....	1.50	1.75	1.50	2.2	1.8							
Centrifugal	1.00	1.25	1.00	1.7	1.3	Paper Mills												
Cooling Towers.....	2.00	2.25	2.00	2.7	2.3	Agitator (mixers),												
Forced Draft,						Reel, Winder.....	1.20	1.45	1.20	1.9	1.5							
Propeller	1.50	1.75	1.50	2.2	1.8	Winder	1.20	1.45	1.20	1.9	1.5							
Induced draft						Barker (mechanical),												
w/damper control.....	2.00	2.25	2.00	2.7	2.3	Log Haul, Chipper	2.00	2.25	2.00	2.7	2.3							
Induced draft w/o						Barking Drum												
damper control	1.25	1.50	1.25	2.0	1.6	(spur gear).....	2.50	2.75	2.50	3.2	2.8							

Caution: Applications involving reciprocating engines and reciprocating driven devices are subject to critical rotational speeds which may damage the coupling and/or connected equipment. Contact Lovejoy Engineering with specific requirements.

Note: ■ 1 indicates: If people are transported, Lovejoy does not recommend and will not warranty the use of the coupling.



Table of Contents

Jaw

Performance Data

Spider Performance Data

Chart 2

Characteristics	Temperature Range	Misalignment		Shore Hardness ¹	Dampening Capacity	Chemical Resistance ²	Color
		Angular Degree	Parallel Inch				
SOX (NBR) Rubber – Nitrile Butadiene (Buna N) Rubber is a flexible elastomer material that is oil resistant, resembles natural rubber in resilience and elasticity and operates effectively in temperature range of -40° to 212° F (-40° to 100° C). Good resistance to oil. Standard elastomer. (Also applies to SXB Cushions.)	-40° to 212° F -40° to 100° C	1°	.015	80A	HIGH	GOOD	BLACK
URETHANE – Urethane has greater torque capability than NBR (1.5 times), provides less dampening effect, and operates at a temperature range of -30° to 160° F (-34° to 71° C). Good resistance to oil and chemicals. Not recommended for cyclic or start/stop applications.	-30° to 160° F -34° to 71° C	1°	.015	55D L050-L110 90-95A L150-L225	LOW	VERY GOOD	BLUE
HYTREL® – Hytrel is a flexible elastomer designed for high torque and high temperature operations. Hytrel can operate in temperatures of -60° to 250° F (-51° to 121° C) and has an excellent resistance to oil and chemicals. Not recommended for cyclic or start/stop applications.	-60° to 250° F -51° to 121° C	1/2°	.015	55D	LOW	EXCELLENT	TAN
BRONZE – Bronze is a rigid, porous oil-impregnated metal insert exclusively for slow speed (maximum 250 RPM) applications requiring high torque capabilities. Bronze operations are not affected by extreme temperatures, water, oil, or dirt.	-40° to 450° F -40° to 232° C	1/2°	.010	—	NONE	EXCELLENT	BRONZE

Notes: ■ 1 indicates: NBR standard shore hardness is 80A ±5A – Except L035=60A. Other softer or harder designs are available in NBR material; consult Lovejoy.
 ■ 2 indicates: Chemical Resistance chart shown in Engineering Data Section (page ED-9).

Jaw Nominal Rated Torque Data

Chart 3

Size	Max Bore		Spider Material							
	in	mm	SOX (NBR) Torque		Urethane Torque		Hytrel Torque		Bronze Torque	
			in-lbs	Nm	in-lbs	Nm	in-lbs	Nm	in-lbs	Nm
L035	0.375	9	3.5	0.4	—	—	—	—	—	—
L/AL050	0.625	16	26.3	3.0	39	4.5	50	5.60	50	5.60
L/AL070	0.750	19	43.2	4.9	65	7.3	114	12.90	114	12.90
L/AL075	0.875	22	90.0	10.2	135	15.3	227	25.60	227	25.60
L/AL090	1.000	25	144.0	16.3	216	24.4	401	45.30	401	45.30
L/AL095	1.125	28	194.0	21.9	291	32.9	561	63.40	561	63.40
L/AL099	1.188	30	318.0	35.9	477	53.9	792	89.50	792	89.50
L/AL100	1.375	35	417.0	47.1	626	70.7	1,134	128.00	1,134	128.00
L/AL110	1.625	42	792.0	89.5	1,188	134.0	2,268	256.00	2,268	256.00
L150	1.875	48	1,240.0	140.0	1,860	210.0	3,708	419.00	3,706	419.00
AL150	1.875	48	1,450.0	163.8	—	—	—	—	—	—
L190	2.125	55	1,728.0	195.0	2,592	293.0	4,680	529.00	4,680	529.00
L225	2.625	65	2,340.0	264.0	3,510	397.0	6,228	704.00	6,228	704.00
L276	2.875	73	4,716.0	533.0	—	—	—	—	12,500	1 412.00
C226	2.500	64	2,988.0	338.0	—	—	5,940	671.00	5,940	671.00
C276	2.875	73	4,716.0	533.0	—	—	9,432	1 066.00	—	—
C280	3.000	76	7,560.0	854.0	—	—	13,866	1 567.00	—	—
C285	4.000	102	9,182.0	1 038.0	—	—	16,680	1 882.00	—	—
C295	3.500	89	11,340.0	1 281.0	—	—	22,680	2 563.00	22,680	2 563.00
C2955	4.000	102	18,900.0	2 136.0	—	—	37,800	4 271.00	37,800	4 271.00
H3067	4.500	114	33,395.0	3 774.0	—	—	47,196	5 333.00	47,196	5 333.00
H3567	5.000	127	46,632.0	5 269.0	—	—	63,000	7 119.00	63,000	7 119.00
H3667	5.629	143	64,812.0	7 323.0	—	—	88,200	9 966.00	88,200	9 966.00
H4067	6.250	159	88,224.0	9 969.0	—	—	126,000	14 237.00	126,000	14 237.00
H4567	7.000	178	119,700.0	13 525.0	—	—	170,000	19 209.00	170,000	19 209.00

Note: ■ Bronze has a maximum RPM capability of 250 RPM.



Table of Contents

Jaw

L Type Spiders / Hub Spline Bores

Item Selection

JW

L Type Coupling

- Sizes range from L035 to L276
- Ordering requires selecting UPC numbers for two standard L hubs and one standard open or solid center elastomer (spider)

SW Type Coupling

- Sizes range from L090 to L190
- Ordering requires selecting UPC numbers for two standard L hubs and one snap wrap spider with snap ring
- Both L and SW Type couplings, select hubs from the standard bore and keyway chart (pages JW-11 and JW-12) maximum RPM for SW + Ring is 1,750 RPM
- LC coupling uses a snap wrap spider with a collar instead of a retaining ring

Jaw In-Shear Coupling

- Ordering requires selecting item numbers for two standard hubs, one In-Shear elastomer and one In-Shear ring. See pages JIS-1 through JIS-4

**L Type Spider UPC Number Selection Table**

Spider Type	Coupling Size										
	L035	L050	L070	L075	L090/095	L099/100	L110	L150	L190	L225	L276
SOX (NBR) (Solid)	10118	10194	10406	10621	11070	11494	11724	12001	12274	12409	—
SOX (NBR) (open center)	—	—	10393	10620	10968	11492	11711	37880	37881	12406	12612
Urethane (Solid)	—	37786	10395	—	—	—	—	—	—	12417	—
Urethane (open center)	—	—	10411	10626	11075	11499	11729	12006	12280	—	—
Hytrel® (Solid)	—	25307	—	—	—	—	11717	11993	12265	12401	—
Hytrel® (open center)	—	—	25308	25309	25310	11486	38097	38098	38099	12400	—
Bronze (open center)	—	10198	10409	10624	11073	11497	11727	12004	12277	34517	25767
Snap Wrap (NBR) w/ring	—	—	—	—	24669	24670	24671	24672	24673	—	—
Snap Wrap (NBR) w/o ring	—	—	—	—	11071	11495	11725	12002	12275	—	—
SOX (NBR) Bulk - pk 25	50115	50116	50117	50118	50119	—	—	—	—	—	—
SOX (NBR) Bulk - pk 10	—	—	—	—	—	51020	50121	50122	—	—	—
Snap Wrap Urethane - solid ring	—	—	—	—	—	41170	41171	—	28284	26093	—
In-Shear Elastomer	—	—	—	—	67576	67577	67578	67579	67580	68559	67581
In-Shear Ring	—	—	—	—	67584	67585	67586	67587	67588	68560	67589

Note: ■ When referencing the Lovejoy UPC number in this table, include 685144 as a prefix to the number shown.

L Type Hub - Spline Bore UPC Number Selection Table

Teeth	Pitch	SAE	Spline Bore Diameters		Major Dia	Coupling Size								
			Major	Minor		L090	L095	L099	L100	L110	L150	L190	L225	L276
9	16/32	A	0.651	0.509	0.625	38568	37900	38571	37904	—	—	—	—	—
11	16/32		0.776	0.631	0.750	38569	37901	38572	37905	37909	37917	37925	—	—
13	16/32	B	0.901	0.754	0.875	38570	37902	38573	37906	37910	37918	37926	37935	—
13	8/16	D, E	1.798	1.506	1.750	—	—	—	—	37915	37923	37931	37940	38576
14	12/24	C	1.289	1.087	1.250	—	—	—	—	37912	37920	37928	37937	38577
15	16/32	BB	1.026	0.877	1.000	—	—	38574	37907	37911	37919	37927	37936	38578
21	16/32		1.401	1.250	1.375	—	—	—	—	37913	37921	37929	37938	—
23	16/32		1.526	1.375	1.500	—	—	—	—	37914	37922	37930	37939	—
27	16/32		1.776	1.625	1.750	—	—	—	—	37916	37924	37932	37941	38579
15	8/16	F	2.048	1.753	2.000	—	—	—	—	—	—	37933	37942	—

- Notes: ■ All pressure angles on above splines = 30°. Class 5 fit is standard, unless otherwise specified.
 ■ All stock spline bore hubs are supplied standard with Lovejoy's exclusive L-LOC Clamping Feature. See page T-7 for description.
 ■ When referencing the Lovejoy UPC number in this table, include 685144 as a prefix to the number shown.



Table of Contents

Jaw

L Type Inch Bore / Keyway Item Selection

The L Type coupling consists of two standard L Type hubs and one spider. Refer to pages JW-11, JW-12, and JW-10.



JW

Bore	Keyway	L035	L050	L070	L075	L090	L095	L099	L100	L110	L150	L190	L225	L276
1/8	No Keyway	10124	—	—	—	—	—	—	—	—	—	—	—	—
3/16	No Keyway	10126	—	—	—	—	—	—	—	—	—	—	—	—
1/4	No Keyway	10127	10206	10416	10680	10766	—	—	—	—	—	—	—	—
1/4	1/8 x 1/16	—	—	—	35744	—	—	—	—	—	—	—	—	—
5/16	No Keyway	10128	10207	10417	10681	26209	—	—	—	—	—	—	—	—
3/8	No Keyway	24687	10208	10418	10682	10767	—	—	—	—	—	—	—	—
3/8	3/32 x 3/64	—	46121	41985	37234	37235	—	—	—	—	—	—	—	—
3/8	1/8 x 1/16	—	44136	48829	35745	37236	—	—	—	—	—	—	—	—
7/16	No Keyway	—	10209	10419	10683	10768	11082	31297	11505	—	—	—	—	—
7/16	3/32 x 3/64	—	44713	44007	28089	28877	27613	38198	37237	—	—	—	—	—
7/16	1/8 x 1/16	—	—	44066	28875	28878	28879	38199	37238	—	—	—	—	—
1/2	No Keyway	—	10210	10420	10684	10769	11083	11333	11506	—	—	—	—	—
1/2	1/8 x 1/16	—	10211	10421	10685	26087	26088	11334	26089	—	—	—	—	—
9/16	No Keyway	—	10212	52338	10686	24976	37239	11335	11508	—	—	—	—	—
9/16	1/8 x 1/16	—	10213	10423	10687	28876	11084	38200	11509	—	—	—	—	—
5/8	No Keyway	—	10214	24771	44322	46052	41911	44174	44291	11733	12101	—	—	—
5/8	5/32 x 5/64	—	—	51104	37240	37241	37242	38201	37243	37244	37245	—	—	—
5/8	3/16 x 3/32	—	—	10424	10688	10771	11085	11336	11510	26211	26212	—	—	—
11/16	3/16 x 3/32	—	—	10425	10689	10772	11086	11337	11511	11734	12102	—	—	—
3/4	No Keyway	—	—	46116	56140	54282	56887	49705	45212	—	—	12285	12422	—
3/4	1/8 x 1/16	—	—	51719	35881	37246	37074	38202	37247	37248	37249	37250	—	—
3/4	3/16 x 3/32	—	—	10426	10690	10773	11087	11338	11512	11735	12103	38468	35882	—
13/16	3/16 x 3/32	—	—	—	10691	10774	11088	11339	11513	11736	12104	37252	37255	—
7/8	No Keyway	—	—	—	56941	—	—	59063	—	—	—	—	—	12582
7/8	3/16 x 3/32	—	—	—	10692	10775	11089	11340	11514	11737	12105	12286	12423	12585
7/8	1/4 x 1/8	—	—	—	—	38188	35747	38203	35686	35749	35750	37256	35753	54883
15/16	1/4 x 1/8	—	—	—	—	32332	11090	11341	11515	11738	12160	12287	12424	—
1	1/4 x 1/8	—	—	—	—	31296	11091	11342	11516	11739	12107	12288	12425	12586
1	3/16 x 3/32	—	—	—	—	37257	37258	38204	37259	37260	37261	37262	37263	—
1-1/16	1/4 x 1/8	—	—	—	—	—	11092	11343	11517	11740	12108	12289	12426	—
1-1/8	1/4 x 1/8	—	—	—	—	—	11093	11344	11518	11741	12109	12290	12427	12587
1-3/16	1/4 x 1/8	—	—	—	—	—	—	11345	11519	11742	12110	12291	12428	—
1-1/4	1/4 x 1/8	—	—	—	—	—	—	—	11520	11743	12111	12292	12429	12588
1-1/4	5/16 x 5/32	—	—	—	—	—	—	—	35748	35752	35751	37294	35754	12589
1-5/16	5/16 x 5/32	—	—	—	—	—	—	—	11521	11744	12112	12293	26090	—
1-3/8	5/16 x 5/32	—	—	—	—	—	—	—	11522	11745	12113	12294	12430	12590
1-3/8	3/8 x 3/16	—	—	—	—	—	—	—	44348	37265	37266	37267	37568	46758
1-7/16	3/8 x 3/16	—	—	—	—	—	—	—	—	11746	12114	12295	12431	12591
1-1/2	5/16 x 5/32	—	—	—	—	—	—	—	—	37269	37270	37271	37272	—
1-1/2	3/8 x 3/16	—	—	—	—	—	—	—	—	11747	12115	12296	12432	12592
1-9/16	3/8 x 3/16	—	—	—	—	—	—	—	—	11748	12116	12297	12433	45689
1-5/8	3/8 x 3/16	—	—	—	—	—	—	—	—	11749	12117	12298	12434	12593
1-11/16	3/8 x 3/16	—	—	—	—	—	—	—	—	—	12118	12299	12435	60057
1-3/4	3/8 x 3/16	—	—	—	—	—	—	—	—	—	12119	12300	12436	12594
1-3/4	7/16 x 7/32	—	—	—	—	—	—	—	—	—	37274	37275	37276	48250
1-13/16	1/2 x 1/4	—	—	—	—	—	—	—	—	—	12120	12301	26091	—
1-7/8	1/2 x 1/4	—	—	—	—	—	—	—	—	—	12121	12302	12437	12595
1-15/16	1/2 x 1/4	—	—	—	—	—	—	—	—	—	—	12303	12438	49762
2	1/2 x 1/4	—	—	—	—	—	—	—	—	—	—	12304	12439	12596
2-1/16	1/2 x 1/4	—	—	—	—	—	—	—	—	—	—	12305	26092	—
2-1/8	1/2 x 1/4	—	—	—	—	—	—	—	—	—	—	12306	12440	12597
2-3/16	1/2 x 1/4	—	—	—	—	—	—	—	—	—	—	—	12441	12598
2-1/4	1/2 x 1/4	—	—	—	—	—	—	—	—	—	—	—	12442	12599
2-3/8	5/8 x 5/16	—	—	—	—	—	—	—	—	—	—	—	12443	12602
2-5/8	5/8 x 5/16	—	—	—	—	—	—	—	—	—	—	—	41809	12605
2-7/8	3/4 x 3/8	—	—	—	—	—	—	—	—	—	—	—	—	12607

Notes: ■ Tolerances for bore and keyways are found in Engineering Data section (pages ED-10 and ED-11). All hubs supplied standard with one set screw.
 ■ Non-standard bores available – consult Lovejoy Engineering.
 ■ When referencing the Lovejoy UPC number in this table, include 685144 as a prefix to the number shown.



Table of Contents

Jaw

L Type Metric Bore / Keyway Item Selection

JW

The L Type coupling consists of two standard L Type hubs and one spider. Refer to pages JW-10, JW-12, and JW-10.



L Type Hub - Metric Bore and Keyway UPC Number Selection Table

Bore	Keyway	L035	L050	L070	L075	L090	L095	L099	L100	L110	L150	L190	L225	L276
4	No Keyway	41850	—	—	—	—	—	—	—	—	—	—	—	—
5	No Keyway	47419	46214	—	—	—	—	—	—	—	—	—	—	—
6	No Keyway	45872	50351	—	—	—	—	—	—	—	—	—	—	—
7	No Keyway	60679	10215	58803	—	—	—	—	—	—	—	—	—	—
8	No Keyway	55169	41460	46151	—	60945	—	—	—	—	—	—	—	—
9	3 x 1.4	—	41313	56177	44298	—	—	—	—	—	—	—	—	—
10	No Keyway	—	10216	41452	41456	—	—	—	—	—	—	—	—	—
10	3 x 1.4	—	41450	49870	41457	52828	—	—	—	—	—	—	—	—
11	4 x 1.8	—	41314	41453	50811	—	49424	—	—	—	—	—	—	—
12	No Keyway	—	48510	51562	—	48276	—	—	—	—	—	—	—	—
12	4 x 1.8	—	41315	41454	44153	44329	44832	—	55195	—	—	—	—	—
14	No Keyway	—	58036	47505	—	41461	41465	—	—	—	—	—	—	—
14	5 x 2.3	—	41316	41317	41321	51231	41466	60094	45101	—	—	—	—	—
15	No Keyway	—	60708	—	10693	—	46561	52697	41469	—	—	—	—	—
15	5 x 2.3	—	41451	41455	41454	52096	45778	46972	47123	—	—	—	—	—
16	5 x 2.3	—	56176	41318	41322	49198	41325	52098	55534	52092	52471	—	—	—
17	5 x 2.3	—	—	45333	49398	—	49704	—	56178	60067	60156	—	—	—
18	6 x 2.8	—	—	59724	41884	46433	46626	44647	41926	44288	—	—	—	—
19	No Keyway	—	—	—	—	10777	—	—	—	41471	—	—	—	—
19	6 x 2.8	—	—	41319	41323	41462	41326	44157	14329	49700	48821	46717	—	—
20	6 x 2.8	—	—	—	41459	41925	41467	47122	52093	41804	61218	61497	—	—
22	6 x 2.8	—	—	—	58246	41968	44827	41959	44467	45214	44720	—	—	—
24	8 x 3.3	—	—	—	—	41463	41327	41990	41330	48301	48182	59109	—	—
25	8 x 3.3	—	—	—	—	41464	41468	45055	41470	41906	46751	52153	—	—
28	No Keyway	—	—	—	—	—	—	—	—	—	56179	56182	—	—
28	8 x 3.3	—	—	—	—	—	41328	50103	41331	41333	45679	52976	—	—
30	8 x 3.3	—	—	—	—	—	—	47132	48317	45681	41738	44471	48982	—
32	No Keyway	—	—	—	—	—	—	—	—	—	41472	41473	48319	56232
32	10 x 3.3	—	—	—	—	—	—	—	—	41334	41873	45562	41849	41885
35	No Keyway	—	—	—	—	—	—	—	41332	—	56180	56183	56184	—
35	10 x 3.3	—	—	—	—	—	—	—	49925	45682	46562	58035	52197	—
38	10 x 3.3	—	—	—	—	—	—	—	—	41335	41337	41474	49664	52961
40	12 x 3.3	—	—	—	—	—	—	—	—	45683	48318	48320	49605	59308
42	12 x 3.3	—	—	—	—	—	—	—	—	41336	41338	41475	47492	45609
45	14 x 3.8	—	—	—	—	—	—	—	—	—	45102	56017	52674	50292
48	No Keyway	—	—	—	—	—	—	—	—	—	56181	—	—	—
48	14 x 3.8	—	—	—	—	—	—	—	—	—	56227	48322	47569	61202
50	No Keyway	—	—	—	—	—	—	—	—	—	—	56228	56230	56233
50	14 x 3.8	—	—	—	—	—	—	—	—	—	—	44392	48797	45062
55	No Keyway	—	—	—	—	—	—	—	—	—	—	56229	56231	56234
55	16 x 4.3	—	—	—	—	—	—	—	—	—	—	47006	44089	56067
60	No Keyway	—	—	—	—	—	—	—	—	—	—	—	56185	56235
60	18 x 4.4	—	—	—	—	—	—	—	—	—	—	—	44598	56236
65	No Keyway	—	—	—	—	—	—	—	—	—	—	—	—	56237
65	18 x 4.4	—	—	—	—	—	—	—	—	—	—	—	56544	50102
70	20 x 4.9	—	—	—	—	—	—	—	—	—	—	—	—	58268

Notes: ■ Tolerances for bore and keyways are found in Engineering Data section (page ED-17 and ED-18). All hubs supplied standard with one set screw.

■ Non-standard bores available – consult Lovejoy Engineering.

■ When referencing the Lovejoy UPC number in this table, include 685144 as a prefix to the number shown.



Table of Contents

Jaw

LC Type / Inch Bore / Keyway Item Selection

LC Type Couplings

The LC Type coupling consists of one standard L Type hub (without collar attachment), one LC Type hub (provides collar attachment), one standard snap wrap center and one collar with screws. Refer to pages JW-11, JW-12 and JW-13 for details.

Features

- Radially removable insert
- Collar allows for maximum speed of 3,600 RPM
- Collar manufactured from 1018 Steel



LC Type Hub - Inch Bore and Keyway UPC Number Selection Table

Bore	Keyway	LC090	LC095	LC099	LC100	LC110	LC150	LC190	LC225
1/4	No Keyway	45321	—	—	—	—	—	—	—
3/8	No Keyway	45322	—	—	—	—	—	—	—
1/2	No Keyway	45323	11133	—	11575	—	—	—	—
1/2	1/8 x 1/16	—	—	—	48768	—	—	—	—
5/8	No Keyway	—	—	—	—	11828	45412	—	—
5/8	3/16 x 3/32	45324	11134	48886	11577	—	—	—	—
3/4	No Keyway	—	—	—	—	—	—	12322	12456
3/4	1/8 x 1/16	—	—	—	55466	—	—	—	—
3/4	3/16 x 3/32	45325	11135	—	41920	11829	—	12323	—
13/16	3/16 x 3/32	—	11136	—	—	11830	—	—	—
7/8	3/16 x 3/32	45326	11137	—	11578	11832	—	—	—
7/8	1/4 x 1/8	—	—	56567	49553	56566	60343	—	—
15/16	1/4 x 1/8	—	11138	—	—	11834	—	—	—
1	1/4 x 1/8	45327	11139	52825	11579	11836	12069	44161	50125
1	3/16 x 3/32	—	—	—	—	55552	—	—	—
1-1/8	1/4 x 1/8	—	44156	—	11580	11838	12071	44160	50126
1-3/16	1/4 x 1/8	—	11140	—	—	11840	—	—	—
1-1/4	1/4 x 1/8	—	—	—	11581	11841	12073	12327	12462
1-1/4	5/16 x 5/32	—	—	—	59046	—	48273	—	—
1-3/8	5/16 x 5/32	—	—	—	45257	11842	12075	12329	50127
1-7/16	3/8 x 3/16	—	—	—	—	11844	—	—	12465
1-1/2	5/16 x 5/32	—	—	—	—	—	12077	—	—
1-1/2	3/8 x 3/16	—	—	—	—	11846	—	12332	12466
1-9/16	3/8 x 3/16	—	—	—	—	11848	—	12332	—
1-5/8	3/8 x 3/16	—	—	—	—	11849	12079	12334	12468
1-3/4	3/8 x 3/16	—	—	—	—	—	44159	12336	46818
1-7/8	1/2 x 1/4	—	—	—	—	—	12082	12337	12472
1-15/16	1/2 x 1/4	—	—	—	—	—	—	12339	—
2	1/2 x 1/4	—	—	—	—	—	—	12341	14276
2-1/8	1/2 x 1/4	—	—	—	—	—	—	44064	12477
2-1/4	1/2 x 1/4	—	—	—	—	—	—	—	12480
2-3/8	5/8 x 5/16	—	—	—	—	—	—	—	12482

- Notes: ■ These "LC" hubs are drilled and tapped to accept collar mounting screws but the collar and hardware are not included.
 ■ See L Type (inch or metric) coupling chart for standard hub.
 ■ Tolerances for bore and keyways are found in Engineering Data section (pages ED-10 and ED-11).
 ■ All hubs are supplied standard with one set screw.
 ■ When referencing the Lovejoy UPC number in this table, include 685144 as a prefix to the number shown.


[Table of Contents](#)
Jaw

LC Type Spiders / Metric Bore / Keyway Item Selection

JW

LC Type Couplings

The LC Type coupling consists of one standard L Type hub (without collar attachment), one LC Type hub (provides collar attachment), one standard snap wrap center and one collar with screws. Refer to pages JW-11, JW-12 and JW-13 for details.

Features

- Radially removable insert
- Collar allows for maximum speed of 3,600 RPM
- Collar manufactured from 1018 Steel



LC Type Wrap Spider / Collar UPC Number Selection Table

	LC090	LC095	LC099	LC100	LC110	LC150	LC190	LC225
Snap Wrap Spider/No Ring	11071	11071	11495	11495	11725	12002	12275	26093'
Collar Only w/Screws	48340	48340	45258	45258	47932	47933	47934	47935

- Notes: ■ 1 indicates: L225 snap wrap spider is urethane, solid ring.
 ■ When referencing the Lovejoy UPC number in this table, include 685144 as a prefix to the number shown.

LC Type Hub - Metric Bore and Keyway UPC Number Selection Table

Bore	Keyway	LC090	LC095	LC099	LC100	LC110	LC150	LC190	LC225
12	No Keyway	58596	—	—	—	—	—	—	—
12	4 x 1.8	58597	—	—	—	—	—	—	—
14	No Keyway	58598	58592	—	—	—	—	—	—
14	5 x 2.3	58556	58559	—	—	—	—	—	—
15	5 x 2.3	58599	—	—	—	—	—	—	—
16	5 x 2.3	—	58593	—	—	—	—	—	—
19	6 x 2.8	58557	58560	56197	58563	58566	—	—	—
20	6 x 2.8	—	58594	—	—	—	—	—	—
24	8 x 3.3	58558	58561	58588	58564	58567	—	—	—
25	8 x 3.3	58600	58595	58589	—	—	—	—	—
28	8 x 3.3	—	58562	58590	58565	58568	58571	58575	—
32	10 x 3.3	—	—	—	52806	58587	58585	58586	—
38	10 x 3.3	—	—	—	—	58569	58572	58576	58580
42	12 x 3.3	—	—	—	—	58570	58573	58577	58581
48	14 x 3.8	—	—	—	—	—	58574	58578	58582
55	16 x 4.3	—	—	—	—	—	—	58579	58583
65	No Keyway	—	—	—	—	—	—	—	58584

- Notes: ■ These "LC" hubs are drilled and tapped to accept collar mounting screws but the collar and hardware are not included.
 ■ See L Type (inch or metric) UPC Number Selection Table for standard hub (pages JW-11 or JW-10).
 ■ Tolerances for bore and keyways are found in Engineering Data section (pages ED-17 and ED-18).
 ■ All hubs are supplied with one set screw.
 ■ When referencing the Lovejoy UPC number in this table, include 685144 as a prefix to the number shown.



Table of Contents

Jaw

AL and SS Type / Inch Bore / Keyway Item Selection

AL and SS Type Couplings

The AL Type coupling consists of two hubs and one spider.

Features

- Interchangeable with all hub sizes standard for the L-Line and AL-Line products
- Available in a variety of different finished bore and keyway combinations
- Finished bores passivated for additional rust protection



JW

AL Type Hub - Inch Bore and Keyway UPC Number Selection Table

Bore	Keyway	AL050	AL070	AL075	AL090	AL095	AL099	AL100	AL110	AL150
1/4	No Keyway	10252	10463	10630	10791	—	—	—	—	—
5/16	No Keyway	10253	10464	10631	10792	—	—	—	—	—
3/8	No Keyway	10254	10466	10632	10793	—	—	—	—	—
7/16	No Keyway	10256	10469	10633	10794	—	—	—	—	—
1/2	No Keyway	10257	10471	10634	10795	17847	17880	17914	—	—
1/2	1/8 x 1/16	49706	10473	10635	10796	17848	17881	17915	—	—
9/16	No Keyway	—	—	10637	10797	—	—	56473	—	—
9/16	1/8 x 1/16	—	—	10638	4412	37994	44323	17917	—	—
5/8	No Keyway	10259	10480	61817	44004	—	—	—	17977	18035
5/8	3/16 x 3/32	—	10482	10639	10798	17855	17882	17918	38888	44828
11/16	3/16 x 3/32	—	—	45227	10799	17851	45494	17919	44059	46642
3/4	1/8 x 1/16	—	—	47835	47725	46295	—	—	—	—
3/4	3/16 x 3/32	—	10491	10640	10800	17852	17883	17920	17978	18036
13/16	3/16 x 3/32	—	—	10641	10801	17853	17884	17921	—	—
7/8	3/16 x 3/32	—	—	10642	10802	17854	17885	17922	17979	18037
15/16	1/4 x 1/8	—	—	—	—	17855	17886	17923	17980	18038
1	1/4 x 1/8	—	—	—	—	17856	17887	17924	17981	18039
1-1/16	1/4 x 1/8	—	—	—	—	17857	17888	17925	26094	18040
1-1/8	1/4 x 1/8	—	—	—	—	17858	17889	17926	17982	18041
1-3/16	1/4 x 1/8	—	—	—	—	—	17890	17927	17983	18042
1-1/4	1/4 x 1/8	—	—	—	—	—	—	17928	17984	18043
1-5/16	5/16 x 5/32	—	—	—	—	—	—	17929	17985	18044
1-3/8	5/16 x 5/32	—	—	—	—	—	—	17930	17986	18045
1-7/16	3/8 x 3/16	—	—	—	—	—	—	45508	17987	18046
1-1/2	3/8 x 3/16	—	—	—	—	—	—	—	17988	18047
1-9/16	3/8 x 3/16	—	—	—	—	—	—	—	17989	18048
1-5/8	3/8 x 3/16	—	—	—	—	—	—	—	17990	18049
1-11/16	3/8 x 3/16	—	—	—	—	—	—	—	—	18050
1-3/4	3/8 x 3/16	—	—	—	—	—	—	—	—	18051
1-13/16	1/2 x 1/4	—	—	—	—	—	—	—	—	18052
1-7/8	1/2 x 1/4	—	—	—	—	—	—	—	—	18053

- Notes:
- Tolerances for bore and keyways are found in Engineering Data section (page ED-10).
 - Lovejoy does not recommend reboring AL hubs.
 - All hubs are supplied standard with one set screw, except the AL150 which is provided with two set screws.
 - When referencing the Lovejoy UPC number in this table, include 685144 as a prefix to the number shown.

SS Type Hub - Inch Bore and Keyway UPC Number Selection Table

Size	RSB	1/4	1/2	5/8	3/4	7/8	1	1-1/8	1-3/8	1-1/2
SS075	70001	70006	70007	70008	70009	70010	—	—	—	—
SS095	70002	70011	70011	70012	70013	70014	70015	70016	—	—
SS100	70003	—	—	—	70017	70018	70019	70020	70022	—
SS110	70004	—	—	—	—	—	70023	70024	70026	70027
SS150	70005	—	—	—	—	—	70029	70030	70032	70033

- Note:
- When referencing the Lovejoy UPC number in this table, include 685144 as a prefix to the number shown.





Table of Contents

Jaw

AL Type Spiders / Metric Bore / Keyway Item Selection

JW

AL Type Couplings

The AL Type coupling consists of two hubs and one spider. Refer to page JW-10 for spider details.

Features

- Aluminum material is corrosion resistant
- Lightweight
- Hubs compatible with standard Lovejoy hub design (except AL150)



AL Type Spider UPC Number Selection Table

Spider Type	AL050	AL070	AL075	AL090/095	AL099/100	AL110	AL150
SOX (NBR) (solid)	10194	10406	10621	11070	11494	11724	18027
SOX (NBR) (open center)	—	10393	10620	10968	11492	11711	—
Urethane (solid)	37786	10395	—	—	—	—	—
Urethane (open center)	—	10411	10626	11075	11499	11729	—
Hytrel (solid)	25307	—	—	—	—	11717	—
Hytrel (open center)	—	25308	25309	25310	11486	38097	—
Bronze (open center)	10198	10409	10624	11073	11497	11727	—
Snap Wrap w/ring	—	—	—	24669	24670	24671	—
Snap Wrap no ring	—	—	—	11071	11495	11725	—

Notes: ■ AL Type couplings use the same spiders as L Type couplings, except AL150 which has four jaws instead of three.

■ When referencing the Lovejoy UPC number in this table, include 685144 as a prefix to the number shown.

AL Type Hub - Metric Bore and Keyway UPC Number Selection Table

Bore	Keyway	AL050	AL070	AL075	AL090	AL095	AL099	AL100	AL110	AL150
8	No Keyway	—	—	48973	—	—	—	—	—	—
10	3 x 1.4	—	—	41924	56514	—	—	—	—	—
11	4 x 1.8	—	65694	51098	58620	—	—	—	—	—
12	4 x 1.8	—	56487	64655	60429	—	—	—	—	—
14	5 x 2.3	—	65696	47302	58621	56800	58624	—	—	—
15	5 x 2.3	—	62906	49633	58622	56801	—	49629	—	—
16	5 x 2.3	—	—	52221	—	47014	—	45012	—	—
17	5 x 2.3	—	—	—	60887	44712	—	59164	—	—
19	6 x 2.8	—	65698	47427	44679	47012	58625	47253	59064	—
20	No Keyway	—	—	56137	—	—	—	—	—	—
20	6 x 2.8	—	—	59394	61478	48347	49634	49630	49631	60878
22	6 x 2.8	—	—	—	—	47013	—	—	—	—
24	8 x 3.3	—	—	—	—	45736	58626	44058	45690	64634
25	8 x 3.3	—	—	—	—	65469	49709	55687	45933	64633
28	8 x 3.3	—	—	—	—	47015	58627	47393	45463	—
30	8 x 3.3	—	—	—	—	—	52048	58266	49632	45063
32	10 x 3.3	—	—	—	—	—	—	—	54417	44347
35	10 x 3.3	—	—	—	—	—	—	—	46215	64803
36	10 x 3.3	—	—	—	—	—	—	—	—	51737
38	10 x 3.3	—	—	—	—	—	—	—	52692	58215
42	12 x 3.3	—	—	—	—	—	—	—	—	45404
46	14 x 3.8	—	—	—	—	—	—	—	—	64119

Notes: ■ Tolerances for bore and keyways are found in Engineering Data section (page ED-17).

■ Lovejoy does not recommend reborring AL hubs.

■ All hubs are supplied standard with one set screw, except the AL150 which is provided with two set screws.

■ When referencing the Lovejoy UPC number in this table, include 685144 as a prefix to the number shown.



Table of Contents

Jaw

RRS and RRSC Type / Inch Bore / Keyway Item Selection

RRS and RRSC Type Radially Removable Spacer Couplings

RRS Type couplings range from sizes RRS090 to RRS225. The RRS Type coupling consists of:

RRS090 – RRS110:

2 Standard RRS Hubs

1 Spacer Assembly consisting of:

- 2 snap wrap spiders w/o ring
- 2 collars with screws
- 1 spacer

RRS150 – RRS225:

1 Standard RRS Hub

1 Standard RRSC Hub – Drilled for collar

1 Spacer Assembly consisting of:

- 2 snap wrap spiders w/o ring
- 2 collars with screws
- 1 spacer



JW

RRS Type Hub - Inch Bore and Keyway UPC Number Selection Table

Bore	Keyway	RRS090	RRS095	RRS099	RRS100	RRS110	RRS150	RRS190	RRS225
7/16	No Keyway	—	41229	52184	41231	—	—	—	—
1/2	No Keyway	41227	50357	41230	52199	—	—	—	—
1/2	1/8 x 1/16	56512	38145	—	38151	—	—	—	—
9/16	3/16 x 3/32	—	44474	—	—	—	—	—	—
5/8	No Keyway	—	—	—	—	38159	45265	—	—
5/8	3/16 x 3/32	38143	38146	38168	38152	—	50163	—	—
3/4	No Keyway	—	—	—	—	—	—	45273	45290
3/4	3/16 x 3/32	38144	38147	38169	38153	38160	45266	—	45292
7/8	1/4 x 1/8	—	—	—	52966	—	—	—	—
7/8	3/16 x 3/32	41228	38148	38170	38154	38161	45267	45274	45291
1	1/4 x 1/8	51672	38149	38171	38155	38162	45268	45275	45294
1-1/8	1/4 x 1/8	—	38150	38172	38156	38163	45153	45276	45295
1-1/8	5/16 x 5/32	—	—	—	—	—	48104	—	—
1-1/4	1/4 x 1/8	—	—	—	38157	38164	45392	48503	50743
1-3/8	5/16 x 5/32	—	—	—	38158	38165	44002	44725	45296
1-7/16	3/8 x 3/16	—	—	—	—	51579	49659	48933	49658
1-1/2	3/8 x 3/16	—	—	—	—	40816	49638	46628	45297
1-5/8	3/8 x 3/16	—	—	—	—	38166	41880	45277	45298
1-3/4	3/8 x 3/16	—	—	—	—	—	45162	45278	45299
1-7/8	1/2 x 1/4	—	—	—	—	—	44214	45279	41953
2	1/2 x 1/4	—	—	—	—	—	—	45280	45300
2-1/8	1/2 x 1/4	—	—	—	—	—	—	—	44724
2-3/8	5/8 x 5/16	—	—	—	—	—	—	—	45106

Notes: ■ RRS inch hubs are standard with two set screws, including those with no keyway.

■ When referencing the Lovejoy UPC number in this table, include 685144 as a prefix to the number shown.

RRS / RRSC Type Hub - Metric Bore and Keyway UPC Number Selection Table

Bore	Keyway	RRSC150	RRSC190	RRSC225
32	No Keyway	55675	55679	55683
38	10 x 3.3	55676	55680	—
40	12 x 3.3	55677	55681	—
42	12 x 3.3	55678	55682	—

Notes: ■ RRS inch hubs are standard with two set screws and are drilled to accept retaining collar. Collars are supplied with spacers.

■ When referencing the Lovejoy UPC number in this table, include 685144 as a prefix to the number shown.

RRS / RRSC Type Hub - Inch Bore and Keyway UPC Number Selection Table

Bore	Keyway	RRSC150	RRSC190	RRSC225
5/8	No Keyway	45269	—	—
3/4	No Keyway	—	45281	45301
3/4	3/16 x 3/32	45312	—	45303
7/8	3/16 x 3/32	45270	45282	45293
1	1/4 x 1/8	45271	45283	45305
1-1/8	1/4 x 1/8	44779	45284	45105
1-3/8	5/16 x 5/32	44006	45285	45306
1-1/2	3/8 x 3/16	46939	—	45307
1-5/8	3/8 x 3/16	14881	45286	45308
1-3/4	3/8 x 3/16	—	45287	45309
1-7/8	1/2 x 1/4	45272	45288	41954
2	1/2 x 1/4	—	45289	45310
2-1/8	1/2 x 1/4	—	—	45311

Notes: ■ RRS inch hubs are standard with two set screws and are drilled to accept retaining collar. Collars are supplied with spacers.

■ When referencing the Lovejoy UPC number in this table, include 685144 as a prefix to the number shown.



Table of Contents

Jaw

RRS Type Spacer / Metric Bore / Keyway

Item Selection

JW

RRS Type Radially Removable Spacer Couplings

RRS Type couplings range from sizes RRS090 to RRS225.

The RRS Type coupling consists of:

RRS090 – RRS110:

- 2 Standard RRS Hubs
- 1 Spacer Assembly consisting of:
 - 2 snap wrap spiders w/o ring
 - 2 collars with screws
 - 1 spacer

RRS150 – RRS225:

- 1 Standard RRS Hub
- 1 Standard RRSC Hub – Drilled for collar
- 1 Spacer Assembly consisting of:
 - 2 snap wrap spiders w/o ring
 - 2 collars with screws
 - 1 spacer



Note: ■ RRS Type Inch Hubs provided standard with two set screws at 90°.

Features

- Standard API based spacers available
- Radially removable inserts
- Standard Lovejoy hub design with additional set screw at 90°

RRS Type Spacer UPC Number Selection Table

Description	RRS090	RRS095	RRS099	RRS100	RRS110	RRS150	RRS190	RRS225
3-1/2 in Spacer Assembly	12620	12620	12630	12630	12644	12660	12676	12685
5 in Spacer Assembly	26119	26119	26123	26123	26128	26770	27046	27041
7 in Spacer Assembly	26120	26120	26124	26124	26129	27044	27043	27039
100mm Spacer Assembly	55563	55563	55567	55567	55570	61056	61057	61058
140mm Spacer Assembly	55281	55281	55569	55569	55571	55572	55573	55574
180mm Spacer Assembly	61055	61055	55575	55575	55576	55577	55578	55579

Notes: ■ Spacer length denotes separation between shaft ends. Assembly includes spacer, two snap wrap spiders w/o ring, and two collars with screws. See page JW-10 for ordering information on spiders.

■ When referencing the Lovejoy UPC number in this table, include 685144 as a prefix to the number shown.

RRS Type Hub - Metric Bore and Keyway UPC Number Selection Table

Bore	Keyway	RRS090	RRS095	RRS099	RRS100	RRS110	RRS150	RRS190	RRS225
12	No Keyway	48276	—	—	—	—	—	—	—
14	No Keyway	41461	41465	—	—	—	—	—	—
14	5 x 2.3	51231	41466	60094	45101	—	—	—	—
15	No Keyway	—	46561	52697	41469	—	—	—	—
15	5 x 2.3	52096	45778	46972	47123	—	—	—	—
16	5 x 2.3	49198	41325	52098	55534	52092	52471	—	—
19	No Keyway	10777	—	—	—	41471	—	—	—
19	6 x 2.8	41462	41326	44157	41329	49700	48821	46717	—
20	6 x 2.8	41925	41467	47122	52093	41804	—	61497	—
23	8 x 3.3	50135	—	—	—	—	—	—	—
24	8 x 3.3	41463	41327	41990	41330	48301	48182	59109	—
25	8 x 3.3	41464	41468	45055	41470	41906	46751	52153	—
28	8 x 3.3	—	41328	50103	41331	41333	45679	52976	—
30	8 x 3.3	—	—	47132	48317	45681	41738	44471	48982
32	No Keyway	—	—	—	—	—	41472	41473	48319
32	10 x 3.3	—	—	—	41332	41334	41873	45562	41849
35	10 x 3.3	—	—	—	49925	45682	46562	58035	52197
38	10 x 3.3	—	—	—	—	41335	41337	41474	49664
40	12 x 3.3	—	—	—	—	45683	48318	48320	49605
42	12 x 3.3	—	—	—	—	41336	41338	41475	47492

Note: ■ When referencing the Lovejoy UPC number in this table, include 685144 as a prefix to the number shown.



Table of Contents

Jaw

C Type Cushions / Collar and Inch / Metric Bore / Keyway Item Selection

C Type Couplings

The C Type coupling consists of two standard hubs, one cushion set and collar with hardware.

Features

- Greater torque and bore capacity than the L-Line series jaw coupling
- Elastomeric cushions are radially removable
- Cushions available in SXB rubber and Hytrel

C Type Cushions / Collar UPC Number Selection Table

Size	C226	C276	C280	C285	C295	C2955
Number of Cushions	6	6	6	6	6	10
SXB (NBR) cushion set	14547	14633	14712	14771	14805	14856
Hytrel® cushion set	27529	14637	14716	14774	14808	14859
Bronze cushion set	14545	—	—	—	51914	51915
Collar with hardware	40122	40123	40124	40292	40293	40293

Notes: ■ Chemical resistance and compatibility for cushions is described in Engineering Data section (page ED-9).
 ■ When referencing the Lovejoy UPC number in this table, include 685144 as a prefix to the number shown.

C Type Hub - Inch Bore and Keyway UPC Number Selection Table

Bore	Keyway	C226	C276	C280	C285	C295	C2955
7/8 RSB	No Keyway	40125	40126	—	—	—	—
1-1/8	1/4 x 1/8	26036	26050	—	—	—	—
1-1/4 RSB	No Keyway	—	—	20607	41036	—	—
1-1/4	1/4 x 1/8	26037	26051	48988	47173	—	—
1-3/8	5/16 x 5/32	26038	26052	46278	55546	—	—
1-7/16	3/8 x 3/16	26039	—	—	—	—	—
1-1/2 RSB	No Keyway	—	—	—	—	41037	—
1-1/2	3/8 x 3/16	26040	26053	46277	48366	44824	—
1-5/8	3/8 x 3/16	26041	26054	46194	41892	56078	—
1-3/4 RSB	No Keyway	—	—	—	—	—	41038
1-3/4	3/8 x 3/16	26042	26055	44011	52311	45780	—
1-7/8	1/2 x 1/4	26043	26056	44012	51533	47080	49075
2	1/2 x 1/4	26044	26057	48194	—	—	—
2-1/8	1/2 x 1/4	26045	26058	44370	49809	44711	—
2-1/4	1/2 x 1/4	26046	44547	—	—	—	—
2-3/8	5/8 x 5/16	26047	26060	44014	47288	44825	52703
2-1/2	5/8 x 5/16	26048	46120	51998	56779	45249	48454
2-5/8	5/8 x 5/16	—	46755	44013	—	50145	54549
2-7/8	3/4 x 3/8	—	26064	51525	49456	52702	48108
3	3/4 x 3/8	—	—	48193	—	—	—
3-3/8	7/8 x 7/16	—	—	—	47171	45402	49077
3-1/2	7/8 x 7/16	—	—	—	46844	52988	44545
3-5/8	7/8 x 7/16	—	—	—	—	—	50106
3-3/4	7/8 x 7/16	—	—	—	—	—	58378
3-7/8	1 x 1/2	—	—	—	48247	—	49351
4	1 x 1/2	—	—	—	—	—	55016

C Type Hub - Metric Bore and Keyway UPC Number Selection Table

Bore	Keyway	C226	C276	C280	C285	C295	C2955
30	8 x 3.3	62792	—	—	—	—	—
35	10 x 3.3	60243	47386	—	—	—	—
38	10 x 3.3	45348	62160	—	—	—	—
40	12 x 3.3	49379	54037	—	—	—	—
42	12 x 3.3	—	45219	—	—	—	—
45	14 x 3.8	52550	44723	58265	—	—	—
48	14 x 3.8	54288	—	52205	—	—	—
55	16 x 4.3	58011	58444	49012	—	—	—
60	18 x 4.4	—	47265	49378	—	—	—
65	18 x 4.4	—	52008	—	—	—	58676
70	20 x 4.9	—	59032	—	56794	54355	58677
75	22 x 5.4	—	—	—	—	47913	58678
80	22 x 5.4	—	—	—	44487	58675	58679
90	25 x 5.4	—	—	—	54363	—	—
95	25 x 5.4	—	—	—	—	—	62695



Notes: ■ RSB (Rough Stock Bore) hub has no keyway or set screw hole, it is not useable as shown and must be machined to proper bore tolerances. Hub includes inside sleeve and is drilled and tapped for collar bolts. Non-standard bores available – consult Lovejoy Engineering.
 ■ When referencing the Lovejoy UPC number in this table, include 685144 as a prefix to the number shown.

Notes: ■ RSB (Rough Stock Bore) hub has no keyway or set screw hole, it is not useable as shown and must be machined to proper bore tolerances. Hub includes inside sleeve and is drilled and tapped for collar bolts. Non-standard bores available – consult Lovejoy Engineering. For RSB hub part numbers see the C Type Inch Hub table.
 ■ When referencing the Lovejoy UPC number in this table, include 685144 as a prefix to the number shown.


[Table of Contents](#)
Jaw

H Type Cushions / Collar / Rough Stock Inch Bore / Keyway Item Selection

JW

H Type Couplings

The H Type coupling consists of two hubs, two inside sleeves, one cushion set and one collar with hardware. H Type coupling hubs are supplied with an inside sleeve. For technical assistance, please contact Lovejoy Engineering.

Features

- Greater torque and bore capacity than the C-Line series jaw coupling
- Elastomeric cushions are radially removable
- Cushions available in SXB rubber and Hytrel



H Type Cushions / Collar UPC Number Selection Table

Size	H3067	H3567	H3667	H4067	H4567
Number of Cushions	14	14	14	14	14
SXB cushion set	15365	15386	15419	15457	15473
Hytrel® cushion set	15367	15388	45223	15459	55475
Collar with hardware	15361	15381	15411	55472	55476

Note: ■ When referencing the Lovejoy UPC number in this table, include 685144 as a prefix to the number shown.

H Type Hubs - Rough Stock Inch Bore UPC Number Selection Table

Bore	H3067	H3567	H3667	H4067	H4567
2-1/8 RSB	48070	—	—	—	—
2-5/8 RSB	—	50883	—	—	—
3 RSB	—	—	47878	—	—
3-1/4 RSB	—	—	—	55473	—
3-1/2 RSB	—	—	—	—	55477

Notes: ■ RSB (Rough Stock Bore) hub has no keyway or set screw hole.
 ■ RSB bores should not be used as shown and may need additional machining to reach proper tolerances.
 ■ When referencing the Lovejoy UPC number in this table, include 685144 as a prefix to the number shown.



RRC Type Spacer / Adapter Hubs Item Selection

RRC Type Radially Removable Spacer Coupling

RRC Type couplings range from sizes RRC226 to RRC2955. The RRC Type coupling consists of:

2 RRC Hub Adapters (includes bolts)

1 Spacer assembly consisting of:

- 2 RRC Jaw rings
- 1 collar with hardware
- 1 set of SXB (NBR) cushions

RRC Type Spacer UPC Number Selection Table

Description		RRC226	RRC276	RRC280	RRC285	RRC295	RRC2955
3-1/2 in	Spacer Assembly	55709	55712	55715	55718	—	—
4 in	Spacer Assembly	—	—	—	—	55721	55724
5 in	Spacer Assembly	55710	55713	55716	55719	55722	55751
7 in	Spacer Assembly	55711	55174	55717	55720	55723	55752

Note: ■ When referencing the Lovejoy UPC number in this table, include 685144 as a prefix to the number shown.

RRC Type Adapter Hubs - Rough Stock Inch Bore UPC Number Selection Table

Bore	RRC226	RRC276	RRC280	RRC285	RRC295	RRC2955
7/8 RSB	55770	55771	—	—	—	—
1-1/4 RSB	—	—	52030	55772	—	—
1-1/2 RSB	—	—	—	—	55773	—
1-3/4 RSB	—	—	—	—	—	55774

Note: ■ When referencing the Lovejoy UPC number in this table, include 685144 as a prefix to the number shown.



Table of Contents

Jaw

L, AL, LC, C, H and RRS Type Ratings

Performance Data

JW

Jaw Type Performance Ratings

Size	Elastomeric Member	Number of Jaws	Basic HP Ratings @ Varying RPM				Torque Rating		Max Bore		Max x1000
			100	1200	1800	3600	in-lbs	Nm			
L, AL & LC Type											
L035	SOX (NBR)	2	0.006	0.07	0.10	0.22	3.5	0.40	0.375	9	31.0
L050/AL050	SOX (NBR)	2	0.042	0.50	0.75	1.51	26.3	2.97	0.625	16	18.0
L050/AL050	Hytrel®	2	0.080	0.96	1.43	2.88	50.0	5.65	0.625	16	18.0
L070/AL070	SOX (NBR)	2	0.070	0.84	1.23	2.52	43.2	4.88	0.750	19	14.0
L070/AL070	Hytrel	2	0.180	2.16	3.26	6.48	114.0	12.88	0.750	19	3.6
L075/AL075	SOX (NBR)	3	0.140	1.68	2.57	5.04	90.0	10.17	0.875	22	11.0
L075/AL075	Hytrel	3	0.360	4.32	6.48	12.96	227.0	25.65	0.875	22	3.6
L090/AL090/LC090	SOX (NBR)	3	0.230	2.76	4.11	8.28	144.0	16.27	1.000	25	9.0
L090/AL090	Hytrel	3	0.640	7.68	11.50	23.04	401.0	42.31	1.000	25	3.6
L095/AL095/LC095	SOX (NBR)	3	0.310	3.72	5.50	11.16	194.0	21.92	1.125	32	9.0
L095/AL095	Hytrel	3	0.890	10.68	16.00	32.04	561.0	63.38	1.125	32	3.6
L099/AL099/LC099	SOX (NBR)	3	0.500	6.00	9.10	18.00	318.0	35.93	1.180	30	7.0
L099/AL099	Hytrel	3	1.260	15.12	22.60	45.36	792.0	89.48	1.180	30	3.6
L100/AL100/LC100	SOX (NBR)	3	0.660	7.92	11.90	23.76	417.0	47.11	1.380	35	7.0
L100/AL100	Hytrel	3	1.800	21.60	32.40	64.80	1,134.0	128.12	1.380	35	3.6
L110/AL110/LC110	SOX (NBR)	3	1.260	15.12	23.00	45.36	792.0	89.48	1.620	42	5.0
L110/AL110	Hytrel	3	3.600	43.20	65.00	129.60	2,268.0	256.25	1.620	42	5.0
L150/LC150	SOX (NBR)	3	2.000	24.00	35.00	72.00	1,240.0	140.10	1.880	48	5.0
L150	Hytrel	3	5.900	70.80	106.00	212.40	3,708.0	418.95	1.880	48	5.0
AL-150	SOX (NBR)	4	2.300	27.60	41.40	82.80	1,450.0	163.83	1.880	48	5.0
L190/LC190	SOX (NBR)	3	2.700	32.40	49.00	97.20	1,728.0	195.24	2.120	55	5.0
L190	Hytrel	3	7.400	88.80	134.00	266.40	4,680.0	528.77	2.120	55	5.0
L225/LC225	SOX (NBR)	3	3.700	44.40	67.00	133.20	2,340.0	264.38	2.620	65	4.2
L225	Hytrel	3	9.900	118.80	178.00	356.40	6,228.0	703.67	2.620	65	4.2
L276	SOX (NBR)	3	7.500	90.00	135.00	+	4,716.0	532.84	2.880	73	1.8
C Type											
C226	SXB (NBR)	3	4.700	56.40	85.00	169.20	2,988.0	337.60	2.500	64	4.8
C226	Hytrel	3	9.400	112.80	170.00	338.40	5,940.0	671.13	2.500	64	4.8
C276	SXB (NBR)	3	7.500	90.00	135.00	270.00	4,716.0	532.84	2.880	73	4.2
C276	Hytrel	3	15.000	180.00	269.00	540.00	9,432.0	1065.67	2.880	73	4.2
C280	SXB (NBR)	3	12.000	114.00	216.00	+	7,560.0	854.17	3.000	76	3.5
C280	Hytrel	3	22.000	264.00	396.00	+	13,866.0	1 566.65	3.000	76	3.5
C285	SXB (NBR)	3	14.600	175.20	262.00	+	9,182.0	1 037.43	4.000	102	3.2
C285	Hytrel	3	26.000	312.00	476.00	+	16,680.0	1 882.33	4.000	102	3.2
C295	SXB (NBR)	3	18.000	216.00	324.00	+	11,340.0	1 281.25	3.500	89	2.3
C295	Hytrel	3	36.000	432.00	648.00	+	22,680.0	2 562.50	3.500	89	2.3
C2955	SXB (NBR)	5	30.000	360.00	540.00	+	18,900.0	2 135.42	4.000	102	2.3
C2955	Hytrel	5	60.000	720.00	1,080.00	+	37,800.0	4 270.83	4.000	102	2.3
H Type											
H3067	SXB (NBR)	7	53.000	639.00	954.00	+	33,396.0	3 773.25	4.500	114	2.3
H3067	Hytrel	7	75.000	900.00	1,348.00	+	47,196.0	5 332.44	4.000	102	2.3
H3567	SXB (NBR)	7	74.000	888.00	1,332.00	+	46,632.0	5 268.72	5.000	127	2.1
H3567	Hytrel	7	100.000	1,200.00	1,799.00	+	63,000.0	7 118.06	4.500	114	2.1
H3667	SXB (NBR)	7	103.000	1,236.00	1,851.00	+	64,812.0	7 322.78	5.620	146	1.9
H3667	Hytrel	7	140.000	1,680.00	2,519.00	+	88,200.0	9 965.28	5.000	127	1.9
H4067	SXB (NBR)	7	140.000	1,680.00	2,520.00	+	88,224.0	9 967.99	6.250	159	1.8
H4067	Hytrel	7	200.000	2,400.00	3,600.00	+	126,000.0	14 236.11	5.500	140	1.8
H4567	SXB (NBR)	7	190.000	2,280.00	+	+	119,700.0	13 524.30	7.000	178	1.5
H4567	Hytrel	7	270.000	3,240.00	+	+	170,000.0	19 207.45	6.000	152	1.5
RRS Type											
RRS090	SOX (NBR)	3	0.230	2.76	4.11	8.28	144.0	16.27	1.000	25	3.6
RRS095	SOX (NBR)	3	0.310	3.72	5.50	11.16	194.0	21.92	1.120	28	3.6
RRS099	SOX (NBR)	3	0.500	6.00	9.10	18.00	318.0	35.93	1.180	30	3.6
RRS100	SOX (NBR)	3	0.660	7.92	11.90	23.76	417.0	47.11	1.380	35	3.6
RRS110	SOX (NBR)	3	1.260	15.12	23.00	45.36	792.0	89.48	1.620	42	3.6
RRS150	SOX (NBR)	3	2.000	24.00	35.00	72.00	1,240.0	140.10	1.880	48	3.6
RRS190	SOX (NBR)	3	2 700	32 40	49 00	97 20	1 728 0	195 24	2 120	55	3 6

Notes: ■ + indicates: exceeds RPM capacity.

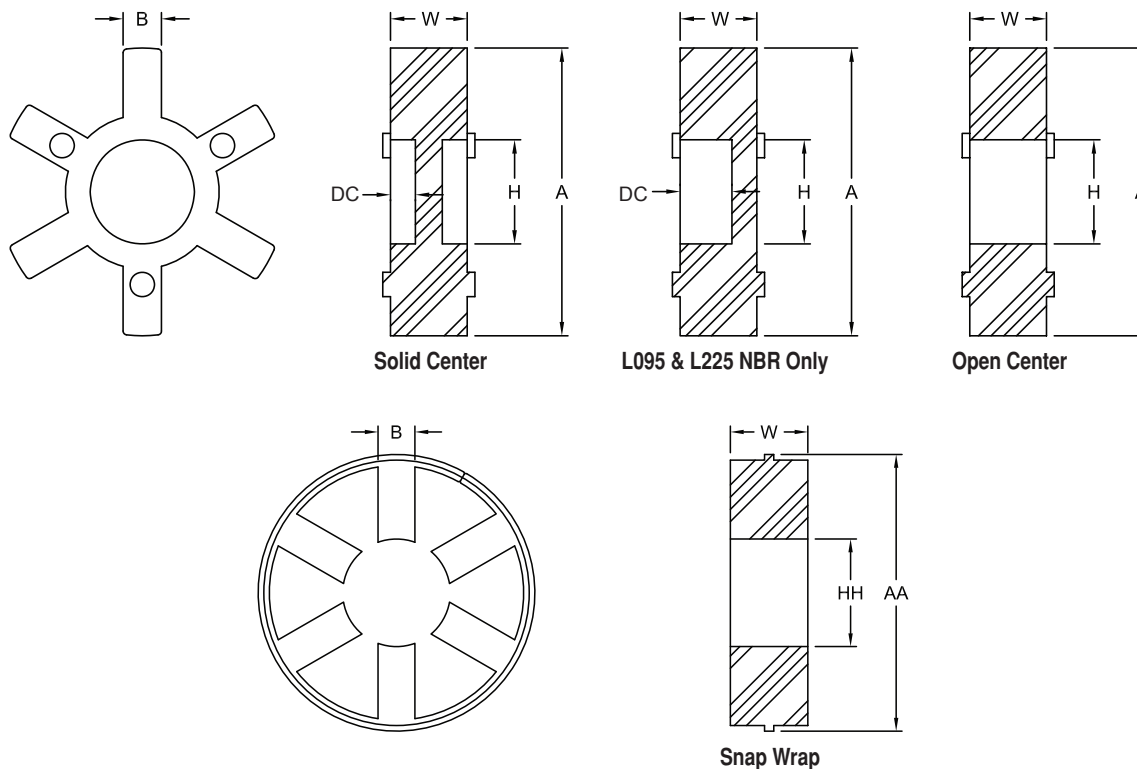
■ See Chart on page JW-9 for Bronze and Urethane ratings.



Table of Contents

Jaw**Elastomers
Dimensional Data****Elastomers In Compression (Spiders)**

JW

**Elastomers In Compression (Spiders) Dimensional Data**

Size					A	DC	H					A	H					AA	HH	W	B
	Solid Center Spiders							Open Center Spiders								Snap Wrap Spiders			All		
	Material Available				in	in	in	Material Available				in	NBR	URE	HYT	BRZ	Material	in	in	in	in
	NBR	Urethane	Hytrel®	Bronze				NBR	Urethane	Hytrel®	Bronze										
	SOX	URE	HYT	BRZ				SOX	URE	HYT	BRZ										
L035	X	—	—	—	0.62	—	—	—	—	—	—	—	—	—	—	—	N/A	—	—	0.28	0.21
L050	X	X	X	—	1.07	—	—	—	—	—	X	1.07	0.31		0.31	N/A	—	—	0.42	0.27	
L070	X	X	—	—	1.38	—	—	X	X	X	X	1.38	0.50		0.50	N/A	—	—	0.42	0.27	
L075	X	—	—	—	1.75	—	—	X	X	X	X	1.75	0.75		0.75	N/A	—	—	0.44	0.27	
L090/L095	X	—	—	—	2.12	0.18	0.88	X	X	X	X	2.12	0.88		0.75	X	2.56	1.06	0.44	0.36	
L099/L100	X	—	—	—	2.54	0.25	1.03	X	X	X	X	2.54	1.03		1.03	X	3.08	1.37	0.61	0.43	
L110	X	—	X	—	3.31	NBR .25	1.19	X	X	X	X	3.31	1.18		1.38	X	3.87	1.50	0.75	0.45	
						HYT .18															
L150	X	—	X	—	3.75	NBR .31	1.25	X	X	X	X	3.75	1.25		1.125	X	4.56	1.75	0.88	0.59	
						HYT .21															
L190	X	—	X	—	4.50	NBR .31	1.38	X	X	X	X	4.50	1.38		1.38	X	5.18	2.25	0.88	0.60	
						HYT .18															
L225	X	—	X	—	4.98	NBR .38	1.75	X	X	X	X	4.98	1.75		1.75	URE	5.44	2.75	0.88	0.73	
						HYT .18															
L276	—	—	—	—	—	—	—	X	—	—	X	6.19	1.75		1.75	N/A	—	—	1.45	0.75	

Notes: ■ X indicates: Applicable.

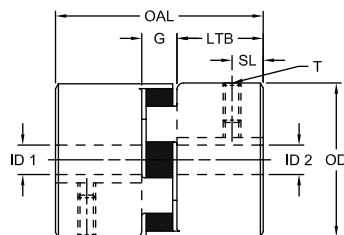
■ See pages JW-5 and JW-9 for more information on spiders.



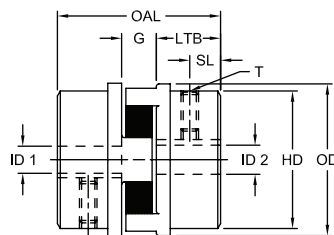
Table of Contents

Jaw**L, C and H Type
Dimensional Data**

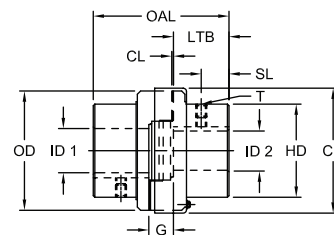
JW

L, C and H Type Couplings

Style 1



Style 2



Style 3

L Type, C Type & H Type Dimensional Data

Size	Style No	OAL in	G in	LTB in	SL in	CL in	T in	ID1 - ID2				OD in	CD in	HD in	Weight		Moment of Inertia (Solid) WR² lb-in²
								Min Bore		Max Bore					Min Bore lbs	Max Bore lbs	
								in	mm	in	mm						
L Type																	
L035	1	0.81	0.28	0.27	0.13	N/A	#6-32	0.125	3	0.375	9	0.63	N/A	0.63	0.10	0.10	0.003
L050	1	1.71	0.48	0.62	0.31	N/A	1/4-20	0.250	6	0.625*	16	1.08	N/A	1.08	0.30	0.20	0.054
L070	1	1.98	0.48	0.75	0.38	N/A	1/4-20	0.250	6	0.750	19	1.36	N/A	1.36	0.60	0.40	0.115
L075	1	2.13	0.50	0.82	0.31	N/A	1/4-20	0.250	6	0.875	22	1.75	N/A	1.75	1.00	0.80	0.388
L090	1	2.15	0.52	0.82	0.44	N/A	1/4-20	0.250	6	1.000	25	2.11	N/A	2.11	1.50	1.20	0.772
L095	1	2.51	0.52	1.00	0.44	N/A	5/16-18	0.437	11	1.125	29	2.11	N/A	2.11	1.80	1.30	0.890
L099	1	2.84	0.71	1.06	0.44	N/A	5/16-18	0.437	11	1.188	30	2.54	N/A	2.54	2.50	2.00	2.048
L100	1	3.48	0.71	1.38	0.44	N/A	5/16-18	0.437	11	1.375	35	2.54	N/A	2.54	3.20	2.40	2.783
L110	1	4.22	0.88	1.68	0.75	N/A	3/8-16	0.625	16	1.625	42	3.32	N/A	3.32	6.60	5.30	8.993
L150	1	4.50	1.00	1.75	0.75	N/A	3/8-16	0.625	16	1.875	48	3.75	N/A	3.75	8.80	7.00	11.477
L190	2	4.86	1.00	1.94	0.88	N/A	1/2-13	0.750	19	2.125	54	4.50	N/A	4.00	15.30	12.30	39.256
L225	2	5.34	1.00	2.18	1.00	N/A	1/2-13	0.750	19	2.625	67	5.00	N/A	4.25	19.60	15.00	65.000
L276	2	7.82	1.58	3.12	1.56	N/A	1/2-13	0.875	22	2.875	73	6.18	N/A	5.00	40.00	30.50	188.000
C Type																	
C226	3	7.00	1.50	2.75	1.38	0.12	1/2-13	0.875	22	2.500	64	5.15	5.50	4.12	29.00	22.00	74.000
C276	3	7.87	1.63	3.12	1.56	0.12	1/2-13	0.875	22	2.875	73	6.18	6.53	5.00	47.00	36.00	188.000
C280	3	7.87	1.63	3.12	1.56	0.12	1/2-13	1.250	32	3.000	76	7.50	7.81	5.50	61.00	49.00	362.000
C285	3	9.13	1.63	3.75	1.75	0.12	5/8-11	1.250	32	4.000	102	8.50	8.88	6.50	87.00	68.00	642.000
C295	3	9.38	1.88	3.75	1.88	0.12	5/8-11	1.500	38	3.500	89	9.12	9.62	6.25	97.00	78.00	862.000
C2955	3	10.38	1.88	4.25	2.12	0.12	5/8-11	1.750	44	4.000	102	9.12	9.62	7.12	117.00	90.00	932.000
H Type																	
H3067																	
SXB(NBR)	3	11.62	2.12	4.75	2.37	0.12	5/8-11	2.125	54	4.500	114	10.00	10.68	7.00	162.00	123.00	1,485.000
HYTREL®		11.62	2.12	4.75	2.37	0.12	5/8-11	2.125	54	4.000	102	10.00	10.68	7.00	162.00	123.00	1,485.000
H3567																	
SXB(NBR)	3	12.38	2.38	5.00	2.50	0.12	5/8-11	2.625	67	5.000	127	11.00	11.68	7.75	246.00	195.00	2,174.000
HYTREL		12.38	2.38	5.00	2.50	0.12	5/8-11	2.625	67	4.500	114	11.00	11.68	7.75	246.00	195.00	2,174.000
H3667																	
SXB(NBR)	3	13.88	2.62	5.63	2.81	0.12	3/4-10	3.000	76	5.625	143	12.00	12.45	8.75	262.00	190.00	3,591.000
HYTREL		13.88	2.62	5.63	2.81	0.12	3/4-10	3.000	76	5.000	127	12.00	12.45	8.75	262.00	190.00	3,591.000
H4067																	
SXB(NBR)	3	15.38	2.88	6.25	3.12	0.12	3/4-10	3.250	83	6.250	159	13.25	14.00	9.75	390.00	291.00	6,287.000
HYTREL		15.38	2.88	6.25	3.12	0.12	3/4-10	3.250	83	5.500	140	13.25	14.00	9.75	390.00	291.00	6,287.000
H4567																	
SXB(NBR)	3	17.12	3.12	7.00	3.50	0.12	3/4-10	3.500	89	7.000	178	14.50	15.75	10.75	575.00	435.00	10,565.000
HYTREL		17.12	3.12	7.00	3.50	0.12	3/4-10	3.500	89	6.000	152	14.50	15.75	10.75	575.00	435.00	10,565.000

Notes: ■ * indicates: Without keyway.

■ 2 indicates: Maximum bore is less for H Type couplings with Hytrel due to increased torque capacity.

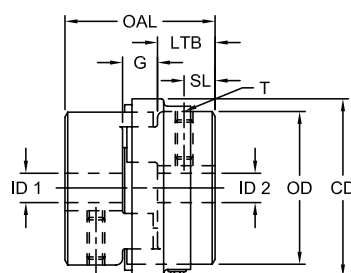
■ N/A indicates: Not Applicable.

■ Jaw coupling hubs are standard with one set screw, for two set screws see RRS & RRC sections.

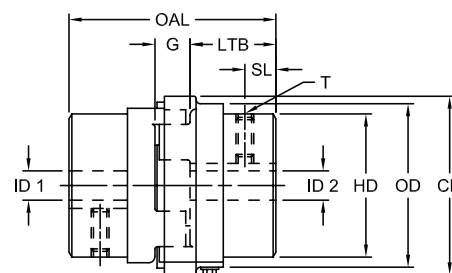
■ See pages JW-9 and JW-22 for Performance Data.



Table of Contents

Jaw**LC and AL Type
Dimensional Data****LC and AL Type Couplings**

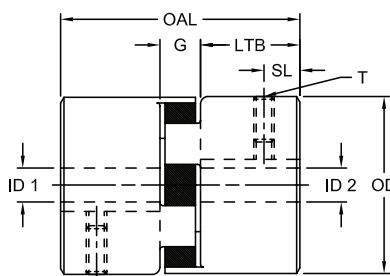
Style 1



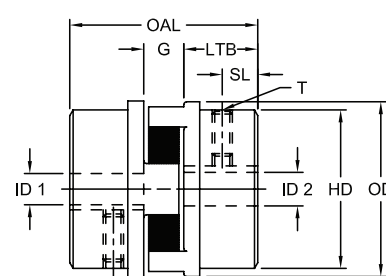
Style 2

LC Type Dimensional Data

Size	Style No	OAL	G	LTB	SL	T	ID1 - ID2				CD	OD	HD	Weight		Moment of Inertia (Solid) WR ² lb-in ²
							Min Bore		Max Bore					Solid	Max Bore	
in	in	in	in	in	in	in	mm	in	mm	in	in	in	lbs	lbs		
LC090	1	2.12	0.50	0.81	0.44	1/4-20	0.250	6	1.00	25	2.54	2.11	2.11	1.5	1.2	0.772
LC095	1	2.50	0.50	1.00	0.44	5/16-18	0.437	11	1.12	29	2.54	2.11	2.11	1.8	1.3	0.890
LC099	1	2.87	0.75	1.06	0.44	5/16-18	0.437	11	1.18	30	3.11	2.53	2.53	2.5	2.0	2.048
LC100	1	3.50	0.75	1.38	0.44	5/16-18	0.437	11	1.37	35	3.11	2.53	2.53	3.5	2.5	2.783
LC110	1	4.25	0.87	1.69	0.75	3/8-16	0.625	16	1.62	41	3.81	3.31	3.31	6.6	5.0	8.993
LC150	1	4.50	1.00	1.75	0.75	3/8-16	0.625	16	1.88	48	4.41	3.75	3.75	9.1	7.0	11.477
LC190	2	4.88	1.00	1.94	0.88	1/2-13	0.750	19	2.12	54	5.01	4.50	4.00	17.0	13.0	39.256
LC225	2	5.38	1.00	2.19	1.00	1/2-13	0.875	22	2.62	67	5.61	5.00	4.25	23.0	18.0	62.003



Style 1



Style 2

AL Type Dimensional Data

Size	Style No	OAL	G	LTB	SL	T	ID1 - ID2				CD	OD	HD	Weight		Moment of Inertia (Solid) WR ² lb-in ²
							Min Bore		Max Bore					Solid	Max Bore	
in	in	in	in	in	in	in	mm	in	mm	in	in	in	lbs	lbs		
AL050	1	1.71	0.48	0.62	0.31	1/4-20	0.250	6	0.625	16	N/A	1.08	1.08	0.2	0.2	0.020
AL070	1	2.00	0.50	0.75	0.38	1/4-20	0.250	6	0.750	19	N/A	1.36	1.36	0.3	0.2	0.040
AL075	2	2.12	0.50	0.81	0.31	1/4-20	0.250	6	0.875	22	N/A	1.75	1.53	0.4	0.3	0.121
AL090	2	2.34	0.52	0.91	0.34	1/4-20	0.250	13	0.875	22	N/A	2.12	1.53	0.5	0.4	0.271
AL095	1	2.50	0.50	1.00	0.44	5/16-18	0.500	13	1.125	29	N/A	2.12	2.12	0.8	0.6	0.336
AL099	2	2.81	0.75	1.03	0.44	5/16-18	0.500	13	1.187	30	N/A	2.53	2.06	1.0	0.8	0.644
AL100	2	3.50	0.75	1.37	0.44	5/16-18	0.500	13	1.375	35	N/A	2.53	2.41	1.5	1.1	1.207
AL110	1	4.25	0.87	1.69	0.75	5/16-18	0.625	16	1.625	41	N/A	3.31	3.31	2.7	2.1	3.531
AL150	2	4.50	1.00	1.75	0.63	5/16-18	0.625	16	1.875	48	N/A	4.25	3.19	3.7	2.8	7.002

Notes: ■ N/A indicates: Not Applicable.

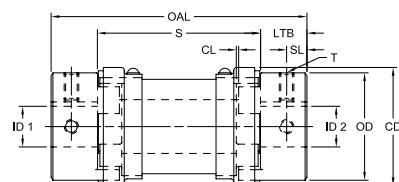
■ See pages JW-9 and JW-22 for Performance Data.



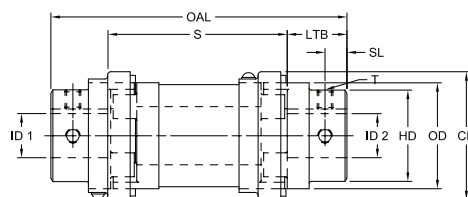
Table of Contents

Jaw**RRS and RRC Type
Dimensional Data**

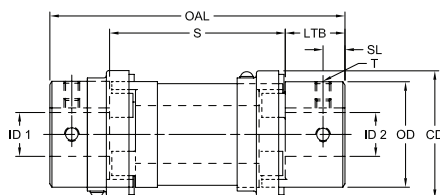
JW



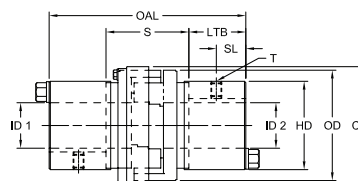
Style 1



Style 2



Style 3



Style 4

RRS & RRC Type Dimensional Data

Size	Style No	OAL in	S in	LTB in	SL in	CL in	T in	ID1 - ID2				CD in	OD in	HD in	Weight lbs
								Min Bore in	mm	Max Bore in	mm				
RRS090	1	5.12	3.5	0.81	0.43	0.09	1/4-20	0.250	6	1.000	25	2.50	2.11	—	1.7
		6.62	5.0												1.8
		8.62	7.0												1.9
RRS095	1	5.50	3.5	1.00	0.43	0.09	5/16-18	0.437	11	1.125	29	2.50	2.11	—	1.9
		7.00	5.0												2.0
		9.00	7.0												2.1
RRS099	1	5.62	3.5	1.06	0.44	0.12	5/16-18	0.437	11	1.187	30	3.12	2.53	—	2.2
		7.12	5.0												2.5
		9.12	7.0												2.8
RRS100	1	6.25	3.5	1.38	0.44	0.12	5/16-18	0.437	11	1.375	35	3.12	2.53	—	3.2
		7.75	5.0												3.5
		9.75	7.0												3.8
RRS110	1	6.88	3.5	1.68	0.75	0.12	5/16-18	0.625	16	1.625	41	3.81	3.31	—	6.2
		8.36	5.0												6.6
		10.36	7.0												7.2
RRS150	2	7.00	3.5	1.75	0.62	0.12	3/8-16	0.625	16	1.875	48	4.44	3.75	—	12.2
		8.50	5.0												15.7
		10.50	7.0												20.3
RRS190	3	7.38	3.5	1.94	0.88	0.12	1/2-13	0.750	19	2.125	54	5.00	4.50	4.00	23.0
		8.88	5.0												28.2
		10.88	7.0												35.0
RRS225	3	7.88	3.5	2.18	1.00	0.12	1/2-13	0.750	19	2.625	67	5.62	5.00	4.25	26.5
		9.38	5.0												33.0
		11.38	7.0												41.4
RRC226	4	9.19	3.5	2.84	1.38	N/A	1/2-13	0.875	22	2.125	54	5.50	5.16	4.12	37.0
		10.68	5.0												43.0
		12.68	7.0												49.0
RRC276	4	8.60	3.5	2.47	1.00	N/A	1/2-13	0.875	22	2.875	73	6.50	6.18	5.00	52.0
		9.94	5.0												59.0
		11.94	7.0												69.0
RRC280	4	5.50	3.5	2.47	1.00	N/A	1/2-13	1.250	32	3.375	86	7.81	7.50	5.50	66.0
		9.94	5.0												75.0
		11.94	7.0												87.0
RRC285	4	9.31	3.5	2.87	1.00	N/A	1/2-13	1.250	32	4.125	105	8.88	8.50	6.50	92.0
		10.75	5.0												104.0
		12.75	7.0												121.0
RRC295	4	9.50	4.0	2.75	1.38	N/A	1/2-13	1.500	38	4.125	105	9.56	9.12	6.50	100.0
		10.50	5.0												112.0
		12.50	7.0												128.0
RRC2955	4	9.50	4.0	2.75	1.88	N/A	5/8-11	1.750	44	4.125	105	9.56	9.12	6.50	96.0
		10.50	5.0												111.0
		12.50	7.0												132.0

Notes: ■ N/A indicates: Not Applicable.

■ See pages JW-9 and JW-22 for Performance Data.



Table of Contents

Jaw

RRS Type Metric Spacer, L Type / Special Lengths

Dimensional Data

RRS Type - Metric Spacer Dimensional Data

Size	Style No	ID1 - ID2				S mm	OAL mm	Spacer Weight	
		Min Bore		Max Bore				lbs	Kg
		in	mm	in	mm				
RRS090	1	0.250	11	1.000	25	100	141	0.83	0.38
						140	181	1.21	0.55
						180	221	1.59	0.79
RRS095	1	0.437	11	1.125	28	100	151	0.83	0.38
						140	191	1.21	0.55
						180	231	1.59	0.79
RRS099	1	0.437	11	1.188	30	100	154	1.08	0.49
						140	194	1.63	0.74
						180	234	2.17	0.98
RRS100	1	0.437	11	1.375	35	100	170	1.08	0.49
						140	210	1.63	0.74
						180	250	2.17	0.98
RRS110	1	0.625	16	1.625	41	100	186	1.64	0.74
						140	226	2.55	1.16
						180	266	3.48	1.58
RRS150	2	0.625	16	1.875	48	100	189	5.92	2.69
						140	229	9.54	4.33
						180	269	13.19	5.98
RRS190	2	0.750	19	2.125	54	100	199	8.75	3.97
						140	239	14.00	6.35
						180	277	19.26	8.74
RRS225	2	0.750	19	2.625	67	100	221	10.83	4.91
						140	261	17.49	7.93
						180	291	24.18	10.97

Note: ■ See pages JW-9 and JW-22 for Performance Data.

L Type Hubs - Special Lengths

Size	OAL	LTB	OAL	LTB
	Standard Dimensions		Special Dimensions	
	Complete Couplings Overall Length	Hub Length Thru Bore	Complete Couplings Overall Length	Hub Length Thru Bore
	in	in	in	in
L050	1.720	0.620	1.10	0.31
			1.34	0.43
			2.24	0.88
L070	2.000	0.750	1.23	0.38
			3.00	1.25
L095	2.500	1.000	3.86	1.68
L100	3.500	1.375	7.99	3.62
L110	4.250	1.690	2.37	0.75
			2.47	0.80
			6.63	2.88

Notes: ■ For ordering information on any special length jaw hub, please contact Lovejoy Customer Service.

■ The Overall Length is calculated using two hubs with the same length thru bore.


Gearmotors & Speed Reducers

60 Hz Motors



Section	616
Page	616.1
Issue	B

Gear Ratio Range: From 2.1:1 to 45.9:1 (varies by reducer size)

Output Speeds: (with 1750 rpm input) 819 to 36 rpm (varies by reducer size)

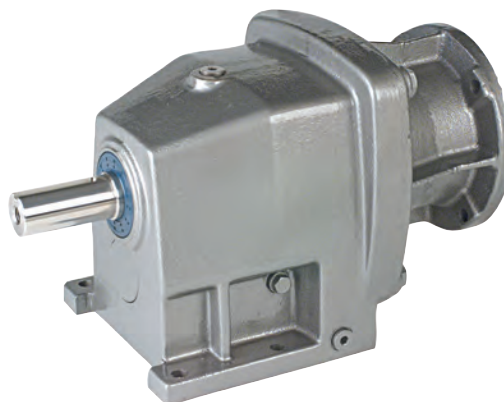
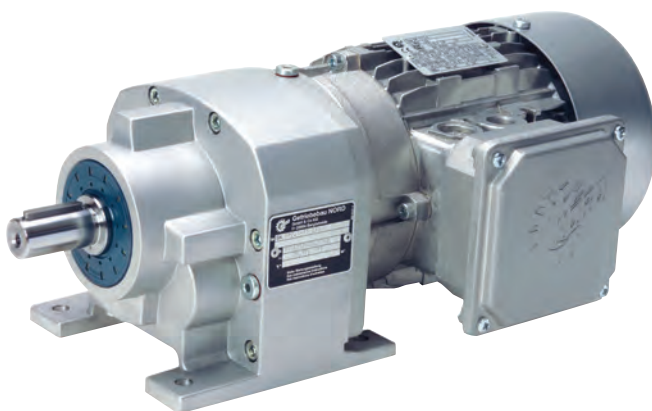
Reducer Horsepower Range: 0.5 HP to 200 HP

MAJOR DESIGN FEATURES

Features:

- Two Nord reducers series available: Helical In-Line & Nordbloc.1®
- 31 different sizes available: Helical In-Line, 17 sizes and Nordbloc.1®, 14 sizes
 - All sizes available with a variety of ratios, double & triple reduction
- Universal Mounting
 - Solid input shaft
 - Flange mount C face with compact coupling design (NEMA or IEC)
 - Integral Gearmotor Design in IE1 and IE2 (varies by size)
- Modular design, up to 98.5% efficient
- Heavy Duty Unicast™ one piece housing
- Gears are case-hardened steel designed and manufactured to AGMA Class 13
- Autovent™ Breather
- Quadrilip™ Sealing System
- Helical In-Line sizes SK02 – SK103, class 35 grey cast iron with stainless steel paint
- Nordbloc.1® sizes SK072.1 – SK672.1 corrosion resistant alloy (unpainted), SK772.1 – SK973.1 class 35 grey cast iron with stainless steel paint
- All units come factory filled with Mobil SHC630 synthetic oil

ITEM NUMBER	WORLD ENERGY TAGS
PW532C.1/1	19-P-759A
PW532C.1/2	19-P-759B
PW532C.2/1	19-P-859A
PW532C.2/2	19-P-859B



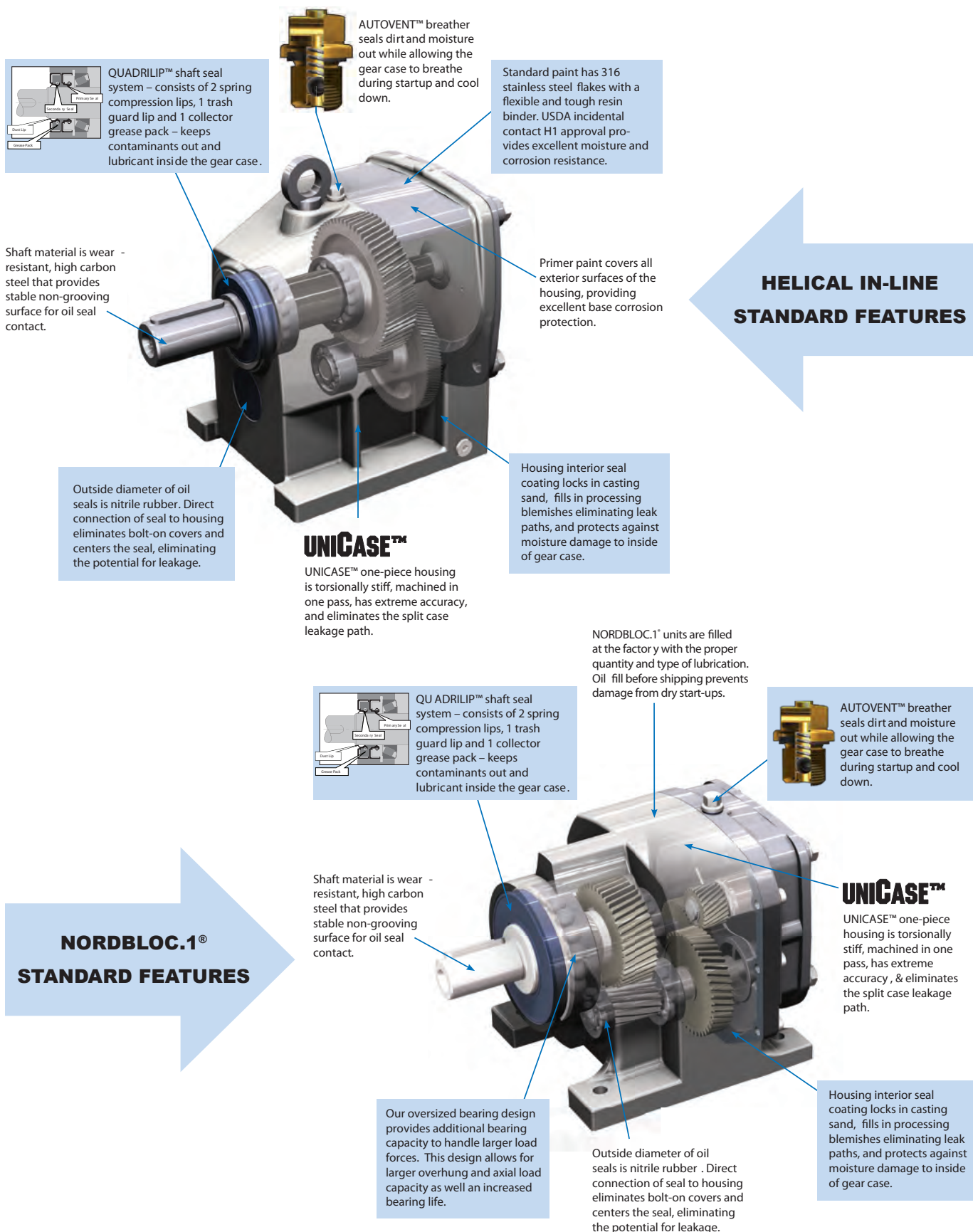
Nordbloc.1® is a registered trademark of NORD Gear Corporation

Section	616
Page	616.2
Issue	B



Gearmotors & Speed Reducers

60 Hz Motors



Nordbloc.1® is a registered trademark of NORD Gear Corporation

VIKING PUMP • A Unit of IDEX Corporation • Cedar Falls, IA ©2017



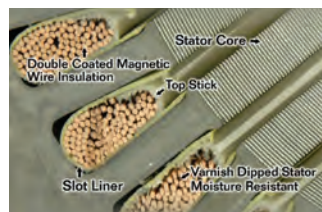
Gearmotors & Speed Reducers

60 Hz Motors



Section	616
Page	616.3
Issue	B

STANDARD MOTOR FEATURES



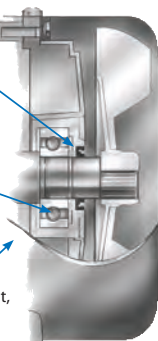
Inverter duty winding protection, Class H magnet wire insulation, double coated wire, and voltage spike protection.

End bell to stator connections are sealed to keep out moisture.

Shaft lip seal prevents contaminants from entering.

Bearing grease has superior resistance to washout, rust and corrosion.

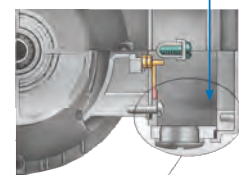
Corrosion-resistant, non-sparking fan.



Die cast aluminum rotor coated to prevent corrosion.

Corrosion-resistant aluminum alloy construction.

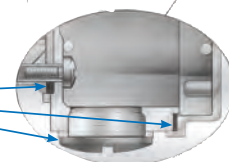
Threaded cable entry allows the power feed line to be sealed.



Standard paint has 316 stainless steel flakes with a flexible and tough resin binder. USDA incidental contact H1 approval provides excellent moisture resistance.

Shaft lip seal excludes speed reducer lubricant, allowing motor to be mounted in any position.

Conduit box connections and lid have gaskets to ensure a water tight seal.



Section	616
Page	616.4
Issue	B



Gearmotors & Speed Reducers

60 Hz Motors



*Additional options may be available beyond those shown in this catalog section.
Please consult factory for additional information.*

SELECTING THE CORRECT NORD REDUCER OR GEARMOTOR

1. Determine the actual horsepower or kW requirements of the application from the pump performance curve, which can be electronically generated with the Viking Pump Selector Program, located on www.vikingpump.com, or specification from other equipment.
2. Based on the horsepower or kW requirement, go to the closest higher HP or kW page.
3. Make sure the service factor for the reducer selected is greater than the service factor from the Service Factor Table on page 6. The Service Factor Table provides different service factors based on the length of service per day, the load classification (uniform, moderate, shock, heavy shock) and the type of drive. A table of driven load classification is also included on page 616.6 to help determine the service factor to use.

Example:

For a 7.1 HP requirement, go to the 7.5 HP catalog page. Then find the reducer which most closely matches your speed requirements.

4. Next, determine the part number of the Nord reducer or gearmotor. Part numbers can be created from the catalog pages (examples below).

Note: the “-” is required between each field

Examples:

- a. **Reducer:** 510 RPM output speed, solid input shaft.
Part # = **SK92-W-3.51**

- b. **Reducer:** 528 RPM output speed, 184TC frame motor.
Part # = **SK572.1-N180TC-3.27**

		Part Number					
		SKxxx	-xx-	x.xx	-x		
4-Pole 1750 RPM		1	2	3	4	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor	Reducer Model #	¹ Input Option (Choose One)	Gear Ratio	² Voltage Code (Gear Motors Only)	60Hz (rpm)	12Hz (rpm)
510	2.3	SK92		3.51		510	102
418	3.2	SK102		4.28	-1	418	84
342	2.9	SK102		5.23		342	68
315	1.8	SK92	-W-	5.68		315	63
287	2.6	SK102		6.24		287	57
267	1.7	SK92		6.7	-2	267	53
239	2.2	SK102	-315M-	7.5		239	48
180	2.2	SK102	-315MH-	9.96		180	36
170	1.4	SK92		10.5		170	34
151	1.9	SK102		11.88	-4	151	30
125	1.7	SK102		14.29		125	25
108	1.5	SK102		16.63		108	22

¹ Reducer Input Options

- W- Solid Shaft Input Reducer
- 315M- Integral 4-Pole TEFC Standard Gear Motor
- 315MH- Integral 4-Pole TEFC Energy Efficient Gear Motor

² Voltage Code

- 1 230/460V, 60 Hz, 3 Ph
- 2 575V, 60 Hz, 3 Ph
- 4 400V, 50 Hz, 3 Ph

(For more options, contact Viking Pump)

		Part Number					
		SKxxx	-xx-	x.xx	-x		
4-Pole 1750 RPM		1	2	3	4	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor	Reducer Model #	¹ Input Option (Choose One)	Gear Ratio	² Voltage Code (Gear Motors Only)	60Hz (rpm)	12Hz (rpm)
658	1.7	SK372.1		2.62		658	132
618	2	SK22		2.79	-1	618	124
603	1.5	SK372.1	-W-	2.86		603	121
591	2.7	SK572.1		2.92	-2	591	118
583	1.7	SK12*		2.96		583	117
553	1.6	SK372.1	-N180TC-	3.12		553	111
528	2.7	SK572.1		3.27	-3	528	106
509	1.6	SK12*	-100LA-	3.39		509	102
503	1.6	SK372.1	-112MH-	3.43	-4	503	101
489	1.8	SK22		3.53		489	98

¹ Reducer Input Options

- W- Solid Shaft Input Reducer
- N180TC- NEMA C-Face Input Reducer (no motor).
Optional motor: part # listed below. **
- 100LA- Integral 4-Pole TEFC Standard Gear Motor
- 112MH- Integral 4-Pole TEFC Energy Efficient Gear Motor

² Voltage Code

- 1 230/460V, 60 Hz, 3 Ph
- 2 575V, 60 Hz, 3 Ph
- 3 208-230/460V, 60 Hz, 3 Ph
- 4 400V, 50 Hz, 3 Ph

(For more options, contact Viking Pump)



Gearmotors & Speed Reducers

60 Hz Motors



Section	616
Page	616.5
Issue	B

- c. Gearmotor: 125 RPM output speed, 230/460V - 60 Hz.
Part # = **SK102-315MA-14.29-1**

Part Number							5:1 Inverter Duty (Constant Torque)	
4-Pole 1750 RPM		1	2	3	4			
Output Speed (rpm)	Service Factor	Reducer Model #	¹ Input Option (Choose One)	Gear Ratio	² Voltage Code (Gear Motors Only)	60Hz (rpm)	12Hz (rpm)	
510	2	SK92	-W-	3.51	-1	510	102	
418	2.8	SK102		4.28		418	84	
342	2.5	SK102		5.23		342	68	
315	1.6	SK92		5.68		315	63	
287	2.3	SK102		6.24		287	57	
267	1.5	SK92		6.7	267	53		
239	1.9	SK102		7.5	239	48		
180	1.9	SK102		9.96	180	36		
151	1.7	SK102		11.88	151	30		
125	1.5	SK102		14.29	125	25		
108	1.3	SK102		16.63	108	22		
					-2			
					-4			

¹ Reducer Input Options

-W- Solid Shaft Input Reducer

-315MA- Integral 4-Pole TEFC Standard Gear Motor

² Voltage Code

-1 230/460V, 60 Hz, 3 Ph

-2 575V, 60 Hz, 3 Ph

-4 400V, 50 Hz, 3 Ph

(For more options, contact Viking Pump)

5. If ordering a reducer with a NEMA motor adaptor, you have the option to buy a Nord motor with it. The Nord Motor parts numbers are available at the bottom of the 60 Hz catalog pages (up to 20 HP)

Example:

NORD Gearmotors & Speed Reducers					Section	616	
20 HP					Page	616.17	
60 Hz Motors 39 RPM to 583 RPM					Issue	A	
4-Pole 1750 RPM	1	2	3	4	5:1 Inverter Duty (Constant Torque)		
Output Speed (rpm)	Service Factor	Reducer Model #	¹ Input Option (Choose One)	Gear Ratio	² Voltage Code (Gear Motors Only)		
510	2	SK92	-W-	3.51	-1	510	
418	2.8	SK102		4.28		418	
342	2.5	SK102		5.23		342	
315	1.6	SK92		5.68		315	
287	2.3	SK102		6.24		287	
267	1.5	SK92		6.7		267	
239	1.9	SK102		7.5		239	
180	1.9	SK102		9.96		180	
151	1.7	SK102		11.88		151	
125	1.5	SK102		14.29		125	
108	1.3	SK102		16.63		108	
					-2	102	
					-4	84	
					-2	68	
					-4	63	
					-2	57	
					-4	53	
					-2	48	
					-4	36	
					-2	30	
					-4	25	
					-2	22	

¹ Reducer Input Options	² Voltage Code
-W- Solid Shaft Input Reducer	-1 230/460V, 60 Hz, 3 Ph
-315MA- Integral 4-Pole TEFC Standard Gear Motor	-2 575V, 60 Hz, 3 Ph
	-4 400V, 50 Hz, 3 Ph
	(For more options, contact Viking Pump)

Efficiency	Part Number	Weight (LBS)
IE2	EE	SK160LH/4-256TCTW
		-
		² Voltage Code
		198.4

Section	616
Page	616.6
Issue	B



Gearmotors & Speed Reducers

60 Hz Motors



SERVICE FACTOR TABLE

POWER SOURCE	CLASSIFICATION OF DRIVEN LOAD*	INTERMITTENT UP TO 3 HOURS per DAY	8 – 10 HOURS per DAY	24 HOURS per DAY
Electric Motor, Steam Turbine, or Hydraulic Motor	Uniform	0.8	1.0	1.25
	Moderate Shock	1.0	1.25	1.5
	Heavy Shock	1.5	1.75	2.0
Multi-cylinder Internal Combustion Engine	Uniform	1.0	1.25	1.5
	Moderate Shock	1.25	1.5	1.75
	Heavy Shock	1.75	2.0	2.25

* Rotary Pump applications are classified as Uniform Loads.

DRIVEN LOAD CLASSIFICATIONS

(excerpted from AGMA Information Sheet 922-A96 ©1996)

Key: U = Uniform Load; M = Moderate Shock Load; H = Heavy Shock Load

APPLICATION	LOAD CLASSIFICATION	APPLICATION	LOAD CLASSIFICATION
Pumps, Rotary and Centrifugal	U	Fans, Cooling Tower	M
Pumps, Reciprocating	M	Feeders, Apron, Belt, Screw	U
Agitators	U	Feeders, Reciprocating	M
Blowers	U	Generators	U
Compressors, Centrifugal & Lobe	U	Hammer Mills	M
Compressors, Reciprocating	M	Machine Tools	M
Cranes and Hoists	M	Mills, Rotary	M
Crushers, Ore and Stone	H	Mixers, Concrete, Drum Type	M
Elevators	M	Printing Presses	U
Fans, Centrifugal, Forced Draft	U	Sewage Disposal Bar Screens	U



Gearmotors & Speed Reducers

0.5 HP

60 Hz Motors | 37 RPM to 819 RPM



Section	616
Page	616.7
Issue	B

		Part Number					
		SKxxx	-XX -	X.XX	-X		
4-Pole 1750 RPM		1	2	3	4	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor	Reducer Model #	¹ Input Option (Choose One)	Gear Ratio	² Voltage Code (Gear Motors Only)	60Hz (rpm)	12Hz (rpm)
819	6.9	SK072.1*		2.1		819	164
741	8	SK172.1		2.32		741	148
738	6.7	SK072.1*		2.33		738	148
691	7.8	SK172.1		2.49		691	138
669	6.9	SK072.1*		2.57		669	134
632	8	SK172.1		2.72		632	126
604	6.7	SK072.1*		2.85		604	121
589	7.8	SK172.1		2.92		589	118
583	7.6	SK02		2.95		583	117
534	8	SK172.1		3.22		534	107
524	6.7	SK072.1*		3.28		524	105
509	7.3	SK02		3.38		509	102
497	7.5	SK172.1		3.46		497	99
480	6.5	SK072.1*		3.58		480	96
454	7.5	SK172.1		3.79		454	91
442	6.6	SK02	-W-	3.89	-1	442	88
439	5.5	SK072.1*		3.92		439	88
412	7.5	SK172.1		4.17		412	82
408	6	SK02		4.22		408	82
399	5.6	SK072.1*	-N56C-	4.31	-2	399	80
372	7.5	SK172.1		4.62		372	74
361	5.4	SK072.1*		4.77		361	72
357	5.8	SK02		4.82		357	71
335	7.8	SK172.1	-71L-	5.14	-3	335	67
324	5	SK072.1*		5.31		324	65
313	4.8	SK072.1*		5.5		313	63
309	5	SK02		5.57		309	62
298	6.4	SK172.1		5.77		298	60
289	4.5	SK072.1*		5.96		289	58
282	4.5	SK02		6.1		282	56
267	6.2	SK172.1		6.43		267	53
262	3.9	SK072.1*		6.57		262	52
250	4.3	SK02		6.89		250	50
243	5.6	SK172.1		7.08		243	49
238	3.7	SK072.1*		7.23		238	48
221	3.9	SK02		7.8		221	44
220	5.1	SK172.1		7.83		220	44
215	3.3	SK072.1*		8		215	43
210	3.7	SK02		8.19		210	42
197	4.9	SK172.1		8.72		197	39
193	3	SK072.1*		8.91		193	39
185	3.4	SK02		9.28		185	37

		Part Number					
		SKxxx	-XX -	X.XX	-X		
4-Pole 1750 RPM		1	2	3	4	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor	Reducer Model #	¹ Input Option (Choose One)	Gear Ratio	² Voltage Code (Gear Motors Only)	60Hz (rpm)	12Hz (rpm)
176	4.2	SK172.1		9.79		176	35
173	3.1	SK02		9.95		173	35
172	2.7	SK072.1*		10		172	34
159	3.8	SK172.1		10.83		159	32
153	2.9	SK02		11.27		153	31
151	3.6	SK172.1		11.39		151	30
149	2.1	SK072.1*		11.56		149	30
143	3.5	SK172.1		12.06		143	29
134	2.7	SK02		12.82		134	27
130	1.7	SK072.1*		13.2		130	26
127	3	SK172.1		13.54		127	25
119	1.7	SK072.1*		14.4		119	24
118	6.3	SK372.1		14.57		118	24
109	2.6	SK172.1		15.76		109	22
108	2.2	SK02	-W-	15.95	-1	108	22
103	4.5	SK12		16.73		103	21
99	1.5	SK072.1*		17.35		99	20
92	4.2	SK12		18.79		92	18
90	1.4	SK072.1*	-N56C-	19.2	-2	90	18
84	2	SK172.1		20.37		84	17
81	3.8	SK12		21.28		81	16
77	2	SK172.1		22.42		77	15
74	1.6	SK02	-71L-	23.13	-3	74	15
73	4.4	SK373.1		23.41		73	15
71	1.8	SK02		24.39		71	14
69	1.8	SK172.1		24.8		69	14
66	3.9	SK373.1		25.94		66	13
62	1.6	SK172.1		27.62		62	12
59	2.1	SK12		29.15		59	12
58	3.4	SK373.1		29.77		58	12
57	2.9	SK372.1		30.11		57	11
55	2.6	SK12		31.19		55	11
52	2.9	SK373.1		33.2		52	10
51	2.7	SK372.1		33.84		51	10
49	2.1	SK12		35.07		49	10
46	2.6	SK373.1		37.23		46	9
45	2.3	SK12		38.31		45	9
41	2.3	SK373.1		42.46		41	8
40	1.9	SK372.1		43.26		40	8
38	3.4	SK572.1		45.77		38	8
37	3.1	SK22		45.9		37	7

* SK072.1 is not available with a solid shaft input -W-

¹ Reducer Input Options

- W- Solid Shaft Input Reducer
- N56C- NEMA C-Face Input Reducer (no motor).
Optional motor:
part # listed below. **
- 71L- Integral 4-Pole TEFC Standard Gear Motor

² Voltage Code

- 1 230/460V, 60 Hz, 3 Ph
- 2 575V, 60 Hz, 3 Ph
- 3 208-230/460V, 60 Hz, 3 Ph
- 4 400V, 50 Hz, 3 Ph
(For more options, contact Viking Pump)

Weights (lb)

	W	71L	N56C
SK072.1	N/A	14	9
SK02	26	32	29
SK172.1	15	18	15
SK12	31	36	33
SK372.1	24	29	22
SK373.1	26	30	24
SK572.1	40	46	40
SK573.1	42	47	42
SK22	64	56	60

** Optional NORD NEMA C-Face TEFC Motor				Weight
Efficiency		Part Number		(LBS)
IE1	Standard	SK71L/4-56C	- ² Voltage Code	13.9

Section	616
Page	616.8
Issue	B



Gearmotors & Speed Reducers

0.75 HP

60 Hz Motors | 37 RPM to 737 RPM



		Part Number					
		SKxxx	-xx -	x.xx	-x		
4-Pole 1750 RPM		1	2	3	4	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor	Reducer Model #	1 Input Option (Choose One)	Gear Ratio	2 Voltage Code (Gear Motors Only)	60Hz (rpm)	12Hz (rpm)
737	5.9	SK172.1		2.32		737	147
687	5.5	SK172.1		2.49		687	137
629	5.4	SK172.1		2.72		629	126
586	5.5	SK172.1		2.92		586	117
580	5	SK02		2.95		580	116
531	5.4	SK172.1		3.22		531	106
506	4.8	SK02		3.38		506	101
494	5	SK172.1		3.46		494	99
451	5	SK172.1		3.79		451	90
440	4.4	SK02		3.89		440	88
410	5	SK172.1	-1	4.17	-1	410	82
405	3.9	SK02		4.22		405	81
370	5	SK172.1		4.62		370	74
355	3.8	SK02	-2	4.82	-2	355	71
333	5.2	SK172.1		5.14		333	67
307	3.3	SK02		5.57		307	61
296	4.3	SK172.1	-N56C-	5.77	-3	296	59
280	3	SK02		6.1		280	56
266	4.1	SK172.1		6.43		266	53
248	2.8	SK02	-80S-	6.89	-4	248	50
242	3.7	SK172.1		7.08		242	48
219	2.6	SK02		7.8		219	44
218	3.4	SK172.1		7.83		218	44
209	2.5	SK02		8.19		209	42
196	3.2	SK172.1		8.72		196	39
184	2.2	SK02		9.28		184	37
175	2.8	SK172.1		9.79		175	35
172	2.1	SK02		9.95		172	34
160	4	SK12		10.7		160	32
158	2.5	SK172.1		10.83		158	32
152	1.9	SK02		11.27		152	30
150	2.4	SK172.1		11.39		150	30
142	2.3	SK172.1		12.06		142	28
133	1.7	SK02		12.82		133	27

		Part Number					
		SKxxx	-xx -	x.xx	-x		
4-Pole 1750 RPM		1	2	3	4	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor	Reducer Model #	1 Input Option (Choose One)	Gear Ratio	2 Voltage Code (Gear Motors Only)	60Hz (rpm)	12Hz (rpm)
132	4.9	SK372.1		12.96		132	26
128	3.6	SK12		13.39		128	26
126	2	SK172.1		13.54		126	25
117	4.2	SK372.1		14.57		117	23
109	1.7	SK172.1		15.76		109	22
107	1.4	SK02		15.95		107	21
104	3.7	SK372.1		16.5		104	21
102	2.9	SK12		16.73		102	20
93	3.5	SK372.1		18.4		93	19
92	3.3	SK373.1		18.63		92	18
91	2.7	SK12	-1	18.79	-1	91	18
83	3.3	SK373.1		20.52		83	17
80	2.5	SK12		21.28		80	16
75	3	SK373.1	-W-	22.74	-2	75	15
74	2.8	SK372.1		23		74	15
73	2.9	SK373.1		23.41		73	15
69	3.2	SK22	-N56C-	24.73	-3	69	14
66	2.4	SK372.1		25.85		66	13
59	1.4	SK12		29.15		59	12
58	3.2	SK22	-80S-	29.31	-4	58	12
57	2.3	SK373.1		29.77		57	11
55	1.7	SK12		31.19		55	11
52	1.9	SK373.1		33.2		52	10
51	1.8	SK372.1		33.84		51	10
49	4	SK573.1		34.8		49	10
48	3.3	SK572.1		35.65		48	10
46	1.7	SK373.1		37.23		46	9
45	1.5	SK12		38.31		45	9
41	3.4	SK573.1		42.18		41	8
40	2.8	SK572.1		42.38		40	8
39	3.3	SK573.1		43.4		39	8
38	3.2	SK672.1		44.55		38	8
37	2.2	SK572.1		45.77		37	7

1 Reducer Input Options

- W- Solid Shaft Input Reducer
- N56C- NEMA C-Face Input Reducer (no motor).
Optional motor:
part # listed below. **
- 80S- Integral 4-Pole TEFC Standard Gear Motor

2 Voltage Code

- 1 230/460V, 60 Hz, 3 Ph
- 2 575V, 60 Hz, 3 Ph
- 3 208-230/460V, 60 Hz, 3 Ph
- 4 400V, 50 Hz, 3 Ph
- (For more options, contact Viking Pump)

Weights (lb)

	W	80S	N56C
SK02	26	35	29
SK172.1	15	27	15
SK12	31	40	33
SK372.1	24	33	22
SK373.1	26	34	24
SK572.1	40	50	40
SK573.1	42	51	42
SK22	64	60	60
SK672.1	53	62	51

** Optional NORD NEMA C-Face TEFC Motor				Weight
Efficiency		Part Number		(LBS)
IE1	Standard	SK80S/4-56C	-	2 Voltage Code
				17.6



Gearmotors & Speed Reducers

1 HP

60 Hz Motors | 36 RPM to 711 RPM



Section	616
Page	616.9
Issue	B

		Part Number					
		SKxxx	-XX -	X.XX	-X		
4-Pole 1750 RPM		1	2	3	4	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor	Reducer Model #	1 Input Option (Choose One)	Gear Ratio	2 Voltage Code (Gear Motors Only)	60Hz (rpm)	12Hz (rpm)
711	4.3	SK172.1		2.32		711	142
663	4	SK172.1		2.49		663	133
607	3.9	SK172.1		2.72		607	121
565	4	SK172.1		2.92		565	113
559	3.6	SK02		2.95		559	112
512	3.9	SK172.1		3.22		512	102
488	3.5	SK02		3.38		488	98
477	3.6	SK172.1		3.46		477	95
435	3.6	SK172.1		3.79		435	87
424	3.1	SK02		3.89		424	85
396	3.6	SK172.1		4.17		396	79
391	2.8	SK02		4.22		391	78
357	3.6	SK172.1		4.62	-1	357	71
342	2.7	SK02	-W-	4.82		342	68
321	3.7	SK172.1		5.14		321	64
296	2.4	SK02		5.57		296	59
286	3.1	SK172.1		5.77	-2	286	57
270	2.2	SK02	-N56C-	6.1		270	54
257	3	SK172.1		6.43		257	51
239	2	SK02		6.89		239	48
233	2.7	SK172.1		7.08	-3	233	47
228	4.9	SK372.1		7.23		228	46
227	3.9	SK12	-80L-	7.28		227	45
212	1.9	SK02	-80LH-	7.8		212	42
211	2.4	SK172.1		7.83	-4	211	42
210	3.8	SK12		7.85		210	42
201	4.7	SK372.1		8.22		201	40
193	3.5	SK12		8.56		193	39
189	2.3	SK172.1		8.72		189	38
178	1.6	SK02		9.28		178	36
176	4.5	SK372.1		9.4		176	35
171	3.2	SK12		9.65		171	34
169	2	SK172.1		9.79		169	34
166	1.5	SK02		9.95		166	33
161	4.2	SK372.1		10.28		161	32
154	2.9	SK12		10.7		154	31

		Part Number					
		SKxxx	-XX -	X.XX	-X		
4-Pole 1750 RPM		1	2	3	4	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor	Reducer Model #	1 Input Option (Choose One)	Gear Ratio	2 Voltage Code (Gear Motors Only)	60Hz (rpm)	12Hz (rpm)
152	1.8	SK172.1		10.83		152	30
146	1.4	SK02		11.27		146	29
145	1.7	SK172.1		11.39		145	29
143	3.8	SK372.1		11.55		143	29
137	1.7	SK172.1		12.06		137	27
127	3.6	SK372.1		12.96		127	25
123	2.6	SK12		13.39		123	25
122	1.5	SK172.1		13.54		122	24
113	3	SK372.1		14.57		113	23
100	2.7	SK372.1		16.5		100	20
99	2.1	SK12		16.73		99	20
90	2.5	SK372.1		18.4		90	18
89	2.3	SK373.1		18.63	-1	89	18
88	2	SK12	-W-	18.79		88	18
80	2.4	SK373.1		20.52		80	16
78	1.8	SK12		21.28		78	16
73	2.1	SK373.1		22.74	-2	73	15
72	2	SK372.1	-N56C-	23		72	14
70	2.1	SK373.1		23.41		70	14
69	4.2	SK573.1		23.79		69	14
67	2.3	SK22		24.73	-3	67	13
64	1.9	SK373.1		25.94		64	13
62	3.7	SK573.1	-80L-	26.77		62	12
61	3.4	SK572.1	-80LH-	27	-4	61	12
57	3	SK572.1		28.91		57	11
56	2.3	SK22		29.31		56	11
55	1.6	SK373.1		29.77		55	11
53	3.3	SK573.1		30.93		53	11
50	1.4	SK373.1		33.2		50	10
47	2.9	SK573.1		34.8		47	9
46	2.4	SK572.1		35.65		46	9
43	2.7	SK573.1		38.02		43	9
39	2	SK572.1		42.38		39	8
38	2.4	SK573.1		43.4		38	8
37	3.3	SK673.1		44.85		37	7
36	1.6	SK572.1		45.77		36	7

1 Reducer Input Options

- W- Solid Shaft Input Reducer
- N56C- NEMA C-Face Input Reducer (no motor).
Optional motor:
part # listed below. **
- 80L- Integral 4-Pole TEFC Standard Gear Motor
- 80LH- Integral 4-Pole TEFC Energy Efficient Gear Motor

2 Voltage Code

- 1 230/460V, 60 Hz, 3 Ph
- 2 575V, 60 Hz, 3 Ph
- 3 208-230/460V, 60 Hz, 3 Ph
- 4 400V, 50 Hz, 3 Ph

(For more options, contact Viking Pump)

Weights (lb)

	W	80L	N56C
SK02	26	32	29
SK172.1	15	31	15
SK12	31	36	33
SK372.1	24	35	22
SK373.1	26	30	24
SK572.1	40	52	40
SK573.1	42	53	42
SK22	64	56	60
SK672.1	53	64	51
SK673.1	55	66	53

** Optional NORD NEMA C-Face TEFC Motor				Weight
Efficiency		Part Number		(LBS)
IE1	Standard	SK80L/4-56C	- 2 Voltage Code	19.8
IE2	EE	SK80LH/4-56C		19.8

Section	616
Page	616.10
Issue	B



Gearmotors & Speed Reducers

1.5 HP

60 Hz Motors | 37 RPM to 716 RPM



		Part Number					
		SKxxx	-XX -	X.XX	-X		
4-Pole 1750 RPM		1	2	3	4	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor	Reducer Model #	1 Input Option (Choose One)	Gear Ratio	2 Voltage Code (Gear Motors Only)	60Hz (rpm)	12Hz (rpm)
716	2.9	SK172.1		2.32		716	143
667	2.7	SK172.1		2.49		667	133
610	2.6	SK172.1		2.72		610	122
568	2.7	SK172.1		2.92		568	114
563	2.4	SK02		2.95		563	113
516	2.6	SK172.1		3.22		516	103
491	2.3	SK02		3.38		491	98
480	2.4	SK172.1		3.46		480	96
438	2.4	SK172.1		3.79		438	88
427	2.1	SK02		3.89		427	85
417	4.4	SK12	-W-	3.98	-1	417	83
398	2.4	SK172.1		4.17		398	80
397	4.8	SK372.1		4.18		397	79
393	1.9	SK02		4.22		393	79
384	4	SK12		4.32		384	77
370	4.1	SK12		4.49		370	74
359	2.4	SK172.1		4.62		359	72
356	4.7	SK372.1		4.66		356	71
344	1.8	SK02		4.82	-2	344	69
337	3.7	SK12		4.93		337	67
323	2.5	SK172.1	-N140TC-	5.14		323	65
317	4.7	SK372.1		5.24		317	63
298	1.6	SK02		5.57		298	60
288	2.1	SK172.1		5.77		288	58
287	3.3	SK12		5.79	-3	287	57
279	4.2	SK372.1		5.95		279	56
272	1.5	SK02		6.05		272	54
258	2	SK172.1		6.43		258	52
254	3	SK12		6.53	-4	254	51
252	3.8	SK372.1		6.58		252	50
241	3.8	SK372.1		6.89		241	48
234	1.8	SK172.1		7.08		234	47
230	3.6	SK372.1	-90S- -90SH-	7.23		230	46
228	2.6	SK12		7.28		228	46
212	1.6	SK172.1		7.83		212	42
211	2.6	SK12		7.85		211	42
202	3.4	SK372.1		8.22		202	40
194	2.4	SK12		8.56		194	39
190	1.6	SK172.1		8.72		190	38
177	3.1	SK372.1		9.4		177	35
172	2.2	SK12		9.65		172	34
161	2.9	SK372.1		10.28		161	32
155	1.9	SK12		10.7		155	31
152	4.5	SK22		10.89		152	30
144	2.6	SK372.1		11.55		144	29

		Part Number					
		SKxxx	-XX -	X.XX	-X		
4-Pole 1750 RPM		1	2	3	4	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor	Reducer Model #	1 Input Option (Choose One)	Gear Ratio	2 Voltage Code (Gear Motors Only)	60Hz (rpm)	12Hz (rpm)
136	4.2	SK22		12.2		136	27
128	2.4	SK372.1		12.96		128	26
124	1.7	SK12		13.39		124	25
114	2	SK372.1		14.57		114	23
113	3.6	SK22		14.69		113	23
101	1.8	SK372.1		16.5		101	20
101	3.8	SK572.1		16.46		101	20
99	3.1	SK22		16.75		99	20
95	3.8	SK573.1		17.42		95	19
90	1.7	SK372.1		18.4		90	18
89	1.6	SK373.1	-W-	18.63	-1	89	18
86	3.5	SK573.1		19.22		86	17
85	3.2	SK572.1		19.57		85	17
83	2.2	SK22		20.03		83	17
81	1.4	SK372.1		20.62		81	16
78	3.1	SK573.1		21.32		78	16
76	3	SK572.1		21.85	-2	76	15
73	1.4	SK373.1		22.74		73	15
71	1.4	SK373.1	-N140TC-	23.41		71	14
70	2.8	SK573.1		23.79		70	14
68	2.7	SK572.1		24.58		68	14
67	1.5	SK22		24.73		67	13
62	2.5	SK573.1		26.77	-3	62	12
61	2.3	SK572.1		27		61	12
58	2	SK22		28.8		58	12
57	2	SK572.1		28.91		57	11
55	3.3	SK32		30.43	-4	55	11
54	2.2	SK573.1		30.93		54	11
53	1.8	SK572.1		31.28		53	11
51	2.9	SK672.1		32.58		51	10
50	1.8	SK32		33.05		50	10
48	2	SK573.1		34.8		48	10
46	2.4	SK672.1		35.75		46	9
45	2.5	SK32		37.23		45	9
44	1.8	SK573.1		38.02		44	9
43	1.8	SK32		38.76		43	9
42	3.4	SK773.1		39.06		42	8
40	2.4	SK673.1		41.54		40	8
39	1.7	SK573.1		42.18		39	8
38	3.1	SK773.1		43.43		38	8
37	1.6	SK672.1		44.55		37	7

1 Reducer Input Options

-W-	Solid Shaft Input Reducer
-N140TC-	NEMA C-Face Input Reducer (no motor). Optional motor: part # listed below. **
-90S-	Integral 4-Pole TEFC Standard Gear Motor
-90SH-	Integral 4- Pole TEFC Energy Efficient Gear Motor

2 Voltage Code

-1	230/460V, 60 Hz, 3 Ph
-2	575V, 60 Hz, 3 Ph
-3	208-230/460V, 60 Hz, 3 Ph
-4	400V, 50 Hz, 3 Ph

(For more options, contact Viking Pump)

Weights (lb)

	W	90S	N140TC
SK02	26	44	37
SK172.1	15	36	15
SK12	31	49	42
SK372.1	24	42	22
SK373.1	26	43	24
SK572.1	40	58	40
SK573.1	42	60	42
SK22	64	64	69
SK672.1	53	71	51
SK673.1	55	73	51

** Optional NORD NEMA C-Face TEFC Motor (can be used with reducer with NEMA C-Face adaptor input)				Weight
Efficiency	Part Number			(LBS)
IE2	EE	SK90SH/4-145TC	-	2 Voltage Code
				26.5



Gearmotors & Speed Reducers 2 HP

60 Hz Motors | 37 RPM to 716 RPM



Section	616
Page	616.11
Issue	B

		Part Number					
		SKxxx	-XX -	X.XX	-X		
4-Pole 1750 RPM		1	2	3	4	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor	Reducer Model #	1 Input Option (Choose One)	Gear Ratio	2 Voltage Code (Gear Motors Only)	60Hz (rpm)	12Hz (rpm)
716	2.2	SK172.1		2.32		716	143
667	2	SK172.1		2.49		667	133
634	4	SK372.1		2.62		634	127
610	2	SK172.1		2.72		610	122
580	3.7	SK372.1		2.86		580	116
568	2	SK172.1		2.92		568	114
563	1.8	SK02		2.95		563	113
532	3.7	SK372.1		3.12		532	106
516	2	SK172.1		3.22		516	103
491	1.8	SK02		3.38		491	98
484	3.7	SK372.1		3.43		484	97
480	1.8	SK172.1		3.46		480	96
439	3.7	SK372.1		3.78		439	88
438	1.8	SK172.1		3.79		438	88
427	1.6	SK02		3.89		427	85
398	1.8	SK172.1		4.17		398	80
397	3.6	SK372.1	-W-	4.18	-1	397	79
393	1.4	SK02		4.22		393	79
370	3.1	SK12		4.49		370	74
359	1.8	SK172.1		4.62		359	72
356	3.5	SK372.1	-N140TC-	4.66	-2	356	71
344	1.4	SK02		4.82		344	69
337	2.7	SK12		4.93		337	67
323	1.9	SK172.1		5.14		323	65
317	3.6	SK372.1	-90L- -90LH-	5.24	-3	317	63
288	1.6	SK172.1		5.77		288	58
287	2.5	SK12		5.79		287	57
279	3.1	SK372.1		5.95		279	56
258	1.5	SK172.1		6.43	-4	258	52
254	2.3	SK12		6.53		254	51
252	2.8	SK372.1		6.58		252	50
242	4.3	SK22		6.86		242	48
241	2.9	SK372.1		6.89		241	48
230	2.7	SK372.1		7.23		230	46
228	2	SK12		7.28		228	46
219	3.8	SK22		7.57		219	44
211	1.9	SK12		7.85		211	42
202	2.6	SK372.1		8.22		202	40
196	3.6	SK22		8.48		196	39
194	1.8	SK12		8.56		194	39
177	2.4	SK372.1		9.4		177	35
172	1.6	SK12		9.65		172	34
165	4	SK572.1		10.04		165	33
161	2.2	SK372.1		10.28		161	32
155	1.5	SK12		10.7		155	31

		Part Number					
		SKxxx	-XX -	X.XX	-X		
4-Pole 1750 RPM		1	2	3	4	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor	Reducer Model #	1 Input Option (Choose One)	Gear Ratio	2 Voltage Code (Gear Motors Only)	60Hz (rpm)	12Hz (rpm)
152	3.4	SK22		10.89		152	30
148	3.9	SK572.1		11.25		148	30
144	1.9	SK372.1		11.55		144	29
136	3.1	SK22		12.2		136	27
131	3.7	SK572.1		12.68		131	26
128	1.8	SK372.1		12.96		128	26
121	3.4	SK572.1		13.67		121	24
114	1.5	SK372.1		14.57		114	23
113	2.7	SK22		14.69		113	23
108	3.9	SK672.1		15.35		108	22
101	2.8	SK572.1		16.46		101	20
99	2.4	SK22		16.75		99	20
96	3.7	SK672.1		17.25		96	19
95	2.9	SK573.1		17.42		95	19
90	3.4	SK672.1		18.41		90	18
89	3.9	SK32		18.67		89	18
86	2.6	SK573.1	-W-	19.22	-1	86	17
85	2.4	SK572.1		19.57		85	17
83	1.7	SK22		20.03		83	17
81	3.4	SK672.1	-N140TC-	20.62		81	16
80	3.7	SK32		20.7	-2	80	16
78	2.4	SK573.1		21.32		78	16
76	2.2	SK572.1		21.85		76	15
72	3.2	SK32	-90L- -90LH-	23.12	-3	72	14
70	2.1	SK573.1		23.79		70	14
68	2	SK572.1		24.58		68	14
66	2.3	SK673.1		25.19		66	13
61	2.6	SK32		27.24	-4	61	12
60	2.2	SK673.1		27.61		60	12
58	1.5	SK22		28.8		58	12
57	2.2	SK672.1		29.08		57	11
55	2.4	SK32		30.43		55	11
54	2	SK673.1		30.92		54	11
53	1.9	SK32		31.16		53	11
51	2.2	SK672.1		32.58		51	10
49	2.1	SK673.1		34.12		49	10
48	1.5	SK573.1		34.8		48	10
46	1.8	SK672.1		35.75		46	9
45	2	SK673.1		37.23		45	9
42	2.5	SK773.1		39.06		42	8
41	3	SK43		40.98		41	8
40	1.8	SK673.1		41.54		40	8
38	2.3	SK773.1		43.43		38	8
37	1.7	SK673.1		44.85		37	7

1 Reducer Input Options

-W-	Solid Shaft Input Reducer
-N140TC-	NEMA C-Face Input Reducer (no motor). Optional motor: part # listed below. **
-90L-	Integral 4-Pole TEFC Standard Gear Motor
-90LH-	Integral 4-Pole TEFC Energy Efficient Gear Motor

2 Voltage Code

-1	230/460V, 60 Hz, 3 Ph
-2	575V, 60 Hz, 3 Ph
-3	208-230/460V, 60 Hz, 3 Ph
-4	400V, 50 Hz, 3 Ph

(For more options, contact Viking Pump)

Weights (lb)

	W	90L	N140TC
SK02	26	49	37
SK172.1	15	44	15
SK12	31	53	42
SK372.1	24	46	22
SK373.1	26	47	24
SK572.1	40	63	40
SK573.1	42	64	42
SK22	64	73	69
SK672.1	53	75	51
SK673.1	55	77	53
SK32	88	97	93
SK773.1	97	105	93
SK43	154	163	159

** Optional NORD NEMA C-Face TEFC Motor (can be used with reducer with NEMA C-Face adaptor input)				Weight
Efficiency	Part Number			(LBS)
IE2	EE	SK90LH/4-145TC	-	2 Voltage Code
				30.9

Section	616
Page	616.12
Issue	B



Gearmotors & Speed Reducers

3 HP

60 Hz Motors | 37 RPM to 651 RPM



		Part Number					
		SKxxx	-XX -	X.XX	-X		
4-Pole 1750 RPM		1	2	3	4	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor	Reducer Model #	1 Input Option (Choose One)	Gear Ratio	2 Voltage Code (Gear Motors Only)	60Hz (rpm)	12Hz (rpm)
651	2.7	SK372.1		2.62		651	130
596	2.5	SK372.1		2.86		596	119
576	2.8	SK12*		2.96		576	115
546	2.6	SK372.1		3.12		546	109
503	2.6	SK12*		3.39		503	101
497	2.6	SK372.1		3.43		497	99
451	2.5	SK372.1		3.78		451	90
428	2.3	SK12*		3.98		428	86
408	2.5	SK372.1		4.18		408	82
395	2.1	SK12*		4.32		395	79
380	2.1	SK12*		4.49		380	76
369	2.6	SK22		4.62		369	74
366	2.4	SK372.1		4.66		366	73
346	1.9	SK12*		4.93		346	69
329	2.4	SK22		5.18		329	66
325	2.4	SK372.1		5.24		325	65
294	1.7	SK12*		5.79	-1	294	59
287	2.1	SK372.1		5.95		287	57
271	4	SK572.1	-W-	6.3		271	54
262	2.8	SK22		6.51		262	52
261	1.5	SK12*		6.53	-2	261	52
259	1.9	SK372.1	-N180TC-	6.58		259	52
249	3	SK22		6.86		249	50
247	2	SK372.1		6.89		247	49
236	1.9	SK372.1		7.23	-3	236	47
234	1.4	SK12*		7.28		234	47
228	3.7	SK572.1	-100L-	7.49		228	46
225	2.6	SK22	-100LH-	7.57		225	45
209	3.5	SK572.1		8.15	-4	209	42
207	1.7	SK372.1		8.22		207	41
201	2.4	SK22		8.48		201	40
191	3.3	SK572.1		8.92		191	38
181	1.6	SK372.1		9.4		181	36
170	3.2	SK572.1		10.04		170	34
166	1.5	SK372.1		10.28		166	33
157	2.3	SK22		10.89		157	31
152	1.8	SK572.1		11.25		152	30
148	2.4	SK372.1		11.55		148	30
140	1.6	SK22		12.2		140	28
134	4	SK572.1		12.68		134	27
125	2.2	SK572.1		13.67		125	25
124	1.5	SK672.1		13.7		124	25
117	3.4	SK32		14.55		117	23
116	3.9	SK22		14.69		116	23
113	1.9	SK32		15.03		113	23

		Part Number					
		SKxxx	-XX -	X.XX	-X		
4-Pole 1750 RPM		1	2	3	4	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor	Reducer Model #	1 Input Option (Choose One)	Gear Ratio	2 Voltage Code (Gear Motors Only)	60Hz (rpm)	12Hz (rpm)
111	3.1	SK572.1		15.38		111	22
105	1.8	SK32		16.25		105	21
102	3.4	SK22		16.75		102	20
102	1.5	SK32		16.66		102	20
99	2.7	SK672.1		17.25		99	20
98	3.3	SK573.1		17.42		98	20
93	3.9	SK672.1		18.41		93	19
91	2.8	SK32		18.67		91	18
89	2.4	SK573.1		19.22		89	18
87	3.7	SK572.1		19.57		87	17
84	2.9	SK772.1		20.31		84	17
82	3.4	SK32		20.7		82	16
80	3.9	SK573.1		21.32		80	16
79	2.6	SK773.1		21.49		79	16
78	1.7	SK572.1		21.85		78	16
75	3.4	SK673.1		22.82		75	15
74	3.7	SK32		23.12	-1	74	15
73	2.4	SK672.1	-W-	23.41		73	15
72	2.2	SK573.1		23.79		72	14
70	3.2	SK772.1		24.41		70	14
69	2	SK572.1		24.58	-2	69	14
68	2.3	SK673.1	-N180TC-	25.19		68	14
67	1.9	SK773.1		25.39		67	13
65	1.9	SK672.1		26.23	-3	65	13
64	2.6	SK32		26.57		64	13
63	2.2	SK32	-100L-	27.24		63	13
62	1.5	SK673.1	-100LH-	27.61		62	12
60	2.3	SK773.1		28.63	-4	60	12
59	1.5	SK672.1		29.08		59	12
58	2.8	SK42		29.29		58	12
56	2.8	SK42		30.46		56	11
55	1.4	SK673.1		30.92		55	11
52	1.5	SK672.1		32.58		52	10
50	1.4	SK673.1		34.12		50	10
49	2.7	SK872.1		35.08		49	10
48	2.8	SK42		35.25		48	10
46	1.4	SK673.1		37.23		46	9
44	1.7	SK773.1		39.06		44	9
43	3.4	SK873.1		39.68		43	9
42	2	SK43		40.98		42	8
41	2.3	SK42		41.29		41	8
40	2.6	SK872.1		42.67		40	8
39	1.6	SK773.1		43.43		39	8
37	3	SK873.1		45.53		37	7

* SK12 is not available with NEMA adaptor -N180TC-

1 Reducer Input Options

-W-	Solid Shaft Input Reducer
-N180TC-	NEMA C-Face Input Reducer (no motor). Optional motor: part # listed below. **
-100L-	Integral 4-Pole TEFC Standard Gear Motor
-100LH-	Integral 4-Pole TEFC Energy Efficient Gear Motor

2 Voltage Code

-1	230/460V, 60 Hz, 3 Ph
-2	575V, 60 Hz, 3 Ph
-3	208-230/460V, 60 Hz, 3 Ph
-4	400V, 50 Hz, 3 Ph

(For more options, contact Viking Pump)

Weights (lb)

	W	100L	N180TC
SK12	31	62	N/A
SK372.1	24	72	24
SK572.1	40	46	42
SK573.1	42	47	44
SK22	64	82	77
SK672.1	53	84	53
SK673.1	55	86	60
SK32	88	106	101
SK772.1	93	110	97
SK773.1	97	114	101
SK42	143	139	148
SK43	154	172	168
SK872.1	192	186	196
SK873.1	196	191	201
SK52	207	203	212

** Optional NORD NEMA C-Face TEFC Motor (can be used with reducer with NEMA C-Face adaptor input)				Weight
Efficiency	Part Number			(LBS)
IE2	EE	SK100LH/4-182TC	-	2 Voltage Code
				19.8



Gearmotors & Speed Reducers

5 HP

60 Hz Motors | 38 RPM to 658 RPM



Section	616
Page	616.13
Issue	B

		Part Number					
		SKxxx	-XX -	X.XX	-X		
4-Pole 1750 RPM		1	2	3	4	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor	Reducer Model #	1 Input Option (Choose One)	Gear Ratio	2 Voltage Code (Gear Motors Only)	60Hz (rpm)	12Hz (rpm)
658	1.7	SK372.1		2.62		658	132
618	2	SK22		2.79		618	124
603	1.5	SK372.1		2.86		603	121
591	2.7	SK572.1		2.92		591	118
583	1.7	SK12*		2.96		583	117
553	1.6	SK372.1		3.12		553	111
528	2.7	SK572.1		3.27		528	106
509	1.6	SK12*		3.39		509	102
503	1.6	SK372.1		3.43		503	101
489	1.8	SK22		3.53		489	98
460	5.9	SK32	-W-	3.75		460	92
456	1.5	SK372.1		3.78		456	91
450	2.7	SK572.1		3.83		450	90
435	1.7	SK22		3.97		435	87
413	1.5	SK372.1		4.18		413	83
409	2.6	SK572.1		4.22		409	82
389	5.1	SK32		4.43		389	78
374	2.9	SK672.1		4.61		374	75
373	1.6	SK22		4.62	-1	373	75
370	1.5	SK372.1		4.66		370	74
368	2.6	SK572.1	-N180TC-	4.69		368	74
341	2.9	SK672.1		5.06		341	68
333	1.5	SK22		5.18	-2	333	67
330	2.5	SK572.1		5.23		330	66
329	1.5	SK672.1		5.24		329	66
327	5.9	SK32		5.28		327	65
314	3.9	SK32		5.5	-3	314	63
309	2.9	SK672.1		5.59		309	62
303	5.1	SK32	-100LA- -112MH-	5.7		303	61
298	1.8	SK22		5.79		298	60
293	2.5	SK572.1		5.88	-4	293	59
282	2.7	SK672.1		6.12		282	56
274	2.5	SK572.1		6.3		274	55
265	1.7	SK22		6.51		265	53
256	4.3	SK32		6.74		256	51
251	1.8	SK22		6.86		251	50
245	1.6	SK32		7.05		245	49
237	7.2	SK42		7.28		237	47
230	2.3	SK572.1		7.49		230	46
228	1.6	SK22		7.57		228	46
225	2.5	SK672.1		7.68		225	45
218	4	SK32		7.9		218	44
212	2.1	SK572.1		8.15		212	42
206	3.5	SK32		8.36		206	41
203	2.5	SK672.1		8.48		203	41
199	2.3	SK672.1		8.66		199	40
193	2	SK572.1		8.92		193	39
186	2.5	SK672.1		9.25		186	37

		Part Number					
		SKxxx	-XX -	X.XX	-X		
4-Pole 1750 RPM		1	2	3	4	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor	Reducer Model #	1 Input Option (Choose One)	Gear Ratio	2 Voltage Code (Gear Motors Only)	60Hz (rpm)	12Hz (rpm)
176	3.2	SK32		9.8		176	35
172	1.9	SK572.1		10.04		172	34
169	5.5	SK42		10.2		169	34
166	2.5	SK672.1		10.37		166	33
153	1.8	SK572.1		11.25		153	31
152	2	SK672.1		11.38		152	30
147	2.9	SK32		11.71		147	29
140	4.7	SK42		12.28		140	28
137	2	SK672.1		12.56		137	27
136	1.5	SK572.1		12.68		136	27
126	2	SK672.1	-W-	13.7	-1	126	25
120	3.9	SK42		14.38		120	24
119	2.2	SK32		14.55		119	24
115	1.6	SK32		15.03		115	23
114	4	SK42		15.12		114	23
112	1.9	SK672.1		15.35		112	22
110	2	SK772.1		15.62		110	22
106	1.9	SK32		16.25		106	21
104	2.2	SK672.1	-N180TC-	16.66		104	21
100	1.5	SK672.1		17.25		100	20
97	3.2	SK42		17.71	-2	97	19
93	2	SK772.1		18.46		93	19
92	1.6	SK32		18.67		92	18
88	4.7	SK52		19.6		88	18
85	2	SK772.1		20.31	-3	85	17
83	1.5	SK32		20.7		83	17
80	1.7	SK773.1		21.49		80	16
79	2.4	SK42		21.87		79	16
73	3	SK873.1		23.49	-4	73	15
72	3.9	SK52		23.92		72	14
70	1.7	SK42		24.67		70	14
68	1.6	SK773.1		25.39		68	14
67	3	SK873.1		25.69		67	13
65	3.5	SK52		26.46		65	13
63	2.9	SK873.1		27.57		63	13
59	1.7	SK42		29.29		59	12
57	1.7	SK42		30.46		57	11
54	2.6	SK873.1		32.24		54	11
53	1.9	SK52		32.56		53	11
49	1.7	SK42		35.25		49	10
48	2.3	SK873.1		35.63		48	10
45	2.1	SK52		38.45		45	9
44	1.6	SK872.1		38.77		44	9
43	2.1	SK873.1		39.68		43	9
41	3	SK973.1		42.51		41	8
40	1.6	SK872.1		42.67		40	8
38	1.8	SK873.1		45.53		38	8

* SK12 is not available with NEMA adapter -N180TC-

1 Reducer Input Options

-W-	Solid Shaft Input Reducer
-N180TC-	NEMA C-Face Input Reducer (no motor). Optional motor: part # listed below. **
-100LA-	Integral 4-Pole TEFC Standard Gear Motor
-112MH-	Integral 4-Pole TEFC Energy Efficient Gear Motor

2 Voltage Code

-1	230/460V, 60 Hz, 3 Ph
-2	575V, 60 Hz, 3 Ph
-3	208-230/460V, 60 Hz, 3 Ph
-4	400V, 50 Hz, 3 Ph

(For more options, contact Viking Pump)

Weights (lb)

	W	100LA	112MH	N180TC
SK12	31	68	88	N/A
SK372.1	24	62	84	24
SK572.1	40	78	100	42
SK22	64	88	109	77
SK672.1	53	90	111	53
SK32	88	112	132	101
SK772.1	93	117	137	97
SK773.1	97	120	142	101
SK42	143	146	166	148
SK43	154	179	199	168
SK872.1	192	193	214	196
SK873.1	196	197	219	201
SK52	207	209	230	212
SK63	328	331	352	333

** Optional NORD NEMA C-Face TEFC Motor (can be used with reducer with NEMA C-Face adaptor input)				Weight
Efficiency	Part Number			(LBS)
IE2	EE	SK112MH/4-184TC	-	2 Voltage Code
				83.6

Section	616
Page	616.14
Issue	B



Gearmotors & Speed Reducers

7.5 HP

60 Hz Motors | 40 RPM to 652 RPM



		Part Number					
		SKxxx	-XX -	X.XX	-X		
4-Pole 1750 RPM		1	2	3	4	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor	Reducer Model #	¹ Input Option (Choose One)	Gear Ratio	² Voltage Code (Gear Motors Only)	60Hz (rpm)	12Hz (rpm)
652	3.4	SK672.1		2.66		652	130
607	3.4	SK672.1		2.86		607	121
586	4.8	SK32		2.96		586	117
565	3.4	SK672.1		3.07		565	113
524	3.3	SK672.1		3.31		524	105
485	3.3	SK672.1		3.58		485	97
463	4	SK32		3.75		463	93
447	3.3	SK672.1		3.88		447	89
411	3.2	SK672.1		4.22		411	82
392	3.4	SK32		4.43		392	78
376	3.2	SK672.1		4.61		376	75
343	3.1	SK672.1		5.06		343	69
329	3.9	SK32		5.28		329	66
315	2.6	SK32		5.5		315	63
310	2.8	SK672.1		5.59	-1	310	62
304	3.4	SK32	-W-	5.7		304	61
283	2.7	SK672.1		6.12		283	57
257	2.9	SK32		6.74	-2	257	51
238	4.8	SK42		7.28		238	48
226	2.2	SK672.1	-N210TC-	7.68		226	45
220	2.7	SK32		7.9		220	44
214	2.6	SK772.1		8.12	-3	214	43
208	2.3	SK32		8.36		208	42
205	2	SK672.1	-132S-	8.48		205	41
204	4.1	SK42	-132SH-	8.5		204	41
200	1.6	SK672.1		8.66	-4	200	40
193	2.4	SK772.1		8.97		193	39
188	1.9	SK672.1		9.25		188	38
177	2.1	SK32		9.8		177	35
174	2.2	SK772.1		10		174	35
170	3.7	SK42		10.2		170	34
167	1.8	SK672.1		10.37		167	33
164	2.1	SK772.1		10.6		164	33
157	2	SK772.1		11.06		157	31
154	4	SK872.1		11.24		154	31
152	1.4	SK672.1		11.38		152	30
149	1.9	SK772.1		11.67		149	30
148	2	SK32		11.71		148	30
141	3.2	SK42		12.28		141	28
139	3.8	SK872.1		12.48		139	28

		Part Number					
		SKxxx	-XX -	X.XX	-X		
4-Pole 1750 RPM		1	2	3	4	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor	Reducer Model #	¹ Input Option (Choose One)	Gear Ratio	² Voltage Code (Gear Motors Only)	60Hz (rpm)	12Hz (rpm)
138	1.4	SK672.1		12.56		138	28
133	1.7	SK772.1		13.07		133	27
127	1.4	SK672.1		13.7		127	25
126	3.5	SK872.1		13.79		126	25
121	2.6	SK42		14.38		121	24
119	1.5	SK32		14.55		119	24
115	2.7	SK42		15.12		115	23
114	3.1	SK872.1		15.18		114	23
111	1.4	SK772.1		15.62		111	22
104	1.5	SK772.1		16.66		104	21
102	2.9	SK872.1		16.96		102	20
98	2.2	SK42		17.71		98	20
97	1.8	SK42		17.92		97	19
94	1.4	SK772.1		18.46		94	19
93	2.7	SK872.1		18.67	-1	93	19
89	3.2	SK52	-W-	19.6		89	18
81	1.8	SK42		21.5		81	16
80	2.8	SK52		21.68	-2	80	16
79	1.6	SK42		21.87		79	16
75	2.2	SK872.1	-N210TC-	23.02		75	15
73	2.6	SK52		23.92		73	15
72	2.3	SK52		24.07	-3	72	14
68	2	SK872.1		25.44		68	14
67	1.6	SK42	-132S-	25.88		67	13
66	2.3	SK52	-132SH-	26.46		66	13
63	3.1	SK972.1		27.66	-4	63	13
62	1.9	SK872.1		28		62	12
60	2.3	SK52		28.85		60	12
57	1.8	SK873.1		30.47		57	11
56	3.8	SK63		30.91		56	11
54	1.7	SK873.1		32.24		54	11
52	2.8	SK972.1		33.36		52	10
49	1.5	SK873.1		35.63		49	10
48	1.3	SK52		36.03		48	10
47	2.5	SK972.1		37.19		47	9
45	1.4	SK52		38.45		45	9
44	1.4	SK873.1		39.68		44	9
43	1.5	SK52		40.37		43	9
41	2.2	SK972.1		42.76		41	8
40	2.8	SK63		43.43		40	8

¹ Reducer Input Options

- W- Solid Shaft Input Reducer
- N210TC- NEMA C-Face Input Reducer (no motor).
Optional motor:
part # listed below. **
- 132S- Integral 4-Pole TEFC Standard Gear Motor
- 132SH- Integral 4-Pole TEFC Energy Efficient Gear Motor

² Voltage Code

- 1 230/460V, 60 Hz, 3 Ph
 - 2 575V, 60 Hz, 3 Ph
 - 3 208-230/460V, 60 Hz, 3 Ph
 - 4 400V, 50 Hz, 3 Ph
- (For more options, contact Viking Pump)

Weights (lb)

	W	132S	N210TC
SK672.1	53	141	57
SK32	88	163	101
SK772.1	93	168	105
SK42	143	196	179
SK872.1	192	244	196
SK873.1	196	248	201
SK52	207	260	212
SK972.1	278	330	283
SK973.1	282	344	287
SK63	328	381	333

** Optional NORD NEMA C-Face TEFC Motor (can be used with reducer with NEMA C-Face adaptor input)				Weight
Efficiency		Part Number		(LBS)
IE2	EE	SK132SH/4-213TC	-	² Voltage Code 97



Gearmotors & Speed Reducers

10 HP

60 Hz Motors | 38 RPM to 652 RPM



Section	616
Page	616.15
Issue	B

		Part Number					
		SKxxx	-XX -	X.XX	-X		
4-Pole 1750 RPM		1	2	3	4	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor	Reducer Model #	1 Input Option (Choose One)	Gear Ratio	2 Voltage Code (Gear Motors Only)	60Hz (rpm)	12Hz (rpm)
652	2.6	SK672.1		2.66		652	130
607	2.6	SK672.1		2.86		607	121
586	3.6	SK32		2.96		586	117
565	2.5	SK672.1		3.07		565	113
524	2.5	SK672.1		3.31		524	105
485	2.4	SK672.1		3.58		485	97
463	3	SK32		3.75		463	93
447	2.5	SK672.1		3.88		447	89
411	2.4	SK672.1		4.22		411	82
392	2.5	SK32		4.43		392	78
376	2.4	SK672.1	-W-	4.61	-1	376	75
343	2.3	SK672.1		5.06		343	69
329	2.9	SK32		5.28		329	66
315	2	SK32		5.5		315	63
310	2.1	SK672.1		5.59		310	62
304	2.6	SK32		5.7		304	61
302	4.8	SK42		5.75		302	60
283	2	SK672.1		6.12		283	57
280	4.2	SK42		6.19	-2	280	56
262	2.2	SK772.1		6.63		262	52
261	4.3	SK42	-132M- -132MH-	6.65		261	52
257	2.2	SK32		6.74		257	51
238	3.6	SK42		7.28		238	48
227	2	SK772.1		7.63		227	45
226	1.7	SK672.1		7.68	-3	226	45
224	3.6	SK872.1		7.73		224	45
220	2	SK32		7.9		220	44
214	1.9	SK772.1		8.12		214	43
208	1.7	SK32		8.36		208	42
205	1.5	SK672.1		8.48		205	41
204	3.1	SK42		8.5	-4	204	41
196	3.2	SK872.1		8.87		196	39
193	1.8	SK772.1		8.97		193	39
188	3.6	SK872.1		9.24		188	38
177	1.6	SK32		9.8		177	35
174	1.7	SK772.1		10		174	35
170	2.8	SK42		10.2		170	34
166	3.2	SK872.1		10.44		166	33

		Part Number					
		SKxxx	-XX -	X.XX	-X		
4-Pole 1750 RPM		1	2	3	4	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor	Reducer Model #	1 Input Option (Choose One)	Gear Ratio	2 Voltage Code (Gear Motors Only)	60Hz (rpm)	12Hz (rpm)
164	1.6	SK772.1		10.6		164	33
157	1.5	SK772.1		11.06		157	31
154	3	SK872.1		11.24		154	31
148	1.5	SK32		11.71		148	30
141	2.4	SK42		12.28		141	28
139	2.9	SK872.1		12.48		139	28
129	3.4	SK52		13.45		129	26
126	2.6	SK872.1		13.79		126	25
124	3.3	SK52		14	-W-	124	25
121	2	SK42		14.38		121	24
115	2	SK42	-N210TC-	15.12		115	23
114	2.4	SK872.1		15.18		114	23
102	2.2	SK872.1		16.96		102	20
100	4.5	SK63		17.37		100	20
98	1.6	SK42		17.71	-1	98	20
97	2.6	SK52		17.81		97	19
93	2	SK872.1		18.67		93	19
89	2.4	SK52		19.6		89	18
84	3.8	SK63		20.77		84	17
80	2.1	SK52		21.68	-3	80	16
79	3.1	SK972.1		21.99		79	16
75	1.7	SK872.1		23.02		75	15
73	1.9	SK52		23.92		73	15
72	1.7	SK52		24.07	-4	72	14
68	1.5	SK872.1		25.44		68	14
66	3	SK63		26.28		66	13
63	2.3	SK972.1		27.66		63	13
60	1.7	SK52		28.85		60	12
57	2.3	SK972.1		30.29		57	11
56	2.8	SK63		30.91		56	11
52	2.1	SK972.1		33.36		52	10
48	2.5	SK63		36.11		48	10
47	1.9	SK972.1	-132M- -132MH-	37.19		47	9
46	2.1	SK973.1		37.36		46	9
41	1.7	SK972.1		42.76		41	8
40	2.1	SK63		43.43		40	8
38	2.9	SK73		45.66		38	8

1 Reducer Input Options

-W-	Solid Shaft Input Reducer
-N210TC-	NEMA C-Face Input Reducer (no motor). Optional motor: part # listed below. **
-132M-	Integral 4-Pole TEFC Standard Gear Motor
-132MH-	Integral 4-Pole TEFC Energy Efficient Gear Motor

2 Voltage Code

-1	230/460V, 60 Hz, 3 Ph
-2	575V, 60 Hz, 3 Ph
-3	208-230/460V, 60 Hz, 3 Ph
-4	400V, 50 Hz, 3 Ph (For more options, contact Viking Pump)

Weights (lb)

	W	132M	N210TC
SK672.1	53	165	57
SK32	88	187	101
SK772.1	93	192	105
SK42	143	221	179
SK872.1	192	268	196
SK873.1	196	272	201
SK52	207	284	212
SK972.1	278	354	283
SK973.1	282	344	287
SK63	328	406	364
SK73	551	584	525

** Optional NORD NEMA C-Face TEFC Motor (can be used with reducer with NEMA C-Face adaptor input)				Weight
Efficiency	Part Number			(LBS)
IE2	EE	SK132MH/4-215TC	-	2 Voltage Code
				121.3

Section	616
Page	616.16
Issue	B



Gearmotors & Speed Reducers

15 HP

60 Hz Motors | 39 RPM to 586 RPM



		Part Number					
		SKxxx	-XX -	X.XX	-X		
4-Pole 1750 RPM		1	2	3	4	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor	Reducer Model #	1 Input Option (Choose One)	Gear Ratio	2 Voltage Code (Gear Motors Only)	60Hz (rpm)	12Hz (rpm)
586	3.3	SK42		3.02		586	117
567	2.6	SK772.1*		3.12		567	113
551	3.2	SK42		3.21		551	110
506	3.1	SK42		3.5		506	101
493	2.3	SK772.1*		3.59		493	99
461	2.3	SK772.1*		3.84		461	92
455	3	SK42		3.89		455	91
400	2	SK772.1*		4.42		400	80
386	2.8	SK42		4.58		386	77
376	2	SK772.1*		4.71		376	75
370	3.3	SK42	-W-	4.79		370	74
347	3.2	SK42		5.1		347	69
331	2.5	SK42		5.35		331	66
329	1.8	SK772.1*		5.38		329	66
322	3.5	SK872.1		5.5		322	64
313	3.4	SK872.1		5.66		313	63
308	3.3	SK42		5.75		308	62
286	2.9	SK42		6.19		286	57
276	3.9	SK52		6.42		276	55
269	3.1	SK872.1		6.57		269	54
267	1.5	SK772.1*	-160M- -160MH-	6.63	-3	267	53
266	2.9	SK42		6.65		266	53
243	2.4	SK42		7.28		243	49
230	3.4	SK52		7.7		230	46
229	2.8	SK872.1		7.73		229	46
208	2.1	SK42		8.5		208	42
200	2.5	SK872.1		8.87		200	40
192	2.5	SK872.1		9.24		192	38
174	1.9	SK42		10.2		174	35
170	2.2	SK872.1		10.44		170	34
167	2.8	SK52		10.58	-4	167	33
157	2.1	SK872.1		11.24		157	31
144	1.6	SK42		12.28		144	29
142	2	SK872.1		12.48		142	28
132	2.3	SK52		13.45		132	26
131	3.2	SK972.1		13.56		131	26
128	1.8	SK872.1		13.79		128	26

		Part Number					
		SKxxx	-XX -	X.XX	-X		
4-Pole 1750 RPM		1	2	3	4	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor	Reducer Model #	1 Input Option (Choose One)	Gear Ratio	2 Voltage Code (Gear Motors Only)	60Hz (rpm)	12Hz (rpm)
126	2.3	SK52		14		126	25
125	3.1	SK972.1		14.16		125	25
117	1.6	SK872.1		15.18		117	23
112	2.9	SK972.1		15.84		112	22
104	1.5	SK872.1		16.96		104	21
102	3.1	SK63		17.37		102	20
100	2.6	SK972.1		17.65		100	20
99	1.8	SK52		17.81		99	20
98	2.8	SK62		18.14		98	20
95	1.4	SK872.1		18.67		95	19
90	1.6	SK52	-W-	19.6	-1	90	18
85	2.6	SK63		20.77		85	17
82	1.4	SK52		21.68		82	16
81	2.4	SK63		21.98		81	16
80	2.1	SK972.1		21.99		80	16
79	2.1	SK973.1		22.42		79	16
76	1.6	SK972.1		23.19		76	15
69	1.9	SK973.1		25.51		69	14
67	2	SK63		26.28		67	13
65	1.8	SK973.1		27.22		65	13
64	1.6	SK972.1	-160M- -160MH-	27.66	-3	64	13
62	2.3	SK72		28.63		62	12
58	1.5	SK972.1		30.29		58	12
57	1.7	SK973.1		30.97		57	11
55	1.7	SK973.1		31.95		55	11
54	1.6	SK72		33.04		54	11
53	1.4	SK972.1		33.36		53	11
50	1.5	SK973.1		35.19		50	10
49	1.7	SK63		36.11		49	10
47	2.2	SK73		37.63		47	9
45	3.8	SK83		39.08	-4	45	9
44	1.7	SK82		40.45		44	9
41	1.4	SK63		43.43		41	8
40	1.5	SK72		43.71		40	8
39	1.9	SK73		45.66		39	8

* SK772.1 is not available with NEMA adaptor -N250TC-

1 Reducer Input Options

- W- Solid Shaft Input Reducer
- N250TC- NEMA C-Face Input Reducer (no motor).
Optional motor:
part # listed below. **
- 160M- Integral 4-Pole TEFC Standard Gear Motor
- 160MH- Integral 4-Pole TEFC Energy Efficient Gear Motor

2 Voltage Code

- 1 230/460V, 60 Hz, 3 Ph
- 2 575V, 60 Hz, 3 Ph
- 3 208-230/460V, 60 Hz, 3 Ph
- 4 400V, 50 Hz, 3 Ph

(For more options, contact Viking Pump)

Weights (lb)

	W	160M	N250TC
SK772.1	93	232	N/A
SK42	143	260	201
SK872.1	192	308	227
SK52	207	324	265
SK972.1	278	394	314
SK973.1	282	384	318
SK63	328	445	386
SK72	529	602	531
SK73	551	624	553
SK82	935	842	827
SK83	787	860	844

** Optional NORD NEMA C-Face TEFC Motor (can be used with reducer with NEMA C-Face adaptor input)				Weight (LBS)
Efficiency	Part Number			
IE2	EE	SK160MH/4-254TCTW	-	2 Voltage Code 160.9



Gearmotors & Speed Reducers 20 HP

60 Hz Motors | 39 RPM to 583 RPM



Section	616
Page	616.17
Issue	B

		Part Number					
		SKxxx	-XX -	X.XX	-X		
4-Pole 1750 RPM		1	2	3	4	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor	Reducer Model #	¹ Input Option (Choose One)	Gear Ratio	² Voltage Code (Gear Motors Only)	60Hz (rpm)	12Hz (rpm)
583	2.5	SK42	-W-	3.02	-1	583	117
555	3.3	SK872.1		3.18		555	111
548	2.4	SK42		3.21		548	110
503	2.3	SK42		3.5		503	101
478	3	SK872.1		3.69		478	96
452	2.2	SK42		3.89		452	90
438	2.8	SK872.1		4.03		438	88
431	3.4	SK52		4.08		431	86
384	2.1	SK42		4.58		384	77
382	3.2	SK52		4.61		382	76
377	2.9	SK872.1	-N250TC-	4.68	-2	377	75
367	2.5	SK42		4.79		367	73
346	3.3	SK52		5.08		346	69
345	2.4	SK42		5.1		345	69
329	1.9	SK42		5.35		329	66
321	2.6	SK872.1	-160L- -160LH-	5.5		321	64
314	2.6	SK52		5.6		314	63
312	2.5	SK872.1		5.66		312	62
306	2.4	SK42		5.75		306	61
304	3.1	SK52		5.79		304	61
289	3	SK52	-4	6.09	-3	289	58
284	2.1	SK42		6.19		284	57
274	2.9	SK52		6.42		274	55
269	2.3	SK872.1		6.57		269	54
265	2.2	SK42		6.65		265	53
245	3.5	SK972.1		7.19		245	49
242	1.8	SK42		7.28		242	48
229	2.6	SK52		7.7		229	46
228	2.1	SK872.1		7.73		228	46
209	3.3	SK972.1		8.45		209	42
207	1.6	SK42		8.5		207	41
199	2.3	SK52		8.83		199	40
191	1.9	SK872.1		9.24		191	38
188	3.3	SK972.1		9.4		188	38
173	1.4	SK42		10.2		173	35
171	3	SK972.1		10.35		171	34

		Part Number					
		SKxxx	-XX -	X.XX	-X		
4-Pole 1750 RPM		1	2	3	4	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor	Reducer Model #	¹ Input Option (Choose One)	Gear Ratio	² Voltage Code (Gear Motors Only)	60Hz (rpm)	12Hz (rpm)
169	1.7	SK872.1	-W-	10.44	-1	169	34
166	2.1	SK52		10.58		166	33
157	1.5	SK872.1		11.24		157	31
153	2.7	SK972.1		11.54		153	31
152	3.3	SK62		11.59		152	30
141	1.5	SK872.1		12.48		141	28
137	2.5	SK972.1		12.86		137	27
131	1.7	SK52		13.45		131	26
130	2.4	SK972.1		13.56		130	26
126	1.7	SK52		14		126	25
125	2.3	SK972.1	-N250TC-	14.16	-2	125	25
111	2.4	SK62		15.8		111	22
104	3	SK72		16.86		104	21
101	2.3	SK63		17.37		101	20
100	2	SK972.1		17.65		100	20
98	3.4	SK73	-160L- -160LH-	18	-3	98	20
97	2.1	SK62		18.14		97	19
90	1.8	SK972.1		19.72		90	18
85	1.9	SK63		20.77		85	17
81	2.6	SK72		21.64		81	16
80	1.8	SK63		21.98	-4	80	16
79	1.5	SK973.1		22.42		79	16
75	2.6	SK73		23.34		75	15
69	1.5	SK973.1		25.51		69	14
67	1.5	SK63		26.28		67	13
66	3	SK82		26.62		66	13
62	2.2	SK73		28.32		62	12
61	1.7	SK72		28.63		61	12
57	1.4	SK63		30.91		57	11
55	2.5	SK82		32.12		55	11
54	3.2	SK83		32.52		54	11
53	1.9	SK73		33.24		53	11
47	1.6	SK73		37.63		47	9
45	2.8	SK83		39.08		45	9
40	2.5	SK83		44.38		40	8
39	1.5	SK73		45.66		39	8

¹ Reducer Input Options

- W- Solid Shaft Input Reducer
- N250TC- NEMA C-Face Input Reducer (no motor).
Optional motor:
part # listed below. **
- 160L- Integral 4-Pole TEFC Standard Gear Motor
- 160LH- Integral 4-Pole TEFC Energy Efficient Gear Motor

² Voltage Code

- 1 230/460V, 60 Hz, 3 Ph
 - 2 575V, 60 Hz, 3 Ph
 - 3 208-230/460V, 60 Hz, 3 Ph
 - 4 400V, 50 Hz, 3 Ph
- (For more options, contact Viking Pump)

Weights (lb)

	W	160L	N250TC
SK42	143	298	201
SK872.1	192	345	227
SK52	207	362	265
SK972.1	278	431	314
SK973.1	282	421	318
SK63	328	483	386
SK72	529	639	531
SK73	551	662	553
SK82	935	880	827
SK83	787	897	844

** Optional NORD NEMA C-Face TEFC Motor (can be used with reducer with NEMA C-Face adaptor input)				Weight
Efficiency		Part Number		(LBS)
IE2	EE	SK160LH/4-256TCTW	- ² Voltage Code	198.4

Section	616
Page	616.18
Issue	B



Gearmotors & Speed Reducers

25 HP

60 Hz Motors | 40 RPM to 633 RPM



		Part Number					
		SKxxx	-XX -	X.XX	-X		
4-Pole 1750 RPM		1	2	3	4	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor	Reducer Model #	¹ Input Option (Choose One)	Gear Ratio	² Voltage Code (Gear Motors Only)	60Hz (rpm)	12Hz (rpm)
633	3.2	SK52		2.78		633	127
583	2	SK42*		3.02		583	117
550	2.6	SK872.1**		3.18		550	110
548	1.9	SK42*		3.21		548	110
545	2.9	SK52		3.23		545	109
526	5	SK972.1		3.33		526	105
518	2.9	SK52		3.4		518	104
503	1.9	SK42*		3.5		503	101
480	2.8	SK52		3.67		480	96
474	2.3	SK872.1**		3.69		474	95
468	4.8	SK972.1	-W-	3.74	-1	468	94
452	1.8	SK42*		3.89		452	90
434	2.2	SK872.1**		4.03		434	87
431	2.7	SK52		4.08		431	86
384	4.3	SK972.1	-N280TC-	4.56	-2	384	77
382	2.6	SK52		4.61		382	76
374	2.3	SK872.1**		4.68		374	75
367	2	SK42*		4.79		367	73
346	2.7	SK52	-180MX- -180MH-	5.08	-3	346	69
345	1.9	SK42*		5.1		345	69
333	3.7	SK972.1		5.25		333	67
329	1.5	SK42*		5.35		329	66
318	2.1	SK872.1**		5.5	-4	318	64
314	2.1	SK52		5.6		314	63
309	2	SK872.1**		5.66		309	62
306	1.9	SK42*		5.75		306	61
304	2.5	SK52		5.79		304	61
289	2.4	SK52		6.09		289	58
284	3.3	SK972.1		6.17		284	57
274	2.3	SK52		6.42		274	55
266	1.8	SK872.1**		6.57		266	53
265	1.7	SK42*		6.65		265	53
262	3.3	SK972.1		6.68		262	52
243	3.1	SK972.1		7.19		243	49
242	2.1	SK52		7.27		242	48
229	2	SK52		7.7		229	46
226	1.7	SK872.1**		7.73		226	45
207	2.7	SK972.1		8.45		207	41

		Part Number					
		SKxxx	-XX -	X.XX	-X		
4-Pole 1750 RPM		1	2	3	4	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor	Reducer Model #	¹ Input Option (Choose One)	Gear Ratio	² Voltage Code (Gear Motors Only)	60Hz (rpm)	12Hz (rpm)
200	3.4	SK62		8.78		200	40
199	1.9	SK52		8.83		199	40
197	1.5	SK872.1**		8.87		197	39
189	1.5	SK872.1**		9.24		189	38
186	2.6	SK972.1		9.4		186	37
169	2.4	SK972.1		10.35		169	34
167	2.9	SK62		10.55		167	33
166	1.6	SK52		10.58		166	33
152	2.6	SK62		11.59		152	30
136	2	SK972.1		12.86		136	27
131	1.4	SK52	-W-	13.45	-1	131	26
129	1.9	SK972.1		13.56		129	26
126	2.2	SK62		13.92		126	25
124	1.9	SK972.1		14.16		124	25
123	2.8	SK72	-N280TC-	14.33	-2	123	25
111	1.9	SK62		15.8		111	22
110	1.7	SK972.1		15.84		110	22
104	2.4	SK72		16.86		104	21
101	1.8	SK63	-180MX- -180MH-	17.37	-3	101	20
99	1.6	SK972.1		17.65		99	20
98	2.7	SK73		18		98	20
97	1.7	SK62		18.14		97	19
89	1.4	SK972.1		19.72	-4	89	18
85	2.4	SK73		20.62		85	17
84	3.8	SK83		21.04		84	17
81	2.1	SK72		21.64		81	16
80	1.4	SK63		21.98		80	16
75	2.1	SK73		23.34		75	15
72	3.2	SK83		24.42		72	14
63	2.9	SK83		28.03		63	13
62	1.7	SK73		28.32		62	12
61	1.4	SK72		28.63		61	12
54	2.6	SK83		32.52		54	11
53	1.5	SK73		33.24		53	11
45	3.1	SK93		39.54		45	9
40	2	SK83		44.38		40	8

* SK42 is only available with solid input shaft - W- for this HP

** SK872.1 is not available with NEMA adapter -N280TC-

¹ Reducer Input Options

-W-	Solid Shaft Input Reducer
-N280TC-	NEMA C-Face Input Reducer (no motor)
-180MX-	Integral 4-Pole TEFC Standard Gear Motor
-180MH-	Integral 4-Pole TEFC Energy Efficient Gear Motor

² Voltage Code

-1	230/460V, 60 Hz, 3 Ph
-2	575V, 60 Hz, 3 Ph
-3	208-230/460V, 60 Hz, 3 Ph
-4	400V, 50 Hz, 3 Ph

(For more options, contact Viking Pump)

Weights (lb)

	W	180M	N280TC
SK42	143	N/A	N/A
SK872.1	192	398	N/A
SK52	207	415	285
SK972.1	278	484	336
SK973.1	282	474	340
SK63	328	536	386
SK72	529	692	583
SK73	551	714	608
SK83	787	950	844
SK93	1182	1345	1270



Gearmotors & Speed Reducers

30 HP

60 Hz Motors | 40 RPM to 635 RPM



Section	616
Page	616.19
Issue	B

		Part Number					
		SKxxx	-XX -	X.XX	-X		
4-Pole 1750 RPM		1	2	3	4	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor	Reducer Model #	¹ Input Option (Choose One)	Gear Ratio	² Voltage Code (Gear Motors Only)	60Hz (rpm)	12Hz (rpm)
635	2.6	SK52	-W-	2.78	-1	635	127
584	1.7	SK42*		3.02		584	117
552	2.2	SK872.1**		3.18		552	110
550	1.6	SK42*		3.21		550	110
546	2.5	SK52		3.23		546	109
527	4.2	SK972.1		3.33		527	105
519	2.5	SK52		3.4		519	104
504	1.6	SK42*		3.5		504	101
481	2.4	SK52		3.67		481	96
476	2	SK872.1**		3.69		476	95
469	4	SK972.1	-N280TC-	3.74	-2	469	94
454	1.5	SK42*		3.89		454	91
435	1.8	SK872.1**		4.03		435	87
433	2.3	SK52		4.08		433	87
387	3.8	SK62		4.56		387	77
385	3.6	SK972.1	-180LX- -180LH-	4.56	-3	385	77
383	2.1	SK52		4.61		383	77
375	1.9	SK872.1**		4.68		375	75
368	1.7	SK428		4.79		368	74
347	2.2	SK52		5.08		347	69
346	1.6	SK42*		5.1	-4	346	69
334	3.1	SK972.1		5.25		334	67
319	1.7	SK872.1**		5.5		319	64
315	1.7	SK52		5.6		315	63
310	1.7	SK872.1**		5.66		310	62
307	1.6	SK42*		5.75		307	61
305	2	SK52		5.79		305	61
290	2	SK52		6.09		290	58
285	1.4	SK42*		6.19		285	57
284	2.8	SK972.1		6.17		284	57
278	2.5	SK62		6.35		278	56
275	1.9	SK52		6.42		275	55
267	1.5	SK872.1**		6.57		267	53
265	1.4	SK42*		6.65		265	53
263	2.8	SK972.1		6.68		263	53

		Part Number					
		SKxxx	-XX -	X.XX	-X		
4-Pole 1750 RPM		1	2	3	4	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor	Reducer Model #	¹ Input Option (Choose One)	Gear Ratio	² Voltage Code (Gear Motors Only)	60Hz (rpm)	12Hz (rpm)
244	2.6	SK972.1		7.19		244	49
243	1.8	SK52		7.27		243	49
233	3.4	SK62		7.56		233	47
229	1.7	SK52		7.7		229	46
208	2.3	SK972.1		8.45		208	42
201	2.8	SK62		8.78		201	40
200	1.6	SK52		8.83		200	40
187	2.2	SK972.1		9.4		187	37
170	2	SK972.1		10.35		170	34
167	2.4	SK62		10.55		167	33
152	2.2	SK62	-W-	11.59	-1	152	30
141	2.7	SK72		12.52		141	28
136	1.7	SK972.1		12.86		136	27
129	1.6	SK972.1		13.56		129	26
127	1.8	SK62		13.92		127	25
124	1.5	SK972.1	-N280TC-	14.16	-2	124	25
123	2.3	SK72		14.33		123	25
112	1.6	SK63		15.8		112	22
111	1.4	SK972.1		15.84		111	22
105	2	SK72		16.86		105	21
102	1.5	SK63	-180LX- -180LH-	17.37	-3	102	20
98	2.3	SK73		18		98	20
97	1.4	SK62		18.14		97	19
86	2	SK73		20.62		86	17
84	3.1	SK83		21.04		84	17
82	1.7	SK72		21.64	-4	82	16
81	1.5	SK72		21.72		81	16
76	1.8	SK73		23.34		76	15
72	2.7	SK83		24.42		72	14
63	2.4	SK83		28.03		63	13
62	1.5	SK73		28.32		62	12
54	2.2	SK83		32.52		54	11
45	1.9	SK83		39.08		45	9
40	1.7	SK83		44.38		40	8

* SK42 is only available with solid input shaft - W- for this HP

** SK872.1 is not available with NEMA adapter -N280TC-

¹ Reducer Input Options

-W-	Solid Shaft Input Reducer
-N280TC-	NEMA C-Face Input Reducer (no motor).
-180LX-	Integral 4-Pole TEFC Standard Gear Motor
-180LH-	Integral 4-Pole TEFC Energy Efficient Gear Motor

² Voltage Code

-1	230/460V, 60 Hz, 3 Ph
-2	575V, 60 Hz, 3 Ph
-3	208-230/460V, 60 Hz, 3 Ph
-4	400V, 50 Hz, 3 Ph

(For more options, contact Viking Pump)

Weights (lb)

	W	180L	N280TC
SK42	143	N/A	N/A
SK872.1	192	398	N/A
SK52	207	415	285
SK972.1	278	484	336
SK973.1	282	474	340
SK63	328	536	386
SK72	529	692	583
SK73	551	692	608
SK83	787	950	844
SK93	1182	1345	1270

Section	616
Page	616.20
Issue	B



Gearmotors & Speed Reducers

40 HP

60 Hz Motors | 40 RPM to 640 RPM



		Part Number					
		SKxxx	-XX -	X.XX	-X		
4-Pole 1750 RPM		1	2	3	4	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor	Reducer Model #	1 Input Option (Choose One)	Gear Ratio	2 Voltage Code (Gear Motors Only)	60Hz (rpm)	12Hz (rpm)
640	2	SK52*	-W-	2.78	-1	640	128
599	4.1	SK62		2.97		599	120
551	1.9	SK52*		3.23		551	110
539	3.7	SK62		3.3		539	108
535	3.2	SK972.1**		3.33		535	107
524	1.9	SK52*		3.4		524	105
485	1.8	SK52*		3.67		485	97
478	3.4	SK62		3.72		478	96
476	3	SK972.1**		3.74		476	95
455	3.2	SK62		3.91		455	91
440	2.9	SK62		4.05		440	88
436	1.7	SK52*		4.08		436	87
390	2.9	SK62		4.56		390	78
386	1.6	SK52*		4.61		386	77
350	1.7	SK52*	-N320TC-	5.08	-2	350	70
339	2.4	SK972.1**		5.25		339	68
336	2.2	SK62	-200L-	5.29	-3	336	67
318	3.2	SK72		5.6		318	64
307	1.5	SK52*		5.79		307	61
292	1.5	SK52*		6.09		292	58
288	2.1	SK972.1**	-200LH-	6.17	-4	288	58
280	1.9	SK62		6.35		280	56
277	1.5	SK52*		6.42		277	55
266	2.1	SK972.1**		6.68		266	53
256	3.9	SK72		6.95		256	51
248	2	SK972.1**		7.19		248	50
245	1.3	SK52*		7.27		245	49
235	2.6	SK62		7.56		235	47
231	1.3	SK52*		7.7		231	46

		Part Number					
		SKxxx	-XX -	X.XX	-X		
4-Pole 1750 RPM		1	2	3	4	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor	Reducer Model #	1 Input Option (Choose One)	Gear Ratio	2 Voltage Code (Gear Motors Only)	60Hz (rpm)	12Hz (rpm)
217	3.6	SK72	-W-	8.19	-1	217	43
211	1.7	SK972.1**		8.45		211	42
203	2.1	SK62		8.78		203	41
189	1.6	SK972.1**		9.4		189	38
188	3.1	SK72		9.46		188	38
172	1.5	SK972.1**		10.35		172	34
169	1.8	SK62		10.55		169	34
164	2.7	SK72		10.84		164	33
154	1.7	SK62		11.59		154	31
142	2	SK72		12.52		142	28
138	1.3	SK972.1**		12.86		138	28
128	1.4	SK62		13.92		128	26
125	2.9	SK82		14.29		125	25
124	1.8	SK72		14.33		124	25
107	2.5	SK82	-N320TC-	16.56	-2	107	21
106	1.5	SK72		16.86		106	21
99	1.7	SK73	-200L-	18	-3	99	20
86	1.5	SK73		20.62		86	17
85	2.4	SK83		21.04		85	17
76	1.3	SK73		23.34		76	15
73	2	SK83	-200LH-	24.42	-4	73	15
66	2.8	SK93		27.05		66	13
64	1.8	SK83		28.03		64	13
57	2.4	SK93		31.25		57	11
55	1.6	SK83		32.52		55	11
47	3.3	SK103		37.9		47	9
46	1.4	SK83		39.08		46	9
45	1.9	SK93		39.54		45	9
40	2.8	SK103		45.25		40	8

* SK52 is only available with a solid shaft input -W- for this HP

** SK972.1 is not available with NEMA adapter -N320TC-

1 Reducer Input Options

-W-	Solid Shaft Input Reducer
-N320TC-	NEMA C-Face Input Reducer (no motor)
-200L-	Integral 4-Pole TEFC Standard Gear Motor
-200LH-	Integral 4-Pole TEFC Energy Efficient Gear Motor

2 Voltage Code

-1	230/460V, 60 Hz, 3 Ph
-2	575V, 60 Hz, 3 Ph
-3	208-230/460V, 60 Hz, 3 Ph
-4	400V, 50 Hz, 3 Ph

(For more options, contact Viking Pump)

Weights (lb)

	W	200L	N320TC
SK52	207	N/A	N/A
SK972.1	278	641	N/A
SK62	377	697	465
SK72	529	849	617
SK82	935	1089	891
SK83	787	1107	908
SK93	1182	1502	1303
SK103	1830	1985	1887



Gearmotors & Speed Reducers

50 HP

60 Hz Motors | 39 RPM to 635 RPM



Section	616
Page	616.21
Issue	B

		Part Number					
		SKxxx	-XX -	X.XX	-X		
4-Pole 1750 RPM		1	2	3	4	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor	Reducer Model #	¹ Input Option (Choose One)	Gear Ratio	² Voltage Code (Gear Motors Only)	60Hz (rpm)	12Hz (rpm)
635	1.6	SK52*	-W-	2.78	-1	635	127
594	3.3	SK62		2.97		594	119
546	1.5	SK52*		3.23		546	109
535	3	SK62		3.3		535	107
530	2.5	SK972.1**		3.33		530	106
519	1.5	SK52*		3.4		519	104
481	1.4	SK52*		3.67		481	96
474	2.7	SK62		3.72		474	95
472	2.4	SK972.1**		3.74		472	94
451	2.5	SK62		3.91		451	90
436	2.3	SK62	-N320TC-	4.05	-2	436	87
433	1.4	SK52*		4.08		433	87
387	2.2	SK972.1**	-225S- -225SH-	4.56		387	77
387	2.3	SK62		4.56		387	77
347	1.3	SK52*		5.08		347	69
336	1.9	SK972.1**		5.25		336	67
334	1.8	SK62		5.29		334	67
315	2.5	SK72		5.6		315	63
286	1.7	SK972.1**		6.17		286	57
278	1.5	SK62		6.35		278	56
275	2.1	SK72		6.42		275	55
264	1.7	SK972.1**		6.68		264	53
254	3.1	SK72	-4	6.95		254	51
245	1.6	SK972.1**		7.19		245	49
233	2	SK62		7.56		233	47
216	2.8	SK72		8.19		216	43
209	1.4	SK972.1**		8.45		209	42

		Part Number					
		SKxxx	-XX -	X.XX	-X		
4-Pole 1750 RPM		1	2	3	4	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor	Reducer Model #	¹ Input Option (Choose One)	Gear Ratio	² Voltage Code (Gear Motors Only)	60Hz (rpm)	12Hz (rpm)
201	1.7	SK62	-W-	8.78	-1	201	40
187	2.5	SK72		9.46		187	37
171	3.3	SK82		10.33		171	34
167	1.5	SK62		10.55		167	33
163	2.1	SK72		10.84		163	33
152	1.3	SK62		11.59		152	30
149	3	SK82		11.84		149	30
141	1.6	SK72		12.52		141	28
124	2.3	SK82		14.29		124	25
123	1.4	SK72		14.33		123	25
107	2	SK82	-N320TC-	16.56	-2	107	21
98	1.4	SK73		18		98	20
92	3.2	SK93		19.12		92	18
84	1.9	SK83		21.04		84	17
83	4.7	SK103		21.19		83	17
77	2.6	SK93		22.97		77	15
72	1.6	SK83		24.42		72	14
70	3.9	SK103		25.3		70	14
65	2.2	SK93		27.05		65	13
63	1.4	SK83		28.03		63	13
60	3.3	SK103	-225S- -225SH-	29.62	-4	60	12
56	1.9	SK93		31.25		56	11
54	1.3	SK83		32.52		54	11
47	2.6	SK103		37.9		47	9
45	1.5	SK93		39.54		45	9
39	2.2	SK103		45.25		39	8

* SK52 is only available with a solid shaft input -W- for this HP

** SK972.1 is not available with NEMA adapter -N320TC-

¹ Reducer Input Options

-W-	Solid Shaft Input Reducer
-N320TC-	NEMA C-Face Input Reducer (no motor).
-225S-	Integral 4-Pole TEFC Standard Gear Motor
-225SH-	Integral 4-Pole TEFC Energy Efficient Gear Motor

² Voltage Code

-1	230/460V, 60 Hz, 3 Ph
-2	575V, 60 Hz, 3 Ph
-4	400V, 50 Hz, 3 Ph
(For more options, contact Viking Pump)	

Weights (lb)

	W	225S	N320TC
SK52	207	N/A	N/A
SK972.1	278	713	N/A
SK62	377	770	465
SK72	529	922	617
SK82	935	1162	891
SK83	787	1180	908
SK93	1182	1574	1303
SK103	1830	2057	1887

Section	616
Page	616.22
Issue	B



Gearmotors & Speed Reducers

60 HP

60 Hz Motors | 39 RPM to 596 RPM



		Part Number					
		SKxxx	-xx-	x.xx	-x		
4-Pole 1750 RPM		1	2	3	4	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor	Reducer Model #	¹ Input Option (Choose One)	Gear Ratio	² Voltage Code (Gear Motors Only)	60Hz (rpm)	12Hz (rpm)
596	2.7	SK62	-W-	2.97	-1	596	119
536	2.5	SK62		3.3		536	107
476	2.3	SK62		3.72		476	95
453	2.1	SK62		3.91		453	91
437	1.9	SK62		4.05		437	87
430	2.7	SK72		4.12		430	86
388	1.9	SK62		4.56		388	78
365	2.5	SK72		4.85		365	73
335	1.5	SK62		5.29		335	67
316	2.1	SK72		5.6		316	63
286	2.9	SK82		6.19		286	57
276	1.8	SK72		6.42		276	55
255	2.6	SK72		6.95		255	51
240	3.5	SK82		7.39		240	48
234	1.7	SK62		7.56	-2	234	47
216	2.4	SK72		8.19		216	43
202	1.4	SK62		8.78		202	40
201	3.1	SK82		8.82		201	40
187	2.1	SK72	-N360TC-	9.46		187	37
171	2.8	SK82		10.33		171	34
163	1.8	SK72		10.84		163	33
149	2.5	SK82		11.84		149	30
143	3.5	SK92	-225M- -225MH	12.39		143	29
141	1.3	SK72		12.52		141	28
124	1.9	SK82		14.29	-4	124	25
123	3.1	SK92		14.36		123	25
107	2.7	SK92		16.47		107	21
93	2.6	SK93		19.12		93	19
84	3.9	SK103		21.19		84	17
77	2.2	SK93		22.97		77	15
72	1.4	SK83		24.42		72	14
70	3.3	SK103		25.3		70	14
65	1.9	SK93		27.05		65	13
60	2.8	SK103		29.62		60	12
57	1.6	SK93		31.25		57	11
47	2.2	SK103		37.9		47	9
45	1.3	SK93		39.54		45	9
39	1.8	SK103		45.25		39	8

¹ Reducer Input Options

- W- Solid Shaft Input Reducer
- N360TC- NEMA C-Face Input Reducer (no motor).
- 225M- Integral 4-Pole TEFC Standard Gear Motor
- 225MH- Integral 4-Pole TEFC Energy Efficient Gear Motor

² Voltage Code

- 1 230/460V, 60 Hz, 3 Ph
- 2 575V, 60 Hz, 3 Ph
- 4 400V, 50 Hz, 3 Ph
(For more options, contact Viking Pump)

Weights (lb)

	W	225M	N360TC
SK62	377	842	498
SK72	529	994	650
SK82	935	1235	1012
SK92	787	1623	1400
SK93	1182	1647	1424
SK103	1830	2130	2083



Gearmotors & Speed Reducers

75 HP

60 Hz Motors | 39 RPM to 617 RPM



Section	616
Page	616.23
Issue	B

		Part Number					
		SKxxx	-XX -	X.XX	-X		
4-Pole 1750 RPM		1	2	3	4	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor	Reducer Model #	¹ Input Option (Choose One)	Gear Ratio	² Voltage Code (Gear Motors Only)	60Hz (rpm)	12Hz (rpm)
617	3.6	SK82	-W-	2.89	-1	617	123
492	3.6	SK82		3.62		492	98
402	3.3	SK82		4.43		402	80
337	3	SK82		5.29		337	67
288	2.3	SK82		6.19		288	58
241	2.8	SK82	-N360TC-	7.39	-2	241	48
202	2.5	SK82		8.82		202	40
173	2.2	SK82		10.33		173	35
151	2	SK82		11.84		151	30
144	2.9	SK92		12.39		144	29
125	1.5	SK82	-250M-	14.29	-4	125	25
124	2.5	SK92		14.36		124	25
108	2.1	SK92		16.47		108	22
93	2.1	SK93		19.12		93	19
84	3.1	SK103		21.19		84	17
78	1.8	SK93	-250MH-	22.97		78	16
70	2.6	SK103		25.3		70	14
66	1.5	SK93		27.05		66	13
60	2.3	SK103		29.62		60	12
57	1.3	SK93		31.25		57	11
47	1.8	SK103		37.9		47	9
39	1.5	SK103		45.25		39	8

¹ Reducer Input Options

-W-	Solid Shaft Input Reducer
-N360TC-	NEMA C-Face Input Reducer (no motor)
-250M-	Integral 4-Pole TEFC Standard Gear Motor
-250MH-	Integral 4-Pole TEFC Energy Efficient Gear Motor

² Voltage Code

-1	230/460V, 60 Hz, 3 Ph
-2	575V, 60 Hz, 3 Ph
-4	400V, 50 Hz, 3 Ph
(For more options, contact Viking Pump)	

Weights (lb)

	W	250M	N360TC
SK82	935	1641	1012
SK92	787	2029	1400
SK93	1182	2053	1424
SK103	1830	2536	2083

Section	616
Page	616.24
Issue	B



Gearmotors & Speed Reducers

100 HP

60 Hz Motors | 47 RPM to 619 RPM



		Part Number					
		SKxxx	-xx-	x.xx	-x		
4-Pole 1750 RPM		1	2	3	4	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor	Reducer Model #	¹ Input Option (Choose One)	Gear Ratio	² Voltage Code (Gear Motors Only)	60Hz (rpm)	12Hz (rpm)
619	2.7	SK82	-W-	2.89	-1	619	124
494	2.7	SK82		3.62		494	99
404	2.5	SK82		4.43		404	81
342	5.1	SK102		5.23		342	68
338	2.3	SK82		5.29		338	68
315	3.2	SK92		5.68		315	63
289	1.7	SK82		6.19		289	58
287	4.6	SK102		6.24		287	57
267	2.9	SK92		6.7		267	53
242	2.1	SK82		7.39		242	48
238	3.8	SK102		7.5		238	48
230	2	SK92		7.78		230	46
203	1.9	SK82	-280S- -280SH-	8.82	-2	203	41
180	3.8	SK102		9.96		180	36
173	1.7	SK82		10.33		173	35
170	2.4	SK92		10.5		170	34
151	3.3	SK102		11.88		151	30
144	2.1	SK92		12.39		144	29
125	2.9	SK102		14.29		125	25
109	1.6	SK92		16.47		109	22
108	2.6	SK102		16.63		108	22
94	1.6	SK93		19.12		94	19
92	2.2	SK102		19.37		92	18
84	2.4	SK103		21.19		84	17
78	1.3	SK93		22.97		78	16
71	2	SK103		25.3		71	14
60	1.7	SK103		29.62		60	12
47	1.3	SK103		37.9		47	9

¹ Reducer Input Options

- W- Solid Shaft Input Reducer
- 280S- Integral 4-Pole TEFC Standard Gear Motor
- 280SH- Integral 4-Pole TEFC Energy Efficient Gear Motor

² Voltage Code

- 1 230/460V, 60 Hz, 3 Ph
 - 2 575V, 60 Hz, 3 Ph
 - 4 400V, 50 Hz, 3 Ph
- (For more options, contact Viking Pump)

Weights (lb)

	W	280S
SK82	935	2026
SK92	787	2414
SK93	1182	2439
SK102	1810	2902
SK103	1830	2922



Gearmotors & Speed Reducers

125 HP

60 Hz Motors | 60 RPM to 509 RPM



Section	616
Page	616.25
Issue	B

		Part Number					
		SKxxx	-XX -	X.XX	-X		
4-Pole 1750 RPM		1	2	3	4	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor	Reducer Model #	¹ Input Option (Choose One)	Gear Ratio	² Voltage Code (Gear Motors Only)	60Hz (rpm)	12Hz (rpm)
509	3.2	SK92	-W-	3.51	-1	509	102
341	4.1	SK102		5.23		341	68
314	2.5	SK92		5.68		314	63
286	3.7	SK102		6.24		286	57
267	2.3	SK92		6.7		267	53
238	3	SK102		7.5		238	48
230	1.6	SK92		7.78		230	46
179	3	SK102		9.96		179	36
170	1.9	SK92		10.5		170	34
150	2.7	SK102		11.88		150	30
144	1.7	SK92	-280M- -280MH-	12.39	-2	144	29
125	2.3	SK102		14.29		125	25
124	1.5	SK92		14.36		124	25
108	1.3	SK92		16.47		108	22
107	2.1	SK102		16.63		107	21
92	1.7	SK102		19.37		92	18
84	1.9	SK103		21.19	-4	84	17
71	1.6	SK103		25.3		71	14
60	1.4	SK103		29.62		60	12

¹ Reducer Input Options

- W- Solid Shaft Input Reducer
- 280M- Integral 4-Pole TEFC Standard Gear Motor
- 280MH- Integral 4-Pole TEFC Energy Efficient Gear Motor

² Voltage Code

- 1 230/460V, 60 Hz, 3 Ph
 - 2 575V, 60 Hz, 3 Ph
 - 4 400V, 50 Hz, 3 Ph
- (For more options, contact Viking Pump)

Weights (lb)

	W	280M
SK92	787	2525
SK102	1810	3012
SK103	1830	3032

Section	616
Page	616.26
Issue	B



Gearmotors & Speed Reducers

150 HP

60 Hz Motors | 71 RPM to 509 RPM



		Part Number					
		SKxxx	-XX -	X.XX	-X		
4-Pole 1750 RPM		1	2	3	4	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor	Reducer Model #	¹ Input Option (Choose One)	Gear Ratio	² Voltage Code (Gear Motors Only)	60Hz (rpm)	12Hz (rpm)
509	2.7	SK92	-W-	3.51	-1	509	102
342	3.4	SK102		5.23		342	68
315	2.1	SK92		5.68		315	63
287	3.1	SK102		6.24		287	57
267	1.9	SK92		6.7		267	53
238	2.5	SK102	-315S- -315SH-	7.5	-2	238	48
230	1.3	SK92		7.78		230	46
180	2.5	SK102		9.96		180	36
170	1.6	SK92		10.5		170	34
151	2.2	SK102		11.88		151	30
144	1.4	SK92		12.39	-4	144	29
125	1.9	SK102		14.29		125	25
108	1.7	SK102		16.63		108	22
92	1.5	SK102		19.37		92	18
84	1.6	SK103		21.19		84	17
71	1.3	SK103		25.3		71	14

¹ Reducer Input Options

- W- Solid Shaft Input Reducer
- 315S- Integral 4-Pole TEFC Standard Gear Motor
- 315SH- Integral 4-Pole TEFC Energy Efficient Gear Motor

² Voltage Code

- 1 230/460V, 60 Hz, 3 Ph
- 2 575V, 60 Hz, 3 Ph
- 4 400V, 50 Hz, 3 Ph
(For more options, contact Viking Pump)

Weights (lb)

	W	315S
SK92	787	2900
SK102	1810	3387
SK103	1830	3407



Gearmotors & Speed Reducers

175 HP

60 Hz Motors | 108 RPM to 510 RPM



Section	616
Page	616.27
Issue	B

		Part Number					
		SKxxx	-XX -	X.XX	-X		
4-Pole 1750 RPM		1	2	3	4	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor	Reducer Model #	¹ Input Option (Choose One)	Gear Ratio	² Voltage Code (Gear Motors Only)	60Hz (rpm)	12Hz (rpm)
510	2.3	SK92	-W-	3.51	-1	510	102
418	3.2	SK102		4.28		418	84
342	2.9	SK102		5.23		342	68
315	1.8	SK92		5.68		315	63
287	2.6	SK102		6.24		287	57
267	1.7	SK92	-315M- -315MH-	6.7	-2	267	53
239	2.2	SK102		7.5		239	48
180	2.2	SK102		9.96		180	36
170	1.4	SK92		10.5		170	34
151	1.9	SK102		11.88		151	30
125	1.7	SK102		14.29	-4	125	25
108	1.5	SK102		16.63		108	22

¹ Reducer Input Options

- W- Solid Shaft Input Reducer
- 315M- Integral 4-Pole TEFC Standard Gear Motor
- 315MH- Integral 4-Pole TEFC Energy Efficient Gear Motor

² Voltage Code

- 1 230/460V, 60 Hz, 3 Ph
 - 2 575V, 60 Hz, 3 Ph
 - 4 400V, 50 Hz, 3 Ph
- (For more options, contact Viking Pump)

Weights (lb)

	W	315M
SK92	787	3076
SK102	1810	3563

Section	616
Page	616.28
Issue	B



Gearmotors & Speed Reducers 200 HP

60 Hz Motors | 108 RPM to 510 RPM



		Part Number					
		SKxxx	-xx-	x.xx	-x		
4-Pole 1750 RPM		1	2	3	4	5:1 Inverter Duty (Constant Torque)	
Output Speed (rpm)	Service Factor	Reducer Model #	¹ Input Option (Choose One)	Gear Ratio	² Voltage Code (Gear Motors Only)	60Hz (rpm)	12Hz (rpm)
510	2	SK92	-W-	3.51	-1	510	102
418	2.8	SK102		4.28		418	84
342	2.5	SK102		5.23		342	68
315	1.6	SK92		5.68		315	63
287	2.3	SK102	-315MA-	6.24	-2	287	57
267	1.5	SK92		6.7		267	53
239	1.9	SK102		7.5		239	48
180	1.9	SK102		9.96		180	36
151	1.7	SK102		11.88	-4	151	30
125	1.5	SK102		14.29		125	25
108	1.3	SK102		16.63		108	22

¹ Reducer Input Options

- W- Solid Shaft Input Reducer
- 315MA- Integral 4-Pole TEFC Standard Gear Motor

² Voltage Code

- 1 230/460V, 60 Hz, 3 Ph
 - 2 575V, 60 Hz, 3 Ph
 - 4 400V, 50 Hz, 3 Ph
- (For more options, contact Viking Pump)

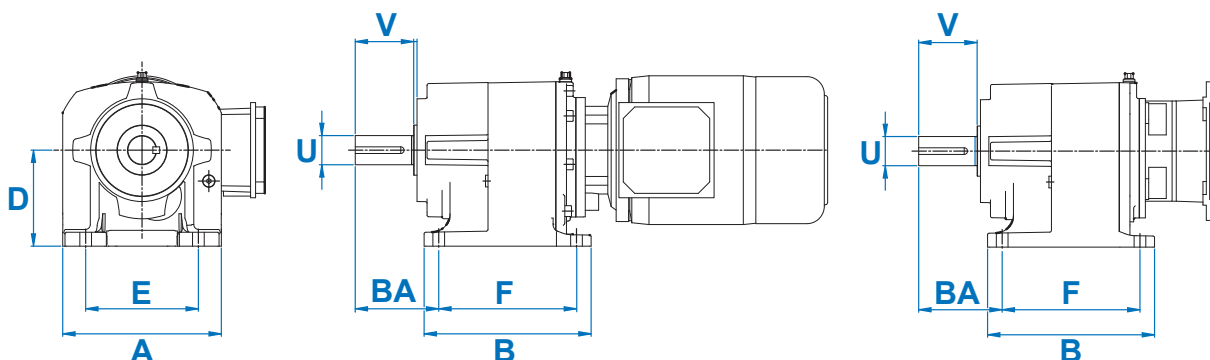
Weights (lb)

	W	315MA
SK92	787	3407
SK102	1810	3894


Gearmotors & Speed Reducers
60 Hz Motors


Section	616
Page	616.29
Issue	B

BASIC DIMENSIONS



NORDBLOC.1

Size		A	B	BA	D	E	F	U	V
SK 072.1	in	4.09	4.29	1.89	2.56	3.35	3.74	0.750	1.57
	mm	103.9	109.0	48.0	65.0	85.1	95.0	19.1	39.9
SK 172.1	in	5.51	5.31	2.28	2.95	4.33	4.33	0.750	1.57
	mm	140.0	134.9	57.9	74.9	110.0	110.0	19.1	39.9
SK 372.1	in	5.91	6.30	2.95	3.54	4.33	5.12	1.000	1.97
	mm	150.1	160.0	74.9	89.9	110.0	130.0	25.4	50.0
SK 572.1	in	7.48	7.87	3.54	4.53	5.31	6.50	1.375	2.75
	mm	190.0	199.9	89.9	115.1	134.9	165.1	34.9	69.9
SK 672.1	in	8.27	9.25	3.93	5.15	5.91	7.68	1.375	2.75
	mm	210.1	235.0	99.8	130.8	150.1	195.1	34.9	69.9
SK 772.1	in	9.33	9.65	4.57	5.51	6.69	8.07	1.625	3.15
	mm	237.0	245.1	116.1	140.0	169.9	205.0	41.3	80.0
SK 872.1	in	11.81	12.20	5.55	7.09	8.46	10.24	2.125	3.94
	mm	300.0	309.9	141.0	180.1	214.9	260.1	54.0	100.1
SK 972.1	in	13.70	14.37	6.33	8.86	9.84	12.20	2.375	4.77
	mm	348.0	365.0	160.8	225.0	249.9	309.9	60.3	121.2

NORD IN-LINE

Size		A	B	BA	D	E	F	U	V
SK 02	in	5.12	5.28	1.97	3.39	4.33	2.36	0.75	1.66
SK 03	mm	130	134.1	50	86.1	110	59.9	19.1	42.2
SK 12	in	5.32	5.47	3.27	4.02	4.13	2.44	1	2.32
SK 13	mm	135.1	138.9	83.1	102.1	104.9	62	25.4	58.9
SK 22	in	7.28	6.89	3.3	4.92	6.3	3.15	1.25	2.95
	mm	184.9	175	83.8	125	160	80	31.8	74.9
SK 32	in	8.27	8.43	3.88	6.1	7.28	4.72	1.625	3.49
	mm	210.1	214.1	98.6	154.9	184.9	119.9	41.3	88.6
SK 42	in	8.47	9.41	5.08	6.89	6.89	4.72	1.875	3.74
	mm	215.1	239	129	175	175	119.9	47.6	95
SK 52	in	10.24	11.14	5.18	8.35	8.66	5.91	2.25	4.24
	mm	260.1	283	131.6	212.1	220	150.1	57.2	107.7
SK 62	in	12.99	13.58	6.34	9.84	10.24	11.61	2.5	5.24
	mm	329.9	344.9	161	249.9	260.1	294.9	63.5	133.1
SK 72	in	15.75	15.16	7.04	11.02	12.8	12.99	3	5.74
	mm	400.1	385.1	178.8	279.9	325.1	329.9	76.2	145.8
SK 82	in	17.72	18.58	8.52	12.4	14.17	15.75	3.5	6.99
	mm	450.1	471.9	216.4	315	359.9	400.1	88.9	177.5
SK 92	in	21.65	21.26	10.67	15.35	17.32	17.72	4.25	8.82
	mm	549.9	540	271	389.9	439.9	450.1	108	224
SK 102	in	23.62	24.61	12.76	17.72	18.9	19.88	5.25	10.39
	mm	599.9	625.1	324.1	450.1	480.1	505	133.4	263.9

UNIVERSAL PRODUCT LINE: STAINLESS STEEL — NON-JACKETED PUMPS

127A Series™, 1127A Series™, 4127A Series™, 327A Series™, 1327A Series™, 4327A Series™

Section	1701
Page	1701.1
Issue	E

TABLE OF CONTENTS

Related Products	1
Operating Range.....	1
Series Description	1
Features & Benefit	2
Port Location Options	2
Model Number Key	3
Standard Materials of Construction	3
Cutaway View & Pump Features	4
Special Materials & Options Selection Guidelines	5
Specification	6
Optional Casings.....	7
Dimensions – H through Q Sizes	8
Dimensions – QS Size	9
Dimensions – N & R Sizes – Jacketed Bracket (327A Series™, 1327A Series™, 4327A Series™)	10
Dimensions – RS Size – Jacketed Bracket (327A Series™, 1327A Series™, 4327A Series™)	11
Dimensions – Stuffing Box Seal Chamb	12
NPSH Required	13

RELATED PRODUCTS

Stainless Steel, Jacketed Pumps: Catalog Section 1702
 Stainless Steel, Mag Drive Pumps: Catalog Section 1703
 Cast Iron, Non-Jacketed Pumps: Catalog Section 1401
 Steel Externals, Non-Jacketed Pumps: Catalog Section 1301

SERIES DESCRIPTION

127A Series™, 4127A Series™, 327A Series™, 4327A Series™

The Universal Product Line has the broadest range of sealing options of all pumps built by Viking. The stuffing box on all sizes accepts packing, numerous component single mechanical seals, or a wide variety of cartridge seals.

The Universal Product Line is Viking Pump's most versatile line of internal gear pumps due to the availability of many design and material options.

1127A Series™, 1327A Series™:

Viking Pump is the leader in internal gear innovation and the latest development is the O-Pro™ Seal technology. The NEW Universal Seal Product Line comes with the O-Pro Guard Seal factory installed. The Universal Product Line combines the tested reliability of the Universal pump & O-rings to create a robust seal and lubrication chamber, all in one.



KK1127A



LL4127A

ITEM NUMBER	WORLD ENERGY TAGS
PW532C.1/1	19-P-759A
PW532C.1/2	19-P-759B
PW532C.2/1	19-P-859A
PW532C.2/2	19-P-859B

OPERATING RANGE

SERIES	NOMINAL FLOW		MAXIMUM PRESSURE		TEMPERATURE RANGE		VISCOSITY RANGE	
	GPM	m³h	PSI	Bar	°F	°C	SSU	cSt
127A Series™	10 - 320	2.3 - 73	150	10	-120 to +500	-85 to +260	28 to 2,000,000	0.1 to 440,000
1127A Series™	6 - 320	1.4 - 73	200	14	-15 to +225*	-25 to +105*	28 to 7,500*	0.1 to 1,700*
4127A Series™	10 - 320	2.3 - 73	150	10	-120 to +500	-85 to +260	28 to 2,000,000	0.1 to 440,000
327A Series™	600 - 1,600	136 - 364	200	14	-120 to +500	-85 to +260	28 to 2,000,000	0.1 to 440,000
1327A Series™	475 - 1,280	108 - 290	200	14	-15 to +225*	-25 to +105*	28 to 750*	0.1 to 165*
4327A Series™	600 - 1,600	136 - 364	200	14	-120 to +500	-85 to +260	28 to 2,000,000	0.1 to 440,000

* Range may increase with end clearance adjustment.

Section	1701
Page	1701.2
Issue	E

UNIVERSAL PRODUCT LINE: STAINLESS STEEL — NON-JACKETED PUMPS

127A Series™, 1127A Series™, 4127A Series™, 327A Series™, 1327A Series™, 4327A Series™

FEATURES & BENEFITS

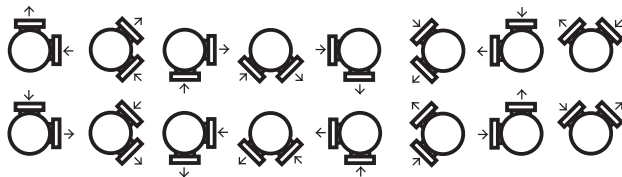
- Positive Displacement Internal Gear pumping principle handles a broad range of viscosities with constant flow rate
- Axial rotor thrust is controlled by double row ball bearing or tapered roller bearings; bushings provided a secondary point of radial shaft support
- Rotatable bearing housing provides easy rotor end clearance adjustment to compensate for viscosity or wear
- Numerous material options are available for bushings, idler pins, shafts, rotors, idlers and elastomers
- Gear and pump geometry has been optimized based on more than 100 years of experience
- Footed stainless steel bracket provides rigid mounting to help maintain alignment, which extends seal and bearing life
- Can use direct drive, gear reducer or gearmotor drive, or belt-drive
- Pressure relief valve standard on non-jacketed pumps; less valve / plain head option available
- Series designed with an enlarged bearing housing; used in conjunction with a spacer coupling permits easy cartridge seal or O-Pro™ Guard seal installation and removal in place without removing the head and rotor/shaft
- Seal options include packing, O-Pro™ Guard Seal, single component seals, cartridge lip seals and cartridge single and double mechanical seals; various seal flush plans are available
- Stainless steel construction for reliable handling of corrosive liquids



Viking Universal Product Line pumps
carry a three year limited warranty.
See catalog section 000 for details.

PORT LOCATION OPTIONS

90° port options:



Opposite port options:



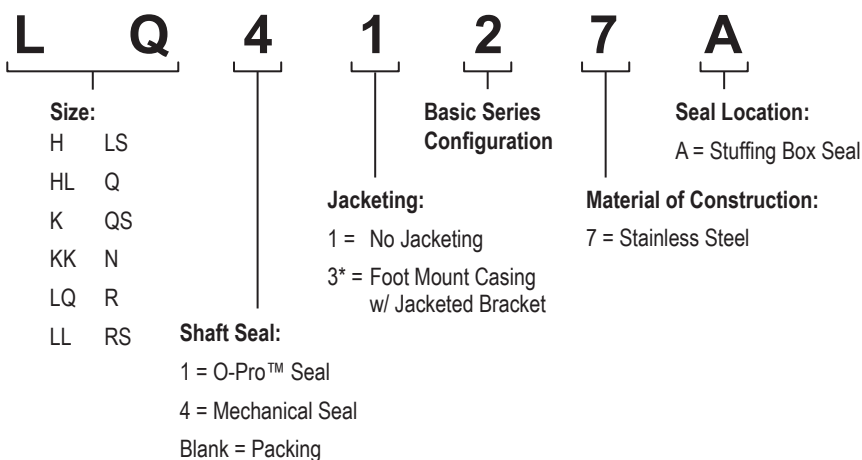
NOTE: See page 1701.7 for a complete list of casing options by size.

UNIVERSAL PRODUCT LINE: STAINLESS STEEL — NON-JACKETED PUMPS

127A Series™, 1127A Series™, 4127A Series™, 327A Series™, 1327A Series™, 4327A Series™

Section	1701
Page	1701.3
Issue	E

MODEL NUMBER KEY



* Note: Only the N through RS sizes are foot mount casing with jacketed bracket.

STANDARD MATERIALS OF CONSTRUCTION

Component	Standard Material
Casing	Stainless Steel, ASTM A743, Class CF8M
Head	Stainless Steel, ASTM A743, Class CF8M, Case Hardened
Bracket	Stainless Steel, ASTM A743, Class CF8M
Idler	Stainless Steel, ASTM A743, Class CF8M, Case Hardened
Rotor	Stainless Steel, ASTM A743, Class CF8M, Case Hardened
Shaft	① Stainless Steel, ASTM A276, Type XM-19 or 316 Condition B
Idler Pin	Hard Coated Stainless Steel, ASTM A276, Type 316, Colmonoy #6 Coated
Idler Bushing	Carbon Graphite
Bracket Bushing	Carbon Graphite
Pressure Relief Valve	Stainless Steel, ASTM A743, Grade CF8M
Standard Packing (127A Series™, 327A Series™)	Braided PTFE
O-Pro™ Guard Seal (1127A Series™, 1327A Series™)	Stainless Steel, ASTM A743
O-Pro™ Guard Gland & Sleeve (1127A Series™, 1327A Series™)	Stainless Steel, ASTM A743, Class CF8M, Sanitary FKM Elastomers
Standard Mechanical Seal (4127A Series™, 4327A Series™)	Carbon vs. Silicon Carbide Faces, PTFE Elastomers

① N, R and RS shafts are Colmonoy #6 coated.

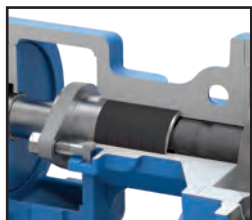
Section	1701
Page	1701.4
Issue	E

UNIVERSAL PRODUCT LINE: STAINLESS STEEL — NON-JACKETED PUMPS

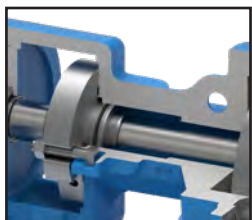
127A Series™, 1127A Series™, 4127A Series™, 327A Series™, 1327A Series™, 4327A Series™

CUTAWAY VIEW & PUMP FEATURES

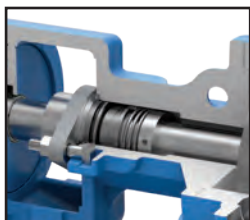
Packing



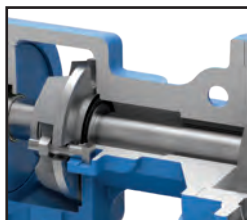
O-Pro™ Guard Seal



Component Seal

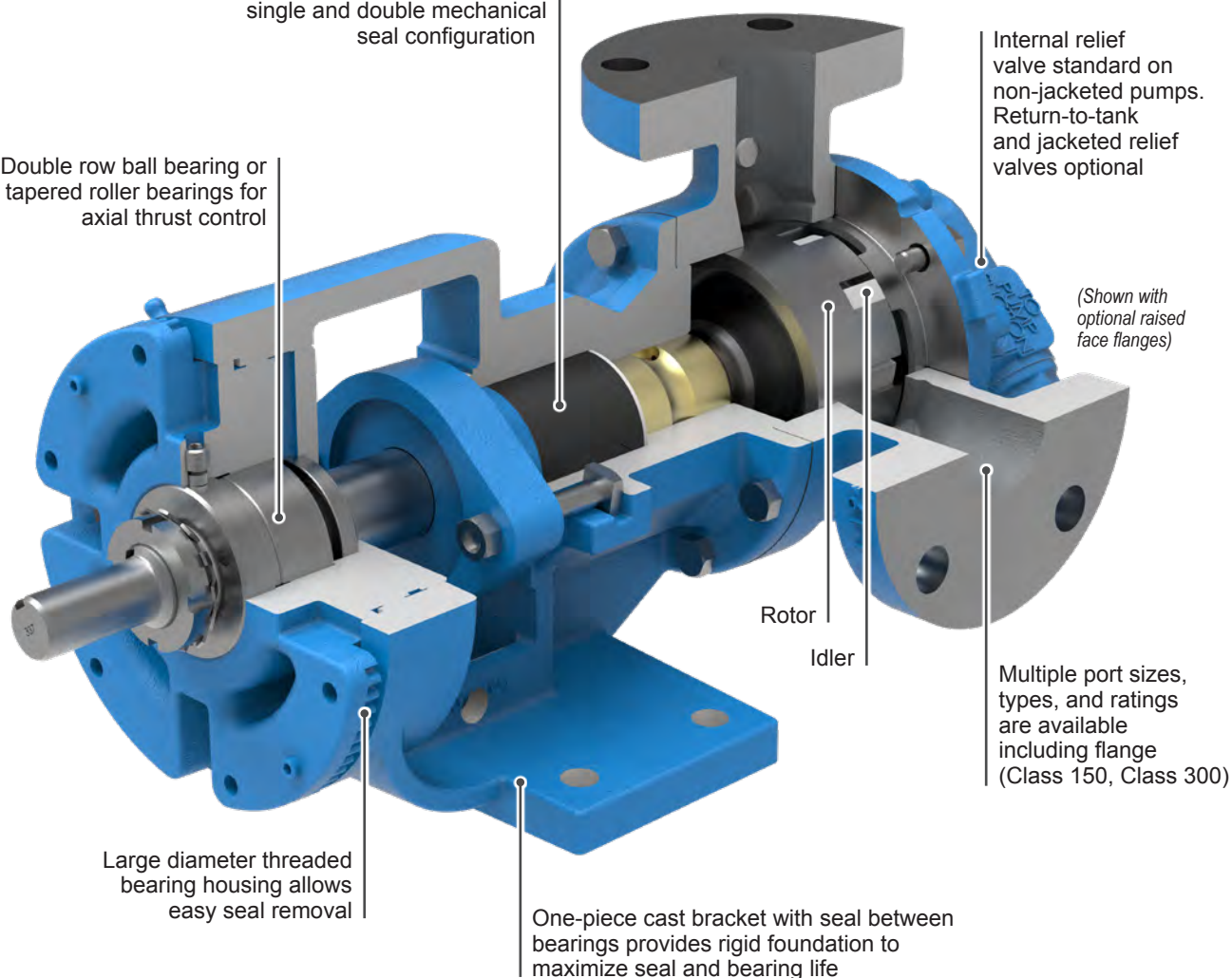


Cartridge Seal



Seal chamber accepts packing, O-Pro™ seal and a variety of component and cartridge style mechanical and lip seals, in both single and double mechanical seal configuration

Double row ball bearing or tapered roller bearings for axial thrust control



UNIVERSAL PRODUCT LINE: STAINLESS STEEL — NON-JACKETED PUMPS

127A Series™, 1127A Series™, 4127A Series™, 327A Series™, 1327A Series™, 4327A Series™

Section	1701
Page	1701.5
Issue	E

SPECIAL MATERIALS & OPTIONS SELECTION GUIDELINES

For High Viscosities – Above 2,500 SSU (550 cSt)

- Extra clearances, depending on viscosity. See ES-2 for recommendations.
 - » 1127A Series™ & 1327A Series™ pumps only available with standard clearance.
- Special Sealing:
 - PTFE Type 9 seals good up to 25,000 SSU (5,500 cSt).
 - Packed gland good up to 2,000,000 SSU (440,000 cSt).
 - Cartridge triple lip seals available to 2,000,000 SSU (440,000 cSt).
- Larger ports may be required depending on suction conditions.
- Pump should be operated at slower than normal speeds, which may require a larger pump.
- For viscosities over 250,000 SSU (55,000 cSt), contact factory for additional pump construction and operation recommendations.

For low viscosities or non-lubricating liquids – Below 100 SSU (20 cSt)

- 770 stainless steel or PPS idler to prevent galling.
- Pump should be operated at slower than normal speeds, which may require a larger pump.

For high temperatures – Above 225°F (105°C)

- High temperature elastomers – PTFE up to 450°F (230°C); FKM up to 350°F (175°C)
- High temperature bushings recommended depending on temperature, size and specific material. See ESB-3 for recommendations.
- Additional operating clearances may be required depending on temperature, size and specific material. See ES-2 for recommendations.
 - » 1127A Series™ & 1327A Series™ pumps only available with standard clearance.
- For temperatures above 450°F (230°C), special materials and sealing requirements may be needed. Contact factory for recommendations.
- Pump should be operated at slower than normal speeds, which may require a larger pump.

For abrasive or dirty liquids

- If possible, filter or strain out the abrasives present
- Wear resistant bushings - silicon carbide, tungsten carbide or Colmonoy coated.
- Abrasive-resistant idler pin - tungsten carbide or Colmonoy plus TC filler coated pins
- Hard-coated shaft.
- Abrasive-resistant seals.
- For high concentrations of abrasives or particle sizes greater than 250 microns (0.010 in), contact factory for recommendations.
- Pump should be operated at slower than normal speeds, which may require a larger pump.
- Consult factory for specific recommendations

Section	1701
Page	1701.6
Issue	E

UNIVERSAL PRODUCT LINE: STAINLESS STEEL — NON-JACKETED PUMPS

127A Series™, 1127A Series™, 4127A Series™, 327A Series™, 1327A Series™, 4327A Series™

SPECIFICATIONS

Model Number	③ Standard Port Size	Nominal Pump Rating (100 SSU & below)			④ Maximum Hydrostatic Pressure		① Maximum Discharge Pressure for 100 SSU liquid at rated speed		② Maximum Recommended Temperature for Standard Pump		Approx. Shipping Weight with Valve	
	Inches	GPM	m³/h	RPM	PSIG	BAR	PSIG	BAR	°F	°C	Lbs.	Kg.
H127A	1 ½	10	1.9	1150	400	28	150	10	375	190	48	22
H1127A	1 ½	6	1.4	760	400	28	150	10	225	105	50	23
H4127A	1 ½	10	1.9	1150	400	28	150	10	375	190	48	22
HL127A	1 ½	20	3.7	1150	400	28	150	10	375	190	50	23
HL1127A	1 ½	13	3	760	400	28	150	10	225	105	50	23
HL4127A	1 ½	20	3.7	1150	400	28	150	10	375	190	50	23
K127A	2	50	11	520	400	28	150	10	350	175	125	57
K1127A	2	50	11	520	400	28	150	10	225	105	50	23
K4127A	2	50	11	520	400	28	150	10	350	175	125	57
KK127A	2	65	15	520	400	28	150	10	350	175	130	59
KK1127A	2	65	15	520	400	28	150	10	225	105	126	57
KK4127A	2	65	15	520	400	28	150	10	350	175	130	59
LQ127A	2 ½	100	23	520	400	28	150	10	350	175	205	93
LQ1127A	2 ½	100	23	520	400	28	150	10	225	105	181	82
LQ4127A	2 ½	100	23	520	400	28	150	10	350	175	205	93
LL127A	3	135	31	520	400	28	150	10	350	175	240	109
LL1127A	3	135	31	520	400	28	150	10	225	105	219	99
LL4127A	3	135	31	520	400	28	150	10	350	175	240	109
LS127A	3	160	36	520	400	28	150	10	345	170	220	100
LS1127A	3	160	36	520	400	28	150	10	225	105	230	104
LS4127A	3	160	36	520	400	28	150	10	345	170	220	100
Q127A	4	200	45	350	250	17	150	10	270	130	460	209
Q1127A	4	200	45	350	250	17	150	10	275	135	472	214
Q4127A	4	200	45	350	250	17	150	10	270	130	460	209
QS127A	6	320	73	350	250	17	150	10	270	130	560	254
QS1127A	6	320	73	350	250	17	150	10	275	135	508	230
QS4127A	6	320	73	350	250	17	150	10	270	130	560	254
N327A	6	600	136	350	250	17	200	14	250	120	810	367
N1327A	6	475	108	280	250	17	200	14	225	105	640	290
N4327A	6	600	136	350	250	17	200	14	250	120	810	367
R327A	8	1,100	250	280	250	17	175	12	175	80	1,435	651
R1327A	8	880	200	225	250	17	175	12	225	105	1,509	684
R4327A	8	1,100	250	280	250	17	175	12	175	80	1,435	651
RS327A	10	1,600	364	280	250	17	125	9	175	80	2,500	1,140
RS1327A	10	1,280	290	225	250	17	125	9	225	105	1,973	895
RS4327A	10	1,600	364	280	250	17	125	9	175	80	2,500	1,140

① For maximum recommended discharge pressures at different viscosities, see performance curves, which can be electronically generated with the Viking Pump Curve Generator, located on www.vikingpump.com. If suction pressure exceeds 50 PSIG, consult factory. Higher pressures possible with factory approval based on application details.

② Extra clearances are required above 225°F / 105°C. Higher temperatures can be handled with special construction, consult factory.

③ Ports are suitable for Class 150 ANSI stainless steel companion flanges or flanged fitting

④ Maximum hydrostatic pressure for standard pump construction. Rating is dependent on seal, gaskets and ports.

UNIVERSAL PRODUCT LINE: STAINLESS STEEL — NON-JACKETED PUMPS

127A Series™, 1127A Series™, 4127A Series™, 327A Series™, 1327A Series™, 4327A Series™

Section	1701
Page	1701.7
Issue	E

OPTIONAL CASINGS

Size	Standard Casings		Optional Casings						
	Ports (Inches)	Rotatable Data							
H	1.5" ①®	Fully Rotatable	1.5" ②®	2" ①®	2" ②®				
HL	1.5" ①®	Fully Rotatable	1.5" ②®	2" ①®	2" ②®				
K	2" ①®	Ports cannot face down	2" ②®	2.5" ①®	2.5" ②®	3" ①®	3" ②®	4" ①®	4" ②®
KK	2" ①®	Ports cannot face down	2" ②®	2.5" ①®	2.5" ②®	3" ①®	3" ②®	4" ①®	4" ②®
LQ	2.5" ①®	Ports cannot face down	2.5" ②®	4" ①®	4" ②®				
LL	3" ①®	Ports cannot face down	3" ②®	4" ①®	4" ②®				
LS	3" ①®	Fully Rotatable	3" ②®	4" ①®	4" ②®	4" ②⊙	6" ①®		
Q	4" ①®	Fully Rotatable	3" ①®	4" ②®	5" ①®	6" ①®*	6" ①®	6" ①⊙	6" ②⊙
QS	6" ①⊙	Rotatable with special casing	6" ①®	6" ②⊙					
N	6" ①⊙	Not Rotatable							
R	8" ①⊙	Not Rotatable							
RS	10" ①⊙	Not Rotatable							

① Ports suitable for Class 150 ANSI steel or stainless steel companion flanges or flanged fitting

② Ports suitable for Class 300 ANSI steel or stainless steel companion flanges or flanged fitting

⊙ Opposite Ports

® 90° port arranged for Right Hand inlet (viewed from shaft end)

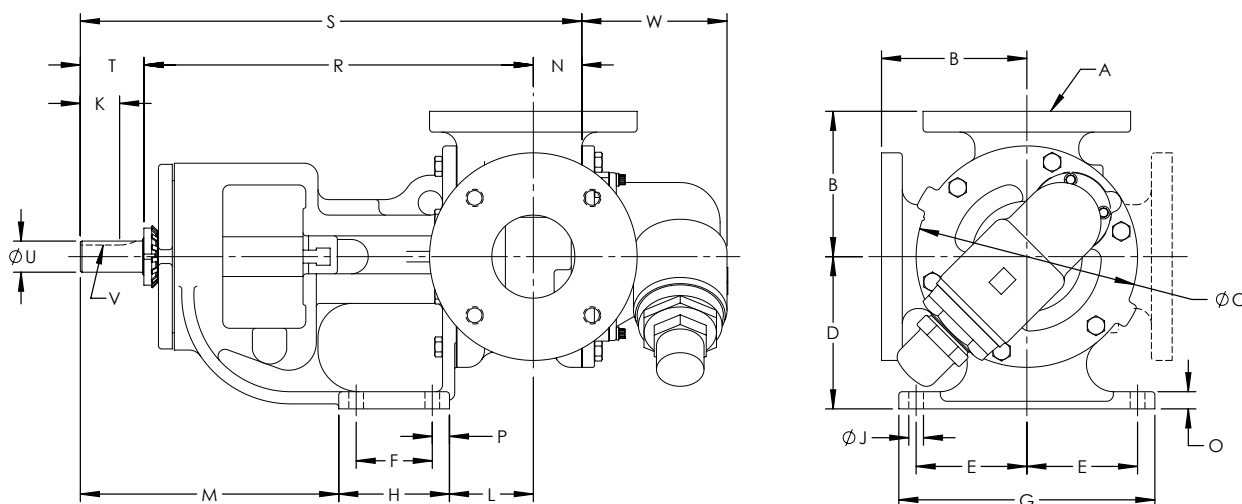
* Core smaller than port size

Section	1701
Page	1701.8
Issue	E

UNIVERSAL PRODUCT LINE: STAINLESS STEEL — NON-JACKETED PUMPS

127A Series™, 1127A Series™, 4127A Series™, 327A Series™, 1327A Series™, 4327A Series™

DIMENSIONS – H THROUGH Q SIZES



These dimensions are average and not for construction purposes. Certified prints on request.

Model Number			①												
Packed	O-Pro™ Seal	Mechanical Seal	A (in)		B	C	D	E	F	G	H	J	K	L	M
H127A	H1127A	H4127A	1.5	in	4.00	4.75	3.50	2.75	2.25	6.75	3.50	0.47	0.99	3.38	5.19
HL127A	HL1127A	HL4127A		mm	102	121	89	70	57	171	89	12	25	86	132
K127A	K1127A	K4127A	2	in	5.25	8.00	5.50	4.00	2.75	9.25	4.00	0.53	1.42	3.00	9.38
KK127A	KK1127A	KK4127A		mm	133	203	140	102	70	235	102	14	36	76	238
LQ127A	LQ1127A	LQ4127A	2.5	in	7.19	10.25	7.00	4.38	4.00	10.00	5.38	0.53	1.42	3.38	9.12
				mm	183	260	178	111	102	254	137	14	36	86	232
LL127A	LL1127A	LL4127A	3	in	7.19	10.25	7.00	4.38	4.00	10.00	5.38	0.53	1.42	3.38	9.12
				mm	183	260	178	111	102	254	137	14	36	86	232
LS127A	LS1127A	LS4127A	3	in	7.19	10.25	7.00	4.38	4.00	10.00	5.38	0.53	2.55	4.75	9.12
				mm	183	260	178	111	102	254	137	14	65	121	232
Q127A	Q1127A	Q4127A	4	in	8.25	14.00	8.75	4.12	4.00	10.00	6.00	0.69	3.58	6.62	11.12
				mm	210	356	222	105	102	254	152	18	91	168	282

Model Number				N	O	P	R	S	T	U (in)	V (in)	W
Packed	O-Pro™ Seal	Mechanical Seal										
H127A	H1127A	H4127A	in	1.19	0.56	0.62	10.44	13.25	1.62	0.75	.19 x .09	2.85
HL127A	HL1127A	HL4127A	mm	30	14	16	265	337	41			
K127A	K1127A	K4127A	in	1.75	0.62	0.62	14.12	18.12	2.25	1.12	.25 x .12	5.25
KK127A	KK1127A	KK4127A	mm	44	16	16	359	460	57			
LQ127A	LQ1127A	LQ4127A	in	1.75	0.62	0.62	15.62	19.62	2.25	1.12	.25 x .12	5.43
			mm	44	16	16	397	498	57			
LL127A	LL1127A	LL4127A	in	2.25	0.62	0.62	15.62	20.12	2.25	1.12	.25 x .12	5.43
			mm	57	16	16	397	511	57			
LS127A	LS1127A	LS4127A	in	2.44	0.62	0.62	15.75	21.69	3.50	1.44	.38 x .19	5.43
			mm	62	16	16	400	551	89			
Q127A	Q1127A	Q4127A	in	3.00	0.75	1.00	19.25	26.75	4.50	1.94	.50 x .25	8.25
			mm	76	19	25	489	679	114			

① Ports are suitable for Class 150 ANSI stainless steel companion flanges or flanged fitting

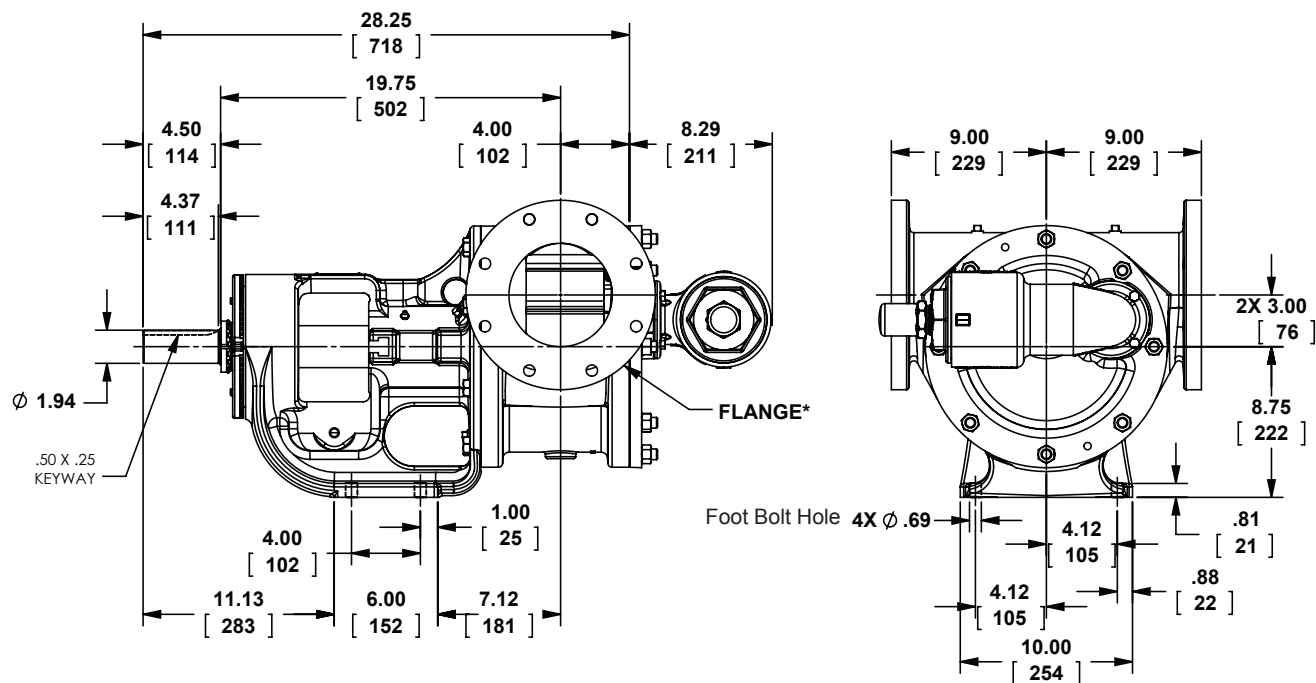
UNIVERSAL PRODUCT LINE: STAINLESS STEEL — NON-JACKETED PUMPS

127A Series™, 1127A Series™, 4127A Series™, 327A Series™, 1327A Series™, 4327A Series™

Section	1701
Page	1701.9
Issue	E

DIMENSIONS – QS SIZE

Dimensions shown in inches with millimeter equivalent shown in parentheses



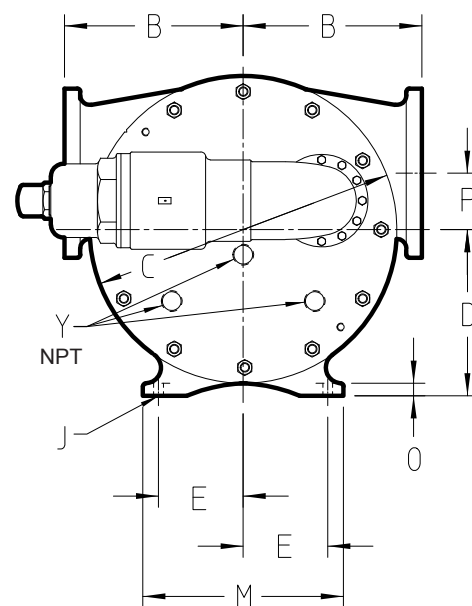
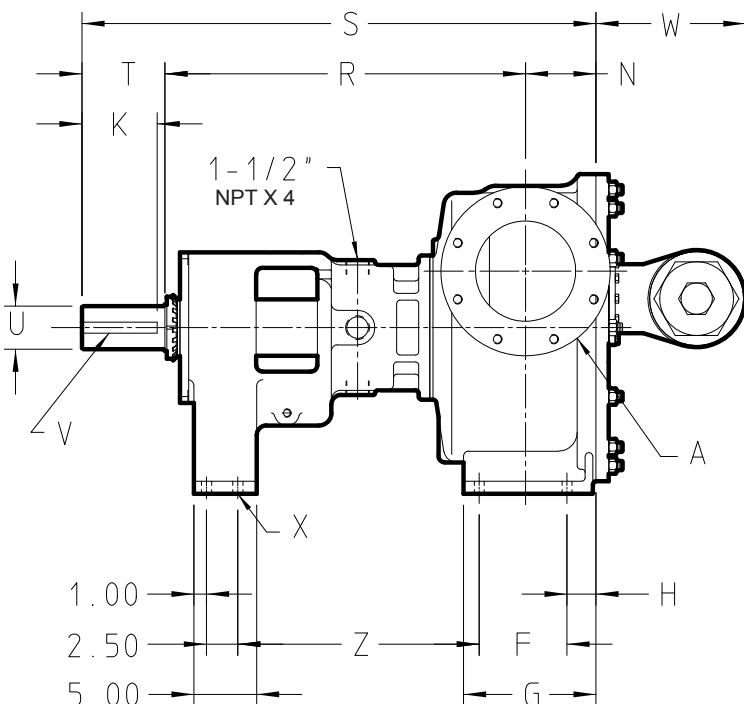
* 127A Series™ / 1124A Series™ / 4127A Series™ ports suitable for use with Class 150 ANSI stainless steel companion flanges or flange fittings. They are studded, not through-bolt.

Section	1701
Page	1701.10
Issue	E

UNIVERSAL PRODUCT LINE: STAINLESS STEEL — NON-JACKETED PUMPS

127A Series™, 1127A Series™, 4127A Series™, 327A Series™, 1327A Series™, 4327A Series™

DIMENSIONS – N & R SIZES – JACKETED BRACKET (327A SERIES™, 1327A SERIES™, 4327A SERIES™)



Model Number			A (in)		B	C	D	E	F	G	H	J	K	M	N
Packed	O-Pro™ Seal	Stuffing Box Seal													
N327A	N1327A	N4327A	① 6	in	9.75	17.25	9.50	5.00	6.25	8.69	1.62	0.69	4.50	12.00	4.50
				mm	248	438	241	127	159	221	41	18	114	305	114
R327A	R1327A	R4327A	① 10	in	14.25	24.50	13.25	6.75	7.00	10.56	2.31	0.78	6.00	16.00	5.62
				mm	362	622	337	171	178	268	59	20	152	406	143

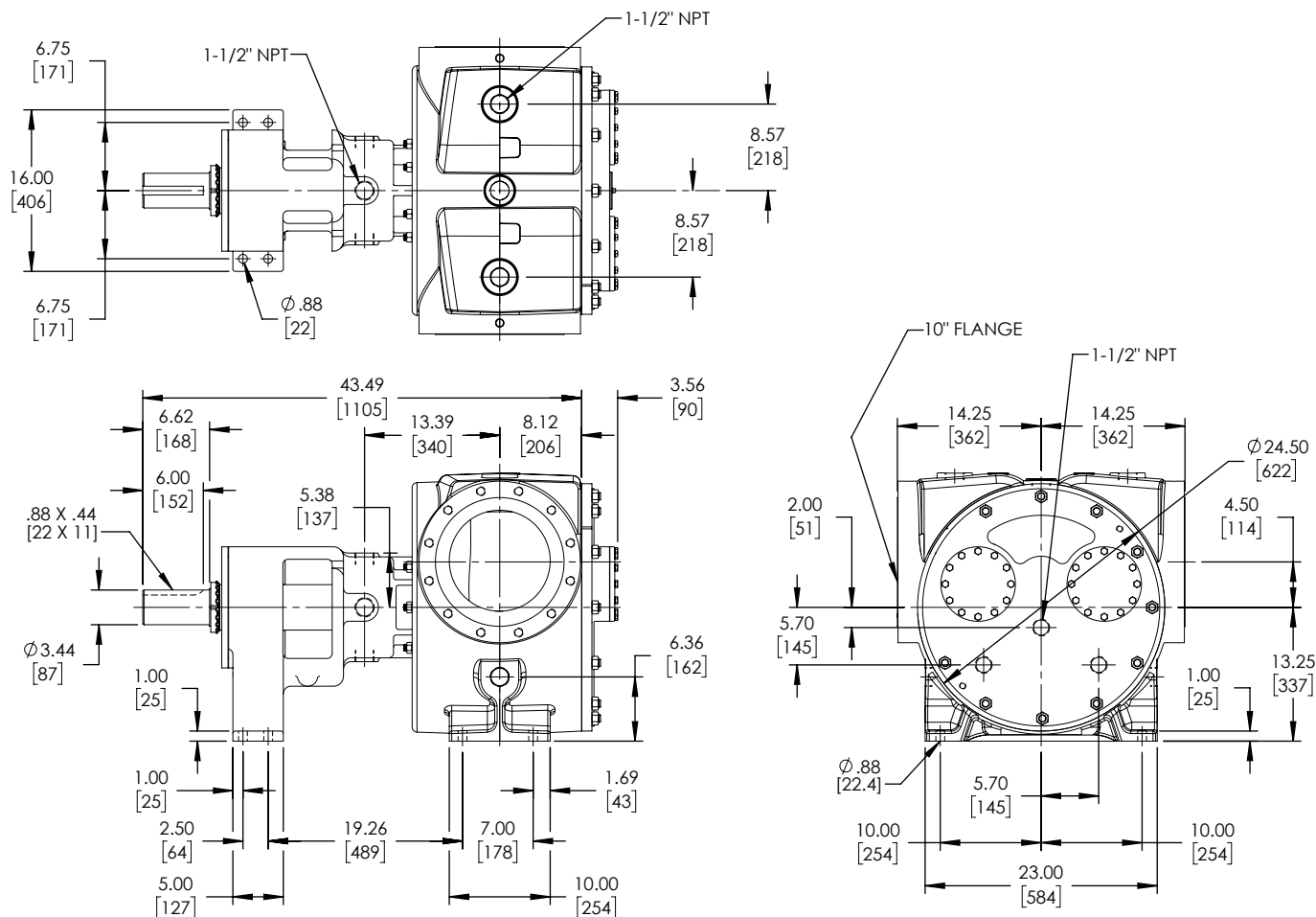
Model Number				O	P	R	S	T	U (in)	V (in)	W	X	Y	Z
Packed	O-Pro™ Seal	Stuffing Box Seal												
N327A	N1327A	N4327A	in	1.00	3.00	26.00	36.50	6.00	2.44	.62 x.31	8.63	0.69	—	18.94
			mm	25	76	660	927	152			219	18	—	481
R327A	R1327A	R4327A	in	1.00	4.50	28.75	41.00	6.62	3.44	.88 x.44	12.00	0.69	1.25	19.25
			mm	25	114	730	1041	168			305	18	1.25	489

① Ports are suitable for use with Class 150 ANSI stainless steel companion flanges or flanged fitting

NOTE: The N size is standard with a jacketed bracket and non-jacketed head and non-jacketed relief valve, while the “R” size is standard with a jacketed bracket, a jacketed head, and a non-jacketed relief valve. “RS” contact factory for jacketing options.

Section	1701
Page	1701.11
Issue	E

127A Series™, 1127A Series™, 4127A Series™, 327A Series™, 1327A Series™, 4327A Series™

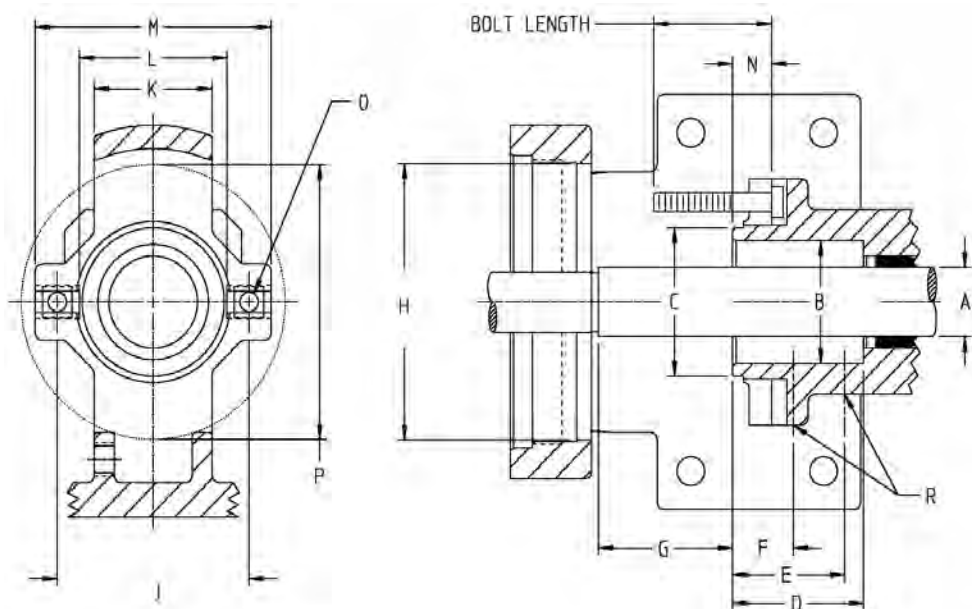


Section	1701
Page	1701.12
Issue	E

UNIVERSAL PRODUCT LINE: STAINLESS STEEL — NON-JACKETED PUMPS

127A Series™, 1127A Series™, 4127A Series™, 327A Series™, 1327A Series™, 4327A Series™

DIMENSIONS – STUFFING BOX SEAL CHAMBER



Pump Size		A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	R
H & HL	In	1.12	2.00	2.41	2.22	1.90	1.03	2.27	4.50	3.00 to 3.50	2.00	2.50	4.00	0.66	5/16	4.47	1/8
	mm		51	61	56	48	26	58	114	76 to 89	51	64	102	17		114	3
K & KK	In	1.44	①2.31	3.00	3.13	2.25	1.25	3.00	5.25	3.50 to 4.50	2.50	3.00	5.00	0.38	7/16	5.25	1/4
	mm		①58.7	76	80	57	32	76	133	89 to 114	64	76	127	10		133	6
LQ, & LL	In	1.44	①2.31	3.00	3.13	2.25	1.25	4.00	5.25	3.50 to 4.50	2.50	3.00	5.00	0.44	7/16	5.25	1/4
	mm		①58.7	76	80	57	32	102	133	89 to 114	64	76	127	11		133	6
LS	In	1.62	2.38	2.80	2.70	2.25	1.16	3.52	5.25	3.25 to 4.50	3.00	2.80	5.00	0.46	7/16	5.25	1/4
	mm		60	71	69	57	30	89	133	83 to 114	76	71	127	12		133	6
Q & QS	In	2.44	3.42	4.50	4.00	2.50	1.53	4.10	6.75	5.50 to 6.25	3.20	4.50	7.20	0.56	5/8	6.75	1/4
	mm		87	114	102	64	39	104	171	140 to 159	81	114	183	14		171	6
N	In	3.44	4.69	—	5.56	1.65	—	4.91	8.81	6.75	—	—	—	—	②3/4	9.00	1/4
	mm		119	—	141	42	—	125	224	171	—	—	—	—		229	6
R & RS	In	4.50	5.75	—	5.56	1.53	—	4.79	9.81	7.75	—	—	—	—	②3/4	9.81	1/4
	mm		146	—	141	39	—	122	249	197	—	—	—	—		249	6

① Bracket is counter bored to a diameter of 2.687 inches (68 mm), 0.12 inches (3 mm) deep from stuffing box fac

② Studs are used in place of cap screws.

UNIVERSAL PRODUCT LINE: STAINLESS STEEL — NON-JACKETED PUMPS

127A Series™, 1127A Series™, 4127A Series™, 327A Series™, 1327A Series™, 4327A Series™

Section	1701
Page	1701.13
Issue	E

NPSH REQUIRED

Printed performance curves are not available.

Performance curves can be electronically generated with the Viking Pump Curve Generator on vikingpump.com.

NPSHR data is not available on the pump selector.

NPSH (Net Positive Suction Head): The $NPSH_R$ (Net Positive Suction Head Required by the pump) is given in the table below and applies for viscosities through 750 SSU. $NPSH_A$ (Net Positive Suction Head – Available in the system) must be greater than the $NPSH_R$. For a complete explanation of NPSH, see Application Data Sheet AD-19.

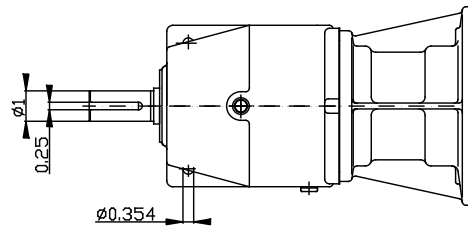
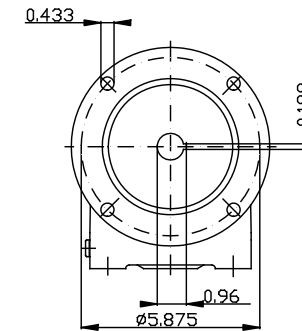
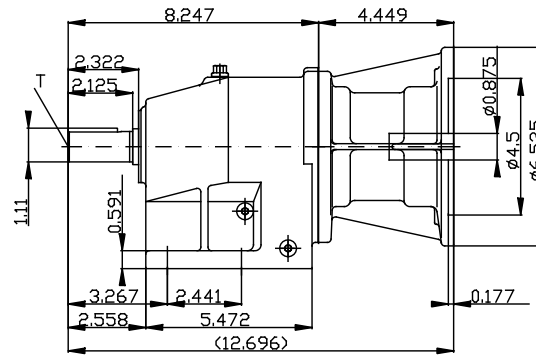
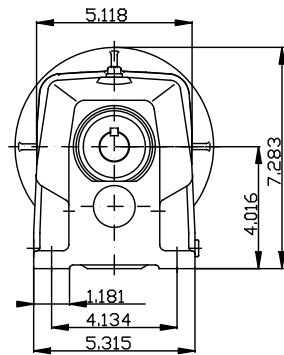
FOR VISCOSITIES UP TO 750 SSU – See $NPSH_R$ table below.

$NPSH_R$ for high viscosities can be estimated using the following method:

1. Calculate line loss for a 1 foot long pipe of a diameter matching the pump inlet port size. Use your flow rate and max viscosity.
2. Convert this value into Feet of Liquid (S.G. 1.0)
3. Add this value to the $NPSH_R$ value in the chart below.

$NPSH_R$ – FEET OF LIQUID (Specific Gravity 1.0), viscosities up to 750 SSU

PUMP SIZE	PUMPS SPEED, RPM														
	100	125	155	190	230	280	350	420	520	640	780	950	1150	1450	1750
H, HL	—	—	—	—	1.7	1.8	1.9	2.1	2.4	2.8	3.4	4.5	6.2	9.5	13.5
K, KK	—	1.7	1.8	1.9	2.1	2.3	2.8	3.3	4.4	6.3	9.1	—	—	—	—
LQ	1.6	1.8	2.0	2.2	2.5	3.0	3.8	5.0	7.3	10.8	—	—	—	—	—
LL	1.6	1.8	2.0	2.2	2.5	3.0	3.8	5.0	7.3	—	—	—	—	—	—
LS	1.6	1.8	2.0	2.2	2.5	3.0	3.8	5.0	7.3	10.8	—	—	—	—	—
Q, QS	1.9	2.1	2.3	2.7	3.3	4.2	6.1	8.4	12.7	—	—	—	—	—	—
N	2.1	2.3	3.5	4.5	6.3	9.5	15.0	—	—	—	—	—	—	—	—
R	6.1	7.1	8.3	10.1	12.1	15.2	—	—	—	—	—	—	—	—	—
RS	7.0	8.5	10.4	13.1	17.2	22.4	—	—	—	—	—	—	—	—	—



ITEM NUMBER	WORLD ENERGY TAGS
PW532C.1/1	19-P-759A
PW532C.1/2	19-P-759B
PW532C.2/1	19-P-859A
PW532C.2/2	19-P-859B

T: Center Drill 3/8 - 16 UNC 2B

Technical design may subject to change!
This drawing was made by NORD CAD 7.0.6

SK 12 140TC				
NORD			Date	Name
		Drawn	1/21/2013	JStokes
		Nord Internet: http://www.nord.com		

WORK ORDER REQUEST AND CERTIFICATION

ITEM NUMBER	WORLD ENERGY TAGS
PW532C.1/1	19-P-759A
PW532C.1/2	19-P-759B
PW532C.2/1	19-P-859A
PW532C.2/2	19-P-859B

VIKING PUMP, INC. - A Unit of IDEX Corporation
Product Engineering Laboratory
406 State Street
Cedar Falls, IA. 50613

W.O. Number:	762207-7	Date:	12/22/2021
Customer:	PyeBarker	Customer Order No.:	
Viking Invoice No.:	762207-7	Serial No. (s):	7887890032-035
Pump Model:	K4127A		

TEST TO BE PERFORMED AS FOLLOWS:			Technician's Init'ls:	LH
Hydrostatic Test Per WIS-1	YES			
Pumping Chamber:	250.0	(PSIg)		
Jacketed Chamber:			Date:	12/22/2021
Duration:	3	minutes		
Pressure Gage#:	PR-102 PE			

Performance Test Per WIS-2	NONE	Record Capacity and HP Data From Minimum to: (PSIg)		
RPM:	0	rpm	Technician's Init'ls:	
Liquid:	0			
Temp:	0.0	(° F)		
Viscosity:	0	ssu		
Inlet Condition:	0	(In-HgVac)	Date:	
Required Capacity:	0	(US GPM)		

NPSH Test	NONE	Record Capacity vs. Vacuum Data From minimum (In-HgVac) to Point of Cavitation.		
		Technician's Init'ls:		
		Date:		
Misc. Testing Requirements:		Technician's Init'ls:		
		Date:		

Lab Technician:	Electronic Signature Homewood, Lucas	
Date Completed:	12/22/2021	

WORK ORDER REQUEST AND CERTIFICATION

VIKING PUMP, INC. - A Unit of IDEX Corporation
Product Engineering Laboratory
406 State Street
Cedar Falls, IA. 50613

ITEM NUMBER	WORLD ENERGY TAGS
PW532C.1/1	19-P-759A
PW532C.1/2	19-P-759B
PW532C.2/1	19-P-859A
PW532C.2/2	19-P-859B

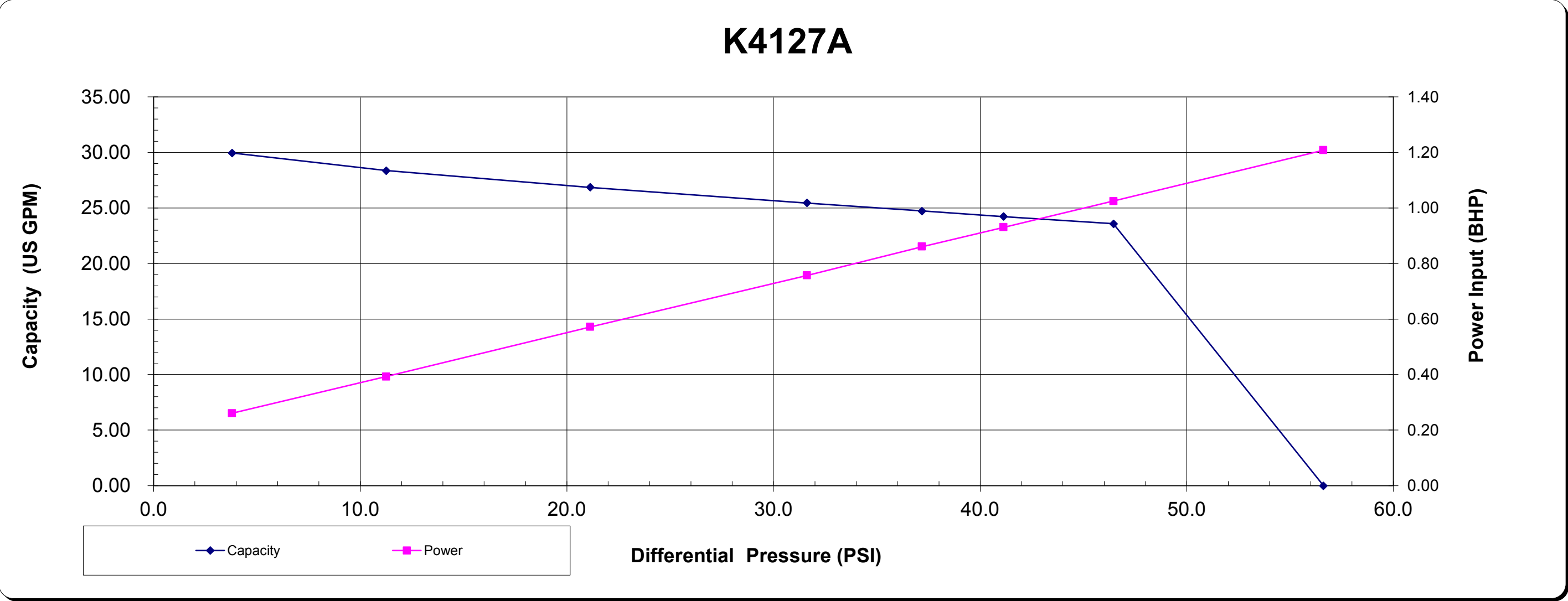
W.O. Number:	804070	Date:	3/28/2022
Customer:	Pye Barker	Customer Order No.:	
Viking Invoice No.:	804070	Serial No. (s):	
Pump Model:	K4127A		7887890032-0035

TEST TO BE PERFORMED AS FOLLOWS:		Technician's Init'ls:	
Hydrostatic Test Per WIS-1	NONE		
Pumping Chamber:	0.0 (PSI _g)		
Jacketed Chamber:		Date:	
Duration:	0		
Pressure Gage#:			

Performance Test Per WIS-2	YES	Record Capacity and HP Data From Minimum to: 50.0 (PSI _g)	
RPM:	301	rpm	
Liquid:	LVG - 04/SM		
Temp:	92.0	(° F)	
Viscosity:	100	ssu	
Inlet Condition:	0	(In-HgVac)	
Required Capacity:	21	(US GPM)	
		Technician's Init'ls:	T.W.
		Date:	3/28/2022

NPSH Test	NONE	Record Capacity vs. Vacuum Data From minimum (In-HgVac) to Point of Cavitation.	
		Technician's Init'ls:	
		Date:	
Misc. Testing Requirements:		Technician's Init'ls:	
		Date:	

Lab Technician:	Electronic Signature Tom Wildeboer	
Date Completed:	3/28/2022	



PERFORMANCE DATA SHEET

Viking Pump, Inc.-A Unit of IDEX Corporation
Product Engineering Laboratory
406 State Street
Cedar Falls, IA. 50613

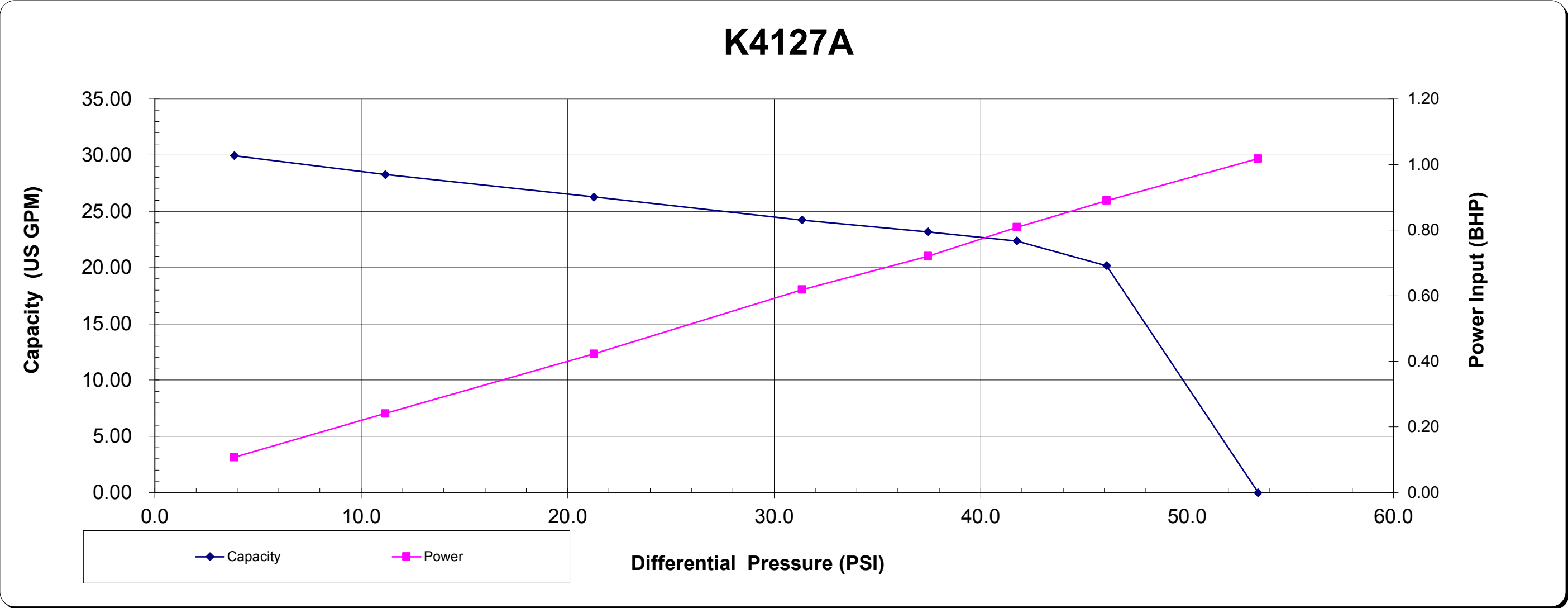
Work Order:	804070	For:	Pye Barker	Pump Serial No (s):	7887890032
Model:	K4127A	BOM No.:	4-2515-264C-588	Port Size:	2" F
Mat'l Specs:	0	Drive:	Direct	Rotation:	CW
Fluid:	LVG - 04/SM	Viscosity at Pumping Temperature:	100	SSU	

Volume Pumped	Time Req'd	Fluid Temp	Suction Pressure	Discharge Pressure	Torque	Pump Speed	Capacity	Differential Pressure	Power Input	Power Theo.	Pump Eff.	Vol. Eff.
(US GAL)	(SECS)	(° F)	(In-HgVac)	(PSIG)	(Lb-Ft)	(RPM)	(US GPM)	(PSI)	(BHP)	(THP)	(%)	(%)
29.95	60	92.2	2.4	2.6	4.55	301.02	29.95	3.8	0.26	0.07	25.39%	100.00%
28.36	60	92.4	2.3	10.2	6.85	301.02	28.36	11.3	0.39	0.19	47.47%	94.69%
26.86	60	92.0	2.2	20.1	9.97	301.02	26.86	21.1	0.57	0.33	57.93%	89.68%
25.44	60	91.8	2.1	30.6	13.21	301.02	25.44	31.6	0.76	0.47	61.98%	84.94%
24.73	60	91.8	2.0	36.2	15.02	301.02	24.73	37.2	0.86	0.54	62.32%	82.57%
24.23	60	91.7	2.0	40.1	16.23	301.02	24.23	41.1	0.93	0.58	62.52%	80.90%
23.58	60	91.8	2.0	45.5	17.88	300.93	23.58	46.5	1.02	0.64	62.38%	78.73%
0	60	91.8	1.3	56.0	21.08	300.93	0.00	56.6	1.21	0.00	0.00%	0.00%

EXTRA CLEARANCES											
OD Rotor		ID Rotor		OD Idler		ID Idler		ID Brg's		End Clr.	
										0.008	

LAB REMARKS											
Equipment:											
Pressure Gauge #				Dynamometer #				HP DYNO			
181170588				5833				50			
Vacuum Gauge #				Flow Meter #							
728732				B305005							
Temp Probe #											
T1											

Certified by: Tom Wildeboer Date: 03/28/22



PERFORMANCE DATA SHEET

Viking Pump, Inc.-A Unit of IDEX Corporation
Product Engineering Laboratory
406 State Street
Cedar Falls, IA. 50613

Work Order:	804070	For:	Pye Barker	Pump Serial No (s):	7887890033
Model:	K4127A	BOM No.:	4-2515-264C-588	Port Size:	2" F
Mat'l Specs:	0	Drive:	Direct	Rotation:	CCW
Fluid:	LVG - 04/SM	Viscosity at Pumping Temperature:	100 SSU		

Volume Pumped	Time Req'd	Fluid Temp	Suction Pressure	Discharge Pressure	Torque	Pump Speed	Capacity	Differential Pressure	Power Input	Power Theo.	Pump Eff.	Vol. Eff.
(US GAL)	(SECS)	(° F)	(In-HgVac)	(PSIG)	(Lb-Ft)	(RPM)	(US GPM)	(PSI)	(BHP)	(THP)	(%)	(%)
29.95	60	91.5	2.4	2.7	1.88	301.02	29.95	3.9	0.11	0.07	62.57%	100.00%
28.28	60	91.8	2.4	10.0	4.20	301.02	28.28	11.2	0.24	0.18	76.55%	94.42%
26.28	60	91.9	2.3	20.2	7.38	301.02	26.28	21.3	0.42	0.33	77.15%	87.75%
24.23	60	91.9	2.1	30.3	10.79	301.02	24.23	31.4	0.62	0.44	71.68%	80.90%
23.18	60	91.8	2.2	36.4	12.57	301.02	23.18	37.5	0.72	0.51	70.31%	77.40%
22.37	60	91.9	2.1	40.7	14.11	301.02	22.37	41.8	0.81	0.55	67.40%	74.69%
20.17	60	91.9	2.0	45.1	15.53	301.02	20.17	46.1	0.89	0.54	60.94%	67.35%
0	60	91.9	1.7	52.6	17.77	300.93	0.00	53.4	1.02	0.00	0.00%	0.00%

EXTRA CLEARANCES											
OD Rotor		ID Rotor		OD Idler		ID Idler		ID Brg's		End Clr.	
										0.008	

LAB REMARKS

Equipment:

Pressure Gauge # 181170588

Dynamometer # 5833

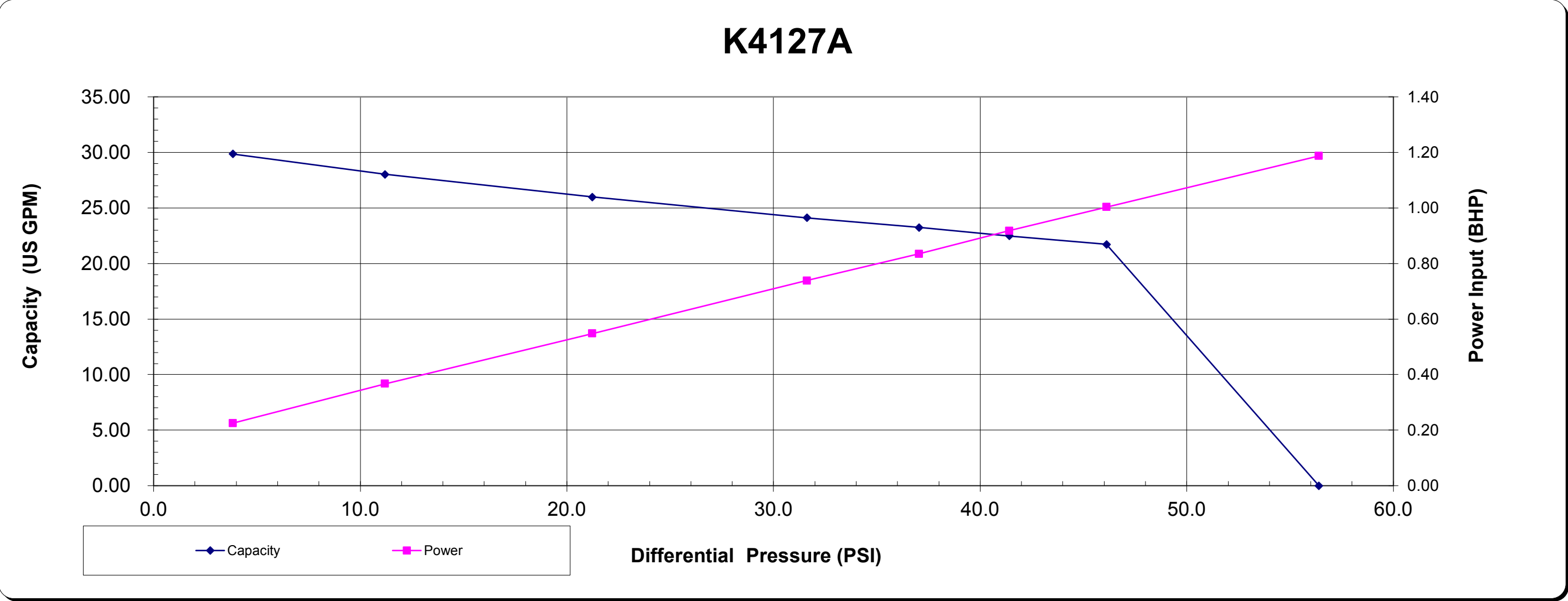
HP DYNO 50

Vacuum Gauge # 728732

Flow Meter # B305005

Temp Probe # T1

Certified by: Tom Wildeboer Date: 03/28/22



PERFORMANCE DATA SHEET

Viking Pump, Inc.-A Unit of IDEX Corporation
Product Engineering Laboratory
406 State Street
Cedar Falls, IA. 50613

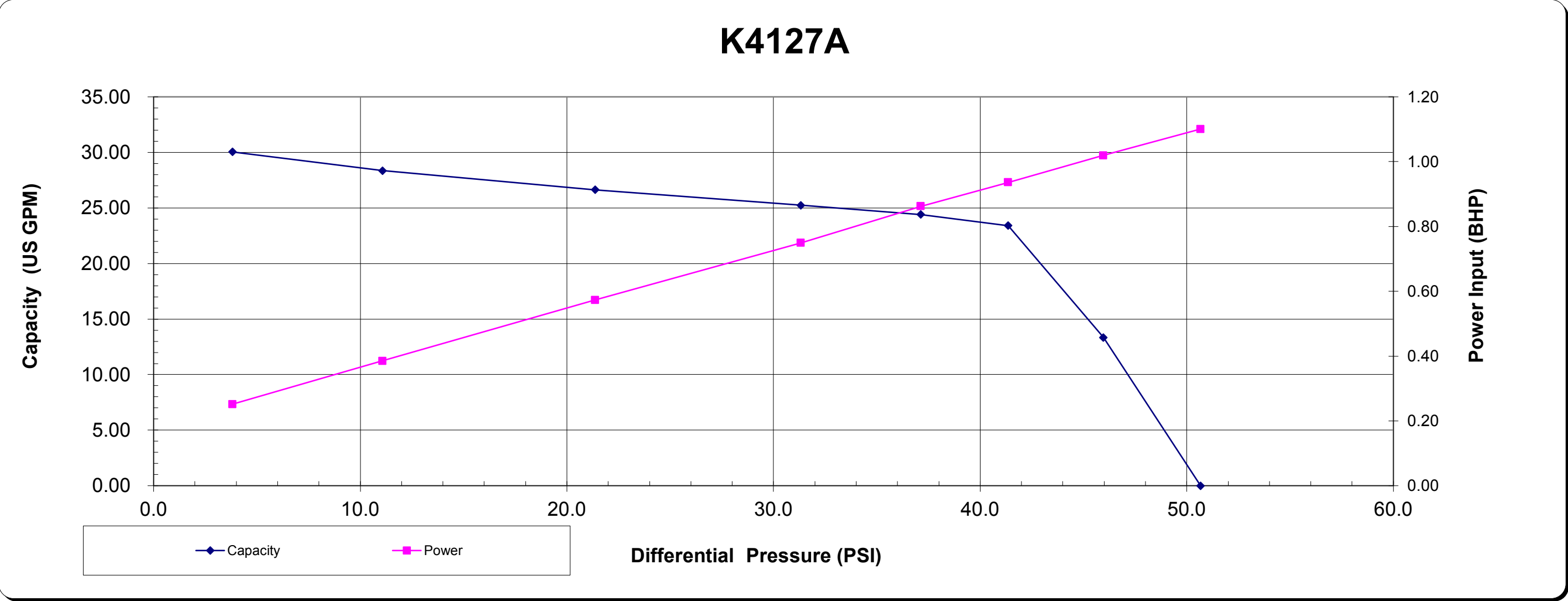
Work Order:	804070	For:	Pye Barker	Pump Serial No (s):	7887890034
Model:	K4127A	BOM No.:	4-2515-264C-588	Port Size:	2" F
Mat'l Specs:	0	Drive:	Direct	Rotation:	CCW
Fluid:	LVG - 04/SM	Viscosity at Pumping Temperature:	100	SSU	

Volume Pumped	Time Req'd	Fluid Temp	Suction Pressure	Discharge Pressure	Torque	Pump Speed	Capacity	Differential Pressure	Power Input	Power Theo.	Pump Eff.	Vol. Eff.
(US GAL)	(SECS)	(° F)	(In-HgVac)	(PSIG)	(Lb-Ft)	(RPM)	(US GPM)	(PSI)	(BHP)	(THP)	(%)	(%)
29.85	60	92.3	2.4	2.6	3.93	301.02	29.85	3.8	0.23	0.07	29.68%	100.00%
28.03	60	92.5	2.4	10.0	6.41	300.93	28.03	11.2	0.37	0.18	49.87%	93.90%
25.99	60	92.6	2.2	20.1	9.56	300.93	25.99	21.2	0.55	0.32	58.78%	87.07%
24.11	60	92.6	2.2	30.5	12.89	300.93	24.11	31.6	0.74	0.44	60.20%	80.77%
23.24	60	92.6	2.1	36.0	14.57	301.02	23.24	37.0	0.84	0.50	60.15%	77.86%
22.48	60	92.5	2.1	40.4	16.01	301.02	22.48	41.4	0.92	0.54	59.18%	75.31%
21.72	60	92.5	2.0	45.1	17.50	301.02	21.72	46.1	1.00	0.58	58.26%	72.76%
0	60	92.5	1.6	55.6	20.72	300.93	0.00	56.4	1.19	0.00	0.00%	0.00%

EXTRA CLEARANCES											
OD Rotor		ID Rotor		OD Idler		ID Idler		ID Brg's		End Clr.	
										0.008	

LAB REMARKS											
Equipment:											
Pressure Gauge #				Dynamometer #				HP DYNO			
181170588				5833				50			
Vacuum Gauge #				Flow Meter #							
728732				B305005							
Temp Probe #											
T1											

Certified by: Tom Wildeboer Date: 03/28/22



PERFORMANCE DATA SHEET

Viking Pump, Inc.-A Unit of IDEX Corporation
Product Engineering Laboratory
406 State Street
Cedar Falls, IA. 50613

Work Order:	804070	For:	Pye Barker	Pump Serial No (s):	7887890035
Model:	K4127A	BOM No.:	4-2515-264C-588	Port Size:	2" F
Mat'l Specs:	0	Drive:	Direct	Rotation:	CW
Fluid:	LVG - 04/SM	Viscosity at Pumping Temperature:	100	SSU	

Volume Pumped	Time Req'd	Fluid Temp	Suction Pressure	Discharge Pressure	Torque	Pump Speed	Capacity	Differential Pressure	Power Input	Power Theo.	Pump Eff.	Vol. Eff.
(US GAL)	(SECS)	(° F)	(In-HgVac)	(PSIG)	(Lb-Ft)	(RPM)	(US GPM)	(PSI)	(BHP)	(THP)	(%)	(%)
30.04	60	92.2	2.3	2.7	4.39	301.02	30.04	3.8	0.25	0.07	26.57%	100.00%
28.36	60	92.3	2.3	10.0	6.72	301.02	28.36	11.1	0.39	0.18	47.58%	94.41%
26.64	60	92.0	2.1	20.3	10.00	301.02	26.64	21.4	0.57	0.33	57.97%	88.68%
25.24	60	91.8	2.1	30.3	13.07	301.02	25.24	31.3	0.75	0.46	61.56%	84.02%
24.41	60	91.9	2.0	36.2	15.04	301.02	24.41	37.1	0.86	0.53	61.34%	81.26%
23.41	60	91.8	1.9	40.4	16.34	300.93	23.41	41.4	0.94	0.56	60.33%	77.93%
13.34	60	91.9	1.6	45.2	17.79	300.93	13.34	46.0	1.02	0.36	35.09%	44.41%
0	60	91.9	1.3	50.0	19.21	300.93	0.00	50.7	1.10	0.00	0.00%	0.00%

EXTRA CLEARANCES											
OD Rotor		ID Rotor		OD Idler		ID Idler		ID Brg's		End Clr.	
										0.008	

LAB REMARKS

Equipment:

Pressure Gauge #

181170588

Dynamometer #

5833

HP DYNO

50

Vacuum Gauge #

728732

Flow Meter #

B305005

Temp Probe #

T1

Certified by: Tom Wildeboer Date: 03/28/22

DATA SHEET



Three Phase Induction Motor - Squirrel Cage

Customer : DeSmet

Product line : W22 NEMA Premium Efficiency Three-Phase Product code : 11610562
Catalog # : 00158ET3E145TC-W22

Frame	: 145TC	Locked rotor time	: 25s (cold) 14s (hot)
Output	: 1.5 HP (1.1 kW)	Temperature rise	: 80 K
Poles	: 4	Duty cycle	: Cont.(S1)
Frequency	: 60 Hz	Ambient temperature	: -20°C to +40°C
Rated voltage	: 230/460 V	Altitude	: 1000 m.a.s.l.
Rated current	: 4.04/2.02 A	Protection degree	: IP55
L. R. Amperes	: 33.9/17.0 A	Cooling method	: IC411 - TEFC
LRC	: 8.4x(Code L)	Mounting	: F-1
No load current	: 2.20/1.10 A	Rotation ¹	: Both (CW and CCW)
Rated speed	: 1755 rpm	Noise level ²	: 51.0 dB(A)
Slip	: 2.50 %	Starting method	: Direct On Line
Rated torque	: 4.49 ft.lb	Approx. weight ³	: 52.7 lb
Locked rotor torque	: 290 %		
Breakdown torque	: 350 %		
Insulation class	: F		
Service factor	: 1.25		
Moment of inertia (J)	: 0.1431 sq.ft.lb		
Design	: B		

Output	25%	50%	75%	100%	Foundation loads	
Efficiency (%)	81.3	82.5	85.5	86.5	Max. traction	: 125 lb
Power Factor	0.35	0.60	0.70	0.79	Max. compression	: 178 lb

	Drive end	Non drive end
Bearing type	: 6205 ZZ	: 6204 ZZ
Sealing	: V'Ring	: V'Ring
Lubrication interval	: -	: -
Lubricant amount	: -	: -
Lubricant type	Mobil Polyrex EM	

Notes
USABLE @208V 4.36A SF 1.15 SFA 5.01A

ITEM NUMBER	WORLD ENERGY TAGS
PW532C.1/1	19-P-759A
PW532C.1/2	19-P-759B
PW532C.2/1	19-P-859A
PW532C.2/2	19-P-859B

This revision replaces and cancel the previous one, which must be eliminated.

- (1) Looking the motor from the shaft end.
- (2) Measured at 1m and with tolerance of +3dB(A).
- (3) Approximate weight subject to changes after manufacturing process.
- (4) At 100% of full load.

These are average values based on tests with sinusoidal power supply, subject to the tolerances stipulated in NEMA MG-1.

Rev.	Changes Summary	Performed	Checked	Date
Performed by				
Checked by				
Date	07/02/2021			
			Page	Revision
			1 / 6	

TORQUE AND CURRENT VS SPEED CURVE

Three Phase Induction Motor - Squirrel Cage

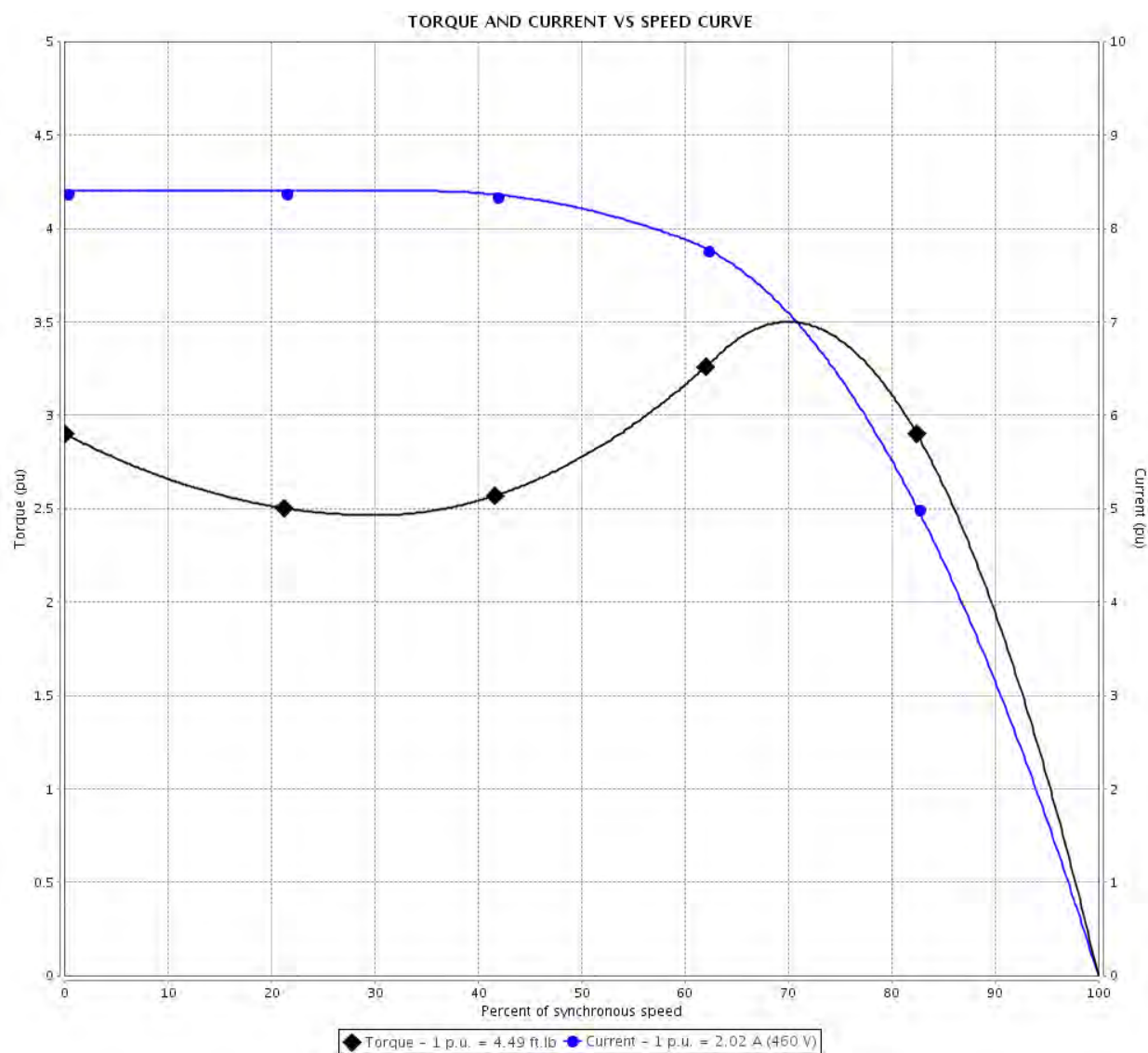


Customer : DeSmet

Product line : W22 NEMA Premium Efficiency
Three-Phase

Product code : 11610562

Catalog # : 00158ET3E145TC-W22



Performance : 230/460 V 60 Hz 4P

Rated current : 4.04/2.02 A
LRC : 8.4
Rated torque : 4.49 ft.lb
Locked rotor torque : 290 %
Breakdown torque : 350 %
Rated speed : 1755 rpm

Moment of inertia (J) : 0.1431 sq.ft.lb
Duty cycle : Cont.(S1)
Insulation class : F
Service factor : 1.25
Temperature rise : 80 K
Design : B

Locked rotor time : 25s (cold) 14s (hot)

Rev.	Changes Summary	Performed	Checked	Date
Performed by		Page 2 / 6 Revision		
Checked by				
Date	07/02/2021			

LOAD PERFORMANCE CURVE

Three Phase Induction Motor - Squirrel Cage

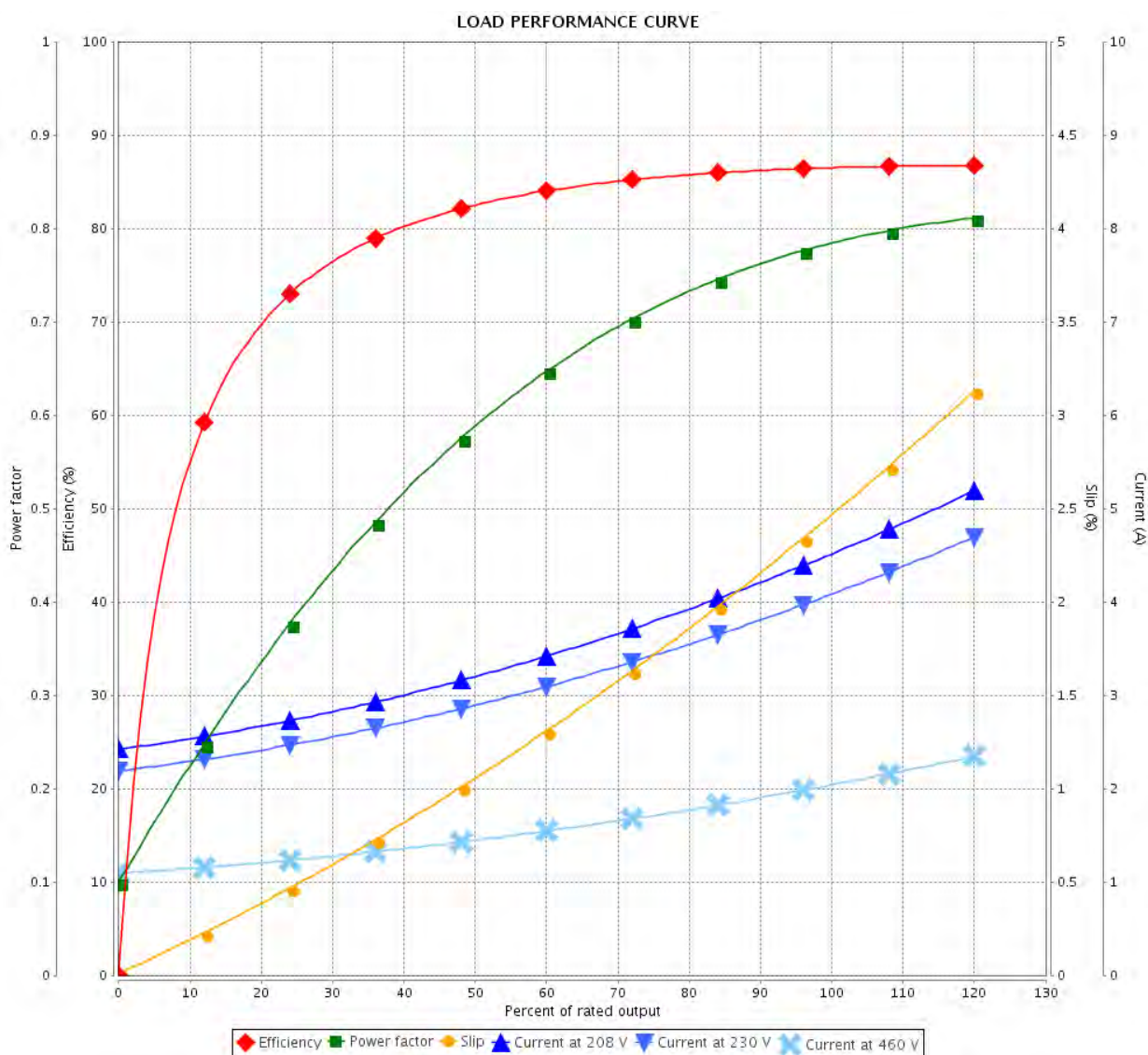


Customer : DeSmet

Product line : W22 NEMA Premium Efficiency
Three-Phase

Product code : 11610562

Catalog # : 00158ET3E145TC-W22



Performance : 230/460 V 60 Hz 4P

Rated current : 4.04/2.02 A
LRC : 8.4
Rated torque : 4.49 ft.lb
Locked rotor torque : 290 %
Breakdown torque : 350 %
Rated speed : 1755 rpm

Moment of inertia (J) : 0.1431 sq.ft.lb
Duty cycle : Cont.(S1)
Insulation class : F
Service factor : 1.25
Temperature rise : 80 K
Design : B

Rev.	Changes Summary	Performed	Checked	Date
Performed by		Page 3 / 6Revision		
Checked by				
Date	07/02/2021			

THERMAL LIMIT CURVE

Three Phase Induction Motor - Squirrel Cage



Customer : DeSmet

Product line : W22 NEMA Premium Efficiency
Three-Phase

Product code : 11610562

Catalog # : 00158ET3E145TC-W22

Performance : 230/460 V 60 Hz 4P

Rated current : 4.04/2.02 A
LRC : 8.4
Rated torque : 4.49 ft.lb
Locked rotor torque : 290 %
Breakdown torque : 350 %
Rated speed : 1755 rpm

Moment of inertia (J) : 0.1431 sq.ft.lb
Duty cycle : Cont.(S1)
Insulation class : F
Service factor : 1.25
Temperature rise : 80 K
Design : B

Heating constant

Cooling constant

Rev.	Changes Summary		Performed	Checked	Date
Performed by				Page	Revision
Checked by					
Date	07/02/2021			4 / 6	

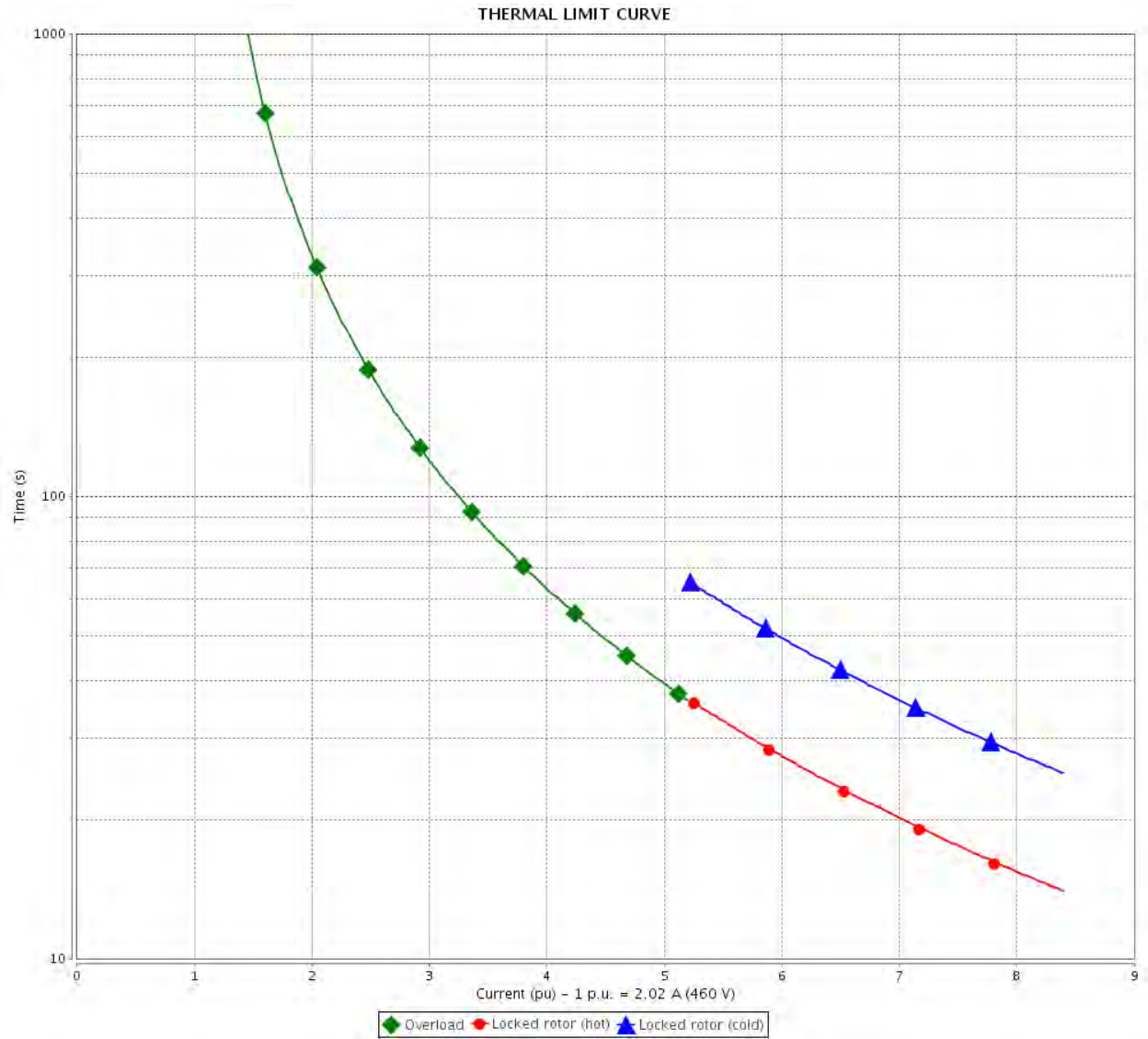
THERMAL LIMIT CURVE

Three Phase Induction Motor - Squirrel Cage



Customer

: DeSmet



Rev.	Changes Summary		Performed	Checked	Date
Performed by				Page 5 / 6	Revision
Checked by					
Date	07/02/2021				

VFD OPERATION CURVE

Three Phase Induction Motor - Squirrel Cage

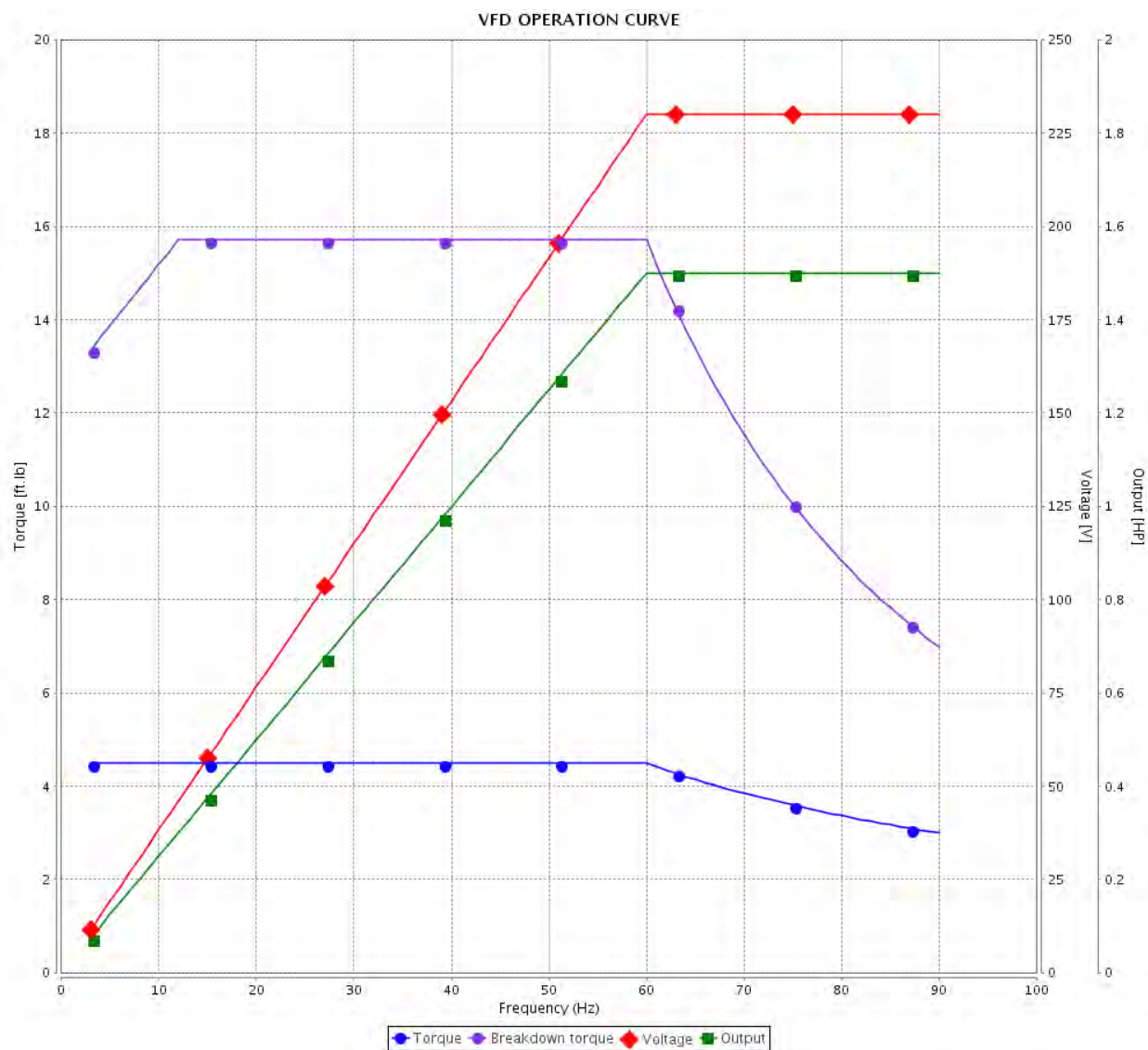


Customer : DeSmet

Product line : W22 NEMA Premium Efficiency
Three-Phase

Product code : 11610562

Catalog # : 00158ET3E145TC-W22

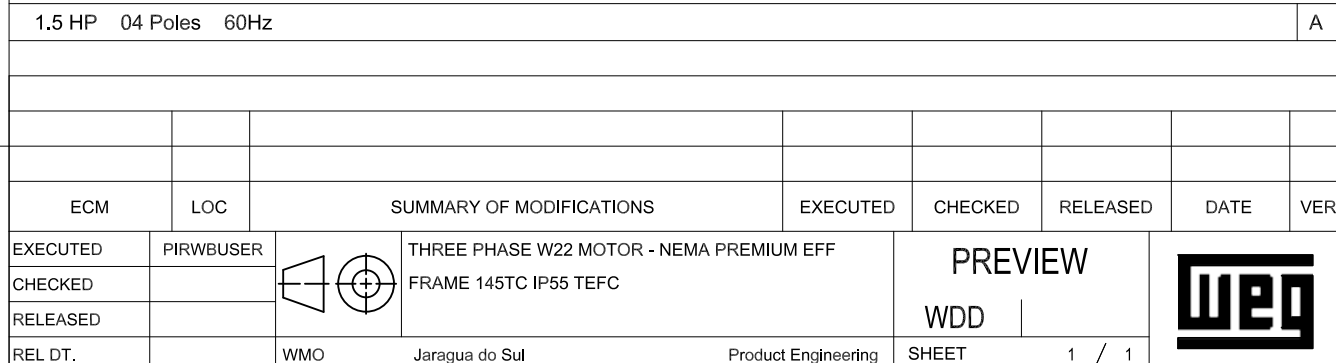
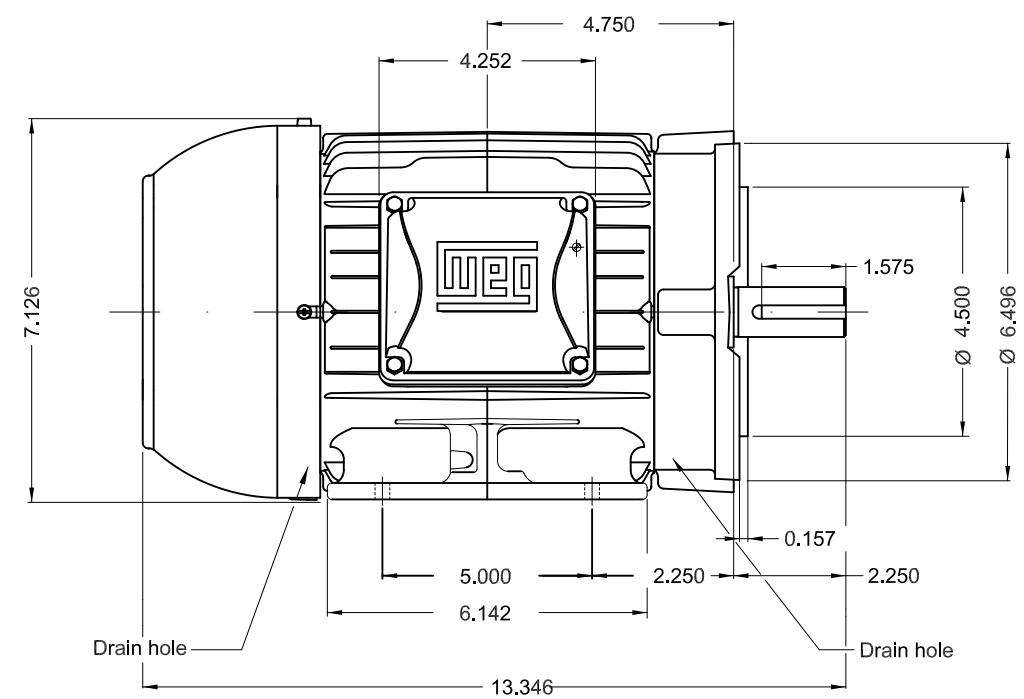


Performance : 230/460 V 60 Hz 4P

Rated current : 4.04/2.02 A
LRC : 8.4
Rated torque : 4.49 ft.lb
Locked rotor torque : 290 %
Breakdown torque : 350 %
Rated speed : 1755 rpm

Moment of inertia (J) : 0.1431 sq.ft.lb
Duty cycle : Cont.(S1)
Insulation class : F
Service factor : 1.25
Temperature rise : 80 K
Design : B

Rev.	Changes Summary	Performed	Checked	Date
Performed by		Page 6 / 6 Revision		
Checked by				
Date	07/02/2021			



WEG's property. Forbidden reproduction without previous authorization.

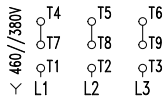
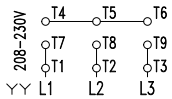


CC029A Premium Inverter Duty Motor Severe Duty

11610562

MADE IN BRAZIL MODEL 00158ET3E145TC-W22

PH 3	FR 145TC	HP(kW) 1.5(1.1)	Hz 60	SF 1.25	PF 0.79
V 230/460	A 4.04/2.02	RPM 1755	INS. CL. F	ΔT 80 K	IP55
NEMA NOM EFF 86.5 %	DES B	DUTY CONT.	AMB 40°C		
ENCL TEFC	SFA 5.05/2.52	USABLE @208V 4.36 A	SF 1.15	SFA 5.01	
1.5HP 1.1kW 50Hz 380V 2.42A 1440RPM	SF1.25	EFF 84.1% (IE3)	CODE L		



→ 6205-ZZ

→ 6204-ZZ

MOBIL POLYREX EM

ALT 1000 m.a.s.l. 53 Lbs

For 60Hz: Class I, Div 2, Gr. A, B, C and D - T3
Class I, Zone 2, IIC - T3
Class II, Div 2, Gr. F and G - T5
For use on PWM, Gr. A, B, C, D, F and G
VT1000:1, CT20:1, 1.0SF, T4A



FOR SAFE AREA
MOD.TE1BFOXON