



CONSOLIDATED BILL OF MATERIALS (BOM) FOR STANDARD 3-SERIES GEAR PUMPS



**Models 31F & 33F
Sealed, Long-Coupled**



**Models 31F & 33F
Sealed & Mag-Drive,
Close-Coupled**

Table of Contents

Models 31F & 33F:	SEALED-LC:	316 SS Construction	2-3
		Alloy-C Construction	4-5
	SEALED-CC:	316 SS Construction	6-7
		Alloy-C Construction	8-9
	MAG-DRIVE:	316 SS Construction	10-11
		Alloy-C Construction	12-13
Appendix 1:		Exploded View Reference Drawings	14-16
Appendix 2:		Meaning of Abbreviated Terms	17
Appendix 3:		Additional Parts for SEALED-CC Configuration	18
Appendix 4:		Mag-Drive Motor-Mounting Hardware	19

Liquiflo Chemical Processing Pumps™	3-Series Gear Pumps BOM: SEALED, LC Models 31F & 33F
-----------------------------------------------	---------------------------------------------------------------------------

Part Description	Drwg. Item #	316 Stainless Steel Construction			
		Code	Material	31F	33F
Position 3 – Basic Material & Port Type (Center Housing, Alignment Pins & Hardware)					
Center Housing, NPT	21	S	316 SS	320001	320001
Center Housing, Flanged (ANSI 150# RF)	21	L	316 SS	320007	320007
Center Housing, BSPT	21	X	316 SS	320003	320003
Pin, Housing Alignment	12	S, L, X	316 SS	360801 (4)	360801 (4)
Bolt, Housing (#10-32 x 1.50 HHCS)	4	S, L, X	18-8 SS	322005 (4)	322005 (4)
Nut, Housing (#10-32)	10	S, L, X	18-8 SS	342101 (4)	342101 (4)
Lockwasher, Housing (#10)	15	S, L, X	18-8 SS	5018 (4)	5018 (4)
Position 4 – Drive Gear					
Gear	22	1	Alloy-C	310680	320608
Gear	22	3	Teflon	X	320600
Gear	22	6	316 SS	310685	320605
Gear	22	P	PEEK	310684	320603
Key, Gear (HY)	23A	1, 6, P	316 SS	321903	321903
Key, Gear (LY)	23A	3	316 SS	X	321901
Position 5 – Idler Gear					
Gear	6	1	Alloy-C	310680	320608
Gear	6	2	Carbon	X	320611
Gear	6	3	Teflon	X	320600
Gear	6	6	316 SS	310685	320605
Gear	6	8	Ryton	310682	320601
Gear	6	P	PEEK	310684	320603
Key, Gear (HY)	23B	1, 2, 6, 8, P	316 SS	321903	321903
Key, Gear (LY)	23B	3	316 SS	X	321901
Position 6 – Wear Plates					
Wear Plate, Relieved (obsolete)	7	2	Carbon	Use Code E	Use Code E
Wear Plate, Relieved	7	3	Teflon	310590 (4)	340521 (4)
Wear Plate, Relieved	7	4	SiC	310597 (4)	340582 (4)
Wear Plate, Relieved	7	E	Carbon 60	310596 (4)	340523 (4)
Wear Plate, Relieved	7	P	PEEK	310591 (4)	340524 (4)
Position 7 – Bearings					
Bearing, Short/Long (obsolete)	3A/3B	2	Carbon	Use Code E	Use Code E
Bearing, Short	3A	3	Teflon	340402 (3)	340402 (3)
Bearing, Long	3B	3	Teflon	340401 (1)	340401 (1)
Bearing, Short	3A	B	SiC	340413 (3)	340413 (3)
Bearing, Long	3B	B	SiC	340424 (1)	340424 (1)
Bearing, Short	3A	E	Carbon 60	340416 (3)	340416 (3)
Bearing, Long	3B	E	Carbon 60	340423 (1)	340423 (1)
Bearing, Short	3A	P	PEEK	340417 (3)	340417 (3)
Bearing, Long	3B	P	PEEK	340418 (1)	340418 (1)
Position 8 – Seal Type					
Mechanical Seal, Single Internal	11	U	316 SS/Carbon	A-347016	A-347016
Mechanical Seal, Single Internal	11	S	316 SS/Teflon	A-347010	A-347010
Mechanical Seal, External	11	W	316 SS/Carbon	A-347016	A-347016
Mechanical Seal, External	11	X	316 SS/Teflon	A-347010	A-347010
Mechanical Seal, Double	11	F	316 SS/Carbon	A-347014	A-347014
Mechanical Seal, Double	11	H	316 SS/Teflon	A-347020	A-347020
Seal Seat, Outer	24	U, S, W, X, F, H	SiC	351534	351534
Seal Seat, Inner	25	F, H	SiC	351547	351547
Gland Plate, SMS/EMS/DMS	17	U, S, W, X, F, H	316 SS	351724	351724
Screw, Gland (1/4-28 x 1 HHCS)	16	U, S, W, X, F, H	18-8 SS	362005 (2)	362005 (2)
Lockwasher, Gland (1/4)	19	U, S, W, X, F, H	18-8 SS	863701 (2)	863701 (2)
Plug, 1/8 NPT	9	U, S, W, X	316 SS	362304 (2)	362304 (2)
U-Cup Lip Seal	11	J	Viton	351412	351412
Gland Plate, PS	17	J	316 SS	351503	351503
Screw, Gland (1/4-28 x 5/8 HHCS)	16	J	18-8 SS	S620013 (2)	S620013 (2)
Lockwasher, Gland (1/4)	19	J	18-8 SS	863701 (2)	863701 (2)
Bull Ring	-	J	Teflon	342702 (2)	342702 (2)
Conical Spring	-	J	316 SS	861202	861202

See page 14 for Reference Drawing.

Liquiflo Chemical Processing Pumps™	3-Series Gear Pumps BOM: SEALED, LC Models 31F & 33F
------------------------------------------------------	---------------------------------------------------------------------------

Part Description	Drwg. Item #	316 Stainless Steel Construction			
		Code	Material	31F	33F
Position 8 – Seal Type [Continued]					
Packing Ring	18	L	Teflon	356501 (5)	356501 (5)
Packing Ring	18	R	Graphoil	356409 (5)	356409 (5)
Lantern Ring	11	L, R	316 SS	357110	357110
Gland Plate	17	L, R	316 SS	351504	351504
Screw, Gland (1/4-28 x 1 HHCS)	16	L, R	18-8 SS	362005 (2)	362005 (2)
Grease Fitting, 1/8 NPT	24	L, R	303 SS	867201	867201
Plug, 1/8 NPT	9	L, R	316 SS	362304	362304
Position 9 – Bearing Flush Option (Front & Rear Housings)					
Front Housing, Standard – SMS/EMS/PS	8	0 (Pos. 8 = U,S,W,X,L,R)	316 SS	350109	350109
Front Housing, EBF – SMS/EMS/PS	8	1 (Pos. 8 = U,S,W,X,L,R)	316 SS	350115	350115
Front Housing, IBF – SMS/EMS/PS	8	2 (Pos. 8 = U,S,W,X,L,R)	316 SS	350111	350111
Front Housing, Standard – DMS	8	0 (Pos. 8 = F, H)	316 SS	350209	350209
Front Housing, EBF – DMS	8	1 (Pos. 8 = F, H)	316 SS	350215	350215
Front Housing, IBF – DMS	8	2 (Pos. 8 = F, H)	316 SS	350211	350211
Front Housing, Std. – U-Cup Lip Seal	8	0 (Pos. 8 = J)	316 SS	350118	350118
Rear Housing, Standard	2	0	316 SS	340214	340214
Rear Housing, External Bearing Flush	2	1	316 SS	340212	340212
Rear Housing, Internal Bearing Flush	2	2	316 SS	340240	340240
Plug, 1/8 NPT	9	1	316 SS	362304 (3)	362304 (3)
Position 10 – Shafts					
Drive Shaft, Uncoated – Excluding EMS	20	0	316 SS	320301	320301
Drive Shaft, CO-Coated – Excluding EMS	20	1	316 SS/CO	320301-CO	320301-CO
Drive Shaft, TC-Coated – Excluding EMS	20	2	316 SS/TC	320301-TC	320301-TC
Drive Shaft, Uncoated – EMS	20	0 (Pos. 8 = W, X)	316 SS	320305	320305
Drive Shaft, CO-Coated – EMS	20	1 (Pos. 8 = W, X)	316 SS/CO	320305-CO	320305-CO
Drive Shaft, TC-Coated – EMS	20	2 (Pos. 8 = W, X)	316 SS/TC	320305-TC	320305-TC
Idler Shaft, Uncoated	1	0	316 SS	320302	320302
Idler Shaft, CO-Coated	1	1	316 SS/CO	320302-CO	320302-CO
Idler Shaft, TC-Coated	1	2	316 SS/TC	320302-TC	320302-TC
Position 11 – O-Rings/Gaskets					
O-ring, Housing (2-033)	5	0	Teflon	341102 (2)	341102 (2)
Gasket, Seal Seat, Outer (MS only)	18	0	Teflon	351106 (2)	351106 (2)
O-ring, Seal Seat, Inner (2-020; DMS only)	26	0	Viton	310691	310691
O-ring, Housing (2-033)	5	6	Silicone/FEP	341113 (2)	341113 (2)
Gasket, Seal Seat, Outer (MS only)	18	6	Teflon	351106 (2)	351106 (2)
O-ring, Seal Seat, Inner (2-020; DMS only)	26	6	Kalrez	310694	310694
O-ring, Housing (2-033)	5	B	Buna-N	341105 (2)	341105 (2)
Gasket, Seal Seat, Outer (MS only)	18	B	Buna-N	351105 (2)	351105 (2)
O-ring, Seal Seat, Inner (2-020; DMS only)	26	B	Buna-N	310693	310693
O-ring, Housing (2-033)	5	E	EPDM	341103 (2)	341103 (2)
Gasket, Seal Seat, Outer (MS only)	18	E	EPDM	351108 (2)	351108 (2)
O-ring, Seal Seat, Inner (2-020; DMS only)	26	E	EPDM	310692	310692
O-ring, Housing (2-033)	5	V	Viton	341108 (2)	341108 (2)
Gasket, Seal Seat, Outer (MS only)	18	V	Viton	351109 (2)	351109 (2)
O-ring, Seal Seat, Inner (2-020; DMS only)	26	V	Viton	310691	310691
O-ring, Housing (2-033)	5	K	Kalrez	341109 (2)	341109 (2)
Gasket, Seal Seat, Outer (MS only)	18	K	Kalrez	351110 (2)	351110 (2)
O-ring, Seal Seat, Inner (2-020; DMS only)	26	K	Kalrez	310694	310694
Position 12 – Retaining Rings					
Retaining Ring, Gear	14	0	316 SS	346702 (4)	346702 (4)
Position 13 – Bearing Pins					
Pin, Bearing Lock	13	0	Teflon	361801 (4)	361801 (4)
Pin, Bearing Lock (High Temperature)	13	6	316 SS	361807 (4)	361807 (4)
Position 14 – Coupling Method					
Long-Coupled	-	9	-	X	X
Suffix – Trim Options					
Temperature Trim (Gears & Bearings)	-	-8(T) ¹	-	Consult Factory	
Viscosity Trim (Gears)	-	-9D, -9T	-		

1 - T = Application Temperature in °F (e.g., -8(300) = Temperature Trim at 300°F).

Liquiflo Chemical Processing Pumps™	3-Series Gear Pumps BOM: SEALED, LC Models 31F & 33F
-----------------------------------------------	---------------------------------------------------------------------------

Part Description	Drwg. Item #	Alloy-C Construction			
		Code	Material	31F	33F
Position 3 – Basic Material & Port Type (Center Housing, Alignment Pins & Hardware)					
Center Housing, NPT	21	H	Alloy-C	320002	320002
Center Housing, Flanged (ANSI 150# RF)	21	C	Alloy-C	320008	320008
Center Housing, BSPT	21	Y	Alloy-C	320004	320004
Pin, Housing Alignment	12	H, C, Y	Alloy-C	360804 (4)	360804 (4)
Bolt, Housing (#10-32 x 1.50 HHCS)	4	H, C, Y	18-8 SS	322005 (4)	322005 (4)
Nut, Housing (#10-32)	10	H, C, Y	18-8 SS	342101 (4)	342101 (4)
Lockwasher, Housing (#10)	15	H, C, Y	18-8 SS	5018 (4)	5018 (4)
Position 4 – Drive Gear					
Gear	22	1	Alloy-C	310680	320608
Gear	22	3	Teflon	X	320600
Gear	22	6	316 SS	X	X
Gear	22	P	PEEK	310684	320603
Key, Gear (HY)	23A	1, P	Alloy-C	321904	321904
Key, Gear (LY)	23A	3	Alloy-C	X	321902
Position 5 – Idler Gear					
Gear	6	1	Alloy-C	310680	320608
Gear	6	2	Carbon	X	320611
Gear	6	3	Teflon	X	320600
Gear	6	6	316 SS	X	X
Gear	6	8	Ryton	310682	320601
Gear	6	P	PEEK	310684	320603
Key, Gear (HY)	23B	1, 2, 8, P	Alloy-C	321904	321904
Key, Gear (LY)	23B	3	Alloy-C	X	321902
Position 6 – Wear Plates					
Wear Plate, Relieved (obsolete)	7	2	Carbon	Use Code E	Use Code E
Wear Plate, Relieved	7	3	Teflon	310590 (4)	340521 (4)
Wear Plate, Relieved	7	4	SiC	310597 (4)	340582 (4)
Wear Plate, Relieved	7	E	Carbon 60	310596 (4)	340523 (4)
Wear Plate, Relieved	7	P	PEEK	310591 (4)	340524 (4)
Position 7 – Bearings					
Bearing, Short/Long (obsolete)	3A/3B	2	Carbon	Use Code E	Use Code E
Bearing, Short	3A	3	Teflon	340402 (3)	340402 (3)
Bearing, Long	3B	3	Teflon	340401 (1)	340401 (1)
Bearing, Short	3A	B	SiC	340413 (3)	340413 (3)
Bearing, Long	3B	B	SiC	340424 (1)	340424 (1)
Bearing, Short	3A	E	Carbon 60	340416 (3)	340416 (3)
Bearing, Long	3B	E	Carbon 60	340423 (1)	340423 (1)
Bearing, Short	3A	P	PEEK	340417 (3)	340417 (3)
Bearing, Long	3B	P	PEEK	340418 (1)	340418 (1)
Position 8 – Seal Type					
Mechanical Seal, Single Internal	11	U	Alloy-C/Carbon	A-347017	A-347017
Mechanical Seal, Single Internal	11	S	Alloy-C/Teflon	A-347018	A-347018
Mechanical Seal, External	11	W	316 SS/Carbon	A-347016	A-347016
Mechanical Seal, External	11	X	316 SS/Teflon	A-347010	A-347010
Mechanical Seal, Double	11	F	316 SS/Carbon	A-347014	A-347014
Mechanical Seal, Double	11	H	316 SS/Teflon	A-347020	A-347020
Seal Seat, Outer	24	U, S, W, X, F, H	SiC	351534	351534
Seal Seat, Inner	25	F, H	SiC	351547	351547
Gland Plate, SMS & EMS	17	U, S, W, X	Alloy-C	351726	351726
Gland Plate, DMS	17	F, H	316 SS	351724	351724
Screw, Gland (1/4-28 x 1 HHCS)	16	U, S, W, X, F, H	18-8 SS	362005 (2)	362005 (2)
Lockwasher, Gland (1/4)	19	U, S, W, X, F, H	18-8 SS	863701 (2)	863701 (2)
Plug, 1/8 NPT	9	U, S, W, X	Alloy-C	362301 (2)	362301 (2)
U-Cup Lip Seal	11	J	Viton	351412	351412
Gland Plate, PS	17	J	Alloy-C	351511	351511
Screw, Gland (1/4-28 x 5/8 HHCS)	16	J	18-8 SS	S620013 (2)	S620013 (2)
Lockwasher, Gland (1/4)	19	J	18-8 SS	863701 (2)	863701 (2)
Bull Ring	-	J	Teflon	342702 (2)	342702 (2)
Conical Spring	-	J	Alloy-C	861203	861203

See page 14 for Reference Drawing.

Liquiflo Chemical Processing Pumps™	3-Series Gear Pumps BOM: SEALED, LC Models 31F & 33F
------------------------------------------------------	---------------------------------------------------------------------------

Part Description	Drwg. Item #	Alloy-C Construction			
		Code	Material	31F	33F
Position 8 – Seal Type [Continued]					
Packing Ring	18	L	Teflon	356501 (5)	356501 (5)
Packing Ring	18	R	Graphoil	356409 (5)	356409 (5)
Lantern Ring	11	L, R	Alloy-C	357111	357111
Gland Plate	17	L, R	Alloy-C	351512	351512
Screw, Gland (1/4-28 x 1 HHCS)	16	L, R	18-8 SS	362005 (2)	362005 (2)
Grease Fitting, 1/8 NPT	24	L, R	303 SS	867201	867201
Plug, 1/8 NPT	9	L, R	Alloy-C	362301	362301
Position 9 – Bearing Flush Option (Front & Rear Housings)					
Front Housing, Standard – SMS/EMS/PS	8	0 (Pos. 8 = U,S,W,X,L,R)	Alloy-C	350110	350110
Front Housing, EBF – SMS/EMS/PS	8	1 (Pos. 8 = U,S,W,X,L,R)	Alloy-C	350117	350117
Front Housing, IBF – SMS/EMS/PS	8	2 (Pos. 8 = U,S,W,X,L,R)	Alloy-C	350112	350112
Front Housing, Standard – DMS	8	0 (Pos. 8 = F, H)	Alloy-C	350210	350210
Front Housing, EBF – DMS	8	1 (Pos. 8 = F, H)	Alloy-C	350217	350217
Front Housing, IBF – DMS	8	2 (Pos. 8 = F, H)	Alloy-C	350212	350212
Front Housing, Std. – U-Cup Lip Seal	8	0 (Pos. 8 = J)	Alloy-C	350119	350119
Rear Housing, Standard	2	0	Alloy-C	340215	340215
Rear Housing, External Bearing Flush	2	1	Alloy-C	340234	340234
Rear Housing, Internal Bearing Flush	2	2	Alloy-C	340241	340241
Plug, 1/8 NPT	9	1	Alloy-C	362301 (3)	362301 (3)
Position 10 – Shafts					
Drive Shaft, Uncoated – Excluding EMS	20	0	Alloy-C	320303	320303
Drive Shaft, CO-Coated – Excluding EMS	20	1	Alloy-C/CO	320303-CO	320303-CO
Drive Shaft, TC-Coated – Excluding EMS	20	2	Alloy-C/TC	320303-TC	320303-TC
Drive Shaft, Uncoated – EMS	20	0 (Pos. 8 = W, X)	Alloy-C	320307	320307
Drive Shaft, CO-Coated – EMS	20	1 (Pos. 8 = W, X)	Alloy-C/CO	320307-CO	320307-CO
Drive Shaft, TC-Coated – EMS	20	2 (Pos. 8 = W, X)	Alloy-C/TC	320307-TC	320307-TC
Idler Shaft, Uncoated	1	0	Alloy-C	320304	320304
Idler Shaft, CO-Coated	1	1	Alloy-C/CO	320304-CO	320304-CO
Idler Shaft, TC-Coated	1	2	Alloy-C/TC	320304-TC	320304-TC
Position 11 – O-Rings/Gaskets					
O-ring, Housing (2-033)	5	0	Teflon	341102 (2)	341102 (2)
Gasket, Seal Seat, Outer (MS only)	18	0	Teflon	351106 (2)	351106 (2)
O-ring, Seal Seat, Inner (2-020; DMS only)	26	0	Viton	310691	310691
O-ring, Housing (2-033)	5	6	Silicone/FEP	341113 (2)	341113 (2)
Gasket, Seal Seat, Outer (MS only)	18	6	Teflon	351106 (2)	351106 (2)
O-ring, Seal Seat, Inner (2-020; DMS only)	26	6	Kalrez	310694	310694
O-ring, Housing (2-033)	5	B	Buna-N	341105 (2)	341105 (2)
Gasket, Seal Seat, Outer (MS only)	18	B	Buna-N	351105 (2)	351105 (2)
O-ring, Seal Seat, Inner (2-020; DMS only)	26	B	Buna-N	310693	310693
O-ring, Housing (2-033)	5	E	EPDM	341103 (2)	341103 (2)
Gasket, Seal Seat, Outer (MS only)	18	E	EPDM	351108 (2)	351108 (2)
O-ring, Seal Seat, Inner (2-020; DMS only)	26	E	EPDM	310692	310692
O-ring, Housing (2-033)	5	V	Viton	341108 (2)	341108 (2)
Gasket, Seal Seat, Outer (MS only)	18	V	Viton	351109 (2)	351109 (2)
O-ring, Seal Seat, Inner (2-020; DMS only)	26	V	Viton	310691	310691
O-ring, Housing (2-033)	5	K	Kalrez	341109 (2)	341109 (2)
Gasket, Seal Seat, Outer (MS only)	18	K	Kalrez	351110 (2)	351110 (2)
O-ring, Seal Seat, Inner (2-020; DMS only)	26	K	Kalrez	310694	310694
Position 12 – Retaining Rings					
Retaining Ring, Gear	14	0	Alloy-C	346701 (4)	346701 (4)
Position 13 – Bearing Pins					
Pin, Bearing Lock	13	0	Teflon	361801 (4)	361801 (4)
Pin, Bearing Lock (High Temperature)	13	1	Alloy-C	361806 (4)	361806 (4)
Position 14 – Coupling Method					
Long-Coupled	-	9	-	X	X
Suffix – Trim Options					
Temperature Trim (Gears & Bearings)	-	-8(T) ¹	-	Consult Factory	
Viscosity Trim (Gears)	-	-9D, -9T	-		

1 - T = Application Temperature in °F (e.g., -8(300) = Temperature Trim at 300°F).

Liquiflo Chemical Processing Pumps™	3-Series Gear Pumps BOM: SEALED, CC Models 31F & 33F
-----------------------------------------------	---------------------------------------------------------------------------

Part Description	Drwg. Item #	316 Stainless Steel Construction			
		Code	Material	31F	33F
Position 3 – Basic Material & Port Type (Center Housing, Alignment Pins & Hardware)					
Center Housing, NPT	21	S	316 SS	320001	320001
Center Housing, Flanged (ANSI 150# RF)	21	L	316 SS	320007	320007
Center Housing, BSPT	21	X	316 SS	320003	320003
Pin, Housing Alignment	12	S, L, X	316 SS	360801 (4)	360801 (4)
Bolt, Housing (#10-32 x 1.50 HHCS)	4	S, L, X	18-8 SS	322005 (4)	322005 (4)
Nut, Housing (#10-32)	10	S, L, X	18-8 SS	342101 (4)	342101 (4)
Lockwasher, Housing (#10)	15	S, L, X	18-8 SS	5018 (4)	5018 (4)
Position 4 – Drive Gear					
Gear	22	1	Alloy-C	310680	320608
Gear	22	3	Teflon	X	320600
Gear	22	6	316 SS	310685	320605
Gear	22	P	PEEK	310684	320603
Key, Gear (HY)	23A	1, 6, P	316 SS	321903	321903
Key, Gear (LY)	23A	3	316 SS	X	321901
Position 5 – Idler Gear					
Gear	6	1	Alloy-C	310680	320608
Gear	6	2	Carbon	X	320611
Gear	6	3	Teflon	X	320600
Gear	6	6	316 SS	310685	320605
Gear	6	8	Ryton	310682	320601
Gear	6	P	PEEK	310684	320603
Key, Gear (HY)	23B	1, 2, 6, 8, P	316 SS	321903	321903
Key, Gear (LY)	23B	3	316 SS	X	321901
Position 6 – Wear Plates					
Wear Plate, Relieved (obsolete)	7	2	Carbon	Use Code E	Use Code E
Wear Plate, Relieved	7	3	Teflon	310590 (4)	340521 (4)
Wear Plate, Relieved	7	4	SiC	310597 (4)	340582 (4)
Wear Plate, Relieved	7	E	Carbon 60	310596 (4)	340523 (4)
Wear Plate, Relieved	7	P	PEEK	310591 (4)	340524 (4)
Position 7 – Bearings					
Bearing, Short/Long (obsolete)	3A/3B	2	Carbon	Use Code E	Use Code E
Bearing, Short	3A	3	Teflon	340402 (3)	340402 (3)
Bearing, Long	3B	3	Teflon	340401 (1)	340401 (1)
Bearing, Short	3A	B	SiC	340413 (3)	340413 (3)
Bearing, Long	3B	B	SiC	340424 (1)	340424 (1)
Bearing, Short	3A	E	Carbon 60	340416 (3)	340416 (3)
Bearing, Long	3B	E	Carbon 60	340423 (1)	340423 (1)
Bearing, Short	3A	P	PEEK	340417 (3)	340417 (3)
Bearing, Long	3B	P	PEEK	340418 (1)	340418 (1)
Position 8 – Seal Type					
Mechanical Seal, Single Internal	11	U	316 SS/Carbon	A-347016	A-347016
Mechanical Seal, Single Internal	11	S	316 SS/Teflon	A-347010	A-347010
Mechanical Seal, External	11	W	316 SS/Carbon	A-347016	A-347016
Mechanical Seal, External	11	X	316 SS/Teflon	A-347010	A-347010
Mechanical Seal, Double	11	F	316 SS/Carbon	A-347014	A-347014
Mechanical Seal, Double	11	H	316 SS/Teflon	A-347020	A-347020
Seal Housing, SMS/DMS/PS	28	U, S, F, H	316 SS	350270	350270
Seal Housing, EMS	28	W, X	316 SS	350273	350273
Seal Seat, Outer	24	U, S, W, X, F, H	SiC	351534	351534
Seal Seat, Inner	25	F, H	SiC	351547	351547
Gland Plate, SMS/EMS/DMS	17	U, S, W, X, F, H	316 SS	351724	351724
Screw, Gland (1/4-28 x 1 HHCS)	16	U, S, W, X, F, H	18-8 SS	362005 (2)	362005 (2)
Lockwasher, Gland (1/4)	19	U, S, W, X, F, H	18-8 SS	863701 (2)	863701 (2)
Plug, 1/8 NPT	9	U, S, W, X	316 SS	362304 (2)	362304 (2)
Packing Ring	43	L	Teflon	356501 (5)	356501 (5)
Packing Ring	43	R	Graphoil	356409 (5)	356409 (5)

See page 15 for Reference Drawing.

Liquiflo Chemical Processing Pumps™	3-Series Gear Pumps BOM: SEALED, CC Models 31F & 33F
------------------------------------------------------	---------------------------------------------------------------------------

Part Description	Drwg. Item #	316 Stainless Steel Construction			
		Code	Material	31F	33F
Position 8 – Seal Type [Continued]					
Seal Housing, SMS/DMS/PS	28	L, R	316 SS	350270	350270
Lantern Ring	44	L, R	316 SS	357110	357110
Gland Plate, PS	17	L, R	316 SS	351504	351504
Screw, Gland (1/4-28 x 1 HHCS)	16	L, R	18-8 SS	362005 (2)	362005 (2)
Grease Fitting, 1/8 NPT	45	L, R	303 SS	867201	867201
Plug, 1/8 NPT	9	L, R	316 SS	362304	362304
Position 9 – Bearing Flush Option (Front & Rear Housings)					
Front Housing, CC, Standard & EBF	8	0, 1	316 SS	S3500	S3500
Front Housing, CC, IBF	8	2	316 SS	S3503	S3503
Rear Housing, Standard	2	0	316 SS	340214	340214
Rear Housing, EBF	2	1	316 SS	340212	340212
Rear Housing, IBF	2	2	316 SS	340240	340240
Plug, 1/8 NPT	9	0, 2	316 SS	362304 (1)	362304 (1)
Plug, 1/8 NPT	9	1	316 SS	362304 (3)	362304 (3)
Position 10 – Shafts					
Drive Shaft, Uncoated	20	0	316 SS	320301	320301
Drive Shaft, CO-Coated	20	1	316 SS/CO	320301-CO	320301-CO
Drive Shaft, TC-Coated	20	2	316 SS/TC	320301-TC	320301-TC
Idler Shaft, Uncoated	1	0	316 SS	320302	320302
Idler Shaft, CO-Coated	1	1	316 SS/CO	320302-CO	320302-CO
Idler Shaft, TC-Coated	1	2	316 SS/TC	320302-TC	320302-TC
Position 11 – O-Rings/Gaskets					
O-ring, Housing (2-033)	5	0	Teflon	341102 (2)	341102 (2)
O-ring, Seal Housing (2-042)	27	0	Teflon	S4000	S4000
Gasket, Seal Seat, Outer (MS only)	18	0	Teflon	351106 (2)	351106 (2)
O-ring, Seal Seat, Inner (2-020; DMS only)	26	0	Viton	310691	310691
O-ring, Housing (2-033)	5	6	Silicone/FEP	341113 (2)	341113 (2)
O-ring, Seal Housing (2-042)	27	6	Silicone/FEP	371118	371118
Gasket, Seal Seat, Outer (MS only)	18	6	Teflon	351106 (2)	351106 (2)
O-ring, Seal Seat, Inner (2-020; DMS only)	26	6	Kalrez	310694	310694
O-ring, Housing (2-033)	5	B	Buna-N	341105 (2)	341105 (2)
O-ring, Seal Housing (2-042)	27	B	Buna-N	S4003	S4003
Gasket, Seal Seat, Outer (MS only)	18	B	Buna-N	351105 (2)	351105 (2)
O-ring, Seal Seat, Inner (2-020; DMS only)	26	B	Buna-N	310693	310693
O-ring, Housing (2-033)	5	E	EPDM	341103 (2)	341103 (2)
O-ring, Seal Housing (2-042)	27	E	EPDM	S4001	S4001
Gasket, Seal Seat, Outer (MS only)	18	E	EPDM	351108 (2)	351108 (2)
O-ring, Seal Seat, Inner (2-020; DMS only)	26	E	EPDM	310692	310692
O-ring, Housing (2-033)	5	V	Viton	341108 (2)	341108 (2)
O-ring, Seal Housing (2-042)	27	V	Viton	S4002	S4002
Gasket, Seal Seat, Outer (MS only)	18	V	Viton	351109 (2)	351109 (2)
O-ring, Seal Seat, Inner (2-020; DMS only)	26	V	Viton	310691	310691
O-ring, Housing (2-033)	5	K	Kalrez	341109 (2)	341109 (2)
O-ring, Seal Housing (2-042)	27	K	Kalrez	S4004	S4004
Gasket, Seal Seat, Outer (MS only)	18	K	Kalrez	351110 (2)	351110 (2)
O-ring, Seal Seat, Inner (2-020; DMS only)	26	K	Kalrez	310694	310694
Position 12 – Retaining Rings					
Retaining Ring, Gear	14	0	316 SS	346702 (4)	346702 (4)
Position 13 – Bearing Pins					
Pin, Bearing Lock	13	0	Teflon	361801 (4)	361801 (4)
Pin, Bearing Lock (High Temperature)	13	6	316 SS	361807 (4)	361807 (4)
Position 14 – Coupling Method					
Close-Coupled (Additional Parts)	–	0 thru 5	–	See Appendix 3	
Suffix – Trim Options					
Temperature Trim (Gears & Bearings)	–	-8(T) ¹	–	Consult Factory	
Viscosity Trim (Gears)	–	-9D, -9T	–		

1 - T = Application Temperature in °F (e.g., -8(300) = Temperature Trim at 300°F).

Liquiflo Chemical Processing Pumps™	3-Series Gear Pumps BOM: SEALED, CC Models 31F & 33F
------------------------------------------------------	---------------------------------------------------------------------------

Part Description	Drwg. Item #	Alloy-C Construction			
		Code	Material	31F	33F
Position 3 – Basic Material & Port Type (Center Housing, Alignment Pins & Hardware)					
Center Housing, NPT	21	H	Alloy-C	320002	320002
Center Housing, Flanged (ANSI 150# RF)	21	C	Alloy-C	320008	320008
Center Housing, BSPT	21	Y	Alloy-C	320004	320004
Pin, Housing Alignment	12	H, C, Y	Alloy-C	360804 (4)	360804 (4)
Bolt, Housing (#10-32 x 1.50 HHCS)	4	H, C, Y	18-8 SS	322005 (4)	322005 (4)
Nut, Housing (#10-32)	10	H, C, Y	18-8 SS	342101 (4)	342101 (4)
Lockwasher, Housing (#10)	15	H, C, Y	18-8 SS	5018 (4)	5018 (4)
Position 4 – Drive Gear					
Gear	22	1	Alloy-C	310680	320608
Gear	22	3	Teflon	X	320600
Gear	22	6	316 SS	X	X
Gear	22	P	PEEK	310684	320603
Key, Gear (HY)	23A	1, P	Alloy-C	321904	321904
Key, Gear (LY)	23A	3	Alloy-C	X	321902
Position 5 – Idler Gear					
Gear	6	1	Alloy-C	310680	320608
Gear	6	2	Carbon	X	320611
Gear	6	3	Teflon	X	320600
Gear	6	6	316 SS	X	X
Gear	6	8	Ryton	310682	320601
Gear	6	P	PEEK	310684	320603
Key, Gear (HY)	23B	1, 2, 8, P	Alloy-C	321904	321904
Key, Gear (LY)	23B	3	Alloy-C	X	321902
Position 6 – Wear Plates					
Wear Plate, Relieved (obsolete)	7	2	Carbon	Use Code E	Use Code E
Wear Plate, Relieved	7	3	Teflon	310590 (4)	340521 (4)
Wear Plate, Relieved	7	4	SiC	310597 (4)	340582 (4)
Wear Plate, Relieved	7	E	Carbon 60	310596 (4)	340523 (4)
Wear Plate, Relieved	7	P	PEEK	310591 (4)	340524 (4)
Position 7 – Bearings					
Bearing, Short/Long (obsolete)	3A/3B	2	Carbon	Use Code E	Use Code E
Bearing, Short	3A	3	Teflon	340402 (3)	340402 (3)
Bearing, Long	3B	3	Teflon	340401 (1)	340401 (1)
Bearing, Short	3A	B	SiC	340413 (3)	340413 (3)
Bearing, Long	3B	B	SiC	340424 (1)	340424 (1)
Bearing, Short	3A	E	Carbon 60	340416 (3)	340416 (3)
Bearing, Long	3B	E	Carbon 60	340423 (1)	340423 (1)
Bearing, Short	3A	P	PEEK	340417 (3)	340417 (3)
Bearing, Long	3B	P	PEEK	340418 (1)	340418 (1)
Position 8 – Seal Type					
Mechanical Seal, Single Internal	11	U	Alloy-C/Carbon	A-347017	A-347017
Mechanical Seal, Single Internal	11	S	Alloy-C/Teflon	A-347018	A-347018
Mechanical Seal, External	11	W	316 SS/Carbon	A-347016	A-347016
Mechanical Seal, External	11	X	316 SS/Teflon	A-347010	A-347010
Mechanical Seal, Double	11	F	316 SS/Carbon	A-347014	A-347014
Mechanical Seal, Double	11	H	316 SS/Teflon	A-347020	A-347020
Seal Housing, SMS/DMS/PS	28	U, S, F, H	Alloy-C	350271	350271
Seal Housing, EMS	28	W, X	Alloy-C	350272	350272
Seal Seat, Outer	24	U, S, W, X, F, H	SiC	351534	351534
Seal Seat, Inner	25	F, H	SiC	351547	351547
Gland Plate, SMS & EMS	17	U, S, W, X	Alloy-C	351726	351726
Gland Plate, DMS	17	F, H	316 SS	351724	351724
Screw, Gland (1/4-28 x 1 HHCS)	16	U, S, W, X, F, H	18-8 SS	362005 (2)	362005 (2)
Lockwasher, Gland (1/4)	19	U, S, W, X, F, H	18-8 SS	863701 (2)	863701 (2)
Plug, 1/8 NPT	9	U, S, W, X	Alloy-C	362301 (2)	362301 (2)
Packing Ring	43	L	Teflon	356501 (5)	356501 (5)
Packing Ring	43	R	Graphoil	356409 (5)	356409 (5)

See page 15 for Reference Drawing.

Liquiflo Chemical Processing Pumps™	3-Series Gear Pumps BOM: SEALED, CC Models 31F & 33F
------------------------------------------------------	---------------------------------------------------------------------------

Part Description	Drwg. Item #	Alloy-C Construction			
		Code	Material	31F	33F
Position 8 – Seal Type [Continued]					
Seal Housing, SMS/DMS/PS	28	L, R	Alloy-C	350271	350271
Lantern Ring	44	L, R	Alloy-C	357111	357111
Gland Plate, PS	17	L, R	Alloy-C	351512	351512
Screw, Gland (1/4-28 x 1 HHCS)	16	L, R	18-8 SS	362005 (2)	362005 (2)
Grease Fitting, 1/8 NPT	45	L, R	303 SS	867201	867201
Plug, 1/8 NPT	9	L, R	Alloy-C	362301	362301
Position 9 – Bearing Flush Option (Front & Rear Housings)					
Front Housing, CC, Standard & EBF	8	0, 1	Alloy-C	S3501	S3501
Front Housing, CC, IBF	8	2	Alloy-C	S3504	S3504
Rear Housing, Standard	2	0	Alloy-C	340215	340215
Rear Housing, EBF	2	1	Alloy-C	340234	340234
Rear Housing, IBF	2	2	Alloy-C	340241	340241
Plug, 1/8 NPT	9	0, 2	Alloy-C	362301 (1)	362301 (1)
Plug, 1/8 NPT	9	1	Alloy-C	362301 (3)	362301 (3)
Position 10 – Shafts					
Drive Shaft, Uncoated	20	0	Alloy-C	320303	320303
Drive Shaft, CO-Coated	20	1	Alloy-C/CO	320303-CO	320303-CO
Drive Shaft, TC-Coated	20	2	Alloy-C/TC	320303-TC	320303-TC
Idler Shaft, Uncoated	1	0	Alloy-C	320304	320304
Idler Shaft, CO-Coated	1	1	Alloy-C/CO	320304-CO	320304-CO
Idler Shaft, TC-Coated	1	2	Alloy-C/TC	320304-TC	320304-TC
Position 11 – O-Rings/Gaskets					
O-ring, Housing (2-033)	5	0	Teflon	341102 (2)	341102 (2)
O-ring, Seal Housing (2-042)	27	0	Teflon	S4000	S4000
Gasket, Seal Seat, Outer (MS only)	18	0	Teflon	351106 (2)	351106 (2)
O-ring, Seal Seat, Inner (2-020; DMS only)	26	0	Viton	310691	310691
O-ring, Housing (2-033)	5	6	Silicone/FEP	341113 (2)	341113 (2)
O-ring, Seal Housing (2-042)	27	6	Silicone/FEP	371118	371118
Gasket, Seal Seat, Outer (MS only)	18	6	Teflon	351106 (2)	351106 (2)
O-ring, Seal Seat, Inner (2-020; DMS only)	26	6	Kalrez	310694	310694
O-ring, Housing (2-033)	5	B	Buna-N	341105 (2)	341105 (2)
O-ring, Seal Housing (2-042)	27	B	Buna-N	S4003	S4003
Gasket, Seal Seat, Outer (MS only)	18	B	Buna-N	351105 (2)	351105 (2)
O-ring, Seal Seat, Inner (2-020; DMS only)	26	B	Buna-N	310693	310693
O-ring, Housing (2-033)	5	E	EPDM	341103 (2)	341103 (2)
O-ring, Seal Housing (2-042)	27	E	EPDM	S4001	S4001
Gasket, Seal Seat, Outer (MS only)	18	E	EPDM	351108 (2)	351108 (2)
O-ring, Seal Seat, Inner (2-020; DMS only)	26	E	EPDM	310692	310692
O-ring, Housing (2-033)	5	V	Viton	341108 (2)	341108 (2)
O-ring, Seal Housing (2-042)	27	V	Viton	S4002	S4002
Gasket, Seal Seat, Outer (MS only)	18	V	Viton	351109 (2)	351109 (2)
O-ring, Seal Seat, Inner (2-020; DMS only)	26	V	Viton	310691	310691
O-ring, Housing (2-033)	5	K	Kalrez	341109 (2)	341109 (2)
O-ring, Seal Housing (2-042)	27	K	Kalrez	S4004	S4004
Gasket, Seal Seat, Outer (MS only)	18	K	Kalrez	351110 (2)	351110 (2)
O-ring, Seal Seat, Inner (2-020; DMS only)	26	K	Kalrez	310694	310694
Position 12 – Retaining Rings					
Retaining Ring, Gear	14	0	Alloy-C	346701 (4)	346701 (4)
Position 13 – Bearing Pins					
Pin, Bearing Lock	13	0	Teflon	361801 (4)	361801 (4)
Pin, Bearing Lock (High Temperature)	13	1	Alloy-C	361806 (4)	361806 (4)
Position 14 – Coupling Method					
Close-Coupled (Additional Parts)	–	0 thru 5	–	See Appendix 3	
Suffix – Trim Options					
Temperature Trim (Gears & Bearings)	–	-8(T) ¹	–	Consult Factory	
Viscosity Trim (Gears)	–	-9D, -9T	–		

1 - T = Application Temperature in °F (e.g., -8(300) = Temperature Trim at 300°F).

Liquiflo Chemical Processing Pumps™	3-Series Gear Pumps BOM: MAG-DRIVE, CC Models 31F & 33F
-----------------------------------------------	------------------------------------------------------------------------------

Part Description	Drwg. Item #	316 Stainless Steel Construction			
		Code	Material	31F	33F
Position 3 – Basic Material & Port Type (Center Housing, Alignment Pins & Hardware)					
Center Housing, NPT	21	S	316 SS	320001	320001
Center Housing, Flanged (ANSI 150# RF)	21	L	316 SS	320007	320007
Center Housing, BSPT	21	X	316 SS	320003	320003
Pin, Housing Alignment	24	S, L, X	316 SS	360801 (4)	360801 (4)
Bolt, Housing (#10-32 x 1.50 HHCS)	4	S, L, X	18-8 SS	322005 (4)	322005 (4)
Nut, Housing (#10-32)	29	S, L, X	18-8 SS	342101 (4)	342101 (4)
Lockwasher, Housing (#10)	30	S, L, X	18-8 SS	5018 (4)	5018 (4)
Bolt, Front Housing (3/8-16 x 1.50 HHCS)	27	S, L, X	18-8 SS	620833 (4)	620833 (4)
Nut, Front Housing (3/8-16)	26	S, L, X	18-8 SS	S1003 (4)	S1003 (4)
Lockwasher, Front Housing (3/8)	31	S, L, X	18-8 SS	S1004 (4)	S1004 (4)
Bolt, Containment Can (1/4-28 x 5/8 HHCS)	18	S, L, X	18-8 SS	S620013 (6)	S620013 (6)
Lockwasher, Containment Can (1/4)	32	S, L, X	18-8 SS	863701 (6)	863701 (6)
Position 4 – Drive Gear					
Gear	22	1	Alloy-C	310680	320608
Gear	22	3	Teflon	X	320600
Gear	22	6	316 SS	310685	320605
Gear	22	P	PEEK	310684	320603
Key, Gear (HY)	23A	1, 6, P	316 SS	321903	321903
Key, Gear (LY)	23A	3	316 SS	X	321901
Position 5 – Idler Gear					
Gear	6	1	Alloy-C	310680	320608
Gear	6	2	Carbon	X	320611
Gear	6	3	Teflon	X	320600
Gear	6	6	316 SS	310685	320605
Gear	6	8	Ryton	310682	320601
Gear	6	P	PEEK	310684	320603
Key, Gear (HY)	23B	1, 2, 6, 8, P	316 SS	321903	321903
Key, Gear (LY)	23B	3	316 SS	X	321901
Position 6 – Wear Plates					
Wear Plate, Relieved (obsolete)	7	2	Carbon	Use Code E	Use Code E
Wear Plate, Relieved	7	3	Teflon	310590 (4)	340521 (4)
Wear Plate, Relieved	7	4	SiC	310597 (4)	340582 (4)
Wear Plate, Relieved	7	E	Carbon 60	310596 (4)	340523 (4)
Wear Plate, Relieved	7	P	PEEK	310591 (4)	340524 (4)
Position 7 – Bearings					
Bearing, Short / Long (obsolete)	3A/3B	2	Carbon	Use Code E	Use Code E
Bearing, Short	3A	3	Teflon	340402 (3)	340402 (3)
Bearing, Long	3B	3	Teflon	340401 (1)	340401 (1)
Bearing, Short	3A	B	SiC	340413 (3)	340413 (3)
Bearing, Long	3B	B	SiC	340424 (1)	340424 (1)
Bearing, Short	3A	E	Carbon 60	340416 (3)	340416 (3)
Bearing, Long	3B	E	Carbon 60	340423 (1)	340423 (1)
Bearing, Short	3A	P	PEEK	340417 (3)	340417 (3)
Bearing, Long	3B	P	PEEK	340418 (1)	340418 (1)
Position 8 – Outer Magnet Bore (Pedestal, Shims, Adapter & Motor-Mounting Hardware)					
Pedestal – 5/8" (NEMA 56C)	16	0	CI/Epoxy	SP000	SP000
Pedestal – 7/8" (NEMA 143/145TC)	16	1	CI/Epoxy	SP000	SP000
Pedestal – 14 mm (IEC 71 - B5)	16	2	CI/Epoxy	SP001	SP001
Pedestal – 19 mm (IEC 80 - B5)	16	3	CI/Epoxy	SP002	SP002
Pedestal – 24 mm (IEC 90 - B5)	16	4	CI/Epoxy	SP002	SP002
Pedestal – 1-1/8" (NEMA 182/184TC)	16	5	CI/Epoxy	SP000	SP000
Shim, Pedestal (NEMA 182/184TC)	-	5	303 SS	SHIM-S105 (4)	SHIM-S105 (4)
Adapter Plate (NEMA 182/184TC)	-	5	CS/Epoxy	SP0046	SP0046
Motor-Mounting Hardware	15/34	0 thru 5	18-8 SS	See Appendix 4	

See page 16 for Reference Drawing.

Liquiflo Chemical Processing Pumps™	3-Series Gear Pumps BOM: MAG-DRIVE, CC Models 31F & 33F
------------------------------------------------------	------------------------------------------------------------------------------

Part Description	Drwg. Item #	316 Stainless Steel Construction			
		Code	Material	31F	33F
Position 9 – Bearing Flush Option (Front & Rear Housings)					
Front Housing, MC, Standard & EBF	8	0, 1	316 SS	S3500	S3500
Front Housing, MC, IBF	8	2	316 SS	S3503	S3503
Rear Housing, Standard	2	0	316 SS	340214	340214
Rear Housing, EBF	2	1	316 SS	340212	340212
Rear Housing, IBF	2	2	316 SS	340240	340240
Plug, 1/8 NPT	9	0, 2	316 SS	362304 (1)	362304 (1)
Plug, 1/8 NPT	9	1	316 SS	362304 (3)	362304 (3)
Position 10 – Shafts					
Drive Shaft, MC, Uncoated	20	0	316 SS	S3330B	S3330B
Drive Shaft, MC, CO-Coated	20	1	316 SS/CO	S3330B-CO	S3330B-CO
Drive Shaft, MC, TC-Coated	20	2	316 SS/TC	S3330B-TC	S3330B-TC
Idler Shaft, Uncoated	1	0	316 SS	320302	320302
Idler Shaft, CO-Coated	1	1	316 SS/CO	320302-CO	320302-CO
Idler Shaft, TC-Coated	1	2	316 SS/TC	320302-TC	320302-TC
Position 11 – O-Rings					
O-ring, Housing (2-033)	5	0	Teflon	341102 (2)	341102 (2)
O-ring, Containment Can (2-042)	19	0	Teflon	S4000	S4000
O-ring, Housing (2-033)	5	6	Silicone/FEP	341113 (2)	341113 (2)
O-ring, Containment Can (2-042)	19	6	Silicone/FEP	371118	371118
O-ring, Housing (2-033)	5	B	Buna-N	341105 (2)	341105 (2)
O-ring, Containment Can (2-042)	19	B	Buna-N	S4003	S4003
O-ring, Housing (2-033)	5	E	EPDM	341103 (2)	341103 (2)
O-ring, Containment Can (2-042)	19	E	EPDM	S4001	S4001
O-ring, Housing (2-033)	5	V	Viton	341108 (2)	341108 (2)
O-ring, Containment Can (2-042)	19	V	Viton	S4002	S4002
O-ring, Housing (2-033)	5	K	Kalrez	341109 (2)	341109 (2)
O-ring, Containment Can (2-042)	19	K	Kalrez	S4004	S4004
Position 12 – Retaining Rings					
Retaining Ring (Gears & Inner Magnet)	28	0	316 SS	346702 (6)	346702 (6)
Position 13 – Bearing Pins					
Pin, Bearing Lock	25	0	Teflon	361801 (4)	361801 (4)
Pin, Bearing Lock (High Temperature)	25	6	316 SS	361807 (4)	361807 (4)
Position 14 – Magnetic Coupling					
Inner Magnet, MCU – 3/8" Bore	11	U	316 SS/SmCo	SIMCU-03	SIMCU-03
Outer Magnet, MCU – NEMA 56C	10	U (Pos. 8 = 0)	CS/ SmCo	SOMCU-5	SOMCU-5
Outer Magnet, MCU – NEMA 143/145TC	10	U (Pos. 8 = 1)	CS/ SmCo	SOMCU-7	SOMCU-7
Outer Magnet, MCU – IEC 71 (B5)	10	U (Pos. 8 = 2)	CS/ SmCo	SOMCU-71	SOMCU-71
Outer Magnet, MCU – IEC 80 (B5)	10	U (Pos. 8 = 3)	CS/ SmCo	SOMCU-80	SOMCU-80
Outer Magnet, MCU – IEC 90 (B5)	10	U (Pos. 8 = 4)	CS/ SmCo	SOMCU-90	SOMCU-90
Outer Magnet, MCU – NEMA 182/184TC	10	U (Pos. 8 = 5)	CS/ SmCo	SOMCU-9	SOMCU-9
Inner Magnet, MCB – 3/8" Bore	11	B	316 SS/SmCo	SIMCB-03	SIMCB-03
Outer Magnet, MCB – NEMA 56C	10	B (Pos. 8 = 0)	CS/ SmCo	SOMCB-5	SOMCB-5
Outer Magnet, MCB – NEMA 143/145TC	10	B (Pos. 8 = 1)	CS/ SmCo	SOMCB-7	SOMCB-7
Outer Magnet, MCB – IEC 71 (B5)	10	B (Pos. 8 = 2)	CS/ SmCo	SOMCB-71	SOMCB-71
Outer Magnet, MCB – IEC 80 (B5)	10	B (Pos. 8 = 3)	CS/ SmCo	SOMCB-80	SOMCB-80
Outer Magnet, MCB – IEC 90 (B5)	10	B (Pos. 8 = 4)	CS/ SmCo	SOMCB-90	SOMCB-90
Outer Magnet, MCB – NEMA 182/184TC	10	B (Pos. 8 = 5)	CS/ SmCo	SOMCB-9	SOMCB-9
Key, Inner Magnet	13	U, B	316 SS	341906	341906
Position 15 – Containment Can					
Containment Can, Single Wall (Domed)	12	S	316 SS	S2002	S2002
Dual Kan Option (Modified Parts)	12	D	316 SS	Consult Factory	
Suffix – Trim Options					
Temperature Trim (Gears & Bearings)	–	-8(T) ¹	–	Consult Factory	
Viscosity Trim (Gears)	–	-9D, -9T	–		

1 - T = Application Temperature in °F (e.g., -8(300) = Temperature Trim at 300°F).

Liquiflo Chemical Processing Pumps™	3-Series Gear Pumps BOM: MAG-DRIVE, CC Models 31F & 33F
------------------------------------------------------	------------------------------------------------------------------------------

Part Description	Drwg. Item #	Alloy-C Construction			
		Code	Material	31F	33F
Position 3 – Basic Material & Port Type (Center Housing, Alignment Pins & Hardware)					
Center Housing, NPT	21	H	Alloy-C	320002	320002
Center Housing, Flanged (ANSI 150# RF)	21	C	Alloy-C	320008	320008
Center Housing, BSPT	21	Y	Alloy-C	320004	320004
Pin, Housing Alignment	24	H, C, Y	Alloy-C	360804 (4)	360804 (4)
Bolt, Housing (#10-32 x 1.50 HHCS)	4	H, C, Y	18-8 SS	322005 (4)	322005 (4)
Nut, Housing (#10-32)	29	H, C, Y	18-8 SS	342101 (4)	342101 (4)
Lockwasher, Housing (#10)	30	H, C, Y	18-8 SS	5018 (4)	5018 (4)
Bolt, Front Housing (3/8-16 x 1.50 HHCS)	27	H, C, Y	18-8 SS	620833 (4)	620833 (4)
Nut, Front Housing (3/8-16)	26	H, C, Y	18-8 SS	S1003 (4)	S1003 (4)
Lockwasher, Front Housing (3/8)	31	H, C, Y	18-8 SS	S1004 (4)	S1004 (4)
Bolt, Containment Can (1/4-28 x 5/8 HHCS)	18	H, C, Y	18-8 SS	S620013 (6)	S620013 (6)
Lockwasher, Containment Can (1/4)	32	H, C, Y	18-8 SS	863701 (6)	863701 (6)
Position 4 – Drive Gear					
Gear	22	1	Alloy-C	310680	320608
Gear	22	3	Teflon	X	320600
Gear	22	6	316 SS	X	X
Gear	22	P	PEEK	310684	320603
Key, Gear (HY)	23A	1, P	Alloy-C	321904	321904
Key, Gear (LY)	23A	3	Alloy-C	X	321902
Position 5 – Idler Gear					
Gear	6	1	Alloy-C	310680	320608
Gear	6	2	Carbon	X	320611
Gear	6	3	Teflon	X	320600
Gear	6	6	316 SS	X	X
Gear	6	8	Ryton	310682	320601
Gear	6	P	PEEK	310684	320603
Key, Gear (HY)	23B	1, 2, 8, P	Alloy-C	321904	321904
Key, Gear (LY)	23B	3	Alloy-C	X	321902
Position 6 – Wear Plates					
Wear Plate, Relieved (obsolete)	7	2	Carbon	Use Code E	Use Code E
Wear Plate, Relieved	7	3	Teflon	310590 (4)	340521 (4)
Wear Plate, Relieved	7	4	SiC	310597 (4)	340582 (4)
Wear Plate, Relieved	7	E	Carbon 60	310596 (4)	340523 (4)
Wear Plate, Relieved	7	P	PEEK	310591 (4)	340524 (4)
Position 7 – Bearings					
Bearing, Short / Long (obsolete)	3A/3B	2	Carbon	Use Code E	Use Code E
Bearing, Short	3A	3	Teflon	340402 (3)	340402 (3)
Bearing, Long	3B	3	Teflon	340401 (1)	340401 (1)
Bearing, Short	3A	B	SiC	340413 (3)	340413 (3)
Bearing, Long	3B	B	SiC	340424 (1)	340424 (1)
Bearing, Short	3A	E	Carbon 60	340416 (3)	340416 (3)
Bearing, Long	3B	E	Carbon 60	340423 (1)	340423 (1)
Bearing, Short	3A	P	PEEK	340417 (3)	340417 (3)
Bearing, Long	3B	P	PEEK	340418 (1)	340418 (1)
Position 8 – Outer Magnet Bore (Pedestal, Adapter & Motor-Mounting Hardware)					
Pedestal – 5/8" (NEMA 56C)	16	0	CI/Epoxy	SP000	SP000
Pedestal – 7/8" (NEMA 143/145TC)	16	1	CI/Epoxy	SP000	SP000
Pedestal – 14 mm (IEC 71 - B5)	16	2	CI/Epoxy	SP001	SP001
Pedestal – 19 mm (IEC 80 - B5)	16	3	CI/Epoxy	SP002	SP002
Pedestal – 24 mm (IEC 90 - B5)	16	4	CI/Epoxy	SP002	SP002
Pedestal – 1-1/8" (NEMA 182/184TC)	16	5	CI/Epoxy	SP000	SP000
Shim, Pedestal (NEMA 182/184TC)	-	5	303 SS	SHIM-S105 (4)	SHIM-S105 (4)
Adapter Plate (NEMA 182/184TC)	-	5	CS/Epoxy	SP0046	SP0046
Motor-Mounting Hardware	15/34	0 thru 5	18-8 SS	See Appendix 4	

See page 16 for Reference Drawing.

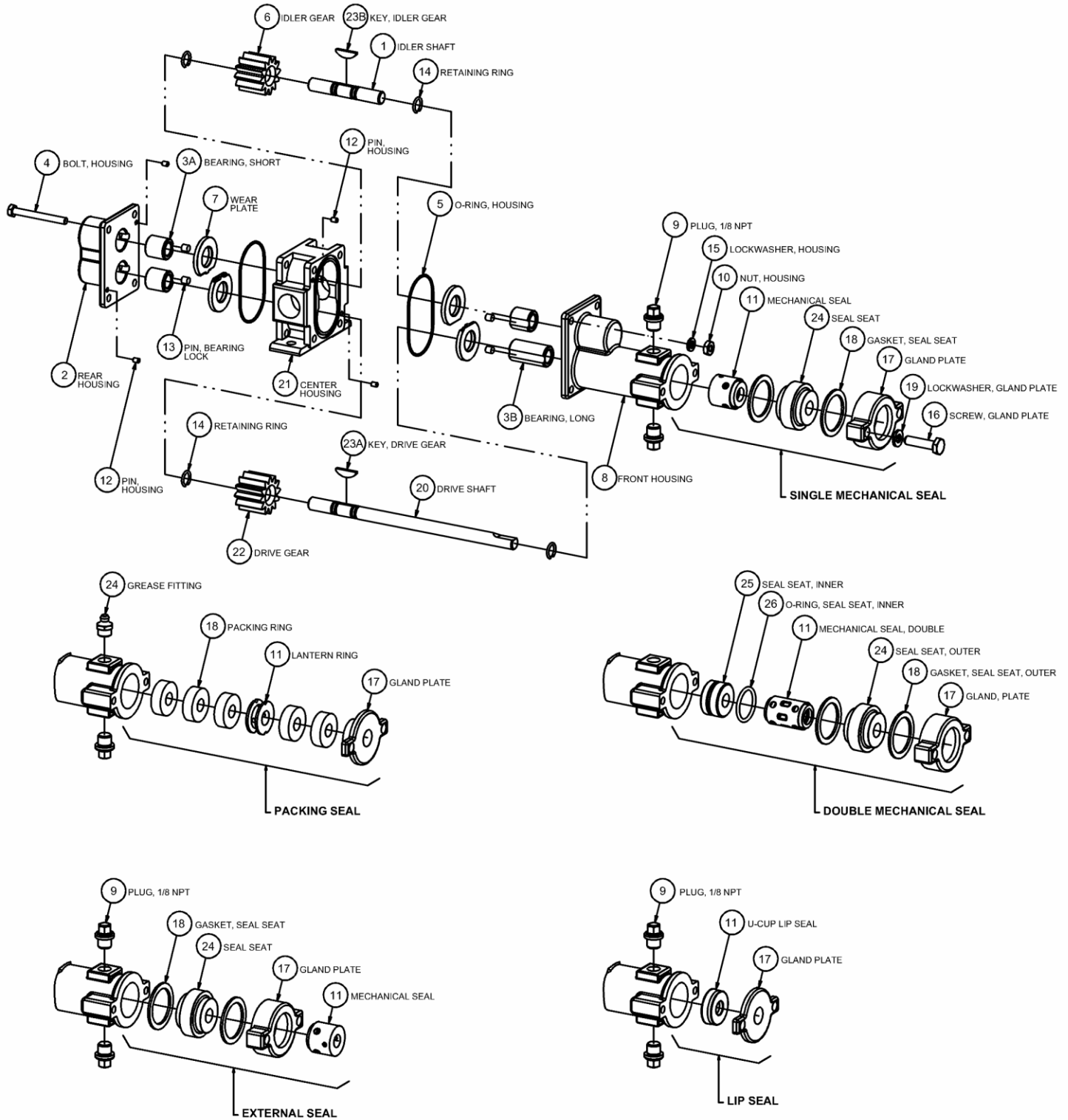
Liquiflo Chemical Processing Pumps™	3-Series Gear Pumps BOM: MAG-DRIVE, CC Models 31F & 33F
------------------------------------------------------	------------------------------------------------------------------------------

Part Description	Drwg. Item #	Alloy-C Construction			
		Code	Material	31F	33F
Position 9 – Bearing Flush Option (Front & Rear Housings)					
Front Housing, MC, Standard & EBF	8	0, 1	Alloy-C	S3501	S3501
Front Housing, MC, IBF	8	2	Alloy-C	S3504	S3504
Rear Housing, Standard	2	0	Alloy-C	340215	340215
Rear Housing, EBF	2	1	Alloy-C	340234	340234
Rear Housing, IBF	2	2	Alloy-C	340241	340241
Plug, 1/8 NPT	9	0, 2	Alloy-C	362301 (1)	362301 (1)
Plug, 1/8 NPT	9	1	Alloy-C	362301 (3)	362301 (3)
Position 10 – Shafts					
Drive Shaft, MC, Uncoated	20	0	Alloy-C	S3331B	S3331B
Drive Shaft, MC, CO-Coated	20	1	Alloy-C/CO	S3331B-CO	S3331B-CO
Drive Shaft, MC, TC-Coated	20	2	Alloy-C/TC	S3331B-TC	S3331B-TC
Idler Shaft, Uncoated	1	0	Alloy-C	320304	320304
Idler Shaft, CO-Coated	1	1	Alloy-C/CO	320304-CO	320304-CO
Idler Shaft, TC-Coated	1	2	Alloy-C/TC	320304-TC	320304-TC
Position 11 – O-Rings					
O-ring, Housing (2-033)	5	0	Teflon	341102 (2)	341102 (2)
O-ring, Containment Can (2-042)	19	0	Teflon	S4000	S4000
O-ring, Housing (2-033)	5	6	Silicone/FEP	341113 (2)	341113 (2)
O-ring, Containment Can (2-042)	19	6	Silicone/FEP	371118	371118
O-ring, Housing (2-033)	5	B	Buna-N	341105 (2)	341105 (2)
O-ring, Containment Can (2-042)	19	B	Buna-N	S4003	S4003
O-ring, Housing (2-033)	5	E	EPDM	341103 (2)	341103 (2)
O-ring, Containment Can (2-042)	19	E	EPDM	S4001	S4001
O-ring, Housing (2-033)	5	V	Viton	341108 (2)	341108 (2)
O-ring, Containment Can (2-042)	19	V	Viton	S4002	S4002
O-ring, Housing (2-033)	5	K	Kalrez	341109 (2)	341109 (2)
O-ring, Containment Can (2-042)	19	K	Kalrez	S4004	S4004
Position 12 – Retaining Rings					
Retaining Ring (Gears & Inner Magnet)	28	0	Alloy-C	346701 (6)	346701 (6)
Position 13 – Bearing Pins					
Pin, Bearing Lock	25	0	Teflon	361801 (4)	361801 (4)
Pin, Bearing Lock (High Temperature)	25	1	Alloy-C	361806 (4)	361806 (4)
Position 14 – Magnetic Coupling					
Inner Magnet, MCU – 3/8" Bore	11	U	Alloy-C/SmCo	SIMCU-13	SIMCU-13
Outer Magnet, MCU – NEMA 56C	10	U (Pos. 8 = 0)	CS/ SmCo	SOMCU-5	SOMCU-5
Outer Magnet, MCU – NEMA 143/145TC	10	U (Pos. 8 = 1)	CS/ SmCo	SOMCU-7	SOMCU-7
Outer Magnet, MCU – IEC 71 (B5)	10	U (Pos. 8 = 2)	CS/ SmCo	SOMCU-71	SOMCU-71
Outer Magnet, MCU – IEC 80 (B5)	10	U (Pos. 8 = 3)	CS/ SmCo	SOMCU-80	SOMCU-80
Outer Magnet, MCU – IEC 90 (B5)	10	U (Pos. 8 = 4)	CS/ SmCo	SOMCU-90	SOMCU-90
Outer Magnet, MCU – NEMA 182/184TC	10	U (Pos. 8 = 5)	CS/ SmCo	SOMCU-9	SOMCU-9
Inner Magnet, MCB – 3/8" Bore	11	B	Alloy-C/SmCo	SIMCB-13	SIMCB-13
Outer Magnet, MCB – NEMA 56C	10	B (Pos. 8 = 0)	CS/ SmCo	SOMCB-5	SOMCB-5
Outer Magnet, MCB – NEMA 143/145TC	10	B (Pos. 8 = 1)	CS/ SmCo	SOMCB-7	SOMCB-7
Outer Magnet, MCB – IEC 71 (B5)	10	B (Pos. 8 = 2)	CS/ SmCo	SOMCB-71	SOMCB-71
Outer Magnet, MCB – IEC 80 (B5)	10	B (Pos. 8 = 3)	CS/ SmCo	SOMCB-80	SOMCB-80
Outer Magnet, MCB – IEC 90 (B5)	10	B (Pos. 8 = 4)	CS/ SmCo	SOMCB-90	SOMCB-90
Outer Magnet, MCB – NEMA 182/184TC	10	B (Pos. 8 = 5)	CS/ SmCo	SOMCB-9	SOMCB-9
Key, Inner Magnet	13	U, B	Alloy-C	341904	341904
Position 15 – Containment Can					
Containment Can, Single Wall (Domed)	12	S	Alloy-C	S2003	S2003
Dual Kan Option (Modified Parts)	12	D	Alloy-C	Consult Factory	
Suffix – Trim Options					
Temperature Trim (Gears & Bearings)	–	-8(T) ¹	–	Consult Factory	
Viscosity Trim (Gears)	–	-9D, -9T	–		

1 - T = Application Temperature in °F (e.g., -8(300) = Temperature Trim at 300°F).

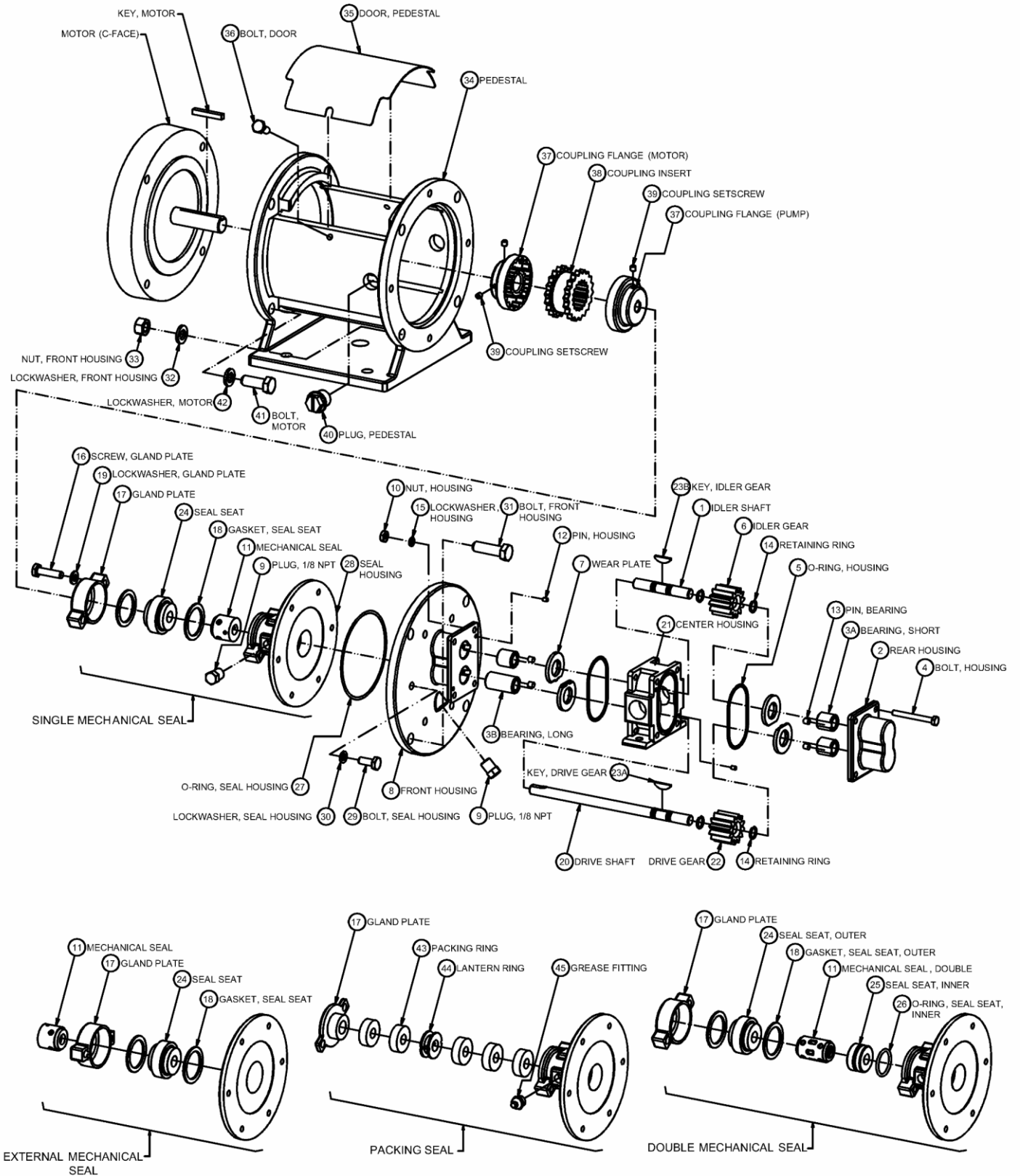
Appendix 1: Exploded View Reference Drawings

Models 31F & 33F – SEALED, Long-Coupled



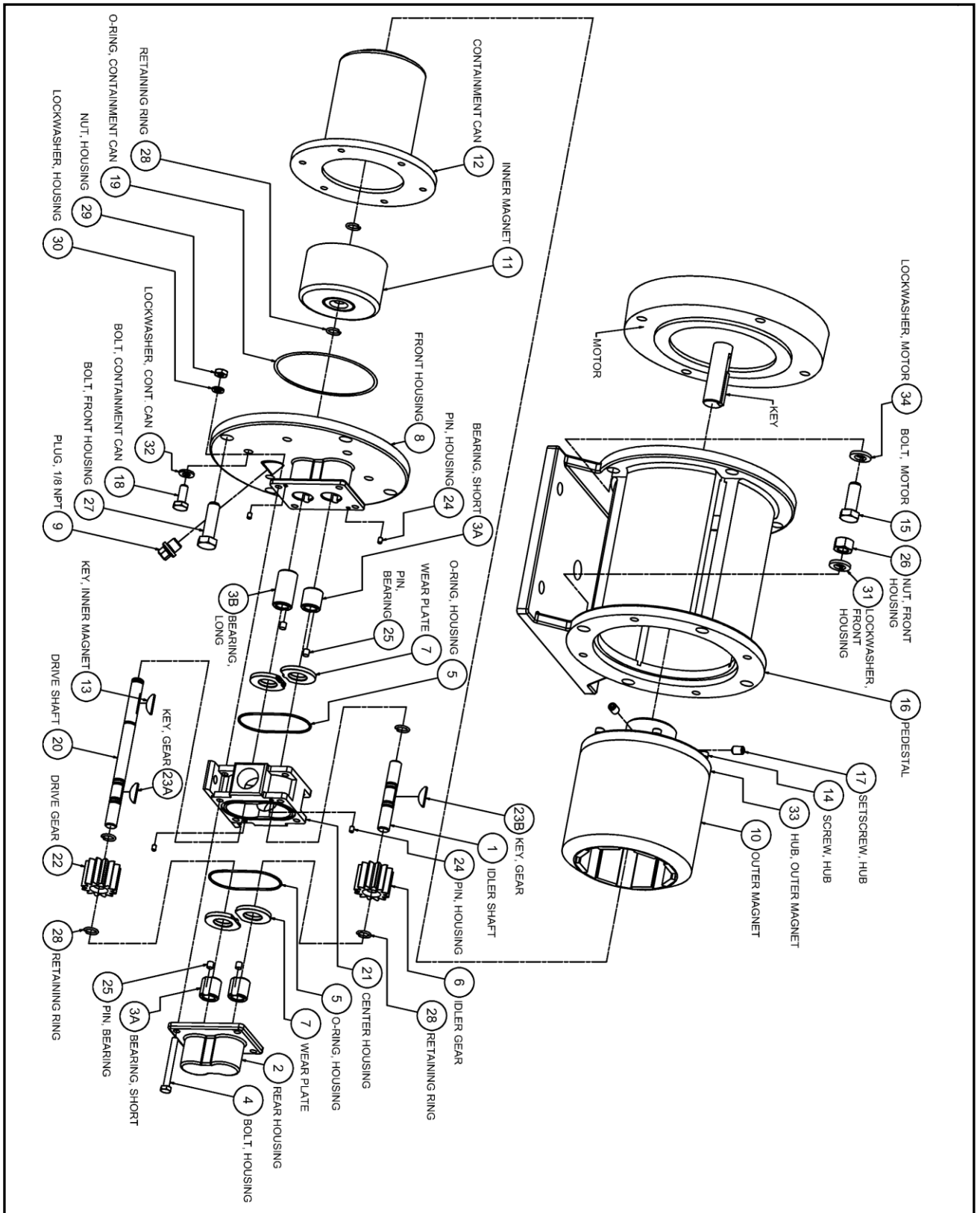
Appendix 1: Exploded View Reference Drawings (continued)

Models 31F & 33F – SEALED, Close-Coupled



Appendix 1: Exploded View Reference Drawings (continued)

Models 31F & 33F – MAG-DRIVE, Close-Coupled



Appendix 2: Meaning of Abbreviated Terms

Term	Meaning	Notes
ANSI	American National Standards Institute	e.g., ANSI 150# flanges
BSPT	British Standard Pipe Threads	Type of threaded port
Buna-N	Buna Nitrile (rubber)	O-ring material; NBR; elastomer
CC	Close-Coupled	Method of pump-motor coupling
CI	Cast Iron	Pedestal structural material
CO	Chrome Oxide	Shaft coating material
CS	Carbon Steel	Outer magnet and adapter structural material
DMS	Double Mechanical Seal	Internally mounted double seal
Drwg.	Drawing (Item #)	See corresponding exploded view reference drawing
EBF	External Bearing Flush	Housing option for 3-Series pumps
EMS	External Mechanical Seal	Externally mounted single seal
EPDM	Ethylene-Propylene-Diene Monomer (rubber)	O-ring material; elastomer
HHCS	Hex Head Cap Screw	Type of bolt
HY	High-Yield (key)	Type of gear key
IBF	Internal Bearing Flush	Housing option for 3-Series pumps
LC	Long-Coupled	Method of pump-motor coupling
LY	Low-Yield (key)	Type of gear key
MC	Magnetically Coupled	Mag-drive pump
MS	Mechanical Seal	Includes single, double & external seals
NPT	National Pipe Threads	Type of threaded port
PEEK	Poly-Ether-Ether-Ketone (plastic)	Bearing Grade PEEK; material option for gears, bearings & wear plates
Pos.	Position (#)	Position number of model code
PS	Packing Seal	Comprised of Teflon or Graphoil packing rings
RF	Raised Face	Type of flange
SHCS	Socket Head Cap Screw	Type of bolt
SiC	Silicon Carbide	Bearing, wear plate and seal seat material
Silicone/FEP	Silicone Rubber (encapsulated with) Fluoro-ethylene-propylene (plastic)	O-ring material; suggested for temperature cycling applications
SmCo	Samarium Cobalt	Inner and outer magnet material
SMS	Single Mechanical Seal	Internally mounted single seal
SS	Stainless Steel	e.g., 303 SS, 316 SS, 18-8 SS
TC	Tungsten Carbide	Shaft coating material
X	Not Available or Not Applicable	Used in lieu of Part Number
#	Number or Pound	e.g., Position #, Part #, 150# flanges, etc.

Appendix 3: Additional Parts for SEALED-CC Configuration

Mechanical Coupling, Pedestal & Adapter

Model Code Pos. 14	Motor Frame	Mechanical Coupling ¹				Pedestal ³	Adapter ⁴
		Part #	Size	Type (Woods)	Max Torque ²	Part #	Part #
0	NEMA 56C	A-5001	3/8" x 5/8"	3J	78	SP009	X
1	NEMA 143/145TC	A-5016	3/8" x 7/8"	4J	156	SP009	X
2	IEC 71–B5 Flange	A-5120	3/8" x 14 mm	4J	156	SP010	X
3	IEC 80–B5 Flange	A-5123	3/8" x 19 mm	4J	156	SP011	X
4	IEC 90–B5 Flange	A-5115	3/8" x 24 mm	4J	156	SP011	X
5	NEMA182/184TC	A-5239	3/8" x 1-1/8"	5J	312	SP009	SP0046

1 – Coupling material is Steel flanges with EPDM insert. Coupling Temperature Range is -30°F to 275°F.

2 – Maximum Torque rating in inch-pounds at 75°F (24°C). Consult factory for couplings with higher torque ratings.

3 – Material is Cast Iron/Epoxy. Pedestal includes 303 SS door (Part # 865078) and two 1/4-20 x 5/8 bolts (Part # 620008).

4 – Material is Carbon Steel/Epoxy.

Assembly Hardware

Model Code Pos. 14	Part Description	Material	Size	Bolt Type	Part #	Qty.
0 thru 5	Bolt, Seal Housing	18-8 SS	1/4-28 x 5/8	HHCS	S620013	6
	Lockwasher, Seal Housing	18-8 SS	1/4	–	863701	6
	Bolt, Front Housing	18-8 SS	3/8-16 x 1-1/2	HHCS	620833	4
	Nut, Front Housing	18-8 SS	3/8-16	–	S1003	4
	Lockwasher, Front Housing	18-8 SS	3/8	–	S1004	4
0, 1, 5	Bolt, Motor	18-8 SS	3/8-16 x 1-1/4	HHCS	S1000	4
	Lockwasher, Motor	18-8 SS	3/8	–	S1004	4
5	Bolt, Adapter (NEMA 182/184TC) ¹	18-8 SS	1/2-13 x 1	SHCS	641105	4
2	Bolt, Motor	18-8 SS	3/8-16 x 1-1/2	SHCS	781117	4
	Nut, Motor	18-8 SS	3/8-16	–	S1003	4
	Lockwasher, Motor	18-8 SS	3/8	–	S1004	4
3, 4	Bolt, Motor	18-8 SS	M10 x 40	SHCS	S1011	4
	Nut, Motor	18-8 SS	M10 Std. Hex	–	S1013	4
	Lockwasher, Motor	18-8 SS	M10	–	S1012	4

1 – For mounting adapter plate (Part # SP0046) to motor.

Appendix 4: Mag-Drive Motor-Mounting Hardware

Mag-Drive Motor-Mounting Hardware

Model Code Pos. 8	Part Description	Material	Size	Bolt Type	Part #	Qty.
0, 1, 5	Bolt, Motor	18-8 SS	3/8-16 x 1-1/4	HHCS	S1000	4
	Lockwasher, Motor	18-8 SS	3/8	–	S1004	4
5	Bolt, Adapter (NEMA 182/184TC) ¹	18-8 SS	1/2-13 x 1	SHCS	641105	4
2	Bolt, Motor	18-8 SS	3/8-16 x 1-1/2	SHCS	781117	4
	Nut, Motor	18-8 SS	3/8-16	–	S1003	4
	Lockwasher, Motor	18-8 SS	3/8	–	S1004	4
3, 4	Bolt, Motor	18-8 SS	M10 x 40	SHCS	S1011	4
	Nut, Motor	18-8 SS	M10 Std. Hex	–	S1013	4
	Lockwasher, Motor	18-8 SS	M10	–	S1012	4

1 – For mounting adapter plate (Part # SP0046) to motor.