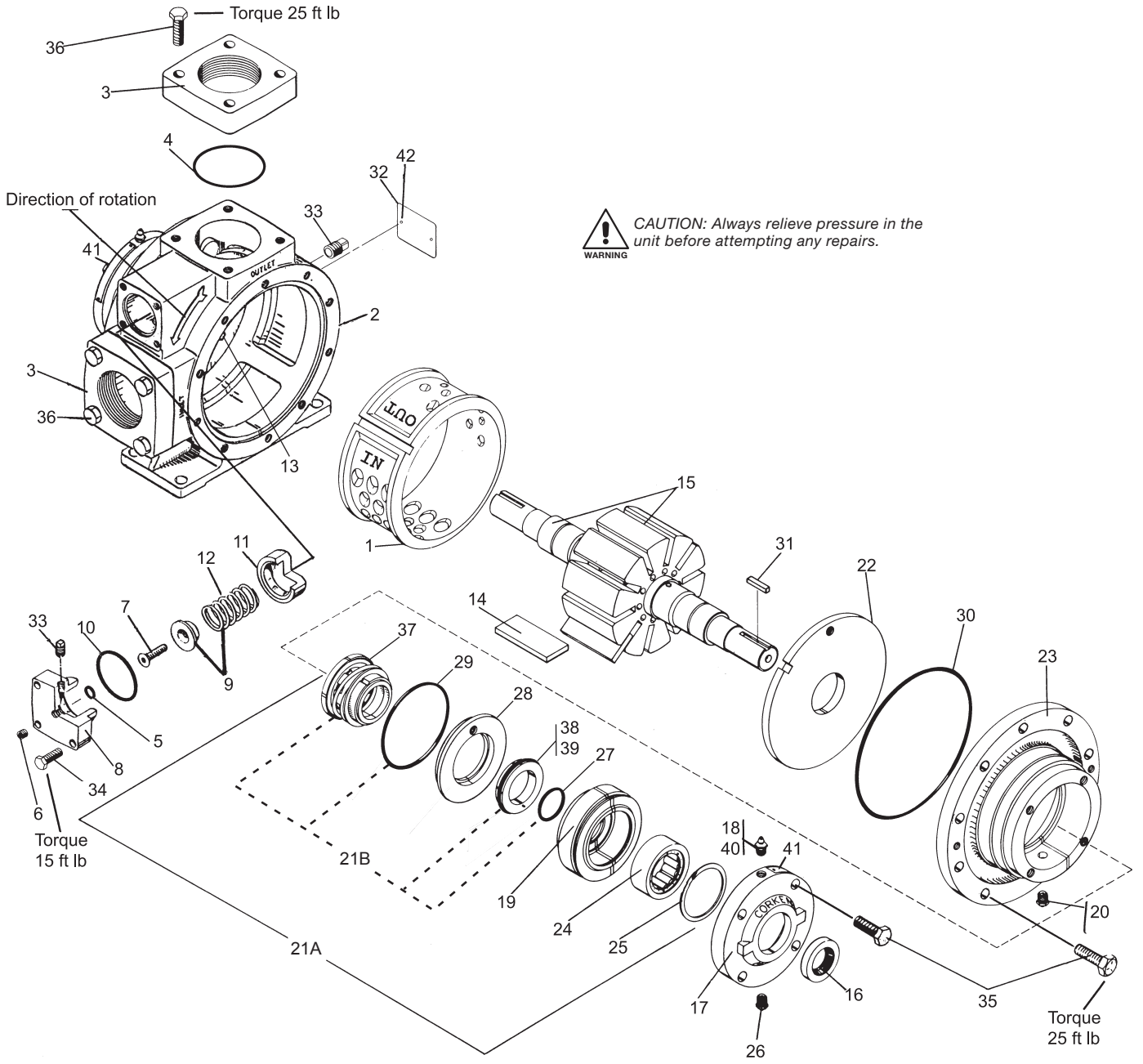
Appendix E—Parts Details for Models 521 and 1021

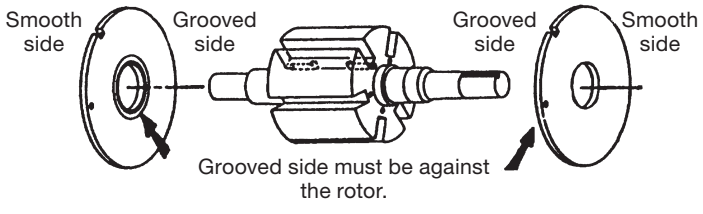


CAUTION: Always relieve pressure in the unit before attempting any repairs.

WARNING

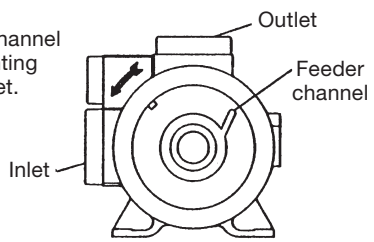
Sideplate Replacement Instructions

Model 521



Model 1021

Install with feeder channel against rotor pointing toward the outlet.



Appendix E—Parts Details for Models 521 and 1021

Ref No.	Part No.	Description	Qty.
1.	1162-2	Cam (521)	1
	1201-2	Cam (1021)	1
2.	2832	Case (521)	1
	2841	Case (1021)	1
3.	1172-2.5	Flange—2-1/2" standard (521)	1
	1172-2	Flange—2" standard (521)	1
	1172-1.5	Flange—1/2" NPT, optional (521)	1
	1172-15S	Flange—1/2" Weld, optional (521)	1
	1172-2	Flange—2" NPT, optional (521)	1
	1172-2S	Flange—2" Weld, optional (521)	1
	1172-2.5	Flange—2-1/2" NPT, optional (521)	1
	1172-2.5S	Flange—2-1/2" Weld, optional (521)	1
	1206-34	Flange—3" standard (1021)	2
	1206-3S	Flange—3" Weld, optional (1021)	2
	1206-4	Flange—4" NPT, optional (1021)	2
	1206-4S	Flange—4" Weld, optional (1021)	2
4.	2-234_[a]	Flange O-ring (521)	2
	2-245_[a]	Flange O-ring-3" (1021)	2
	2-249_[a]	Flange O-ring-4" (1021)	2
5.	2-112_[a]	Adjusting screw O-ring	1
6.	2590	Flush plug—1/8" NPT	1
7.	2252	Relief valve adjusting screw	1
8.	1174	Valve cap (521)	1
	1207	Valve cap (1021)	1
9.	1242-X	Relief valve spring and guide (521)	1
	1227	Relief valve spring guide (1021)	1
10.	2-224_[a]	Relief valve cap O-ring (521)	1
	2-228_[a]	Relief valve cap O-ring (1021)	1
11.	1241	Relief valve (521)	1
	1224	Relief valve (1021)	1
12.	1242	Relief valve spring (521)	1
	1226	Relief valve spring (1021)	1
13.	1170	Cam key (521)	1
	1309	Cam key (1021)	1
14.	1168-7	Blade (521)	10
	1308-9	Blade (1021)	10
15.	1166-1X1R	Rotor and shaft assembly (521)	1
	1208-1X1R	Rotor and shaft assembly (1021)	1
16.	1358	Grease seal	2
17.	1164-1	Bearing cap	2
18.	2158	Grease zerk—1/8" NPT	2
19.	1769	Bearing housing	2
20.	1343	Seal vent relief fitting—1/8" NPT	2

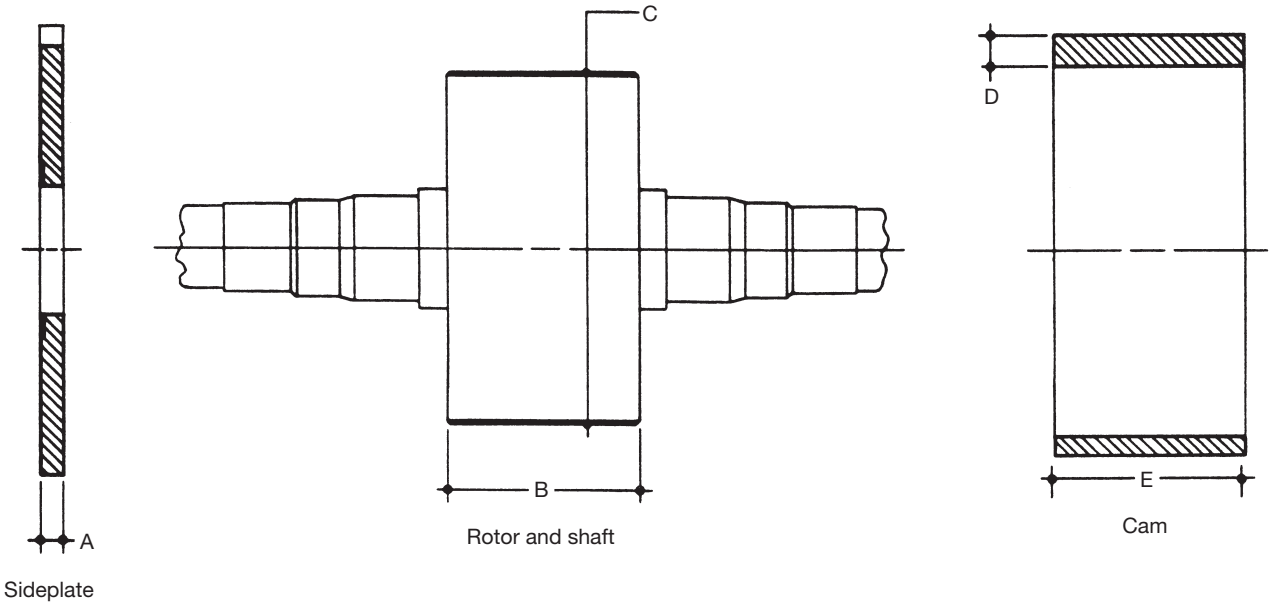
Ref No.	Part No.	Description	Qty.
21A.	1769-X_6[a]	Complete seal assembly kit. Includes bearing housing, seat adapter plate, bearings, retainer rings, seal, and O-rings.	2
21B.	1769-XR_6[a]	Seal assembly field replacement kit. Includes only the seal and O-rings.	2
22.	1163-2[d]	Sideplate (521)	2
	1209-1[d]	Sideplate (1021)	2
23.	1161-4	Head (521)	2
	1205-4	Head (1021)	2
24.	2754-X	Roller bearing—complete	2
	2755	Bearing inner race	2
	2754	Bearing outer race	2
25.	2760-244	Retainer ring	2
26.	1343	Grease relief fitting—1/8" NPT	2
27.	2-128A	Shaft O-ring (Buna-N only)	2
28.	1882	Seat adapter plate	2
29.	2-240_[a]	Adapter plate O-ring	2
30.	2-261_[a]	Case O-ring (521)	2
	2-268_[a]	Case O-ring (1021)	2
31.	2270	Key—1/4"	2
32.	2949	Nameplate	1
33.	3442	Plug—1/4" NPT	1
34.	7001-031NC125A	Hex head bolt—5/16-18x1-1/4 (521)	4
	7001-037NC125A	Hex head bolt—3/8-16x1-1/4 (1021)	4
35.	7001-037NC125A	Hex head bolt—3/8-16x1-1/4 (521)	28
	7001-037NC125A	Hex head bolt—3/8-16x1-1/4 (1021)	32
36.	7001-037NC150A	Hex head bolt—3/8-16x1-1/2	8
37.	Not sold separately[b]	Retainer	2
38.	Not sold separately[b]	Seal seat	2
39.	2-227_[a]	Seal seat O-ring	2
40.	2159	Lubricap #2	2
41.	1359	Lubrication instruction tag	2
42.	7003-004DR0198	Round head plated drive screw—4 x 3/16	2

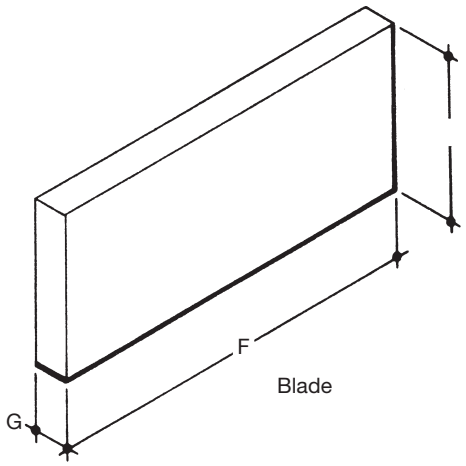
Material Code	
A	Buna-N
B	Neoprene®[c]
D	Viton®[c]
E	PTFE

[a] _ denotes material code. See material code chart for details.
[b] Not sold separately. Available with 1769-X_6[a], and 1769-XR_6[a] only.
[c] Registered trademark of the DuPont company.
[d] See sideplate replacement instructions.

Appendix E—Parts Details for Rotor, Blade, Sideplate, and Cam

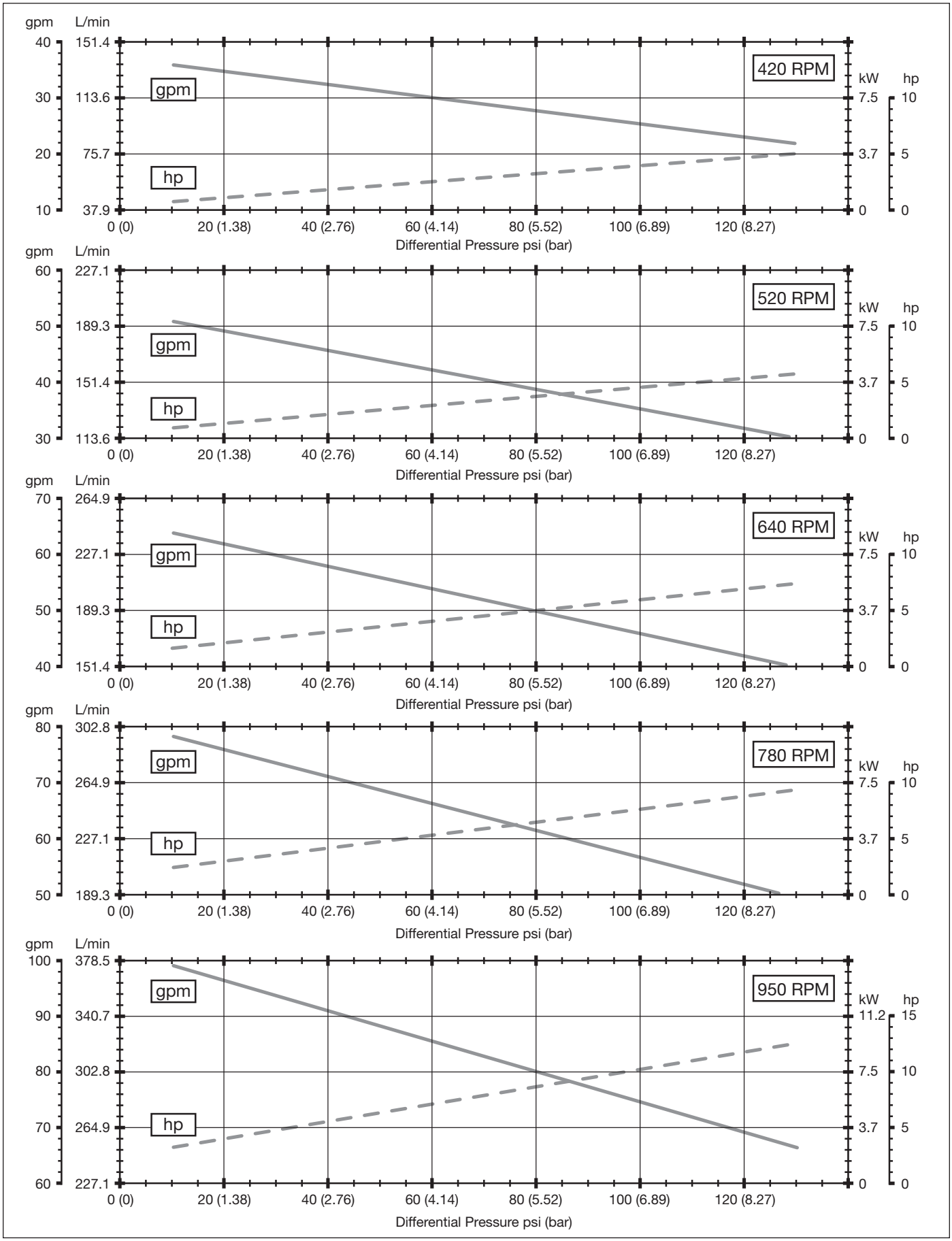
New Part Interface Dimensions



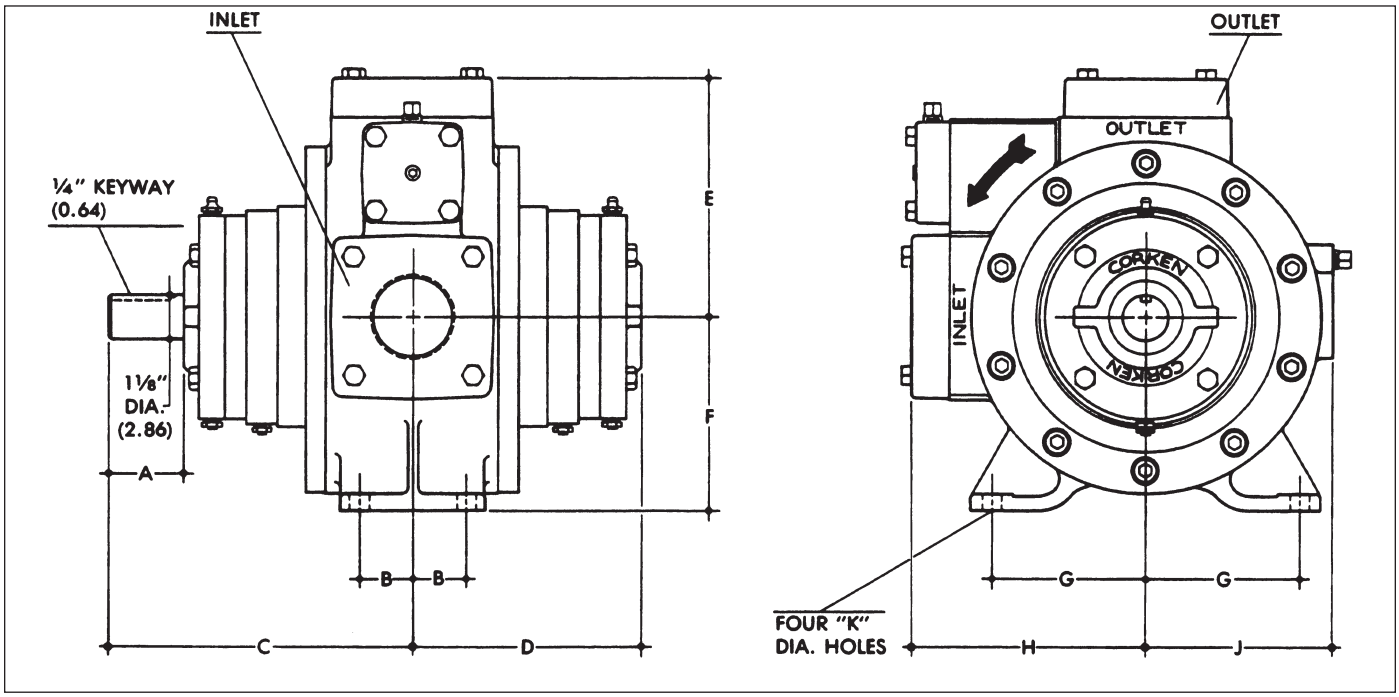


Model	A (min)	B (max)	C (max)	D (max)	E (min)	F (max)	G (max)	H (nominal)
500	0.373	2.992	5.449	0.750	3.000	2.994	0.230	1.323
1000	0.435	3.993	6.249	1.123	4.002	3.997	0.230	1.500
1500	0.435	6.243	6.125	1.184	6.253	6.229	0.549	1.635

Appendix C—Performance Curves for Model 521



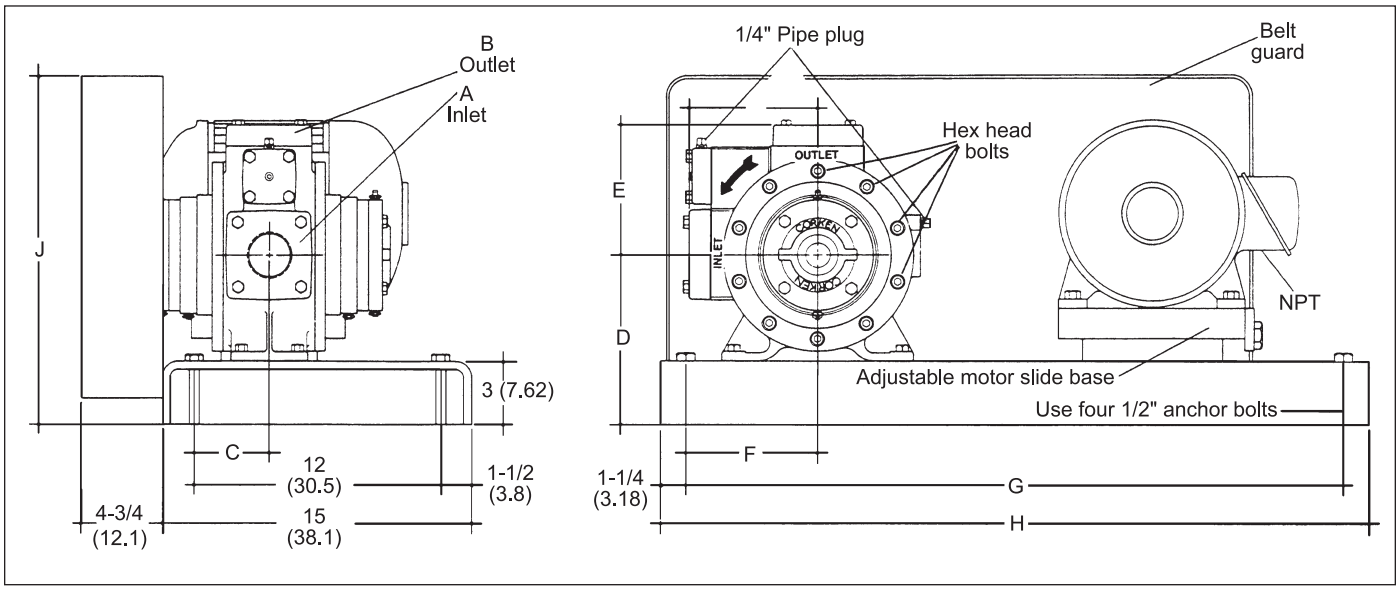
Appendix D—Outline Dimensions for Models 521 and 1021



Model	Inlet	Outlet	A	B	C	D	E	F	G	H	J	K
521	STD: 2-1/2" NPT OPT: 2" NPT 2", 2-1/2" Weld	STD: 2" NPT OPT: 1-1/2", 2-1/2" NPT 1-1/2", 2", 2-1/2" Weld	1-31/32 (5.00)	1-3/8 (3.49)	7-7/8 (20.00)	5-29/32 (15.00)	6-1/8 (15.56)	5 (12.70)	4 (10.16)	6-1/8 (15.56)	4-11/16 (11.91)	1/2 (1.27)
1021	STD: 3" NPT OPT: 4" NPT 3", 4" Weld	STD: 3" NPT OPT: 4" NPT 3", 4" Weld	2 (5.08)	1-3/4 (4.45)	8-1/2 (21.59)	6-7/16 (16.35)	7-1/16 (17.94)	5-1/2 (13.97)	4-1/8 (10.48)	7-1/16 (17.94)	5-3/8 (13.65)	1/2 (1.27)

All dimensions are in inches (centimeters).

Appendix D—Outline Dimensions for Models 521 and 1021-103



Flange Dimensions

Model	A (inlet)	B (outlet)
521	Standard: 2-1/2" NPT	Standard: 2" NPT
	Optional: 2" NPT	Optional: 1-1/2", 2-1/2" NPT
1021	Standard: 3" NPT	Standard: 3" NPT
	Optional: 4" NPT	Optional: 4" NPT

521-103 Dimensions

Motor		Pump Speed	C	D	E	F	G	H	J
Hp	Frame[1]								
2	145T	All	3-5/8 (9.21)	8 (20.30)	6-1/8 (15.60)	6-1/4 (15.90)	31-1/2 (80.00)	34 (86.40)	16-1/2 (41.90)
2	182T	All	3-5/8 (9.21)	8 (20.30)	6-1/8 (15.60)	6-1/4 (15.90)	31-1/2 (80.00)	34 (86.40)	16-1/2 (41.90)
3	182T	All	3-5/8 (9.21)	8 (20.30)	6-1/8 (15.60)	6-1/4 (15.90)	31-1/2 (80.00)	34 (86.40)	16-1/2 (41.90)
3	184T	All	3-5/8 (9.21)	8 (20.30)	6-1/8 (15.60)	6-1/4 (15.90)	31-1/2 (80.00)	34 (86.40)	16-1/2 (41.90)
5	184T	All	3-5/8 (9.21)	8 (20.30)	6-1/8 (15.60)	6-1/4 (15.90)	31-1/2 (80.00)	34 (86.40)	16-1/2 (41.90)
7-1/2	213T	All	3-5/8 (9.21)	8 (20.30)	6-1/8 (15.60)	6-1/4 (15.90)	31-1/2 (80.00)	34 (86.40)	16-1/2 (41.90)
10	215T	420–470	3-5/8 (9.21)	10-3/4 (27.30)	6-1/8 (15.60)	9-1/4 (23.50)	39-1/2 (100.30)	42 (106.70)	19-3/4 (50.20)
10	215T	520–950	3-5/8 (9.21)	8 (20.30)	6-1/8 (15.60)	6-1/4 (15.90)	31-1/2 (80.00)	34 (86.40)	16-1/2 (41.90)

1021-103 Dimensions

Motor		Pump Speed	C	D	E	F	G	H	J
Hp	Frame[1]								
3	182T	All	4-1/2 (10.80)	8-1/2 (21.60)	7-3/16 (18.30)	6-1/4 (15.90)	31-1/2 (80.00)	34 (86.40)	16-1/2 (41.90)
3	182T	All	4-1/2 (10.80)	8-1/2 (21.60)	7-3/16 (18.30)	6-1/4 (15.90)	31-1/2 (80.00)	34 (86.40)	16-1/2 (41.90)
5	184T	All	4-1/2 (10.80)	8-1/2 (21.60)	7-3/16 (18.30)	6-1/4 (15.90)	31-1/2 (80.00)	34 (86.40)	16-1/2 (41.90)
7-1/2	213T	All	4-1/2 (10.80)	8-1/2 (21.60)	7-3/16 (18.30)	6-1/4 (15.90)	31-1/2 (80.00)	34 (86.40)	16-1/2 (41.90)
10	215T	420–470	4-1/2 (10.80)	10-1/2 (26.70)	7-3/16 (18.30)	9-1/4 (23.50)	39-1/2 (100.30)	42 (106.70)	19-3/4 (50.20)
10	215T	520–950	4-1/2 (10.80)	8-1/2 (21.60)	7-3/16 (18.30)	6-1/4 (15.90)	31-1/2 (80.00)	34 (86.40)	16-1/2 (41.90)
15	254T	420–520	4-1/2 (10.80)	10-1/2 (26.70)	7-3/16 (18.30)	9-1/4 (23.50)	39-1/2 (100.30)	42 (106.70)	19-3/4 (50.20)
15	254T	580–950	4-1/2 (10.80)	8-1/2 (21.60)	7-3/16 (18.30)	6-1/4 (15.90)	31-1/2 (80.00)	34 (86.40)	16-1/2 (41.90)
20	256T	520	4-1/2 (10.80)	10-1/2 (26.70)	7-3/16 (18.30)	9-1/4 (23.50)	39-1/2 (100.30)	42 (106.70)	19-3/4 (50.20)
20	256T	640–950	4-1/2 (10.80)	8-1/2 (21.60)	7-3/16 (18.30)	6-1/4 (15.90)	31-1/2 (80.00)	34 (86.40)	16-1/2 (41.90)

[1] *All dimensions based on a motor speed of 1,750 RPM.*

All dimensions are in inches (centimeters).

Appendix B—Specifications for Models 521, 1021, and F1021

Operating Specifications

Model	521	1021	F1021
RPM range	420–950	420–950	420–950
Temperature range	-25°F (-32°C) to 225°F (107°C)		
Maximum working pressure psig (bar g)	350 (24.1)	350 (24.1)	350 (24.1)
Maximum differential pressure psid (bar d)	125 (8.6)	125 (8.6)	125 (8.6)
Maximum driver size hp (kW)	10 (7.5)	20 (15)	20 (15)
Flow range gpm	30–85	65–195	65–195

Flange Options

Model		Standard	No Cost Option	Extra Cost Option
521	Inlet	2-1/2" NPT	2" NPT	2", 2-1/2" weld flange
	Outlet	2" NPT	1-1/2", 1-1/1" NPT	1-1/2", 2", 2-1/2" weld flange
1021	Inlet	3" NPT	4" NPT	3", 4" weld flange
	Outlet	3" NPT	4" NPT	3", 4" weld flange
F1021	Inlet	3" 300# ANSI	—	—
	Outlet	2-1/2" 300# ANSI	—	—

Material Specifications

Part	Model	Standard Material
Case, head, flange, rotor, seat adapter plate	All	Ductile iron ASTM A536, Class 30
Cam, sideplate, bearing cap	All	Gray iron ASTM A48, Class 30
Welding flange	All	Steel
Seal seat	All	Silicon carbide
Seal metal parts	All	Steel
Shaft	521, 1021	“Stressproof” steel
Vanes	All	Plastic
Relief valve spring	521, 1021	Steel, cadmium plated
Relief valve	521, 1021	Steel
Bearing	All	Cylinder roller
O-rings	All	Buna-N (standard), PTFE (optional), Viton®[1] (optional), Neoprene®[1] (optional)
Retainer rings	All	Steel

[1] *Registered trademark of the DuPont company.*