INSTALLATION, OPERATION AND MAINTENANCE INSTRUCTIONS

COALESCING PLATE SEPARATOR

MODEL No MPV-6 MPV-12

CLIENT:

LOCATION:

DATE:

BALDWIN INDUSTRIAL SYSTEMS PTY LTD

13 Ranton Street
CARDIFF NSW 2285
Ph:(02) 4954 0440
Fx:(02) 4954 2440
Email:sales@baldwin.com.au

BALDWIN

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1.0 EQUIPMENT LIST

- **BALDWIN CPS MODEL MPV-6 MPV-12**

Approximate Dimensions: 1300mm long x 390mm wide x 1450mm high

Approximate Dry Weight: 50kg

Approximate Operating Weight: 220kg

- **ASM ELECTRIC DIAPHRAGM PUMP MODEL DS-25 DT-25**

Approximate Dimensions: 435mm long x 328mm wide x 370mm high

Performance Ratings: Single Phase 240V 0.25kw motor / Three phase 415V 0.37kw motor

Suction Head: 1.0 metres (vertical)

Discharge Head: 2.0 metres (vertical)

Rated Flow: 1000L/hr

Approximate Weight: 38kg

- **BALDWIN CONTROL PANEL WITH FLOAT SWITCH MODEL NO LF-006**

Dimensions: 200mm high x 150mm wide x 200mm deep

Performance Ratings: Single Phase 240V 50Hz / Three Phase 415V 50Hz

2.0 PRINCIPLES OF OPERATION

Like all gravity separators, the Baldwin CPS depends on Stokes' Law for its performance prediction. Stokes' Law is the physical law governing the settling/rise rate of a particle/oil droplet in a fluid stream, and along with various design parameters, determines the size and type of CPS unit.

Operation of the CPS is simple:

- Contaminated water is introduced into the first section of the CPS via the diaphragm pump. Heavy solids settle out immediately and fall into the hopper, whilst large oil slugs rise to the surface.

- The remaining oily/water mixture flows through the closely spaced polypropylene plates with the smaller oil droplets and fine suspended solids being progressively separated. An oil dam prevents any collected (floating) oil from escaping into the outlet pipe. An oil skimmer is provided for the removal of the accumulated oil.

- Clean water passes underneath the base of the oil dam, over the outlet weir (funnel) and gravitates to the point of discharge.

DESIGN CONDITIONS

The system has been selected based on the following design parameters:

- Maximum Flow Rate = 1000L/hr
- Average Oil SG = 0.85
- Minimum Temperature = 22°C
- Effluent Oil Concentration = 29ppm
- Flow Status = Pumped by a diaphragm type pump operating at less than 2 strokes/second.

No chemical emulsions, surfactants, detergents or water-soluble degreasers to be present.

Only "Quickbreak" type detergents may be used and only in minimal quantities.

3.0 INSTALLATION AND COMMISSIONING INSTRUCTIONS

- **BALDWIN CPS**

Installation should be carried out by a licensed plumber. The basic steps for installation of the CPS unit are as follows:

1. Select a sound, level foundation for locating the unit. Secure the feet to the foundation with 12mm diameter corrosion resistant dynabolts or similar fasteners.

2. Connect the clean water outlet pipe to the outlet connection of the CPS.

3. Connect the oil outlet from the oil skimmer to the oil collection drum. A normally open valve may be installed in the oil outlet line, if required for isolation purposes.

4. Install a ¼ turn valve on the solids outlet at the base of the hopper. If required install piping to a sludge drying pit if available.

5. Connect the oily-water inlet pipe work from the collection pit to the suction side of the pump. Install a floating suction or course strainer to the end of the pipe work inside the collection tank. Install the pump discharge to the inlet connection of the CPS. Flexible hose or couplings may be required either side of the pump, to dampen shock from the pumps' operation. They must be installed on ridged steel pipe work to avoid system failures. Unions or other easily removable connections are required either side of the pump to allow the quick replacement of the consumable flap valves or removal of the pump.

Note:

* Refer to Appendix A for product drawing and required CPS layout diagram.

* All CPS fittings are 32mm BSP threaded male connections.

* All rigid pipework is to be independently supported.

* A bund (minimum capacity = 200L) complete with a drain back into the pumping/holding well should be constructed around the CPS unit, in case of spillage etc during servicing. Note; bunds must be constructed to relevant Australian Standards & local regulations. (MPV capacity = 170 litres)

- **ASM ELECTRIC DIAPHRAGM PUMP**

Secure the pump to the ground or the pump mount (if provided), beneath the CPS, using 10mm diameter bolts ensuring access to the solids hopper is not restricted. The outlet port of the pump should be pointing away from the solids hopper enabling easy plumbing to the inlet port of the CPS.

If the pump is to be mounted in an area open to the weather (ie. not directly under the CPS), the manufacturer recommends that the unit be installed under a cowl or similar enclosure to exclude rainwater and allow free airflow to the pump motor.

Note: Remove small vent plug from oil filler cap before operating pump.

Please refer to the manufacturer's instructions in Appendix B of this manual for further details.

- **BALDWIN CONTROL PANEL**

The control panel should be installed by a licensed electrician as per the wiring diagram supplied. All applicable wiring standards should be adhered to.

For full details, please refer to the wiring diagrams in Appendix C of this manual.

PLUMBING INSTALLATION

Installation is to comply with all relevant Australian plumbing standards and the relevant local water authority requirements. Refer to the Typical Layout drawing in the appendix of this manual for general installation guidelines. Specific attention to be paid to the following points:

- Pump manufacturers pipe size requirements (Pump manual in Appendix)
- Collection Pit requirements
- Plumbing connections to & from collection pit for bund area and separator
- Waste collection containers
- Bund area requirements
- Trade waste sampling point with tundish

4.0 OPERATING INSTRUCTIONS

- **BALDWIN CPS**

The basic steps for the general operation of the CPS unit are described as follows:

Initial Start-up

This procedure is to be followed after the initial installation, or after the unit has been drained, cleaned and is ready to be brought back into operation.

1. Ensure that the water inlet is closed off by isolating the pump (ie switch control box to "*OFF*").

2. Set the oil skimmer at the highest level. Ensure that there are no obstructions in the oil or water outlet piping and remove any foreign matter if necessary.

3. Ensure all fittings are tight and secure.

4. Fill the CPS with **clean** water until water starts to flow over the outlet weir (funnel).

5. Check for leaks or blockages.

6. Set the selector on the Control Panel to "*AUTO*".

7. Once sufficient wastewater has accumulated in the collection pit, the pump will activate allowing the contaminated oil/water mixture to enter the tank.
   Note: When "*AUTO*" is selected, the float switch or level probes are responsible for pump control.

8. **At the rated flow**, set the top of the oil skimmer (socket) to approximately 5mm **above** the maximum (operating) water level by screwing the socket up/down. Secure the lock nut to ensure no movement.

Note:

* The skimmer can be adjusted if necessary, but remember that it is acceptable for an **oil layer of approximately 5mm to be maintained on the surface of the CPS at all times.**

* Always adjust the oil skimmer relating to the *MAXIMUM* water level (ie. at full flow conditions).

- **ASM ELECTRIC DIAPHRAGM PUMP**

Please refer to the manufacturer's instructions in Appendix B of this manual.

- **BALDWIN CONTROL PANEL**

Once the pump and controls have been wired up correctly, the operating switch on the control box should be turned to "*AUTO*".

Note:

* If at any time the pit needs to be pumped down to a low level, the unit should be switched to "*MANUAL*".

* In the "*MANUAL*" mode, the pump must be switched off by the operator ie. the switch must be returned to the "*AUTO*" or “OFF” position to stop the pump. The low-level position of the float or level probes will **not** override the manual position.

5.0 MAINTENANCE

- **BALDWIN CPS**

The solids hopper should be drained fortnightly by opening a valve on the solids hopper until solid free water is flowing (ie all the accumulated solids have been removed, usually a few seconds when fully opened). The waste sludge should be contained in a 20 or 60 litre drum and disposed of by a suitable contractor, or drained back into the pumping/holding well.

It is recommended that the CPS unit be serviced regularly, the frequency being determined by the amount of solids built up in the plates at the time of the first inspection, which should take place approximately 3 months after installation.

A thin oil film present on the plates is normal. Cleaning need only be carried out if the plates are blocked by an oily **sludge**.

- **ASM ELECTRIC DIAPHRAGM PUMP**

Please refer to the manufacturer's instructions in Appendix B of this manual.

- **BALDWIN CONTROL PANEL**

Nil maintenance is required. Should any problems or difficulty arise, please contact the manufacturer immediately.

6.0 STEPS FOR PLATE PACK INSPECTION AND SERVICING

1. The flow to the separator is to be isolated by turning the control switch on the control panel to the "*OFF*" position.

2. Lower the oil skimmer to remove as much oil from the surface as possible, and then raise to the operating position.

3. Remove the plates by lifting slowly, allowing the water to drain back into the CPS.

Visual inspection will determine the amount of solids built up in the plates. If the plates appear to be silted up, they can be cleaned in one of two methods:

METHOD 1 - CLEANING IN SITU (OPERATING POSITION)

a) Replace the plates and drain the CPS through the valve on the solids hopper back into the holding well. The waste must be collected by a licensed waste contractor or contained for suitable disposal. Close the valve on the solids hopper.

b) The plates should be cleaned by spraying water in the plate pack to ensure the sludge (if any) is removed properly.

DO NOT USE ANY DETERGENTS

c) Hose the inside of the CPS, ensuring all collected sludge and oil is removed. Drain the CPS once again and dispose of the waste as above.

d) Fill the CPS with **clean** water until water starts to flow over the outlet weir (funnel).

e) Return the switch on the control panel to the "*AUTO*" position.

Correct orientation of the Plate Pack

METHOD 2 - CLEANING IN BUNDED AREA

a) Drain the CPS through the valve on the solids hopper back into the holding well. The waste must be collected by a licensed waste contractor or contained for suitable disposal. Close the valve on the solids hopper.

b) Remove plate packs from the CPS. Hose the plates thoroughly (in a bunded area draining back into the holding well), ensuring built up sludge (if any), is removed.

DO NOT USE ANY DETERGENTS

c) Hose the inside of the CPS, ensuring all collected sludge and oil is removed. Drain the CPS once again and dispose of the waste as above.

d) Replace the cleaned plate packs into the CPS. Fill the CPS with clean water until water starts to flow over the outlet weir (funnel).

e) Return the switch on the control panel to the "*AUTO*" position.

Note:

* The quantity of sludge found in the hopper and in the plates should be used as a basis for determining the interval between subsequent cleaning operations.

* A thin film of oil on the surface of each plate is normal.

COLLECTION WELL CLEANING

At frequencies, depending upon the build-up of sludge and oil, the collection well is to be emptied (sucked out by a suitable contractor) and cleaned so that all sludge and oil has been removed. Scrape the walls of the collection well if necessary.

7.0 SPARE PARTS LIST

- **BALDWIN CPS**

No spare parts are required for the CPS should any plates or oil skimmer parts become damaged, they can be repaired or replaced by contacting:

Baldwin Industrial Systems Pty Ltd
13 Ranton Street
CARDIFF NSW 2285

or

PO Box 605
CARDIFF NSW 2285

Phone: (02) 4954 0440
Fax: (02) 4954 2440
Email: sales@baldwin.com.au

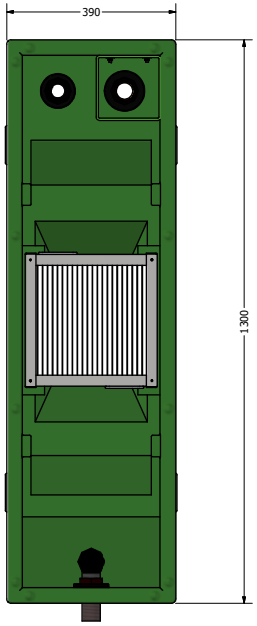
- **ASM ELECTRIC DIAPHRAGM PUMP**

Please refer to the manufacturer's instructions in Appendix B of this manual.

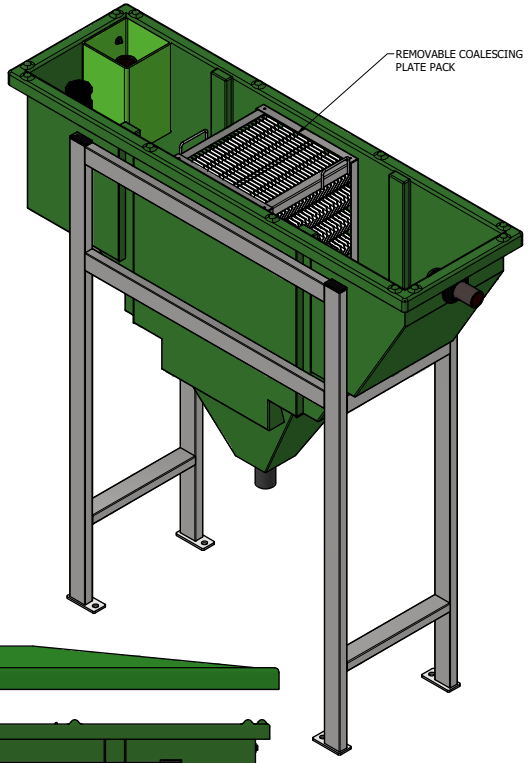
- **BALDWIN CONTROL PANEL**

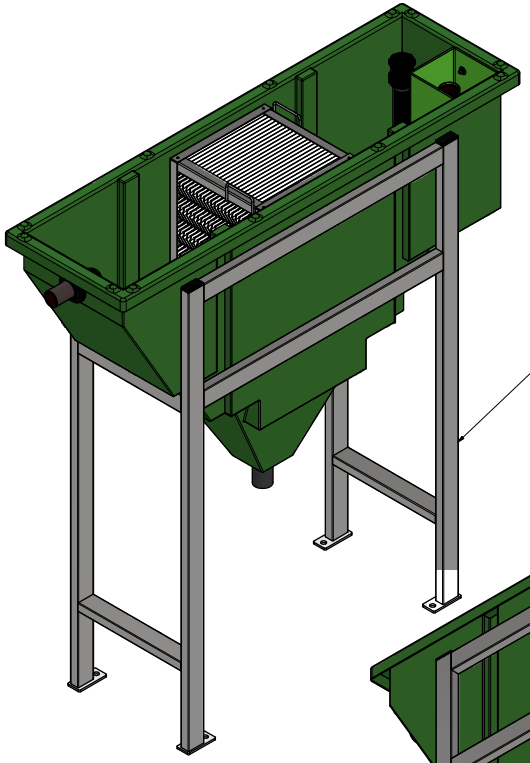
No spare parts are required.

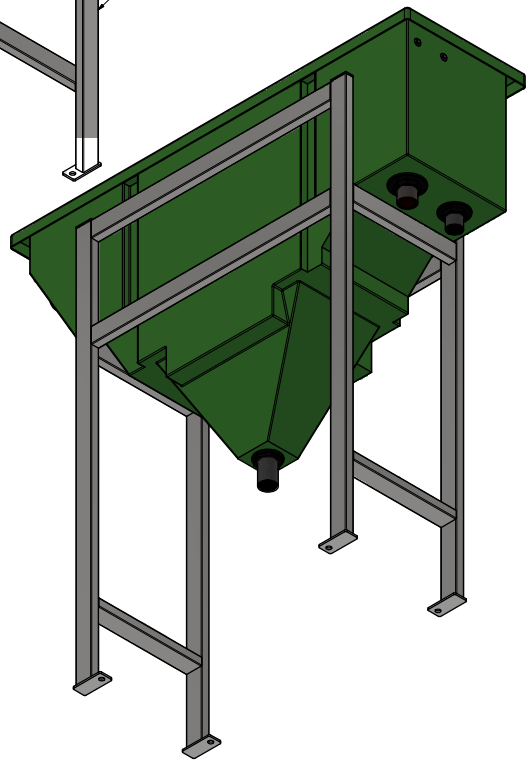
APPENDIX A – Drawing



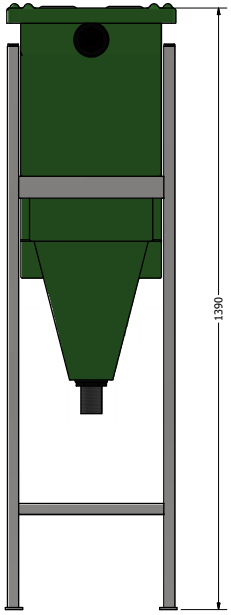
PLAN VIEW LID REMOVED



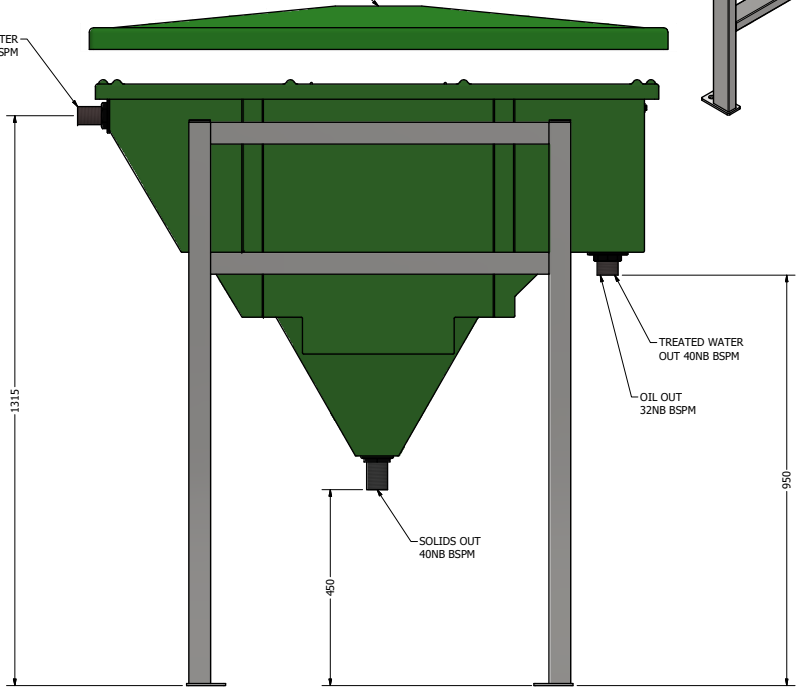




ISOMETRIC VIEWS
LID NOT SHOWN



INLET END VIEW



SIDE VIEW

BALDWIN INDUSTRIAL SYSTEMS PTY. LTD
13 RANTON ST CARDIFF NSW 2285 AUSTRALIA
PH:(02) 4954 0440, ABN: 30 002 218 457

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REV	DATE	REVISION DETAIL	DRAWN
A	08.12.23	ISSUE FOR INFORMATION	S. JENSEN

DRAWN	S JENSEN	08.12.23
CHECKED	S SHEEHAN	08.12.23
APPROVED	R CRAWFORD	08.12.23

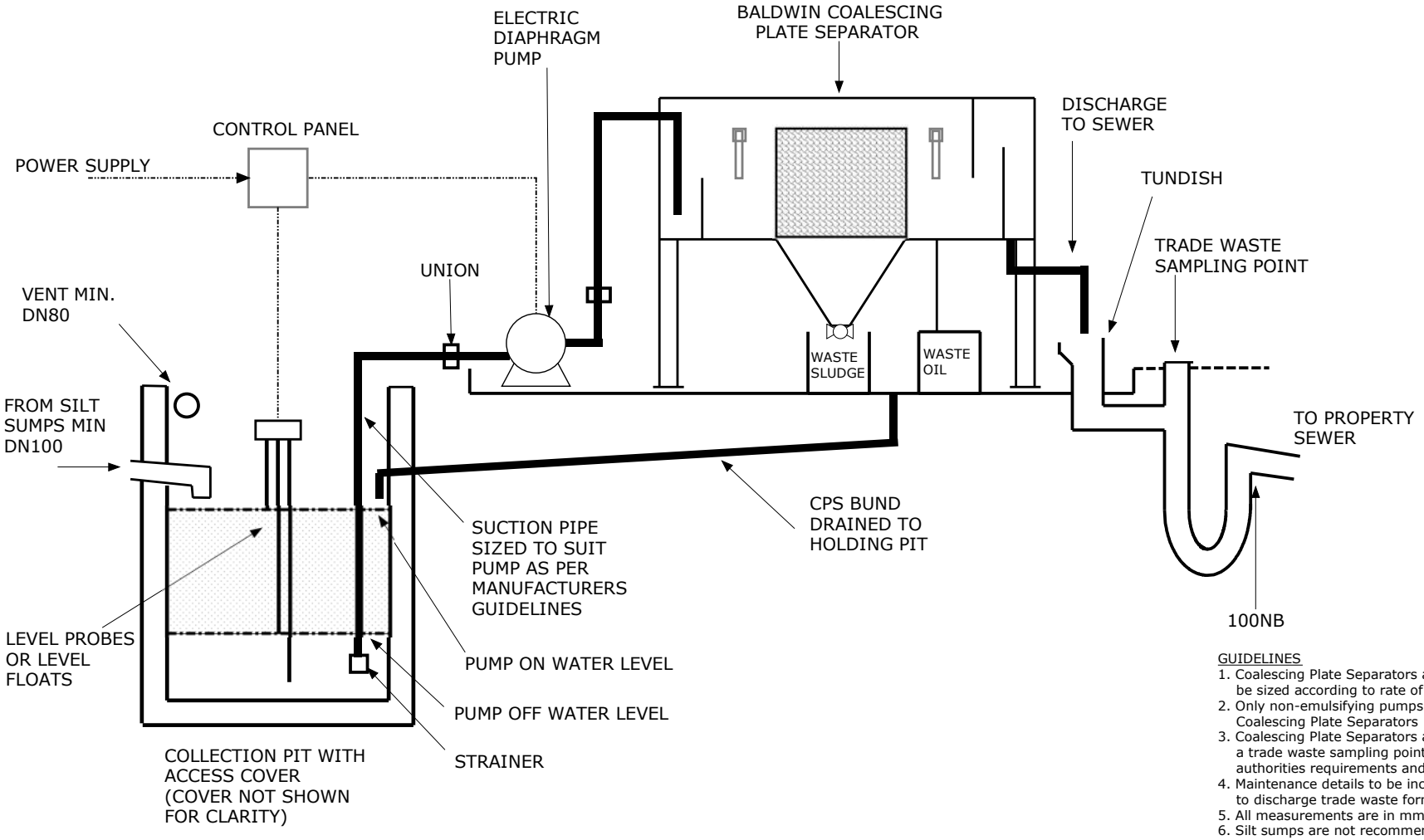
CLIENT: BALDWIN INDUSTRIAL SYSTEMS

PROJECT: 1000 LPH COALESCING PLATE SEPARATOR

TITLE: MODEL MPV
OILY WATER SEPARATOR
GENERAL ARRANGEMENT

SIZE	DWG NO	REV
D	B-MPV-01	A

SCALE	JOB NO:	SHEET 1 OF 1
1 / 6	B-MPV	



GUIDELINES

1. Coalescing Plate Separators and collection pit to be sized according to rate of inflow
2. Only non-emulsifying pumps to be used with Coalescing Plate Separators
3. Coalescing Plate Separators are to discharge through a trade waste sampling point as per local water authorities requirements and drawings
4. Maintenance details to be included with the application to discharge trade waste form
5. All measurements are in mm
6. Silt sumps are not recommended to be used as collection or holding pits
7. The minimum capacity of the collection pit to be twice the holding capacity of the separator
8. All associated plumbing work is to comply with local water authority requirements as well as AS/ NZS 3500.1 as amended and AS/ NZS 3500.2 as amended

NOTE: Pump Selection depends on whether flammable hydrocarbons might be present. If they could be present pump needs to be ExE or ExD depending on area zoning and control panel requires either IS Barrier (Probes) or IS Isolator (Floats)

Also Pump must be matched to correct separator size, never a higher flow pump than rated flow rate of the separator

BALDWIN

CLIENT:		DATE
PROJECT : EXAMPLE		JUL 2026
TITLE: TYPICAL CPS LAYOUT DIAGRAM	REV NO. C	DRAWING NO. #CPSMAN1

APPENDIX B – ASM Electric Diaphragm Pump

D SERIES INSTALLATION & MAINTENANCE MANUAL

READ THIS MANUAL BEFORE INSTALLING, OPERATING OR SERVICING DIAPHRAGM PUMP
FAILURE TO FOLLOW INSTRUCTIONS MAY RESULT IN PUMP FAILURE & VOID WARRANTY

** D25 Cast Iron, D32 - 76 Alum.*

Material
Blank - Standard*
CI - Cast Iron
BR - Bronze
SS - 316 Stainless

Drive
S - Electric Single Phase 240V
T - Electric Three Phase 415V
E - Petrol Engine
D - Diesel Engine

Flow Rate
Nom. M3 /Hr

Motor Rating
EXE - Increase Safety
EXD - Flameproof
EXN - Non-Sparking

Size
25
32
38
50
76

ASM PUMPS
14 NICOLE WAY
DANDENONG SOUTH 3175
VICTORIA AUSTRALIA
TEL: (03) 9793 7577
FAX: (03) 9793 7576

Serial No. XXXXX

D X XX XXX XX X K

General

Install the pump in a level position and secure using mounting holes in base plate. ***Remove vent plug from gear reducer oil filler cap***
Check oil is visible in the sight glass. Use high quality 460 grade gear oil. ASM Diaphragm pumps do not require priming and can run dry without damage. For start up ensure all valves are fully open before running the pump. With the pump delivering liquid check the motor current draw is below the full load current on the motor nameplate.

Electrical

Have the electrical connection installed by a qualified electrician.
Connect motor as per the motor manufacturers instructions and fit a motor overload protection device. Ensure there is unobstructed airflow to the motor cooling fan and the motor is protected from the weather and water. The correct motor rotation is clockwise viewed from the fan end.

Warning
Incorrect rotation will damage the pump

Pipework

Correct pipe size is a critical factor affecting pump performance and service life. Refer to pipe selection chart below. Pipework should be airtight, adequately supported and as short and direct as possible.
Use flexible connectors between pump and rigid pipe work. Fit an ASM Pulsation Dampener if rigid pipework exceeds 3m in length.
For flexible installations use reinforced suction hose for suction and discharge.

Warning
Never restrict or dead head the pump damage will occur. Use of incorrect pipe sizes will void warranty

Engine Drives

Refer to manufacturers instructions for commisioning

Warning
Maximum pump speed must not exceed 40 strokes per min.

IMPORTANT INFORMATION FOR INSTALLERS INTERNAL PIPE SIZE FOR ASM DIAPHRAGM PUMPS					
FOR CLEAN LIQUIDS WITH SAME VISCOSITY AS WATER					
	SUCTION PIPE LENGTH M		DISCHARGE PIPE LENGTH M		
PUMP SIZE	0 - 5	5 - 10	0 - 5	5 - 10	10 - 20
D25	25	32	32	40	40
D32	32	40	40	50	50
D38	40	50	50	65	65
D50	50	80	65	80	80
D76	80	80	80	100	100
	SUCTION PIPE ID IN MM		DISCHARGE PIPE ID IN MM		

Maintenance

After 10 Hours operation check the oil level in the gear reducer and re-tension fasteners if required. After 100 Hours drain reducer, flush thouroughly with a light oil and replace with 460 grade gear oil. Replace gear reducer oil every 2500 Hours there after. The operator should not need to carry out further maintenance, rather inspect the pump on a regular basis and be aware of changes to the pumps normal operation. Diaphragm and valve assemblies are consumable items and will require replacement.

Diaphragm Fitting

Jog pump to take the diaprhagm, Item 3 to the bottom of the stroke. Disconnect power supply. Remove the four clamping bolts holding the drive support housing, Item 12 to the bowl casing, Item 1 and lift the drive support and diaphragm assembly clear. Remove stainless bolt Item 9 for D25 and D32 or nut for D38, D50 and D76. Remove the washer set set Item 10 and diaphragm plate Item 2. Clean and inspect both diaphragm plates and replace washer set. Replace diaphragm. The correct orrientation is with the writing up. See Fig.1 The top outer lip of the diaphragm should be 0 - 2mm from the drive support housing clamp face. See Fig.2 below. The diaphragm position will generally not require adjustment. If required, loosen and adjust the connecting rod nut/s. Mount the drive support and diaphragm assembly onto the bowl casing ensuring the diaphragm is central and located in the groove of the bowl and fit the four clamp bolts

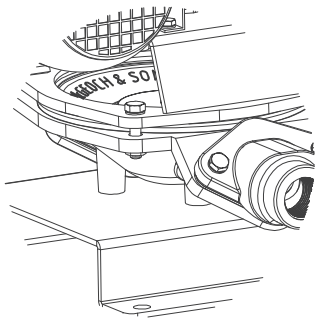


FIG. 1 CORRECT DIAPHRAGM ORIENTATION - WRITING UP

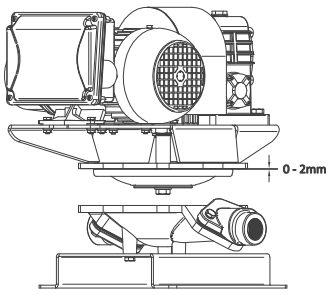


FIG. 2 INSTALLED DIAPHRAGM POSITION AT BOTTOM OF STROKE

Note
All installation, repair and maintenance work should be carried out by trained, qualified personnel.
For further information contact ASM PUMPS

MADE IN AUSTRALIA FOR OVER 50 YEARS

ASM PUMPS
14 Nicole Way, Dandenong South, Victoria, 3175
Ph: 03 9793 7577 Email: sales@asmpumps.com.au
www.asmpumps.com.au

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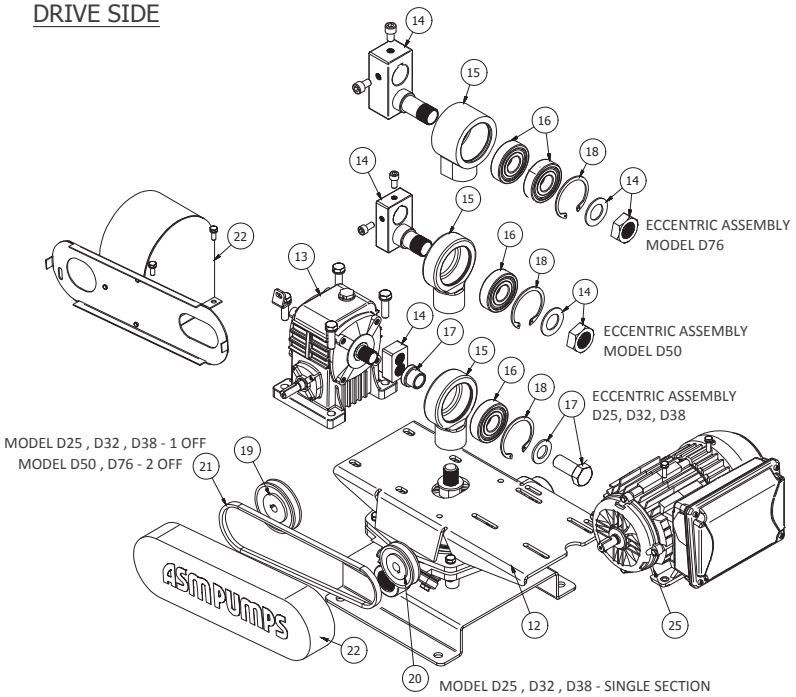
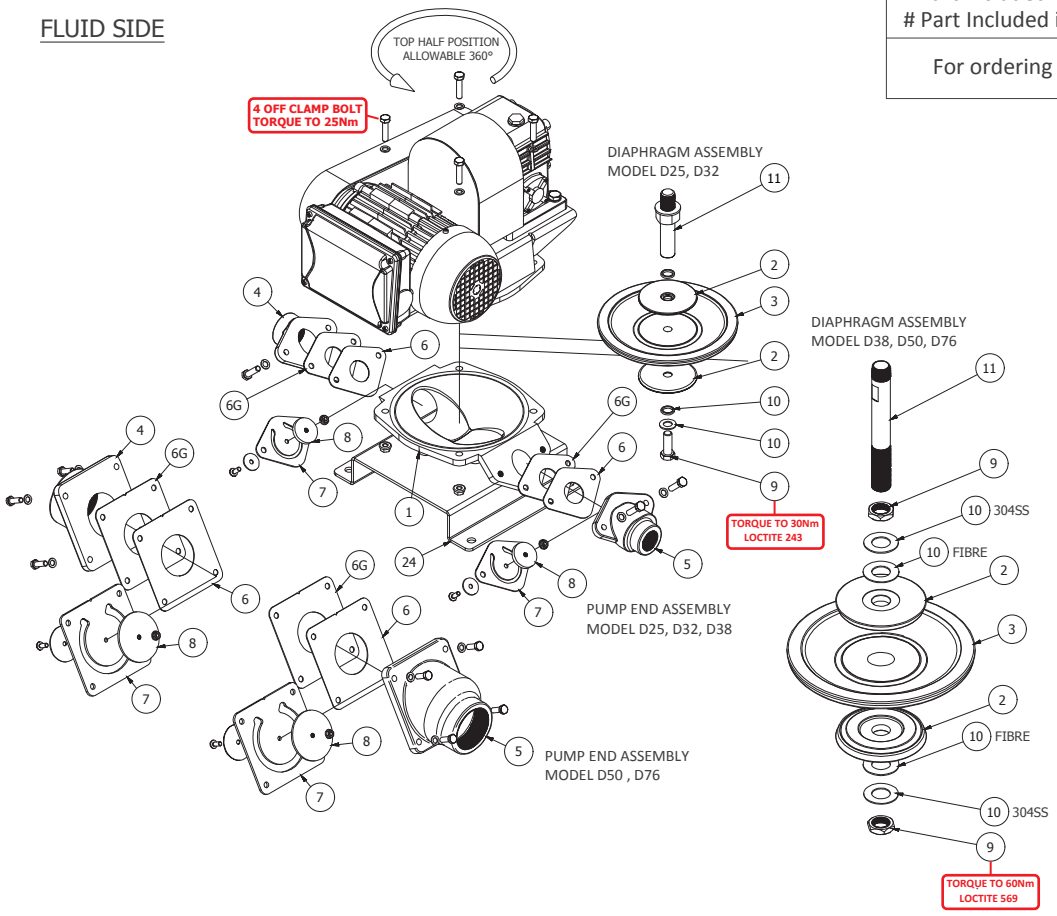
D SERIES DIAPHRAGM PUMPS

DRIVE SIDE

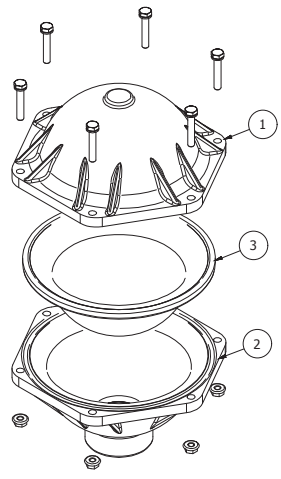


D SERIES PUMP PARTS LIST		
ITEM	DESCRIPTION	QTY.
1	Bowl Casing	1
2	Diaphragm Plate	2
3 *	Diaphragm	1
4	Suction Valve Body	1
5	Discharge Valve Body	1
6 * #	Valve Seat - Stainless	2
6G * #	Valve Seat Gasket - Rubber	2
7 * #	Flap Valve	2
8 * #	Flap Valve Weight Set	2
9	SS Bolt / Nut	1 / 2
10 *	Washer Set	1
11	Connecting Rod	1
12	Drive Support Housing	1
13	Gear Reducer	1
14	Eccentric Block Assembly	1
15	Eccentric Housing	1
16	Eccentric Bearing	1 OR 2
17	Eccentric Bolt & Spacer	1
18	Circlip	1
19	Gear Reducer Pulley	1
20	Motor Pulley	1
21 *	V-Belt	1 OR 2
22	Gaurd Assembly	1
23	Carry Frame	OPT.
24	Base Plate	1
25	Motor	1
VA	Valve Assembly	2
K1	Service Kit	1
* Part Included in K1 Service Kit # Part Included in VA Valve Assembly		
For ordering Part No. = Model - Item No.		

FLUID SIDE



PD1 & PD2 PULSATION DAMPENER PARTS LIST	
ITEM	DESCRIPTION
1	Top Half
2	Bottom Half
3	Diaphragm



DIAPHRAGM ORIENTATION
Discharge - Concave (as shown)
Suction - Convex

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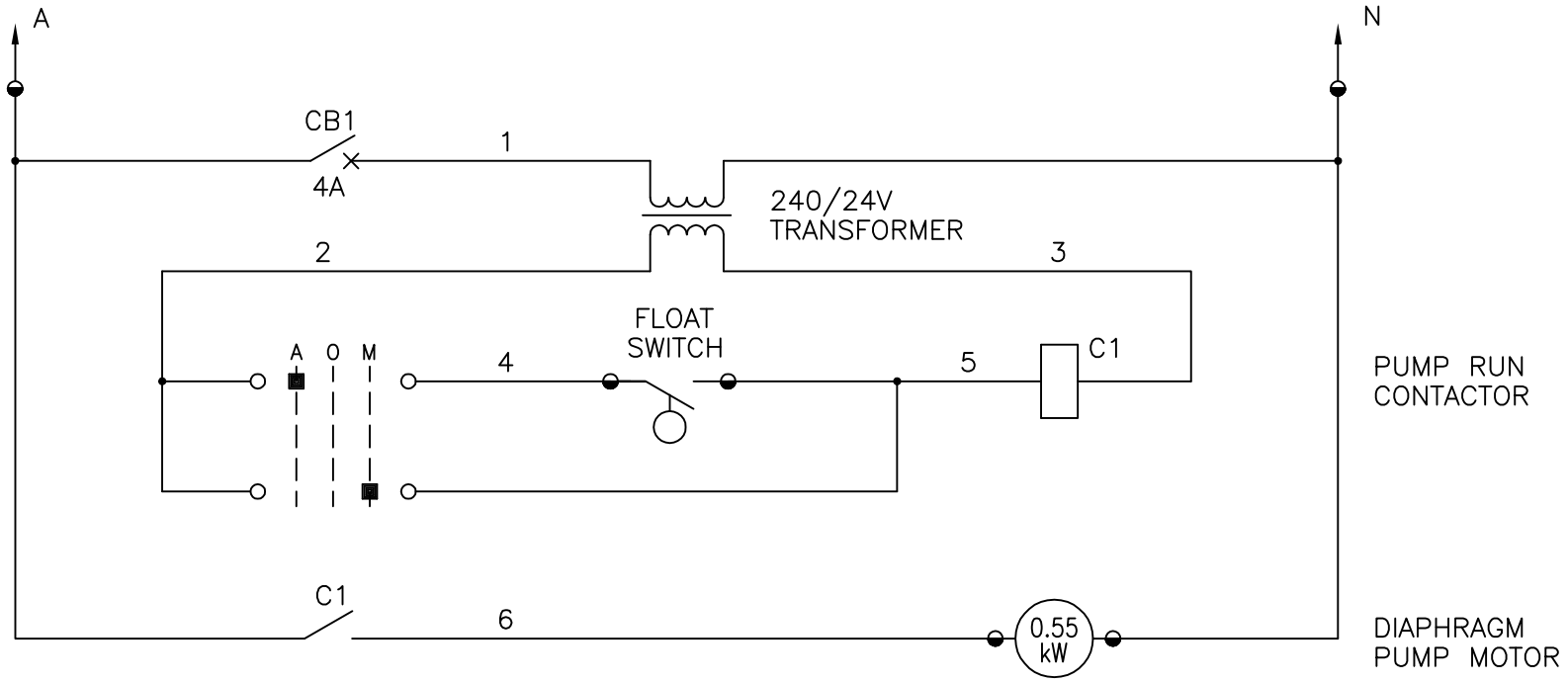
ASM PUMPS
14 Nicole Way, Dandenong South, Victoria, 3175
Ph: 03 9793 7577 Email: sales@asmpumps.com.au
www.asmpumps.com.au

ASM PUMPS
D SERIES DIAPHRAGM PUMPS

APPENDIX C – Baldwin Control Panel

BALDWIN



LEGEND

TERMINAL WITHIN CONTROL PANEL

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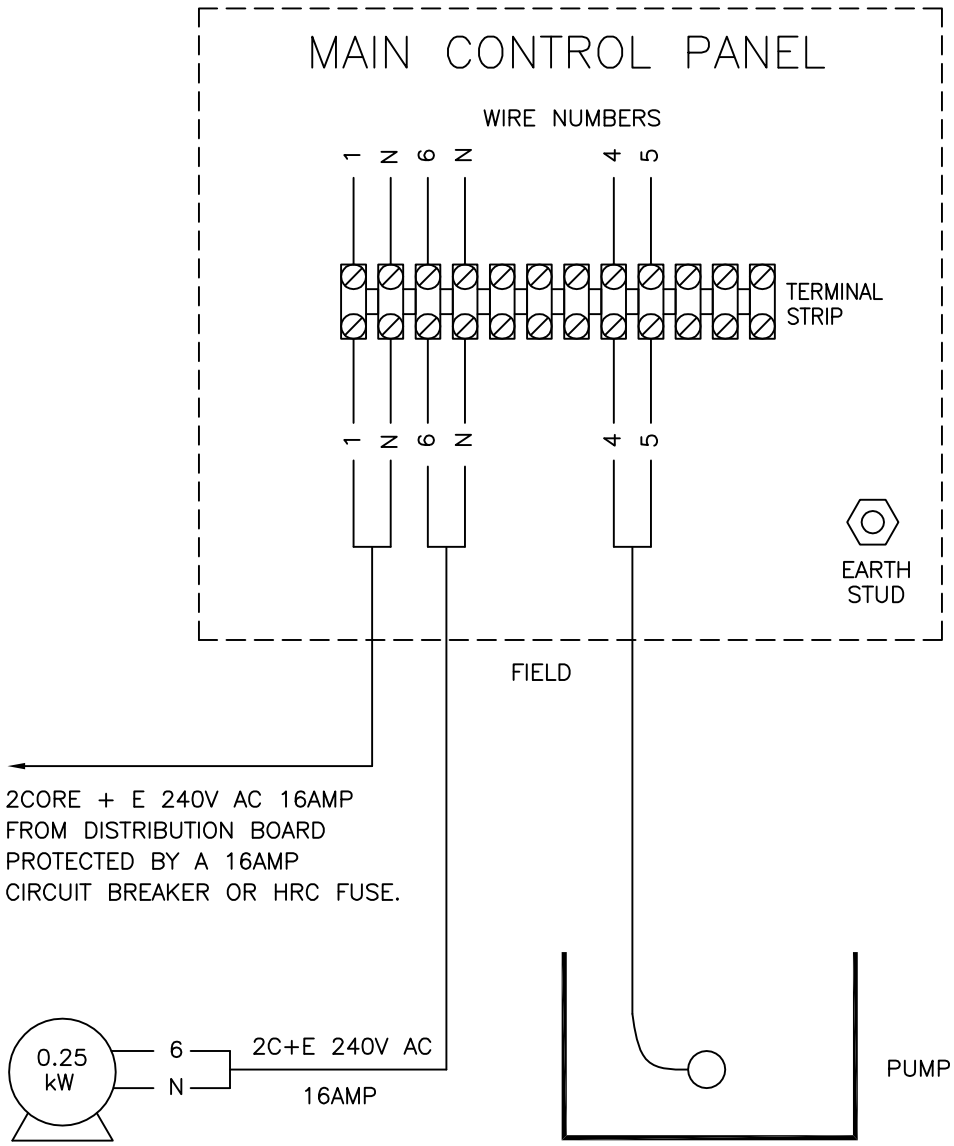
PROJECT: STANDARD FLOAT

TITLE: SCHEMATIC DIAGRAM

CLIENT:

BALDWIN INDUSTRIAL SYSTEMS P/L
13 RANTON ST CARDIFF NSW, 2285 AUSTRALIA
PHONE (02) 4954 0440 FAX (02) 4954 2440

SCALE	DATE	DESIGN	DRAWN	CHECKED	JOB No:	DRAWING NUMBER	REVISION
N.T.S	13-9-11	SJS	SJS	FK		SDF-006	1



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NOTES:

1. THIS INSTALLATION MUST BE CARRIED OUT BY A LICENSED ELECTRICIAN, AND BE IN ACCORDANCE WITH ALL RELEVANT AUSTRALIAN STANDARDS & LOCAL SERVICE RULES.
2. INSTALL FLOAT 1 TO ACHIEVE DESIRED PUMP START & STOP LEVELS.

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PROJECT: STANDARD FLOAT

TITLE: TERMINATION DIAGRAM

CLIENT:

BALDWIN INDUSTRIAL SYSTEMS P/L
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SCALE	DATE	DESIGN	DRAWN	CHECKED	JOB No:	DRAWING NUMBER	REVISION
N.T.S	13-9-11	SJS	SJS	FK		TDF-006	0