

E-5

APPENDIX “A”

TeamTec Incinerator

OG200CS

**CCGS Sir William
Alexander**

Purchase Order no: 1612

Installation Drawings

21.01.2015 VMS

Revision: 0

TeamTec PO No: 16761

Scope of Supply

	Item No.	Page No.	Description	Drawing No.
	1.	2	Scope of supply	
	2.	3-4	Technical Specification Incinerator	
	3.	5	IMO Resolution A962(23)	
	4.	6-8	Supplied Spare Parts	
	5.	9	Piping & Instrument diagram Incinerator	2009390
	6.	10	Main Dimensions Combustion Chamber Incinerator	1009049 C
	7.	11	Comb.Chamber Incinerator Assembly	1009051 G
	8.	12	Cable Arrangement for Incinerator	4009157
	9.	13	Control Panel Incinerator	1010690
	10.	14	Mounting Plate, Control Panel Incinerator	1010691
	11.	15-27	Electrical Diagram Incinerator	3010821
	12.	28	Terminal Diagram Diesel Oil Burner	4007918 A
	13.	29	Main Dimensions Flue Gas Fan	4006930 B
	14.	30	Flue Gas Fan Assembly	1006992 B
	15.	31	Flue Gas Damper	3007249 C
	16.	32	Flue Gas Damper Assembly	1006999 A
	17.	33	Expansion compensator	3009565
	18.	34	Main Dimensions Sludge Tank	2008577
	19.	35	Sludge Tank Assembly	2007300 C
	20.	36	Control Panel Sludge Tank	2009426
	21.	37	Mounting Plate Sludge Tank	2009427
	22.	38-39	El. Diagram Sludge Tank	3010068
	23.	40-47	Installation and commissioning guide	

Technical Specification

TEAMTEC INCINERATOR OG200C

Edition: TG5 (TeamTec Generation 5)

Market leaders since 1972 - More than 10 000 units sold world wide



The incinerator consist of a combustion chamber with burner unit, sludge burning equipment, and electric control panel, all assembled in one complete unit resting on four (4) feet or pads to be welded or bolted to the deck or platform. Flue gas damper and cooling fan are delivered as separate units to be installed in the flue gas duct or funnel.

TECHNICAL DATA – INCINERATOR:

version :	C	CS	CW	CSW	CI*	CIS*
Main Dimension Drawing	1009047	1009049	1009202	1009205	1009018	1009048
Dimensions (L x W x H mm)	1350x1900x1960	1697x1900x1960	1350x1900x1960	1697x1900x1960	1350x1900x2050	1697x1900x2050
Total weight, kg	3 055	3 305	3 000	3 200	3 065	3 315
Feeding door clear opening (W x H mm)	400 x 1188	400 x 1188	400 x 1188	400 x 1188	400 x 1188	400 x 1188
Sluice feeder opening	N/A	320 x 320	N/A	320 x 320	N/A	320 x 320
Sluice capacity, l/charge	N/A	55	N/A	55	N/A	55
Incineration thermal capacity:	400 000 kcal/h 465 kW	400 000 kcal/h 465 kW	400 000 kcal/h 465 kW	400 000 kcal/h 465 kW	542 000 kcal/h 630 kW	542 000 kcal/h 630 kW
Sludge oil burning capacity nominal **	53 l/h	53 l/h	N/A	N/A	70 l/h	70 l/h
Solid Waste capacity, batch load	400 l/charge	400 l/charge	400 l/charge	400 l/charge	400 l/charge	400 l/charge
Solid Waste continuous charging, kg/h	N/A	55	N/A	55	N/A	55
Water Injection capacity	N/A	N/A	N/A	N/A	127 l/h	127 l/h
Negative pressure	10 – 28 mm WC	10 – 28 mm WC	10 – 28 mm WC	10 – 28 mm WC	10 – 28 mm WC	10 – 28 mm WC
Outer skin temperature above ambient	15°C	15°C	15°C	15°C	15°C	15°C
Working temperature combustion chamber	850 – 1150°C	850 – 1150°C	850 – 1150°C	850 – 1150°C	850 – 1150°C	850 – 1150°C
Max temperature combustion chamber	1200°C	1200°C	1200°C	1200°C	1200°C	1200°C
Working temperature flue gas	250 – 350°C	250 – 350°C	250 – 350°C	250 – 350°C	250 – 350°C	250 – 350°C
Diesel oil viscosity (max)	13 cSt at 40°C	13 cSt at 40°C	13 cSt at 40°C	13 cSt at 40°C	13 cSt at 40°C	13 cSt at 40°C
Diesel oil consumption when support burner is in operation 1 / 2 nozzles, l/h	10 / 28	10 / 28	10 / 28	10 / 28	10 / 28	10 / 28
El. Power consumption diesel oil heater	2.0 kW	2.0 kW	2.0 kW	2.0 kW	2.0 kW	2.0 kW
Nominal total electrical power consumption	10 kW	10 kW	10 kW	10 kW	10 kW	10 kW
Total rated electrical power consumption	15 kW	15 kW	12 kW	12 kW	15 kW	15 kW
Recommended supply fuse	32 A	32 A	32 A	32 A	32 A	32 A
Steam or compressed air requirement (for sludge atomizing)	20 norm m³/h 7 bar	20 norm m³/h 7 bar	N/A	N/A	20 norm.m³/h 7 bar	20 norm m³/h 7 bar

* With TEAMTEC water injection system. ** IMO-defined sludge oil, 20% water content.

version :	C	CS	CW	CSW	CI*	CIS*
Pipe connection steam or air (DN)	15	15	N/A	N/A	15	15
Pipe connection for diesel line (supply/return) (DN)	15	15	15	15	15	15
Pipe connection for sludge oil line (supply/return) (DN)	25	25	N/A	N/A	25	25
Pipe connection bilge water (DN)	N/A	N/A	N/A	N/A	15	15
Pipe connection for drain of spill collector (DN/BSP)	25 / -	25 / -	25 / -	25 / -	25 / -	25 / -
Flue gas outlet dimension (DN)	400	400	400	400	400	400
Minimum distance between flue gas fan outlet and first component on the flue gas line	2500 mm	2500 mm	2500 mm	2500 mm	2500 mm	2500 mm
Incinerator body color	RAL 6019	RAL 6019	RAL 6019	RAL 6019	RAL 6019	RAL 6019
Control panel color	RAL 7035	RAL 7035	RAL 7035	RAL 7035	RAL 7035	RAL 7035

TECHNICAL DATA – FLUE GAS DAMPER:

version :	C, CS, CW, CSW, CI and CIS
Main Dimension Drawing	3007249
Flange connection inlet (from incinerator) (DN)	400
Flange connection outlet (fan side) (DN)	300
Weight, kg	68
Color (heat resistant)	Aluminum

TECHNICAL DATA – FLUE GAS FAN:

version :	C, CS, CW, CSW, CI and CIS
Main Dimension Drawing	4006930
Flue gas fan outer dimension (L x W x H)	1020 x 1040 x 1030
Flue gas duct dimension (inlet/outlet) (DN)	300 / 300
Weight, kg	326
Flue gas fan capacity, maximum	8 000 m ³ /h
Flue gas fan capacity, maximum	4 000 m ³ /h
Back pressure, maximum	150 mm WC
Separate starter recommended fuse	N/A
Rated power consumption from separate supply	N/A
Color (heat resistant)	Aluminum

TECHNICAL DATA – EXPANSION COMPENSATOR:

version :	C, CS, CW, CSW, CI and CIS
Flange connection (DN)	300

TeamTec AS

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POTENTIAL DANGEROUS MATERIALS IN THE SHIP'S STRUCTURE AND EQUIPMENT

(in pursuance of IMO Resolution A.962(23), adopted 5 December 2003)

Manufacturer

TeamTec AS - Incinerators

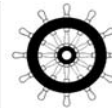
Date: 09.10.12

Notes:

A. Please leave blank the row when the identified potential dangerous material is not present.

B. Entries in *Italic* are offered for guidance only

POTENTIALLY DANGEROUS MATERIALS	TYPE	APPROXIMATE QUANTITY	LOCATION - REMARKS
1. ASBESTOS			
2. PVC		100 Gram	<i>Tubes and fittings for under pressure</i>
3. GRP/FRP			
4. THERMOPLASTIC ELASTOMERE			
5. POLYURETHANE FOAM			
6. OTHER PLASTICS	XLPE + Fluor carbon Rubber	10 kg	<i>Electric cables</i>
7. ETHYLENE PROPYLENE RUBBER			
8. BUTYL RUBBER			
9. VISCO ELASTIC			
10. NITRIL BUTADIENE RUBBER	Nitril	150 gram	<i>Stator dosage pump</i>
11. PTFE			
12. VINYL			
13. MISCELLANEOUS PLASTIC		5 kg	<i>All types</i>
14. PCBs, PCTs, PBBs			
15. R134a			
16. R404a			
17. R134a			
18. R22			
19. HALON			
20. HCFC			
21. EPOXY RESINS		3 kg	<i>Coating</i>
22. MERCURY			
23. RADIOACTIVE MATERIALS			
24. PERLITE			
25. WOOD/PLYWOOD			



39- Spare part list

Article / Name	17910 / Minimum Spare Parts, OG200/400C, TG5
Name / Article	(Alle)
Salesitem	(Alle)
Yearmodel	(Alle)

Art. no.	Art. name	Quantity	Unit
15748	Bonded Stator, black mark	1,00	stk
7587	Photo resistor, QRB 1 A	1,00	stk

39- Spare part list

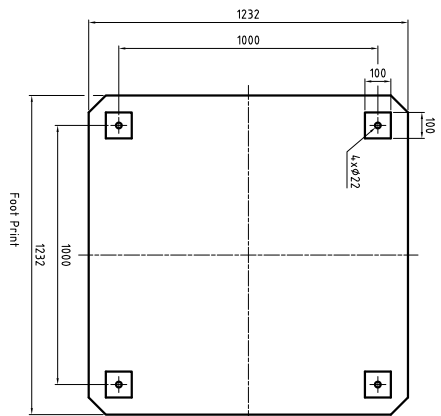
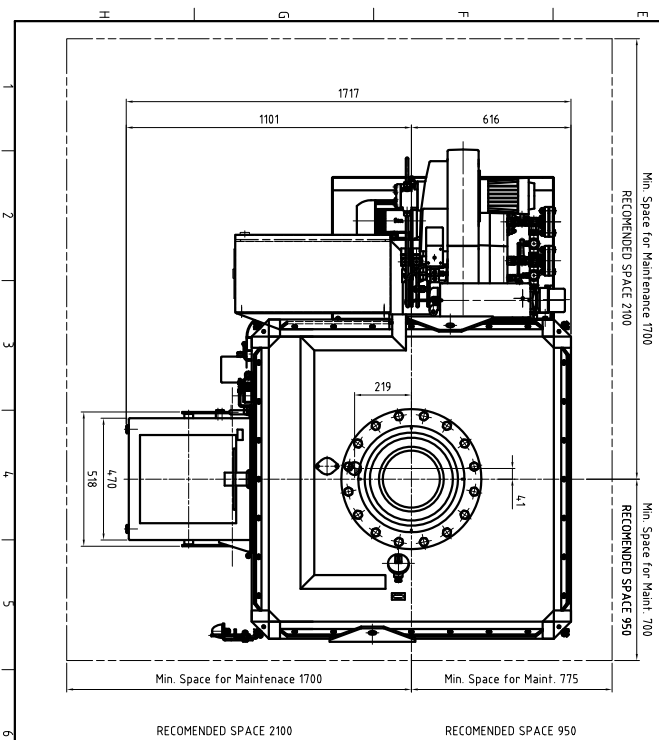
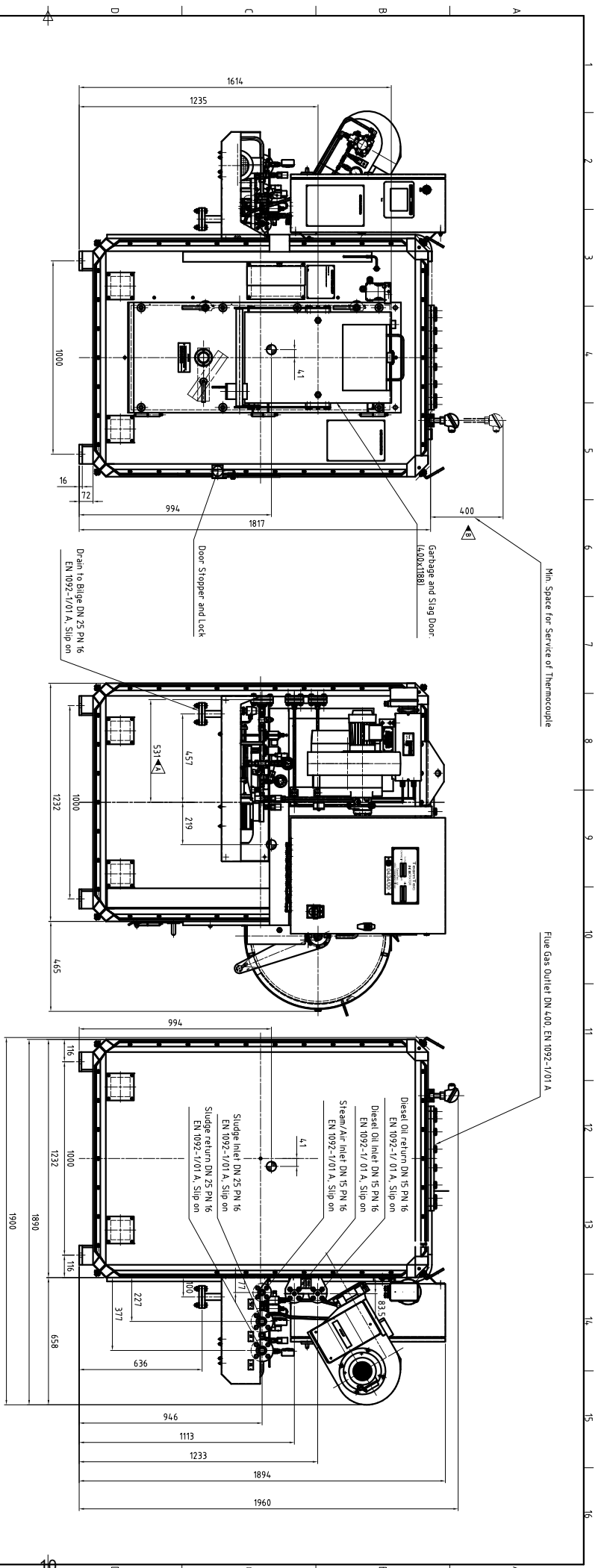
Article / Name	18232 / One year wear and tear parts, OG200/400C, TG5
Name / Article	(Alle)
Salesitem	(Alle)
Yearmodel	(Alle)

Art. no.	Art. name	Quantity	Unit
12329	Nozzle, 2,5 gph 60° S	2,00	stk
13530	Glassfibre Rope 15x20	3,75	M
15684	Rotor	1,00	stk
15688	Universal Joint	1,00	stk
15748	Bonded Stator, black mark	2,00	stk
16066	Glassfibre Rope 16x16	2,30	M
17168	Stuffing Box Gasket	1,00	stk
17691	Sealing Compound, NON DANGEROUS GOODS	1,00	stk
4979	V-belt, XPA 1357	2,00	stk
6996	Cover gasket	2,00	stk
7842	Nozzle, 4.5 gph 45° SS	2,00	stk

39- Spare part list

Article / Name	18221 / Recommended on board repair parts, OG200/400C, TG4/5
Name / Article	(Alle)
Salesitem	(Alle)
YearModel	(Alle)

Art. no.	Art. name	Quantity	Unit
11632	Flame Scrod	1,00	ea.
11878	CALDE PATCH PT 88 U	25,00	KG
12500	Thermocouple Type "N-300" Assembly	1,00	ea.
12501	Thermocouple Type "K" Assembly	1,00	ea.
12806	Repair kit for sludge valve A6324	1,00	ea.
15556	Solenoid Valve, G1/4",220V, 3-way	1,00	ea.
15687	Seal Plate Gasket	1,00	ea.
15741	Mechanical Seal	1,00	ea.
17168	Stuffing Box Gasket	1,00	ea.
5128	Bearing, 2211 EK	2,00	ea.
6154	Sludge Burner Assembly	1,00	ea.
6438	Thermocouple with Pocket	1,00	ea.
6565	Flue Gas Restriction Ring Brick, ø220	4,00	ea.
6567	Blast Tube. F-50-45-T	1,00	ea.
6568	Ignition Cable Compl. L=380	2,00	ea.
6981	Nozzle Line	1,00	ea.
6987	Press. regulator kit, 10-21 bars	1,00	ea.
7587	Photo resistor. QRB 1 A	1,00	ea.
8126	Solenoid Valve, G1/4",220V	1,00	ea.
8153	Ignition Electrode	2,00	ea.
8454	Solenoid Valve, 1/8", 220V	1,00	ea.
8563	Spline Coupling Compl.	1,00	ea.
9272	Shaft seal kit	1,00	ea.



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Tolerances: NS-ISO 2768-1-m

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Order No.	Order Date	Order Qty	Order Unit	Order Price	Order Total	Order Status	Order Remarks
1	09/08/2010	1	EA	1.00	1.00	OK	1.00
2	09/08/2010	1	EA	1.00	1.00	OK	1.00
3	09/08/2010	1	EA	1.00	1.00	OK	1.00
4	09/08/2010	1	EA	1.00	1.00	OK	1.00
5	09/08/2010	1	EA	1.00	1.00	OK	1.00
6	09/08/2010	1	EA	1.00	1.00	OK	1.00
7	09/08/2010	1	EA	1.00	1.00	OK	1.00
8	09/08/2010	1	EA	1.00	1.00	OK	1.00
9	09/08/2010	1	EA	1.00	1.00	OK	1.00
10	09/08/2010	1	EA	1.00	1.00	OK	1.00
11	09/08/2010	1	EA	1.00	1.00	OK	1.00
12	09/08/2010	1	EA	1.00	1.00	OK	1.00
13	09/08/2010	1	EA	1.00	1.00	OK	1.00
14	09/08/2010	1	EA	1.00	1.00	OK	1.00
15	09/08/2010	1	EA	1.00	1.00	OK	1.00
16	09/08/2010	1	EA	1.00	1.00	OK	1.00
17	09/08/2010	1	EA	1.00	1.00	OK	1.00
18	09/08/2010	1	EA	1.00	1.00	OK	1.00
19	09/08/2010	1	EA	1.00	1.00	OK	1.00
20	09/08/2010	1	EA	1.00	1.00	OK	1.00
21	09/08/2010	1	EA	1.00	1.00	OK	1.00
22	09/08/2010	1	EA	1.00	1.00	OK	1.00
23	09/08/2010	1	EA	1.00	1.00	OK	1.00
24	09/08/2010	1	EA	1.00	1.00	OK	1.00
25	09/08/2010	1	EA	1.00	1.00	OK	1.00
26	09/08/2010	1	EA	1.00	1.00	OK	1.00
27	09/08/2010	1	EA	1.00	1.00	OK	1.00
28	09/08/2010	1	EA	1.00	1.00	OK	1.00
29	09/08/2010	1	EA	1.00	1.00	OK	1.00
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40	09/08/2010	1	EA	1.00	1.00	OK	1.00
41	09/08/2010	1	EA	1.00	1.00	OK	1.00
42	09/08/2010	1	EA	1.00	1.00	OK	1.00
43	09/08/2010	1	EA	1.00	1.00	OK	1.00
44	09/08/2010	1	EA	1.00	1.00	OK	1.00
45	09/08/2010	1	EA	1.00	1.00	OK	1.00
46	09/08/2010	1	EA	1.00	1.00	OK	1.00
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48	09/08/2010	1	EA	1.00	1.00	OK	1.00
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Main Dimensions 06200/400CS

1009049

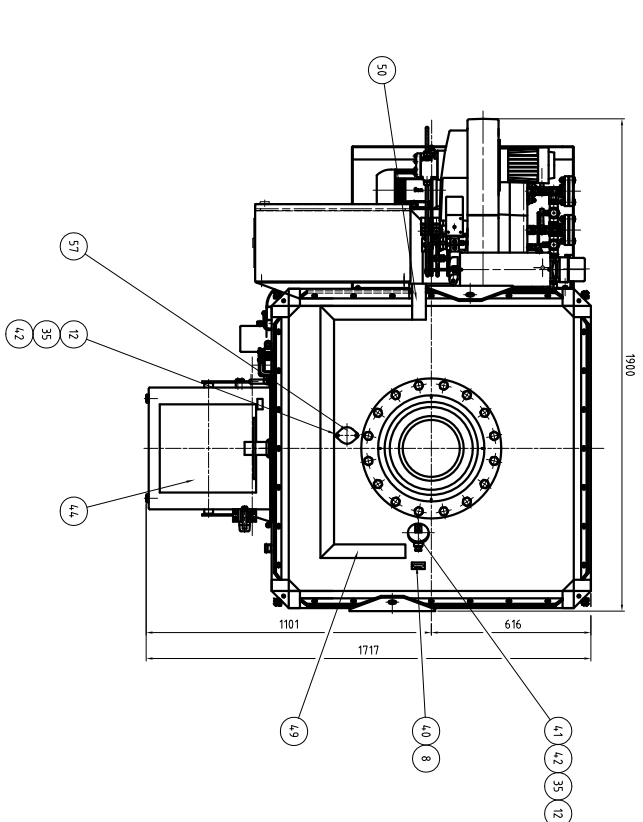
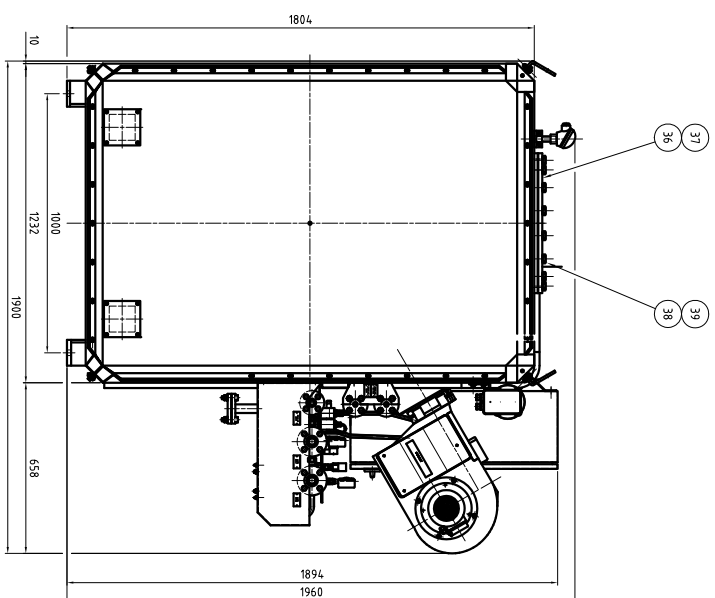
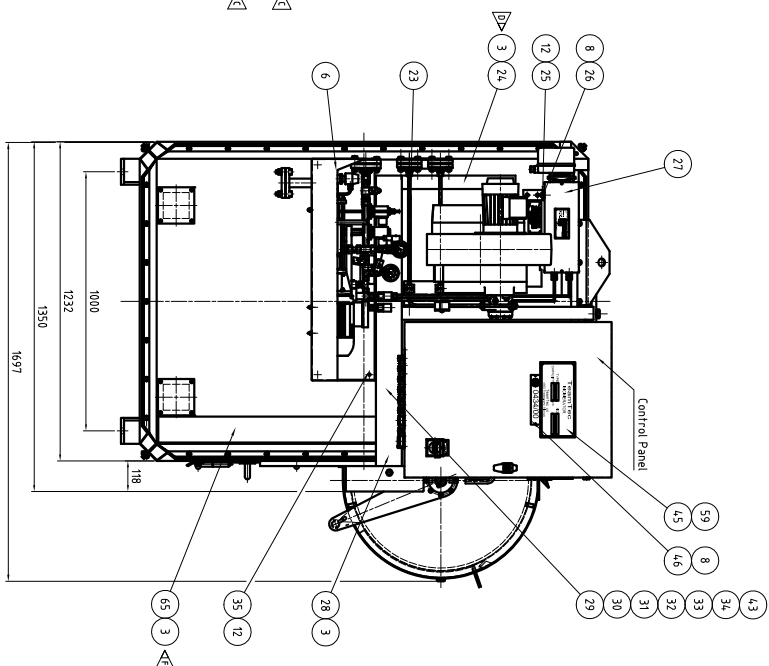
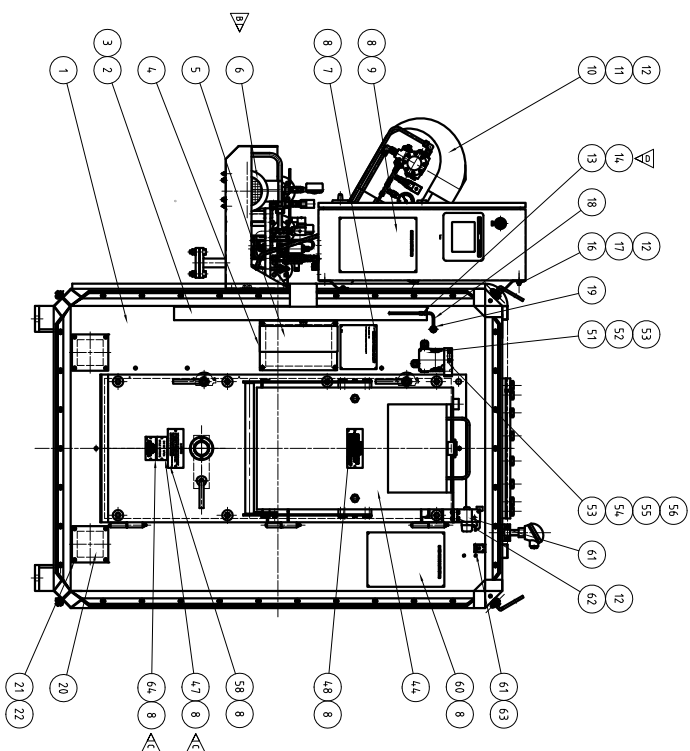
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Weight: 2604 Kg.

TeamTeet
Tredstrand - Norge

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 Weight: 2604 Kg.

Item ID	Description	Material	Weight (kg)	Volume (m³)	Unit Price (€)	Total Price (€)	Notes
65	1 Cable Bridge, SP820/10-100, 840 mm	4005713	2.40	13524			
64	1 Instruction Plate, NOTE SLAGING"	DIN 7985 A	0.01	3561			
63	1 Screw, Pan Head, M5x10, ELZ	4.8	0.01	3357			
62	1 Socket Head Screw, M8x25, ELZ	DIN 912	8.8	ELZ			
61	1 Door stopper	3004943	0.20	619			
60	1 Pad Pavei, 44,3x16	A2	0.01	629			
59	4 Instruction Plate, "Garage Door"	4006721	0.04	9661			
58	1 Cover for Hole, Water Injection	4008467	0.03	4040			
57	2 Washer, 5 ELZ	ISO 7089	0.00	4169			
56	2 Bolt, hex, M6x1, ELZ	8	0.00	2685			
55	2 Key for Interlock	DIN 7985 A	4.8				
54	1 Cable gland and gray, M70-7, 4L	4.8					
53	1 Cable Bridge, B-50	4008476	0.02	12590			
52	1 Cable Bridge, B-50	2008665	0.01	5506			
51	1 Instruction Plate, "ON OPEN WHEEL BURNING"	4005709	0.02	1430			
50	1 Sign Marine Equipment Directive	4006876	0.42	11427			
49	1 Name Plate, "Manual activate"	3006273	4.20	100938			
48	1 Door Assy, CO 310x510 with Sludge	1009038	0.10	1628			
47	1 Thermocouple for Thermocouple	4007332	0.10	1628			
46	1 Thermocouple type "N-300" Assembly	4007510	0.10	1628			
45	1 Washer, 20x10x4, ELZ	4007324	0.02	4970			
44	1 Washer, 20x10x4, ELZ	ISO 7089	8.8	ELZ			
43	1 Gasket, DN 400, 15x2	NS 157	0.07	9674			
42	1 Flange, DN 400, PN 6, 1x6	EN 1092-1/01 A	11.40	3195			
41	1 Bolt, hex, M8x12	ISO 4017	8.8				
40	1 Screw 4,2x15, Pozidriv, FZB	DIN 7981 C	0.15	15352			

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TOLERANCES: NS-ISO 2768-1-m

be delivered in any third person without previous notice

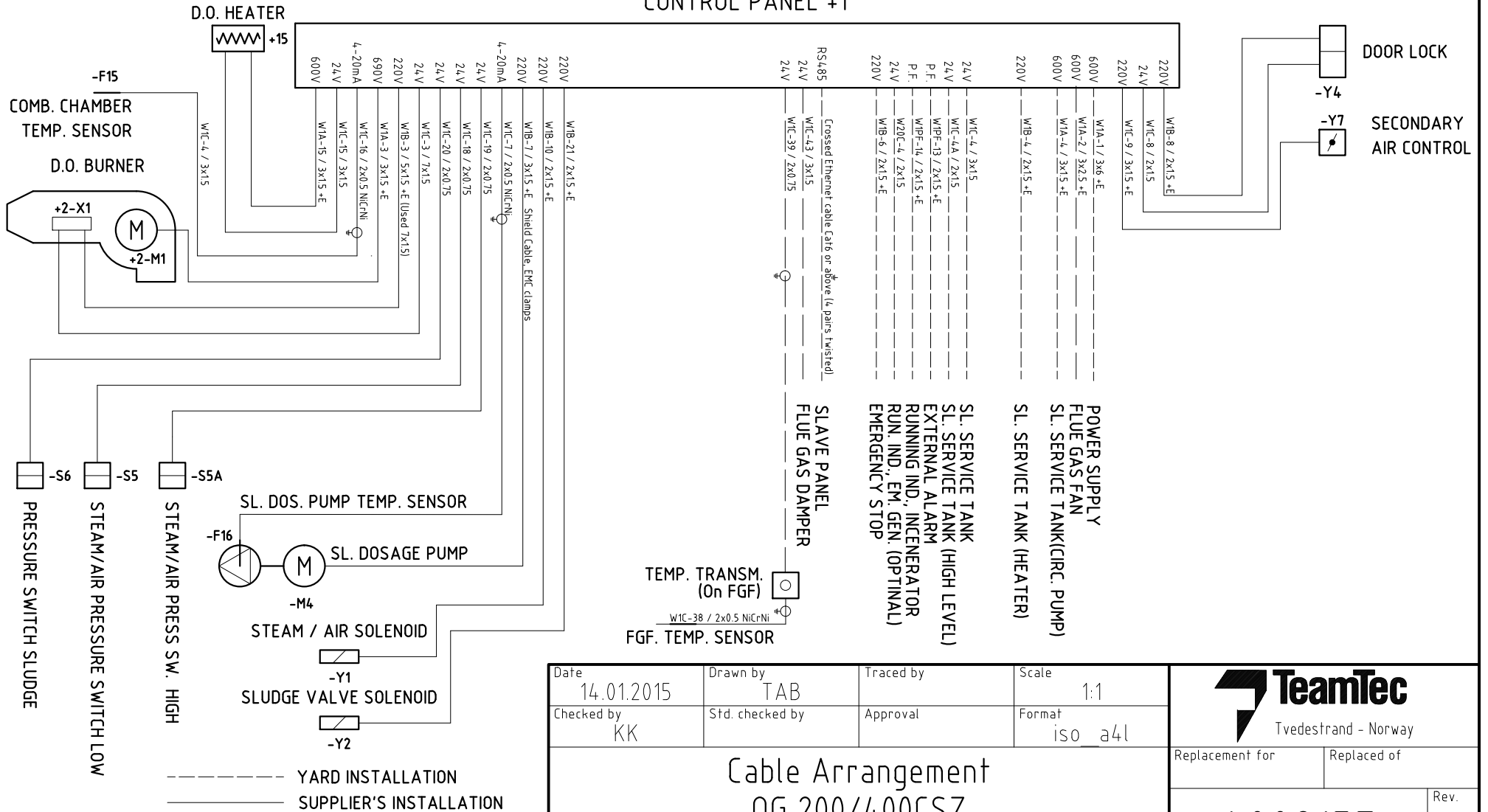
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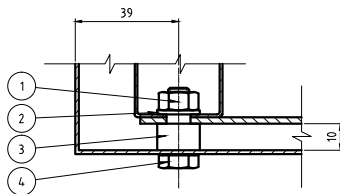
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CONTROL PANEL +1



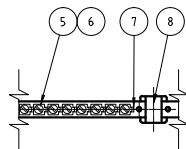
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Date 14.01.2015	Drawn by TAB	Traced by	Scale 1:1	 Tvedestrand - Norway	
Checked by KK	Std. checked by	Approval	Format iso a4l		
Cable Arrangement OG 200/400CSZ 600V - 220V				Replacement for	Replaced of
				4009157	
Project	Reference 12	File name 4009157	Plot date	Article no. 4009157	Page

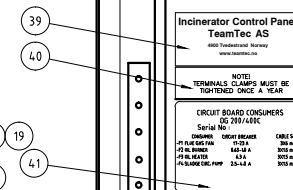
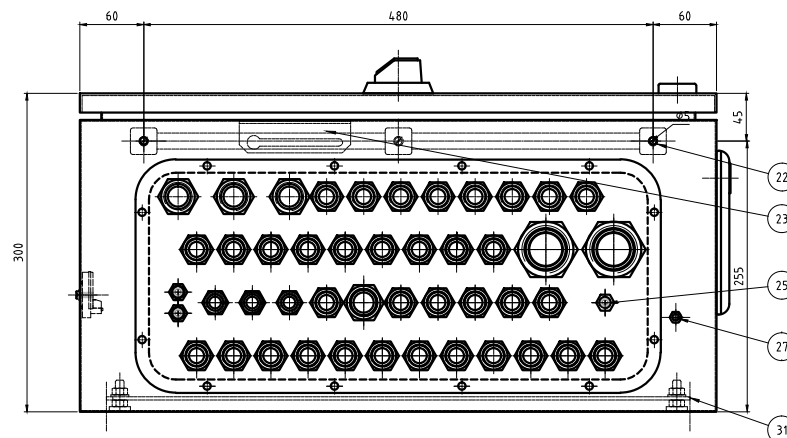


Section A-A

Scale 1:1

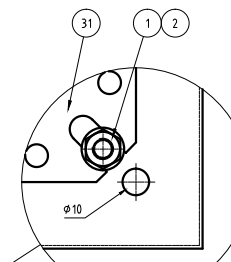


Section B-B



Section C-C

NOTE 1: Labels to be placed on inside of door and components



Scale 1:1

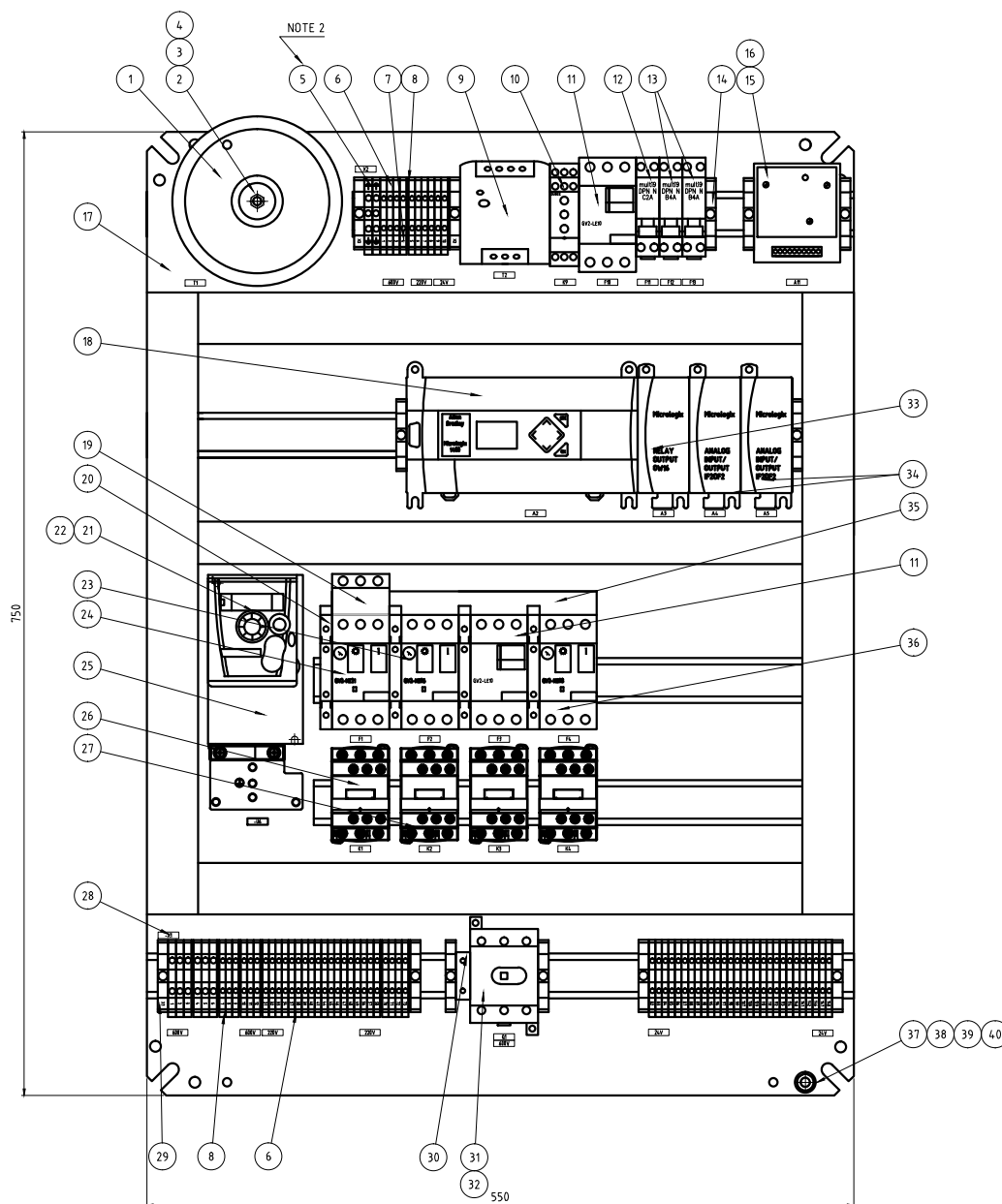
Weight: 56 Kg.

43	1	Drawing pocket, A4	Sarel		0.00	16166
42	1	Door-Lock w/Linkage Sarel 800x600x300	EN83843 w/EN73884		0.00	16183
41	1	Name Plate "Incinerator Control Panel" Circuit Board	4008000		0.05	4008000
40	1	Name Plate "Incinerator Control Panel" TeamTec	4007995		0.00	4007995
39	1	Name Plate "Incinerator Control Panel" Note	4007999		0.05	4007999
38	1	Instruction Plate, Incinerator 600V	4007256	St. steel	0.01	4007256
37	4	Screw, self tapping, 2.94x6.5	NS 1833	St.	0.00	4931
36	1	Main switch, door connector	ABB	OHYS3AH	0.00	18968
35	1	Instruction Plate, Emergency Stop/Main Switch	4008730	Red Plastic	0.00	4008730
34	1	Cutout Door & Enclosure, OG200/200/400C	2009275		0.00	2009275
33	1	Electrical Diagram OG200/400CSZ, 600V - 220V	3010821		0.00	3010821
32	1	Cable Arrangement OG200/400CSZ, 600V - 220V	4009157		0.00	4009157
31	1	Mounting Plate OG200/400CSZ, 600V - 220V	1010691		0.00	1010691
30	1	Washer, Lock teeth, 6.4 ELzn		DIN 6798A	0.00	12617
29	3	Washer, 6		Brass	0.00	12616
28	2	Nut, hex M6		Brass	0.00	12615
27	1	Bolt, hex M6x35		Brass	0.01	12614
26	1	Cable set OG200/400C	2008597		0.00	2008597
25	1	Flange With Cable Gland GS500C, OG200/400C	3008809		1.40	3008809
24	1	Door Latch, Sarel	Sarel	1512004.797	0.00	15099
23	1	Enclosure, 800x600x300			30.50	15525
22	3	Screw, Cheese Head, M4x10 ELZn	ISO 1207	4.8	0.00	4277
21	1	Temp. transmitter, 0-800°C (K)	INOR	70APAHCF001K1	0.25	10178
20	11	Washer, 4 ELZn	ISO 7089	St.	0.00	5568
19	11	Nut, hex, M4 ELZn	ISO 4032	8	0.00	144.1
18	4	Screw, Cheese Head, M4x20 ELZn	10119		0.00	10119
17	1	Temp. transmitter, 0-1200°C (N)	INOR		0.03	6953
16	1	Labels 5x16, Brady	Brady	1674.760000	0.00	4838
15	1	SD Memory Card, 4GB			0.00	18971
14	1	PLC Program OG200/400C without water injection	PLS0231		0.00	PLS0231
13	1	Display Program OG200/400C without water injection	DIS0231		0.00	DIS0231
12	1	OS20 Operating Cable between PLC & Operator Panel	Allen Bradley	2711P-NC21	0.00	16358
11	1	Operator Terminal PV600	Allen-Bradley	2711P-RGT6	0.00	18969
10	1	Film for Screen Protection		811 100 313	0.04	12387
9	1	Buzzer, 30-250V, ESP		SHPA	0.01	4275
8	3	Railholder, SHIPA	Weidmüller		0.13	10626
7	1	Earth rail, NSch 15x2, 500 mm	Weidmüller		0.00	4580
6	30	Screw, M5x8	Weidmüller	BS	0.00	4579
5	30	Washer	Weidmüller	St.	0.00	4404
4	2	Bolt, hex, M8x25 ELZn	ISO 4017	8.8	0.00	16185
3	2	Distance Plastic-Bar, M8x10			0.00	2621
2	8	Washer, 8 ELZn	ISO 7089	St.	0.00	2598
1	8	Nut, hex, M8 ELZn	ISO 4032	8	0.00	

UNLESS OTHERWISE SPECIFIED:
Tolerances: NS-ISO 2768-1-m

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14.01.2015	Drawn by: TAB	Traced by:	Scale: 1:2.5	TeamTec Tvedestrand - Norway
Checked by: KK	Std. checked by: Approval	Format: A1		
Control Panel OG200/400CSZ 600V - 220V				1010690
Project:	Reference:	File name:	File date:	Article No:
		1010690		1010690

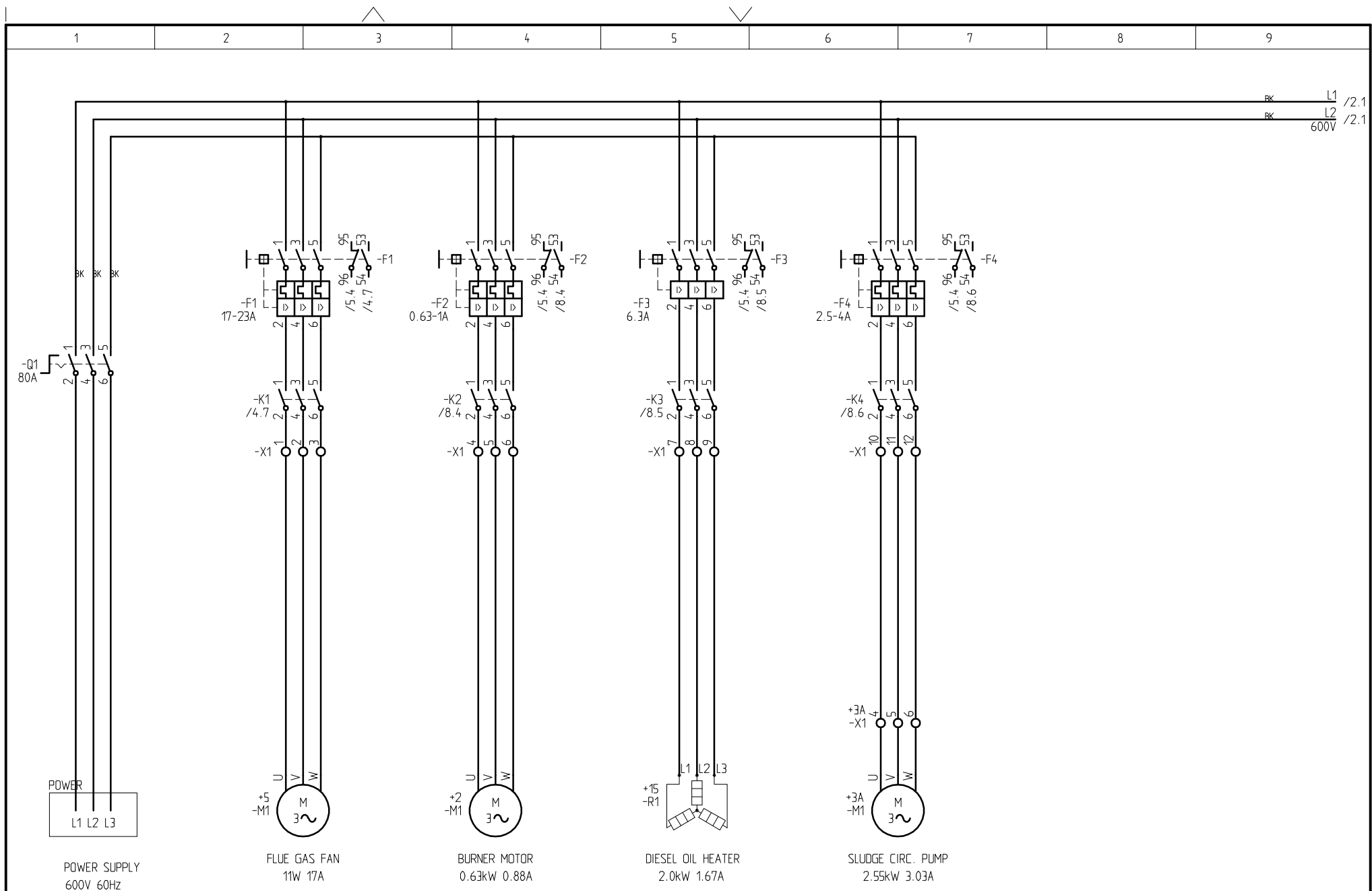


Weight: 30 Kg.

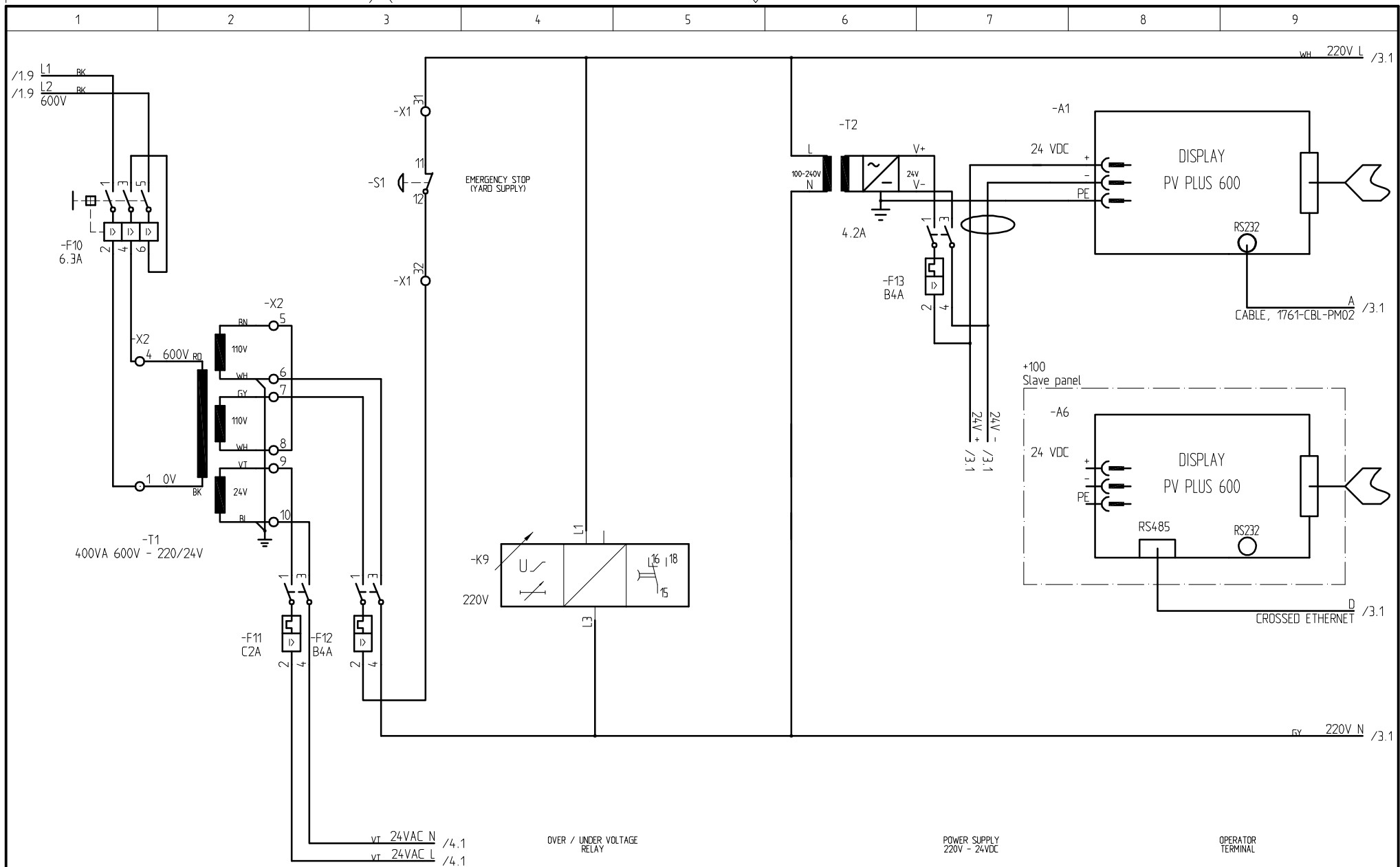
NOTE 1: Labels to be placed on mounting plate and components.

NOTE 2: To be connected to main earth rail.

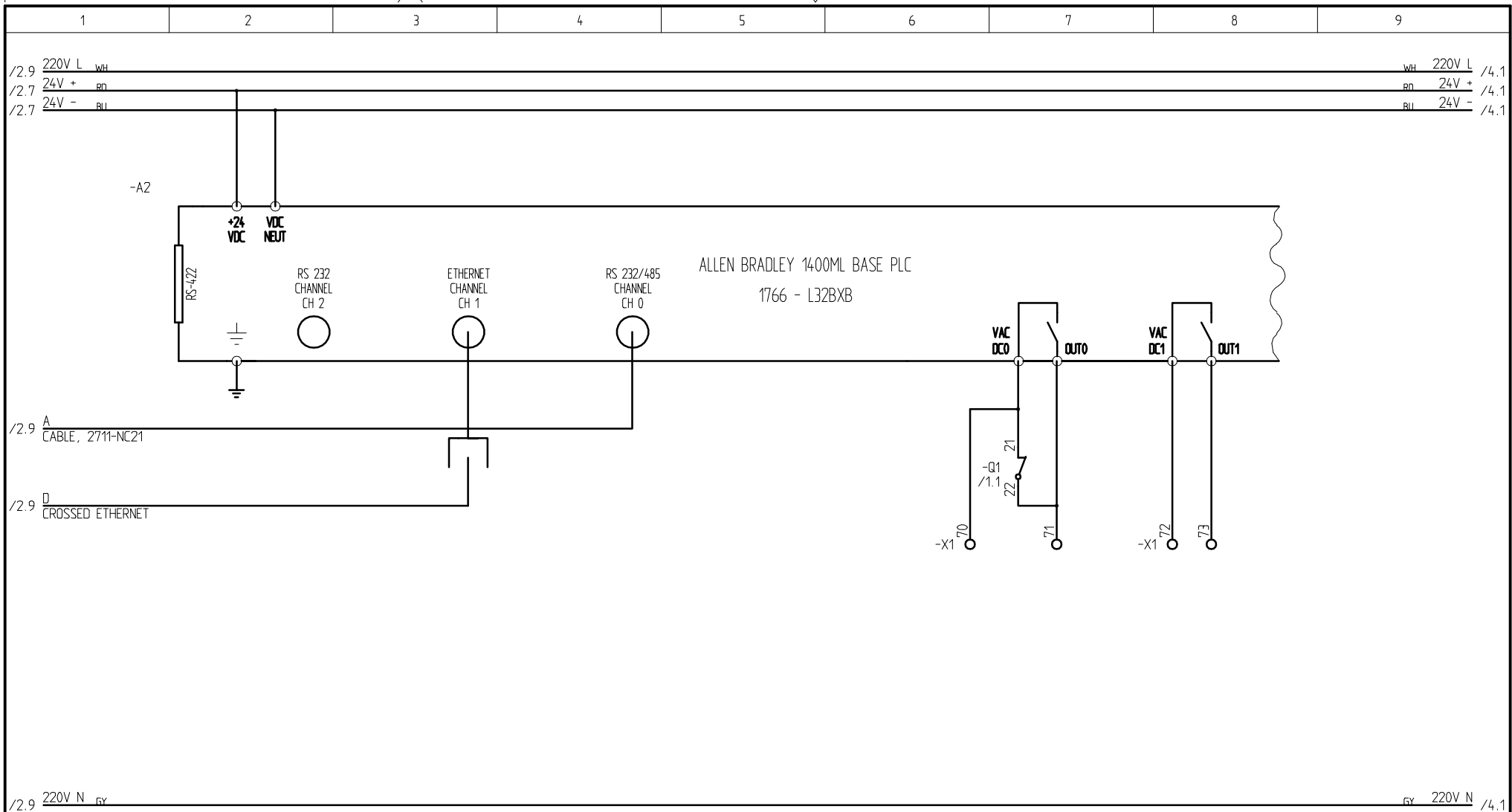
40	1	Washer, lock teeth, 8.4 ELZn	DIN 6798 A	St.	0.00	6413
39	2	Washer, 8 ELZn	ISO 7089	St.	0.00	2621
38	2	Nut. hex. M8 ELZn	ISO 4032	8	0.00	2598
37	1	Bolt. hex. M8x25 ELZn	ISO 4017	8.8	0.00	4404
36	1	Circuit breaker, 2.5-4A	Telemec.	GV2-ME08	0.26	12351
35	1	Terminal block for 4 x GV2	Telemec.	GV1-G07	0.09	5690
34	2	PLC Expansion Module, Anal.2 In+ 2 Out	Allen Bradley	1762-IF20F2	0.00	15803
33	1	PLC Expansion Module, 16 Dig. Outputs	Allen Bradley	1762-OW16	0.00	15800
32	1	Shaft for main switch, L=260	ABB	OXS 6x330	0.00	17369
31	1	Main switch	ABB	OT 80F3	0.00	17370
30	1	Contact block auxiliary, NC	ABB	OA 1G01	0.01	10906
29	6	Terminal clamp	Weidmüller	WDU 6	0.01	9406
28	32	Labels 5x16. Brady	Brady	1674.760000	0.00	4838
27	3	Starter contactor 9A	Telemec.	LC1-D09P7	0.32	12364
26	1	Starter contactor, 25A	Telemec.	LC1-D25P7	0.37	12367
25	1	Frequency inverter, 0.55 kW	Schneider	ATV-12H05M2	0.00	17573
24	1	Circuit breaker, 17-23A	Telemec.	GV2-ME21	0.26	12356
23	1	Circuit breaker, 0.63-1A	Telemec.	GV2-ME05	0.26	12348
22	2	Washer, lock teeth, 4.3 ELZn, 2 stk	DIN 6798 A	st.	0.00	4276
21	2	Screw, Cheese Head, M4x16 ELZn, 2 stk	ISO 1207	4.8	0.01	4559
20	4	Contact block, auxiliary	GV-AD0110	0.06	12358	
19	1	Terminal block for supply	Telemec.	GV1-G09	0.04	6409
18	1	PLC Main Unit 24 VDC	AB	1766-L32BXB	0.00	18544
17	1	Mounting Plate for EL Components, 06120/200/400C	2009276		0.00	2009276
16	1	Hose, PVC, Ø4, 1200 mm		PVC	0.01	13993
15	1	Flame and press. control	Teamtec	201096	0.35	6407
14	13	End Bracket		WEW 35/2	0.01	5040
13	2	Circuit breaker, 4A double	Merlin Gerin	DPN N, B4	0.00	17547
12	1	Circuit breaker, 2A double	Merlin Gerin	DPN N, C2	0.10	11083
11	2	Circuit breaker, 6.3A	Telemec.	GV2-LE10	0.33	12531
10	1	Over- / under-voltage relay	Telemec.	RM4UB	0.10	15635
9	1	Power source 85-264VAC/24VDC4.2A, 100W	Allen-Bradley	1606-XLP100E	0.00	15814
8	8	End Plate		WAP 2.5-10	0.00	5043
7	1	Marking set Terminal clamps Weidmüller WDU 2.5	Weidmüller	1609860000	0.00	5042
6	69	Terminal Clamp 2.5mm2		WDU 2.5	0.01	5041
5	2	Terminal Clamp		WPE 2.5	0.01	12197
4	2	Nut. hex. M8 ELZn	ISO 4032	8	0.00	2598
3	2	Washer, lock teeth, 8.4 ELZn	DIN 6798 A	St.	0.00	6413
2	1	Thread Bar, M8	DIN 975	8.8	0.32	13588
1	1	Transformer, 400VA, 600/220V - 24V	Ulveco	N15897	3.40	12900
Item	Qty.	Description	Standard	Material	Weight	Article No
Date	14.01.2015	Drawn by: TAB	Traced by:	Scale:	1:2	
Checked by:	KK	Std. checked by:	Approval:	Format:	A1	
		Replacement for:		Replaced of:		
		Teamtec				
		Tvedestrand - Norway				
		1010691				
		Rev.				
Project	Reference	File name	File date	Article no	Page	
		1010691		1010691		



				Date	14.012015	El. Diagram 600V-220V Teamtec Incinerator OG200/400CSZ		 Tvedestrand - Norway		Project no.		OG200/400CSZ		=	
				Drawn by	TAB					Scale		Drawing no.		+1	
				Approval	KK							3010821		Rev.	Page
Symb	Nos	Changing	Date	Sign.	Standard	IEC1082-S	File name	3010821	Replacement for	Replaced for	15			13	1
															2

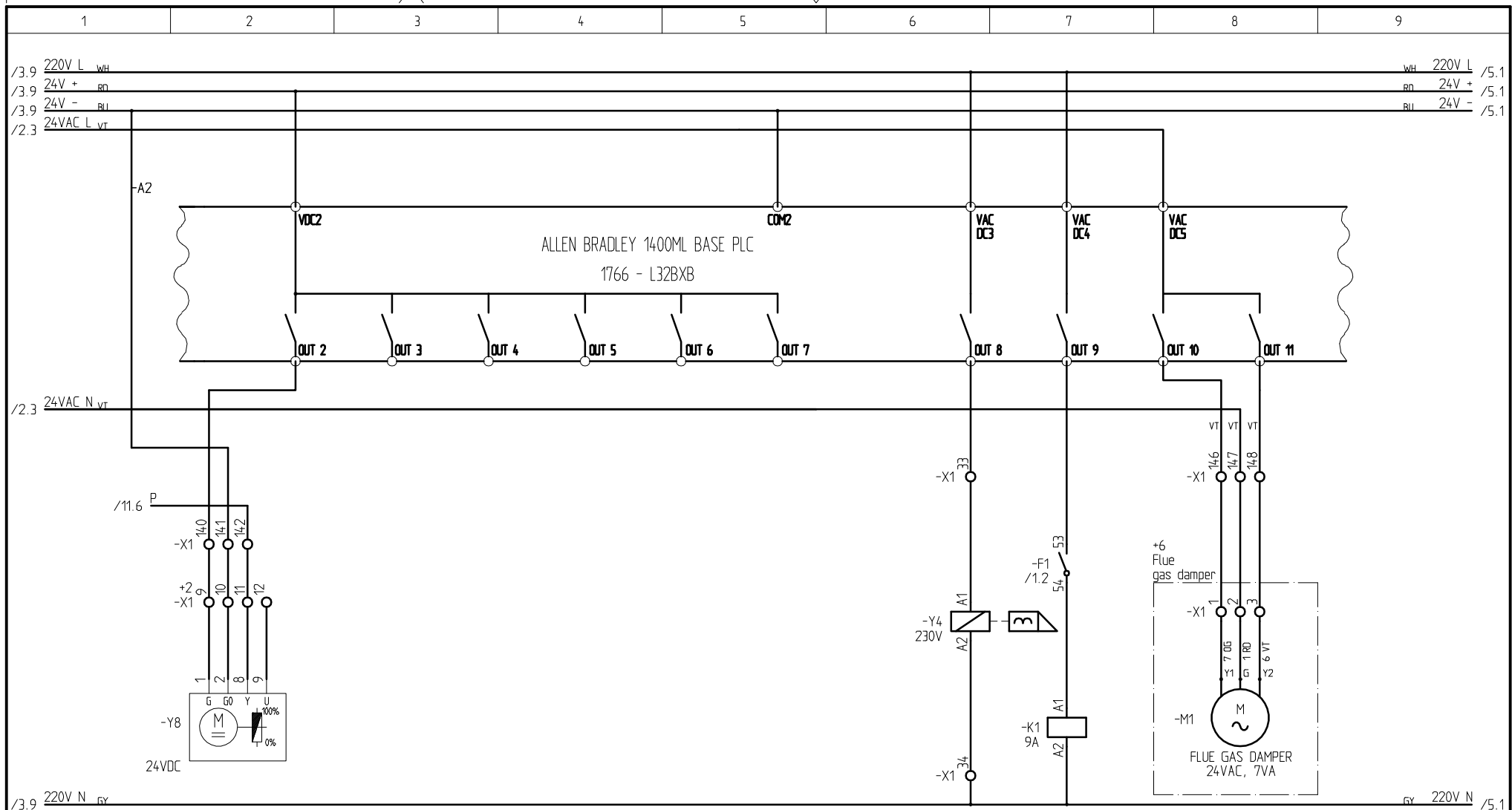


				Date	14.01.2015	El. Diagram 600V-220V Teamtec Incinerator OG200/400CSZ			 Tvedestrand - Norway	Project no.		OG200/400CSZ		=			
				Drawn by	TAB					Scale		Drawing no.		3010821		+1	
				Approval	KK					Rev.		Tot. p.		Page		2	
Symb	Nos	Changing	Date	Sign.	Standard	IEC1082-S	File name	3010821	Replacement for	Replaced of	16	13		N.p.		3	

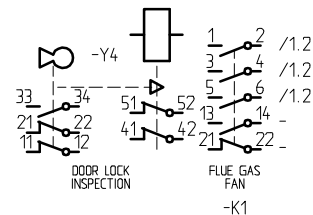


EXTERNAL ALARM RUNNING INDICATION

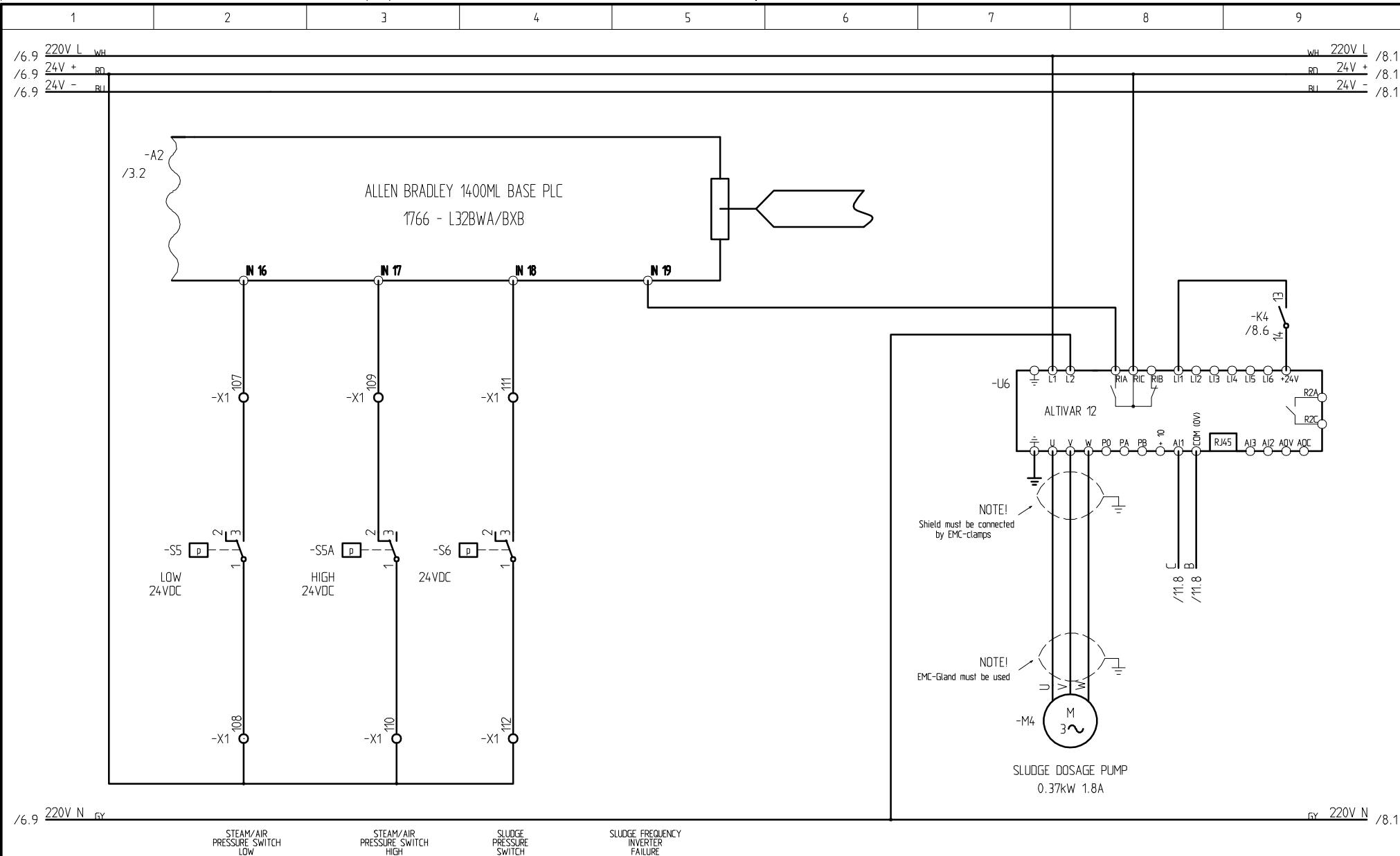
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			Approval	KK							Rev.	Tot.p.	Page
Symb	Nos	Changing	Date	Sign.	Standard	IEC1082-S	File name	3010821	Replacement for				3
							Replaced of	17	Drawing no.			13	N.p.
									3010821				4



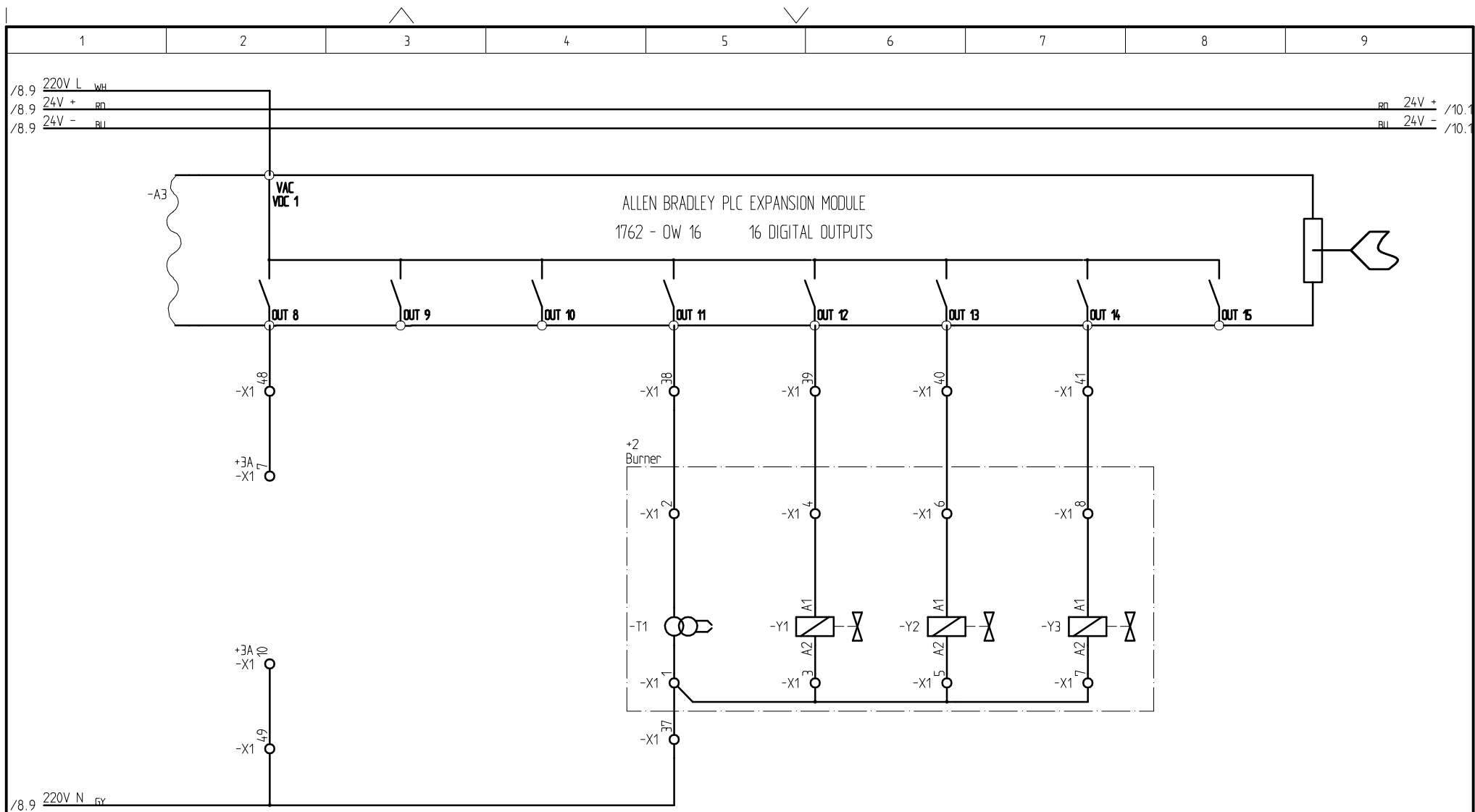
BURNER AIR
DAMPER MOTOR



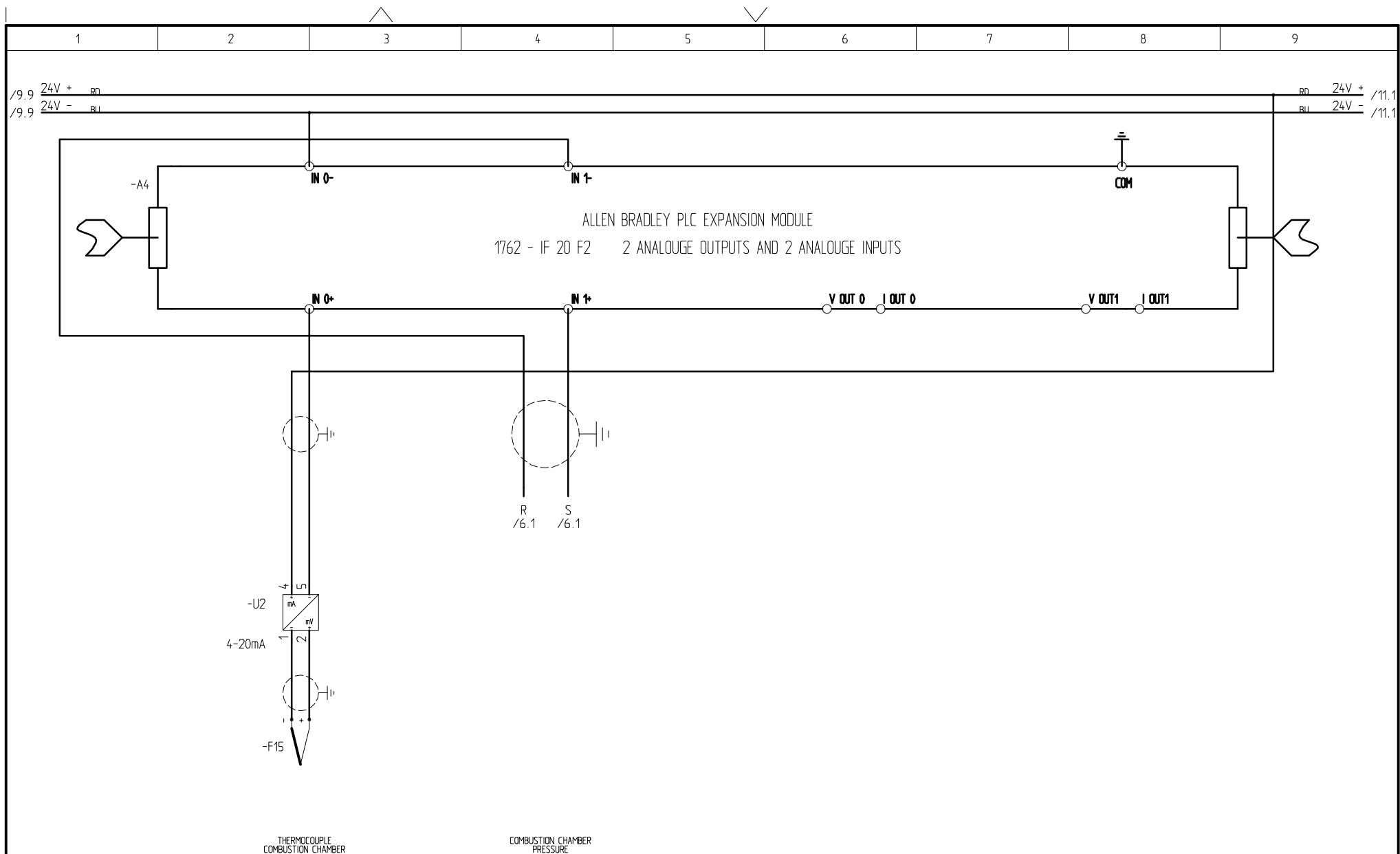
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				Approval	KK							3010821		Rev.	Tot.p.	Page	4
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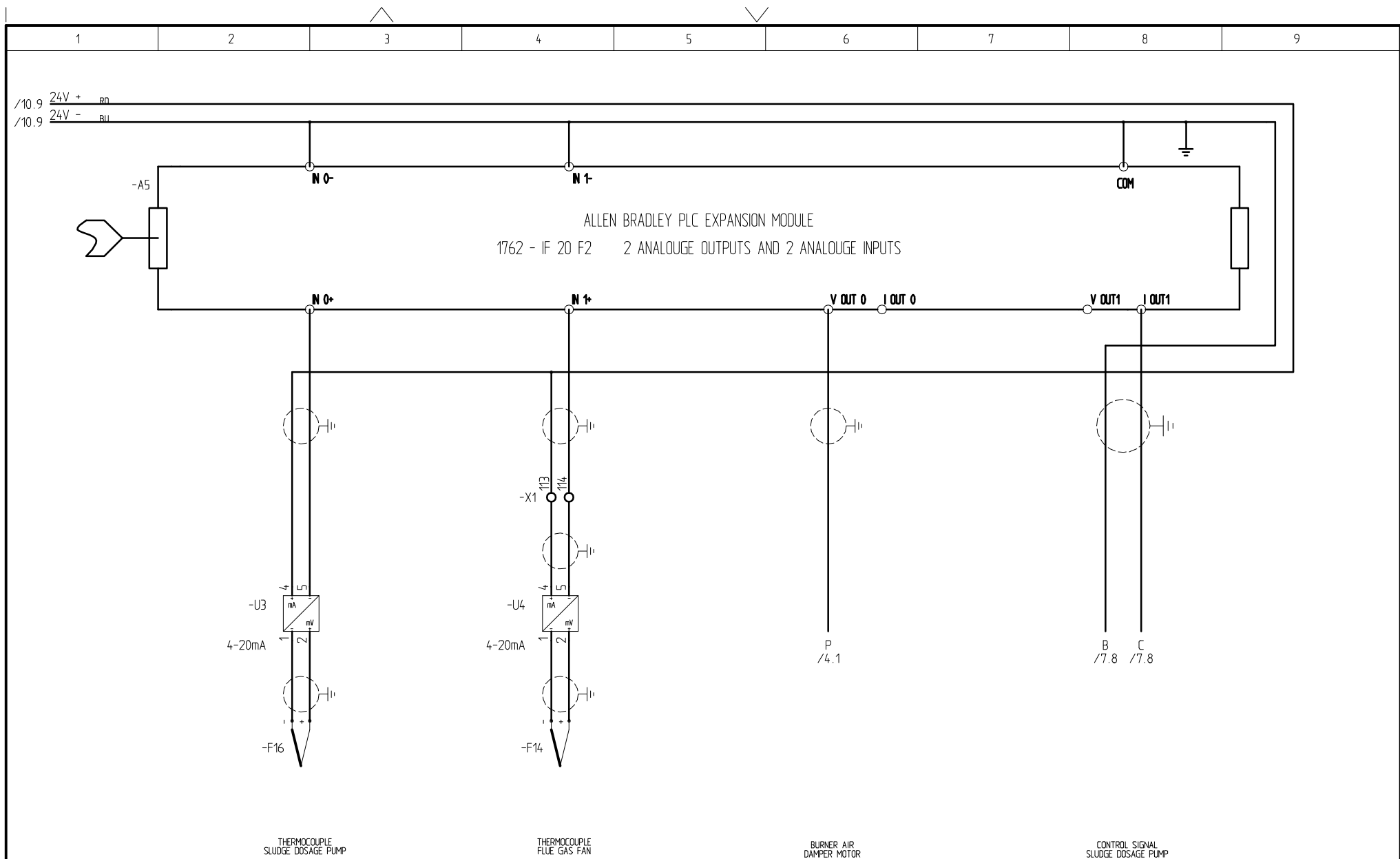
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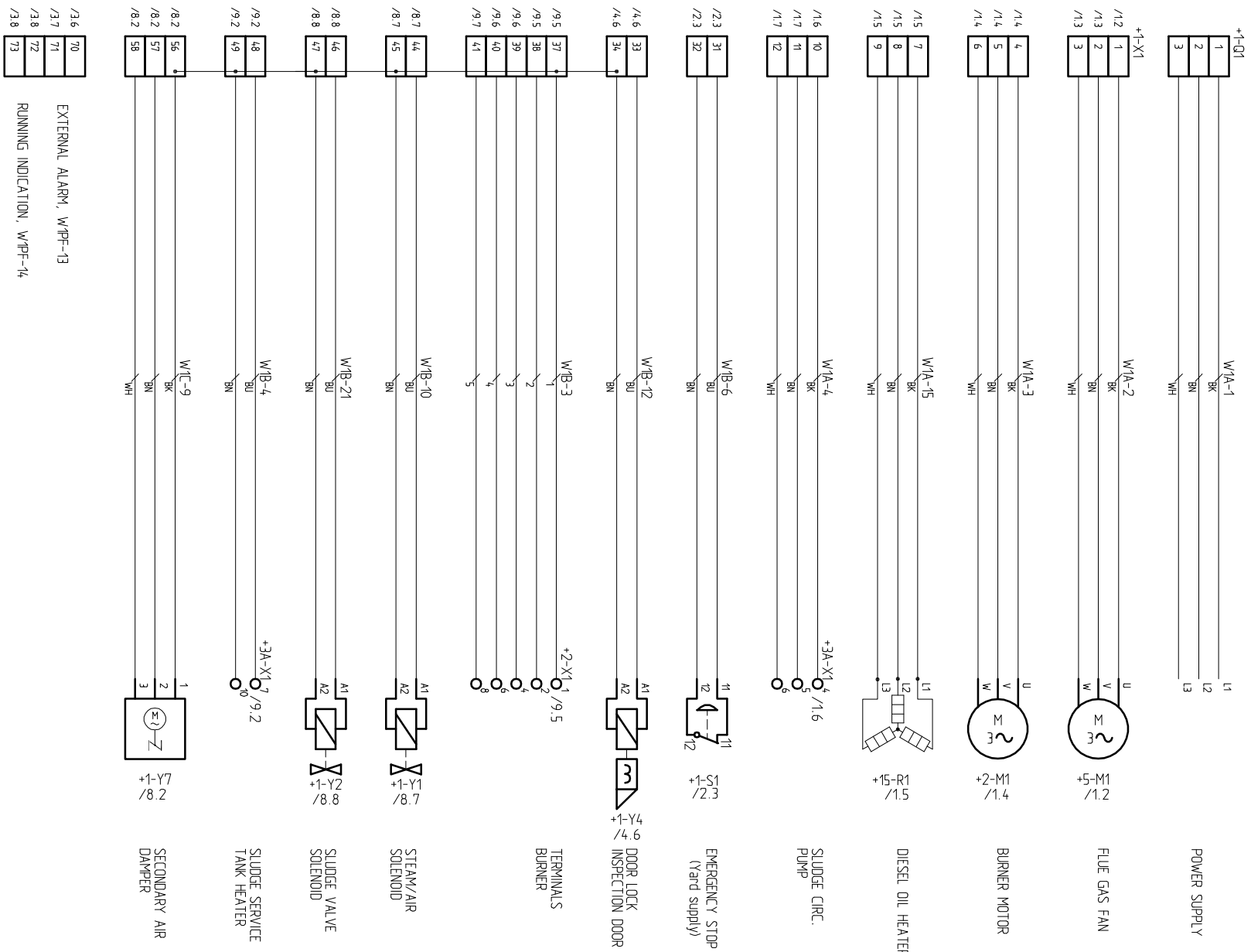
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				Approval	KK												
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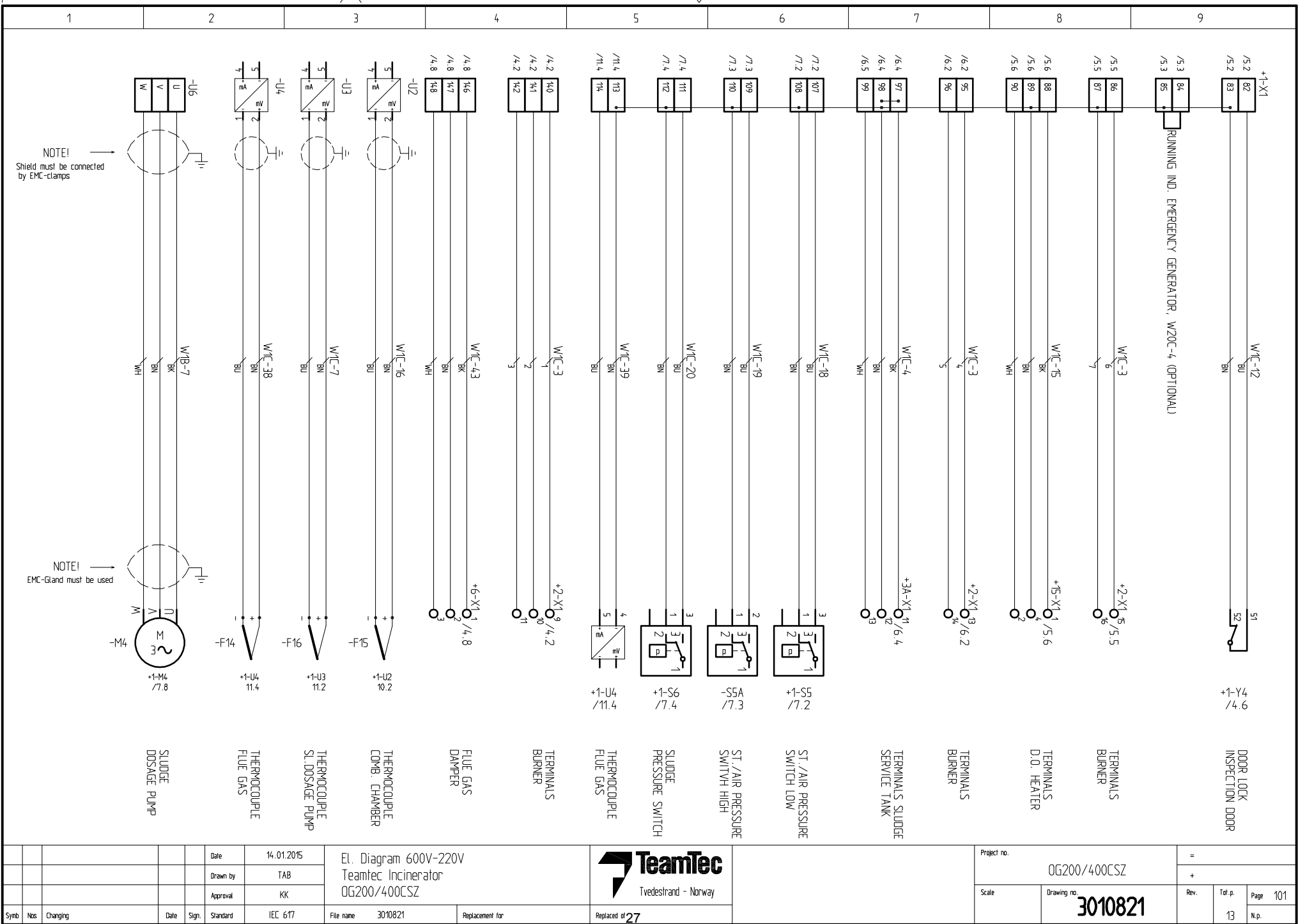
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				Approval	KK					Scale	Drawing no.	Rev.	Tot.p.	Page
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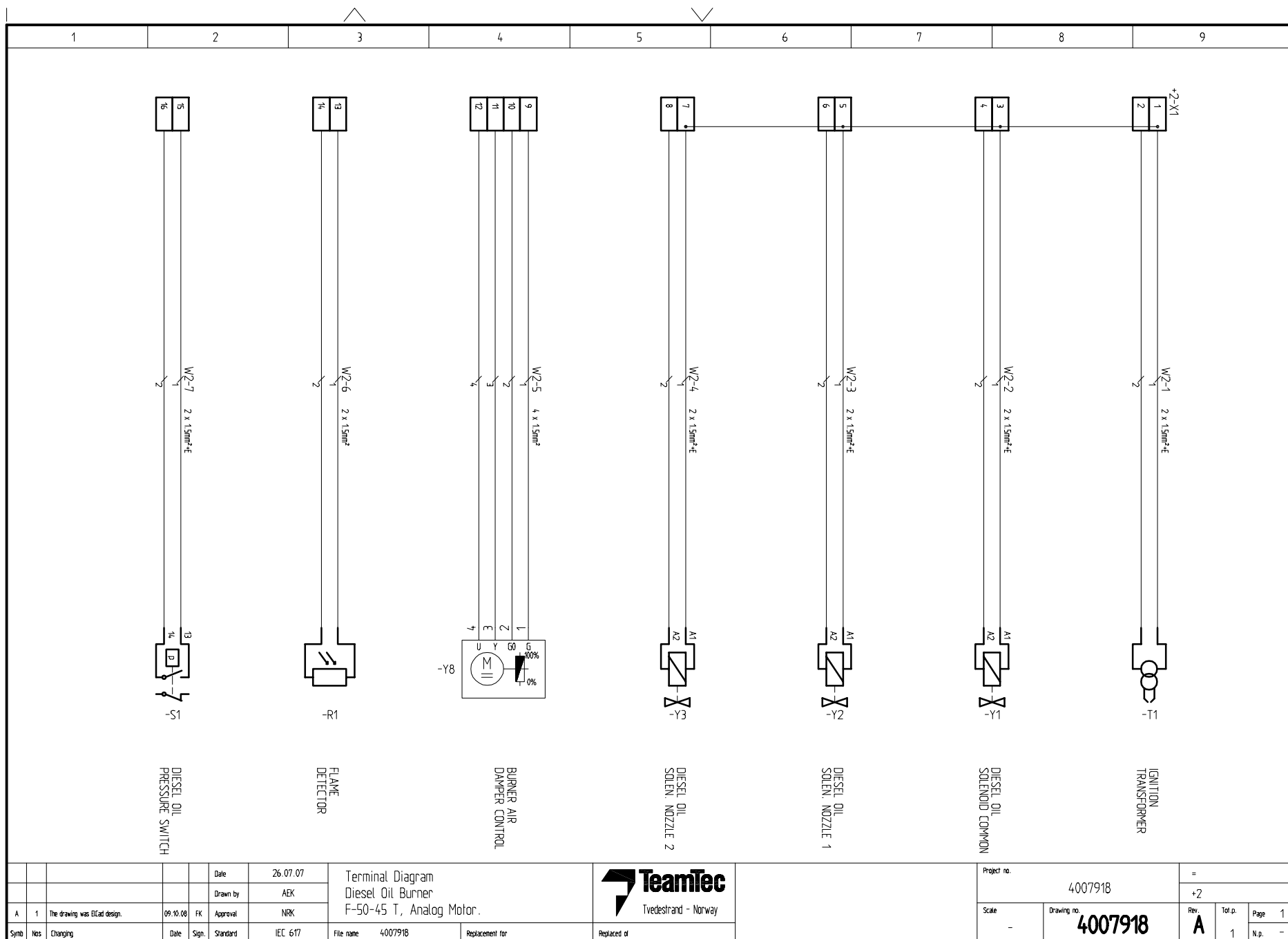


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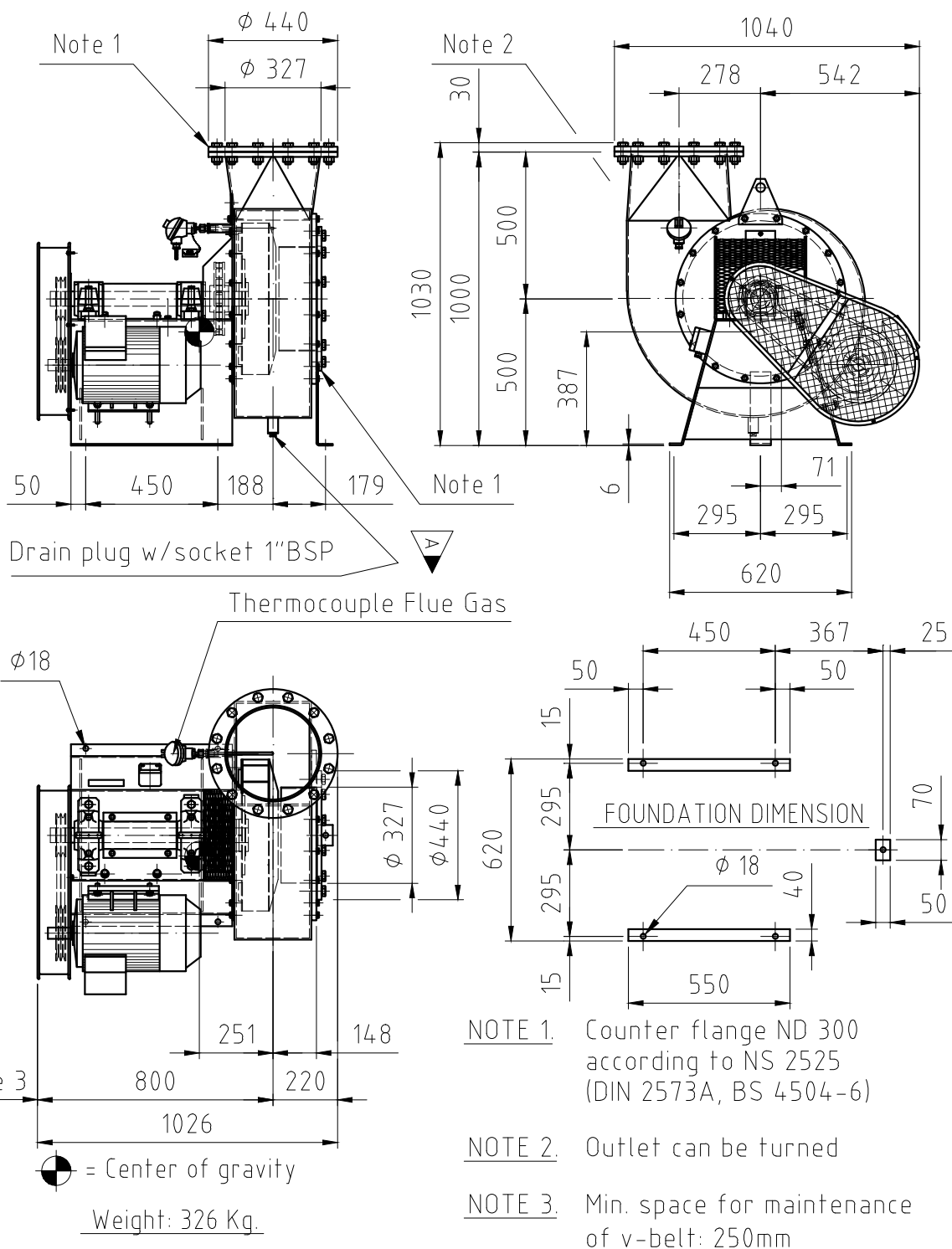
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			Drawn by		TAB							Scale			Drawing no.			Rev.			Tot. p.			Page											
			Approval		KK							3010821			3010821						13			100											
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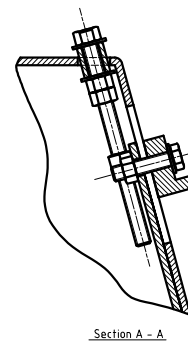
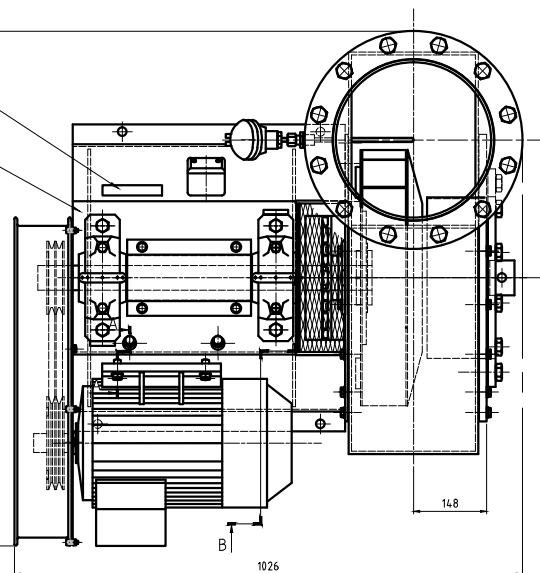
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Tolerances: NS-ISO 2768-1-m



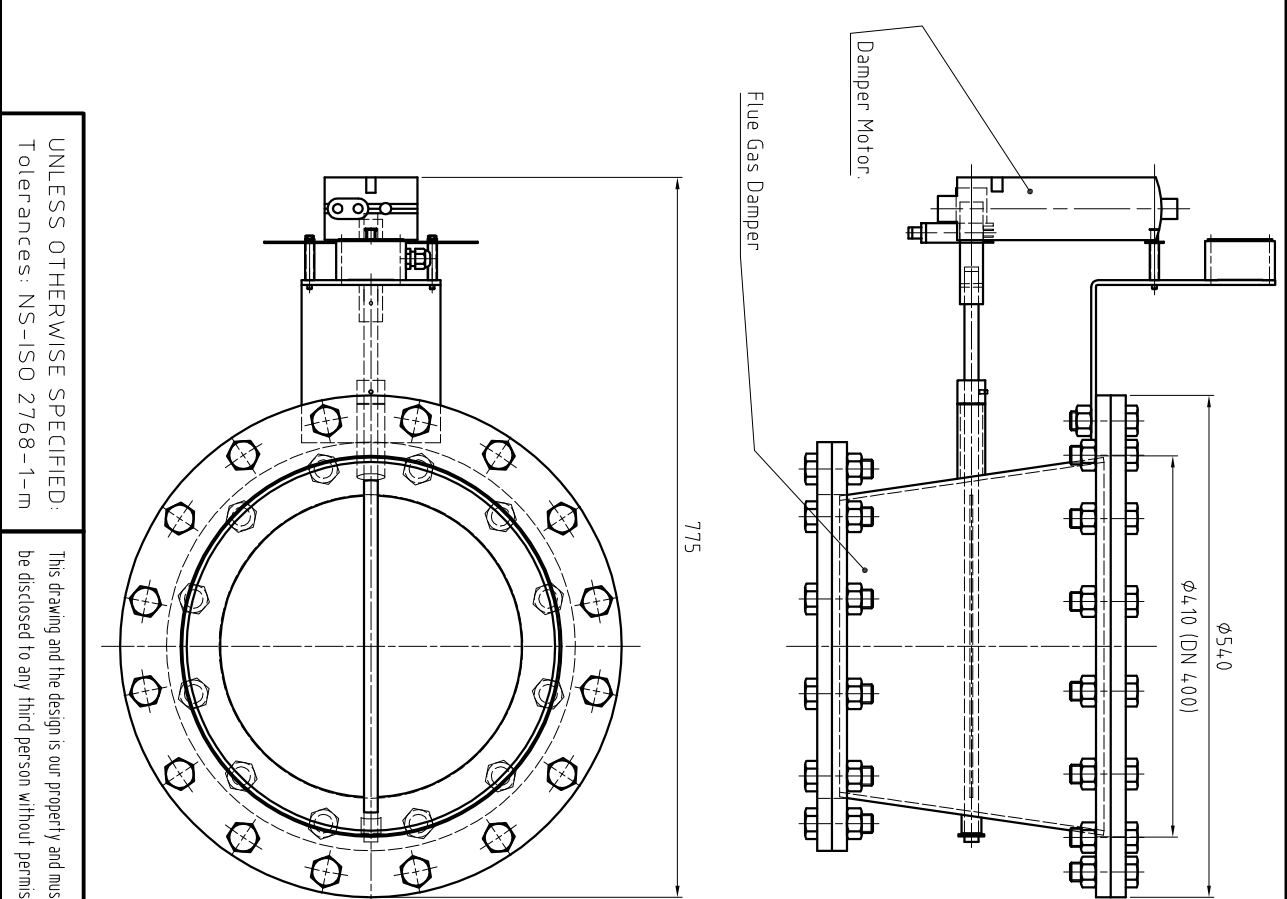
This drawing and the design is our property and must not be disclosed to any third person without permission.

A	1	Added drain plug				EMO	23.04.03
Rev.	Nos	Changing				Name	Date
Date	29.01.03	Drawn by	EM	Traced by	EM	Scale	1:20
Checked by	JFS	Std. checked by		Approval		Format	A4
Main Dimensions Flue Gas Fan DN 300 H2						Replacement for	Replaced of
						4006930	Rev. A
Project	Reference	File name	Plot date	Article no.	Page		
		4006930		-	-		



UNLESS OTHERWISE SPECIFIED: Tolerances: NS-ISO 2768-1-m	This drawing and the design is our property and must not be disclosed to any third person without permission.
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02	1	Rotary Drive Arrow				0.00	15594.
10	1	Reducer, Cable Glnd M32-M25				0.01	14247.
	1	Cable Glnd, gray, 4.25, 9-18				0.02	12591.
9	1	Cable Tie 188 x 4.8	PLT 25-[C]	Nylon 6.6		0.00	15595.
	1	Cable Clamp RSGU 12/15				0.10	11622.
7	2	Screw, cheess head, Mx10 ELZn	ISO 1207	4.8		0.26	14497.
6	1	Cable Clamp RSGU 8/15				0.10	11620.
5	2	Screw, cheess head, Mx20 ELZn	ISO 1207	4.8		0.01	10119.
4	1	Thermocouple w/ Transmitter	3006996			1.28	64429.
3	4	Blind rivet, 3.2x10		A2		0.01	9328.
2	1	Name Plate, Flue Gas Fan	4006039			0.05	9340.
Item	1	Flue Gas Fan DN 300 Sub Assy w/Motor	1008644			326.00	808644.
Item	Qty	Description	Standard	Material	Weight	Article No	
	8	Parts List reworked			DJ	834709.	
		Added pos. 14-20			S/L	% 10.0000	
Rev.	No	Change				Name	Date
	29	12/2004	Drawn by JHME	17/08/05	Scale		
Checked by			Std checked	Approval	Format A1	Treated as - New	
Flue Gas Fan Assy. DN 300, H2, 60Hz							Rev. B
Project	Reference	File name	Plot date	Article no	Page		
						1006992	B



Flanges DN 400 and DN 300 drilled according NS 2525, DIN 2573A, BS 4506-6

Weight: 68 Kg.

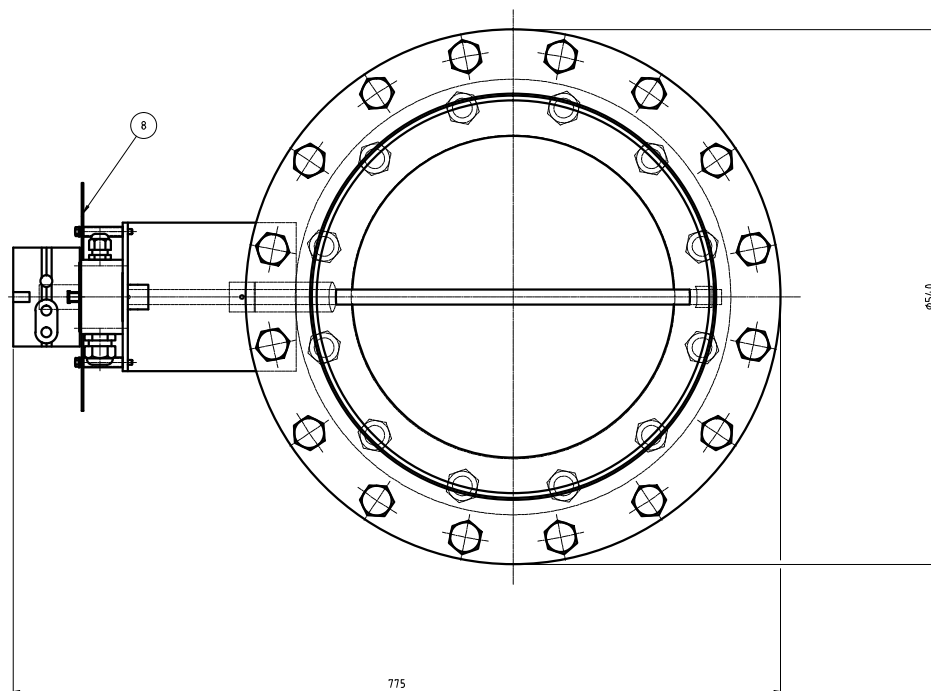
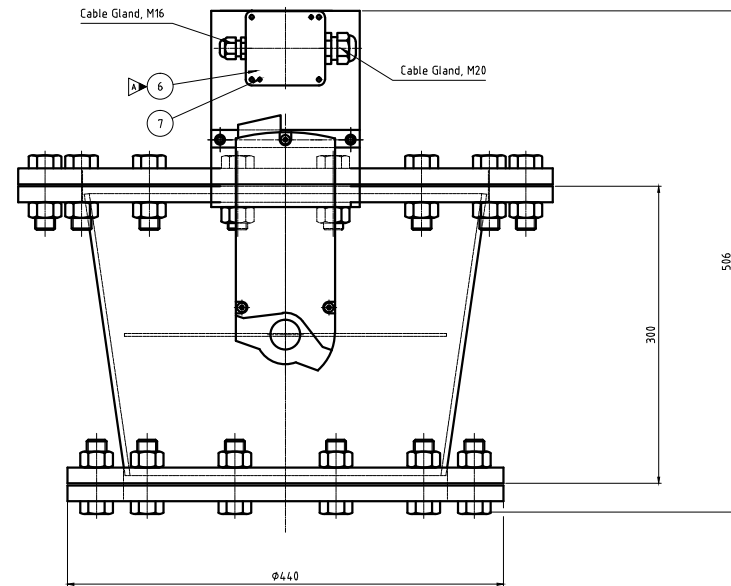
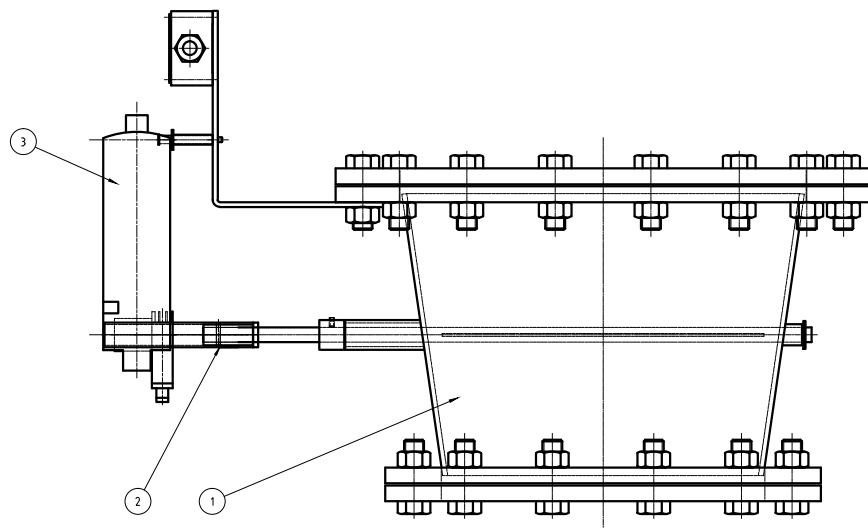
Flue Gas Damper
DN 400/300

Teamtec
Tvedestrand - Norway

Project	Reference	File name	Plot date	Article no	Page
SD	3007249	3007249		3007249	-

Rev.	Nos	Changing	Drawn by	Traced by	Scale	Date
C	1		Dim 506 was 436		1:5	02.04.04
B			Was 65 Kg			02.04.03
A			Added spacing bar between shaft and motor			27.11.98

Date	Checked by	Std. checked by	Approval	Format	Replaced for	Replaced of
22.09.98	JFS			A3		



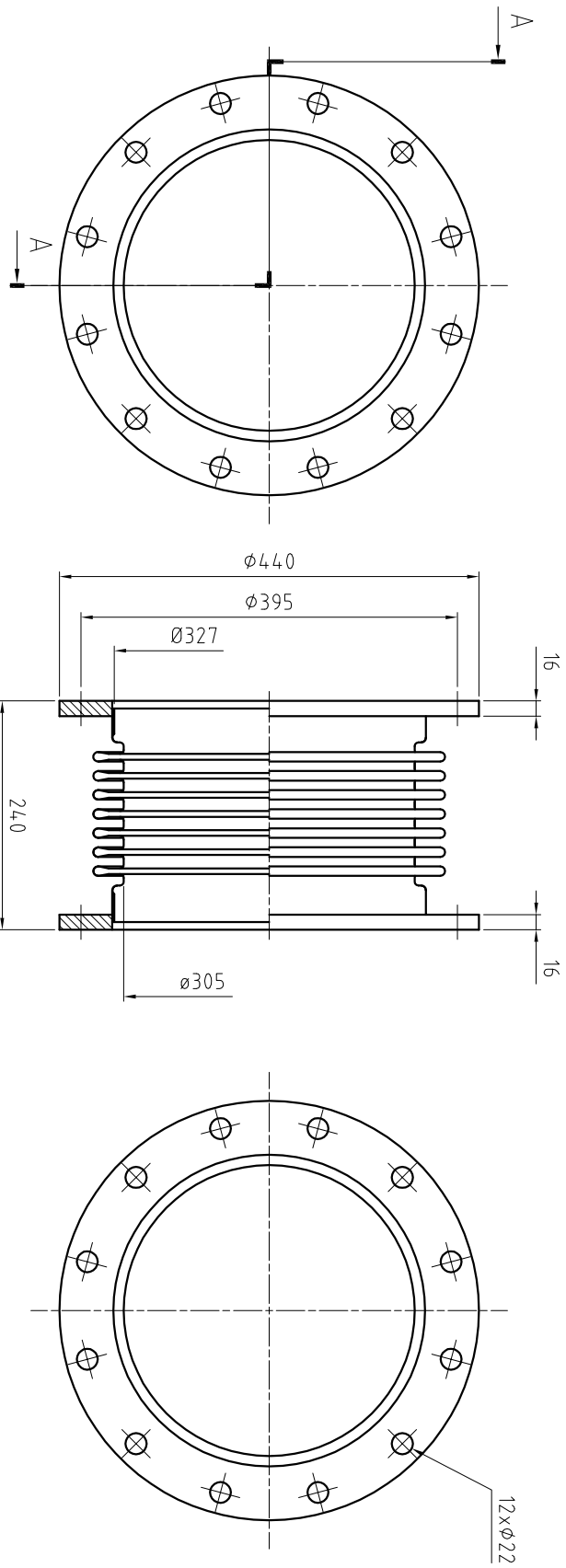
Weight: 68 Kg.

8	1	Mounting Bracket for Damper Motor			0.10	10453
7	2	Screw, cheese head, M4x20 EL Zn	ISO 1207	4.8	0.00	10119
6	1	Junction Box for Damper	3008495		0.30	3008495
3	1	Damper Motor	Landis&Stefana	GBB 131.1E	2.00	10452
2	1	Split pin Ø4x32	ISO 8752	SI	0.03	11601
1	1	Flue Gas Damper, Sub. Assy. DN 400/300	1006998		65.50	1006998
Item		Qty.	Description	Standard	Material	Weight Article No.
A	1		Pos 4 and 5 for cable gland removed. Pos 6 was art. no. 12277.			MM 22.04.03
Rev.	Rev.	Changing	None			
29.12.04	29.12.04	DW	Traced by	Scale	1:2.5	
Checked by	154	checked by	Approval	Formal	A1	
Flue Gas Damper. Assembly						Replacement for
DN 400/300						Replaced of
						1006999
						A
Project	Reference	File Name	Plot Date	Article No.	Page	
		1006999		1006999		

UNLESS OTHERWISE SPECIFIED:
Tolerances: NS-ISO 2768-1-m

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Flanges drilled according to
NS 2525, DIN 2573, BS 4504-6



MAX. MOVEMENT.
AXIAL
LAT L
+/-50
+/-10

WKG PRESSURE : 1 BAR.
DESIGN PRESSURE : 2,5 BAR.
WKG TEMPERATUR : 500°C
PROD. TEST PRESSURE : 1 BAR.

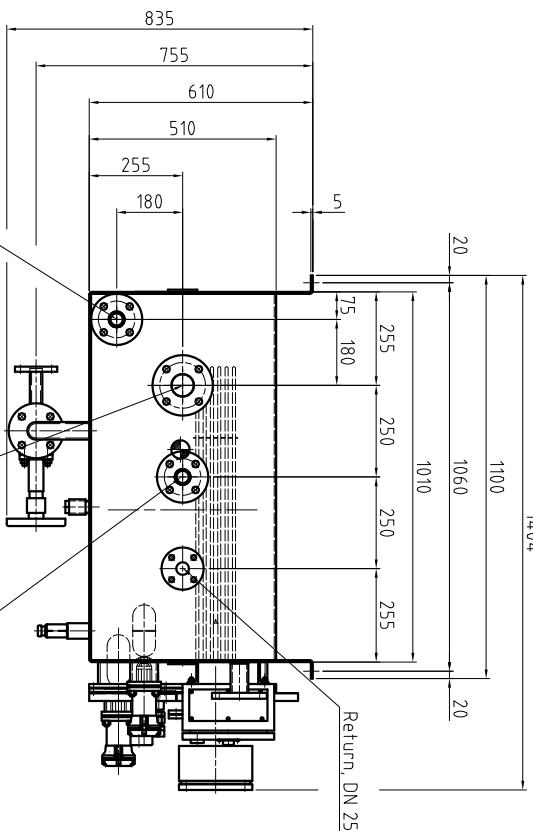
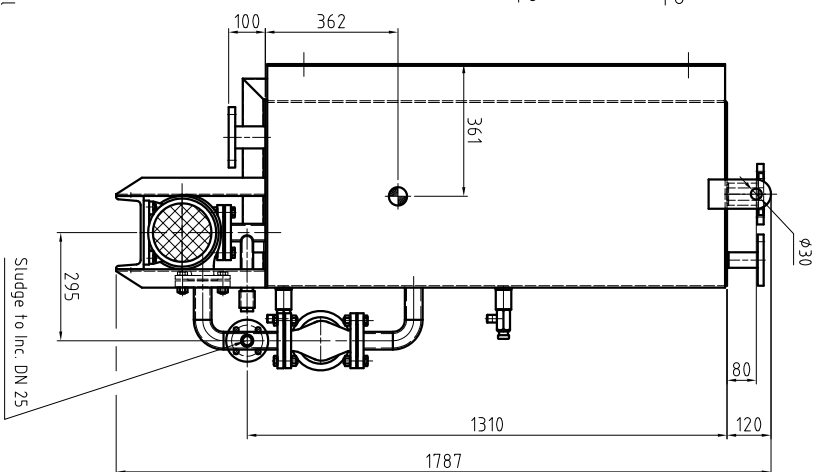
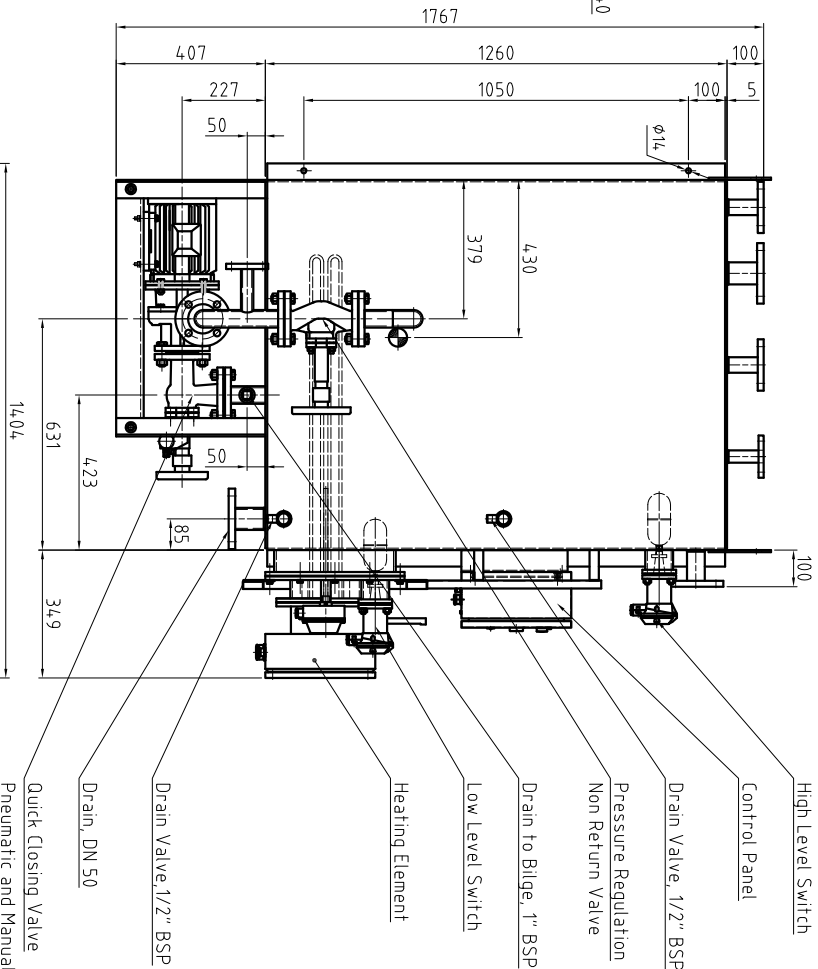
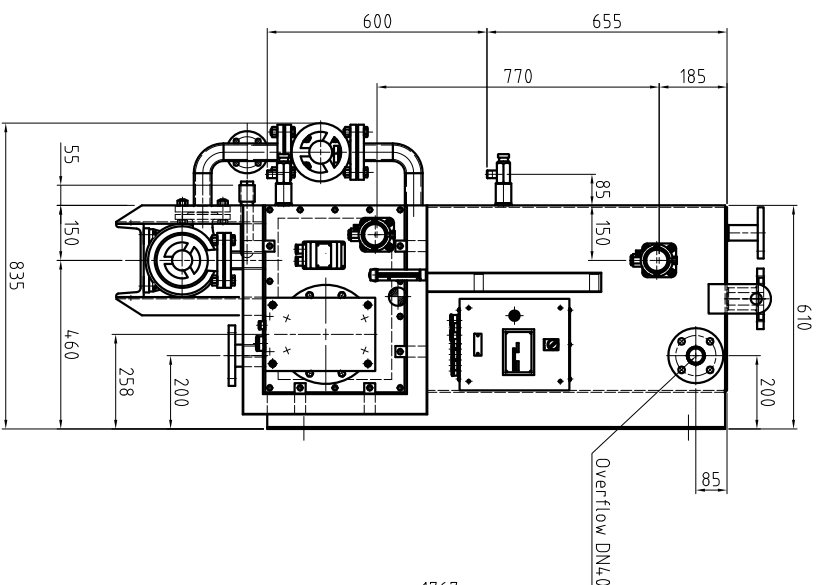
MATERIAL :
FLANGES: CARBON STEEL
BELLOWS : STAINLESS STEEL, TYPE 321
THICKNESS : 0,3mm X 2 PLY

Weight: 20 Kg.

UNLESS OTHERWISE SPECIFIED:
Tolerances: NS-ISO 2768-1-m

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Date 12.08.2008	Drawn by LF	Traced by	Scale 1:5	<div> <div></div> <div>Teamtec</div> </div> <div> <div>Tvedestrand - Norway</div> <div>Replaced of</div> </div>	
Checked by	Srd. checked by	Approval	Format A3		
Expansion Compensator DN 300				Replacement for	Replaced of
Project	Reference	File name 3009565	Plot date	Article no. 3009565	Page -
3009565				Rev.	



Note: All Flanges DIN 2501

☉ = CENTER OF GRAVITY

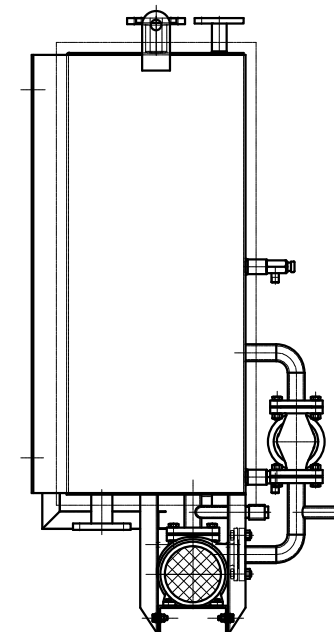
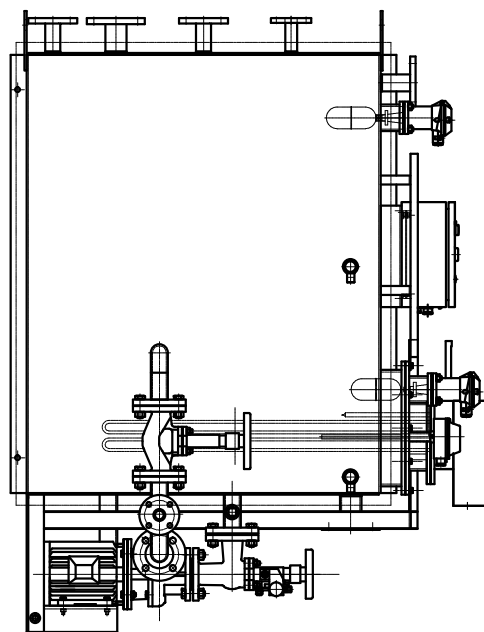
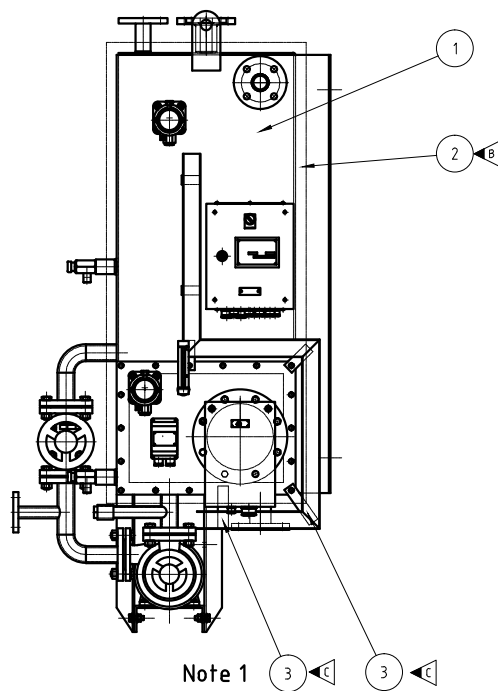
Dry Weight: 365 Kg.

Operating Weight: 786 Kg.

UNLESS OTHERWISE SPECIFIED:
Tolerances: NS-ISO 2768-1-m

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DATE	Drawn by	Traced by	Scale	Project	Reference	File name	Plot date	Project no.	Page
03.03.2010	MJM		1:10		SD	2008577			
Checked by	Sld. checked by	Approval	Format	Main Dimensions Sludge Tank w/Electrical Heater 435 L Net. For DN 25 Ring Line					
A2			A2						
				2008577					
				Teamtec Tecktrand - Norway Replaced for Replaced of Rev					



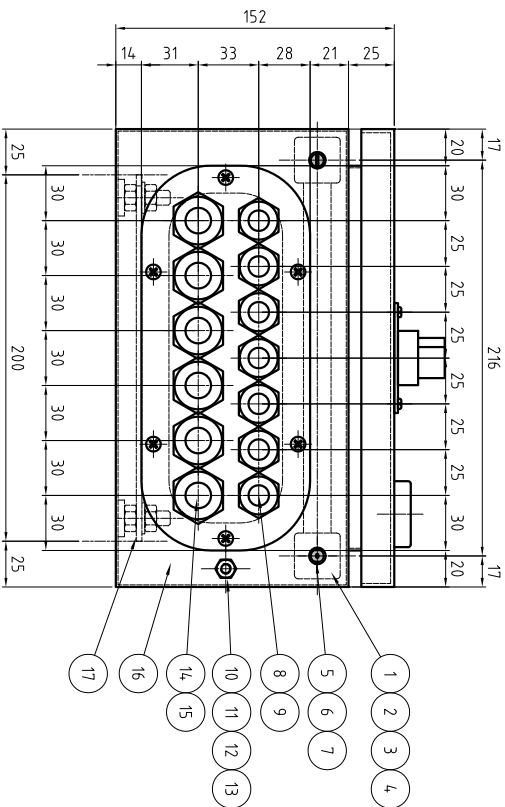
Note 1: Art. No. 9774 is to be replaced by Pos 3

Weight: 420 Kg.

C	2	Pos 3 added. Cable Bridge redrawn.	TP	01.08.2007
B	1	Art. no. 3008764 was 14922	MIM	21.03.06
A		Art.Nr. 14922 was 14022	LIC	08.09.2005
Rev.	Nos	Changing	Name	Date
This drawing and the design is our property and must not be disclosed to any third person without permission.				
UNLESS OTHERWISE SPECIFIED: Tolerances: NS-ISO 2768-1-m				

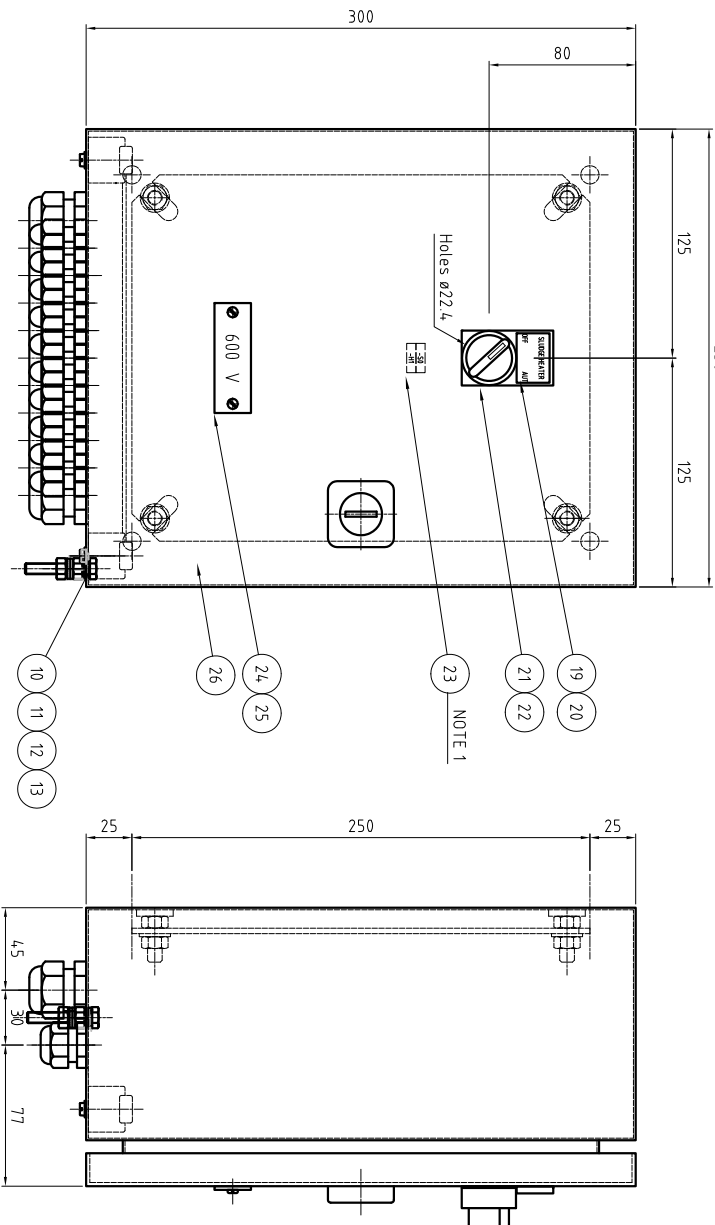
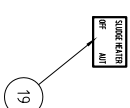
3	2	Bracket for Cable Bridge, L=123	4007917		0.09	4007917
2	1	Insulation and Plates Assembly, 435 L Sludge Tank	3008764		53.20	3008764
1	1	Sludge Tank Assy. 435L, El. Heating	2007230		359.58	2007230
Item	Qty.	Description	Standard	Material	Weight	Article No
Date	16.03.2005	Drawn by	MIM	Traced by	Scale	1:10
Checked by		Std. checked by		Approval	Format	A2
Sludge Tank Assy. 435L w/ Pl. and Insul.						
Electrical Heating						
Project				Reference	File name	Plot date
					2007300	
Article no.				Page	Rev.	
2007300				-	C	





NOTE 1: Labels, inside of door

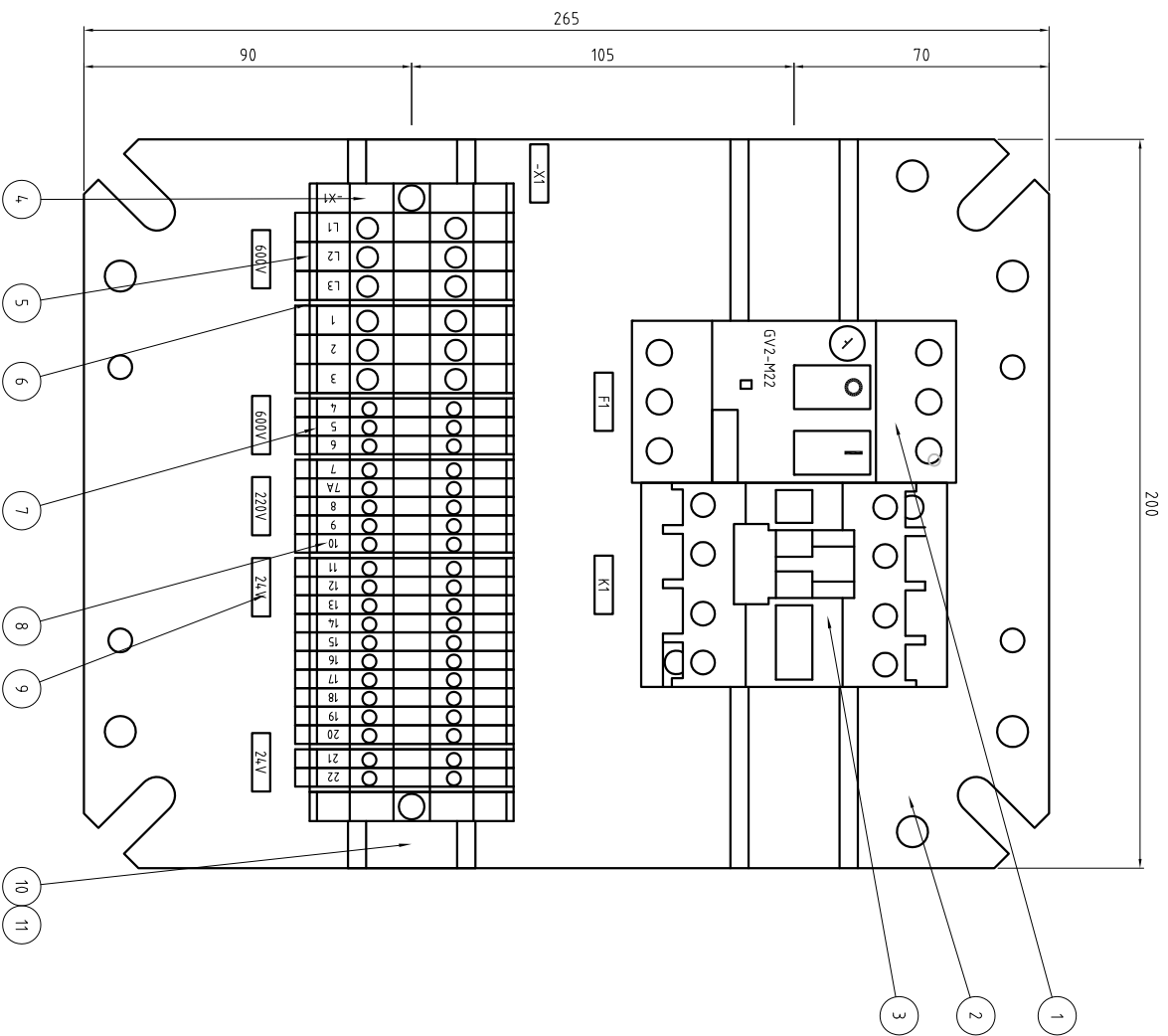
Weight: 5.7 Kg.



26	1	Electrical Diagram Sludge Tank with ElHeat, 600V-220V 60Hz	3010068	0.00	3010068	
25	2	Screw, self tapping, 2.9x6.5	NS 1833	0.00	4.931	
24	1	Name plate 600V	4.007215	0.00	12902	
23	1	Labels 5x16 Brady	16174760000	0.00	4.838	
22	1	Selector switch actuator, green	Telemec. ZB4-BK1233	0.01	10870	
21	1	Switch Body w/cont bl. NO GN	Telemec. ZB4-BW0M31	0.00	10869	
20	1	Legend plate holder, 30x50	Telemec. ZBZ-33	0.00	12415	
19	1	Legend Plate InsSludge Heater ON/AUTO	4.007221	0.00	4.007221	
17	1	Warning Plate Sludge Tank with ElHeat, 600V-220V 60Hz	20094.27	0.00	20094.27	
16	1	Enclosure, 300x250x150	ACM-GV32515	3.16	9815	
15	6	Nut, gray, M20		0.00	12595	
14	6	Cable gland gray M20 7-14		0.02	12590	
13	1	Bolt, hex M6x35	Brass	0.01	12614	
12	3	Washer, 6	Brass	0.00	12616	
11	1	Washer, Lock Teeth, 6.4 ELzn	DIN 6798A	0.00	12617	
10	2	Nut, hex M6	Brass	0.00	12615	
9	7	Nut, gray, M16	Schlenner	0.01	11709	
8	7	Cable gland, gray M16, 3.5-10		0.01	11709	
7	2	Nut, hex M4, ELZn	ISO 4032	0.00	14.41	
6	2	Washer, 4 ELZn	ISO 7089	0.00	5568	
5	2	Screw, Cheese Head M4x10 ELZn	ISO 1207	4.8	0.00	4.277
4	10	Washer	Weidmüller	St.	0.00	4.579
3	10	Screw (M5x8)	Weidmüller	BS	0.00	4.580
2	1	Earth Rail NSch 15x2, 2x3mm	Weidmüller	Nsch 15x2	0.01	6.279
1	2	Railholder, SH1PA	Weidmüller	SH1PA	0.01	4.275
Item Qty.		Description	Material	Weight	Article No	
23 07 2014		Drawn by KK	Traced by	Scale	1:1	
Checked by		Std. checked by	Approval	Format	A2	
Control Panel 600V - 220V						
Sludge Tanks w/El. Heater						
Project Reference				File name	20094.26	Part name
20094.26				Article no.	20094.26	Page
20094.26				Replaced for	Replaced of	Rev
20094.26				Tracked and - Norway		

UNLESS OTHERWISE SPECIFIED:
Tolerances: NS-ISO 2768-1-m

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UNLESS OTHERWISE SPECIFIED:
Tolerances: NS-ISO 2768-1-m

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be disclosed to any third person without permission.

Weight: 2 Kg.

11	8	Blind rivet, $\phi 4 \times 10$	St.	0.01	4,267	
10	2	Mounting Rail, TS 35/7.5, 200 mm	DIN 46277	0.40	14,533	
9	1	Labels 5x16, Brady	Brady	0.00	4,838	
8	1	Making set Terminal clamps Weidmüller WDU 25	Weidmüller	0.00	160,986	
7	20	Terminal Clamp 2.5mm ²	WDU 2.5	0.01	504.1	
6	6	End Plate	WAP 2.5-10	0.00	504.3	
5	6	Terminal clamp	Weidmüller	WDU 6	0.01	94,06
4	2	End Bracket	WEW 35/2	0.01	504.0	
3	1	Starter contractor, 32A	Telemec.	LC1-D32P7	0.53	85,77
2	1	Mounting Plate, 200x265 T=2	Telemec	ACM-PE325	0.00	9785
1	1	Circuit Breaker, 20-25A	Telemec.	GV2-M22	0.26	6819
Item Qty.		Description	Material	Weight	Article No.	
Date		Drawn by	Traced by	Scale		
23.07.2014		KK		1:1		
Checked by		Sfd. checked by	Approval	Format		
				A2		



Teatronic
Tiedestrand - Norway

Mounting Plate with EL Components
Sludge Tank w/EL Heater
600V - 220V

2009427

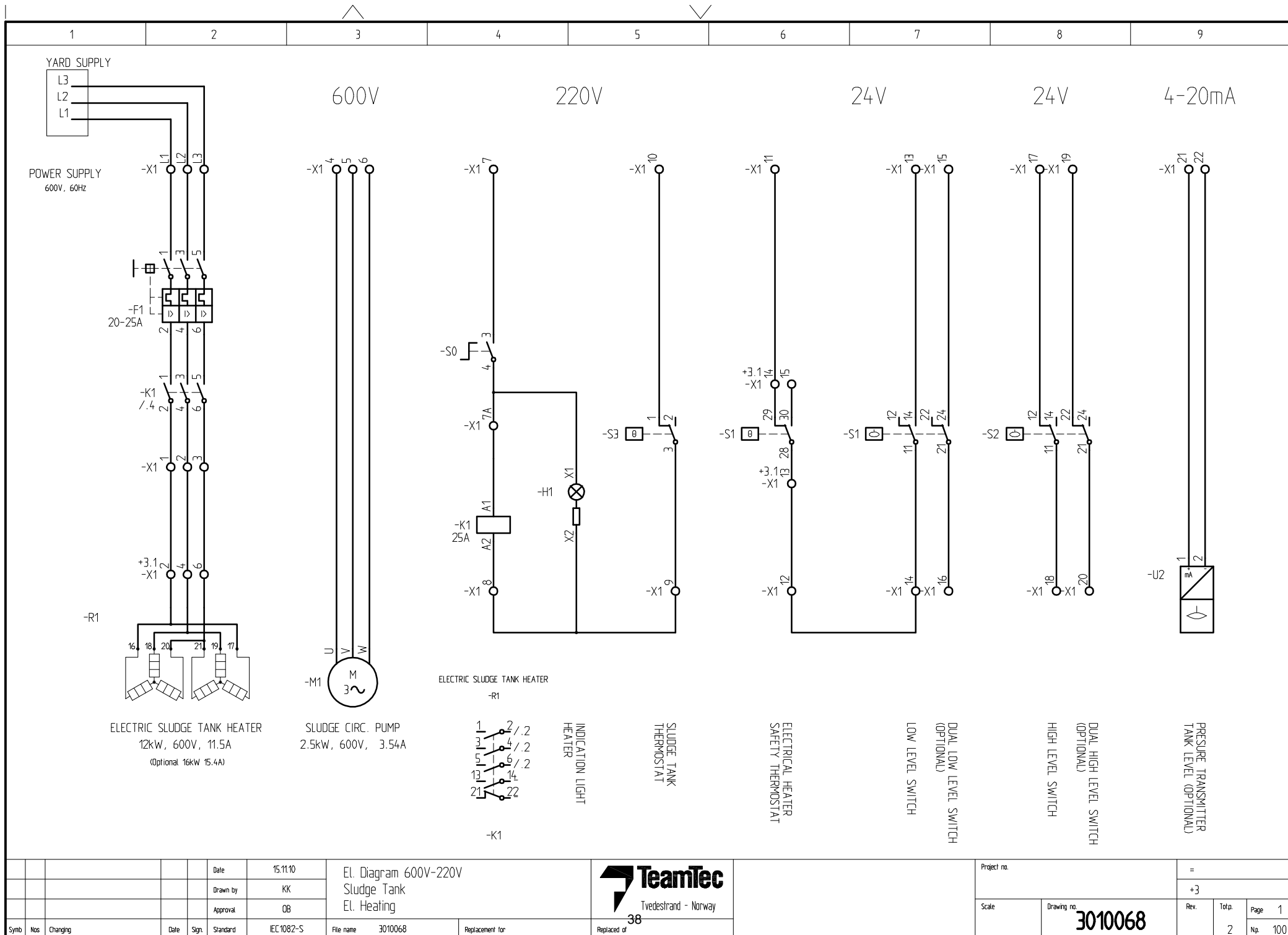


Teantec

Teantec - Norway

Replaced of

Rev



Installation and commissioning guide for

TEAMTEC INCINERATORS

Type OG200/400C

INDEX

1.0	General requirements to installation of incinerators
2.0	Location of incinerator
3.0	Supplied items from manufacturer
4.0	Required additional installation materials
5.0	Combustion chamber installation
6.0	Diesel oil piping system
7.0	Sludge oil and steam/air piping system
8.0	Drain piping
9.0	Electric panel installation
10.0	Flue gas fan installation
11.0	Flue gas damper installation
12.0	Temp. sensor installation
13.0	Electric wiring
14.0	Thermal insulation
15.0	Sludge Tank
16.0	Commissioning

1.0 General requirements to installation of incinerators type OG200/400 C

The classification societies have specific rules for installation of incinerators. In most cases the societies are using the rules applying for oil fired boilers.

We quote from the rules :

INSTALLATION

Incinerator

Incinerators and boilers for sludge oil may be installed in the engine room or in a separate room. Incinerators for garbage installed in the engine room are to be screened with due attention to size and location of the incinerator. If incinerators are installed in a separate room outside the engine room, bulkheads and decks of this room are to be approved as class "A" divisions having an insulating value of 60 minutes (as defined in SOLAS 1974) if adjacent to accommodation, oil tanks, cargo, etc.

If incinerators are installed in a separate room, the room is to have mechanical ventilation, automatic fire detecting and an approved fire-extinguishing system, operated from an easily accessible place outside the room. Stop of ventilation, oil burner and oil-booster pumps is also to be arranged outside the room. Ventilating ducts shall be possible to close by means of flaps.

Smoke-uptakes and surfaces of incinerators are not to be less than 500 mm from cargo, oil tank, or accommodation bulkheads.

Smoke-uptake and exhaust pipe are to be insulated and are to be located well away from electrical installations and inflammable items. Exhaust pipes in the casing are to be led to the top of the funnel.

Exhaust uptakes from incinerators, which are installed in separate rooms outside the engine room, are to be approved in each case.

Drip tray with drain to the sludge-oil tank is to be fitted under the burner.

Garbage chute

Any garbage-chute in the ship is to be provided with smoke-detector(s), fire-extinguishing equipment and walls with class "A" insulation (as defined in SOLAS 1974).

Unquote.

Therefore before proceeding with installation planning, check with your classification society to have their comment at this early stage.

2.0 Location of Incinerator

Having in mind para. 1.0 the following additional criteria have to be brought into your consideration :

- 2.1. Necessary space for the equipment.
 - 2.2. Easy transport of waste.
 - 2.3. Diesel oil supply.
 - 2.4. Sludge oil supply.
 - 2.5. Steam/air supply.
 - 2.6. Electrical supply.
 - 2.7. Flue gas uptake.
 - 2.8. Air supply.
-
- 2.1. The main dimension drawing for the individual incinerators clearly indicate the minimum and recommended space around the combustion chamber. The flue gas fan can be installed anywhere in the flue gas duct system
 - 2.2. The access to the incinerator should be as easy as possible in order to motivate the crew for using it.
 - 2.3. The particulars for diesel oil supply/return is listed in Piping & Instrument Diagram.
A ring line system w/circulating pump is an alternative to direct connection to a tank. It should be noted that the class societies require means to close the fuel valves from control station.
 - 2.4. See Piping & Instrument Diagram.
We recommend our special made sludge oil tank, which is equipped with a circulating pump, steam heating coil (electric heating coil as option) high and low level switches, quick closing valve, thermostat, solenoid valve (for steam heated tank) and 2 ea. check valves for level indication. A ring line system and two shut off valves, is recommended. See Piping and Instrument Diagram.
Means is required for closing fuel valves from control room.
 - 2.5. Steam is recommended for atomizing of the sludge burner and heating coil on the sludge oil tank.
If steam is not available, compressed air can be used for atomizing the sludge burner. See Piping & Instrument Diagram.
 - 2.6. The particulars for electric supply also appears in Piping & Instrument Diagram and Cable Arrangement.

-
- 2.7. The flue gas uptake, materials and size also appear in same appendix. Attention must be paid to the thermal expansion of steel ducts being exposed to temperatures up to 375° C which means an expansion at about 4 mm per 1 m straight ductwork. Expansion compensators must be fitted in areas where this expansion cannot be allowed. For the flue gas fan inlet/outlet expansion compensators must be fitted. It is also recommended to have a water trap w/drain in the duct system in order to prevent rain entering the incinerator.
 - 2.8. The incinerator has a max. air consumption listed in Piping & Instrument Diagram - make sure that the ventilation system can provide this amount.

3.0 Supplied items from manufacturer

- 3.1. Combustion chamber incl. counter flange for flue gas outlet and oil connections.
- 3.2. Flue gas fan incl. counter flanges for inlet/outlet and flue gas thermocouple
- 3.3. El. panel ready mounted on combustion chamber.
- 3.4. Flue gas damper w/counter flanges.
- 3.5. Sludge oil tank (Optional).

4.0 Required additional installation materials

- 4.1. El. cables acc. to Cable Arrangement - length according to the actual installation.
- 4.2. Cable bridge w/fasteners
- 4.3. Piping w/fittings for diesel oil system and sludge oil system. Pipes w/fittings for steam/air atomizing system, and heating system on sludge oil tank.
- 4.4. Steel parts for eventual foundation of combustion chamber and flue gas fan.
- 4.5. Flue gas ductwork w/necessary bends.

- 4.6. 2,5 m of heat resistant duct from the incinerator outlet. (Size acc. to Piping & Instrument Diagram.)
- 4.7. Thermal insulation for ductwork/flue gas fan. (The extension of the insulation to be indicated by the relevant classification society.)
- 4.8. Expansion compensators - 1 for each of the flue gas fan inlet/outlet - further acc. to the actual installation (see para. 2.5.)
- 4.9. Emergency stop switch.

5.0 Combustion chamber installation

The combustion chamber can be bolted or welded to the deck.
Some classification societies requires a small cofferdam around the combustion chamber having oil burner to prevent oil spill in case of leakage on the diesel and sludge piping system.

6.0 Diesel oil piping system

The diesel oil system, one supply line and one return line, to be connected to a diesel oil tank or to a circulating pump (booster pump).
See Piping & Instrument Diagram for pressure limitation and pipe sizes for the supply/return system.
The Incinerator has DN15 flanges for connection of diesel oil.
Manual isolating valve on suction line should be installed. It is also recommended to have a filter on the diesel oil supply line.
Flanges are marked for connections for both supply and return line.

7.0 Sludge oil and steam/air piping system

From sludge oil tank circulating pump. The hourly capacity of pump is recommended to be at least 1 - 2 times larger than tank volume, in order to have a well mixed oil from the tank. It is essential that the tank has a possibility for drainage of water. Install a pipeline from circulating pump to the Incinerator and back to the tank. In the ring system, there should be installed isolating valves for both supply and return line (see the arrangement diagram). Dimensions according to Piping & Instrument Diagram.

Steam/air piping. A manual isolating valve is recommended on the steam/air line before the Incinerator connection. The steam consumption is approx 20 kg/h at a pressure of 6 - 8 bar. For pipe size, see Piping & Instrument Diagram. If steam is not available on the ship, compressed air can be used instead. Consumption and pressure as above.

8.0 Drain piping

From spill collector a pipeline must be installed to lead the oil and water away. Connection size : See Piping & Instrument Diagram.

NOTE ! All pipelines, ductwork and flue gas fan must be cleaned before putting into operation.

9.0 Electric control panel (ECP) installation

The electric supply to the ECP to be connected to the main switch, Q1. Size of cables for ECP/terminal box on incinerator is listed in Cable Arrangement.

10.0 Flue gas fan installation

The flue gas fan to be installed after the flue gas damper. Both inlet and outlet should have expansion compensators to compensate for the thermal expansion of the ductwork.

The foundation must be plane and it may be installed on the deck or on a bracket fixed to a bulkhead.

11.0 Flue gas damper

The damper to be fitted in the flue gas uptake between the incinerator and the flue gas fan. It must not be installed closer than 2,5 m from the flue gas outlet on the incinerator.

12.0 Temp. sensors

The temperature sensors and transmitters are ready mounted on combustion chamber and the flue gas fan housing.

13.0 Electric wiring

The wiring to be made acc. to the relevant arrangement diagram and terminal diagram for the actual type of incinerator.
Details on the electric wiring system also appears on Cable Arrangement.

In general the following cables are to be drawn :

Electric supply 380/440 V w/fuses to the ECP.
Cable from ECP to the flue gas fan.
Cable from ECP to flue gas thermocouple junction box on flue gas fan
Cable from ECP to sludge circ. pump/sludge tank junction box.
Cable from ECP to sludge tank junction box.
Cable from ECP to a remote emergency stop switch.
Cable from potential free contacts in the ECP to a remote alarm.
Cable from potential free contacts in the ECP to a remote running signal.
Cable from ECP to flue gas damper motor.

14.0 Thermal insulation

The flue gas uptake incl. the flue gas fan to be insulated acc. to the requirements from the relevant classification society. In general this means that all hot surfaces on the uptake that may cause injuries to the personnel have to be insulated.
The max. temperature on the flue gas is 375° C. It is recommended to install heat tracing on sludge ring line.

15.0 Sludge Tank

The sludge tank is normally supplied without insulation. Sludge oil vary in composition and quality. We therefore recommend operating temperatures between 80 and 90 °C.
Please note that for temperatures above 60 °C the sludge tank must be insulated in accordance with class requirements.
NOTE ! The sludge tank must be installed on the same level as the Incinerator, or lower.

16.0 Commissioning

- 16.1. The Emergency stop switch to be set in closed position. If the switch is not installed, fit a link between the actual terminals in ECP - see the electrical diagram.
- 16.2. Check the running direction for both the flue gas fan and burner. Arrows are fitted indicating the correct rotation direction.
- 16.3. Normal diesel oil pressure is min. 16 bar.
- 16.4. When starting the incinerator the flue gas fan automatically runs for about 1 min. before burner ignition.
- 16.5. When shutting off the incinerator the flue gas fan automatically keeps running until the temp. in combustion chamber is lower than 170 °C.
- 16.6. See the relevant "Instruction for Operation", either on the Incinerator or in the technical manual.