EATON | Hydraulics

Remanufactured Products

Genuine Eaton and Vickers Brand Remanufactured Products

EATON | Hydraulics

Remanufactured Products
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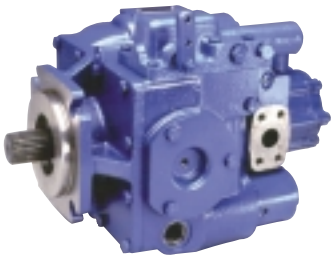
Remanufactured Products

Introduction

The Remanufactured Products story

Fluid Power is the most reliable form of power and motion control, and the most reliable source for power and motion control systems is Eaton. For more than 80 years, engineers have chosen Eaton and Vickers brand products for their quality, reliability and high performance features. This same quality and reliability is now available in a complete line of products remanufactured by Eaton Hydraulics.



Today, users are inundated with remanufactured products that resemble Eaton and Vickers brand products. “Will fitters” claim these products are “as good as new” Eaton and Vickers brand products. However, they cannot offer the same high performance found with Eaton’s Genuine Remanufactured Parts because the parts are not to Eaton’s original equipment specifications.

This publication presents Eaton’s remanufactured products and identifies critical areas of performance. We’ll show you the difference between “will fit” and Eaton’s Genuine Remanufactured Parts. In the end, you will have a more complete knowledge of the remanufacturing process, as well as a greater appreciation for the quality and attention given each and every Genuine Remanufactured Part from Eaton Hydraulics.

Introduction

No one knows Eaton's products better than Eaton

Pumps are the heart of any hydraulic system. So whenever anything goes wrong, it's usually the pump that gets the blame.

In fact, it's unusual for a pump failure to be caused by a defect in the pump. Most often, it's a symptom of problems hidden elsewhere in the system.

Typically, 90 to 95 percent of pump failures can be attributed to one or more of the following causes:

Aeration is the presence of dispersed bubbles of air in a system's hydraulic fluid. An implosion effect occurs when the compressed air bubbles are subjected to system pressure at the pump outlet. This implosion can cause metal to be pulled from the pressure plates, wear plates, etc. damaging both the hardware and the fluid.

Cavitation occurs when restricted inlet flow to the pump creates fluid voids that implode causing shocks that break away critical surface material.

Contamination is any material foreign to a hydraulic fluid that has a harmful effect on its performance in a system. Contaminants can be solid particles, liquids, or gases. Most contaminants cause an abrasive action between mating components, resulting in accelerated wear and tear.

Excessive heat is a thermal condition above a specified limit causing fluid quality and viscosity to be affected. An extreme system duty cycle, aeration, cavitation, over-pressurization, and contamination are some factors that contribute to excessive heat.

Over-pressurization subjects a pump to operating pressures greater than those for which it was designed. This often leads to premature failure.

Improper fluid can cause excessive wear and increased internal leakage. The lack of antiwear additives and low viscosity may result in pump siezure.

Each of these conditions leaves its own "footprint" on parts. If you recognize these distinctive types of damage, you will understand two things:

(1) The need for specific corrective maintenance so an early failure does not subject you to more and more downtime; and

(2) How important it is for any remanufacturing process to be done by professionals who clearly understand whether a part can be reworked and still meet original equipment standards.

And, no one understands your Eaton and Vickers parts better than Eaton and our Authorized Distributors.

Introduction

There's no replacement for Eaton and Vickers Remanufactured Products

Install quality, not doubt.

Once you've made the decision to use a remanufactured product, it's important to select one you can trust. Other remanufactured products simply don't compare to Eaton's Genuine Remanufactured Products.

Why? Other remanufaturing sources do not use Eaton's processes or testing methods. Only Eaton's Remanufactured Products guarantee 100 percent use of genuine Eaton parts for longer life at rated conditions. Most importantly, only Eaton offers remanufactured products that continually meet Eaton's original equipment specifications.

There's a big difference between "will fit" and "will work."

In this publication, we will point out important component parts and their affect on overall performance. Once you understand why these parts are critical, you will know why it is sometimes necessary to replace a part rather than remanufacture. Likewise, you will understand why the remanufacturing process is incomplete if all parts do not meet Eaton's original equipment specifications. The problem is most "will fitters" do not understand these important performance standards. That's why you have no guarantee a "will fit" component will perform to your expectations. As a result, you will discover "will fit" parts can adversely affect overall system performance and machine life.

In contrast, when you select an Eaton Remanufactured Product, you can feel confident you are installing the best quality possible. The same engineering, testing and attention to detail that goes into every new Eaton product also goes into every Eaton Remanufactured Part, or it isn't shipped. Eaton's Remanufactured Products are built for long life and carry a two-year warranty.

Eaton Aftermarket Service Center.

Eaton's parts are remanufactured at a specially-dedicated facility in Memphis, Tennessee, with easy access to an overnight shipping network. Eaton's experienced technicians know the correct tolerance of every Eaton product as well as how the parts should be remanufactured to Eaton's original quality specifications.

Introduction

QA Distributors/Authorized Repair Centers

Quality Services

- Warranty
- Repair
- Troubleshooting
- Application engineering
- Training

Authentic Parts

Local Support

- Fast response
- Eaton certified

As parts enter our Remanufactured Products Facility, they're disassembled and the pieces are inspected against certain specifications to determine if the part can be remanufactured. If so, the parts are reworked to perform like new, following the exact same processes we use in our manufacturing facility.

Eliminate the guesswork. Choose Eaton's product the first time and every time.

When remanufactured products are right for you, purchase Genuine Eaton or Vickers Remanufactured Products from your local Eaton Authorized Distributor. To locate a Distributor visit www.eatonhydraulics.com.

Our expertise means more value.

Here's another advantage of dealing only with Eaton's Authorized Distributors. When you return your core to be remanufactured, your Eaton and/or Vickers distributor can inspect it to see if there is a system problem that should be corrected. If contamination is part of the problem, ask your Authorized Distributor to explain how using Vickers Contamination Control products can help improve your system reliability and extend the warranty of your remanufactured product for one additional year.

Look for the Genuine Remanufactured Parts Seal.

It's on each and every part we remanufacture. And it's your assurance that the part has been diagnosed, remanufactured and tested to meet Eaton's highest standards for performance. If you receive a "Vickers" or "Eaton" product in a box that doesn't carry this seal, it's not a Genuine Remanufactured Product from Eaton.

EATON | Hydraulics

Vane Pump Products

Vickers
Vane Pumps

Principles of operation

In intra-vane pumps, a slotted rotor is splined to the drive shaft and turns inside a cam ring. Vanes are fitted to the rotor slots and follow the inner surface of the cam ring as the rotor turns. Centrifugal force and pressure under the vanes hold them out against the cam ring. Pumping chambers are formed between the vanes and the cam ring and are enclosed by the two end plates.

Outlet pressure is constantly applied to the small intra-vane area of the vane. As the pump vane rotates through the high and low quadrants, outlet pressure is alternately applied to the rest of the under vane area. This varying pressure under the vane reduces wear and increases pump efficiency.

Critical parts

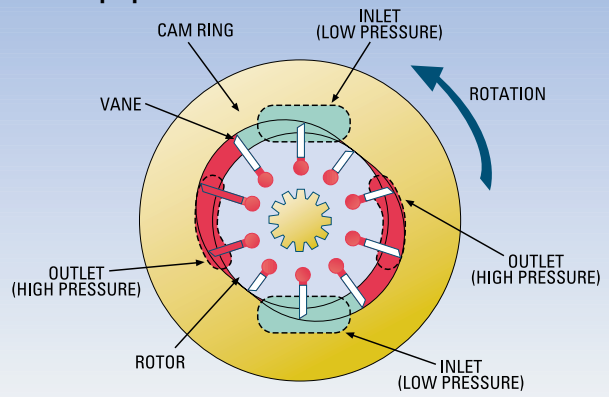
Certain parts are critical to the proper operation of a vane pump.The contact between the ring surface and vane tips means that both are subject to wear. To maintain a constant degree of contact, the vanes come farther out of their slots as they wear down.

If the remanufacturing process does not provide the same tolerances, materials and surface treatments as new, you may experience any one or many of the following:

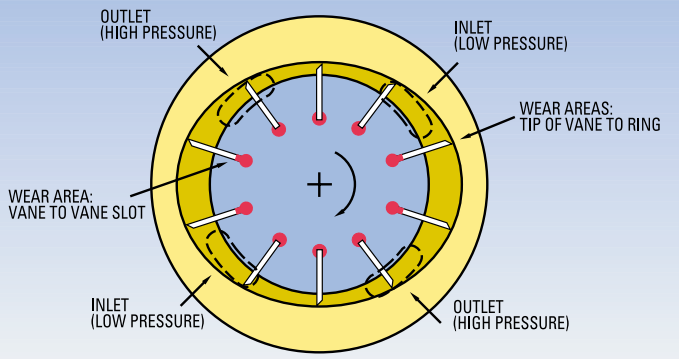
- Reduced pump output
- Higher power requirements
- Loss of parts durability
- Increased noise
- Excessive heat generation
- Generation of contaminants
- Shortened life
- Catastrophic failure

The adverse effects of these problems are compounded when they also affect the integrity of other components as well as system performance. The bottom line becomes substandard performance and less uptime.

1. Vane Pump Operation



2. Critical Clearances in a Vane Pump



Vickers
Vane Pumps

Vickers Vane Pumps and Motors

The following components are critical in maintaining optimum performance of Vickers pumps and motors. The challenge each represents to the remanufacturer is detailed in the following pages.

VQ

A

B

C

D

A

VHO

E

B

C

D

E

M-Motor

E

B

C

D

E

V10/V20

E

B

C

D

F

Vickers
Vane Pumps

A: Flex Plates (VQ)

The depth of metering and timing notches and lubrication grooves plays a vital role in VQ pump operation. As these steel-backed bronze plates flex, they eliminate the potential for pump seizure during cold start-up or at higher pressures. “Will fitters” often replace these plates with “look-alikes” without the same material composition. The result… erosion that generates contamination or ineffective protection against seizure. If plates are not made of the correct blend of materials, they will not “flex” properly. This can result in high heat and low volumetric efficiency.

B: Rotors

An old rotor will frequently have wider slots due to vane instability and/or normal wear over the service life of the component. In “will fit” products, rotor slot width is a critical dimension which we often find out of spec. “Will-fitters” will occasionally try to use thicker vanes to compensate for wider rotor slots. If thicker vanes are used, there may be higher vane tip loading on the ring contour and excessive ring wear could develop and result in early failure.

C: Vanes

Vane tip radius is very important in maintaining the proper vane tip-to-ring contact pattern. Almost all used vanes cannot be reworked without weakening them or causing excessive contact stress between the vane and the cam ring. All vanes in a pump should be the same length. If they are not, vane breakage will occur and pumps will seize immediately. Eaton uses new vanes in all Vickers remanufactured vane pump cartridge kits.

Vickers
Vane Pumps

D: Rings

Ring contour, slope and dwell angles are critical and involve intricate machining and close tolerances. “Will fit” rings often do not maintain the required dwell angles at the minor diameter area. This causes irregular vane operation which can lead to vane instability and excessive rotor slot wear.

Often, the contoured ring surfaces are not properly treated and premature wear is inevitable. This, in turn, causes internal leakage, adversely affecting overall performance. Also, if ring wear becomes excessive, contaminants can be introduced into the system. The tolerance between the rotor and ring thickness is also very critical. If this tolerance is not maintained, either excessive leakage or inadequate lubrication will cause excessive heat which in turn willl lead to loss of flow or seizure.

E: Pressure Plate/Wear Plate (VHO)

The depth of metering and timing notches and lubrication grooves, as well as surface treatment in VHO wear/pressure plates, plays a vital role in pump operation. Metering notches at the inlet/outlet ports are synchronized with the dwell angles in the pump ring in order to provide a smoother transition of the vanes as they move from inlet, to outlet, to inlet. If “will fitters” grind these notches and grooves out of tolerance, the vanes will vibrate causing higher noise and increased internal leakage which will result in lower volumetric efficiency.

If surface treatment of the plates is not to specification, the film of oil that should be present between the wear plate, rotor and pressure plate diminishes and pump performance deteriorates.

F: Bodies

Body surfaces in V10/V20 square pumps can be reworked to some extent. However, the 0-ring groove depth is very crucial and must be maintained. Surface treatment/hardness must be to specification for proper pump efficiency. Bearing and shaft seal bore diameters must be within tolerance. Any deviation in the dimensions will cause premature failure.

Vickers
Vane Pumps

VQ Intra-Vane

All VQ kits include Viton® seals. Consult your local Vickers Brand Distributor for price and availability.

VQ CARTRIDGE KITS

Size (US gpm)	Old Assembly #	New Assembly #
**20VQ-5	02-125830-L	R421588-L
**20VQ-5	02-125830	R421588
**20VQ-8	02-125831-L	R421589-L
**20VQ-8	02-125831	R421589
**20VQ-9	02-126083-L	R423097-L
**20VQ-9	02-126083	R423097
**20VQ-11	02-125832-L	R421590-L
**20VQ-11	02-125832	R421590
**20VQ-12	02-125833-L	R421591-L
**20VQ-12	02-125833	R421591
**20VQ-14	02-125834-L	R421592-L
**20VQ-14	02-125834	R421592
**25VQ-12	02-125835-L	R421576-L
**25VQ-12	02-125835	R421576
25VQ-12	02-125814-L	R421570-L
25VQ-12	02-125814	R421570
**25VQ-14	02-125836-L	R421577-L
**25VQ-14	02-125836	R421577
25VQ-14	02-124815-L	R421571-L
25VQ-14	02-124815	R421571
**25VQ-17	02-125837-L	R421578-L
**25VQ-17	02-125837	R421578
25VQ-17	02-125816-L	R421572-L
25VQ-17	02-125816	R421572
**25VQ-19	02-125838-L	R421579-L
**25VQ-19	02-125838	R421579

VQ CARTRIDGE KITS

Size (US gpm)	Old Assembly #	New Assembly #
25VQ-19	02-125817-L	R421573-L
25VQ-19	02-125817	R421573
**25VQ21	02-125839-L	R421580-L
**25VQ21	02-125839	R421580
25VQ-21	02-125818-L	R421574-L
25VQ-21	02-125818	R421574
**35VQ-21	02-125840-L	R421563-L
**35VQ-21	02-125840	R421563
35VQ-21	02-125819-L	R421582-L
35VQ-21	02-125819	R421582
**35VQ-25	02-125841-L	R421564-L
**35VQ-25	02-125841	R421564
35VQ-25	02-125820-L	R421583-L
35VQ-25	02-125820	R421583
**35VQ-30	02-125842-L	R421565-L
**35VQ-30	02-125842	R421565
35VQ-30	02-125821-L	R421584-L
35VQ-30	02-125821	R421584
**35VQ-35	02-125843-L	R421566-L
**35VQ-35	02-125843	R421566
35VQ-35	02-125822-L	R421585-L
35VQ-35	02-125822	R421585
**35VQ-38	02-125844-L	R421567-L
**35VQ-38	02-125844	R421567
35VQ-38	02-125823-L	R421586-L
35VQ-38	02-125823	R421586
45VQ-42	02-125824-L	R419511-L
45VQ-42	02-125824	R419511
45VQ-47	02-125825-L	R421954-L
45VQ-47	02-125825	R421954
45VQ-50	02-125826-L	R419510-L
45VQ-50	02-125826	R419510
45VQ-57	02-125827-L	R421955-L
45VQ-57	02-125827	R421955
45VQ-60	02-125828-L	R419503-L
45VQ-60	02-125828	R419503

Viton® is a registered trademark of E.I. DuPont.

VHO Intra-Vane

All VHO kits are upgraded to the current design with F3 seals. Consult your local Vickers Brand Distributor for price and availability.

VHO CARTRIDGE KITS

Size (US gpm)	Old Assembly #	New Assembly #
35V-25	02-102560-9	R02-102560
35V-30	02-102561-9	R02-102561
35V-35	02-102562-9	R02-102562
35V-38	02-102563-9	R02-102563
45V-42	02-102576-9	R02-102576
45V-50	02-102577-9	R02-102577
45V-60	02-102578-9	R02-102578
**35V-25	02-102564-9	R02-102564
**35V-30	02-102565-9	R02-102565
**35V-35	02-102566-9	R02-102566
**35V--38	02-102567-9	R02-102567
**20V-2	02-102512-9	R02-102512
**20V-5	02-102513-9	R02-102513
**20V-8	02-102514-9	R02-102514
**20V-11	02-102515-9	R02-102515
**20V-12	02-102516-9	R02-102516
**20V-14	02-102517-9	R02-102517
25V-12	02-102540-9	R02-102540
25V-14	02-102541-9	R02-102541
25V-17	02-102542-9	R02-102542
25V-21	02-102543-9	R02-102543
**25V-12	02-102544-9	R02-102544
**25V-14	02-102-545-9	R02-102545
**25V-17	02-102546-9	R02-102546
**25V-21	02-102547-9	R02-102547
50V-72	923017-9	R923017
50V-85	923018-9	R923018
50V-100	923019-9	R923019
50V-109	923020-9	R923020

Vickers
Vane Pumps

V10/V20/V2020
Straight Vane

V10 CARTRIDGE KITS

Size (US gpm)	Old Assembly #	New Assembly #
1 GPM	923471-9	R923471
2 GPM	02-341775-9	R02-341775
3 GPM	923496-9	R923496
4 GPM	923469-9	R923469
5 GPM	923468-9	R923468
6 GPM	923497-9	R923497
7 GPM	923498-9	R923498

V10 BODIES & PRESSURE PLATE

Old Body	New Body	Old Pressure Plate S/A	New Pressure Plate S/A
352699-9	R352699	374343-9	R374343
317668-9	R317668	374343-9	R374343
370468-9	R370468	374343-9	R374343

V20 CARTRIDGE KITS

Size (US gpm)	Old Assembly #	New Assembly #
5 GPM	02-137559-9	R02-137559
6 GPM	02-137560-9	R02-137560
7 GPM	02-137561-9	R02-137561
8 GPM	02-137562-9	R02-137562
9 GPM	02-137563-9	R02-137563
10 GPM	02-137564-9	R02-137564
11 GPM	02-137565-9	R02-137565
12 GPM	02-137566-9	R02-137566
13 GPM	02-137567-9	R02-137567

V20 BODIES & PRESSURE PLATE

Old Body	New Body	Old Pressure Plate S/A	New Pressure Plate S/A
345486-9	R345486	359287-9	R345486
297228-9	R297228	359287-9	R297228
280689-9	R280689	359287-9	R280689
313409-9	R313409	359287-9	R313409
294266-9	R294266	359287-9	R294266
308628-9	R308628	359287-9	R308628

V2020 CARTRIDGE KITS

Size (US gpm)	Old Assembly #	New Assembly #
** 7 GPM	02-152006-9	R02-152006
** 8 GPM	02-152007-9	R02-152007
** 9 GPM	02-152008-9	R02-152008
** 11 GPM	02-152010-9	R02-152010
** 12 GPM	02-152011-9	R02-152011
** 13 GPM	02-152012-9	R02-152012

V2020 BODIES & PRESSURE PLATE

Old Body	New Body	Old Pressure Plate S/A	New Pressure Plate S/A
308681-9	R308681	358347-9	R308681

Vickers
Vane Pumps

Vane Motors (M Series)

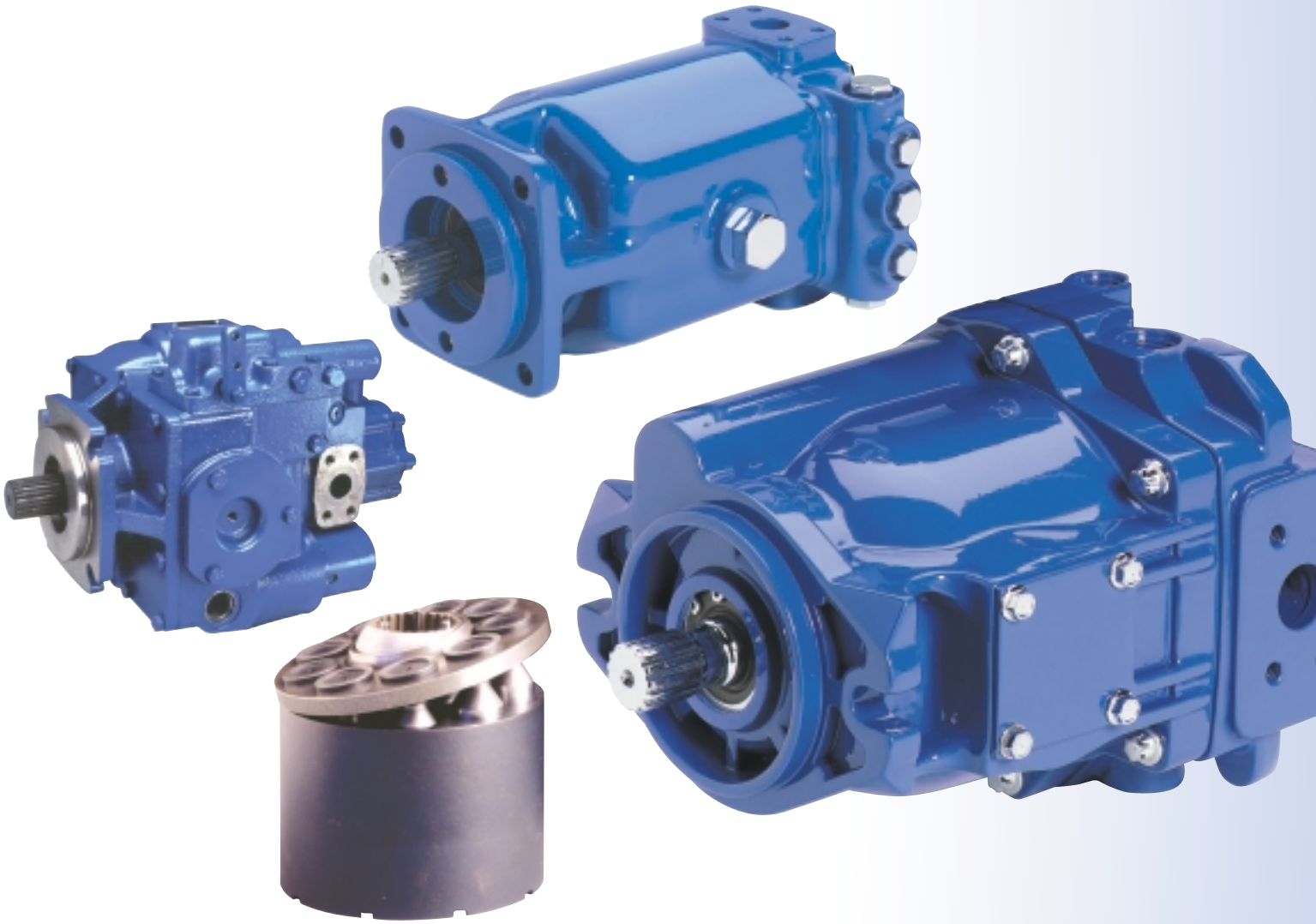
VANE MOTOR CARTRIDGE KIT

Size (US gpm)	Old Assembly #	New Assembly #
25M42	923160-9	R923160
25M55	923161-9	R923161
25M65	923162-9	R923162
35M80	923165-9	R923165
35M95	923166-9	R923166
35M115	923167-9	R923167
45M130	923111-9	R923111
45M155	923110-9	R923110
45M185	923109-9	R923109
50M220	923099-9	R923099
50M255	923100-9	R923100
50M300	923101-9	R923101

EATON | Hydraulics

Piston Pump Products

Open Circuit
Closed Circuit



Eaton and Vickers Piston Pumps

Principles of operation

In axial piston pumps, the pistons reciprocate parallel to the axis of rotation of the cylinder block. The simplest type of axial piston pump is the swash plate in-line design.

The cylinder block in this pump is turned by the drive shaft. Pistons fitted to bores in the cylinder block are connected through piston shoes and a shoe plate, so that the shoes bear against an angled swash plate.

As the block turns, the piston shoes follow the swash plate, causing the pistons to reciprocate. The ports are arranged in the valve plate so that the pistons pass the inlet as they are pulled out and pass the outlet as they are forced back in.

The displacement of axial piston pumps is determined by the size and number of pistons, as well as the stroke length which is determined by the angle of the swash plate.

In variable displacement models of the in-line pump, the swash plate is installed in a movable yoke.

"Pivoting" the yoke on pintles changes the swash plate angle to increase or decrease the piston stroke.

Critical parts

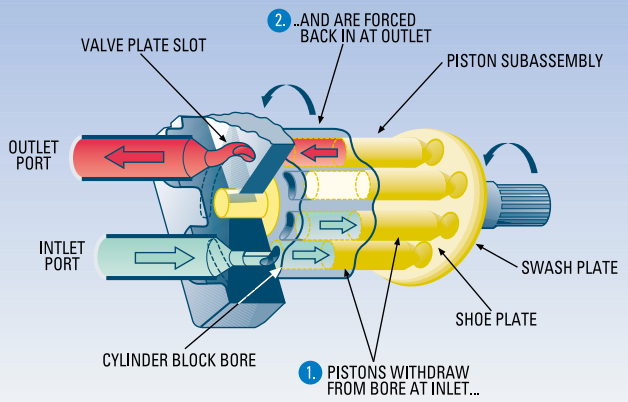
Eaton and Vickers axial piston pumps are highly efficient units, available in a wide range of capacities. Their parts are closely fitted and surfaces finely machined.

Certain parts and clearances are critical to the proper operation of a piston pump. If the remanufacturing process does not provide the same tolerances, materials and surface treatments as new, you may experience any one or many of the following:

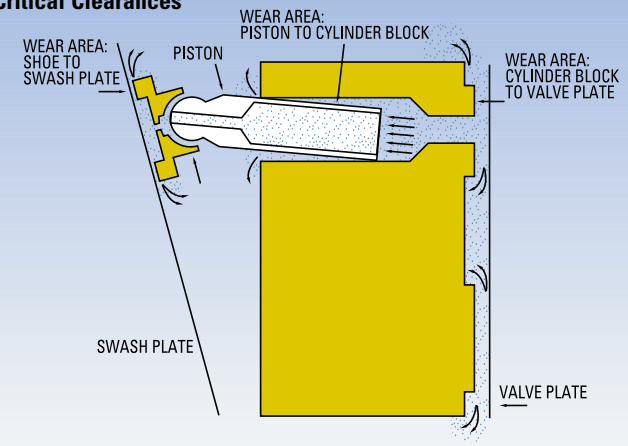
- Reduced pump output
- Higher power requirements
- Loss of parts durability
- Increased noise
- Excessive heat generation
- Generation of contaminants

The adverse effects of these problems are compounded when they also affect the integrity of other system components as well as system performance. The bottom line becomes substandard performance and less uptime.

1. Piston Pump Operation



2. Critical Clearances



Eaton and Vickers Piston Pumps

Eaton and Vickers Piston Pumps

The following components are critical in maintaining optimum performance of Eaton and Vickers piston pumps. The challenge each represents to the remanufacturer is detailed in the following pages.

B-Series

A

B

C

E-Series

A

B

C

H-Series

A

B

C

Eaton and Vickers Piston Pumps

Piston Pump Rotating Group

The most critical element in piston pump operation is the rotating group. Some key parts of the rotating group are the cylinder block, valve plate and piston shoe sub-assembly.

Most "will fitters" do not attempt to rework Eaton and Vickers piston pumps. The few rotating groups that are reworked by "will fitters" generally do not provide the same overall life as our genuine remanufactured rotating groups, because original tolerances are seldom maintained.

Often, will-fit rotating groups fail due to heavy internal leakage which results in high system temperature. These factors lower the volumetric efficiency of any given pump, and the adverse effects are even more dramatic at higher pressures.

A. Cylinder Block

Cylinder block bore dimensions are very important. Bore concentricity and diameter are two key areas. Cylinder block face-flatness is also important and requires special treatment. "Will fitters" seldom meet required dimensional tolerances and surface treatment is frequently substandard. This leads to poor pump efficiency.

B. Piston Shoe Sub-Assembly

Piston diameters, in conjunction with cylinder block bore diameters, also play a key role in providing optimum piston pump efficiency. If piston diameters are out of tolerance, there is either high internal leakage, or the opposite…metal-to-metal scuffing or fusion.

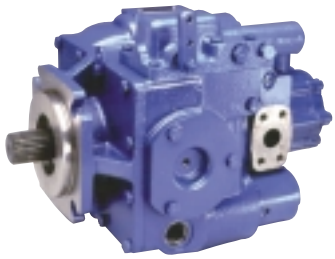
The way piston shoes are swaged to the pistons is also of prime importance. The shoe cannot be too loose or too tight. All shoe heights must be within certain limits to avoid shoe lifting and rolling.

C. Piston Pump Valve Plate

The valve plate in a piston unit is somewhat like the wear/pressure/flex plates in a vane pump. The metering and timing notches on the plate are very critical from an operational point of view.

Most "will fitters" try to rework old plates, but do not always maintain correct dimensions. Surface treatment, or lack of, is generally a problem. A re-worked plate can end up with a poor surface finish, which causes heavy internal leakage and, consequently, reduced volumetric efficiency.

Eaton and Vickers Piston Pumps
Heavy Duty Closed Circuit



HEAVY DUTY CLOSED CIRCUIT PRODUCT FAMILIES

Model Code	Series	Description
R3321-XXX	Series 1	Variable Displacement Pump
R3921-XXX	Series 1	Variable Displacement Pump
R4621-XXX	Series 1	Variable Displacement Pump
R5421-XXX	Series 1	Variable Displacement Pump
R6421-XXX	Series 1	Variable Displacement Pump
R7620-XXX	Series 1	Variable Displacement Pump
R3323-XXX	Series 1	Variable Displacement Pump
R3923-XXX	Series 1	Variable Displacement Pump
R4623-XXX	Series 1	Variable Displacement Pump
R5423-XXX	Series 1	Variable Displacement Pump
R6423-XXX	Series 1	Variable Displacement Pump
R7620-XXX	Series 1	Variable Displacement Pump
Model Code		**Description**
R3331-XXX		Fixed Displacement Motors
R3931-XXX		Fixed Displacement Motors
R4631-XXX		Fixed Displacement Motors
R5431-XXX		Fixed Displacement Motors
R6431-XXX		Fixed Displacement Motors
R7630-XXX		Fixed Displacement Motors
R3333-XXX		Fixed Displacement Motors
R3933-XXX		Fixed Displacement Motors
R4633-XXX		Fixed Displacement Motors
R5433-XXX		Fixed Displacement Motors
R6433-XXX		Fixed Displacement Motors
R7630-XXX		Fixed Displacement Motors
R3341-XXX		Variable Displacement Motors
R3941-XXX		Variable Displacement Motors
R4641-XXX		Variable Displacement Motors
R5441-XXX		Variable Displacement Motors
R6441-XXX		Variable Displacement Motors
R7640-XXX		Variable Displacement Motors

Eaton and Vickers Piston Pumps

Medium Duty
Closed Circuit

MEDIUM DUTY CLOSED CIRCUIT PRODUCT FAMILIES

Description	Model Code
2 CID Fixed Motors	R74315-XXX
	R74318-XXX
	R74348-XXX
	R74415-XXX
	R74418-XXX
2 CID Fixed Pumps	R73415-XXX
	R73418-XXX
	R73419-XXX
	R73424-XXX
	R73452-XXX
	R73428-XXX
2 CID Manual Pump	R70342-XXX
	R70344-XXX
2 CID Manual Tandem w/GP	R78342-XXX
2 CID Variable Motors	R71392-XXX
	R71302-XXX
	R71402-XXX
	R71442-XXX
	R71492-XXX
1 CID Variable Motor	R71112-XXX
1 CID Fixed Motor	R74010-XXX
	R74111-XXX
	R74115-XXX
	R74118-XXX
	R74119-XXX
	R74149-XXX
1 CID Manual Pump	R70142-XXX
	R70144-XXX
	R70145-XXX
	R70149-XXX
	R70192-XXX

Description	Model Code
4 CID Manual Motor	R71593-XXX
4 CID Manual Pump w/GP	R70543-XXX
4 CID Manual Tandem w/GP	R78552-XXX
1 CID Manual Tandem	R78111-XXX
2 CID Manual Tandem	R78390-XXX
4 CID Manual Pump	R70543-XXX
2 CID Servo Pump	R72400-XXX
3 CID Servo Pump	R72400-XXX-XX
2 CID Servo Tandem	R78461-XXX-XX
2 CID Servo Pump w/GP	R78462-XXX-XX
2 CID Servo Tandem w/GP	R78463-XXX-XX
2 CID Servo Motor	R72450-XXX-XX
1 CID Manual Pump (160)	R70160-XXX-XX
1 CID Manual Tandem (160)	R78161-XXX-XX
1 CID Manual Pump w/GP (160)	R78162-XXX-XX
Manual Tandem w/GP (160)	R78163-XXX-XX
2 CID Manual Pump (360)	R70360-XXX-XX
2 CID Manual Tandem (360)	R78361-XXX-XX
2 CID Manual Pump w/GP (360)	R78362-XXX-XX
2 CID Manual Tandem w/GP (360)	R78363-XXX-XX
2 CID Back to Back Tandem	R78364-XXX-XX
2 CID Manual Triple (360)	R78365-XXX-XX
2.77 CID Fixed Pump	R73498-XXX

Eaton and Vickers Piston Pumps

Contact the Memphis Aftermarket Service Center for availability of complete PVB Remanufactured Pumps.

B–Series Valve Plates and Rotating Groups

Eaton's offering includes Vickers rotating groups and valve plates for B,E, and H series. Also, ask your local Authorized Distributor whether upgrading your B-series pump to a Vickers PVQ design is an advisable alternative for your application.

B-SERIES ROTATING GROUPS

Size (US gpm)	Old Assembly #	New Assembly #
PVB6	875773-9	R875773
P*B5	875775-9	R875775
MFB15	922996-9	R922996
PFB15	923062-9	R923062
PVB45A	938074-9	R938074
PVB10	938267-9	R938267
M-PFB10	938272-9	R938272
PVB15	938273-9	R938273
PVB20	938274-9	R938274
PVB29-30	938275-9	R938275
PVB10-10	938276-9	R938276
PVB45	938279-9	R938279
P*B20	938280-9	R938280
P*B45	938286-9	R938286
PVB29-10	938290-9	R938290
PVB90	938291-9	R938291

B-SERIES VALVE PLATES

Size (US gpm)	Old Assembly #	New Assembly #
PVB45	294364-9	R294364
PVB90	297951-9	R297951
PVB45	317658-9	R317658
PVB45	318255-9	R318255
PVB45	318291-9	R318291
PVB45	319606-9	R319606
PVB90	360975-9	R360975
PVB45	390136-9	R390136
PVB45	394505-9	R394505
PVB29	923068-9	R923068
PVB29	923074-9	R923074
PVB15-L	938377-9	R938377
PVB15-RH	938378-9	R938378
PFB20-RH	938381-9	R938381
PFB20-LH	938382-9	R938382
MFB20	938383-9	R938383
MVB10	938384-9	R938384
PVB10L	938385-9	R938385
PVB10	938386-9	R938386
PVB10-LH	938387-9	R938387

B-SERIES VALVE PLATES

Size (US gpm)	Old Assembly #	New Assembly #
MFB10	938391-9	R938391
PVB20	938400-9	R938400
PVB20-L	938401-9	R938401
PVB29	938404-9	R938404
PVB29-L	938405-9	R938405
MFB5	938551-9	R938551
PVB5	938552-9	R938552
PVB5-L	938553-9	R938553
PVB45	941180-9	R941180
PVB45	941181-9	R941181
PVB45A-RH	941201-9	R941201
PVB45	941777-9	R941777
PVB45	941890-9	R941890
PVB45	941891-9	R941891
PVB45-LH	941892-9	R941892
PVB45	941893-9	R941893
MFB29	941952-9	R941952
PFB10	942048-9	R942048
PFB10	942049-9	R942049
MFB10	942050-9	R942050

Eaton and Vickers Piston Pumps

B-SERIES VALVE PLATES

Size (US gpm)	Old Assembly #	New Assembly #
MFB29	942051-9	R942051
PVB10	942160-9	R942160
PVB10	942161-9	R942161
MVB10	942162-9	R942162
PVB15	942163-9	R942163
PVB15	942164-9	R942164
PVB10	942165-9	R942165
PVB10	942166-9	R942166
PVB15	942167-9	R942167
PVB15	942168-9	R942168
PVB20	942169-9	R942169
PVB20-LH	942170-9	R942170
PVB29	942171-9	R942171
PVB29	942172-9	R942172
PVB5/6	942223-9	R942223
PVB5/6	942224-9	R942224
PVB5/6	942225-9	R942225
PVB5/6-RH	942226-9	R942226
MVB5	942227-9	R942227
PVB10-RH	942233-9	R942233
PVB10	942234-9	R942234
PVB15-RH	942235-9	R942235
PVB15-LH	942236-9	R942236
PVB10	942237-9	R942237
PVB10	942238-9	R942238
PVB15	942239-9	R942239
PVB15	942240-9	R942240
PVB20	942241-9	R942241
PVB20	942242-9	R942242
PVB29	942243-9	R942243
PVB29	942244-9	R942244
PVB5/6	942246-9	R942246
PVB5/6	942247-9	R942247
PVB5/6	942248-9	R942248
PVB45	942249-9	R942249
PVB45	942285-9	R942285
PVB45-RH	942304-9	R942304
PVB45	942305-9	R942305
PFB5	942313-9	R942313

Eaton and Vickers Piston Pumps

Contact the Memphis Aftermarket Service Center for availability of complete PVE Remanufactured Pumps.

E–Series Valve Plates, Rotating Groups and Yokes

E-SERIES VALVE PLATES

Size (US gpm)	Old Assembly #	New Assembly #
PVE12R	686759-9	R686759
PVE12L	686171-9	R686171
PVE19R	425412-9	R425412
PVE21R	425413-9	R425413
PVE19L	425415-9	R425415
PVE21L	425416-9	R425416
TA19R	424481-9	R424481
TA19L	424492-9	R424492
PVE19RQ	629539-9	R629539
PVE19LQ	631476-9	R631476
PVE27R	680630-9	R680630
PVE27L	680631-9	R680631
PVE27QIL	514121-9	R514121
PVE27QIR	514128-9	R514128
PVE35L	627437-9	R627437
PVE35R	627438-9	R627438
PVE35QIL	513890-9	R513890
PVE35QIR	513889-9	R513889
PVE47L	584540-9	R584540
PVE47R	627371-9	R627371
PVE47QIL	514120-9	R514120
PVE47QIR	514122-9	R514122
PVE62L	527163-9	R527163
PVE62R	527164-9	R527164
PVE62QIL	876045-9	R876045
PVE62QIR	864381-9	R864381

E-SERIES ROTATING GROUPS

Size (US gpm)	Old Assembly #	New Assembly #
PVE12	882954-9	R882954
PVE19	923948-9	R923948
PVE21	923947-9	R923947
TA19	923936-9	R923936
PVE27	938102-9	R938102
PVE35	938101-9	R938101
PVE47	938103-9	R938103
PVE62	938106-9	R938106

E-SERIES YOKES

Size (US gpm)	Old Assembly #	New Assembly #
PVE12	682369-9	R682369
PVE19/21	409997-9	R409997
TA19	416636-9	R416636

Eaton and Vickers Piston Pumps

Contact the Memphis Aftermarket Service Center for availability of complete PVH Remanufactured Pumps.

H–Series Valve Plates, Rotating Groups and Yokes

H-SERIES VALVE PLATES

Size (US gpm)	Old Assembly #	New Assembly #
PVH57R	680630-9	R680630
PVH57L	680631-9	R680631
PVH57QIL	514121-9	R514121
PVH57QIR	514128-9	R514128
PVH74L	627437-9	R627437
PVH74R	627438-9	R627438
PVH74QIL	513890-9	R513890
PVH74QIR	513889-9	R513889
PVH98L	584540-9	R584540
PVH98R	627371-9	R627371
PVH98QIL	514120-9	R514120
PVH98QIR	514122-9	R514122
PVH131L	527163-9	R527163
PVH131R	527164-9	R527164
PVH131QIL	876045-9	R876045
PVH131QIR	864381-9	R864381

H-SERIES ROTATING GROUPS

Size (US gpm)	Old Assembly #	New Assembly #
PVH57	877420-9	R877420
PVH74	877421-9	R877421
PVH98	877422-9	R877422
PVH131	877419-9	R877419

H-SERIES YOKES

Size (US gpm)	Old Assembly #	New Assembly #
PVH57	690832-9	R690832
PVH74	526651-9	R526651
PVH98	513629-9	R513629
PVH131	692941-9	R692941

Systemic Contamination Control

For Reliable Performance, Depend on Eaton and Vickers Brands for Quality Contamination Control

Systemic Contamination Control and Eaton's Genuine Remanufactured Products

Eaton has determined that the cause of 80 percent of all hydraulic equipment failures is inadequate contamination control practices. The goal of the Vickers Systemic Contamination Control Program is to clean the fluid to the point at which contamination is no longer a factor in the failure of the system, during the desired useful life of the system. The easy to follow Systemic Contamination Control three-step approach involves:

Step 1. Setting a target cleanliness level for the system;

Step 2. Selecting filters and filter placements to achieve the target;

Step 3. Sampling fluid to confirm achievement of the target cleanliness level.

Vickers fluid analysis service can provide a thorough analysis of your systems fluid. The analysis will not only provide information on the amount of contamination in the system, but also what the contamination is so the source of the contamination can be found and eliminated.

Because of the superior quality and reliability of Eaton's genuine remanufactured products, Eaton has elected to include these products under the Systemic Contamination Control Extended Warranty Program. Eaton will extend, by one year, the standard warranty on all Eaton and Vickers remanufactured products used in a system that is protected by Vickers filters (and elements) applied consistently with the principles presented in the Guide to Systemic Contamination Control (561).

Trust Eaton to help keep your system running at peak performance

Your Authorized Distributor can help you select the right product for your application. As experienced technicians, they are also knowledgeable about component performance and can help you troubleshoot possible system contamination problems. Simply bring in your core, and your Authorized Distributor can inspect it and recommend a positive course of action.

For reliable performance, depend on the brands you can trust. Eaton and Vickers Genuine Remanufactured Parts and quality contamination control. For more information, call 1-952-937-7240.

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Printed in USA
Document No. M-SRSR-MC001-E
February 2003