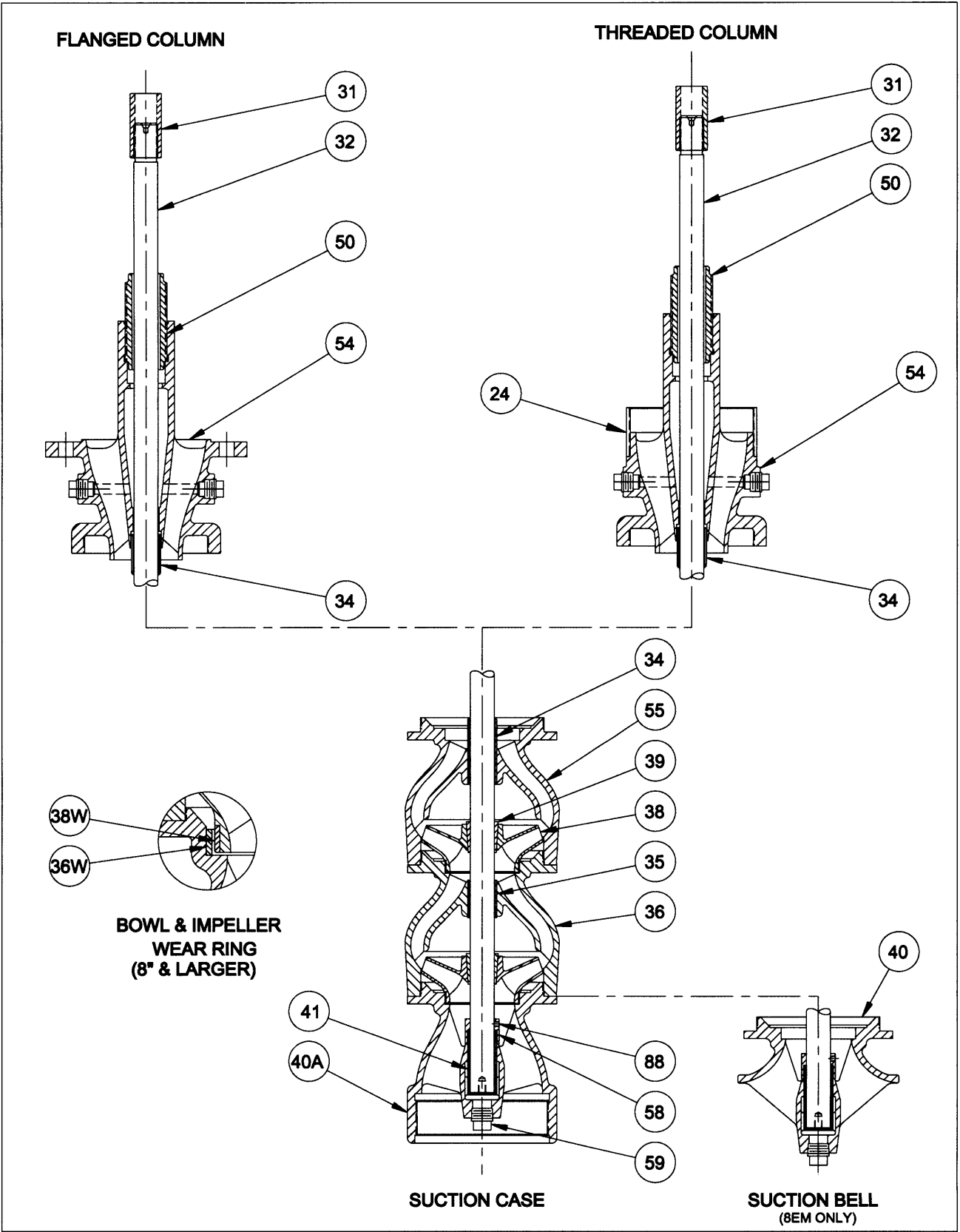



Open Lineshaft Material Specifications

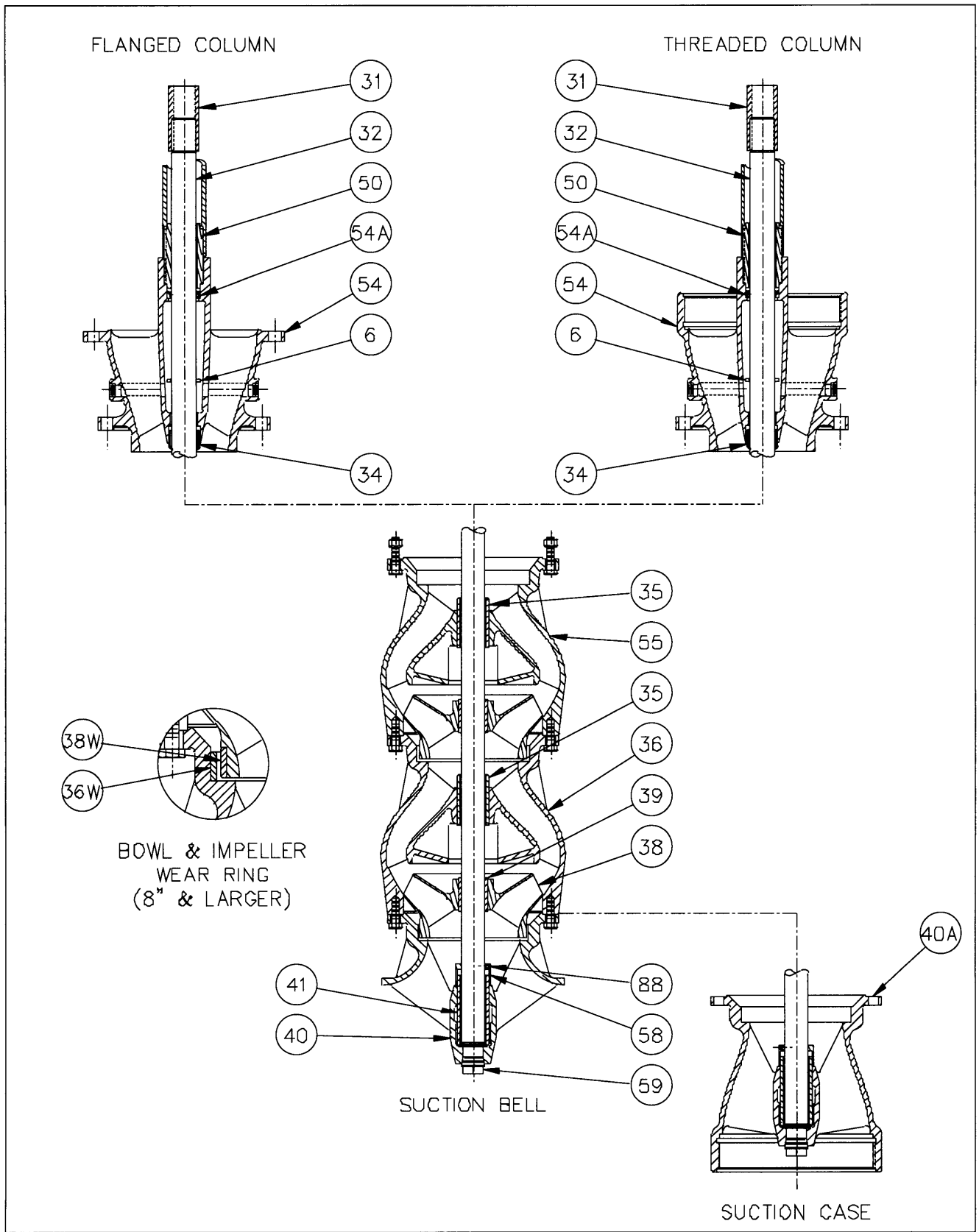
Item	Description	Material	Specification
1	Top Shaft Adjusting Nut	Steel	A108 Grade 12L14
6	Water Slinger	Rubber	Neoprene
7	Discharge Head	Cast Iron / Steel	A48 Class 30 / A53 & A36 (3)
8	Gland Bolt	Stainless Steel	18-8
8A	Gland Nut	Stainless Steel	18-8
9	Packing Gland	Cast Iron	A48 Class 30
11	Gasket	Tag Board	F104
13	Top Shaft Sleeve	Stainless Steel	AISI 304
15	Packing	Synthetic	Commercial
15A	Water Seal Ring	Teflon	Teflon
16	Column Flange Gasket	Tag Board	F104
17	Packing Box	Cast Iron	A48 Class 30
17A	Packing Box Bushing	Bronze	B505 C93200
19B	Top Shaft	Steel	AISI 1045
19A	Drive Shaft	Steel	AISI 1045
21	Top Column	Steel	A53 & A36 (3)
23	Lineshaft	Steel	AISI 1045
24	Column Coupling	Steel	A53 Grade B
25	Bearing Retainer	Bronze	B584 C83600
26	Bearing	Neoprene	Commercial
27	Snap Ring	Stainless Steel	A564 Alloy 632
27A	Thrust Ring	Stainless Steel	A583 – 416
29	Shaft Sleeve	Stainless Steel	AISI 304
30	Column	Steel	A53 & A36 (3)
31	Shaft Coupling	Steel (4)	A108 Grade 12L14
32	Pump Shaft	Stainless Steel	A582 – 416
34	Top Bowl Bearing	Bronze	B505 C93200
35	Inter Bowl Bearing	Bronze	B505 C93200
36	Inter Bowl	Cast Iron (2)	A48 Class 30
36W	Bowl Wear Ring	Bronze	B505 C93200
38	Impeller	Bronze	B584 C83600
38A	Impeller Key	Steel	A108 Grade 1018
38W	Impeller Wear Ring	Bronze	B505 C93200
39	Drive Collet	Stainless Steel	A582 – 416
40	Suction Bell	Cast Iron	A48 Class 30
40A	Suction Case	Cast Iron	A48 Class 30
41	Suction Bearing	Bronze	B505 C93200
50	Connector Bearing	Bronze	B505 C93200
52	Underground Discharge Elbow	Steel	A53 & A36 (3)
54	Discharge Case	Cast Iron (2)	A48 Class 30
A54	Column Adapter	Cast Iron	A48 Class 30
55	Top Inter Bowl	Cast Iron (2)	A48 Class 30
58	Sand Collar	Bronze	B505 C93200
59	Suction Bowl Plug	Cast Iron	Commercial
62	Driver Pedestal	Steel	A53 & A36 (3)
88	Set Screw	Stainless Steel	A320
220	High Ring Base	Cast Iron or Steel	A48 Class 30 or A53 & A36 (3)
267	Coupling Guard	Sheet Steel	Commercial
Options			
95	Sole Plate	Cast Iron / Steel	A48 Class 30 / A36
456	Mechanical Seal	Commercial	Commercial

- Notes:
1. All material specifications are ASTM unless otherwise noted and are a description of chemistry only.
 2. Bowl interior is coated with Tnemec N140 Pota-Pox Plus, or equal.
 3. Circular sections are A53 & plate is A36.
 4. Pump shaft coupling is stainless steel, ASTM A582 S41600.



THREADED BOWL ASSEMBLY
6DRELC, 6DRMC, 6RKLC, 6RKHC, 6EM, 7EM, 8URHC, 8EM, 8TM, 8TH, 10RKLC,
10RKHC, 10RKEH, 10RKHS, 10TLC, 10THC, 12TLC, 12THC
OPEN LINESHAFT

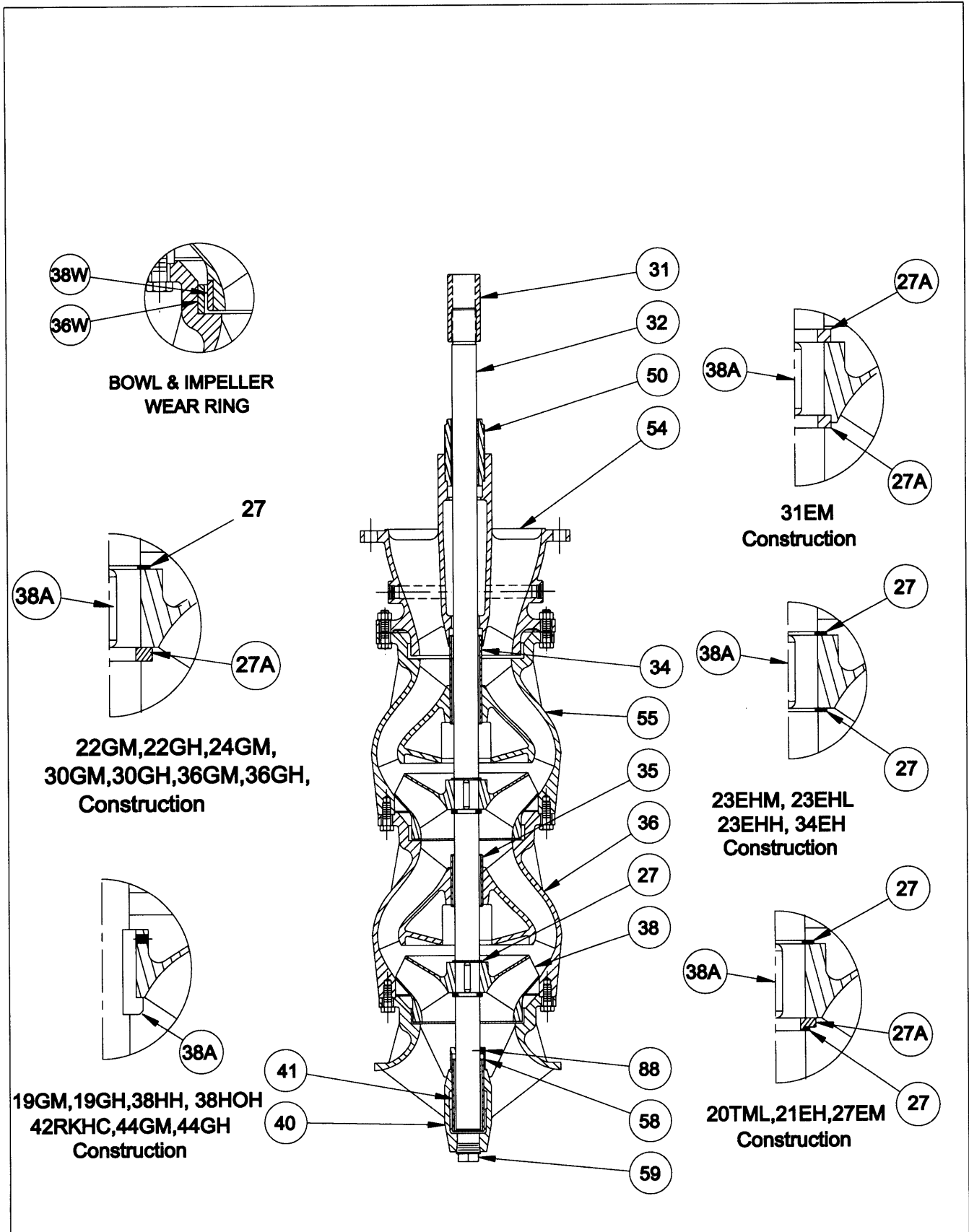
	
Pumps & Water	
DWG NO	REV NO
1100M013	



FLANGED BOWL ASSEMBLY
7CL, 7CEH, 7CM, 8RL, 8RM, 8RH, 10EM, 10FHM, 10FHH, 11EM, 11EH,
12RKBEH, 12RKBL, 12RKBM, 12RKBH, 12RL, 12RM, 12RH, 12EM, 12FHL, 12FHM,
12FHH, 12DEH, 13CL, 13CM, THRU 17EH, 18GL, 18GM
OPEN LINESHAFT



DWC NO 1100M005 REV NO 0



BOWL & IMPELLER WEAR RING

22GM, 22GH, 24GM, 30GM, 30GH, 36GM, 36GH, Construction

19GM, 19GH, 38HH, 38HOH 42RKHC, 44GM, 44GH Construction

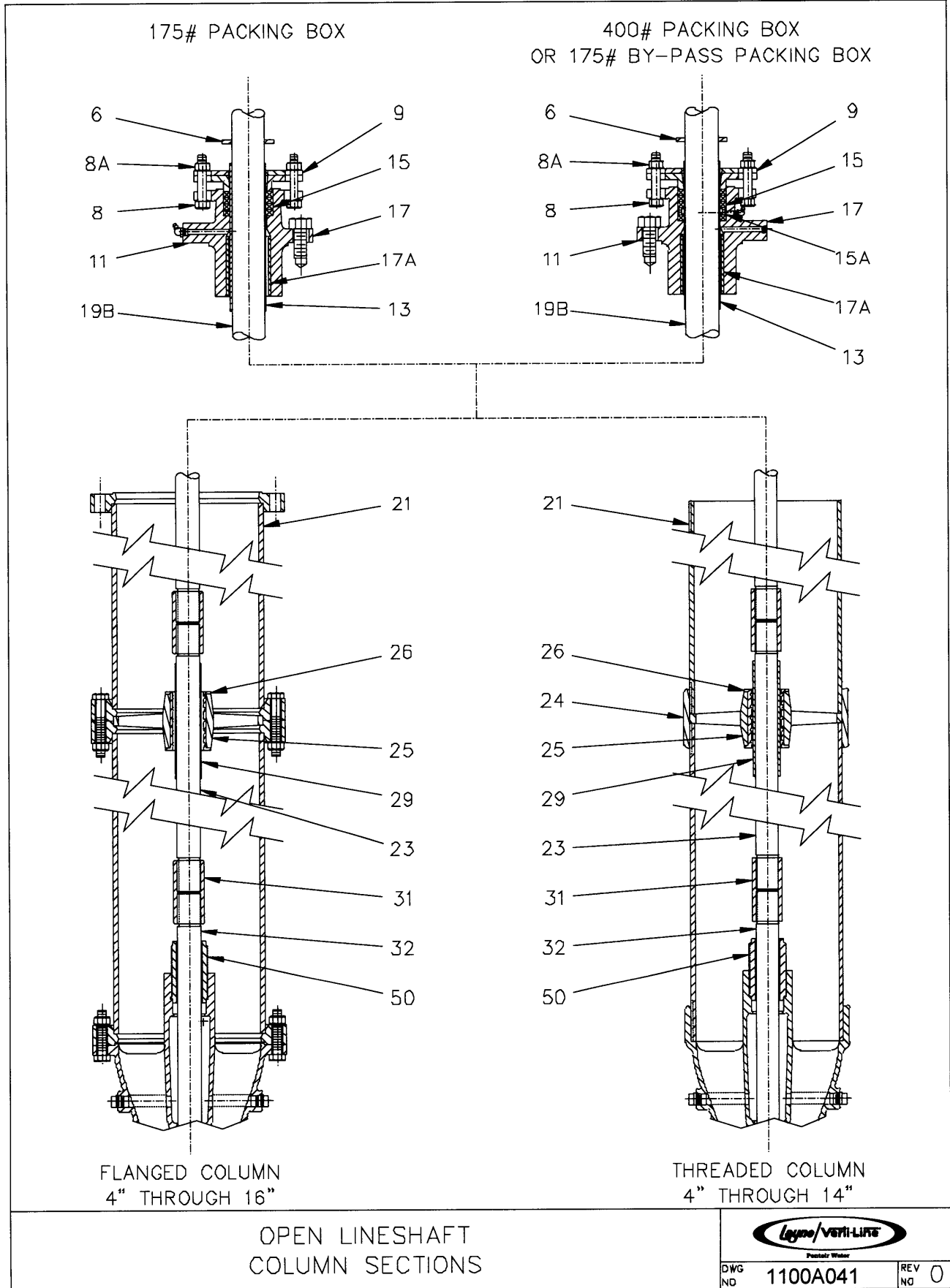
31EM Construction

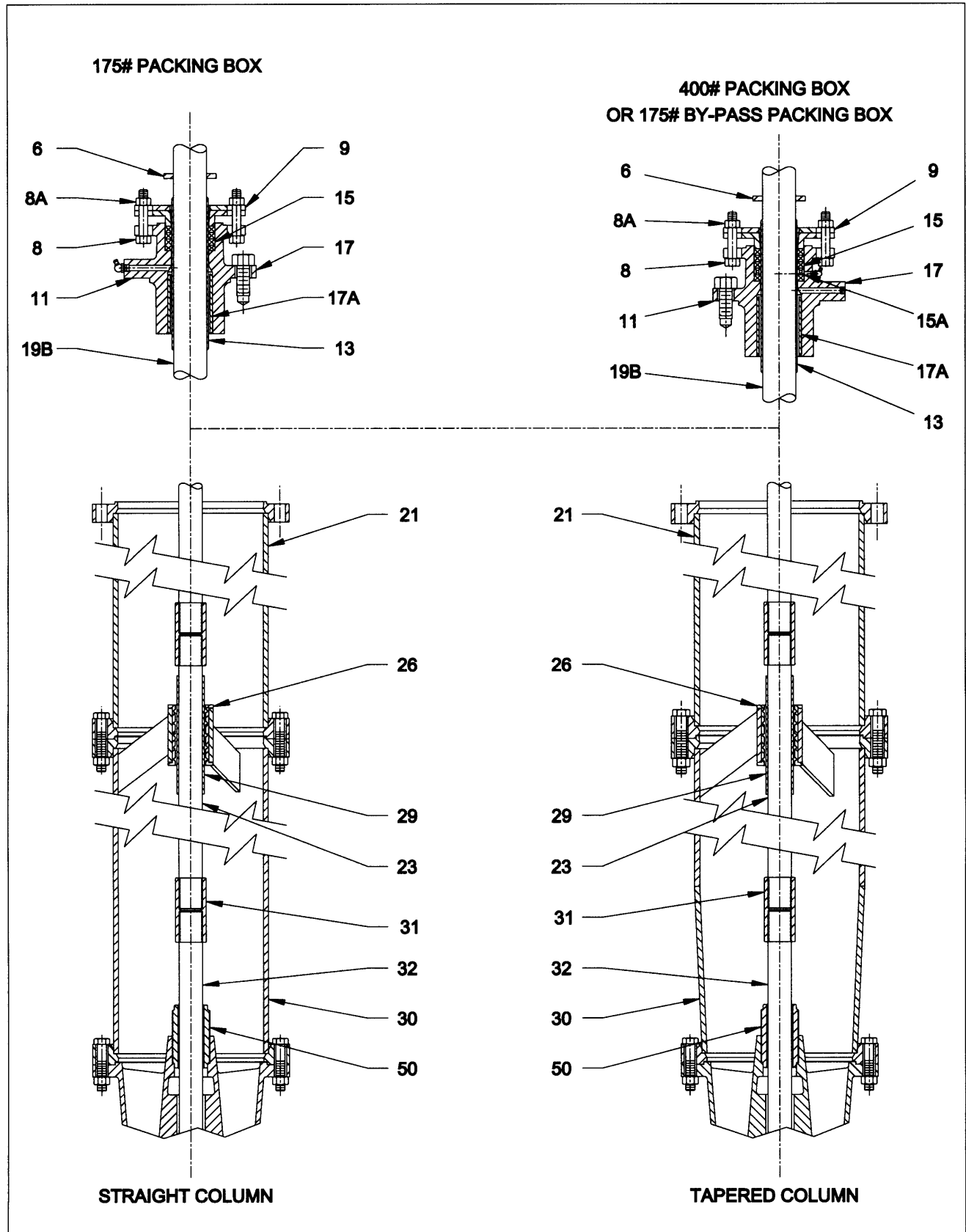
23EHM, 23EHL 23EHH, 34EH Construction

20TML, 21EH, 27EM Construction

**FLANGED BOWL ASSEMBLY
LARGE VERTICAL TURBINE
MULTI-STAGE, OPEN LINESHAFT**

 <small>Pumps & Water</small>		
DWG NO	110AP002	REV NO





**OPEN LINESHAFT
18" AND LARGER COLUMN**



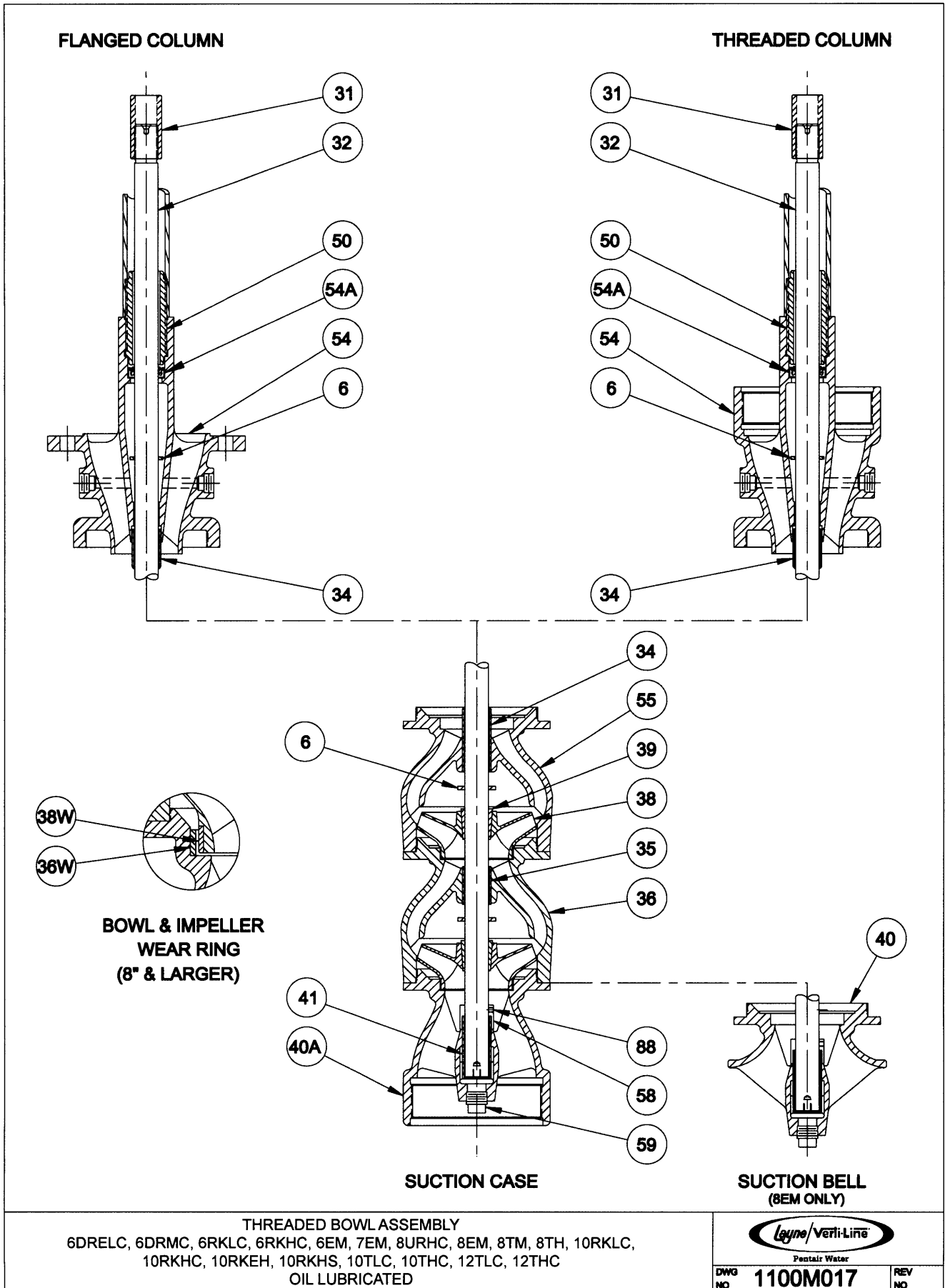
DWG NO **8000A043** REV NO **0**

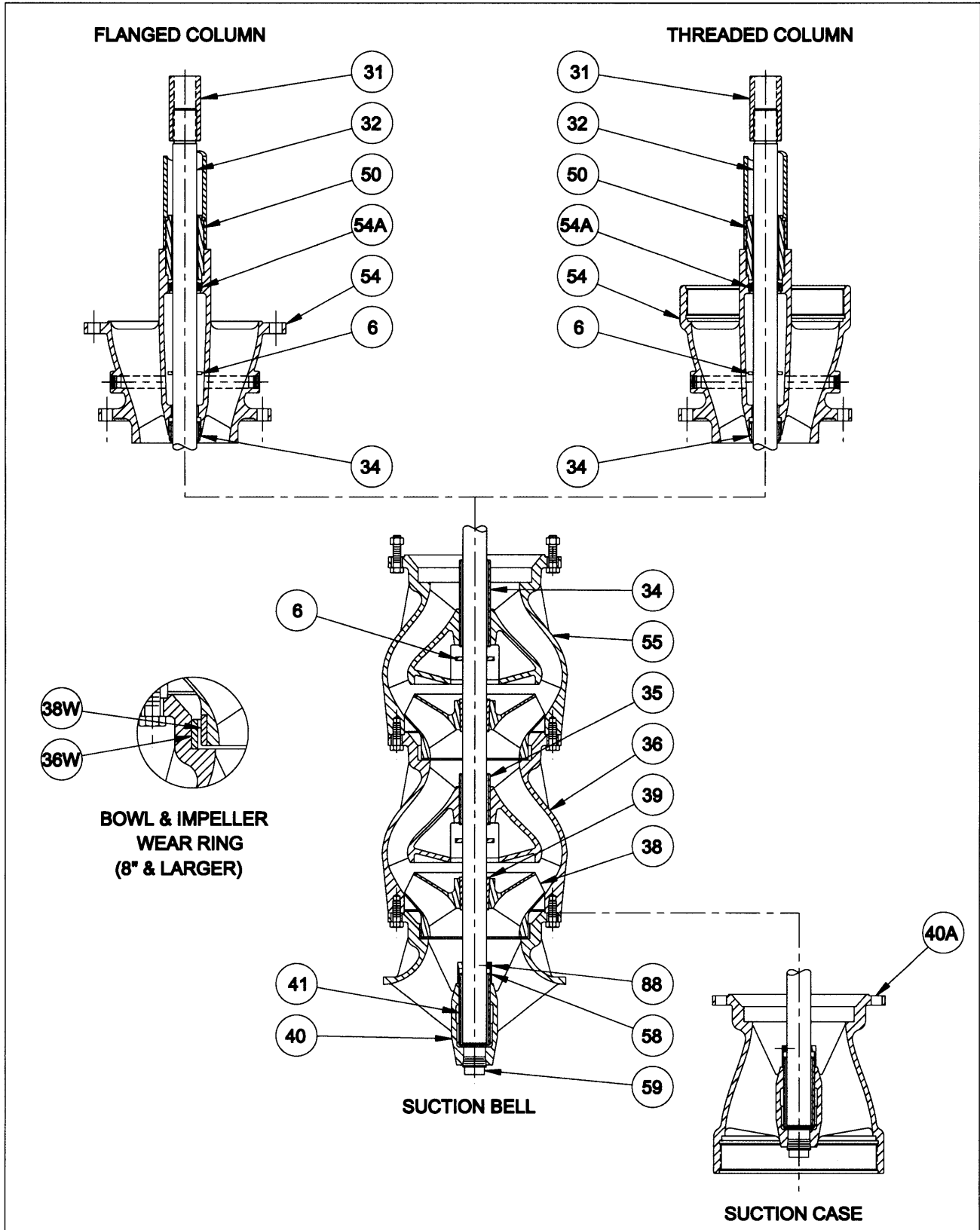
Oil Lubricated Enclosed Lineshaft Material Specifications

Item	Description	Material	Specification
1	Top Shaft Adjusting Nut	Steel	A108 Grade 12L14
6	Water Slinger	Rubber	Neoprene
7	Discharge Head	Cast Iron / Steel	A48 Class 30 / A53 & A36 (3)
11	Gasket	Tag Board	F104
16	Column Flange Gasket	Tag Board	F104
19B	Top Shaft	Steel	AISI 1045
19A	Drive Shaft	Steel	AISI 1045
21	Top Column	Steel	A53 & A36 (3)
23	Lineshaft	Steel	AISI 1045
24	Column Coupling	Steel	A53 Grade B
27	Snap Ring	Stainless Steel	A564 Alloy 632
27A	Thrust Ring	Stainless Steel	A583 – 416
30	Column	Steel	A53 & A36 (3)
31	Shaft Coupling	Steel (4)	A108 Grade 12L14
32	Pump Shaft	Stainless Steel	A582 – 416
34	Top Bowl Bearing	Bronze	B505 C93200
35	Inter Bowl Bearing	Bronze	B505 C93200
36	Inter Bowl	Cast Iron (2)	A48 Class 30
36W	Bowl Wear Ring	Bronze	B505 C93200
38	Impeller	Bronze	B584 C83600
38A	Impeller Key	Steel	A108 Grade 1018
38W	Impeller Wear Ring	Bronze	B505 C93200
39	Drive Collet	Stainless Steel	A582 – 416
40	Suction Bell	Cast Iron	A48 Class 30
40A	Suction Case	Cast Iron	A48 Class 30
41	Suction Bearing	Bronze	B505 C93200
50	Connector Bearing	Bronze	B505 C93200
51	Inter & Bottom Enclosing Tube	Steel	A120, Schedule 80
51A	Top Enclosing Tube	Steel	A120, Schedule 80
52	Underground Discharge Elbow	Steel	A53 & A36 (3)
53	Step Connector Bearing	Bronze	B505 C93200
54	Discharge Case	Cast Iron (2)	A48 Class 30
55	Top Inter Bowl	Cast Iron (2)	A48 Class 30
58	Sand Collar	Bronze	B505 C93200
59	Suction Bowl Plug	Cast Iron	Commercial
62	Driver Pedestal	Steel	A53 & A36 (3)
63	Tube Tension Nut	Bronze	B584 C83600
63A	Tension Nut Gasket	Copper	B152 Alloy 110
65	Tube Stabilizer	Rubber	Commercial
88	Set Screw	Stainless Steel	A320
220	High Ring Base	Cast Iron or Steel	A48 Class 30 or A53 & A36 (3)
267	Coupling Guard	Sheet Steel	Commercial
Options			
95	Sole Plate	Cast Iron / Steel	A48 Class 30 / A36

Notes:

1. All material specifications are ASTM unless otherwise noted and are a description of chemistry only.
2. Bowl interior is coated with Tnemec N140 Pota-Pox Plus, or equal.
3. Circular sections are A53 & plate is A36.
4. Pump shaft coupling is stainless steel, ASTM A582 S41600.

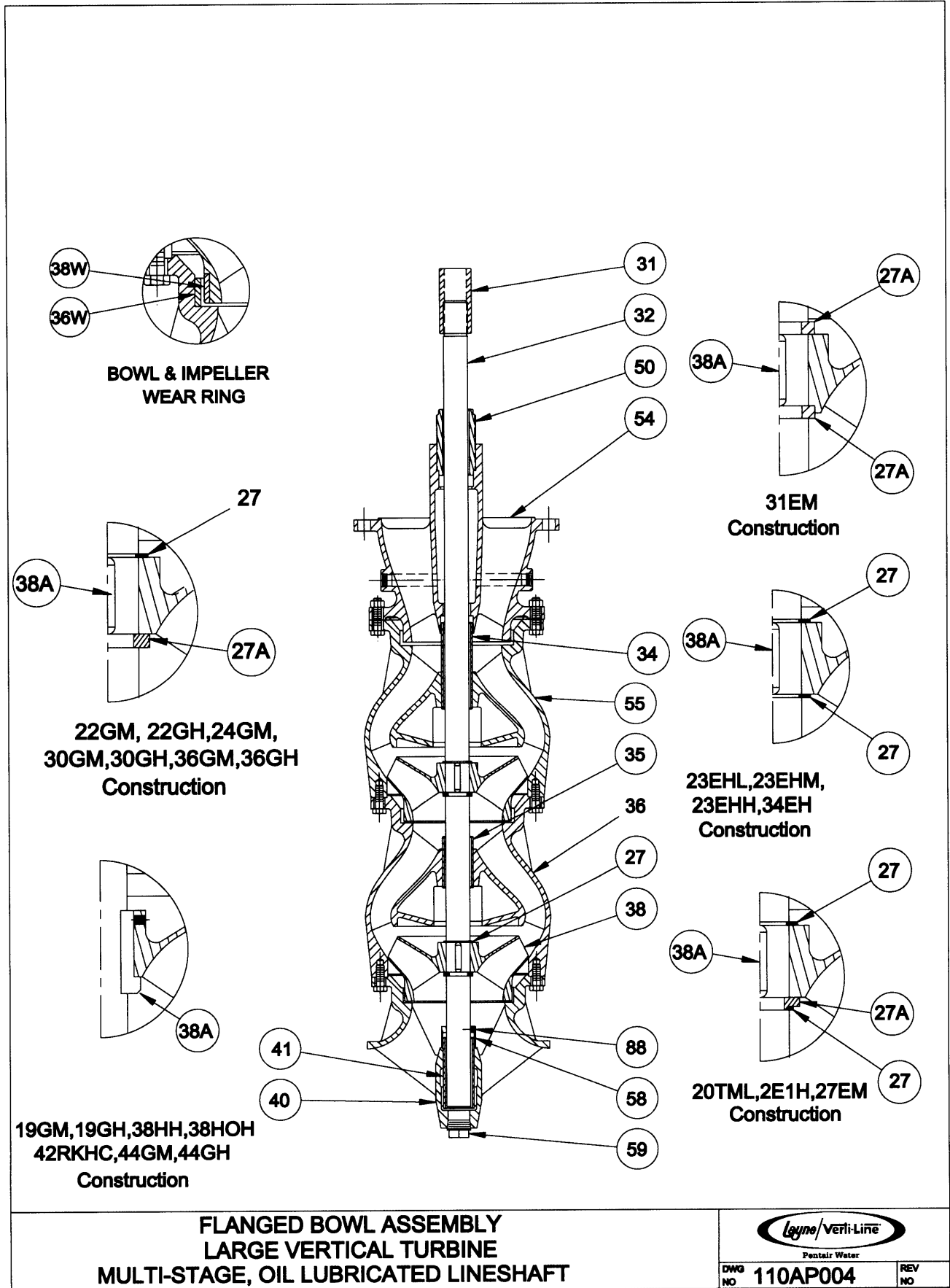


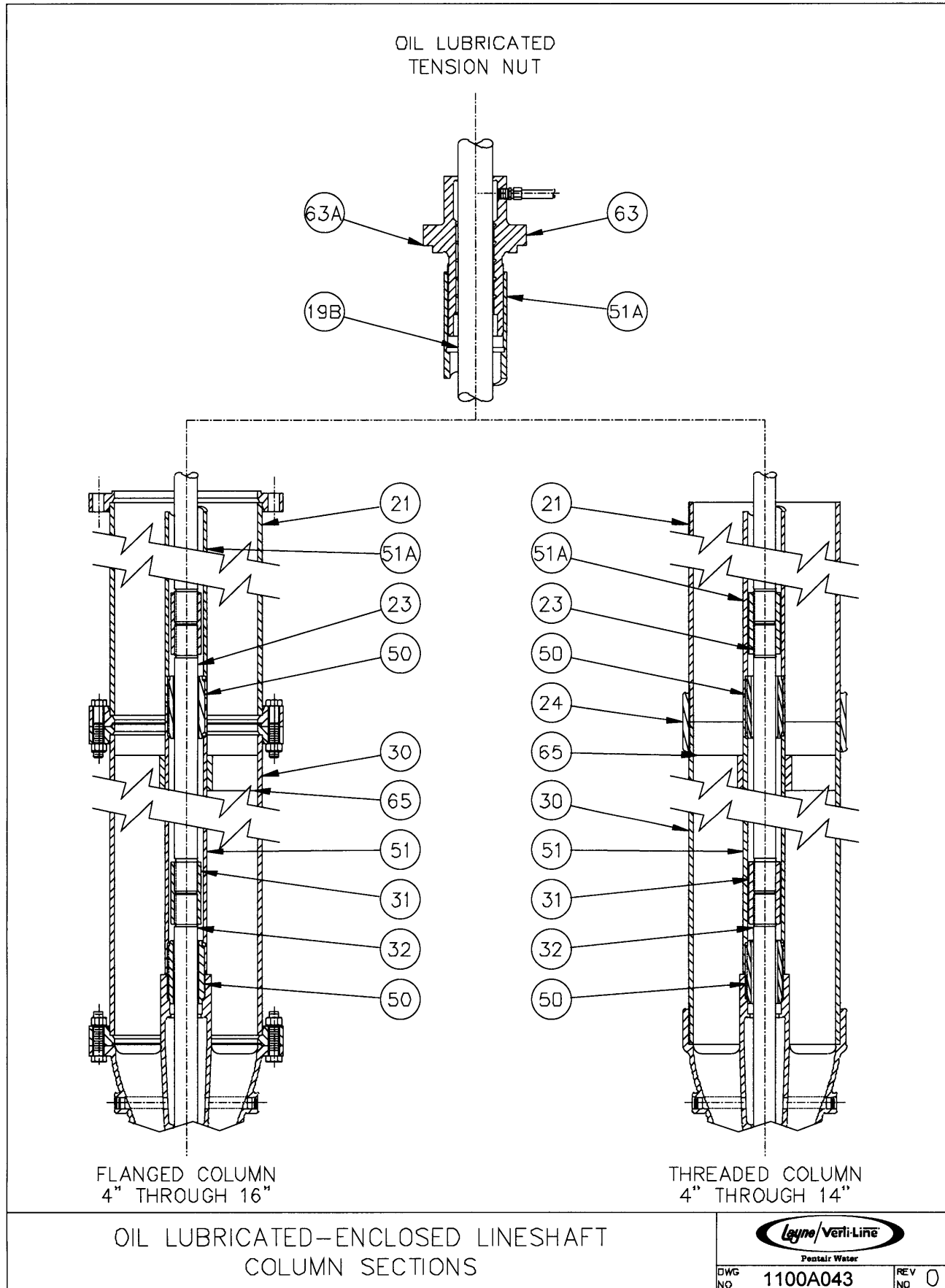


FLANGED BOWL ASSEMBLY
 7CL, 7CEH, 7CM, 8RL, 8RM, 8RH, 10EM, 10FHM, 10FHH, 11EM, 11EH, 12RKBL, 12RKBM,
 12RKBH, 12KRBEH, 12EM, 12RL, 12RM, 12RH, 12FHL, 12FHM, 12FHH, 12DEH, 13CL,
 13CM THRU 17EH, 18GL, 18GM
MULTI-STAGE, OIL LUBRICATED

Layne/Verti-Line
 Pentair Water

DWG NO **1100M011** REV NO





COLUMN SECTIONS ARE TO BE LIFTED BY EYEBOLTS OR "COLUMN CLAMPS" (SUPPLIED BY OTHERS)

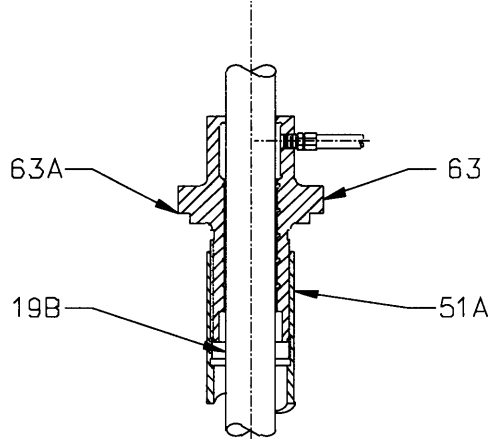
WARNING:

ALWAYS MAKE SURE LIFTING EQUIPMENT IS OF ADEQUATE SIZE TO PREVENT POSSIBLE SERIOUS PERSONAL INJURY OR DAMAGE TO THE EQUIPMENT.

COLUMN TUBE AND SHAFT ASSEMBLIES SHOULD BE SECURED TOGETHER BY ROPE SLINGS OR OTHER SUITABLE MEANS.

TUBE STABILIZERS ARE REQUIRED WHEN SETTING EXCEEDS 30 FT.

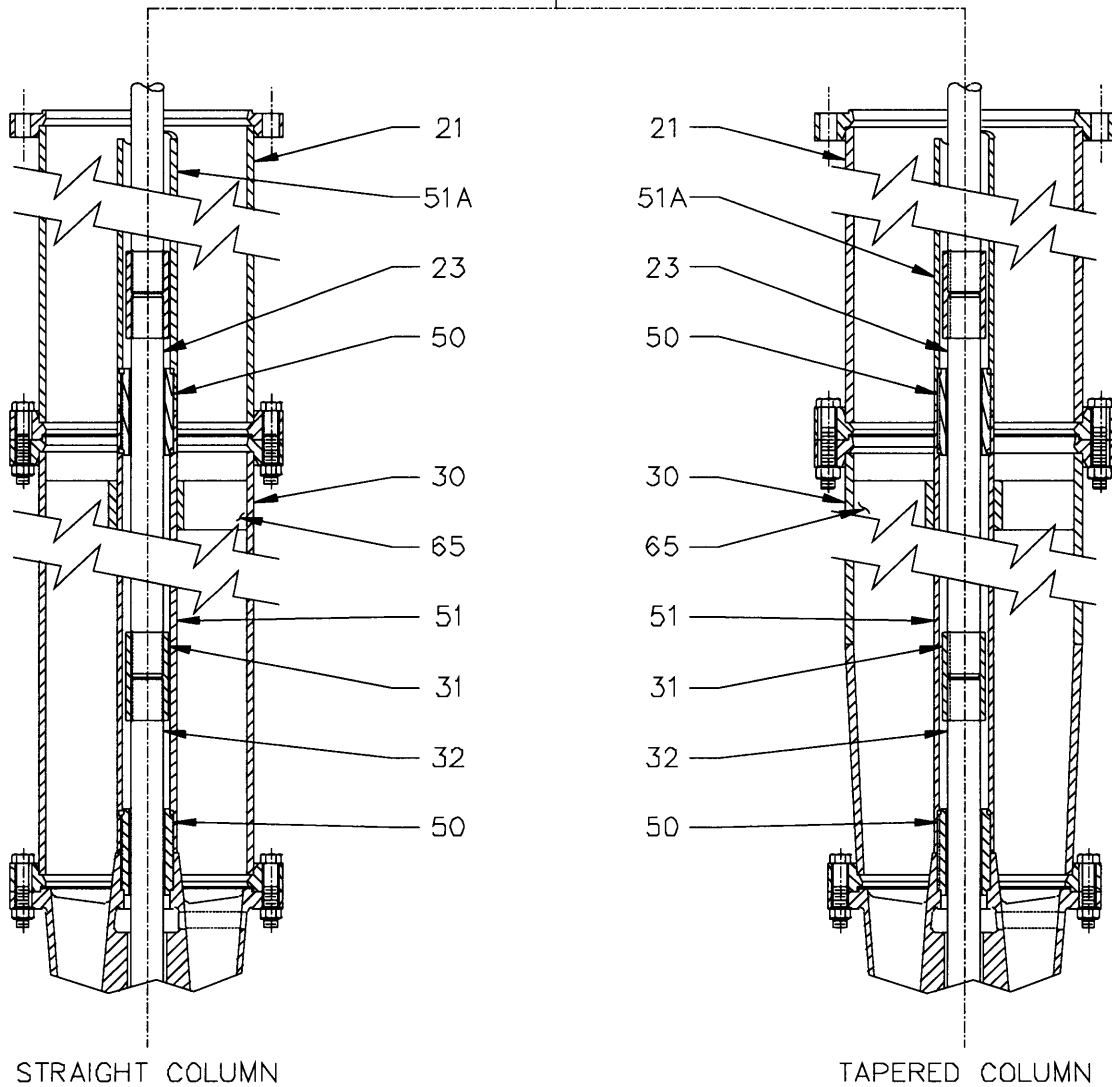
OIL LUBRICATED
TENSION NUT



BEARING CENTERS (MAX)
TOP 6.5 FT.
INTER 5 FT.

COLUMN & SHAFT LENGTHS
MAX 10 FT.
SHAFT PROJECTION
17-1/2"

REFER TO TECHNICAL DATA PAGE FOR OTHER DIMENSIONS AND WEIGHTS.



OIL LUBRICATED-ENCLOSED LINESHAFT
4" THRU 20" COLUMN



Pentair Water

DWG NO 8000A045 REV NO 0

COLUMN SECTIONS ARE TO BE LIFTED BY EYEBOLTS OR "COLUMN CLAMPS" (SUPPLIED BY OTHERS)

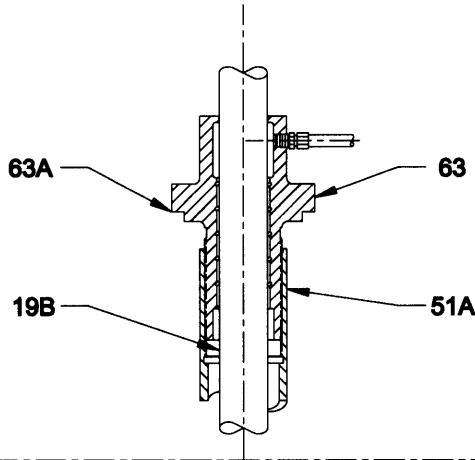
WARNING:

ALWAYS MAKE SURE LIFTING EQUIPMENT IS OF ADEQUATE SIZE TO PREVENT POSSIBLE SERIOUS PERSONAL INJURY OR DAMAGE TO THE EQUIPMENT.

COLUMN TUBE AND SHAFT ASSEMBLIES SHOULD BE SECURED TOGETHER BY ROPE SLINGS OR OTHER SUITABLE MEANS.

TUBE STABILIZERS ARE REQUIRED WHEN SETTING EXCEEDS 30 FT.

OIL LUBRICATED TENSION NUT



BEARING CENTERS (MAX)

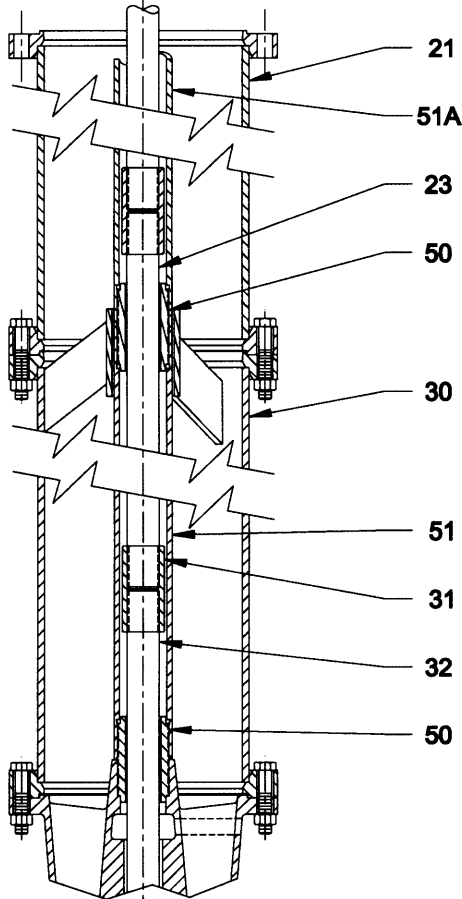
TOP 6.5 FT.
 INTER 5 FT.

COLUMN & SHAFT LENGTHS

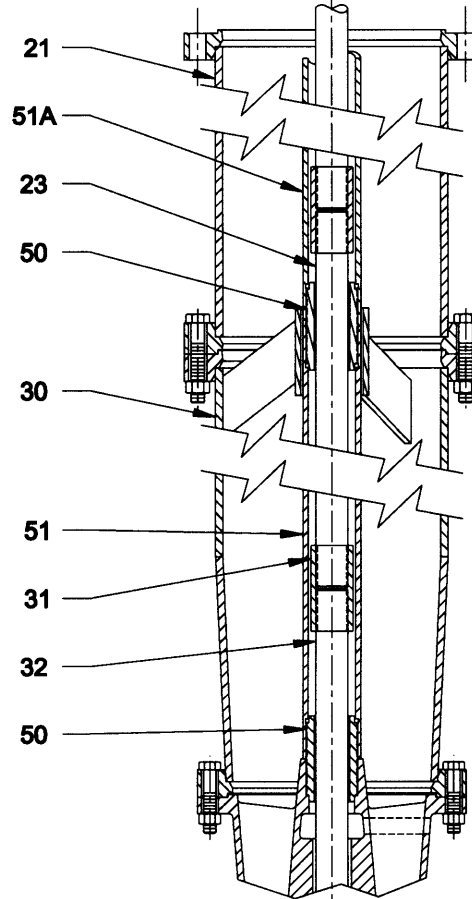
MAX 10 FT.

SHAFT PROJECTION 17-1/2"

REFER TO TECHNICAL DATA PAGE FOR OTHER DIMENSIONS AND WEIGHTS.



STRAIGHT COLUMN



TAPERED COLUMN

**OIL LUBRICATED-ENCLOSED LINESHAFT
 24" AND LARGER COLUMN (AVAILABLE ALL SIZES)**



Pentair Water

DWG NO 8000A047

REV NO 0

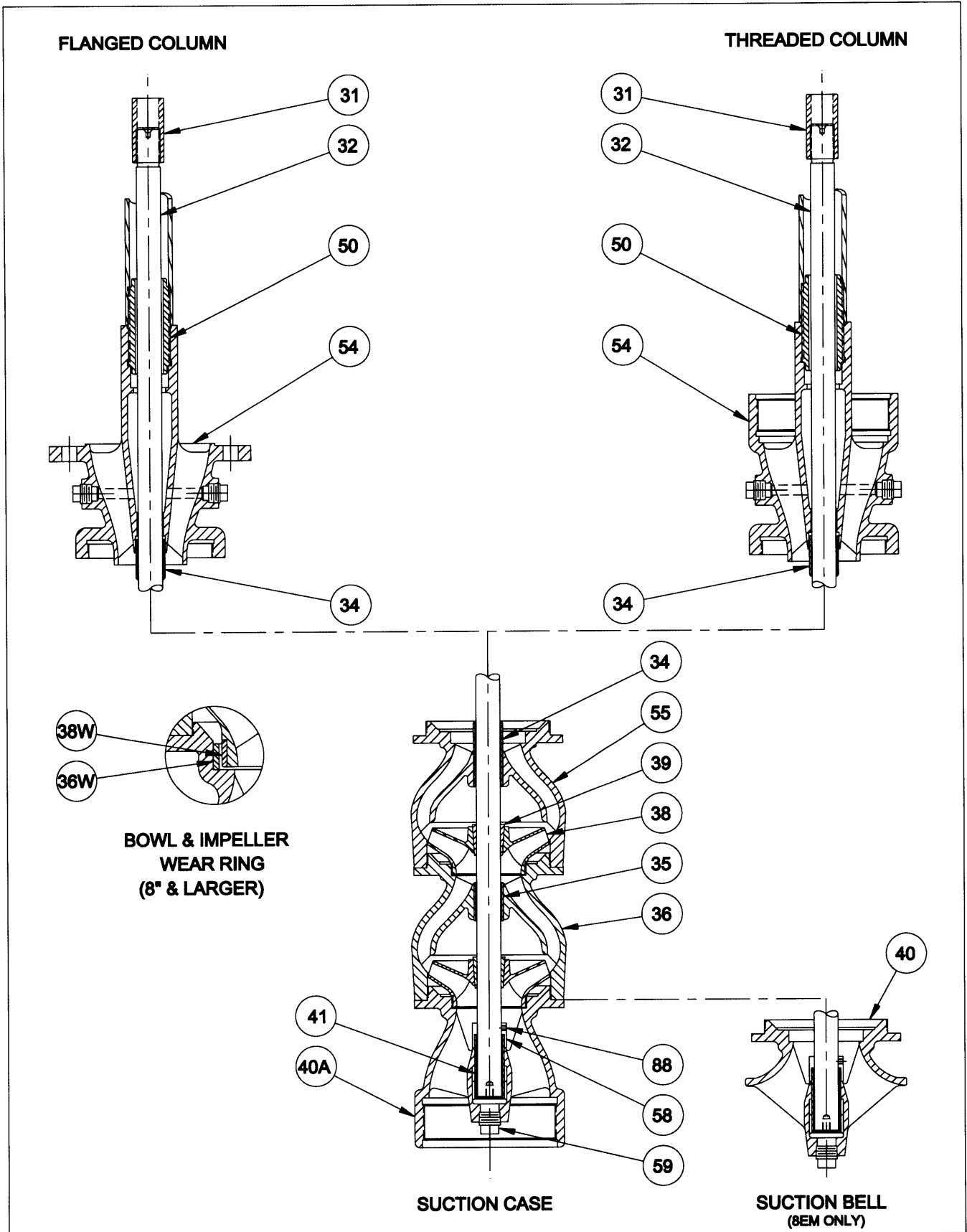
NOTES

Water Flush Lineshaft Material Specifications

Item	Description	Material	Specification
1	Top Shaft Adjusting Nut	Steel	A108 Grade 12L14
6	Water Slinger	Rubber	Neoprene
7	Discharge Head	Cast Iron / Steel	A48 Class 30 / A53 & A36 (3)
8	Gland Bolt	Stainless Steel	18-8
8A	Gland Nut	Stainless Steel	18-8
9	Packing Gland	Cast Iron	A48 Class 30
13	Top Shaft Sleeve	Stainless Steel	AISI 304
15	Packing	Synthetic	Commercial
16	Column Flange Gasket	Tag Board	F104
17	Packing (Tension) Box	Cast Iron	A48 Class 30
17B	Packing Box Washer	Stainless Steel	Commercial
19B	Top Shaft	Stainless Steel	A582 - 416
19A	Drive Shaft	Steel	AISI 1045
21	Top Column	Steel	A53 & A36 (3)
23	Lineshaft	Stainless Steel	A582 - 416
24	Column Coupling	Steel	A53 Grade B
27	Snap Ring	Stainless Steel	A564 Alloy 632
27A	Thrust Ring	Stainless Steel	A583 - 416
30	Column	Steel	A53 & A36 (3)
31	Shaft Coupling	Steel (4)	A108 Grade 12L14
32	Pump Shaft	Stainless Steel	A582 - 416
34	Top Bowl Bearing	Bronze	B505 C93200
35	Inter Bowl Bearing	Bronze	B505 C93200
36	Inter Bowl	Cast Iron (2)	A48 Class 30
36W	Bowl Wear Ring	Bronze	B505 C93200
38	Impeller	Bronze	B584 C83600
38A	Impeller Key	Steel	A108 Grade 1018
38W	Impeller Wear Ring	Bronze	B505 C93200
39	Drive Collet	Stainless Steel	A582 - 416
40	Suction Bell	Cast Iron	A48 Class 30
40A	Suction Case	Cast Iron	A48 Class 30
41	Suction Bearing	Bronze	B505 C93200
50	Connector Bearing	Bronze	B505 C93200
51	Inter & Bottom Enclosing Tube	Steel	A120, Schedule 80
51A	Top Enclosing Tube	Steel	A120, Schedule 80
52	Underground Discharge Elbow	Steel	A53 & A36 (3)
53	Step Connector Bearing	Bronze	B505 C93200
54	Discharge Case	Cast Iron (2)	A48 Class 30
55	Top Inter Bowl	Cast Iron (2)	A48 Class 30
58	Sand Collar	Bronze	B505 C93200
59	Suction Bowl Plug	Cast Iron	Commercial
62	Driver Pedestal	Steel	A53 & A36 (3)
63A	Tension Box Gasket	Copper	B152 Alloy 110
65	Tube Stabilizer	Rubber	Commercial
88	Set Screw	Stainless Steel	A320
220	High Ring Base	Cast Iron or Steel	A48 Class 30 or A53 & A36 (3)
267	Coupling Guard	Sheet Steel	Commercial
Options			
95	Sole Plate	Cast Iron / Steel	A48 Class 30 / A36

Notes:

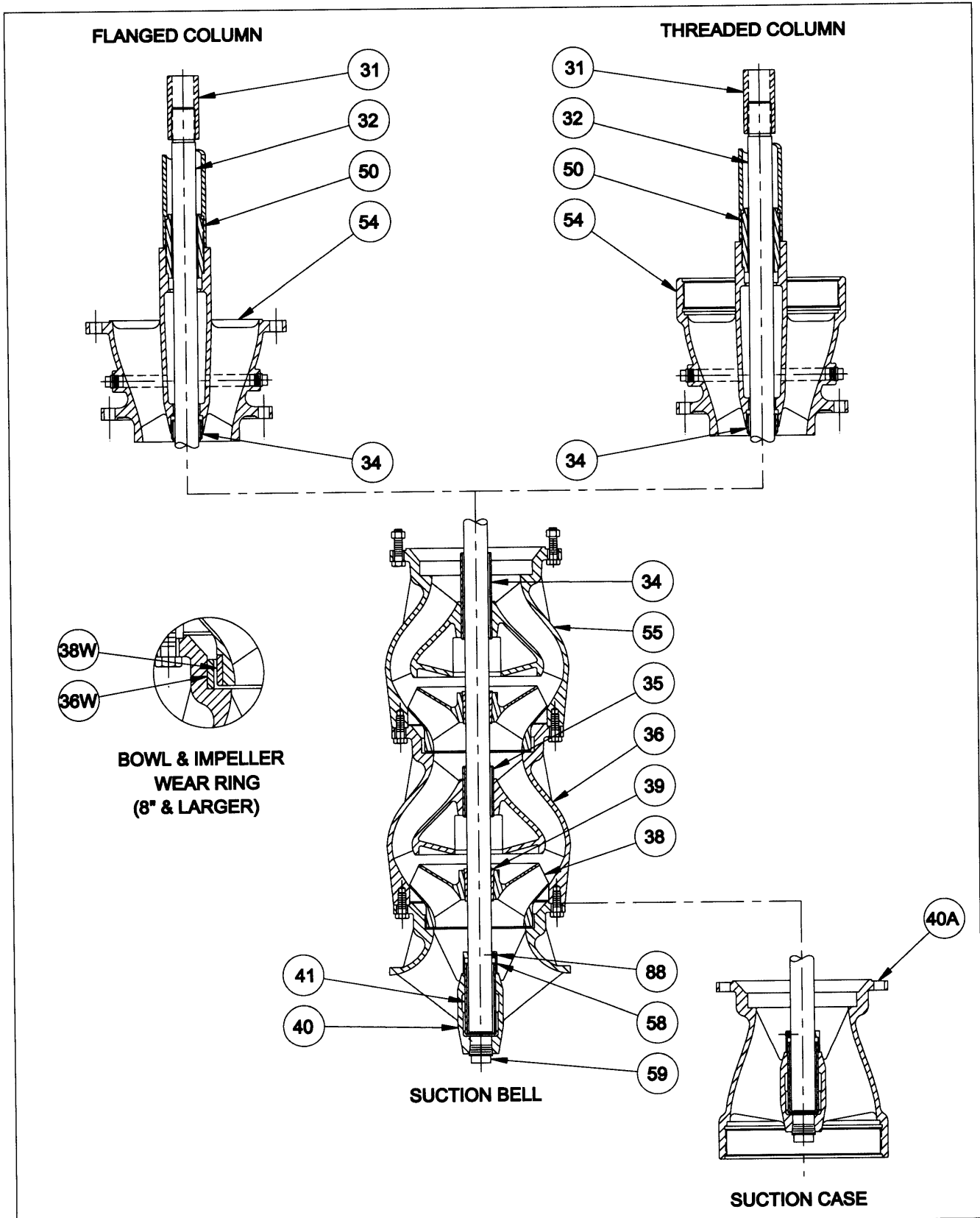
1. All material specifications are ASTM unless otherwise noted and are a description of chemistry only.
2. Bowl interior is coated with Tnemec 140 Pota-Pox Plus, or equal.
3. Circular sections are A53 & plate is A36.
4. Pump shaft coupling is stainless steel, ASTM A582 S41600



THREADED BOWL ASSEMBLY
6DREL C, 6DRMC, 6RKLC, 6RKHC, 6EM, 7EM, 8URHC, 8EM, 8TM, 8TH,
10RKLC, 10RKHC, 10RKEH, 10RKHS, 10TLC, 10THC, 12TLC, 12THC
WATER FLUSH



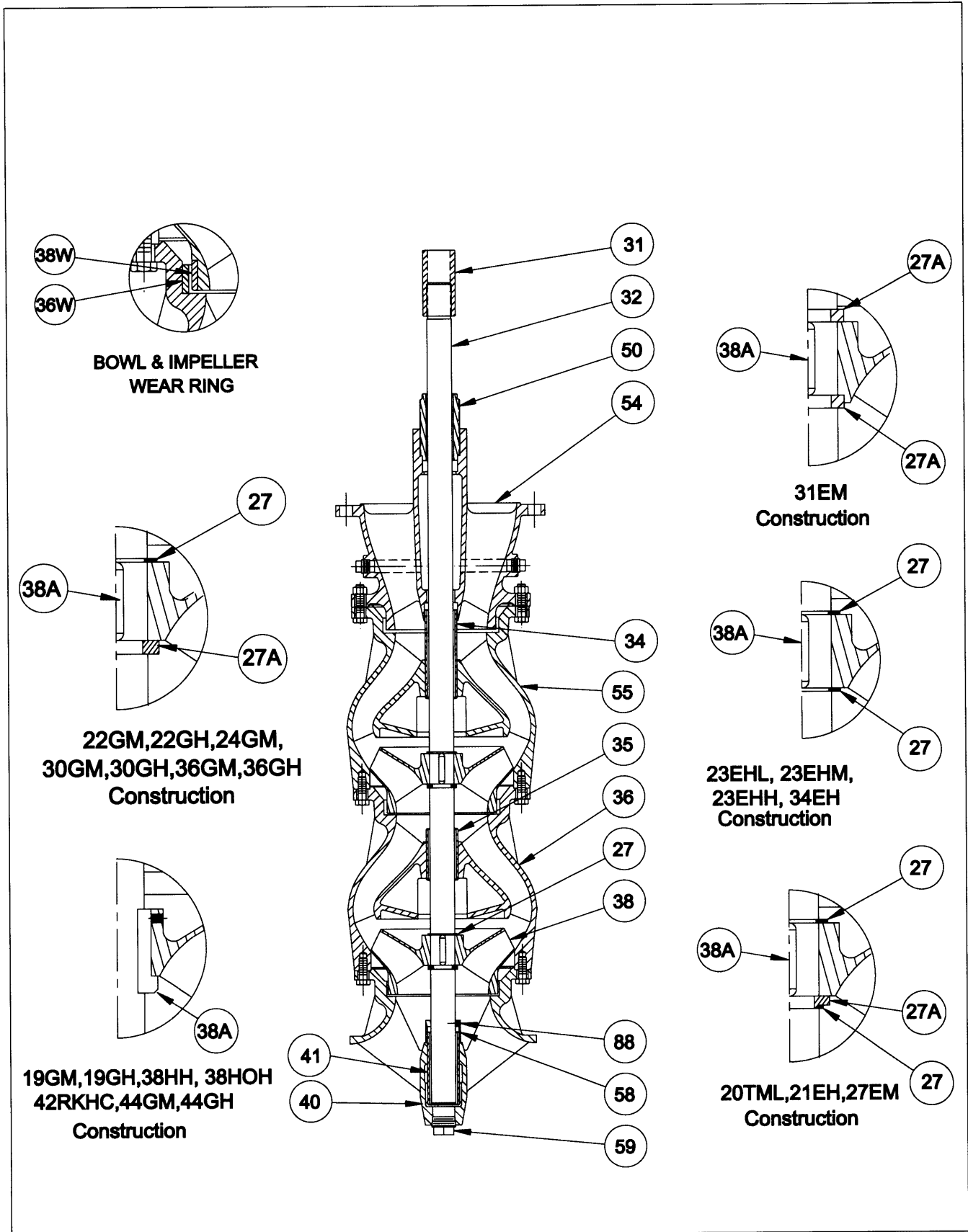
Pentair Water
DWG NO **1100M015** REV NO **0**



FLANGED BOWL ASSEMBLY
 7CL,7CEH,7CM,8RL,8RM,8RH,10EM,10FHM,10FHH,11EM,11EH,12RKBL,12RKBM,
 12RKBH,12RKBEH,12EM,12RM,12RH,12FHL,12FHM,12FHH,12DEH,13CL,
 13CM THRU 17EH,18GL,18GM
MULTI-STAGE, WATER FLUSH

Layne/Verti-Line
 Pentair Water

DWG NO **1100M007** REV NO **0**



BOWL & IMPELLER WEAR RING

22GM, 22GH, 24GM, 30GM, 30GH, 36GM, 36GH Construction

19GM, 19GH, 38HH, 38HOH, 42RKHC, 44GM, 44GH Construction

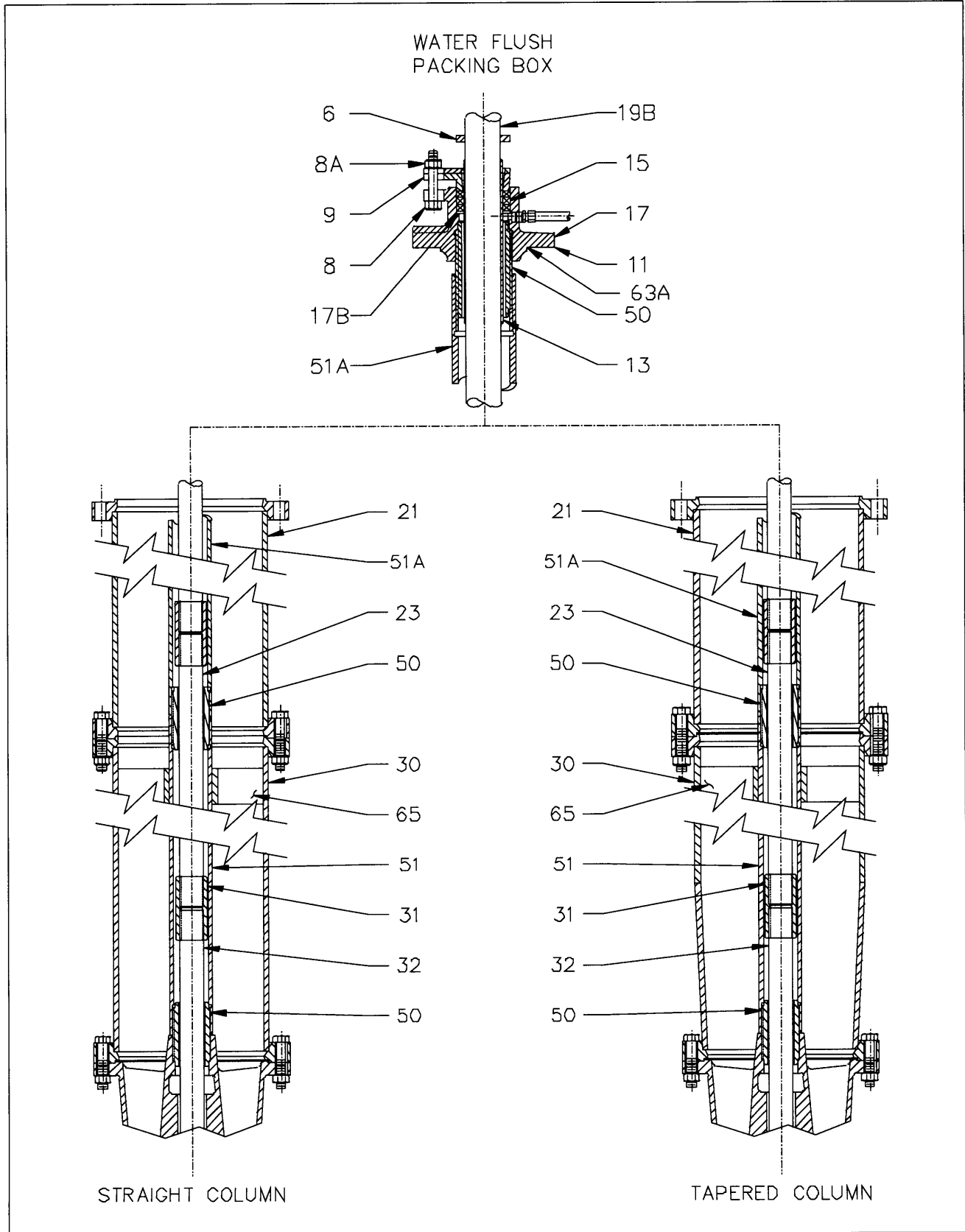
31EM Construction

23EHL, 23EHM, 23EHH, 34EH Construction

20TML, 21EH, 27EM Construction

**FLANGED BOWL ASSEMBLY
LARGE VERTICAL TURBINE
MULTI-STAGE, WATERFLUSH LINESHAFT**

<small>Pentair Water</small>	
DWG NO	110AP008
REV NO	



WATER FLUSH-ENCLOSED LINESHAFT
 4" THRU 20" COLUMN



Pentair Water

DWC No. 8000A049 REV NO 0

COLUMN SECTIONS ARE TO BE LIFTED BY EYEBOLTS OR "COLUMN CLAMPS" (SUPPLIED BY OTHERS)

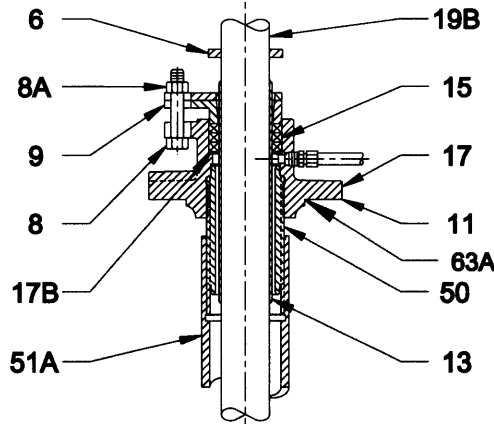
WARNING:

ALWAYS MAKE SURE LIFTING EQUIPMENT IS OF ADEQUATE SIZE TO PREVENT POSSIBLE SERIOUS PERSONAL INJURY OR DAMAGE TO THE EQUIPMENT.

COLUMN TUBE AND SHAFT ASSEMBLIES SHOULD BE SECURED TOGETHER BY ROPE SLINGS OR OTHER SUITABLE MEANS.

TUBE STABILIZERS ARE REQUIRED WHEN SETTING EXCEEDS 30 FT.

WATER FLUSH PACKING BOX



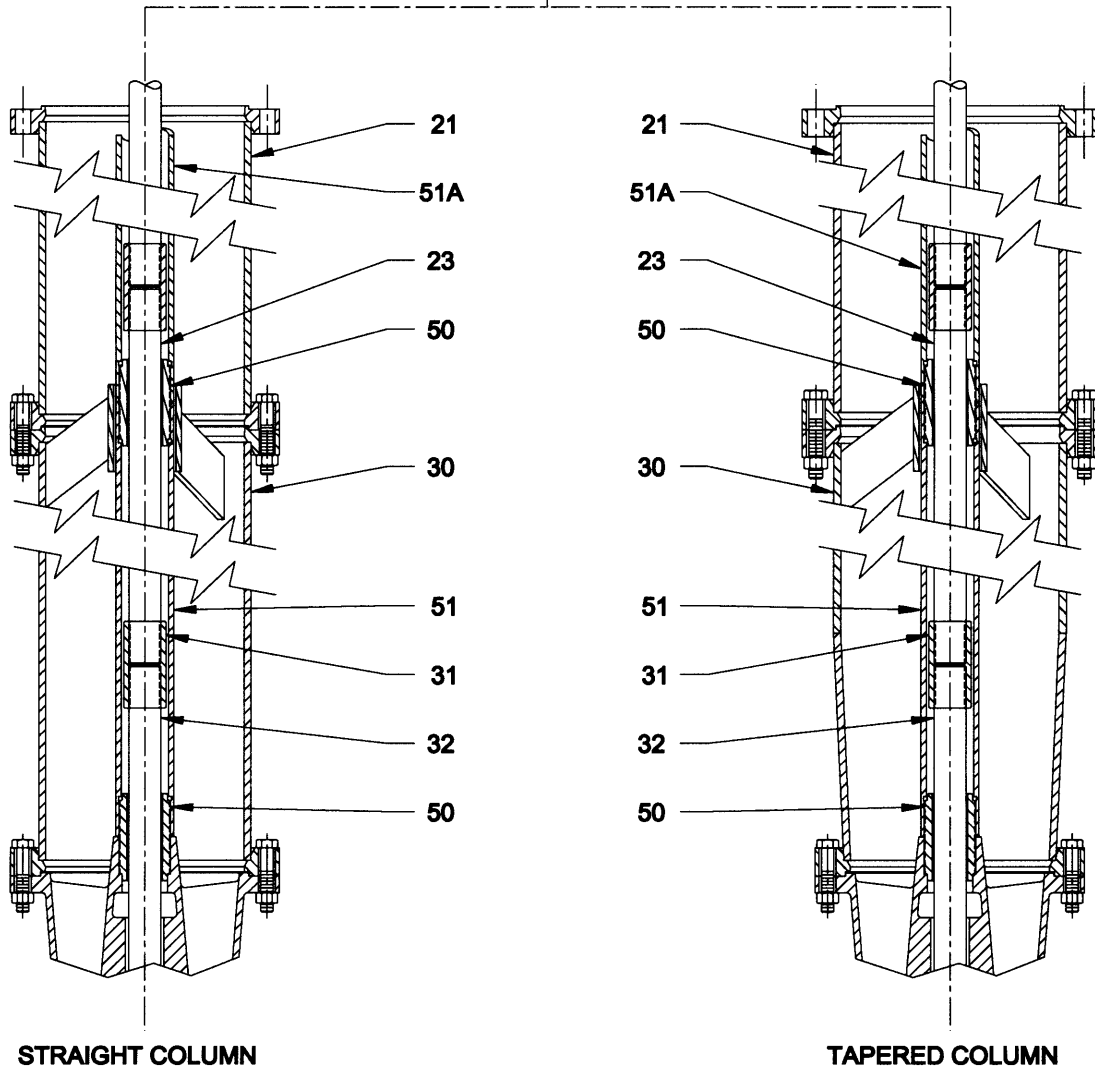
BEARING CENTERS (MAX)

TOP 6.5 FT.
INTER 5 FT.

COLUMN & SHAFT LENGTHS

MAX 10 FT.
SHAFT PROJECTION 17-1/2"

REFER TO TECHNICAL DATA PAGE FOR OTHER DIMENSIONS AND WEIGHTS.



**WATER FLUSH-ENCLOSED LINESHAFT
24" AND LARGER COLUMN (AVAILABLE ALL SIZES)**



Pentair Water

DWG NO 8000A051

REV NO 0