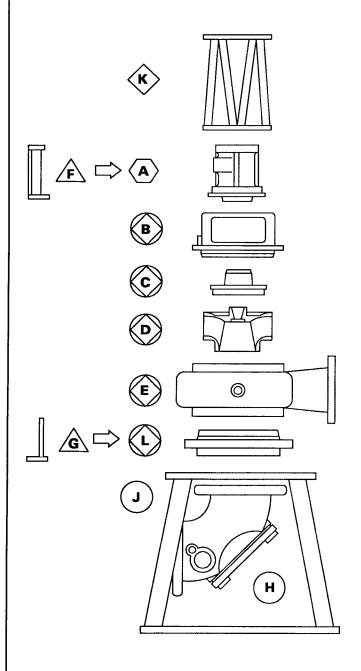
INTERCHANGEABILITY



Non-Clog pumps are designed for maximum interchangeability. All models are available in all 7 sizes, offering a model and size precisely fitted to the installation requirements over a wide range of capacities. The 7 sizes are divided into 4 "Power Frames". Within a given power frame, all parts are interchangeable except for the liquid end and supports. The chart illustrates the degree of interchageability achieved with the standard nonclog pumps.

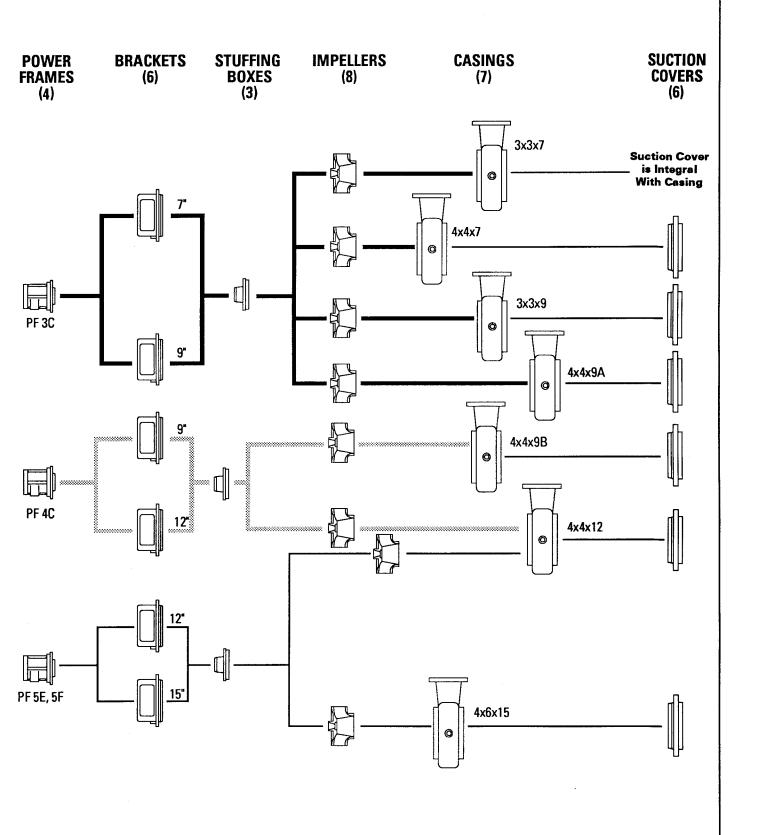
Model 651A Only Model 653A Only Models 652A, 653A, & 654A Models 651A, 652A, & 653A Models 651A, 652A, 653A, & 654A	
	Qty
A - Power Frames	
B - Brackets	6
C - Stuffing Boxes	3
D - Impellers	8
E - Casings	
F - Mounting Feet (Rear)	
G - Mounting Feet (Front)	
H - Elbows	
J - Bases	
K - Motor Supports	
L - Suction Covers	
L - Suction Covers	b

POWER FRAME SELECTION

	PUMP			RP	M	
	SIZE		1750	1150	875	700
\bigcirc	3x3x7	벁	3C	3C		
Ŏ	4x4x7	FRAME	3C	3C		
\mathbb{C}	3x3x9	Œ	3C	3C		
\bigcirc	4x4x9A	1	3C	3C	3C	
Ò	4x4x9B	POWER	4C	4C	4C	4C
Č	4x4x12	7	5E	4C	4C	4C
Č	4x6x15		5F	5E	5E	5E

SECTION 650 PAGE 74 — AURORA 650A SERIES - ENGINEERING DATA

INTERCHANGEABILITY



AURORA MODEL 650 PUMP ___ SECTION 650 PAGE 165 **SPLIT PACKING BOX OPTION**

DATED NOVEMBER 1988

POWER FRAMES 4 & 5 ONLY



Split packing boxes separate vertically through the packing insert to simplify packing replacement and shaft sleeve inspection. The insert halves are dowled, register aligned and gasketed to prevent leakage. Only six bolts need be removed to expose all of the packing and lantern ring. Remove two more bolts and the remaining packing box insert half can be removed.

The completely exposed packing and sleeve area coupled with the extra large access openings in the pump adapter provides the ultimate in packing accessibility.

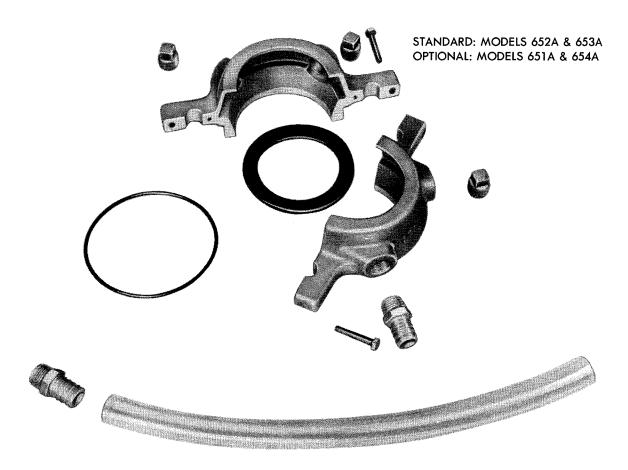
Five (5) die-molded, diagonally split, packing rings complete with lantern ring line the stuffing box. The general service packing consists of graphited fiber.

The stuffing box length, bore, sleeve diameters and lantern ring width conform with the recommended standard of the Mechanical Packing Association (MPA).

A tapped opening is provided for lubricating the stuffing box. Lubrication is accomplished by adding grease directly into the lantern ring cavity through a grease fitting or by connecting a by-pass line between the pump discharge and the stuffing box. Automatic grease seals as well as other flushing options are also available.

The standard 450 minimum brinnel hardened stainless steel shaft sleeve extends through the entire length of the box and gland and is provided with a snap ring. This snap ring design allows the sleeve and the completely assembled packing box to be removed intact. Reassembly can be accomplished in the same manner. Assemble the complete stuffing box at the convenience of the work bench, install and adjust the packing for proper lubrication leakage (5-10 drops per minute after run-in).





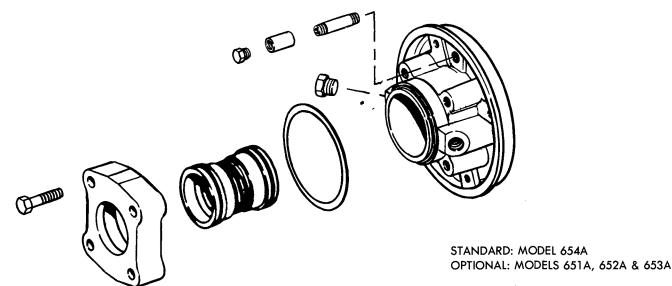
The leakage accumulator gland (sprayless, dripless packing gland) is designed and constructed to prevent the collection of packing leakage in the pump bracket of a vertical or horizontally mounted pump. The leakage accumulator gland has a volute shape with two symetrical halves. This gland encloses the water slinger preventing any spray from escaping and contaminating the area. The leakage is efficiently directed to a drain connection.

The two gland halves are doweled, bolted together, and sealed at the parting line with a soft liquid sealant. An "O" ring seal between the gland and packing box prevents any leakage in this area. One of the pipe tap ports on the side of the gland is fitted with a hose connector and a clear plastic section of hose, to both drain off and allow visual inspection of the leakage. The remaining ports have pipe plugs, but may be used for maintenance purposes to flush & drain debris from the accumulator.



AURORA MODEL 650 PUMP - SECTION 650 PAGE 167 **DOUBLE MECHANICAL SEAL**

DATED NOVEMBER 1988



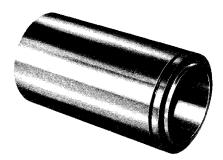
Double mechanical seals are recommended for gritty or abrasive applications. Seal faces are protected by clear water under pressure, injected directly into the seal cavity. Pressure in the seal box must be fifteen (15) lbs. higher than the operating pressure at the stuffing box of the pump. This forces the inner sealing faces closed and provides both faces with a film of clear sealant. If this is not done, a brasive particles may be forced under the sealing faces hastening wear. Even when the pump is not running, a pressure differential, or at least equal pressure in the seal box, is desirable. The sealant circulation for most pumping operations may be dead ended in the stuffing box. Pressures over 30 psi or RPM of 1200 max. require constant circulation to prevent overheating.

The seal box is designed for the compressed seal length and does not require any adjustments. The seal housing is extra large to provide excellent circulation of clear sealing liquid. The housing also has two tapped openings 180° apart for the flushing connections.

The standard shaft sleeve design is provided with a snap ring which allows the sleeve and the completely assembled seal box to be removed intact. Reassembly can be accomplished in the same manner. Assemble the complete seal box at the convenience of the work bench and install.



Precision machined shafts of stainless steel, monel and other alloys are available for difficult application.

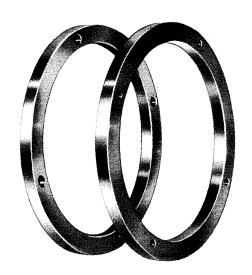


SLEEVES

Shaft sleeves, machined to close tolerances are optionally available in either bronze, 316 stainless steel, or monel.

WEAR RINGS

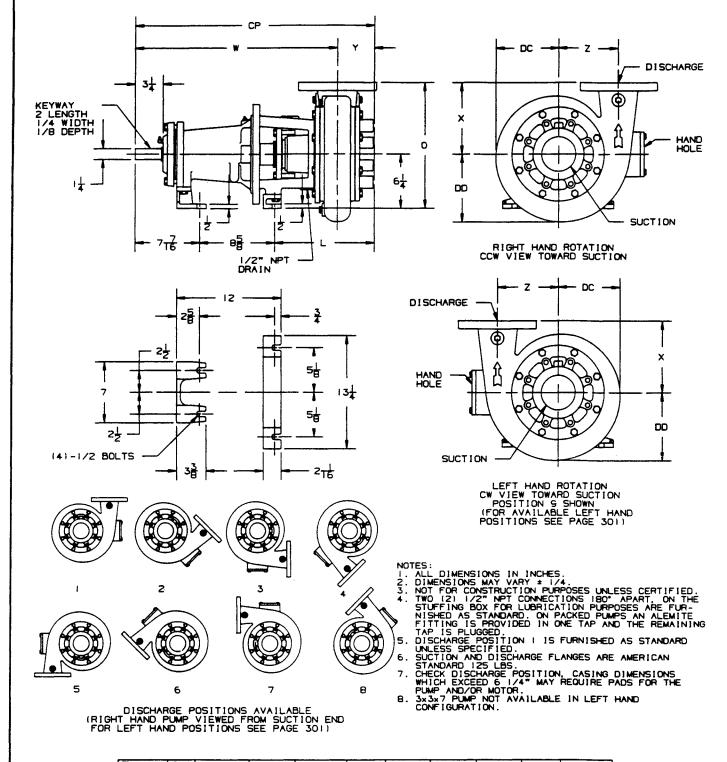
Replaceable stainless steel wear rings available individually or together, protect the impeller and/or casing from wear. The rings are secured and aligned by 4 flat head machine screws that are easily removed. The ring running clearances are adjusted externally by the bearing cap. External flushing of the ring faces is available.





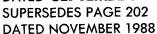
AURORA MODEL 651A PUMP ____ SECTION 650 PAGE 201 **POWER FRAME 3C**

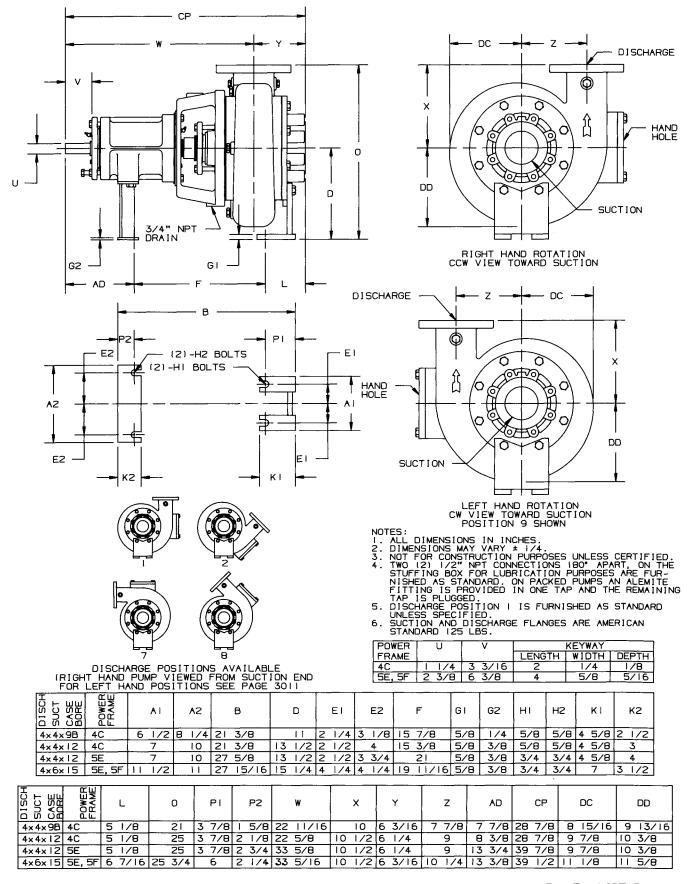
DATED NOVEMBER 1992 **SUPERSEDES PAGE 201** DATED SEPTEMBER 1989



DISCH SUCT CASE BORE	POWER	L	0	w	×	Y	Z	CP	DC	DD
3×3×7	3C	10 9/16	12 1/4	23 5/8	6	3	5	26 5/8	5 1/2	6 I/B
3×3×9	3C	11 5/16	13 1/4	23 5/16	7	4 1/16	6 1/8	27 3/8	6 5/8	7 3/16
4×4×7	3C	12 5/16	13 1/4	23 7/8	7	4 1/2	5 3/B	28 3/8	6	6 13/16
4X4×9A	3C	11 7/16	14 1/2	23 1/4	B 1/4	4 1/4	7 1/16	27 1/2	7 1/4	7 13/16

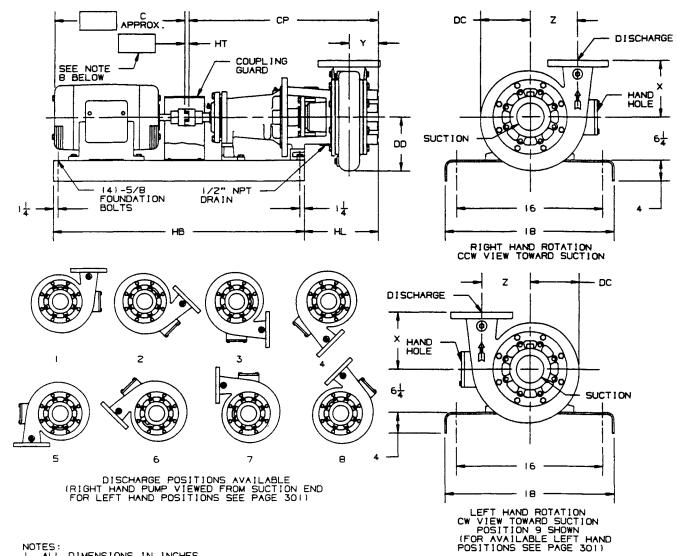
SECTION 650 PAGE 202 — AURORA MODEL 651A PUMP DATED SEPTEMBER 1989 POWER FRAMES 4C, 5E & 5F





AURORA MODEL 651A PUMP ____ SECTION 650 PAGE 251 **POWER FRAME 3C** FORMED STEEL BASE

DATED NOVEMBER 1992 SUPERSEDES PAGE 251 DATED SEPTEMBER 1989



NOTES:

NOTES:

1. ALL DIMENSIONS IN INCHES.
2. DIMENSIONS MAY VARY * 1/4".
3. NOT FOR CONSTRUCTION PURPOSES UNLESS CERTIFIED.
4. TWO (2) 1/2" NPT CONNECTIONS 180° APART, ON THE STUFFING BOX FOR LUBRICATION PURPOSES ARE FURNISHED AS STANDARD. ON PACKED PUMPS AN ALEMITE FITTING IS PROVIDED IN ONE TAP AND THE REMAINING TAP IS PLUGGED.
5. DISCHARGE POSITION I IS FURNISHED AS STANDARD UNLESS SPECIFIED.
6. SUCTION AND DISCHARGE FLANGES ARE AMERICAN STANDARD 125 LBS.
7. CONDUIT BOX IS SHOWN IS APPROXIMATE LOCATION. DIMENSIONS ARE NOT SPECIFIED AS THEY MAY VARY WITH EACH MOTOR MANUFACTURER.
8. STANDARD COUPLING ILLUSTRATED. "HT" DIMENSION MAY VARY 1/8" TO 1". SPACER COUPLING "HT" DIMENSION IS 3 1/2".
9. 3x3x7 PUMP NOT AVAILABLE IN LEFT HAND CONFIGURATION.

MOTOR	С	HB				
FRAME	APPROX.	STD. CPLG.	SPCR. CPLG.			
56	12	38	38			
143T	11	38	38			
145T	12	38	38			
1821	13	38	38			
184T	14	38	38			
21 3 T	16	38	38			
215T	18	38	38			
254T	21	38	42			

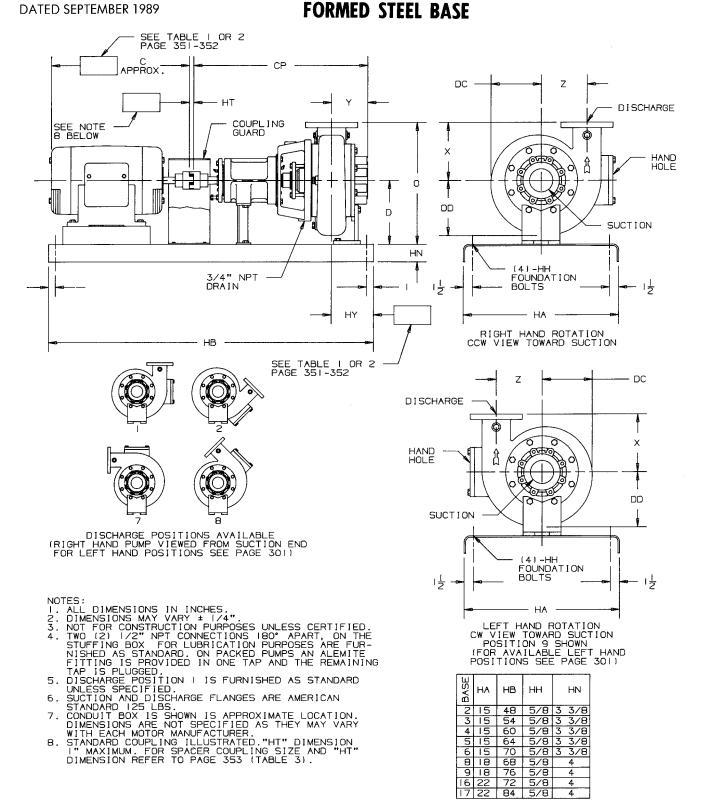
D1SCH SUCT CASE BORE	POWER FRAME		HL	×		Y		Z		CP		DC		DD
3×3×7	3C	9	13/16	6		3		5	26	5/8	5	1/2	6	1/8
3×3×9	3C	10	9/16	7	4	1/16	6	1/8	27	3/8	6	5/8	7	3/16
4×4×7	3C	11	9/16	7	4	1/2	5	3/8	28	3/B		6	6	13/16
4X4×9A	3C	10	11/16	B 1/4	4	1/4	7	1/16	27	1/2	7	1/4	7	13/16



DATED AUGUST 1992

SECTION 650 PAGE 252 — AURORA MODEL 651A PUMP POWER FRAMES 4C, 5E & 5F

SUPERSEDES PAGE 252 DATED SEPTEMBER 1989

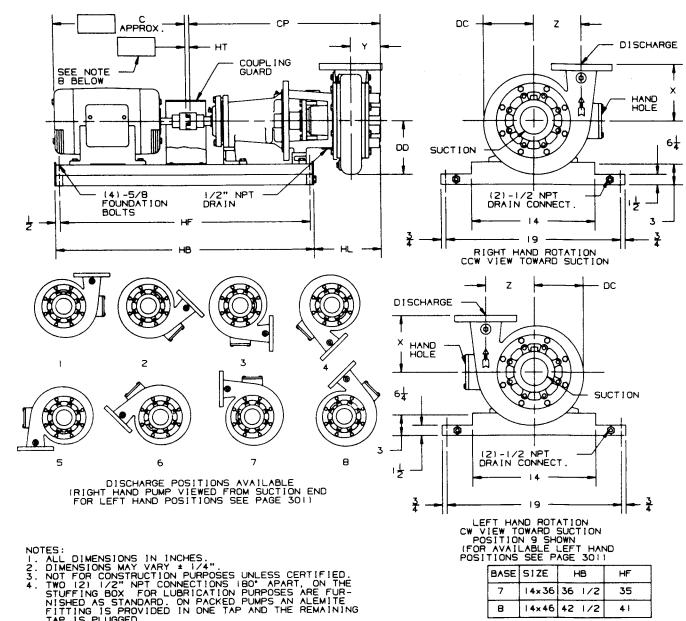


D1SCH SUCT CASE BORE	POWER FRAME	D	0	X	Y	Z	CP	DC	DD
4×4×9B	4C	11	21	10	6 3/16	7 7/8	28 7/8	8 15/16	9 13/16
4×4×12	4C	13 1/2	25	10 1/2	6 1/4	9	28 7/8	9 7/8	10 3/8
4×4×12	5E	13 1/2	25	10 1/2	6 1/4	9	39 7/8	9 7/8	10 3/8
4×6×15	5E, 5F	15 1/4	25 3/4	10 1/2	6 3/16	10 1/4	39 1/2	/8	11 5/8



AURORA MODEL 651A PUMP ____ SECTION 650 PAGE 253 **POWER FRAME 3C DRIP RIM STEEL BASE**

DATED MARCH 1992 **SUPERSEDES PAGE 253** DATED SEPTEMBER 1989



5. DISCHARGE POSITION	ı	IS FURNISHED	۸S	STANDARD
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UNLESS SPECIFIED.

6. SUCTION AND DISCHARGE FLANGES ARE AMERICAN STANDARD 125 LBS.

7. CONDUIT BOX IS SHOWN IS APPROXIMATE LOCATION. DIMENSIONS ARE NOT SPECIFIED AS THEY MAY VARY WITH EACH MOTOR MANUFACTURER.

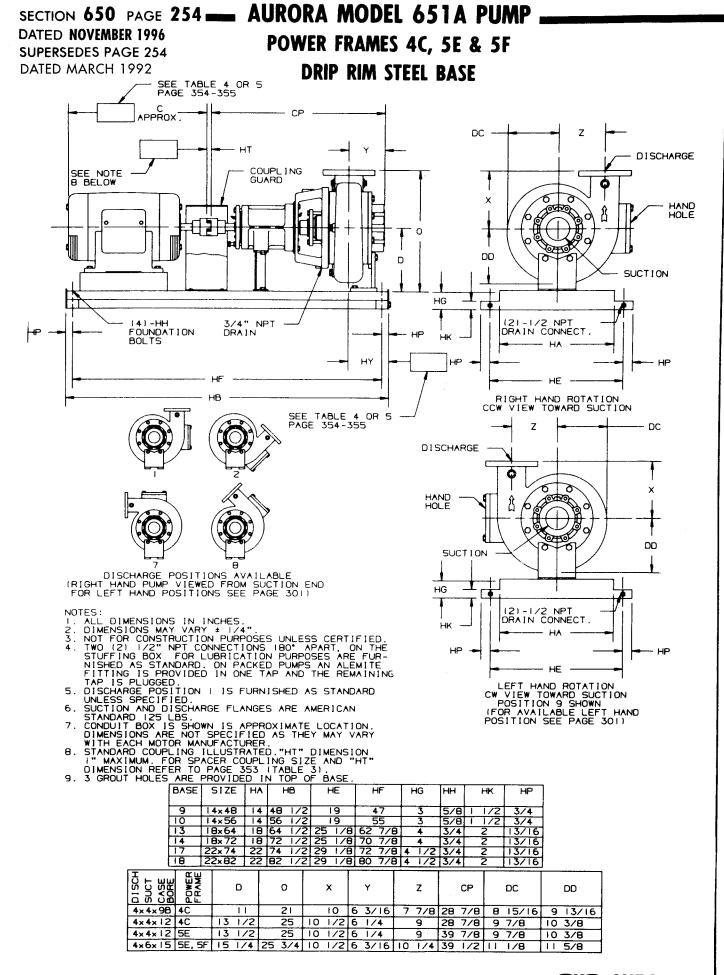
8. STANDARD COUPLING ILLUSTRATED. "HT" DIMENSION MAY VARY 1/8" TO 1". SPACER COUPLING "HT" DIMENSION IS 3 1/2".

9. 3x3x7 PUMP NOT AVAILABLE IN LEFT HAND CONFIGURATION.

MOTOR	С	BASE					
FRAME	APPROX.	STD. CPLG.	SPCR. CPLG.				
56	12	7	7				
143T	11	7	7				
T45T	12	7	7				
1821	13	7	7				
184T	14	7	7				
213T	16	7	7				
215T	18	7	8				
254T	21	8	В				

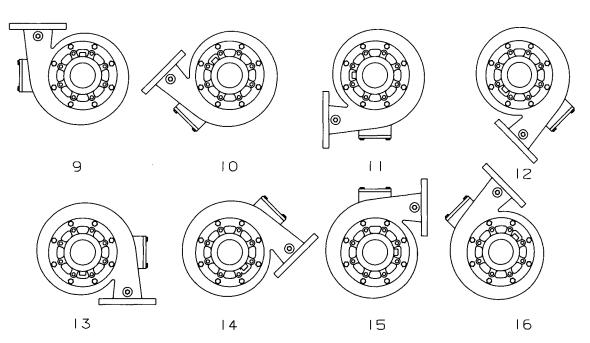
DISCH SUCT CASE BORE	POWER FRAME	HL	x	Y	Z	CP	DC	DD
3x3x7	3C	9 5/16	6	3	5	26 5/8	5 1/2	6 1/8
3x3x9	3C	10 1/4	7	4 1/16	6 1/8	28 3/8	6 5/8	7 3/16
4x4x7	3C	11 1/16	7	4 1/2	5 3/8	28 3/8	6	6 13/16
4x4x9A	3C	10 3/16	8 1/4	4 1/4	7 1/16	27 1/2	7 1/4	7 13/16







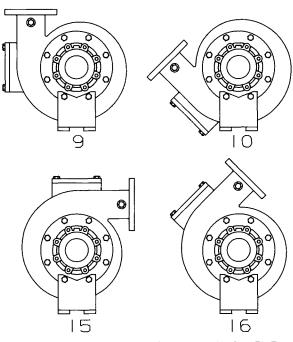
AURORA MODEL 651A PUMP - SECTION 650 PAGE 301 DATED SEPTEMBER 1989 **LEFT HAND DISCHARGE POSITIONS** 3 x 3 x 9, 4 x 4 x 7 AND 4 x 4 x 9A ONLY



DISCHARGE POSITIONS AVAILABLE (LEFT HAND PUMP VIEWED FROM SUCTION END)

- NOTES:
 1. THIS PAGE IS FOR LEFT HAND DISCHARGE POSITIONS; FOR RIGHT HAND POSITIONS REFER TO INDIVIDUAL DIMENSION PAGES.
 2. THE 3x3x7 PUMP IS NOT AVAILABLE IN LEFT HAND CONFIGURATION.
 3. THE ABOVE EIGHT POSITIONS ARE ONLY AVAILABLE ON THE FOLLOWING PUMPS: 3x3x9, 4x4x7, AND 4x4x9A.
 4. THE BELOW FOUR POSITIONS ARE THE ONLY AVAILABLE POSITIONS ON THE FOLLOWING PUMPS: 4x4x9B, 4x4x12, AND 4x6x15.

4 x 4 x 9B, 4 x 4 x 12 AND 4 x 6 x 15 ONLY



DISCHARGE POSITIONS AVAILABLE (LEFT HAND PUMP VIEWED FROM SUCTION END)



AURORA MODEL 651A PUMP ____ SECTION 650 PAGE 351 FORMED STEEL BASE STANDARD COUPLING

9 8

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9 8

30

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36575

364T

DATED MAY 1996 SUPERSEDES PAGE 351 DATED AUGUST 1992

364TC	2,7	j						<u> </u>	2 0	2
19C7		3				o	a	٩	2	כ
276TS	26.5	2				α	α	0	α	ַ
3247	26					α	α	0	α	י
184T 213T 215T 254T 256T 284TS 284T 286TS 286T 324TS 324TS 226T 256T 256T 286TS	7,	}				α	α	0	α	,
286T	ĸ	4	α	4	a	- a	α	٥	α	,
286TS	24	3	Œ	2	α	9	æ	و	α	
2841	24	3	80	6	α	٥	<u>a</u>	ø	æ	
284TS	22	3	8	ы	œ	5	8	9	<u>.</u>	
256T	23	3	8	3	8	D	8	9	8	
254T	12	3	8	3	60	D	8	9	œ	
Z15T	81	3	8	3	8	4	8	ស	œ	
213T	91	3	60	3	60	4	8	2	8	
184T	14	2	8	2	60					
182T	13	2	8	2	œ					
MOTOR	C	BASE	¥	BASE	¥	BASE	숲	BASE	₹	
POWER SERIES	5	4		4		Ŋ		ſΩ		

CASE BORE

SUCT. DISCH. 4×4×12

4×6×15 4×4×12

444T	38	17	8
444TS	34	9	8
405T	34	9	8
405TS	3.	9	8
404T	33	16	8
404TS	30	91	8
MOTOR	ပ	BASE	Ξ
POWER SERIES	6	ហ	
CASE BORE SUCT. DISCH		4×6×15	

DIMENSIONS IN INCHES. FOR CONSTRUCTION PURPOSES UNLESS CERTIFIED. NOTES: 1. ALL 1 2. NOT 1



TABLE

SECTION 650 PAGE 352 AURORA MODEL 651A PUMP FORMED STEEL BASE **SPACER COUPLING**

	-	-	-	-	-		-	-	
365TS	a.							17	
	1							17	
286TS 286T 324TS 324T 326TS 326T 364TS 364T	27							_	
326T	28					σ	00	6	
326TS	26					σ	8	σ	
324T	26					o	80	б	
324TS	22					6	8	6	
286T	52	4	8	4	60	6	60	6	
286TS	24	4	80	4	8	9	80	σ	
284T	24	4	80	4	60	ω	80	6	
284TS 284T	22	4	8	4	8	ø	60	9	
. 256T	23	4	60	4	æ	9	8	9	ļ
254T	2	4	80	4	80	တ	8	9	
215T 254T	8	3	8	8	8	2	8	9	
Z13T	9	3	80	3	8	5	8	Ŋ	(
184T	14	2	œ	2	8				
182T	13	N	8	2	8				
MOTOR	ပ	BASE	H	BASE	Η	BASE	¥	BASE	2
POWER SERIES	5	4		4		ហ		Ŋ	
CASE BORE SUCT. DISCH		4×4×9B		4×4×12 4		4×4×12 5		4×6×15	

 ω

TABLE

444T	38	17	œ
444TS	34	17	80
405T	34	17	8
405TS	31	17	8
404T	33	17	80
404TS	30	17	8
MOTOR	C	BASE	Ŧ
POWER SERIES	ŝ	ហ	
CASE BORE SUCT. D1SCH.		4×6×15	

NOTES:
1. ALL DIMENSIONS IN INCHES.
2. NOT FOR CONSTRUCTION PURPOSES UNLESS CERTIFIED.

AURORA MODEL 651A PUMP ____ SECTION 650 PAGE 353 **SPACER COUPLINGS**

DATED NOVEMBER 1988

N) TABLE

	_	_	_	_	_	-	_	_
44AT	+						2	7 2 7
405T	5						2	7 2 /1
404 TADE 205T 404T	2						2	7 2 //
404⊤	5						2	1/2 6
404TS							2	1/2/
365T						Ì	2	1/2 /
36515 3651							12	4 7 3/4 7 3/4 7 3/4 7 3/4 7 3/4 7 3/4 7 3/4 7 3/4 7 3/4 7 3/4 7 3/1 7 2/1 2/1 7 2/1 7 2/1 7 2/1 7 2/1 7 2/1 7 2/1 7 2/1 7 2/1 7 2/1 7 2/1 2
3647							9	7 3/4
2841 2861 3241 3261 36415 3641							12	7 3/4
3267					0	ß	0	7 3/4
324T					6	ഹ	6	7 3/4
Z86T					σ	S	თ	7 3/4
	80	2	60	2	6	S	6	7 3/4
2567	8	D.	8	2	6	5	6	7 3/4
Z54T	7	ហ	7	D.	თ	ហ	თ	7 3/4
215T	ဖ	ഹ	o	ស			თ	7 3/4
213T	9	ru	ω	2				
184T	9	5	9	S				
182T	9	Ŋ	9	5				
MOTOR FRAME	SIZE	Щ	SIZE	HT	SIZE	Ħ	SIZE	노
POWER SERIES	4		4		ហ		Ω.	
CASE BORE SUCT. DISCH.	4×4×9B 4		4×4×12		4×4×12 5		4x6x15	

CERTIFIED. SURE-FLEX SPACER COUPLINGS. SHAFTS) NOTES: 1. ALL DI 2. NOT FO 3. SIZE: 4. HT:

SECTION 650 PAGE 354 ____ AURORA MODEL 651A PUMP. **DRIP RIM STEEL BASE** STANDARD COUPLING

4 6

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365T

365TS 28

4
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TABL
\vdash

3647	ξ							4	Œ
364TS	27							4	Œ
326T	28					4	8	14	æ
28675 2867 3247 32615 3267 36478 3647	26					4	0	4	8
3247	26					4	8	4	æ
324TS	52					4	8	4	
2867	25				-	4	80	4	8
286TS	24					4	œ	4	8
	24	2	6	2	8	4	æ	14	8
284TS 284T	22	2	8	2	8	4	8	13	8
2567	23	01	80	0	60	5	8	13	8
254T	12	0	8	2	80	13	8	13	œ
215T	18	σ	8	თ	æ			13	80
184T 213T 215T	91	σ	8	6	8				
184⊤	4	თ	8	6	8				
182T	13	5	8	σ	8				
MOTOR	ပ	BASE	Η	BASE	Η	BASE	主	BASE	Ξ
POWER SERIE	3	4		4				Ŋ	
CASE BORE SUCT. DISCH	•	4×4×9B		4×4×12 4		4×4×12 5		4×6×15	

CASE BORE SUCT. DISCH	POWER SERIE	MOTOR	404TS	404T	405TS	405T	444TS	444T
•	s	ပ	30	33	31	34	34	38
4×6×15	5	BASE	12	17	17	8	89	8
		¥	8	Φ	6	60	8	۵

NOTES:
|. ALL DIMENSIONS IN INCHES.
2. NOT FOR CONSTRUCTION PURPOSES UNLESS CERTIFIED.

SPACER COUPLING

DATED NOVEMBER 1988

Ŋ TABLE

•	1	┸	┸	┸	┸	上	\perp		
36575		3						<u>a</u>	2
364T	2			İ				<u>a</u>	2
2867 32475 3247 32675 3267 36475 3647	27	j						α	2
3267	ď	2				17	α	<u>a</u>	0
32675	2	2				4	α	7	a
324T	26					14	α	1	α
324TS	2,5					14	α	17	α
286T	25					4	a	17	α
286TS	24					14	00	17	α
284T	24	13	æ	13	0	4	æ	4	α
284TS 284T	25	5	8	13	8	4	æ	4	Œ
256T	23	13	8	13	8	4	80	4	В
254T	2	2	00	2	60	4	œ	4	В
215T	80	2	60	0	8	2	8	14	60
213T	9	2	8	2	8	13	8	13	60
1847	14	б	60	6	8				
F 13	13	თ	80	6	8				
MOTOR FRAME	ပ	BASE	¥	BASE	Ŧ	BASE	Ŧ	BASE	Ì
POWER	3	4		4	_	ເດ		Ŋ	
CASE BORE BUCT. DISCH.		4×4×9B		4×4×12 4		4×4×12		4×6×15 5	

444 T444	38	8	60
444TS	34	<u>@</u>	69
405T	34	18	8
405TS	3.1	18	8
404T	33	8	œ
404TS	30	8	8
MOTOR	ပ	BASE	¥
POWER SERIE	5	Ŋ	
CASE BORE SUCT. DISCH		4×6×15	

NOTES:
1. ALL DIMENSIONS IN INCHES.
2. NOT FOR CONSTRUCTION PURPOSES UNLESS CERTIFIED.