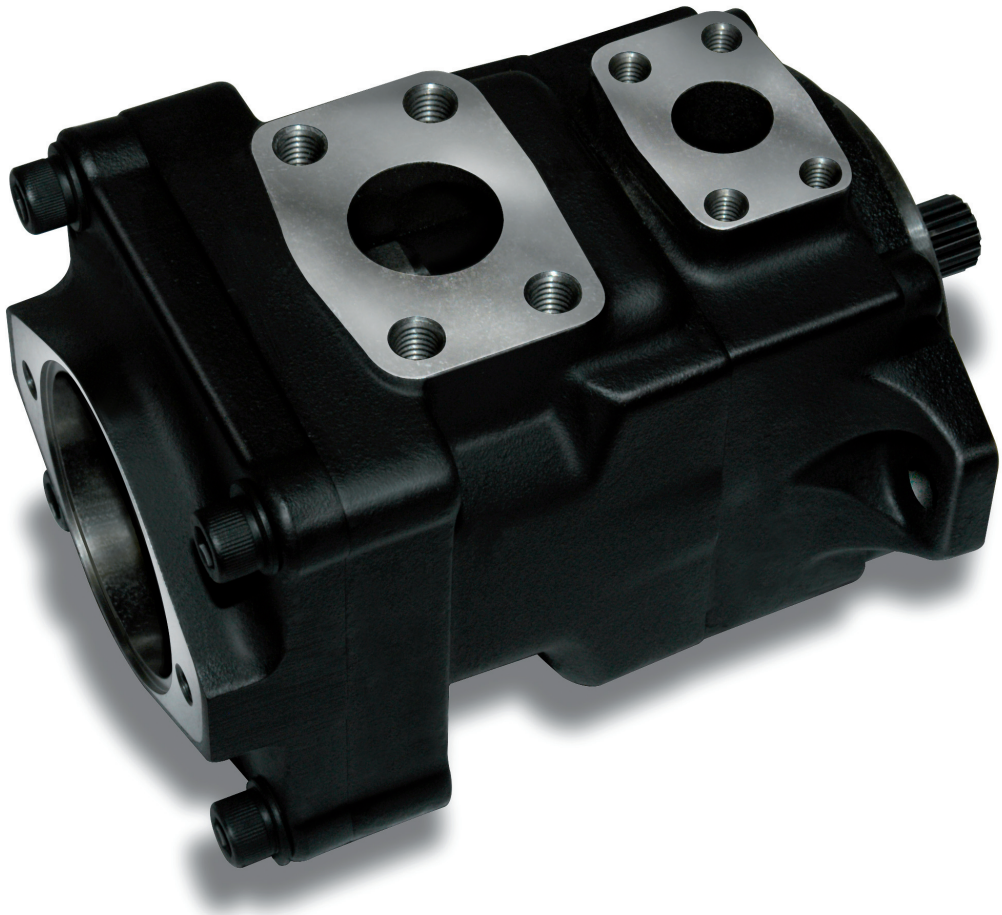


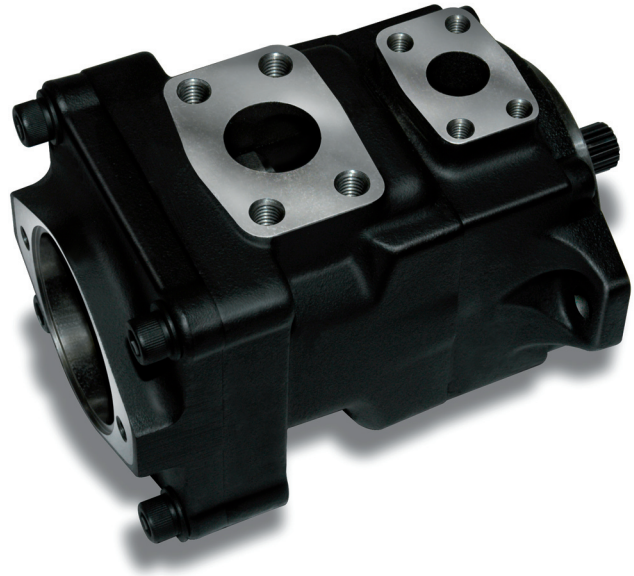
Hydraulic Pumps Mobile & Industrial T6*R

Denison Vane Technology, fixed displacement

aerospace
climate control
electromechanical
filtration
fluid & gas handling
hydraulics
pneumatics
process control
sealing & shielding

Parker

ENGINEERING YOUR SUCCESS.



GREATER FLOW

Greater flow for the envelope size is achieved by increased displacement cam rings: at high permissible speeds with atmospheric inlet
C → 3 to 31 GPM, 10 to 100 ml/rev.
D → 14 to 50 GPM, 48 to 158 ml/rev.
E → 42 to 72 GPM, 132 to 227 ml/rev.

HIGHER PRESSURE

Pressure ratings up to 275 bar, whichs allows to reduce the size and cost of the actuators, valves and lines.

BETTER EFFICIENCY

Better efficiency under load which increases the productivity and reduces the heating and operating costs.

MOUNTING FLEXIBILITY

Single pumps : 4 positions + 4 on rear drive.
Triple pumps : 128 positions + 2 on rear drive.

REAR DRIVE

Mounting pads and couplings are fully conformable to SAE J744c and ISO 3019-1.
Single pumps SAE A / B / C rear adaptors.
SAE A / B / BB / C couplings
Triple pumps SAE A adaptor and coupling.

LOWER NOISE LEVELS

Increase the operator's safety and acceptance.

COMPLETE CONFORMITY

To SAE - J744c 2-bolt standards and to ISO 3019-1 in the various keyed and splined shaft options offered.

CARTRIDGE DESIGN

Provides for drop-in assemblies. This design permits an easy conversion or renewal of serviceable elements in minutes at minimum expense and risk of contamination. Pump rotation is easy to change by changing the position of the cam ring on the port plate dowel pin hole.

WIDER RANGE OF ACCEPTABLE VISCOSITIES

Viscosities from 860 to 10 cSt, (2000 to 10 cSt for Mobile), permit colder starts and hotter running. The balanced design compensates for wear and temperature changes. At high viscosity or cold temperature, the rotor to side plates gap is well lubricated and improves the mechanical efficiency.

FIRE RESISTANT FLUIDS

Including phosphate esters, chlorinated hydrocarbons, water glycols and invert emulsions. They may be pumped at higher pressures and with longer service life by these pumps.

GENERAL APPLICATIONS INSTRUCTIONS

1. Check the speed range, pressure, temperature, fluid quality, viscosity and pump rotation.
2. Check the inlet conditions of the pump, if it can accept application requirement.
3. Type of shaft : check if it can support the system's operating torque.
4. Coupling must be chosen to minimize the pump shaft load (weight, misalignment).
5. Filtration : must be adequate for lowest contamination level.
6. Environment of pump : to avoid the noise reflection, pollution and shocks.

Size	Series	Theoretical Displacement Vi	Minimum Speed	Maximum Speed		Maximum Pressure					
				HF-0,HF-1 HF-2	HF-3, HF-4 HF-5	HF-0, HF-2		HF-1, HF-4, HF-5		HF-3	
						Int,	Cont,	Int,	Cont,	Int,	Cont,
		ml/rev,	RPM	RPM	RPM	bar	bar	bar	bar	bar	bar
CR CRM	*03	10,8	600 / 400	2800	1800	275	240	210	175	175	140
	*05	17,2									
	*06	21,3									
	*08	26,4									
	*10	34,1									
	*12	37,1									
	*14	46,0									
	*17	58,3									
	*20	63,8									
	*22	70,3									
	*25	79,3		2500							
	*28	88,8				210	160		160		
	*31	100,0									
DR DRM	*14	47,6	600 / 400	2500	1800	240	210	210	175	175	140
	*17	58,2									
	*20	66,0									
	*24	79,5									
	*28	89,7									
	*31	98,3									
	*35	111,0									
	*38	120,3									
	*42	136,0									
	*45	145,7		2200							
	*50	158,0				210	160		160		
ER ERM	042	132,3	600 / 400	2200	1800	240	210	210	175	175	140
	045	142,4									
	050	158,5									
	052	164,8									
	062	196,7									
	066	213,3									
	072	227,1									
T6DCCR		Same as		Same as		Same as					
P1		T6DR	600	T6DR		T6DR					
P2		T6CR				T6CR					
P3		T6CR				T6CR					
T6EDCR		Same as				Same as					
P1		T6ER	600	T6ER		T6ER					
P2		T6DR				T6DR					
P3		T6CR				T6CR					

* = 0 : Industrial version
* = B : Mobile version

HF-0, HF2 = Antiwear Petroleum Base
HF-1 = Non Antiwear Petroleum Base
HF-5 = Synthetic Fluids
HF-3 = Water in oil Emulsions
HF-4 = Water Glycols

For further information or if the performance characteristics outlined above do not meet your own particular requirements, please consult your local Parker office.

PRIMING AT STARTING

When the pump is set into operation for the first time, it must be primed at the lowest possible speed and pressure. When a pressure relief valve is used at the outlet, it should be backed off to minimize return pressure.
When possible, an air bleed off should be provided in the circuit to facilitate purging of system air.
Never operate the pump at maximum speed and pressure without making sure that the pump priming is completed and that the fluid is correctly deaerated (no aeration).

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Cartridge		Speed RPM								Displacement
Size	Displacement	1200	1500	1800	2100	2200	2300	2500	2800	
C	*03	0,80	0,80	0,80	0,80	0,80	0,80	0,90	1,00	*03
	*05									*05
	*06									*06
	*08									*08
	*10									*10
	*12						0,85	0,92		*12
	*14							0,95		*14
	*17					0,85	0,90		1,03	*17
	*20									*20
	*22				0,85	0,90		0,98	1,05	*22
	*25				0,90	0,95	0,95	1,05		*25
	*28					0,98	0,98	1,08		*28
	*31				0,85	0,90	1,00	1,11		*31
D	*14	0,80	0,80	0,80	0,80	0,88	0,95	1,00		*14
	*17									*17
	*20									*20
	*24				0,82			1,10		*24
	*28				0,85	0,92	1,00	1,18		*28
	*31				0,90	0,95		1,23		*31
	*35				0,92	0,98	1,02	1,29		*35
	*38				0,95	1,00	1,05			*38
	*42					1,02	1,08			*42
	*45			0,85	0,98	1,05				*45
	*50				1,02	1,09				*50
E	042	0,80	0,80	0,80	0,88	1,00				042
	045				0,90					045
	050									050
	052									052
	062			0,85	0,95					062
	066	0,85	0,85	0,95	1,00	1,09				066
	072			0,85		1,05				072

Inlet pressure is measured at inlet flange with petroleum base fluids at a viscosity between 10 and 65 cSt. The difference between inlet pressure at the pump flange and atmospheric pressure must not exceed 0.2 bar to prevent aeration.

Multiply absolute pressure by 1.25 for HF-3, HF-4 fluids.
by 1.35 for HF-5 fluid.
by 1.10 for ester or rapeseed base.

Use highest cartridge absolute pressure for triple pumps.

GENERAL CHARACTERISTICS

	Mounting standard	Weight without connector and bracket - kg	Moment of inertia $km^2 \times 10^{-4}$	SAE 4 bolts J518c - ISO/DIS 6162-1			
				Suction	Pressure		
T6CR/ T6CRM	SAE J744c ISO/3019-1 SAE B	17,0	7,6	1.1/2"	1"		
T6DR/ T6DRM	SAE J744c ISO/3019-1 SAE C	29,0	23,4	2"	1.1/4"		
T6ER/ T6ERM		39,2	51,6	3"	1.1/2"		
T6DCCR		62,0	37,4	4"	P1	P2	P3
					1.1/4"	1"	1" or 3/4"
T6EDCR	250 B4HW ISO/3019-2	100,0	80,3	4"	1.1/2"	1.1/4"	1" or 3/4"

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CALCULATION

To resolve			*Performances required*			
Volumetric displacement	*Vi*	*[ml/rev.]*	*Requested flow*	*Q*	*[l/min]*	*60*
Available flow	*Q*	*[l/min]*	*Speed*	*n*	*[R.P.M.]*	*1500*
Input Power	*p*	*[Kw]*	*Pressure*	*p*	*[bar]*	*150*

ROUTINE AND EXAMPLE

Routine :

Example :

1. First calculation $Vi = \frac{1000\ Q}{n}$

$Vi = \frac{1000 \times 60}{1500}$ *= 40 ml/rev.*

2. Choose Vi of pump immediately greater (see tabulation)

T6CR 014 Vi = 46 ml/rev.

3. Theoretical flow of this pump

$Q_{theo.} = \frac{Vi \times n}{1000}$

$Q_{theo.} = \frac{46 \times 1500}{1000}$ *= 69 l/min*

4. Find $Q_{per.}$ *leakage function of pressure* $Q_{per.} = f(p)$ *on curve at 10 or 24 cSt*

T6CR (page 10) : $Q_{per.}$ *= 5 l/min at 150 bar, 24 cSt*

5. Available flow $Q_{eff.} = Q_{theo.} - Q_{per.}$

$Q_{eff.}$ *= 69 - 5 = 64 l/min*

6. Theoretical input power curve

$P_{theo.} = \frac{Q_{theo.} \times p}{600}$

$P_{theo.} = \frac{69 \times 150}{600}$ *= 17,3 kW*

7. Find Ps hydrodynamic power loss on curve

T6CR (page 10) : Ps at 1500 R.P.M., 150 bar = 1,5 kW

8. Calculation of necessary input power

$P_{eff.} = P_{theo.} + Ps$

$P_{eff.}$ *= 17,3 + 1,5 = 18,8 kW*

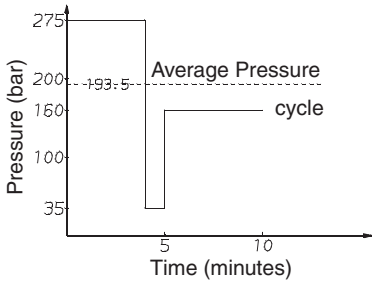
9. Results

Vi = 46,0 ml/rev
$Q_{eff.}$ *= 64,0 l/min*
$P_{eff.}$ *= 18,8 kW*
} T6CR 014

These calculation steps must be followed for each application.

INTERMITTENT PRESSURE RATING

T6 units may be operated intermittently at pressures higher than the recommended continuous rating when the time weighted average of pressure is less than or equal to the continuous duty pressure rating.
This intermittent pressure rating calculation is only valid if other parameters : speed, fluid, viscosity and contamination level are respected.
For total cycle time higher than 15 minutes, please consult your Parker representative.



Example : T6CR - 014
Duty cycle 4 min. at 275 bar
1 min. at 35 bar
5 min. at 160 bar

$\frac{(4 \times 275) + (1 \times 35) + (5 \times 160)}{10}$ = 193,5 bar

193,5 bar is lower than 240 bar allowed as continuous pressure for T6CR - 014 with HF-0 fluid.

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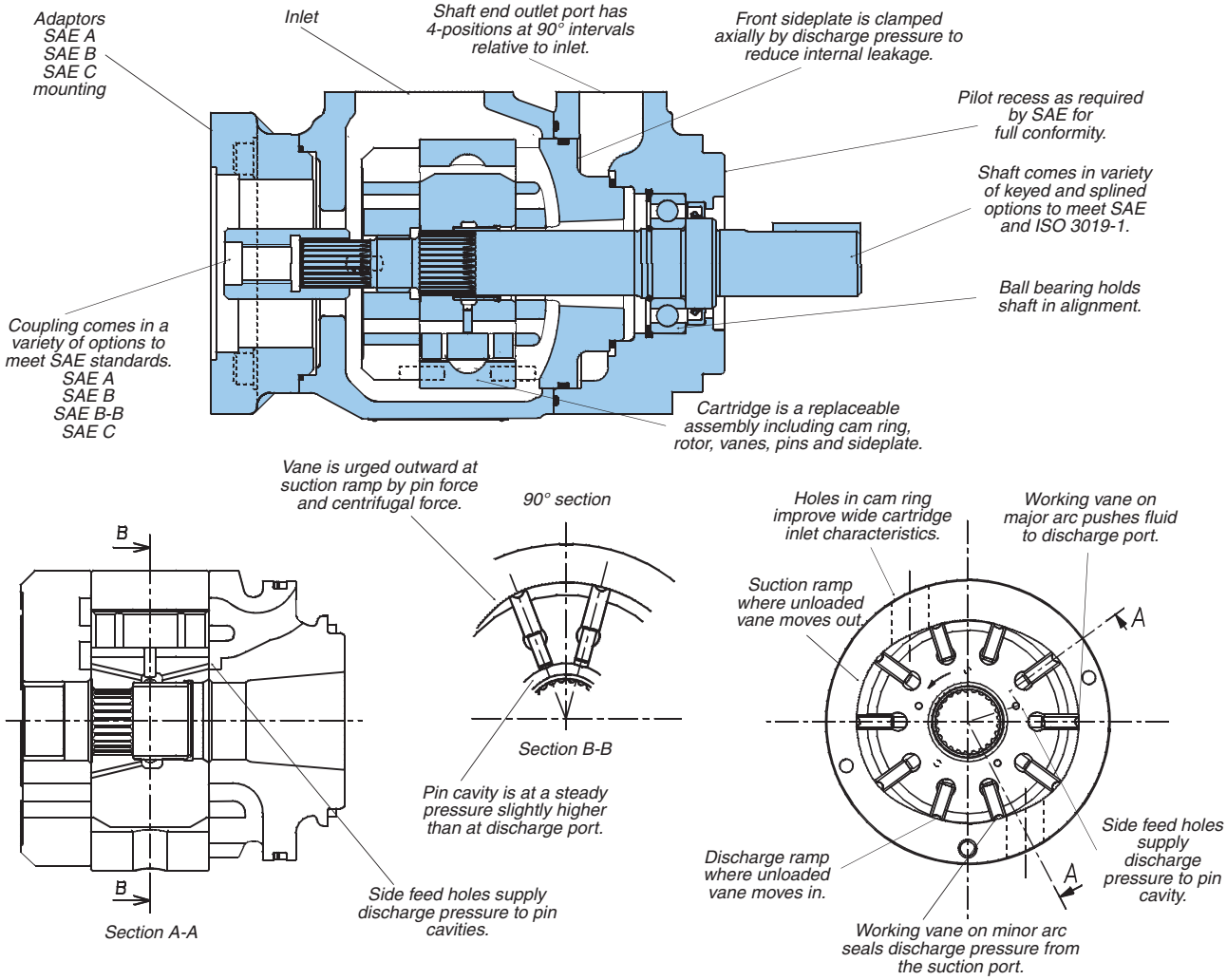

APPLICATION ADVANTAGES

- The high pressure capability up to 275 bar, in the small envelope, reduces the installation costs and provides an extended life at reduced pressure.
- The high volumetric efficiency, typically 94%, reduces the heat generation, and allows speeds down to 600 RPM at full pressure.
- The high mechanical efficiency, typically 94%, reduces energy consumption.
- The wide speed range from 600 RPM to 2800 RPM, combined with large size cartridge displacements, will optimize operation for the lowest noise level in the smallest envelope.
- Operating the pump at a high viscosity (up to 860 cSt) and/or at alow speed (down to 600 RPM) allows applications in cold environments with minimum energy consumption and without seizure risk.
- The low ripple pressure ± 2 bar reduces the piping noise and increases the life time of other components in the circuit.
- The high resistance to particle contamination because of the double lip vane increases the pump life.
- The large variety of options (cam displacement, shaft, porting) allows customized installation.

RECOMMENDED FLUIDS

Petroleum based antiwear R & O fluids.
These fluids are the recommended fluids for T6 series pumps. Maximum catalog ratings and performance data are based on operation with these fluids. These fluids are covered by Denison fluids HF-0 and HF-2 specification.

ACCEPTABLE ALTERNATE FLUIDS

The use of fluids other than petroleum based antiwear R & O fluids requires that the maximum ratings of the pumps will be reduced. In somes cases the minimum replenishment pressures must be increased. Consult specific sections for more details.

VISCOSITY

Max (cold start, low speed & pressure)	860	mm^2/s (cSt)
Max (full speed & pressure)	108	mm^2/s (cSt)
Optimum (max. life)	30	mm^2/s (cSt)
Min (full speed & pressure for HF-1, HF-3, HF-4 & HF-5 fluids)	18	mm^2/s (cSt)
Min (full speed & pressure for HF-0 & HF-2 fluids)	10	mm^2/s (cSt)

VISCOSITY INDEX

90° min. higher values extend range of operaring temperatures.
Maximum fluid temperature (θ) °C

HF-0, HF-1, HF-2	+ 100° C
HF-3, HF-4	+ 50° C
HF-5	+ 70° C
Biodegradable fluids (esters & rapeseed base)	+ 65° C

Minimum fluid temperature (θ) °C

HF-0, HF-1, HF-2, HF-5	- 18° C
HF-3, HF-4	+ 10° C
Biodegradable fluids (esters & rapeseed base)	- 20° C

FLUID CLEANLINESS

The fluid must be cleaned before and during operation to maintain the contamination level of NAS 1638 class 8 (or ISO 19/17/14) or better. Filters with 25 micron (or better, $\beta 10 \geq 100$) nominal ratings may be adequate but do not guarantee the required cleanliness levels.
Suction strainers must be of adequate size to provide the minimum inlet pressure specified. 100 mesh (150 micron) is the finest mesh recommended. Use oversize strainers or omit them altogether on applications which require cold starts or use fire resistant fluids.

OPERATING TEMPERATURES AND VISCOSITIES

Operating temperatures are a function of fluid viscosities, fluid type, and the pump. Fluid viscosity should be selected to provide the optimum viscosity at normal operating temperatures. For cold starts, the pumps should be operated at low speed and pressure until the fluid warms up to an acceptable viscosity for full power operation.

WATER CONTAMINATION IN THE FLUID

Maximum acceptable content of water.
• 0.10% for mineral base fluids.
• 0.05% for synthetic fluids, crankcase oils, biodegradable fluids.
If amount of water is higher then it should be drained off the circuit.

COUPLINGS AND FEMALE SPLINES SPLINES

- The mating female spline should be free to float and find its own center. If both members are rigidly supported, they must be aligned within 0,15 TIR or less to reduce fretting. The angular alignment of two spline axes must be less than ± 0,05 per 25,4 radius.
- The coupling spline must be lubricated with a lithium molydisulfide grease or a similar lubricant.
- The coupling must be hardened to a hardness between 27 and 45 R.C.
- The female spline must be made to conform to the Class 1 fit as described in SAE-J498b (1971). This is described as a Flat Root Side Fit.

RECOMMENDED FLUIDS

Parker supplies the T6 series keyed shaft pumps with high strength heat-treated keys. Therefore, when installing or replacing these pumps, the heat-treated keys must be used in order to insure maximum life in the application. If the key is replaced, it must be a heat-treated key between 27 and 34 R.C. hardness. The corners of the keys must be chamfered from 0,76 to 1,02 at 45° to clear the radii in the key way.

NOTE

The alignment of keyed shafts must be within the tolerances given for splined shafts.

SHAFT LOADS

These products are primarily designed for coaxial drives which do not impose axial or side loading on the shaft. Consult specific sections for more details.

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Model No. **T6CR - 022 - 1 L 00 - A 1 0 - A 1 ....**

Series

Cam ring
(Delivery at 0 bar & 1500 r.p.m.)

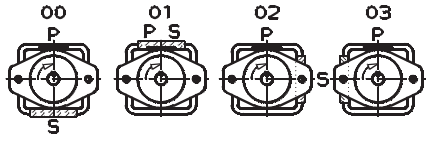
003 = 16,2 l/min	017= 87,4 l/min
005 = 25,8 l/min	020 = 95,7 l/min
006 = 31,9 l/min	022 =105,4 l/min
008 = 39,6 l/min	025 =118,9 l/min
010 = 51,1 l/min	028 =133,2 l/min
012 = 55,6 l/min	031 =150,0 l/min
014 = 69,0 l/min	

Type of shaft

1 = keyed (SAE BB)	4 = splined (SAE BB)
2 = keyed (non SAE)	5 = keyed (non SAE)
3 = splined (SAE B)	

Direct. of rotation (view on shaft end)
R = clockwise
L = counter-clockwise

Porting combination
00 = standard



Modification

Seal class
1 = S1 (for mineral oil)
4 = S4 (for the resistant fluids)
5 = S5 (for mineral oil and fire resistant fluids)

Design letter

Porting adaptor

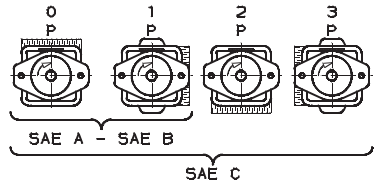
Coupling

1 = SAE A	4 = SAE C
2 = SAE B	5 = SAE J498b
3 = SAE BB	16/32 - 11 teeth

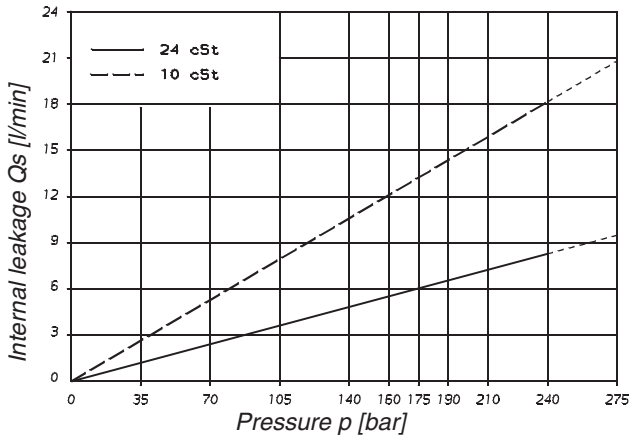
Adaptor

0 = None	B = SAE B
A = SAE A	C = SAE C

Porting adaptor

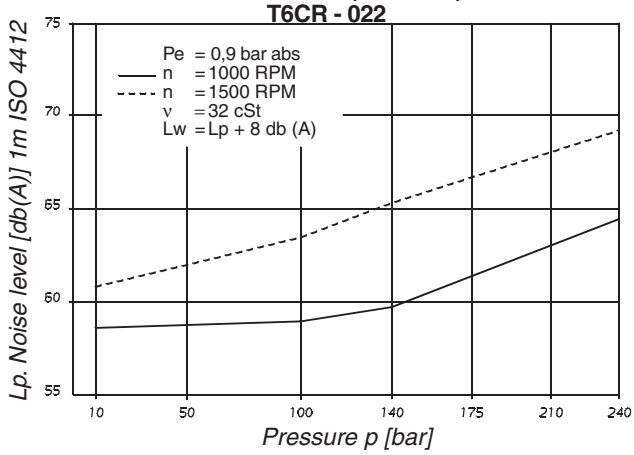


INTERNAL LEAKAGE (TYPICAL)

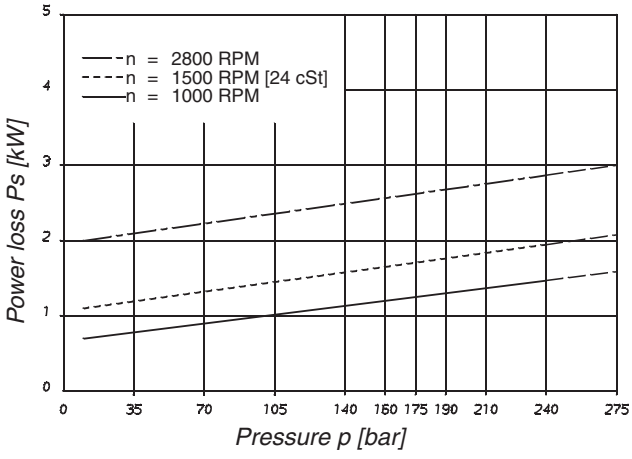


Do not operate the pump more than 5 seconds at any speed or viscosity if internal leakage is more than 50% of theoretical flow

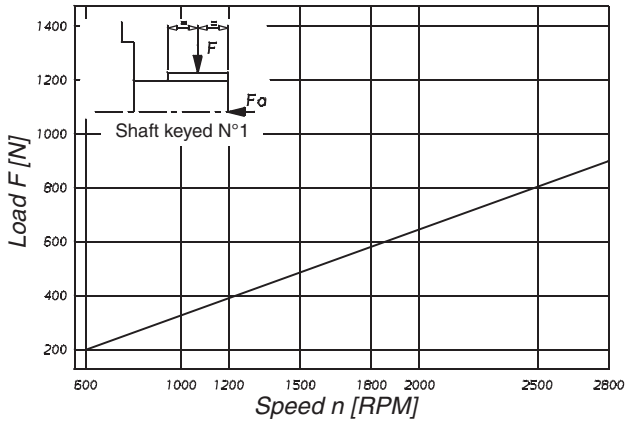
NOISE LEVEL (TYPICAL)
T6CR - 022



POWER LOSS HYDROMECHANICAL (TYPICAL)



PERMISSIBLE RADIAL LOAD



Maximum permissible axial load Fa = 800 N

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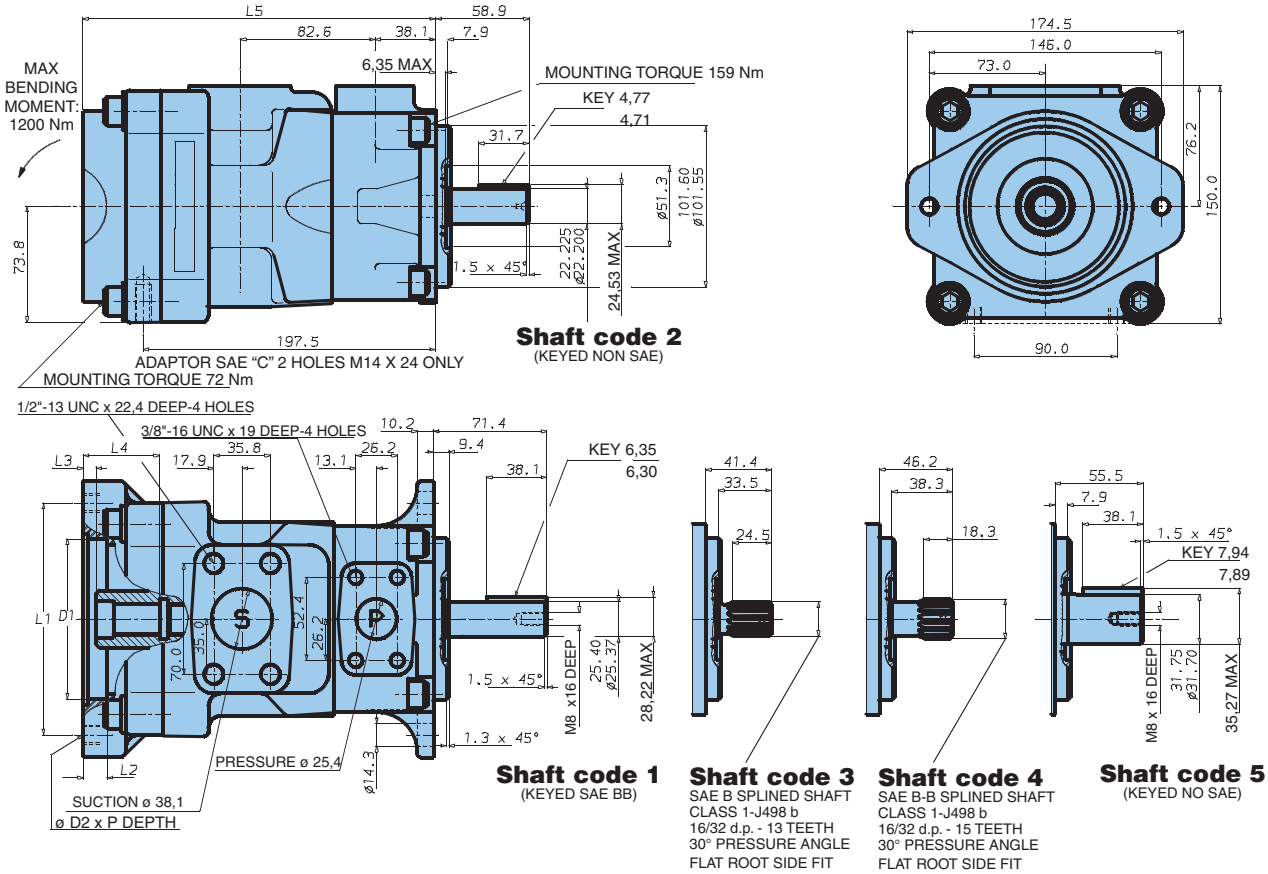


Adaptor	D1	D2	P	L1	L2	L3	L4	L5
SAE A	82,65/82,60	M10	24	106,4	11,0	8,0	32,0	209,0
SAE B	101,70/101,65	M12	28	146,0	16,0	8,0	46,0	223,0
SAE C	127,10/127,05	M16	-	181,0	16,0	8,0	56,0	233,0

Weight 20,4 kg

Adaptor	SAE A			SAE B		SAE C
Coupling drive	SAE A	SAE 11 teeth	SAE B	SAE B	SAE BB	SAE C
Number of teeth	9	11	13	13	15	14
Pitch	16/32	16/32	16/32	16/32	16/32	12/24
Pressure angle	30°	30°	30°	30°	30°	30°
Major dia, (min)	15,875	19,05	22,225	22,225	25,400	31,750
Minor dia. (min)	12,700	16,017	19,134	19,134	22,268	27,589

Shaft torque limits [ml/rev x bar]

Shaft	Vi x p max.	Coupling drive	Vi x p max.
1	21420	SAE A	11000
2	14300	SAE B	20600
3	20600	SAE BB	22050
4	32670	SAE C	22050
5	34180	SAE - 11 teeth	15850

OPERATING CHARACTERISTICS - TYPICAL [24 cSt]

Series	Volumetric Displacement Vi	Flow Q [l/min] & n = 1500 RPM			Input power P [kW] & n = 1500 RPM		
		p = 0 bar	p = 140 bar	p = 240 bar	p = 7 bar	p = 140 bar	p = 240 bar
003	10,8 ml/rev	16,2	11,2	7,7	1,3	5,3	8,4
005	17,2 ml/rev	25,8	20,8	17,3	1,4	7,5	12,2
006	21,3 ml/rev	31,9	26,9	23,4	1,5	8,9	14,7
008	26,4 ml/rev	39,6	34,6	31,1	1,6	10,7	17,7
010	34,1 ml/rev	51,1	46,1	42,6	1,7	13,4	22,3
012	37,1 ml/rev	55,6	50,6	47,1	1,7	14,4	24,1
014	46,0 ml/rev	69,0	64,0	60,5	1,9	17,6	29,5
017	58,3 ml/rev	87,4	82,4	78,9	2,1	21,9	36,9
020	63,8 ml/rev	95,7	90,7	87,2	2,2	23,8	40,2
022	70,3 ml/rev	105,4	100,4	96,9	2,3	26,1	44,1
025[1)]	79,3 ml/rev	118,9	113,9	110,4	2,5	29,2	49,5
028[1)]	88,8 ml/rev	133,2	128,2	125,8[2)]	2,8	32,7	48,5[2)]
031[1)]	100,0 ml/rev	150,0	145,0	142,6[2)]	2,8	36,5	54,4[2)]

[1)] 025 - 028 - 031 = 2500 R.P.M. max. *[2)] 028 - 031 = 210 bar max. int.* *Port connection can be furnished with metric threads.*

Parker Hannifin SAS
VPDE, Denison Vane Pumps
Vierzon - France

Model No. T6DR - 022 - 1 L 00 - A 1 0 - A 1 ....

Series

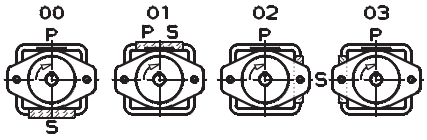
Cam ring
(Delivery at 0 bar & 1500 r.p.m.)

014 = 71,4 l/min	035 = 166,5 l/min
017 = 87,3 l/min	038 = 180,4 l/min
020 = 99,0 l/min	042 = 204,0 l/min
024 = 119,3 l/min	045 = 218,5 l/min
028 = 134,5 l/min	050 = 237,0 l/min
031 = 147,4 l/min	

Type of shaft
1 = keyed (SAE C)
2 = keyed (SAE CC)
3 = splined (SAE C)
5 = keyed (non SAE)

Direct. of rotation (view on shaft end)
R = clockwise
L = counter-clockwise

Porting combination



Modification

Seal class
1 = S1 (for mineral oil)
4 = S4 (for the resistant fluids)
5 = S5 (for mineral oil and fire resistant fluids)

Design letter

Porting adaptor

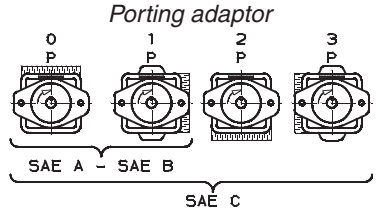
Coupling

1 = SAE A	4 = SAE C
2 = SAE B	5 = SAE J498b
3 = SAE BB	16/32 - 11 teeth

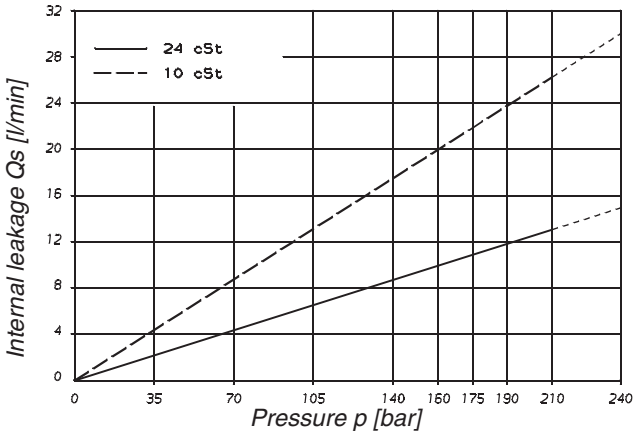
Adaptor

0 = None	B = SAE B
A = SAE A	C = SAE C

Porting adaptor

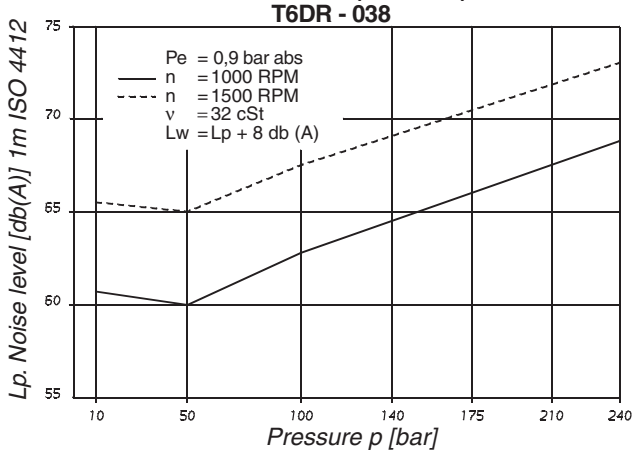


INTERNAL LEAKAGE (TYPICAL)

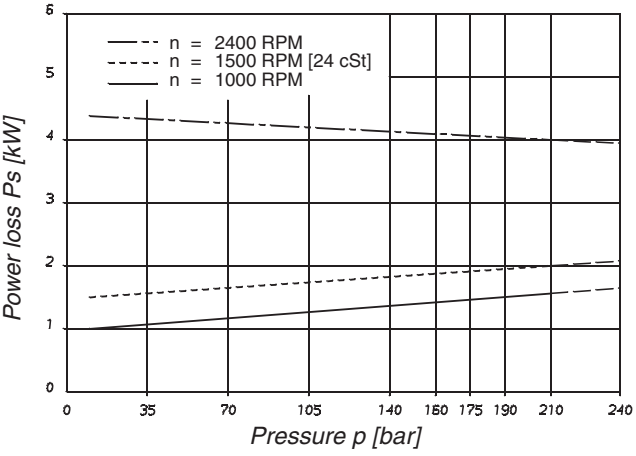


Do not operate the pump more than 5 seconds at any speed or viscosity if internal leakage is more than 50% of theoretical flow

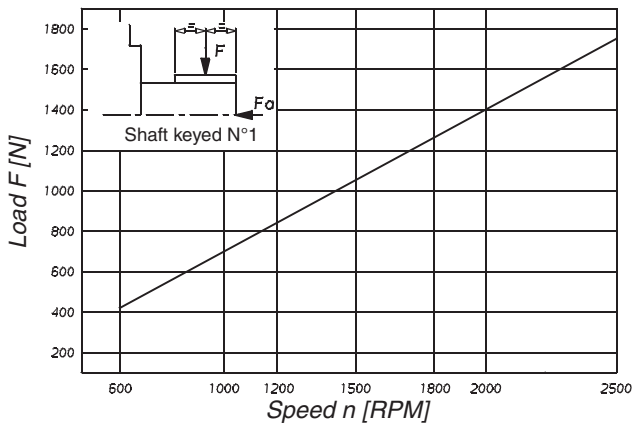
NOISE LEVEL (TYPICAL)
T6DR - 038



POWER LOSS HYDROMECHANICAL (TYPICAL)

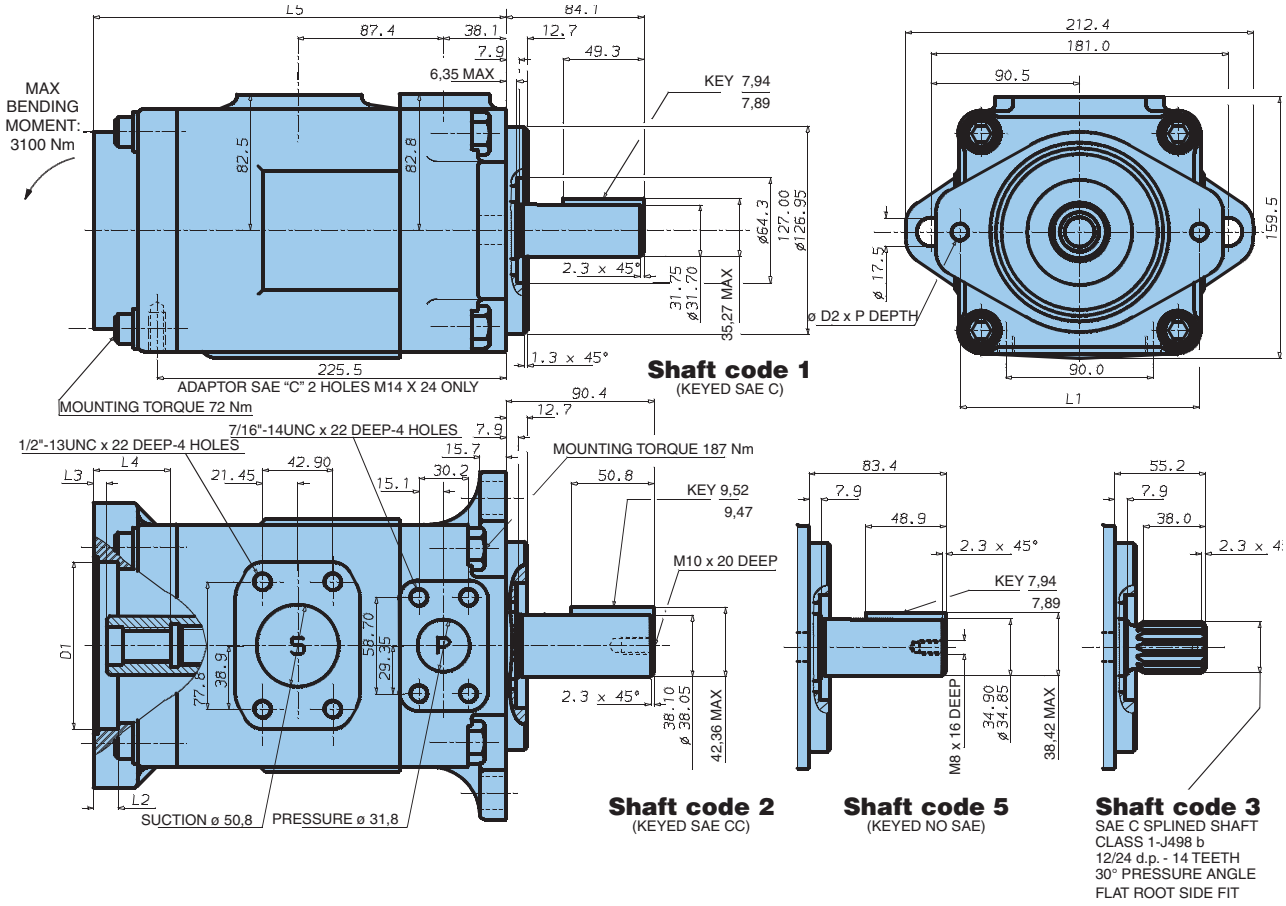


PERMISSIBLE RADIAL LOAD



Maximum permissible axial load Fa = 1200 N

Parker Hannifin SAS
VPDE, Denison Vane Pumps
Vierzon - France



Adaptor	D1	D2	P	L1	L2	L3	L4	L5
SAE A	82,65/82,60	M10	24	106,4	11,0	8,0	32,0	237,0
SAE B	101,70/101,65	M12	28	146,0	16,0	8,0	46,0	251,0
SAE C	127,10/127,05	M16	-	181,0	16,0	8,0	56,0	261,0

Weight 32,3 kg

Adaptor	SAE A			SAE B		SAE C
Coupling drive	SAE A	SAE 11 teeth	SAE B	SAE B	SAE BB	SAE C
Number of teeth	9	11	13	13	15	14
Pitch	16/32	16/32	16/32	16/32	16/32	12/24
Pressure angle	30°	30°	30°	30°	30°	30°
Major dia, (min)	15,875	19,05	22,225	22,225	25,400	31,750
Minor dia. (min)	12,700	16,017	19,134	19,134	22,268	27,589

Shaft torque limits [ml/rev x bar]

Shaft	Vi x p max.	Coupling drive	Vi x p max.
1	43240	SAE A	11000
2	66036	SAE B	20600
3	61200	SAE BB	32670
5	55600	SAE C	37390
		SAE - 11 teeth	15850

OPERATING CHARACTERISTICS - TYPICAL [24 cSt]

Series	Volumetric Displacement Vi	Flow Q [l/min] & n = 1500 RPM			Input power P [kW] & n = 1500 RPM		
		p = 0 bar	p = 140 bar	p = 240 bar	p = 7 bar	p = 140 bar	p = 240 bar
014	47,6 ml/rev	71,4	62,1	55,9	2,3	18,5	30,6
017	58,2 ml/rev	87,3	78,0	71,8	2,5	22,2	37,0
020	66,0 ml/rev	99,0	89,7	83,5	2,8	24,9	41,7
024	79,5 ml/rev	119,3	110,0	103,8	3,0	29,6	49,8
028	89,7 ml/rev	134,5	125,2	119,0	3,2	33,2	55,9
031	98,3 ml/rev	147,4	138,1	131,9	3,3	36,2	61,1
035	111,0 ml/rev	166,5	157,2	151,0	3,5	40,7	68,7
038	120,3 ml/rev	180,4	171,1	164,9	3,7	43,9	74,3
042[1)]	136,0 ml/rev	204,0	194,7	188,5	4,0	49,4	83,7
045[1)]	145,7 ml/rev	218,5	209,2	203,0	4,1	52,8	89,5
050[1)]	158,0 ml/rev	237,0	227,7	224,0[2)]	4,4	57,0	85,0[2)]

[1)] 042 - 045 - 050 = 2200 R.P.M. max. *[2)] 050 = 210 bar max. int.* *Port connection can be furnished with metric threads.*

Parker Hannifin SAS
VPDE, Denison Vane Pumps
Vierzon - France

Model No. T6ER - 066 - 1 R 00 - A 1 0 - A 1 ..

Series

Cam ring
(Delivery at 0 bar & 1500 r.p.m.)
042 = 198,5 l/min
045 = 213,6 l/min
050 = 237,7 l/min
052 = 247,2 l/min
062 = 295,0 l/min
066 = 319,9 l/min
072 = 340,6 l/min

Type of shaft
1 = keyed (SAE CC)
3 = splined (SAE C)
4 = splined (SAE CC)

Direct. of rotation (view on shaft end)
R = clockwise
L = counter-clockwise

Porting combination

Modification

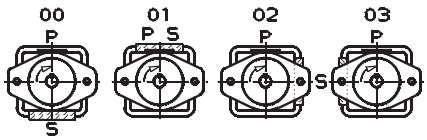
Seal class
1 = S1 (for mineral oil)
4 = S4 (for the resistant fluids)
5 = S5 (for mineral oil and fire resistant fluids)

Design letter

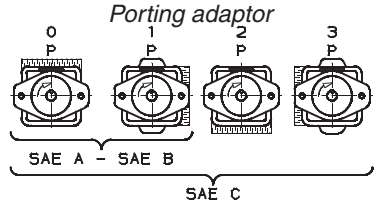
Porting adaptor

Coupling
1 = SAE A
2 = SAE B
3 = SAE BB
4 = SAE C
5 = SAE J498b
16/32 - 11 teeth

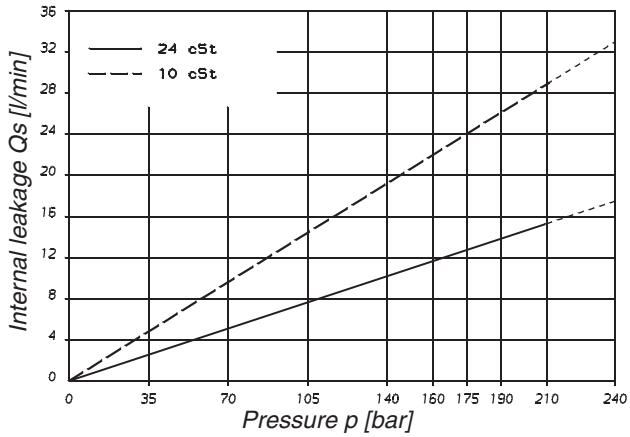
Adaptor
0 = None
A = SAE A
B = SAE B
C = SAE C



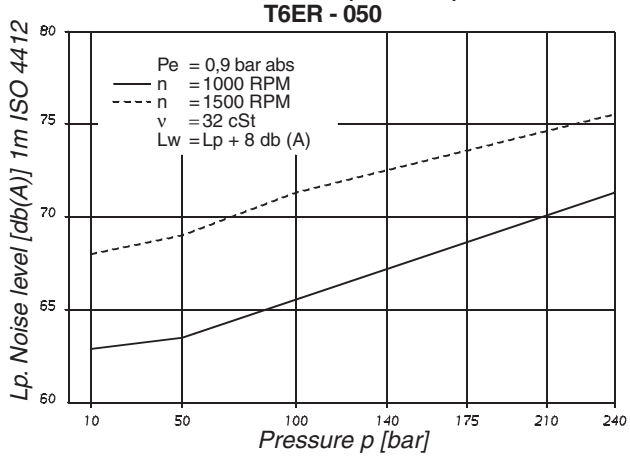
Porting adaptor



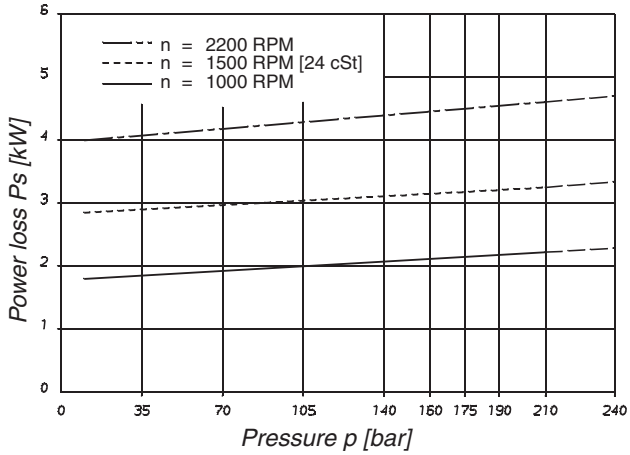
INTERNAL LEAKAGE (TYPICAL)



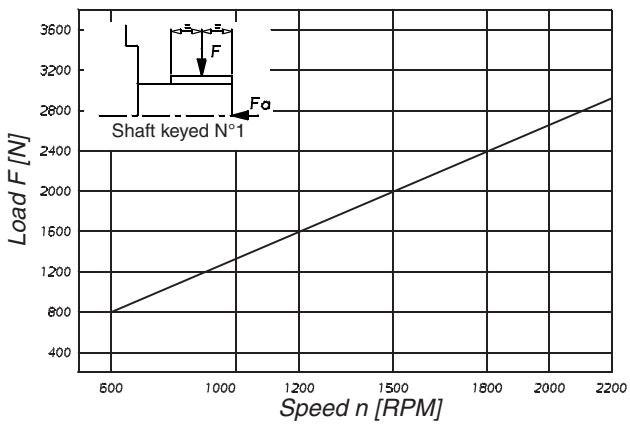
NOISE LEVEL (TYPICAL)
T6ER - 050



POWER LOSS HYDROMECHANICAL (TYPICAL)

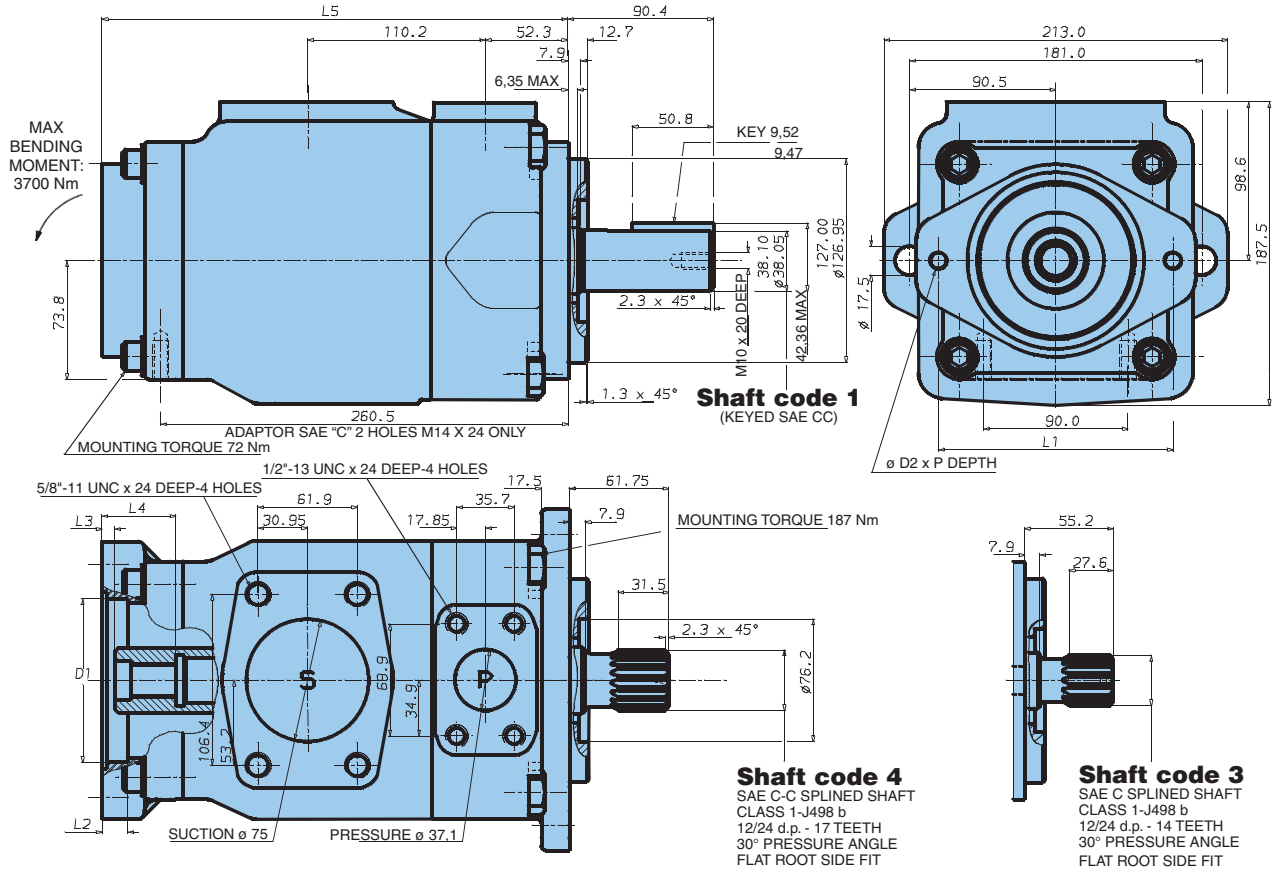


PERMISSIBLE RADIAL LOAD



Maximum permissible axial load Fa = 2000 N

Parker Hannifin SAS
VPDE, Denison Vane Pumps
Vierzon - France



Weight 42.5 kg

Adaptor	D1	D2	P	L1	L2	L3	L4	L5
SAE A	82,65/82,60	M10	24	106,4	11,0	8,0	32,0	272,0
SAE B	101,70/101,65	M12	28	146,0	16,0	8,0	46,0	286,0
SAE C	127,10/127,05	M16	-	181,0	16,0	8,0	56,0	296,0

Adaptor	**SAE A**			**SAE B**		**SAE C**
Coupling drive	SAE A	SAE 11 teeth	SAE B	SAE B	SAE BB	SAE C
Number of teeth	9	11	13	13	15	14
Pitch	16/32	16/32	16/32	16/32	16/32	12/24
Pressure angle	30°	30°	30°	30°	30°	30°
Major dia, (min)	15,875	19,05	22,225	22,225	25,400	31,750
Minor dia. (min)	12,700	16,017	19,134	19,134	22,268	27,589

Shaft torque limits [ml/rev x bar]

Shaft	**Vi x p max.**	**Coupling drive**	**Vi x p max.**
1	80560	SAE A	11000
2	61200	SAE B	20600
4	120210	SAE BB	32670
		SAE C	66480
		SAE - 11 teeth	15850

OPERATING CHARACTERISTICS - TYPICAL [24 cSt]

Series	**Volumetric Displacement Vi**	**Flow Q [l/min] & n = 1500 RPM**			**Input power P [kW] & n = 1500 RPM**		
		p = 0 bar	**p = 140 bar**	**p = 240 bar**	**p = 7 bar**	**p = 140 bar**	**p = 240 bar**
042	132,3 ml/rev	198,5	188,5	181,3	5,2	49,4	82,6
045	142,4 ml/rev	213,6	203,6	196,5	5,4	52,9	88,7
050	158,5 ml/rev	237,7	227,7	220,6	5,7	58,5	98,3
052	164,8 ml/rev	247,2	237,2	230,1	5,8	60,8	102,1
062	196,7 ml/rev	295,0	285,0	277,7	6,4	71,9	121,3
066	213,3 ml/rev	319,9	309,9	302,8	6,7	77,7	131,2
072	227,1 ml/rev	340,6	330,6	323,5	6,9	82,6	139,5

Port connection can be furnished with metric threads.

Parker Hannifin SAS
VPDE, Denison Vane Pumps
Vierzon - France

Model No. **T6DCCR - 038 - 028 - 008 - 2 R 00 - A 1 - 00 ..**

Series

Rear cap end for mounting SAE A auxiliary pump coupling adaptor SAE A - 9 teeth

Cam ring for "P1" P1
(Delivery at 0 bar & 1500 r.p.m.)

014 = 71,4 l/min	035 =166,5 l/min
017 = 87,3 l/min	038 =180,4 l/min
020 = 99,0 l/min	042 =204,0 l/min
024 =119,3 l/min	045 =218,5 l/min
028 =134,5 l/min	050 =237,0 l/min
031 =147,4 l/min	

Cam ring for "P2" & "P3" P2 P3
(Delivery at 0 bar & 1500 r,p,m,)

003 = 16,2 l/min	017 = 87,4 l/min
005 = 25,8 l/min	020 = 95,7 l/min
006 = 31,9 l/min	022 =105,4 l/min
008 = 39,6 l/min	025 =118,9 l/min
010 = 51,1 l/min	028 =133,2 l/min
012 = 55,6 l/min	031 =150,0 l/min
014 = 69,0 l/min	

Modification

Mounting W/connection variables
4 bolts SAE flange (J518c)

Type	UNC		Metric	
P3	1"	3/4"	1"	3/4"
Code	00	01	M0	M1

Seal class
1 = S1 (for mineral oil)
4 = S4 (for the resistant fluids)
5 = S5 (for mineral oil and fire resistant fluids)

Design letter

Porting combination (see pages 22 - 23)
00 = standard

Direct. of rotation (view on shaft end)
R = clockwise
L = counter-clockwise

Type of shaft
2 = keyed (SAE CC)
3 = splined (SAE D & E)

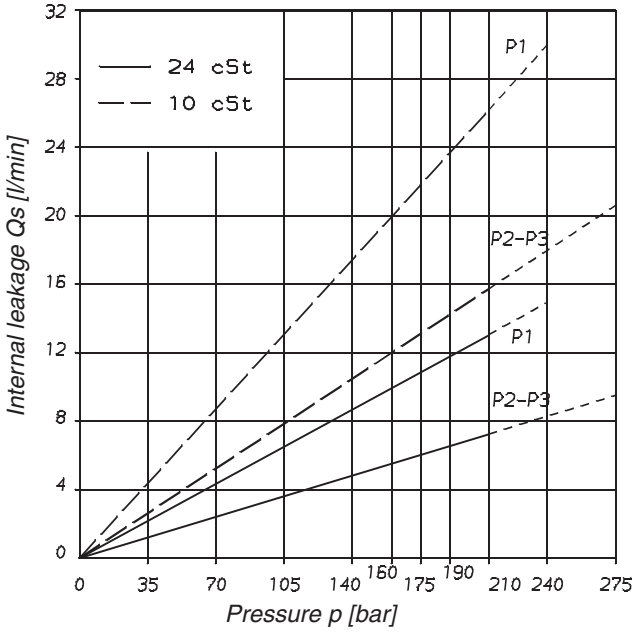
OPERATING CHARACTERISTICS - TYPICAL [24 cSt]

Pressure Port	Series	Volumetric Displacement Vi	Flow Q [l/min] & n = 1500 RPM			Input power P [kW] & n = 1500 RPM		
			p = 0 bar	p = 140 bar	p = 240 bar	p = 7 bar	p = 140 bar	p = 240 bar
P1	014	47,6 ml/rev	71,4	62,1	55,9	2,3	18,5	30,6
	017	58,2 ml/rev	87,3	78,0	71,8	2,5	22,2	37,0
	020	66,0 ml/rev	99,0	89,7	83,5	2,8	24,9	41,7
	024	79,5 ml/rev	119,3	110,0	103,8	3,0	29,6	49,8
	028	89,7 ml/rev	134,5	125,2	119,0	3,2	33,2	55,9
	031	98,3 ml/rev	147,4	138,1	131,9	3,3	36,2	61,0
	035	111,0 ml/rev	166,5	157,2	151,0	3,5	40,7	68,7
	038	120,3 ml/rev	180,4	171,1	164,9	3,7	43,9	74,3
	042[2)]	136,0 ml/rev	204,0	194,7	188,5	4,0	49,4	83,9
	045[2)]	145,7 ml/rev	218,5	209,2	203,0	4,1	52,8	89,5
	050[2)]	158,0 ml/rev	237,0	227,7	224,0[1)]	4,4	57,0	85,0[1)]
P2 & P3	003	10,8 ml/rev	16,2	11,2	7,7	1,3	5,3	8,4
	005	17,2 ml/rev	25,8	20,8	17,3	1,4	7,5	12,2
	006	21,3 ml/rev	31,9	26,9	23,4	1,5	8,9	14,7
	008	26,4 ml/rev	39,6	34,6	31,1	1,6	10,7	17,7
	010	34,1 ml/rev	51,1	46,1	42,6	1,7	13,4	22,3
	012	37,1 ml/rev	55,6	50,6	47,1	1,7	14,4	24,1
	014	46,0 ml/rev	69,0	64,0	60,5	1,9	17,6	29,5
	017	58,3 ml/rev	87,4	82,4	78,9	2,1	21,9	36,9
	020	63,8 ml/rev	95,7	90,7	87,2	2,2	23,8	40,2
	022	70,3 ml/rev	105,4	100,4	96,9	2,3	26,1	44,1
	025	79,3 ml/rev	118,9	113,9	110,4	2,5	29,2	49,5
	028	88,8 ml/rev	133,2	128,2	125,8[1)]	2,8	32,7	48,5[1)]
	031	100,0 ml/rev	150,0	145,0	142,6[1)]	2,8	36,5	54,4[1)]

[1)] 028 - 031 - 050 = 210 bar max. int. *[2)] 042 - 045 - 050 = 2200 R.P.M max.*

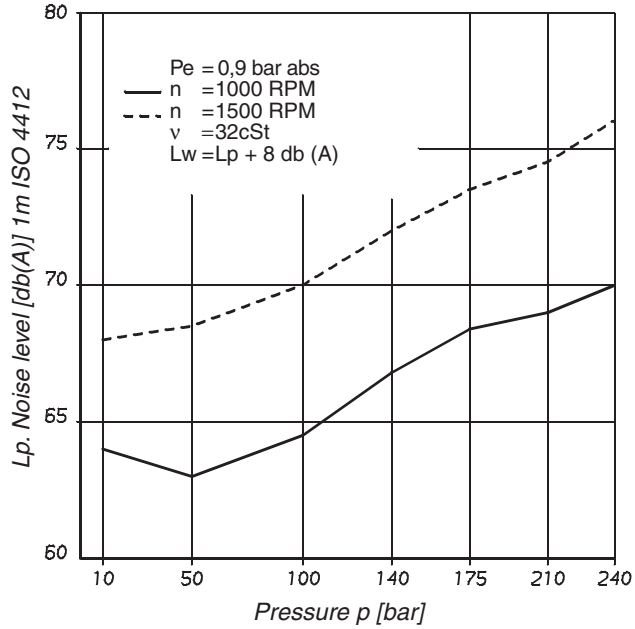
Parker Hannifin SAS
VPDE, Denison Vane Pumps
Vierzon - France

INTERNAL LEAKAGE (TYPICAL)



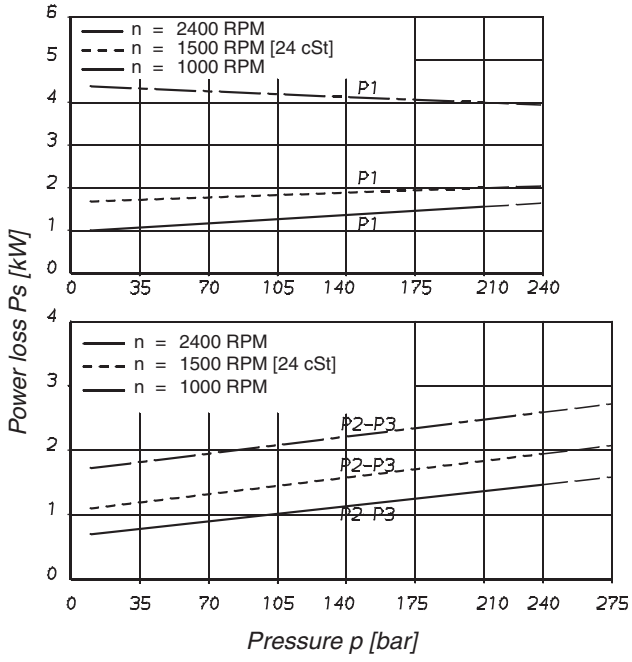
Total leakage is the sum of each section loss at its operating conditions.

NOISE LEVEL (TYPICAL)
T6DCCR - 038 - 022 - 022



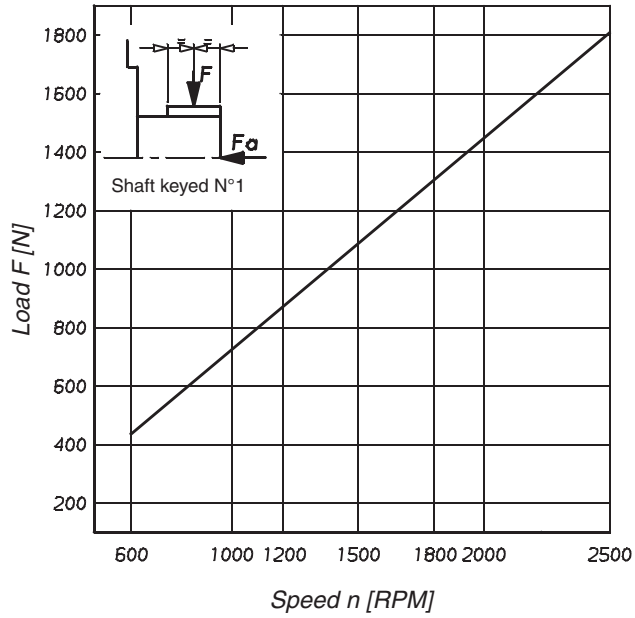
Triple pump noise level is given with each section discharging at the pressure noted on the curve.

HYDROMECHANICAL POWER LOSS (TYPICAL)



Total hydrodynamic power loss is the sum of each section at its operating conditions.

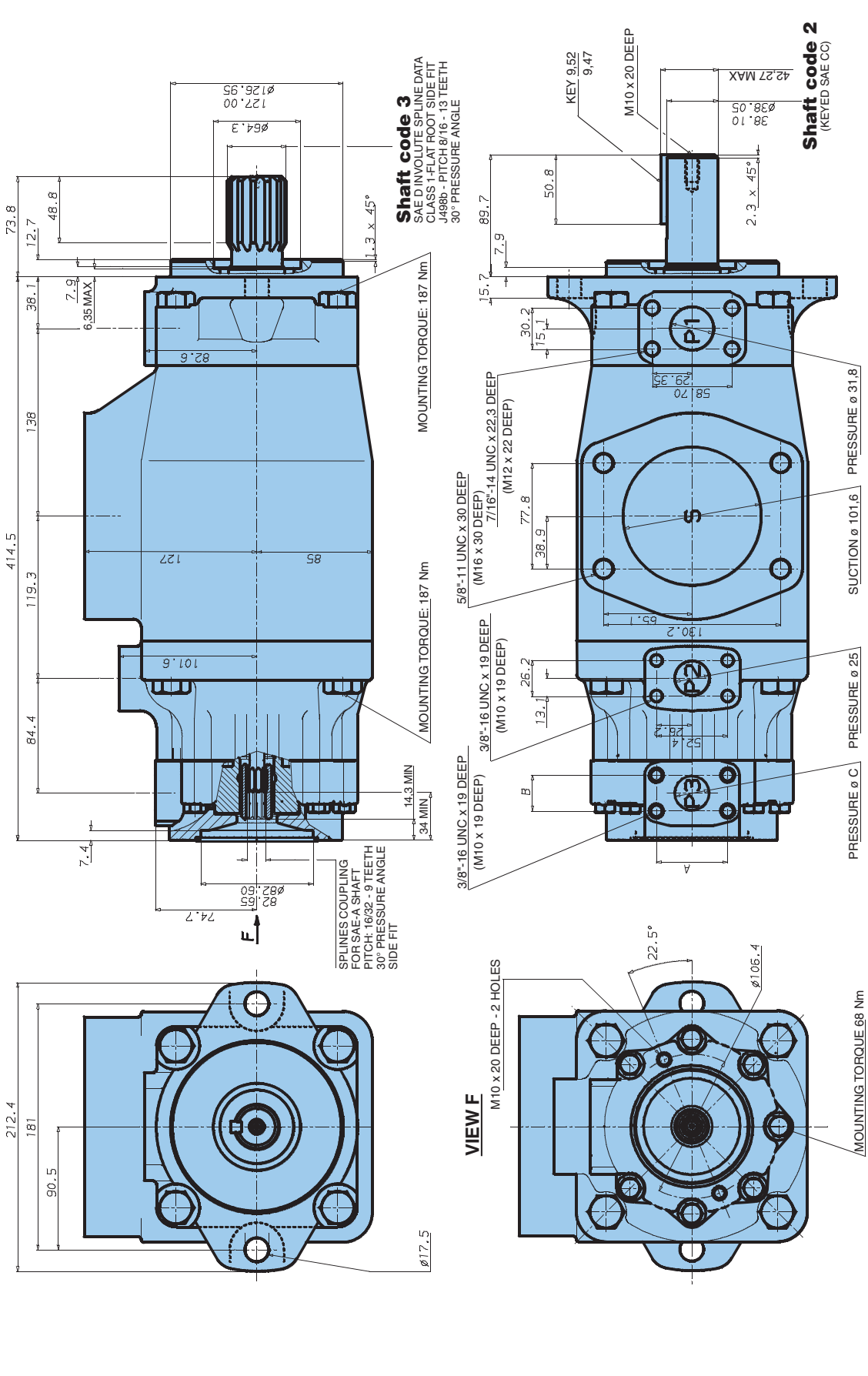
PERMISSIBLE RADIAL LOAD



Maximum permissible axial load Fa = 1200 N

Parker Hannifin SAS
VPDE, Denison Vane Pumps
Vierzon - France

Weight 62,0 kg

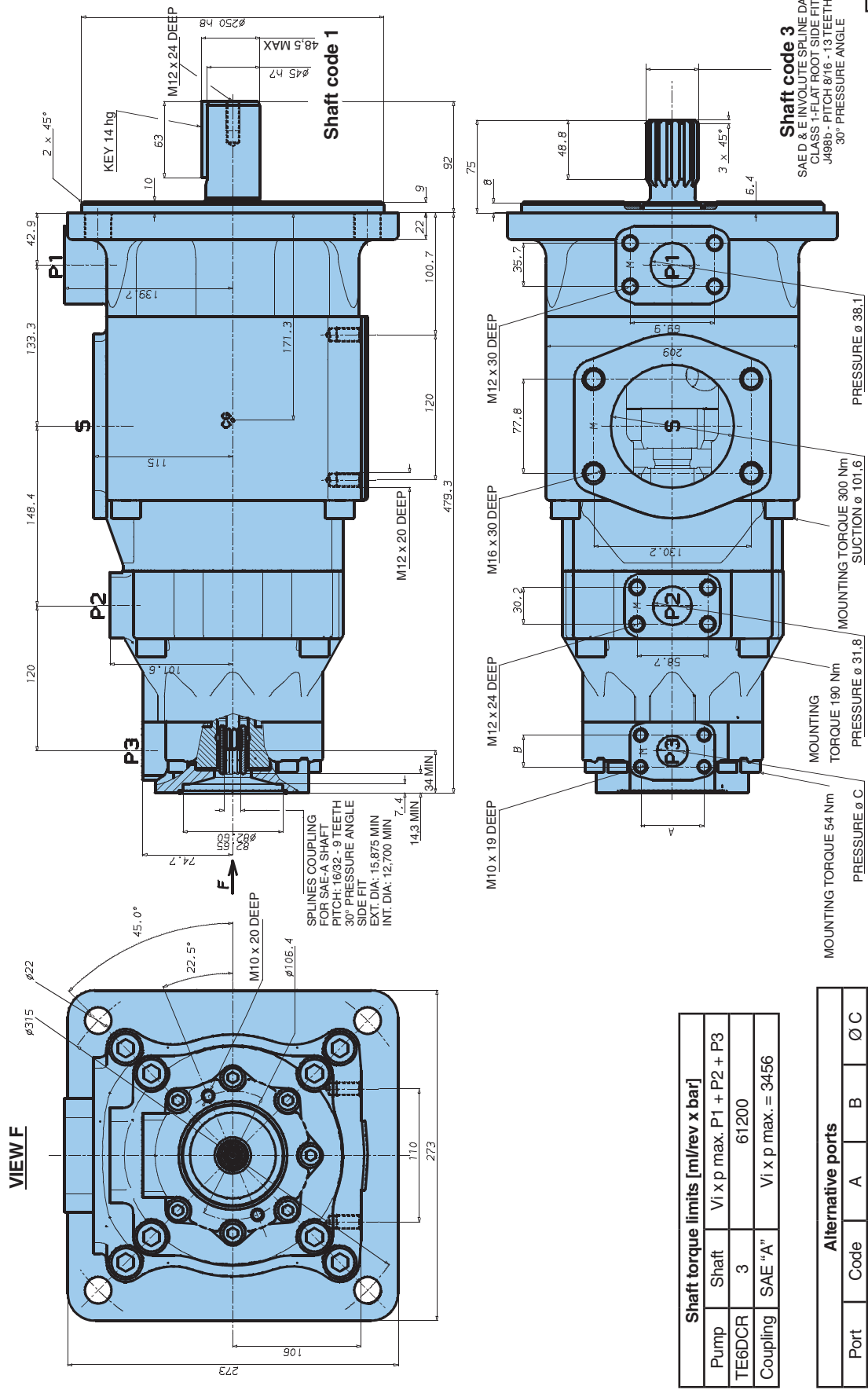


Alternative ports				
Port	Code	A	B	Ø C
P3	00	52,4	26,2	25,4
P3	01	47,6	22,2	19,0

Shaft torque limits [ml/rev x bar]				
Pump	Shaft	Vi x p max. P1 + P2 + P3	Coupling	Vi x p max.
T6DCCR	2	66500	SAE "A"	3456
	3	61200		

Parker Hannifin SAS
VPDE, Denison Vane Pumps
Vierzon - France

Weight 100,0 kg



Shaft torque limits [ml/rev x bar]		
Pump	Shaft	Vi x p max. P1 + P2 + P3
TE6DCR	3	61200
Coupling	SAE "A"	Vi x p max. = 3456

Alternative ports				
Port	Code	A	B	Ø C
P3	00	52,4	26,2	25,4
P3	01	47,6	22,2	19,0

Parker Hannifin SAS
VPDE, Denison Vane Pumps
Vierzon - France

Model No. **T6EDCR - 062 - 035 - 017 - 1 R 00 - A P 1 - 00 ..**

Series
Rear cap end for mounting
SAE A auxiliary pump
coupling adaptor
SAE A - 9 teeth

Cam ring for "P1" (P1)
(Delivery at 0 bar & 1500 r.p.m.)

042 = 198,5 l/min	062 = 295,0 l/min
045 = 213,6 l/min	066 = 319,9 l/min
050 = 237,7 l/min	072 = 340,6 l/min
052 = 247,2 l/min	

Cam ring for "P2" (P2)
(Delivery at 0 bar & 1500 r,p,m,)

014 = 71,4 l/min	035 = 166,5 l/min
017 = 87,3 l/min	038 = 180,4 l/min
020 = 99,0 l/min	042 = 204,0 l/min
024 = 119,3 l/min	045 = 218,5 l/min
028 = 134,5 l/min	050 = 237,0 l/min
031 = 147,4 l/min	

Cam ring for "P3" (P3)
(Delivery at 0 bar & 1500 r,p,m,)

003 = 16,2 l/min	012 = 55,6 l/min	022 = 105,4 l/min
005 = 25,8 l/min	014 = 69,0 l/min	025 = 118,9 l/min
006 = 31,9 l/min	017 = 87,4 l/min	028 = 133,2 l/min
008 = 39,6 l/min	020 = 95,7 l/min	031 = 150,0 l/min
010 = 51,1 l/min		

Modification
Mounting W/connection variables
0 = P3 = 1" SAE
1 = P3 = 3/4" SAE
Options
P = 4 holes for external support
Seal class
1 = S1 (for mineral oil)
4 = S4 (for the resistant fluids)
5 = S5 (for mineral oil and fire resistant fluids)
Design letter
Porting combination (see pages 22 - 23)
00 = standard
Direct. of rotation (view on shaft end)
R = clockwise
L = counter-clockwise
Type of shaft
1 = keyed (G45N - ISO 3019-2)
3 = splined (SAE D & E)

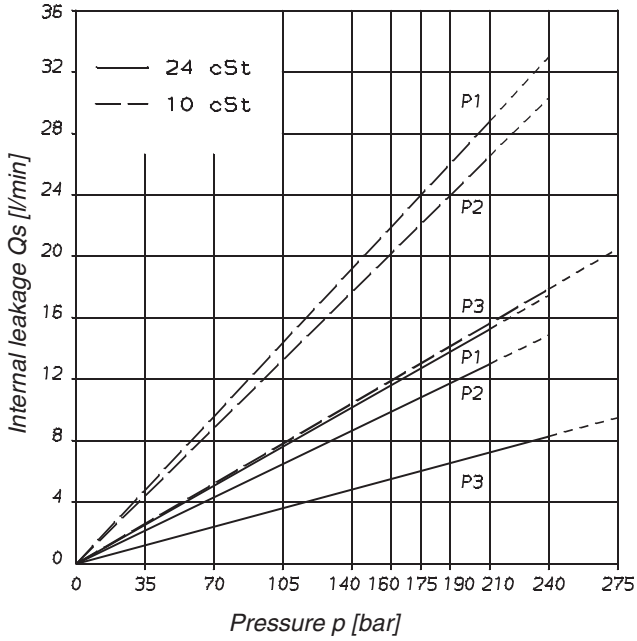
OPERATING CHARACTERISTICS - TYPICAL [24 cSt]

Pressure Port	Series	Volumetric Displacement Vi	Flow Q [l/min] & n = 1500 RPM			Input power P [kW] & n = 1500 RPM		
			p = 0 bar	p = 140 bar	p = 240 bar	p = 7 bar	p = 140 bar	p = 240 bar
P1	042	132,3 ml/rev	198,5	188,5	181,3	5,2	49,4	82,6
	045	142,4 ml/rev	213,6	203,6	196,5	5,4	52,9	88,7
	050	158,5 ml/rev	237,7	227,7	220,6	5,7	58,5	98,3
	052	164,8 ml/rev	247,2	237,2	230,1	5,8	60,8	102,1
	062	196,7 ml/rev	295,0	285,0	277,9	6,4	71,9	121,3
	066	213,3 ml/rev	319,9	309,9	302,8	6,7	77,7	131,2
	072	227,1 ml/rev	340,6	330,6	323,5	6,9	82,6	139,5
P2	014	47,6 ml/rev	71,4	62,1	55,9	2,3	18,5	30,6
	017	58,2 ml/rev	87,3	78,0	71,8	2,5	22,2	37,0
	020	66,0 ml/rev	99,0	89,7	83,5	2,8	24,9	41,7
	024	79,5 ml/rev	119,3	110,0	103,8	3,0	29,6	49,8
	028	89,7 ml/rev	134,5	125,2	119,0	3,2	33,2	55,9
	031	98,3 ml/rev	147,4	138,1	131,9	3,3	36,2	61,0
	035	111,0 ml/rev	166,5	157,2	151,0	3,5	40,7	68,7
	038	120,3 ml/rev	180,4	171,1	164,9	3,7	43,9	74,3
	042[2)]	136,0 ml/rev	204,0	194,7	188,5	4,0	49,4	83,7
	045[2)]	145,7 ml/rev	218,5	209,2	203,0	4,1	52,8	89,5
	050[2)]	158,0 ml/rev	237,0	227,7	224,0[1)]	4,4	57,0	85,0[1)]
P3	003	10,8 ml/rev	16,2	11,2	7,7	1,3	5,3	8,4
	005	17,2 ml/rev	25,8	20,8	17,3	1,4	7,5	12,2
	006	21,3 ml/rev	31,9	26,9	23,4	1,5	8,9	14,7
	008	26,4 ml/rev	39,6	34,6	31,1	1,6	10,7	17,7
	010	34,1 ml/rev	51,1	46,1	42,6	1,7	13,4	22,3
	012	37,1 ml/rev	55,6	50,6	47,1	1,7	14,4	24,1
	014	46,0 ml/rev	69,0	64,0	60,5	1,9	17,6	29,5
	017	58,3 ml/rev	87,4	82,4	78,9	2,1	21,9	36,9
	020	63,8 ml/rev	95,7	90,7	87,2	2,2	23,8	40,2
	022	70,3 ml/rev	105,4	100,4	96,9	2,3	26,1	44,1
	025	79,3 ml/rev	118,9	113,9	110,4	2,5	29,2	49,5
	028	88,8 ml/rev	133,2	128,2	125,8[1)]	2,8	32,7	48,5[1)]
	031	100,0 ml/rev	150,0	145,0	142,6[1)]	2,8	36,5	54,4[1)]

[1)] 028 - 031 - 050 = 210 bar max. int. *[2)] 042 - 045 - 050 = 2200 R.P.M max.*

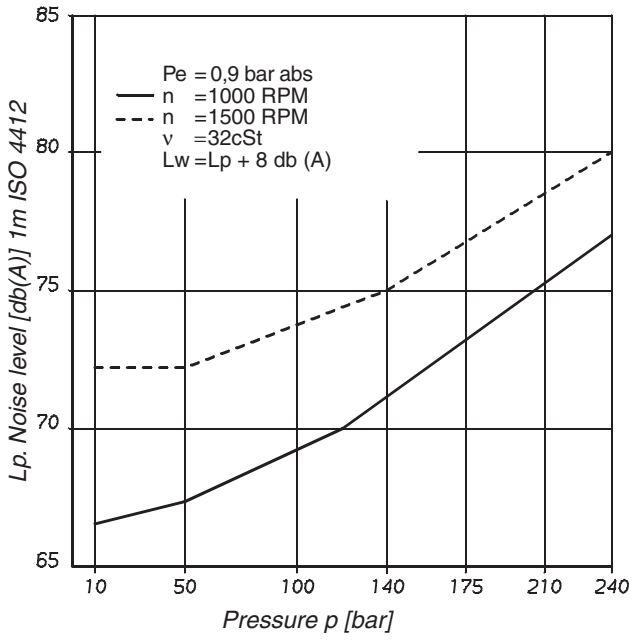
Parker Hannifin SAS
VPDE, Denison Vane Pumps
Vierzon - France

INTERNAL LEAKAGE (TYPICAL)



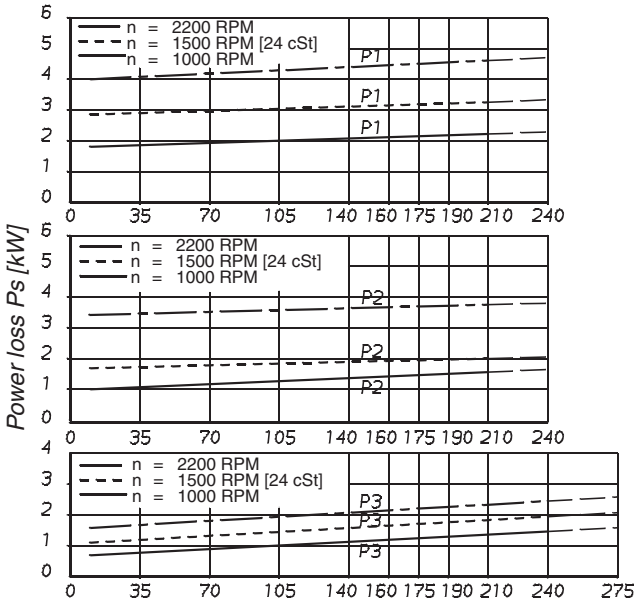
Total leakage is the sum of each section loss at its operating conditions.

NOISE LEVEL (TYPICAL)
T6EDCR - 062 - 035 - 017



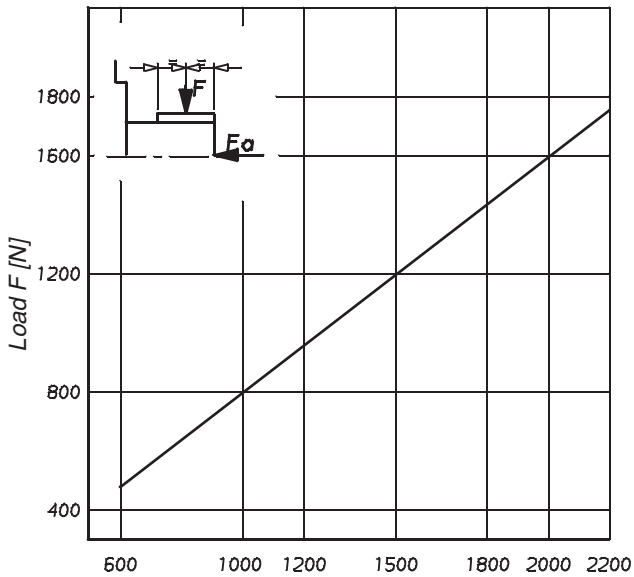
Triple pump noise level is given with each section discharging at the pressure noted on the curve.

HYDROMECHANICAL POWER LOSS (TYPICAL)



Total hydrodynamic power loss is the sum of each section at its operating conditions.

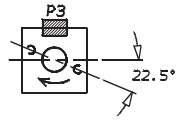
PERMISSIBLE RADIAL LOAD

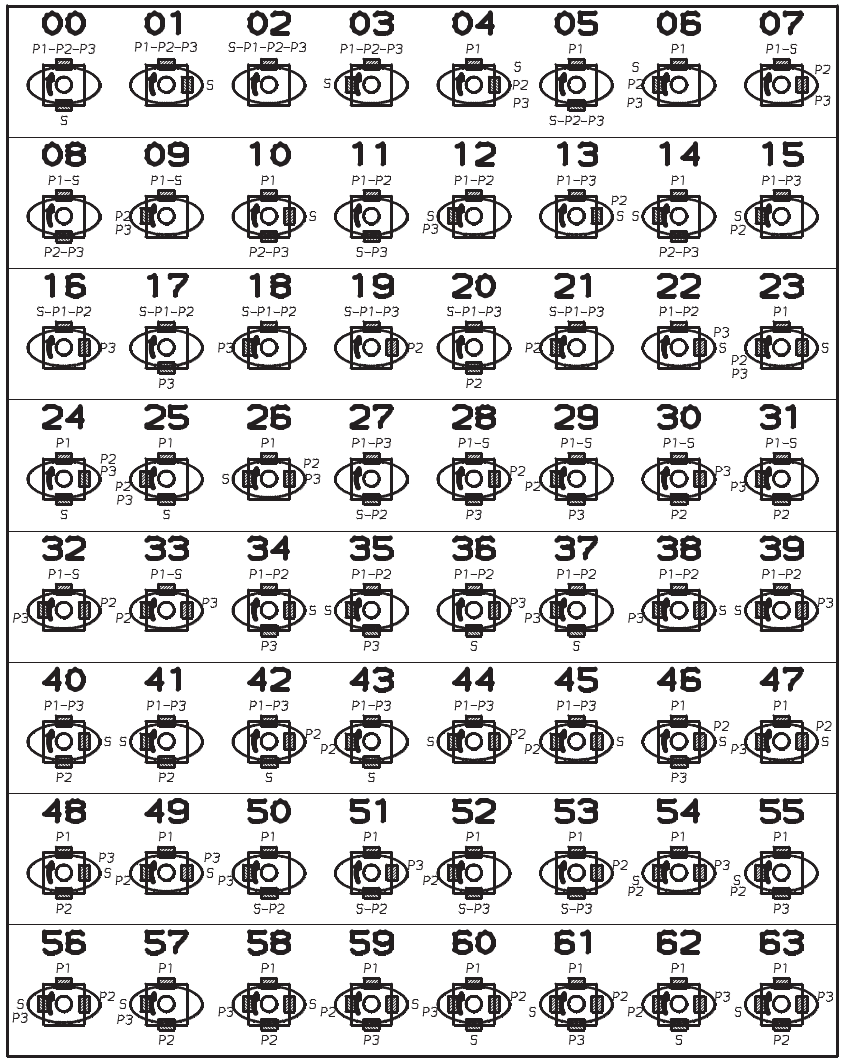


Maximum permissible axial load Fa = 2000 N

Industrial application

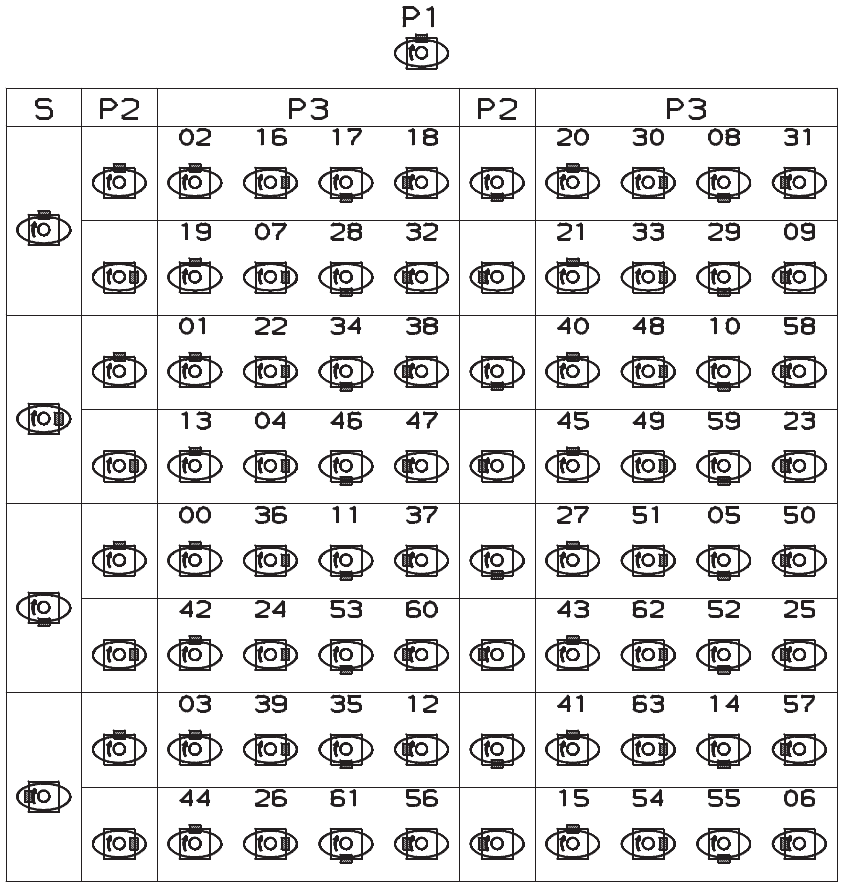
T6DCCR - T6EDCR
(View from shaft end)

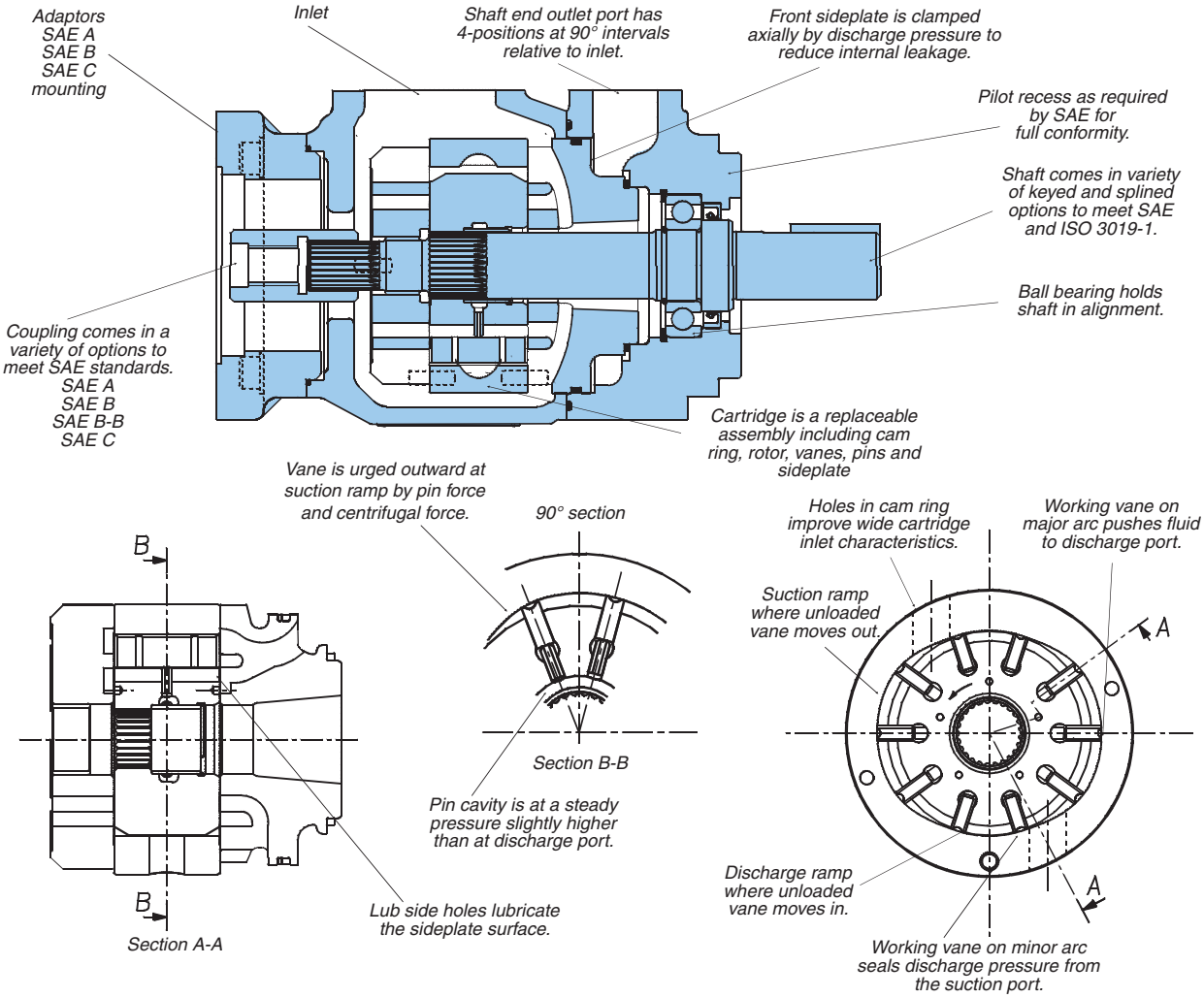




Industrial application

T6DCCR - T6EDCR
(View from shaft end)





APPLICATION ADVANTAGES

- The high pressure capability up to 275 bar, in the small envelope, reduces the installation costs and provides an extended a life at reduced pressure.
- The high volumetric efficiency, typically 94%, reduces the heat generation, and allows speeds down to 400 RPM at full pressure.
- The high mechanical efficiency, typically 94%, reduces the energy consumption.
- The wide speed range from 400 RPM to 2800 RPM, combined with large size cartridge displacements, will optimize operation for the lowest noise level in the smallest envelope.
- The low speed 400 RPM, low pressure, high viscosity 2000 cSt allow applications in cold environments with minimum energy consumption and without seizure risk.
- The low ripple pressure ± 2 bar reduces the piping noise and increases the life time of other components in the circuit.
- The high resistance to particle contamination because of the double lip vane increases the pump life.
- The large variety of options (cam displacement, shaft, porting) allows customized installation.

RECOMMENDED FLUIDS

Petroleum based antiwear R & O fluids.
These fluids are the recommended fluids for T6 series pumps. Maximum catalog ratings and performance data are based on operation with these fluids. These fluids are covered by Denison fluid HF-0 and HF-2 specification.

ACCEPTABLE ALTERNATE FLUIDS

The use of fluids other than petroleum based antiwear R & O fluids requires that the maximum ratings of the pumps will be reduced. In somes cases the minimum replenishment pressures must be increased. Consult specific sections for more details.

VISCOSITY

Max (cold start, low speed & pressure)	2000 mm^2/s (cSt)
Max (full speed & pressure)	108 mm^2/s (cSt)
Optimum (max. life)	30 mm^2/s (cSt)
Min (full speed & pressure for HF-1, HF-3, HF-4 & HF-5 fluids)	18 mm^2/s (cSt)
Min (full speed & pressure for HF-0 & HF-2 fluids)	10 mm^2/s (cSt)

VISCOSITY INDEX

90° min. higher values extend range of operaring temperatures.
Maximum fluid temperature (θ) °C

HF-0, HF-1, HF-2	+ 100°C
HF-3, HF-4	+ 50°C
HF-5	+ 70°C
Biodegradable fluids (esters & rapeseed base)	+ 65°C

Minimum fluid temperature (θ) °C

HF-0, HF-1, HF-2, HF-5	- 18°C
HF-3, HF-4	+ 10°C
Biodegradable fluids (esters & rapeseed base)	- 20°C

FLUID CLEANLINESS

The fluid must be cleaned before and during operation to maintain the contamination level of NAS 1638 class 8 (or ISO 19/17/14) or better. Filters with 25 micron (or better, ß10 ≥ 100) nominal ratings may be adequate but do not guarantee the required cleanliness levels. Suction strainers must be of adequate size to provide the minimum inlet pressure specified. 100 mesh (150 micron) is the finest mesh recommended. Use oversize strainers or omit them altogether on applications which require cold starts or use fire resistant fluids.

OPERATING TEMPERATURES AND VISCOSITIES

Operating temperatures are a function of fluid viscosities, fluid type, and the pump. Fluid viscosity should be selected to provide the optimum viscosity at normal operating temperatures. For cold starts, the pumps should be operated at low speed and pressure until the fluid warms up to an acceptable viscosity for full power operation.

WATER CONTAMINATION IN THE FLUID

Maximum acceptable content of water.
• 0.10% for mineral base fluids.
• 0.05% for synthetic fluids, crankcase oils, biodegradable fluids.
If amount of water is higher then it should be drained off the circuit.

COUPLINGS AND FEMALE SPLINES SPLINES

- The mating female spline should be free to float and find its own center. If both members are rigidly supported, they must be aligned within 0,15 TIR or less to reduce fretting. The angular alignment of two spline axes must be less than ± 0.05 per 25.4 radius..
- The coupling spline must be lubricated with a lithium molydisulfide grease or a similar lubricant.
- The coupling must be hardened to a hardness between 27 and 45 R.C.
- The female spline must be made to conform to the Class 1 fit as described in SAE-J498b (1971). This is described as a Flat Root Side Fit.

KEYED SHAFTS

Parker supplies the T6 series keyed shaft pumps with high strength heat-treated keys. Therefore, when installing or replacing these pumps, the heat-treated keys must be used in order to insure maximum life in the application. If the key is replaced, it must be a heat-treated key between 27 and 34 R.C. hardness. The corners of the keys must be chamfered from 0,76 to 1,02 at 45° to clear the radii in the key way.

NOTE

The alignment of keyed shafts must be within the tolerances given for splined shafts.

SHAFT LOADS

These products are primarily designed for coaxial drives which do not impose axial or side loading on the shaft. Consult specific sections for more details.

Model No. **T6CRM - B22 - 1 R 00 - A 1 0 - A 1 ..**

Series

Cam ring
(Delivery at 0 bar & 1500 r.p.m.)

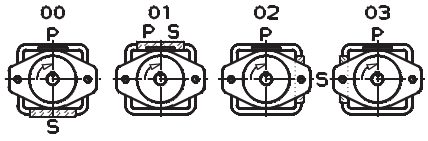
B03 = 16,2 l/min	B17 = 87,4 l/min
B05 = 25,8 l/min	B20 = 95,7 l/min
B06 = 31,9 l/min	B22 =105,4 l/min
B08 = 39,6 l/min	B25 =118,9 l/min
B10 = 51,1 l/min	B28 =133,2 l/min
B12 = 55,6 l/min	B31 =150,0 l/min
B14 = 69,0 l/min	

Type of shaft

1 = keyed (SAE BB)	4 = splined (SAE BB)
2 = keyed (non SAE)	5 = keyed (non SAE)
3 = splined (SAE B)	

Direct. of rotation (view on shaft end)
R = clockwise
L = counter-clockwise

Porting combination
00 = standard



Modification

Seal class
1 = S1 (for mineral oil)
4 = S4 (for the resistant fluids)
5 = S5 (for mineral oil and fire resistant fluids)

Design letter

Porting adaptor

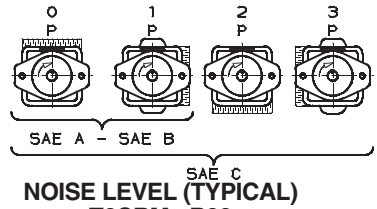
Coupling

1 = SAE A	4 = SAE C
2 = SAE B	5 = SAE J498b
3 = SAE BB	16/32 - 11 teeth

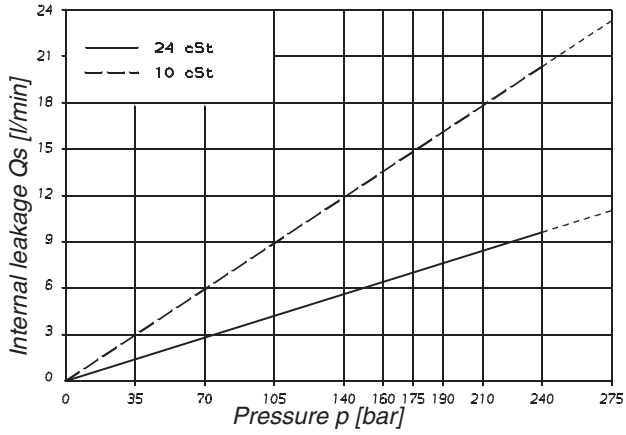
Adaptor

0 = None	B = SAE B
A = SAE A	C = SAE C

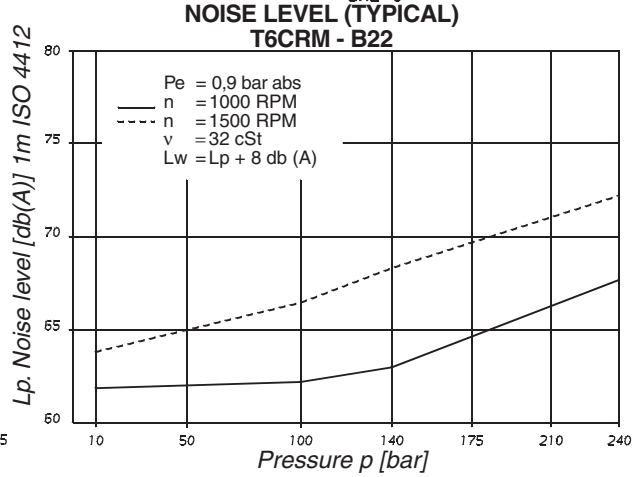
Porting adaptor



INTERNAL LEAKAGE (TYPICAL)

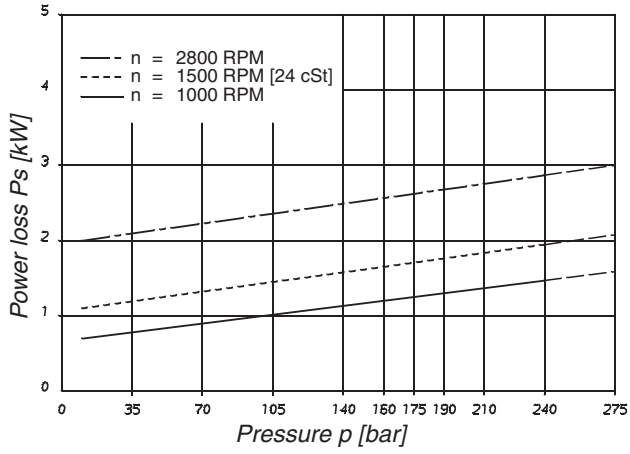


NOISE LEVEL (TYPICAL)
T6CRM - B22

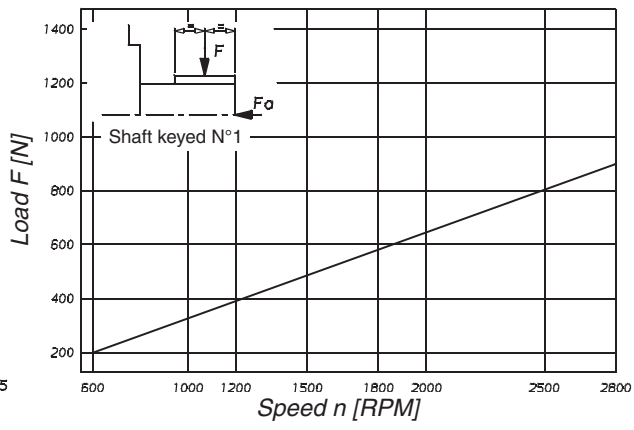


Do not operate the pump more than 5 seconds at any speed or viscosity if internal leakage is more than 50% of theoretical flow.

POWER LOSS HYDROMECHANICAL (TYPICAL)

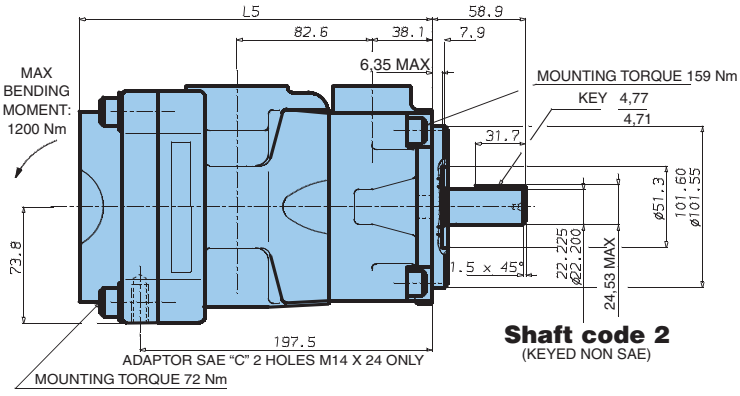


PERMISSIBLE RADIAL LOAD

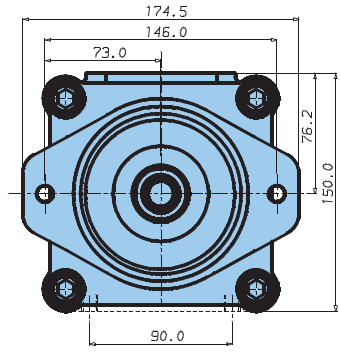


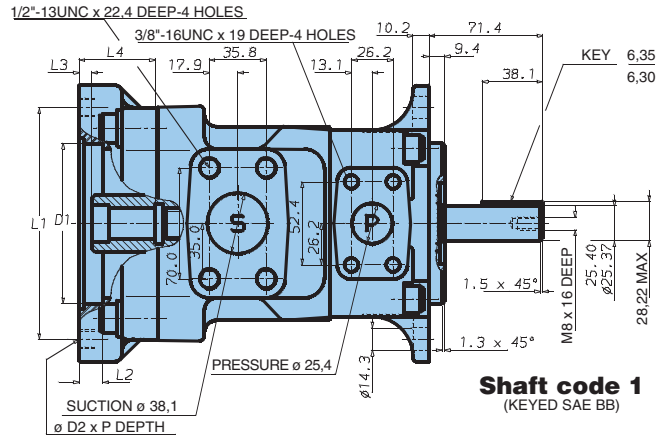
Maximum permissible axial load Fa = 800 N

Parker Hannifin SAS
VPDE, Denison Vane Pumps
Vierzon - France

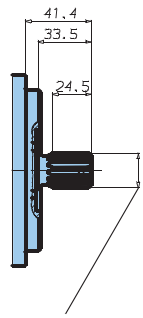


Shaft code 2
(KEYED NON SAE)

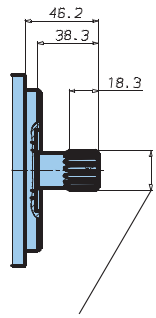




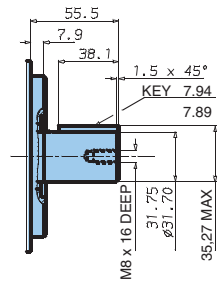
Shaft code 1
(KEYED SAE BB)



Shaft code 3
SAE B SPLINED SHAFT
CLASS 1-J498 b
16/32 d.p. - 13 TEETH
30° PRESSURE ANGLE
FLAT ROOT SIDE FIT



Shaft code 4
SAE B-B SPLINED SHAFT
CLASS 1-J498 b
16/32 d.p. - 15 TEETH
30° PRESSURE ANGLE
FLAT ROOT SIDE FIT



Shaft code 5
(KEYED NO SAE)

Adaptor	D1	D2	P	L1	L2	L3	L4	L5
SAE A	82,65/82,60	M10	24	106,4	11,0	8,0	32,0	209,0
SAE B	101,70/101,65	M12	28	146,0	16,0	8,0	46,0	223,0
SAE C	127,10/127,05	M16	-	181,0	16,0	8,0	56,0	233,0

Weight 20.4 kg

Adaptor	SAE A			SAE B		SAE C
Coupling drive	SAE A	SAE 11 teeth	SAE B	SAE B	SAE BB	SAE C
Number of teeth	9	11	13	13	15	14
Pitch	16/32	16/32	16/32	16/32	16/32	12/24
Pressure angle	30°	30°	30°	30°	30°	30°
Major dia, (min)	15,875	19,05	22,225	22,225	25,400	31,750
Minor dia. (min)	12,700	16,017	19,134	19,134	22,268	27,589

Shaft torque limits [ml/rev x bar]			
Shaft	Vi x p max.	Coupling drive	Vi x p max.
1	21420	SAE A	11000
2	14300	SAE B	20600
3	20600	SAE BB	22050
4	32670	SAE C	22050
5	34180	SAE - 11 teeth	15850

OPERATING CHARACTERISTICS - TYPICAL [24 cSt]

Series	Volumetric Displacement Vi	Flow Q [l/min] & n = 1500 RPM			Input power P [kW] & n = 1500 RPM		
		p = 0 bar	p = 140 bar	p = 240 bar	p = 7 bar	p = 140 bar	p = 240 bar
B03	10,8 ml/rev	16,2	11,2	7,7	1,3	5,3	8,4
B05	17,2 ml/rev	25,8	20,8	17,3	1,4	7,5	12,2
B06	21,3 ml/rev	31,9	26,9	23,4	1,5	8,9	14,7
B08	26,4 ml/rev	51,1	46,1	42,6	1,7	13,4	22,3
B10	34,1 ml/rev	55,6	50,6	47,1	1,7	14,4	24,1
B12	37,1 ml/rev	55,6	50,6	47,1	1,7	14,4	24,1
B14	46,0 ml/rev	69,0	64,0	60,5	1,9	17,6	29,5
B17	58,3 ml/rev	87,4	82,4	78,9	2,1	21,9	36,9
B20	63,8 ml/rev	95,7	90,7	87,2	2,2	23,8	40,2
B22	70,3 ml/rev	105,4	100,4	96,9	2,3	26,1	44,1
B25[1)]	79,3 ml/rev	118,9	113,9	110,4	2,5	29,2	49,5
B28[1)]	88,8 ml/rev	133,2	128,2	125,8[2)]	2,8	32,7	48,5[2)]
B31[1)]	100,0 ml/rev	150,0	145,0	142,6[2)]	2,8	36,5	54,4[2)]

[1)] B25 - B28 - B31 = 2500 R.P.M. max. *[2)] B28 - B31 = 210 bar max. int.* *Port connection can be furnished with metric threads.*

Parker Hannifin SAS
VPDE, Denison Vane Pumps
Vierzon - France

Model No. **T6DRM - B45 - 1 R 00 - A 1 0 - A 1 ..**

Series

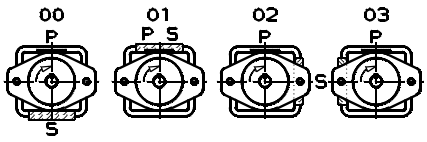
Cam ring
(Delivery at 0 bar & 1500 r.p.m.)

B14 = 71,4 l/min	B35 = 166,5 l/min
B17 = 87,3 l/min	B38 = 180,4 l/min
B20 = 99,0 l/min	B42 = 204,0 l/min
B24 = 119,3 l/min	B45 = 218,5 l/min
B28 = 134,5 l/min	B50 = 237,0 l/min
B31 = 147,4 l/min	

Type of shaft
1 = keyed (SAE C)
2 = keyed (SAE CC)
3 = splined (SAE C)
5 = keyed (non SAE)

Direct. of rotation (view on shaft end)
R = clockwise
L = counter-clockwise

Porting combination



Modification

Seal class
1 = S1 (for mineral oil)
4 = S4 (for the resistant fluids)
5 = S5 (for mineral oil and fire resistant fluids)

Design letter

Porting adaptor

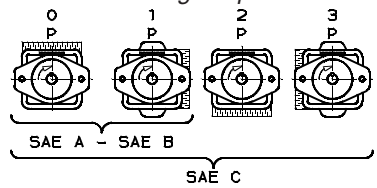
Coupling

1 = SAE A	4 = SAE C
2 = SAE B	5 = SAE J498b 16/32 - 11 teeth
3 = SAE BB	

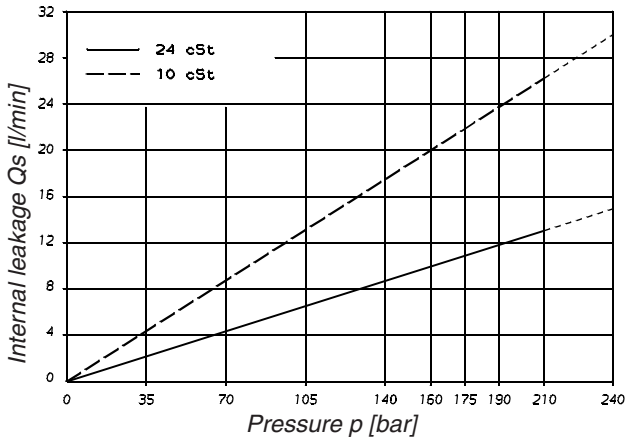
Adaptor

0 = None	B = SAE B
A = SAE A	C = SAE C

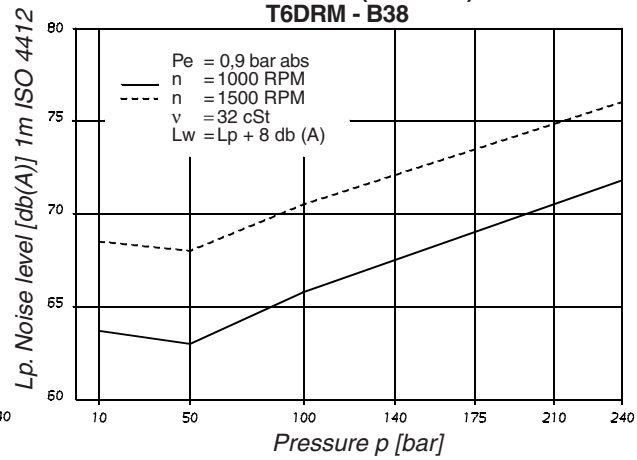
Porting adaptor



INTERNAL LEAKAGE (TYPICAL)

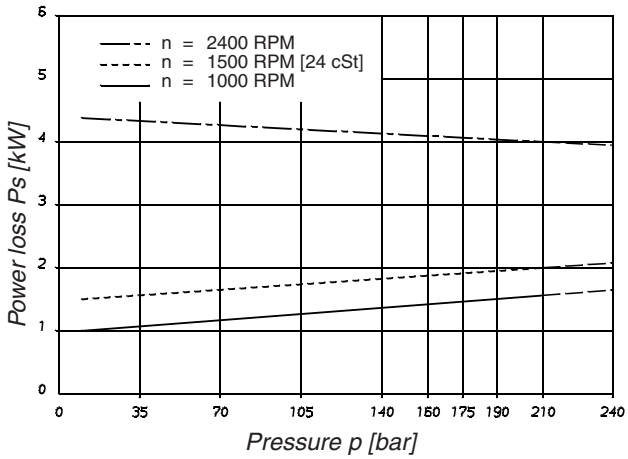


NOISE LEVEL (TYPICAL)
T6DRM - B38

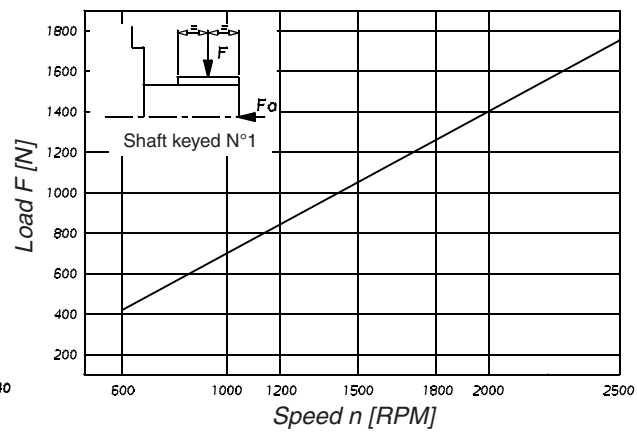


Do not operate the pump more than 5 seconds at any speed or viscosity if internal leakage is more than 50% of theoretical flow.

POWER LOSS HYDROMECHANICAL (TYPICAL)

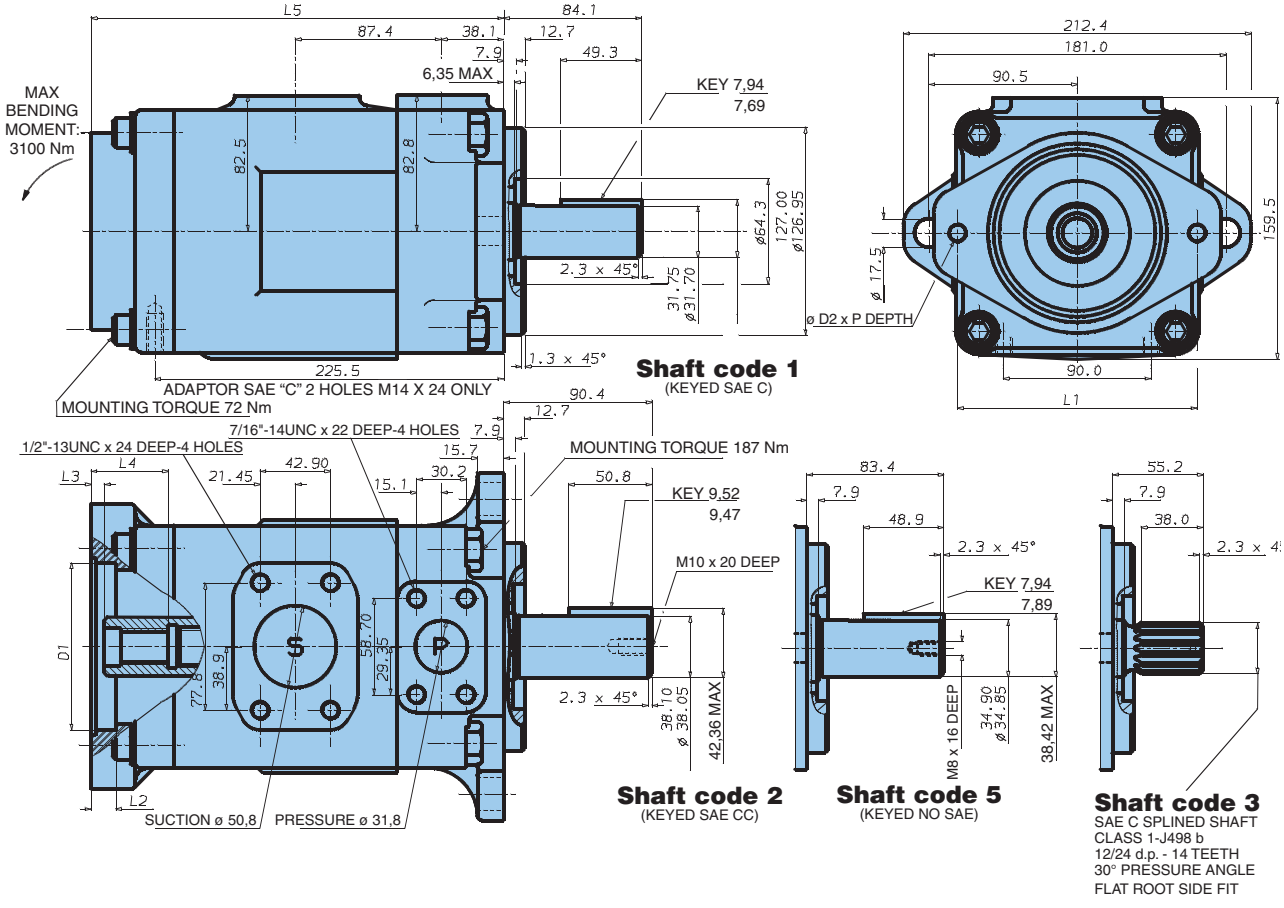


PERMISSIBLE RADIAL LOAD



Maximum permissible axial load Fa = 1200 N

Parker Hannifin SAS
VPDE, Denison Vane Pumps
Vierzon - France



Adaptor	D1	D2	P	L1	L2	L3	L4	L5
SAE A	82,65/82,60	M10	24	106,4	11,0	8,0	32,0	237,0
SAE B	101,70/101,65	M12	28	146,0	16,0	8,0	46,0	251,0
SAE C	127,10/127,05	M16	-	181,0	16,0	8,0	56,0	261,0

Weight 32,3 kg

Adaptor	SAE A			SAE B		SAE C
Coupling drive	SAE A	SAE 11 teeth	SAE B	SAE B	SAE BB	SAE C
Number of teeth	9	11	13	13	15	14
Pitch	16/32	16/32	16/32	16/32	16/32	12/24
Pressure angle	30°	30°	30°	30°	30°	30°
Major dia, (min)	15,875	19,05	22,225	22,225	25,400	31,750
Minor dia. (min)	12,700	16,017	19,134	19,134	22,268	27,589

Shaft torque limits [ml/rev x bar]			
Shaft	**Vi x p max.**	**Coupling drive**	**Vi x p max.**
1	43240	SAE A	11000
2	66036	SAE B	20600
3	61200	SAE BB	32670
5	55600	SAE C	37390
		SAE - 11 teeth	15850

OPERATING CHARACTERISTICS - TYPICAL [24 cSt]

Series	Volumetric Displacement Vi	Flow Q [l/min] & n = 1500 RPM			Input power P [kW] & n = 1500 RPM		
		p = 0 bar	p = 140 bar	p = 240 bar	p = 7 bar	p = 140 bar	p = 240 bar
B014	47,6 ml/rev	71,4	62,1	55,9	2,3	18,5	30,6
B017	58,2 ml/rev	87,3	78,0	71,8	2,5	22,2	37,0
B020	66,0 ml/rev	99,0	89,7	83,5	2,8	24,9	41,7
B024	79,5 ml/rev	119,3	110,0	103,8	3,0	29,6	49,8
B028	89,7 ml/rev	134,5	125,2	119,0	3,2	33,2	55,9
B031	98,3 ml/rev	147,4	138,1	131,9	3,3	36,2	61,0
B035	111,0 ml/rev	166,5	157,2	151,0	3,5	40,7	68,7
B038	120,3 ml/rev	180,4	171,1	164,9	3,7	43,9	74,3
B042[1)]	136,0 ml/rev	204,0	194,7	188,5	4,0	49,4	83,7
B045[1)]	145,7 ml/rev	218,5	209,2	203,0	4,1	52,8	89,5
B050[1)]	158,0 ml/rev	237,0	227,7	224,0[2)]	4,4	57,0	85,0[2)]

[1)] B42 - B45 - B50 = 2200 R.P.M. max. *[2)] B50 = 210 bar max. int.* *Port connection can be furnished with metric threads.*

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VPDE, Denison Vane Pumps
Vierzon - France

Model No. **T6ERM - 066 - 1 R 00 - A 1 0 - A 1 ..**

Series

Cam ring
(Delivery at 0 bar & 1500 r.p.m.)
042 = 198,5 l/min
045 = 213,6 l/min
050 = 237,7 l/min
052 = 247,2 l/min
062 = 295,0 l/min
066 = 319,9 l/min
072 = 340,6 l/min

Type of shaft
1 = keyed (SAE CC)
3 = splined (SAE C)
4 = splined (SAE CC)

Direct. of rotation (view on shaft end)
R = clockwise
L = counter-clockwise

Porting combination

Modification

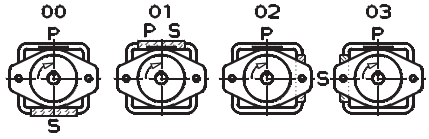
Seal class
1 = S1 (for mineral oil)
4 = S4 (for the resistant fluids)
5 = S5 (for mineral oil and fire resistant fluids)

Design letter

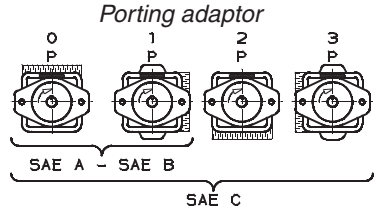
Porting adaptor

Coupling
1 = SAE A
2 = SAE B
3 = SAE BB
4 = SAE C
5 = SAE J498b
16/32 - 11 teeth

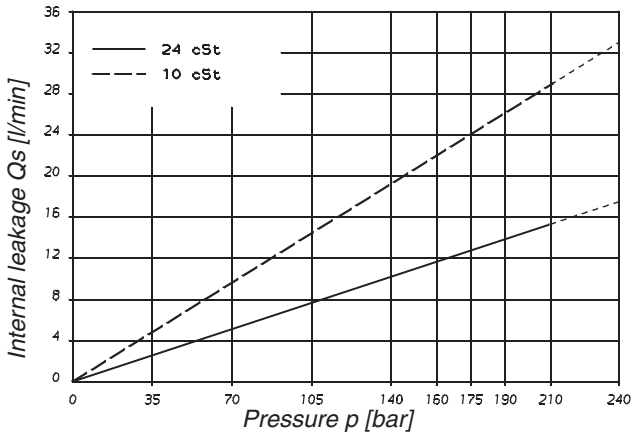
Adaptor
0 = None
A = SAE A
B = SAE B
C = SAE C



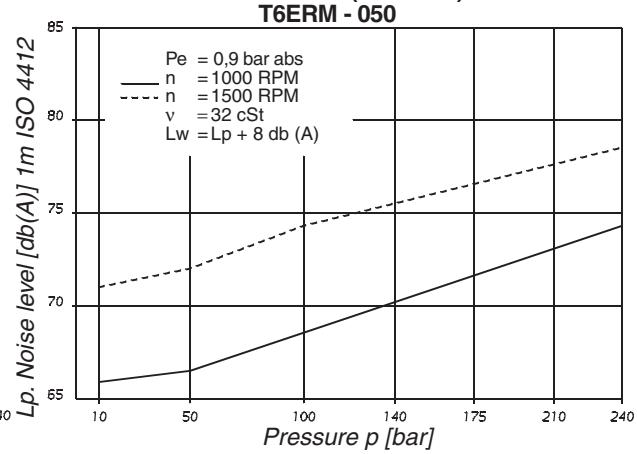
Porting adaptor



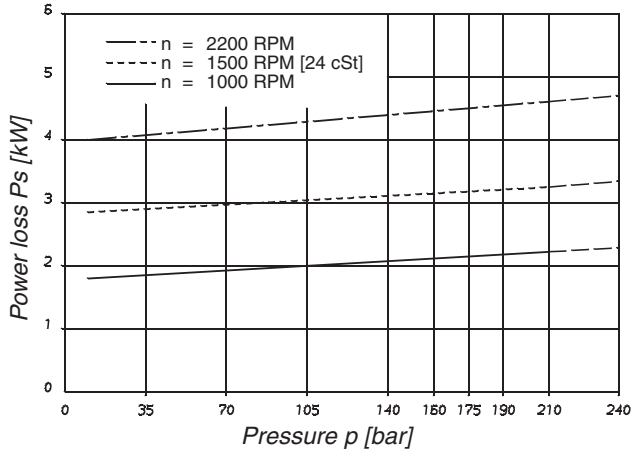
INTERNAL LEAKAGE (TYPICAL)



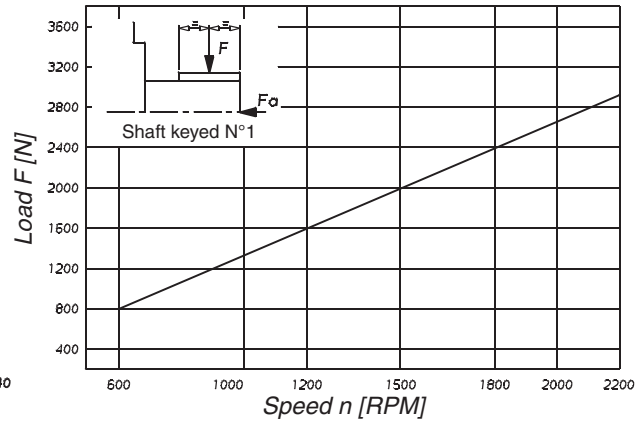
NOISE LEVEL (TYPICAL)
T6ERM - 050



POWER LOSS HYDROMECHANICAL (TYPICAL)



PERMISSIBLE RADIAL LOAD



Maximum permissible axial load Fa = 2000 N

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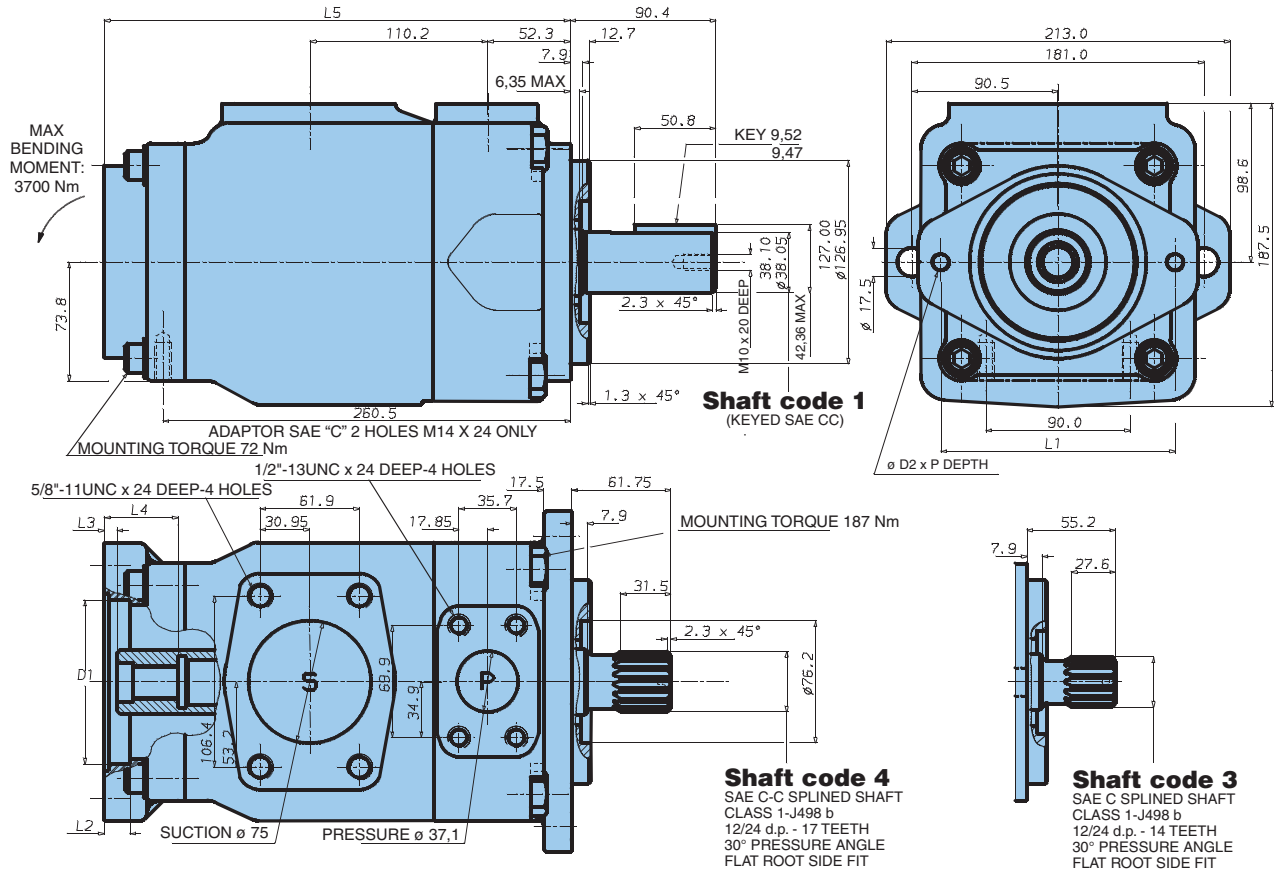


Adaptor	D1	D2	P	L1	L2	L3	L4	L5
SAE A	82,65/82,60	M10	24	106,4	11,0	8,0	32,0	272,0
SAE B	101,70/101,65	M12	28	146,0	16,0	8,0	46,0	286,0
SAE C	127,10/127,05	M16	-	181,0	16,0	8,0	56,0	296,0

Weight 42,5 kg

Adaptor	SAE A			SAE B		SAE C
Coupling drive	SAE A	SAE 11 teeth	SAE B	SAE B	SAE BB	SAE C
Number of teeth	9	11	13	13	15	14
Pitch	16/32	16/32	16/32	16/32	16/32	12/24
Pressure angle	30°	30°	30°	30°	30°	30°
Major dia, (min)	15,875	19,05	22,225	22,225	25,400	31,750
Minor dia. (min)	12,700	16,017	19,134	19,134	22,268	27,589

Shaft torque limits [ml/rev x bar]

Shaft	Vi x p max.	Coupling drive	Vi x p max.
1	80560	SAE A	11000
3	61200	SAE B	20600
4	120210	SAE BB	32670
		SAE C	66480
		SAE - 11 teeth	15850

OPERATING CHARACTERISTICS - TYPICAL [24 cSt]

Series	Volumetric Displacement Vi	Flow Q [l/min] & n = 1500 RPM			Input power P [kW] & n = 1500 RPM		
		p = 0 bar	p = 140 bar	p = 240 bar	p = 7 bar	p = 140 bar	p = 240 bar
042	132,3 ml/rev	198,5	188,5	181,3	5,2	49,4	82,6
045	142,4 ml/rev	213,6	203,6	196,5	5,4	52,9	88,7
050	158,5 ml/rev	237,7	227,7	220,6	5,7	58,5	98,3
052	164,8 ml/rev	247,2	237,2	230,1	5,8	60,8	102,1
062	196,7 ml/rev	295,0	285,0	277,9	6,4	71,9	121,3
066	213,3 ml/rev	319,9	309,9	302,8	6,7	77,7	131,2
072	227,1 ml/rev	340,6	330,6	323,5	6,9	82,6	139,5

Port connection can be furnished with metric threads.

Parker Hannifin SAS
VPDE, Denison Vane Pumps
Vierzon - France

Ass'y Tandem VV - ...

VV = Vane pump + vane pump
VP = Vane pump + Piston pump (PV)
VG = Vane pump + Gear pump (GP)
VH = Vane pump + Hybrid pump (T6H*)

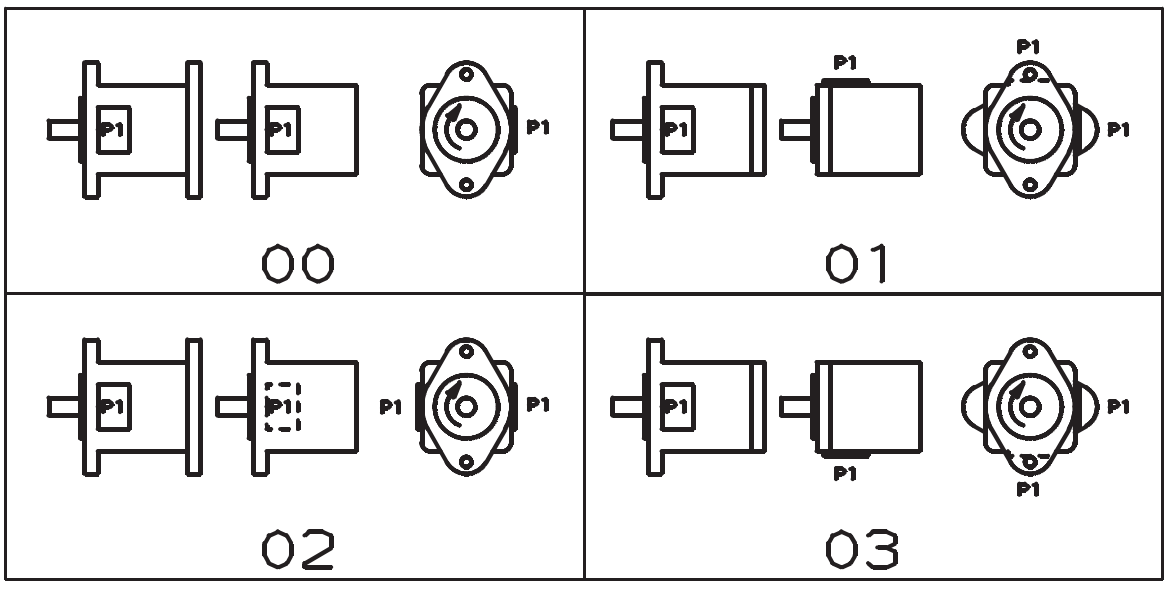
Porting combination
00
01
02
03

Assembly screws

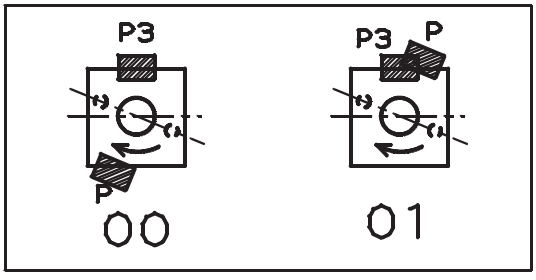
- SAE A rear mounting adaptor : 2 screws M10 x 30 (Mounting torque = 49 Nm.)
- SAE B rear mounting adaptor : 2 screws M12 x 35 (Mounting torque = 88 Nm.)
- SAE C rear mounting adaptor : 2 screws M16 x 40 (Mounting torque = 190 Nm.)

ASSEMBLY PORTING COMBINATION

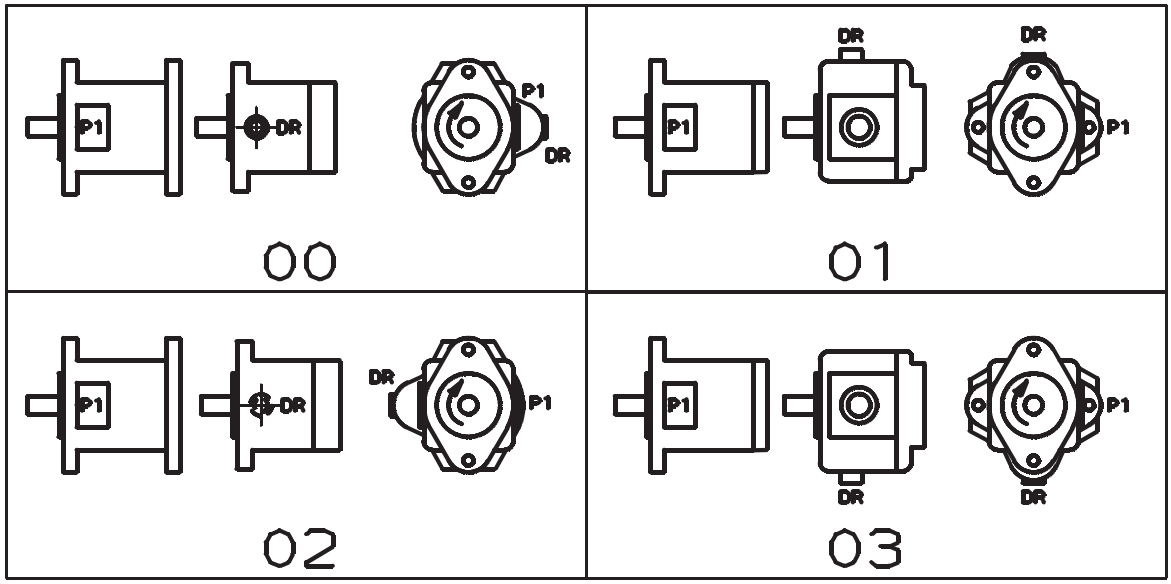
- VV type = Front single vane pump (view from shaft end).



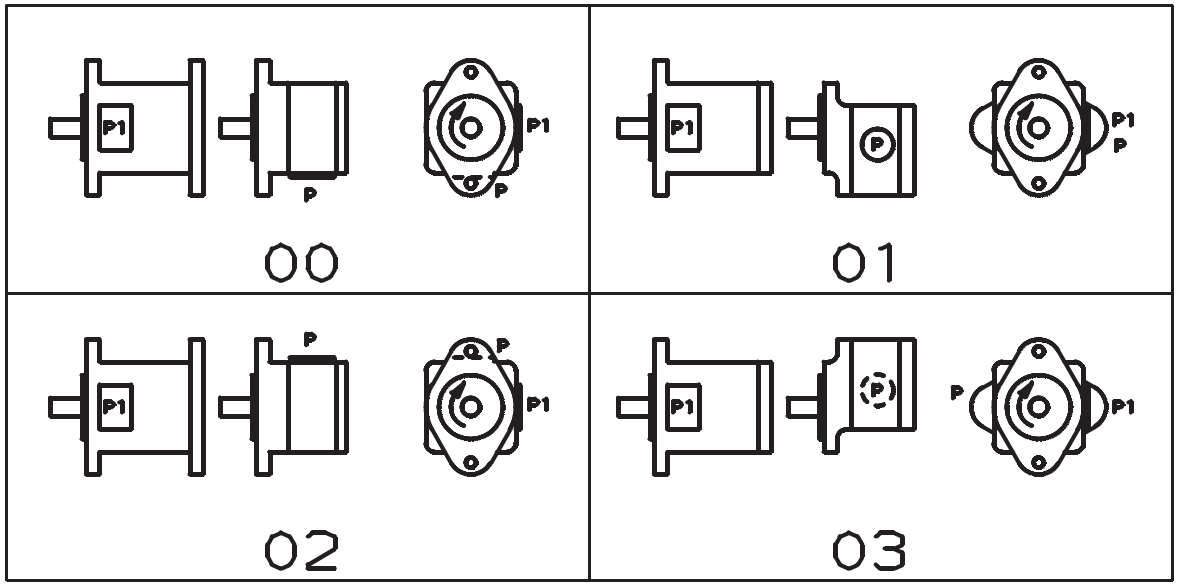
- VV type = For triple vane pump (view from shaft end).



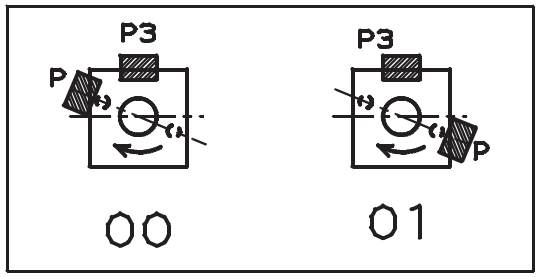
- VP & VH type = For the second pump the reference is the DR drain port on piston pump (view from shaft end).



- VG type = For single vane pump (view from shaft end).



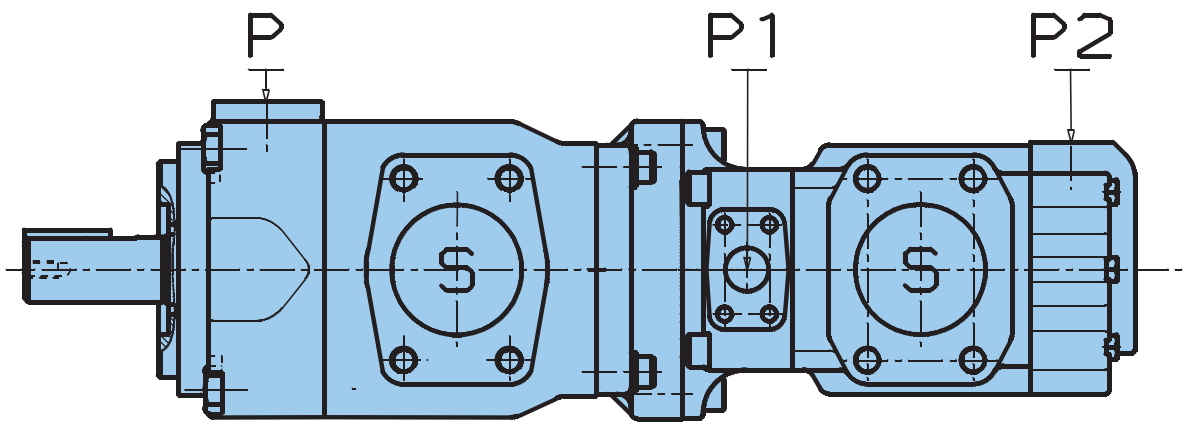
- VG type = For triple vane pump (view from shaft end).



Rear pump		Drive train vane pump			
		T6*R (single pumps)		T6***R (triple pumps)	
Serie	**Shaft**	**Coupling**	**Adaptor**	**Coupling**	**Adaptor**
T6C* **T6CR*** **T6CSH**	3 4	2 4	B B	Not available	
T6CC*	3 5	3 2	B B	Not available	
T6D* **T6DR*** **T6DC*** **T6DCC***	3	4	C	Not available	
T6E* **T6ER*** **T6EC*** **T6ED***	3	4	C	Not available	
TB	4 3	1 5	A A	Available	
T7B	3 4	2 3	B B	Not available	
T6H* **	4	3	B	Not available	
PV6	1	2	A	Available with special coupling	
PV10 **PV15**	1	2	B	Not available	
PV20 **PV29**	1	4	C	Not available	
GP1D	3	1	A	Available	
GP2D	3	1	A	Available up to 12 cm^3/rev.	
GP2A	3	1	A	Available	
GP3A	3	2	B	Not available	

For additional information on Piston or Gear pumps, see the specific bulletins.

EXAMPLE



T6ER + T6CC

- 1. Define front pump
  T6ER - *** - 1 R 02 - B21 - A 1
- 2. Define rear pump
  T6CC - *** - *** - 5 R 01 - C 100
- 3. Define mounting
  Ass'y tandem VV03

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HYGE Ed. 2009-07-01

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Catalogue HY29-0027/UK. XM 07/2009 PC

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