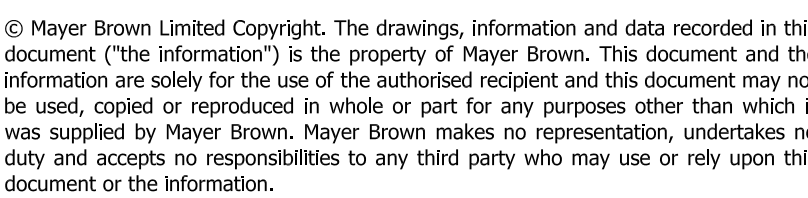


- Extent of works lies within a source protection zone. All works to be undertaken in accordance with approved CEMP and FRAP requirements, and to comply with approved design.



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Notes:

1. Refer to Dwg. GTWC/FARM/DR/13 for cross sections.
2. Refer to Dwg. GTWC/FARM/DR/12 for ditch long section.
3. Refer to PDAS Report REF. PR10514 for pump station details.
4. Refer to PDAS Dwg REF. PR10514-006 for foul sewer storage tank details. BUOYANCY PREVENTION NEEDS TO BE CHECKED FOLLOWING REvised ACCESS ROAD LEVELS.
5. Alignment of LV and Foul Sewer subject to SSE and SW approval respectively.
6. Stormwater network to be built to SFA adoptable standard for future adoption.
7. Headwall - HW1. End of pipe to be fitted with security grating, suitable for 750mm diameter pipe. HW5 and 6. Grille suitable for 450mm diameter pipe. Design to be submitted for approval prior to construction.
8. Safety grilling on pipes as per SFA 7th edition, figure C.6.
9. Refer to Ardent Dwg No.192931-901 for Pump Station Access setting out details.



U	Revised as drafted, Pipe numbering added.	RHA	06/10/2020
T	IL's revised to reflect Patching Garden CL post Topo.	RHA	11/09/2020
S	Cover levels revised to match Arden drawings (LS)	RHA	04/09/2020
R	Revised to suit Odyssey and Arden Layouts	RHA	21/08/2020
Q	Offsite foul cover and invert levels updated (LS)	RHA	03/08/2020
P	Easement dimensions added, Site boundary added (LS)	RHA	16/07/2020
O	Drawing revised following Southern Water comments (LS)	RHA	14/02/2020
N	Construction issue (LS)	RHA	27/01/2020
M	Invert levels adjusted (LS)	RHA	20/01/2020
L	Bridleway crossing amended to create level route (LS)	RHA	21/11/2019
K	Pipe diameter revised, Security grading notes added (LS)	RHA	11/11/2019
J	Aqueduct indicated	RHA	30/10/2019
I	Notes amended, Backupp IL at FS CL1.1 added (LS)	RHA	14/10/2019
H	Invert levels adjusted, Rising main realigned to co ordinate with PDAS layout (LS)	RHA	16/09/2019
G	Drainage levels revised as drafted (KDB)	RHA	26/06/2019
F	Adjustments to access road and notes, Tender issue (LS)	RHA	10/05/2019
E	Pump Station RM and LV revised.	RHA	12/03/2019
D	Pump Station RM and LV revised.	RHA	04/03/2019
C	SSEN supply added, (KDB)	RHA	15/01/2019
B	General Revisions.	RHA	11/12/2018
A	General Design Development	RHA	27/11/18

rev.	amendment	checked	date
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client

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project

WOODCROFT FARM
HAMPSHIRE

scale	AS SHOWN	drawn by	KDB	checked by	RHA
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date	JUNE 2018	cad file	DR_10.dwg
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title
OFF-SITE DRAINAGE
SURFACE AND FOUL WATER PROVISION
GENERAL LAYOUT

drawing number	rev.
GTWCFARM/DR/10	U

Submersible Sewage Pump Type ABS XFP 80C - 201G

SULZER

Robust, reliable, submersible pumps, with Premium Efficiency motors from 1.3 to 25.0 kW. For the pumping of wastewater and sewage from buildings and sites in private, commercial, industrial and municipal areas.

Features

- The water-pressure-tight, encapsulated, flood-proof motor and the pump section form a compact, robust, modular construction.
- NEMA Class A temperature rise.
- Premium Efficiency motors in accordance with IEC 60034-30 level IE3 with testing in accordance with IEC60034-2-1.
- Continuously rated motor in submerged and non-submerged applications.
- Double mechanical seals. SiC-SiC at the medium side; SiC-C (80C - 150E) and SiC-SiC (100G - 201G) at the motor. XFP 100G - 201G has an additional inner lipseal at the motor side. All seals are independent of rotation direction and resistant to temperature shock.
- Anti-wicking cable plug solution (80C - 150E), or water-pressure-sealed connection chamber (100G - 201G).
- Hydraulic options of Contrablock and Contrablock Plus impellers for high efficiency, or vortex impellers for maximum solids handling.
- Lubricated-for-life bearings with a calculated lifetime of minimum 50,000 hrs. (80C - 150E), and 100,000 hrs. (100G - 201G).
- Stainless steel shaft. Designed with high safety factor to prevent fatigue fracture.
- Temperature monitoring by thermal sensors (140 °C) in the stator windings.
- Seal monitoring by a moisture probe (DI) in the motor and seal chambers (80C - 150E), or motor chamber (100G - 201G), which signals an inspection alert if there is leakage at the shaft seals.
- Smooth outer design to reduce rag build-up.
- Stainless steel lifting hoop.
- DN 80, DN 100, DN 150 and DN 200 radial slot DIN flange discharge.
- Maximum allowable temperature of the medium for continuous operation is 40 °C.
- Maximum submergence depth of 20 m.
- Explosion-proof as standard, in accordance with international standard ATEX 2014/34/EU [II 2G Ex db IIB T4 Gb].



Motor

Premium Efficiency IE3, three-phase, squirrel-cage motor; 400 V; 50 Hz; 2-pole (2900 r/min), 4-pole (1450) and 6-pole (980). Protection type IP 68, with stator insulation Class H.

Start-up: 1.3 - 3.0 kW = direct on line (DOL)
4.0 - 25.0 kW and 3.0 kW 6-pole = star-delta (YΔ).

Service factor: 1.3

Motors with other operating voltages and frequencies are also available.

Identification Code: e.g. XFP 80C CB1.3 PE22/4-C-50

Hydraulics:

XFP Product range

8 Discharge outlet DN (cm)

0Hydraulic type

C Volute opening (dia. mm): C = 222, E = 265, G = 335

CB..... Impeller type: CB = Contrablock, VX = vortex

1 Number of impeller vanes

3 Impeller size

Motor:

PE Premium Efficiency

22 Motor power P_2 kW x 10

4 Number of poles

C Volute opening (dia. mm): C = 222, E = 265, G = 335

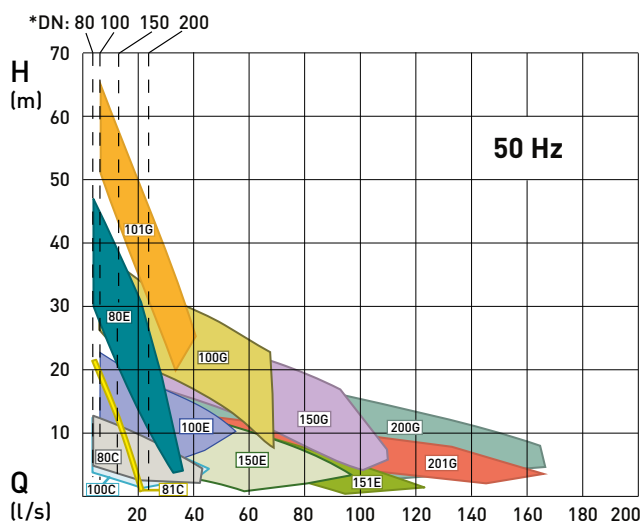
50 Frequency

Technical data

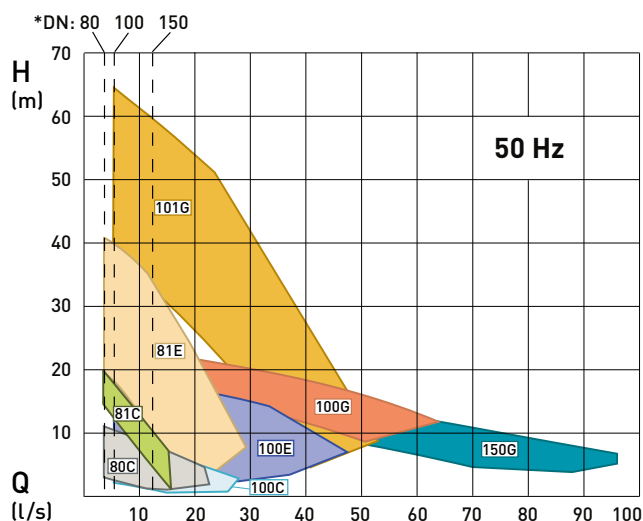
XFP	Motor	Impeller size	Rated voltage (V)	Motor power* (kW)		Rated current (A)	Speed (r/min)	Cable size	Weight** (kg)
				P ₁	P ₂				
80C-CB1	PE 22/4	3, 4	400 3~	2.5	2.2	4.6	1450	7G1.5	110 / n.a.
	PE 29/4	2	400 3~	3.4	3.0	6.4	1450	7G1.5	110 / n.a.
	PE 13/6	1, 2, 4	400 3~	1.6	1.3	3.6	980	7G1.5	110 / n.a.
80C-VX	PE 15/4	4, 5, 6, 7	400 3~	1.8	1.5	3.2	1450	7G1.5	100 / n.a.
	PE 22/4	2, 3,	400 3~	2.5	2.2	4.6	1450	7G1.5	110 / n.a.
	PE 29/4	1	400 3~	3.4	3.0	6.4	1450	7G1.5	110 / n.a.
80E-CB1	PE 70/2	4	400 3~	7.7	7.0	13.5	2900	10G1.5	150 / n.a.
	PE 110/2	1, 2, 3	400 3~	12.1	11.0	20.1	2900	10G1.5	180 / n.a.
81C-CB1	PE 40/2	1	400 3~	4.5	4.0	7.4	2900	10G1.5	120 / n.a.
81C-VX	PE 30/2	2	400 3~	3.4	3.0	5.6	2900	7G1.5	110 / n.a.
	PE 40/2	1, 2	400 3~	4.5	4.0	7.4	2900	10G1.5	120 / n.a.
81E-VX	PE 55/2	5	400 3~	6.1	5.5	10.3	2900	10G1.5	140 / n.a.
	PE 70/2	4	400 3~	7.7	7.0	13.5	2900	10G1.5	140 / n.a.
	PE 110/2	1, 2, 3	400 3~	12.1	11.0	20.1	2900	10G1.5	160 / n.a.
100C-CB1	PE 22/4	3, 4	400 3~	2.5	2.2	4.6	1450	7G1.5	110 / n.a.
	PE 29/4	2	400 3~	3.4	3.0	6.4	1450	7G1.5	110 / n.a.
	PE 13/6	1, 2, 4	400 3~	1.6	1.3	3.6	980	7G1.5	110 / n.a.
100C-VX	PE 15/4	4, 5, 6	400 3~	1.8	1.5	3.2	1450	7G1.5	100 / n.a.
	PE 22/4	2, 3,	400 3~	2.5	2.2	4.6	1450	7G1.5	110 / n.a.
	PE 29/4	1	400 3~	3.4	3.0	6.4	1450	7G1.5	110 / n.a.
100E-CB1	PE 40/4	5	400 3~	4.4	4.0	8.4	1450	10G1.5	160 / n.a.
	PE 60/4	3, 4	400 3~	6.7	6.0	13.6	1450	10G1.5	170 / n.a.
	PE 90/4	1, 2	400 3~	9.9	9.0	18.1	1450	10G1.5	190 / n.a.
100E-VX	PE 40/4	4, 5, 6	400 3~	4.4	4.0	8.4	1450	10G1.5	140 / n.a.
	PE 60/4	2, 3, 4	400 3~	6.7	6.0	13.6	1450	10G1.5	150 / n.a.
	PE 90/4	1, 2, 3	400 3~	9.9	9.0	18.1	1450	10G1.5	170 / n.a.
100G-CB1	PE 110/4	5	400 3~	12.0	11.0	23.4	1450	10G1.5	340 / 380
	PE 140/4	4	400 3~	15.2	14.0	27.8	1450	10G2.5	340 / 380
	PE 160/4	3	400 3~	17.4	16.0	33.1	1450	2 x 4G4+2x0.75	360 / 400
	PE 185/4	1, 2	400 3~	20.0	18.5	36.9	1450	2 x 4G4+2x0.75	360 / 400
	PE 220/4	1	400 3~	23.7	22.0	42.5	1450	2 x 4G4+2x0.75	370 / 420
100G-VX	PE 110/4	4	400 3~	12.0	11.0	23.4	1450	10G1.5	330 / 370
	PE 140/4	3	400 3~	15.2	14.0	27.8	1450	10G2.5	330 / 370
	PE 160/4	2	400 3~	17.4	16.0	33.1	1450	2 x 4G4+2x0.75	350 / 390
	PE 185/4	1	400 3~	20.0	18.5	36.9	1450	2 x 4G4+2x0.75	350 / 390
101G-CB1	PE 150/2	2, 3	400 3~	16.0	15.0	27.5	2900	10G2.5	320 / 360
	PE 185/2	1	400 3~	20.0	18.5	33.7	2900	2 x 4G4+2x0.75	320 / 360
	PE 250/2	1	400 3~	26.9	25.0	44.0	2900	2 x 4G4+2x0.75	340 / 380
101G-VX	PE 150/2	6, 7	400 3~	16.0	15.0	27.5	2900	10G2.5	330 / 370
	PE 185/2	4, 5, 6, 7	400 3~	20.0	18.5	33.7	2900	2 x 4G4+2x0.75	330 / 370
	PE 250/2	1, 2, 3, 4, 5	400 3~	26.9	25.0	44.0	2900	2 x 4G4+2x0.75	350 / 390
150E-CB1	PE 40/4	5, 6	400 3~	4.4	4.0	8.4	1450	10G1.5	170 / n.a.
	PE 60/4	3, 4, 5	400 3~	6.7	6.0	13.6	1450	10G1.5	170 / n.a.
	PE 90/4	1, 2, 3	400 3~	9.9	9.0	18.1	1450	10G1.5	190 / n.a.
	PE 30/6	1, 2, 3, 4	400 3~	3.5	3.0	6.4	980	10G1.5	170 / n.a.
150G-CB1	PE 110/4	5	400 3~	12.0	11.0	23.4	1450	10G1.5	340 / 390
	PE 140/4	4	400 3~	15.2	14.0	27.8	1450	10G2.5	340 / 390
	PE 160/4	3	400 3~	17.4	16.0	33.1	1450	2 x 4G4+2x0.75	370 / 410
	PE 185/4	2	400 3~	20.0	18.5	36.9	1450	2 x 4G4+2x0.75	370 / 410
	PE 220/4	1	400 3~	23.7	22.0	42.5	1450	2 x 4G4+2x0.75	380 / 430
150G-VX	PE 110/4	4	400 3~	12.0	11.0	23.4	1450	10G1.5	330 / 380
	PE 140/4	3	400 3~	15.2	14.0	27.8	1450	10G2.5	330 / 380
	PE 160/4	2	400 3~	17.4	16.0	33.1	1450	2 x 4G4+2x0.75	360 / 400
	PE 185/4	1, 2	400 3~	20.0	18.5	36.9	1450	2 x 4G4+2x0.75	360 / 400
151E-CB2	PE 49/4	5	400 3~	5.5	4.9	10.2	1450	10G1.5	180 / n.a.
	PE 60/4	4	400 3~	6.7	6.0	13.6	1450	10G1.5	180 / n.a.
	PE 90/4	2, 4	400 3~	9.9	9.0	18.1	1450	10G1.5	200 / n.a.
200G-CB1	PE 110/4	5	400 3~	12.0	11.0	23.4	1450	10G1.5	380 / 420
	PE 140/4	4	400 3~	15.2	14.0	27.8	1450	10G2.5	380 / 420
	PE 160/4	3	400 3~	17.4	16.0	33.1	1450	2 x 4G4+2x0.75	400 / 450
	PE 185/4	2	400 3~	20.0	18.5	36.9	1450	2 x 4G4+2x0.75	400 / 450
	PE 220/4	1	400 3~	23.7	22.0	42.5	1450	2 x 4G4+2x0.75	410 / 470
	PE 90/6	1, 2, 3	400 3~	10.1	9.0	20.9	980	10G1.5	380 / 430
201G-CB2	PE 90/6	5, 6	400 3~	10.1	9.0	20.9	980	10G1.5	380 / 430
	PE 110/6	3	400 3~	12.2	11.0	23.8	980	10G1.5	380 / 430
	PE 140/6	1	400 3~	15.4	14.0	29.4	980	10G2.5	400 / 440

* P₁ = power at mains. P₂ = power at motor shaft. **Without / with cooling jacket; includes 10 m cable. Data for alternative voltages available on request.

Performance fields with Contrablock impeller



Performance fields with vortex impeller



Standard and options

Description	Standard	Option
Mains voltage	400 V 3~	230, 500, 695 V *
Voltage tolerance	± 10%	-
Motor efficiency	Premium Eff. IE3	-
Insulation class	H	-
Start-up	Direct on line (DOL), star-delta (YΔ)	-
Approvals	Ex / ATEX	-
Mechanical seal (at medium side)	SiC-SiC-NBR	SiC-SiC-Viton
Mechanical seal (at motor side)	SiC-C-NBR (80C - 150E), SiC-SiC-NBR (100G - 201G)	-
O-rings (external seals)	NBR	Viton (not available for cable entry seal)
Cables	H07RN8-F	EMC
Cable length (m)	10	20, 30, 40, 50
Protective coating	2k Epoxy 120 µm	2k Epoxy 400 µm
Preparation for lifting hoist	Lifting hoop	-
Cooling	Self-cooling (80C - 150E); by the medium (100G - 201G)	Closed cooling (100G - 201G)
Installation	Wet-well	Dry well or transportable

* Selected motors only. Contact Sulzer for details.

Monitoring

Description		Standard	Option
Motor (temperature)	Bi-metallic switch in windings PTC thermistor in windings	● -	- ●**
Seals (leakage)	Moisture sensor (DI) in motor and seal chambers (80C - 150E) Moisture sensor (DI) in motor chamber (100G - 201G)	● ●	- -

Temperature and leakage relays are required. See accessories table.

** Must be selected when pump is operated via VFD.

Materials

Description	Material	Option
Motor housing	Cast iron EN-GJL-250	-
Volute	Cast iron EN-GJL-250	Ceramic coated EN-GJL-250***
Impeller	Cast iron EN-GJL-250	Stainless steel 1.4470 (AISI 329)***, Flame hardened or ceramic coated EN-GJL-250***
Bottom plate	Cast iron EN-GJL-250	Stainless steel 1.4470 (AISI 329)***, Flame hardened or ceramic coated EN-GJL-250***
Motor shaft	Stainless steel 1.4021 (AISI 420)	-
Lifting hoop	Stainless steel 1.4401 (AISI 316)	-
Fasteners	Stainless steel 1.4401 (AISI 316)	-

*** Selected models only. Contact Sulzer for details.

Accessories

	Description	Size	XFP	Part no.
Fixed installation - wet well with Sulzer Automatic Coupling System	Pedestal* (cast iron EN-GJL-250) 90° cast bend (single guide rail) - DIN flange connection	DN 80	80C - 81E	62320649
		DN 100	100C - 100G	62320652
	90° cast bend (single guide rail) - plug/clamp connection	DN 100 (high-head)	101G	DPR31211F
		DN 150	150E - 150G	62320655
		DN 200	200G (4-pole)	DPT91211F
		DN 200	200G (6-pole)	62320658
		DN 200	201G	62320658
	90° cast bend (twin guide rail) - DIN flange connection	DN 80 (pipe Ø90 mm)	80C - 81E	62320650
		DN 100 (pipe Ø109 mm)	100C - 100G	62320653
		DN 100 high head (Ø109 mm)	101G	DPR31211F
		DN 150 (pipe Ø115 mm)	100C - 100G	62320654
		DN 150 (pipe Ø160 mm)	150E - 150G	62320656
	Pedestal bracket fasteners single guide rail version (galvanised steel)	DN 80	80C - 81E	62325025
		DN 100	100C - 101G	62325026
	single guide rail version (stainless steel)	DN 150	150E - 150G	62325027
		DN 200	200G & 201G	62325028
	twin guide rail version (galvanised steel)		80C - 81E	62610632
			100C - 101G	62610633
	single guide rail version (stainless steel)		150E - 150G	62610635
			200G & 201G	62610883
	Pedestal base anchor bolts single and twin guide rail (galvanised steel)		80C - 81E	62610899
			100C - 101G	62610637
	Chain Kit (stainless steel) including shackle	3 m 4 m 6 m 7 m	150E - 150G	62610639
			200G & 201G	62610862
Fixed installation - dry well, (horizontal) (vertical)	Pump Support Kit (EN-GJL-250) head and volute supports with fixing bolts and vibration damper		80C - 81E	62615053
			100C - 101G	62615054
	Ground Support Stand		150E - 150G	62615055
			200G & 201G	62615056
	Adapter kit (required with support stand)		80C - 101G	62610775
			150E - 150G	62610784
	Skirtbase		200G & 201G	62610785
			80C - 201G	310101236013
	Cathodic Protection (zinc anodes)		80C - 81C.	310101236014
			80C, 81C, 100C.	310101236016
General	Leakage Relay Type ABS CA 461	110 - 230 VAC 18 - 36 VDC, SELV	80E.	310101236017
			81E.	61825023
	Temperature and Leakage Relay Type ABS CA 462	110 - 230 VAC 18 - 36 VDC, SELV	100C.	61825033**
			100E.	61825029
	Adapter kit (required with support stand)		81E.	61825038
			100C.	61825024
	Skirtbase		100E.	61825030
			150E, 151E.	61825031
	Cathodic Protection (zinc anodes)		101G.	61825036***
			100G, 101G, 150G, 200G, 201G.	61825037
General	Leakage Relay Type ABS CA 461	110 - 230 VAC 18 - 36 VDC, SELV	80C.	61355014
			100C.	61355020
	Temperature and Leakage Relay Type ABS CA 462	110 - 230 VAC 18 - 36 VDC, SELV	80E & 81E.	61355015
			100C.	61355021
	Adapter kit (required with support stand)		100E.	61355022
			150E, 151E.	61355024***
	Skirtbase		101G.	61355023
			100G, 101G, 150G, 200G, 201G.	61355016
	Cathodic Protection (zinc anodes)		80C.	61355017
			100C.	61355018
General	Leakage Relay Type ABS CA 461	110 - 230 VAC 18 - 36 VDC, SELV	80E & 81E.	61355019
			100E.	61355026***
	Temperature and Leakage Relay Type ABS CA 462	110 - 230 VAC 18 - 36 VDC, SELV	150E, 151E.	61355025
			101G.	13905000
	Adapter kit (required with support stand)		100G, 101G, 150G, 200G, 201G	16907010
			80C - 201G	16907011
	Skirtbase		80C - 201G	16907006
			80C - 201G	16907007
	Cathodic Protection (zinc anodes)		80C - 201G	16907007
			80C - 201G	16907007

*Guide rail not included **Vortex version of pumps (VX) *** Contrablock version of pump (CB)