

Metric & Imperial

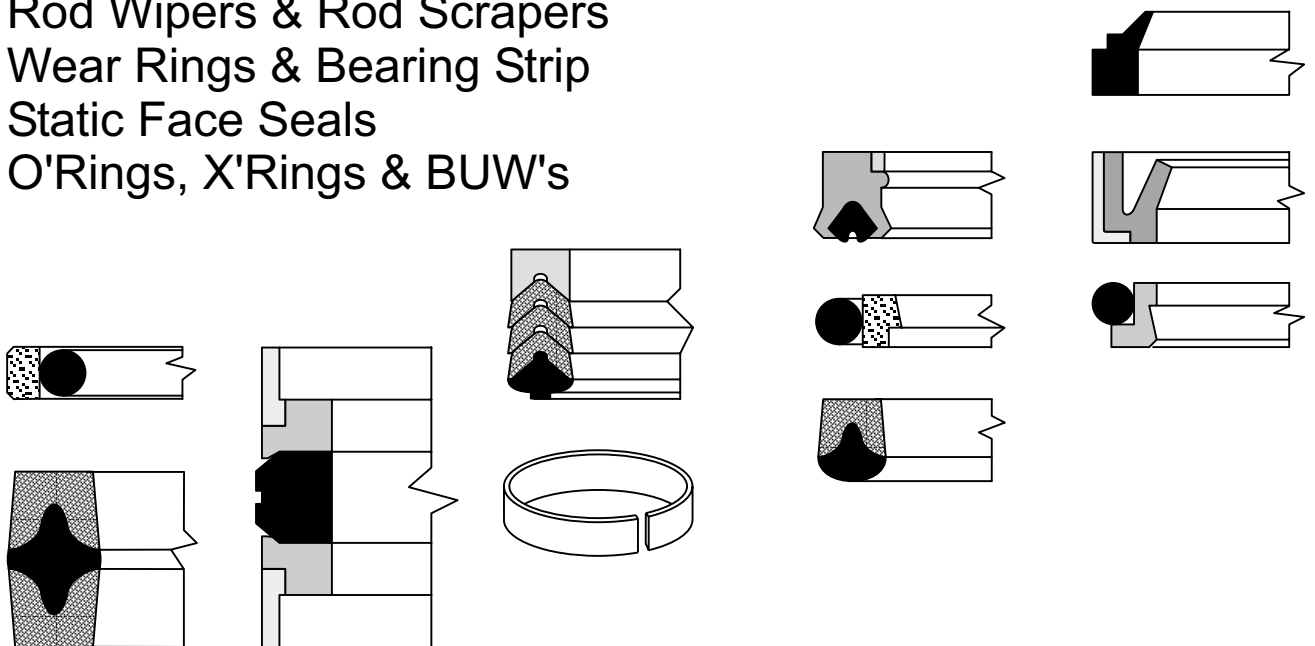


A Simple Guide To Identifying



Profiles & Specifications For

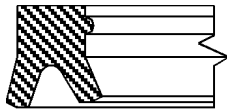
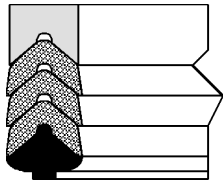
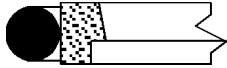
Single & Double Acting Reciprocating Hydraulic Seals
Rod Wipers & Rod Scrapers
Wear Rings & Bearing Strip
Static Face Seals
O'Rings, X'Rings & BUW's



For Further Assistance Contact

Phone : (08) 9451 6011 Fax : (08) 9458 5766





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About This Catalogue

This catalogue has been designed to show you our extensive range of hydraulic sealing products, and to assist you in identifying them from samples. Should you have any queries beyond the scope of this guide, please do not hesitate to contact the technical staff at Transeals for further specialist advice and assistance.

The designations shown in this catalogue relate to our own computer codes. Any markings found on a seal or wiper may correspond with these, but should not be assumed to do so. Referring to products by their "style & type" as listed throughout this catalogue will reduce the risk of misinterpretation, assisting accurate supply.

Application & Media

Transeals are primarily a hydraulic seals specialist. All products shown in this catalogue are for use only in reciprocating and static hydraulic applications, with mineral based hydraulic fluids, **unless specifically stated otherwise.**

As the fluid can have enormous consequences on the life of a seal and its overall performance, particularly at temperature, it is advised that guidance is sought if anything other than a mineral based hydraulic fluid is used. Other materials are available on request for resisting the effects of temperature extremes and/or fluid variations.

Caution

Always check availability *BEFORE* committing yourself to machining or design !!!

The information contained in this catalogue is based on many years of hydraulic sealing experience, and is given in good faith. While all care has been taken, we accept no responsibility for any errors which may have crept in. No warranty or guarantee is expressed as the installation and conditions of use are beyond our control. Transeals is continually expanding and improving its extensive product range, and reserves the right to withdraw or modify any item shown in this catalogue without notice.



General Data

The following general information has been provided to assist you in avoiding some of the more common pitfalls often encountered with hydraulic seals.

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Seal Selection

Incorrect seal selection is a major cause of seal failure. The following points should be kept in mind when selecting a seal, for either a new application or as a replacement seal:

- Select a seal that is capable of operating within your desired temperature range.
- Select a seal that will operate comfortably at your desired pressure and speed.
- Select a seal that will operate in your system fluid. All of our standard seals are designed for operation in mineral based hydraulic fluids. If you are not using a mineral based hydraulic fluid, please consult our technical staff for a recommendation regarding your application.
- Keep in mind that designs which incorporate anti-extrusion devices will allow larger metal to metal clearances. These types of seals lend themselves to use with steel heads and pistons using separate or incorporated nylon wear rings. This will aid in keeping the machining times to a minimum, and hence reduce overall costs.
- At higher pressures, it is generally desirable to select a seal with a larger radial cross-section. You must however keep in mind any relevant space restrictions or fitting problems, such as blind glands.
- Asymmetrical seal designs are generally superior in performance to symmetrical ones. However, when interchanging seals you must be careful to select an appropriate design for your application.

Replacement Seals

As several different manufacturers may produce seals to fit the same standard groove size, it is not uncommon for seals of the same nominal size & design to vary greatly, both appearance and in actual dimensions. It must be stressed that all dimensions specified will refer to the housing, not the actual seal itself. When replacing old seals it is far better to measure the actual metal parts, than to attempt determining the seal's dimensions. This is particularly helpful when trying to determine if the seal is metric or imperial, and generally ensures the following:

- The housing has been correctly machined.
- The parts haven't been modified.
- The seal is correct for its housing, and has not been previously replaced with an incorrect part.
- Assurance of the correct replacement seal.

Throughout this catalogue there are recommendations to change seal designs where we believe we may stock a superior design of seal in specified applications. However, it must be pointed out that the recommended interchanges are superior in only those applications which have been specified, as the original seal may be suitable for use in a number of other applications as well.

Seal Installation

Care should be taken when fitting and assembling the selected seals, and the following general points should always be kept in mind:

- Ensure all metal parts are clean and free from contamination, burrs and sharp edges. Clean all seal housings.
- Where seals pass over threads or ports, some form of protective sleeve should be used.
- Check that the correct seal is being used.
- When fitting single acting seals, ensure that the pressure side of the seal is installed correctly.
- All parts, including the seal, should be well lubricated with either the operating fluid, or a compatible fitting grease during installation



Normal Operating Conditions

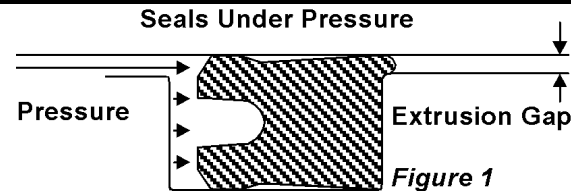
Pressure, Temperature, Speed & Surface Finish

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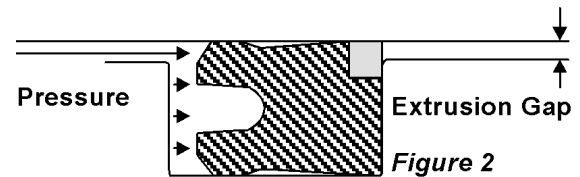
Fax : (08) 9458 5766

Pressure

The prime consideration of pressure and how it affects a specific seal is centered around both the extrusion resistance of the seal material, and the extrusion gap which the seal must bridge without extruding. If the extrusion gap is too large at a given pressure, the seal will flow into it, gradually nibbling away the heel of the seal as in *Figure 1*.



As the pressure increases either the extrusion gap must be reduced, increasing machining costs, or an alternative seal design must be looked at. By fitting a seal with pressure activated anti-extrusion devices such as in *Figure 2*, a larger extrusion gap may be maintained.



Temperature

The effects of temperature within a hydraulic system are many and varied. If the temperature is too low the seal will become brittle, and if the temperature is too high the seal will take a compression set more readily. Higher temperatures generally make the seal more susceptible to extrusion, and also affect the viscosity of the sealing media, increasing friction and reducing seal life.

Speed

Speed relates to the friction generated at the sealing surface, and as such affects a seals performance. At high speeds the oil film between the sealing surfaces and the seal itself may break down, causing the seal to run dry.

Surface Finish

The working life of a hydraulic seal is greatly influenced by the properties of the sealing surfaces against which it operates. Surface values can only be determined by a comparison of average surface roughness (**Ra**). The aim of all surface finishes is to provide a surface which causes the least wear to the seal.

Rod seals, which seal against moving surfaces, can be damaged by fine abrasive particles which may adhere to a rough surface. Rods therefore should have a low surface roughness value, and a surface similar to hard chrome. The ideal surface roughness for rods lies between **0.16µm (6.4µin)** and **0.40µm (16µin) Ra**.

Piston seals seal against the inner surface of a cylinder. They are not affected to the same extent by abrasive particles entering from the atmosphere, and can therefore have a rougher surface. The ideal surface roughness for bores lies between **0.25µm (10µin)** and **0.63µm (25µin) Ra**.

The surface finish for seal housings, where the seal is in static operation, should be about **1.6µm (63µin) Ra**.

How These Properties Affect Each Other

From many years of experience with sealing hydraulic equipment, we know that it is necessary to link the three main operating conditions of pressure, temperature and speed to achieve optimum seal performance. After carefully considering each product, we have been able to specify a maximum pressure and speed with a temperature range within which the seal will operate safely. If either the pressure or the speed are significantly lower than the stated maximums, it may be possible for the other features value to exceed its stated maximum without damaging the seal. However, it must be noted also that pressure is closely linked with extrusion, and those pressures stated within this catalogue assume that specified extrusion gaps have been conformed with. Please consult our technical department for these values.

The operating pressure of the system should also be taken into account when evaluating surface values. At higher operating pressures, the oil film between the seal and the sealing surface is thinner, resulting in greater friction. Under such conditions a surface roughness approaching the lower values given should be chosen.



Proprietary Materials

The following information is a brief description of the various materials specified throughout this catalogue. Speed and temperature ranges vary with brand and compound, and hence are listed for each specific seal throughout this catalogue.

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Group	Material	Key	Application
Rubber	Nitrile		Nitrile is the most widely used elastomer in the hydraulics industry. It has an excellent balance of desirable properties, with good resistance to mineral based hydraulic oil and many other media. See catalogue O2-97 for further information.
	Viton		
Rubberized Fabric	Nitrile & Fabric		This combines the properties of nitrile rubber with a cotton fabric for reinforcement, making a very wear resistant & robust sealing material.
P.T.F.E	Virgin		PTFE's are resistant to most chemicals, possess a very low coefficient of friction, and are capable of operating over a wide temperature range. Bronze and glass filled PTFE's are more resistant to extrusion than is virgin PTFE, and are generally used in preference to virgin P.T.F.E in high pressure hydraulic applications.
	15% Glass Filled		
	60% Bronze Filled		
Flexible Plastic	Polyurethane		In addition to being used for seals by themselves, these versatile materials are often incorporated into composite seals either as the sealing element itself, or as an anti-extrusion device. Using these materials in conjunction with one or more of the other materials listed on this page enables a seal to operate at higher pressures than would otherwise have been possible with a specific extrusion gap.
	Hythane®		
	Hytrel®		
	Polyester		
Rigid Plastics	Nylon		Rigid plastics do not usually seal themselves, but are incorporated into composite seals as both wear rings and anti-extrusion devices. The use of features such as these allows increased metal to metal clearances, and enables a seal to operate at higher pressures than would otherwise have been possible with a specific extrusion gap.
	Acetal		
	U.H.M.W.P.E		
Metals	Steel		Metals such as steel & brass are sometimes incorporated into parts to increase their rigidity. The best examples of this are the use of steel cases in press fit rod wipers, and in the outer ring of static face bonded seals.
	Brass		

The materials listed above cover the standard range of materials from which most seals are manufactured. Throughout this catalogue the profiles shown are shaded as per the key above. This is shown as a guide only to the standard materials from which each seal is usually produced. Should you have any queries beyond the scope of this guide, please do not hesitate to contact the technical staff at Transeals for specialist advice and assistance.



A.C.N. 008 902 163

Seal Kit Order Form	
Transeals Contact	Company
	Contact
Phone : (08) 9451 6011	Phone
Fax : (08) 9458 5766	Fax

This form has been provided to simplify the identification of seal kits from samples. We suggest you fax us a copy of this form, completed with as much information as is available for your seal kit. Cross out those sections which are not relevant for your application. Terminology and suggested measuring procedures are provided on page 6.

Thoroughly clean & dry all parts before you start. This will save a lot of time. Measure all parts in the order listed.

Make Of Equipment	Model Number
Country Of Manufacture	Kit Part Number
Operating Pressure & Conditions	

Type Of Cylinder Single Acting Double Acting Displacement
 Please tick where appropriate Hydraulic Pneumatic

1 Measure the actual rod size. Fill this figure in as $\varnothing d$ for sections 3, 4 & 6

2 Measure the actual bore size. Fill this figure in as $\varnothing D$ for sections 5 & 7

3	4	5	6	7
Rod Wiper Product Group	Rod Seal Product Group	Piston Seal Product Group	Rod Wear Ring Material	Piston Wear Ring Material
Style ~ Type	Style ~ Type	Style ~ Type	Style ~ Type	Style ~ Type
Markings	Markings	Markings	Markings	Markings
Quantity	Quantity	Quantity	Quantity	Quantity
$\varnothing d$	$\varnothing d$	$\varnothing D$	$\varnothing d$	$\varnothing D$
$\varnothing D$	$\varnothing D$	$\varnothing d$	C	C
h	or Heel Size	or Heel Size	or $\varnothing D$	or $\varnothing d$
or H	h	h	h	h
t	or H	or H	or H	or H
	L	L		
	$\varnothing W$	$\varnothing W$		

Note : L & $\varnothing W$ are only applicable for seals with incorporated wear rings. For separate wear rings fill in 6 & 7.

Note : Where two sizes are called for, such as $\varnothing D$ or Heel Size in 4, provide the first dimension if possible.

8	9	10	
O'rings (& BUW's if applicable) Note : O'rings are always specified by ID (internal diameter) x CS (cross-section) Specify quantity for BUW's (0 or 1)	Piston to Shaft ID CS BUW	Head to Bore ID CS BUW	Bore to Base ID CS BUW

Miscellaneous Other Parts



How To Specify Seals & Rod Wipers

One of the biggest problems with identifying seals is language, as everyone has a different name for any given part. To simplify this we have assigned the following terms to assist with the accurate specification of sizes on seals and rod wipers.

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Terminology

$\varnothing d$	Minor Diameter	$\varnothing D$	Major Diameter
h	Height Of Seal, Wiper or Wear Ring	H	Height Of Groove
$\varnothing W$	Wear Ring Groove Diameter	b	Cup Base Thickness
L	Wear Ring Groove Length	C	Radial Cross-section

Measuring Rod Wipers

- **Measure $\varnothing d$** Hint : Measure the actual rod diameter itself !
- **Measure $\varnothing D$** Hint : Measure the groove diameter in the housing itself !
- **Measure H or h** Note : Make sure you specify which one you measured !

Measuring Rod Seals

- **Measure $\varnothing d$** Hint : Measure the actual rod diameter itself !
- **Measure $\varnothing D$** Hint : Measure the groove diameter in the housing itself !

Note : If you are unable to get a measurement for $\varnothing D$, then as an alternative you can measure the heel of the seal. This should be measured on the non-pressure side of the seal, taking care to avoid any sealing lips. All drawings of single acting seals in this catalogue are shown with the non-pressure side to the top of the seal.

- **Measure H or h** Note : Make sure you specify which one you measured !

If your seal has incorporated wear rings, you should also do the following :

- **Measure L** Note : this is measured axially on the non-working side.
- **Measure $\varnothing W$** Alternatively : Measure the wear rings radial cross-section.

Measuring Piston Seals

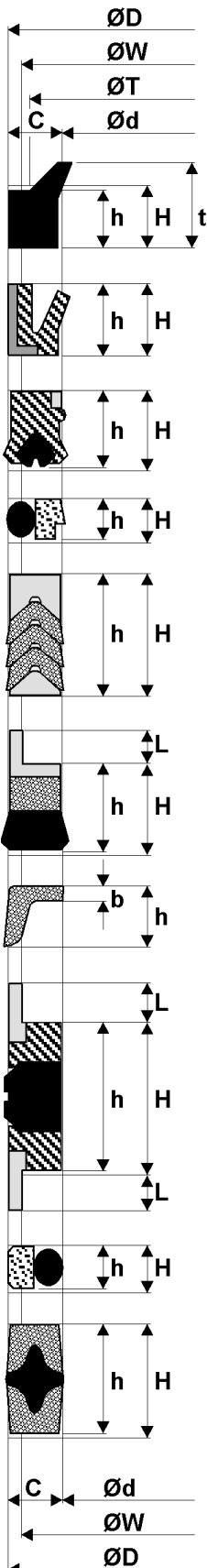
- **Measure $\varnothing D$** Hint : Measure the actual bore diameter itself !
- **Measure $\varnothing d$** Hint : Measure the actual groove on the piston itself !

Note : If you are unable to get an accurate measurement for $\varnothing d$, then as an alternative you can measure the heel of the seal. This can be measured at either end of the seal, taking care to avoid any sealing lips.

- **Measure H or h** Note : Make sure you specify which one you measured !

If your seal has incorporated wear rings, you should also do the following :

- **Measure L** Note : this is measured axially on the non-working side.
- **Measure $\varnothing W$** Alternatively : Measure the wear rings radial cross-section.

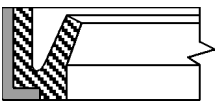

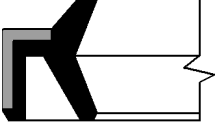
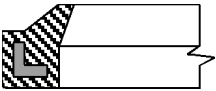




Wipers For Rod Applications Only

The following profiles of common rod wipers are for identification purposes only. No reference is given as to sizes stocked for any style or type. Please verify the availability for your required style~type and size at the design stage of production.
Phone : (08) 9451 6011 **Fax : (08) 9458 5766**

Press Fit Wiper Designs

Profile	Style~Type	Also Known As Temperature Range
	J ~	MCW & 424 -25°C to 90°C
	MCW ~	-40°C to 110°C
	MCW ~	DKB, 905 & 913 -25°C to 90°C
	MPW ~ & MMPW ~	MCW & 32 -25°C to 80°C

Product Group

General Data

Metal Cased Wipers

Standard Size Ranges

- Style J : Imperial Sizes only
- Style MCW : Imperial & Metric Sizes
- Style MCW (DKB) : Metric Sizes Only
- Style MPW : Imperial Sizes
- Style MMPW : Metric Sizes

Standard Construction

- Type J**
Steel Cased Polyurethane
- Type MCW**
Steel Cased Nitrile
- Type MCW (DKB)**
Steel Cased Nitrile or Polyurethane
- Type MPW & Type MMPW**
Hythane® Cased Steel

Application

One of the most important factors affecting seal life in hydraulic and pneumatic rams is the exclusion of contamination from the operating system. This is achieved primarily through the use of rod wipers and rod scrapers. When selecting a rod wiper or rod scraper for a new design, you should keep in mind that it must be both compatible with the systems operating fluid, and capable of operating within the desired temperature range.

Advantages

The machining processes required for press-fit metal cased types are significantly simpler than those for snap-in types. The time saved in the machine shop may make a metal cased wiper the most cost effective option available. No contamination can pass around the outside of a press fit wiper design.



Wipers For Rod Applications Only

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Snap-in Scraper Designs

Profile	Style~Type	Also Known As Temperature Range	Product Group
			General Data
	RRI ~ Z-N7 & RRM ~ Z-N7	-40°C to 110°C	<h3>Scrapers</h3> <p>Standard Size Ranges Style RRI : Imperial Sizes Style RRM : Metric Sizes Style CSW : Imperial Sizes Style CSWM : Metric Sizes Style HSSM : Metric Sizes Only</p> <p>Standard Construction Type Z & Type Y Scraper Ring : Bronze Filled PTFE Energizer : Nitrile Rubber</p> <p>NB: As the temperature range is governed by the elastomer used for the energizer, a higher rating may be achieved by specifying a non standard elastomer such as viton.</p> <p>Type CSW & Type CSWM Nylon Type S34 Scraper Ring : Brass Energizers : Nitrile</p> <p>Application One of the most important factors affecting seal life in hydraulic and pneumatic rams is the exclusion of contamination from the operating system. This is achieved primarily through the use of rod wipers and rod scrapers. When selecting a rod wiper or rod scraper for a new design, you should keep in mind that it must be both compatible with the systems operating fluid, and capable of operating within the desired temperature range.</p> <p>Advantages Scrapers are very heavy duty rod wipers designed for extreme applications, where media such as ice or mud need to be removed from the shaft. Type Z & Type Y are recommended for all new scraper applications.</p>
	RRI ~ Y-N7 & RRM ~ Y-N7	-40°C to 110°C	
	CSW ~ & CSWM ~	35 -40°C to 100°C	
	HSSM ~	-40°C to 100°C	
	S34 ~	-40°C to 110°C	



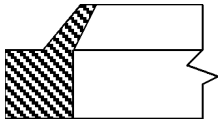
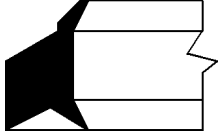
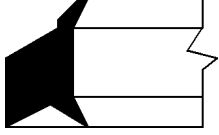
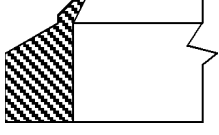

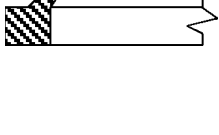
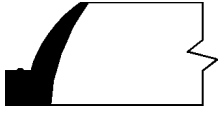
Wipers For Rod Applications Only

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Snap-in Wiper designs

Profile	Style~Type	Also Known As Temperature Range
	U ~	D & 520 -30°C to 100°C
	NK ~ & NK ~ A	W, K & 41 -40°C to 110°C
	VK ~ & VK ~ A	-35°C to 205°C
	UK ~	K & 841 -30°C to 100°C
	H ~ N8 & H ~ U9	86 & 425 -30°C to 100°C
	AN ~	940, 959 & 421 -30°C to 100°C
	WO ~	PWO, 33 & 840 -40°C to 110°C

Product Group

General Data

Rod Wipers

Standard Size Ranges

Style U : Imperial Sizes Only
Style NK : Imperial Sizes Only
Style VK : Imperial Sizes Only
Style UK : Imperial Sizes Only
Style H : Imperial Sizes Only
Style AN : Imperial Sizes Only
Style WO : Imperial Sizes Only

Standard Construction

Style U : Urethane
Style NK : Nitrile
Style VK : Viton
Style UK : Urethane
Style H : Urethane
Style AN : Urethane
Style WO : Nitrile or Hythane®

Application

One of the most important factors affecting seal life in hydraulic and pneumatic rams is the exclusion of contamination from the operating system. This is achieved primarily through the use of rod wipers and rod scrapers. When selecting a rod wiper or rod scraper for a new design, you should keep in mind that it must be both compatible with the systems operating fluid, and capable of operating within the desired temperature range.



Wipers For Rod Applications Only

The following profiles of common rod wipers are for identification purposes only. No reference is given as to sizes stocked for any style or type. Please verify the availability for your required style-type and size at the design stage of production.

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Snap-in Wiper designs

Profile	Style~Type	Also Known As Temperature Range	Product Group	
			General Data	
	AA ~	A1, PWF & 834 -30°C to 100°C	Standard Size Ranges Style AA : Metric Sizes Only Style WM : Metric Sizes Only Style MW : Metric Sizes Only Style JDH : Metric Sizes Only Style EW : Imperial & Metric Sizes Style A6 : Metric Sizes Only Style RSC : Imperial Sizes Only Style DK : Metric Sizes Only Standard Construction Style AA : Urethane Style WM : Nitrile Style MW : Urethane or Nitrile Style JDH : Urethane Style EW : Nitrile Style A6 : Urethane Style RSC : Nitrile Style DK : Nitrile Application One of the most important factors affecting seal life in hydraulic and pneumatic rams is the exclusion of contamination from the operating system. This is achieved primarily through the use of rod wipers and rod scrapers. When selecting a rod wiper or rod scraper for a new design, you should keep in mind that it must be both compatible with the systems operating fluid, and capable of operating within the desired temperature range.	
	WM ~	-40°C to 110°C		
	MW ~	WRM & PW -30°C to 100°C		
	JDH ~	DH & 839 -30°C to 100°C		
	EW ~	PWS & WRS -40°C to 110°C		
	A6 ~	-30°C to 100°C		
	RSC ~	PWB, LDW & 36 -40°C to 110°C		
	DK ~	MDK -40°C to 110°C		



Seals For Rod Applications Only

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Asymmetrical Single Acting Designs

Profile	Style ~ Type	Maximum Pressure Temperature Range Maximum Speed	Product Group
General Data			
Urethane U'rings			
Standard Size Ranges			
Style UUI : Imperial Sizes			
Style UUM : Metric Sizes			
Standard Construction			
Type 621			
U'ring : Hythane®			
Energizer : Nitrile			
AE Ring : Acetal			
Type 605, Type 610 & Type 616			
U'ring : Hythane®			
Application			
These are medium to heavy duty hydraulic seals to suit rod applications only. They all possess a twin lip design, ensuring primary lip protection and increased stability.			
The Type 621 u'ring is the premier rod seal on the market. It combines the energized attributes of the u'rings on page 14, together with a twin lip design and an acetal anti-extrusion ring for higher pressures and larger tolerances. They are ideal for use in steel glands with inserted nylon wear rings.			
Interchanges			
Where size permits, Type 621 & Type 605 are recommended as a replacement for all u'rings being used in rod applications.			
Energized Rod Rings			
Standard Size Ranges			
Style RRI : Imperial Sizes			
Style RRM : Metric Sizes			
Standard Construction			
Rod Ring : Bronze Filled PTFE			
Energizer : Nitrile Rubber			
NB: As the temperature range is governed by the elastomer used for the energizer, a higher rating may be achieved by specifying a non standard elastomer such as viton.			
Application			
Energized PTFE rod rings provide a low friction seal, capable of being installed in an economic space saving housing. Due to the variety of energizers available, they can be used in most fluids over a wide range of temperatures.			
	UUI ~ 621 & UUM ~ 621	7000 psi : 50000 kPa -40°C to 110°C 0.5 m/sec : 1.5 ft/sec	
	UUI ~ 605 & UUM ~ 605	6000 psi : 40000 kPa -40°C to 110°C 0.5 m/sec : 1.5 ft/sec	
	UUM ~ 610	6000 psi : 40000 kPa -40°C to 110°C 0.5 m/sec : 1.5 ft/sec	
	UUM ~ 616	4000 psi : 30000 kPa -40°C to 110°C 0.5 m/sec : 1.5 ft/sec	
	RRI ~ S-N7 & RRM ~ S-N7	5000 psi : 35000 kPa -40°C to 110°C 4.0 m/sec : 12 ft/sec	



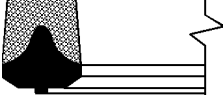
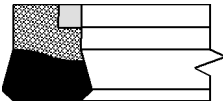
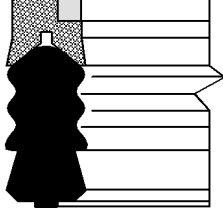
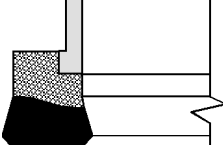
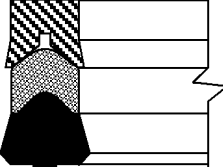
Seals For Rod Applications Only


The following profiles of common seals are for identification purposes only. No reference is given as to sizes stocked for any style or type. Please verify the availability for your required style-type and size at the design stage of production.

Phone : (08) 9451 6011

Fax : (08) 9458 5766

Asymmetrical & Symmetrical Single Acting Designs

Profile	Style ~ Type	Maximum Pressure Temperature Range Maximum Speed
	R ~ K	4000 psi : 30000 kPa -30°C to 100°C 0.5 m/sec : 1.5 ft/sec
	S ~ I & SM ~ I	5000 psi : 35000 kPa -30°C to 100°C 0.5 m/sec : 1.5 ft/sec
	S ~ HD & SM ~ HD	10000 psi : 70000 kPa -30°C to 100°C 0.5 m/sec : 1.5 ft/sec
	SAL ~	OEM Replacement Not Recommended For New Applications
	SAS ~	OEM Replacement Not Recommended For New Applications

	DI ~ & DIM ~	2000 psi : 15000 kPa -30°C to 100°C 1.0 m/sec : 3.0 ft/sec
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Product Group

General Data

Rubberized Fabric

Standard Size Ranges

Style S : Imperial Sizes
Style SM : Metric Sizes
Style R : Metric & Imperial Sizes
Style SAL & Style SAS : Edbro Hoist Sizes

Standard Construction

Type K
U'ring : Nitrile Impregnated Fabric
Energizer : Nitrile Rubber

Type I
Header : Nitrile Impregnated Fabric
Energizer : Nitrile Rubber
Anti-Extrusion Ring : Acetal

Type HD
Header : Hytrel or Impregnated Fabric
Energizer : Nitrile Rubber
Anti-Extrusion Ring : Acetal

Style SAL
Header : Nitrile Impregnated Fabric
Energizer : Nitrile Rubber
Anti-Extrusion Wear Ring : Acetal

Style SAS
Header : Hytrel
U'ring : Nitrile Impregnated Fabric
Energizer : Nitrile Rubber

Application

Type I & Type HD
These designs make use of pressure activated anti-extrusion rings, allowing them to operate at higher pressures and with wider tolerances than would be possible without them. They are ideal for use in steel glands with inserted nylon wear rings. Type HD has been designed to operate in extreme conditions, where vibrations and shock loads can occur.

Rubber U'rings

Standard Size Ranges

Style DI : Imperial Sizes
Style DIM : Metric Sizes

Standard Construction

Nitrile

Application

Pneumatic & Low Pressure Hydraulic Only



Seals For Rod Applications Only

The following profiles of common seals are for identification purposes only. No reference is given as to sizes stocked for any style or type. Please verify the availability for your required style~type and size at the design stage of production.

Phone : (08) 9451 6011

Fax : (08) 9458 5766

Asymmetrical Double Acting Designs

Profile	Style ~ Type	Maximum Pressure Temperature Range Maximum Speed	Product Group
			General Data

	RRI ~ B-N7 & RRM ~ B-N7	5000 psi : 35000 kPa -40°C to 110°C 4.0 m/sec : 12 ft/sec
	RRI ~ P-N7 & RRM ~ P-N7	5000 psi : 35000 kPa -40°C to 110°C 4.0 m/sec : 12 ft/sec

Energized Rod Rings
Standard Size Ranges
Style RRI : Imperial Sizes
Style RRM : Metric Sizes
Standard Construction
Rod Ring : Bronze Filled PTFE
Energizer : Nitrile Rubber
NB: As the temperature range is governed by the elastomer used for the energizer, a higher rating may be achieved by specifying a non standard elastomer such as viton.
Application
Double acting PTFE rod rings provide a low friction seal and are often used in tandem with Type S single acting PTFE rod rings. Refer to page 11 for details.

	TR ~	2500 psi : 1750 kPa -40°C to 110°C 0.5 m/sec : 1.5 ft/sec
--	------	---

O'ring Groove Seals
Standard Size Ranges
Style TR : Imperial Sizes Only
Standard Construction
Sealing Element : Nitrile
Anti-Extrusion Rings : PTFE
Application
Double acting rod seal to suit standard AS & BS o'ring grooves.

Notes



Seals For Rod & Piston Applications

The following profiles of common seals are for identification purposes only. No reference is given as to sizes stocked for any style or type. Please verify the availability for your required style-type and size at the design stage of production.

Phone : (08) 9451 6011

Fax : (08) 9458 5766

Symmetrical Single Acting Designs

Profile	Style ~ Type	Maximum Pressure Temperature Range Maximum Speed
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	UUI ~ STD	5000 psi : 35000 kPa -40°C to 110°C 0.5 m/sec : 1.5 ft/sec
	UUI ~ B	5000 psi : 35000 kPa -40°C to 110°C 0.5 m/sec : 1.5 ft/sec
	UUI ~ SQB	5000 psi : 35000 kPa -40°C to 110°C 0.5 m/sec : 1.5 ft/sec
	UUI ~ DP	5000 psi : 35000 kPa -40°C to 110°C 0.5 m/sec : 1.5 ft/sec
	UUI ~ Z	5000 psi : 35000 kPa -40°C to 110°C 0.5 m/sec : 1.5 ft/sec
	UUI ~ 601 & UUM ~ 601	5000 psi : 35000 kPa -40°C to 110°C 0.5 m/sec : 1.5 ft/sec

Product Group

General Data

Urethane U'rings

Standard Size Ranges

Style UUI : Imperial Sizes

Style UUM : Metric Sizes

Standard Construction

Type STD, Type B, Type SQB,
Type DP & Type Z

U'ring : Polyurethane

Energizer : Nitrile

Specialized materials available on request

Type 601

Hythane®

Application

These are a range of extremely versatile seals to suit American grooves in a wide variety of applications. As there are asymmetrical seals with superior performance to fit the same grooves in many cases, it is recommended that the following interchanges should be made if possible.

Interchanges

Where availability permits, the following interchanges are recommended :

Type B, Type DP, & Type 601.

Rod Applications

Replace with **Type 621** or **Type 605**

Refer to page 11 for details.

Single Acting Piston Applications

Replace with **Type 606.**

Refer to page 17 for details.

Design

**Type STD, Type B, Type SQB,
Type DP & Type Z**

These seals consist of a polyurethane u'ring to which is fitted a nitrile energizer. The energizer provides loading on the sealing lips at low pressures, and increases this loading proportionately to increasing pressure. Types B, DP, & Z, all have a radial length that exceeds their cross section. This improves the stability of the seals, making spiral twist less likely. The back bevelled sealing lips on Types B & SQB, provide a greater loading force, making Type B the most versatile of all these types.



Seals For Rod & Piston Applications

The following profiles of common seals are for identification purposes only. No reference is given as to sizes stocked for any style or type. Please verify the availability for your required style~type and size at the design stage of production.

Phone : (08) 9451 6011

Fax : (08) 9458 5766

Symmetrical Single Acting Designs

Profile	Style ~ Type	Maximum Pressure Temperature Range Maximum Speed
	R ~ S	7000 psi : 48000 kPa -30°C to 100°C 0.5 m/sec : 1.5 ft/sec
	S ~ & SM ~	3000 psi : 21000 kPa -30°C to 100°C 0.5 m/sec : 1.5 ft/sec
	R ~ W	Wear Ring

	U ~	1000 psi : 7500 kPa -30°C to 100°C 1.0 m/sec : 3.0 ft/sec
	84 ~	800 psi : 6000 kPa -30°C to 100°C 1.0 m/sec : 3.0 ft/sec
	U ~ & UM ~	2000 psi : 15000 kPa -30°C to 100°C 1.0 m/sec : 3.0 ft/sec

Product Group

General Data

Rubberized Fabric

Standard Size Ranges
 Style R : Imperial & Metric Sizes
 Style S : Imperial Sizes
 Style SM : Metric Sizes

Standard Construction
 Energizer : Nitrile Rubber
 Headers : Nitrile Impregnated Fabric
 Wear Rings : Acetal

Design
Type S
 The seal consists of a nitrile rubber center to which is bonded a nitrile impregnated fabric u'ring. The seal is compressed in the groove to provide an effective low pressure seal. As the pressure increases, the rubber center energizes the u'ring, increasing the sealing area and improving the seal.

Type W
 Type W is an acetal wear ring to be used in conjunction with Type S & Type P when being used in piston applications.

Rubber U'rings

Standard Size Ranges
 Style U : Imperial Sizes
 Style 84 : Imperial Sizes
 Style UM : Metric Sizes

Standard Construction
 Nitrile

Application
 Pneumatic & Low Pressure Hydraulic Only.
 Note : A higher pressure rating may be specified when rubber u'rings are used in conjunction with PTFE BUW's

Interchanges
 When being used in hydraulic applications and when size permits, urethane u'rings such as those on pages 11, 14 & 17 are often suitable replacements for these seals.



Seals For Rod & Piston Applications

The following profiles of common seals are for identification purposes only. No reference is given as to sizes stocked for any style or type. Please verify the availability for your required style-type and size at the design stage of production.
Phone : (08) 9451 6011 **Fax : (08) 9458 5766**

Symmetrical Vee Pack Designs

Profile	Style ~ Type	Maximum Pressure Temperature Range Maximum Speed
	V ~ T	Top Adapter
	V ~ V	Fabric Vee
	V ~ S	Soft Vee
	V ~ B	Bottom Adapter
	V ~ H	Dri-rod Header Rod Use Only
	V ~ 3VTB & VM ~ 3VTB	7000 psi : 50000 kPa -30°C to 100°C 0.5 m/sec : 1.5 ft/sec
	V ~ 2VTH & VM ~ 2VTH	10000 psi : 70000 kPa -30°C to 100°C 0.5 m/sec : 1.5 ft/sec Rod Use Only
	VM ~ T11	6000 psi : 40000 kPa -30°C to 100°C 0.5 m/sec : 1.5 ft/sec
	VM ~ T13	10000 psi : 70000 kPa -30°C to 100°C 0.5 m/sec : 1.5 ft/sec
	VM ~ T51	10000 psi : 70000 kPa -30°C to 100°C 0.5 m/sec : 1.5 ft/sec Piston Use Only

Product Group

General Data

Vee packs

Standard Size Ranges

Style V : Imperial Sizes
Available as components and packs.
Style VM : Metric Sizes
Available as packs only.

Standard Construction

Type T
Acetal or Nitrile Impregnated Fabric
Type V
Nitrile Impregnated Fabric
Type S
Nitrile Rubber
Type B
Acetal or Nitrile Impregnated Fabric
Type H
Header : Nitrile Impregnated Fabric
Energizer : Nitrile Rubber
All Others

Made up from various combinations of the components listed above.

Application

Type H & Type 2VTH

The Type H dri-rod headers are actually a single acting seal that can be fitted into the bottom of a vee pack when being used in a rod applications. Because the seal is pressure activated there is no need for pre-loading of the vee pack, so they can be fitted to non-adjustable housings with end float. Designs containing a dri-rod header such as the Type 2VTH, are highly recommended for high pressure rod applications where shock, vibration & misalignment can occur.

Type 11 & Type 13

These are mechanically activated rod seals that fit European standard housings. Both types are recommended in high pressure applications where shock, pressure surges, and vibration can occur.

Advantages

- **Extremely Heavy Duty & Rugged**
- **Can Withstand Pressure Surges**
- **Reliable Performance In Poor Or Marginal Sealing Conditions**
- **Rarely Fail Without Warning**



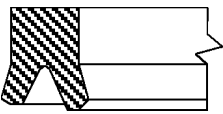


Seals For Piston Applications Only

The following profiles of common seals are for identification purposes only. No reference is given as to sizes stocked for any style or type. Please verify the availability for your required style~type and size at the design stage of production.

Phone : (08) 9451 6011

Fax : (08) 9458 5766

Asymmetrical Single Acting Designs

Profile	Style ~ Type	Maximum Pressure Temperature Range Maximum Speed	Product Group General Data
	UUI ~ 606 & UUM ~ 606	6000 psi : 40000 kPa -40°C to 110°C 0.5 m/sec : 1.5 ft/sec	<h3>Urethane U'rings</h3> <p>Standard Size Ranges Style UUI : Imperial Sizes Style UUM : Metric Sizes</p> <p>Standard Construction Hythane®</p> <p>Application A low friction, high performance seal to suit American grooves, they are for use on solid or split pistons. Due to hythanes versatile characteristics, Type 606 u'rings are also suitable for pneumatic applications.</p> <p>Interchanges Where size permits, Type 606 u'rings are recommended as a replacement for all urethane and rubber u'rings being used in single acting piston applications.</p>
	PRI ~ S-N7 & PRM ~ S-N7	5000 psi : 35000 kPa -40°C to 110°C 4.0 m/sec : 12 ft/sec	<h3>Energized Piston Rings</h3> <p>Standard Size Ranges Style PRI : Imperial Sizes Style PRM : Metric Sizes</p> <p>Standard Construction Piston Ring : Bronze Filled PTFE Energizer : Nitrile Rubber</p> <p>NB: As the temperature range is governed by the elastomer used for the energizer, a higher rating may be achieved by specifying a non standard elastomer such as viton.</p> <p>Application Energized PTFE piston rings provide a low friction seal, capable of being installed in an economic space saving housing. They can be used in most fluids over a wide range of temperatures.</p>
	DE ~ & DEM ~	2000 psi : 15000 kPa -30°C to 100° C 1.0 m/sec : 3.0 ft/sec	<h3>Rubber U'rings</h3> <p>Standard Size Ranges Style DE : Imperial Sizes Style DEM : Metric Sizes</p> <p>Standard Construction Nitrile</p> <p>Application Pneumatic & Low Pressure Hydraulic Only</p>



Seals For Piston Applications Only

The following profiles of common seals are for identification purposes only. No reference is given as to sizes stocked for any style or type. Please verify the availability for your required style-type and size at the design stage of production.

Phone : (08) 9451 6011

Fax : (08) 9458 5766

Asymmetrical Single Acting Designs

Profile	Style~Type	Maximum Pressure Temperature Range Maximum Speed
	S ~ E & SM ~ E	5000 psi : 35000 kPa -30°C to 90°C 0.5 m/sec : 1.5 ft/sec
	S ~ PW & SM ~ PW	5000 psi : 35000 kPa -30°C to 90°C 0.5 m/sec : 1.5 ft/sec
	S ~ GPE & SM ~ GPE	5000 psi : 35000 kPa -30°C to 90°C 0.5 m/sec : 1.5 ft/sec
	S ~ GPW & SM ~ GPW	5000 psi : 35000 kPa -30°C to 90°C 0.5 m/sec : 1.5 ft/sec
	SM ~ 52	8500 psi : 60000 kPa -30°C to 90°C 0.5 m/sec : 1.5 ft/sec
	S~R & SM~R	Retaining Ring

	P27 ~	OEM Replacement Not Recommended For New Applications
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	Various ~	Superseded Design Not Recommended For New Applications
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Product Group

General Data

Rubberized Fabric

Standard Size Ranges

Style S : Imperial Sizes

Style SM : Metric Sizes

Standard Construction

Type E & Type GPE

Header : Nitrile Impregnated Fabric

Energizer : Nitrile Rubber

Anti-Extrusion Ring : Acetal

Type PW & Type GPW

Header : Nitrile Impregnated Fabric

Energizer : Nitrile Rubber

Anti-Extrusion Wear Ring : Acetal

Type 52

Nitrile Impregnated Fabric

Type R

Acetal

Application

Type E, Type GPE, Type PW & Type GPW

These designs make use of pressure activated anti-extrusion rings and wear rings, allowing them to operate at higher pressures with wider tolerances than would be possible without them. The use of incorporated wear rings in Type PW & Type GPW allows for a more compact piston.

Advantages

- Fitted With Pressure Activated Anti-Extrusion Rings & Wear Rings For Better Resistance To Extrusion

JIS Piston Seals

Standard Size Ranges

Style P27 : Metric Sizes

Standard Construction

Header : Nylon

Element : Nitrile

Cup Seals

Standard Size Ranges

All Styles : Imperial Only

Standard Construction

Nitrile Rubber, Polyurethane &

Nitrile Rubber Impregnated Fabric



Seals For Piston Applications Only

The following profiles of common seals are for identification purposes only. No reference is given as to sizes stocked for any style or type. Please verify the availability for your required style~type and size at the design stage of production.
Phone : (08) 9451 6011 **Fax : (08) 9458 5766**

Double Acting Piston Ring Designs : For Solid Pistons

Profile	Style ~ Type	Maximum Pressure Temperature Range Maximum Speed
	PRI ~ SG-N7	5000 psi : 35000 kPa -40°C to 110°C 4.0 m/sec : 12 ft/sec
	PRI ~ RG-N7	5000 psi : 35000 kPa -40°C to 110°C 4.0 m/sec : 12 ft/sec
	PRI ~ KCN	5000 psi : 35000 kPa -40°C to 110°C 4.0 m/sec : 12 ft/sec
	PRI ~ B-N7 & PRM ~ B-N7	5000 psi : 35000 kPa -40°C to 110°C 4.0 m/sec : 12 ft/sec
	PRI ~ BO-N7 & PRM~BO-N7	5000 psi : 35000 kPa -40°C to 110°C 2.0 m/sec : 6.0 ft/sec
	PRI ~ P-N7 & PRM ~ P-N7	5000 psi : 35000 kPa -40°C to 110°C 4.0 m/sec : 12 ft/sec
	754 ~	3000 psi : 21000 kPa -40°C to 110°C 1.0 m/sec : 3.0 ft/sec
	755 ~	3000 psi : 21000 kPa -40°C to 110°C 1.0 m/sec : 3.0 ft/sec
	SPGT ~	7000 psi : 50000 kPa -30°C to 100°C 1.5 m/sec : 4.5 ft/sec

Product Group

General Data

Energized Piston Rings

Standard Size Ranges

Style PRI & Style 755 : Imperial Sizes
 Style PRM & Style 754 : Metric Sizes
 Style SPGT : Metric Sizes

Standard Construction

Type SG-N7 & Type RG-N7
 Piston Ring : Glass Filled PTFE
 Energizer : Nitrile Rubber

NB: As the temperature range is governed by the elastomer used for the energizer, a higher rating may be achieved by specifying a non standard elastomer such as viton.

Type KCN
 Piston Ring : Carbon & Glass Filled PTFE
 Energizer : Nitrile Rubber

Type B-N7, Type P-N7 & Type BO-N7
 Piston Ring : Bronze Filled PTFE
 Energizer : Nitrile Rubber

NB: As the temperature range is governed by the elastomer used for the energizer, a higher rating may be achieved by specifying a non standard elastomer such as viton.

Style 754 & Style 755
 Piston Ring : Polyester
 Energizer : Nitrile

Style SPGT
 Piston Ring : Carbon & Glass Filled PTFE
 Energizer : Nitrile Rubber
 Anti-Extrusion Rings : Acetal

Application

Energized PTFE piston rings provide a low friction seal, capable of being installed in an economic space saving housing. Due to the variety of energizers available, they can be used in most fluids over a wide range of temperatures. They should be used where pressure is applied alternately or simultaneously to each side of the seal. If pressure is only being applied to one side of the seal, a uni-directional seal such as Type S-N7 should be used. Refer to page 17.

Advantages

- Simple Groove Profile
- Compatible With Most Fluids *
- Wide Temperature Range *

* dependent on choice of energizer



Seals For Piston Applications Only

The following profiles of common seals are for identification purposes only. No reference is given as to sizes stocked for any style or type. Please verify the availability for your required style-type and size at the design stage of production.

Phone : (08) 9451 6011

Fax : (08) 9458 5766

“R & F” Double Acting Designs : For Solid & Split Pistons

Profile	Style ~ Type	Maximum Pressure Temperature Range Maximum Speed	Product Group
General Data			
	R ~ SD	7000 psi : 50000 kPa -30°C to 100°C 0.5 m/sec : 1.5 ft/sec	Rubberized Fabric For Split Pistons
Standard Size Ranges			
Style R : Imperial & Metric Sizes			
Style D : Imperial Sizes			
Style DM : Metric Sizes			
Standard Construction			
Energizer : Nitrile Rubber			
Headers : Nitrile Impregnated Fabric			
Wear Rings : Acetal			
Application			
These are medium to heavy duty seals of a very robust design, and should be used in split piston applications over a wide variety of conditions.			
Design			
Type SD			
The seal consists of a nitrile rubber center to which is bonded two nitrile impregnated fabric u'rings. The seal is compressed in the groove to provide an effective low pressure seal. As the pressure increases, the rubber center energizes the u'rings, increasing the sealing area and improving the seal.			
Type SDW			
This Seal consists of a Type SD seal to which is added two “L” shaped acetal wear rings. This enables the designer to use increased metal clearances and, with the integral bearings, to restrict the pistons overall length.			
	R ~ SDW	10000 psi : 70000 kPa -30°C to 100°C 0.5 m/sec : 1.5 ft/sec	
	D ~ FW & DM ~ FW	5000 psi : 35000 kPa -30°C to 100°C 0.5 m/sec : 1.5 ft/sec	
	D ~ MDL & DM ~ MDL	5000 psi : 35000 kPa -30°C to 100°C 0.5 m/sec : 1.5 ft/sec	Rubberized Fabric For Solid Pistons
Standard Size Ranges			
Style D : Imperial Sizes			
Style DM : Metric Sizes			
Standard Construction			
Energizer : Nitrile Rubber			
Outer Lamina : Nitrile Impregnated Fabric			
Wear Rings : Acetal			

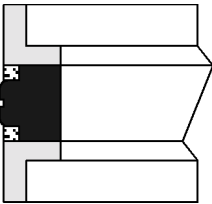


Seals For Piston Applications Only

The following profiles of common seals are for identification purposes only. No reference is given as to sizes stocked for any style or type. Please verify the availability for your required style~type and size at the design stage of production.
Phone : (08) 9451 6011 **Fax : (08) 9458 5766**

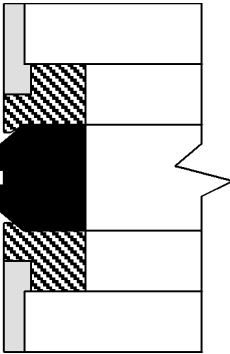
5-Part Double Acting Designs : For Solid Pistons

Profile	Style ~ Type	Maximum Pressure Temperature Range Maximum Speed	Product Group
General Data			
5 Part Piston Seals			
Standard Size Ranges			
Style D : Imperial Sizes Style DM : Metric Sizes			
Standard Construction			
Type 5P (Compact)			
Inner Sealing Element : Nitrile Rubber Anti-Extrusion Rings : PTFE Wear Rings : Acetal			
Type 5P (Standard) & Type HD			
Inner Sealing Element : Nitrile Rubber Anti-Extrusion BUW's: Hytrel Anti-Extrusion Wear Rings : Acetal			
Type E			
Inner Sealing Element : Nitrile Rubber Anti-Extrusion BUW's: Hytrel Anti-Extrusion Rings : Acetal			
Application			
These are medium to heavy duty seals of a very versatile design, and can be used in either solid or split piston applications over a wide variety of conditions.			
Design			
Type 5P & Type HD			
These seals consist of a nitrile rubber sealing element, to which is fitted either endless PTFE anti-extrusion rings, or HYTREL anti-extrusion back up washers split at 45° to allow fitting. These are then fitted with split ACETAL anti-extrusion wear rings. The design of these seals allows anti-extrusion rings, BUW's and wear rings, to react to increasing pressures.			
As a result, the final assembly gives a robust sealing unit capable of operating efficiently at high pressures. Type HD is a heavy duty version for extreme pressures and arduous conditions.			
Advantages			
<ul style="list-style-type: none"> • One Part Steel Piston Simple & Cost Effective To Manufacture • Very Easy To Fit • Fitted With Pressure Activated Anti-Extrusion Header & Wear Rings For Better Resistance To Extrusion 			



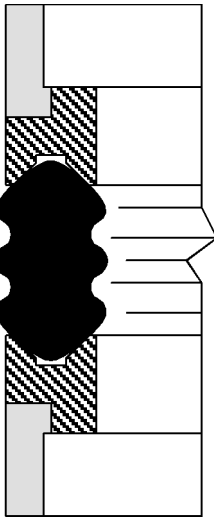
**D ~ 5P
&
DM ~ 5P
(Compact)**

**3000 psi : 21000 kPa
-30° C to 90° C
0.5 m/sec : 1.5 ft/sec**



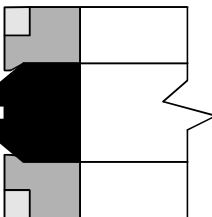
**D ~ 5P
&
DM ~ 5P
(Standard)**

**5000 psi : 35000 kPa
-30° C to 90° C
0.5 m/sec : 1.5 ft/sec**



**D ~ HD
&
DM ~ HD**

**10000 psi : 70000 kPa
-30° C to 90° C
0.5 m/sec : 1.5 ft/sec**



**D ~ E
&
DM ~ E**

**5000 psi : 35000 kPa
-30° C to 90° C
0.5 m/sec : 1.5 ft/sec**



Seals For Piston Applications Only

The following profiles of common seals are for identification purposes only. No reference is given as to sizes stocked for any style or type. Please verify the availability for your required style-type and size at the design stage of production.

Phone : (08) 9451 6011

Fax : (08) 9458 5766

Compact Double Acting Designs : For Solid Pistons

Profile	Style ~ Type	Maximum Pressure Temperature Range Maximum Speed
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	TR ~	3750 psi : 25000 kPa -10° C to 100° C 0.5 m/sec : 1.5 ft/sec
	JS ~	2750 psi : 20000 kPa -10° C to 100° C 0.5 m/sec : 1.5 ft/sec

	TP ~	2500 psi : 17500 kPa -40°C to 110°C 0.5 m/sec : 1.5 ft/sec
	PDA ~	3000 psi : 21000 kPa -40°C to 110°C 0.5 m/sec : 1.5 ft/sec
	770 ~	3000 psi : 21000 kPa -40°C to 110°C 1.0 m/sec : 3.0 ft/sec
	CP ~	3000 psi : 21000 kPa -40°C to 110°C 0.5 m/sec : 1.5 ft/sec

Product Group

General Data

Medium Duty Seals

Standard Size Ranges

Style TR & Style JS : Imperial Sizes Only

Standard Construction

Style TR

Sealing Element : Nitrile

Anti-Extrusion Back Up Washers : Hytrel

Style JS

Sealing Element : Nitrile

Back Up Washers : Bronze Filled PTFE

Interchanges

Where availability permits, the following interchanges are recommended.

Double Acting Piston Applications

Use Style TR in preference to Style JS.

Single Acting Piston Applications

Replace with Type 606. Refer to page 17.

Rod Applications (Type JS Only)

Replace with a Type 621 or Type 605 u'ring. Refer to page 11 for details.

O'ring Groove Seals

Standard Size Ranges

All Styles : Imperial Sizes Only

Standard Construction

Style PDA

Outer Lamina : 92 Duro Polyurethane

Inner Lamina : 57 Duro Polyurethane

Style TP

Sealing Element : Nitrile

Anti-Extrusion Rings : PTFE

Style 770

Piston Ring : Polyester

Energizer : Nitrile

Style CP

Energizer : Nitrile

Outer Sealing Ring : Polyurethane

Application

These seals are designed to be installed in American Standard and British Standard o'ring grooves. They can be used in applications where, due to excessive pressures or extrusion gaps, an o'ring is not appropriate.



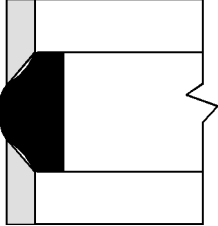
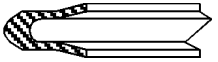
Seals For Piston Applications Only

The following profiles of common seals are for identification purposes only. No reference is given as to sizes stocked for any style or type. Please verify the availability for your required style~type and size at the design stage of production.

Phone : (08) 9451 6011

Fax : (08) 9458 5766

Miscellaneous Double Acting Designs : For Solid Pistons

Profile	Style ~ Type	Maximum Pressure Temperature Range Maximum Speed	Product Group General Data
	DS ~ & DSM ~	2100 psi : 14000 kPa -10°C to 100°C 0.5 m/sec : 1.5 ft/sec	Delta Seals Standard Size Ranges Style DS : Imperial Sizes Style DSM : Metric Sizes Standard Construction Nitrile Sealing Element Acetal AE Wear Rings
	608 ~	-40°C to 110°C 1.0 m/sec : 3 ft/sec	Pneumatic Piston Seals Standard Size Ranges Style 608 : Metric Sizes Standard Construction Hythane® Design Compact, ultra low friction, double acting pneumatic piston seal.

Notes






Wear Rings & Bearing Strip

The following profiles of common wear rings are for identification purposes only. No reference is given as to sizes stocked for any style or type. Please verify the availability for your required style-type and size at the design stage of production.

Phone : (08) 9451 6011

Fax : (08) 9458 5766

For Rod & Piston Applications


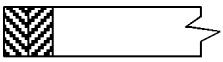
Profile	Style~Type	Temperature Range	Product Group																													
 <table border="1" data-bbox="427 792 900 904"> <tr> <td data-bbox="427 792 603 904">WR ~ & WRM ~</td> <td data-bbox="608 792 900 904">-40°C to 120°C</td> </tr> </table>			WR ~ & WRM ~	-40°C to 120°C	<table border="1"> <tr> <td colspan="2" data-bbox="962 573 1492 622">Wear Rings</td> </tr> <tr> <td colspan="2" data-bbox="962 622 1492 656">Standard Size Ranges</td> </tr> <tr> <td data-bbox="962 656 1492 689">Style WR : Imperial Sizes</td> <td data-bbox="962 689 1492 723">Style WRM : Metric Sizes</td> </tr> <tr> <td colspan="2" data-bbox="962 723 1492 757">Standard Construction</td> </tr> <tr> <td colspan="2" data-bbox="962 757 1492 824">Heat Stabilized, Type 66 Nylon 33% Glass Filled</td> </tr> <tr> <td colspan="2" data-bbox="962 846 1492 880">Application</td> </tr> <tr> <td colspan="2" data-bbox="962 880 1492 913">Rod & Piston Applications</td> </tr> <tr> <td colspan="2" data-bbox="962 936 1492 969">Advantages</td> </tr> <tr> <td colspan="2" data-bbox="962 969 1492 1137">By providing better piston & rod alignment, therefore avoiding metal to metal contact, the use of wear rings & bearing strips will aid the overall efficiency of a cylinder, extending seal life.</td> </tr> </table>		Wear Rings		Standard Size Ranges		Style WR : Imperial Sizes	Style WRM : Metric Sizes	Standard Construction		Heat Stabilized, Type 66 Nylon 33% Glass Filled		Application		Rod & Piston Applications		Advantages		By providing better piston & rod alignment, therefore avoiding metal to metal contact, the use of wear rings & bearing strips will aid the overall efficiency of a cylinder, extending seal life.									
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Seals For Static Face Applications

The following profiles of common seals are for identification purposes only. No reference is given as to sizes stocked for any style or type. Please verify the availability for your required style~type and size at the design stage of production.
Phone : (08) 9451 6011 **Fax : (08) 9458 5766**

Various Designs : For Face Use Only

Profile	Style ~ Type	Maximum Pressure Temperature Range	Product Group
			General Data
	B ~ & BM ~	Dependent On Size -30°C to 110°C	<div style="background-color: black; color: white; text-align: center; font-weight: bold; padding: 5px;">Bonded Seals</div> <div style="background-color: black; color: white; text-align: center; font-weight: bold; padding: 2px;">Standard Size Range</div> Style B : Imperial Sizes Style BM : Metric Sizes Style 600 : Imperial Sizes
	600 ~	Dependent On Size -30°C to 110°C	
			Application
			The bonded washer was originally developed to replace copper type washers in high pressure hydraulic systems. The simple construction comprises a square or rectangular metal ring, to which is bonded a trapezoidal rubber ring. The metal ring resists the bursting forces and limits the deformation of the elastomeric ring.
			Advantages
			<ul style="list-style-type: none"> Reliable High & Low Pressure Sealing Easy To Fit Available To Suit A Wide Range Of BSP, Imperial & Metric Bolt Sizes
	11 ~	3000 psi : 21000 kPa -30°C to 110°C	<div style="background-color: black; color: white; text-align: center; font-weight: bold; padding: 5px;">SAE Flange Seals</div> <div style="background-color: black; color: white; text-align: center; font-weight: bold; padding: 2px;">Standard Size Range</div> Style 11 & Style OV : Imperial Sizes Only
	OV ~	5000 psi : 35000 kPa -30°C to 110°C	
			Application
			In many cases, standard o'rings are not suitable for flange sealing due to marginal conditions. Anything from high temperatures, extreme pressures, or marginal surface finishes on the flanges, can diminish their operational life. Choosing the appropriate one will ensure maximum seal life, reducing down time and costs.
			Interchanges
			Refer to o'ring catalogue O2-97.
			Advantages
			<ul style="list-style-type: none"> Will Operate Effectively With Marginal Surface Finishes & Conditions






O'rings & Associated Products

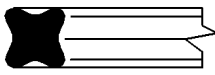
The following profiles of common o'rings are for identification purposes only. No reference is given as to sizes stocked for any style or type. Please verify the availability for your required style-type and size at the design stage of production.

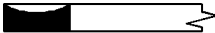
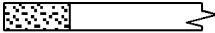

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Fax : (08) 9458 5766

For Piston, Rod & Face Use

Profile	Style~Type	Temperature Range
	~ N7 ~ N9 ~ V7 ~ V9 ~ E7 ~ S7 ~ C7	-40°C to 110°C -40°C to 110°C -35°C to 205°C -35°C to 205°C -55°C to 150°C -85°C to 230°C -55°C to 140°C
	~ TFE	-200°C to 260°C
	~ V7ET	-35°C to 205°C

	QR ~ N8	-40°C to 110°C
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	8 ~ N9	-40°C to 110°C
	8 ~ TFE	-200°C to 260°C
	8 ~ H	-40°C to 110°C

Product Group

General Data

O'Rings

Standard Size Ranges

All Types : Imperial Sizes
Types N7, N9 & V7 : Metric Sizes

Standard Construction

Type N7 : 70 Durometer Nitrile
Type N9 : 90 Durometer Nitrile
Type V7 : 70 Durometer Viton
Type V9 : 90 Durometer Viton
Type E7 : 70 Durometer EPDM
Type S7 : 70 Durometer Silicone
Type C7 : 70 Durometer Neoprene
Type TFE : Virgin PTFE
Type V7ET : PTFE Encapsulated O'ring
Inner Core : 70 Durometer Viton
Outer Case : Virgin PTFE

Further Information

For further information regarding all products on this page, please refer to our o'ring handbook number O2-97

X'Rings

Standard Size Ranges

Style QR : Imperial Sizes

Standard Construction

Type N8
80 Durometer Nitrile

Application

X'Rings are available to suit standard AS & BS imperial o'ring grooves.

Back Up Washers

Standard Size Ranges

Type N9 : Imperial Sizes Only
Type TFE : Imperial & Metric Sizes
Type H : Metric Sizes Only

Standard Construction

Type N9 : 90 Durometer Nitrile
Type TFE : Virgin PTFE
Type H : Hytrel®

Application

BUW's are a device to reduce o'ring extrusion, thereby enabling an o'ring to withstand higher pressures with a given diametral clearance.

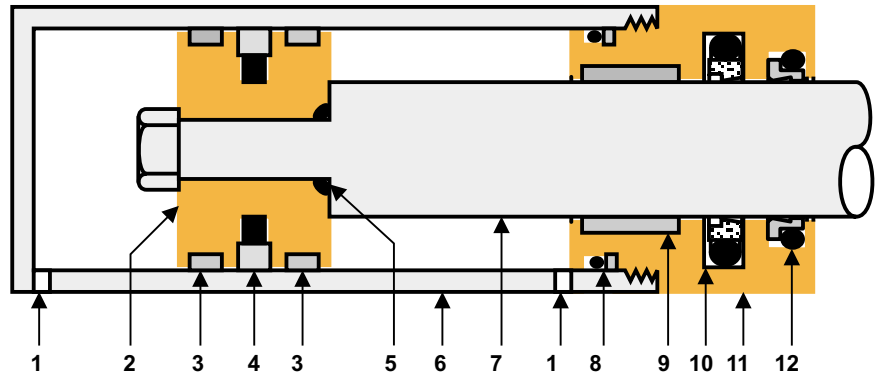


Typical Hydraulic Cylinders

Double Acting

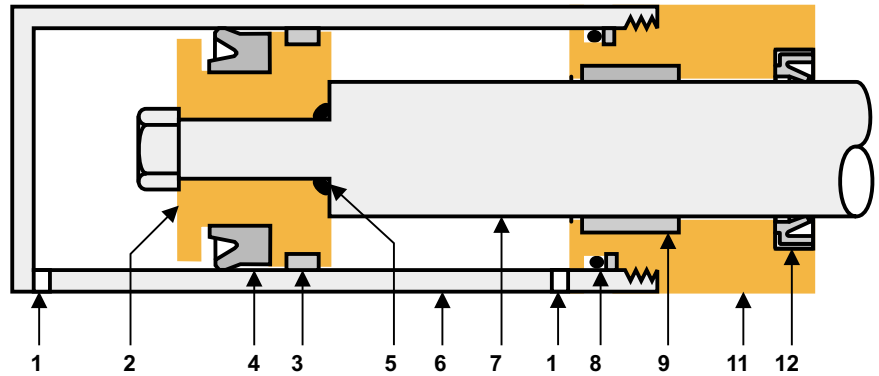
These profiles of typical hydraulic cylinders are for identification purposes only. Please use them in conjunction with the rest of this catalogue to assist you in identifying various different types of hydraulic seals.

The following descriptions refer to various parts of a typical hydraulic ram, and will assist you in describing the application of any seal you are trying to match.

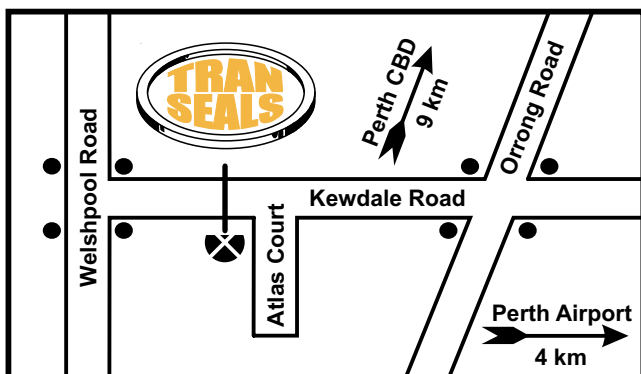
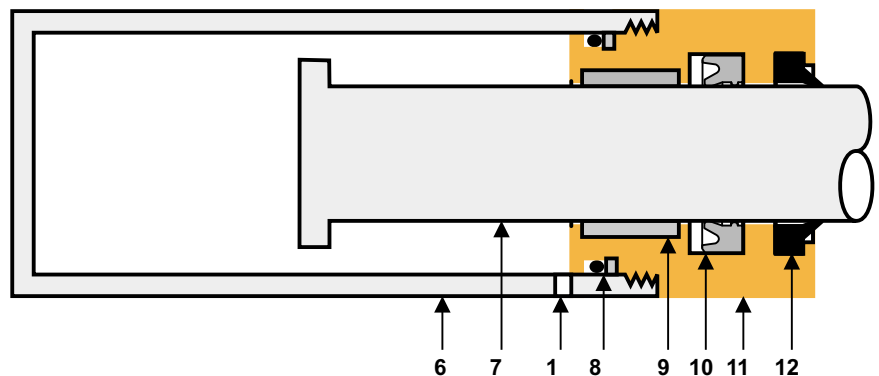


Single Acting

1. Port
2. Piston
3. Piston Wear Ring
4. Piston Seal
5. O'Ring : Rod to Piston
6. Cylinder
7. Rod
8. O'Ring & BUW
Cylinder to Head
9. Gland Wear Ring
10. Rod or Gland Seal
11. Gland or Head
12. Rod Wiper



Displacement



Transeals

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 Phone : 61 (08) 9451 6011
 Fax : 61 (08) 9451 5766
 E-mail : transeals@transeals.com.au
 Web : <http://www.transeals.com.au>