

# DENISON HYDRAULICS'

## INTERCHANGE GUIDE

for replacing Vickers vane pumps

**DENISON** Hydraulics

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Publ. SP1-AM316 2/96

**VANE PUMPS**  
**TB-T7B-T6C-T6D-T6E**  
**T6CC-T6DC-T6EC-T6ED**

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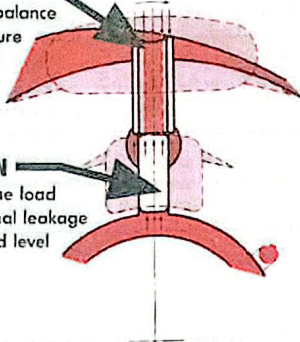
# VANE PUMP TECHNOLOGY



178 vane pump for both industrial and mobile vehicle applications.

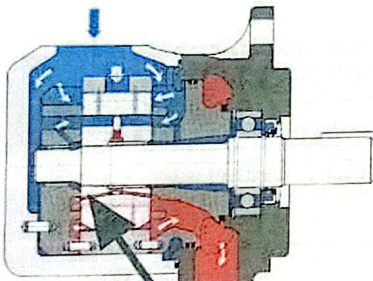
## DOUBLE LIP

- Better vane balance
- Higher pressure
- Reduce wear



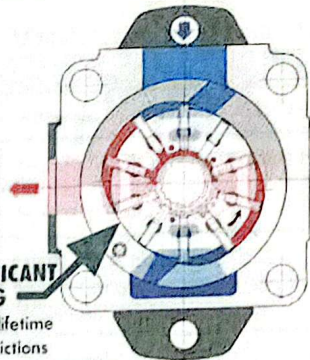
## HOLDOUT PIN

- Optimum vane load
- Reduce internal leakage
- Reduce sound level



## SIDE FEED HOLES

- Reduce internal leakage & heat
- Balance overshoot pressure
- Improve lubrication



## DRY LUBRICANT CAM RING

- Increase lifetime
- Reduce frictions
- Eliminate startup galling

Vane-type pumps serve as the heart of the hydraulic circuits on a wide variety of industrial, mobile, and aerospace equipment. They have an excellent track record for high performance and durability.

However, all vane pumps are not created equal. Basic differences in design and manufacturing processes tend to separate these units in terms of operating characteristics and ultimate performance in the field. Fixed-displacement vane pumps offered by Denison have stood apart from others on the market since their introduction in the 1950s. Simply put, the difference is inside!

Just as the heart of any hydraulic system is the pump, the heart of the pump is its rotating group. Basically, this consists of a rotor carrying sliding vanes that sweep around the elliptically shaped inside wall of a cam ring.

Denison engineers point to four key features of the Denison vane pump rotating group that set these units apart from and above the rest.

### Double-lip vanes

Each vane in the Denison pump has a double-lip configuration that facilitates separation of the high pressure and low pressure areas. One lip serves in a pressure mode, the other in a suction mode. The result is an improved tolerance to contamination and longer operating life.

Denison introduced the double-lip concept in the 1950s and has invested heavily in the highly accurate manufacturing processes required. The concept was used first in Denison vane motors and subsequently adapted to the pump line. The company has more than 10 patents relating to the double-lip design. They involve such things as sealing methods, cam ring design, and the way the vanes are held against the cam ring.

### Side feeding

The side-feeding concept was developed in the 80s during design work aimed at reducing noise levels. Holes drilled in opposite sides of the rotor permit fluid entry to lubricate the side faces of the rotor. This lubrication facilitates cold starting as well as operation under conditions involving high pressure and high operating temperatures. In addition, side feeding reduces internal leakage, helps balance internal pressures, and provides a cooling effect.

### Special cam ring lubricant

The cam ring of the Denison vane pump features a unique dry lubricant that provides compatibility with lowlubricity conditions

at low operating temperatures.

Developed as part of the NASA program, the dry lubricant provides better performance at start-up and reduced wear during the first hour of operation. This applies to machine tools and other equipment operated in a protected environment, as well as mobile machinery working outside at lower temperatures.

The dry lubricant prevents metal-to-metal contact between the vanes and cam surface. Virtually no wear particles are created during pump break-in, which further extends pump life. The graphite-base material not only lubricates during the critical first hour, but well into the 1000-hour range.

### Vane-loading pins

In contacting the cam ring, the vanes seal high-pressure fluid from low-pressure fluid. Typically, the vanes are spring-loaded to establish and maintain contact. The drawback here is that the spring applies a constant load against the ring, with no relation to pump discharge pressure.

The Denison design is different. It uses a round pin under each vane to load the vane against the ring. Loading is in direct proportion to pump discharge pressure, which minimizes wear and prevents overshoot-pressure vane blow-off.

The use of pins instead of vane-loading springs permits the pump to operate with the lowest pressure that can be applied to hold the vanes against the cam ring without leakage. Also, only one dimension must be controlled -- the pin diameter. This is in contrast to other designs, like the intra-vane pump, where two dimensions must be controlled. Controlling only one dimension facilitates controlling internal leakage.

These four features set Denison vane pumps apart from all others. They permit operation at higher pressures with lower leakage and longer life.

The Denison vane pump story includes many other chapters. Like those dealing with the latest state-of-the-art tools for design and development, conformance to ISO 9000 standards in 1993 and 9001 standards in 1994, and special stress on new product development. Since 1991, two new triple pumps have been introduced. Each of these units provides three outlets with a single, common inlet. The Denison story is on-going. One brief footnote can be added, however: Denison offers vane pumps with the highest flow and pressure ratings on the market.

## OPERATING PRESSURES

Denison (PSI)	TB		T7B		T6C		T6D - T6E	
	Cont.	Max.	Cont.	Max.	Cont.	Max.	Cont.	Max.
Antiwear Petroleum Base HF-0, HF-2	2500	2700	4600	4800	3500 <sup>(1)</sup>	4000 <sup>(1)</sup>	3000	3500
Non-Antiwear Petroleum Base HF-1	1750	2000	3000	3500	2500	3000	2500	3000
Synthetic Fluid HF-5	1750	2000	3000	3500	2500	3000	2500	3000
Water in Oil Emulsions HF-3	1500	1800	2000	2500	2000	2500	2000	2500
Water Glycols HF-4	1500	1800	3000	3500	2000	2500	2000	2500

(1) 028, 031 °C cartridge rated at 2175 PSI continuous and 3000 PSI maximum

Vickers (PSI)	V20		20V		25/35/45V		25/35VQ		45VQ	
	Cont.	Max.	Cont.	Max.	Cont.	Max.	Cont.	Max.	Cont.	Max.
Antiwear Petroleum Base HF-0, HF-2	2500 <sup>(1)</sup>	2750 <sup>(1)</sup>	2750 <sup>(3)</sup>	3000 <sup>(3)</sup>	2500	2750	3000	3300	2500	2750
Non-Antiwear Petroleum Base HF-1	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R	N/R
Synthetic Fluid HF-5	2000 <sup>(2)</sup>	2200 <sup>(2)</sup>	N/R	N/R	2500	2500	N/R	N/R	N/R	N/R
Water in Oil Emulsions HF-3	1575	1733	1000	1100	1000	1100	N/R	N/R	N/R	N/R
Water Glycols HF-4	1800	1980	2300	2530	2000	2200	N/R	N/R	N/R	N/R

(1) 12, 13 cartridge rated at 2200 PSI continuous and 2420 PSI maximum  
 (2) 12, 13 cartridge rated at 1800 PSI continuous and 1980 PSI maximum  
 (3) 12, (14) cartridge rated at 2300 (2000) PSI cont. and 2530 (2200) PSI max

N/R = Not Rated

## OPERATING SPEEDS

### Denison (Maximum RPM Limit)

Fluid Type	TB	T7B	T6C	T6D	T6E	T6CC	T6DC	T6EC	T6ED
Antiwear Petroleum Base HF-0, HF-2	3500 <sup>(1)</sup>	3600	2800 <sup>(2)</sup>	2500 <sup>(3)</sup>	2200	2800 <sup>(2)</sup>	2500 <sup>(3)</sup>	2200	2200
Non-Antiwear Petroleum Base HF-1	3000	3600	2800 <sup>(2)</sup>	2500 <sup>(3)</sup>	2200	2800 <sup>(2)</sup>	2500 <sup>(3)</sup>	2200	2200
Synthetic Fluid HF-5	2000	1800	1800	1800	1800	1800	1800	1800	1800
Water in Oil Emulsions HF-3	1800	1800	1800	1800	1800	1800	1800	1800	1800
Water Glycols HF-4	1800	1800	1800	1800	1800	1800	1800	1800	1800

(1) 005, 006 cartridge rated at 3400 RPM, 008, 009 rated at 3300 RPM, 011, 012 rated at 3200 RPM  
 (2) 025, 028, 031 cartridge rated at 2500 RPM maximum  
 (3) 042, 045, 050 cartridge rated at 2200 RPM maximum

### Vickers (Maximum RPM Limit)

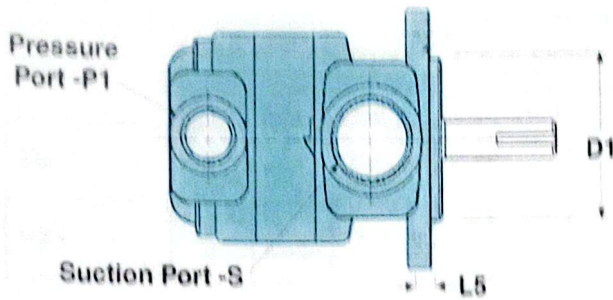
Fluid Type	V20	25V	35V	45V	25VQ	35VQ	45VQ
Antiwear Petroleum Base HF-0, HF-2	1800	1800	1800	1800	2700 <sup>(2)</sup>	2500 <sup>(3)</sup>	2200
Non-Antiwear Petroleum Base HF-1	N/R	N/R	N/R	N/R	N/R	N/R	N/R
Synthetic Fluid HF-5	1800 <sup>(1)</sup>	1200	1200	1200	N/R	N/R	N/R
Water in Oil Emulsions HF-3	1800	1200	1200	1200	N/R	N/R	N/R
Water Glycols HF-4	1800	1200	1200	1200	N/R	N/R	N/R

(1) 11, 13 cartridge rated at 1500 RPM  
 (2) 17, 21 cartridge rated at 2500 RPM maximum  
 (3) 35, 38 cartridge rated at 2400 RPM maximum

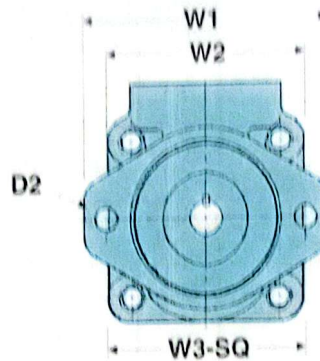
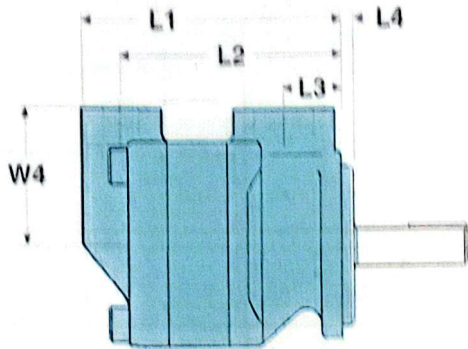
N/R = Not Rated

# INTERCHANGE GUIDE

**DENISON TB  
VICKERS V20**



When O-ring seal on pilot is required, please consult Denison Technical Support.



**PUMP - Dimensions in Inches**

	L1	L2	L3	L4	L5	D1	D2	W1	W2	W3	W4
TB	5.72	4.61	1.22	.24	.44	3.25	.44 2-holes	5.13	4.19	4.13	2.75
V20	4.93 to 5.52	4.02 to 4.61	1.22	.16	.50	3.25	.44 2-holes	6.34	4.19	4.38	2.60

**PORTING CODES - Dimensions in Inches**

	CODE	Suction Port	Pressure Port
TB	00	SAE-20 1-5/8 -12 UNF-2B	SAE-12 1-1/16 -12 UNF-2B
V20	Code "S" Suction	SAE-20 1-5/8 -12 UNF-2B	
V20	Code "S" Pressure		SAE-12 1-1/16 -12 UNF-2B

	CODE	Suction Port	Pressure Port
TB	01	SAE-20 1-1/4" -4 Bolt	SAE-12 3/4" -4 Bolt
V20	Not Available		

	CODE	Suction Port	Pressure Port
TB	03	1-1/4" NPTF	SAE-12 1-1/16 -12 UNF-2B
V20	Code "P" Suction	1-1/4" NPTF	
V20	Code "S" Pressure		SAE-12 1-1/16 -12 UNF-2B

	CODE	Suction Port	Pressure Port
TB	0X	1-1/4" NPTF	3/4" NPTF
V20	Code "P" Suction	1-1/4" NPTF	
V20	Code "P" Pressure		3/4" NPTF

**NOTE:**

① Interchange Guide is to be used for preliminary purposes only. For specific and current data, refer to DENISON and VICKERS catalog.

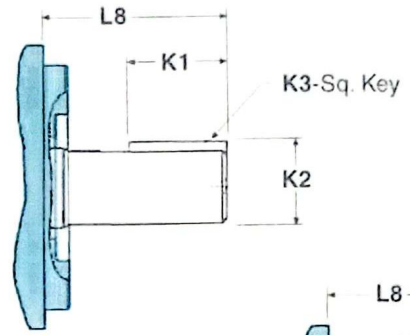
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# INTERCHANGE GUIDE

DENISON TB  
VICKERS V20

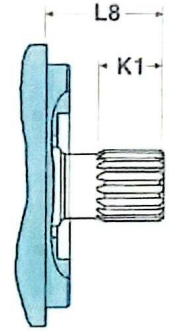
### SHAFT / Keyed - Dimensions in inches

	Shaft Code	Shaft Type	Shaft Std.	L8	Shaft Dia.	Key Shaft Dimensions		
						K1	K2	K3
TB	1	Keyed	Non-SAE	2.66	.75	1.25	.83	.19
V20	1	Keyed	Non-SAE	2.66	.75	1.62	.83	.19



### SHAFT / Splined - Dimensions in inches

	Shaft Code	Shaft Type	Shaft Std.	L8	Major Dia.	Minor Dia.	No. Teeth	Pitch	Pressure Angle	K1
TB	Y	Spline	SAE	2.94	.75	.63	11	16/32	30°	1.47
V20	11	Spline	SAE	2.94	.75	.63	11	16/32	30°	1.47
TB	3	Spline	SAE	1.50	.73	.62	11	16/32	30°	.75
V20	38	Spline	SAE	1.25	.75	.63	11	16/32	30°	.81



### MODEL CODE - Denison

**TB-006-1 R 00-A 1 00**

Series

Cam Ring for "P"

(Nominal delivery @ 0 psi & 1200 rpm)  
004, 005, 006, 008, 009, 011, 012

Shaft Type

- 1 = Key (non SAE)
- 3 = Spline (Special)
- 4 = Spline (SAE-A)
- Y = Spline (Special)

Shaft Rotation (view on shaft end)

R = Clockwise L = Counter-clockwise

Port Connections

00, 01, 03, 0X

Seal Class

- 1 = S1 (for mineral oil)
- 4 = S4 (for fire resistant fluids)
- 5 = S5 (min. oil & fire rest. fluids)

Design Letter

Porting Combination

00 = Standard

### MODEL CODE - Vickers

**V20-1 S 6 S-1 A 20 R**

Series

Mounting Type

Inlet Port Connection

Nominal Flow "P"

Outlet Port Connection

Shaft Rotation

Design

Outlet Positions

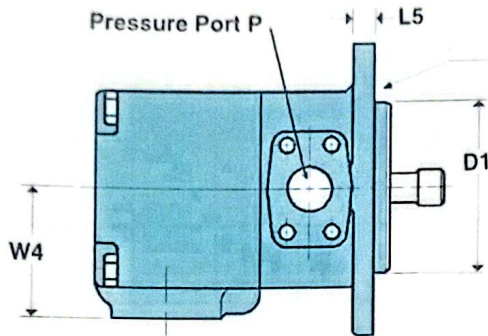
Shaft Type

### PORTING COMBINATIONS

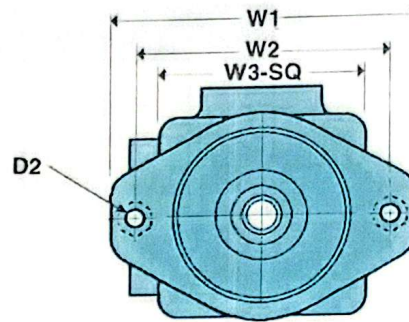
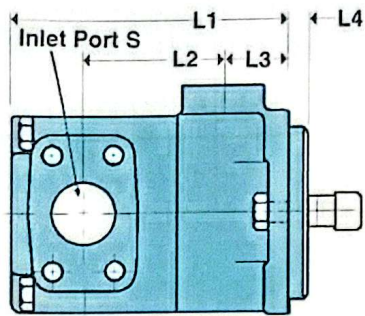
TB	00	01
V20	A	C

# INTERCHANGE GUIDE

**DENISON T7B  
VICKERS 25V (Q)**



When O-ring seal on pilot is required, please consult Denison Technical Support.



**PUMP - Dimensions in inches**

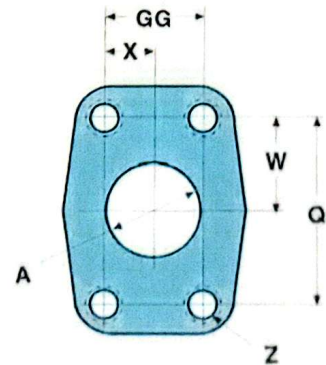
	L1	L2	L3	L4	L5	D1	D2	W1	W2	W3	W4
T7B	6.63	3.24	1.50	.31	.50	4.00	.56 2-holes	6.87	5.75	4.64	3.00
25V (Q)	6.38	3.25	1.50	.38	.50	4.00	.56 2-holes	6.87	5.75	4.64	3.00

**PORT P - Dimensions in inches**

	CONNECTIONS	A	W	Q	X	GG	Z
T7B	1" Pressure Port	1.00	1.03	2.06	.52	1.03	3/8-16 UNC x .75 DP
25V (Q)	1" Pressure Port	1.00	1.03	2.06	.52	1.03	3/8-16 UNC x .75 DP

**SUCTION PORT - Dimensions in inches**

	CONNECTIONS	A	W	Q	X	GG	Z
T7B	1-1/2" Suction Port	1.50	1.38	2.75	.70	1.41	1/2-13 UNC x .88 DP
25V (Q)	1-1/2" Suction Port	1.50	1.38	2.75	.70	1.41	1/2-13 UNC x .88 DP



**NOTE:**

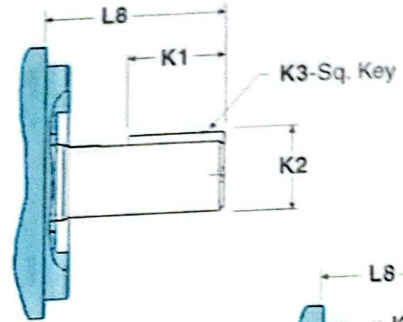
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# INTERCHANGE GUIDE

**DENISON T7B  
VICKERS 25V (Q)**

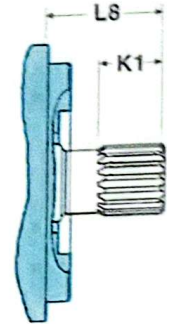
### SHAFT / Keyed - Dimensions in inches

	Shaft Code	Shaft Type	Shaft Std.	L8	Shaft Dia.	Key Shaft Dimensions		
						K1	K2	K3
T7B	1	Keyed	Non-SAE	2.81	.87	1.50	.96	.19
25V (Q)	1	Keyed	Non-SAE	2.31	.87	1.25	.96	.19



### SHAFT / Splined - Dimensions in inches

	Shaft Code	Shaft Type	Shaft Std.	L8	Major Dia.	Minor Dia.	No. Teeth	Pitch	Pressure Angle	K1
25V (Q)	11	Spline	SAE-B	1.75	.87	.72	13	16/32	30°	1.15



### MODEL CODE - Denison

**T7B - B10 - 1 R 00 - A 1 M0**

Series

Cam Ring for "P"

(Nominal delivery @ 0 psi & 1200 rpm)  
B02, B03, B04, B05, B06, B08, B10

Shaft Type

1 = Key (SAE-B)      3 = Spline (SAE-B)  
2 = Key (non SAE)

Shaft Rotation (view on shaft end)

R = Clockwise      L = Counter-clockwise

Mounting w/connection variable

M0 = P = 1" SAE / S = 1 1/2" SAE

M1 = P = 3/4" SAE / S = 1 1/2" SAE

Seal Class

1 = S1 (for mineral oil)  
4 = S4 (for fire resistant fluids)  
5 = S5 (min. oil & fire rest. fluids)

Design Letter

Porting Combination

00 = Standard

### MODEL CODE - Vickers

**25V(Q) 12 A 1 A 20 R**

Series (Mobile version)

Nominal Flow "P"

Porting Connections

(For designations other than "A", contact Denison)

Mounting & Shaft Seal Assembly

(For "S" designations, order T6CP)

Shaft Rotation

Design

Porting Combinations

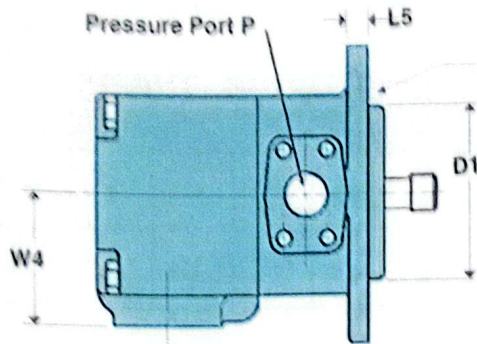
Shaft Type

### PORTING COMBINATIONS

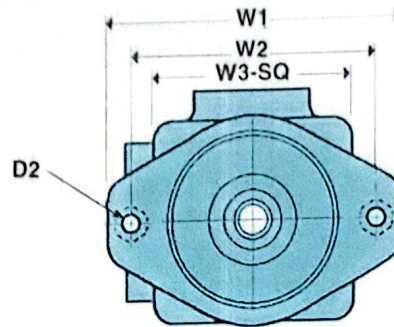
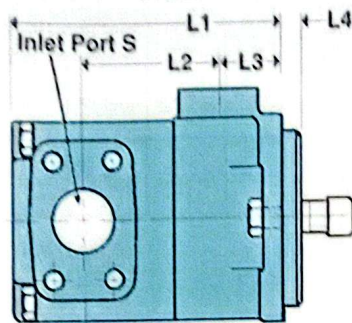
T7B	00	03	01	02
25V (Q)	A	B	C	D

# INTERCHANGE GUIDE

**DENISON T6C (M)**  
**VICKERS 25V (Q)**



When O-ring seal on pilot is required, please consult Denison Technical Support.



**PUMP - Dimensions in inches**

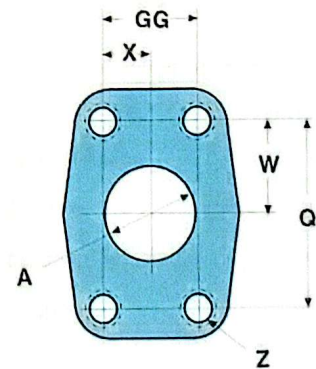
	L1	L2	L3	L4	L5	D1	D2	W1	W2	W3	W4
T6C (M)	6.36	3.25	1.50	.38	.50	4.00	.56 2-holes	6.87	5.75	4.64	3.00
25V (Q)	6.38	3.25	1.50	.38	.50	4.00	.56 2-holes	6.87	5.75	4.64	3.00

**PORT P - Dimensions in inches**

	CONNECTIONS	A	W	Q	X	GG	Z
T6C (M)	1" Pressure Port	1.00	1.03	2.06	.52	1.03	3/8-16 UNC x .75 DP
25V (Q)	1" Pressure Port	1.00	1.03	2.06	.52	1.03	3/8-16 UNC x .75 DP

**SUCTION PORT - Dimensions in inches**

	CONNECTIONS	A	W	Q	X	GG	Z
T6C (M)	1-1/2" Suction Port	1.50	1.38	2.75	.70	1.41	1/2-13 UNC x .88 DP
25V (Q)	1-1/2" Suction Port	1.50	1.38	2.75	.70	1.41	1/2-13 UNC x .88 DP



**NOTE:**

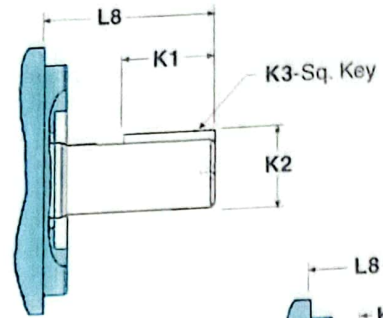
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# Denison Hydraulics' INTERCHANGE GUIDE

**DENISON T6C (M)  
VICKERS 25V (Q)**

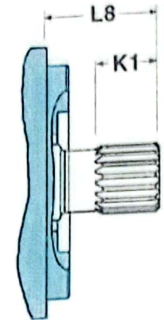
## SHAFT / Keyed - Dimensions in inches

	Shaft Code	Shaft Type	Shaft Std.	L8	Shaft Dia.	Key Shaft Dimensions		
						K1	K2	K3
T6C (M)	2	Keyed	Non-SAE	2.29	.87	1.25	.96	.19
25V (Q)	1	Keyed	Non-SAE	2.31	.87	1.25	.96	.19



## SHAFT / Splined - Dimensions in inches

	Shaft Code	Shaft Type	Shaft Std.	L8	Major Dia.	Minor Dia.	No. Teeth	Pitch	Pressure Angle	K1
T6C (M)	3	Spline	SAE-B	1.60	.85	.72	13	16/32	30°	.97
25V (Q)	11	Spline	SAE-B	1.75	.87	.72	13	16/32	30°	1.15



## MODEL CODE - Denison

**T6C(M) - 017 - 3 R 00 - C 1**

Series (Mobile version)

Cam Ring for "P"

(Nominal delivery @ 0 psi & 1200 rpm)

003, 005, 006, 008, 010, 012, 014, 017, 022, 025, 028, 031

Shaft Type

1 = Key (SAE-B)      3 = Spline (SAE-B)  
2 = Key (non SAE)    4 = Spline (SAE-BB)

Seal Class

1 = S1 (for mineral oil)  
4 = S4 (for fire resistant fluids)  
5 = S5 (min. oil & fire rest. fluids)

Design Letter

Porting Combination  
00 = Standard

Shaft Rotation (view on shaft end)

R = Clockwise      L = Counter-clockwise

## MODEL CODE - Vickers

**25 V(Q) 17 A 11 A 20 R**

Series (Mobile version)

Nominal Flow "P"

Porting Connections

(For designations other than "A", contact Denison)

Mounting & Shaft Seal Assembly

(For "S" designations, order T6CP)

Shaft Rotation

Design

Porting Combinations

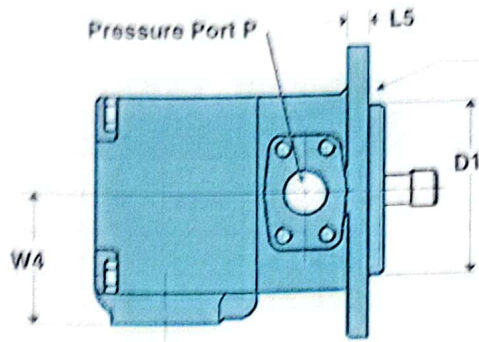
Shaft Type

## PORTING COMBINATIONS

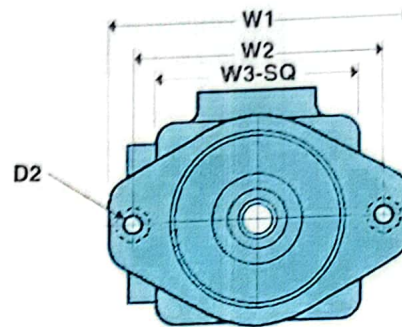
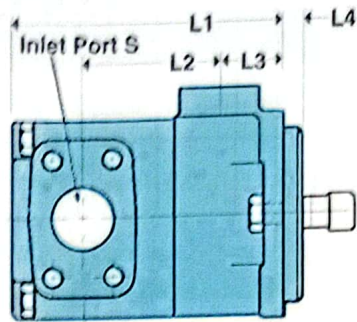
T6C (M)	00	03	01	02
25V (Q)	A	B	C	D

# Denison Hydraulics' INTERCHANGE GUIDE

**DENISON T6D (M)  
VICKERS 35V (Q)**



When O-ring seal on pilot is required, please consult Denison Technical Support.



### PUMP - Dimensions in inches

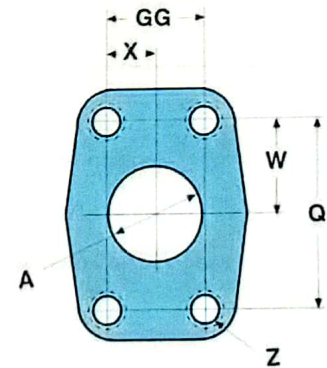
	L1	L2	L3	L4	L5	D1	D2	W1	W2	W3	W4
T6D (M)	7.28	3.44	1.50	.50	.62	5.00	69 2-holes	8.37	7.12	5.82	3.25
35V (Q)	7.28	3.44	1.50	.38	.62	5.00	69 2-holes	8.38	7.12	5.50	3.25

### PORT P - Dimensions in inches

	CONNECTIONS	A	W	Q	X	GG	Z
T6D (M)	1-1/4" Pressure Port	1.25	1.16	2.31	.59	1.19	7/16-14 UNC x .88 DP
35V (Q)	1-1/4" Pressure Port	1.25	1.16	2.31	.59	1.19	7/16-14 UNC x .88 DP

### SUCTION PORT - Dimensions in inches

	CONNECTIONS	A	W	Q	X	GG	Z
T6D (M)	2" Suction Port	2.00	1.53	3.06	.84	1.69	1/2-13 UNC x .94 DP
35V (Q)	2" Suction Port	2.00	1.53	3.06	.84	1.69	1/2-13 UNC x .94 DP



#### NOTE:

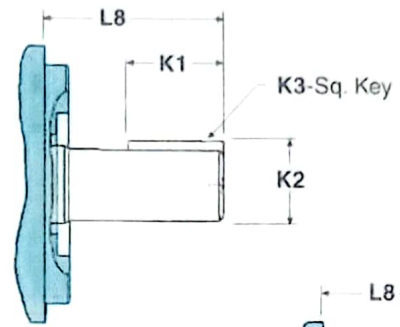
- Interchange Guide is to be used for preliminary purposes only. For specific and current data, refer to DENISON and VICKERS catalog.
- Dimensions shown in 'Color' denote variance.

# INTERCHANGE GUIDE

**DENISON T6D (M)**  
**VICKERS 35V (Q)**

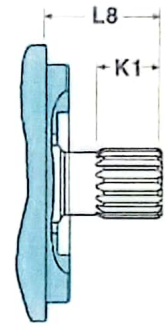
### SHAFT / Keyed - Dimensions in inches

	Shaft Code	Shaft Type	Shaft Std.	L8	Shaft Dia.	Key Shaft Dimensions		
						K1	K2	K3
T6D (M)	2	Keyed	Non-SAE	2.88	1.25	1.50	1.38	.31
35V (Q)	1	Keyed	Non-SAE	2.88	1.25	1.50	1.38	.31



### SHAFT / Splined - Dimensions in inches

	Shaft Code	Shaft Type	Shaft Std.	L8	Major Dia.	Minor Dia.	No. Teeth	Pitch	Pressure Angle	K1
	T6D (M)	3	Spline	SAE-C	2.17	1.22	1.06	14	12/24	30°
35V (Q)	11	Spline	SAE-C	2.31	1.24	1.06	14	12/24	30°	1.63



### MODEL CODE - Denison

**T6D(M) - 035 - 3 R 00 - C 1**

Series (Mobile version)

Cam Ring for "P"

(Nominal delivery @ 0 psi & 1200 rpm)

014, 020, 024, 028, 031, 035, 038, 042, 045, 050

Shaft Type

1 = Key (SAE-C)      3 = Spline (SAE-C)  
2 = Key (non SAE)    4 = Spline (non SAE)

Seal Class

1 = S1 (for mineral oil)  
4 = S4 (for fire resistant fluids)  
5 = S5 (min. oil & fire rest. fluids)

Design Letter

Porting Combination  
00 = Standard

Shaft Rotation (view on shaft end)

R = Clockwise    L = Counter-clockwise

### MODEL CODE - Vickers

**35V(Q) 35 A 11 A 20 R**

Series (Mobile version)

Nominal Flow "P"

Porting Connections

(For designations other than "A", contact Denison)

Mounting & Shaft Seal Assembly

(For "S" designations, order T6DP)

Shaft Rotation

Design

Porting Combinations

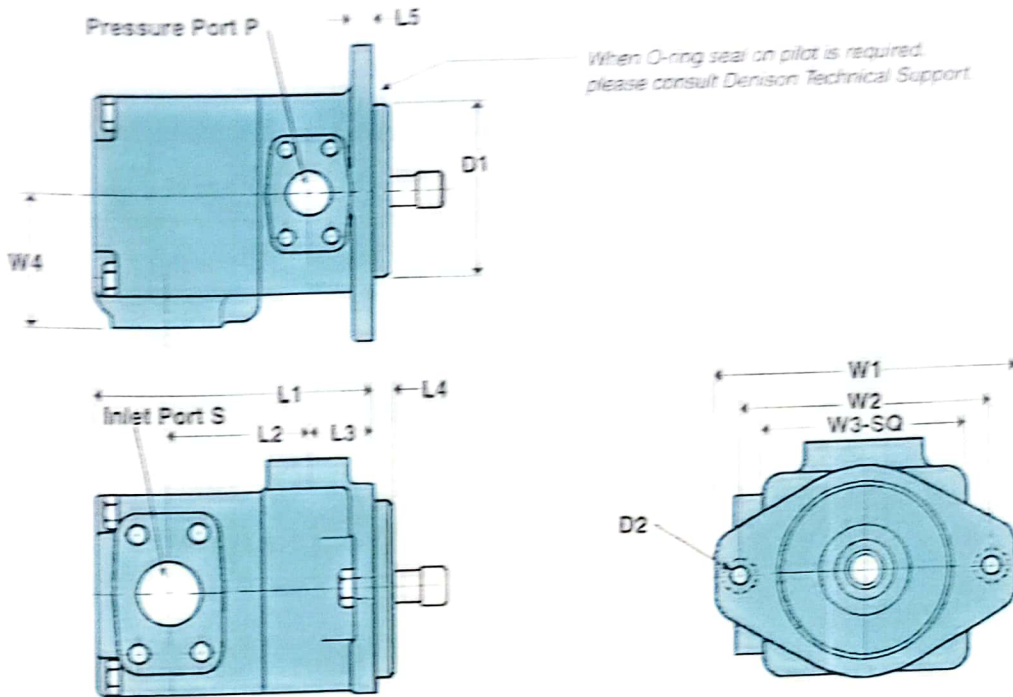
Shaft Type

### PORTING COMBINATIONS

T6D (M)	00	03	01	02
35V (Q)	A	B	C	D

# INTERCHANGE GUIDE

DENISON T6E (M)  
VICKERS 45V (Q)



**PUMP** - Dimensions in inches

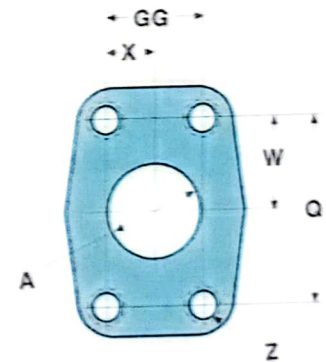
	L1	L2	L3	L4	L5	D1	D2	W1	W2	W3	W4
T6E (M)	8.87	4.34	2.06	.50	.69	5.00	.69 2-holes	8.37	7.12	6.82	3.88
45V (Q)	8.50	4.34	1.69	.50	.62	5.00	.69 2-holes	8.38	7.12	6.25	3.69

**PORT P** - Dimensions in inches

	CONNECTIONS	A	W	Q	X	GG	Z
T6E (M)	1-1/2" Pressure Port	1.45	1.38	2.75	.70	1.41	1/2-13 UNC x .94 DP
45V (Q)	1-1/2" Pressure Port	1.50	1.38	2.75	.70	1.41	1/2-13 UNC x .94 DP

**SUCTION PORT** - Dimensions in inches

	CONNECTIONS	A	W	Q	X	GG	Z
T6E (M)	3" Suction Port	3.00	2.09	4.19	1.22	2.44	5/8-11 UNC x .94 DP
45V (Q)	3" Suction Port	3.00	2.09	4.19	1.22	2.44	5/8-11 UNC x .94 DP



**NOTE:**

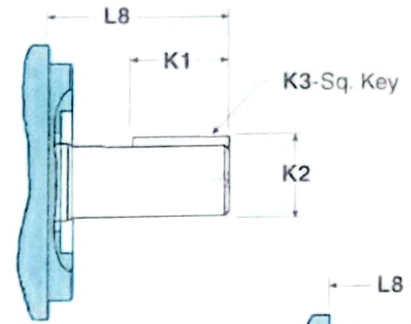
- Interchange Guide is to be used for preliminary purposes only. For specific and current data, refer to DENISON and VICKERS catalog.
- Dimensions shown in *Color* denote variance.

# INTERCHANGE GUIDE

**DENISON T6E (M)**  
**VICKERS 45V (Q)**

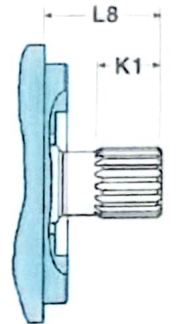
### SHAFT / Keyed - Dimensions in inches

	Shaft Code	Shaft Type	Shaft Std.	L8	Shaft Dia.	Key Shaft Dimensions		
						K1	K2	K3
T6E (M)	2	Keyed	Non-SAE	2.44	1.25	1.50	1.39	31
45V (Q)	1	Keyed	Non-SAE	2.44	1.25	1.12	1.39	31



### SHAFT / Splined - Dimensions in inches

	Shaft Code	Shaft Type	Shaft Std.	L8	Major Dia.	Minor Dia.	No. Teeth	Pitch	Pressure Angle	K1
T6E (M)	3	Spline	SAE-C	2.20	1.22	1.06	14	12/24	30°	1.50
45V (Q)	11	Spline	SAE-C	2.44	1.24	1.06	14	12/24	30°	1.50



### MODEL CODE - Denison

**T6E(M) - 050 - 3 R 00 - A 1**

Series (Mobile version)

Cam Ring for "P"

(Nominal delivery @ 0 psi & 1200 rpm)  
045, 050, 052, 062, 066, 072

Shaft Type

1 = Key (SAE-CC)      3 = Spline (SAE-C)  
2 = Key (non SAE)    4 = Spline (SAE-CC)

Seal Class

1 = S1 (for mineral oil)  
4 = S4 (for fire resistant fluids)  
5 = S5 (min. oil & fire rest. fluids)

Design Letter

Porting Combination

00 = Standard

Shaft Rotation (view on shaft end)

R = Clockwise      L = Counter-clockwise

### MODEL CODE - Vickers

**45V(Q) 50 A      11 A 20 R**

Series (Mobile version)

Nominal Flow "P"

Porting Connections

(For designations other than "A", contact Denison)

Mounting & Shaft Seal Assembly

(For "S" designations, order T6EP)

Shaft Rotation

Design

Porting Combinations

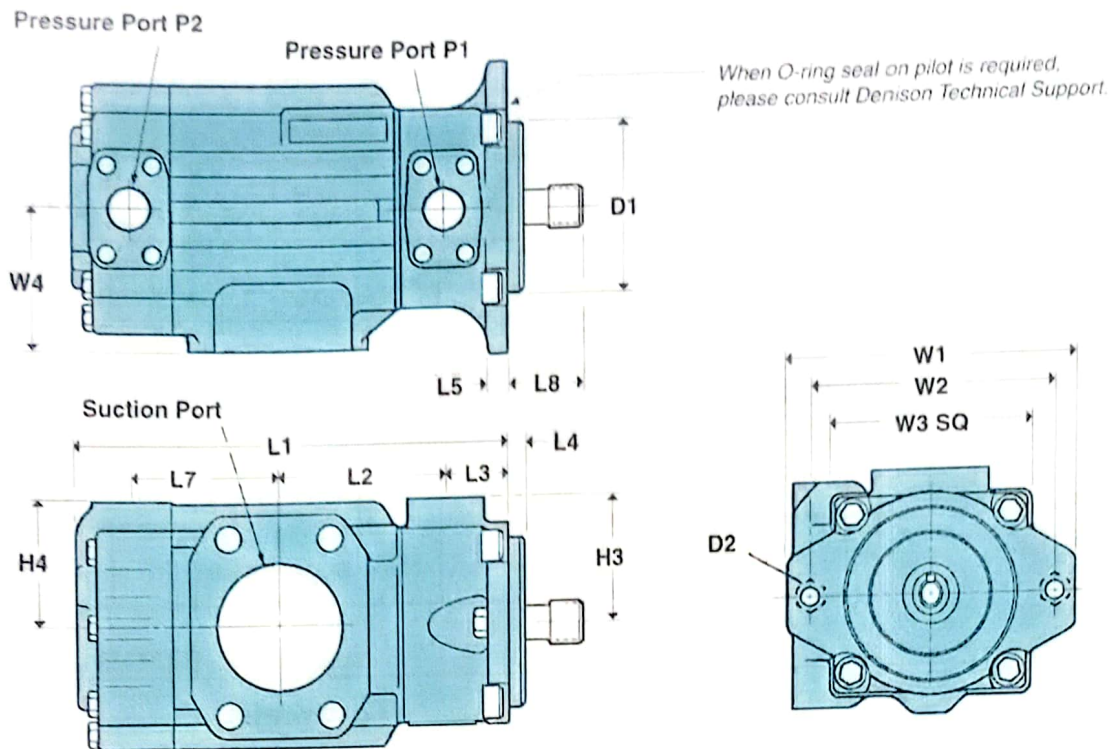
Shaft Type

### PORTING COMBINATIONS

T6E	00	03	01	02
45V (Q)	A	B	C	D

# INTERCHANGE GUIDE

**DENISON T6CC (M)**  
**VICKERS 2520V (Q)**



**PUMP - Dimensions in inches**

	L1	L2	L3	L4	L5	L7	D1	D2	W1	W2	W3	W4	H3	H4
T6CC (M)	10.46	4.0	1.50	.38	50	3.47	4.00	56 2-holes	6.87	5.75	4.64	3.31	3.00	3.00
2520V (Q)	9.81	4.0	1.50	.38	50	3.47	4.00	56 2-holes	6.88	5.75	4.40	3.31	3.00	3.00*

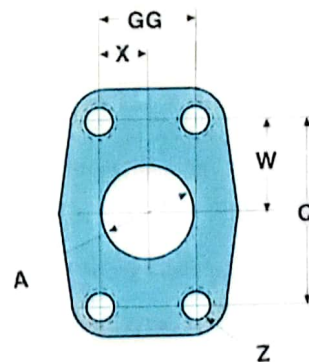
\* = at 45° from horizontal or vertical.

**PORT P1 - Dimensions in inches**

	CONNECTIONS	A	W	Q	X	GG	Z
T6CC (M)	1" Pressure Port	1.00	1.03	2.06	.52	1.03	3/8-16 UNC x .75 DP
2520V (Q)	1" Pressure Port	1.00	1.03	2.06	.52	1.03	3/8-16 UNC x .75 DP

**PORT P2 - Dimensions in inches**

	CONNECTIONS	A	W	Q	X	GG	Z
T6CC (M)	3/4" Pressure Port	.75	.94	1.88	.44	.88	3/8-16 UNC x .75 DP
2520V (Q)	3/4" Pressure Port	.75	.94	1.88	.44	.88	3/8-16 UNC x .75 DP



**SUCTION PORT / Code 1 - Dimensions in inches**

	CONNECTIONS	A	W	Q	X	GG	Z
T6CC (M)	2-1/2" Suction Port	2.50	1.75	3.50	1.00	2.00	1/2-13 UNC x .94 DP
2520V (Q)	2-1/2" Suction Port	2.50	1.75	3.50	1.00	2.00	1/2-13 UNC x .94 DP

**NOTE:**

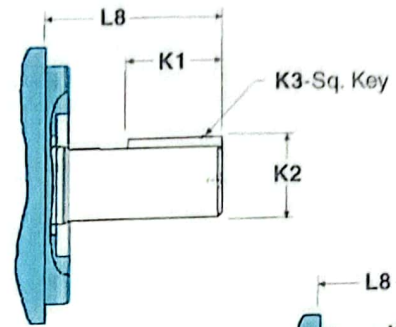
- ① Interchange Guide is to be used for preliminary purposes only. For specific and current data, refer to DENISON and VICKERS catalog
- ② Dimensions shown in **Color** denote variance.

# INTERCHANGE GUIDE

**DENISON T6CC (M)**  
**VICKERS 2520V (Q)**

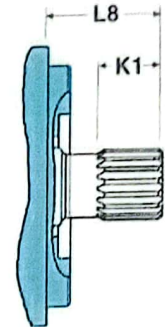
### SHAFT / Keyed - Dimensions in inches

	Shaft Code	Shaft Type	Shaft Std.	L8	Shaft Dia.	Key Shaft Dimensions		
						K1	K2	K3
T6CC (M)	1	Keyed	Non-SAE	2.29	.87	1.25	.96	.18
2520V (Q)	1	Keyed	Non-SAE	2.32	.87	1.25	.96	.18



### SHAFT / Splined - Dimensions in inches

	Shaft Code	Shaft Type	Shaft Std.	L8	Major Dia.	Minor Dia.	No. Teeth	Pitch	Pressure Angle	K1
T6CC (M)	5	Spline	SAE-B	1.60	.85	.72	13	16/32	30°	.97
2520V (Q)	11	Spline	SAE-B	1.75	.87	.72	13	16/32	30°	1.15



### MODEL CODE - Denison

**T6CC(M) - 012 - 008 5 R 27 - D 1 - 11**

Series (Mobile version)

Cam Ring for "P1"

(Nominal delivery @ 0 psi & 1200 rpm)

003, 005, 006, 008, 010, 012, 014, 017, 020, 022, 025, 028, 031

Cam Ring for "P2"

(Nominal delivery @ 0 psi & 1200 rpm)

003, 005, 006, 008, 010, 012, 014, 017, 020, 022, 025, 028, 031

Shaft Type

1 = Key (non SAE)    3 = Spline (SAE-BB)    5 = Spline (SAE-B)

Shaft Rotation (view on shaft end)

R = Clockwise    L = Counter-clockwise

Mounting w/Connection Variables

00 = S = 3"    11 = S = 2-1/2"

P1 = 1"    P1 = 1"

P2 = 1"    P2 = 3/4"

Seal Class

1 = S1 (for mineral oil)

4 = S4 (for fire resistant fluids)

5 = S5 (min. oil & fire rest. fluids)

Design Letter

Porting Combination

### MODEL CODE - Vickers

**2520V(Q) 12 A 8 11 CC 20 R**

Series (Mobile version)

Nominal Flow "P1"

Porting Connections

(For designations other than "A", contact Denison)

Nominal Flow "P2"

Mounting & Shaft Seal Assembly

(For "S" designations, order T6CCP)

Shaft Rotation

Design

Porting Combinations

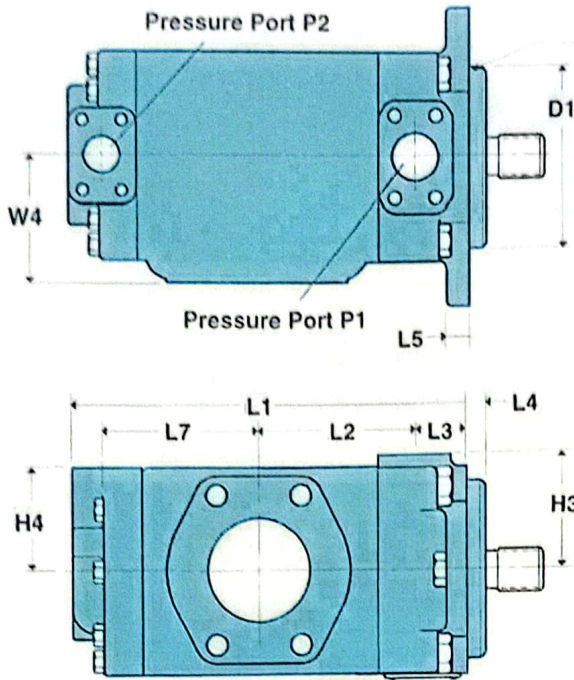
Shaft Type

### PORTING COMBINATIONS

T6CC	19	18	17	16	28	31	30	29	25	24	27	26	22	21	20	23
2520V	AA	AB	AC	AD	BA	BB	BC	BD	CA	CB	CC	CD	DA	DB	DC	DD

# INTERCHANGE GUIDE

**DENISON T6DC (M)**  
**VICKERS 3520V (Q)**



When O-ring seal on pilot is required, please consult Denison Technical Support.

**PUMP - Dimensions in inches**

	L1	L2	L3	L4	L5	L7	D1	D2	W1	W2	W3	W4	H3	H4
T6DC (M)	11.26	4.50	1.50	.50	.62	4.31	5.00	.69 2-holes	8.38	7.13	5.84	3.50	3.25	2.94
3520V (Q)	10.76	4.50	1.50	.38	.62	3.92	5.00	.69 2-holes	8.38	7.13	4.82	3.50	3.25	3.00*

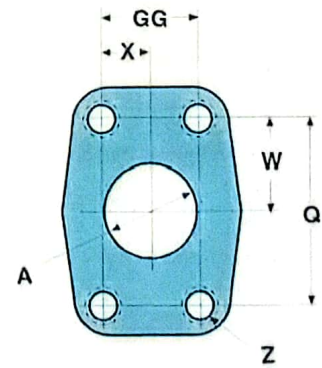
\* = at 45° from horizontal or vertical

**PORT P1 - Dimensions in inches**

	CONNECTIONS	A	W	Q	X	GG	Z
T6DC (M)	1-1/4" Pressure Port	1.25	1.16	2.31	.59	1.19	7/16-14 UNC x .88 DP
3520V (Q)	1-1/4" Pressure Port	1.25	1.16	2.31	.59	1.19	7/16-14 UNC x .88 DP

**PORT P2 - Dimensions in inches**

	CONNECTIONS	A	W	Q	X	GG	Z
T6DC (M)	3/4" Pressure Port	.75	.94	1.88	.44	.88	3/8-16 UNC x .75 DP
3520V (Q)	3/4" Pressure Port	.75	.94	1.88	.44	.88	3/8-16 UNC x .75 DP



**SUCTION PORT / Code 1 - Dimensions in inches**

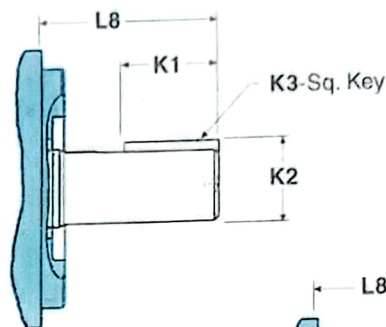
	CONNECTIONS	A	W	Q	X	GG	Z
T6DC (M)	3" Suction Port	3.00	2.09	4.19	1.22	2.44	5/8-11 UNC x 1.12 DP
3520V (Q)	3" Suction Port	3.00	2.09	4.19	1.22	2.44	5/8-11 UNC x 1.12 DP

**NOTE:**

- ① Interchange Guide is to be used for preliminary purposes only. For specific and current data, refer to DENISON and VICKERS catalog.
- ② Dimensions shown in **Color** denote variance.

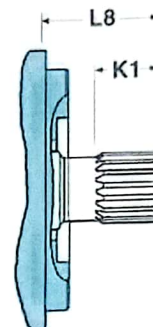
**SHAFT / Keyed - Dimensions in inches**

	Shaft Code	Shaft Type	Shaft Std.	L8	Shaft Dia.	Key Shaft Dimensions		
						K1	K2	K3
T6DC (M)	2	Keyed	Non-SAE	2.88	1.25	1.50	1.38	.31
3520V (Q)	1	Keyed	Non-SAE	2.86	1.25	1.50	1.38	.31



**SHAFT / Splined - Dimensions in inches**

	Shaft Code	Shaft Type	Shaft Std.	L8	Major Dia.	Minor Dia.	No. Teeth	Pitch	Pressure Angle	K1
T6DC (M)	3	Spline	SAE-C	2.17	1.22	1.06	14	12/24	30°	1.48
3520V (Q)	11	Spline	Non-SAE-C	2.31	1.24	1.06	14	12/24	30°	1.63



**MODEL CODE - Denison**

**T6DC(M) - 038 - 008 3 R 00 - C 1 - 01**

Series (Mobile version)

Cam Ring for "P1"

(Nominal delivery @ 0 psi & 1200 rpm)

014, 020, 024, 028, 031, 035, 038, 042, 045, 050

Cam Ring for "P2"

(Nominal delivery @ 0 psi & 1200 rpm)

003, 005, 006, 008, 010, 012, 014, 017, 022, 025, 028, 031

Shaft Type

1 = Key (SAE-C)      3 = Spline (SAE-C)      5 = Key (non SAE)  
2 = Key (non SAE)    4 = Spline (non SAE)      (Sever Duty T6DCW only)

Seal Class

1 = S1 (for mineral oil)  
4 = S4 (for fire resistant fluids)  
5 = S5 (min. oil & fire rest. fluids)

Design Letter

Porting Combination

Shaft Rotation (view on shaft end)

R = Clockwise    L = Counter-clockwise

**MODEL CODE - Vickers**

**3520V(Q) 38 A 8      11 CC 20 R**

Series (Mobile version)

Nominal Flow "P1"

Porting Connections

(For designations other than "A", contact Denison)

Nominal Flow "P2"

Mounting & Shaft Seal Assembly

(For "S" designations, order T6DCP)

Shaft Rotation

Design

Porting Combinations

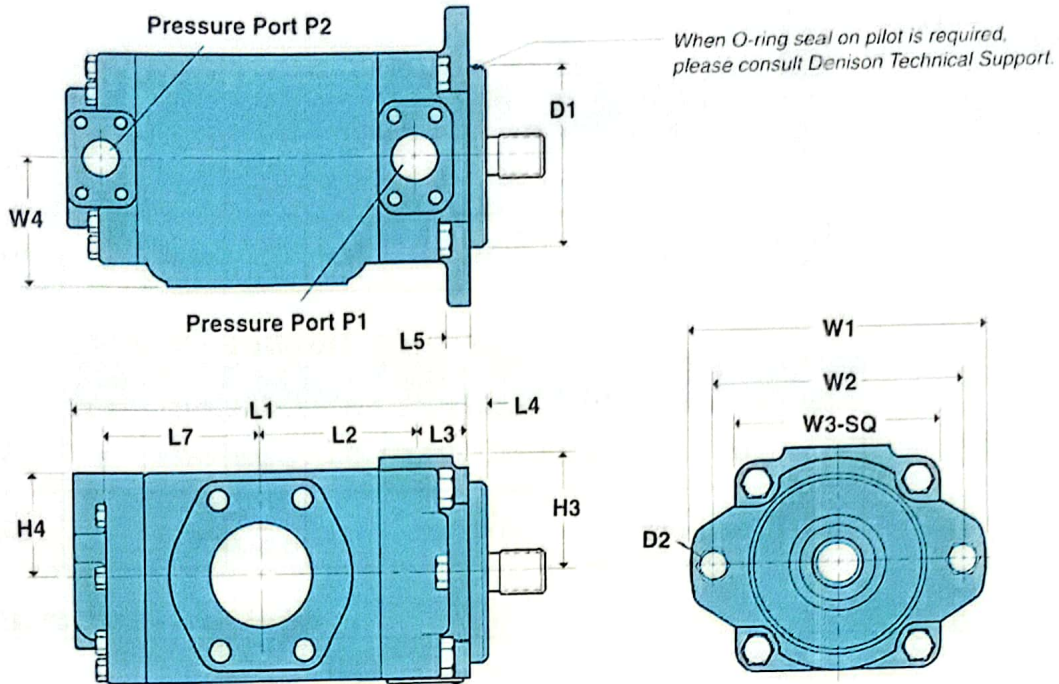
Shaft Type

**PORTING COMBINATIONS**

T6DC (M)	19	18	17	16	28	31	30	29	25	24	27	26	22	21	20	23
3520V (Q)	AA	AB	AC	AD	BA	BB	BC	BD	CA	CB	CC	CD	DA	DB	DC	DD

# INTERCHANGE GUIDE

**DENISON T6DC (M)**  
**VICKERS 3525V (Q)**



**PUMP - Dimensions in inches**

	L1	L2	L3	L4	L5	L7	D1	D2	W1	W2	W3	W4	H3	H4
<b>T6DC (M)</b>	11.26	4.50	1.50	.50	.62	4.31	5.00	69 2-holes	8.38	7.13	5.84	3.50	3.25	2.94
<b>3525V (Q)</b>	11.31	4.50	1.50	.38	.62	4.31	5.00	69 2-holes	8.38	7.13	5.82	3.50	3.25	2.94*

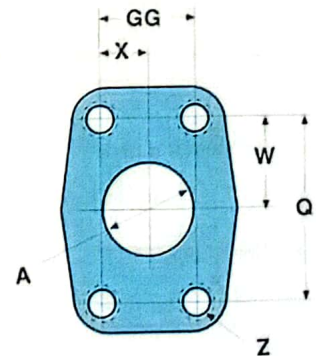
\* = at 45° from horizontal or vertical.

**PORT P1 - Dimensions in inches**

	CONNECTIONS	A	W	Q	X	GG	Z
<b>T6DC (M)</b>	1-1/4" Pressure Port	1.25	1.16	2.31	.59	1.19	7/16-14 UNC x .88 DP
<b>3525V (Q)</b>	1-1/4" Pressure Port	1.25	1.16	2.31	.59	1.19	7/16-14 UNC x .88 DP

**PORT P2 - Dimensions in inches**

	CONNECTIONS	A	W	Q	X	GG	Z
<b>T6DC (M)</b>	1" Pressure Port	1.00	1.03	2.06	.52	1.03	3/8-16 UNC x .75 DP
<b>3525V (Q)</b>	1" Pressure Port	1.00	1.03	2.06	.52	1.03	3/8-16 UNC x .75 DP



**SUCTION PORT / Code 1 - Dimensions in inches**

	CONNECTIONS	A	W	Q	X	GG	Z
<b>T6DC (M)</b>	3" Suction Port	3.00	2.09	4.19	1.22	2.44	5/8-11 UNC x 1.12 DP
<b>3525V (Q)</b>	3" Suction Port	3.00	2.09	4.19	1.22	2.44	5/8-11 UNC x 1.12 DP

**NOTE:**

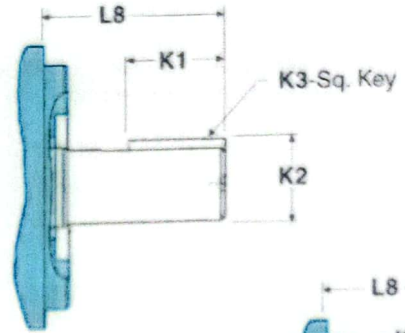
- Interchange Guide is to be used for preliminary purposes only. For specific and current data, refer to DENISON and VICKERS catalog.
- Dimensions shown in 'Color' denote variance.

# INTERCHANGE GUIDE

**DENISON T6DC (M)**  
**VICKERS 3525V (Q)**

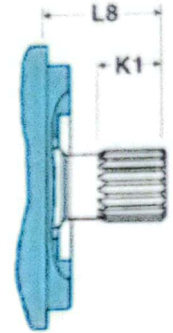
### SHAFT / Keyed - Dimensions in inches

	Shaft Code	Shaft Type	Shaft Std.	L8	Shaft Dia.	Key Shaft Dimensions		
						K1	K2	K3
T6DC (M)	2	Keyed	Non-SAE	2.88	1.25	1.50	1.38	.31
3525V (Q)	1	Keyed	Non-SAE	2.88	1.25	1.50	1.38	.31



### SHAFT / Splined - Dimensions in inches

	Shaft Code	Shaft Type	Shaft Std.	L8	Major Dia.	Minor Dia.	No. Teeth	Pitch	Pressure Angle	K1
T6DC (M)	3	Spline	SAE-C	2.17	1.22	1.06	14	12/24	30°	1.48
3525V (Q)	11	Spline	Non-SAE-C	2.31	1.24	1.06	14	12/24	30°	1.63



### MODEL CODE - Denison

**T6DC(M) - 038 - 017 3 R 27 - C 1**

Series (Mobile version)

Cam Ring for "P1"

(Nominal delivery @ 0 psi & 1200 rpm)

014, 020, 024, 028, 031, 035, 038, 042, 045, 050

Cam Ring for "P2"

(Nominal delivery @ 0 psi & 1200 rpm)

003, 005, 006, 008, 010, 012, 014, 017, 022, 025, 028, 031

Shaft Type

1 = Key (SAE-C)      3 = Spline (SAE-C)      5 = Key (non SAE)  
2 = Key (non SAE)    4 = Spline (non SAE)    (Sever Duty T6DCW only)

Seal Class

1 = S1 (for mineral oil)  
4 = S4 (for fire resistant fluids)  
5 = S5 (min. oil & fire rest. fluids)

Design Letter

Porting Combination

Shaft Rotation (view on shaft end)

R = Clockwise    L = Counter-clockwise

### MODEL CODE - Vickers

**3525V(Q) 38 A 17 11 CC 20 R**

Series (Mobile version)

Nominal Flow "P1"

Porting Connections

(For designations other than "A", contact Denison)

Nominal Flow "P2"

Mounting & Shaft Seal Assembly

(For "S" designations, order T6DCP)

Shaft Rotation

Design

Porting Combinations

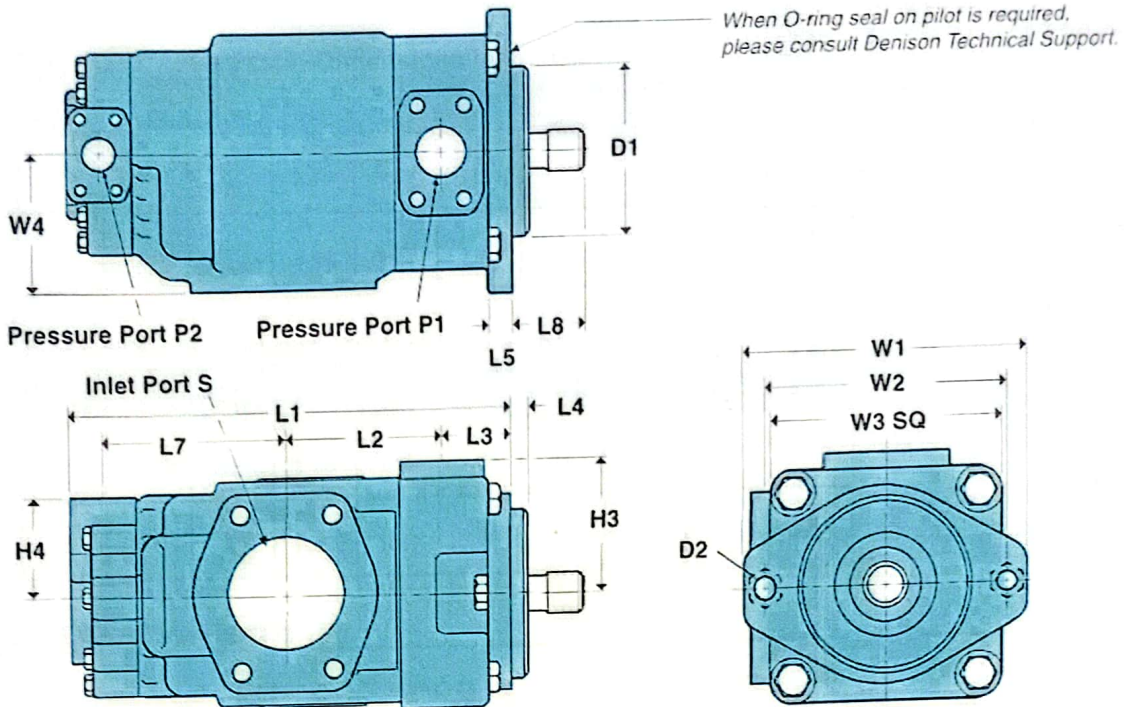
Shaft Type

### PORTING COMBINATIONS

T6DC (M)	19	18	17	16	28	31	30	29	25	24	27	26	22	21	20	23
3525V (Q)	AA	AB	AC	AD	BA	BB	BC	BD	CA	CB	CC	CD	DA	DB	DC	DD

# INTERCHANGE GUIDE

**DENISON T6EC (M)**  
**VICKERS 4520V (Q)**



**PUMP - Dimensions in inches**

	L1	L2	L3	L4	L5	L7	D1	D2	W1	W2	W3	W4	H3	H4
T6EC (M)	13.06	4.67	2.06	.50	.69	5.38	5.00	.69 2-holes	8.38	7.13	6.80	4.03	3.88	2.94
4520V (Q)	11.95	4.70	1.69	.50	.62	4.70	5.00	.69 2-holes	8.38	7.13	6.38	4.03	3.69	3.12*

\* = at 45° from horizontal or vertical.

**PORT P1 - Dimensions in inches**

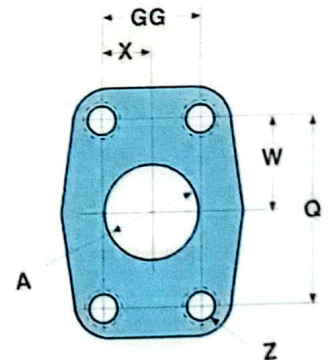
	CONNECTIONS	A	W	Q	X	GG	Z
T6EC (M)	1-1/2" Pressure Port	1.46	1.38	2.75	.70	1.41	1/2-13 UNC x .92 DP
4520V (Q)	1-1/2" Pressure Port	1.46	1.38	2.75	.70	1.41	1/2-13 UNC x .94 DP

**PORT P2 - Dimensions in inches**

	CONNECTIONS	A	W	Q	X	GG	Z
T6EC (M)	1" Pressure Port	1.00	1.03	2.06	.52	1.03	3/8-16 UNC x .75 DP
4520V (Q)	3/4" Pressure Port	.75	.94	1.88	.44	.88	3/8-16 UNC x .75 DP

**SUCTION PORT / Code 1 - Dimensions in inches**

	CONNECTIONS	A	W	Q	X	GG	Z
T6EC (M)	3-1/2" Suction Port	3.50	2.38	4.75	1.38	2.75	5/8-11 UNC x 1.16 DP
4520V (Q)	3-1/2" Suction Port	3.50	2.38	4.75	1.38	2.75	5/8-11 UNC x 1.25 DP



**NOTE:**

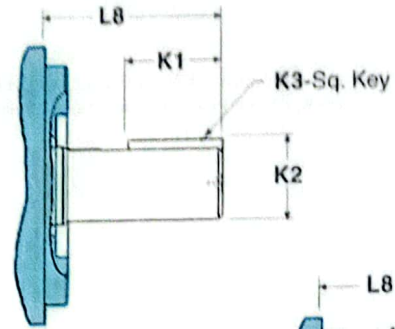
- ① Interchange Guide is to be used for preliminary purposes only. For specific and current data, refer to DENISON and VICKERS catalog.
- ② Dimensions shown in **Color** denote variance.

# INTERCHANGE GUIDE

**DENISON T6EC (M)**  
**VICKERS 4520V (Q)**

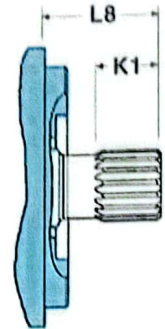
### SHAFT / Keyed - Dimensions in inches

	Shaft Code	Shaft Type	Shaft Std.	L8	Shaft Dia.	Key Shaft Dimensions		
						K1	K2	K3
T6EC (M)	2	Keyed	Non-SAE	2.44	1.25	1.50	1.39	.31
4520V (Q)	1	Keyed	Non-SAE	2.44	1.25	1.39	1.39	.31



### SHAFT / Splined - Dimensions in inches

	Shaft Code	Shaft Type	Shaft Std.	L8	Major Dia.	Minor Dia.	No. Teeth	Pitch	Pressure Angle	K1
T6EC (M)	3	Spline	SAE-C	2.20	1.22	1.06	14	12/24	30°	1.50
4520V (Q)	11	Spline	Non-SAE	2.44	1.24	1.06	14	12/24	30°	1.50



### MODEL CODE - Denison

**T6EC(M) - 050 - 008 3 R 27 - C 1 - 01**

Series (Mobile version)

Cam Ring for "P1"

(Nominal delivery @ 0 psi & 1200 rpm)

045, 050, 052, 062, 066, 072

Cam Ring for "P2"

(Nominal delivery @ 0 psi & 1200 rpm)

003, 005, 006, 008, 010, 012, 014, 017, 022, 025, 028, 031

Shaft Type

1 = Key (SAE-CC)      3 = Spline (SAE-C)  
2 = Key (non SAE)    4 = Spline (SAE-CC)

Seal Class

1 = S1 (for mineral oil)

4 = S4 (for fire resistant fluids)

5 = S5 (min. oil & fire rest. fluids)

Design Letter

Porting Combination

Shaft Rotation (view on shaft end)

R = Clockwise    L = Counter-clockwise

### MODEL CODE - Vickers

**4520V(Q) 50 A 8 11 CC 20 R**

Series (Mobile version)

Nominal Flow "P1"

Porting Connections

(For designations other than "A", contact Denison)

Nominal Flow "P2"

Mounting & Shaft Seal Assembly

(For "S" designations, order T6ECP)

Shaft Rotation

Design

Porting Combinations

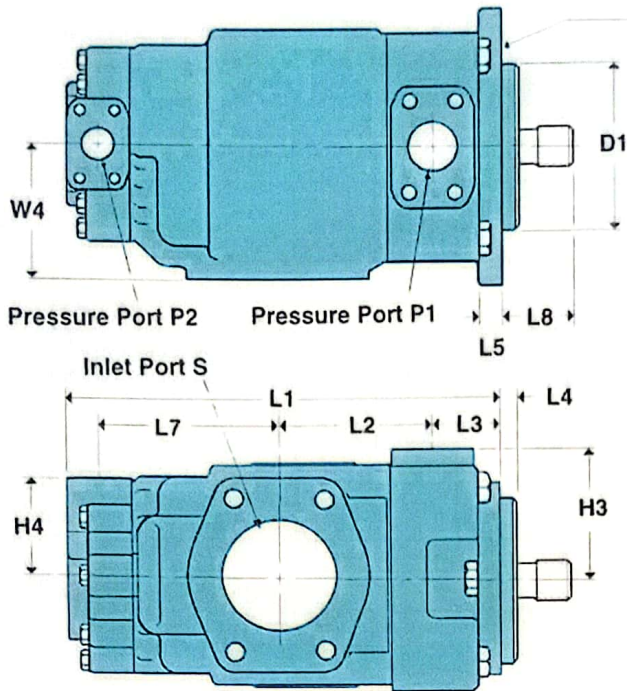
Shaft Type

### PORTING COMBINATIONS

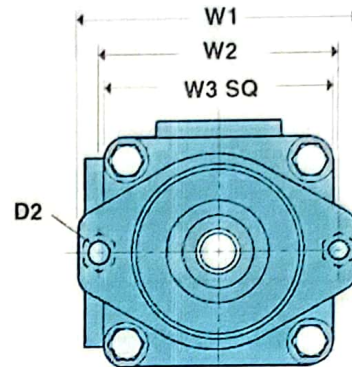
T6EC	19	18	17	16	28	31	30	29	25	24	27	26	22	21	20	23
4520V (Q)	AA	AB	AC	AD	BA	BB	BC	BD	CA	CB	CC	CD	DA	DB	DC	DD

# INTERCHANGE GUIDE

**DENISON T6EC (M)**  
**VICKERS 4525V (Q)**



When O-ring seal on pilot is required, please consult Denison Technical Support.



**PUMP - Dimensions in inches**

	L1	L2	L3	L4	L5	L7	D1	D2	W1	W2	W3	W4	H3	H4
<b>T6EC (M)</b>	13.06	4.67	2.06	.50	.69	5.38	5.00	.69 2-holes	8.38	7.13	6.8	4.03	3.88	2.94
<b>4525V (Q)</b>	12.80	4.70	1.69	.50	.62	5.35	5.00	.69 2-holes	8.38	7.13	6.25	4.03	3.69	2.94*

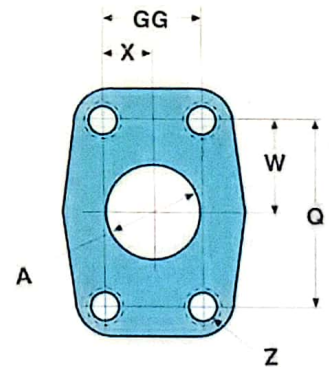
**PORT P1 - Dimensions in inches**

	CONNECTIONS	A	W	Q	X	GG	Z
<b>T6EC (M)</b>	1-1/2" Pressure Port	1.46	1.38	2.75	.70	1.41	1/2-13 UNC x .92 DP
<b>4525V (Q)</b>	1-1/2" Pressure Port	1.46	1.38	2.75	.70	1.41	1/2-13 UNC x .94 DP

\* = at 45° from horizontal or vertical.

**PORT P2 - Dimensions in inches**

	CONNECTIONS	A	W	Q	X	GG	Z
<b>T6EC (M)</b>	1" Pressure Port	1.00	1.03	2.06	.52	1.03	3/8-16 UNC x .75 DP
<b>4525V (Q)</b>	1" Pressure Port	1.00	1.03	2.06	.52	1.03	3/8-16 UNC x .75 DP



**SUCTION PORT / Code 1 - Dimensions in inches**

	CONNECTIONS	A	W	Q	X	GG	Z
<b>T6EC (M)</b>	3-1/2" Suction Port	3.50	2.38	4.75	1.38	2.75	5/8-11 UNC x 1.16 DP
<b>4525V (Q)</b>	3-1/2" Suction Port	3.50	2.38	4.75	1.38	2.75	5/8-11 UNC x 1.25 DP

**NOTE:**

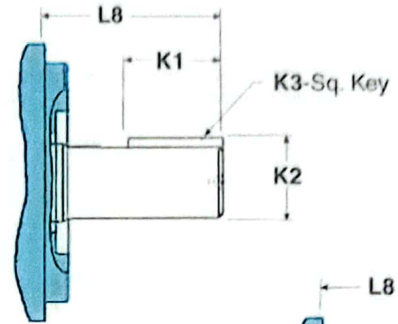
- ① Interchange Guide is to be used for preliminary purposes only. For specific and current data, refer to DENISON and VICKERS catalog.
- ② Dimensions shown in **Color** denote variance.

# INTERCHANGE GUIDE

**DENISON T6EC (M)**  
**VICKERS 4525V (Q)**

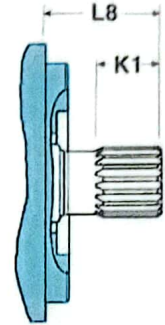
### SHAFT / Keyed - Dimensions in inches

	Shaft Code	Shaft Type	Shaft Std.	L8	Shaft Dia.	Key Shaft Dimensions		
						K1	K2	K3
T6EC (M)	2	Keyed	Non-SAE	2.44	1.25	1.50	1.39	.31
4525V (Q)	1	Keyed	Non-SAE	2.44	1.25	1.39	1.39	.31



### SHAFT / Splined - Dimensions in inches

	Shaft Code	Shaft Type	Shaft Std.	L8	Major Dia.	Minor Dia.	No. Teeth	Pitch	Pressure Angle	K1
T6EC (M)	3	Spline	SAE-C	2.20	1.22	1.06	14	12/24	30°	1.50
4525V (Q)	11	Spline	Non-SAE	2.44	1.24	1.06	14	12/24	30°	1.50



### MODEL CODE - Denison

**T6EC(M) - 050 - 017 1 R 27 - C 1**

Series (Mobile version)

Cam Ring for "P1"

(Nominal delivery @ 0 psi & 1200 rpm)  
045, 050, 052, 062, 066, 072

Cam Ring for "P2"

(Nominal delivery @ 0 psi & 1200 rpm)  
003, 005, 006, 008, 010, 012, 014, 017, 022, 025, 028, 031

Shaft Type

1 = Key (SAE-CC)      3 = Spline (SAE-C)  
2 = Key (non SAE)    4 = Spline (SAE-CC)

Seal Class

1 = S1 (for mineral oil)  
4 = S4 (for fire resistant fluids)  
5 = S5 (min. oil & fire rest. fluids)

Design Letter

Porting Combination

Shaft Rotation (view on shaft end)

R = Clockwise      L = Counter-clockwise

### MODEL CODE - Vickers

**4525 V(Q) 50 A 17 11 CC 20 R**

Series (Mobile version)

Nominal Flow "P1"

Porting Connections

(For designations other than "A", contact Denison)

Nominal Flow "P2"

Mounting & Shaft Seal Assembly

(For "S" designations, order T6ECP)

Shaft Rotation

Design

Porting Combinations

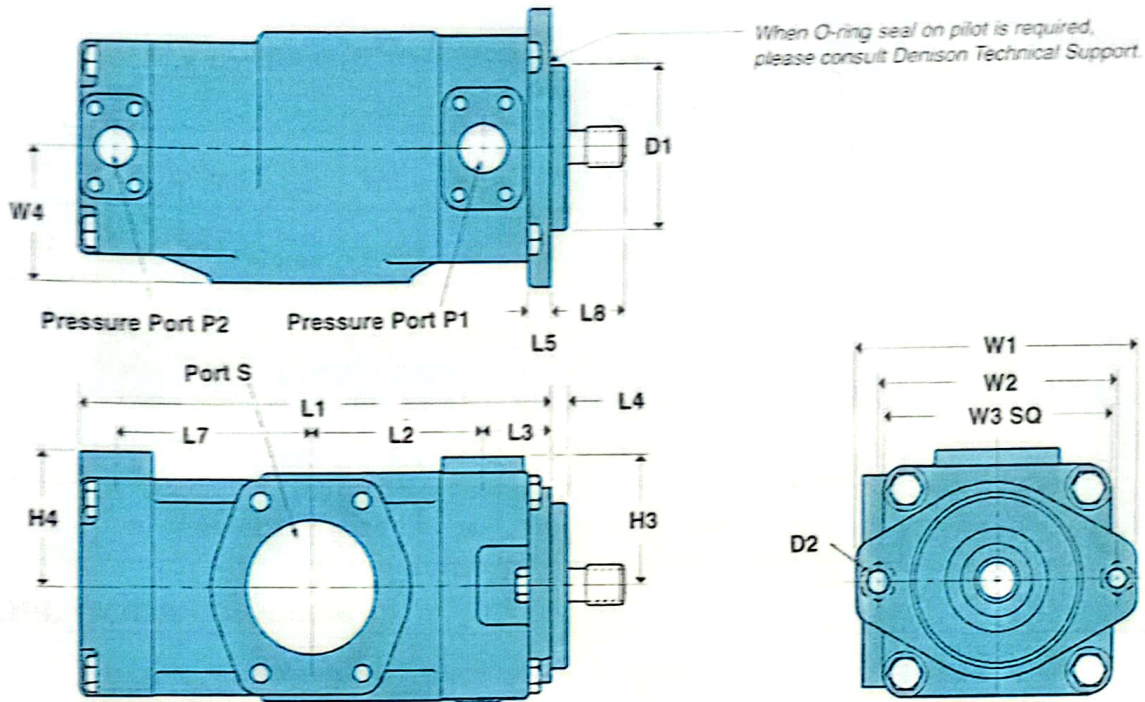
Shaft Type

### PORTING COMBINATIONS

T6EC	19	18	17	16	28	31	30	29	25	24	27	26	22	21	20	23
4525V (Q)	AA	AB	AC	AD	BA	BB	BC	BD	CA	CB	CC	CD	DA	DB	DC	DD

# INTERCHANGE GUIDE

**DENISON T6ED (M)**  
**VICKERS 4535V (Q)**



**PUMP - Dimensions in inches**

	L1	L2	L3	L4	L5	L7	D1	D2	W1	W2	W3	W4	H3	H4
T6ED (M)	14.22	5.26	2.06	.50	.69	5.84	5.00	.69 2-holes	8.38	7.13	7.00	4.03	3.88	4.00
4535V (Q)	13.90	5.25	1.69	.50	.62	5.84	5.00	.69 2-holes	8.38	7.13	6.25	4.03	3.69	4.00

**PORT P1 - Dimensions in inches**

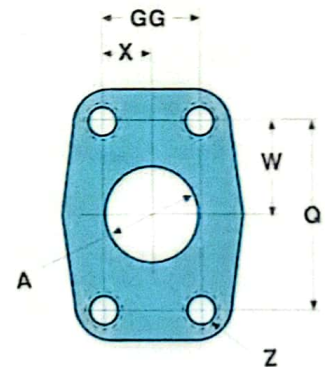
	CONNECTIONS	A	W	Q	X	GG	Z
T6ED (M)	1-1/2" Pressure Port	1.46	1.38	2.75	.70	1.41	1/2-13 UNC x .92 DP
4535V (Q)	1-1/2" Pressure Port	1.46	1.38	2.75	.70	1.41	1/2-13 UNC x .94 DP

**PORT P2 - Dimensions in inches**

	CONNECTIONS	A	W	Q	X	GG	Z
T6ED (M)	1-1/4" Pressure Port	1.16	1.16	2.31	.59	1.19	7/16-14 UNC x .94 DP
4535V (Q)	1-1/4" Pressure Port	1.25	1.16	2.31	.59	1.19	7/16-14 UNC x .94 DP

**SUCTION PORT / Code 1 - Dimensions in inches**

	CONNECTIONS	A	W	Q	X	GG	Z
T6ED (M)	4" Suction Port	4.00	2.56	5.13	1.53	3.06	5/8-11 UNC x 1.18 DP
4535V (Q)	4" Suction Port	4.00	2.56	5.13	1.53	3.06	5/8-11 UNC x 1.12 DP



**NOTE:**

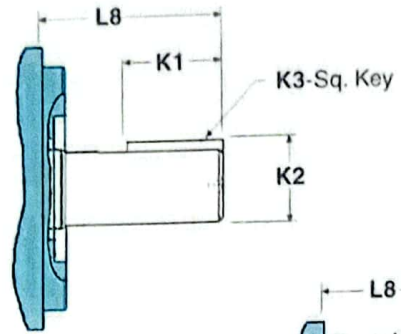
- ① Interchange Guide is to be used for preliminary purposes only. For specific and current data, refer to DENISON and VICKERS catalog.
- ② Dimensions shown in 'Color' denote variance.

# INTERCHANGE GUIDE

**DENISON T6ED (M)**  
**VICKERS 4535V (Q)**

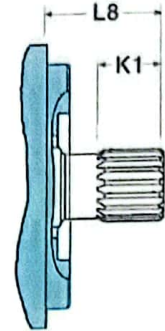
### SHAFT / Keyed - Dimensions in inches

	Shaft Code	Shaft Type	Shaft Std.	L8	Shaft Dia.	Key Shaft Dimensions		
						K1	K2	K3
T6ED (M)	2	Keyed	Non-SAE	2.44	1.25	1.50	1.38	.31
4535V (Q)	1	Keyed	Non-SAE	2.44	1.25	1.12	1.38	.31



### SHAFT / Splined - Dimensions in inches

	Shaft Code	Shaft Type	Shaft Std.	L8	Major Dia.	Minor Dia.	No. Teeth	Pitch	Pressure Angle	K1
										K1
T6ED (M)	3	Spline	SAE-C	2.20	1.22	1.06	14	12/24	30°	1.50
4535V (Q)	11	Spline	Non-SAE-C	2.31	1.24	1.06	14	12/24	30°	1.50



### MODEL CODE - Denison

**T6ED(M) - 050 - 038 1 R 00 - C 1**

Series (Mobile version) ————

Cam Ring for "P1"  
(Nominal delivery @ 0 psi & 1200 rpm)  
045, 050, 052, 062, 066, 072

Cam Ring for "P2"  
(Nominal delivery @ 0 psi & 1200 rpm)  
014, 020, 024, 028, 031, 035, 038, 042, 045, 050

Shaft Type  
1 = Key (SAE-CC)      3 = Spline (SAE-C)  
2 = Key (non SAE)    4 = Spline (SAE-CC)

Seal Class  
1 = S1 (for mineral oil)  
4 = S4 (for fire resistant fluids)  
5 = S5 (min. oil & fire rest. fluids)

Design Letter

Porting Combination

Shaft Rotation (view on shaft end)  
R = Clockwise    L = Counter-clockwise

### MODEL CODE - Vickers

**4535V(Q) 50 A 38 11 AA 20 R**

Series (Mobile version) ————

Nominal Flow "P1" ————

Porting Connections  
(For designations other than "A", contact Denison)

Nominal Flow "P2" ————

Mounting & Shaft Seal Assembly  
(For "S" designations, order T6EDP)

Shaft Rotation

Design

Porting Combinations

Shaft Type

### PORTING COMBINATIONS

T6ED	00	15	05	12	13	03	06	14	08	07	02	09	11	10	04	01
4535V (Q)	AA	AB	AC	AD	BA	BB	BC	BD	CA	CB	CC	CD	DA	DB	DC	DD

# INTERCHANGE GUIDE

NOTES