

# 4SFC 4VKC Series



A Colfax Business Unit

## 3 Screw Pumps

# Overview

<b>Description</b>	The Imo® 4SF and 4VK series pumps are of rotary, positive displacement 3-screw design. Both product lines are engineered to deliver excellent performance over a wide range of fluid viscosities and system pressures. Flow rates are proportional to rotating speed when operated within each pump's recommended pressure range. The self-priming design permits both evacuation of air from suction lines and repriming if suction is lost. Axial fluid flow, high operating efficiency and effective design practices result in extremely low airborne and liquidborne noise levels.
<b>Performance</b>	The rotor set generates a hydrodynamic fluid film as it rotates. In turn, the fluid film lifts the rotating components. An increase in either rotating speed or fluid viscosity will result in increased hydrodynamic film strength, thus higher speed generally results in better performance and increased pump life while simultaneously reducing pump size and cost.
<b>Design</b>	The simple and compact 4SF and 4VK series pumps are designed with low maintenance, long operational life and ease of repair in mind. When properly installed and operated, these pumps can be expected to give many years of reliable, trouble-free service. To better accommodate piping arrangements, the inlet port of the SF series pump can be rotated in 180° increments and the inlet port of the 4VK series pump can be rotated in 90° increments.
<b>Typical Applications</b>	<ul style="list-style-type: none"> <li>• Lubrication of diesel engines, gas turbines, steam turbines, compressors, transmission gears, large centrifugal pumps and other rotating machinery.</li> <li>• Circulation of lubricating oil, hydraulic oil, transformer oil and most other clean petroleum based fluids.</li> <li>• Fluid power service for control of machine tools, injection molding machinery, turbine governors, hydraulic cylinders, shears, punch presses, die casting machines, lifts, winches and hydrostatic bearing lift systems.</li> </ul>

## Specifications

Series	4SF	4VK
<i>Rotor Housing</i>	Aluminum Alloy	Aluminum Alloy
<i>Covers</i>	High Tensile – Close Grain Cast Iron	High Tensile – Close Grain Cast Iron
<i>Power Rotor</i>	Alloy Steel – Hardened & Ground	Alloy Steel – Hardened & Ground
<i>Idler Rotors</i>	Alloy Steel – Hardened & Ground	Alloy Steel – Hardened & Ground
<i>Seal</i>	Single Lip Type	Unbalanced / Single Spring / Friction Drive Mechanical Type Carbon Rotating Face Aluminum Oxide Stationary Face Buna N Bellows
<i>Ball Bearing</i>	Single Row, Internal - Product Lubricated	Single Row, Internal- Product Lubricated
<i>Elastomer</i>	Buna N	Buna N
<i>Flow Range</i>	1 to 17 usgpm	8 to 230 usgpm
<i>Outlet Pressure</i>	1450 psig maximum	1160 psig maximum
<i>Inlet Pressure</i>	14 psig maximum 7 psia minimum	29 psig maximum 7 psia minimum
<i>Porting</i>	SAE straight thread Flange pads are tapped for metric bolts	SAE Code 61 4-bolt pad Flange pads are tapped for metric bolts
<i>Viscosity</i>	36 to 3500 ssu	36 to 3500 ssu
<i>Temperature</i>	0 to 160°F	0 to 175°F
<i>Drive</i>	Direct Only	Direct Only
<i>Rotation</i>	Clockwise - Facing Pump Drive Shaft	Clockwise - Facing Pump Drive Shaft
<i>Mounting</i>	C-face Flange Mount, Vertical or Horizontal, Foot Mount Brackets Available	C- face Flange Mount, Vertical or Horizontal, Foot Mount Brackets Available
<i>Maximum Speed*</i>	3600 RPM *Assumes minimum inlet pressure requirements are met	3600 RPM *Assumes minimum inlet pressure requirements are met



# Performance

## Series 4SFC - Capacities Shown at 200 SSU (43 cSt)

Series 4SFC Pump – Typical Output Flow Rates & Power Requirements																						
Model	PSI	1750 RPM / 200 SSU										3500 RPM / 200 SSU										
		100	250	400	550	700	850	1000	1150	1300	1450	100	250	400	550	700	850	1000	1150	1300	1450	
200R200	GPM	1.4	1.2	1.1	1.0	0.9	0.8	0.8				3.0	2.9	2.7	2.7	2.6	2.5	2.4	2.4	2.3	2.3	
	BHP	0.2	0.4	0.5	0.6	0.8	0.9	1.1				0.5	0.8	1.1	1.4	1.7	2.0	2.3	2.5	2.8	3.1	
200R300	GPM	2.1	1.9	1.7	1.6	1.5	1.4	1.3	1.2			4.6	4.4	4.2	4.1	4.0	3.9	3.8	3.7	3.6	3.5	
	BHP	0.3	0.5	0.7	1.0	1.1	1.3	1.6	1.8			0.6	1.0	1.5	1.9	2.3	2.8	3.2	3.7	4.1	4.5	
200R400	GPM	2.8	2.6	2.4	2.2	2.1	1.9	1.8	1.7	1.7		6.1	5.9	5.7	5.5	5.4	5.3	5.2	5.1	5.0	4.9	
	BHP	0.3	0.6	0.9	1.2	1.5	1.8	2.0	2.3	2.6		0.7	1.3	1.9	2.4	3.0	3.6	4.2	4.8	5.3	5.9	
250R380	GPM	4.3	4.0	3.7	3.5	3.3	3.2	3.0	2.9	2.8	2.6	9.2	8.9	8.6	8.4	8.3	8.1	8.0	7.8	7.7	7.6	
	BHP	0.4	0.9	1.3	1.7	2.2	2.6	3.1	3.5	3.9	4.3	1.0	1.9	2.7	3.6	4.4	5.3	6.2	7.0	7.9	8.8	
250R500	GPM	5.7	5.3	5.0	4.7	4.5	4.3	4.1	3.9	3.8	3.6	12.2	11.8	11.5	11.2	11.0	10.8	10.6	10.4	10.3	10.1	
	BHP	0.5	1.1	1.7	2.2	2.8	3.4	3.9	4.5	5.0	5.6	1.2	2.3	3.4	4.6	5.7	6.4	8.0	9.1	10.2	11.4	
250R700	GPM	8.0	7.5	7.1	6.7	6.4	6.2	5.9	5.7	5.5	5.3	17.1	16.6	16.1	15.8	15.5	15.3	15.0	14.8	14.6	14.4	
	BHP	0.7	1.5	2.3	3.1	3.9	4.6	5.5	6.2	7.0	7.8	1.5	3.1	4.7	6.2	7.8	9.4	11.0	12.6	14.2	15.8	

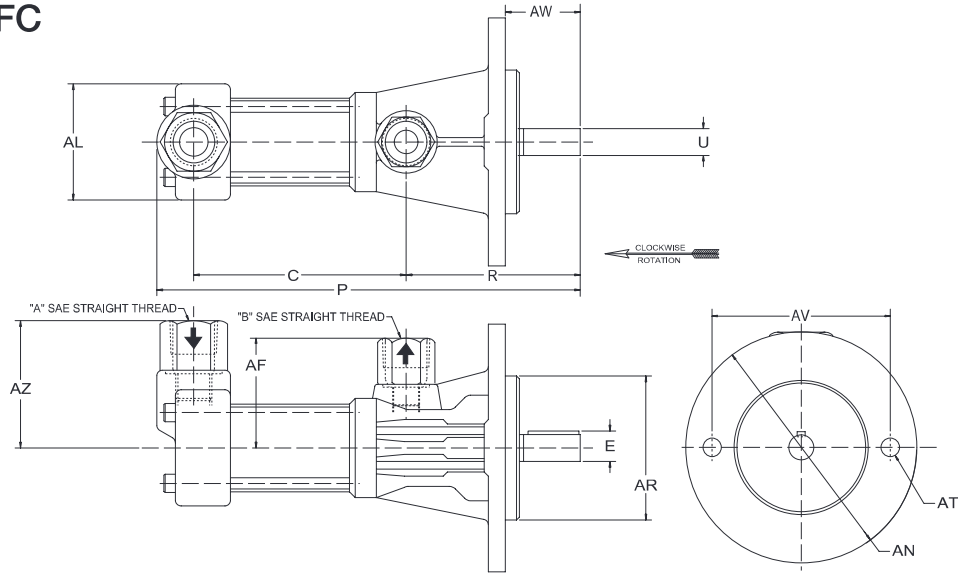
NOTE - Do not operate pump at pressures where GPM and BHP values are not provided.

## Series 4VKC - Capacities Shown at 200 SSU (43 cSt)

Series 4VKC Pump – Typical Output Flow Rates & Power Requirements																		
MODEL	PSIG	1750 RPM / 200 SSU									3500 RPM / 200 SSU							
		100	250	400	550	700	850	1000	1150		100	250	400	550	700	850	1000	1150
0320R690	GPM	12.5	11.3	10.4	9.6	9.0	8.4	7.9	7.4		27.1	25.9	25.0	24.3	23.6	23.1	22.5	22.0
	BHP	1.8	2.5	3.7	5.0	6.3	7.6	8.9	10.1		3.0	5.5	8.1	10.6	13.2	15.8	18.3	20.9
0400R0560	GPM	16.7	15.5	14.7	14.1	13.5	13.0	12.5	12.1		35.2	34.1	33.3	32.6	32.1	31.5	31.1	30.6
	BHP	1.5	3.1	4.8	6.4	8.0	9.6	11.3	12.9		3.9	7.1	10.4	13.6	16.9	20.1	23.4	26.6
0400R0680	GPM	20.0	18.6	17.5	16.6	15.9	15.2	14.6	14.0		42.6	41.1	40.1	39.2	38.5	37.8	37.2	36.6
	BHP	1.7	3.7	5.7	7.7	9.6	11.6	13.6	15.6		4.4	8.3	12.2	16.2	20.1	24.1	28.0	32.0
0400R0800	GPM	24.0	22.5	21.5	20.6	19.9	19.2	18.6	18.0		50.5	49.1	48.1	47.2	46.4	45.7	45.1	44.5
	BHP	2.0	4.3	6.6	8.9	11.3	13.6	15.9	18.2		4.8	9.5	14.1	18.7	23.4	28.0	32.7	37.3
0475R0730	GPM	31.1	29.4	28.2	27.2	26.4	25.6	24.9	24.2		65.1	63.4	62.2	61.2	60.4	59.6	58.9	58.2
	BHP	2.8	5.7	8.7	11.7	14.7	17.6	20.6	23.6		7.1	13.1	19.0	24.8	30.9	36.9	42.8	48.8
0475R0950	GPM	40.5	38.3	36.7	35.4	34.2	33.2	32.2	31.4		84.9	82.7	81.1	79.8	78.6	77.6	76.6	75.8
	BHP	3.4	7.3	11.1	15.0	18.9	22.8	26.7	30.6		8.3	16.1	23.9	31.7	39.4	47.2	55.0	62.7
0550R0950	GPM	54.0	50.8	48.5	46.6	44.9	43.5	42.1	40.8		113.5	110.3	108.0	106.1	104.5	103.0	101.6	100.3
	BHP	4.6	9.8	15.0	20.2	25.4	30.7	35.9	41.1		11.5	21.9	32.3	42.7	53.1	63.6	74.0	84.4
0550R1080	GPM	62.1	58.9	56.6	54.7	53.1	51.6	50.2	49.0		129.8	126.6	124.3	122.4	120.7	119.3	117.9	116.6
	BHP	5.1	11.0	16.9	22.8	28.8	34.7	40.6	46.5		12.4	24.3	36.1	48.0	59.8	71.6	83.5	95.3
0600R1060	GPM	72.1	68.1	65.2	62.8	60.7	58.8	57.1	55.5		151.1	147.1	144.2	141.8	139.7	137.8	136.1	134.5
	BHP	6.3	13.2	20.2	27.1	34.0	40.9	47.8	54.7		16.1	29.9	43.8	57.6	71.4	85.3	99.1	112.9
0600R1390	GPM	93.3	87.3	83.0	79.4	76.3	73.5	71.0	68.6		197.0	191.0	186.6	183.1	180.0	177.2	174.6	172.3
	BHP	7.8	16.8	25.9	35.0	44.0	53.1	62.2	71.3		19.0	37.1	55.2	73.4	91.5	109.7	127.8	145.9
0700R1100	GPM	103.7	99.2	95.9	93.1	90.8	88.6	86.7	84.9		215.4	210.8	207.5	204.8	202.4	200.3	198.3	196.5
	BHP	9.1	18.8	28.6	38.4	48.1	57.9	67.7	77.4		23.2	42.7	62.2	81.8	101.3	120.9	140.4	159.9
0700R1400	GPM	131.8	125.8	121.5	118.0	114.9	112.1	109.6	107.2		273.9	267.9	263.6	260.1	257.0	254.2	251.7	249.3
	BHP	10.8	23.3	35.7	48.1	60.6	73.0	85.4	97.9		26.7	51.6	76.5	101.3	126.2	151.1	175.9	200.8

# Outline Drawings and Dimensions

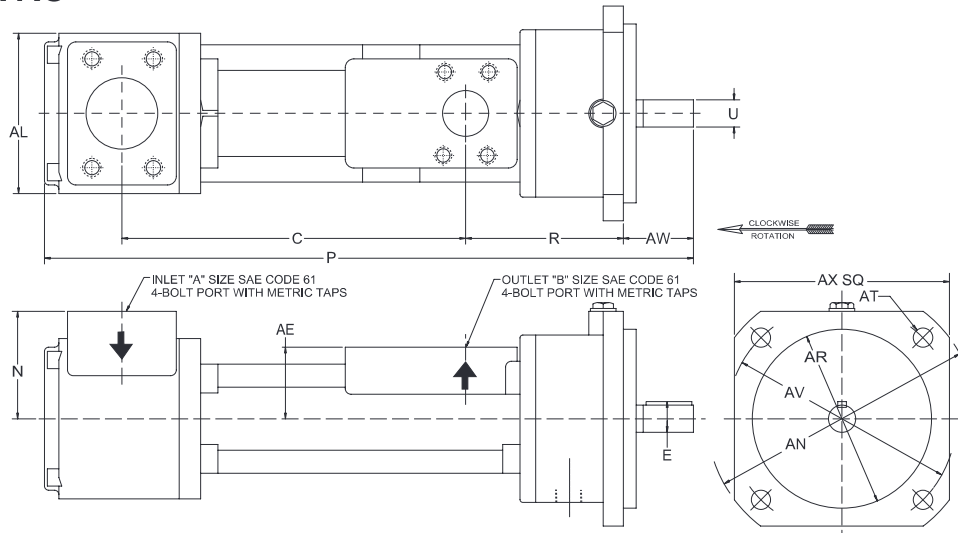
## Series 4SFC



MODEL-SIZE	A		B		C		E		P		R		U		V	
	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM
4SFC-200	1-1/16"-12		7/8"-14		4.72	120	0.63	16	9.61	244	4.02	102	0.55	14	0.47	12
4SFC-250	1-5/16"-12		1-1/16"-12		5.91	150	0.85	21.5	11.77	299	4.84	123	0.75	19	0.59	15

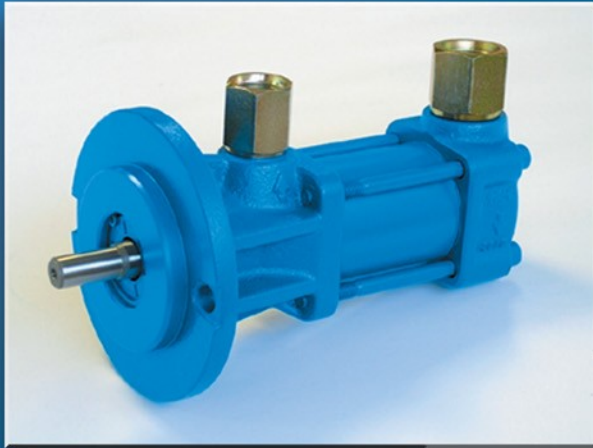
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	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM
4SFC-200	2.82	71.8	2.60	66	5.12	130	3.25	82.6	0.47	12	4.17	106	1.65	42	3.05	77.5
4SFC-250	3.05	77.5	3.23	82	6.89	175	4.00	102	0.55	14	5.31	135	2.09	53	3.54	89.8

## Series 4VKC

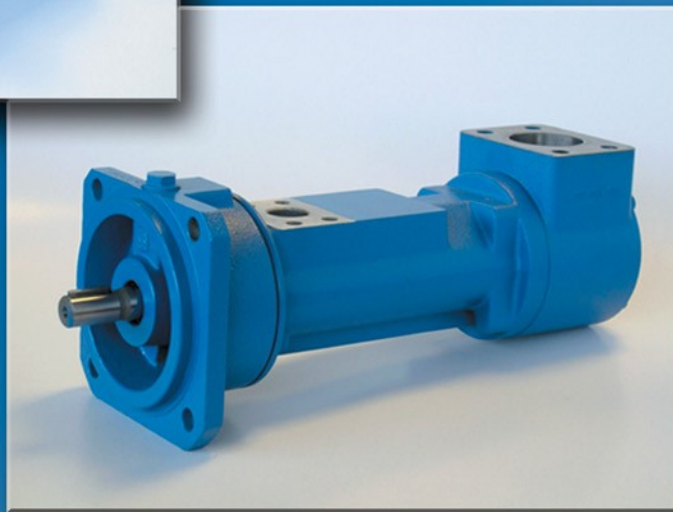


MODEL-SIZE	A		B		C		E		N		P		R		U	
	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM
4VKC-320	2.0"	50.8	1.0"	25.4	8.15	207	0.85	21.5	2.95	75	16.30	414	4.09	104	0.75	19
4VKC-400	2.0"	50.8	1-1/4"	31.8	9.45	240	0.85	21.5	2.95	75	17.83	453	4.33	110	0.75	19
4VKC-475	2-1/2"	63.5	1-1/2"	38.1	11.10	282	1.38	35	3.35	85	21.77	553	5.12	130	1.26	32
4VKC-550	2-1/2"	63.5	2.0"	50.8	12.64	321	1.38	35	3.35	85	23.54	598	5.35	136	1.26	32
4VKC-600	3.0"	76.2	2-1/2"	63.5	14.06	357	1.38	35	3.74	95	25.51	648	5.51	140	1.26	32
4VKC-700	4.0"	101.6	3.0"	76.2	16.65	423	1.38	35	3.94	100	29.72	755	6.69	170	1.26	32

MODEL-SIZE	AE		AL		AN		AR		AT		AV		AW		AX	
	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM	INCH	MM
4VKC-320	1.77	45	4.41	112	7.40	188	4.92	125	0.53	13.5	6.30	160	1.93	49	5.91	150
4VKC-400	1.97	50	4.41	112	7.40	188	4.92	125	0.53	13.5	6.30	160	1.93	49	5.91	150
4VKC-475	2.17	55	5.51	140	9.13	232	6.30	160	0.69	17.5	7.87	200	3.11	79	7.48	190
4VKC-550	2.26	57.5	5.51	140	9.13	232	6.30	160	0.69	17.5	7.87	200	3.11	79	7.48	190
4VKC-600	2.56	65	6.30	160	9.13	232	6.30	160	0.69	17.5	7.87	200	3.11	79	7.48	190
4VKC-700	3.15	80	7.09	180	11.65	296	7.87	200	0.87	22	9.84	250	3.11	79	9.06	230

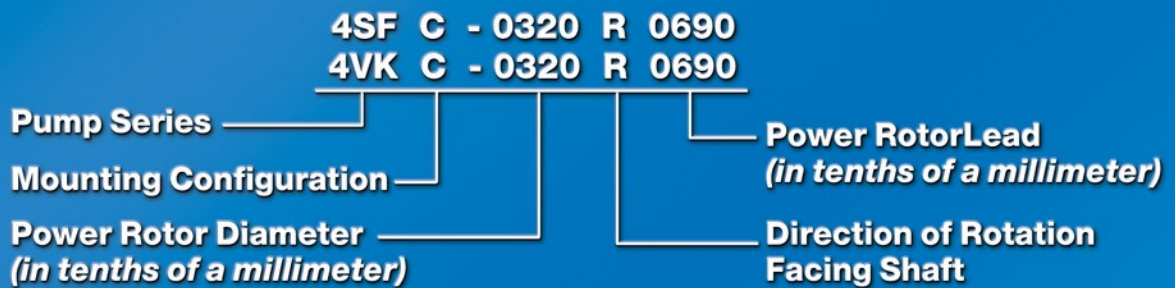


**Series 4SFC**



**Series 4VKC**

**Series 4SFC and 4VKC Model Nomenclature**





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VKSF-05/R0

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*Manufacturing under ISO 9001:2000 Quality Management Systems*