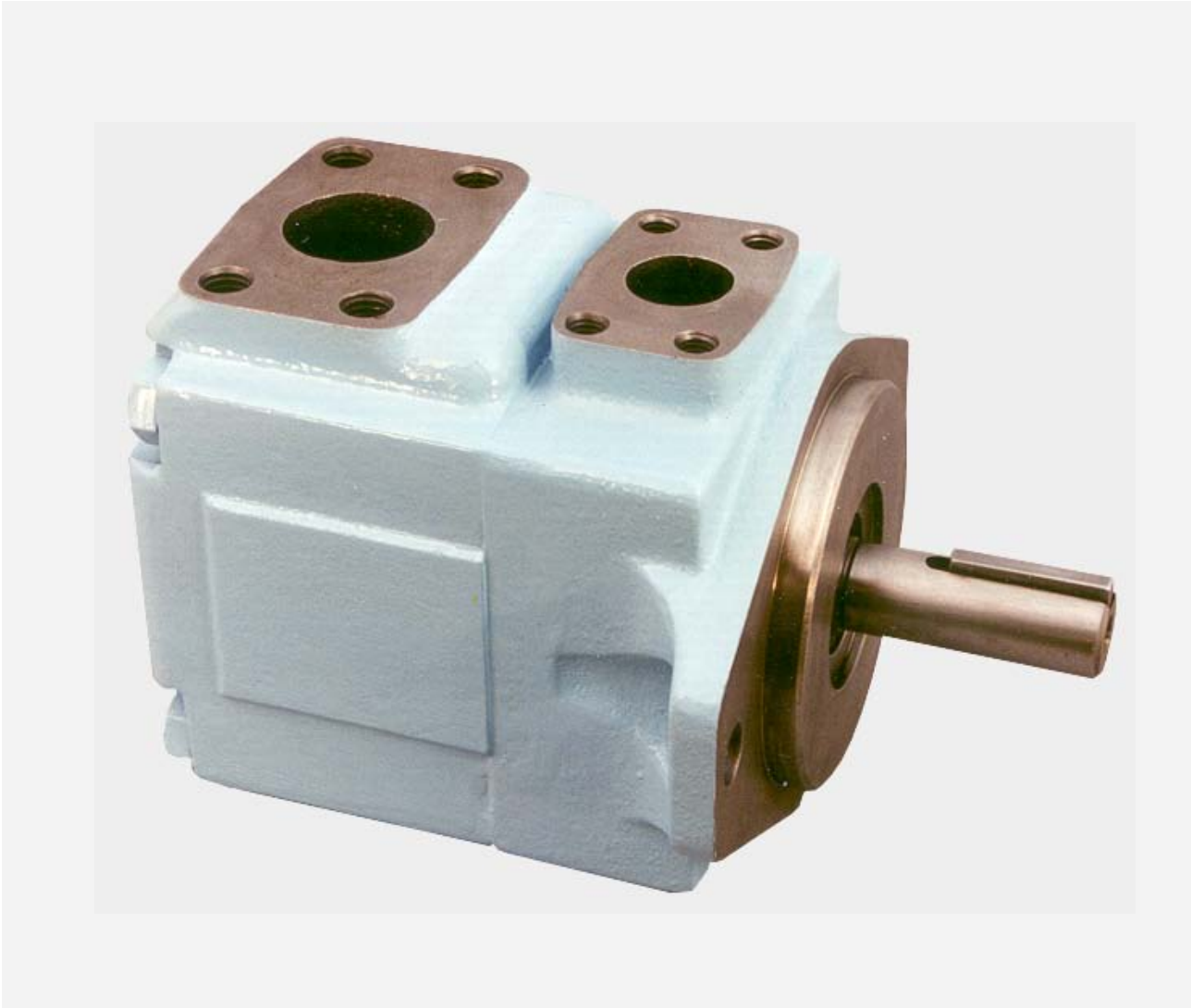
DENISON HYDRAULICS
T6 industrial application

vane pumps - single, double, triple



Publ. 1 - EN0700 - B 10 / 2000 / FB Replaces : 1 - EN0700 - A L13 - 10700 - 2

DENISON Hydraulics

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CONTENTS - T6 SERIES INDUSTRIAL APPLICATION

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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 to 275 bar, reduce size and cost of actuators, valves and lines, give extended life at reduced pressures.

BETTER EFFICIENCY

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

MOUNTING FLEXIBILITY

Up to 32 positions for double pumps and up to 128 for triple pumps, this reduces mounting costs and improves performance.

LOWER NOISE LEVELS

Increase operator 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. They permit easy conversion or renewal of serviceable elements in minutes at minimum expense and risk of contamination. Pump rotation is easy to change by changing position of cam ring on port plate dowel pin hole.

WIDER RANGE OF ACCEPTABLE VISCOSITIES

Viscosities from 860 to 10 cSt, 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 mechanical efficiency.

FIRE RESISTANT FLUIDS

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

GENERAL APPLICATIONS INSTRUCTIONS

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

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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
C	003	10,8	600	2800	1800	275	240	210	175	175	140
	005	17,2									
	006	21,3									
	008	26,4									
	010	34,1									
	012	37,1									
	014	46,0									
	017	58,3									
	020	63,8									
	022	70,3									
	025	79,3		2500							
	028	88,8				210	160		160		
	031	100,0									
D	014	47,6	600	2500	1800	240	210	210	175	175	140
	017	58?2									
	020	66,0									
	024	79,5									
	028	89,7									
	031	98,3									
	035	111,0									
	038	120,3									
	042	136,0		2200							
	045	145,7									
	050	158,0				210	160		160		
E	042	132,3	600	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									

HF-0, HF2 = Anti-wear Petroleum Base
HF-1 = Non Anti-wear Petroleum Base
HF-5 = Synthetic Fluids
HF-3 = Water-in-oil invert Emulsions
HF-4 = Water Glycol solutions

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

PRIMING AT STARTING

At first start operation of the pump shaft at the lowest speed and at the lowest pressure to obtain priming. 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 pump shaft at top speed and pressure without checking for completion of pump priming, and the fluid has no aeration disaerated.

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MINIMUM ALLOWABLE INLET PRESSURE (BAR ABSOLUTE) - T6 SERIES INDUSTRIAL APPLICATION

Cartridge		Speed RPM								Displacement
Size	**Displacement**	1200	1500	1800	2100	2200	2300	2500	2800	
C	003	0,80	0,80	0,80	0,80	0,80	0,80	0,90	1,00	003
	005									005
	006									006
	008									008
	010									010
	012						0,85	0,92		012
	014							0,95		014
	017					0,85	0,90		1,03	017
	020									020
	022				0,85	0,90		0,98	1,05	022
	025				0,90	0,95	0,95	1,05		025
	028					0,98	0,98	1,08		028
	031				0,85	0,90	1,00	1,11		031
D	014	0,80	0,80	0,80	0,80	0,88	0,95	1,00		014
	017									017
	020									020
	024				0,82			1,10		025
	028				0,85	0,92	1,00	1,18		028
	031				0,90	0,95		1,23		031
	035				0,92	0,98	1,02	1,29		035
	038				0,95	1,00	1,05			038
	042					1,02	1,08			042
	045			0,85	0,98	1,05				045
	050				1,02	1,09				050
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 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 double pumps.

GENERAL CHARACTERISTICS

	Mounting standard	**Weight without connector and bracket - kg**	**Moment of inertia $kgm^2 \times 10^{-4}$**	**SAE 4 bolts J518c - ISO/DIS 6162-1**			
				Suction	**Pressure**		
T6C	SAE J744c ISO/3019-1 SAE B	15,7	7,5	1"1/2	1"		
T6D	SAE J744c ISO/3019-1 SAE C	24,0	23,3	2"	1"1/4		
T6E		43,3	51,5	3"	1"1/2		
T6CC	SAE J744c ISO/3019-1 SAE B	26,0	14,9	2"1/2 or 3"	**P1**	**P2**	
					1"	1" or 3/4"	
T6DC	SAE J744c ISO/3019-1 SAE C	36,6	30,4	3"	1"1/4	1"	
T6EC		55,0	58,0	3"1/2	1"1/2	1"	
T6ED		66,0	73,4	4"	1"1/2	1"1/4	
T6DCC		61,0	37,3	4"	P1	**P2**	**P3**
					1"1/4	1"	1" or 3/4"
T6EDC	ISO/3019-2	100,0	80,2	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	qv_e	[l/min]	60
Available flow	qv_e	[l/min]	Speed	n	[R.P.M.]	1500
Input power	P	[kW]	Pressure	p	[bar]	150

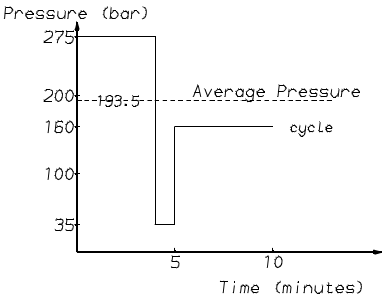
ROUTINE AND EXAMPLE

Routine :	Example :
1. First calculation $Vi = \frac{1000\ Q}{n}$	$Vi = \frac{1000\ x\ 60}{1500} = 40$ ml/rev.
2. Choice Vi of pump immediately greater (see tabulation)	T6C 014 Vi = 46 ml/rev.
3. Theoretical flow of this pump $q_{Vi} = \frac{Vi\ x\ n}{1000}$	$qv_i = \frac{46\ x\ 1500}{1000} = 69$ l/min
4. Find q_{Vs} *leakage function of pressure* $q_{Vs} = f(p)$ *on curve at 10 or 24 cSt*	T6C (page 10) : qv_S = 5 l/min at 150 bar, 24 cSt
5. Available flow $q_{Ve} = q_{Vi} - q_{Vs}$	$qv_e = 69 - 5 = 64$ l/min
6. Theoretical input power $Pi = \frac{qvi\ x\ p}{600}$	$Pi = \frac{69\ x\ 150}{600} = 17{,}3$ kW
7. Find ps hydrodynamic power loss on curve	T6C (page10) : Ps at 1500 R.P.M., 150 bar = 1,5 kW
8. Calculation of necessary input power $P = Pi + Ps$	P = 17,3 + 1,5 = 18,8 kW
9. Results	Vi = 46,0 ml/rev qv_e = 64,0 l/min P = 18,8 kW } T6C 014

These calculation steps must be followed for each application.

INTERMITTENT PRESSURE RATING

T6 units may be operated intermittently at higher pressures 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 DENISON Hydraulics representative.



Example : T6C - 014
Duty cycle 4 min. at 275 bar
1 min. at 35 bar
5 min. at 160 bar

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

193,5 bar is lower than 240 bar allowed as continuous pressure for T6C - 014 with HF-0 fluid.

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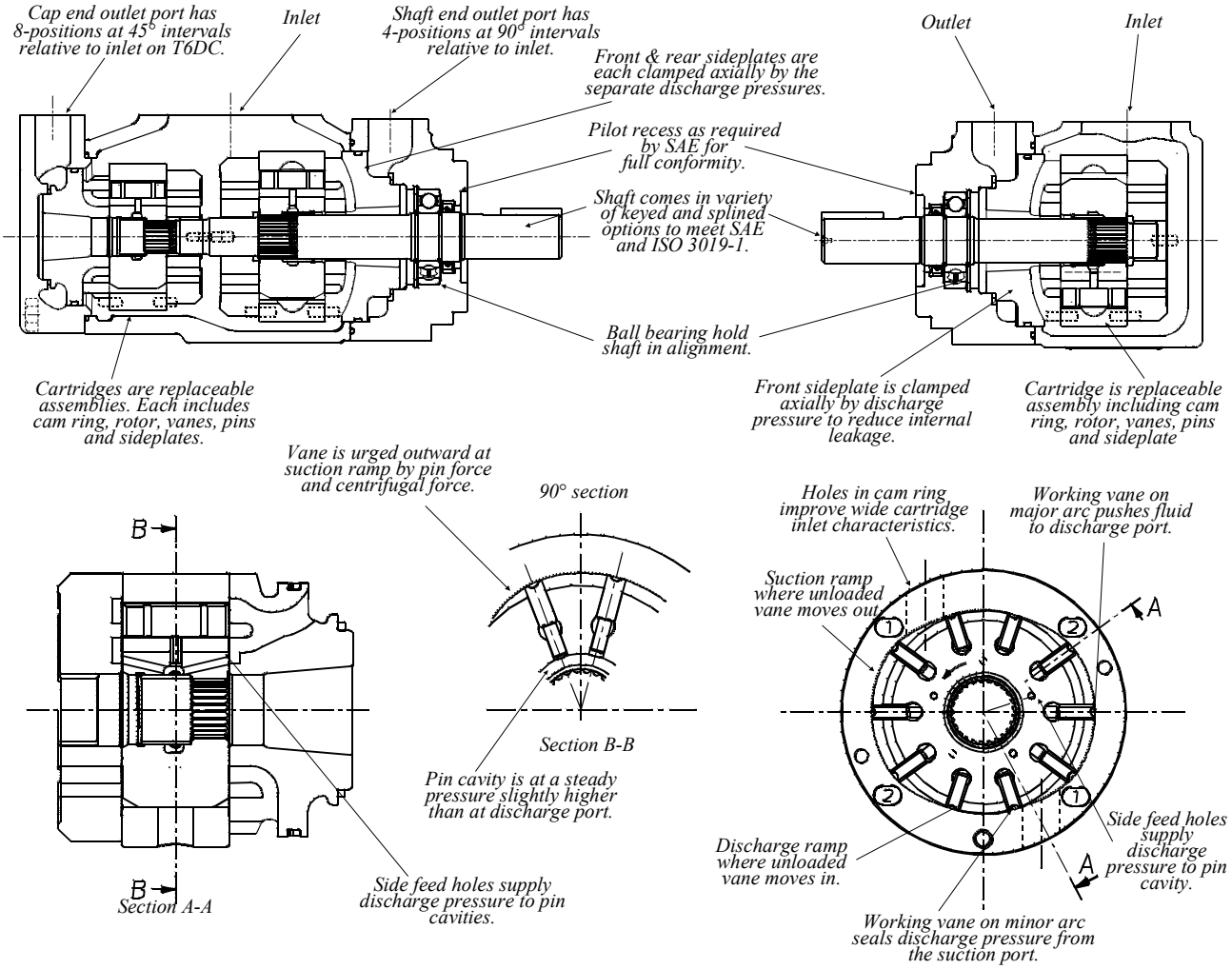

APPLICATION ADVANTAGES

- The high pressure capability to 275 bar, in the small envelope, reduces installation costs and provides extended life at reduced pressure.
- The high volumetric efficiency, typically 94%, reduces 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.
- The low speed 600 RPM, low pressure, high viscosity 860 cSt allow application in cold environments with minimum energy consumption and without seizure risk.
- The low ripple pressure ± 2 bar reduces piping noise and increases lifetime of other components in the circuit.
- The high resistance to particle contamination because of the double lip vane increases pump life.
- The large variety of options (cam displacement, shaft, porting) allows customized installation.

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RECOMMENDED FLUIDS

Petroleum base anti-wear 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 Hydraulics standard HF-0 and HF-2.

ACCEPTABLE ALTERNATE FLUIDS

The use of other fluids other than petroleum base anti-wear 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 operating temperatures.

Maximum fluid temperature (θ) °K

HF-0, HF-1, HF-2	373 (+ 100° C)
HF-3, HF-4	323 (+ 50° C)
HF-5	343 (+ 70° C)
Biodegradable fluids (esters & rapeseed base)	338 (+ 65° C)

Minimum fluid temperature (θ) °K

HF-0, HF-1, HF-2, HF-5	255 (- 18° C)
HF-3, HF-4	283 (+ 10° C)
Biodegradable fluids (esters & rapeseed base)	253 (- 20° C)

FLUID CLEANLINESS

The fluid must be cleaned before and during operation to maintain contamination level of NAS 1638 class 8 (or ISO 18/14) 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 minimum inlet pressure specified. 100 mesh (149 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 optimum viscosity at normal operating temperatures. For cold starts the pumps should be operated at low speed and pressure until fluid warms up to an acceptable viscosity for full power operation.

WATER CONTAMINATION IN THE FLUID

Maximum acceptable content of water.
ù 0,10 % for mineral base fluids.
ù 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

ù 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.
ù The coupling spline must be lubricated with a lithium molydisulfide grease or a similar lubricant.
ù The coupling must be hardened to a hardness between 27 and 45 R.C.
ù 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

DENISON Hydraulics 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 ensure maximum life in the application. If the key is replaced it must be a heat-treated key between hardness 27 - 34 R.c. hardness. The corners of the keys must be chamfered from 0,76 to 1,02 at 45° to clear radii in the key way.

NOTE

Alignment of keyed shafts must be within tolerances given for splined shafts.

SHAFT LOADS

These products are designed primarily 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. T6C - 022 - 1 R 00 - B 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 B)
2 = keyed (no SAE)
3 = splined (SAE B)
4 = splined (SAE BB)

Modification

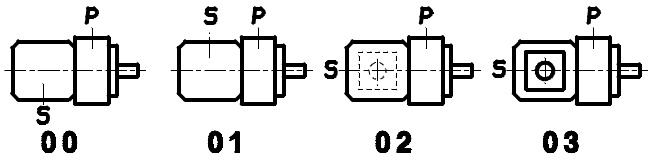
Seal class
1 = S1 (for mineral oil)
4 = S4 (for resistant fluids)
5 = S5 (for mineral oil and fire resistant fluids)

Design letter

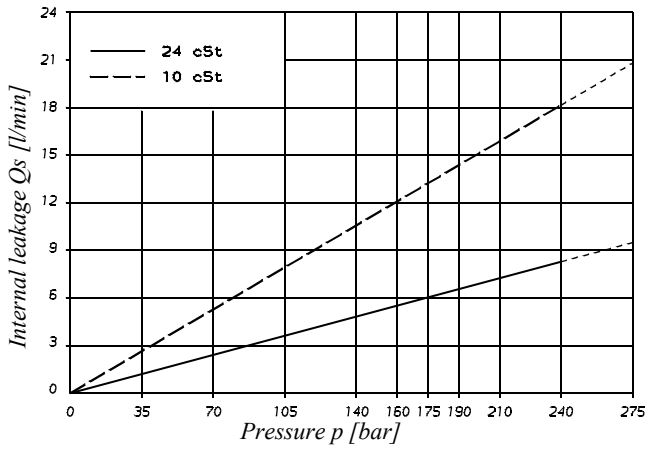
Porting combination
00 = standard

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

P = Pressure port
S = Suction port



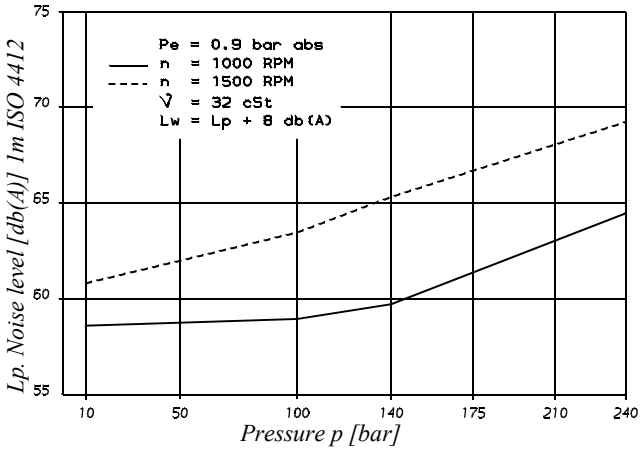
INTERNAL LEAKAGE (TYPICAL)



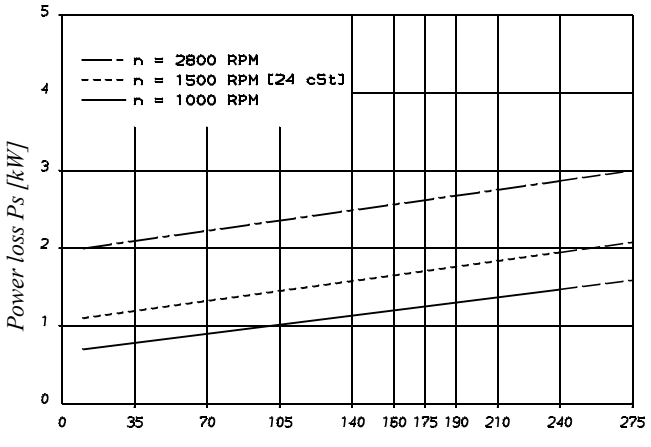
Do not operate the pump more than 5 seconds at any speed or viscosity, if internal leakage is more than 50% of theoretical flow.

NOISE LEVEL (TYPICAL)

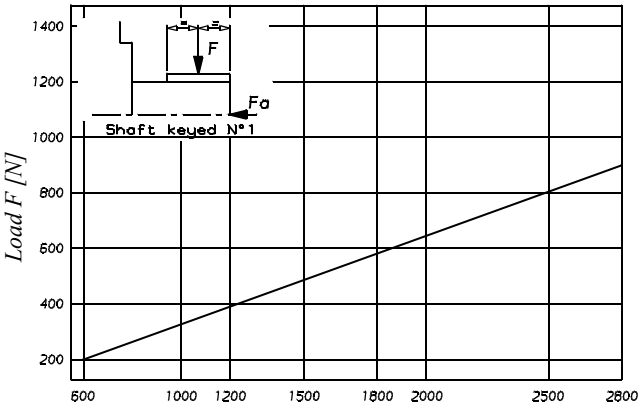
T6C - 022



POWER LOSS HYDROMECHANICAL (TYPICAL)



PERMISSIBLE RADIAL LOAD



Maximum permissible axial load Fa = 800 N

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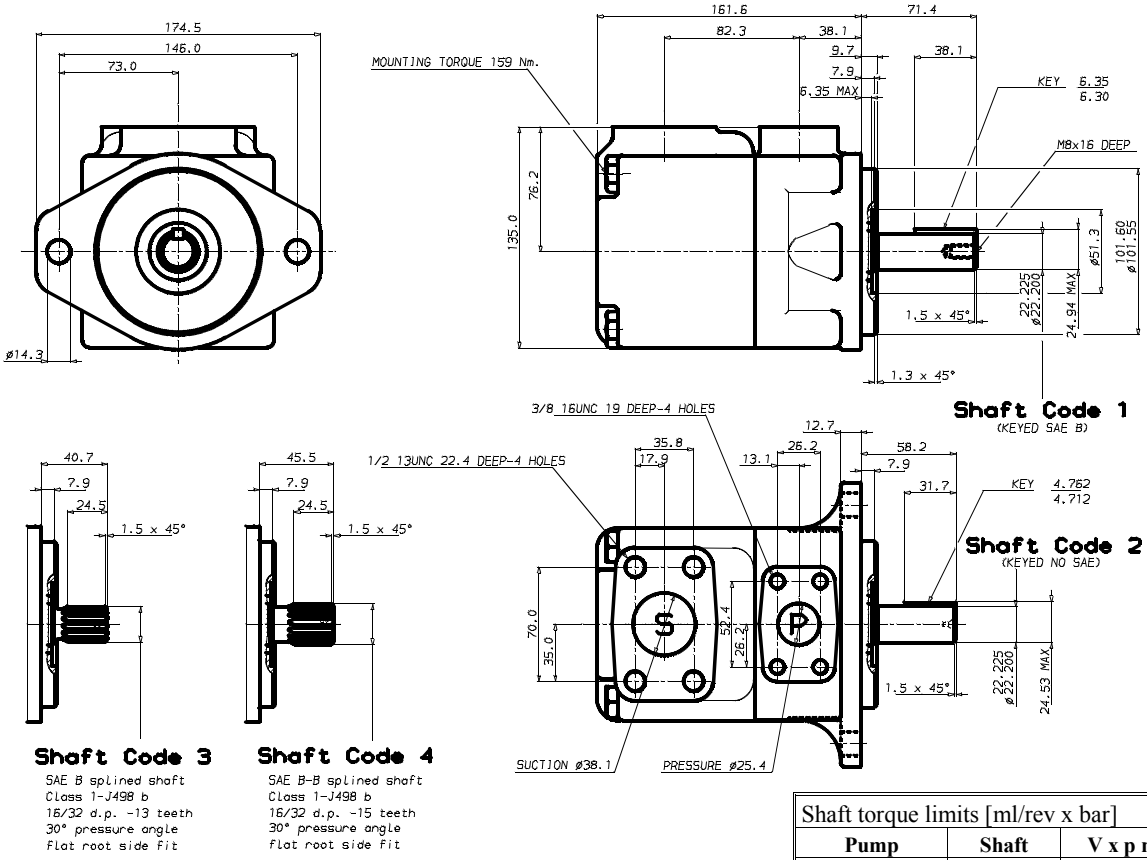

Shaft torque limits [ml/rev x bar]		
Pump	**Shaft**	**V x p max.**
T6C	1	16500
	2	14300
	3	20600

OPERATING CHARACTERISTICS - TYPICAL [24 cSt]

Series	Volumetric Displacement Vi	Speed n [R.P.M.]	Flow qv_e [l/min]			Input power P [kW]		
			p = 0 bar	p = 140 bar	p = 240 bar	p = 7 bar	p = 140 bar	p = 240 bar
003	10,8 ml/rev	1000 1500	10,8 16,2	5,8 11,2	- 7,7	1,0 1,3	3,6 5,3	- 8,4
005	17,2 ml/rev	1000 1500	17,2 25,8	12,2 20,8	8,7 17,3	1,1 1,4	5,1 7,5	8,4 12,2
006	21,3 ml/rev	1000 1500	21,3 31,9	16,3 26,9	12,8 23,4	1,1 1,5	6,0 8,9	10,0 14,7
008	26,4 ml/rev	1000 1500	26,4 39,6	21,4 34,6	17,9 31,1	1,2 1,6	7,2 10,7	12,1 17,7
010	34,1 ml/rev	1000 1500	34,1 51,1	29,1 46,1	25,6 42,6	1,3 1,7	8,9 13,4	15,1 22,3
012	37,1 ml/rev	1000 1500	37,1 55,6	32,1 50,6	28,6 47,1	1,3 1,7	9,6 14,4	16,3 24,1
014	46,0 ml/rev	1000 1500	46,0 69,0	41,0 64,0	37,5 60,5	1,4 1,9	11,7 17,6	19,9 29,5
017	58,3 ml/rev	1000 1500	58,3 87,4	53,3 82,4	49,8 78,9	1,6 2,1	14,5 21,9	24,8 36,9
020	63,8 ml/rev	1000 1500	63,8 95,7	58,8 90,7	55,3 87,2	1,6 2,2	15,8 23,8	27,0 40,2
022	70,3 ml/rev	1000 1500	70,3 105,4	65,3 100,4	61,8 96,9	1,7 2,3	17,3 26,1	29,6 44,1
025[1)]	79,3 ml/rev	1000 1500	79,3 118,9	74,3 113,9	70,8 110,4	1,8 2,5	19,3 29,2	33,2 49,5
028[1)]	88,8 ml/rev	1000 1500	88,8 133,2	83,8 128,2	81,4[2)] 125,8[2)]	1,9 2,8	21,9 32,7	32,5[2)] 48,5[2)]
031[1)]	100,0 ml/rev	1000 1500	100,0 150,0	95,0 145,0	92,6[2)] 142,6[2)]	2,0 2,8	24,4 36,5	36,4[2)] 54,4[2)]

1) 025 - 028 - 031 = 2500 R.P.M. max. *2) 028 - 031 = 210 bar max. int.*

- Not to use because internal greater than 50% theoretical flow. *Port connection can be furnished with metric threads.*

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Model No. T6D - 045 - 1 R 00 - B 1

Series

Cam ring
(Delivery at 0 bar & 1500 r.p.m.)
014 = 71,4 l/min
017 = 87,3 l/min
020 = 99,0 l/min
024 = 119,3 l/min
028 = 134,5 l/min
031 = 147,4 l/min
035 = 166,5 l/min
038 = 180,4 l/min
042 = 204,0 l/min
045 = 218,5 l/min
050 = 237,0 l/min

Type of shaft
1 = keyed (SAE C)
2 = keyed (no SAE)
3 = splined (SAE C)
4 = splined (no SAE)

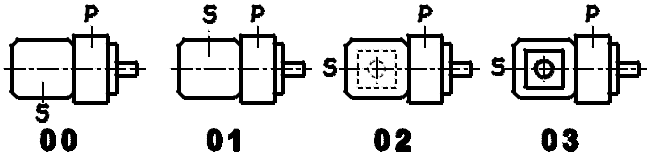
Modification

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

Design letter

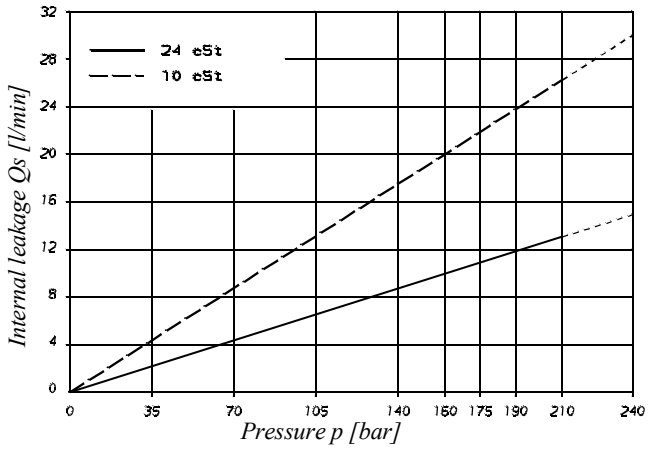
Porting combination
00 = standard

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

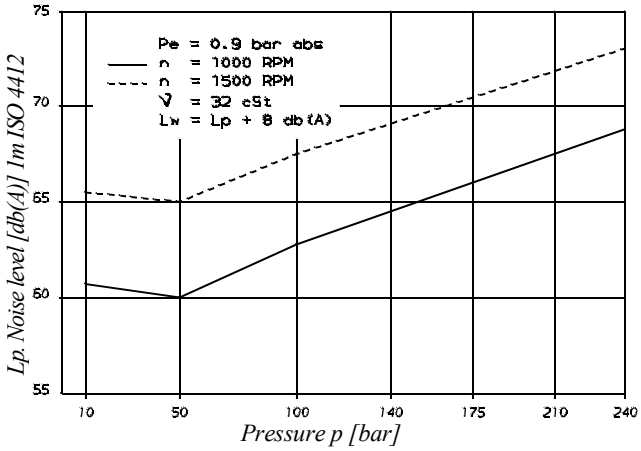


P = Pressure port
S = Suction port

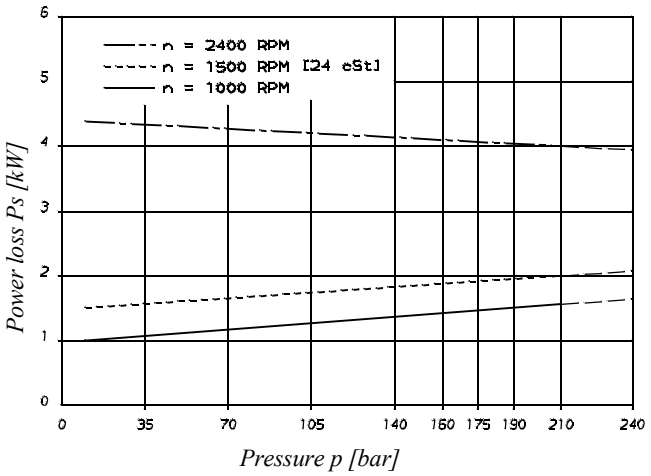
INTERNAL LEAKAGE (TYPICAL)



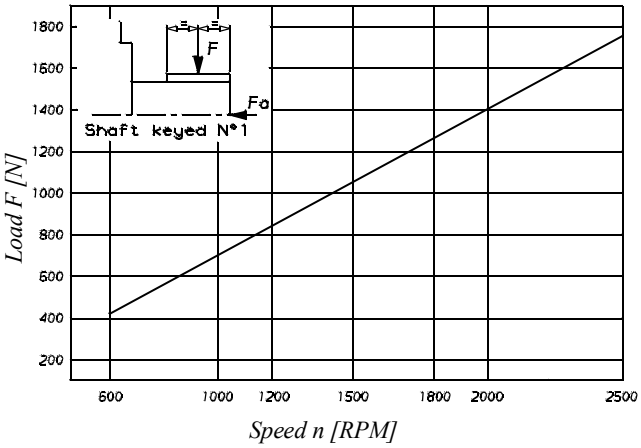
NOISE LEVEL (TYPICAL)
T6D - 038



POWER LOSS HYDROMECHANICAL (TYPICAL)



PERMISSIBLE RADIAL LOAD



Maximum permissible axial load Fa = 1200 N

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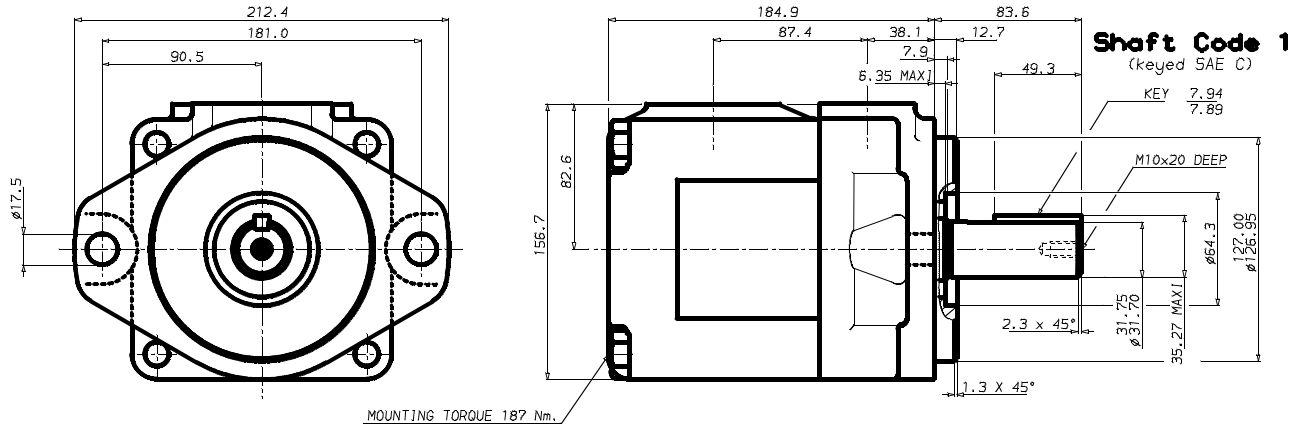

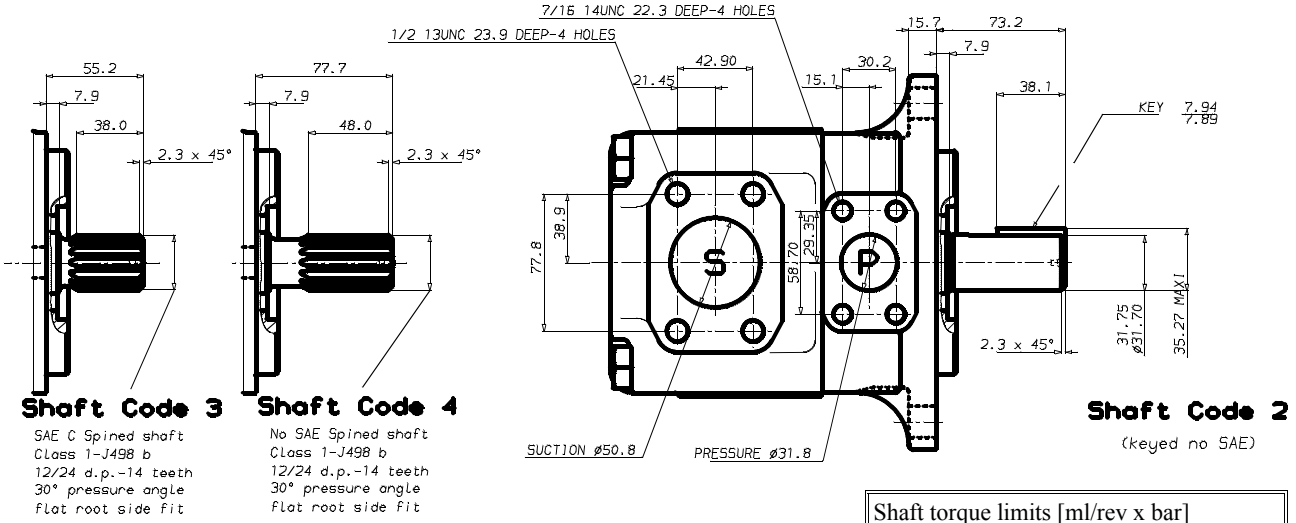

Shaft torque limits [ml/rev x bar]		
Pump	**Shaft**	**V x p max.**
T6D	2	34590

OPERATING CHARACTERISTICS - TYPICAL [24 cSt]

Series	Volumetric Displacement Vi	Speed n [R.P.M.]	Flow qve [l/min]			Input power P [kW]		
			p = 0 bar	p = 140 bar	p = 240 bar	p = 7 bar	p = 140 bar	p = 240 bar
014	47,6 ml/rev	1000 1500	47,6 71,4	38,3 62,1	32,1 55,9	1,5 2,3	12,5 18,5	20,7 30,6
017	58,2 ml/rev	1000 1500	 87,3	 78,0	 71,8	 2,5	 22,2	 37,0
020	66,0 ml/rev	1000 1500	66,0 99,0	56,7 89,7	50,5 83,5	1,7 2,8	16,8 24,9	28,0 41,7
024	79,5 ml/rev	1000 1500	79,5 119,3	70,2 110,0	64,0 103,8	1,9 3,0	19,9 29,6	33,4 49,8
028	89,7 ml/rev	1000 1500	89,7 134,5	80,4 125,2	74,2 119,0	2,0 3,2	22,3 33,2	37,5 55,9
031	98,3 ml/rev	1000 1500	98,3 147,4	89,0 138,1	82,8 131,9	2,1 3,3	24,3 36,2	40,9 61,0
035	111,0 ml/rev	1000 1500	111,0 166,5	101,7 157,2	95,5 151,0	2,3 3,5	27,3 40,7	46,0 68,7
038	120,3 ml/rev	1000 1500	120,3 180,4	111,0 171,1	104,8 164,9	2,4 3,7	29,4 43,9	49,8 74,3
042[1)]	136,0 ml/rev	1000 1500	136,0 204,0	126,7 194,7	120,5 188,5	2,6 4,0	33,1 49,4	56,0 83,7
045[1)]	145,7 ml/rev	1000 1500	145,7 218,5	136,4 209,2	130,2 203,0	2,7 4,1	35,3 52,8	59,9 89,5
050[1)]	158,0 ml/rev	1000 1500	158,0 237,0	148,7 227,7	145,0[2)] 224,0[2)]	2,8 4,4	38,2 57,0	56,8[2)] 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.*

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Model No. T6E - 066 - 3 R 00 - 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)
2 = keyed (no SAE)
3 = splined (SAE C)
4 = splined (SAE CC)

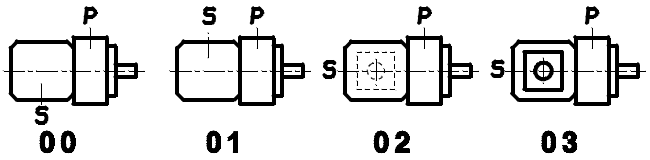
Modification

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

Design letter

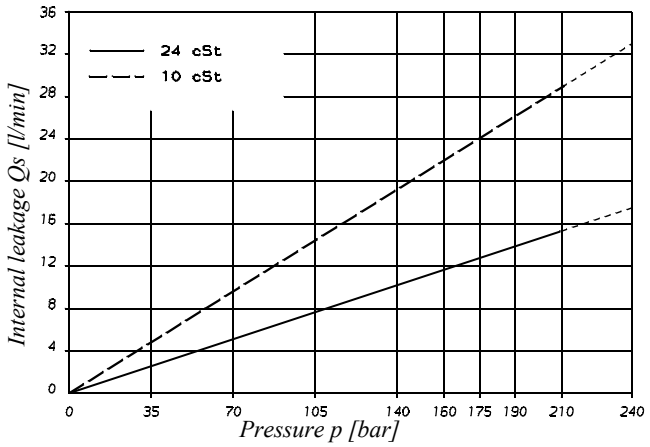
Porting combination
00 = standard

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



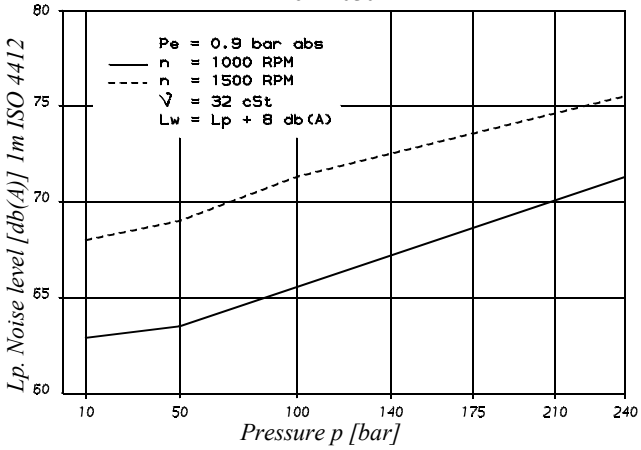
P = Pressure port
S = Suction port

INTERNAL LEAKAGE (TYPICAL)

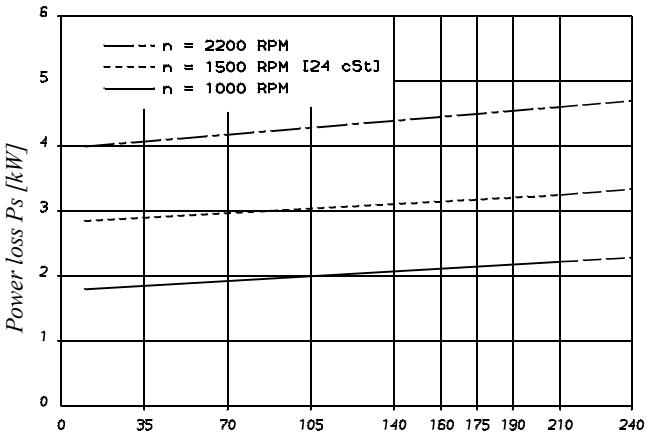


NOISE LEVEL (TYPICAL)

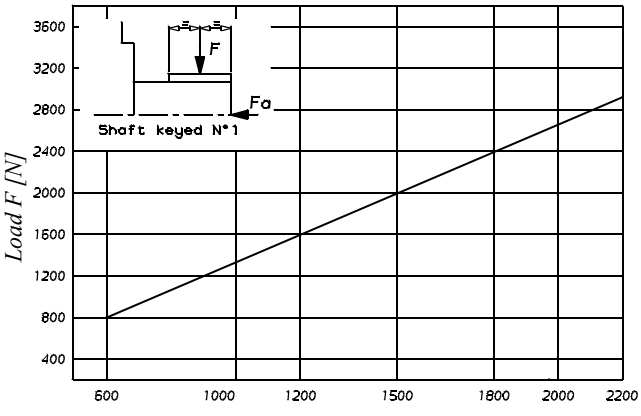
T6E - 050



POWER LOSS HYDROMECHANICAL (TYPICAL)



PERMISSIBLE RADIAL LOAD



Maximum permissible axial load Fa = 2000 N

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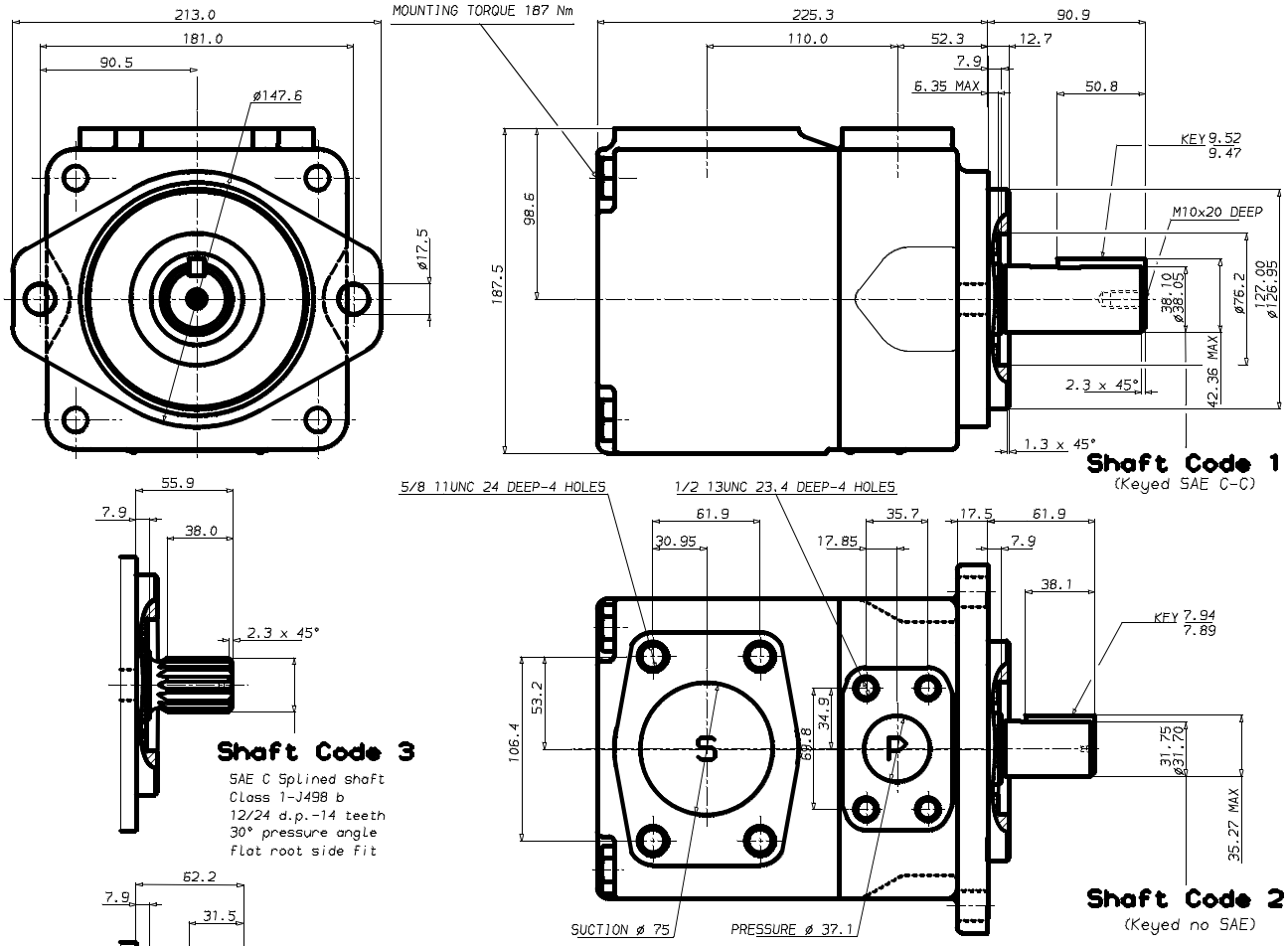

Shaft torque limits [ml/rev x bar]		
Pump	**Shaft**	**V x p max.**
T6E	2	34590

OPERATING CHARACTERISTICS - TYPICAL [24 cSt]

Series	Volumetric Displacement Vi	Speed n [R.P.M.]	Flow qv_e [l/min]			Input power P [kW]		
			p = 0 bar	p = 140 bar	p = 240 bar	p = 7 bar	p = 140 bar	p = 240 bar
042	132,3 ml/rev	1000 1500	132,3 198,5	122,3 188,5	115,2 181,3	3,2 5,2	32,9 49,4	55,2 82,6
045	142,4 ml/rev	1000 1500	142,4 213,6	132,4 203,6	125,3 196,5	3,4 5,4	35,3 52,9	59,2 88,7
050	158,5 ml/rev	1000 1500	158,5 237,7	148,5 227,7	141,4 220,6	3,5 5,7	39,0 58,5	65,6 98,3
052	164,8 ml/rev	1000 1500	164,8 247,2	154,8 237,2	147,7 230,1	3,6 5,8	40,5 60,8	68,2 102,1
062	196,7 ml/rev	1000 1500	196,7 295,0	186,7 285,0	179,6 277,9	4,0 6,4	47,9 71,9	80,9 121,3
066	213,3 ml/rev	1000 1500	213,3 319,9	203,3 309,9	196,2 302,8	4,2 6,7	51,8 77,7	87,6 131,2
072	227,1 ml/rev	1000 1500	227,1 340,6	217,1 330,6	210,0 323,5	4,3 6,9	55,0 82,6	93,1 139,5

Port connection can be furnished with metric threads.

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Model No. T6CC W - 022 - 008 - 1 R 00 - C 1 - 00

Series

Severe duty shaft

Cam ring for "P1" & "P2"
(Delivery at 0 bar & 1500 r.p.m.)
003 = 16,2 l/min
005 = 25,8 l/min
006 = 31,9 l/min
008 = 39,6 l/min
010 = 51,1 l/min
012 = 55,6 l/min
014 = 69,0 l/min
017 = 87,4 l/min
020 = 95,7 l/min
022 = 105,4 l/min
025 = 118,9 l/min
028 = 133,2 l/min
031 = 150,0 l/min

P1 P2

Type of shaft — **Severe duty (T6CCW only)**
1 = keyed (no SAE) 2 = keyed (SAE BB)
3 = splined (SAE BB)
5 = splined (SAE B)

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

Modification

Mounting W/connection variables

	P1 = 1" - S = 3"		P1 = 1" - 2"1/2[2)]	
P2	1"	3/4"[1)]	1"	3/4"[1)]
Code	00	01	10	11

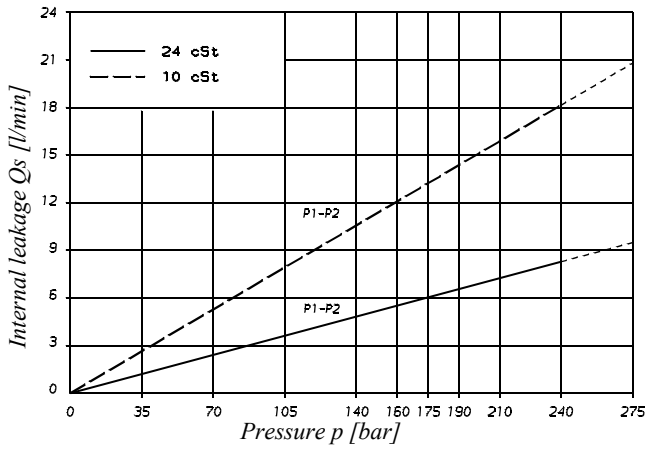
1) for 46 ml/rev. max.
2) for 126 ml/rev. max.
The largest cartridge must be always mounted in the front.

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

Design letter

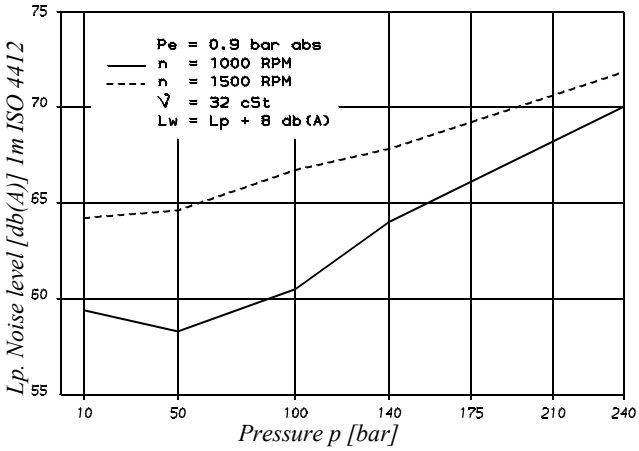
Porting combination (see page 30)
00 = standard

INTERNAL LEAKAGE (TYPICAL)



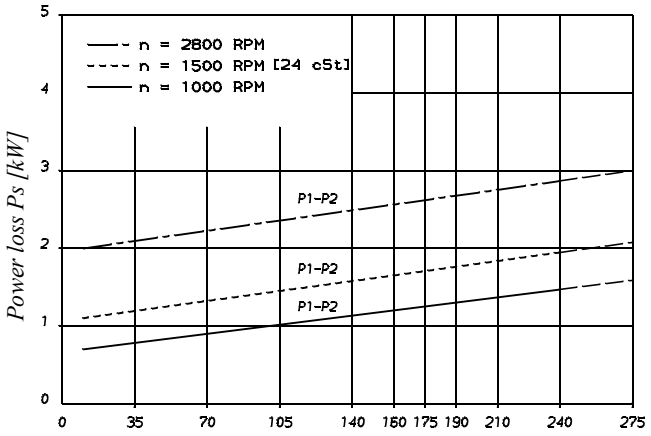
Do not operate the pump more than 5 seconds at any speed or viscosity, if internal leakage is more than 50% of theoretical flow. Total leakage is the sum of each section loss at its operating conditions.

NOISE LEVEL (TYPICAL)
T6CC - 022 - 022



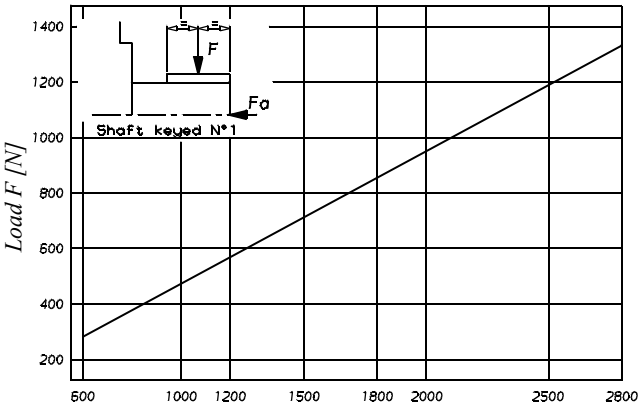
Double pump noise level is given with each section discharging at the pressure noted on the curve.

POWER LOSS HYDROMECHANICAL (TYPICAL)



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

PERMISSIBLE RADIAL LOAD



Maximum permissible axial load Fa = 800 N

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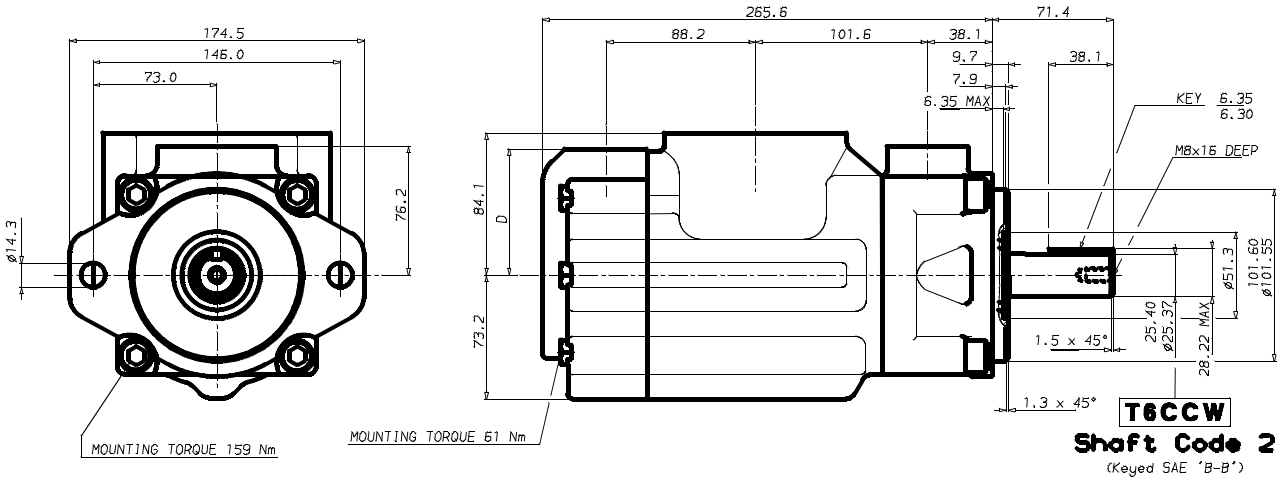

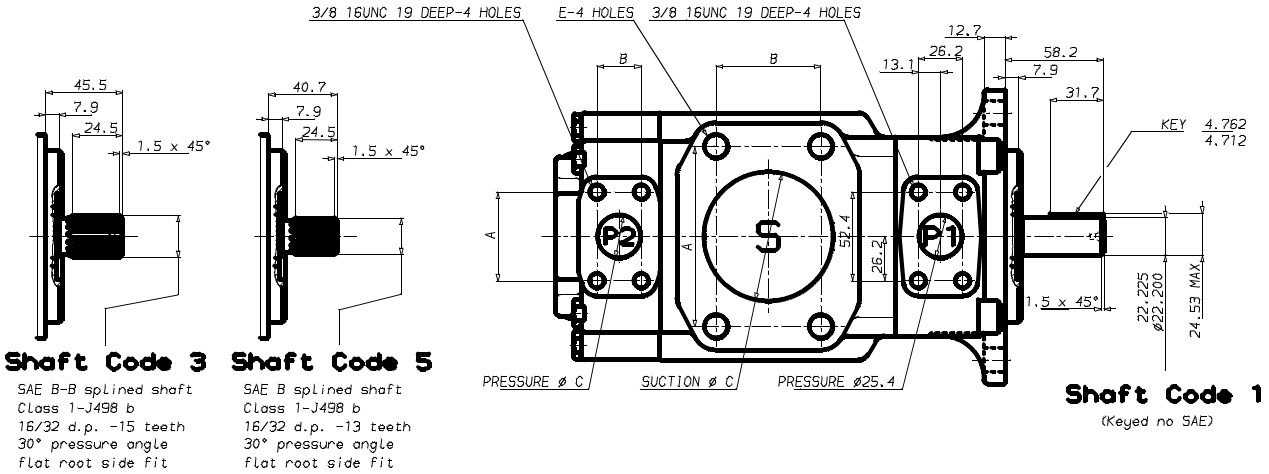

Port	Code	A	B	C	D	E
S	3"	106,4	61,9	76,2		5/8"-11 x 28,4 deep
S	2"1/2	88,9	50,8	63,5		1/2"-13 x 23,9 deep
P2	3/4"	47,7	22,2	19,0	76,2	3/8" - 16 x 19,0 deep
P2	1"	52,4	26,2	25,4	74,7	3/8" - 16 x 19,0 deep

Shaft torque limits [ml/rev x bar]		
Pump	**Shaft**	**V x p max. P1 + P2**
T6CC	1	14300
	2	21420
	3	32670
	5	20600

OPERATING CHARACTERISTICS - TYPICAL [24 cSt]

Pressure port	Series	Volumetric Displacement Vi	Flow qv_e [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 & P2	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.*

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Model No. T6DC W - 038 - 022 - 1 R 00 - B 1

Series

Severe duty shaft

Cam ring for "P1" (Delivery at 0 bar & 1500 r.p.m.)
014 = 71,4 l/min
017 = 87,3 l/min
020 = 99,0 l/min
024 = 119,3 l/min
028 = 134,5 l/min
031 = 147,4 l/min
035 = 166,5 l/min
038 = 180,4 l/min
042 = 204,0 l/min
045 = 218,5 l/min
050 = 237,0 l/min

Cam ring for "P2" (Delivery at 0 bar & 1500 r.p.m.)
003 = 16,2 l/min
005 = 25,8 l/min
006 = 31,9 l/min
008 = 39,6 l/min
010 = 51,1 l/min
012 = 55,6 l/min
014 = 69,0 l/min
017 = 87,4 l/min
020 = 95,7 l/min
022 = 105,4 l/min
025 = 118,9 l/min
028 = 133,2 l/min
031 = 150,0 l/min

Severe duty shaft (T6DCW only)
5 = keyed (no SAE)

Modification

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

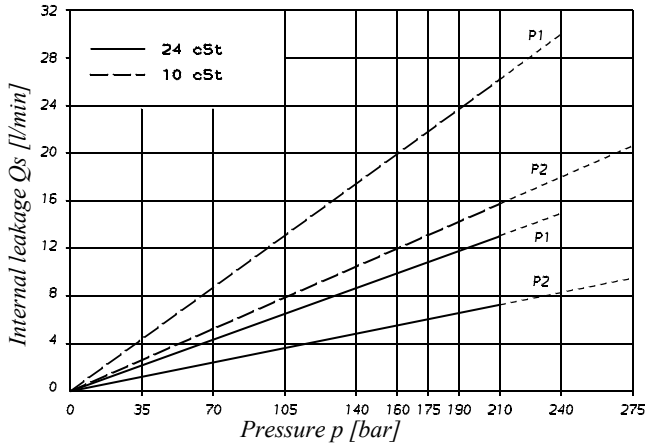
Design letter

Porting combination (see page 30)
00 = standard

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

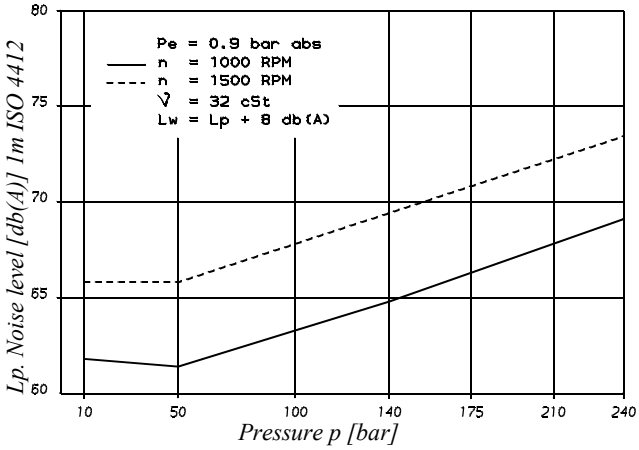
Type of shaft
1 = keyed (SAE C)
2 = keyed (no SAE)
3 = splined (SAE C)
4 = splined (no SAE)

INTERNAL LEAKAGE (TYPICAL)



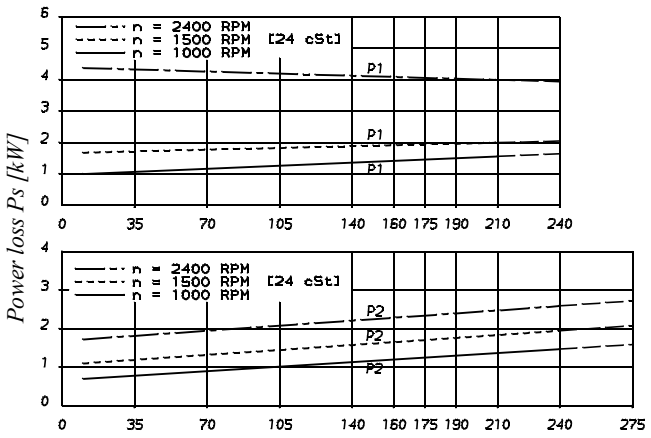
Do not operate the pump more than 5 seconds at any speed or viscosity, if internal leakage is more than 50% of theoretical flow. Total leakage is the sum of each section loss at its operating conditions.

NOISE LEVEL (TYPICAL)
T6DC - 038 - 022



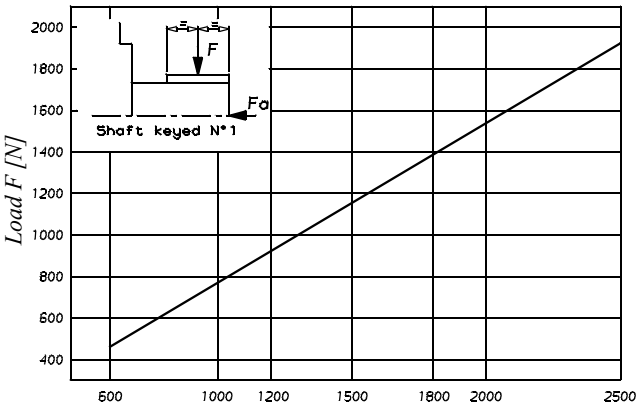
Double pump noise level is given with each section discharging at the pressure noted on the curve.

POWER LOSS HYDROMECHANICAL (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

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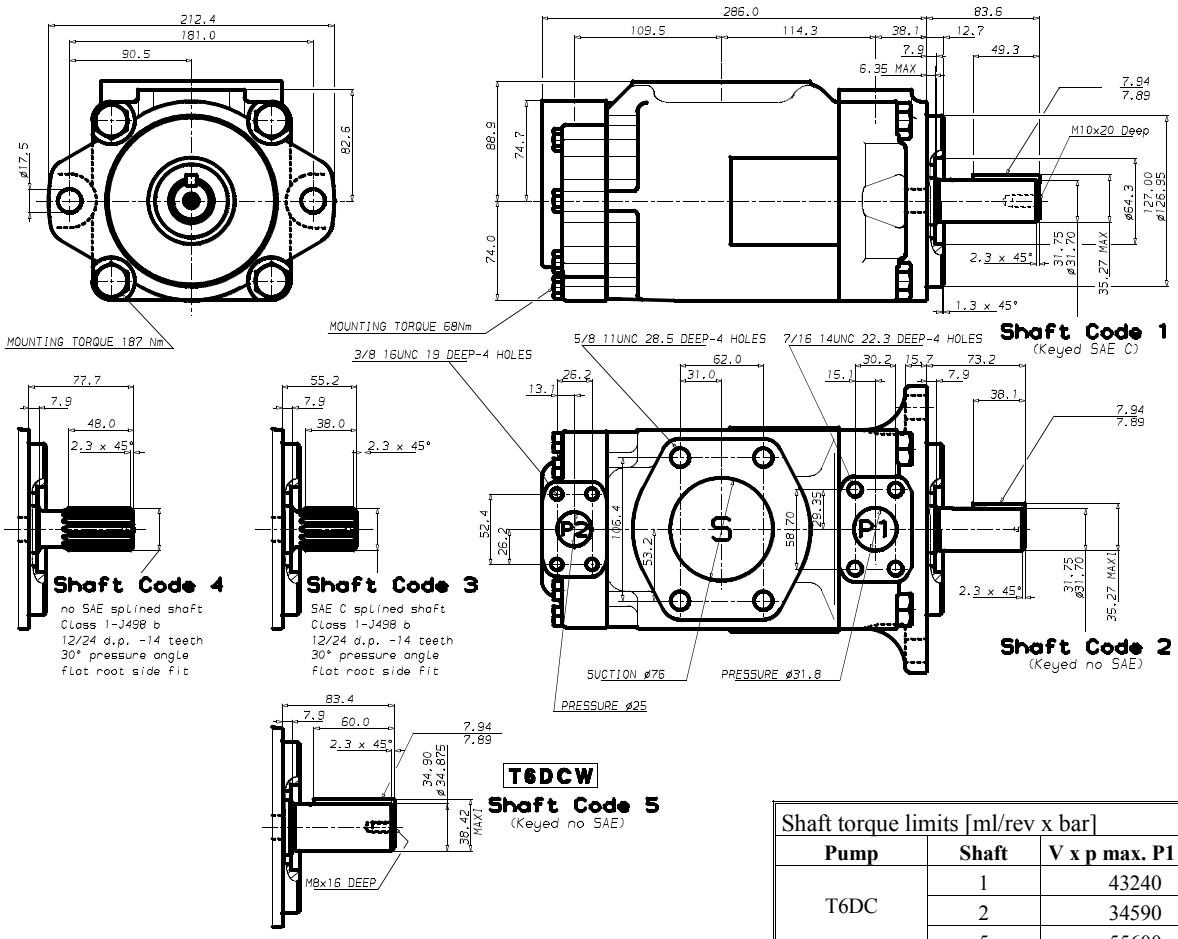

Shaft torque limits [ml/rev x bar]		
Pump	**Shaft**	**V x p max. P1 + P2**
T6DC	1	43240
	2	34590
	5	55600

OPERATING CHARACTERISTICS - TYPICAL [24 cSt]

Pressure port	Series	Volumetric Displacement Vi	Flow qv_e [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	83,7
	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)]
P2	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* *Port connection can be furnished with metric*

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Model No. T6EC - 066 - 022 - 1 R 00 - B 1 -

Series

Cam ring for "P1" (P1)
(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

Cam ring for "P2" (P2)
(Delivery at 0 bar & 1500 r.p.m.)
003 = 16,2 l/min
005 = 25,8 l/min
006 = 31,9 l/min
008 = 39,6 l/min
010 = 51,1 l/min
012 = 55,6 l/min
014 = 69,0 l/min
017 = 87,4 l/min
020 = 95,7 l/min
022 = 105,4 l/min
025 = 118,9 l/min
028 = 133,2 l/min
031 = 150,0 l/min

Modification

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

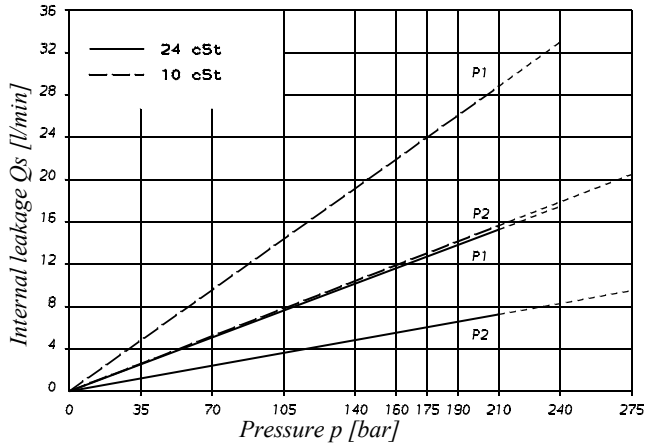
Design letter

Porting combination (see page 30)
00 = standard

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

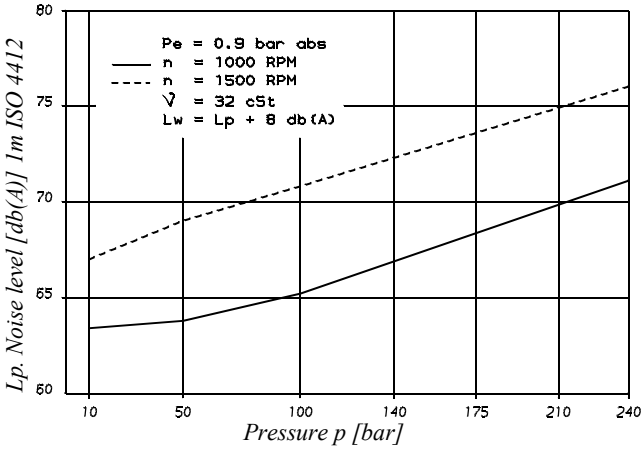
Type of shaft
1 = keyed (SAE CC)
2 = keyed (no SAE)
3 = splined (SAE C)
4 = splined (SAE CC)

INTERNAL LEAKAGE (TYPICAL)



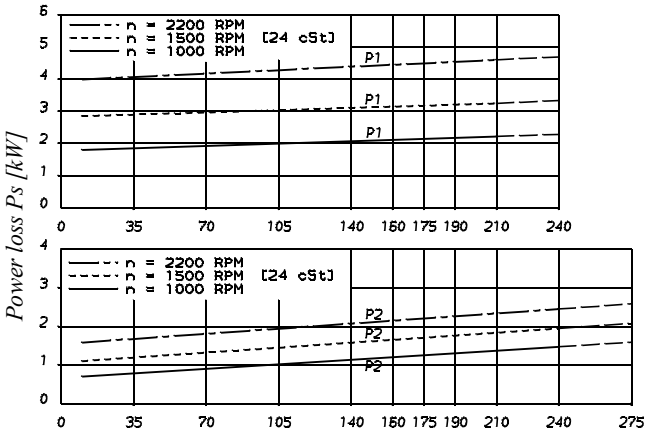
Do not operate the pump more than 5 seconds at any speed or viscosity, if internal leakage is more than 50% of theoretical flow. Total leakage is the sum of each section loss at its operating conditions.

NOISE LEVEL (TYPICAL)
T6EC - 050 - 022



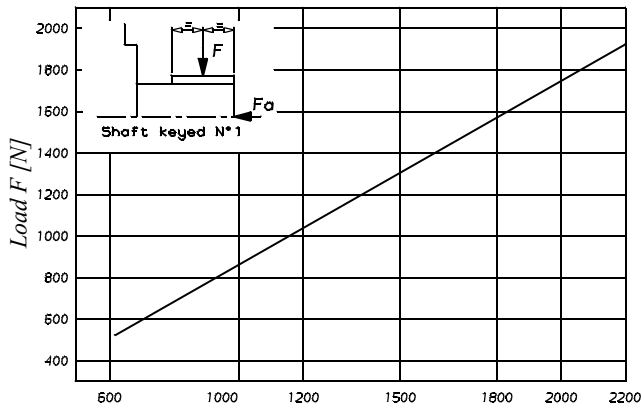
Double pump noise level is given with each section discharging at the pressure noted on the curve.

POWER LOSS HYDROMECHANICAL (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

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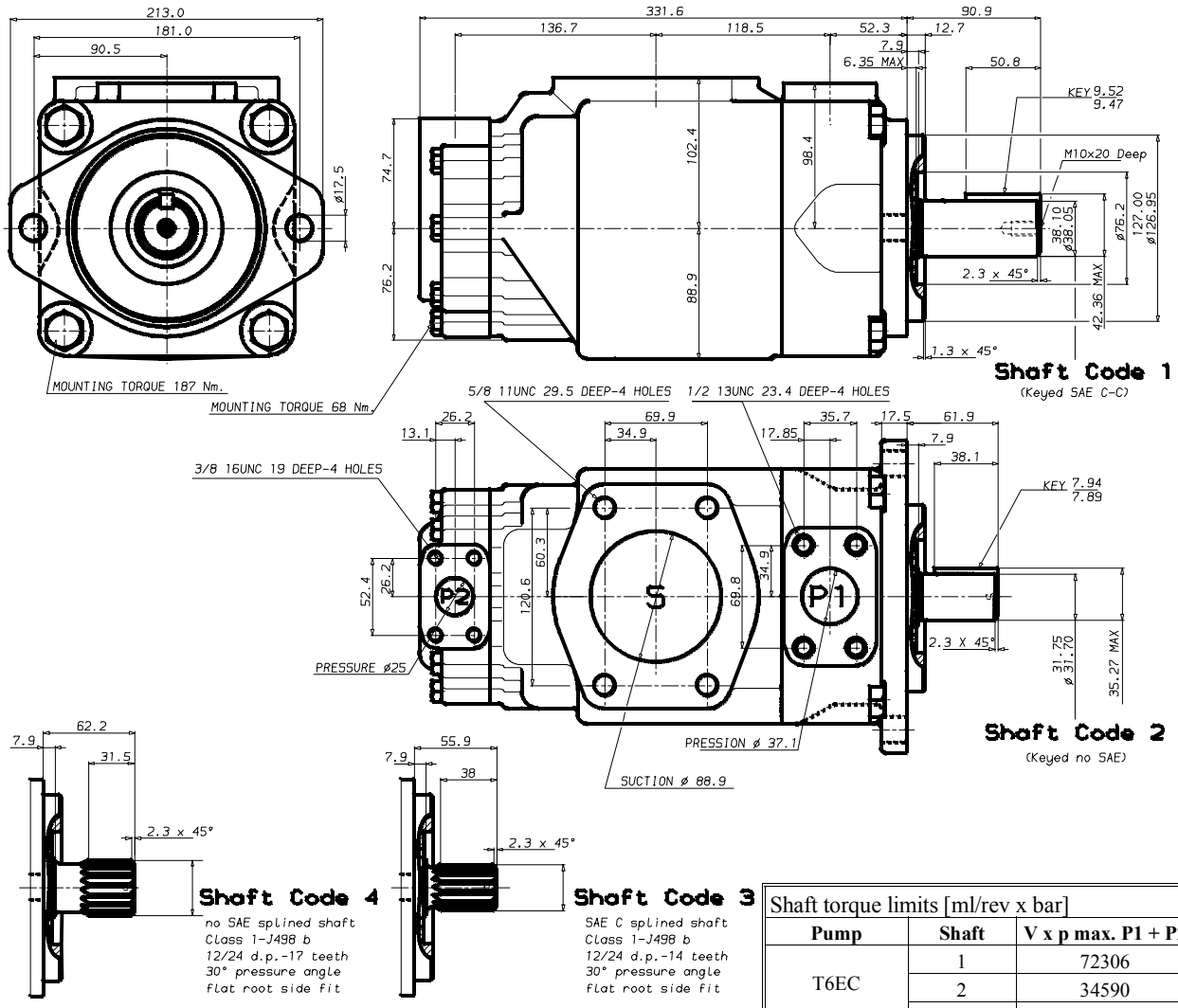

Shaft torque limits [ml/rev x bar]		
Pump	**Shaft**	**V x p max. P1 + P2**
T6EC	1	72306
	2	34590
	3	61200

OPERATING CHARACTERISTICS - TYPICAL [24 cSt]

Pressure port	Series	Volumetric Displacement Vi	Flow qv_e [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	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 = 210 bar max. int. Port connection can be furnished with metric threads.*

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ORDERING CODE - T6ED SERIES INDUSTRIAL APPLICATION

Model No. **T6ED - 066 - 038 - 1 R 00 - B 1 -**

Series

Cam ring for "P1" (P1)
(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

Cam ring for "P2" (P2)
(Delivery at 0 bar & 1500 r.p.m.)
014 = 71,4 l/min
017 = 87,3 l/min
020 = 99,0 l/min
024 = 119,3 l/min
028 = 134,5 l/min
031 = 147,4 l/min
035 = 166,5 l/min
038 = 180,4 l/min
042 = 204,0 l/min
045 = 218,5 l/min
050 = 237,0 l/min

Modification

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

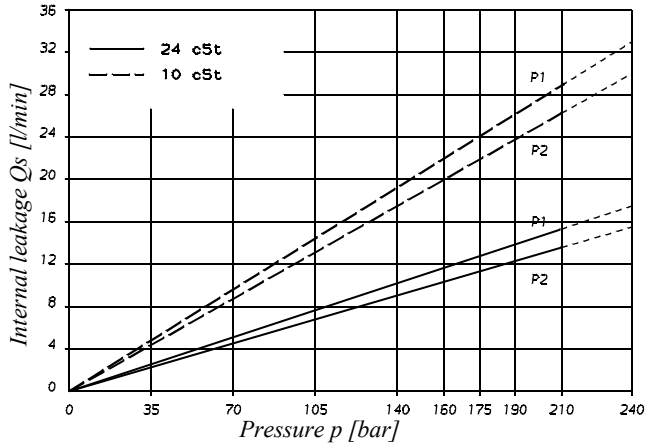
Design letter

Porting combination (see page 30)
00 = standard

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

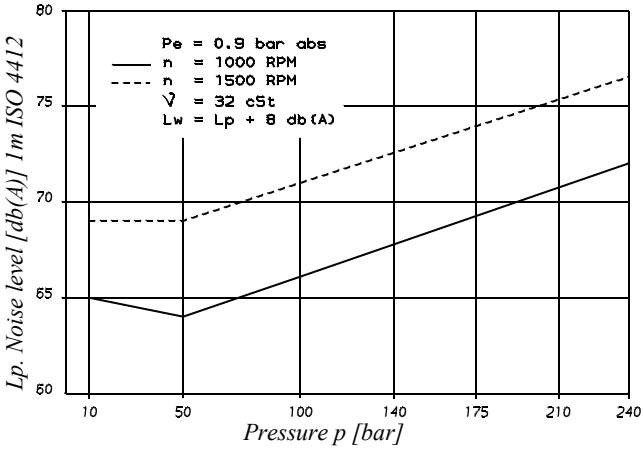
Type of shaft
1 = keyed (SAE CC)
2 = keyed (no SAE)
3 = splined (SAE C)
4 = splined (SAE CC)

INTERNAL LEAKAGE (TYPICAL)



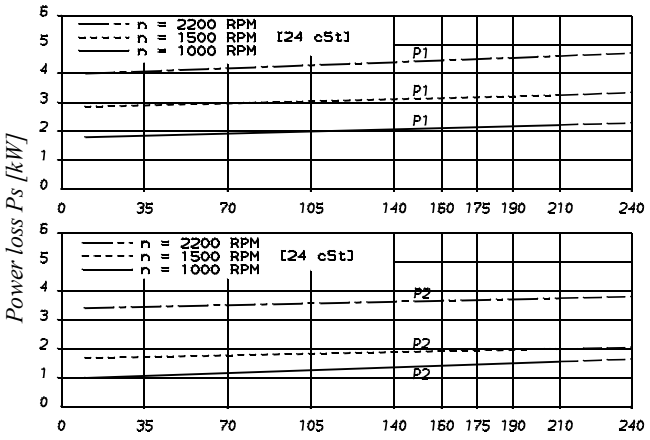
Total leakage is the sum of each section loss at its operating conditions.

NOISE LEVEL (TYPICAL)
T6ED - 050 - 038



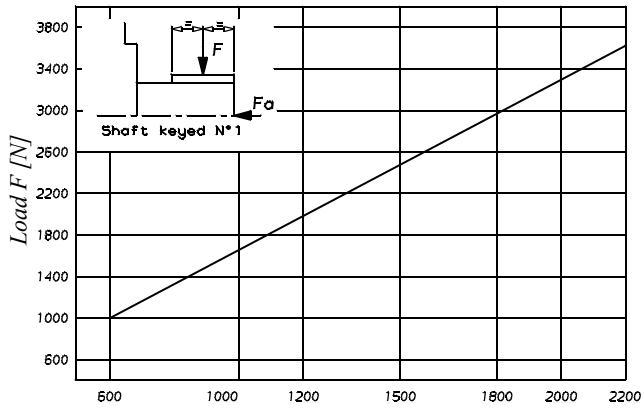
Double pump noise level is given with each section discharging at the pressure noted on the curve.

POWER LOSS HYDROMECHANICAL (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

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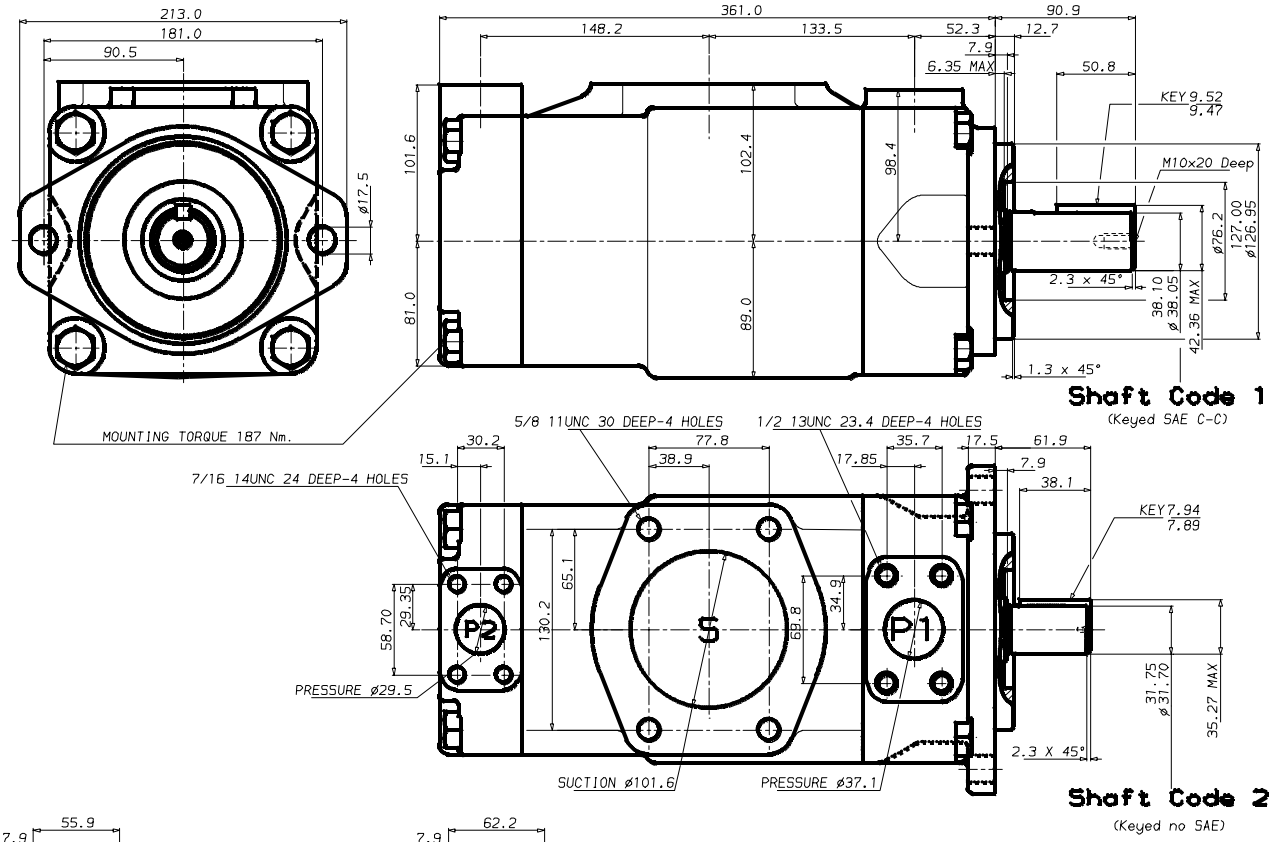

Shaft torque limits [ml/rev x bar]		
Pump	**Shaft**	**V x p max. P1 + P2**
T6ED	1	72306
	2	34590
	3	61200

OPERATING CHARACTERISTICS - TYPICAL [24 cSt]

Pressure port	Series	Volumetric Displacement Vi	Flow qv_e [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	87,3 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	136,0 ml/rev	204,0	194,7	188,5	4,0	49,4	83,7
	045	145,7 ml/rev	218,5	209,2	203,0	4,1	52,8	89,5
	050	158,0 ml/rev	237,0	227,7	224,0[1)]	4,4	57,0	85,0[1)]

[1)] *050 = 210 bar max. int.* *Port connection can be furnished with metric threads.*

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Model No. T6DCC - 038 - 028 - 008 - 1 R 00 - A 1- 00

Series — P1 | P2 | P3

Cam ring for "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"
(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

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 resistant fluids)
5 = S5 (for mineral oil and fire resistant fluids)

Design letter

Porting combination (see pages 30 - 31)
00 = standard

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

Type of shaft
1 = keyed (no SAE)
2 = keyed (SAE CC)
3 = splined (SAE C)
4 = splined (SAE CC)

OPERATING CHARACTERISTICS - TYPICAL [24 cSt]

Pressure port	Series	Volumetric Displacement Vi	Flow qv_e [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	83,7
	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)]
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*

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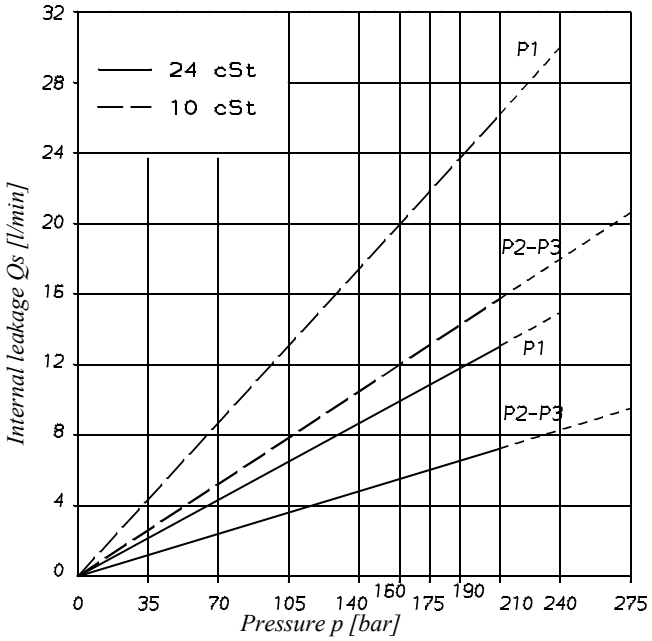
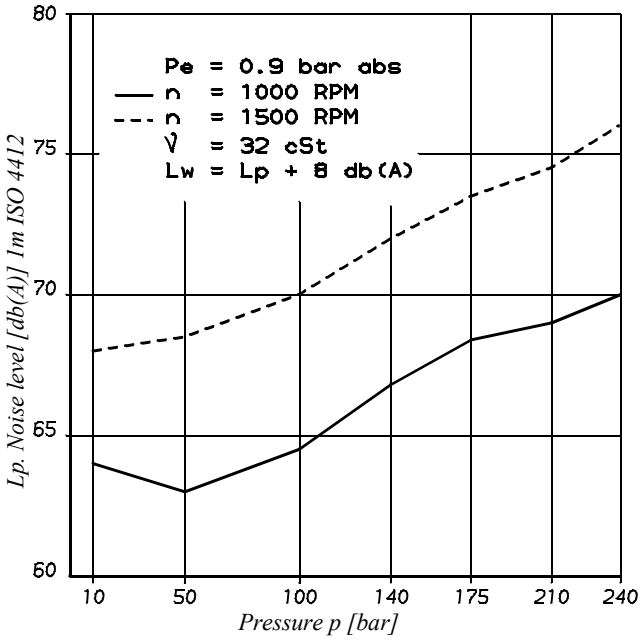
INTERNAL LEAKAGE (TYPICAL)



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

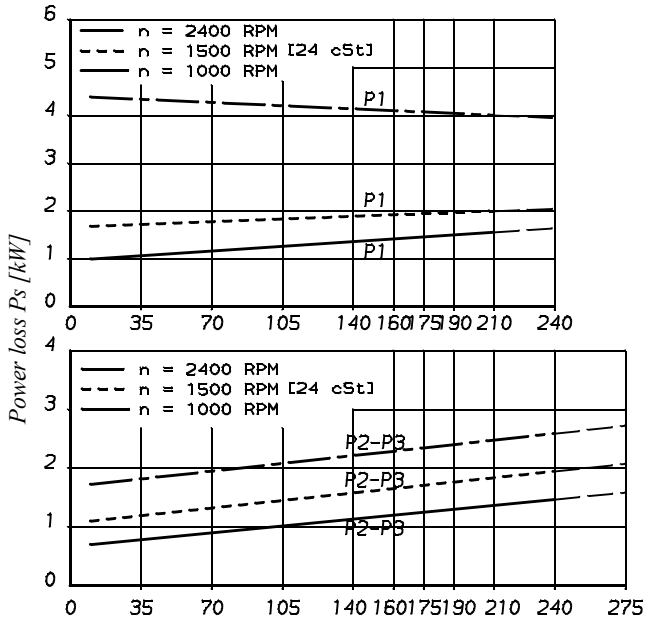
NOISE LEVEL (TYPICAL)

T6DCC - 038 - 022 - 022



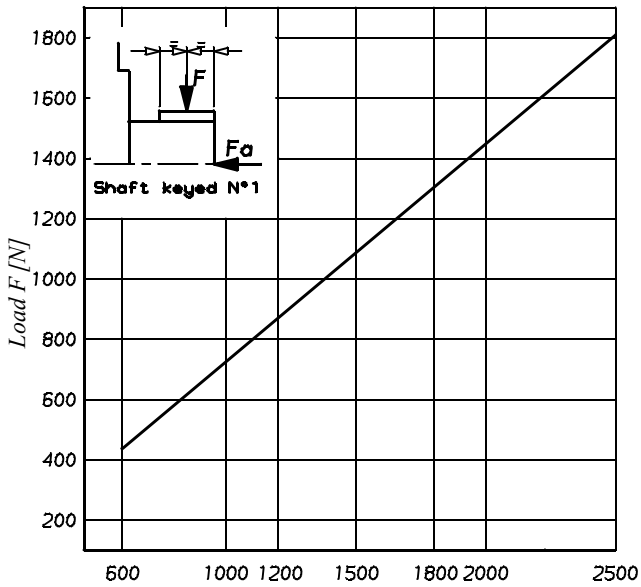
Triple pump noise level is given with each section discharging at the pressure noted on the curve.

POWER LOSS HYDROMECHANICAL (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

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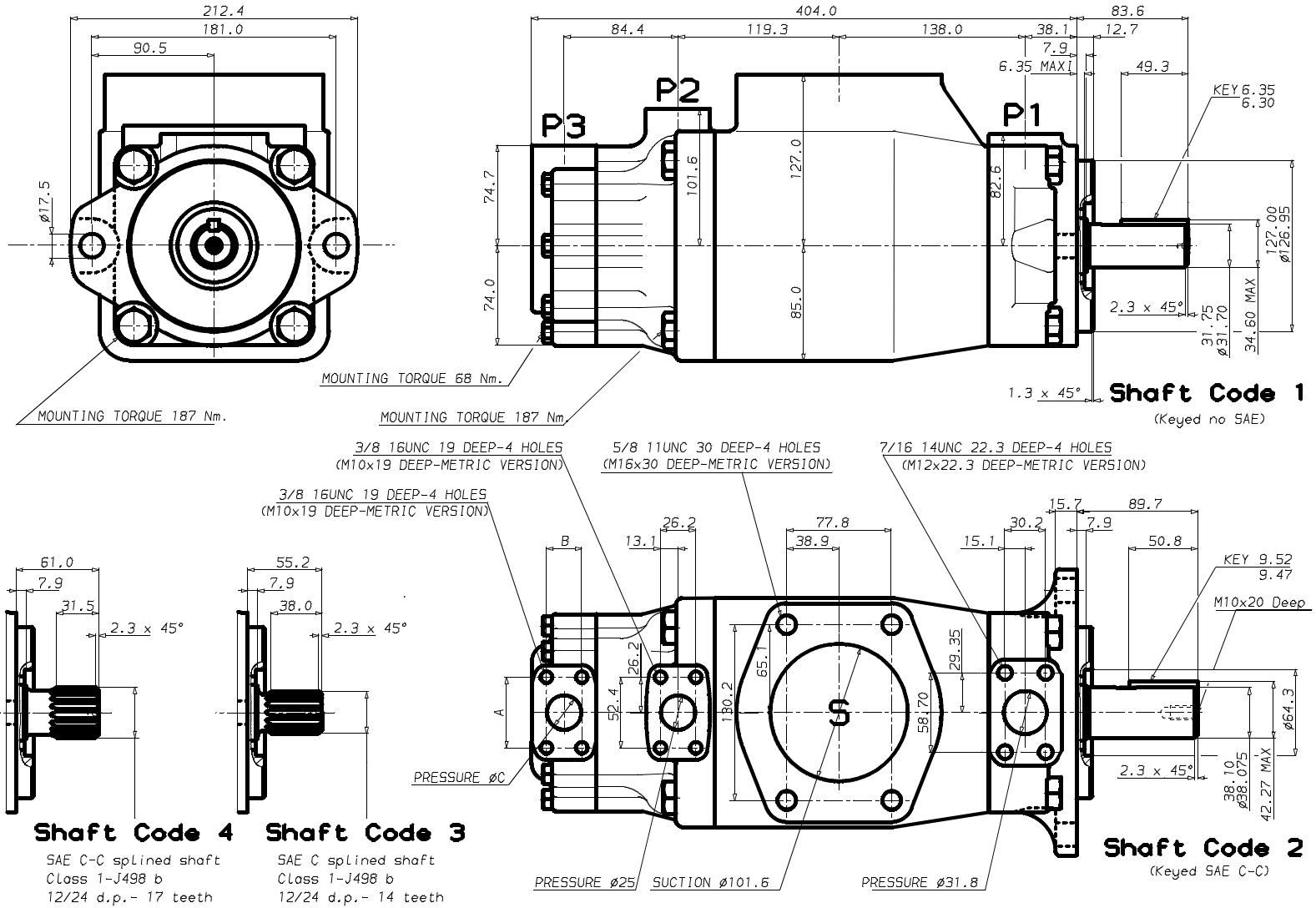

Shaft torque limits [ml/rev x bar]				
Pump	Shaft	Vi x p max. P1 + P2 + P3	Shaft	Vi x p max. P1 + P2 + P3
T6DCC	1	43240	3	61200
	2	66500	4	66500

Alternate port				
Port	Code	A	B	Ø C
P3	00 & M0	52,4	26,2	25,4
P3	01 & M1	47,6	22,2	19,0

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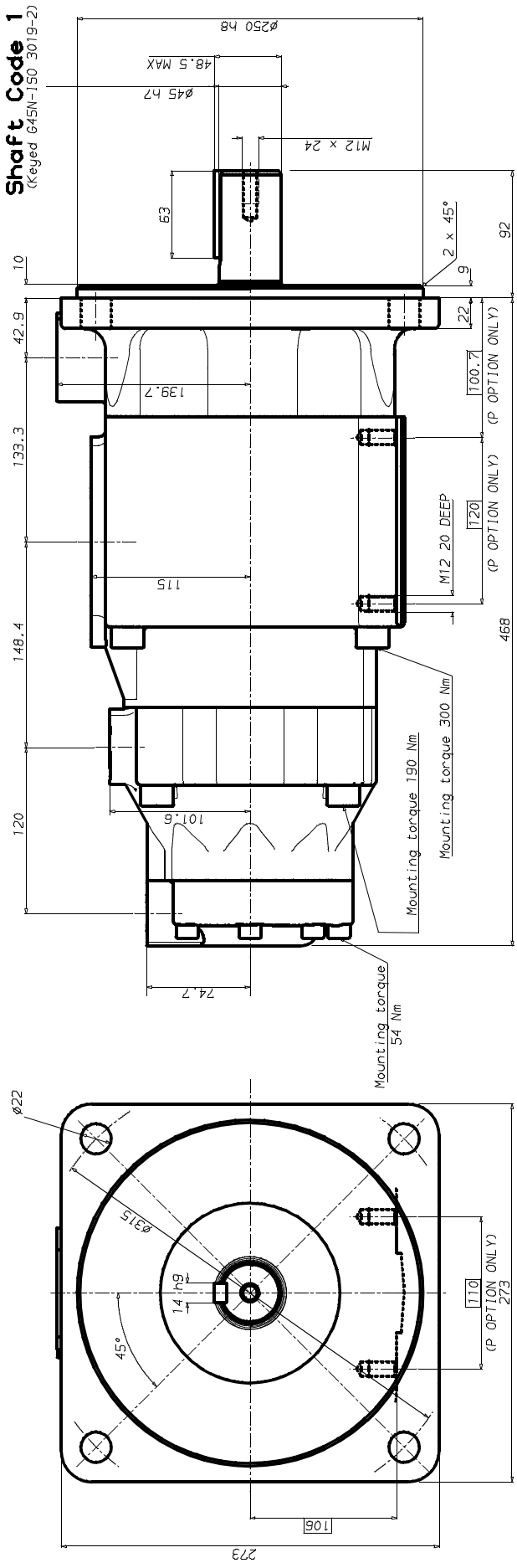

Alternate port				
Port	Code	A	B	C
P3	0	52,4	26,2	25,4
P3	1	47,6	22,2	19,0

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Model No. T6EDC - 062 - 035 - 017 - 1 R 00 - A 1 - P 0 -

Series

Cam ring for "P1" (P1)
(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

Cam ring for "P2" (P2)
(Delivery at 0 bar & 1500 r.p.m.)
014 = 71,4 l/min
017 = 87,3 l/min
020 = 99,0 l/min
024 = 119,3 l/min
028 = 134,5 l/min
031 = 147,4 l/min
035 = 166,5 l/min
038 = 180,4 l/min
042 = 204,0 l/min
045 = 218,5 l/min
050 = 237,0 l/min

Cam ring for "P3" (P3)
(Delivery at 0 bar & 1500 r.p.m.)
003 = 16,2 l/min
005 = 25,8 l/min
006 = 31,9 l/min
008 = 39,6 l/min
010 = 51,1 l/min
012 = 55,6 l/min
014 = 69,0 l/min
017 = 87,4 l/min
020 = 95,7 l/min
022 = 105,4 l/min
025 = 118,9 l/min
028 = 133,2 l/min
031 = 150,0 l/min

Type of shaft
1 = keyed (G45N - ISO 3019-2)

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

Porting combination (see pages 30 - 31)
00 = standard

Design letter

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

Options
F = Standard
P = 4 holes for external support

Mounting W/connection variables
0 = P3 = 1" SAE
1 = P3 = 3/4" SAE

Modification

OPERATING CHARACTERISTICS - TYPICAL [24 cSt]

Pressure port	Series	Volumetric Displacement Vi	Flow qv_e [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	136,0 ml/rev	204,0	194,7	188,5	4,0	49,4	83,7
	045	145,7 ml/rev	218,5	209,2	203,0	4,1	52,8	89,5
	050	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.

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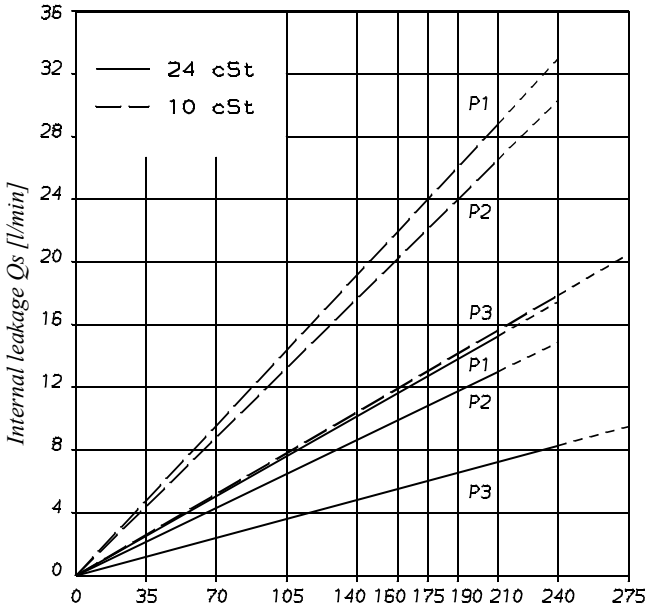
INTERNAL LEAKAGE (TYPICAL)

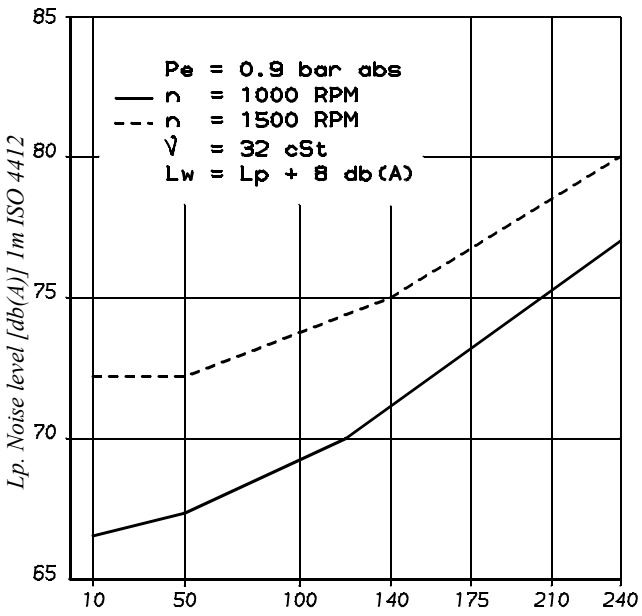


Pressure p [bar]

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

NOISE LEVEL (TYPICAL)

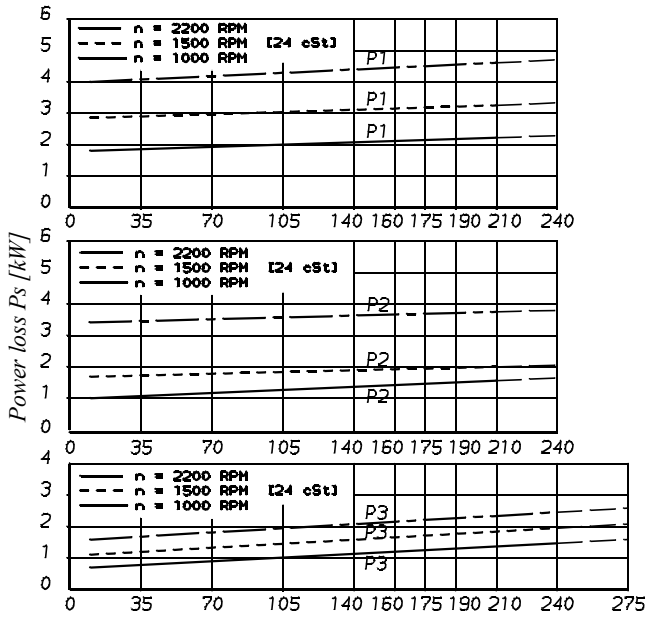
T6EDC - 062 - 035 - 017



Pressure p [bar]

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

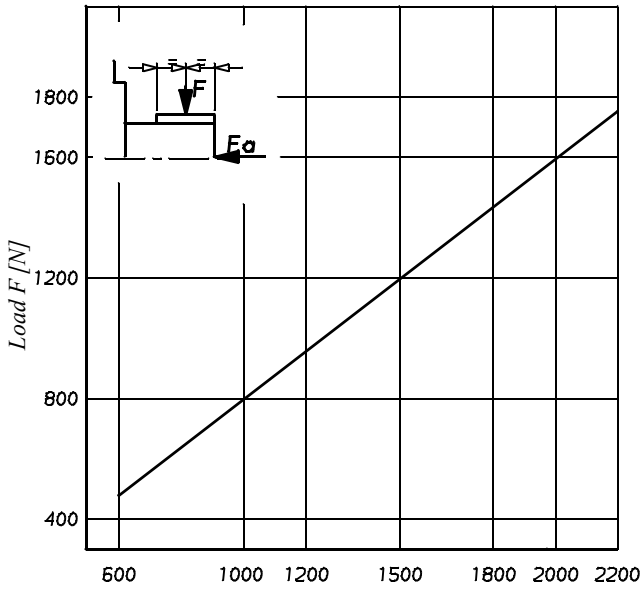
POWER LOSS HYDROMECHANICAL (TYPICAL)



Pressure p [bar]

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

PERMISSIBLE RADIAL LOAD



Speed n [RPM]

Maximum permissible axial load Fa = 2000 N

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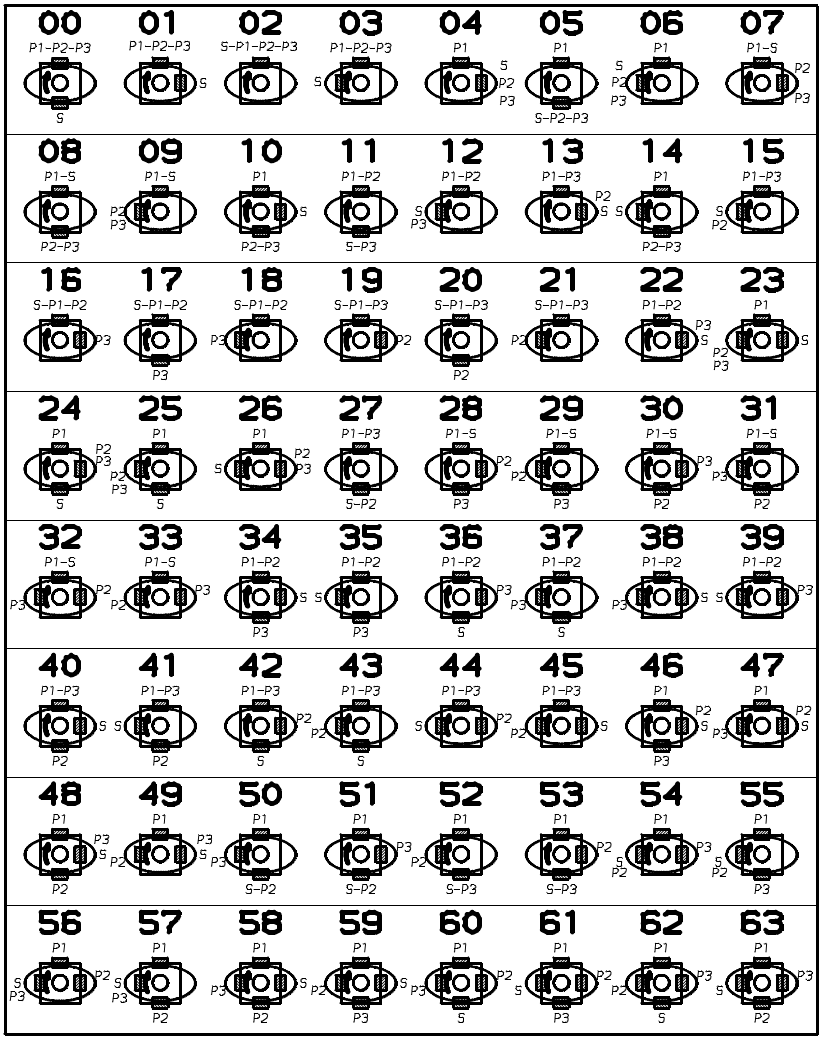
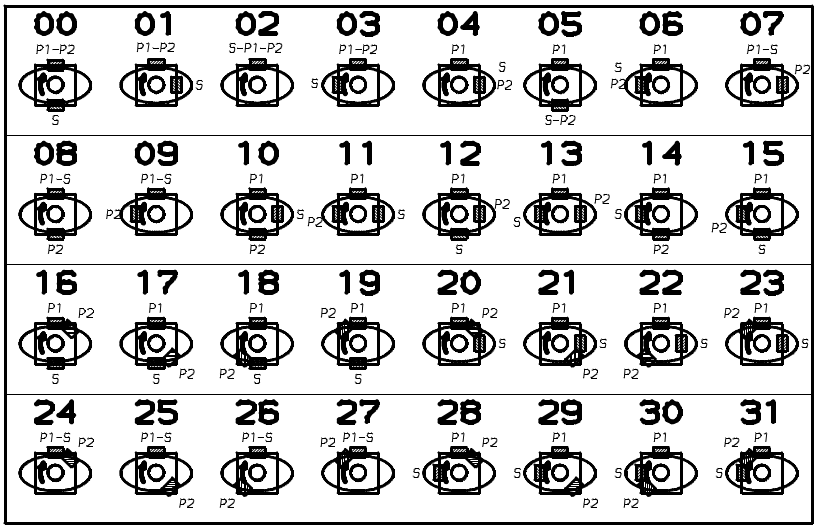
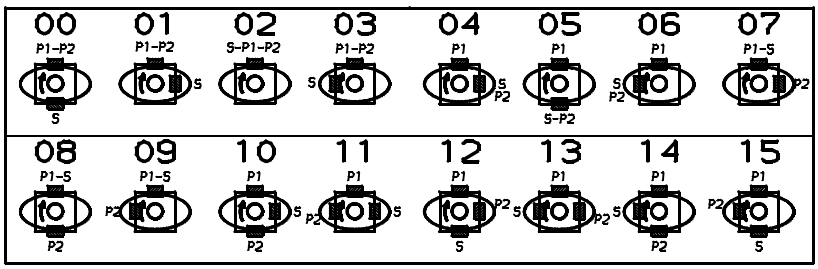
T6DCC - T6EDC



T6CC - T6DC - T6EC



T6ED



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T6DCC - T6EDC

P1

S	P2	P3				P2	P3			
		02	16	17	18		20	30	08	31
		19	07	28	32		21	33	29	09
		01	22	34	38		40	48	10	58
		13	04	46	47		45	49	59	23
		00	36	11	37		27	51	05	50
		42	24	53	60		43	62	52	25
		03	39	35	12		41	63	14	57
		44	26	61	56		15	54	55	06

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