DATA SHEET
TWO STAGE CENTRIFUGAL PUMPS

The Pumps with Nine Lives

Stainless Steel Model:

3K502CT2, 3K502CT4, 3K512CT4, 3K522CT4, 3K532CT4

Pump and Motor Assembly with IP55 Frame Motor

Model 3K502CT2 Shown

FEATURES

- 304SSL liquid-end construction offers corrosion resistance and increases operating life over typical cast iron models.
- Unique bulge formed components eliminates harsh radius and welds and provides greater efficiency and durability.
- Back pullout design permits easy repair of impeller and seal.
- High quality mechanical shaft seal and o-rings for chemical duty applications.
- Under casing foot mount and centerline discharge reduces misalignment and assures self-venting.
- Close coupled, motorized packages for compact and easy installation.

SPECIFICATIONS		U.S. Measure
Flow Range		5.5 to 66.0 gpm
Pressure Range		42 to 106 psi
		98 to 245 Ft. Head
Max. Working Pressure		125 psi
Min. Inlet Pressure to Prime		Flooded
Pump RPM		3450 rpm
Inlet Ports	3K502CT2, 3K502CT4	1.25" NPT(F)
	3K512CT4, 3K522CT4	1.25" NPT(F)
	3K532CT4	1.50" NPT(F)
Discharge Port (All Models)		1" NPT(F)
Horsepower Range		2 to 5 Hp
Motor Options		IEC IP55 Frame TEFC Class F
	2.0 HP	230V, 1 PH
	2.0 HP	230/460V, 3 PH
	3.0 HP	230/460V, 3 PH
	5.0 HP	230/460V, 3 PH
Cycle		60 HZ
Max. Temperature (Continuous)		140° F*
Weight		See Chart
Dimensions		See Chart

*Contact Cat Pumps for applications above 140° F.

GENERAL SAFETY AND OPERATION

SELECTION
Review the Selection Chart to find the performance range and pump model suited to your application requirements. Then review the Performance Curve Chart to verify the most efficient performance and inlet conditions required.

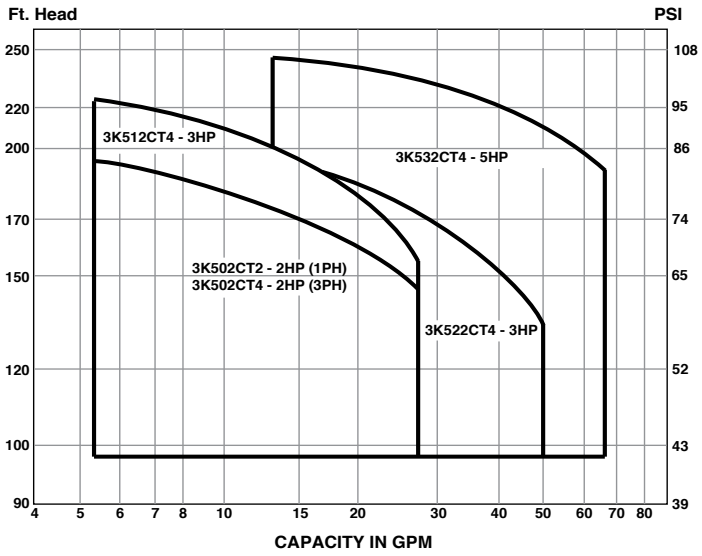
OPERATION:
The pump comes with a mild chemical-duty seal for freshwater, non harsh liquids or chemical applications. Check with Cat Pumps for high viscosity liquids. Make certain there is sufficient liquid supply to the pump inlet before starting operation.

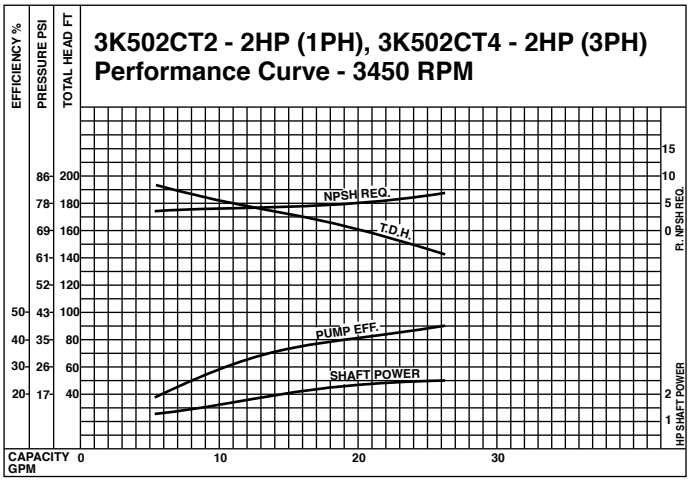
INSTALLATION:
These pumps may be installed in either a horizontal (most common) or vertical position (as installation requires). The following criteria should be considered to assure optimum performance:

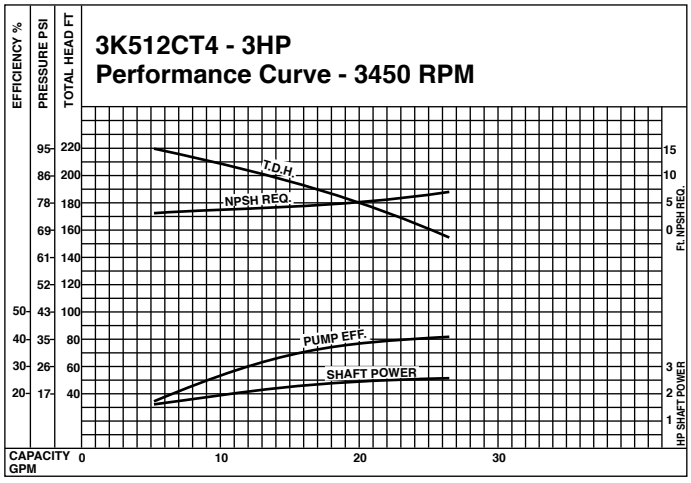
- Proper alignment of plumbing
- Adequate line size to prevent starvation
- Rigid metal or plastic pipe or reinforced flexible plumbing to prevent collapsing lines
- Properly sealed connections to prevent air leaks
- Good filtration of the liquid to avoid abrasives and solids
- Foot valve may need to be installed at the inlet

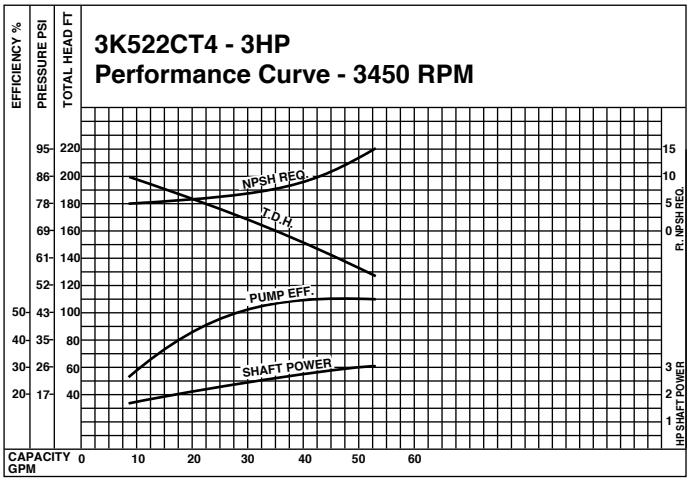
MAINTENANCE:
This is a low maintenance pump. The shaft seal and impellers are the primary service items. These can be easily replaced.

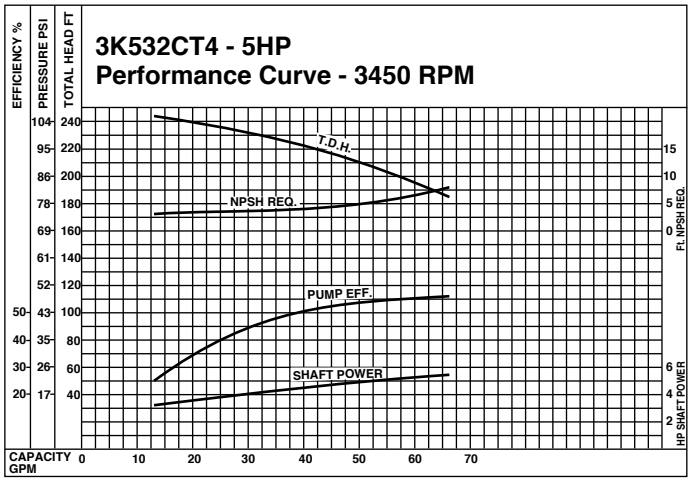
SELECTION CHART - 3450 RPM











PUMP CODES:

Last digit of Pump Kit is Seal Assembly type

2 = FCC Alternate Seal Assy (Carbon/Ceramic/FPM) Mild Chemical

MOTORIZED PUMP UNIT CODES:

Last digit of MPU is Motor Phase and Voltage

Single Phase	Three Phase
0 = 115/208-230V	3 = 208-230/460V
1 = 115/230V	4 = 230/460V
2 = 230V	5 = 575V
	6 = 380V

Disassembly

1. Remove the eight (8) socket head screws from the casing to bracket.
2. Insert two (2) screwdrivers on opposite sides of the seam between the casing and bracket; pry gently apart.
3. Remove the impeller nut.
4. Remove the first impeller, diffuser, collar, center plate w/o-ring, second impeller, spacer and keys by sliding over the motor shaft.
5. Remove spring and front half of seal (rotating half) from casing cover.
6. Pry the casing cover away from the bracket.

NOTICE: Exercise care when handling the shaft seal. It can be easily contaminated by improper handling and will not properly seal.

7. Place the casing cover on a work surface (large diameter up) and press out the back half (stationary half).
8. Examine all o-rings for cuts or deterioration and replace as needed.

Re-assembly

1. Invert the casing cover on a work surface (small diameter up) and press the back half (stationary half) of the new shaft seal into position until completely seated in the chamber with the elastomer side down.

NOTE: If seal installation is tight, carefully apply a small amount of lubricant to the outer edge (non-chlorine dish soap). DO NOT USE OIL OR GREASE.

2. Align the casing cover with the holes on the bracket and press into position.

NOTICE: Exercise care when handling the shaft seal. It can be easily contaminated by improper handling and will not properly seal.

3. Carefully slide the front half of the new seal (rotating half) on the shaft with the carbon and ceramic surfaces mating. Slide spring over the shaft and press onto back side of seal.
4. Install keys on motor shaft.
5. Slide second impeller with small diameter extension towards casing cover. Ensure key way is aligned with key on motor shaft.
6. Slide collar over motor shaft.
7. Position spacer with two notches onto the tabs of casing cover.
8. Install center plate and o-ring with dish side facing out.
9. Position diffuser so the small blades are facing the center plate.
10. Slide first impeller with small diameter extension towards diffuser. Ensure key way is aligned with key on motor shaft.
11. Apply Loctite® 242® to threads of impeller nut and torque per chart.

NOTE: Rotate the impellers to assure proper alignment before installing front plate and casing.

12. Place casing on work surface with flanged end facing up.
13. Place front plate with smaller outer diameter facing up.
14. Place casing to desired discharge port position and align holes with bracket. Replace eight (8) socket head screws and torque per chart.

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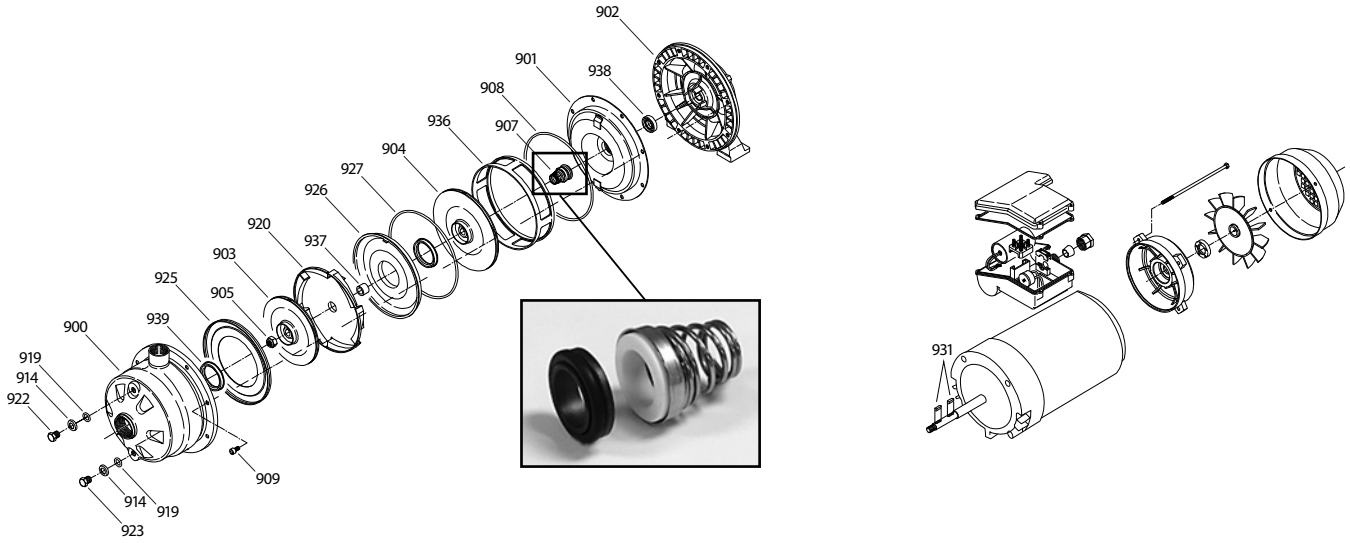
EXPLODED VIEW



PARTS LIST

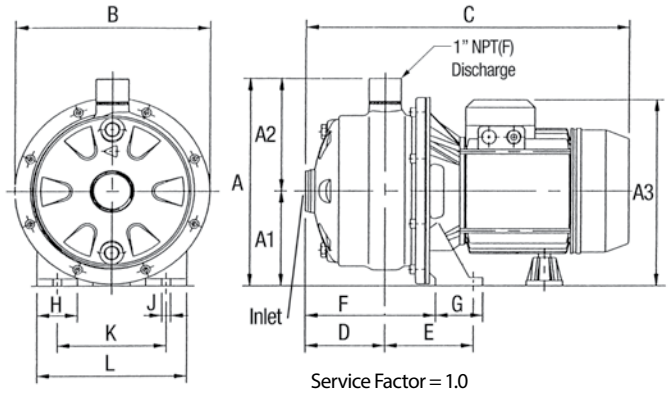
ITEM	P/N	MATL	DESCRIPTION	QTY
900	899225	S	Casing, 3K502CT2, 3K502CT4, 3K512CT4	1
	—	S	Casing, 3K522CT4	1
	899227	S	Casing, 3K532CT4	1
901	899228	S	Cover, Casing	1
902	—	F	Bracket	1
903	899232	S	Impeller (5.19") 3K502CT2, 3K502CT4, 3K512CT4	1
903	899234	S	Impeller (5.19") 3K522CT4	1
903	899235	S	Impeller (5.19") 3K532CT4	1
904	899231	S	Impeller (5.19") 3K502CT2, 3K502CT4	1
904	899233	S	Impeller (6.00") 3K512CT4	1
904	899234	S	Impeller (5.19") 3K522CT4	1
904	899236	S	Impeller (6.19") 3K532CT4	1
905	—	S	Impeller, Nut (7/16-20)	1
907	899000	FCC	Seal, Shaft Assy (Mild Chemical) - IP55	1
908	899249	FPM	O-Ring, Case - 75D	1
909	—	S	Screw, Socket (M6x16)	8
914	—	S	Washer, Plug	2

ITEM	P/N	MATL	DESCRIPTION	QTY
919	899252	FPM	O-Ring, Plug - 75D	2
920	899229	S	Diffuser	1
922	—	S	Plug, Prime, Case	1
923	—	S	Plug, Drain, Case	1
925	899284	S	Plate, Front	1
926	899286	S	Plate, Center	1
927	899251	FPM	O-Ring, Center Plate - 75D	1
931	—	S	Key	2
936	899239	S	Spacer	1
937	899287	S	Collar	1
938	899259	NBR	Seal, Lip	1
939	—	FPM	Ring, Casing	1
940	*899288*	*FPM*	*Kit, Seal (Incld: 905, 907, 908, 927, 931, 939) (3K502CT2, 3K502CT4, 3K512CT4, 3K532CT4)*	*1*
	899289	*FPM*	*Kit, Seal (Incld: 905, 907, 908, 927, 931, 939) (3K522CT4)*	*1*
941	*899282*	*S*	*Kit, Plug (Incld: 914, 919, 922, 923)*	*1*

Italics are optional items.

MATERIAL CODES (Not Part of Part Number): F=Cast Iron FCC=Carbon/Ceramic/FPM FPM=Fluorocarbon NBR=Medium Nitrile (Buna-N) S=304SS

PUMP AND MOTOR DIMENSIONAL



Service Factor = 1.0

			Dimensions (in) and Weight (lbs)														
Model	HP	Phase	A	A1	A2	A3	B	C	D	E	F	G	H	J	K	L	Weight
3K502CT4	2	3	9.81	4.62	5.18	8.88	9.13	14.94	3.44	3.75	5.50	2.18	1.56	0.38	5.50	7.06	37.0
3K512CT4	3	3	9.81	4.62	5.18	8.88	9.13	14.94	3.44	3.75	5.50	2.18	1.56	0.38	5.50	7.06	37.0
3K522CT4	3	3	9.81	4.62	5.18	8.88	9.13	14.94	3.44	3.75	5.50	2.18	1.56	0.38	5.50	7.06	39.0
3K532CT4	5	3	9.81	4.62	5.18	9.56	9.13	17.94	3.44	4.31	5.69	2.69	1.56	0.50	6.31	8.25	71.0
3K502CT2	2	1	9.81	4.62	4.62	9.50	9.13	15.38	3.44	3.75	5.50	2.18	1.56	0.38	5.50	7.06	37.0

TORQUE CHART

	Size	ft. lbs.	Torque in lbs.	Nm
Impeller Nut	7/16-20	12-18	144-215	16-24
Pump Casing (To Motor Bracket)	M6 x 16 Socket Head Screw	3.4	41	4.6
Motor Bracket (To Motor)	M5 x 142 Hex Head Bolt	6.0	96	10.8

TROUBLE SHOOTING

No flow or low flow	• Check rotation of pump • Check liquid supply to pump
Leaking	• Replace shaft seal • Check case cover o-ring
Noise	• Check liquid supply to pump • Check viscosity of liquid • Review NPSH requirements
Vibration	• Minimum by-pass of 5% not present. • Excessive pressure adjustment made for worn nozzle REPLACE NOZZLE. Reset system pressure.

⚠ CAUTIONS AND WARNINGS

All High Pressure Systems require a primary pressure regulating device (i.e. regulator, unloader) and a secondary pressure relief device (i.e. pop-off valve, relief valve). Failure to install such relief devices could result in personal injury or damage to pump or property. Cat Pumps does not assume any liability or responsibility for the operation of a customer's high pressure system.

Read all CAUTIONS and WARNINGS before commencing service or operation of any high pressure system. The CAUTIONS and WARNINGS are included in each service manual and with each Accessory Data sheet. CAUTIONS and WARNINGS can also be viewed online at www.catpumps.com/cautions-warnings or can be requested directly from Cat Pumps.

WARRANTY

View the Limited Warranty on-line at www.catpumps.com/warranty.

The Pumps with Nine Lives

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