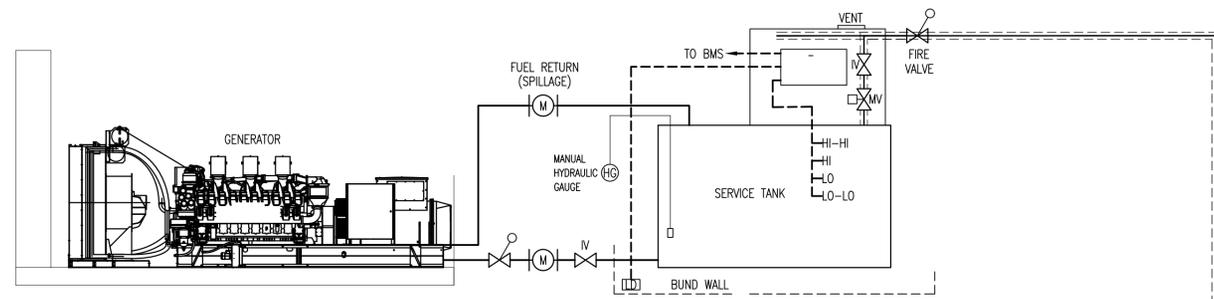


DO NOT SCALE

STANDARD NOTES:

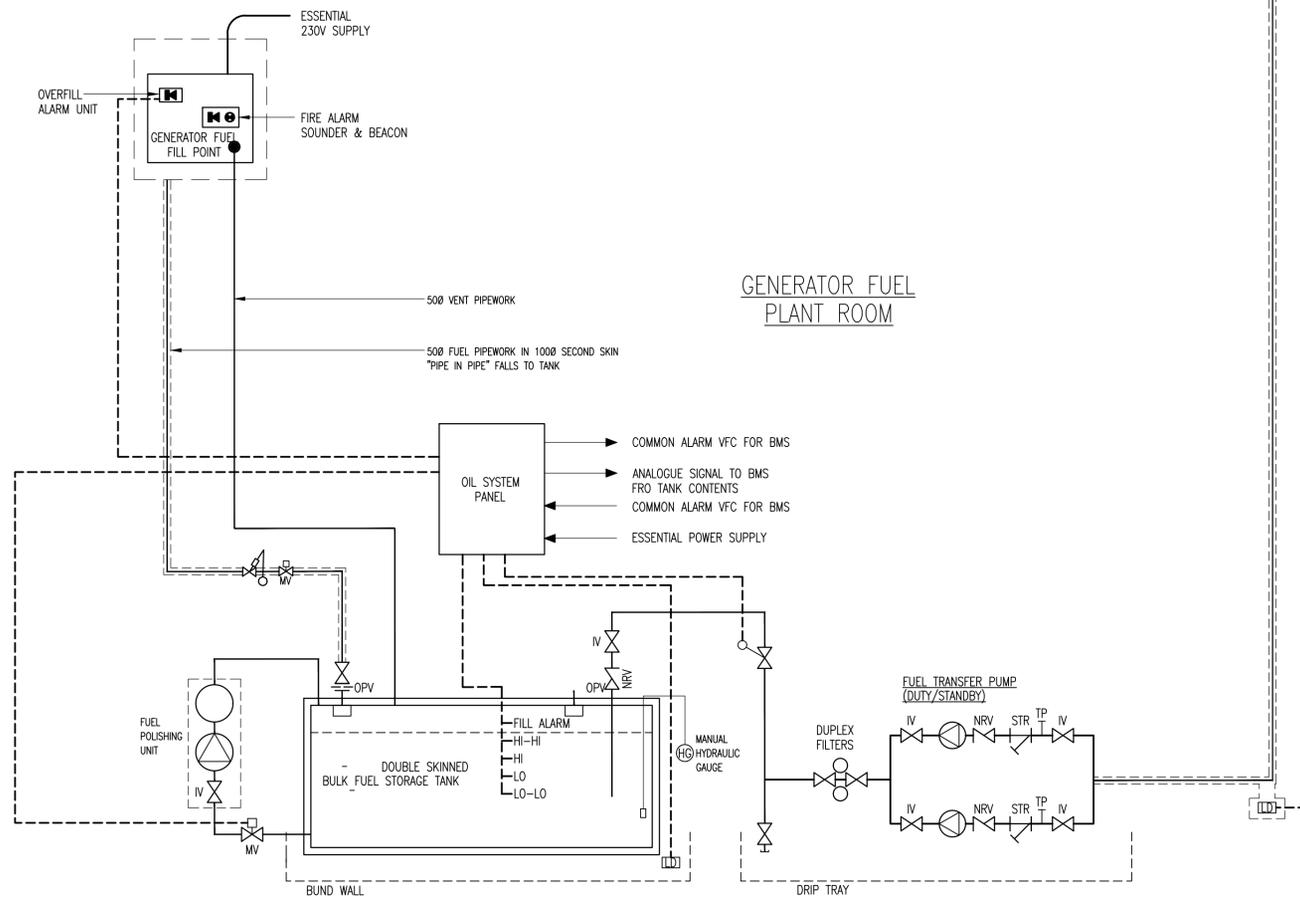
THIS DRAWING SHALL BE READ IN CONJUNCTION WITH THE REPORT, AND ALL OTHER RELEVANT DOCUMENTS AND DRAWINGS PROVIDED

THE DRAWING INDICATES THE DESIGN INTENT FOR THE WORKS.



≈ Ø FUEL FILL PIPEWORK IN SECOND SKIN "PIPE IN PIPE"

DIESEL FILL POINT IS LOCATED AT GROUND LEVEL



PO1	**/**/2024	VP	STAGE	ISSUE	JW	BD
REV	DATE	BY	DESCRIPTION	CHK	APD	

DRAWING STATUS: S3- ISSUED FOR STAGE APPROVAL



CLIENT:

ARCHITECT: EPR

SITE/PROJECT: IRC Harmondsworth

TITLE: ELECTRICAL SERVICES GENERATOR DIESEL FILL POINT SCHEMATIC

SCALE @ A1: NTS

PROJECT NO: 9097

DRAWING NO: JWCAD

DATE: 2025

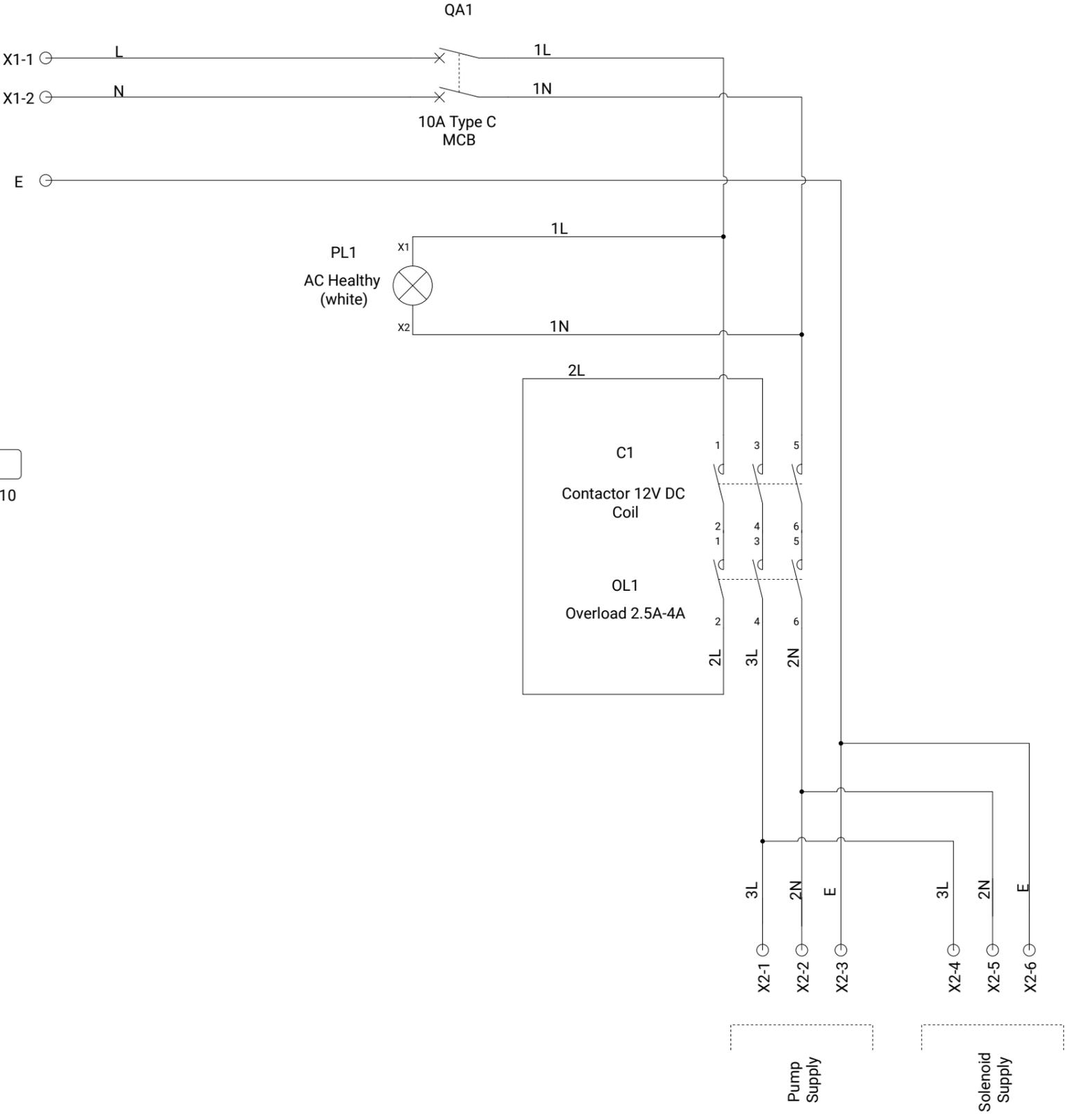
REV: 00

Table of Contents		
Item	Title	Page
1	Index	1
2	AC Supply	2
3	DC Supply	3
4	Fozmula	4
5	Terminals	5
6	Backplate GA	6
7	Panel Door GA	7



7203-079 - Fuel Transfer Panel	Project	Hargesia	Panel Serial Number	BPCS133	Edited	12 Dec 2024	Scale @ A3	1 : 1	Creator	Alfie Keown
	Client		Page Title	Index	Created	11 Dec 2024	Page	1 of 7	Rev.	

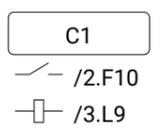
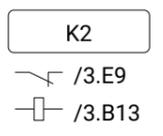
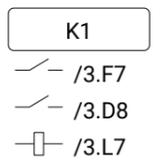
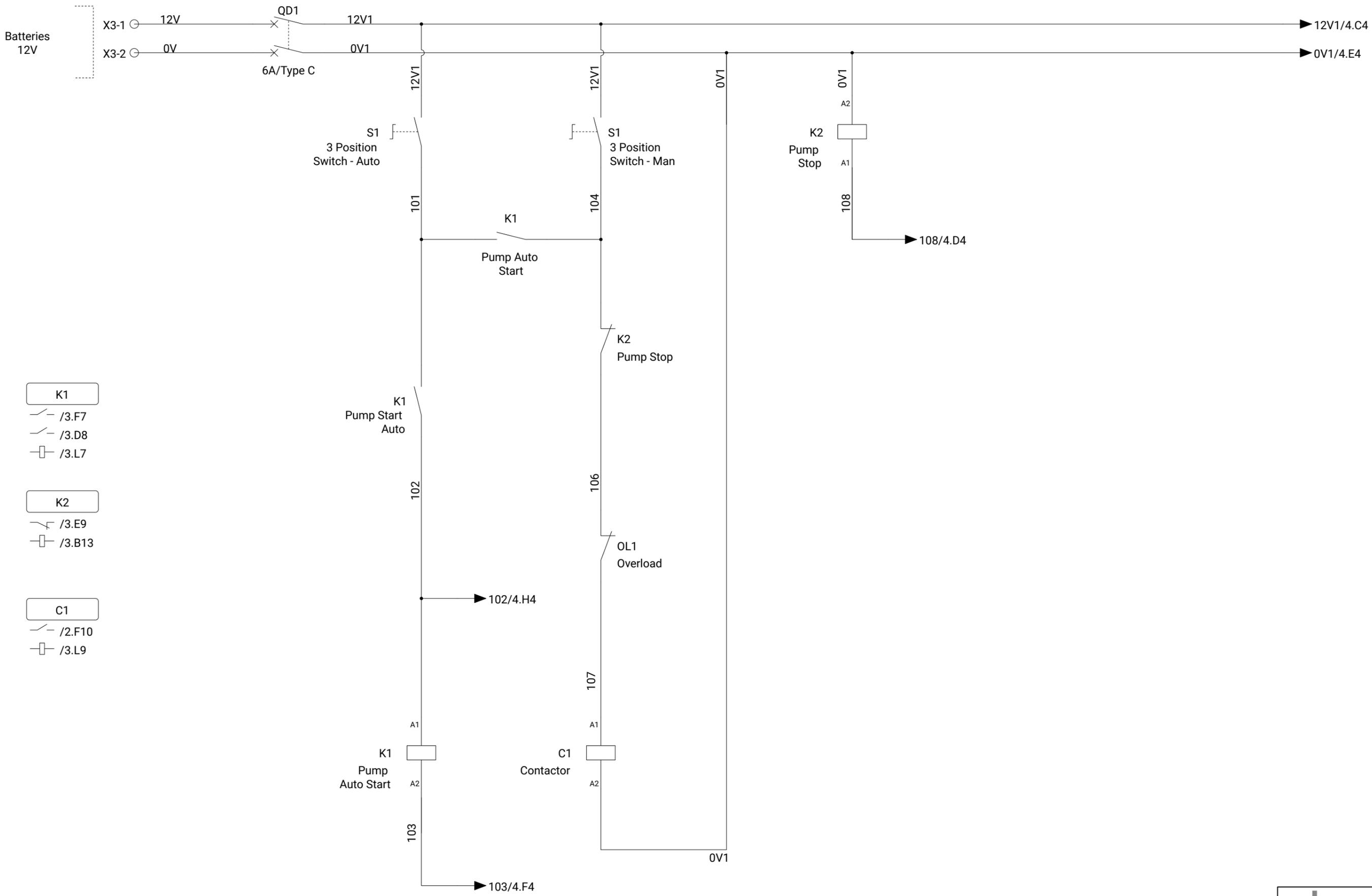
Feed From  
Top Of GCB



OL1  
/2.H10  
/3.I9

**BELLS**  
POWER CONTROL SYSTEMS  
Unit 8, Belvedere Business Park,  
Crabtree Manorway South,  
Belvedere, Kent, DA17 6AH  
Call us: 020 3259 0100

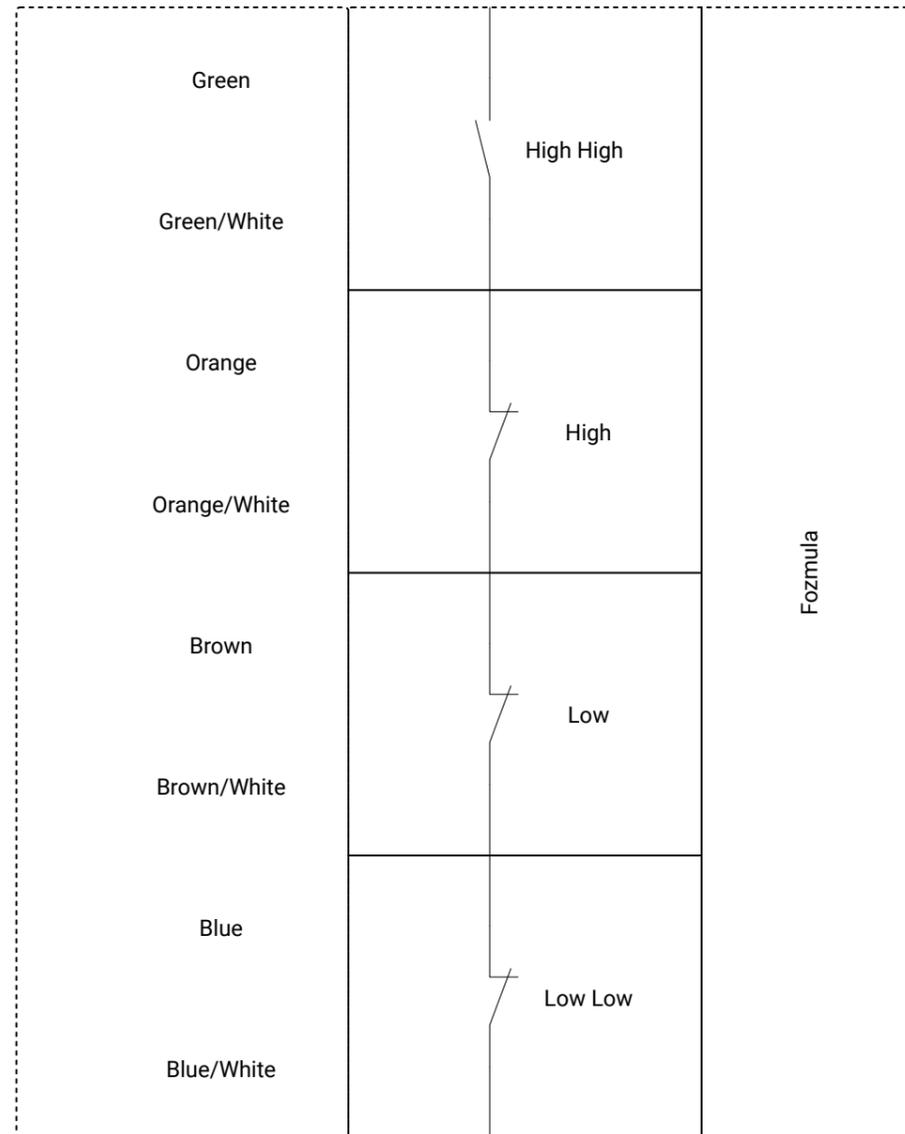
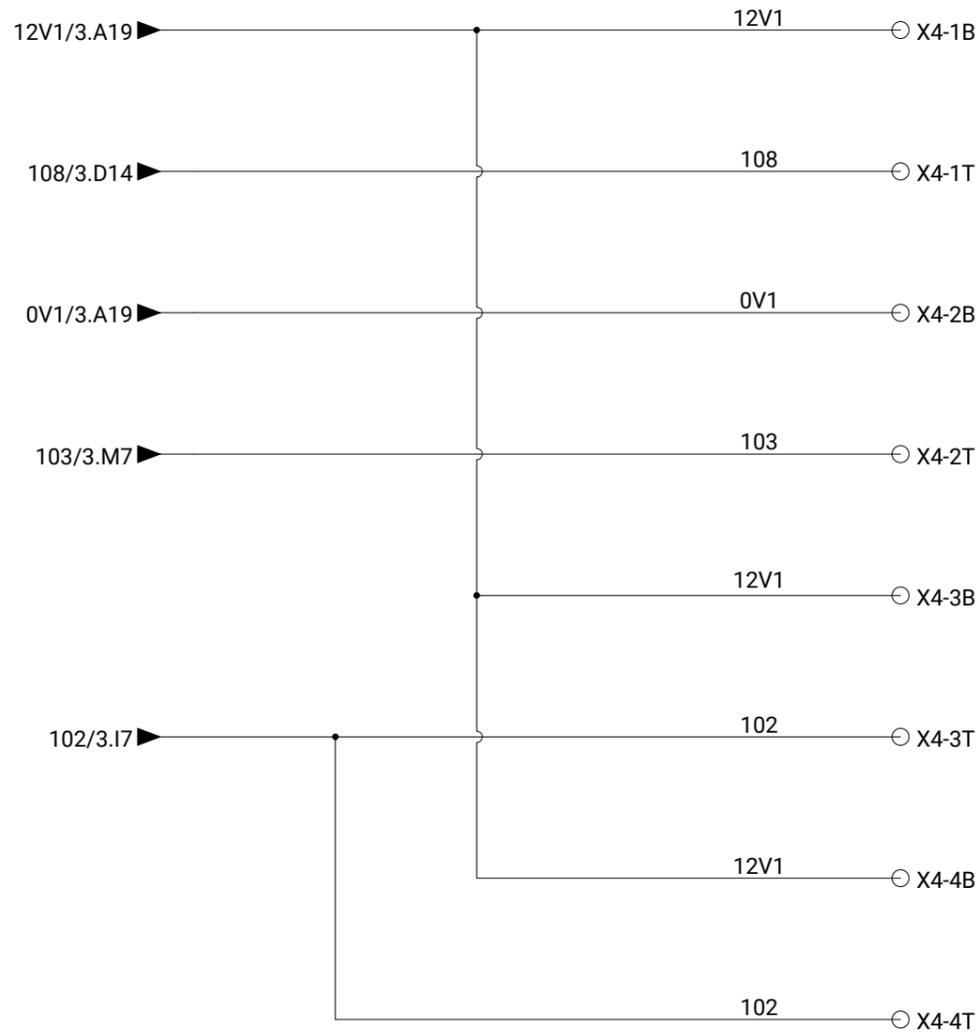
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Client		Page Title	AC Supply	Created	11 Dec 2024	Page	2 of 7	Rev.	



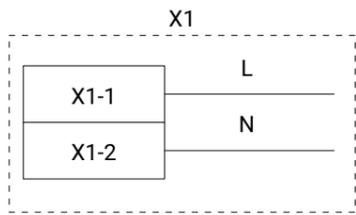
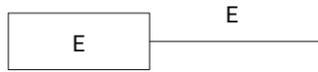
**BELLS**  
POWER CONTROL SYSTEMS

Unit 8, Belvedere Business Park,  
Crabtree Manorway South,  
Belvedere, Kent, DA17 6AH  
Call us: 020 3259 0100

Project	Hargesia	Panel Serial Number	BPCS133	Edited	12 Dec 2024	Scale @ A3	1 : 1	Creator	Alfie Keown
Client		Page Title	DC Supply	Created	11 Dec 2024	Page	3 of 7	Rev.	

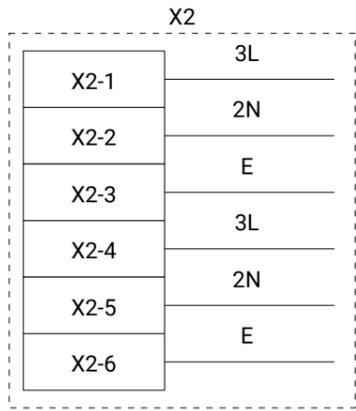


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Client		Page Title	Fozmula	Created	11 Dec 2024	Page	4 of 7	Rev.	



Mains Supply from GCB

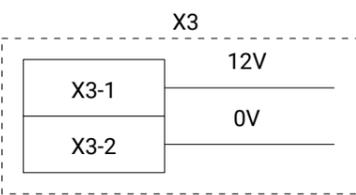
Qty: 2



Pump Supply

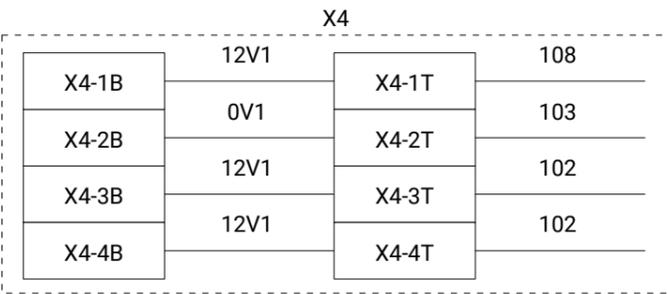
Solenoid Supply

Qty: 6



Gen 1 Battery

Qty: 2



Fozmula High High Level

Fozmula High Level

Fozmula Low Level

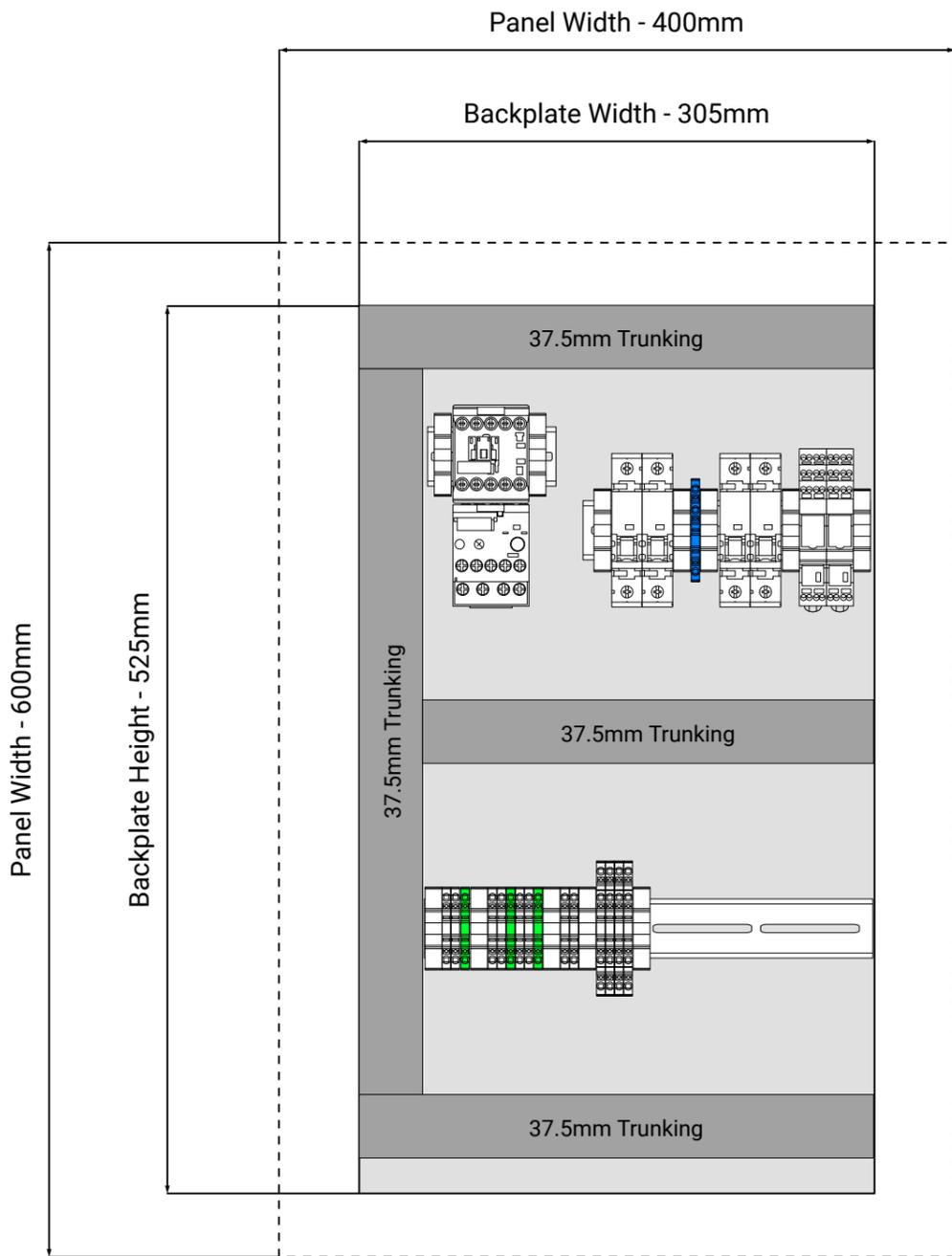
Fozmula Low Low Level

Qty: 4

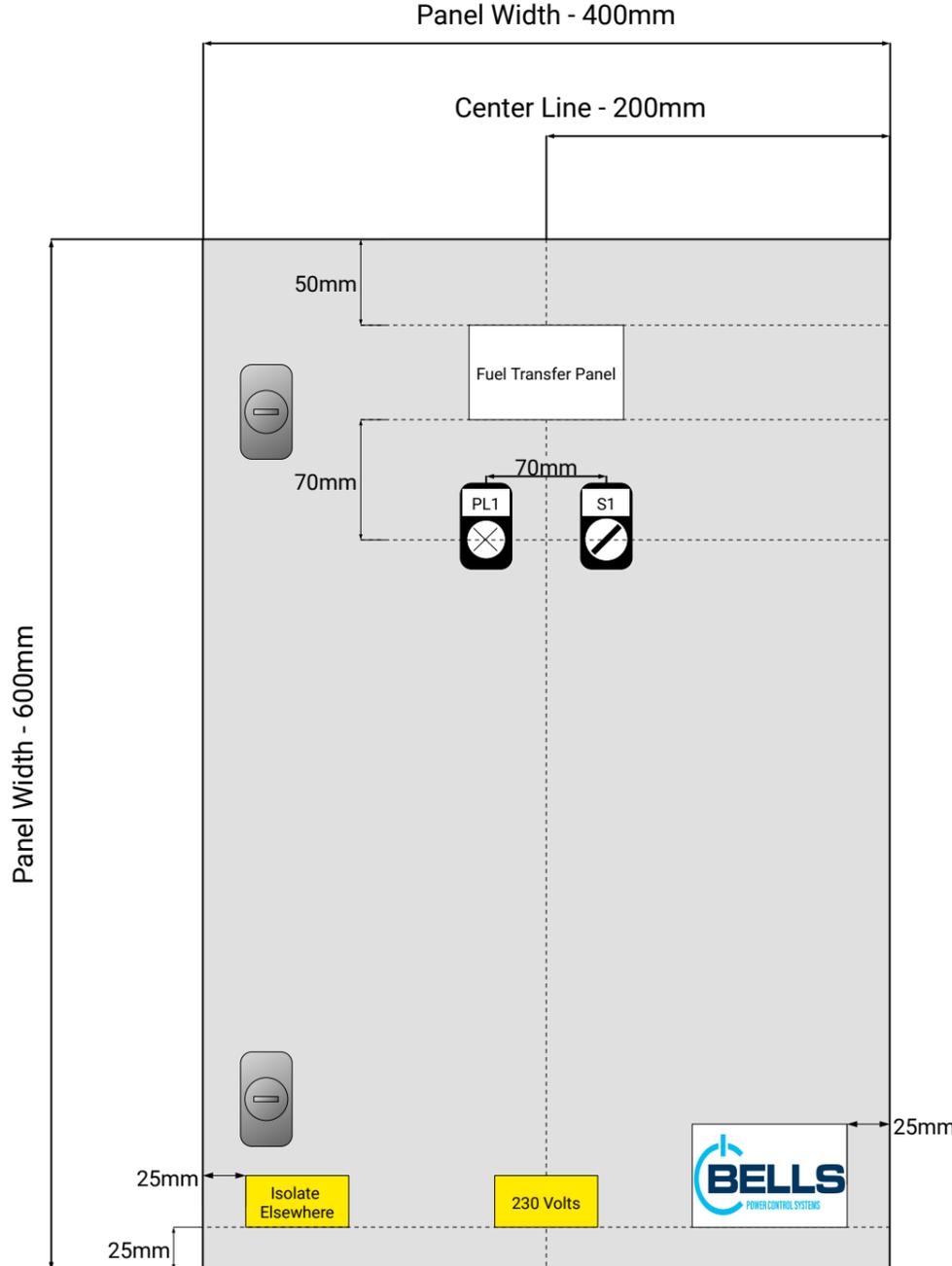
Project	Hargesia	Panel Serial Number	BPCS133	Edited	12 Dec 2024	Scale @ A3	1 : 1	Creator	Alfie Keown
Client		Page Title	Terminals	Created	11 Dec 2024	Page	5 of 7	Rev.	



A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N



Back Plate Key	
Part Name	Description
C1	Contactora - 12V Coil - 5.5kW
OL1	Overload - 2.8-4A - 3RU21161EB0
QA1	10A - Type D - 2 Pole MCB
'N' Terminal	PT 2.5 TWIN BU
QD1	6A - Type C - 2 Pole MCB
K1-K2	2 Pole 12V Coil Relays
X1	PT 4 x2/PT 4 PE x1
X2	PT 4 x4/PT 4 PE x2
X3	PT 4 x2
X4	PTTBS 2.5 x4



Back Plate Key	
Part Name	Description
PL1	AC Healthy - White 230V
S1	Pump Control - N/Ox2 - 3 Position Switch (Auto/Off/Man)



### INSTALLATION AND USE

Designed for pumping diesel/naphtha and clean water free from abrasive particles and non-corrosive liquids that do not harm the pump's components.

Their specific operating mechanism makes them an excellent solution when a compact self-priming pump is required or when the flow of the liquid is irregular or mixed with air.

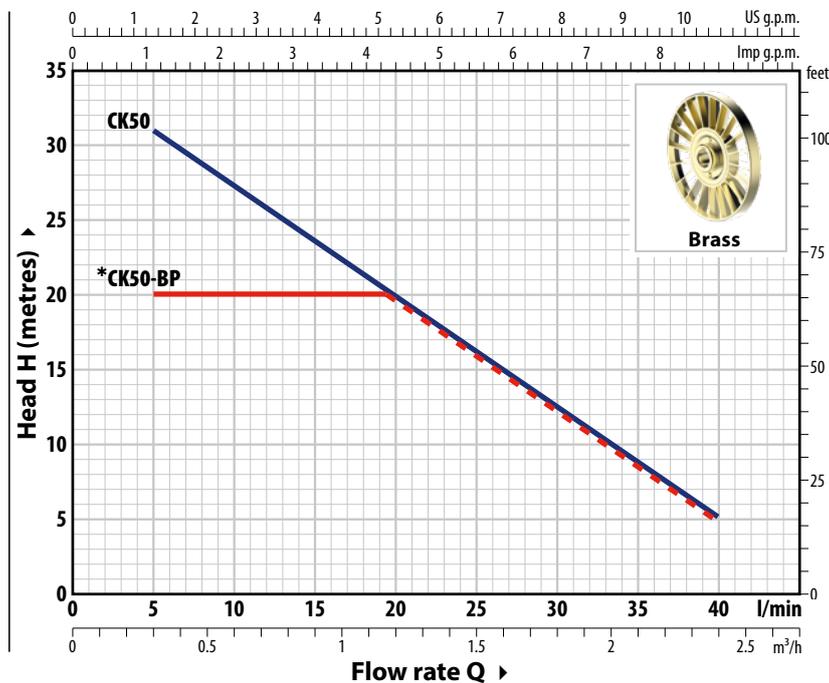
### APPLICATION LIMITS

- Suction head up to **9 m (HS)**
- Liquid temperature between **-10 °C** and **+90 °C**
- Temperature for diesel/naphtha up to **+55 °C**
- Ambient temperature up to **+40 °C**
- Maximum working pressure **6 bar**

### AVAILABLE UPON REQUEST

✘ Mechanical seal options available

### CURVES AND PERFORMANCE DATA – HS=0 m 50 Hz



(\*) CK 50-BP = performance curve with by-pass

### ABSORPTION

TYPE	VOLTAGE
Single-ph.	<b>230 V</b>
CKm 50	3.0 A
CKm 50-BP	2.7 A

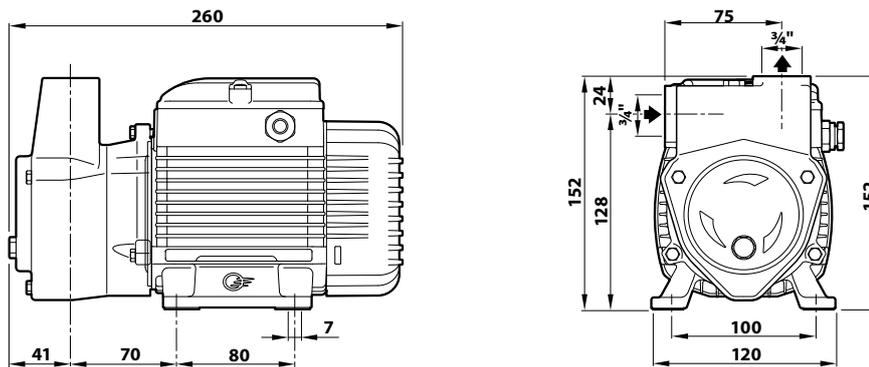
TYPE	VOLTAGE	
Three-ph.	<b>230 V - Δ</b>	<b>400 V - Λ</b>
CK 50	2.1 A	1.2 A
CK 50-BP	1.7 A	1.0 A

TYPE		POWER (P <sub>2</sub> )		1~	3~	Q	Flow rate													
Single-ph.	Three-ph.	kW	HP				m <sup>3</sup> /h	0	0.3	0.6	0.9	1.2	1.5	1.8	2.1	2.4				
CKm 50	CK 50	0.37	0.50	IE2	IE3	l/min	0	5	10	15	20	25	30	35	40					
CKm 50-BP	CK 50-BP	0.25	0.33			H metres	35	31	27	24	20	16	13	9	5					
							20	20	20	20	20	16	13	9	5					

Q = Flow rate H = Total manometric head HS = Suction height

Performance curves comply with EN ISO 9906 Grade 3B tolerance limits.

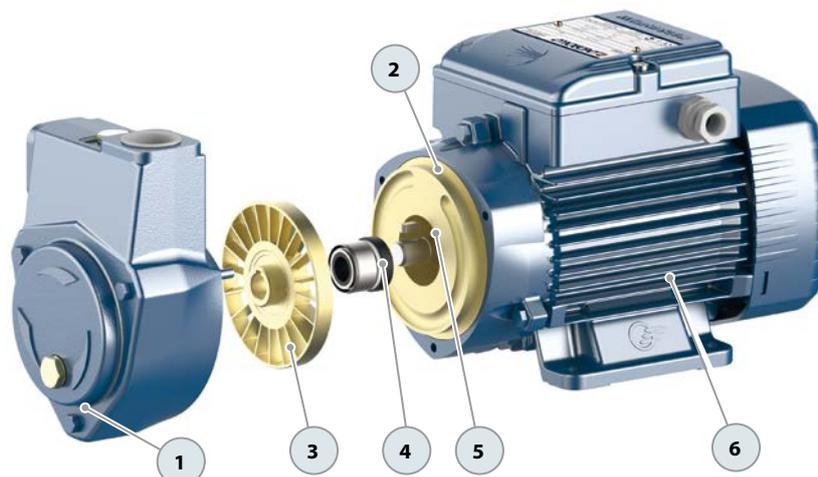
## DIMENSIONS (mm)



TYPE		PORTS		WEIGHT (kg)		PALLET CAPACITY
Single-phase	Three-phase	DN1	DN2	1~	3~	
CKm 50	CK 50	3/4"	3/4"	7.3	7.3	160

## CONSTRUCTION FEATURES

<b>1 Pump body</b>	Cast iron with ISO 228/1 threaded ports	
<b>2 Motor bracket</b>	Aluminium with brass cover with front anti-locking shim function (patented)	
<b>3 Impeller</b>	Brass with open radial vanes	
<b>4 Mechanical seal</b>	Type	Materials
	<b>AR-12V</b>	Ceramic / Graphite / Viton
<b>5 Shaft</b>	Stainless steel <b>AISI 431</b>	
<b>6 Electric motor</b>	<b>CKm:</b> single-phase 230 V - 50 Hz with winding integrated thermal motor protection. <b>CK:</b> three-phase 230/400 V - 50 Hz ※ Pumps are equipped with high-efficiency motors (IEC 60034-30-1) class <b>IE2</b> for single-phase models class <b>IE3</b> for three-phase models – Continuous running duty <b>S1</b> – Insulation: class F – Protection rating: IP X4	



# Leak detection technology

*For a clean and protected environment*



## Underpressure leak detector VLR 410/E



weatherproof design

An underpressure leak detector for the continuous monitoring of double walled pipes

Each leak in one of the both walls will be detected, before conveyed product will enter the environment.

A leak detection system with the highest environmental protection level in accordance to the European standard EN 13160.

### Liquids to be monitored

Water polluting liquids:

- with a flash point above  $> 55^{\circ}\text{C}$ , without potentially explosive vapours; e.g.: diesel

### For the monitoring of pipes:

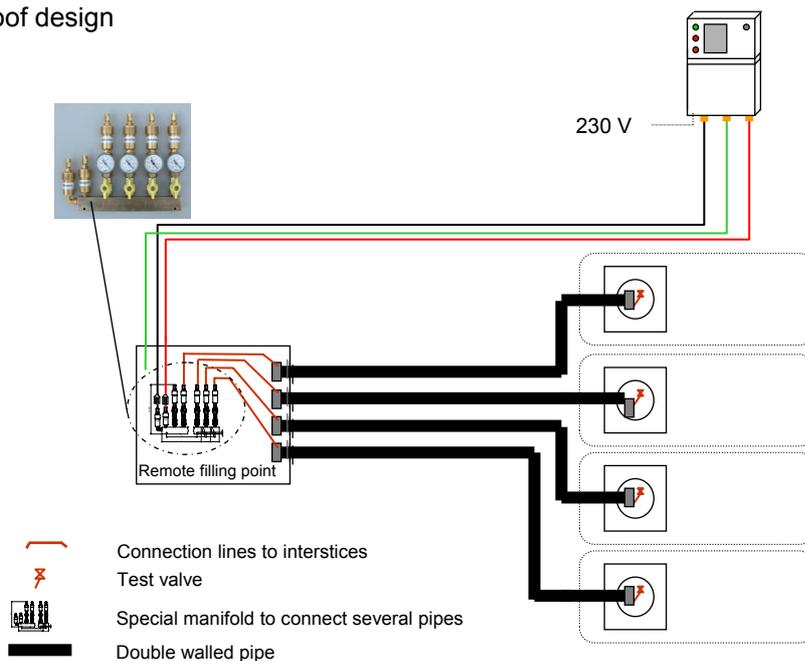
Approved and made out of metal or plastic

- up to 25 bar pressure in the primary pipe

### Approval:

Germany: Z – 65.25 – 390

Type	Alarm ON	Pump OFF
VLR 410/E	$> 410 \text{ mbar}$	$< 540 \text{ mbar}$



Distributed by:

**SGB GmbH**  
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<http://www.sgb.de>  
E-mail: [sgb@sgb.de](mailto:sgb@sgb.de)



# Technical Submittal IRC Harmondsworth

## Fill Point Cabinet

Rev No.	Date	Issue To	Comments
0	25/07/2024	James Gray	1 <sup>st</sup> Issue



Unit 8  
Belvedere Business Park  
Crabtree Manorway South  
Belvedere, London  
DA17 6AH  
020 3259 0100  
contact@bellspowermes.co.uk  
www.bellspowermes.co.uk



## SECTION 1: Technical Submittal



**Project and Building:**

**Technical Submission Ref No:** HMP-BMES-TS-FUEL-00-FPC

**Revision:** 00

**Title:** Fuel fill point cabinet

**Date:** 25/07/2024

**Company / Discipline:** Bells MES

**Issuing by:** Jon Wight

## SECTION 2: Design Information used to prepare submittal

**Consultant completed Equipment Data Sheets** N/A

**Consultant Specification Reference** N/A

**Materials & Workmanship Reference** N/A

**Consultant Drawing numbers** N/A

**Consultant Schematic number** N/A

**Depending on the amount of fuel you use, a more accurate tank gauge can be very cost effective. In fact it normally pays for itself over a short period of time, worth doing your sums!**

- C2020 Suitable for any shape tank. Accuracy +/- 1% of tank capacity.
- Suitable with diesel, biodiesel up to B100, AdBlue® & antifreeze. Electronic display with backlight (turns off after 1 hour).
- Gives continuous readout in litres (screen also shows a % bar). Includes 4-20mA outputs.
- Can connect to a BMS (building management system). One gauge required per tank.
- Weatherproof to IP55 suitable for outside mounting. Voltage 110V/230V.
- Suits tanks 0.3-5m high. (AdBlue® version 0.6-2.5m). Probe must be suspended 50mm from tank bottom.

<b>Stk Code</b>	<b>Description</b>
C2020-A-C23	Tank gauge kit 0.3m-3m with high & low level alarms (110dB)
C2020--A-C25	Tank gauge kit 3 - 5m with high & low level alarms (110dB)
C2020--C27	Tank gauge kit 5-10m with high & low level alarms (110dB) B8 Bund probe only, for use with alarm kit option
T4020-B2 kit option	Water bottom sensor (min 15mm of water required) for use with alarm kit option
T4020-0J	Probe/tank adaptor fits a 30mm hole

### **Options**

- C2020-A-C23,25 with high/low level alarm, can also have a bund probe or water bottom sensor option. Choose bund probe (B8) &/or water bottom sensor (T4020-B2).
- Water bottom sensor requires 15mm of water to activate.

## SECTION 3: Attachments

### Manufacturer's Specific Data Sheet



BellsMES fill point cabinets provide the perfect solution for remote tank filling. Available in standard sizes with single, double, and triple connections, these cabinets can also be customized to any size or with any number of connections upon request.

Standard features:-

- Back plate provided to fit in any electrical components.
- Built to IP66 standard.
- Made from mild steel, stainless steel options.
- 2" outlet from back/side/top.
- 2" BSP valve assembly contains Non-return valve to avoid back flow.
- Drip tray.
- Lockable recessed door handle.
- Standard sizes available in single, double and triple fill points.
- Standard colours
  1. BS4800 06C39 Saddle Brown
  2. RAL7016 Anthracite Grey
  3. RAL9005 Jet Black
  4. RAL7035 Light Grey
  5. BS4800 18B25 Admiralty Grey
  6. BS4800 14C39 Holly Bush Green
- Cabinets are built to IP66 standard.

Standard cabinet sizes			
Fill points	Width	Height	Depth
Single	650	640	400
Double/Triple	1000	850	400

Optional add ins:-

- **Single/Multi-channel tank alarms.**
- **Fuel gauge.**
- **Vented or windowed cabinets.**
- **Fill cabinets with pumps to fill from barrels or bowsers.**



## Hytek Tank alarm



- 230V Hytek Tank Alarm
- 230v, 3 channel alarm. IP55 weatherproof enclosure, for outside mounting. Each channel can be used as an overfill, low level or bund alarm. High power alarm sounder, 98db at 1m. High visibility flashing zenon beacon. Plug & socket field connections for quick & easy installation. Test button checks float switches as well as beacon & sounder.
- 230V Hytek Tank Alarm with Relays
- 230v alarm, c/w relays. IP55 weatherproof enclosure, for outside mounting. Each channel can be used as an overfill, low level or bund alarm. High power alarm sounder, 98db at 1m. High visibility flashing zenon beacon. Plug & socket field connections for quick & easy installation. Test button checks float switches as well as beacon & sounder. With additional relay outputs. Volt free contacts for each channel (1 relay output per channel). Can be used to switch secondary equipment, sounders etc. Option remote warning device (RWD)
- Hytek 230V Remote Warning Device
- Ideal to connect to the relay version of our tank alarm, fuel re-circulation kit or wherever you need a remote warning device. IP55 weatherproof enclosure. High visibility flashing zenon beacon. High power alarm sounder, 98db at 1m. Mute button. Easy wall mounting bracket.
- Hytek Battery Tank Alarm
- 110v, 3 channel alarm. IP55 weatherproof enclosure, for outside mounting. Each channel can be used as an overfill, low level or bund alarm. High power alarm sounder, 98db at 1m. High visibility flashing zenon beacon. Plug & socket field connections for quick & easy installation. Test button checks float switches as well as beacon & sounder.



# Technical Submittal

## IRC Harmondsworth

### IRC-BMES-TS-FUEL-00-PIPEWORK

Rev No.	Date	Issue To	Comments
0	09/09/2025	Stuart White	1 <sup>st</sup> Issue



Unit 8  
Belvedere Business Park  
Crabtree Manorway South  
Belvedere, London  
DA17 6AH  
020 3259 0100  
[contact@bellspowermes.co.uk](mailto:contact@bellspowermes.co.uk)  
[www.bellspowermes.co.uk](http://www.bellspowermes.co.uk)



## **SECTION 1: Technical Submittal**

**Project and Building:**

**Technical Submission Ref No:** IRC-BMES-TS-FUEL-00-PIPEWORK

**Revision:** 00

**Title:** Fuel Pipework

**Date:** 09/09/2025

**Company | Discipline:** Bells MES

**Issuing by:** Shane Regan

## **SECTION 2: Design Information used to prepare submittal**

**Consultant completed Equipment Data Sheets** N/A

**Consultant Specification Reference** N/A

**Materials & Workmanship Reference** N/A

**Consultant Drawing numbers** N/A

**Consultant Schematic number** N/A





# Nitrile NBR/SBR

## SPECIFICATION SHEET

Grade	A40E	
Colour	BLACK	
Elastomer	NBR/SBR NITRILE	
Quality	ECONOMY COMMERCIAL	
Hardness Shore A $\pm 5$	70	ISO 7619-1
SG (g/cm <sup>2</sup> )	1.4	ISO 2781
Tensile (N/mm <sup>2</sup> )	3.5	ISO 37
Elongation %	250	ISO 37
Compression %		ISO 37
Tear Strength		ISO 34-1
Abrasion mm <sup>3</sup>		ISO 37
Temperature (°C) from	-28	
Temperature (°C) to	80	

### Roll Tolerances

Width tolerance:	+/- 2%	ISO 3302 SW1
Length tolerance:	+/- 2%	ISO 3302 SW1

### Thicknesses available

1mm to 6mm	1.4m x 10m	●
8mm to 25mm	1.4m x 5m	

### Thickness

0.5–1mm	+/- 0.2mm
1.5mm–3mm	+/- 0.3mm
4mm–5mm	+/- 0.4mm
6mm	+/- 0.5mm
8mm	+/- 0.7mm
10mm–15mm	+/- 1mm
20mm	+/- 1.4mm
25mm	+/- 1.75mm

32mm, 38mm, 1m x 1m  
40mm and

● Items listed above usually ex stock.

Other thicknesses and sizes available, please contact sales office for your requirements

### QUALITY ASSURED PRODUCTS WITH FULL TRACEABILITY

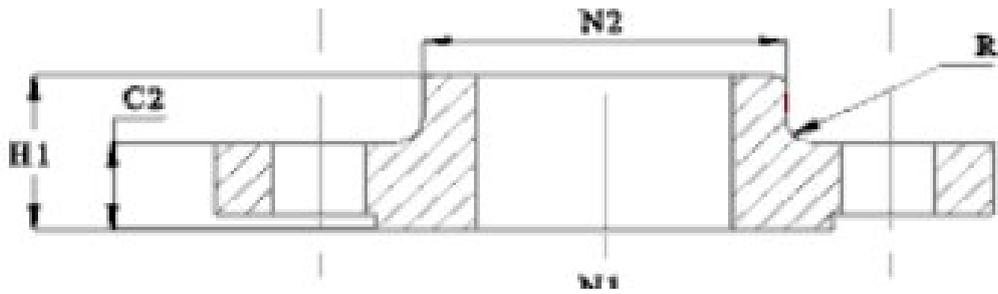
Care should be taken in selecting the most suitable quality for each application.  
Advice is available but final responsibility remains with the customer.

## Fittings - Welded Fittings in Accordance with ASTM A234 WPB

### Elbows Long Radius 45°

BSS CODE	NOMINAL BORE INCHES	NOMINAL BORE MM	OUTSIDE DIAMETER INCHES	OUTSIDE DIAMETER MM	WALL THICKNESS INCHES	WALL THICKNESS MM
STD						
65830729	1	25	1.315	33.4	0.14	3.38
65830693	1 1/2	40	1.9	48.3	0.15	3.68
65830701	2	50	2.375	60.3	0.2	3.91
65830712	2 1/2	65	1.875	73	0.22	5.15
65830723	3	80	3.5	88.9	0.23	5.49
65830734	4	100	4.5	114.3	0.26	6.02
65830904	5	125	5.625	141.3	0.29	6.55
65830915	6	150	6.625	168.3	0.32	7.11
65830926	8	200	8.625	219.1	0.36	8.18
65830937	10	250	10.75	273.1	0.375	9.27
65830948	12	300	12.75	323.9	0.38	9.52
65830959	14	350	14	356.6	0.38	9.52
65830970	16	400	16	406.4	0.38	9.52
65836598	20	500	20	508	0.38	9.52
XS						
65831972	1	25	1.315	33.4	0.18	4.55
65831994	1 1/2	40	1.9	48.3	0.2	5.08
65832000	2	50	2.375	60.3	0.22	5.54
65832022	3	80	3.5	88.9	0.3	7.62
65832033	4	100	4.5	114.3	0.34	8.58
20						
65836489	8	200	8.625	219.1	0.25	6.35
65836480	10	250	10.75	273.1	0.25	6.35
65836491	12	300	12.75	323.9	0.25	6.35





TYPE 112/B

DN	D	C1	C2	H1	H2	H3	R	A	N1	N2	B1	d1	f1
10	90	14	14	20	35	6	3	17,2	28	30	18	40	2
15	95	14	14	20	35	6	3	21,3	32	35	22	45	2
20	105	14	14	24	38	6	4	26,9	39	45	27,5	58	2
25	115	16	16	24	38	6	4	33,7	46	52	34,5	68	2
32	140	18	16	26	40	6	5	42,4	56	60	43,5	78	2
40	150	18	16	26	42	7	5	48,3	64	70	49,5	88	3
50	165	20	18	28	45	8	5	60,3	74	84	61,5	102	3
65	185	20	18	32	45	10	6	76,1	92	104	77,5	122	3
80	200	20	20	34	50	10	6	88,9	110	118	90,5	138	3
100	220	22	20	40	52	12	6	114,3	130	140	116	162	3
125	250	22	22	44	55	12	6	139,7	158	168	141,5	188	3
150	285	24	22	44	55	12	8	168,3	184	195	170,5	212	3
200	340	26	24	44	62	16	8	219,1	234	246	221,5	268	3
250	405	29	26	46	70	16	10	273	288	298	276,5	320	3
300	460	32	28	46	78	16	10	323,9	342	350	327,5	378	4
350	520	35	30	57	82	16	10	355,6	390	400	359	438	4

## Elbows Long Radius 90°

BSS CODE	NOMINAL BORE INCHES	NOMINAL BORE MM	OUTSIDE DIAMETER INCHES	OUTSIDE DIAMETER MM	WALL THICKNESS INCHES	WALL THICKNESS MM
STD						
65829949	¾	15	0.84	21.3	0.11	2.77
65829960	¾	20	1.02	26.7	0.13	2.87
65829971	1	25	1.315	33.4	0.14	3.38
65829982	1 ¼	32	1.66	42.2	0.14	3.56
65829993	1 ½	40	1.9	48.3	0.15	3.68
65830007	2	50	2.375	60.3	0.2	3.91
65830018	2 ½	65	1.875	73	0.22	5.15
65830029	3	80	3.5	88.9	0.23	5.49
65830040	4	100	4.5	114.3	0.26	6.02
65830095	5	125	5.563	141.3	0.28	6.55
65830051	6	150	6.625	168.3	0.32	7.11
65830062	8	200	8.625	219.1	0.36	8.18
65830073	10	250	10.75	273.1	0.375	9.27
65830084	12	300	12.75	323.9	0.38	9.52
65829905	14	350	14	355.6	0.38	9.52
65829916	16	400	16	406.4	0.38	9.52
65829831	18	450	18	457	0.38	9.52
XS						
65832173	¾	15	0.84	21.3	0.15	3.73
65831053	¾	20	1.02	26.7	0.15	3.91
65832184	1	25	1.315	33.4	0.18	4.55
65830981	1 ¼	40	1.9	48.3	0.2	5.08
65830103	2	50	2.375	60.3	0.22	5.54
65831009	2 ½	65	1.875	73	0.28	7.01
65830114	3	80	3.5	88.9	0.3	7.62
65830125	4	100	4.5	114.3	0.34	8.56
65830136	6	150	6.625	168.3	0.43	10.97
65831064	8	200	8.625	219.1	0.5	12.7
2D						
65881006	8	200	8.625	219.1	0.25	6.35
65832321	10	250	10.75	273.1	0.25	6.35
65835626	12	300	12.75	323.9	0.25	6.35
65835637	14	350	14	355.6	0.31	7.92
65835648	16	400	16	406.4	0.31	7.92
65835659	18	450	18	457	0.31	7.92



# Carbon Steel - Welded Fittings

## Equal Tees

BSS CODE	NOMINAL BORE INCHES	NOMINAL BORE MM	OUTSIDE DIAMETER INCHES	OUTSIDE DIAMETER MM	WALL THICKNESS INCHES	WALL THICKNESS MM
STD						
65830745	¾	15	0.84	21.3	0.11	2.77
65830756	¾	20	1.02	26.7	0.13	2.87
65830767	1	25	1.315	33.4	0.14	3.38
65830778	1 ¼	32	1.66	42.2	0.14	3.56
65830789	1 ½	40	1.9	48.3	0.15	3.68
65830808	2	50	2.375	60.3	0.2	3.91
65830819	2 ½	65	1.875	73	0.22	5.15
65830830	3	80	3.5	88.9	0.23	5.49
65830841	4	100	4.5	114.3	0.26	6.02
65830896	5	125	5.563	141.3	0.28	6.55
65830852	6	150	6.625	168.3	0.32	7.11
65830863	8	200	8.625	219.1	0.36	8.18
65830874	10	250	10.75	273.1	0.375	9.27
65830885	12	300	12.75	323.9	0.38	9.52
65831097	16	400	16	406.4	0.38	9.52
XS						
65834506	¾	15	0.84	21.3	0.15	3.73
65834528	1	25	1.315	33.4	0.18	4.55
65834550	1 ¼	40	1.9	48.3	0.2	5.08
65834561	2	50	2.375	60.3	0.22	5.54
65834583	3	80	3.5	88.9	0.3	7.62
20						
65838141	8	200	8.625	219.1	0.25	6.35
65838174	10	250	10.75	273.1	0.25	6.35
65879806	12	300	12.75	323.9	0.25	6.35



## Elbow Short Radius 90°

BSS CODE	NOMINAL BORE INCHES	NOMINAL BORE MM	OUTSIDE DIAMETER INCHES	OUTSIDE DIAMETER MM	WALL THICKNESS INCHES	WALL THICKNESS MM
STD						
65836373	1 1/2	40	1.9	48.3	0.15	3.68
65832129	2	50	2.375	60.3	0.2	3.91
65832140	2 1/2	65	1.875	73	0.22	5.15
65832236	3	80	3.5	88.9	0.23	5.49
65832247	4	100	4.5	114.3	0.26	6.02
65836384	5	125	5.563	141.3	0.28	6.55
65832214	6	150	6.625	168.3	0.22	7.11
65832225	8	200	8.625	219.1	0.36	8.18
65832280	10	250	10.75	273.1	0.375	9.27
65832291	12	300	12.75	323.9	0.38	9.52
XS						
65830992	2	50	2.375	60.3	0.22	5.54
20						
65834945	8	200	8.625	219.1	0.25	6.35
65834956	10	250	10.75	273.1	0.25	6.35
65834967	12	300	12.75	323.9	0.25	6.35



## 90° Female Elbow

SIZE	BSS CODE	SIZE	BSS CODE	SIZE	BSS CODE
Black					
1/8" (6mm)	14013108	2" (50mm)	14013196	1" (25mm)	14051202
1/4" (8mm)	14013119	2 1/2" (65mm)	14013204	1 1/4" (32mm)	14051213
3/8" (10mm)	14013130	3" (80mm)	14013215	1 1/2" (40mm)	14051224
1/2" (15mm)	14013141	4" (100mm)	14013237	2" (50mm)	14051235
3/4" (20mm)	14013152	Galvanised		2 1/2" (65mm)	14051246
1" (25mm)	14013163	1/4" (8mm)	14051161	3" (80mm)	14051257
1 1/4" (32mm)	14013174	3/8" (10mm)	14051172	4" (100mm)	14051268
1 1/2" (40mm)	14013185	1/2" (15mm)	14051183		
		3/4" (20mm)	14051194		



## 90° Male x Female Elbow

SIZE	BSS CODE	SIZE	BSS CODE	SIZE	BSS CODE
Black					
1/8" (6mm)	14014206	2" (50mm)	14014294	1" (25mm)	14051482
1/4" (8mm)	14014217	2 1/2" (65mm)	14014302	1 1/4" (32mm)	14051493
3/8" (10mm)	14014228	3" (80mm)	14014313	1 1/2" (40mm)	14051501
1/2" (15mm)	14014239	4" (100mm)	14014324	2" (50mm)	14051512
3/4" (20mm)	14014250	Galvanised		2 1/2" (65mm)	14051523
<b>1" (25mm)</b>	<b>14014261</b>	1/4" (8mm)	14051438	3" (80mm)	14051534
1 1/4" (32mm)	14014272	3/8" (10mm)	14051449	4" (100mm)	14051545
1 1/2" (40mm)	14014283	1/2" (15mm)	14051460		
		3/4" (20mm)	14051471		



## Female Square Tee

SIZE	BSS CODE	SIZE	BSS CODE	SIZE	BSS CODE
Black					
1/4" (8mm)	14016339	2" (50mm)	14016413	3/4" (20mm)	14052300
3/8" (10mm)	14016350	2 1/2" (65mm)	14016424	1" (25mm)	14052311
1/2" (15mm)	14016361	3" (80mm)	14016435	1 1/4" (32mm)	14052322
3/4" (20mm)	14016372	4" (100mm)	14016446	1 1/2" (40mm)	14052333
<b>1" (25mm)</b>	<b>14016383</b>	Galvanised		2" (50mm)	14052344
1 1/4" (32mm)	14016394	1/4" (8mm)	14052270	2 1/2" (65mm)	14052355
1 1/2" (40mm)	14016402	3/8" (10mm)	14052281	3" (80mm)	14052366
		1/2" (15mm)	14052292	4" (100mm)	14052377



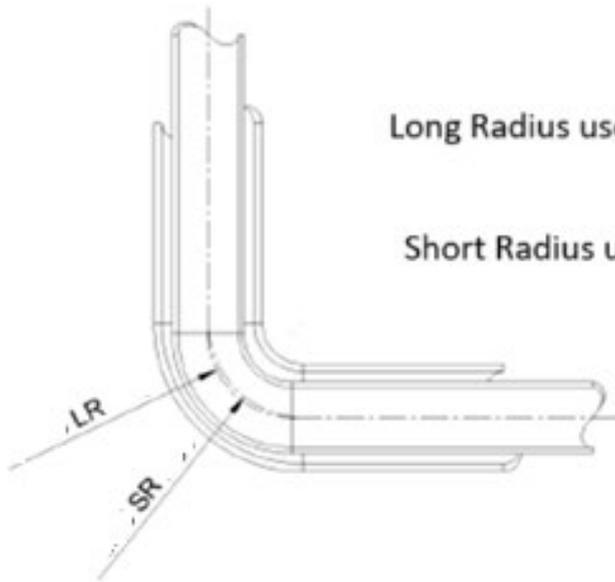
## Reducers

BSS CODE	NOMINAL BORE INCHES	NOMINAL BORE MM
<b>STD Concentric</b>		
65830649	¾ x ¾	20 x 15
65833013	1 x ¾	25 x 15
65833024	1 x ¾	25 x 20
65833046	1 ¼ x ¾	32 x 20
65833057	1 ¼ x 1	32 x 25
65833069	1 ½ x ¾	40 x 15
65833079	1 ½ x ¾	40 x 20
65830276	1 ½ x 1	40 x 25
65833120	2 x ¾	50 x 15
65833131	2 x ¾	50 x 20
65830287	2 x 1	50 x 25
65833153	2 x 1 ¼	50 x 32
65830298	2 x 1 ¼	50 x 40
65833186	2 ½ x 1 ¼	65 x 32
65833197	2 ½ x 1 ¼	65 x 40
65833205	2 ½ x 2	65 x 50
65830306	3 x 1	80 x 25
65833227	3 x 1 ¼	80 x 32
65833238	3 x 1 ¼	80 x 40
65830317	3 x 2	80 x 50
65830329	3 x 2 ½	80 x 65
65830339	4 x 2	100 x 50
65833293	4 x 2 ½	100 x 65
65830350	4 x 3	100 x 80
65830435	6 x 2	150 x 50
65833463	6 x 2 ½	150 x 65
65830372	6 x 4	150 x 100
65830383	8 x 4	200 x 100
65830394	8 x 6	200 x 150
65833570	10 x 4	250 x 100
65830402	10 x 6	250 x 150
65830413	10 x 8	250 x 200
65837161	12 x 6	300 x 150
65833600	12 x 8	300 x 200
65830424	12 x 10	300 x 250
65837194	14 x 10	350 x 250
65837202	14 x 12	350 x 300
65837213	16 x 10	400 x 250
65837224	16 x 14	400 x 350

BSS CODE	NOMINAL BORE INCHES	NOMINAL BORE MM
<b>STD Eccentric</b>		
65830060	1 x ¾	25 x 15
65830071	1 x ¾	25 x 20
65837811	1 ½ x ¾	40 x 20
65830446	1 ½ x 1	40 x 25
65830457	2 x 1	50 x 25
65879689	2 x 1 ¼	50 x 32
65830468	2 x 1 ¼	50 x 40
65830509	2 ½ x 2	65 x 50
65830082	3 x 1 ¼	80 x 40
65830490	3 x 2	80 x 50
65830520	3 x 2 ½	80 x 65
65830531	4 x 2	100 x 50
65830542	4 x 3	100 x 80
65830553	6 x 3	150 x 80
65837886	5 x 3	125 x 80
65837877	5 x 4	125 x 100
65833463	6 x 2 ½	150 x 65
65830564	6 x 4	150 x 100
65830575	8 x 4	200 x 100
65837888	8 x 5	200 x 125
65830586	8 x 6	200 x 150
65830605	10 x 6	250 x 150
65830616	10 x 8	250 x 200
65843200	12 x 8	300 x 200
65830627	12 x 10	300 x 250
65837899	14 x 10	350 x 250
<b>XS Concentric</b>		
65834912	1 x ¾	25 x 15
65834923	1 x ¾	25 x 20
65835006	1 ¼ x 1	40 x 25
65835017	1 ¼ x 1 ¼	40 x 32
65835060	2 x 1	50 x 25
65835072	2 x 1 ¼	50 x 40
65835157	3 x 2	80 x 50
65835349	6 x 3	150 x 80
65835371	6 x 4	150 x 100
65837460	6 x 5	150 x 125
<b>XS Eccentric</b>		
65831201	2 x 1	50 x 25



Indicative Bend Arrangements: Sizes may vary but LR/SR configuration will continue to apply.



Long Radius used on inner 25mm & 50mm

Short Radius used on outer skin 65mm & 80mm

PIPE IN PIPE BEND DETAIL

# Guard SCF - Single Coat Finish

Technical Data Sheet



## Product Description:

Single pack, one coat product for suitably prepared steel. Fast drying for optimum throughput.

## Typical Uses:

As a high quality single coat finish for application onto mild steel and other suitably prepared surfaces. Ideal for applications which require a fast turnaround, such as manufacturers of modular components and other OEM companies.

## Practical Information:

Colours	Full tintable colour range. All RAL & BS4800 colours and specials on request
Pack Size	5 litre, 20 litre (Nominal Volumes)
Gloss Level	Matt, Satin, Gloss
Resin Type	Alkyd
Components	Single Component
Generic Type	Solvent-based

## Technical Information:

Theoretical Spreading Rate (approx)	6m <sup>2</sup> per litre based on 60µm dft
Volume Solids (approx)	60%
Dry Film Thickness (DFT)	60-90µm
Wet Film Thickness (WFT)	100-150µm
Flash Point	24°C
VOC Content	505gms/litre
Temperature Resistance	80°C

## Surface Preparation:

Ensure surfaces are clean, dry and free from grease and other contamination before coating. Thoroughly degrease and where applicable, abrade to remove rust and promote good adhesion of the coating. For optimum corrosion protection, mild steel should be blast cleaned to Sa2.5. Complex structures may be more effectively cleaned by HPWJ (high pressure water jetting).

For the best corrosion protection we recommend stripe coating all edges and hard to reach areas with this product first, before application of a full coat.

## Mixing:

Mix Ratio:	Not applicable.
Mixing Instructions:	This material is a one-component coating and should always be mixed thoroughly with an agitator before application.
Pot Life:	Not applicable.

### Application Methods:

Brush	No	Not optimised - small areas only, including stripe coating
Roller	No	
Conventional Spray	Yes	Thin up to 10% - added as approx. 3-5% each time
Airless Spray	Yes	
Air Assisted Airless Spray	Yes	Optimised

For further information and guidance on application, please speak with our technical team.

### Solvents:

Thinning: Guard Solvent A  
Cleaning: Guard Solvent A

### Drying and Curing Time:

Touch Dry	2 hours
Hard Dry	24 hours
Full Cure	24 hours
Recoatable	Unlimited

Drying times are based on temperatures of 20°C, lower temperatures will increase drying times. Please speak with our technical team before elevating temperatures or attempting to force cure any of our products unless already stated. Shop conditions such as having good airflow will optimise curing.

### Compatibility:

Designed as a 'OneCoat' primer/finish, though is compatible with most single component primers, such as Guard GIP or Guard EP. Likewise can be overcoated with alkyd topcoats such as Guard FEB or Guard FES.

### Cleaning Information:

Once painting has been completed, clean all equipment with abovementioned cleaning solvent. Spray equipment should be appropriately flushed through for 3-5 minutes (returning unused paint to the tin, unless thinned which should be stored in a separate tin) before replacing any used solvent with clean solvent to leave in the pump, gun and lines.

### Storage & Shelf-Life:

Unopened tins should be stored in a cool dry place between the temperatures of 5° and 25°C – better storage conditions will likely extend the shelf-life of the material. Always stir thoroughly before re-use.

Product has a shelf life of 12 months as standard from the date of manufacture. Once opened tins should have the lid fitted tightly when not in use. Please speak with us before using material which is past it's standard shelf-life as certain materials may need re-certifying before use.

### **Safety Precautions:**

To avoid the risk of spillage always store and transport in an upright secure position. Materials are hazardous and can also be flammable therefore appropriate precautionary measures must be taken including the use of gloves, glasses and recommended P.P.E in accordance with the material safety data sheets (MSDS).

### **Review**

<b>Document Reference:</b>	A1SCF1.1
<b>Version Date:</b>	October 2021
<b>Stock Code:</b>	GSCF

### **Important Notes & Disclaimer:**

The above information should be used as a guide only and is not a guarantee or warranty. The New Guard Coatings Group and our supply / manufacturing partners have provided this information in good faith and to the best of our knowledge correct at the time of print. 'Guard' is a brand owned by New Guard Holdings Ltd.

No liability will be accepted for incorrect colours or any other failure by the customer to check before use. This does not affect your statutory rights.

[www.newguardcoatings.com](http://www.newguardcoatings.com)



**Safety data sheet**  
according to 1907/2006/EC, Article 31

Printing date 23.02.2022

Revision: 23.02.2022

**SECTION 1: Identification of the substance/mixture and of the company/undertaking**

- 1.1 Product identifier For Industrial, professional and consumer only
- Trade name: *GSCFSS Guard SCF Satin Colours*
- 1.2 Relevant identified uses of the substance or mixture and uses advised against Surface Coating
- Application of the substance / the mixture Surface Coating
- 1.3 Details of the supplier of the safety data sheet
- Supplier:  
*New Guard Coatings Ltd.*  
*Sandbeck Way*  
*Wetherby*  
*West Yorkshire*  
*LS22 7DN*
- Further information obtainable from: *uksales@newguardcoatings.com*
- 1.4 Emergency telephone number: *01937 586311*

**SECTION 2: Hazards identification**

- 2.1 Classification of the substance or mixture
- Classification according to Regulation (EC) No 1272/2008
- Flam. Liq. 3 H226 Flammable liquid and vapour.*
- Skin Irrit. 2 H315 Causes skin irritation.*
- Eye Dam. 1 H318 Causes serious eye damage.*
- Skin Sens. 1 H317 May cause an allergic skin reaction.*
- STOT RE 2 H373 May cause damage to the hearing organs through prolonged or repeated exposure.*
- Aquatic Chronic 3 H412 Harmful to aquatic life with long lasting effects.*

- 2.2 Label elements
- Labelling according to Regulation (EC) No 1272/2008
- The product is classified and labelled according to the CLP regulation.
- Hazard pictograms



- Signal word *Danger*
- Hazard-determining components of labelling:  
*isobutanol*  
*Xylene (mix)*  
*1,3-bis[12-hydroxy-octadecamide-N-methylene]-benzene*  
*cobalt bis(2-ethylhexanoate)*
- Hazard statements  
*H226 Flammable liquid and vapour.*  
*H315 Causes skin irritation.*

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**Safety data sheet**  
according to 1907/2006/EC, Article 31

Printing date 23.02.2022

Revision: 23.02.2022

Trade name: GSCF55 Guard SCF Satin Colours

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H318 Causes serious eye damage.

H317 May cause an allergic skin reaction.

H373 May cause damage to the hearing organs through prolonged or repeated exposure.

H412 Harmful to aquatic life with long lasting effects.

**Precautionary statements**

P303+P361+P353 **IF ON SKIN (or hair):** Take off immediately all contaminated clothing. Rinse skin with water [or shower].

P305+P351+P338 **IF IN EYES:** Rinse cautiously with water for several minutes. Remove contact lenses, if present and easy to do. Continue rinsing.

P310 Immediately call a POISON CENTER/doctor.

P321 Specific treatment (see on this label).

P362+P364 Take off contaminated clothing and wash it before reuse.

P501 Dispose of contents/container in accordance with local/regional/national/international regulations.

**2.3 Other hazards**

**Results of PBT and vPvB assessment**

- PBT: Not applicable.

- vPvB: Not applicable.

**SECTION 3: Composition/information on ingredients**

**3.2 Chemical characterisation: Mixtures**

- Description: Mixture of substances listed below with nonhazardous additions.

**Dangerous components:**

CAS: 1330-20-7 EINECS: 215-535-7 Reg.nr.: 01-2119488216-32-XXXX	Xylene (mix) ⊕ Flam. Liq. 3, H226; ⊕ STOT RE 2, H373; Asp. Tox. 1, H304; ⊕ Acute Tox. 4, H312; Acute Tox. 4, H332; Skin Irrit. 2, H315; Eye Irrit. 2, H319; STOT SE 3, H335; Aquatic Chronic 3, H412	>10-≤25%
CAS: 78-83-1 EINECS: 201-148-0 Reg.nr.: 01-2119484609-23-XXXX	isobutanol ⊕ Flam. Liq. 3, H226; ⊕ Eye Dam. 1, H318; ⊕ Skin Irrit. 2, H315; STOT SE 3, H335-H336	>2.5-≤10%
CAS: 108-65-6 EINECS: 203-603-9 Reg.nr.: 01-2119475791-29	2-methoxy-1-methylethyl acetate ⊕ Flam. Liq. 3, H226; ⊕ STOT SE 3, H336	>2.5-≤10%
CAS: 100-41-4 EINECS: 202-849-4 Reg.nr.: 01-2119489370-35	ethylbenzene ⊕ Flam. Liq. 2, H225; ⊕ STOT RE 2, H373; Asp. Tox. 1, H304; ⊕ Acute Tox. 4, H332	>1-≤2.5%
ELINCS: 423-300-7 Reg.nr.: 01-0000016979-49-XXXX	1,3-bis[12-hydroxy-octadecamide-N-methylene]-benzene ⊕ Skin Sens. 1, H317; Aquatic Chronic 4, H413	>1-≤2.5%
CAS: 7779-90-0 EINECS: 231-944-3 Reg.nr.: 01-2119485044-40-0000	zinc bis(orthophosphate) ⊕ Aquatic Acute 1, H400; Aquatic Chronic 1, H410	≤1%
CAS: 22464-99-9 EINECS: 245-018-1 Reg.nr.: 01-2119979088-21	2-ethylhexanoic acid, zirconium salt ⊕ Repr. 2, H361d; ⊕ Skin Irrit. 2, H315; Eye Irrit. 2, H319	≤1%

- Additional information: For the wording of the listed hazard phrases refer to section 16.

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**Safety data sheet**  
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Printing date 23.02.2022

Revision: 23.02.2022

Trade name: GSCF55 Guard SCF Satin Colours

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#### **SECTION 4: First aid measures**

- **4.1 Description of first aid measures**
- **General information:** Immediately remove any clothing soiled by the product.
- **After inhalation:**
  - Supply fresh air and call for a doctor.
  - In case of unconsciousness place patient stably in side position for transportation.
  - Supply fresh air; consult doctor in case of complaints.
- **After skin contact:**
  - Immediately wash with water and soap and rinse thoroughly. Remove contaminated clothing.
  - Immediately rinse with water.
- **After eye contact:** Rinse opened eye for several minutes under running water. Then consult a doctor.
- **After swallowing:** Do not induce vomiting; call for medical help immediately and show safety datasheet or label.
- **4.2 Most important symptoms and effects, both acute and delayed** No further relevant information available.
- **4.3 Indication of any immediate medical attention and special treatment needed** Treat symptomatically.

#### **SECTION 5: Firefighting measures**

- **5.1 Extinguishing media**
- **Suitable extinguishing agents:**
  - CO<sub>2</sub>, powder or water spray. Fight larger fires with water spray or alcohol resistant foam.
  - For safety reasons unsuitable extinguishing agents: Water with full jet
- **5.2 Special hazards arising from the substance or mixture**
  - During heating or in case of fire poisonous gases are produced.
- **5.3 Advice for firefighters**
- **Protective equipment:** Mount respiratory protective device.

#### **SECTION 6: Accidental release measures**

- **6.1 Personal precautions, protective equipment and emergency procedures**
  - Mount respiratory protective device.
  - Wear protective equipment. Keep unprotected persons away.
- **6.2 Environmental precautions:**
  - Do not allow product to reach sewage system or any water course.
  - Prevent seepage into sewage system, workpits and cellars.
  - Inform respective authorities in case of seepage into water course or sewage system.
  - Do not allow to enter sewers/ surface or ground water.
- **6.3 Methods and material for containment and cleaning up:**
  - Absorb with liquid-binding material (sand, diatomite, acid binders, universal binders, sawdust).
  - Use neutralizing agent.
  - Dispose contaminated material as waste according to item 13.
  - Ensure adequate ventilation.
- **6.4 Reference to other sections**
  - See Section 7 for information on safe handling.
  - See Section 8 for information on personal protection equipment.
  - See Section 13 for disposal information.

#### **SECTION 7: Handling and storage**

- **7.1 Precautions for safe handling**
  - Keep receptacles tightly sealed.

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**Safety data sheet**  
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Revision: 23.02.2022

Trade name: GSCFSS Guard SCF Satin Colours

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Ensure good ventilation/extraction at the workplace.

Prevent formation of aerosols.

Hygiene measures:

Wash hands before breaks and at the end of workday.

Information about fire - and explosion protection:

Keep ignition sources away - Do not smoke.

Protect against electrostatic charges.

Keep respiratory protective device available.

7.2 Conditions for safe storage, including any incompatibilities

Storage:

Requirements to be met by storerooms and receptacles:

Materials such as cleaning rags, paper wipes and protective clothing, which are contaminated with the product may spontaneously self-ignite some hours later. To avoid the risk of fires, all contaminated materials should be [stored in purpose-built containers or in metal containers with tight-fitting self-closing lids.] or [laid out flat in a single layer to dry] or [placed in a metal container soaked with water] or [washed out well with warm soapy water before disposal.] Contaminated materials should be removed from the workplace at the end of each working day and stored outside.

Information about storage in one common storage facility: Not required.

Further information about storage conditions:

Keep receptacle tightly sealed and in a well-ventilated place.

Keep away from heat.

7.3 Specific end use(s) No further relevant information available.

### SECTION 8: Exposure controls/personal protection

8.1 Control parameters

Additional information about design of technical facilities: No further data; see item 7.

Ingredients with limit values that require monitoring at the workplace:

1330-20-7 Xylene (mix)

WEL Short-term value: 441 mg/m<sup>3</sup>, 100 ppm

Long-term value: 220 mg/m<sup>3</sup>, 50 ppm

Sk; BMGV

78-83-1 isobutanol

WEL Short-term value: 231 mg/m<sup>3</sup>, 75 ppm

Long-term value: 154 mg/m<sup>3</sup>, 50 ppm

108-65-6 2-methoxy-1-methylethyl acetate

WEL Short-term value: 548 mg/m<sup>3</sup>, 100 ppm

Long-term value: 274 mg/m<sup>3</sup>, 50 ppm

Sk

100-41-4 ethylbenzene

WEL Short-term value: 552 mg/m<sup>3</sup>, 125 ppm

Long-term value: 441 mg/m<sup>3</sup>, 100 ppm

Sk

DNELs

1330-20-7 Xylene (mix)

Dermal DNEL 108 mg/day (Con)

180 mg/day (Ind)

Inhalative DNEL 14.8 mg/m<sup>3</sup> (Con)

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**Safety data sheet**  
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Printing date 23.02.2022

Revision: 23.02.2022

Trade name: GSCF55 Guard SCF Satin Colours

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		77 mg/m <sup>2</sup> (Ind)
<b>78-83-1 isobutanol</b>		
Oral	DNEL	25 mg/day (Con)
Inhalative	DNEL	55 mg/m <sup>2</sup> (Con)
		310 mg/m <sup>2</sup> (Ind)
<b>108-65-6 2-methoxy-1-methylethyl acetate</b>		
Oral	DNEL	1.67 mg/day (Con)
Dermal	DNEL	54.8 mg/day (Con)
		153.5 mg/day (Ind)
Inhalative	DNEL	33 mg/m <sup>2</sup> (Con)
		275 mg/m <sup>2</sup> (Ind)
<b>7779-90-0 trizinc bis(orthophosphate)</b>		
Oral	DNEL	0.83 mg/day (Con)
Dermal	DNEL	83 mg/day (Con)
		83 mg/day (Ind)
Inhalative	DNEL	2.5 mg/m <sup>2</sup> (Con)
		5 mg/m <sup>2</sup> (Ind)

**- PNECs**

CAS No. 1330-20-7 Xylene mixed isomers

- Fresh water; 0.327 mg/l

- Marine water; 0.327 mg/l

- Intermittent release; 0.327 mg/l

- STP; 6.58 mg/l

- Sediment (Freshwater); 12.46 mg/kg

- Sediment (Marinewater); 12.46 mg/kg

- Soil; 2.31 mg/kg

**- Ingredients with biological limit values:**

<b>1330-20-7 Xylene (mix)</b>	
BMGV	650 mmol/mol creatinine
	Medium: urine
	Sampling time: post shift
	Parameter: methyl hippuric acid

- Additional information: The lists valid during the making were used as basis.

**- 8.2 Exposure controls****- Personal protective equipment:****- General protective and hygienic measures:**

Keep away from foodstuffs, beverages and feed.

Immediately remove all soiled and contaminated clothing

Wash hands before breaks and at the end of work.

Store protective clothing separately.

Avoid contact with the skin.

Avoid contact with the eyes and skin.

- Respiratory protection: When spraying the product, use a respiratory protective device.

- Protection of hands:



Protective gloves

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Trade name: GSCFS5 Guard SCF Satin Colours

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· Eye protection:



Tightly sealed goggles

### SECTION 9: Physical and chemical properties

· 9.1 Information on basic physical and chemical properties

· General Information

· Appearance:

Form:	Liquid
Colour:	According to product specification
Odour:	Characteristic
Odour threshold:	Not determined.

· pH-value: Not determined.

· Change in condition

Melting point/freezing point:	Undetermined.
Initial boiling point and boiling range:	105 °C

· Flash point: 24 °C

· Flammability (solid, gas): Not applicable.

· Ignition temperature: 500 °C

· Decomposition temperature: Not determined.

· Auto-ignition temperature: Product is not selfigniting.

· Explosive properties: Product is not explosive. However, formation of explosive air/vapour mixtures are possible.

· Explosion limits:

Lower:	1.1 Vol %
Upper:	7 Vol %

· Vapour pressure at 20 °C: 6.7-8.2 hPa

· Density at 20 °C: 1.247 g/cm<sup>3</sup>

· Relative density: Not determined.

· Vapour density: Not determined.

· Evaporation rate: Not determined.

· Solubility in / Miscibility with water:

NOT MISCIBLE

· Partition coefficient: n-octanol/water: Not determined.

· Viscosity:

Dynamic at 20 °C:	300 mPas
Kinematic:	Not determined.

· Solvent content:

Organic solvents: 29.9 %

Solids content: 70.3 %

(Contd. on page 7)

Trade name: GSCF55 Guard SCF Satin Colours

(Contd. of page 6)

· 9.2 Other information No further relevant information available.

### SECTION 10: Stability and reactivity

- 10.1 Reactivity No further relevant information available.
- 10.2 Chemical stability
- Thermal decomposition / conditions to be avoided: No decomposition if used according to specifications.
- 10.3 Possibility of hazardous reactions No dangerous reactions known.
- 10.4 Conditions to avoid No further relevant information available.
- 10.5 Incompatible materials: No further relevant information available.
- 10.6 Hazardous decomposition products:  
No dangerous decomposition products when stored and handled correctly

### SECTION 11: Toxicological information

- 11.1 Information on toxicological effects
- Acute toxicity Based on available data, the classification criteria are not met.

· LD/LC50 values relevant for classification:

#### 1330-20-7 Xylene (mix)

Oral	LD50	5,000 mg/kg (Rat)
Dermal	LD50	2,000 mg/kg (rbt)
Inhalative	LC50/4 h	11 mg/l (Rat)

#### 78-83-1 isobutanol

Oral	LD50	>2,000 mg/kg (Rat)
Dermal	LD50	>2,000 mg/kg (Rab)

#### 108-65-6 2-methoxy-1-methylethyl acetate

Oral	LD50	>5,000 mg/kg (rat)
Dermal	LD50	5,000 mg/kg (Rat)
Inhalative	LC50/4 h	>10.8 mg/l (Rat)

#### 100-41-4 ethylbenzene

Oral	LD50	3,500 mg/kg (rat)
Dermal	LD50	17,800 mg/kg (rbt)

#### 1,3-bis[12-hydroxy-octadecamide-N-methylene]-benzene

Oral	LD50	>2,000 mg/kg (rat)
Dermal	LD50	>2,000 mg/kg (rab)
Inhalative	LC50/4 h	>5 mg/l (rat)

#### 7779-90-0 triazine bis(orthophosphate)

Oral	LD50	>5,000 mg/kg (rat)
Dermal	LD50	>2,000 mg/kg (rat)
Inhalative	LC50/4 h	>5.7 mg/l (Rat)

- Primary irritant effect:
- Skin corrosion/irritation  
Causes skin irritation.
- Serious eye damage/irritation  
Causes serious eye damage.

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**Safety data sheet**  
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Trade name: GSCF55 Guard SCF Satin Colours

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- **Respiratory or skin sensitisation**  
May cause an allergic skin reaction.
- **Additional toxicological information:**
- **CMR effects (carcinogenicity, mutagenicity and toxicity for reproduction)**
- **Germ cell mutagenicity** Based on available data, the classification criteria are not met.
- **Carcinogenicity** Based on available data, the classification criteria are not met.
- **Reproductive toxicity** Based on available data, the classification criteria are not met.
- **STOT-single exposure** Based on available data, the classification criteria are not met.
- **STOT-repeated exposure**  
May cause damage to the hearing organs through prolonged or repeated exposure.
- **Aspiration hazard** Based on available data, the classification criteria are not met.

### SECTION 12: Ecological information

- **12.1 Toxicity**
- **Aquatic toxicity:** No further relevant information available.
- **12.2 Persistence and degradability** No further relevant information available.
- **12.3 Bioaccumulative potential** No further relevant information available.
- **12.4 Mobility in soil** No further relevant information available.
- **Ecotoxicological effects:**
- **Remark:** Harmful to fish
- **Additional ecological information:**
- **General notes:**  
Water hazard class 2 (German Regulation) (Self-assessment): hazardous for water  
Do not allow product to reach ground water, water course or sewage system.  
Must not reach sewage water or drainage ditch undiluted or unneutralised.  
Danger to drinking water if even small quantities leak into the ground.  
Harmful to aquatic organisms
- **12.5 Results of PBT and vPvB assessment**
- **PBT:** Not applicable.
- **vPvB:** Not applicable.
- **12.6 Other adverse effects** No further relevant information available.

### SECTION 13: Disposal considerations

- **13.1 Waste treatment methods**
- **Recommendation**  
Must not be disposed together with household garbage. Do not allow product to reach sewage system.
- **Uncleaned packaging:**
- **Recommendation:** Disposal must be made according to official regulations.

### SECTION 14: Transport information

- |                                       |                             |
|---------------------------------------|-----------------------------|
| - <b>14.1 UN-Number</b>               |                             |
| - <b>ADR, IMDG, IATA</b>              | UN1263                      |
| - <b>14.2 UN proper shipping name</b> |                             |
| - <b>ADR</b>                          | 1263 PAINT RELATED MATERIAL |
| - <b>IMDG, IATA</b>                   | PAINT RELATED MATERIAL      |

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**Safety data sheet**  
according to 1907/2006/EC, Article 31

Printing date 23.02.2022

Revision: 23.02.2022

Trade name: GSCF55 Guard SCF Satin Colours

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## · 14.3 Transport hazard class(es)

· ADR, IMDG, IATA



· Class 3 Flammable liquids.  
· Label 3

## · 14.4 Packing group

· ADR, IMDG, IATA III

· 14.5 Environmental hazards: Not applicable.

## · 14.6 Special precautions for user

Warning: Flammable liquids.

· Hazard identification number (Kemler code): 30

· EMS Number: F-E,S-E

· Stowage Category A

## · 14.7 Transport in bulk according to Annex II of

Marpol and the IBC Code Not applicable.

## · Transport/Additional information:

## · ADR

· Limited quantities (LQ) 5L

· Excepted quantities (EQ) Code: E1  
Maximum net quantity per inner packaging: 30 ml  
Maximum net quantity per outer packaging: 1000 ml

· Transport category 3

· Tunnel restriction code D/E

## · IMDG

· Limited quantities (LQ) 5L

· Excepted quantities (EQ) Code: E1  
Maximum net quantity per inner packaging: 30 ml  
Maximum net quantity per outer packaging: 1000 ml

· UN "Model Regulation": UN 1263 PAINT RELATED MATERIAL, 3, III

### SECTION 15: Regulatory information

## · 15.1 Safety, health and environmental regulations/legislation specific for the substance or mixture

· Directive 2012/18/EU

· Named dangerous substances - ANNEX I None of the ingredients is listed.

· Seveso category P5c FLAMMABLE LIQUIDS

· Qualifying quantity (tonnes) for the application of lower-tier requirements 5,000 t

· Qualifying quantity (tonnes) for the application of upper-tier requirements 50,000 t

· National regulations:

· Technical instructions (air):

Class	Share in %
NK	29.9

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**Safety data sheet**  
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Revision: 23.02.2022

Trade name: GSCF55 Guard SCF Satin Colours

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- *Waterhazard class: Water hazard class 2 (Self-assessment): hazardous for water.*
- *15.2 Chemical safety assessment: A Chemical Safety Assessment has not been carried out.*

### SECTION 16: Other information

*This information is based on our present knowledge. However, this shall not constitute a guarantee for any specific product features and shall not establish a legally valid contractual relationship.*

- *Full text of H-Statements referred to under sections 2 and 3:*

*H225 Highly flammable liquid and vapour.*  
*H226 Flammable liquid and vapour.*  
*H304 May be fatal if swallowed and enters airways.*  
*H312 Harmful in contact with skin.*  
*H315 Causes skin irritation.*  
*H317 May cause an allergic skin reaction.*  
*H318 Causes serious eye damage.*  
*H319 Causes serious eye irritation.*  
*H332 Harmful if inhaled.*  
*H335 May cause respiratory irritation.*  
*H336 May cause drowsiness or dizziness.*  
*H361d Suspected of damaging the unborn child.*  
*H373 May cause damage to organs through prolonged or repeated exposure.*  
*H400 Very toxic to aquatic life.*  
*H410 Very toxic to aquatic life with long lasting effects.*  
*H412 Harmful to aquatic life with long lasting effects.*  
*H413 May cause long lasting harmful effects to aquatic life.*

- *Department issuing SDS: Product safety department: LABORATORY*

- *Abbreviations and acronyms:*

*ADR: Accord relatif au transport international des marchandises dangereuses par route (European Agreement Concerning the International Carriage of Dangerous Goods by Road)*  
*IMDG: International Maritime Code for Dangerous Goods*  
*IATA: International Air Transport Association*  
*GHS: Globally Harmonised System of Classification and Labelling of Chemicals*  
*EINECS: European Inventory of Existing Commercial Chemical Substances*  
*ELINCS: European List of Notified Chemical Substances*  
*CAS: Chemical Abstracts Service (division of the American Chemical Society)*  
*DNEL: Derived No-Effect Level (REACH)*  
*PNEC: Predicted No-Effect Concentration (REACH)*  
*LC50: Lethal concentration, 50 percent*  
*LD50: Lethal dose, 50 percent*  
*PBT: Persistent, Bioaccumulative and Toxic*  
*vPvB: very Persistent and very Bioaccumulative*  
*Flam. Liq. 2: Flammable liquids – Category 2*  
*Flam. Liq. 3: Flammable liquids – Category 3*  
*Acute Tox. 4: Acute toxicity – Category 4*  
*Skin Irrit. 2: Skin corrosion/irritation – Category 2*  
*Eye Dam. 1: Serious eye damage/eye irritation – Category 1*  
*Eye Irrit. 2: Serious eye damage/eye irritation – Category 2*  
*Skin Sens. 1: Skin sensitisation – Category 1*  
*Repr. 2: Reproductive toxicity – Category 2*  
*STOT SE 3: Specific target organ toxicity (single exposure) – Category 3*  
*STOT RE 2: Specific target organ toxicity (repeated exposure) – Category 2*  
*Asp. Tox. 1: Aspiration hazard – Category 1*  
*Aquatic Acute 1: Hazardous to the aquatic environment - acute aquatic hazard – Category 1*  
*Aquatic Chronic 1: Hazardous to the aquatic environment - long-term aquatic hazard – Category 1*  
*Aquatic Chronic 3: Hazardous to the aquatic environment - long-term aquatic hazard – Category 3*  
*Aquatic Chronic 4: Hazardous to the aquatic environment - long-term aquatic hazard – Category 4*



# COSHH Assessment for Guard SCF Satin Colours

Project Address: HMP LOW NEWTON PRISON

Date: 25/07/24

Tick where the product is to be used:



- Area with limited or no ventilation
- Indoors with adequate ventilation
- Outdoors or an area ventilated on all sides

- Complete the risk assessment in the boxes labelled All Areas AND Confined Spaces |
- Complete the risk assessment in the boxes labelled All Areas AND Indoors
- Complete the risk assessment labelled All Areas AND Outdoors

Hazards	Persons at risk	Worstcase	Risk level	Control Measures	PPE needed
<b>All Areas</b> Repeated exposure may cause skin dryness or cracking May cause irritation and redness if contact is made with eyes. May cause irritation to the throat if accidentally ingested	Persons using product Persons using product Persons using product	Mild irritation Mild irritation Mild discomfort	Low <del>Low</del> <del>Low</del>	Avoid skin contact Avoid splashes into eyes Good Hygiene practices Wash hands after use	Protective gloves Safety glasses N/A
Hazard ID number 33 <b>Confined Space</b> N/A					
<b>Indoors</b> May form flammable / explosive vapour-air mixture while in use	Persons in work area	Explosion	Med / Low	Ensure area suitably ventilated	Site minimum
<b>Outdoors</b> As all areas	Persons entering area while product is still curing	As all areas	Low	Signage	Site minimum
<b>First Aid Measures</b>					
Eyes Bathe the eye with running water for 15 minutes Ingestion Wash out mouth with water Inhalation Consult a doctor Skin Wash immediately with plenty of soap and water Other Hazards N/A					
Disposal Explosion / Fire Spillage Storage/Handling					
Do not empty into drains or water courses. Dispose of waste paint and containers as local authority facilities directions. 24 C flash point. Use suitable extinguishing media for surrounding fire. Use water spray to cool containers. In combustion emits toxic fumes. Absorb into dry sand or earth. Transfer to a closable, labelled salvage container for disposal in approved manner. Smoking is <del>forbidden</del> . Use non-sparking tools. Ensure there is adequate ventilation in storage area.					

Signed:

Position:

Director

Date:

25/07/24



TECHNICAL SPECIFICATIONS				
QUALITY : EPDM SHEET (WRC GRADE)				
PROPERTIES	TEST METHOD	VALUES	TEST METHOD	VALUES
		FPS UNITS		METRIC UNITS
SPECIFIC GRAVITY	ASTM D297	1.13 ± 0.02	DIN 53508	1.13 ± 0.02
HARDNESS	ASTM D2240	70 ± 5 Sh A	DIN 53505	70 ± 5 Sh A
TENSILE STRENGTH ( min )	ASTM D412	1568 PSI	DIN 53504	110 kg/cm <sup>2</sup>
ELONGATION AT BREAK ( min )	ASTM D412	400%	DIN 53504	400%
COMPRESSION SET (70 <sup>o</sup> C/24 hrs/25% set) (max)	ASTM D395 METHOD B	8.0%	DIN 53517	8.0%
TEAR RESISTANCE ( Angular ) min	ASTM D624	196 Lbs/Inch	DIN 53515	35 Kg/cm
CHANGE IN PROPERTIES				
HEAT AGEING ( 72 hrs. AT 70 <sup>o</sup> C )	ASTM D573			
--- HARDNESS (Pts)		+2		+2
--- TENSILE STRENGTH (%)		± 8		± 8
--- ELONGATION AT BREAK (%)		± 15		± 15
VOLUME SWELL : AT 100 <sup>o</sup> C FOR 72 HRS/MN	ASTM D 471			
ASTM OIL NO.1		NA		NA
ASTM OIL NO.2		NA		NA
ASTM OIL NO.3		NA		NA
CHEMICAL RESISTANCE				
--- OZONE	ASTM D 1149	EXCELLENT		EXCELLENT
--- DILUTE ACIDS AND BASES		EXCELLENT		EXCELLENT
--- CONCENTRATED ACIDS AND BASES		EXCELLENT		EXCELLENT
--- OILS		NOT RECOMMENDED		NOT RECOMMENDED
--- SOLVENTS		NOT RECOMMENDED		NOT RECOMMENDED
TEMPERATURE RANGE		-40 <sup>o</sup> C + 120 <sup>o</sup> C		-40 <sup>o</sup> C + 120 <sup>o</sup> C
COLOUR		BLACK		BLACK
Test Results of Water Extract				
Properties	Test Method	Results		
Odour & Flavour of Water	BS 6920 : 2000 Section 2.2.1	Passed at exposure of 14610 mm <sup>2</sup> / Litre For cold & hot water upto 60 <sup>o</sup> C		
Extraction of substance that may be concern to public health	BS 6920 : 2000 Section 2.5	Passed when tested at an exposure of 14610 mm <sup>2</sup> /Litre		
Growth of aquatic microorganisms	BS 6920 : 2000 Section 2.4	Passed when tested at an exposure of 14610 mm <sup>2</sup> /Litre		
Appearance of Water Extract	BS 6920 : 2000 Section 2.3	Passed when tested at an exposure of 14610 mm <sup>2</sup> /Litre		
Extraction of Metals	BS 6920 : 2000 Section 2.6	Passed when tested at an exposure of 14610 mm <sup>2</sup> /Litre		

# WB Classic Range Fuel Polishing Systems

## Installation and Operation Manual

Rev2201



Please note image shown is just for illustration purposes and may differ in appearance to your model.

## Content

Page 3	Delivery checks Mechanical Installation Electrical Installation
Page 4	Initial Setup User input Operation Setting the clock (RTC) and timer mode
Page 5	Remote control and monitoring (BMS) Servicing
Page 6	Recommendations and assistance Spares list
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Page 8	Service Checklist
Page 9	WB range options WB-2TACO (2 tank changeover) Alarm handing Alarm Reset Manual valve movement
Page 10	WB-2TACO (2 tank changeover) Changing tanks PLC Display
Page 11	WB Portable unit WN Enclosure unit WB 3-micron unit

## Delivery

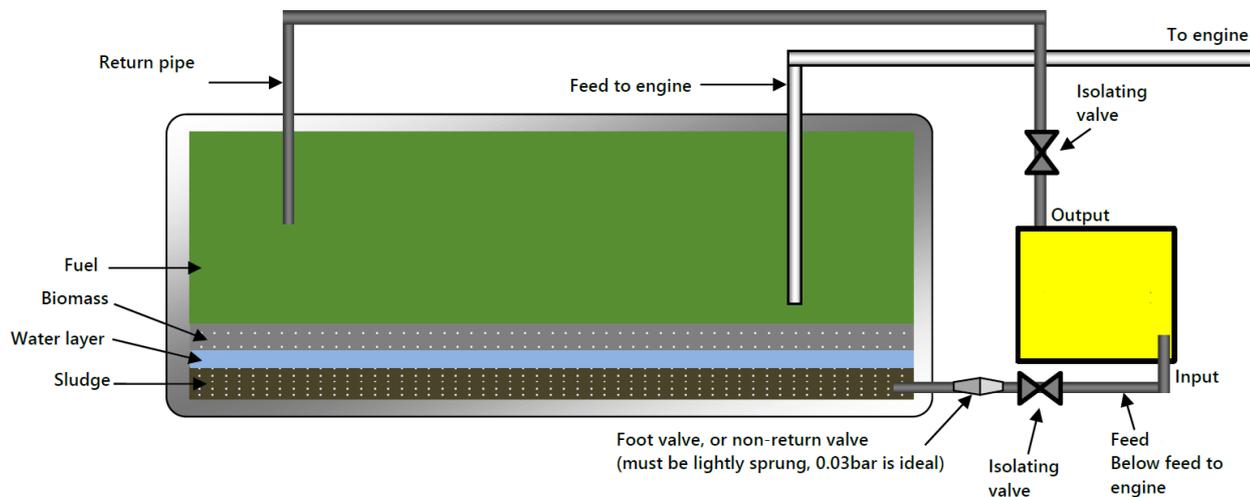
Upon delivery inspect the unit for any damage that may have occurred during shipment. Inspect the interior of the unit for mechanical or electrical damage. If the unit is damaged upon delivery, contact the shipping company immediately.

It is the installer's/operator's responsibility to ensure all health and safety procedures of the installation, operation and local site are always followed. This unit must be grounded to its electrical supply. Installation of unit should only be performed by qualified installation personnel who have thoroughly read and understand the installation instructions covered in this manual.

## Mechanical Installation

All wall mounted systems should be firmly attached to a fixed wall or other similar secure surface. It is the installer's responsibility to ensure the unit is securely and safely mounted in a sensible position.

You should install isolating ball valves in the pipe work before and after the unit, leaving them open at all times other than for servicing.



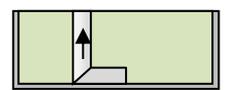
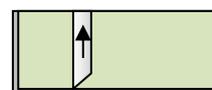
If the unit is mounted above the tank, or if the pipe work exits the tank top, a priming tee should be installed on the highest point of the suction line to be able to easily prime the systems delivery line. The return line should be connected to the output port and enter the tank as far away as possible from the pick-up pipe.

The system would ideally pick-up fuel from the lowest point of the tank at one end, and return it to the highest point at the opposite end. If this is not possible then we recommend placing the pick-up and return pipes as far apart as possible. The feed pipe (input to the WB unit) should be lower than the engine feed pipe in the tank.

The feed pipe to the system should be independent and separate from the feed to the engine. The return should also be independent and separate to the engines fuel return line. We recommend a minimum internal pipe diameter of 1/2" (for the 10 and 25 units) and 1" (for the 40 unit). Small diameters, long pipe runs or many bends in the pipe work will cause high frictional losses and can cause the system to run slow, or incorrectly trigger the internal monitoring systems. Likewise, high fuel lifts or fuel heads can also cause the unit to run slow.

We recommend a lightly sprung non-return valve/foot valve on the input side of the system to maintain the prime in the unit and in the input pipe work.

The pickup pipe to the unit should be either connected to the fuel tanks drain valve (i.e. the lowest point) or should be unique pipe work. If unique, the input pipe inside the tank should be resting on the tank bottom with the end cut off at 45°. Alternatively a 90° elbow on the end with the short end resting horizontally on the tank bottom.



## Electrical Installation

To avoid the risk of electric shock, make sure that the power supply is disconnected. Ensure that the power supply is at zero volts with a multi-meter before making any electrical connections. Make sure that your unit and power supply are configured for the same voltage rating. This range manual covers 12v DC, 24v DC and 220v 50hz 1ph AC models, please check to ensure you have the correct supply voltage for your model.

Incoming power is the minimum requirement to operate the machine. Inputs for once weekly timers, external run signals, external pause signals and a user input for alerts can also be connected. See later sections for more data.

## Setup

The unit has been developed to be used with EN590/diesel fuel only, do not use this system with gasoline. Some fuels may have been treated with alcohol base additives; these additives will harm the unit's seals. When using additives, be sure they are alcohol free and compatible with the unit seals.

The blue D-shaped component is a fuel conditioner; it is highly magnetic and as such should not be approached by pacemaker owners.

Do not run system dry, prime before use. Do not open the control box unless you are a qualified electrician.

The vacuum/service sensor is adjustable from 200-900mbar (cw triggers early, ccw triggers later). It has been preset to a value of 680mbar. On rare occasions, for example if the input pipe work is causing a high vacuum due to frictional losses, this vacuum switch can be adjusted up to allow the system to work for longer between service requirements.

Inputs to the system		Outputs from the system	
<b>Input 1</b>	Daily or Once-weekly timer (daily unless connected)	<b>Output 1</b>	Pump run
<b>Input 2</b>	Internal sensor connection	<b>Output 2</b>	Service Lamp
<b>Input 3</b>	Internal sensor connection	<b>Output 3</b>	Drain water
<b>Input 4</b>	User input, active if PLC logic voltage is applied.	<b>Output 4</b>	Remote "healthy" output (see later section)
<b>Input 5</b>	Button		
<b>Input 6</b>	Button		
<b>Input A1</b>	External run signal, active if PLC logic voltage is applied (see later section)		
<b>Input A2</b>	External pause signal, active if PLC logic voltage is applied (see later section)		

## The User Input

This input is active if the PLC logic voltage (the same power as applied to the PLC's "+" input, typically 24v DC but please check your individual unit) is applied to input 4. This will stop the pump and signal for user interaction. As with any such service requirement, the reset button will need to be pressed before the system can be restarted. This input can be used for user supplied external components/sensors such as level sensors, flow switches, pressure switches etc. It is supplied unconnected to allow for any such adaptations by the installer or operator.

NOTE: the user input is only in operation if the pump is running. If the pump is not running the user input is disabled.

## Operation

There are 3 operating modes,

**Manual** Press the START/STOP button to run the system, press the same button again to stop it.

**Remote** Unit can be run via an external control system, such as a BMS or remote switch.

**Timer** System will start and stop automatically based on user programmable internal timer.

The system will only stop if requested to do so by the user (eg stop button, the timer completes, etc) or if the systems senses a service requirement. Clear any such service requirement either by servicing the system, changing the filter element or draining water/sludge (see servicing section), and pressing the RESET button. The system can now be restarted in manual mode, or will restart on the next timer start command.

## Programming the timer mode

Ensure the RTC (real time clock) is correctly set, please refer to the servicing section for instructions. If the internal 24 volts is connected to terminal i1, a weekly timer (one run per week) is used; if not the daily timer is used.

To program the timer, press and hold the RESET button for 5 seconds, once the displayed timer reaches 5 seconds, release the button to view the programming mode screen.

The internal screen will display a day range, this can be edited by the user by pressing the SEL button next to the screen, you will now see a large black box flashing on the screen. Use the arrow keys to move this box to the day to be edited, press SEL again. You will see an underscore (a line under the day to be edited); press the up and down arrows to change the day and press OK once completed.

Repeat this process for the other day to complete your range. Next set a start and end time; use the same procedure as above (SEL for black box, highlight the value to change, SEL for underscore, up down to edit, OK to save).

Once you have set all the parameters required, press the RESET button once again to return to the main screen. Your timer is now set and will switch the unit on and off at the required times. To deactivate the timer, edit as above and select the same time for start and end.

Timer examples	Daily timer mode	Weekly timer mode (input 1 active)
SU-SU 08:00-12:00	Run every day from 8am until 12 midday	Run Sunday only 8am to 12 midday
TU-FR 21:00-10:00	Run 9pm to 10am Tuesday until Friday	Run from Tuesday 9pm until Friday 10am
WE-MO 20:00-08:00	Run 8pm to 8am Wednesday to Monday (finishing Tuesday AM)	Run from Wednesday 8pm until Monday 8am
TU-TU 01:00-01:00	The unit will never run (switch on and off at the same time)	The unit will not run (as daily timer)
TU-TU 01:01-01:00	Run every day for 23hr 59min, starting at 1am	Run all week, bar 1 minute a 1am on Tuesday
MO-TU 08:00-08:01	Run for 1 minute at 8am on Mondays and Tuesdays	Run from Monday 8am until Tuesday 8:01am

### Remote control and monitoring

Remote start input: Apply PLC logic voltage to input "A1" to start the system remotely; remove this voltage to stop the system. This voltage can be taken from the systems internal logic power

Remote pause input: Apply PLC logic voltage to input "A2" to pause the system, remove this voltage to allow it to run. Voltage as per above.

Healthy output: Output Q4 is a volt free contact pair; it is closed if the system is healthy (running or not) but opens on any alert. This output pair will accept voltage from 12v to 240v AC (50 or 60hz) or 12 to 125v DC; however, it is not rated for AC3 (motor or induction) loads.

### Servicing

Setting the RTC (clock)	Press SEL and OK together on the PLC to enter the clock setting screen, use the same procedure as setting the timer (see programming section). If you cannot access the clock set mode in this way, press the ESC key on its own; in the menu that appears scroll down until you see the word RTC SET, press OK to enter. Set the clock. Press ESC twice to exit, you will see the WASP home page text message.
Draining water/contaminate	Stop the system; close the ball valves before and after the unit. Place a suitable receptacle underneath the yellow handle drain tap at the bottom of the grey unit. Carefully open the small bleed valve on the top of the grey filter (in the middle of the square lid). Now open the yellow handle drain tap at the bottom, push in and rotate anti-clockwise a quarter turn; this will allow the water/contaminate to drain out. Close the yellow handle tap and bleed valve when complete. Re-prime if necessary, reopen the ball valves, press the RESET button and restart. Dispose of the waste as per your local environment agency rules.
The water alarm repeatedly triggers	If the water alarm will not reset using the reset button. Please turn the system off, wait for 10 seconds and then turn it back on again.
Changing the filter element	Stop the system, close the ball valves before and after the unit and remove the power. Use a spanner to carefully remove the 4 bolts on the top of the grey filter housing. Remove the lid, and remove the black spring cassette that sits below it in the top of the filter. You can now remove the square replaceable element from inside the filter. Install a new one, ensuring the integrated seal is pointing downwards and the small plastic handle is facing up. Reinstall the spring cassette and carefully reinstall the lid. Re-prime the filter if necessary. The lid bolts must not be tightened over 8 Nm, and typically much less is sufficient. Reopen the ball valves. You can now restart the system.
Changing the seals/gaskets	As per the changing the filter element instructions, isolate power and close the ball valves before and after the unit. Remove the grey filter lid. Place a large receptacle under the yellow handle drain tap, open the tap (push and turn) and wait until all the fuel has been drained from the system and reclose the tap. Inside the lid is the square lid seal, remove and replace carefully. Now unscrew the 4 bolts housing the circular clamp ring on the underside of the square grey filter housing. This will allow the clamp ring and bowl to be removed (the bowl may need to be teased off as the gasket

between it and the housing can sometimes stick). Dry the bowl top and the underside of the square housing with appropriate media. Replace the circular bowl seal, hold the bowl vertically with the open end upwards, place the clamp ring around it so it is also at the top, now place the new circular bowl seal on the top of the bowl, it should sit inside the clamp ring. Again, ensuring all surfaces are dry and clear of fuel, place this assembly back on the underside of the square housing and carefully do up the bolts (max 8Nm, but less is advisable). Ensure you retighten the bolts in sequence, using opposite sides. This should ensure the clamp ring is square and the seal sits correctly and does not slip inside the bowl. Before you replace the lid, fully re-prime the system with the removed fuel. Replace the lid, again to a torque of 8Nm or ideally less, re-open the isolating ball valves, reapply power to the system and you are ready to restart.

## Recommendations and assistance

How often should I run the system?	We recommend you run the system frequently enough to ensure your fuel is turned over every 2 weeks minimum. However, every week is ideal, as it ensures you catch any potential issues quickly
How often should I change the filter element?	Once every 12 months, unless the system asks for a service sooner
Fuel isn't flowing, why?	Most likely the unit hasn't been fully primed, but also check for blockages in the pipe work and ensure all ball valves are open. Check for air leaks in your pipe work as well
I have to change elements very often.	This might simply be your fuel is very dirty, a 10-micron filter element is roughly 1/6th the thickness of a human hair, so even tiny dirt particles could get trapped. Of course, there are other reasons too, for example, are there a lot of bends in your input pipe work, or is the lift of fuel from the tank to the unit very high? Either of these can cause the pump to work harder and hence the switch that indicates to service will trigger earlier. You can adjust that switch if this is the case, but in 99% of cases, this switch should be left as factory set
If the system is not running	Is there any power? Have the fuses blown? Has the vacuum sensor triggered too early - does it need to be adjusted?
The system says its running but the pump is not moving	Check the circuit breaker or fuse. Ensure the switch on the pump (if applicable) is set to ON (I) and not OFF (O)
Everything is working, but the flow seems slow	Is there an air leak at the inlet? Is the fuel lift too high? The pump might be worn. If installed, is the foot valve working? Piping improperly installed or dimensioned? The filter might be blocked; the vacuum switch might be adjusted too high.
The pump has worn very quickly or is getting hot	Pump has been run dry or with insufficient fuel. Is there a blockage? Have you primed the system? Is the pipe work on inlet side not appropriately dimensioned
Pump requires too much power, fuse keeps blowing	Possibly air in the pipe work. The fuel/liquid might be too viscous. There might be an electrical fault
The unit seems very noisy	There might be insufficient fuel. Air leaks in the inlet pipe? Possible air or gas on the suction side?

## Spares list

	WB-10	WB-25	WB-40
<b>Primary (grey filter) Element Part No</b>	01030*	01830*	04030*
<b>Primary (grey filter) Seal Kit Part No</b>	10528	30979	30980

\*30 Micron. 10 Micron also available if required.

If you require further information, please contact Technical Support at WASP on 01923 606 600 or email [info@wasp-pfs.com](mailto:info@wasp-pfs.com).

### CE Statement



This is to certify the WASP WB range of fuel polishing systems are manufactured in accordance with CE marking regulations. All electrical components used carry the relevant CE marking. These include the PLC, din rail components, power supply, contactor, electrical enclosure, pump, sensors and similar. Copies of any product's declaration can be provided on request.

### UKCA Statement



This is to certify the WASP WB range of fuel polishing systems are manufactured in accordance with UKCA marking regulations. All electrical components used carry the relevant CE marking. These include the PLC, din rail components, power supply, contactor, electrical enclosure, pump, sensors and similar. Copies of any product's declaration can be provided on request.

### ATEX Statement

Whilst all due care and attention has been taken to construct this machine to the highest standards, it is not an ATEX unit. Therefore, it should not be mounted in areas which require ATEX zone 0, 1 or 2 protection. Moreover, we have examined our systems and can confirm they cannot generate the requirement for ATEX protection in their operation. They cannot create a source of ignition and the highest temperatures generated within the standard wall mounted machine is below 55 degrees centigrade (the flashpoint of diesel). As the internal pressures are below 2bar (and normally less than 1bar) it is impossible for our equipment to create a diesel mist. Only a diesel mist is ignitable, and as such not only can we not create a source of ignition, but we also cannot transform the fuel into an ignitable state. Therefore, we can state that our equipment will not on its own generate the requirement for ATEX protection. It is the installer's responsibility to ensure this unit is not mounted in a zone which requires ATEX approved equipment; your own survey/audit should be carried out to ascertain if ATEX is required. The information in this document is correct to the best of our knowledge; however always check with WASP PFS Ltd for any precise data relating to this system. Occasionally products are updated or have subtle re-designs; it is not always possible to include these changes in every manual revision. Contacting WASP PFS Ltd is always the easiest way to ensure you have the latest information. Alternatively, you can visit our web site at [www.wasp-pfs.com](http://www.wasp-pfs.com). Information in this document is for reference only, E&OE. Note: The manufacturer reserves the right to change or amend specifications without notice.

### Warranty Statement

For our latest warranty statement, please refer to our website. However, the following was correct at the time of writing (Feb 2017). The Products supplied by WASP are warranted to be reasonably fit for the purpose for which they were purchased insofar as they are in compliance with the specification agreed with the purchaser. A return-to-base for any product is required (at the purchasers' expense) for inspection prior to a warranty claim. If the Products are not as warranted above WASP shall repair or, at its option, replace the Products on the following basis;

(a) The period of warranty shall be twelve months from the date of delivery of the Products and

(b) Products shall not have been subject to misuse, neglect or modification or used outside the parameters given in the specification.

All other warranties and all conditions or representations expressed or implied by statute or at common law are hereby excluded and WASP shall not be liable to the purchaser for any direct, indirect or consequential losses arising.

For returns which are not under warranty

Should the purchaser return goods to WASP for credit or replacement for reasons other than warranty, a full inspection of the products must be actioned at the products original manufacturing plant.

WASP reserve the right to charge a restocking fee for any returned products which are not subject to the warranty conditions as above. Returned goods must be in their original packaging and must be returned undamaged. Initial inspection at WASP's UK offices will precede full inspection at the original manufacturing site.

Credit, part credit or replacement is at the decision of the quality control and inspection department of WASP. WASP reserve the right to issue or not issue credit, part credit or replacement. Shipping costs from the original invoice are not subject to refund or credit.

### Environmental Statement



Every part of this machine is recyclable; please refer to your local recycling authority for more information. European Directives 2002/96/EC and 2003/108/EC require that the equipment bearing this symbol on the product and/or its packaging must not be disposed of with unsorted municipal waste. The symbol indicates that this product must be disposed of separately from regular household waste streams. It is your responsibility to dispose of this and other electric and electronic equipment via designated collection facilities appointed by the government or local authorities.

#### Standards

EMC	The Pressure Equipment Regulations	Waste Electrical and Electronic
EN61000-6-3:2001 (+A11) Emissions	1999 S.I. 1999/2001, 29th November	Equipment Regulations 2006
2006/95/EC Electrical Equipment (Low Voltage)	1999 and was amended to S.I. 2002/1267	2002/96/EC 2003/108/EC
Machinery Directive 2006/42/EC	Pressure Equipment Directive 97/23/EC	

#### IMPORTANT NOTES

- This WB range unit is process plant equipment which has been designed to meet environmental standards for safe operation
- It is not for use with fluids that have a flash point below 55°C (100°F), e. g. petrol (gasoline), alcohol, etc and must not be used to clean these or other flammable liquids.
- It is not designed to be mounted in explosion zone 0, 1 or 2 areas; hence it must not be sited adjacent to a petrol dispenser or in any other hazardous zone.
- Please take note of our installation instructions, especially non-return valve usage and system priming. Failure to do so may cause damage to the system and will invalidate the warranty.
- Installation of this equipment and its associated tank, pipe work and fittings should only be carried out by qualified fuel installation engineers.
- The installation must conform to all relevant electrical and local authority regulations and standards.
- It must not be used with other liquids or for other applications. Any warranty or liability claims will be rejected if this machine is not used for its designed purpose.
- It is the installer and operator's responsibility to ensure all health and safety procedures of the installation, operation and local site are always followed.

**Service Checklist**

The following table is designed to act as a checklist to ensure regular system maintenance and servicing is carried out. The procedures it describes can be found elsewhere in this document.

Every Month	Completed	Date	Engineer
Visual inspection of the machine			
Mechanical inspection of the machine and its connections			
Check system is in regular operation			

Every 3 Months	Completed	Date	Engineer
Visual inspection of the machine			
Mechanical inspection of the machine and its connections			
Check system is in regular operation			
Ensure BMS connections (if used) are in full operation			

Every 6 Months	Completed	Date	Engineer
Visual inspection of the machine			
Mechanical inspection of the machine and its connections			
Check system is in regular operation			
Ensure BMS connections (if used) are in full operation			
Check fuel quality, and modify cleaning times based on the result			

Every 12 Months	Completed	Date	Engineer
Visual inspection of the machine			
Mechanical inspection of the machine and its connections			
Check system is in regular operation			
Ensure BMS connections (if used) are in full operation			
Check fuel quality, and modify cleaning times based on the result			
Change grey filter element			
Check grey filter seals and change if necessary			

## WB Options

### WB TACO (multi-tank cleaning)

If your WB range unit is supplied with a TACO option, output 1 of your WB unit will be taken to the external TACO control box/PLC. Likewise the run signal sent to your WB motor control system will also come from that external control box.

**Note:** the valves on this system are 24v DC powered and have internal capacitors to act as a safety close on loss of power. Please power the machine on and make sure each tank is fully option for a minimum of 20 seconds to charge each valve before use.

The internal PLC is setup like this for a 2-tank changeover system

Inputs to the system		Outputs from the system	
<b>Input 1</b>	Tank 1 input valve open (green)	<b>Output 1</b>	Open T1 input valve (red)
<b>Input 2</b>	Tank 1 input valve closed (yellow)	<b>Output 2</b>	Open T1 output valve (red)
<b>Input 3</b>	Tank 1 output valve open (green)	<b>Output 3</b>	Open T2 input valve (red)
<b>Input 4</b>	Tank 1 output valve closed (yellow)	<b>Output 4</b>	Open T2 output valve (red)
<b>Input 5</b>	Tank 2 input valve open (green)	<b>Output 5</b>	BMS Healthy
<b>Input 6</b>	Tank 2 input valve closed (yellow)	<b>Output 6</b>	BMS - in position
<b>Input 7</b>	Tank 2 output valve open (green)	<b>Output 7</b>	Alarm – (Lamp on control box)
<b>Input 8</b>	Tank 2 output valve closed (yellow)	<b>Output 8</b>	in position – Signal to WB motor contactor
<b>Input A1</b>	Demand to run (input from WB PLC, input 1 – 24v DC to trigger)		
<b>Input A2</b>	Output manifold pressure		
<b>Input A3</b>	Inhibit tank 1 (latching button on control box)		
<b>Input A4</b>	Inhibit tank 2 (latching button on control box)		

As per the schematic above, there are 2 buttons and an alarm LED on the control panel. The 2 buttons allow you inhibit each tank (eg stop the system from swapping to it). The lamp tells you if there is an error/alarm.

### Alarm handling

The alarm system is typically triggered by a valve out of position (see above for inputs/outputs to highlight position). The unit has a 20 second move timer built in, in other words if the valves have not reached their target position within 20 seconds, the system will stop and the alarm light will switch on.

### Alarm Reset

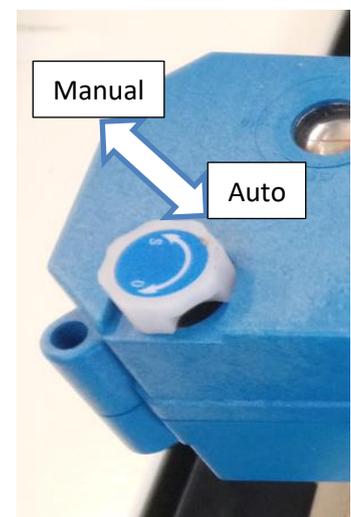
Cycle the power to the machine to reset any errors. If the error is still active, the alarm light will come on again.

**Note:** the main WB unit will not run until any errors have been cleared.

### Manual Valve Movement

While the valves are automatic, if required it is possible to manually move the valves. To do so, pull the which knob on the valve up (this sets manual mode), you can now rotate the unit to the desired position. Pushing the white knob back down sets it back into automatic mode.

The image (right) shows a valve in automatic mode (white knob pressed down).



### Changing tanks

The system will change tanks automatically based on a timer. Please set the RTC (real time clock) on the internal PLC, exactly as per the main WB control system

To access the timer parameter, please follow these steps.

1. Press the ESC button
2. Navigate the menu to select the word STOP (this stops the PLC programme from running)
3. It will ask you to press OK to confirm you want to stop, please do so
4. Now navigate to PARAMETER and press OK
5. Use the left/right keys to find the parameter B011
6. Press the DOWN arrow to bring your cursor into the timer data
7. Use the ARROW keys to select the data you wish to change
8. Press the SEL (select) button to move into edit mode. When you see an underscore, you can edit the parameter using the UP/DOWN arrows.
9. When you have finished, press the OK button to exit edit mode
10. Press ESC to return to the main menu
11. Select RUN and press OK
12. It will ask you to press OK to confirm you want to start, please do so
13. Press ESC to return to the normal PLC display

The timer is looking for a rising edge signal – in other words an “on” command. The unit is preset to change every day at midnight. It is also set to switch off a 1-minute past midnight. The system is only looking for the start of that signal, but its important to switch it off again (one minute later) so the unit resets and can swap tanks again the next day.

This means that at midnight, when the run command comes in from the fuel polishing system, the unit will open (for example) tank 1, unless it has been inhibited. Once the fuel polishing is completed, the valves will close again.

**NOTE:** Unless there is a run demand from the polishing systems, the valves will be closed.

Here are some example timing modes

Change active tank every night at midnight	Change active Tuesday to Friday at 9am. No changes Sat, Sun , Mon	Change active Friday to Tuesday at 2.30pm. No changes Wed or Thursday	NO changes at all (start/stop time set to same value)
B011                    R01	B011                    R01	B011                    R01	B011                    R01
ON   SU 00:00	ON   TU 09:00	ON   FR 14:30	ON   SU 00:00
OFF SU 00:01	OFF FR 09:01	OFF TU 14:31	OFF SU 00:00

### PLC Display

This input is active if the

Shown when no run signal is sent to the unit and all valves are in position	Shown when tank 1 is open (there is a run signal, and the correct valves are open)	Shown when tank 2 is open (there is a run signal, and the correct valves are open)	If an alarm occurs (valve or over pressure) this message is shown. Clear alarm cause and cycle power to reset
***** *   Ready and   * *   waiting for * *        signal   * *****	***** *   Tank 1 is open   * *****	***** *   Tank 2 is open   * *****	***** *   System alarm   * *   Valve Error or   * *   Pressure Alert   * *****

### WB portable units

Mobile/portable WB range units are supplied with a trolley for ease of maneuverability and 2x hoses (one on the input, one on the output).

It is always important to prime the system before starting it. If the unit is above the tank, we also recommend fitting a light spring non return valve to the input pipe (0.03bar opening pressure or less) to maintain pressure when servicing.

### WB enclosure units

Enclosure units are supplied in an IP66 mild steel powder coated enclosure. The input and output ports remain the same as the wall mounted versions.

Enclosure unit can be wall mounted too, mounting holes are inside the unit in each corner. Please ensure the unit is mounted on a flat and level surface; undulations and twisting may cause the door to incorrect close.

### WB 3 micron option

The 3 micron option for the WB range adds a WASP W17667/6000R filter to the output, along with a pressure switch. Your WB range will trigger a service alarm when this 3 micron filter is full.

This is a spin-on filter, which has a small gasket supplied with it. Use a strap-wrench to connect/disconnect the filter.

Always wet the gasket with clean diesel before installing.

The information in this document is correct to the best of our knowledge; always check with WASP PFS Ltd for the latest information. Occasionally products are updated, and it is not always possible to include these changes in every manual revision. Information in this document is for reference only, E&OE. The manufacturer reserves the right to change or amend specifications without notice.

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WASP, the market leaders in fuel filtration equipment.

We invent, design and manufacture fuel filtration equipment including innovative fuel polishing systems and absolute polishing products.

Services include fuel testing, consultation, and training.

For more information on the product range, please visit our website [www.wasp-pfs.com](http://www.wasp-pfs.com) or email us  
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WASP – for all your fuel cleanliness requirements

For more information and support for your fuel polishing system, please refer to your WASP Product Manual.

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