

Authorized Specialists

manual

Technical Documents

Volume 2

Self-Service MultiTerminal 300299-DE/UK-A

English



MultiTerminal DUO 5in1



MultiTerminal DUO 4in1



MultiTerminal DUO 6in1

Self-Service MultiTerminals optional MONO / DUO

Declaration of Conformity

Manufacturer: Ehrle GmbH
Address: Industriestraße 3
D – 89165 Dietenheim
Product: MultiTerminal
Type: 4in1 Tire Shine, 4in1 Tire Inflator
5in1 Tire Inflator and Tire Shine
6in1 Tire Inflator, Tire Shine, Fragrance Sprayer

The product is in conformity with the European Directives

Relevant EC Directives:

2004/108/EC
2006/42/EC
2014/68/EU
2014/35/EU
2014/30/EU

Applied harmonized standards:

EN 60335-1
EN 60335-2-79
ISO 12100:2013-08
EN 61000-3-2:2019-12
EN 61000-3-3:2008
EN 55014-1:2006+A1 2009+A2: 2011
EN 55014-2:2015
EN 61000-3-11: 2021-03

Conformity procedures applied:

2000/14/EG: Annex V

This product conforms to
the following directives:

UK UK
CA NI

CE

Dietenheim, 01.07.2025

Development



Christoph Nöldner
Head of Development



Reiner Ehrle
CEO



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1.1 MultiTerminal 4in1

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Fig. 1 - 1 Title page MultiTerminal 4in1, circuit diagrams (page 1 of 20)

Table of content for circuit diagrams

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Fig. 1 - 2 Table of content circuit diagrams MultiTerminal 4in1 (page 2 of 20)

Supply voltage 3 x 400 VAC

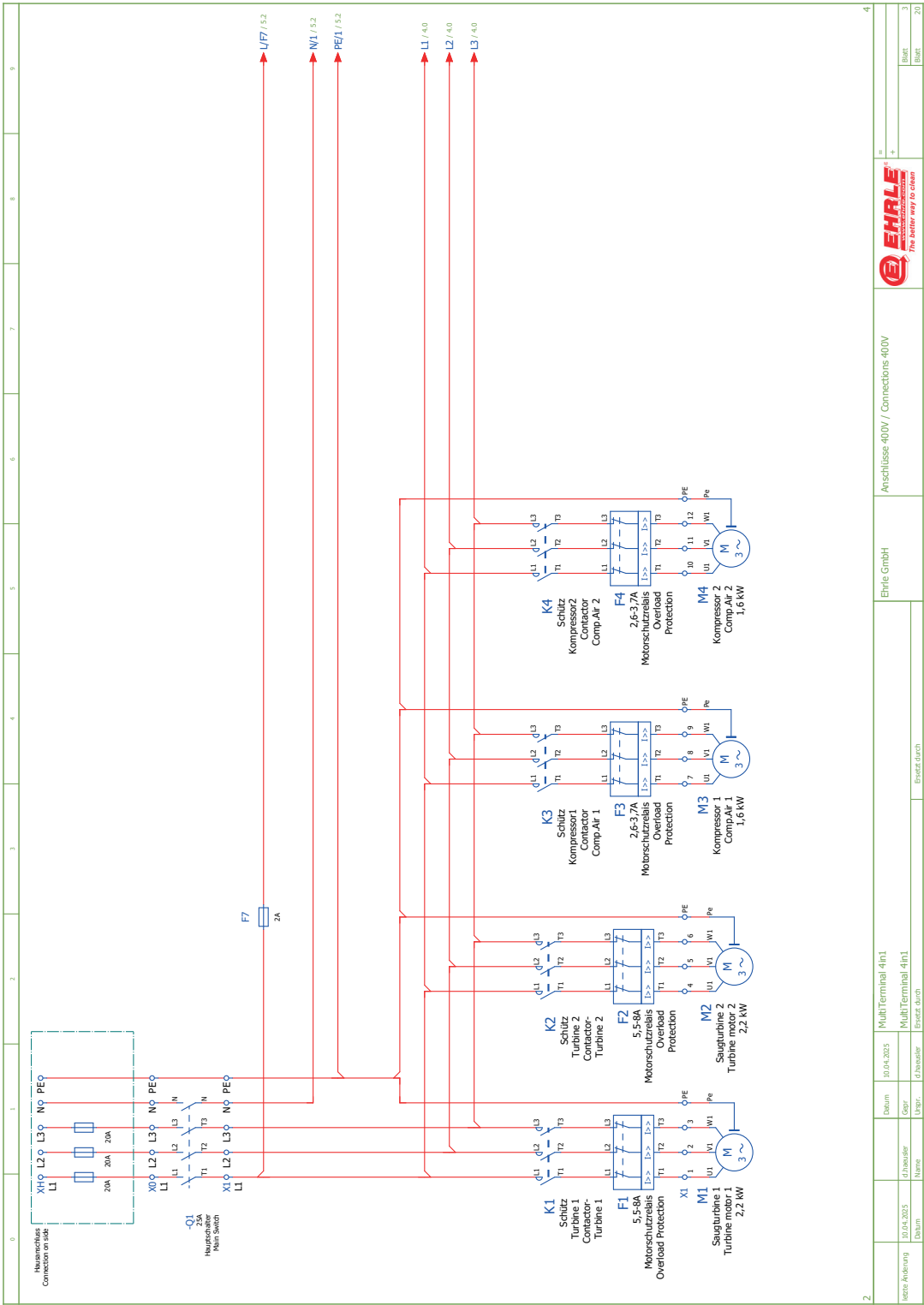


Fig. 1 - 3 Supply voltage 3 x 400 VAC MultiTerminal 4in1, circuit diagram (page 3 of 20)

Supply voltage 230 VAC

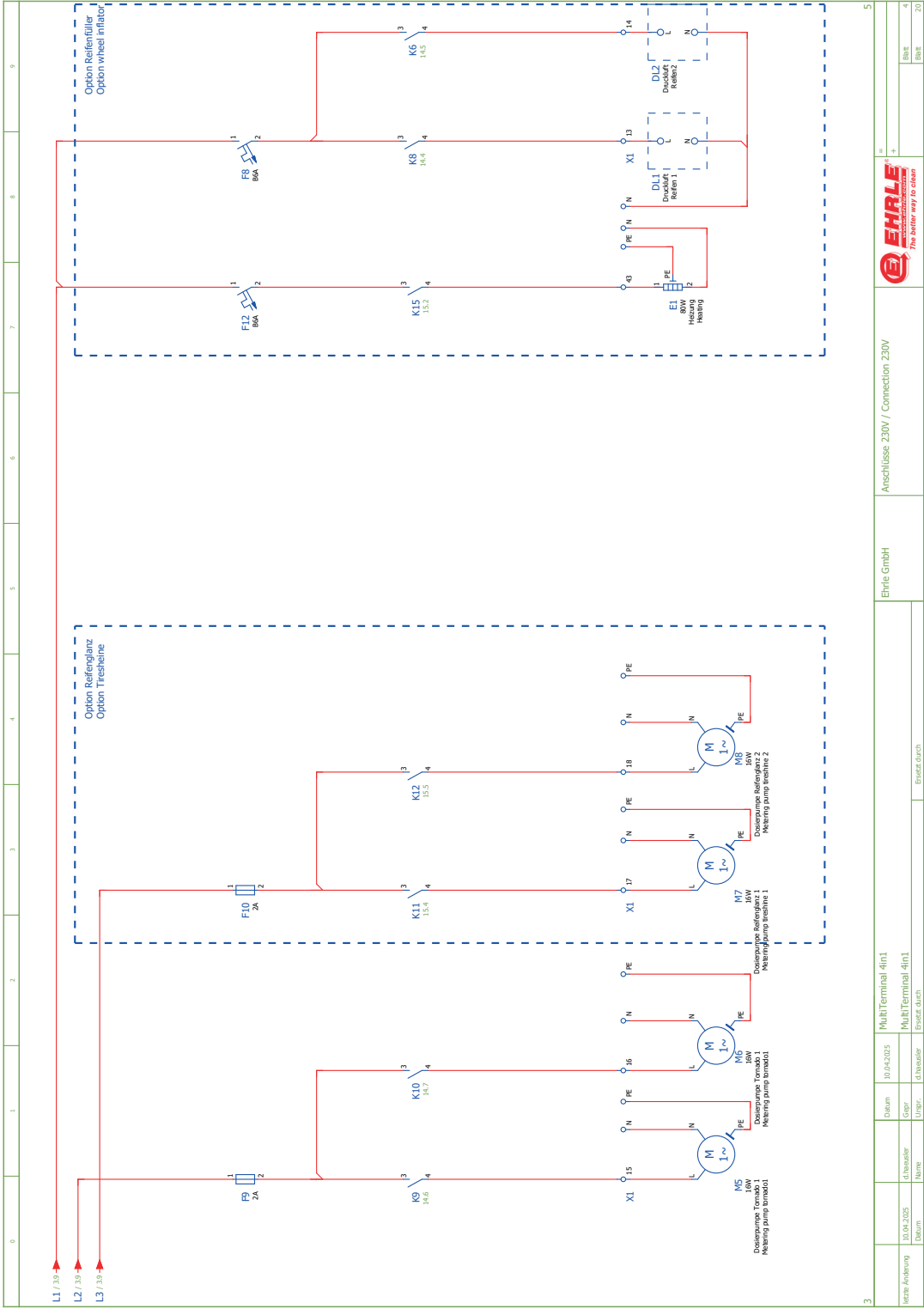


Fig. 1 - 4 Supply voltage 230 VAC MultiTerminal 4in1, circuit diagram (page 4 of 20))

1 Circuit diagrams

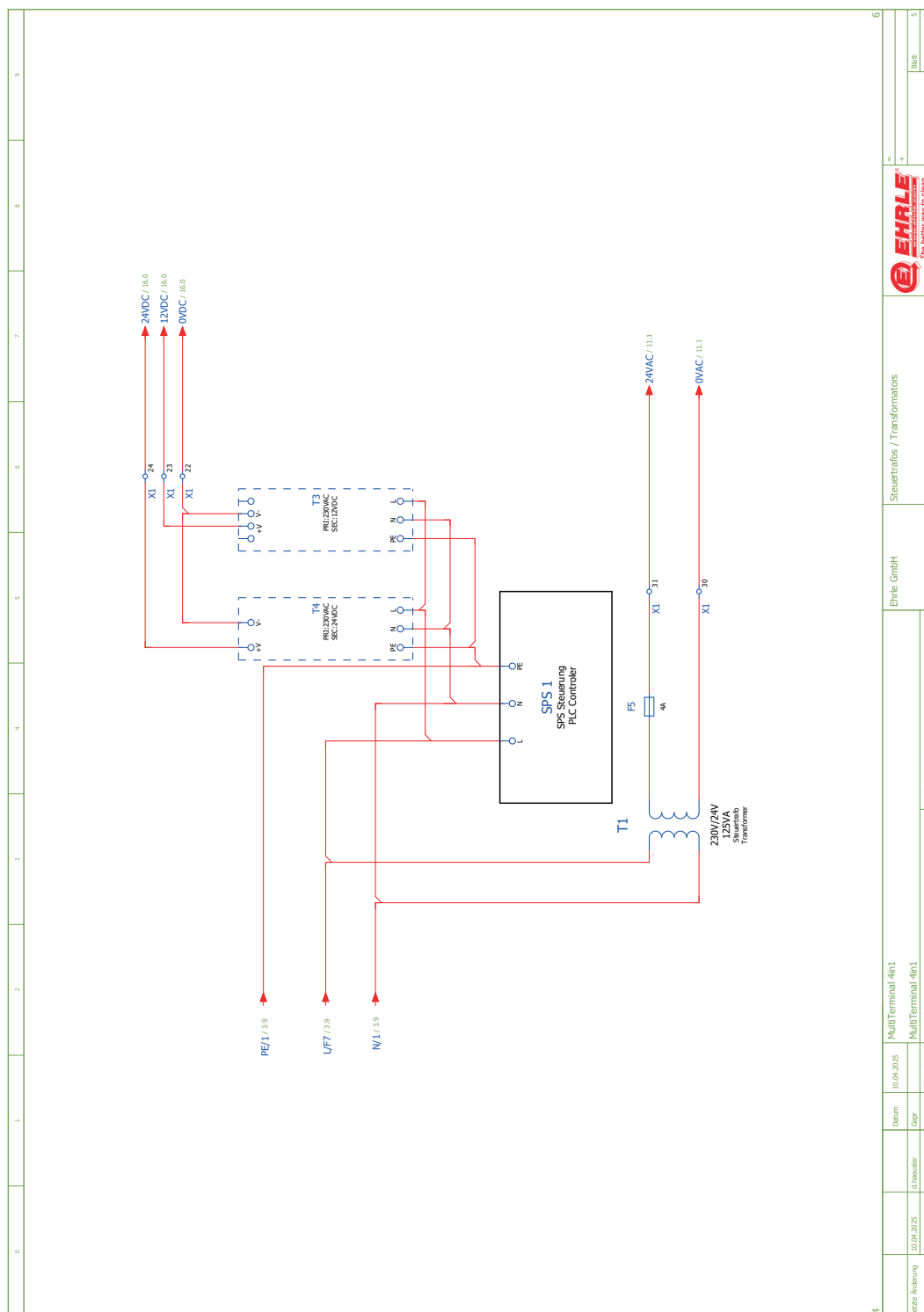
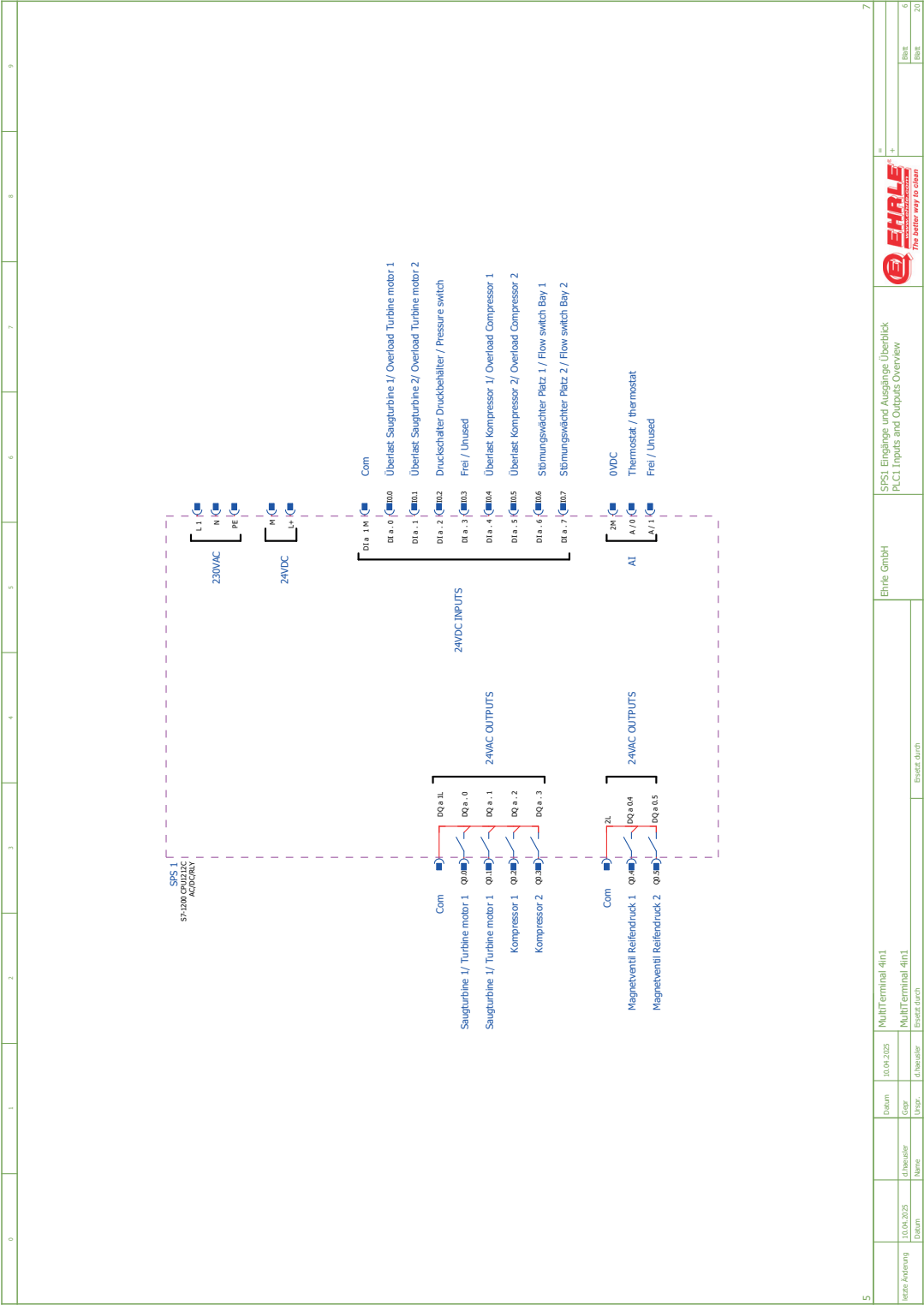
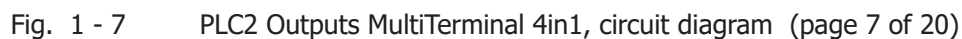


Fig. 1 - 5 Transformers MultiTerminal 4in1, circuit diagram (page 5 of 20)

PLC1 Inputs and Outputs



1 Circuit diagrams



1 Circuit diagrams



2

PLC1 Analog Inputs

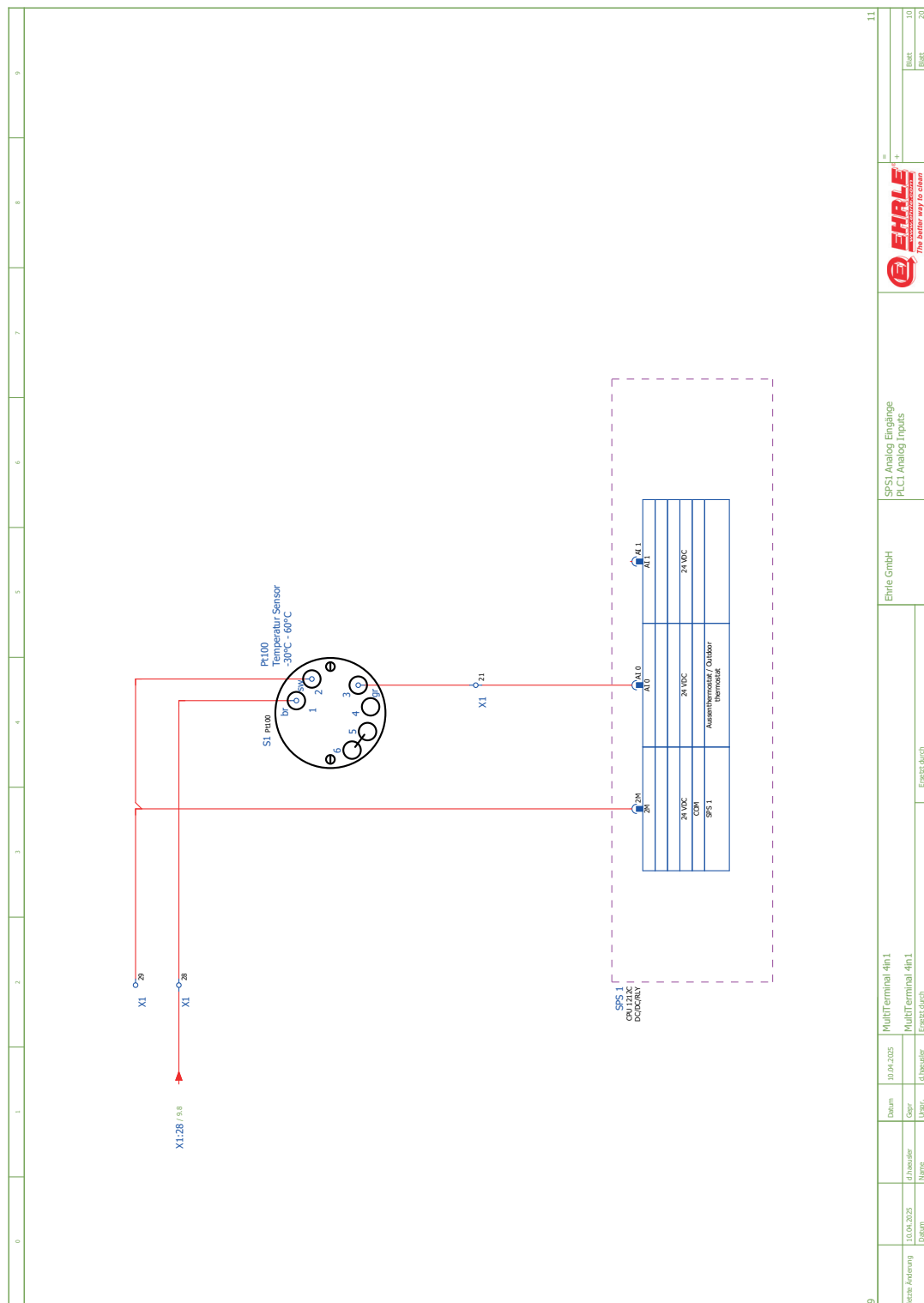


Fig. 1 - 10 PLC1 Analog Inputs MultiTerminal 4in1, circuit diagram (page 10 of 20)

PLC1 Digital Outputs

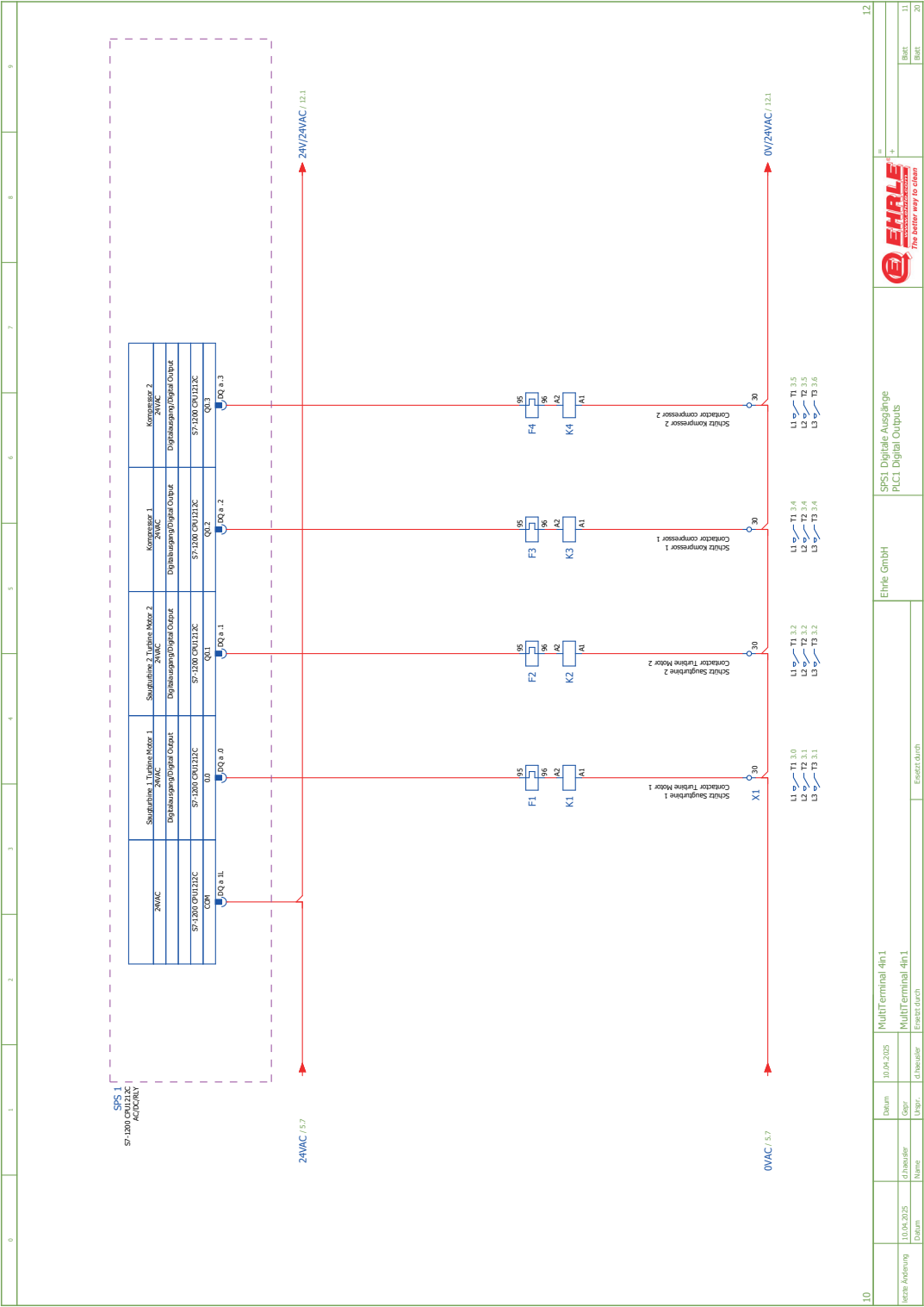


Fig. 1 - 11 PLC1 Digital Outputs MultiTerminal 4in1, circuit diagram (page 11 of 20)

PLC1 Digital Outputs

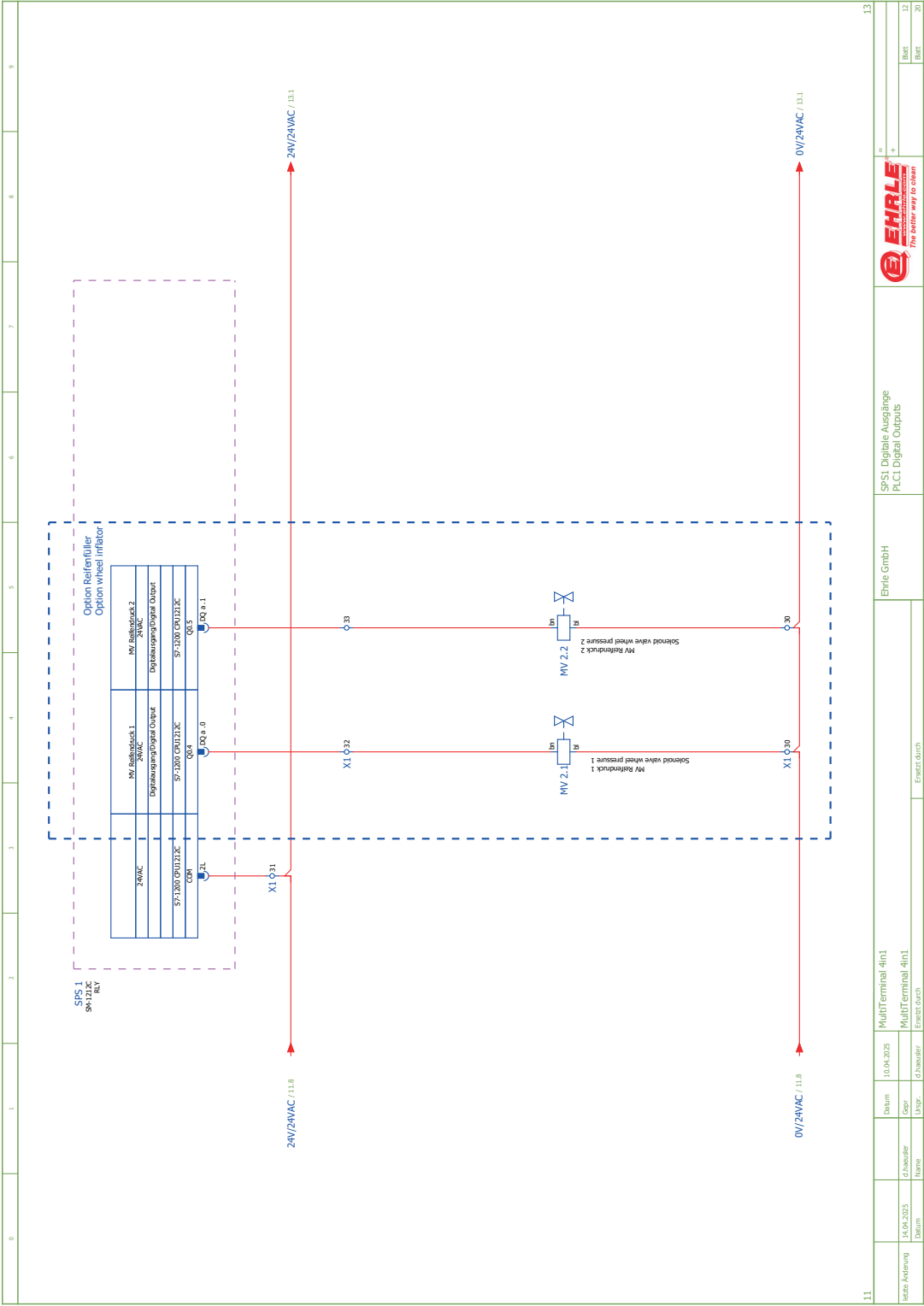


Fig. 1 - 12 PLC1 Digital Outputs MultiTerminal 4in1, circuit diagram (page 12 of 20)

PLC2 Digitale Outputs

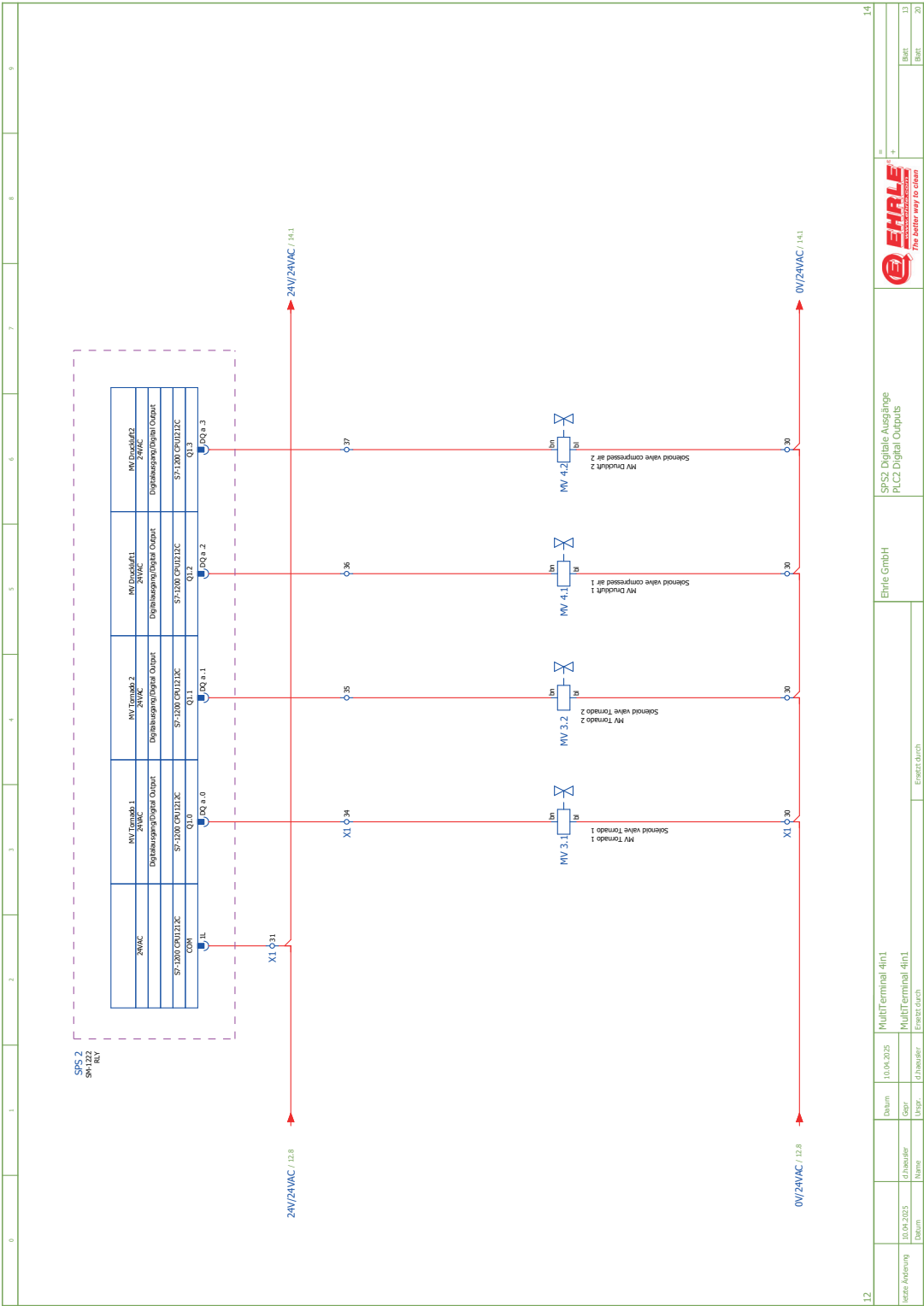


Fig. 1 - 13 PLC2 Digital Outputs MultiTerminal 4in1, circuit diagram (page 13 of 20)

1 Circuit diagrams



PLC2 Digital Outputs

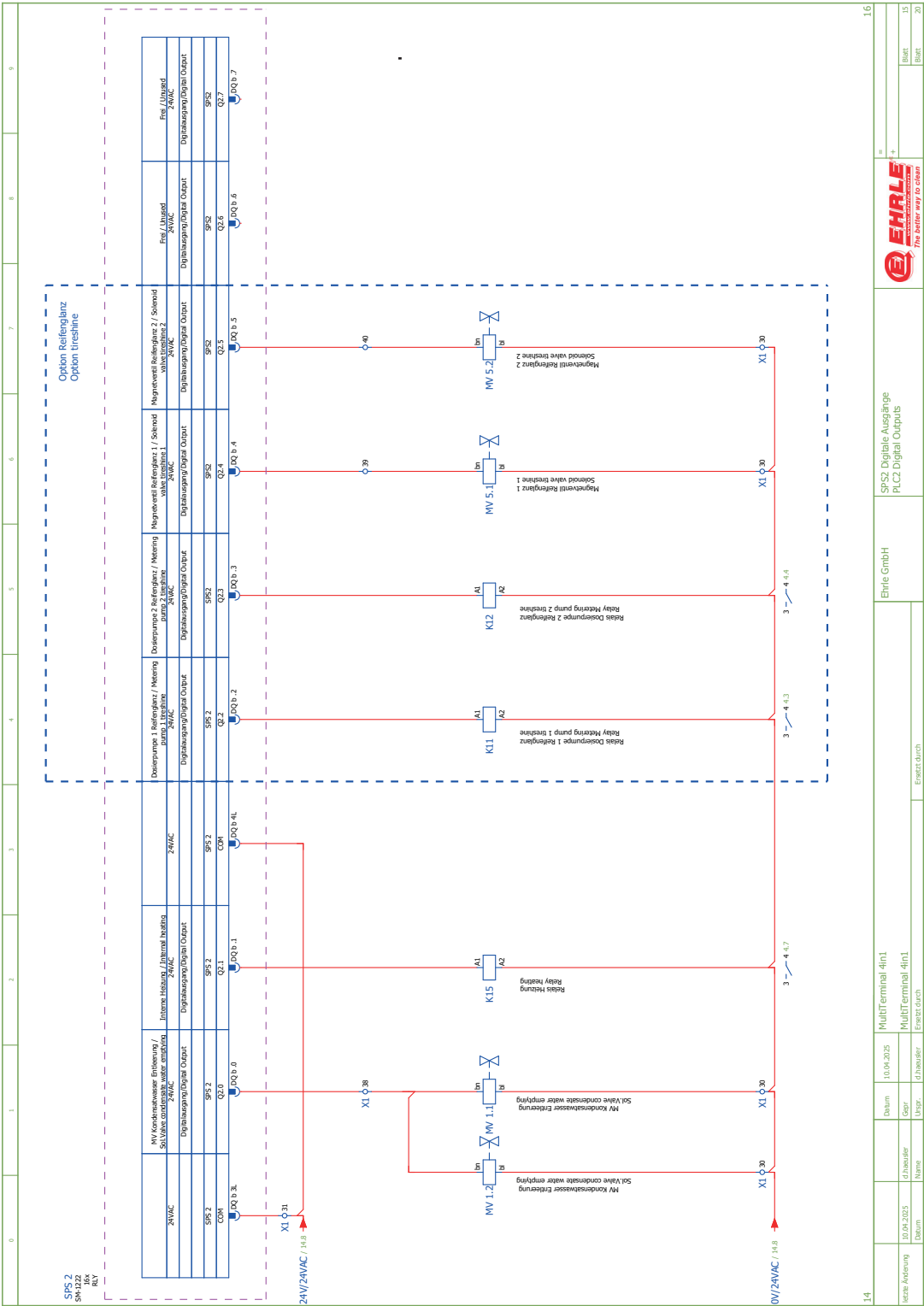
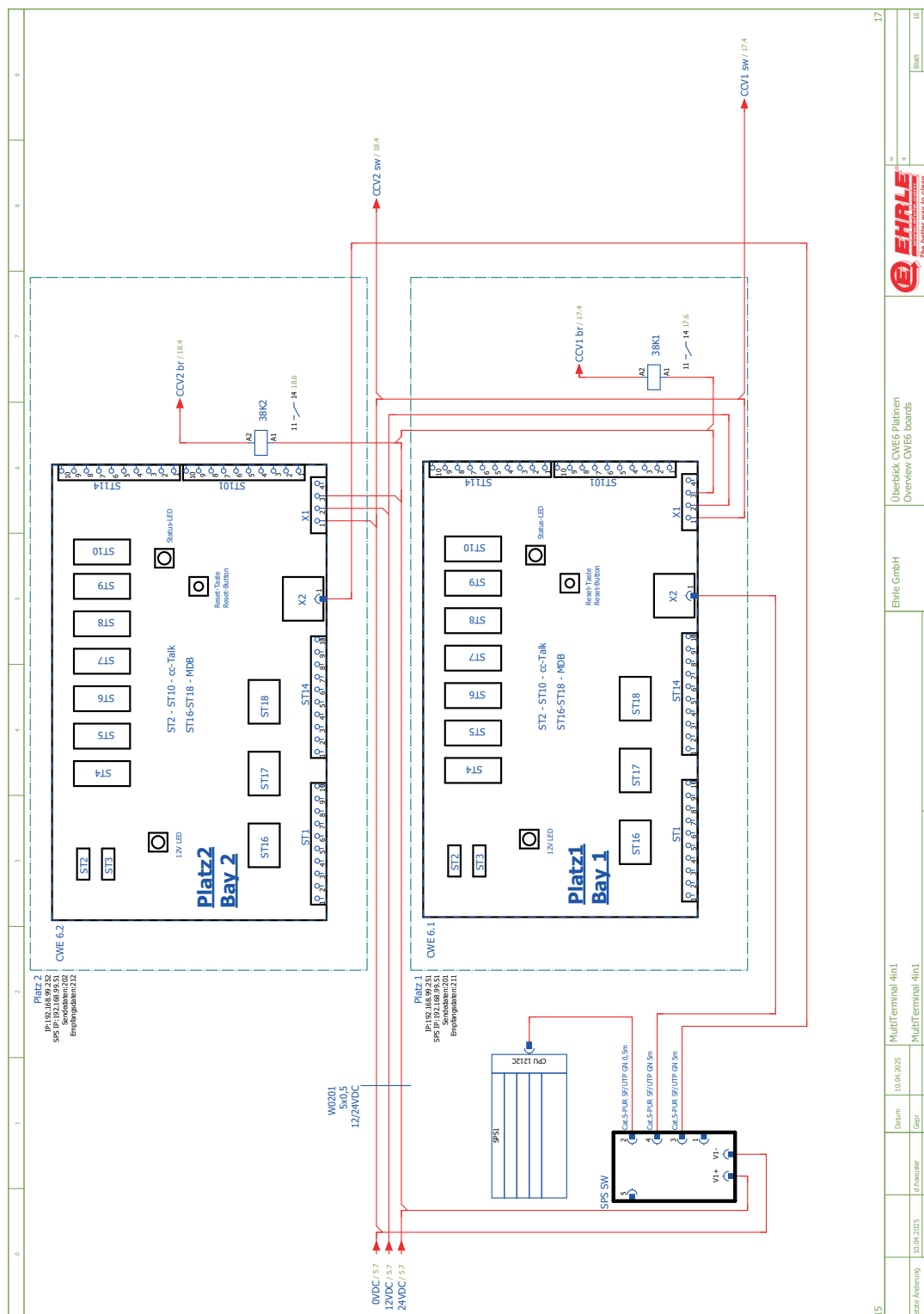


Fig. 1 - 15 PLC2 Digital Outputs MultiTerminal 4in1, circuit diagram (page 15 of 20)

1 Circuit diagrams



300299 • 1/2025 • H.S.

1 Circuit diagrams



CWE6 Bay 2

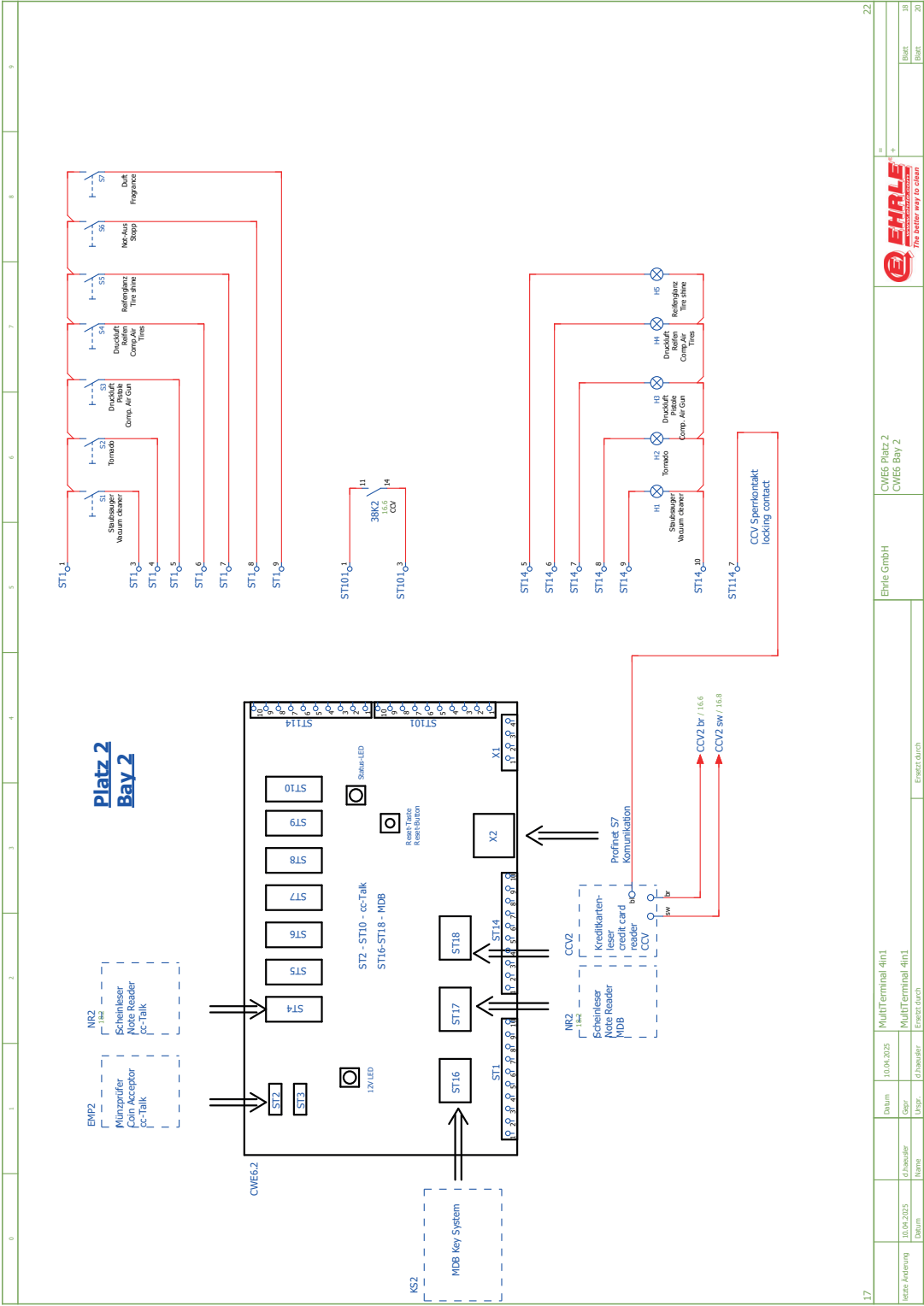


Fig. 1 - 18 CWE6 Bay 2 MultiTerminal 4in1, circuit diagram (page 18 of 20)



Parts list

0	1	2	3	4	5	6	7	8	9
Artikelstückliste									
Bezeichnung	Artikelnummer	Menge	Benennung (BHK)	Schaltplan / Position	F01_005				
Münzprüfer elektronisch CC-Tak	53308	1	CCV1	3.0.1.1	Kopfelekt mit Fess. 24V BA	50565	1	K10	14.7
Münzprüfer elektronisch CC-Tak	53308	1	CCV2	18.2	Kopfelekt mit Fess. 24V BA	50565	1	K11	15.4
Steuerung CN16 12/24V	50560	1	OWB5.1	16.3	Kopfelekt mit Fess. 24V BA	50565	1	K12	15.5
Steuerung CN16 12/24V	50560	1	OWB5.2	16.3	Kopfelekt mit Fess. 24V BA	50565	1	K15	15.2
Druckgeber 400N 6/22bar, 127AG	56891	1	DP	8.6	Rechts-Koppel 2MS, BA AC24V	50565	1	38K1	16.7
Referenzgerät RVW Audio-Kanalgeber	525311	1	DL1	4.8	Rechts-Koppel 2MS, BA AC24V	50565	1	38K2	16.6
Referenzgerät RVW Audio-Kanalgeber	525311	1	DL2	4.9	Münzprüfer elektronisch CC-Tak	53308	1	K51	17.8
Hörung A44-Freq. 200K/AC20W	283707	1	EL	4.7	Münzprüfer elektronisch CC-Tak	53308	1	K52	18.0
Münzprüfer elektronisch CC-Tak	53308	1	BP1	17.1	Tulnue 2.2kW 5.6A 3AC 400V 50Hz	50800	1	M1	3.0
Münzprüfer elektronisch CC-Tak	53308	1	BP2	18.1	Tulnue 2.2kW 5.6A 3AC 400V 50Hz	50800	1	M2	3.2
Magnetrelais 5.5-8A LK2-K0314	21403	2	F1	3.0.11.4	Kohlenventilator Kompressor Einzel Multi Terminal	50805	1	M3	3.4
Münzprüfer elektronisch	5330	1	F1	8.4	Kohlenventilator Kompressor Einzel Multi Terminal	50805	1	M4	3.5
Magnetrelais 5.5-8A LK2-K0314	21403	2	F2	3.2.11.5	Magnet-Magnetrelaispumpe 30h	34908	1	M5	4.0
Münzprüfer elektronisch	5330	1	F2	8.5	Magnet-Magnetrelaispumpe 30h	34908	1	M6	4.1
Magnetrelais 2.7-3.6A	51801	1	F3	3.4	Magnet-Magnetrelaispumpe 30h	34908	1	M7	4.3
Münzprüfer elektronisch	5330	1	F3	8.8	Magnet-Magnetrelaispumpe 30h	34908	1	M8	4.4
Magnetrelais 5.5-8A LK2-K0314	21403	1	F4	11.5	Magnetventil DN10 0-1bar EPDM HS AC24V BW	53602	1	MV1.1	15.1
Magnetrelais 2.7-3.6A	51801	1	F4	3.5	Gerätekabine für MV 24V AC	5375	1	MV1.1	15.1
Münzprüfer elektronisch	5330	1	F4	8.9	Magnetventil DN10 0-1bar EPDM HS AC24V BW	53602	1	MV1.2	15.1
Magnetrelais 5.5-8A LK2-K0314	21403	1	F5	11.6	Gerätekabine für MV 24V AC	5375	1	MV1.2	15.1
Magnetrelais 5.5-8A LK2-K0314	21403	1	F5	11.6	MV DN10 CW Wasserdicht 0-1 Bar 24V X224	5369	1	MV2.1	12.4
Klemme Z51 2/3	28331	1	F6	5.4	Gerätekabine für MV 24V AC	5375	1	MV2.1	12.4
Steuerung 4A 16A 30A	281403	1	F6	5.4	MV DN12 5-10Bar 24V X261	5366	1	MV2.2	12.5
Klemme Z51 2/3	28331	1	F7	3.2	Gerätekabine für MV 24V AC	5375	1	MV2.2	12.5
Schmelzsicherung 2A	2723	1	F7	3.2	Magnetventil DN10 0-1bar EPDM HS AC24V BW	53602	1	MV3.1	13.3
Schmelzsicherung 2A	2723	1	F8	4.8	Gerätekabine für MV 24V AC	5375	1	MV3.1	13.3
Schmelzsicherung 2A	2723	1	F9	4.0	Magnetventil DN10 0-1bar EPDM HS AC24V BW	53602	1	MV3.2	13.4
Klemme Z51 2/3	28331	1	F9	4.0	Gerätekabine für MV 24V AC	5375	1	MV3.2	13.4
Schmelzsicherung 2A	2723	1	F10	4.3	Magnetventil DN10 0-1bar EPDM HS AC24V BW	53602	1	MV4.1	13.5
Schmelzsicherung 2A	2723	1	F10	4.3	Gerätekabine für MV 24V AC	5375	1	MV4.1	13.5
Schmelzsicherung 2A	2723	1	F11	4.7	Magnetventil DN10 0-1bar EPDM HS AC24V BW	53602	1	MV4.2	13.6
Schmelzsicherung 2A	2723	1	F12	4.7	Gerätekabine für MV 24V AC	5375	1	MV4.2	13.6
Schmelzsicherung 2A	2723	1	F13	3.0.11.4	Magnetventil DN10 0-1bar EPDM HS AC24V BW	53602	1	MV5.1	15.6
Schmelzsicherung 2A	2723	1	F14	3.0.11.4	Gerätekabine für MV 24V AC	5375	1	MV5.1	15.6
Schmelzsicherung 2A	2723	1	F15	3.2.11.5	Magnetventil DN10 0-1bar EPDM HS AC24V BW	53602	1	MV5.2	15.7
Schmelzsicherung 2A	2723	1	F16	3.4.11.5	Gerätekabine für MV 24V AC	5375	1	MV5.2	15.7
Schmelzsicherung 2A	2723	1	F17	3.5.11.6	Gerätekabine für MV 24V AC	5375	1	MV6.1	15.7
Schmelzsicherung 2A	2723	1	F18	14.5	Magnetventil elektronisch CC-Tak	53308	2	NR1	17.2
Schmelzsicherung 2A	2723	1	F19	14.5	Magnetventil elektronisch CC-Tak	53308	2	NR2	18.2
Schmelzsicherung 2A	2723	1	F20	14.4	Hauptschalter 25A	294609	1	Q1	3.0
Schmelzsicherung 2A	2723	1	F21	14.4	Leuchttaste mit Nockenschalter CW Weiss 24VAC	5161	2	SB	17.7/18.7

Fig. 1 - 19 Parts list MultiTerminal 4in1, circuit diagram (page 19 of 20)



Parts list

0	1	2	3	4	5	6	7	8	9																									
Artikelstückliste																																		
F01_005																																		
<table><tr><th>Beschnung</th><th>Artikelnummer</th><th>Menge</th><th>Benennung (BWK)</th><th>Schaltplan / Position</th></tr><tr><td>Störungswächter 576 Bohrung 12,3mm</td><td>224405</td><td>1</td><td>SS.1</td><td>9.5</td></tr><tr><td>Störungswächter 576 Bohrung 12,3mm</td><td>224405</td><td>1</td><td>SS.2</td><td>9.6</td></tr><tr><td>Switch IE SW IP30</td><td>5141790</td><td>1</td><td>SPS SW</td><td>9.9</td></tr><tr><td>Transformator 230VAC/230VAC 125VA</td><td>5356</td><td>1</td><td>T1</td><td>5.3</td></tr></table>										Beschnung	Artikelnummer	Menge	Benennung (BWK)	Schaltplan / Position	Störungswächter 576 Bohrung 12,3mm	224405	1	SS.1	9.5	Störungswächter 576 Bohrung 12,3mm	224405	1	SS.2	9.6	Switch IE SW IP30	5141790	1	SPS SW	9.9	Transformator 230VAC/230VAC 125VA	5356	1	T1	5.3
Beschnung	Artikelnummer	Menge	Benennung (BWK)	Schaltplan / Position																														
Störungswächter 576 Bohrung 12,3mm	224405	1	SS.1	9.5																														
Störungswächter 576 Bohrung 12,3mm	224405	1	SS.2	9.6																														
Switch IE SW IP30	5141790	1	SPS SW	9.9																														
Transformator 230VAC/230VAC 125VA	5356	1	T1	5.3																														
22																																		
letzte Änderung		Datum	28.04.2025	MultiTerminal 4in1		Artikelstückliste : 224405 - 5356		Ehrle GmbH																										
Gepr.		Gepr.		MultiTerminal 4in1																														
Datum		Urspr.		Erstellt durch																														
Name		Urspr.		Erstellt durch		Ehrle GmbH		The better way to clean																										

Fig. 1 - 20 Parts list MultiTerminal 4in1, circuit diagram (page 20 of 20)

Table of content for circuit diagrams

Fig. 1 - 22 Table of content circuit diagrams MultiTerminal 5in1 (page 2 of 20)

Supply voltage 3 x 400 VAC

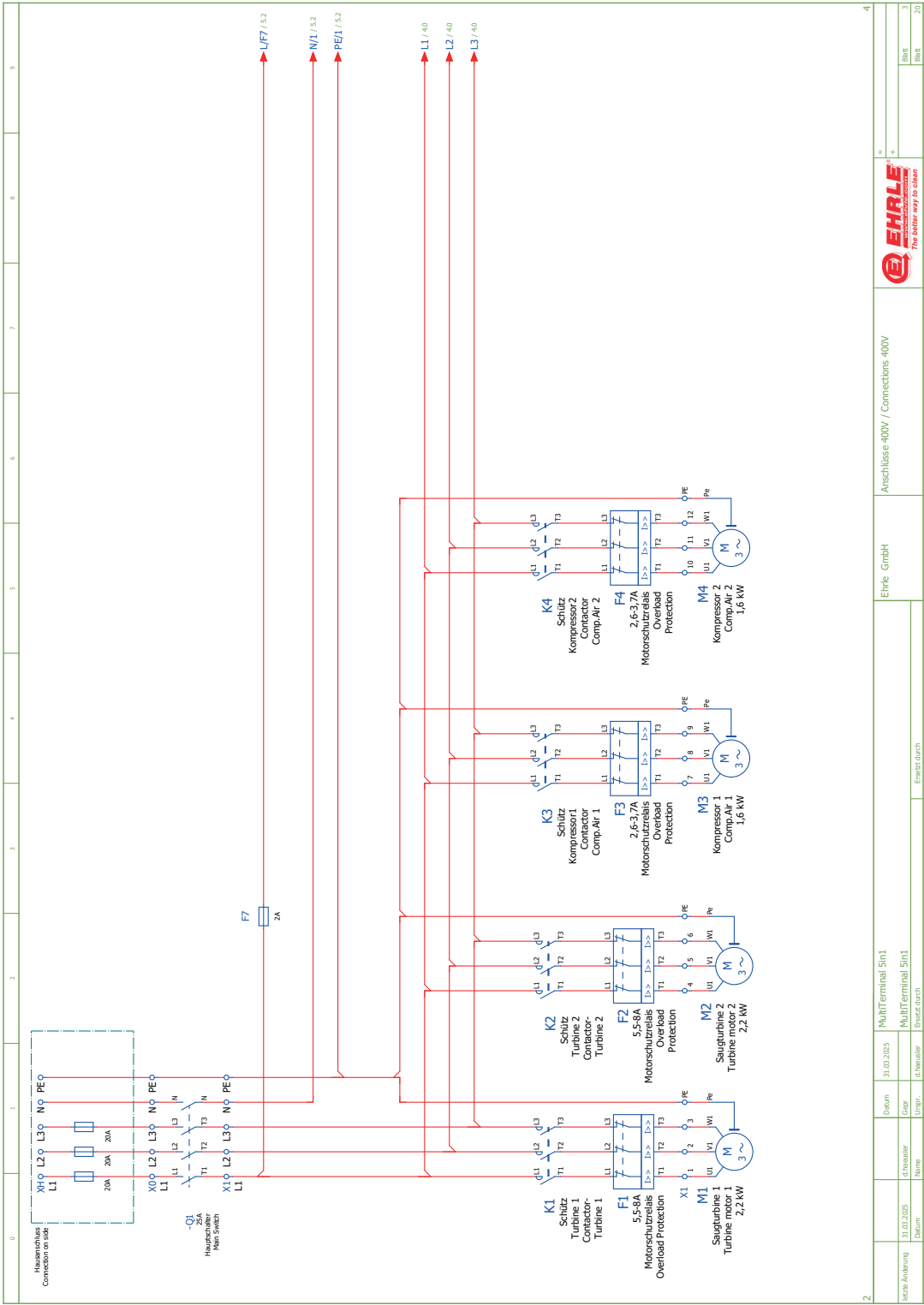


Fig. 1 - 23 Supply voltage 3 x 400 VAC MultiTerminal 5in1, circuit diagram (page 3 of 20)

Supply voltage 230 VAC

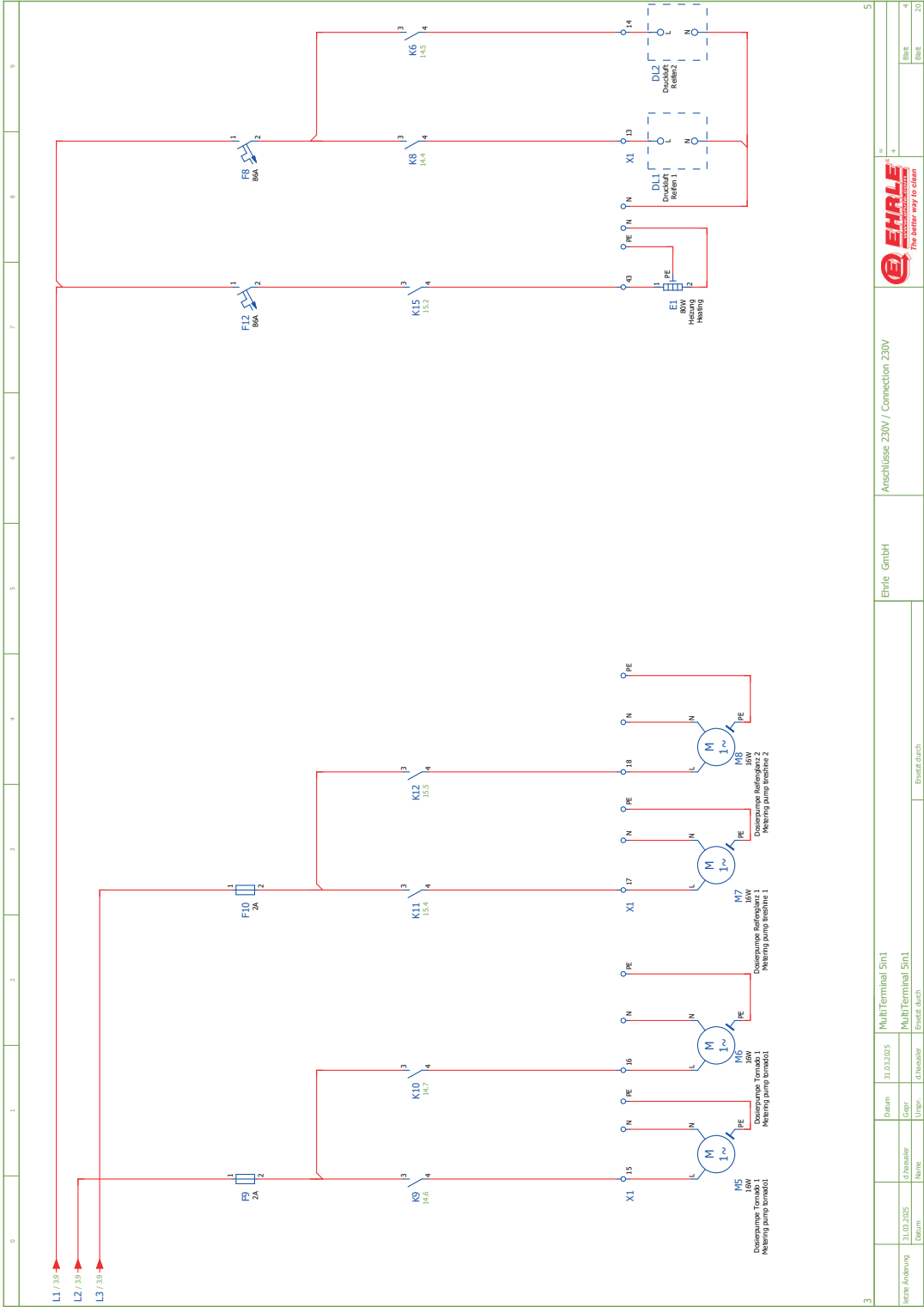


Fig. 1 - 24 Supply voltage 230 VAC MultiTerminal 5in1, circuit diagram (page 4 of 20)

Transformers

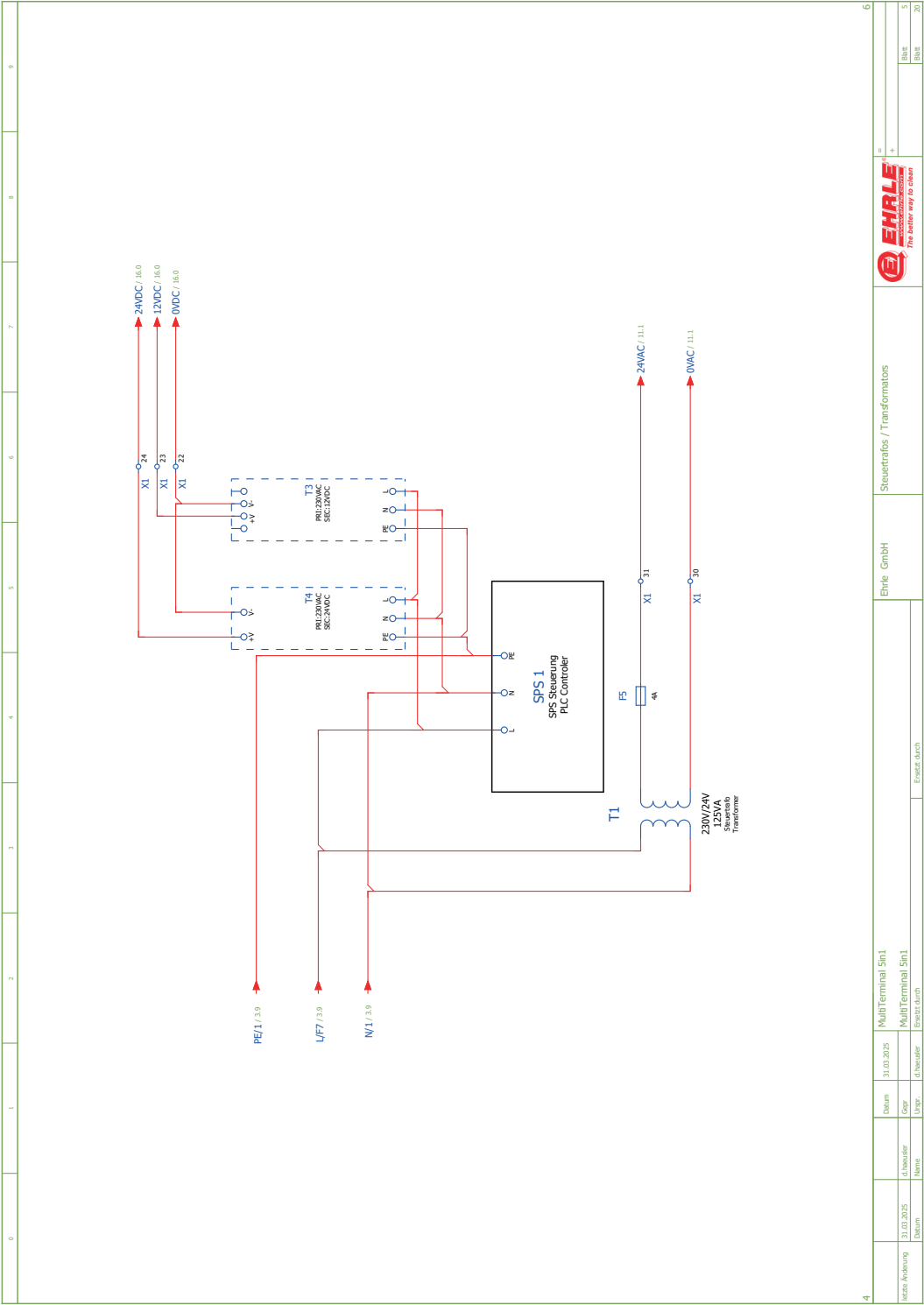


Fig. 1 - 25 Transformers MultiTerminal 5in1, circuit diagram (page 5 of 20)



PLC1 Inputs and Outputs

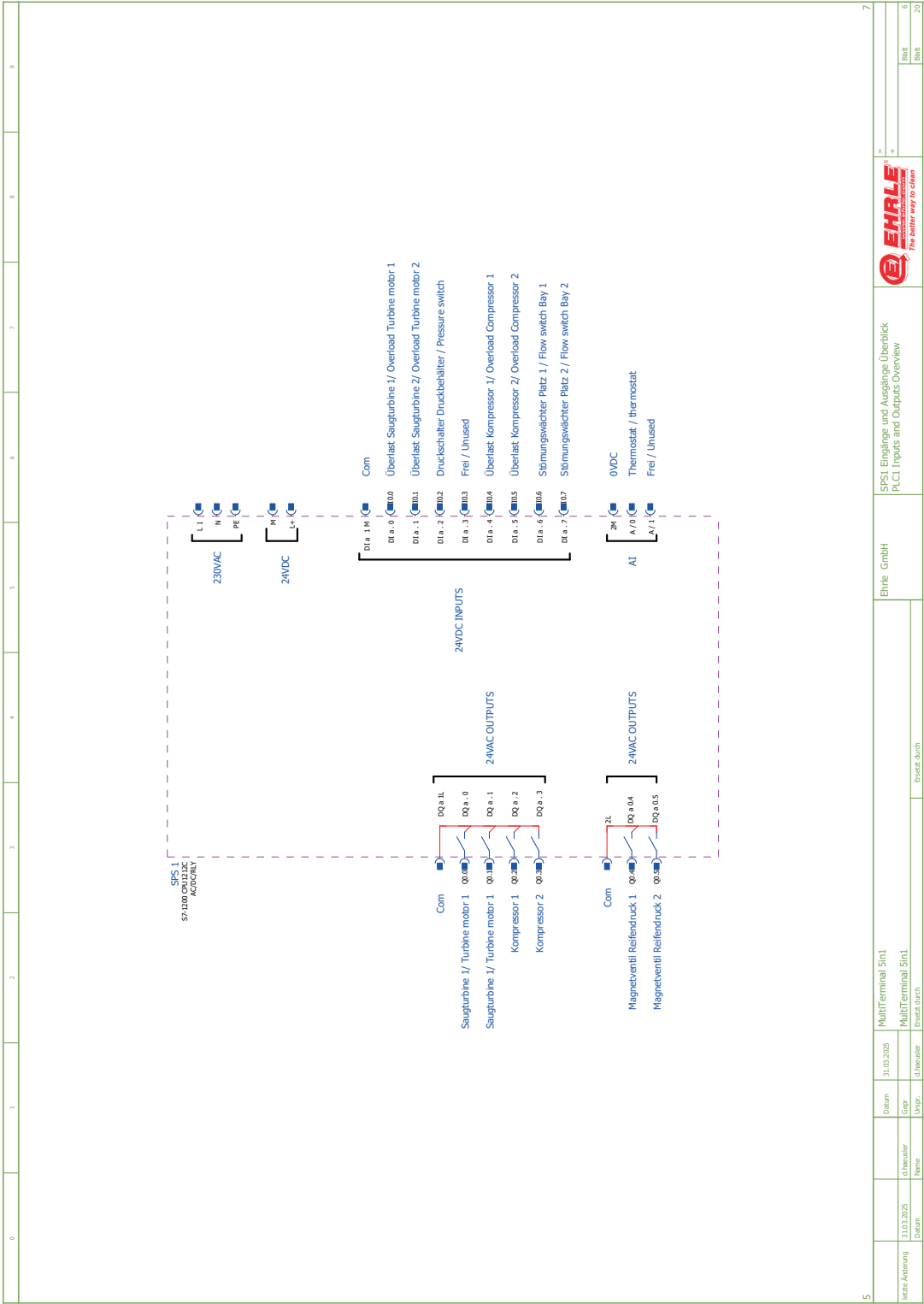


Fig. 1 - 26 PLC1 Inputs and Outputs MultiTerminal 5in1, circuit diagram (page 6 of 20)

1 Circuit diagrams

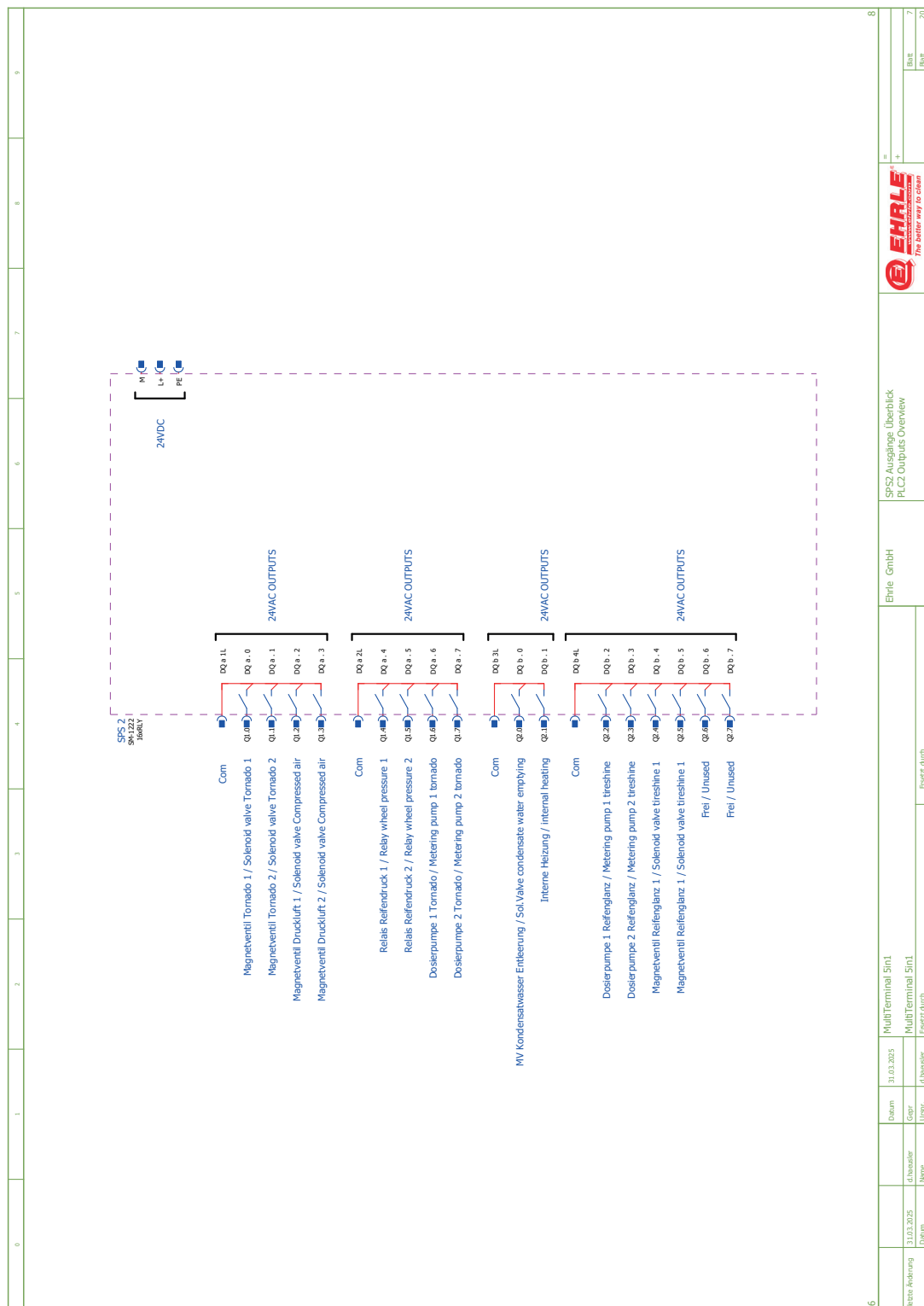


Fig. 1 - 27 PLC2 Outputs MultiTerminal 5in1, circuit diagram (page 7 of 20)

1 Circuit diagrams



PLC1 Digital Outputs

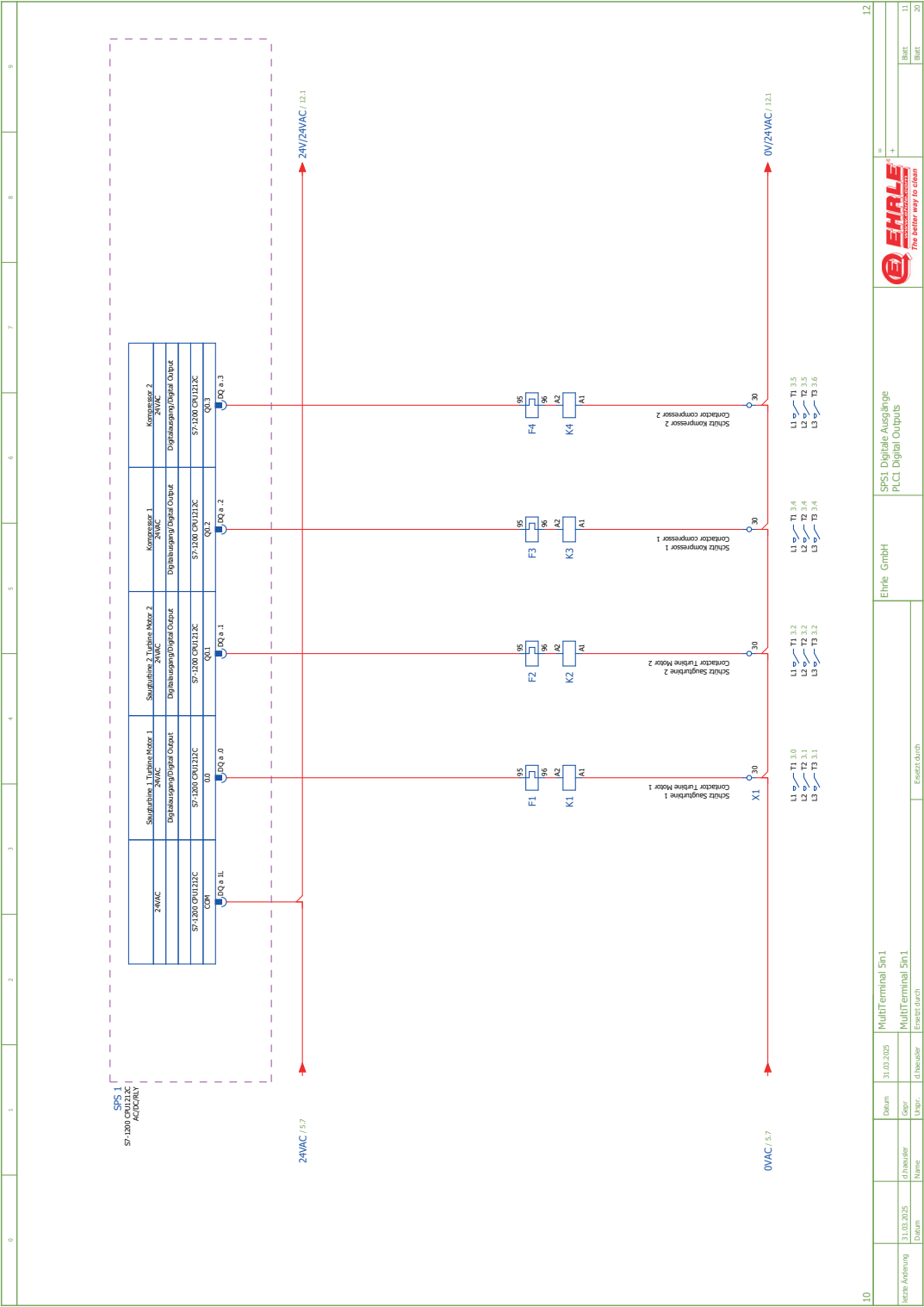


Fig. 1 - 31 PLC1 Digital Outputs MultiTerminal 5in1, circuit diagram (page 11 of 20)

1 Circuit diagrams



1 Circuit diagrams

PLC2 Digitale Outputs

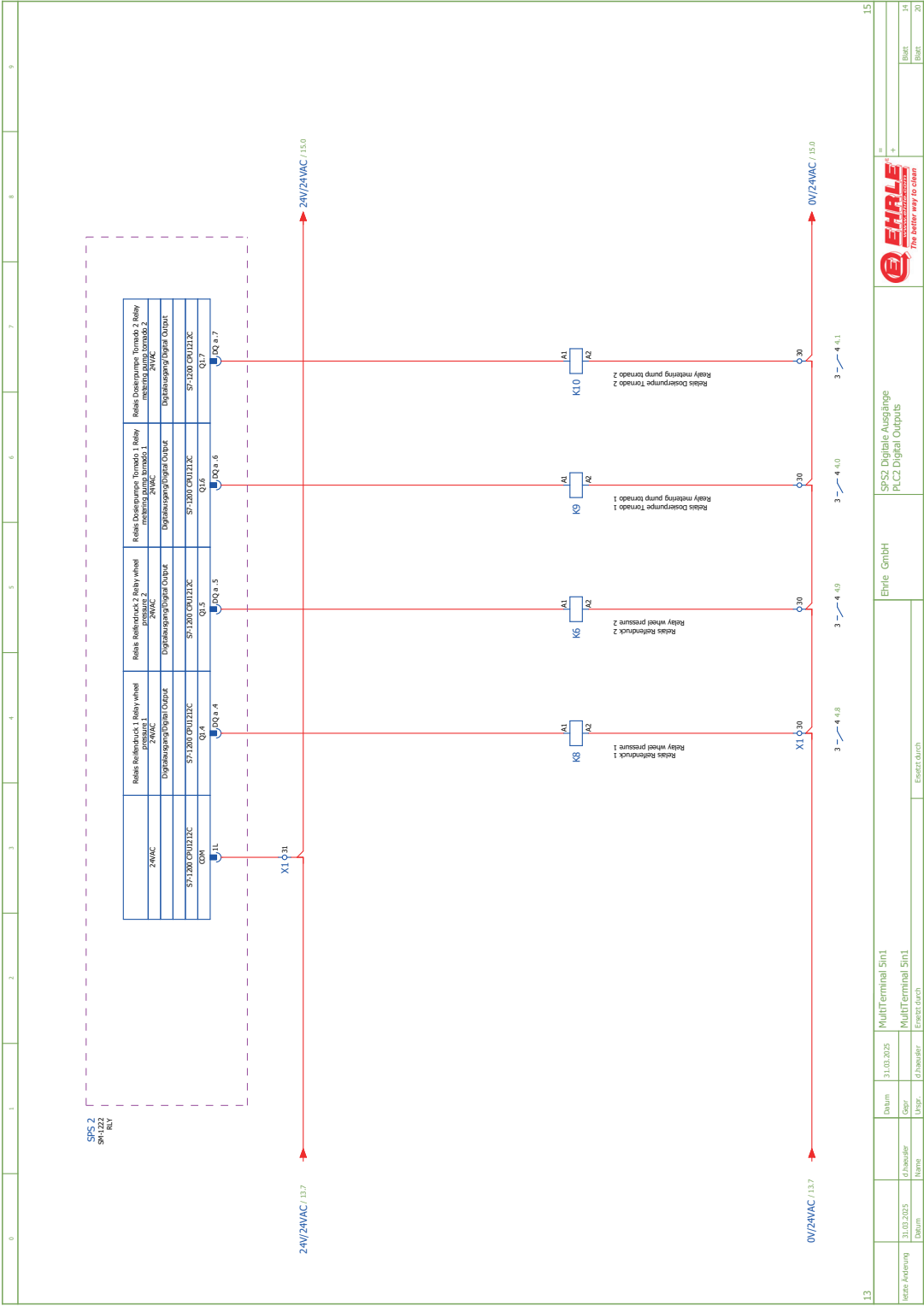


Fig. 1 - 34 PLC2 Digital Outputs MultiTerminal 5in1, circuit diagram (page 14 of 20)

PLC2 Digital Outputs

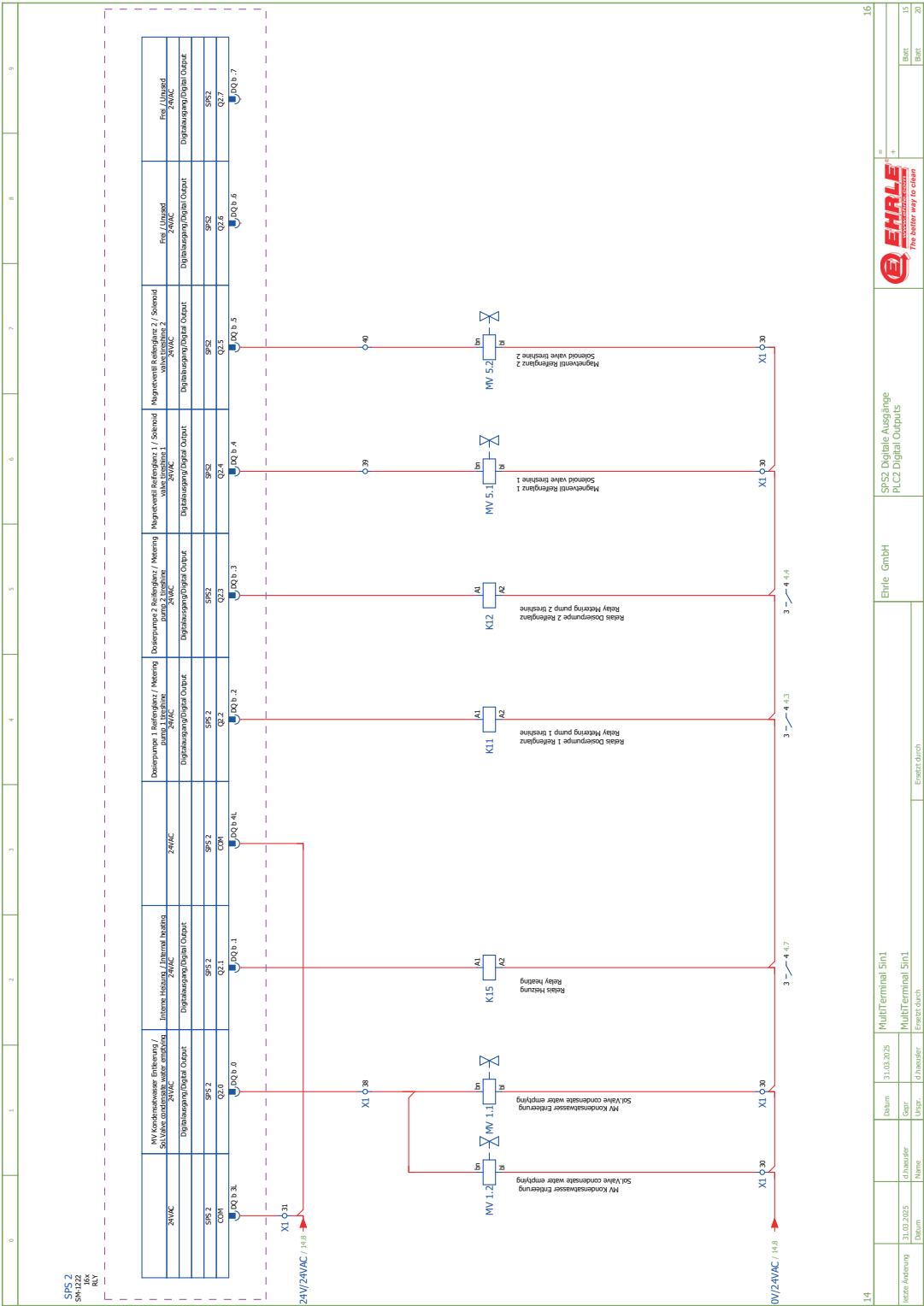
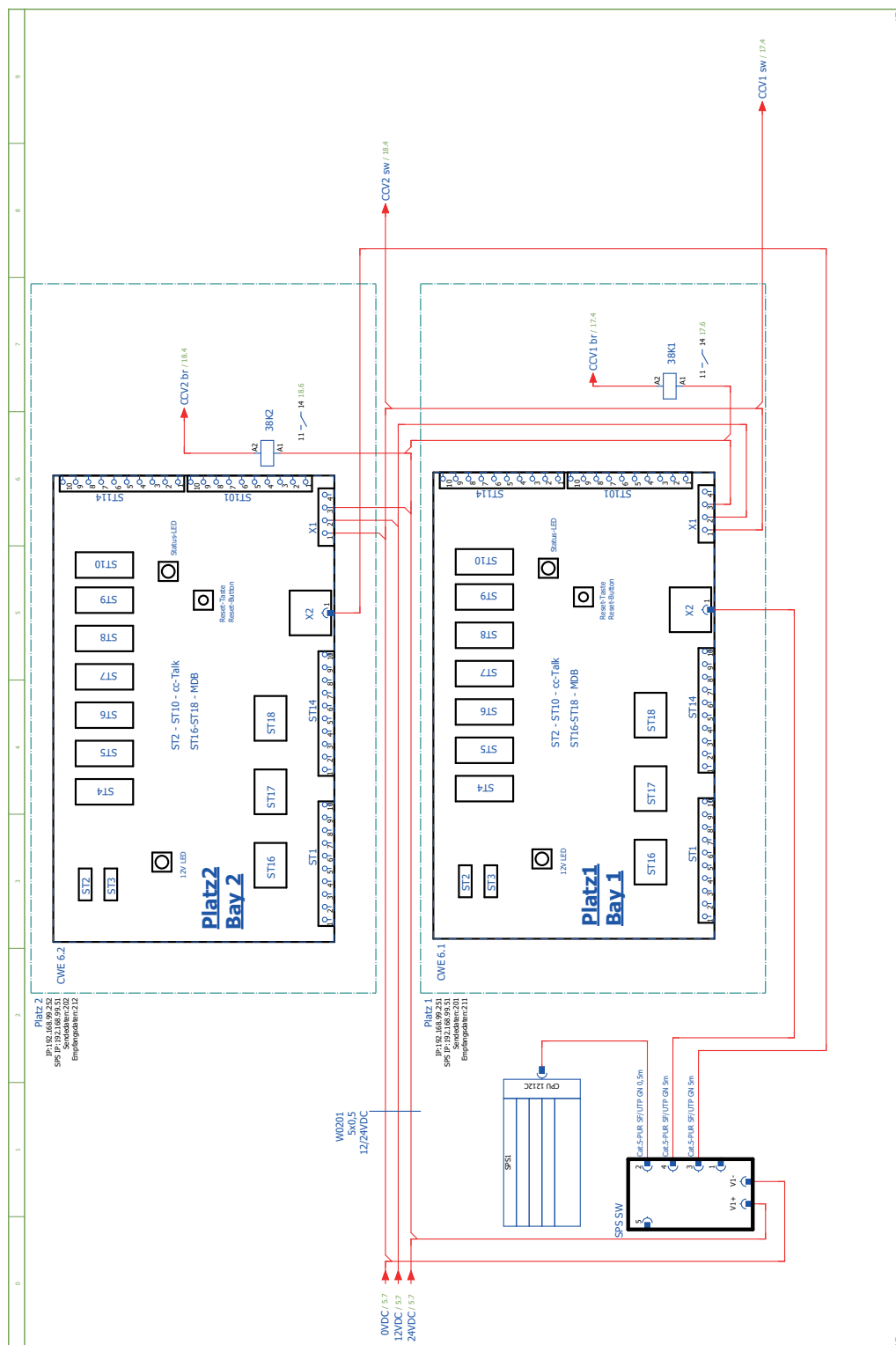


Fig. 1 - 35 PLC2 Digital Outputs MultiTerminal 5in1, circuit diagram (page 15 of 20)

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15

CWE6 Bay 1

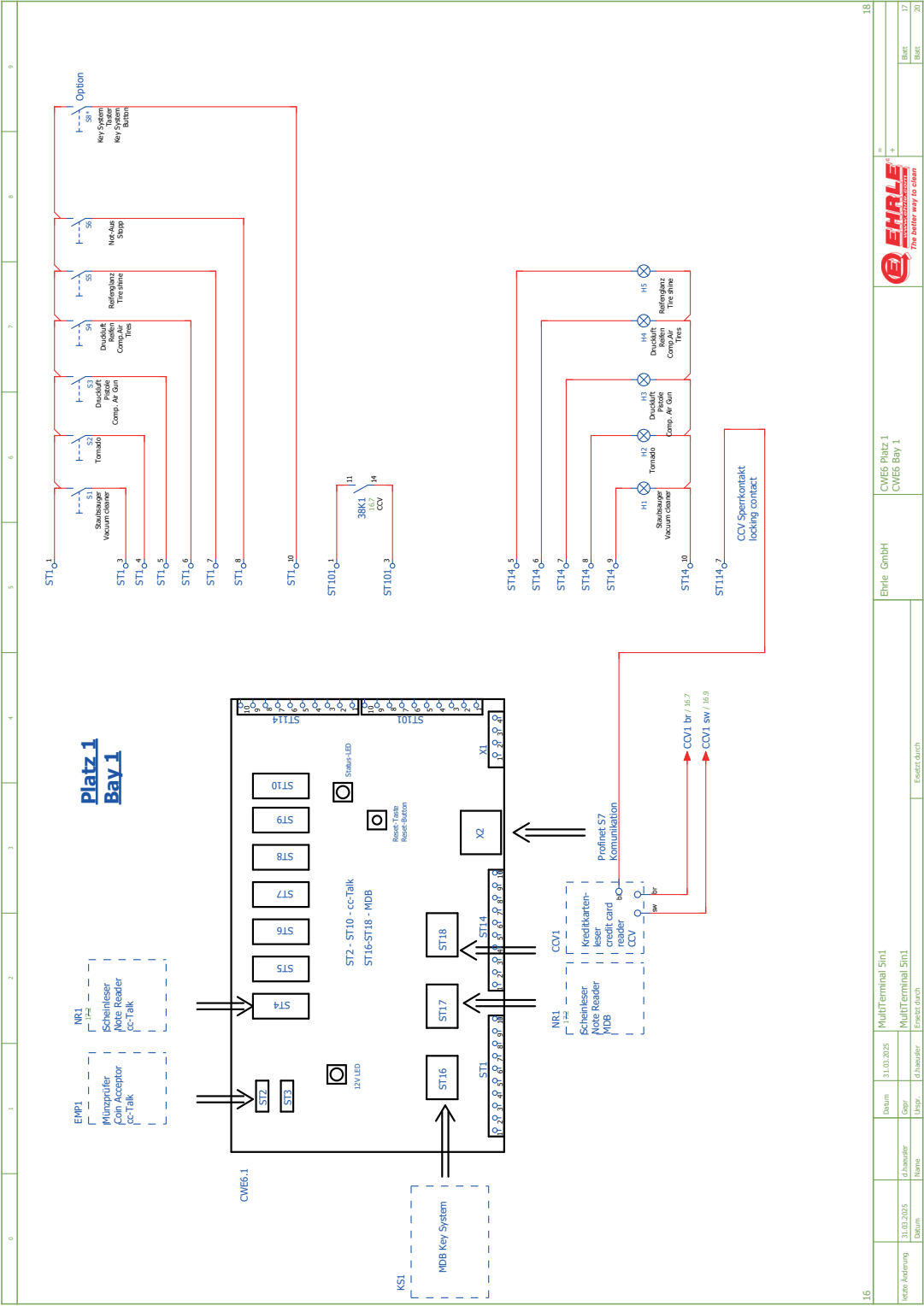


Fig. 1 - 37 CWE6 Bay 1 MultiTerminal 5in1, circuit diagram (page 17 of 20)

1 Circuit diagrams





Parts list

0	1	2	3	4	5	6	7	8	9
Artikelstückliste									
Bezeichnung	Artikelnummer	Menge	Benennung (BHK)	Schaltplan / Position	F01_005				
Münzprüfer elektronisch CC-Tak	53308	1	CCV1	3.0.1.1	Kopfelekt mit Fess. 24V 8A	50565	1	K10	14.7
Münzprüfer elektronisch CC-Tak	53308	1	CCV2	18.2	Kopfelekt mit Fess. 24V 8A	50565	1	K11	15.4
Steuerung CNE6 12/24V	35060	1	CNE6.1	16.3	Kopfelekt mit Fess. 24V 8A	50565	1	K12	15.5
Steuerung CNE6 12/24V	35060	1	CNE6.2	16.3	Kopfelekt mit Fess. 24V 8A	50565	1	K15	15.2
Druckgeber 400N/6.22bar, 127AG	56881	1	DP	8.6	Rechts Koppel 2MS, 8A DC24V	50455	1	38K1	16.7
Relaiskoppel RMV Ausdr. Ausgangsbügel	53531	1	DL1	4.8	Rechts Koppel 2MS, 8A DC24V	50455	1	38K2	16.6
Relaiskoppel RMV Ausdr. Ausgangsbügel	53531	1	DL2	4.9	Münzprüfer elektronisch CC-Tak	53308	1	K51	17.8
Münzprüfer elektronisch CC-Tak	53308	1	EPH1	17.1	Münzprüfer elektronisch CC-Tak	53308	1	K52	18.0
Münzprüfer elektronisch CC-Tak	53308	1	EPH2	18.1	Turbine 2,2kW/5.6A 3AC 400V/50Hz	50600	1	M1	3.0
Münzprüfer elektronisch CC-Tak	53308	1	F1	8.4	Turbine 2,2kW/5.6A 3AC 400V/50Hz	50600	1	M2	3.2
Münzprüfer elektronisch CC-Tak	53308	1	F2	8.5	Kohlenventilator Kompressor Einzel Multi Terminal	50685	1	M3	3.4
Münzprüfer elektronisch CC-Tak	53308	1	F3	8.8	Kohlenventilator Kompressor Einzel Multi Terminal	50685	1	M4	3.5
Münzprüfer elektronisch CC-Tak	53308	1	F4	8.9	Magnet-Magnetisierpumpe 30h	34908	1	M5	4.0
Münzprüfer elektronisch CC-Tak	53308	1	F5	8.4	Magnet-Magnetisierpumpe 30h	34908	1	M6	4.1
Münzprüfer elektronisch CC-Tak	53308	1	F6	8.5	Magnet-Magnetisierpumpe 30h	34908	1	M7	4.3
Münzprüfer elektronisch CC-Tak	53308	1	F7	8.2	Magnet-Magnetisierpumpe 30h	34908	1	M8	4.4
Münzprüfer elektronisch CC-Tak	53308	1	F8	4.8	Magnetventil DN10 0-1bar EPDM HS AC24V BW	536602	1	MV1.1	15.1
Münzprüfer elektronisch CC-Tak	53308	1	F9	4.0	Gerätekabine für MV 24V AC	5375	1	MV1.1	15.1
Münzprüfer elektronisch CC-Tak	53308	1	F10	4.3	Gerätekabine für MV 24V AC	5375	1	MV1.2	15.1
Münzprüfer elektronisch CC-Tak	53308	1	F11	11.5	Gerätekabine für MV 24V AC	5375	1	MV1.2	15.1
Münzprüfer elektronisch CC-Tak	53308	1	F12	11.6	Gerätekabine für MV 24V AC	5375	1	MV2.1	12.4
Münzprüfer elektronisch CC-Tak	53308	1	F13	11.5	Gerätekabine für MV 24V AC	5375	1	MV2.1	12.4
Münzprüfer elektronisch CC-Tak	53308	1	F14	11.6	Gerätekabine für MV 24V AC	5375	1	MV2.2	12.5
Münzprüfer elektronisch CC-Tak	53308	1	F15	5.4	Gerätekabine für MV 24V AC	5375	1	MV2.2	12.5
Münzprüfer elektronisch CC-Tak	53308	1	F16	5.4	Gerätekabine für MV 24V AC	5375	1	MV3.1	13.3
Münzprüfer elektronisch CC-Tak	53308	1	F17	3.2	Gerätekabine für MV 24V AC	5375	1	MV3.1	13.3
Münzprüfer elektronisch CC-Tak	53308	1	F18	4.8	Gerätekabine für MV 24V AC	5375	1	MV3.2	13.4
Münzprüfer elektronisch CC-Tak	53308	1	F19	4.0	Gerätekabine für MV 24V AC	5375	1	MV3.2	13.4
Münzprüfer elektronisch CC-Tak	53308	1	F20	4.0	Gerätekabine für MV 24V AC	5375	1	MV4.1	13.5
Münzprüfer elektronisch CC-Tak	53308	1	F21	4.3	Gerätekabine für MV 24V AC	5375	1	MV4.1	13.5
Münzprüfer elektronisch CC-Tak	53308	1	F22	4.7	Gerätekabine für MV 24V AC	5375	1	MV4.2	13.6
Münzprüfer elektronisch CC-Tak	53308	1	F23	4.3	Gerätekabine für MV 24V AC	5375	1	MV4.2	13.6
Münzprüfer elektronisch CC-Tak	53308	1	F24	3.0.1.1.4	Gerätekabine für MV 24V AC	5375	1	MV5.1	15.6
Münzprüfer elektronisch CC-Tak	53308	1	F25	3.2.1.1.5	Gerätekabine für MV 24V AC	5375	1	MV5.1	15.6
Münzprüfer elektronisch CC-Tak	53308	1	F26	3.4.1.1.5	Gerätekabine für MV 24V AC	5375	1	MV5.2	15.7
Münzprüfer elektronisch CC-Tak	53308	1	F27	3.4.1.1.6	Gerätekabine für MV 24V AC	5375	1	MV5.2	15.7
Münzprüfer elektronisch CC-Tak	53308	1	F28	14.5	Münzprüfer elektronisch CC-Tak	53308	2	NR1	17.2
Münzprüfer elektronisch CC-Tak	53308	1	F29	14.5	Münzprüfer elektronisch CC-Tak	53308	2	NR2	18.2
Münzprüfer elektronisch CC-Tak	53308	1	F30	14.4	Hauptschalter 25A	204609	1	Q1	3.0
Münzprüfer elektronisch CC-Tak	53308	1	F31	14.6	Leuchttaste mit Notschalter CW Weiss 24VAC	5161	2	SB	17.7/18.7

Fig. 1 - 39 Parts list MultiTerminal 5in1, circuit diagram (page 19 of 20)

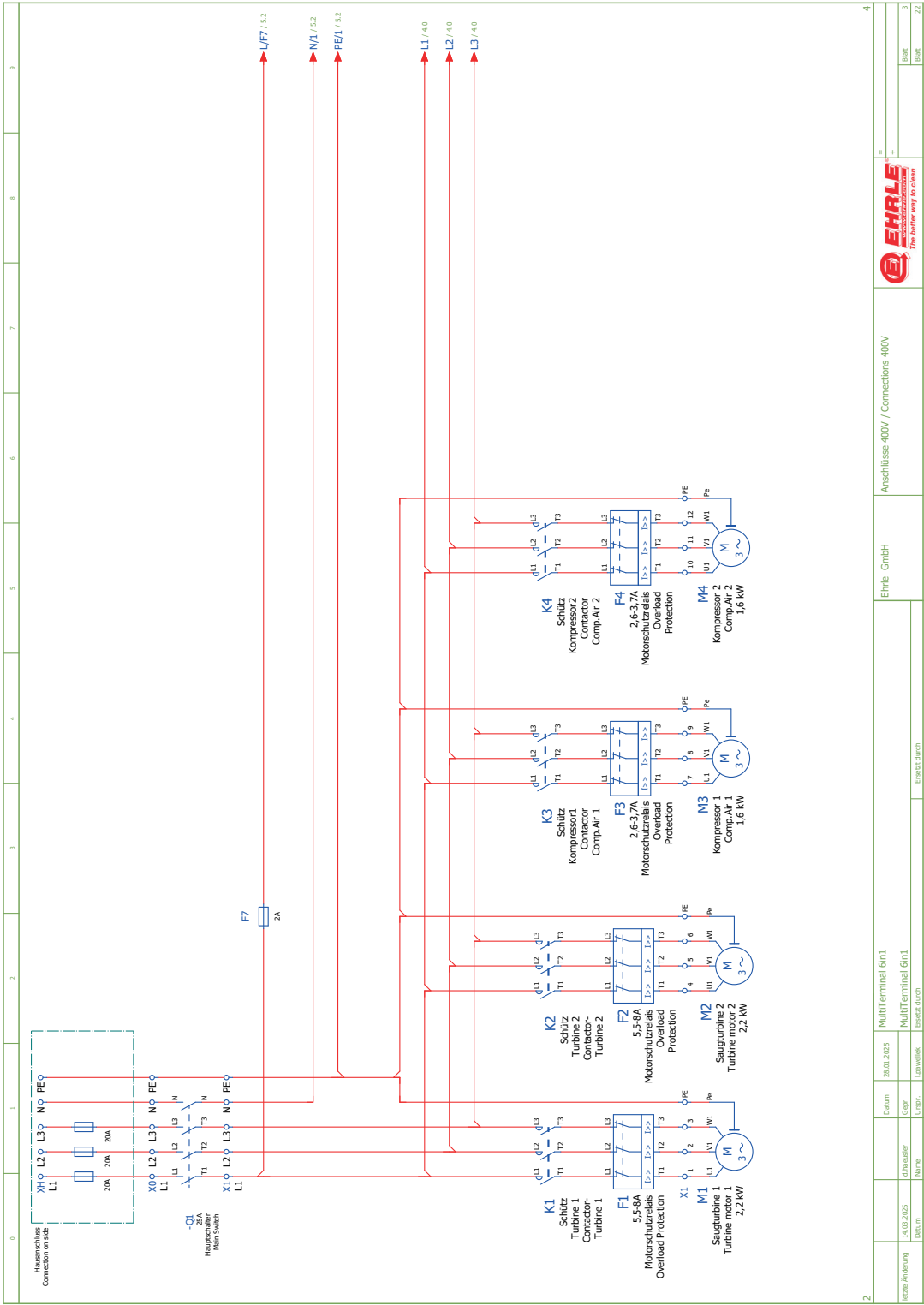
22

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Table of content for circuit diagrams

Fig. 1 - 42 Table of content circuit diagrams MultiTerminal 6in1 (page 2 of 22)

Supply voltage 3 x 400 VAC



Supply voltage 230 VAC

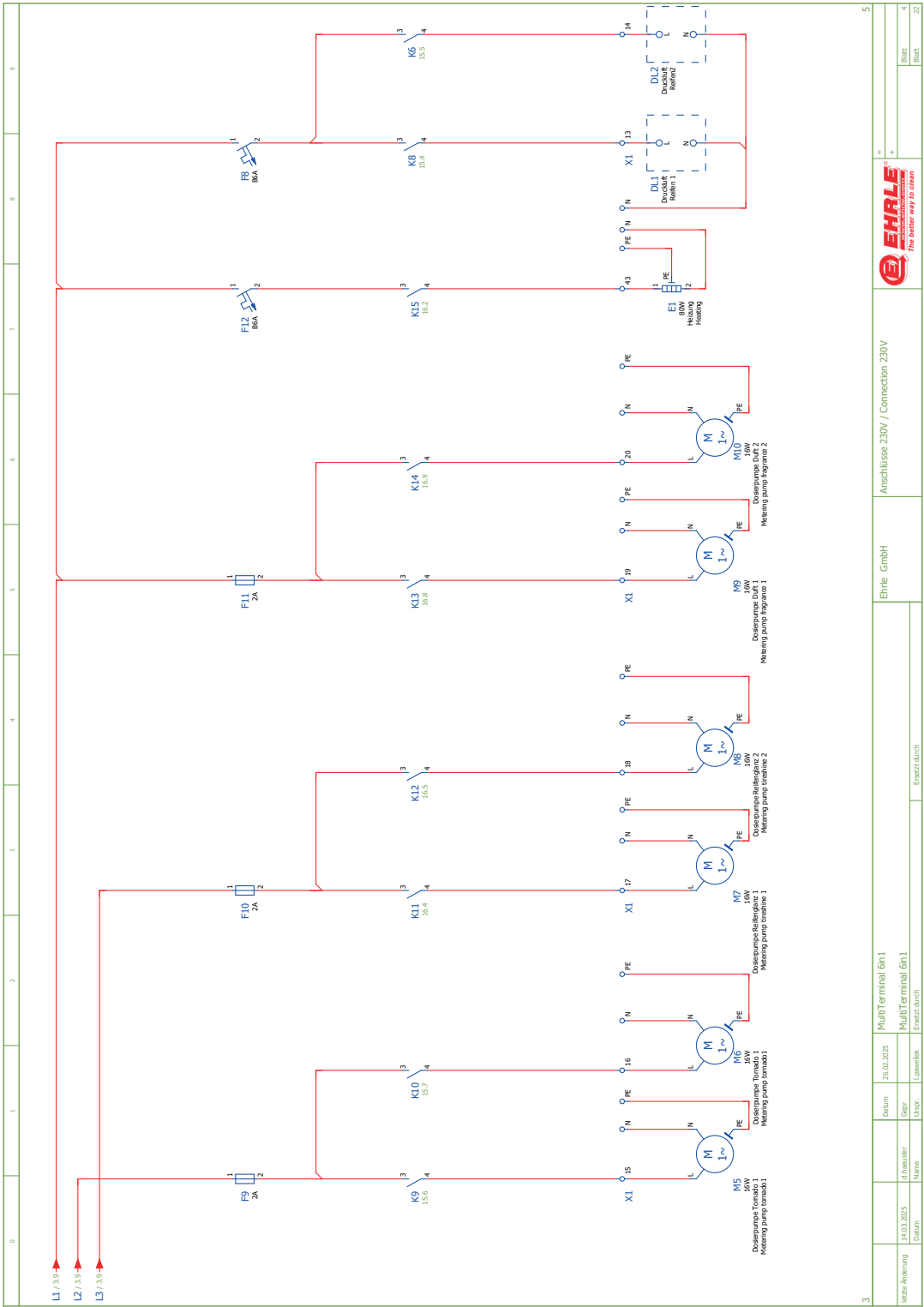


Fig. 1 - 44 Supply voltage 230 VAC MultiTerminal 6in1, circuit diagram (page 4 of 22)

PLC1 Inputs and Outputs overview

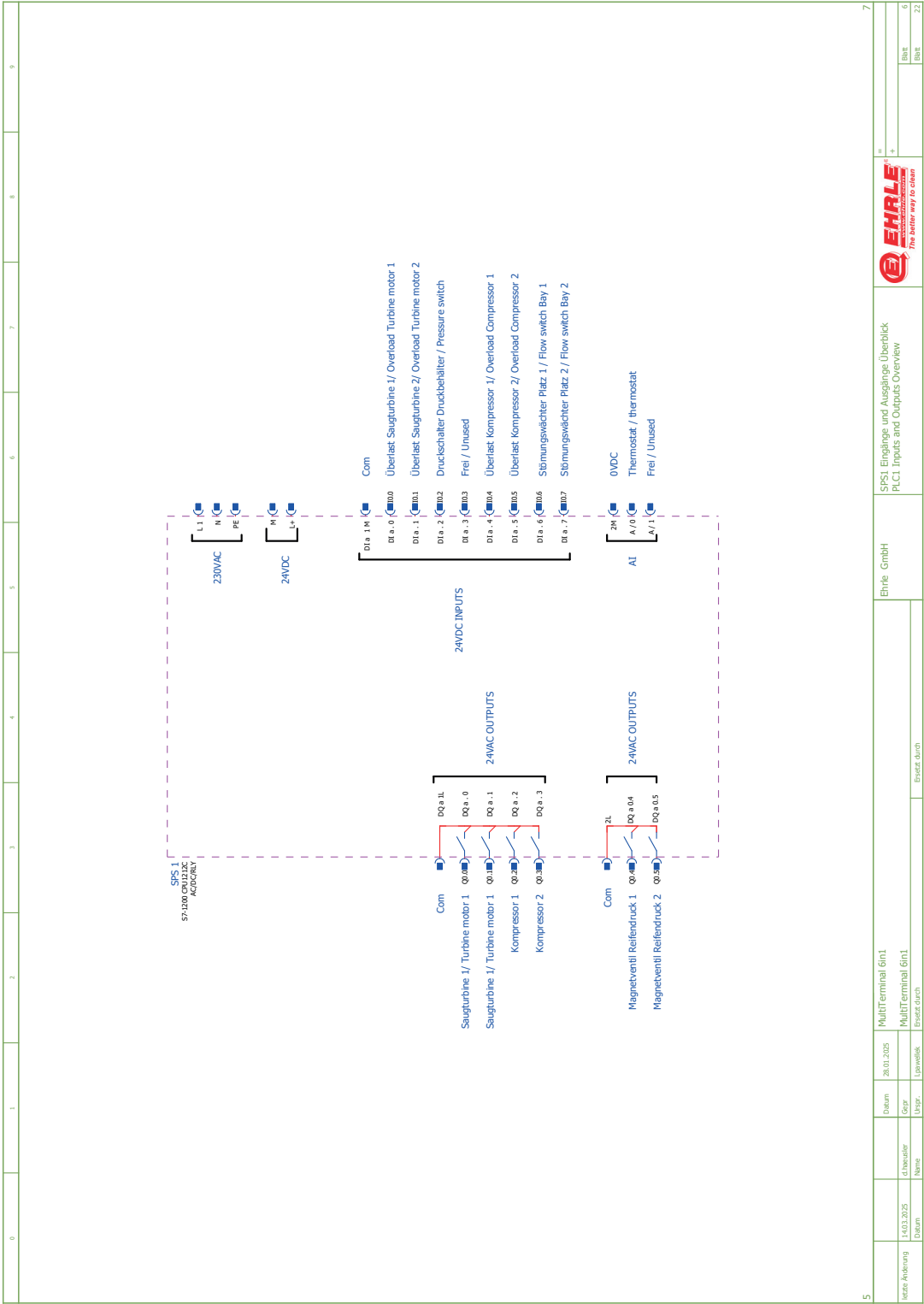


Fig. 1 - 46 PLC1 Inputs and Outputs MultiTerminal 6in1, circuit diagram (page 6 of 22)

PLC2 Outputs overview

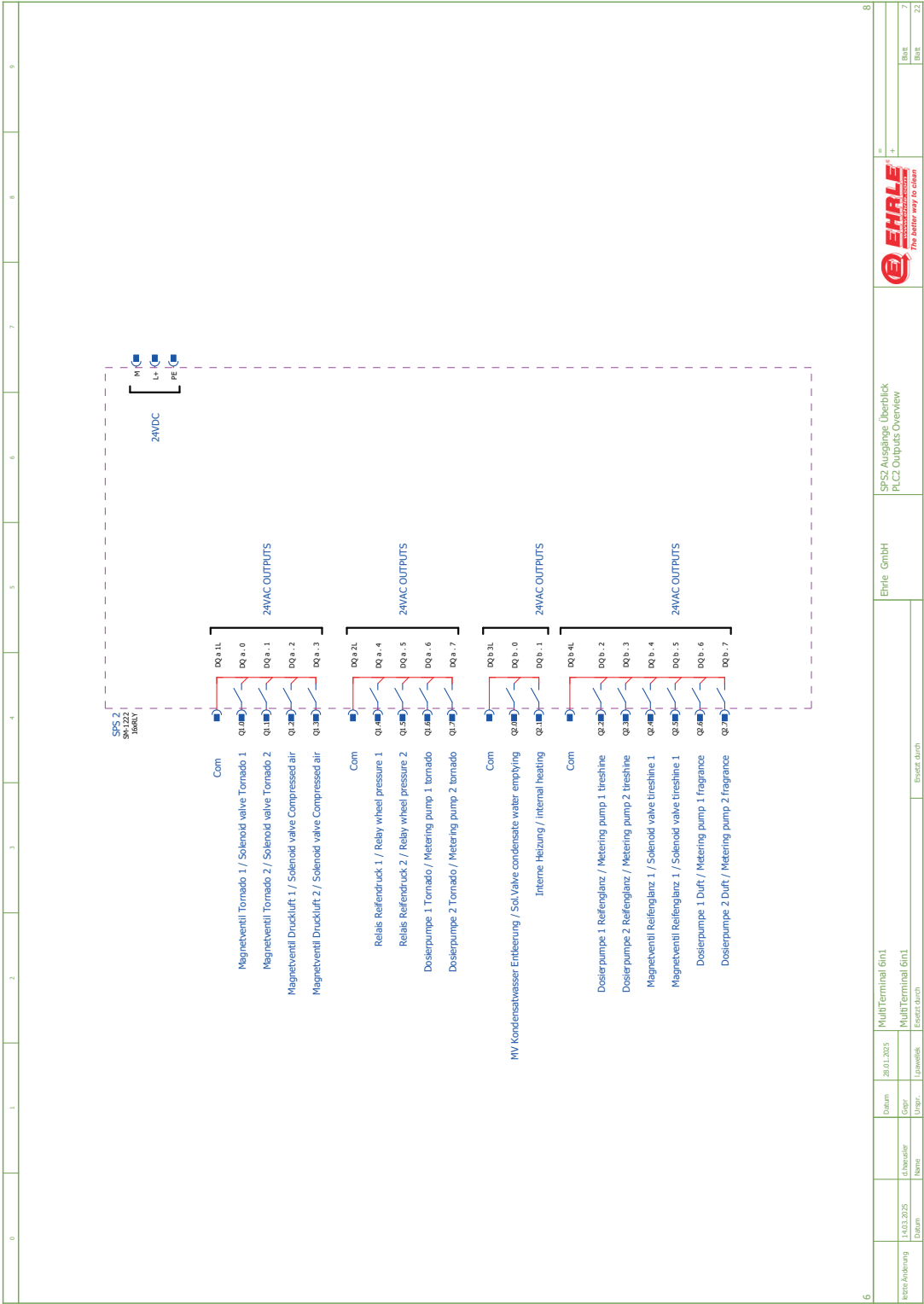


Fig. 1 - 47 PLC2 Outputs MultiTerminal 6in1, circuit diagram (page 7 of 22)

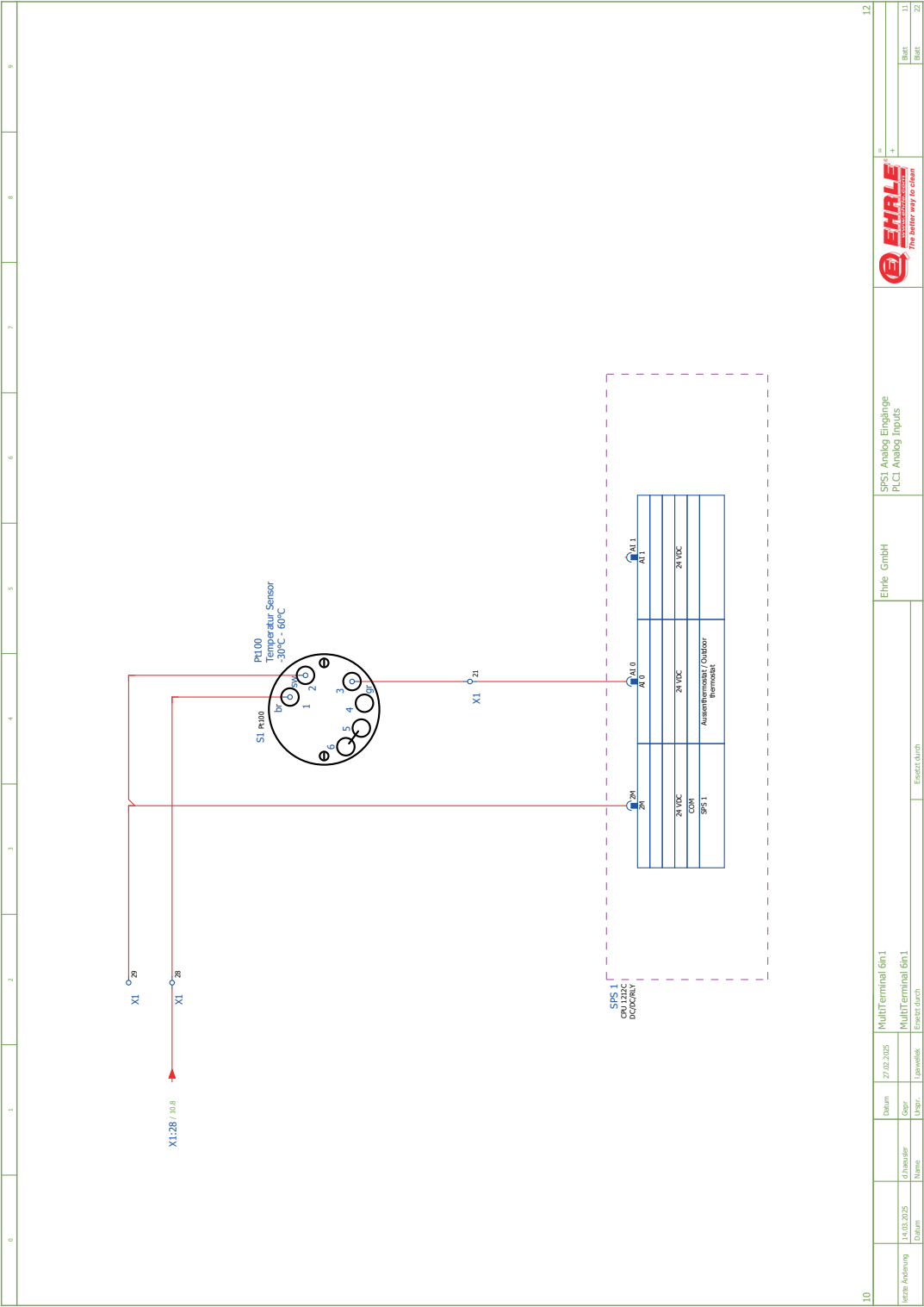
1 Circuit diagrams

Fig. 1 - 48 PLC3 Outputs overview MultiTerminal 6in1, circuit diagram (page 8 of 22)

1 Circuit diagrams

Fig. 1 - 50 PLC1 Digital Inputs MultiTerminal 6in1, circuit diagram (page 10 of 22)

PLC1 Analog Inputs



PLC1 Digital Outputs

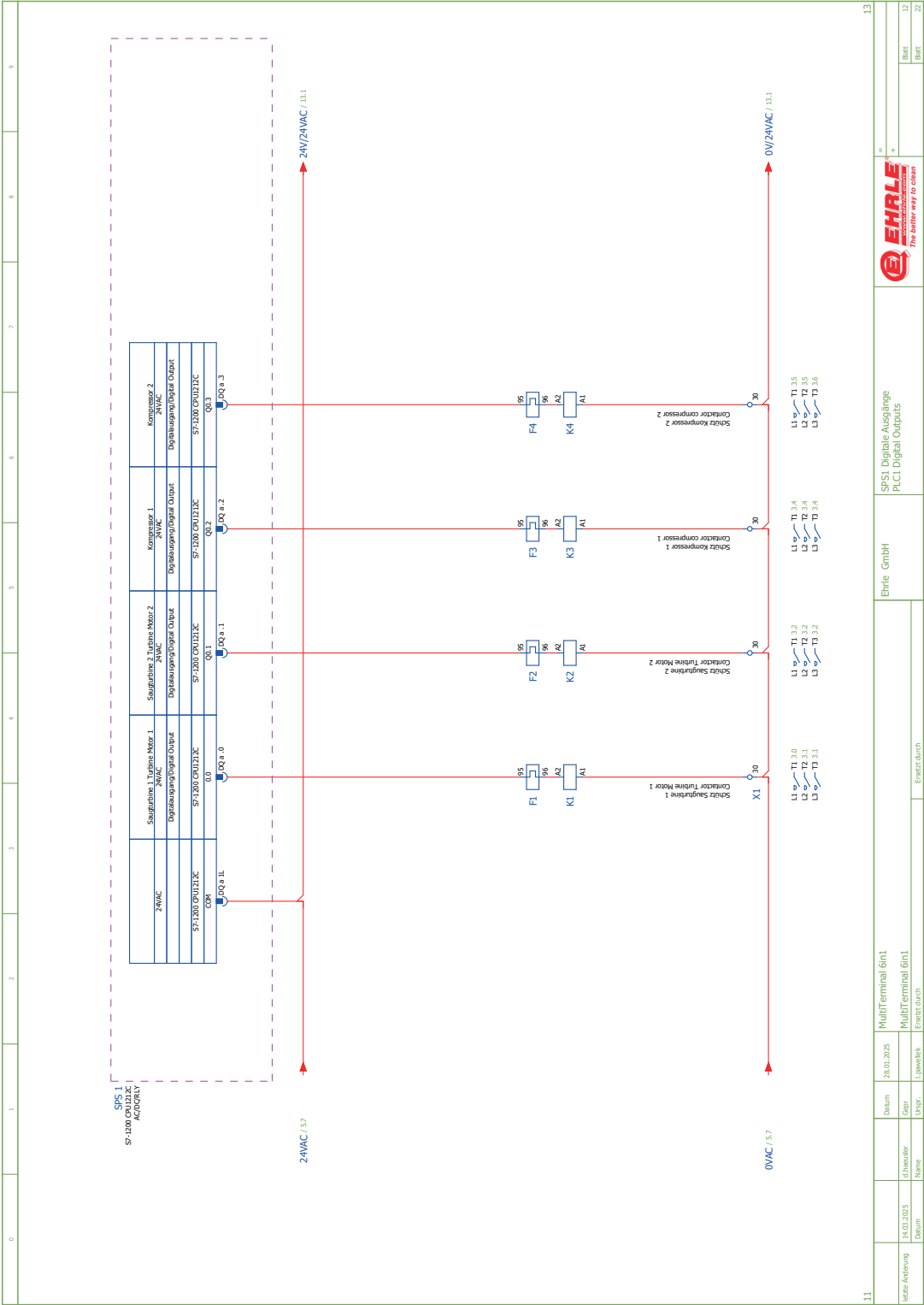


Fig. 1 - 52 PLC1 Digital Outputs MultiTerminal 6in1, circuit diagram (page 12 of 22)

PLC2 Digital Outputs

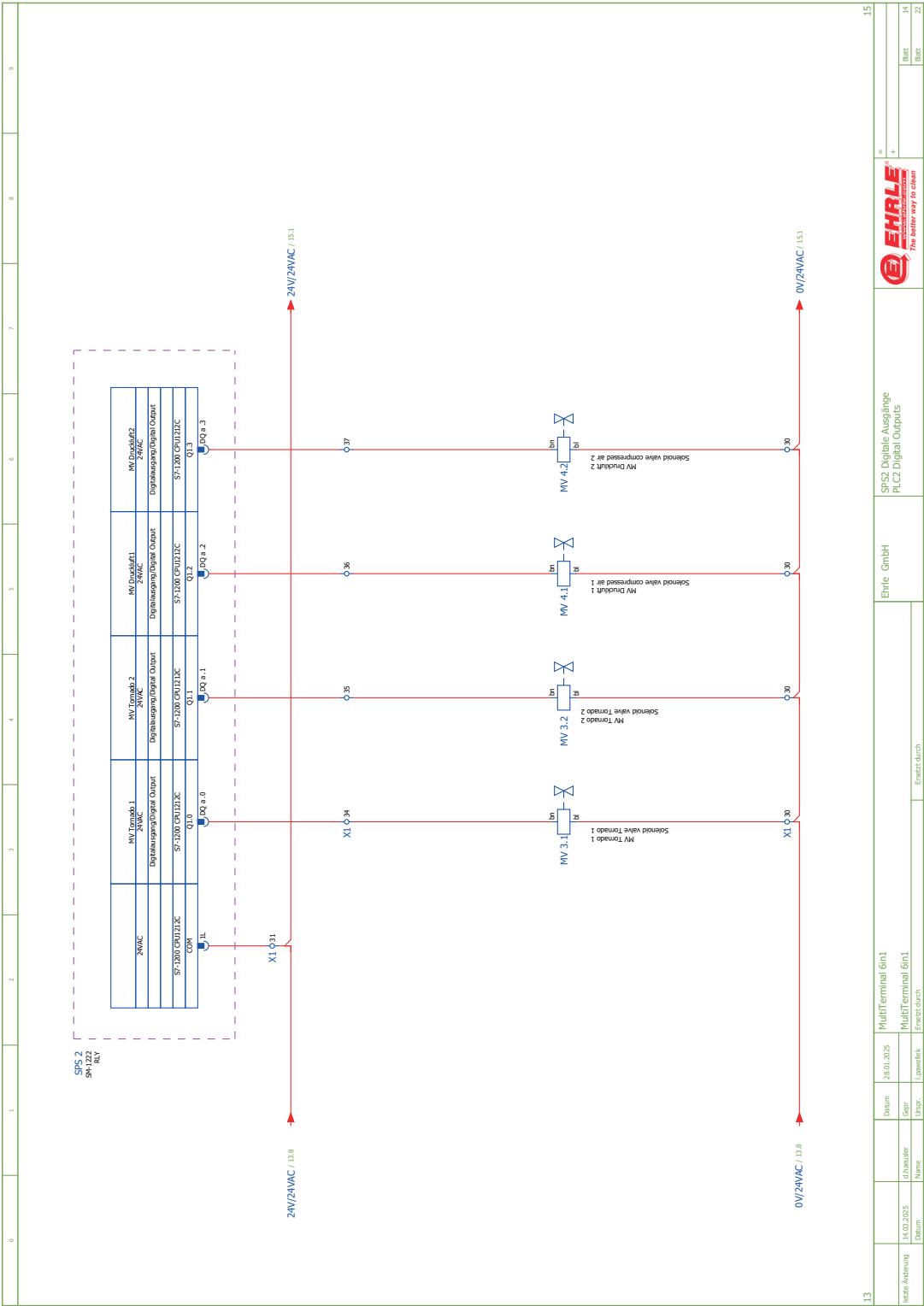


Fig. 1 - 54 PLC2 Digital Outputs MultiTerminal 6in1, circuit diagram (page 14 of 22)

PLC2 Digital Outputs

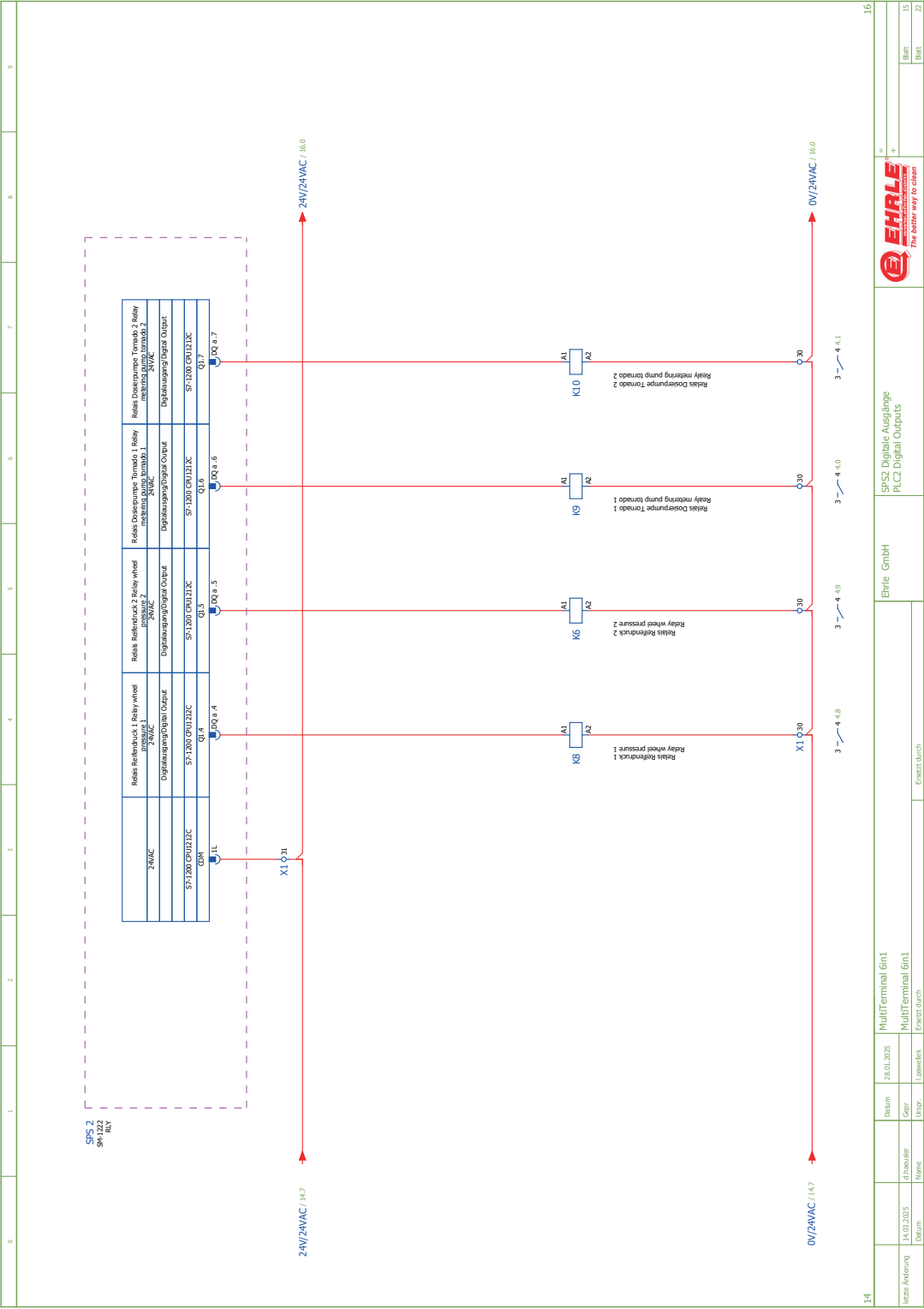


Fig. 1 - 55 PLC2 Digital Outputs MultiTerminal 6in1, circuit diagram (page 15 of 22)

PLC2 Digital Outputs

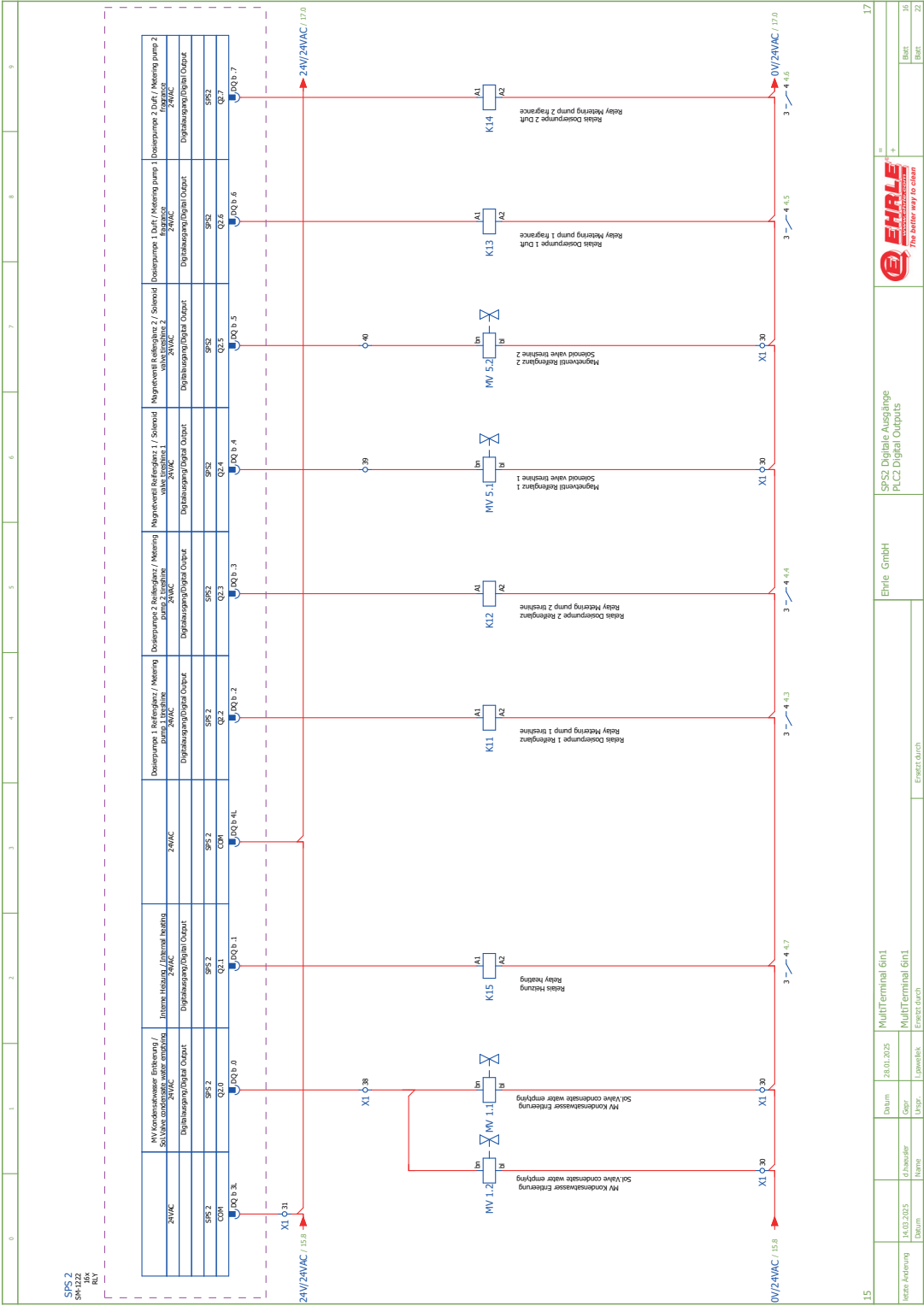
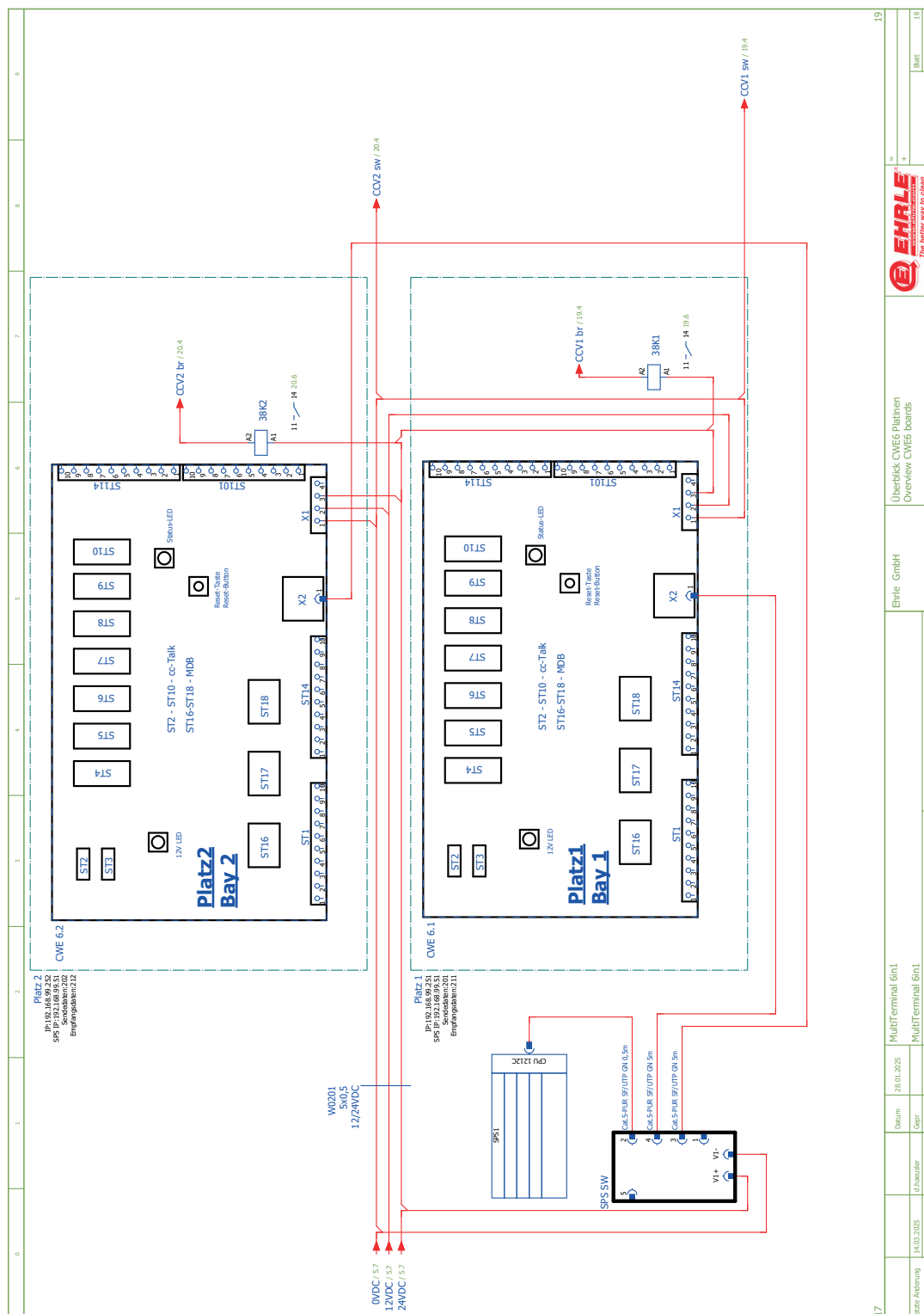


Fig. 1 - 56 PLC2 Digital Outputs MultiTerminal 6in1, circuit diagram (page 16 of 22)

1 Circuit diagrams



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1 Circuit diagrams



CWE6 Bay 2

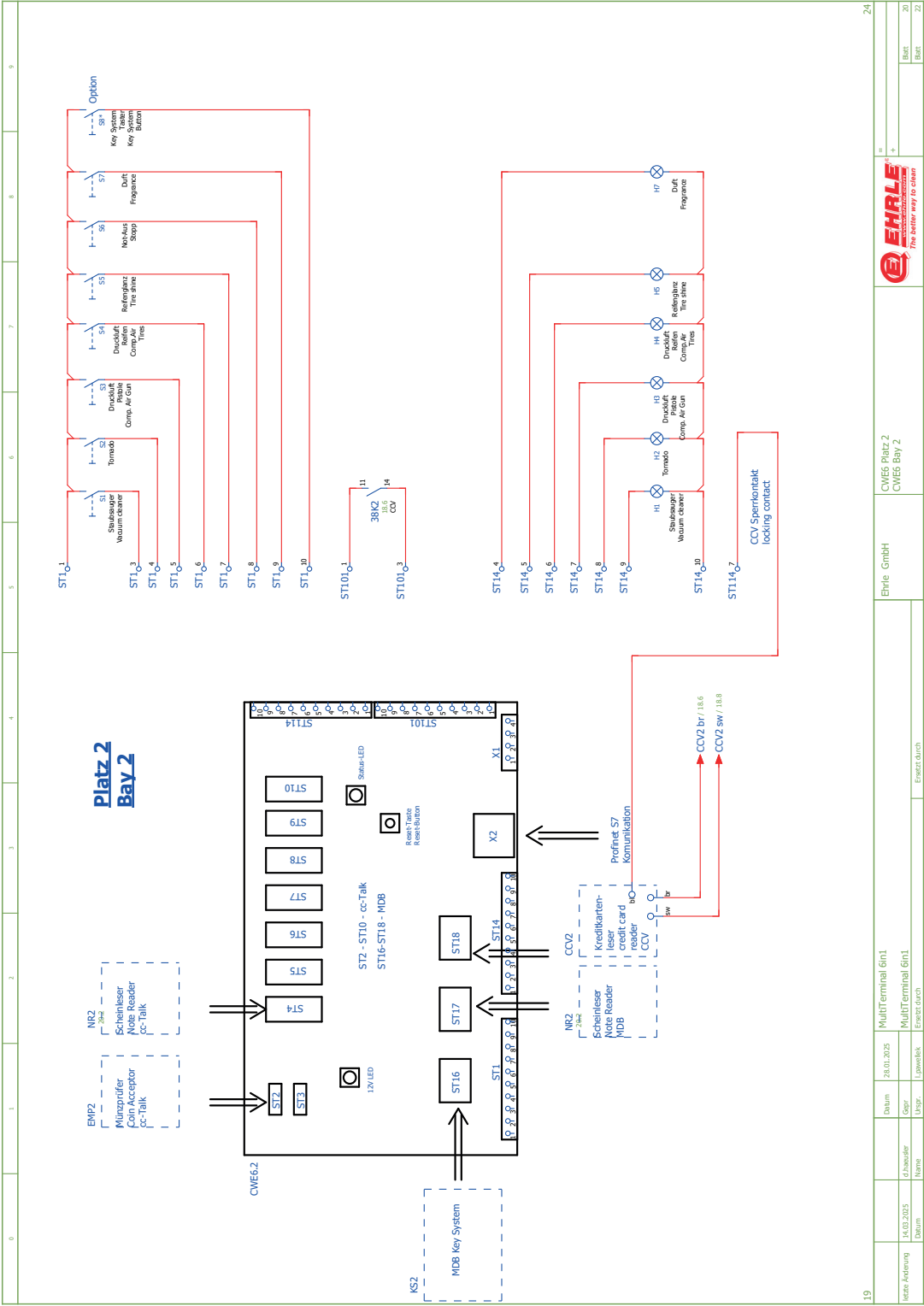


Fig. 1 - 60 CWE6 Bay 2 MultiTerminal 6in1, circuit diagram (page 20 of 22)

Parts list

0	1	2	3	4	5	6	7	8	9
Artikelstückliste									
Bezeichnung	Artikelnummer	Menge	Benennung (BNC)	Schaltplan / Position	FOL_005				
Motorgelbe elektronisch CC-Tak	539308	0	CCV1	3.0.2.11	Relais Koppel 1WS, 10A AC24V	50270	1	49	15.4
Motorgelbe elektronisch CC-Tak	539308	1	CCV2	19.2	Koppelele mit Fess. 24V 0A	50955	1	49	15.6
Steuerung CME6 12/24V	350960	1	CME6.1	18.3	Koppelele mit Fess. 24V 0A	50955	1	50.0	15.7
Steuerung CME6 12/24V	350960	1	CME6.2	18.3	Koppelele mit Fess. 24V 0A	50955	1	50.1	15.8
Druckgeber 400V 0-12bar, 1/2" AG	960891	1	DPF	9.6	Koppelele mit Fess. 24V 0A	50955	1	50.2	15.9
Relais Koppel 1WS, 10A AC24V	50270	1	D1.1	4.8	Koppelele mit Fess. 24V 0A	50955	1	50.3	16.0
Relais Koppel 1WS, 10A AC24V	50270	1	D1.2	4.9	Relais Koppel 2WS, 10A DC24V	50955	1	50.4	16.1
Heizung 24V 120W/AC/200V	280707	1	E1	4.7	Relais Koppel 2WS, 10A DC24V	50955	1	50.5	16.2
Motorgelbe elektronisch CC-Tak	539308	1	EMP1	19.1	Motorgelbe elektronisch CC-Tak	539308	1	50.6	16.3
Motorgelbe elektronisch CC-Tak	539308	1	EMP2	20.1	Motorgelbe elektronisch CC-Tak	539308	1	50.7	16.4
Motorschaltzeile 5.5-9A, L2-X-0314	214931	2	F1	3.0.12.4	Turbine 2,2kW 5.6A, 3AC, 400V 50Hz	568000	1	91	3.0
Motorschaltzeile 5.5-9A, L2-X-0314	214931	1	F1	9.4	Turbine 2,2kW 5.6A, 3AC, 400V 50Hz	568000	1	92	3.2
Motorschaltzeile 5.5-9A, L2-X-0314	214931	2	F2	3.2.12.5	Kohlenstoffdioxid Kompressor Einleit Multi Terminal	568085	1	93	3.4
Motorschaltzeile 5.5-9A, L2-X-0314	214931	1	F2	9.5	Kohlenstoffdioxid Kompressor Einleit Multi Terminal	568085	1	94	3.5
Motorschaltzeile 2.7-3.6A	518901	1	F3	3.4	Magnet-Motorschaltzeile 3in	349908	1	95	4.0
Motorschaltzeile 2.7-3.6A	518901	1	F3	9.8	Magnet-Motorschaltzeile 3in	349908	1	96	4.1
Motorschaltzeile 5.5-9A, L2-X-0314	214931	1	F3	12.5	Magnet-Motorschaltzeile 3in	349908	1	97	4.3
Motorschaltzeile 2.7-3.6A	518901	1	F4	3.5	Magnet-Motorschaltzeile 3in	349908	1	98	4.4
Motorschaltzeile 5.5-9A, L2-X-0314	214931	1	F4	9.9	Magnet-Motorschaltzeile 3in	349908	1	99	4.5
Motorschaltzeile 5.5-9A, L2-X-0314	214931	1	F5	5.4	Magnet-Motorschaltzeile 3in	349908	1	100	4.6
Steuerung 4A Tripp, 3x20mm	38031	1	F5	5.4	Magnet-Motorschaltzeile 3in	349908	1	101	4.7
Steuerung 4A Tripp, 3x20mm	38031	1	F6	3.2	Magnet-Motorschaltzeile 3in	349908	1	102	4.8
Steuerung 4A Tripp, 3x20mm	38031	1	F7	3.2	Magnet-Motorschaltzeile 3in	349908	1	103	4.9
Steuerung 4A Tripp, 3x20mm	38031	1	F8	4.8	Magnet-Motorschaltzeile 3in	349908	1	104	5.0
Steuerung 4A Tripp, 3x20mm	38031	1	F9	4.0	Magnet-Motorschaltzeile 3in	349908	1	105	5.1
Steuerung 4A Tripp, 3x20mm	38031	1	F10	4.3	Magnet-Motorschaltzeile 3in	349908	1	106	5.2
Steuerung 4A Tripp, 3x20mm	38031	1	F11	4.5	Magnet-Motorschaltzeile 3in	349908	1	107	5.3
Steuerung 4A Tripp, 3x20mm	38031	1	F12	4.7	Magnet-Motorschaltzeile 3in	349908	1	108	5.4
Steuerung 4A Tripp, 3x20mm	38031	1	F13	4.9	Magnet-Motorschaltzeile 3in	349908	1	109	5.5
Steuerung 4A Tripp, 3x20mm	38031	1	F14	5.0	Magnet-Motorschaltzeile 3in	349908	1	110	5.6
Steuerung 4A Tripp, 3x20mm	38031	1	F15	5.1	Magnet-Motorschaltzeile 3in	349908	1	111	5.7
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Steuerung 4A Tripp, 3x20mm	38031	1	F17	5.3	Magnet-Motorschaltzeile 3in	349908	1	113	5.9
Steuerung 4A Tripp, 3x20mm	38031	1	F18	5.4	Magnet-Motorschaltzeile 3in	349908	1	114	6.0
Steuerung 4A Tripp, 3x20mm	38031	1	F19	5.5	Magnet-Motorschaltzeile 3in	349908	1	115	6.1
Steuerung 4A Tripp, 3x20mm	38031	1	F20	5.6	Magnet-Motorschaltzeile 3in	349908	1	116	6.2
Steuerung 4A Tripp, 3x20mm	38031	1	F21	5.7	Magnet-Motorschaltzeile 3in	349908	1	117	6.3
Steuerung 4A Tripp, 3x20mm	38031	1	F22	5.8	Magnet-Motorschaltzeile 3in	349908	1	118	6.4
Steuerung 4A Tripp, 3x20mm	38031	1	F23	5.9	Magnet-Motorschaltzeile 3in	349908	1	119	6.5
Steuerung 4A Tripp, 3x20mm	38031	1	F24	6.0	Magnet-Motorschaltzeile 3in	349908	1	120	6.6
Steuerung 4A Tripp, 3x20mm	38031	1	F25	6.1	Magnet-Motorschaltzeile 3in	349908	1	121	6.7
Steuerung 4A Tripp, 3x20mm	38031	1	F26	6.2	Magnet-Motorschaltzeile 3in	349908	1	122	6.8
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Steuerung 4A Tripp, 3x20mm	38031	1	F28	6.4	Magnet-Motorschaltzeile 3in	349908	1	124	7.0
Steuerung 4A Tripp, 3x20mm	38031	1	F29	6.5	Magnet-Motorschaltzeile 3in	349908	1	125	7.1
Steuerung 4A Tripp, 3x20mm	38031	1	F30	6.6	Magnet-Motorschaltzeile 3in	349908	1	126	7.2
Steuerung 4A Tripp, 3x20mm	38031	1	F31	6.7	Magnet-Motorschaltzeile 3in	349908	1	127	7.3
Steuerung 4A Tripp, 3x20mm	38031	1	F32	6.8	Magnet-Motorschaltzeile 3in	349908	1	128	7.4
Steuerung 4A Tripp, 3x20mm	38031	1	F33	6.9	Magnet-Motorschaltzeile 3in	349908	1	129	7.5
Steuerung 4A Tripp, 3x20mm	38031	1	F34	7.0	Magnet-Motorschaltzeile 3in	349908	1	130	7.6
Steuerung 4A Tripp, 3x20mm	38031	1	F35	7.1	Magnet-Motorschaltzeile 3in	349908	1	131	7.7
Steuerung 4A Tripp, 3x20mm	38031	1	F36	7.2	Magnet-Motorschaltzeile 3in	349908	1	132	7.8
Steuerung 4A Tripp, 3x20mm	38031	1	F37	7.3	Magnet-Motorschaltzeile 3in	349908	1	133	7.9
Steuerung 4A Tripp, 3x20mm	38031	1	F38	7.4	Magnet-Motorschaltzeile 3in	349908	1	134	8.0
Steuerung 4A Tripp, 3x20mm	38031	1	F39	7.5	Magnet-Motorschaltzeile 3in	349908	1	135	8.1
Steuerung 4A Tripp, 3x20mm	38031	1	F40	7.6	Magnet-Motorschaltzeile 3in	349908	1	136	8.2
Steuerung 4A Tripp, 3x20mm	38031	1	F41	7.7	Magnet-Motorschaltzeile 3in	349908	1	137	8.3
Steuerung 4A Tripp, 3x20mm	38031	1	F42	7.8	Magnet-Motorschaltzeile 3in	349908	1	138	8.4
Steuerung 4A Tripp, 3x20mm	38031	1	F43	7.9	Magnet-Motorschaltzeile 3in	349908	1	139	8.5
Steuerung 4A Tripp, 3x20mm	38031	1	F44	8.0	Magnet-Motorschaltzeile 3in	349908	1	140	8.6
Steuerung 4A Tripp, 3x20mm	38031	1	F45	8.1	Magnet-Motorschaltzeile 3in	349908	1	141	8.7
Steuerung 4A Tripp, 3x20mm	38031	1	F46	8.2	Magnet-Motorschaltzeile 3in	349908	1	142	8.8
Steuerung 4A Tripp, 3x20mm	38031	1	F47	8.3	Magnet-Motorschaltzeile 3in	349908	1	143	8.9
Steuerung 4A Tripp, 3x20mm	38031	1	F48	8.4	Magnet-Motorschaltzeile 3in	349908	1	144	9.0
Steuerung 4A Tripp, 3x20mm	38031	1	F49	8.5	Magnet-Motorschaltzeile 3in	349908	1	145	9.1
Steuerung 4A Tripp, 3x20mm	38031	1	F50	8.6	Magnet-Motorschaltzeile 3in	349908	1	146	9.2
Steuerung 4A Tripp, 3x20mm	38031	1	F51	8.7	Magnet-Motorschaltzeile 3in	349908	1	147	9.3
Steuerung 4A Tripp, 3x20mm	38031	1	F52	8.8	Magnet-Motorschaltzeile 3in	349908	1	148	9.4
Steuerung 4A Tripp, 3x20mm	38031	1	F53	8.9	Magnet-Motorschaltzeile 3in	349908	1	149	9.5
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Steuerung 4A Tripp, 3x20mm	38031	1	F55	9.1	Magnet-Motorschaltzeile 3in	349908	1	151	9.7
Steuerung 4A Tripp, 3x20mm	38031	1	F56	9.2	Magnet-Motorschaltzeile 3in	349908	1	152	9.8
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Steuerung 4A Tripp, 3x20mm	38031	1	F58	9.4	Magnet-Motorschaltzeile 3in	349908	1	154	10.0
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Steuerung 4A Tripp, 3x20mm	38031	1	F62	9.8	Magnet-Motorschaltzeile 3in	349908	1	158	10.4
Steuerung 4A Tripp, 3x20mm	38031	1	F63	9.9	Magnet-Motorschaltzeile 3in	349908	1	159	10.5
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Steuerung 4A Tripp, 3x20mm	38031	1	F66	10.2	Magnet-Motorschaltzeile 3in	349908	1	162	10.8
Steuerung 4A Tripp, 3x20mm	38031	1	F67	10.3	Magnet-Motorschaltzeile 3in	349908	1	163	10.9
Steuerung 4A Tripp, 3x20mm	38031	1	F68	10.4	Magnet-Motorschaltzeile 3in	349908	1	164	11.0
Steuerung 4A Tripp, 3x20mm	38031	1	F69	10.5	Magnet-Motorschaltzeile 3in	349908	1	165	11.1
Steuerung 4A Tripp, 3x20mm	38031	1	F70	10.6	Magnet-Motorschaltzeile 3in	349908	1	166	11.2
Steuerung 4A Tripp, 3x20mm	38031	1	F71	10.7	Magnet-Motorschaltzeile 3in	349908	1	167	11.3
Steuerung 4A Tripp, 3x20mm	38031	1	F72	10.8	Magnet-Motorschaltzeile 3in	349908	1	168	11.4
Steuerung 4A Tripp, 3x20mm	38031	1	F73	10.9	Magnet-Motorschaltzeile 3in	349908	1	169	11.5
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Steuerung 4A Tripp, 3x20mm	38031	1	F77	11.3	Magnet-Motorschaltzeile 3in	349908	1	173	11.9
Steuerung 4A Tripp, 3x20mm	38031	1	F78	11.4	Magnet-Motorschaltzeile 3in	349908	1	174	12.0
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Steuerung 4A Tripp, 3x20mm	38031	1	F80	11.6	Magnet-Motorschaltzeile 3in	349908	1	176	12.2
Steuerung 4A Tripp, 3x20mm	38031	1	F81	11.7	Magnet-Motorschaltzeile 3in	349908	1	177	12.3
Steuerung 4A Tripp, 3x20mm	38031	1	F82	11.8	Magnet-Motorschaltzeile 3in	349908	1	178	12.4
Steuerung 4A Tripp, 3x20mm	38031	1	F83	11.9	Magnet-Motorschaltzeile 3in	349908	1	179	12.5
Steuerung 4A Tripp, 3x20mm	38031	1	F84	12.0	Magnet-Motorschaltzeile 3in	349908	1	180	12.6
Steuerung 4A Tripp, 3x20mm	38031	1	F85	12.1	Magnet-Motorschaltzeile 3in	349908	1	181	12.7
Steuerung 4A Tripp, 3x20mm	38031	1	F86	12.2	Magnet-Motorschaltzeile 3in	349908	1	182	12.8
Steuerung 4A Tripp, 3x20mm	38031	1	F87	12.3	Magnet-Motorschaltzeile 3in	349908	1	183	12.9
Steuerung 4A Tripp, 3x20mm	38031	1	F88	12.4	Magnet-Motorschaltzeile 3in	349908	1	184	13.0
Steuerung 4A Tripp, 3x20mm	38031	1	F89	12.5	Magnet-Motorschaltzeile 3in	349908	1	185	13.1
Steuerung 4A Tripp, 3x20mm	38031	1	F90	12.6	Magnet-Motorschaltzeile 3in	349908	1	186	13.2
Steuerung 4A Tripp, 3x20mm	38031	1	F91	12.7	Magnet-Motorschaltzeile 3in	349908	1	187	13.3
Steuerung 4A Tripp, 3x20mm	38031	1	F92	12.8	Magnet-Motorschaltzeile 3in	349908	1	188	13.4
Steuerung 4A Tripp, 3x20mm	38031	1	F93	12.9	Magnet-Motorschaltzeile 3in	349908	1	189	13.5
Steuerung 4A Tripp, 3x20mm	38031	1	F94	13.0	Magnet-Motorschaltzeile 3in	349908	1	190	13.6
Steuerung 4A Tripp, 3x20mm	38031	1	F95	13.1	Magnet-Motorschaltzeile 3in	349908	1	191	13.7
Steuerung 4A Tripp, 3x20mm	38031	1	F96	13.2	Magnet-Motorschaltzeile 3in	349908	1	192	13.8
Steuerung 4A Tripp, 3x20mm	38031	1	F97	13.3	Magnet-Motorschaltzeile 3in	349908	1	193	13.9
Steuerung 4A Tripp, 3x20mm	38031	1	F98	13.4	Magnet-Motorschaltzeile 3in	349908	1	194	14.0
Steuerung 4A Tripp, 3x20mm	38031	1	F99	13.5	Magnet-Motorschaltzeile 3in	349908	1	195	14.1
Steuerung									



Parts list

Artikelstückliste

Bezeichnung	Artikelnummer	Menge	Benennung (BWK)	Schaltplan / Position
Magnetventil DN10 0-löbar EPDM MS AC24V BW	536602	1	MV6.2	16.7
Geräteschleuse für MV 24V AC	5375	1	MV6.2	16.7
Magnetventil DN10 0-löbar EPDM MS AC24V BW	536602	1	MV6.1	17.1
Geräteschleuse für MV 24V AC	5375	1	MV6.1	17.1
Magnetventil DN10 0-löbar EPDM MS AC24V BW	536602	1	MV6.2	17.2
Geräteschleuse für MV 24V AC	5375	1	MV6.2	17.2
Mikroprüfer elektronisch CC-Talk	533308	2	NRL	19.2
Mikroprüfer elektronisch CC-Talk	533308	2	NRL	20.2
Hauptschalter 2SA	204609	1	Q1	3.0
Leuchtschalter mit Mikroschalter CW Weiss 24VAC	5161	2	S3	19.7/20.7
Schwingungsschalter SFS Bohrung 12,3mm	224405	1	SS.1	10.5
Schwingungsschalter SFS Bohrung 12,3mm	224405	1	SS.2	10.6
Switch IE-SW IP20	5141750	1	SFS SW	18.0
Transformator 230VAC/24VAC 125VA	5356	1	T1	5.3

F01_005

24

2 Hydraulic diagrams

2.1 MultiTerminal 4in1 Tire Inflator Station

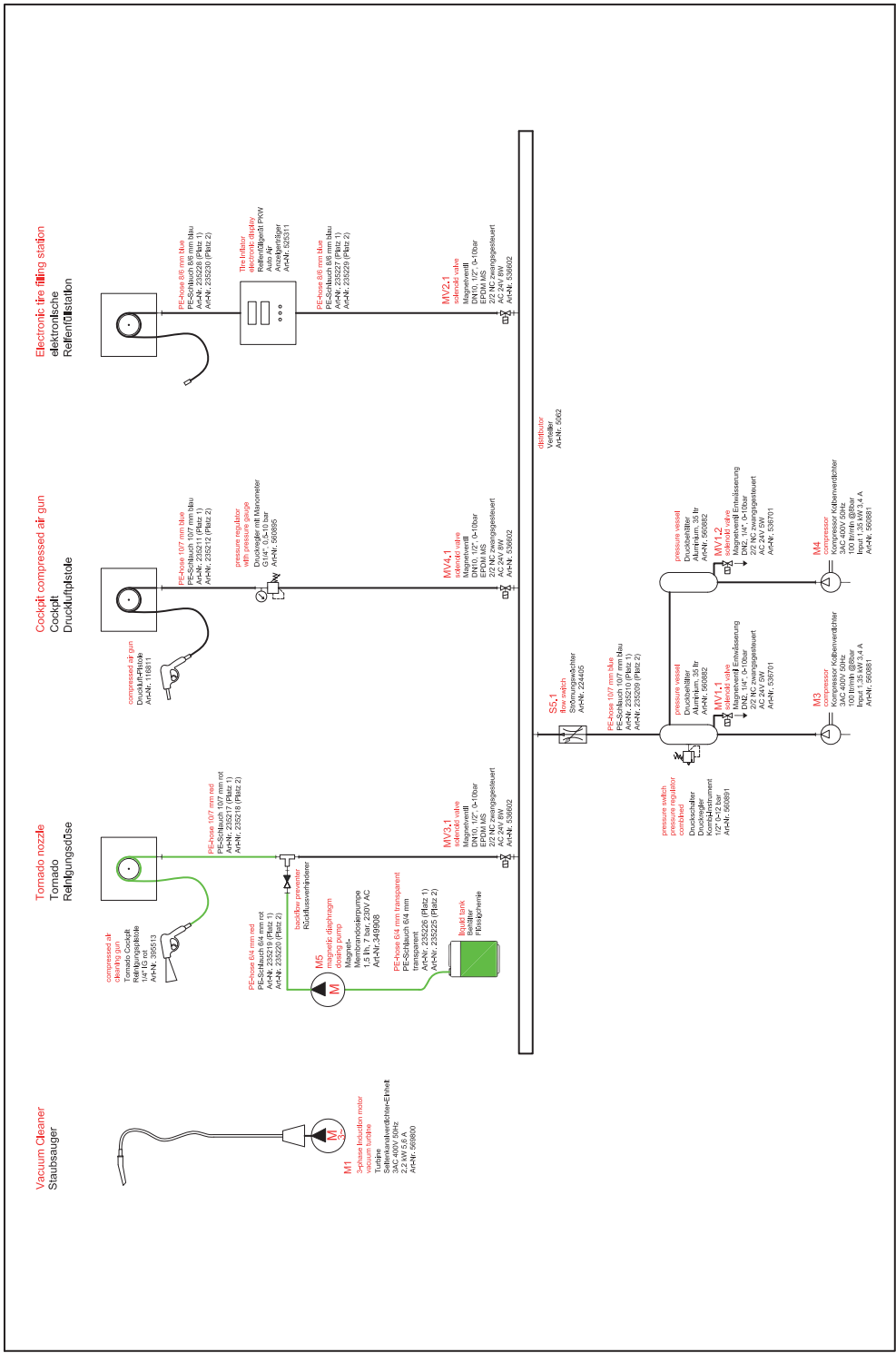


Fig. 2 - 1 MultiTerminal 4in1 Tire Inflator Station, hydraulic diagram

2.2 MultiTerminal 4in1 TireShine

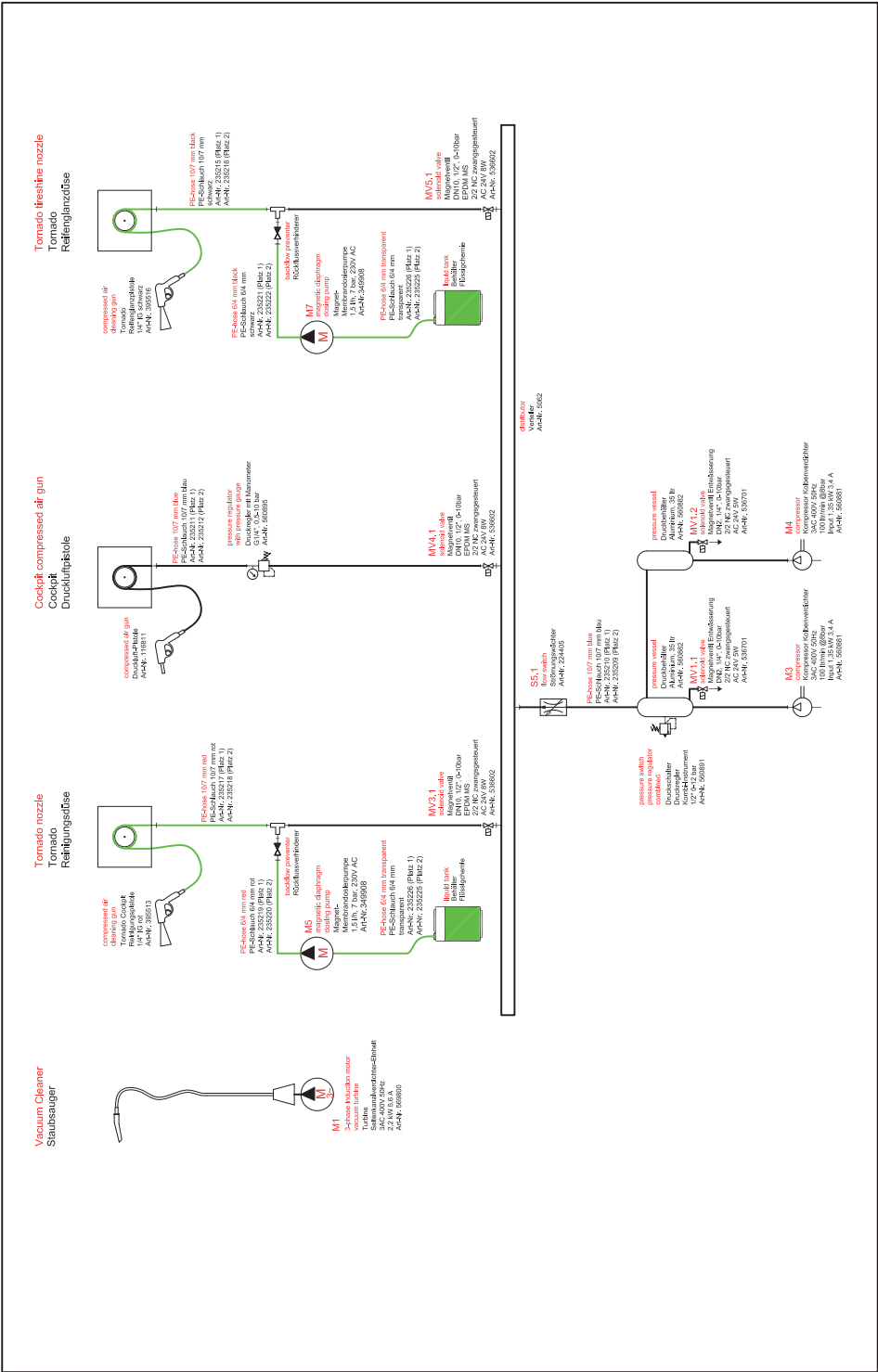


Fig. 2 - 2 MultiTerminal 4in1 TireShine, hydraulic diagram

2.3 MultiTerminal 5in1

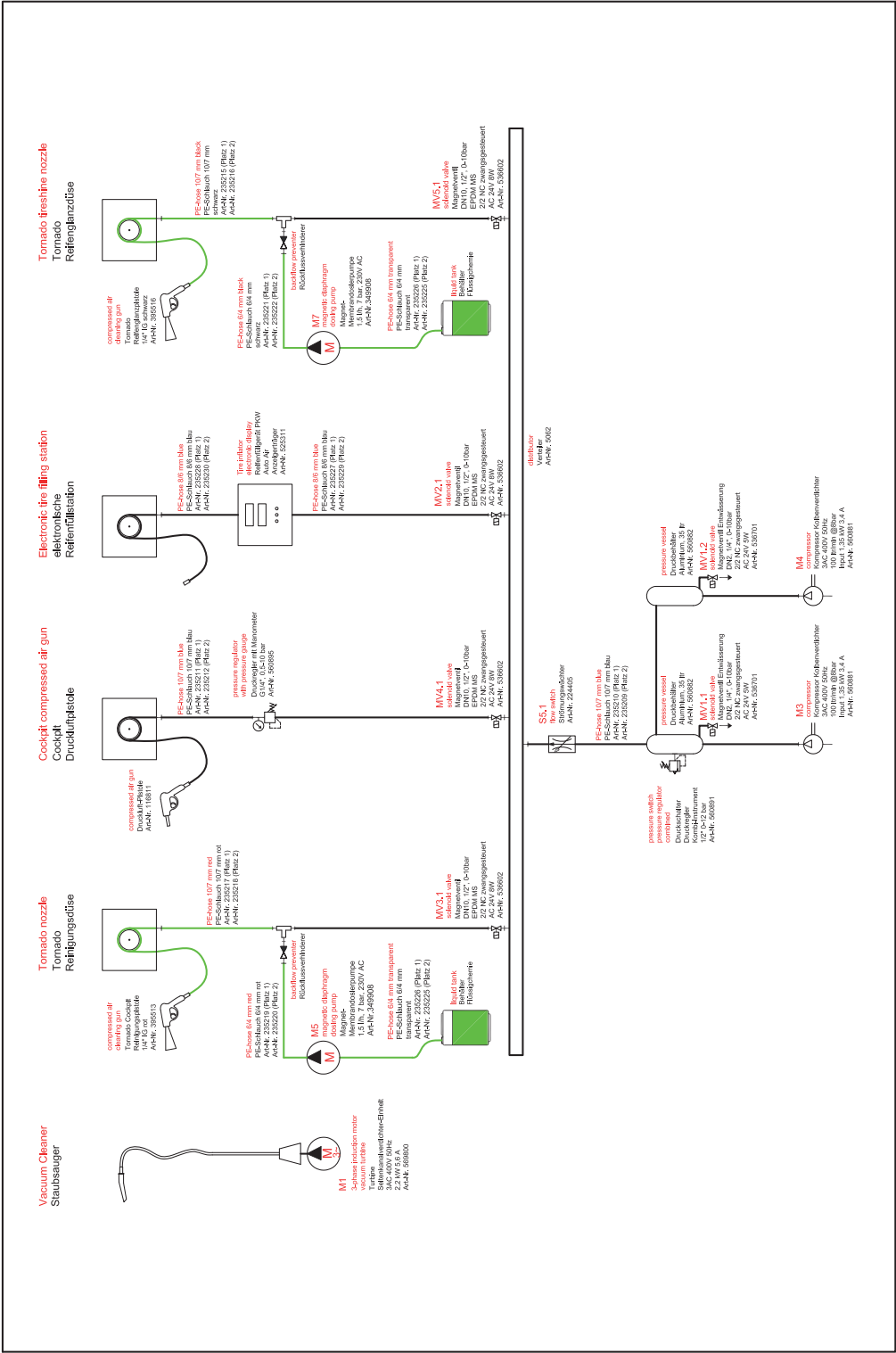


Fig. 2 - 3 MultiTerminal 5in1, hydraulic diagram

2.4 MultiTerminal 6in1

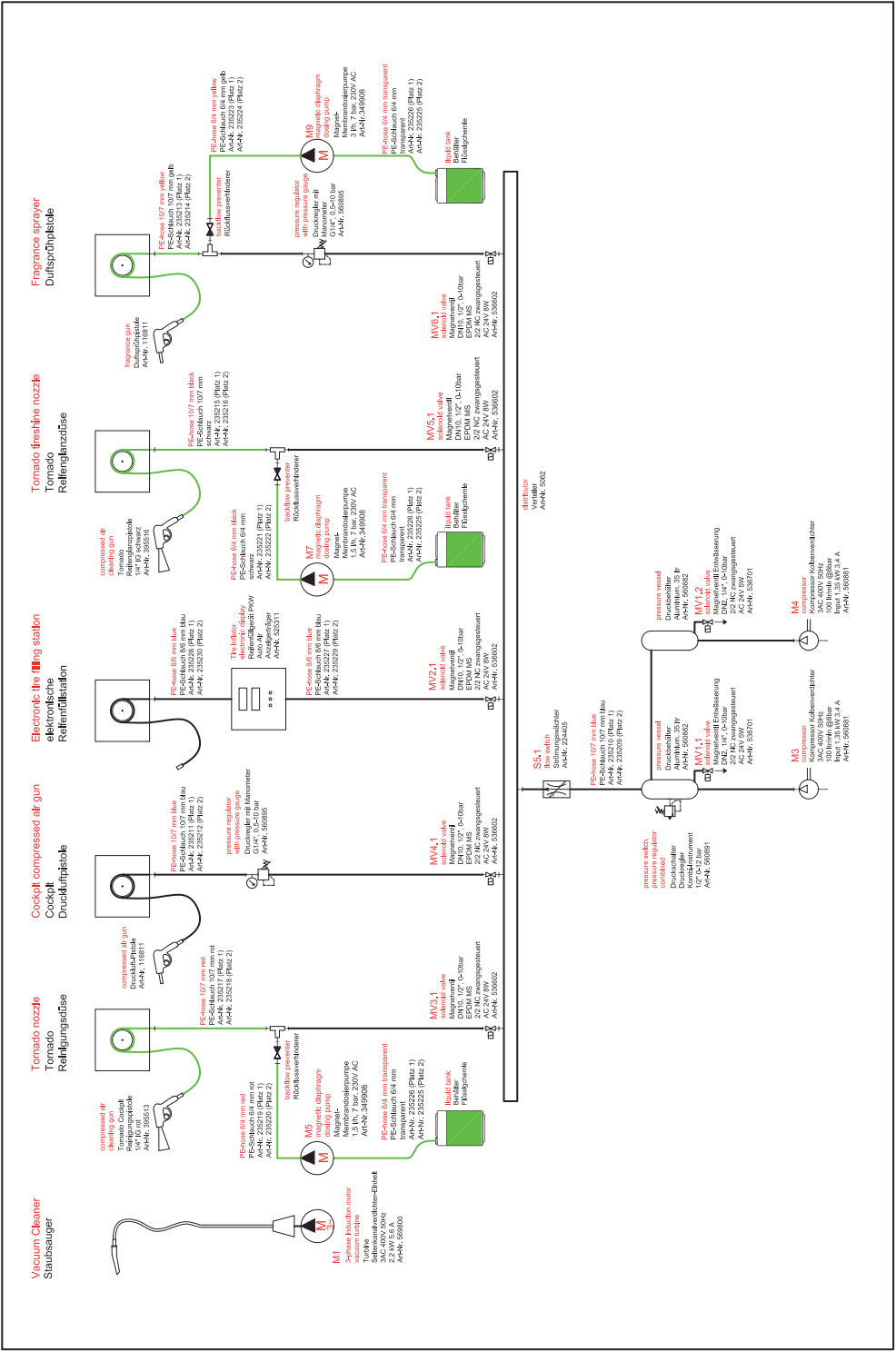
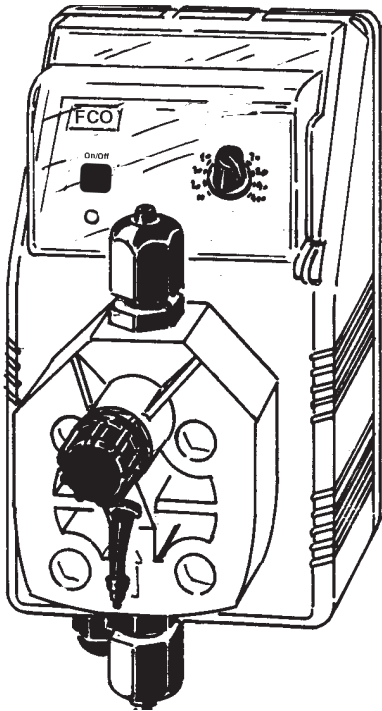


Fig. 2 - 4 MultiTerminal 6in1, hydraulic diagram

3 Chemical Dosing Unit

F - FA



SOLENOID DRIVEN METERING PUMPS
WITH DIAPHRAGM

EN

OPERATING MANUAL



This operating instructions contains safety information that if ignored can endanger life or result in serious injury.

Read these instructions **carefully** before use and keep them for future reference. The original instruction is in Italian. All non-Italian instructions are translations of the original instruction.

Information and specifications on this manual could be uncorrect or could have printing errors. Specifications are subject to change without notice.

Version: R1-09-13



NORME CE
EC RULES (STANDARD EC)
NORMAS DE LA CE

Direttiva Basso Voltaggio
Low Voltage Directive
Directiva de baja tensión } **2006/95/CE**

Direttiva EMC Compatibilità Elettromagnetica
EMC electromagnetic compatibility directive
EMC directiva de compatibilidad electromagnética } **2004/108/CE**

Norme armonizzate europee nell'ambito della direttiva
European harmonized standards underdirective
Las normas europeas armonizadas conforme a la directiva } **2006/42/CE**



F metering pump is tested and certified by WQA to NSF/ANSI 50 and 61 for materials safety.

GENERAL SAFETY GUIDELINES

Operating, installing, or maintaining the unit in any way that is not covered in this manual could cause death, serious personal injury, or damage to the equipment.

ICON

This manual use the following safety message icon:



Danger!

Indicates a hazardous situation which, if not avoided, will result in death or serious injury.



Warning!

Indicates a hazardous situation which, if not avoided, could result in death or serious injury.



Important - A practice not related to personal injury or additional information.



Cross reference - An instance which refers to related information elsewhere in the same document

PURPOSE OF USE AND
SAFETY

METERING PUMP IS INTENDED FOR CHEMICAL DOSING AND DRINKING WATER
TREATMENT.

Do not use in explosive area (EX).
Do not use with flammable chemicals.
Do not use with radioactive chemicals.

Use after a proper installation.

Use the pump in accordance with the data and specifications printed on the label.

Do not modify or use in a manner inconsistent with the provisions of the operating manual.



Keep the pump protected from sun and water. Avoid water splashes.



In emergencies the pump should be switched off immediately. Disconnect the power cable from the power supply.



When using pump with aggressive chemicals observe the regulations concerning the transport and storage of aggressive fluids.



When installing always observe national regulations.



Manufacturer is not liable for any unauthorized use or misuse of this product that may cause injury, damage to persons or materials.



Pump must be accessible at all times for both operating and servicing. Access must not be obstructed in any way.



Feeder should be interlocked with a no-flow protection device.



Pump and accessories must be serviced and repaired by qualified and authorized personnel only.



Before any operation:

- always read chemical Material Safety Data Sheet (MSDS);
- always wear protective clothing;
- always discharge the liquid end before servicing the pump.
- empty and rinse the liquid end before work on a pump which has been used with hazardous or unknown chemicals.



This equipment requires regular maintenance to ensure potability requirements of the water and maintenance of improvements as declared by the manufacturer.

ENVIRONMENTAL
SAFETY

Work area
Always keep the pump area clean to avoid and/or discover emissions.

Recycling guidelines

EWC code: 16 02 14

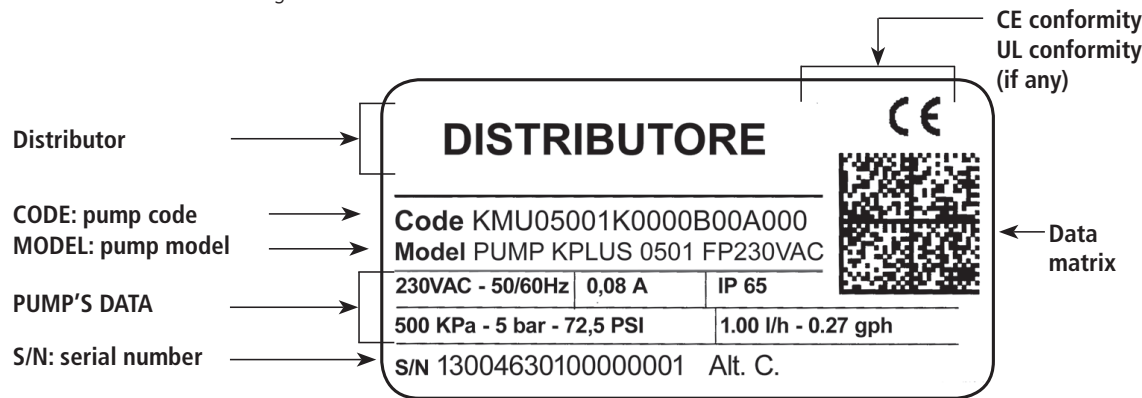
Always recycle according to these guidelines:
1. If the unit or parts are accepted by an authorized recycling company, then follow local recycling laws and regulations.
2. If the unit or parts are not accepted by an authorized recycling company, then return them to the nearest representative.

Waste and emissions regulations
Observe these safety regulations regarding waste and emissions:

- Dispose appropriately of all waste.
- Handle and dispose of the dosed chemical in compliance with applicable environmental regulations.
- Clean up all spills in accordance with safety and environmental procedures.
- Report all environmental emissions to the appropriate authorities.

LABELS

Fig. 1. Product label.



Spare parts
For spare parts orders or any other communication, refer to product label.
Code (CODE) and serial number (S / N) uniquely identify the pump.

Fig. 2. WQA label.



THIS METERING PUMP IS TESTED AND CERTIFIED
BY WQA TO NSF/ANSI 50 AND 61 FOR MATERIALS
SAFETY.

1. Introduction

Introduction:

“F” and “FA” Series metering pumps are the ideal solution for low / middle dosing of chemicals. All control and setup parameters are available using accurate control knobs and a visual system (led). “F” and “FA” Series metering pumps have digital On/Off switch to ensure dosing activities (available on some models only).

Pump capacity:

Flow rate is determined by the stroke speed (frequency) adjustment. The stroke speed is adjustable from 0 to 100% using the adjustment knob. However dosing accuracy is guarantee within an adjustment range from 30% to 100%. The led on the panel shows the status activity of the pump.

Legend:

- a. **Alternating Current;** 
- b. **DC,** 
- c. **Protective Earth;** 
- d. **Standby;** 
- e. **Warning -** 

Note for models without main plug only: The unit shall be provided with a UL listed disconnect device, rated min. 250V, xxA

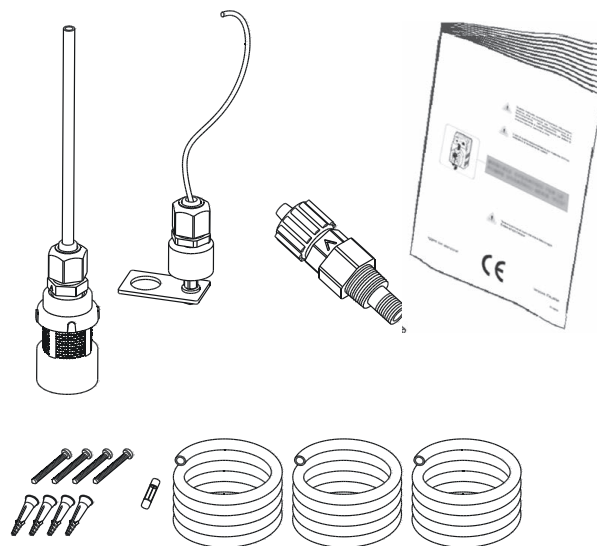
-  Feeder should be interlocked with a no-flow protection device to automatically shut-off the pumps when there is no flow!
-  Adequate measures shall be taken to prevent cross connection of chemicals!
-  Chemical feeding must be stopped during backwash cycles and periods of noflow as these conditions may introduce the potential for chemical overdosing. Not doing so may result in elevated chemical concentrations and hazardous gas introduction into the pool or spa.

2. Unpacking

Included into package:

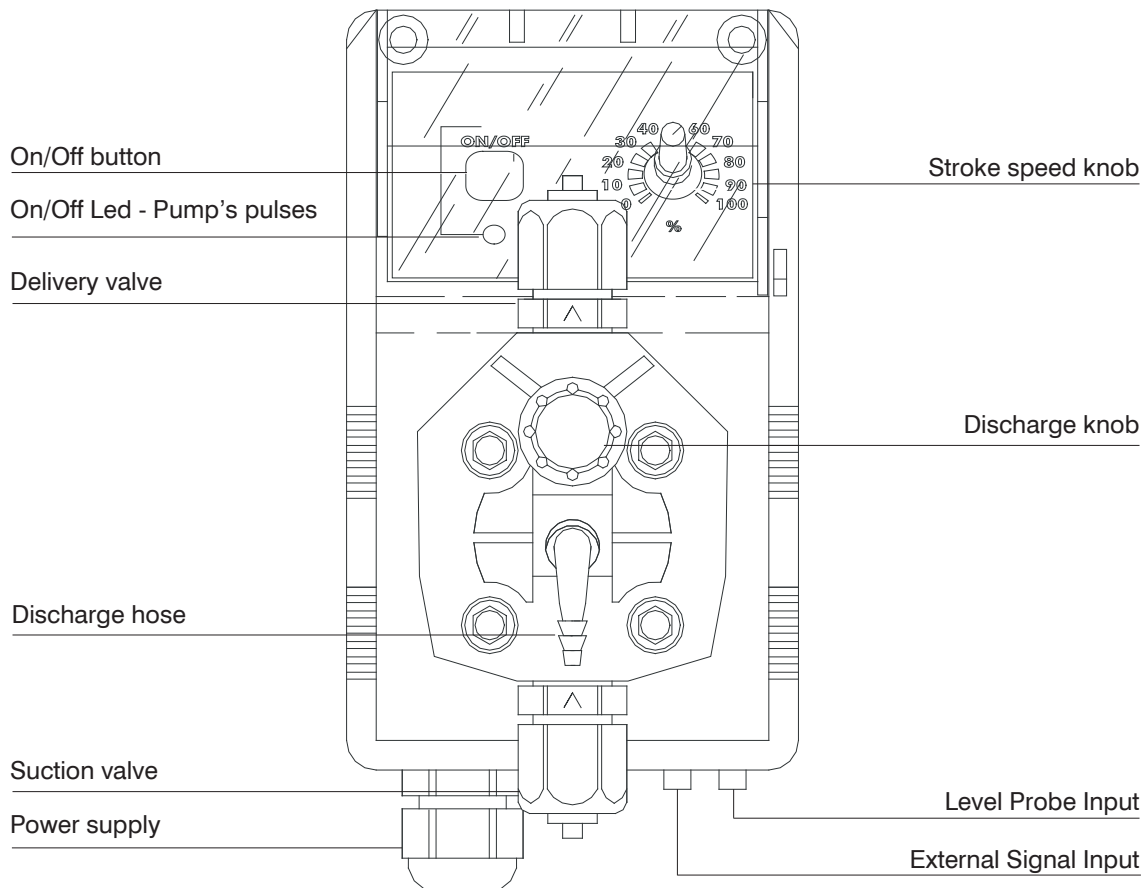
n.2	Dibbles ø6
n.2	Self tapping screws 4,5 x 40
n.1	Delayed fuse 5 X 20
n.1	Foot filter with valve
n.1	Injection valve
n. 1	Level probe (not included in FCO and FPDR model)
m 2	Delivery pipe* (opaque PE)
m 2	Suction pipe * (transparent PVC)
m 2	Discharge pipe (transparent PVC 4x6)
n.1	This installation manual

* If hose is 6x8 then there is only a 4mt long hose.
Cut to obtain suction and delivery hoses.



PLEASE DO NOT TRASH PACKAGING.
IT CAN BE USED TO RETURN THE PUMP.

3. General description



Note:

Shown image does not represent a specific pump's model. It is only for general purpose.



WARNING
IF EQUIPMENT IS SUPPLIED WITH A PLUG:

If an appliance coupler or separable plug is used as the disconnecting device, it shall be readily identifiable and easily reached by the operator. For single-phase portable equipment, a plug on a cord of length not greater than 3m is considered to be easily reached.



WARNING
IF EQUIPMENT IS NOT SUPPLIED WITH A PLUG:

- a) a switch or circuit-breaker shall be included in the building installation
- b) it shall be in close proximity to the equipment and within easy reach of the operator
- c) it shall be marked as the disconnecting device for the equipment

4. Before to Install warnings

Pump's installation and operativity is performed in 4 main steps:

Pump's installation

Hydraulic Installation (hoses, level probe, injection valve)

Electrical Installation (main power connection, priming)

Programming the pump.

Before to start, please read carefully the following safety information.

Protective clothes



Wear always protective clothes as masks, gloves, safety glasses and further security devices during ALL installation procedure and while handling chemicals.

Installation location



Pump must be installed in a safety place and fixed to the table / wall to avoid vibration problems!

Pump must be installed in a easy accessible place!

Pump must be installed in horizontal position!

Avoid water splashes and direct sun!

Hoses and Valves



*Suction and delivery hoses must be installed in vertical position!
All hoses connections must be performed using only hands' force!
No tongs required!*

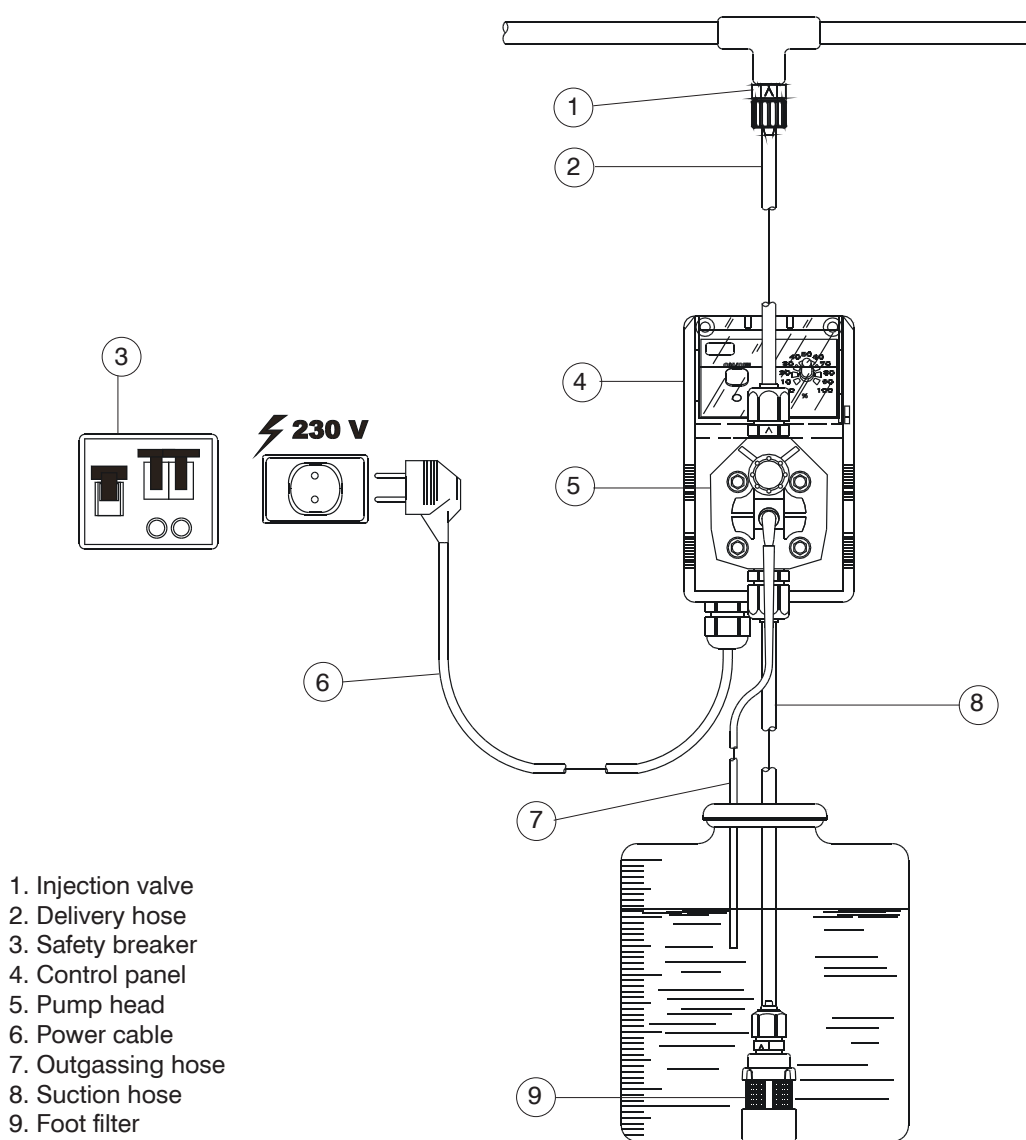
Delivery hose must be firmly fixed to avoid suddenly movements that could damage near objects!

Suction hose must be shorter as possible and installed in vertical position to avoid air bubbles suction!

Use only hoses compatibles with product to dose! See chemical compatibility table. If dosing product is not listed please consult full Compatibility Table or contact chemical's manufacturer!

5. Installation draw

Pump must be installed in a stable support at a maximum height (from tank's bottom) of 1,5 meters.



6. Hydraulic Installation

Hydraulic connections are:

- Suction Hose with level probe and foot filter*
- Delivery Hose with injection valve*
- Discharge Hose*

Suction Hose.

Completely unscrew tightening nut from pump’s head and remove assembling components: *tightening nut, holding ring and pipe holder*.

Assembly as shown in fig. (A). Insert hose into pipe holder until it reaches the bottom.

Lock hose on pump’s head by screwing down the tightening nut.
Use only hands to do it!

Connect other side of the hose to the foot filter using the same procedure.



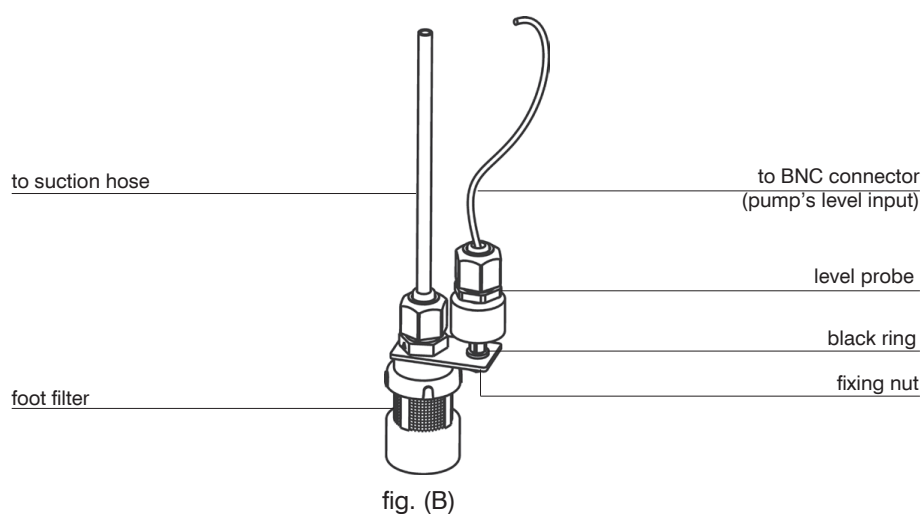
fig. (A)

6. Hydraulic Installation

Assembling foot filter with level probe.

Level probe must be assembled with foot filter using the provided kit.
Foot valve is made to be installed into tank's bottom without sediments priming problem.

Completely unscrew level probe's nut and assembly as described in fig. (B) paying attention to the black ring: it must be inserted from floater side.
Lock nut on the opposite side of the floater using hands only.



Connect BNC from level probe into pump's level input (front side of the pump).
Put level probe assembled with foot filter into tank's bottom.

Warning: If there is a mixer installed into tank, install a suction lance instead of level probe / foot filter.

Delivery Hose.

Completely unscrew tightening nut from pump's head and remove assembling components: *tightening nut, holding ring and pipe holder*.

Assembly as shown in fig. (A). Insert hose into pipe holder until it reaches the bottom.

Lock hose on pump's head by screwing down the tightening nut.
Use only hands to do it!

Connect other side of the hose to the injection valve using the same procedure.

6. Hydraulic installation

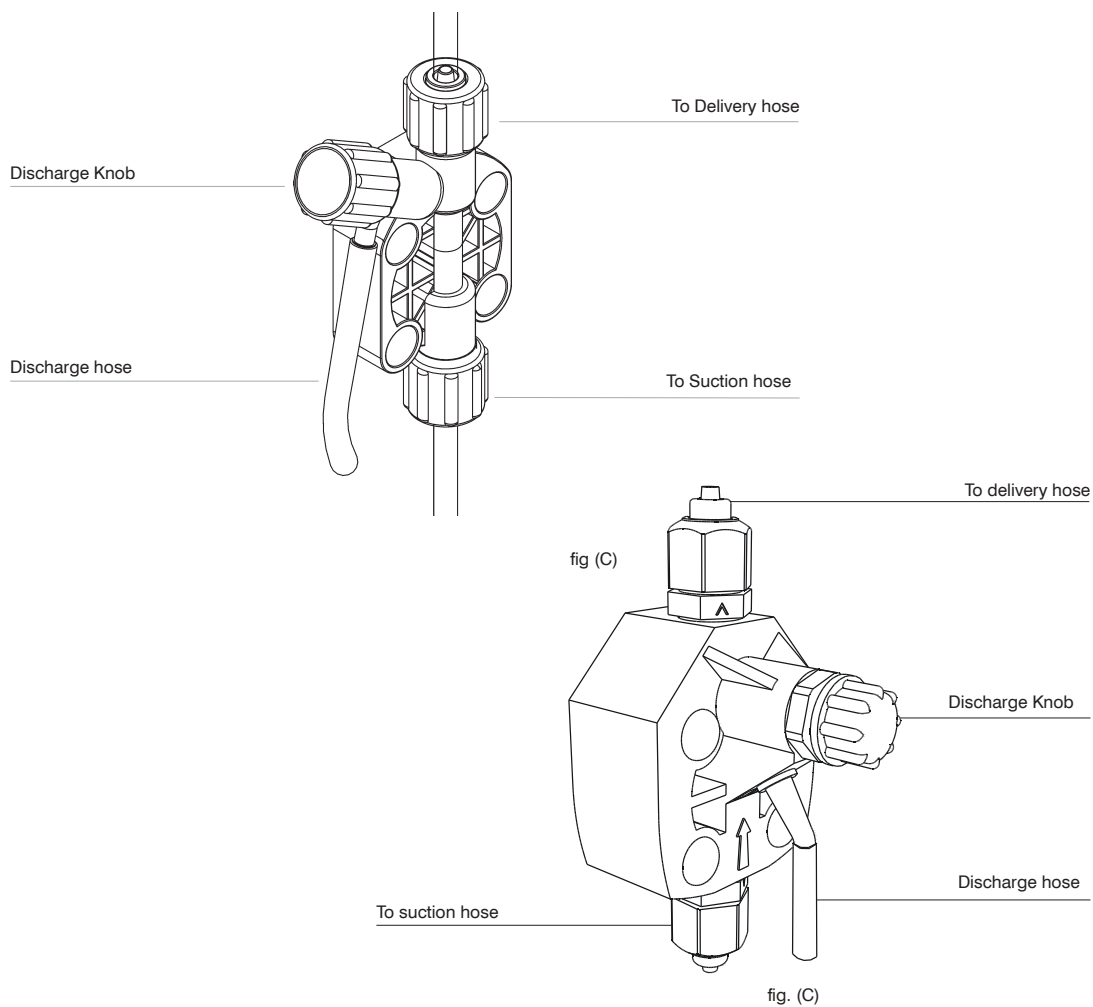
Injection Valve.

Injection valve must be installed on plant from water's input.
Injection valve will open at pressure greater than 0,3bar.

Discharge hose.

Insert one side of discharge hose into discharge connector as shown in fig (C).

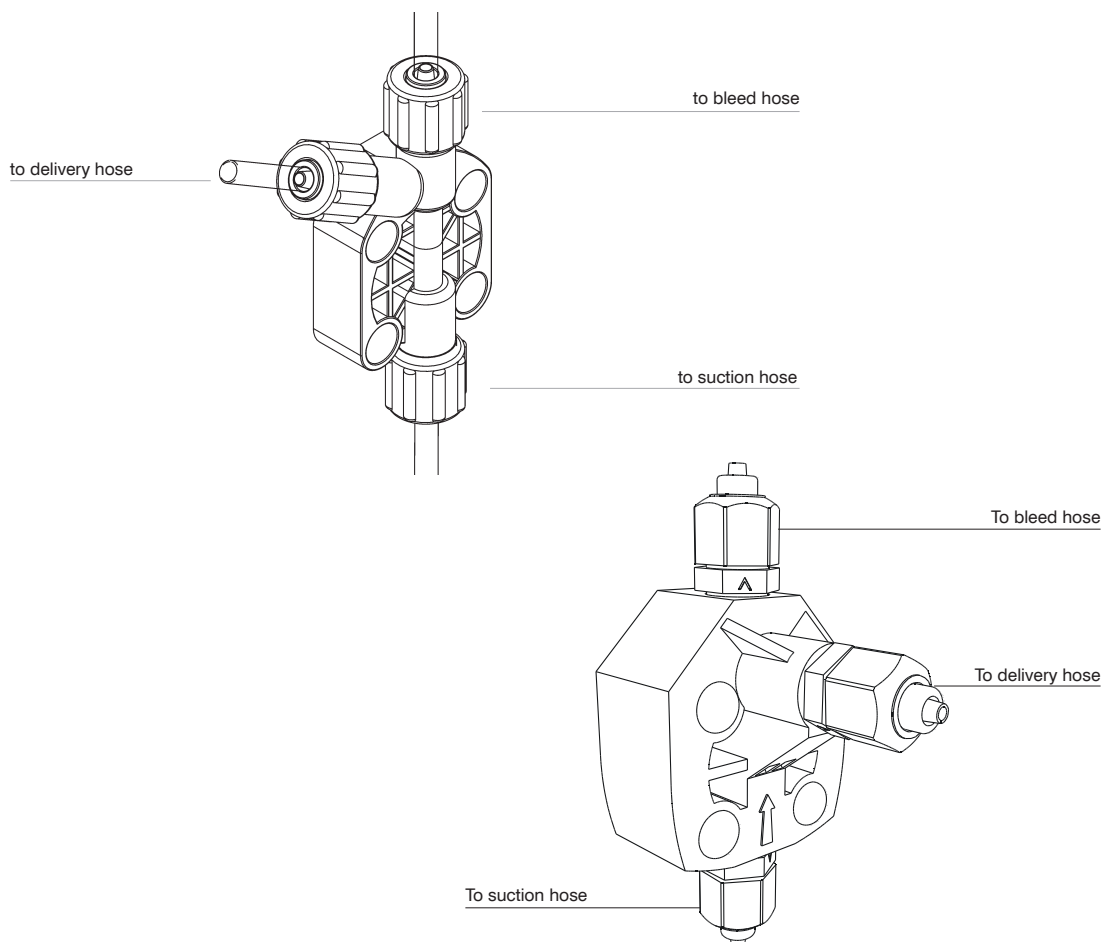
Insert other side of discharge hose into product's tank.
During priming procedure product exceeding will flow into tank.



For priming procedure see the related chapter.

6. Hydraulic installation

Self-venting pump head.



Self-venting pump head must be used when using chemicals that produce gas (i.e. hydrogen peroxide, ammonium, sodium hypochlorite at particular conditions).

Hoses assembling procedure (*including purge hose*) is described in fig. (A).

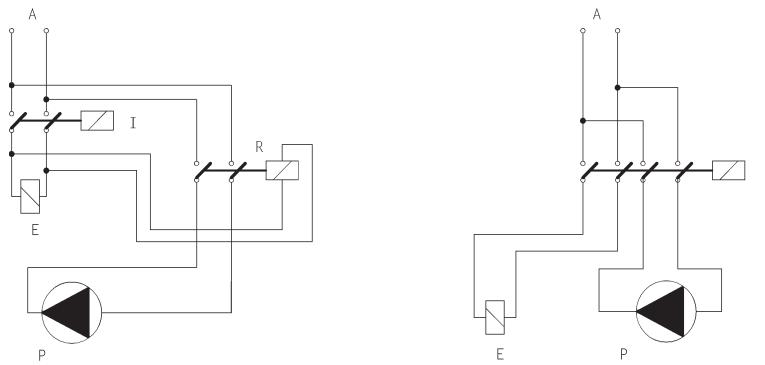
Notes:

- suction, delivery and purge valves are DIFFERENT! Do not exchange them!
- delivery and purge hoses are made of same material!
- it's allowed to lightly bend discharge hose!
- during calibration procedure ("TEST") insert discharge hose into BECKER test-tube!

7. Electrical installation

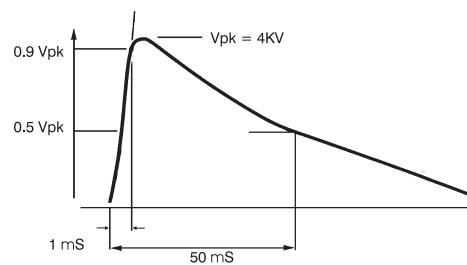
All electrical connections must be performed by **AUTHORIZED AND QUALIFIED** personnel only.
Before to proceed, please, verify the following steps:

- verify that pump's label values are compatible with main power supply.
- pump must be connected to a plant with a differential switch (0,03A sensitivity) if there isn't a good ground.
- to avoid damages to the pump do not install it in parallel with heavy inductance load (for example: engines). A relay switch must be used. See below picture.



P - Dosing Pump
R - Relay
I - Switch or safety device
E - Electrovalve or inductance load
A - Main Power

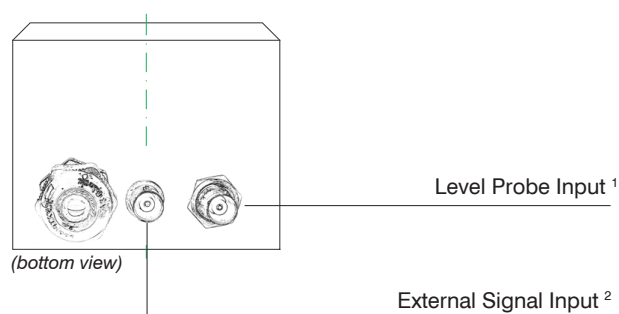
- On pump's mother board there is a further protection against over voltages (275V - 150V) and distribution line noises (4KV for max 50 μ sec) as shown:



7. Electrical Installation

Once verified previous steps proceed as follows:

- check that “BNC” of level probe has been connected as described in “Hydraulic Installation” chapter.
- connect “BNC” and external signal to pump’s “INPUT” connectors.



¹ Level Probe Input available on: FTE, FPDR, FIC, FIS, FPV, FPVM, FCL

² External Signal Input available on: FPDR (optional), FIC, FIS, FPV, FPVM, FTE

8. Models

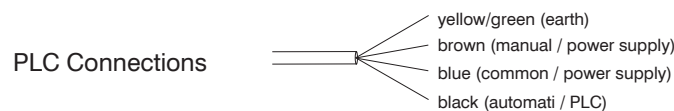
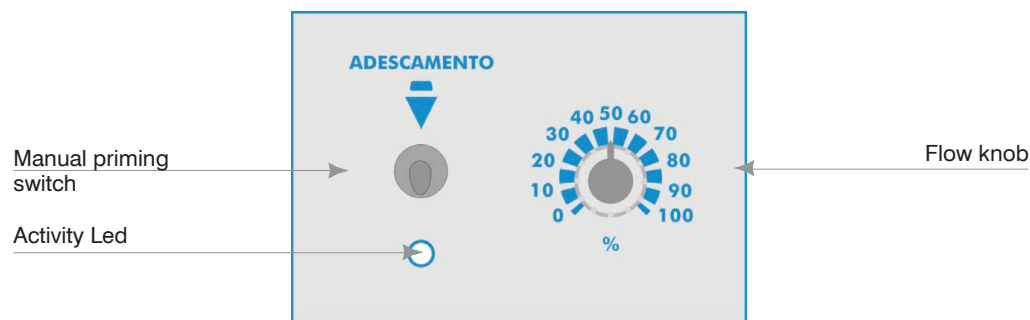
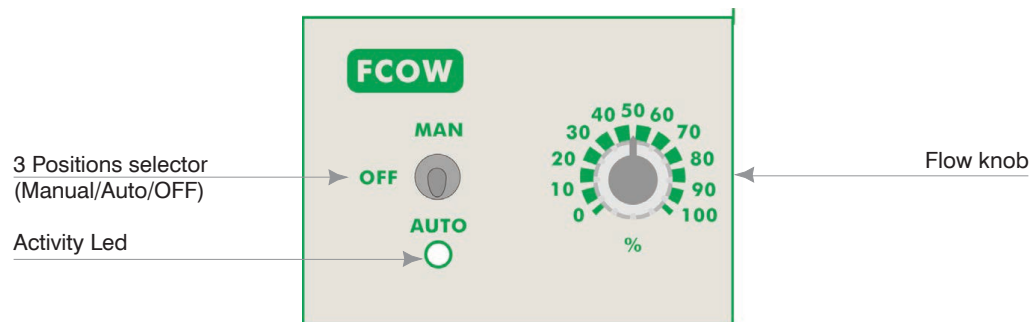
LEVEL ALARM

CL, IS, IC, PV, TE and PVM type pump are provided with a liquid level alarm to indicate product tank is empty. The level probe is connected to the right BNC plug on pump's bottom panel. The level probe is made of a N.O. reed contact (10VA, 1A max., 230Vac max.) closed by a floating magnet housed in a (PP) plastic box. When the product level goes below the minimum the magnet closes the reed contact. The pump stops and the red LED on pump's front panel indicates the alarm status.

PUMP TYPES

Pumps mod. "FCL" (12-24 Vac/Vdc), "FIC", "FIS", "FPV" and "FPVM" are equipped with a bicolour led.
Led on, red colour: low level product alarm. Check product's tank and restore the level.
Led on, blinking green colour: pump normal operating mode.
Led on, blinking green colour (one second on, one second off): power supply out of range. Check pump's label and check the main power.

FCOW



Manual mode: blue ; brown ; yellow/green
Automatic mode (PLC controlled): blue ; black ; yellow/green
24VAC model is shipped without yellow/green wire

8. Models

FCO / FCE

Constant pump with flow control (front panel knob may be set from 0% to 100% of pump nominal capacity). Flow control is electronically set and it operates on pump injections number. To avoid linearity problem do not set the knob of pump flow between 0% and 10%.

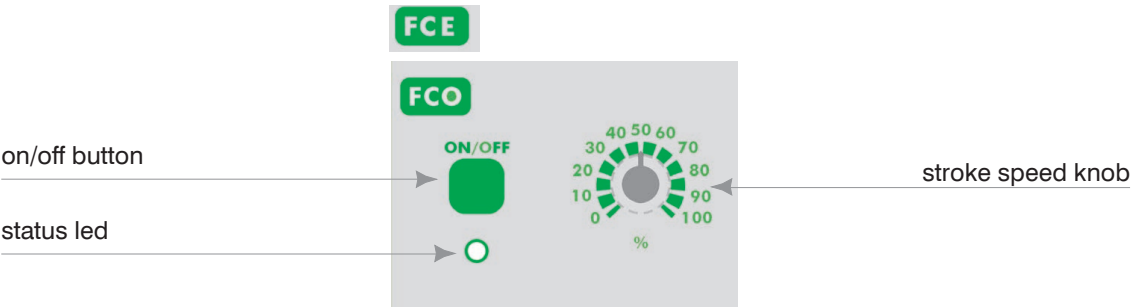
FCO / FCE may operate in constant dosing mode or On-Off mode (using an external signal).

Dosing example using an FCO / FCE 0505: to dose 2,5 l/h at 5bar counter-pressure rotate front panel knob to 50%.

FCO / FCE has a divider ($\times 0,1$) to reduce by ten times the pump capacity by dividing the pump stroke speed.

How to enable “divider mode”:

- set the pump into STANDBY* mode;
 - keeping pressed the on/off button, wait 3 flashes from the status led. The pump will start the dosing activity with the stroke speed reduced ten times than the value set on stroke lenght knob.
- To disable the “divider mode”, power OFF the pump. Keeping pressed the on/off button, wait 3 flashes of the status led.



STATUS LED

The led on the frontal panel shows the pump's operating status through four flashing:

LED ACTIVITY	PUMP'S STATUS
It flashes 3 times per second	the pump is powered with a power supply lower than the label
It flashes 2 times per second	the pump is powered with a power supply higher than the label
It flashes 1 time per second	the pump is in pause (OFF) and it is powered (STANDBY* mode)
led ON, it switches off 1 time per second	the pump is active and functioning (ON)
led ON, it switches off 1 time every 4 seconds	the pump is working into DIVIDE mode

8. Models

FCL

Constant dosing pump with level alarm.

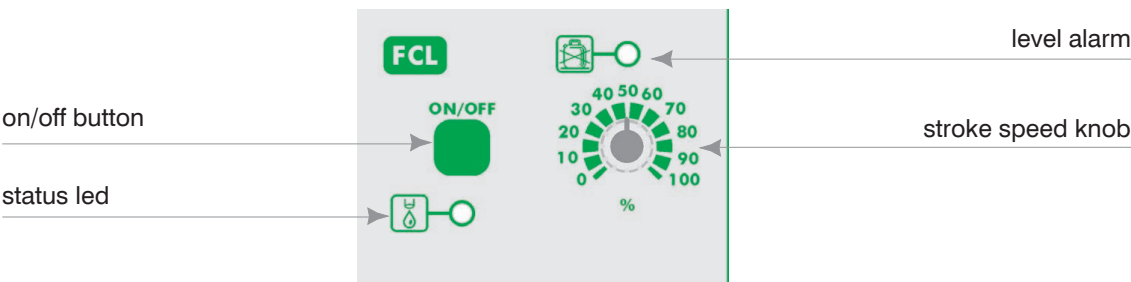
A red led indicates that the product's tank is empty. During this condition the pump does not dose. The pump has flow control (front panel knob may be set from 0% to 100% of pump nominal capacity). Flow control is electronically set and it operates on pump injections number. To avoid linearity problem do not set the knob of pump flow between 0% and 10%.

FCL has a divider (x- 0,1) to reduce by ten times the pump capacity by dividing the pump stroke speed.

How to enable "divider mode":

- set the pump into STANDBY* mode;
- keeping pressed the on/off button, wait 3 flashes from the status led. The pump will start the dosing activity with the stroke speed reduced ten times than the value set on stroke lenght knob.

To disable the "divider mode", power OFF the pump. Keeping pressed the on/off button, wait 3 flashes of the status led.



STATUS LED

The led on the frontal panel shows the pump's operating status through four flashing:

LED ACTIVITY	PUMP'S STATUS
It flashes 3 times per second	the pump is powered with a power supply lower than the label
It flashes 2 times per second	the pump is powered with a power supply higher than the label
It flashes 1 time per second	the pump is in pause (OFF) and it is powered (STANDBY* mode)
led ON, it switches off 1 time per second	the pump is active and functioning (ON)
led ON, it switches off 1 time every 4 seconds	the pump is working into DIVIDE mode

8. Models

FIC

Proportional/constant pump driven by a current signal.

Setting the switch on *constant*  position, the pump has flow control (front panel knob may be set from 0% to 100% of pump nominal capacity). Flow control is electronically set and it operates on pump injections number. To avoid linearity problem do not set the knob of pump flow between 0% and 10%.

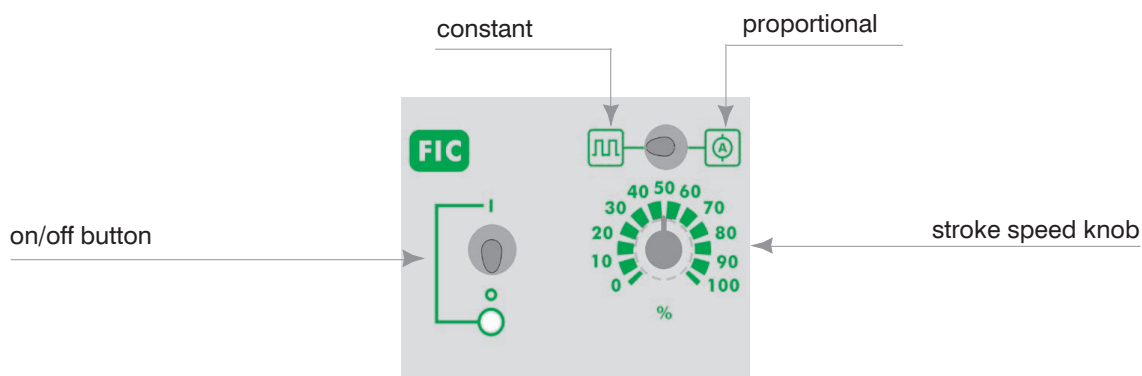
Setting the switch on the *proportional*  position, the pump capacity is set proportionally to analog current input signal; a signal change will be followed by a linear change of pump's capacity.

The current range is 0÷20 mA (0 dosing, 20 max dosing).

The maximum pump capacity for maximum input signal is set by the % marked knob.

The FIC pump can be controlled by any electronic device (such as pH-meter, redox-meter, etc) that has an analog current signal output. This signal must be applied to the bipolar cable provided with the pump, using the following connections:

- Red wire : *positive* (+)
- Black wire : *negative* (-)



8. Models

FIS

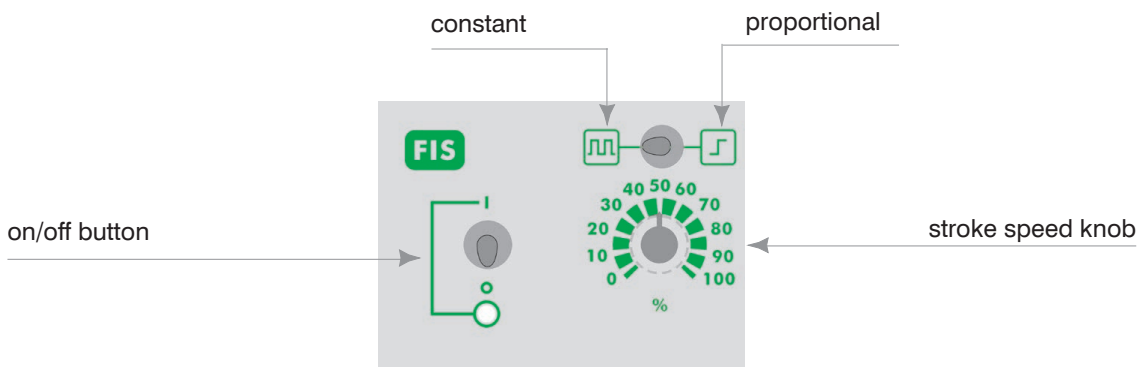
Proportional/constant pump driven by a digital signal.

Setting the switch on *constant*  position, the pump has flow control (front panel knob may be set from 0% to 100% of pump nominal capacity). Flow control is electronically set and it operates on pump injections number. To avoid linearity problem do not set the knob of pump flow between 0% and 10%. Setting the switch on the front panel in the *proportional*  position, for each external “voltage free” pulse corresponds a magnet stroke.

If proportional position is set, then the % marked knob does NOT affect the pump capacity.

FIS proportional dosing pump can be driven by any external device (such as PCs, PLCs, etc) that has a digital signal. This digital signal (N.O. contact) must be applied to the cable provided with the pump. Connect a 0÷5 or 0÷12 Vdc input signal option using the following connections:

- Red wire : *positive (+)*
- Black wire : *negative (-)*



8. Models

FPV

Proportional/constant pump driven by a water meter digital signal.

Setting the switch on *constant*  position, the pump has flow control (front panel knob may be set from 0% to 100% of pump nominal capacity). Flow control is electronically set and it operates on pump injections number. To avoid linearity problem do not set the knob of pump flow between 0% and 10%. It is furthermore possible to divide the maximum magnet strokes per minute by 1, 10 and 100 using the switch on the front panel.

Setting the switch on *proportional*  position, for each external pulse corresponds one pump stroke. This pump can be driven by a CTFI or CWFI series water meters.

This pump can also be driven by a digital signal coming from a “voltage free” contact. Driving signal is applied on the BNC plug on the left bottom of front cover. Dividing factor (N) value is obtained multiplying the value on the adjustment knob using the multiplying switch (x1, x10, x100).

Capacity definition for “FPV” and “FAPV” pump

Use the following formula to obtain minimum pump capacity:

$$\frac{\text{ppm} \times K \times m^3}{1000} = l/h$$

l/h - minimum pump capacity required

ppm - product amount to dose in p.p.m. (gr/m³)

k - dosed product dilution factor (pure chemical *k*=1)

m³ - maximum capacity of system to be treated in m³ /h.

Dividing factor (N) to set on adjustment knob:

$$\left(\frac{\text{imp/l} \times \text{cc}}{\text{ppm} \times K} \right) \times 1000 = N$$

N - number of the external pulses are divided to be set on adjustment knob

imp/l - pulse per liter given by the water meter

cc - pump's single stroke dosing quantity (in cc). Refer to following table

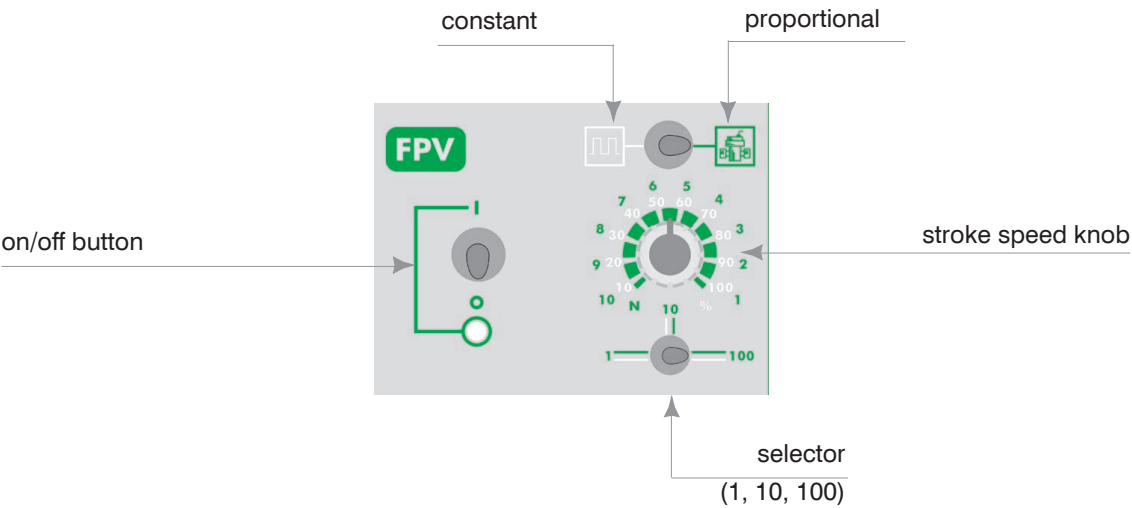
k - dosed product dilution factor (pure chemical *k*=1)

ppm - product quantity to be dosed in p.p.m. (gr/m³)

8. Models

Fxx	cc	FAXx	cc
12 1,5	0,17	10 3,2	0,35
10 05	0,56	10 0,6	0,07
10 2,2	0,25	07 1,5	0,17
07 03	0,34	05 3,2	0,35
07 05	0,56	03 6,5	0,72
06 06	0,67	03 4,7	0,52
05 10	1,11		
05 07	0,78		
05 05	0,56		
05 0,2	0,23		
03 11	1,22		
03 8,5	0,94		
03 6,5	0,72		

If dividing factor (N), obtained with the formula, is < 1 , a pump with higher single stroke dosing quantity is required or the water meter needs to be changed with one that gives higher number of pulses per liter (using a “FPVM” or “FAPVM” pump). In some application this issue can be solved reducing the dosed product dilution factor. If dosed amount is higher than the needed one, then increase the set dividing factor (N).



8. Models

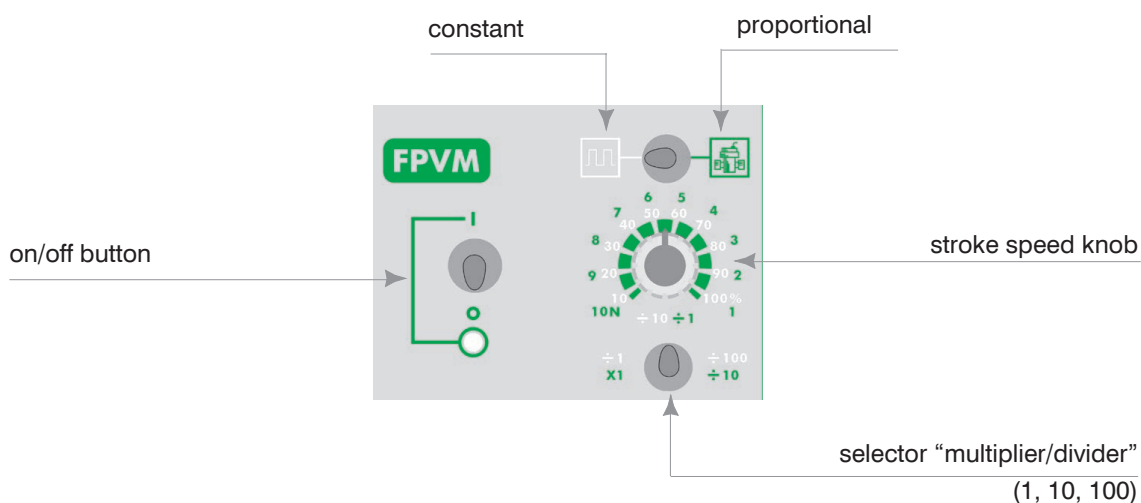
FPVM

Proportional/constant pump driven by a water meter digital signal.

Setting the switch on *constant*  position, the pump has flow control (front panel knob may be set from 0% to 100% of pump nominal capacity). Flow control is electronically set and it operates on pump injections number. To avoid linearity problem do not set the knob of pump flow between 0% and 10%. It is furthermore possible to divide the maximum magnet strokes per minute by 1 ($\div 1$), 10 ($\div 10$) and 100 ($\div 100$) using the selector on the front panel. The electronic capacity adjustment sets the injection per minute.

Setting the switch on the *proportional*  position and the selector on “multiplier” (X1), the pump gives a stroke each 10 external pulses sent. Setting the selector on “divider” ($\div 1$ or $\div 10$), the pump gives at maximum a stroke each external pulse sent and at minimum a stroke each 100 pulses sensed (knob $n=10$, switch $\div 10$).

This pump can be driven by a CTFI or CWFI series water meters. This pump can also be driven by a digital signal coming from a voltage free contact. Driving signal is applied on the BNC plug on the left of the bottom pump cover. “FPVM” and “FAPVM” capacities are defined by the same formulas used for “FPV” and “FAPV”.



8. Models

FTE

Timered/constant dosing pump.

Setting the switch on the *constant*  position, the pump has flow control (front panel knob may be set from 0% to 100% of pump nominal capacity). Flow control is electronically set and it operates on pump injections number. To avoid linearity problem do not set the knob of pump flow between 0% and 10%. Setting the switch on *timered* , the pump starts working when an external pulse is provided. Working active time for each external pulse is set on the adjustment knob in the range between 0 and 60 seconds (different time are available upon demand).

The capacity can be also changed adjusting the stroke per minute, operating the % marked knob, at the same time.

The double parameter adjustment (strokes and time) allows the use of this pump in high capacity systems, where the pulses are not enough to drive a PV type pump.

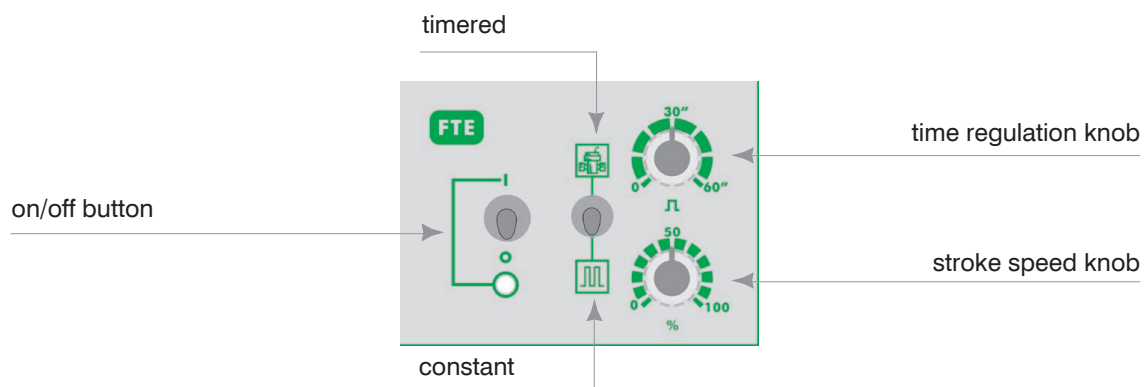
TE pump is provided of a coaxial cable (RG58) with BNC plug to connect the command signal.

Use following formula to evaluate the knob adjustment:

$$\frac{3600}{\text{imp/h}} = \text{sec.}$$

imp/h - water meter output pulse per hour
sec - time in seconds to be set on time knob

Maximum tag capacity can be decreased 10 or 100 times in the “F” and “FA” pumps using the 1/10/100 switch (where available). In that case the % marked knob will work on the maximum set capacity.



8. Models

FPDR

Intermittent constant metering pump with adjustable pause and work times.

Metering is set using three knobs on the front panel:

- (%) knob (red coloured range) sets speed stroke
- (10 ÷ 180 seconds) Pause knob sets time between one metering and the next
- (10 ÷ 180 seconds) Work knob sets metering time

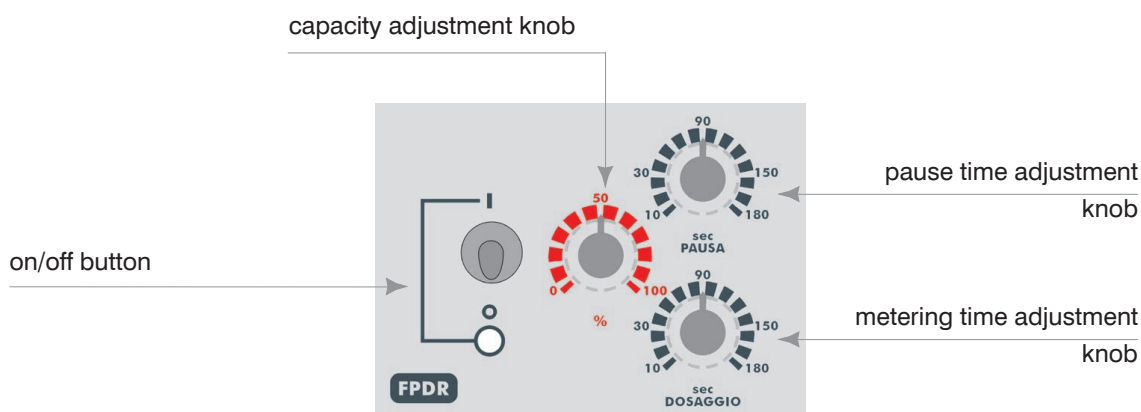
Once powered the pump, it always starts its working cycle metering for the set time.

The pump can be provided with a N.O. (1A / 230Vac) service contact: this contact is active while metering. If the level input is active while the service contact is active, pump stops and service contact gets back to N.O.

Service contact is available through a bipolar cable out of the pump.

Once refilled the tank or recovered the level input, the pump starts to dose for the remaining time missing to complete the set work time once stopped.

Level alarm is showed on the front panel with a red LED on.



9. Priming

MANUAL PRIMING / DISCHARGING

1. Connect the pump to main power.
2. Rotate front panel knob to 70%.
3. Turn on the pump.
4. Rotate discharge knob (open it completely).
5. The chemical will begin to flow into discharge hose. Close the discharge knob.
6. Proceed to normal operating mode.



10. Troubleshooting

PROBLEM	POSSIBLE CAUSE
Pump doesn't turn on.	<i>Pump isn't powered. Connect it to main supply.</i> <i>Pump's protection fuse is broken. Replace it. See page 28 for replacement procedure.</i> <i>Pump's main board is broken. Replace it. See page 28 for replacement procedure.</i>
Pump is not dosing and solenoid is operating.	<i>The foot filter is obstructed. Clean it.</i> <i>Suction hose is empty. Pump must be primed. Repeat priming procedure.</i> <i>Air bubbles inside hydraulic circuit. Check valves - hoses - fittings.</i> <i>Product to dose is generating gas. Turn discharge knob and let air flow away.</i> <i>Use a self-venting pump head.</i>
Pump is not dosing and solenoid isn't operating or slightly operating.	<i>Crystals presence inside valves. Check them and try to dose 2-3 liters of normal water. Change valves.</i> <i>Injection valve obstructed. Change it.</i>

11. Fuse and main board replacement

Fuse or main board replacement is allowed to qualified personnel only. Before to operate disconnect the pump from main power and all hydraulic connections.

For fuse replacement is necessary to use a 3x16 and 3x15 screwdriver and a new fuse (same model of old one).

For main board replacement is necessary to use a 3x16 and 3x15 screwdriver and a new main board (same model of old one).

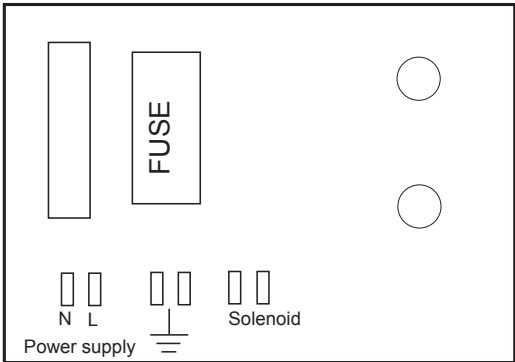
Fuse replacement procedure:

- Turn pump's injection knob on 0%.
- Remove 6 screws from pump's back.
- Pull pump's back cover until it's completed separated from pump's front. Be careful of the knob's spring.
- Locate the blown fuse and replace it.
- Reassemble the pump. Be careful to put back the knob's spring.
- Reinsert screws.

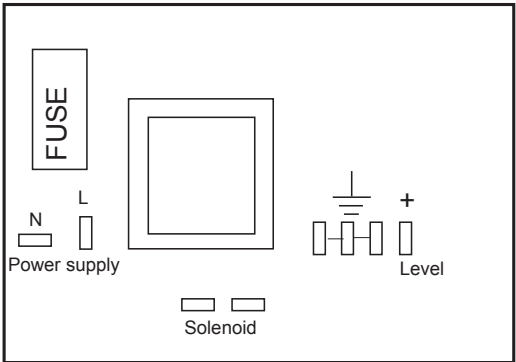
Main board replacement procedure:

- Turn pump's injection knob on 0%.
- Remove 6 screws from pump's back.
- Pull pump's back cover until it's completed separated from pump's front. Be careful of the knob's spring.
- Remove board's screws.
- Completely disconnect wires from main board and replace it. Reinsert screws.
- Reconnect wires to the main board (see enclosed picture).
- Reassemble the pump. Be careful to put back the knob's spring.
- Reinsert screws.

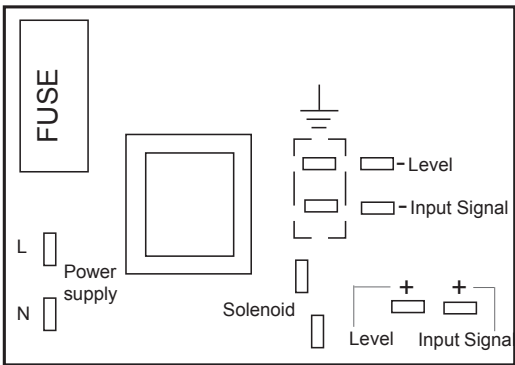
12. Main board



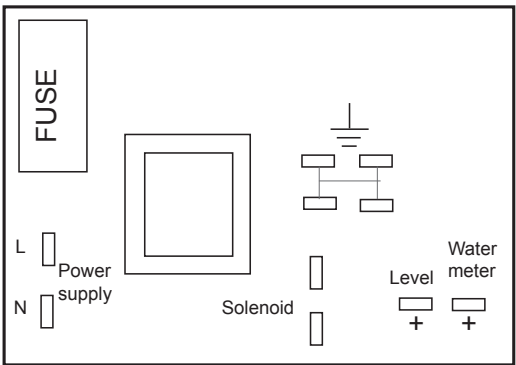
Mod. FCO



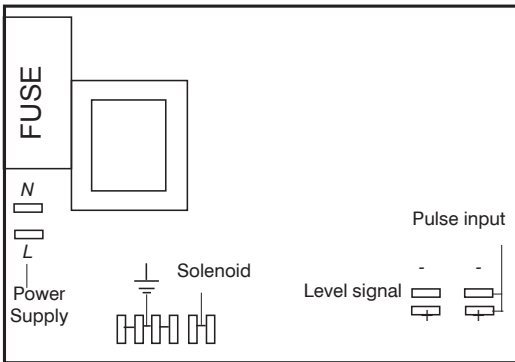
Mod. FCL



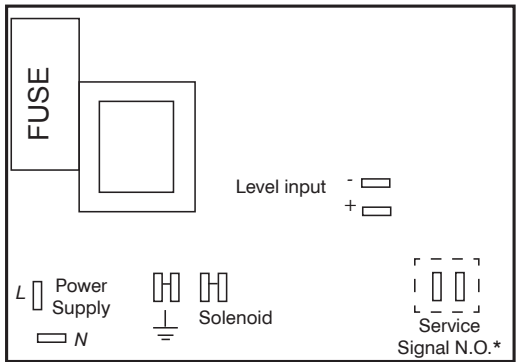
Mod. FIC/FIS



Mod. FPV/FPVM



Mod. FTE



Mod. FPDR

* Service Signal N.O.: optional

A Appendix. Maintenance.

Maintenance schedule

⚠ In order to ensure the requirements of potable drinking water treated and the maintenance of the improvements as declared by the manufacturer, this equipment must be checked at least once a month.

⚠ **OPERATOR PROTECTION**

Use safety equipment according to the company regulations.
Use this safety equipment within the work area during installation, service and when handling chemicals:

- protective mask
- protective gloves
- safety goggles
- ear plugs or hear muffs
- further security device, if necessary.

⚠ **POWER SUPPLY DISCONNECTION**

Always disconnect power to the motor before you perform any installation or maintenance tasks. Failure to disconnect power will result in serious physical injury.

⚠ Installation and maintenance tasks should be carried out by **AUTHORIZED AND QUALIFIED PERSONNEL** only in accordance with local regulations.

i Use original spare parts.

Maintenance inspection

⚠ **Shutdown the dosing pump before any maintenance operation**  **Shutdown procedure.**

A maintenance schedule includes these types of inspections:

- Routine maintenance and inspections
- Three-month inspections
- Annual inspections

Shorten the inspection intervals appropriately if the pumped chemical is abrasive or corrosive.

Routine maintenance and inspections

Perform these tasks whenever you perform routine maintenance:

- Inspect the seal. Ensure that there are no leaks from the mechanical seal.
- Check electrical wiring
- Check for unusual noise and vibration (noise allowed 73 dbA; ± 5 dB).
- Check the pump and piping for leaks.
- Check for corrosion on parts of the pump and / or on hoses.

Three-month inspections

Perform these tasks every three months:

- Check that the tightenings.
- Check the mechanical seal if the pump has been left idle.

Annual inspections

Perform these inspections one time each year:

- Check the pump capacity (as per nameplate).
- Check the pump pressure (as per nameplate).
- Check the pump power (as per nameplate).

If the pump performance does not satisfy your process requirements, and the process requirements have not changed, then perform these steps:

1. Disassemble the pump.
2. Inspect it.
3. Replace worn parts.

Shutdown
procedure

⚠ This procedure SHOULD BE CARRIED OUT BY AUTHORIZED AND QUALIFIED PERSONNEL

⚠ OPERATOR PROTECTION

Use safety equipment according to the company regulations.

Use this safety equipment within the work area during installation, service and when handling chemicals:

- protective mask
- protective gloves
- safety goggles
- ear plugs or hear muffs
- further security device, if necessary.

Shutdown the dosing pump **before any maintenance operation** or **before long downtimes**.
Disconnect power and ensure it cannot be restarted.

⚠ Depressurize the system. The liquid may leak splashing.

Drain the chemical from pump head.

Release the pressure and disconnect the discharge pipe from the discharge valve.

Rinse the pump head and clean all valves.

B Appendix. Construction Materials and Technical info

TECHNICAL FEATURES

Power supply:	230 VAC (180-270 VAC)
Power supply:	115 VAC (90-135 VAC)
Power supply:	24 VAC (20-32 VAC)
Power supply:	12 VDC (10-16 VDC)
Pump strokes:	0 ÷ 150
Suction Height:	1,5 metres
Environment Temperature:	0 ÷ 45°C (32 ÷ 113°F)
Chemical Temperature:	0 ÷ 50°C (32 ÷ 122°F)
Installation Class:	II
Pollution Level:	2
Audible Noise:	74dbA
Packaging and Transporting Temperature:	-10 ÷ +50°C
Protection degree	IP65

MANUFACTURING MATERIALS

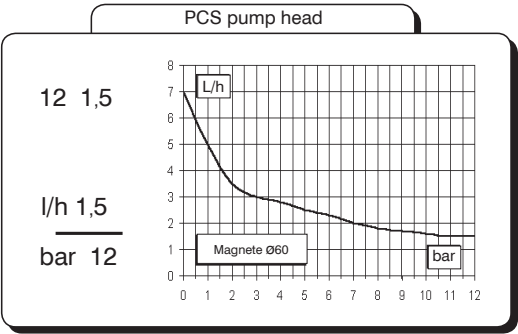
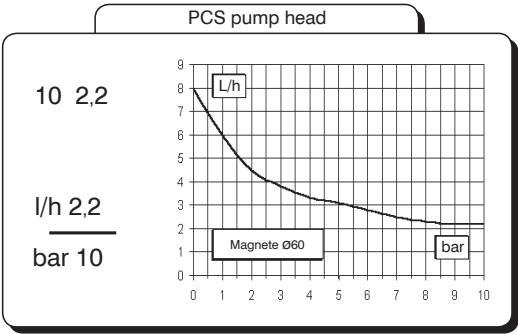
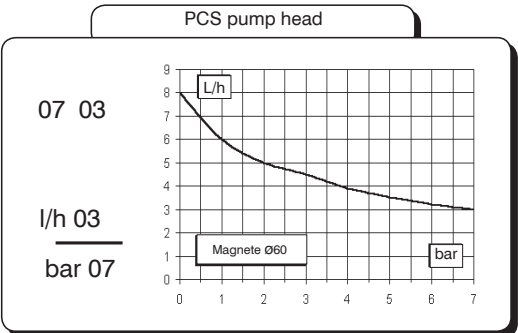
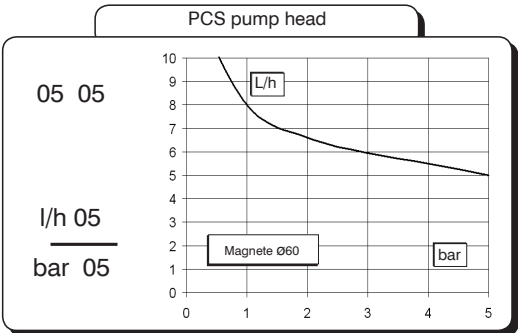
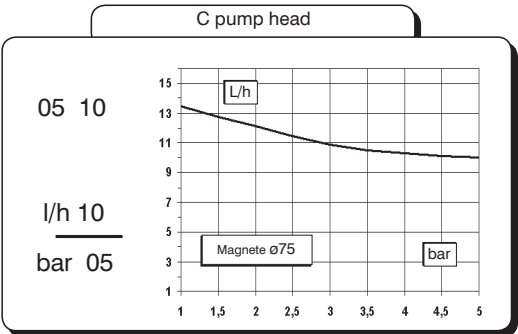
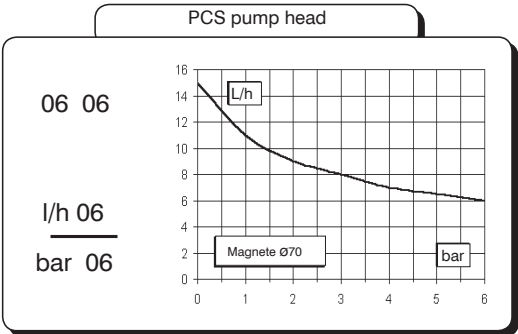
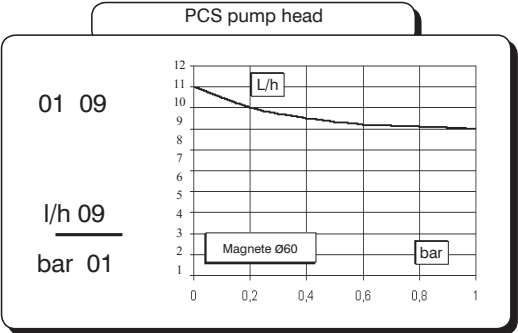
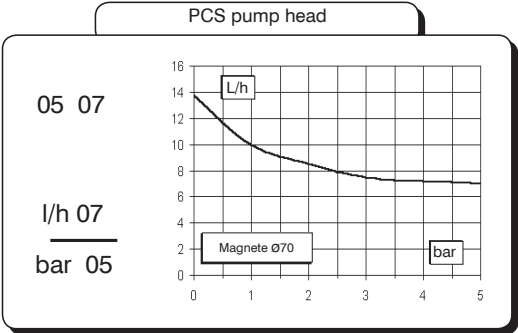
Case:	PP
Pump head:	PP, PVDF, PMMA, SS *
Diaphragm:	PTFE
Balls:	CERAMIC, GLASS, PTFE, SS *
Suction Pipe	PVC/PE **
Delivery Pipe:	PE
Valve Body:	PP, PVDF, SS *
O-ring:	FP, EP, WAX, SI, PTFE *
Injection connector	PP, PVDF (ceramic, HASTELLOY C276 spring)
Level Probe:	PP, PVDF *
Level probe cable:	PE
Foot Filter:	PP, PVDF *

* as ordered.

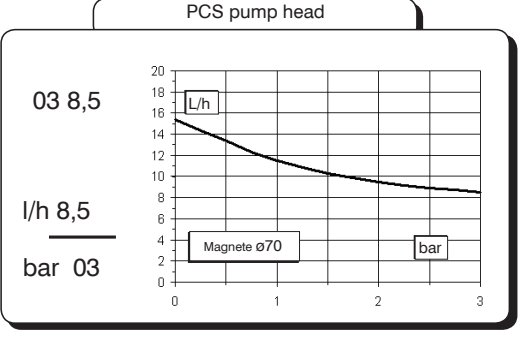
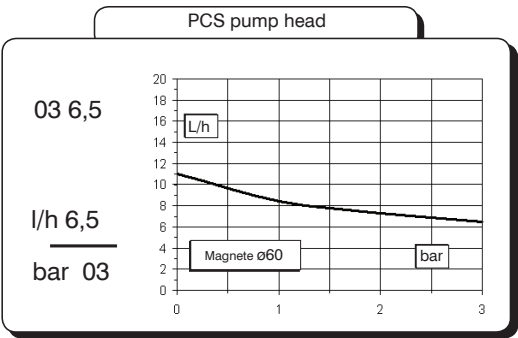
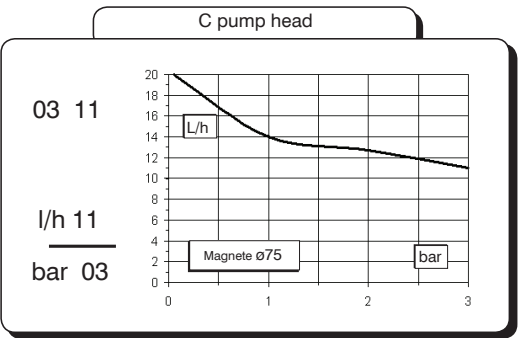
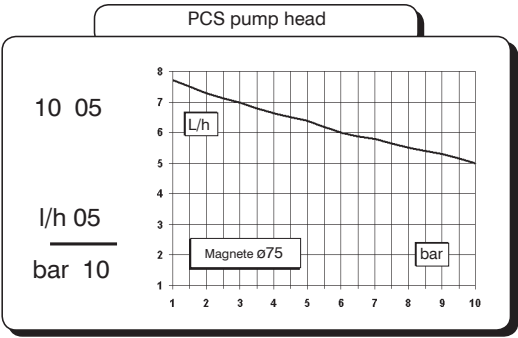
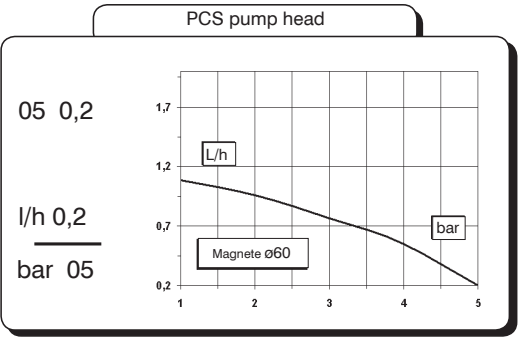
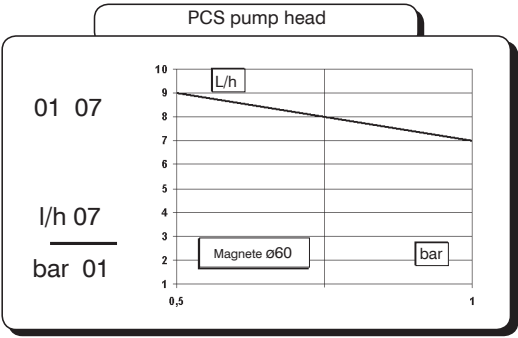
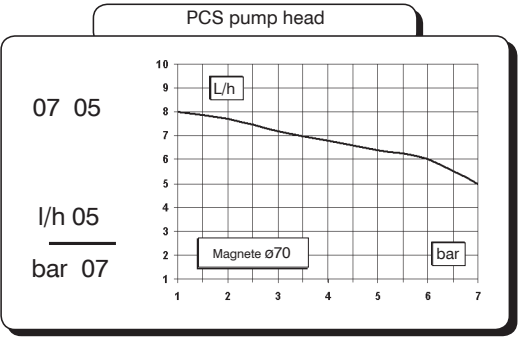
** according with pump's model.

Flow	Max Capacity l/h	Max Pressure bar	Capacity l/h	Pressure bar	ml stroke	Strokes/min	Hoses mm	Watt W	Shipping weight Kg
12 1,5	1,5	12	2,5	6	0,17	150	4 x 6	16 W	2,2
10 2,2	2,2	10	3	5	0,25	150	4 x 6	16 W	2,2
07 03	3	7	4	3,5	0,34	150	4 x 6	16 W	2,2
07 05	5	7	7	3,5	0,56	150	4 x 6	16 W	2,2
06 06	6	6	8	3	0,67	150	4 x 6	16 W	2,2
05 07	7	5	8	2,5	0,78	150	4 x 6	16 W	2,2
05 05	5	5	7	2,5	0,56	150	4 x 6	16 W	2,2
03 6,5	6,5	3	7,5	1,5	0,72	150	4 x 6	16 W	2,2
03 8,5	8,5	3	10,4	1,5	0,94	150	4 x 6	19 W	2,2
10 05	5	10	6,5	5	0,56	150	4 x 6	19 W	2,2
05 10	10	5	12	2,5	1,00	166	4 x 6	19 W	2,2
03 11	11	3	13,1	1,5	1,10	166	4 x 6	19 W	2,2
05 0,2	0,2	5	0,9	2,5	0,25	15	4 x 6	16 W	2,2

C Appendix. Delivery Curves

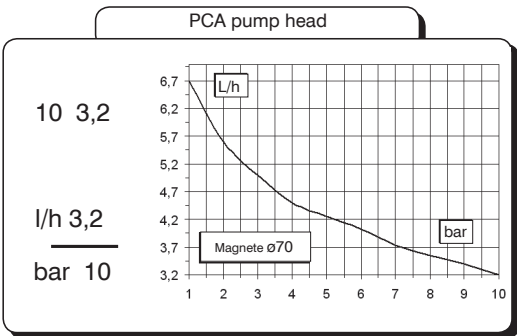
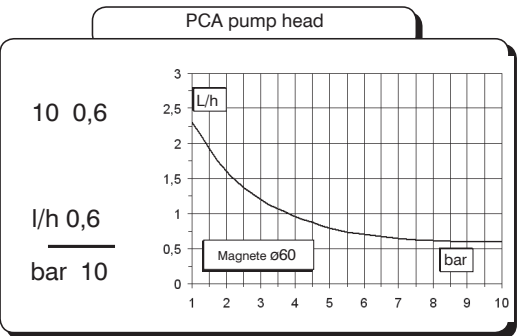
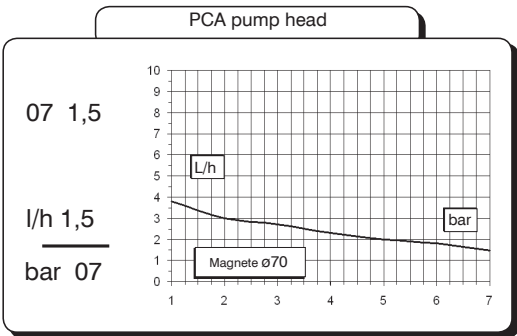
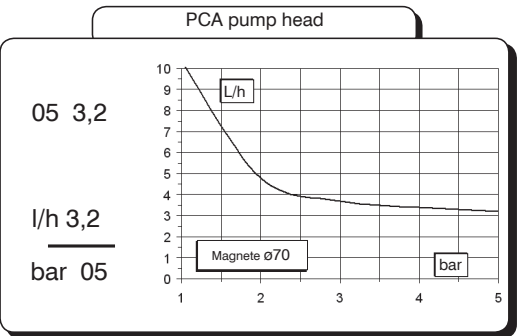
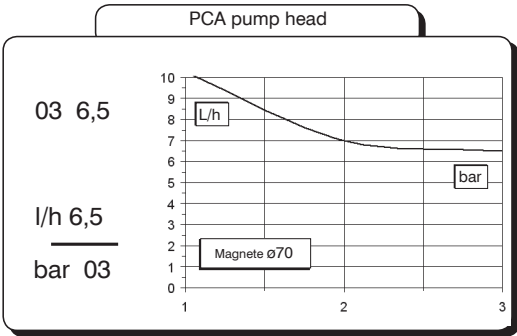
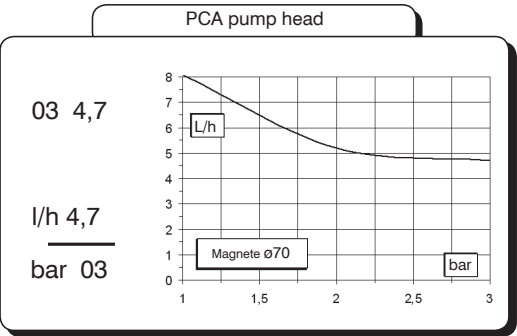


C Appendix. Delivery Curves



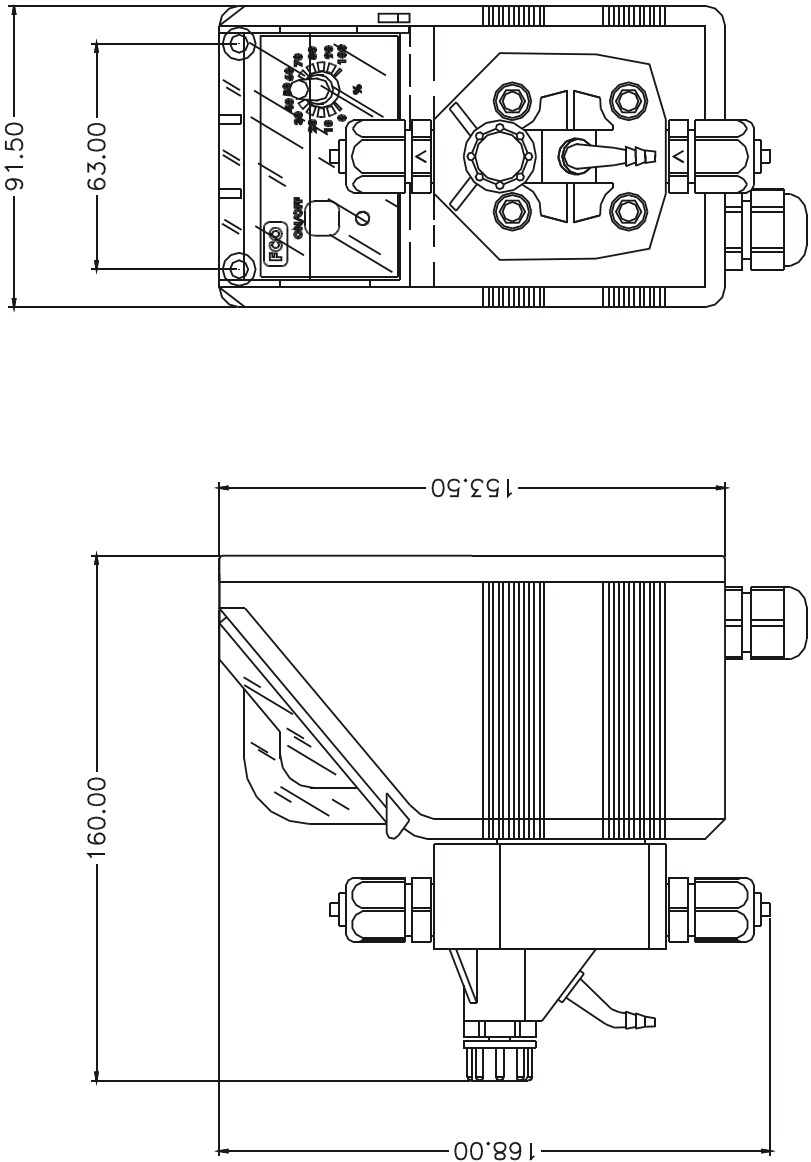
Flow rate indicated is for H₂O at 20°C at the rated pressure.
Dosing accuracy ± 2% at constant pressure ± 0,5 bar.

C Appendix. Delivery Curves (Self Venting)



D Appendix. Dimensions

Dimensions



All measures are expressed in mm

E Appendix. Chemical Compatibility Table

Solenoid driven metering pumps are widely used to dose chemical fluids and it is important that the most suitable material in contact with fluid is selected for each application. This compatibility table serves as a useful help in this respect. All the informations in this list are verified periodically and believed to be correct on the date of issuance. All the informations in this list are based on manufacturer's data and its own experience but since the resistance of any material depends by several factors this list is supplied only as an initial guide, in no way manufacturer makes warranties of any matter respect to the informations provided in this list.

Product	Formula	Ceram.	PVDF	PP	PVC	SS 316	PMMA	Hastel.	PTFE	FPM	EPDM	NBR	PE
Acetic Acid, Max 75%	CH ₃ COOH	2	1	1	1	1	3	1	1	3	1	3	1
Hydrochloric Acid, Concentrate	HCl	1	1	1	1	3	1	1	1	1	3	3	1
Hydrofluoric Acid 40%	H ₂ F ₂	3	1	3	2	3	3	2	1	1	3	3	1
Phosphoric Acid, 50%	H ₃ PO ₄	1	1	1	1	2	1	1	1	1	1	3	1
Nitric Acid, 65%	HNO ₃	1	1	2	3	2	3	1	1	1	3	3	2
Sulphuric Acid, 85%	H ₂ SO ₄	1	1	1	1	2	3	1	1	1	3	3	1
Sulphuric Acid, 98.5%	H ₂ SO ₄	1	1	3	3	3	3	1	1	1	3	3	3
Amines	R-NH ₂	1	2	1	3	1	-	1	1	3	3	1	1
Sodium Bisulphite	NaHSO ₃	1	1	1	1	2	1	1	1	1	1	1	1
Sodium Carbonate (Soda)	Na ₂ CO ₃	2	3	1	1	1	1	1	1	2	1	1	1
Ferric Chloride	FeCl ₃	1	1	1	1	3	1	1	1	1	1	1	1
Calcium Hydroxide (Slaked Lime)	Ca(OH) ₂	1	1	1	1	1	1	1	1	1	1	1	1
Sodium Hydroxide (Caustic Soda)	NaOH	2	1	1	1	1	1	1	1	2	1	2	1
Calcium Hypochlor.(Chlor.ted Lime)	Ca(OCl) ₂	1	1	1	1	3	1	1	1	1	1	3	1
Sodium Hypochlorite, 12.5%	NaOCl + NaCl	1	1	2	1	3	1	1	1	1	1	2	3
Potassium Permanganate, 10%	KMnO ₄	1	1	1	1	1	1	1	1	1	1	3	1
Hydrogen Peroxide, 30% (Perydrol)	H ₂ O ₂	1	1	1	1	1	3	1	1	1	3	3	1
Aluminium Sulphate	Al ₂ (SO ₄) ₃	1	1	1	1	1	1	1	1	1	1	1	1
Copper-II-Sulphate (Roman Vitriol)	CuSO ₄	1	1	1	1	1	1	1	1	1	1	1	1

¹ Calcium Hypochlor.(Chlor.ted Lime): WQA test was based on 1% Calcium Hypochlorite solution.

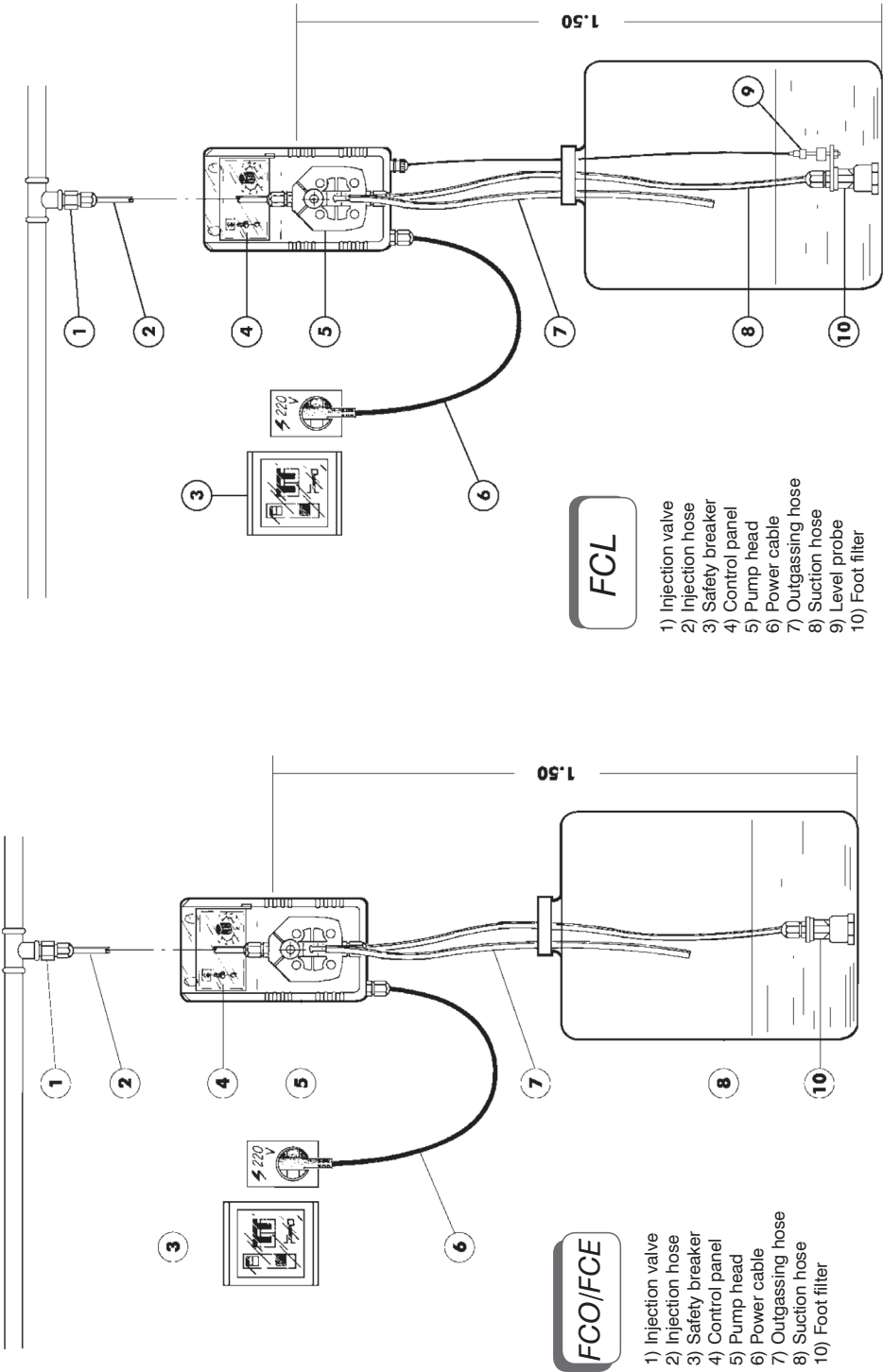
Resistance rating

Resistant	1
Fairly resistant	2
Not resistant	3

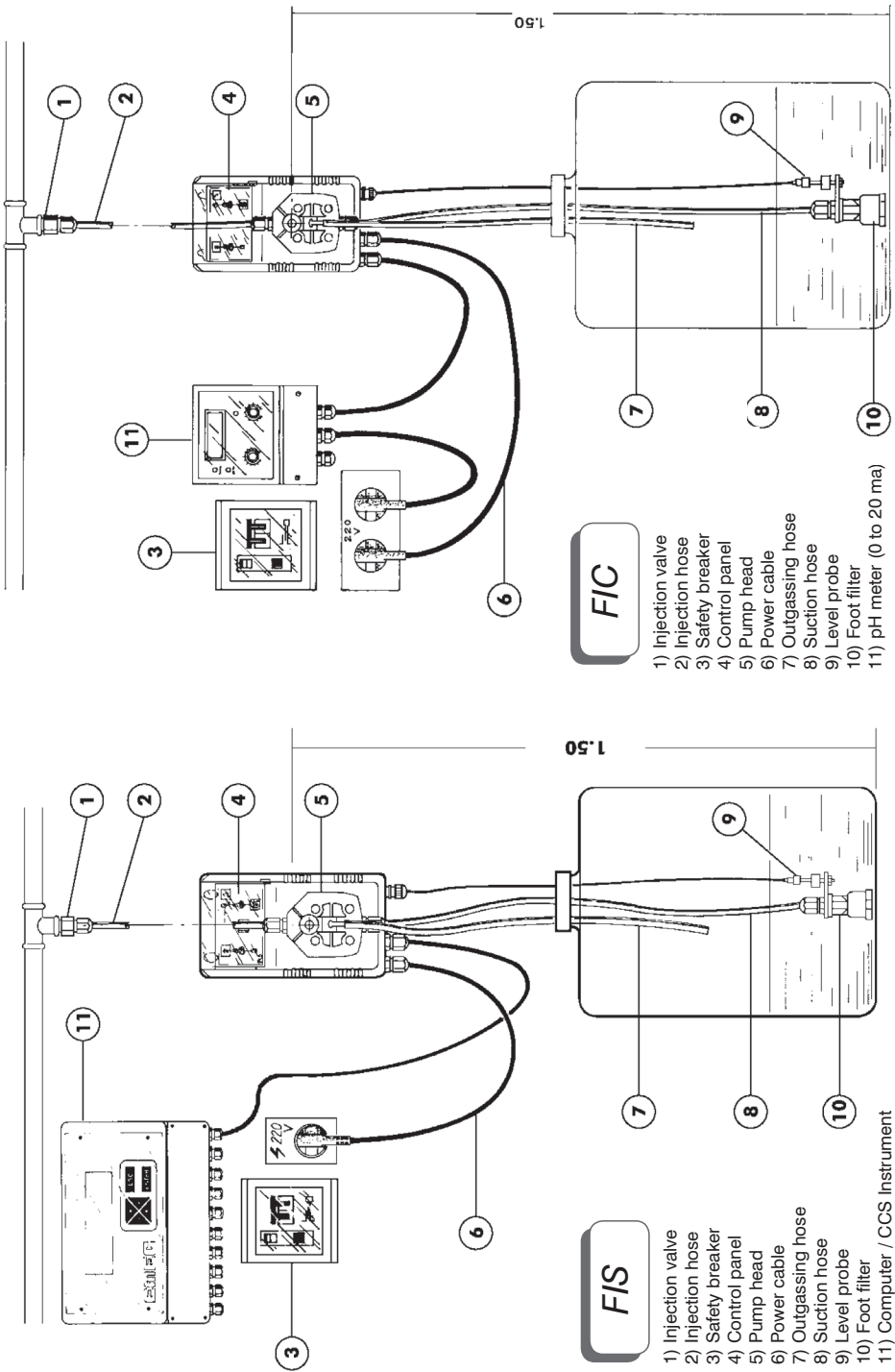
MATERIALS

Polyvinylidene fluoride	PVDF	Pump Heads, valves, fitting, tubing
Polypropylene	PP	Pump Heads, valves, fitting, level floater
PVC	PVC	Pump Heads
Stainless steel	SS 316	Pump Heads, valves
Polymethyl Metacr.(Acrylic)	PMMA	Pump Heads
Hastelloy	C-276	Injection valve spring
Polytetrafluoroethylene	PTFE	Diaphragm
Fluorocarbon (Viton® B)	FPM	Sealings
Ethylene propylene	EPDM	Sealings
Nitrile	NBR	Sealings
Polyethylene	PE	Tubing

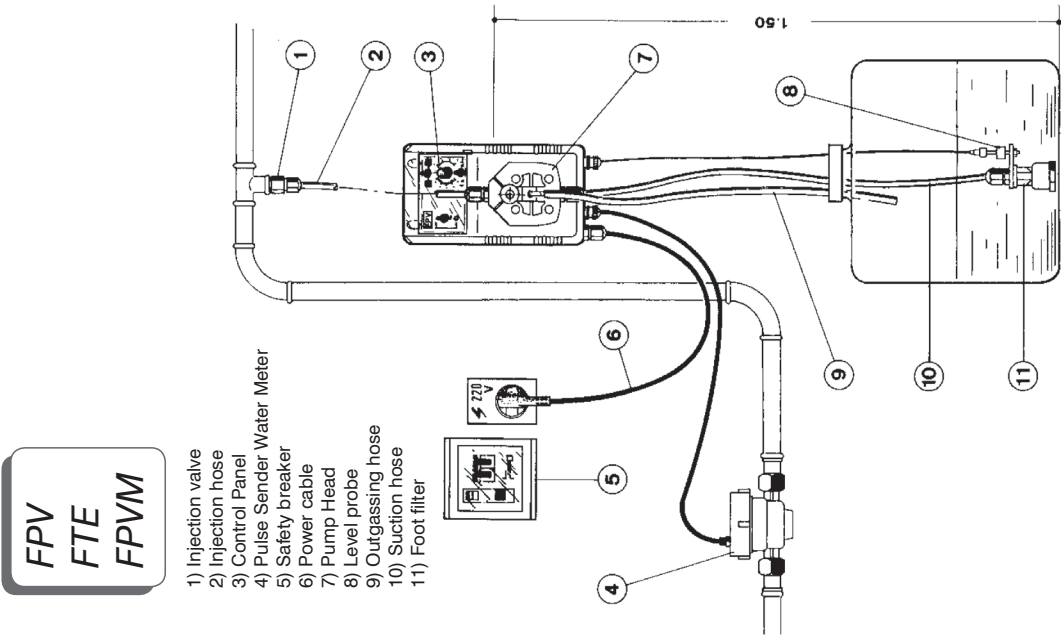
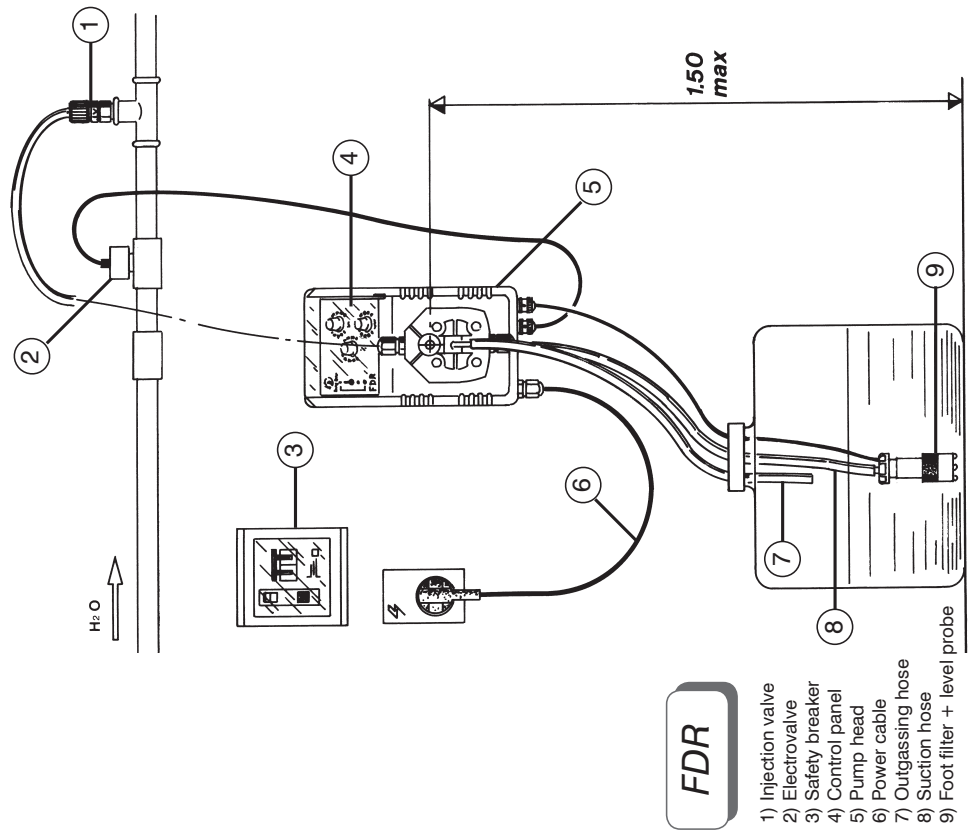
F Appendix. "F" and "FA" series pump installation drawings



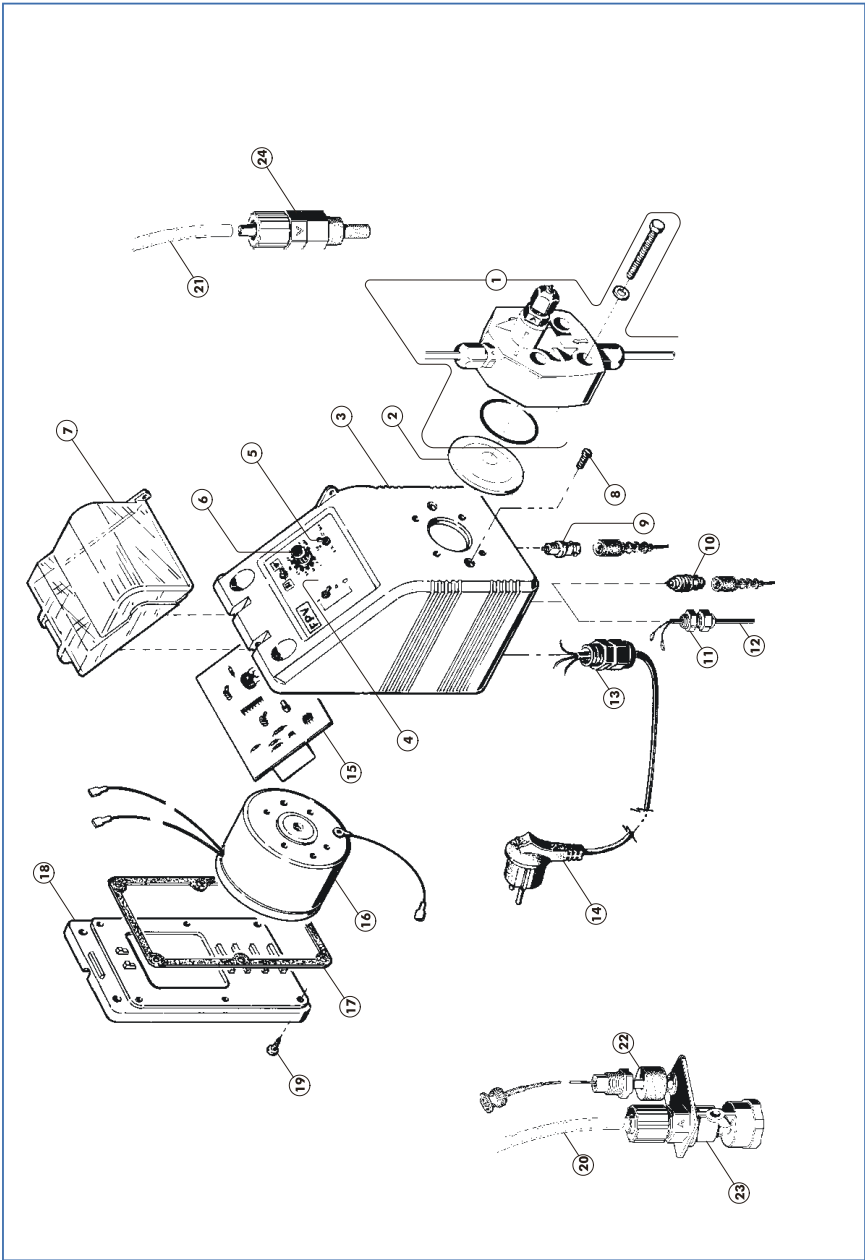
F Appendix. "F" and "FA" series pump installation drawings



F Appendix. "F" and "FA" series pump installation drawings



G Appendix. "F" and "FA" series pump exploded view



NOTICE: always specify the pump's label when ordering spare parts.



MOD 7.5 B1 Q
Ed. 1 - rev. 0 21/02/2012

PRODUCT SERVICE REPAIR FORM

ENCLOSE THE PRESENT FORM TO THE DELIVERY NOTE

DATE

SENDER
Company name.....
Address
Phone no.
Contact person.....

PRODUCT TYPE (see product label)

DEVICE CODE
S/N (serial number).....

OPERATING CONDITIONS

Location/installation description
.....
Chemical
Start-up (date) Running time (approx. hours).....

REMOVE ALL THE LIQUID INTO THE PUMP HEAD AND DRY IT BEFORE PACKAGING IN ITS ORIGINAL BOX.

DESCRIPTION OF PROBLEM

☐ MECHANICAL
Wear parts.....
Brekage/other damages
Corrosion.....
Other

☐ ELECTRICAL
Connections, connector, cables
Operating controls (keyboard, display, etc.)
Elettronics.....
Other

☐ LEAKS
Connections.....
Pump head

☐ NOT OR INADEQUATE FUNCTION/OTHER
.....
.....
.....

I declare that the dosing pump is free of any hazardous chemical.

42

Signature of the compiler

Company stamp



SUMMARY

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ENVIRONMENTAL SAFETY 4

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*When dismantling a pump please separate material types and send them according to local recycling disposal requirements.
We appreciate your efforts in supporting your local Recycle Environmental Program.
Working together we'll form an active union to assure the world's invaluable resources are conserved.*

4 Tornado Nozzle

Z-014S Tornador BASIC

Trockenreinigungspistole / Pulse Spray Pneumatic Cleaning Gun

Original-Bedienungsanleitung / Original-Instruction Manual



Beispielhafte Abbildung / Exemplary image

BENDEL Werkzeuge GmbH & Co.KG
Wilhelm-Schulze-Str-8-10 ° D-29549 Bad Bevensen

Read and understand these instructions before operating the tool.



General safety instructions and individual safeness

Attention

- You need to read, understand and follow the complete instruction manual and the safety briefing BEFORE USE. Afterwards the instruction needs to be kept at a adequate place, accessible for any user.
- The unit may only be used, cleaned and maintained by persons who understand and follow this instruction. The operator must be in physically condition to utilize the tool.
- Improper use or unauthorized modification will cause serious health damage by yourself, somebody else or animals and other property.
- Individual safety instructions from the related countries needs to be observed additional.
- Make sure that the tool is out of range for children or other persons who are not familiar with the handling of the unit. Switching on the device by such persons is dangerous.

Workplace hazards:

- Slipping, stumbling or collapsing are the main reasons for serious or deadly accidents. Take care for hoses which maybe are in the near operating area.
- Maintain a balanced body position and secure footing.
- Cyclic courses of movements, inappropriate posture and constant vibrations will cause fatigue to arms, hands and body.
- High sound levels can lead to permanent hearing loss. Use hearing protection as recommended.
- Avoid breathing in dust or handling debris from work process which can be harmful to your health.
- This tool may only be used and maintained by qualified people who are in the constitutional position to handle the dimension, weight and force of the device.
- This tool is not intended for use in explosive atmospheres and is not insulated for contact with electrical power sources.

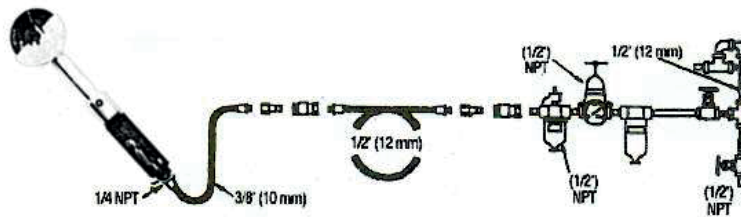
- Please consider that the material your tool is made of always can have material tiredness.

Projectile hazards:

- Even small projectiles, for example swirled by the outlet air of your tool, can injure eyes and lead to blindness.
- Always wear impact-resistant eye and face protection when involved with or near the operation, repair or maintenance of the tool or changing accessories on the tool.
- Also take care that people surrounding you will follow the instruction to wear impact-resistant eye goggles and face masks.
- Only use accessories which is convenient to the tool in dimension and technical requirement.
- In case of a male function switch off the device immediately and provide the tool to a authorized service station to check.
- If you recognize high unusual vibration switch of the unit and look for the reasons. Do not switch on again until before the problem is solved.

Individual safeness

- Only use the tool in well-rested conditions.
- Always take care what you are doing and use your commonsense.
- Do not use the tool when you are tired or under the influence of medicine, alcohol or drugs. Any carelessness will cause serious hurts.
- Always wear adequate protective clothing and eye protection. Further protection like dust masks, helmets, ear protection, work gloves or nonskid safety shoes may be required. Pls. refer to the pictograms in this manual. Even if these clothing's are not especially required we highly recommend to use them as the risk of injury will decrease formidable.
- Always disconnect the device from air supply when not in use, before changing accessories or maintenance to avoid starting the tool by mistake.
- Always check the unit, hoses and fittings for damages or loose before use.
- Make sure that any spanners or other parts you have used with the tool will be removed before operating.
- Do not super extend and take care on a balanced position and secure footing to control the tool also in unexpected situations.
- Long hairs and loose clothing could tangled up in rotating parts of the device and cause serious hurts.



Exemplary drawing.

Air supply requirements

- Supply tool with a maximum pressure according to the technical data of this unit of clean, dry air. Higher pressure drastically reduces tool life and/or can cause several injury.
- Connect tool to air line using pipe, hose and fitting sizes shown in the diagram above.
- Do not install a quick coupler directly into the air tool handle.
- In order to have the tool working to full satisfaction the minimum air delivery must be at least 10% higher than the indicated air consumption of the air tool.
- Please consult the technical data in this instruction manual.

Pneumatic tool and safety instructions

- The goal of Bendel Werkzeuge is to offer tools that help your work safely and efficiently.
- The most important safety device for this or any tool is YOURSELF.
- Your care and good judgment are the best protection against injury. All possible hazards cannot be considered here, but we have tried to highlight some of the most important ones.
- This tool may only be used by qualified people.
- This tool and its accessories must not be modified.
- Do not lay down the device before all the rotary parts stopped.
- Do not keep the air tool running while carrying it.
- Maintain a firm grip on the power tool and position your body and arm to allow you to resist kickback forces. Always use auxiliary handle, if provided, for maximum control over kickback or torque reaction during start-up. The operator can control torque reactions or kickback forces, if proper precautions are taken.
- Never place your hand near the rotating accessory. Accessory may kickback over your hand.
- Switch off the unit immediately in case of blocking or twist. Disconnect the air supply and do not switch on again until the problem is solved. Understand the reason why the tool has been blocked and make sure that this situation will not occur once more by counteract accordingly.

Air supply and connection hazards:

- Air under pressure can cause several injury !
- Always shut off air supply, drain hose of air pressure and disconnect tool from air supply, when not in use, before changing accessories or maintenance.
- Never put direct air at yourself or anyone else.
- Whipping hoses can cause serious injury. Always check for damaged or loose hoses and fittings.
- Do not exceed maximum air pressure according on the name plate respectively 8.5 bar.
- Do not use quick disconnect couplings directly at the tool. See instructions for correct set-up !

For additional safety information consult:

- Your employer, union and/or trade association.
- Council of the European communities and/or local codes
- „Safety requirements for hand-held non-electric Power Tools", available from: European committee for standardization, Rue de Stassart 36. 1050 BRÜSSEL, BELGIEN.
<http://www.cen.eu/cenorm/homepage.htm>

Maintenance:

- Damaged or worn out parts should be replaced only by licensed original parts. Get in contact with your dealer or a authorized service station for support. Using unlicensed parts male functions could occur followed by possible hurts of health.
- Check the tool regularly to recognize cracks, unusual clearance, mismatch and to check the rotary parts for proper operation..
- Recognizing a abnormality the unit needs to be provided to a authorized service station before using it again. Please consider that many accidents are cause by insufficient maintenance.

Tool applications:

- Pulse pneumatic cleaning gun: To clean carpets in automobiles



You must observe the following points in the interest of your own safety!!!

Safety instructions:

- The Z-014S causes considerable noise pressure. Please wear hearing protection in order to avoid noise which can be damaging to your health.
- When working with the Z-014S, small parts may be whirled into the air: Wear protective goggles to prevent eye injuries.
- Only use the Z-014S in ventilated spaces.
- Never operate the Z-014S with more than 8.5bar.
- Never point the Z-014S towards the face or body.
- Keep the Z-014S out of the reach of children.

We recommend you never clean any safety-related components, e.g. safety belts, electrical or electronic modules, with the Z-014S.

Special instructions:

The written and spoken information and recommendations which we provide to support the purchase/user, are the result of previous experience and the latest findings. Because of the manifold possibilities for use and processing conditions, this information is without obligation and do not constitute a contractual legal relationship or any supplementary obligations of the sales contract.

In any event, the purchaser holds responsibility for checking suitability for the intended use himself. Always read the safety warnings for cleaning liquids and contact the manufacturer in case of doubt.

Our liability and responsibility is based exclusively on our general terms and conditions of business and are not expanded on by either this information or the technical advice of our technical field staff.

Operating instructions:

1. Remove loose soiling from the surface you wish to clean (brush or vacuum clean)
2. Important: Hold the cleaning spout at a distance of only 1-3 cm from the surface you are cleaning.
3. Press the "trigger" all the way; move the Z-014S slowly with circular motions over the surface you are cleaning.

REQUIRED AIR RATE

To perform to its full potential, the Z-014S requires a constant air pressure of 6-8 bar.

CAUTION: Constant air rates vary depending on the size and power of the compressor. Always make sure that the tank and the air hoses are free of impurities of any kind.



Explanation of the pictograms:

Always use hearing protection, face and eye-protection, dusk-mask, if necessary a hair-net, protective gloves and read / understand the instruction manual.

Technical Data

Air inlet	1/4"
Air pressure / max. pressue	90 PSI (6,3bar) / 120 PSI (8,5bar)
Air consumption	188 L/min
Weight	0,4 Kgs.
A weighted emission sound pressure level at the operators position in decibel (LpA)	93.59 dB (EN ISO 15744)
A weighted sound power level in decibel (LwA)	104.58 dB (EN ISO 15744)
Peak C-weighted instantaneous sound pressure level at workstation (LpC)	96.3 dB (EN ISO 15744)
Vibration level	0.99 m/sec ² (EN 8662-1)
Measurement uncertainty (Standard)	0.495 m/sec ² (EN 8662-1)
Serial number	

EG declaration of conformity for machines
(EG-RL 2006/42/EG)

Herewith

BENDEL Werkzeuge GmbH & Co.KG
Wilhelm-Schulze-Str.8-10
D-29549 Bad Bevensen

declares that the machine **Z-014S Tornador BASIC, pulse pneumatic cleaning gun** is conform with the legal regulation of the above mentioned directive.

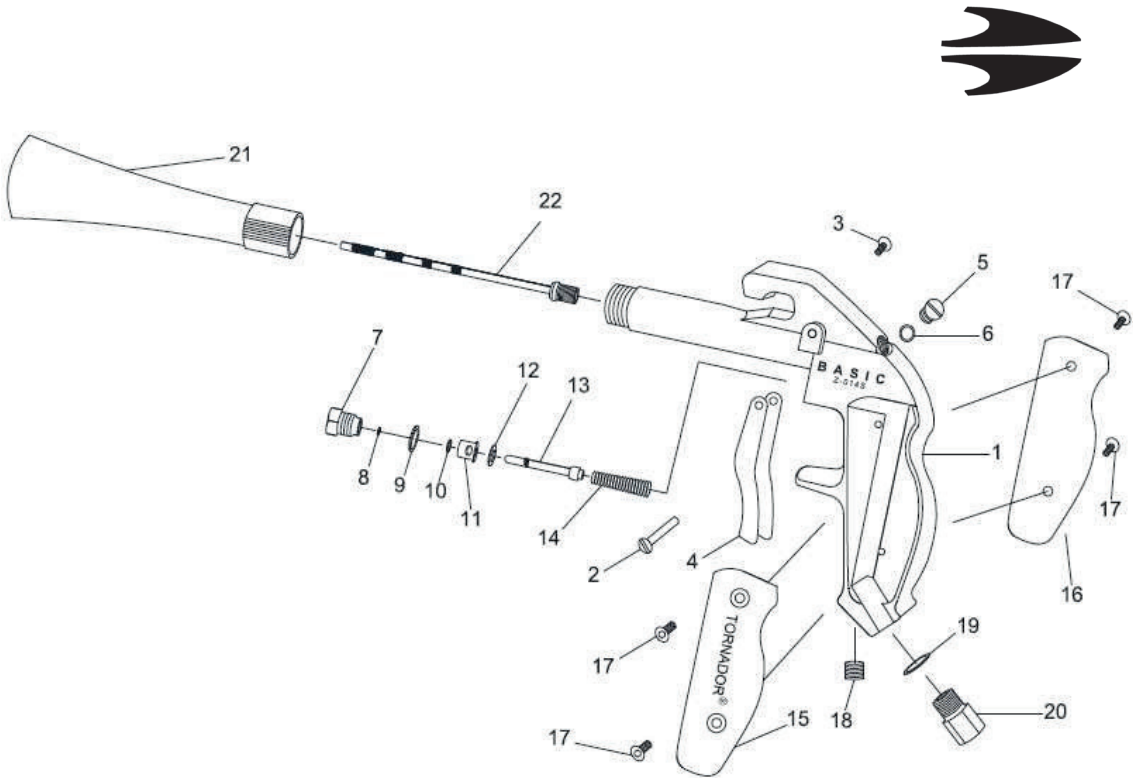
Name and address of the person who is authorized to assort the technical documentation:

Frank Bendel
Wilhelm-Schulze-Str.8-10
D-29549 Bad Bevensen

Bad Bevensen, 01.11.2015



Frank Bendel, Managing Director



Ref. No.	Part No.	Description	Q'ty	Ref. No.	Part No.	Description	Q'ty
			Tool				Tool
1	SPZ014S001	Housing	1	16	SPZ010S003	Right Side Cap (Red)	1
2	SPZ020S007	Pin	1	17	SPZ020S004	Screw	4
3	SPZ010008A	Screw	1	18	SPZ020S005	Screw	1
4	SPZ010009B	Trigger (Stainless)	1	19	SPZ020S006	O-Ring (x)	1
5	SPZ010010	Screw	1	20	SPZ010024A	Air Inlet (1/4"PF)	1
6	SPZ010026	O-Ring (4.47x1.78)	1	21	SPZ010S004	Nozzle (Matt Finish/ Red)	1
7	SPZ010011	Screw	1	22	SPZ010005	Weighted Tube Ass'y	1
8	SPZ010031	O-Ring (2x1)	1				
9	SPZ010028	O-Ring (9x2)	1				
10	SPZ010027	O-Ring (3.5x1.5)	1				
11	SPZ010012	Bushing	1				
12	SPZ010013	Gasket	1				
13	SPZ010014	Valve Stem	1				
14	SPZ010015A	Spring	1				
15	SPZ010S002	Left Side Cap (Red)	1			Ver. 2016.02	



5 Tornado TyreShine

Z-020 Tornador-Gun (Tornador-Black)

Original-Bedienungsanleitung / Original Instruction Manual



Beispielhafte Abbildung / Exemplary image



BENDEL Werkzeuge

Wilhelm-Schulze-Str-8-10 ° D-29549 Bad Bevensen

Vers.2016/01

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Read and understand these instructions before operating the tool.



General safety instructions and individual safeness

Attention

- You need to read, understand and follow the complete instruction manual and the safety briefing BEFORE USE. Afterwards the instruction needs to be kept at a adequate place, accessible for any user.
- The unit may only be used, cleaned and maintained by persons who understand and follow this instruction. The operator must be in physically condition to utilize the tool.
- Improper use or unauthorized modification will cause serious health damage by yourself, somebody else or animals and other property.
- Individual safety instructions from the related countries needs to be observed additional.
- Make sure that the tool is out of range for children or other persons who are not familiar with the handling of the unit. Switching on the device by such persons is dangerous.

Workplace hazards:

- Slipping, stumbling or collapsing are the main reasons for serious or deadly accidents. Take care for hoses which maybe are in the near operating area.
- Maintain a balanced body position and secure footing.
- Cyclic courses of movements, inappropriate posture and constant vibrations will cause fatigue to arms, hands and body.
- High sound levels can lead to permanent hearing loss. Use hearing protection as recommended.
- Avoid breathing in dust or handling debris from work process which can be harmful to your health.
- This tool may only be used and maintained by qualified people who are in the constitutional position to handle the dimension, weight and force of the device.
- This tool is not intended for use in explosive atmospheres and is not insulated for contact with electrical power sources.
- Please consider that the material your tool is made of always can have material tiredness.

Projectile hazards:

- Even small projectiles, for example swirled by the outlet air of your tool, can injure eyes and lead to blindness.
- Always wear impact-resistant eye and face protection when involved with or near the operation, repair or maintenance of the tool or changing accessories on the tool.
- Also take care that people surrounding you will follow the instruction to wear impact-resistant eye goggles and face masks.
- In case of a male function switch off the device immediately and provide the tool to a authorized service station to check.
- If you recognize high unusual vibration switch of the unit and look for the reasons. Do not switch on again until before the problem is solved.

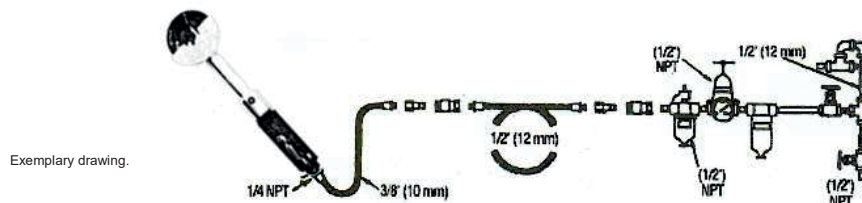
Individual safeness

- Only use the tool in well-rested conditions.
- Always take care what you are doing and use your commonsense.
- Do not use the tool when you are tired or under the influence of medicine, alcohol or drugs. Any carelessness will cause serious hurts.
- Always wear adequate protective clothing and eye protection. Further protection like dust masks, helmets, ear protection, work gloves or nonskid safety shoes may be required. Pls. refer to the pictograms in this manual. Even if these clothing's are not especially required we highly recommend to use them as the risk of injury will decrease formidable.
- Always disconnect the device from air supply when not in use, before changing accessories or maintenance to avoid starting the tool by mistake.
- Always check the unit, hoses and fittings for damages or loose before use.
- Make sure that any spanners or other parts you have used with the tool will be removed before operating.
- Do not super extend and take care on a balanced position and secure footing to control the tool also in unexpected situations.

Vers.2016/01

9

- Long hairs and loose clothing could tangled up in rotating parts of the device and cause serious hurts.



Air supply requirements

- Supply tool with a maximum pressure according to the technical data of this unit of clean, dry air. Higher pressure drastically reduces tool life and/or can cause several injury.
- Connect tool to air line using pipe, hose and fitting sizes shown in the diagram above.
- Do not install a quick coupler directly into the air tool handle.
- In order to have the tool working to full satisfaction the minimum air delivery must be at least 10% higher than the indicated air consumption of the air tool.
- Please consult the technical data in this instruction manual.

Pneumatic tool and safety instructions

- The goal of Bendel Werkzeuge is to offer tools that help your work safely and efficiently.
- The most important safety device for this or any tool is YOURSELF.
- Your care and good judgment are the best protection against injury. All possible hazards cannot be considered here, but we have tried to highlight some of the most important ones.
- This tool may only used by qualified people.
- This tool and its accessories must not be modified.
- Do not lay down the device before all the rotary parts stopped.
- Do not keep the air tool running while carrying it.
- Maintain a firm grip on the power tool and position your body and arm to allow you to resist kickback forces. Always use auxiliary handle, if provided, for maximum control over kickback or torque reaction during start-up. The operator can control torque reactions or kickback forces, if proper precautions are taken.
- Never place your hand near the rotating accessory. Accessory may kickback over your hand.
- Switch off the unit immediately in case of blocking or twist. Disconnect the air supply and do not switch on again until the problem is solved. Understand the reason why the tool has been blocked and make sure that this situation will not occur once more by counteract accordingly.

Air supply and connection hazards:

- Air under pressure can cause several injury !
- Always shut off air supply, drain hose of air pressure and disconnect tool from air supply, when not in use, before changing accessories or maintenance.
- Never put direct air at yourself or anyone else.
- Whipping hoses can cause serious injury. Always check for damaged or loose hoses and fittings.
- Do not exceed maximum air pressure according on the name plate respectively 8.5 bar.
- Do not use quick disconnect couplings directly at the tool. See instructions for correct set-up !

For additional safety information consult:

- Your employer, union and/or trade association.
- Council of the European communities and/or local codes
- „Safety requirements for hand-held non-electric Power Tools", available from: European committee for standardization, Rue de Stassart 36. 1050 BRÜSSEL, BELGIEN.
<http://www.cen.eu/cenorm/homepage.htm>

Maintenance:

- Damaged or worn out parts should be replaced only by licensed original parts. Get in contact with your dealer or a authorized service station for support. Using unlicensed parts male functions could occur followed by possible hurts of health.
- Check the tool regularly to recognize cracks, unusual clearance, mismatch and to check the rotary parts for proper operation..
- Recognizing a abnormality the unit needs to be provided to a authorized service station before using it again. Please consider that many accidents are cause by insufficient maintenance.

Tool applications:

- Pulse spray pneumatic cleaning gun: To clean automobiles

You must observe the following points in the interest of your own safety!!!

Safety instructions:

- The TORNADOR-GUN causes considerable noise pressure. Please wear hearing protection in order to avoid noise which can be damaging to your health.
- When working with the TORNADOR-GUN, small parts may be whirled into the air: Wear protective goggles to prevent eye injuries.
- The TORNADOR-GUN nebulises the cleaning liquid very finely. To prevent health hazards from inhalation, wear appropriate respiratory protection.
- Ensure all others in the area are wearing impact-resistant eye goggles and face masks.
- Do not install a quick coupler directly into the air tool throttle handle.
- Only use the TORNADOR-GUN in ventilated spaces.
- Never operate the TORNADOR-GUN with more than 8.5 bar (121 psi). We recommend 4.5 to 6.5 bar (64 to 93 psi)
- Do not use cleaning agents which are acidic, alkali and/or inflammable. We recommend the use of neutral cleaning agents.
- When using cleaning fluids which need to be diluted, always strictly observe the manufacturer's instructions to make sure the mixture is correct.
- Never point the TORNADOR-GUN towards the face or body of you or anyone else.
- Keep the TORNADOR-GUN out of the reach of children.
- To reduce risk of injury, everyone using, installing, repairing, maintaining, changing accessories on, or working near this tool must read and understand these instructions before performing any such task.
- This tool and its accessories must not be modified.
- Air under pressure can not be used.
- Always shut off air supply, drain hose of air pressure and disconnect tool from air supply, when not in use, before changing accessories or when making repairs.
- Put never direct air at yourself or anyone else.
- Whipping hoses can cause serious injury. Always check for damaged or loose hoses and fittings.
- Do not exceed maximum air pressure of 8.5 bar (121 psi) or as stated on the name plate.
- Slip, trip and fall are main causes of serious injury or death. Be aware of excess hose left on the path or work surface.
- Operators and maintenance personnel must be physically able to handle the bulk, weight and power of this tool. Further take of a balanced body position and secure footing.
- This tool is not intended for use in explosive atmospheres and is not insulated for contact with electric power sources.
- Be prepared that the material of your tool always can have material tiredness.

We recommend you never clean any safety-related components, e.g. safety belts, electrical or electronic modules, with the TORNADOR-GUN.

Special instructions:

The written and spoken information and recommendations which we provide to support the purchase/user, are the result of previous experience and the latest findings. Because of the manifold possibilities for use and processing conditions, this information is without obligation and do not constitute a contractual legal relationship or any supplementary obligations of the sales contract.

In any event, the purchaser holds responsibility for checking suitability for the intended use himself. Always read the safety warnings for cleaning liquids and contact the manufacturer in case of doubt. Our liability and responsibility is based exclusively on our general terms and conditions of business and are not expanded on by either this information or the technical advice of our technical field staff.

Operating instructions:

- 1 Remove loose soiling from the surface you wish to clean (brush or vacuum clean)
- 2 Turn the green rocker lever into the vertical position to activate the (cleaning) liquid in the bottle. **Pls. note to insert the cleaning liquid just before application and remove remaining liquid after use to avoid that the hoses and the suction filter get choked by chemical residues.**
- 3 Important: Hold the cleaning spout at a distance of only 1-3 cm from the surface you are cleaning and in angle of approx. 45°.
- 4 Press the "trigger" all the way; move the Tornador Gun slowly with circular motions over the surface you are cleaning.
- 5 Turn the green rocker lever into the horizontal "air only" position, press the trigger and dry the surface you have cleaned.
- 6 To remove any remaining moisture, wipe the cleaned surface with a dry cloth.

CARE AND MAINTENANCE after use

- Clean the spout as follows: Turn the green control switch to the horizontal "air only" position, hold the cleaning nozzle in a bucket and press the trigger all the way in order to remove any soiling from the nozzle.
- **Additional you need to flush the hoses and the suction filter after every use. For this please insert pure water in the empty and clean cup and attach it to the unit as usual. Turn the green rocker lever into the vertical position and press the trigger for at least 20 seconds to flush and clean the related parts. If needed clean the suction filter separately by pulling of the metal-ball from the suction hose and using a air blow gun to clean the integrated filter.**
- Replace damaged parts immediately for your own safety. The rotate-set, nozzle, hoses and gaskets are consumable parts. Pls. ask your local dealer for related original-spare parts.
- Always shut off air supply, drain hose of air pressure and disconnect tool from air supply, when not in use, before changing accessories or when making repairs.

REQUIRED AIR RATE

To perform to its full potential, the Tornador Gun requires a constant air pressure between **5.5 and 6.5 bar (79 to 93 psi)**.

CAUTION: Constant air rates vary depending on the size and power of the compressor. Always make sure that the tank and the air hoses are free of impurities of any kind

A air-volume-control-valve is optional available for your Tornador-Black (Part-No. ZZ-1033, Air-Regulator 1/4"), to control the required liquid.
Depending on the model the Tornador-Black could also be equipped with this tool as standard.

Air-regulator

The Tornador-Black requires a air pressure between **5,5 and 6,5 bar (79-93 psi)** to perform to its full potential. Many compressors will deliver a higher pressure.
With the air-regulator you are in the position to control the air volume according to your requirements. Lower pressure means more liquid, higher pressure less liquid.

Mounting



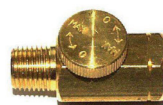
Wind teflon tape on the thread of the valve.



Screw the thread from the valve into the air-inlet of the unit.



Wind teflon tape on the thread of the air-nipple.



Screw the air-nipple into the regulator.

Norice : Basically we recommend to install a additional air pressure regulator with max. 6,5 bar (93 psi) and use the air-volume-control-valve for fine adjustment.



Explanation of the pictograms:
Always use hearing protection, face and eye-protection, dust-mask, if necessary a hair-net, protective gloves and read / understand the instruction manual.

Technical Data

Air inlet	1/4"
Air working pressure / max. pressure	64 to 93 psi (4.5 to 6.5 bar) / max. 121 psi (8.5 bar)
Air consumption	245 l/min at 79 psi / 5.5 bar
Weight	0.67 Kg.
A weighted emission sound pressure (LpA)	92.66 dB (EN ISO 15744)
A weighted sound power level (LwA)	103.65 dB (EN ISO 15744)
Peak-C-weighted Spitzenschalldruck (LpC)	96.5 dB (EN ISO 15744)
Vibration level	3.9 m/sec ² (EN 28662-1)
Measurement uncertainty (Standard)	1.95 m/sec ² (EN 28662-1)
Serial number	

**EG declaration of conformity for machines
(EG-RL 2006/42/EG)**

Herewith

BENDEL Werkzeuge GmbH & Co.KG
Wilhelm-Schulze-Str.8-10
D-29549 Bad Bevensen

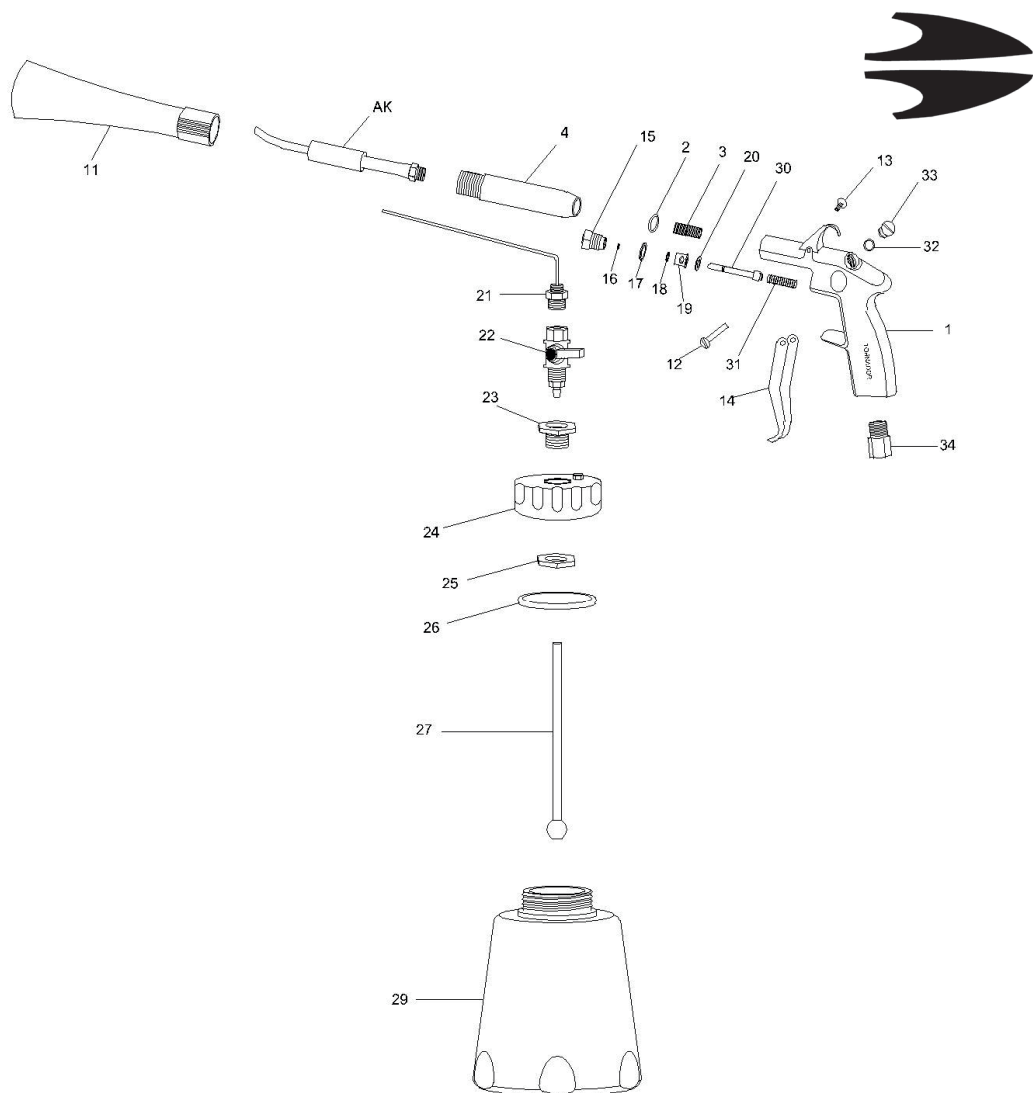
declares that the machine **Z-020 Tornador-Gun (BLACK)** is conform with the legal regulation of the above mentioned directive.

Name and address of the person who is authorized to assort the technical documentation:

Frank Bendel
Wilhelm-Schulze-Str.8-10
D-29549 Bad Bevensen

Bad Bevensen, 01.11.2015

Frank Bendel, Managing Director



Ref. No.	Part.No.	Description	Q'ty/ Tool	Ref. No.	Part.No.	Description	Q'ty /Tool
1	SPZ010001	Housing	1	22	SPZ010017	Air Reverse Switch Ass'y	1
2	SPZ010030	Gasket (10x16.5x2)	1	23	SPZ010018	Screw	1
3	SPZ010025	Screw	1	24	SPZ010019C	Cap (with hole) and valve	1
4	SPZ020001	Hose	1		SPZ010019A	Cap (closed)	
11	SPZ020008A	Nozzle	1	25	SPZ010021	Nut	1
12	SPZ010007A	Trigger Stud	1	26	SPZ020014A	Gasket (o-ring) f. valve type	1
13	SPZ010008A	Trigger Screw	1	27	SPZ010022	Tube Ass'y (inkl.part.no.28)	1
14	SPZ010009	Trigger	1	29	SPZ010023	Cup	1
15	SPZ010011	Screw	1	30	SPZ010014	Valve Stem	1
16	SPZ010031	O-Ring (2x1)	1	31	SPZ010015	Spring	1
17	SPZ010028	O-Ring (9x2)	1	32	SPZ010026	O-Ring (4.47x1.78)	1
18	SPZ010027	O-Ring (3.5x1.5)	1	33	SPZ010010	Screw	1
19	SPZ010012	Bushing	1	34	SPZ010024A	Air Inlet (1/4"PF)	1
20	SPZ010013	Gasket	1				
21	SPZ020009A	Inner Tube Ass'y	1	AK	SPZ0200AK	Rotate Set	1

2016/01



6 Tire Inflator Station



Operating instructions

Anzeigenträger

AutoAir Kompressor

Item no. 217000001

Original operating instructions

Important

**Please read the operating instructions carefully before using the device.
We accept no liability for faults or damage to the device resulting from
insufficient knowledge of the operating instructions.**

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Document no.: 441731003 DE-A
Status 24 April 2025



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1 Safety instructions

The device has been constructed in accordance with the state of the art and recognised safety regulations. Nevertheless, its use may result in hazards for the operator or third parties, or damage to the device or other property. The instructions in this operating manual, in particular the safety instructions and sections marked with warning notices, must therefore be followed without exception.

Warning notices and symbols

The following symbols are used in the operating instructions to indicate particularly important information:



Special information regarding the economical use of the device.



Special information or instructions and prohibitions for damage prevention.



Information and instructions or prohibitions for the prevention of personal injury or extensive damage to property.

Intended use



Only use the device in a technically faultless condition and in accordance with its intended use, in a safe and hazard-aware manner. In particular, any malfunctions that could impair safety must be rectified immediately.

The device and its components are intended exclusively for use with the listed liquids and for the described application. Any other or additional use is considered improper.

Organisational measures

Keep these operating instructions handy at the place of use at all times. The type plate and warning notices attached to the  device must be observed at all times and kept in a fully legible condition.

Qualified personnel



The personnel responsible for installation, commissioning, operation and maintenance of the device must be sufficiently qualified for this work. The operator must ensure that the contents of this operating manual are fully understood and implemented by the personnel.

Maintenance and servicing



Do not make any changes, additions or modifications to the device without the manufacturer's approval. Spare parts must meet the technical requirements specified by the manufacturer. This is always guaranteed for original spare parts.

Hazardous substances



In exceptional cases, the components of this device may contain hazardous substances. In accordance with the requirements of the European REACH Regulation, we provide up-to-date information on this on our website in the download area.

When handling oils, greases, fuels and other chemical substances, the safety regulations applicable to the product must be observed!

Pneumatics



Work on pneumatic equipment may only be carried out by persons with special knowledge and experience in pneumatics. Before carrying out any work on the device, depressurise it. Check all pressure-bearing parts regularly for leaks and damage.

Electrical energy



Work on electrical equipment may only be carried out by qualified electricians. Disconnect machine and system components from the power supply before carrying out any work on the device.

Disconnect the machine and system components from the power supply.
Check the insulation of all live parts regularly for damage.

Technical description Technical description

2.1 Description / Intended use

The AutoAir display unit is a control unit for an automatic tyre pressure regulator and an air compressor. It contains two 30 mm high illuminated LC displays. These show the current target and actual values. The target value is preselected using the+ /sensor buttons. The set target value is automatically reached after a tyre is connected. An audible signal indicates when the target value has been reached.

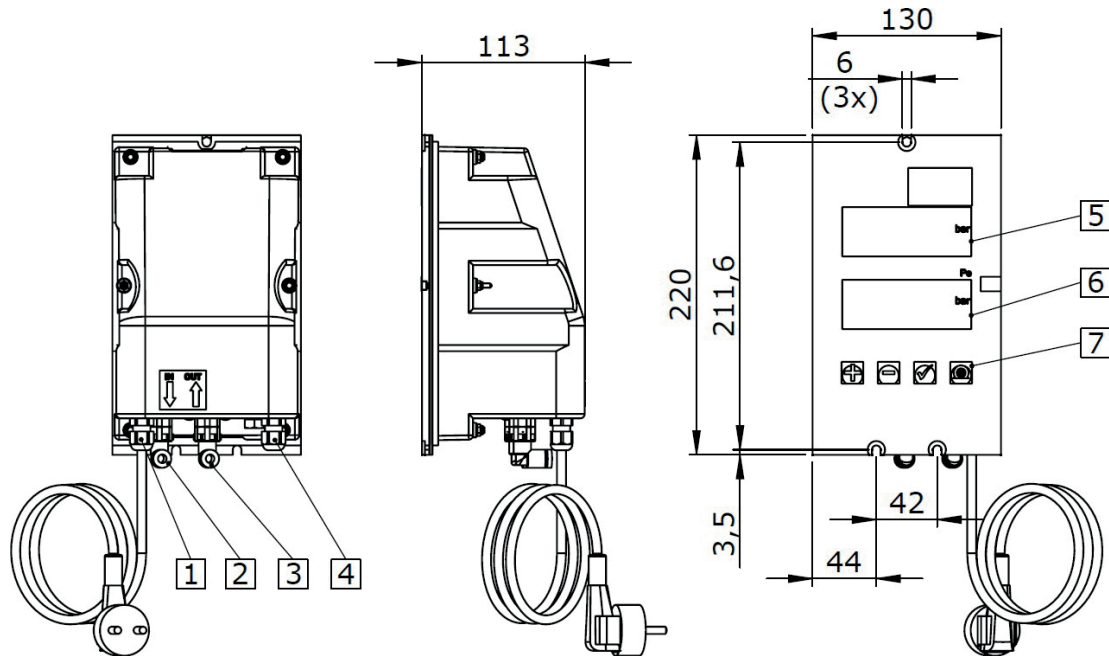
The tyre pressure regulator is only approved for supplying air or nitrogen to car tyres.

 **The device is not explosion-proof. It must not be installed in an explosion-proof area.**

2.2 Tyre pressure regulator
Technical data

Dimensions (WxHxD)	130 x 220 x 113 mm
Pressure supply	min. 7 bar, max. 16 bar
Power	230 V 50 Hz
Power consumption	12 VA
Connection cable	1.5 m
Ambient temperature	-10°C to +40°C
Max. filling pressure	5.5 bar
Measurement deviation	< 0.08 bar
Weight	2 kg

2.3 Dimension sheet



- 1 Power supply cable with Schuko plug
- 2 Compressed air inlet, plug-in coupling for hose 6x1
- 3 Compressed air outlet, plug-in coupling for hose 6x1
- 4 Control cable compressor
- 5 Display, setpoint
- 6 Display, actual value
- 7 Four function keys

3 Installation

The display unit must be securely screwed into the housing.

3.1 Compressed air supply

The tyre pressure regulator must only be operated with dry air.
Quality class 4 according to DIN ISO 8573-1:1995-04 is recommended.

Between compressed air supply and display carrier there should be a pressure reducer should be installed to prevent excessive inlet pressure.

The use of a compressed air filter with automatic condensate drain is strongly recommended. This must be installed in a frost-free room. The compressed air line must be routed from the compressed air receiver or the nearest water separator with a 1% upward slope to the compressed air filter.

3.2 Mains connection

The power supply is provided via the Schuko plug.

3.3 Compressor connection

A 12 V DC signal is sent to control a compressor. The compressor must be switched via a relay or contactor.

4 Commissioning

1. Connect the compressed air supply (AutoAir II car: $p_{min}=7$ bar, $p_{max}=16$ bar; AutoAir II Truck: $p_{min}=12$ bar, $p_{max}=16$ bar).

The pressure regulator should be set to **6 bar** (AutoAir II car) or **10.5 bar** (AutoAir II truck) should be checked.

2. Connect the power supply (230V, 50Hz).

The device is ready for operation when the initial setpoint value of 2.0 bar (AutoAir II PKW) or 6.0 bar (AutoAir II LKW) is shown on the upper LC display.



Each time the device is switched on, the filling hose compensates for the ambient pressure. Therefore, the device must not be connected to a tyre when it is switched on (error message E-5).

5 Operation

1. Set the setpoint using the "+" or "-" buttons.
2. Press the "✓" button.
3. Connect the tyre - the filling process starts automatically.
4. A signal tone indicates that the target value has been reached.

 When the tyre is completely deflated, press the "🔍" button.

! The tyre pressure regulator is only to be used for inflating and checking car tyres or truck tyres.

⚠ The tyre pressure regulator is not suitable for inflating tyres on bicycles, prams, handcarts, etc. with normal bicycle valves and adapters. adapters. There is a risk of overfilling and damaging the tyre or wheel hub! This could result in injury to persons and/or damage to property!

If the device is not used for a longer period of time (approx. 2 hours), automatic ambient pressure equalisation will take place (). This will result in hissing sound as the compressed air escapes!

6 Error display – What to do if ...

Error display	Error	Troubleshooting
E-1	Insufficient or no compressed air supply	Check compressed air supply
E-4	Tyre valve not open / filling hose kinked	Remove the valve plug and reconnect it/check the filling hose Check
E-5	E-6	E-6
E-6 E-8 E-9	Pressure transducer defective	Contact service
LO	Supply voltage too low	Check supply voltage
E-11	Supply voltage too high	Check supply voltage. Contact service
E-12 E-13	Control unit defective	Contact service

7 Care / maintenance

- !** The housing, especially the operating elements, must not be cleaned with fuels, solvents, chlorine or acidic cleaning agents.

8 Disposal

8.1 Disposal of the device

The device must be completely emptied when taken out of service and the liquids must be disposed of properly. When the device is finally taken out of service, it must be dismantled by qualified personnel and disposed of appropriately:



- Dispose of scrap metal parts at a scrap metal recycling centre.
- Recycle plastic parts.
- Recycle electronic waste.
- Batteries and lamps that are not permanently welded, glued or installed must be removed beforehand and disposed of separately.

The end user is responsible for deleting any personal data stored on the old device.

Further information on the disposal of electrical appliances can be found in the download area on our homepage.



The water regulations must be observed.

9 Declaration of conformity

We hereby declare that the design type:

AutoAir display unit

Designation:

Tyre pressure regulator

Article number:

217000001

in the version supplied by us complies with the following relevant provisions:

- | | | |
|---|-----------------------|------------|
| – | EMC Directive | 2014/30/EU |
| – | Low Voltage Directive | 2014/35/EU |

Applied harmonised standards:

- DIN EN 60335-1
- DIN EN 61000-6-2
- DIN EN 61000-6-3



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7 Safety Data Sheet care product, Aromatic

EHRLE GmbH



Safety Data Sheet

according to UK REACH Regulation

EHRLE MT Aromatic

Revision date: 17.02.2025

Product code: c6587_sd

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

1.1. Product identifier

EHRLE MT Aromatic

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture

Fragrance

1.3. Details of the supplier of the safety data sheet

Company name: EHRLE GmbH
Street: Industriestraße 3
Place: D-89165 Dietenheim
Telephone: +49 7303 1600-0
E-mail: info@ehrle.com
Contact person: Department Labour
Internet: www.ehrle.com
Responsible Department: Notrufnummer für deutsch- und englischsprachige Länder: +49/89/19240
Vergiftungsinformationszentrale (VIZ) Österreich: +43 1 406 43 43
Nationale Notrufnummer für die Schweiz (Tox-Zentrum Zürich): 145
Numéro d'urgence France: INRS: +33 (0) 1 45 42 59 59
Numero d'emergenza Italia: Centro Antiveleni - 20162 Milano: 02/66101029
ETTSZ /Egészségügyi Toxikológiai Tájékoztató Szolgálat/, 1096 Budapest,
Nagyvárad tér 2. Ügyeleti telefonszám: +36 80 201-199
Emergency telephone number for all other countries: +49/8134/9305-169

EHRLE GmbH | Industriestraße 3 | D-89165 Dietenheim | +49 7303 1600-0 | www.ehrle.com
EHRLE Sp. z o.o. | Wierzyńskie 45 | 72-005 Przecław Polan | +48 91-814-5555 | www.ehrle.pl
EHRLE Austria GmbH | Technoparkstr. 4 | 5310 Mondsee | +43 6232 993 035 702 | www.ehrle-austria.at
EHRLE FS SIA | Zeltņu iela 114 | Mārupē, Mārupes novads, LV-2167 Letland | +371 67869100 | www.ehrle.lv
EHRLE Slovakia s.r.o. | Mlynská 11 | SK - 902 03 Pezínok | +421 948 477788 | www.ehrle-slovakia.sk
EHRLE Česká s.r.o. | Zemědělská 1081/3b | Hradec Králové | +420 495 541 830 | www.ehrle.cz
EHRLE UK Ltd. | Unit 2 - Kinetic 45 - Newmarket Lane | Leeds LS9 0SH | +44 113 240 7291 | www.ehrle.co.uk
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Kvantum - EHRLE-Hungária | Győri utca 2. | BITEP Ipari Park | 2040 Budapest | +36 (1) 371-0760 | www.ehrle.hu
EHRLE doo Veterinik | Novosadski put 74 | 21203 Veterinik Srbija | +38 1213 821 908 | www.ehrle.rs
VALOR Smartwash SRL | str. Mesteacănului nr.150 | 547525 Săncraiu de Mureș | +40 365 732 302 | www.ehrle-romania.ro
Inbema Surface Treatment BV | Hoogeveenweg 23-27 | 2013 LV Nieuwerkerk a/d IJssel | +31 86 130 6592 | www.inbema.com/ehrle

1.4. Emergency telephone number: see informations above

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Not required.

2.2. Label elements

Additional advice on labelling

This mixture is classified as not hazardous according to regulation (EC) 1272/2008 [CLP].

2.3. Other hazards

None known.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Chemical characterization

emulsifiers, fragrances



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Relevant ingredients

CAS No	Chemical name	Quantity
	EC No	Index No
	REACH No	
	Classification (GB CLP Regulation)	
69011-36-5	i-C13-Fatty alcohol polyglycol ethers 5-12 EO	1 - < 5 %
	931-138-8	
	Acute Tox. 4, Eye Dam. 1; H302 H318	

Full text of H and EUH statements: see section 16.

Specific Conc. Limits, M-factors and ATE

CAS No	EC No	Chemical name	Quantity
		Specific Conc. Limits, M-factors and ATE	
69011-36-5	931-138-8	i-C13-Fatty alcohol polyglycol ethers 5-12 EO	1 - < 5 %
		oral: ATE = 500 mg/kg Eye Dam. 1; H318: >= 10 - 100 Eye Irrit. 2; H319: >= 6 - < 10	

Further Information

preservatives (2-Bromo-2-Nitropropane-1,3-diol)

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

No hazards which require special first aid measures.

After inhalation

not hazardous by inhalation

After contact with skin

Wash off with plenty of water.

After contact with eyes

Rinse thoroughly with plenty of water, also under the eyelids.

After ingestion

Clean mouth with water and drink afterwards plenty of water. Prevent vomiting if possible.

Consult a physician if necessary.

4.2. Most important symptoms and effects, both acute and delayed

This information is not available.

4.3. Indication of any immediate medical attention and special treatment needed

Show this safety data sheet to the doctor in attendance.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Any extinguishing means and measures are acceptable.

5.2. Special hazards arising from the substance or mixture

This information is not available.

5.3. Advice for firefighters

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. The product itself does not burn.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

Revision No: 1,03

GB - en



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General advice

Not required

For non-emergency personnel

No special measures are necessary.

For emergency responders

No special measures are necessary.

6.2. Environmental precautions

Do not flush into surface water.

6.3. Methods and material for containment and cleaning up

For containment

Prevent spread over a wide area (e.g. by containment or oil barriers).

For cleaning up

Wipe up with absorbent material (e.g. cloth, fleece).

Clean contaminated articles and floor according to the environmental legislation.

Other information

Never return spills in original containers for re-use.

6.4. Reference to other sections

Refer to protective measures listed in sections 7 and 8.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

No special precautions required.

Advice on protection against fire and explosion

No special protective measures against fire required.

Advice on general occupational hygiene

General industrial hygiene practice. No special protective equipment required.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Store at room temperature in the original container. Store in a place accessible by authorized persons only.

Further information on storage conditions

Keep container tightly closed.

Never return unused material to storage receptacle.

7.3. Specific end use(s)

This information is not available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.2. Exposure controls

Appropriate engineering controls

Not required.

Individual protection measures, such as personal protective equipment

Skin protection

Not required

Respiratory protection

Not required



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Environmental exposure controls

Handle in accordance with good industrial hygiene and safety practice.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	liquid	
Colour:	weakly yellow	
Odour:	pleasant	
		Test method
Melting point/freezing point:	<0 °C	
Boiling point or initial boiling point and boiling range:	>98 °C	
Flammability:	not applicable	
Lower explosion limits:	not applicable	
Upper explosion limits:	not applicable	
Flash point:	not determined	
Auto-ignition temperature:	not determined	
Decomposition temperature:	not determined	
pH-Value (at 20 °C):	approx. 7,0	K-QP1012C
Viscosity / kinematic:	not determined	
Water solubility: (at 20 °C)	completely miscible	
Solubility in other solvents		
not determined		
Partition coefficient n-octanol/water:	not determined	
Vapour pressure:	not determined	
Density (at 20 °C):	1,00 g/cm³	K-QP1012E
Relative vapour density:	not determined	
Particle characteristics:	not applicable	

9.2. Other information

Information with regard to physical hazard classes

Explosive properties	
not relevant	
Self-ignition temperature	
Solid:	not applicable
Gas:	not applicable
Oxidizing properties	
not relevant	

Other safety characteristics

Evaporation rate:	not determined
Solid content:	not determined
Sublimation point:	not applicable
Softening point:	not applicable
Pour point:	not applicable
Viscosity / dynamic:	not determined
Flow time:	not determined

SECTION 10: Stability and reactivity

10.1. Reactivity

This information is not available.



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10.2. Chemical stability

This information is not available.

10.3. Possibility of hazardous reactions

This information is not available.

10.4. Conditions to avoid

Do not expose to temperatures above 35 °C.

10.5. Incompatible materials

This information is not available.

10.6. Hazardous decomposition products

No decomposition if stored and applied as directed.

Further information

Do not mix with other detergents or chemicals.

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in GB CLP Regulation

Acute toxicity

Based on available data, the classification criteria are not met.

ATEmix calculated

ATE (oral) > 2000 mg/kg; ATE (dermal) > 2000 mg/kg; ATE (inhalation vapour) > 20 mg/l; ATE (inhalation dust/mist) > 5 mg/l

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
69011-36-5	i-C13-Fatty alcohol polyglycol ethers 5-12 EO				
	oral	ATE 500 mg/kg			

Irritation and corrosivity

Based on available data, the classification criteria are not met.

Sensitising effects

Based on available data, the classification criteria are not met.

Carcinogenic/mutagenic/toxic effects for reproduction

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

Based on available data, the classification criteria are not met.

Aspiration hazard

Based on available data, the classification criteria are not met.

11.2. Information on other hazards

Endocrine disrupting properties

This information is not available.

Further information

Health injuries are not known or expected under normal use.

SECTION 12: Ecological information

12.1. Toxicity

Based on available data, the classification criteria are not met.



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12.2. Persistence and degradability

No data is available on the product itself.

12.3. Bioaccumulative potential

This information is not available.

12.4. Mobility in soil

The formulation of the product does not contain halogen organic compounds (AOX) or AOX forming halogen compounds.

12.5. Results of PBT and vPvB assessment

The substances in the mixture do not meet the PBT/vPvB criteria according to UK REACH.

12.6. Endocrine disrupting properties

This product does not contain a substance that has endocrine disrupting properties with respect to non-target organisms as no components meets the criteria.

12.7. Other adverse effects

This information is not available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal recommendations

Container should be emptied thoroughly.
Do not pour remains of product in large quantities into the sewage.

List of Wastes Code - residues/unused products

070699 WASTES FROM ORGANIC CHEMICAL PROCESSES; wastes from the MFSU of fats, grease, soaps, detergents, disinfectants and cosmetics; wastes not otherwise specified

List of Wastes Code - used product

070699 WASTES FROM ORGANIC CHEMICAL PROCESSES; wastes from the MFSU of fats, grease, soaps, detergents, disinfectants and cosmetics; wastes not otherwise specified

Contaminated packaging

Clean container with water. Return cleaned containers to the company for recycling.
Offer rinsed packaging material to local recycling facilities.

SECTION 14: Transport information

Land transport (ADR/RID)

14.1. UN number or ID number: not applicable

14.2. UN proper shipping name: not applicable

14.3. Transport hazard class(es): not applicable

14.4. Packing group: not applicable

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: No

14.6. Special precautions for user

Not required

14.7. Maritime transport in bulk according to IMO instruments

not applicable

Other applicable information

Not classified as dangerous in the meaning of transport regulations.

SECTION 15: Regulatory information

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



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National regulatory information

Water hazard class (D): 1 - slightly hazardous to water

15.2. Chemical safety assessment

Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16: Other information

Changes

This data sheet contains changes from the previous version in section(s): 1

Abbreviations and acronyms

Acute Tox: Acute toxicity
Eye Dam: Eye damage
ADR: Accord européen sur le transport 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 Harmonized 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
LC50: Lethal concentration, 50%
LD50: Lethal dose, 50%
CLP: Classification, labelling and Packaging
REACH: Registration, Evaluation and Authorization of Chemicals
GHS: Globally Harmonised System of Classification, Labelling and Packaging of Chemicals
UN: United Nations
DNEL: Derived No Effect Level
DMEL: Derived Minimal Effect Level
PNEC: Predicted No Effect Concentration
ATE: Acute toxicity estimate
LL50: Lethal loading, 50%
EL50: Effect loading, 50%
EC50: Effective Concentration 50%
ErC50: Effective Concentration 50%, growth rate
NOEC: No Observed Effect Concentration
BCF: Bio-concentration factor
PBT: persistent, bioaccumulative, toxic
vPvB: very persistent, very bioaccumulative
RID: Regulations concerning the international carriage of dangerous goods by rail
ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
(Accord européen relatif au transport international des marchandises dangereuses par voies de navigation
intérieures)
EmS: Emergency Schedules
MFAG: Medical First Aid Guide
MARPOL: International Convention for the Prevention of Marine Pollution from Ships
IBC: Intermediate Bulk Container
SVHC: Substance of Very High Concern

For abbreviations and acronyms, see table at <http://abbrev.esdscom.eu>

Relevant H and EUH statements (number and full text)

H302	Harmful if swallowed.
H318	Causes serious eye damage.



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(The data for the relevant ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)

8 Safety Data Sheet care product, Leather

EHRLE GmbH



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according to UK REACH Regulation

EHRLE MT Leather

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

1.1. Product identifier

EHRLE MT Leather

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture

Fragrance

1.3. Details of the supplier of the safety data sheet

Company name: EHRLE GmbH
Street: Industriestraße 3
Place: D-89165 Dietenheim
Telephone: +49 7303 1600-0 Telefax: +49 7303 1600 600
E-mail: info@ehrle.com
Contact person: Department Labour
Internet: www.ehrle.com
Responsible Department: Notrufnummer für deutsch- und englischsprachige Länder: +49/89/19240
Vergiftungsinformationszentrale (VIZ) Österreich: +43 1 406 43 43
Nationale Notrufnummer für die Schweiz (Tox-Zentrum Zürich): 145
Numéro d'urgence France: INRS: +33 (0) 1 45 42 59 59
Numero d'emergenza Italia: Centro Antiveleni - 20162 Milano: 02/66101029
ETTSZ /Egészségügyi Toxikológiai Tájékoztató Szolgálat/, 1096 Budapest,
Nagyvárad tér 2. Ügyeleti telefonszám: +36 80 201-199
Emergency telephone number for all other countries: +49/8134/9305-169

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EHRLE FS SIA | Zeltiņu iela 114 | Mārupē, Mārupes novads, LV-2167 Letland | +371 67869100 | www.ehrle.lv
EHRLE Slovakia s.r.o. | Mýtnárska 11 | SK - 902 03 Pezínok | +421 945 477786 | www.ehrle-slovakia.sk
EHRLE Česká s.r.o. | Zemědělská 1001/3b | Hradec Králové | +420 495 541 930 | www.ehrle.cz
EHRLE UK Ltd. | Unit 2 - Kinetic 45 - Newmarket Lane | Leeds LS9 0SH | +44 113 240 7291 | www.ehrle.co.uk
EHRLE France | 11 Rue de la Gare | 67610 La Wantzenau | +33 6 77 02 44 85 | www.ehrle.fr
KIVANT Kft. - EHRLE-Hungária | Győr úca 2. | BITEP Isari Park | 2040 Budapest | +36 (1) 371-0760 | www.ehrle.hu
EHRLE doo Viteznik | Novosadski put 74 | 21203 Viteznik Srbija | +38 1213 821 908 | www.ehrle.rs
VALOR Smartwash SRL | str. Mesteacului nr 150 | 547525 Săncraiu de Mureș | +40 365 732 302 | www.ehrle-romania.ro
Imbema Surface Treatment BV | Hoogeveenweg 23-27 | 2913 LV Nieuwerkerk a/d IJssel | +31 88 130 6592 | www.imbema.com/ehrle

1.4. Emergency telephone number: see informations above

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Not required.

2.2. Label elements

Additional advice on labelling

This mixture is classified as not hazardous according to regulation (EC) 1272/2008 [CLP].

2.3. Other hazards

None known.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Chemical characterization
emulsifiers, fragrances



Safety Data Sheet

EHRLE GmbH

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EHRLE MT Leather

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Relevant ingredients

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification (GB CLP Regulation)			
69011-36-5	i-C13-Fatty alcohol polyglycol ethers 5-12 EO			1 - < 5 %
	931-138-8			
	Acute Tox. 4, Eye Dam. 1; H302 H318			

Full text of H and EUH statements: see section 16.

Specific Conc. Limits, M-factors and ATE

CAS No	EC No	Chemical name	Quantity
		Specific Conc. Limits, M-factors and ATE	
69011-36-5	931-138-8	i-C13-Fatty alcohol polyglycol ethers 5-12 EO	1 - < 5 %
	oral: ATE = 500 mg/kg Eye Dam. 1; H318: >= 10 - 100 Eye Irrit. 2; H319: >= 6 - < 10		

Further Information

preservatives (2-Bromo-2-Nitropropane-1,3-diol)

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

No hazards which require special first aid measures.

After inhalation

not hazardous by inhalation

After contact with skin

Wash off with plenty of water.

After contact with eyes

Rinse thoroughly with plenty of water, also under the eyelids.

After ingestion

Clean mouth with water and drink afterwards plenty of water. Prevent vomiting if possible.

Consult a physician if necessary.

4.2. Most important symptoms and effects, both acute and delayed

This information is not available.

4.3. Indication of any immediate medical attention and special treatment needed

Show this safety data sheet to the doctor in attendance.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Any extinguishing means and measures are acceptable.

5.2. Special hazards arising from the substance or mixture

This information is not available.

5.3. Advice for firefighters

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. The product itself does not burn.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

EHRLE GmbH



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General advice

Not required

For non-emergency personnel

No special measures are necessary.

For emergency responders

No special measures are necessary.

6.2. Environmental precautions

Do not flush into surface water.

6.3. Methods and material for containment and cleaning up

For containment

Prevent spread over a wide area (e.g. by containment or oil barriers).

For cleaning up

Wipe up with absorbent material (e.g. cloth, fleece).

Clean contaminated articles and floor according to the environmental legislation.

Other information

Never return spills in original containers for re-use.

6.4. Reference to other sections

Refer to protective measures listed in sections 7 and 8.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

No special precautions required.

Advice on protection against fire and explosion

No special protective measures against fire required.

Advice on general occupational hygiene

General industrial hygiene practice. No special protective equipment required.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Store at room temperature in the original container. Store in a place accessible by authorized persons only.

Further information on storage conditions

Keep container tightly closed.

Never return unused material to storage receptacle.

7.3. Specific end use(s)

This information is not available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.2. Exposure controls

Appropriate engineering controls

Not required.

Individual protection measures, such as personal protective equipment

Skin protection

Not required

Respiratory protection

Not required



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Environmental exposure controls
Handle in accordance with good industrial hygiene and safety practice.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	liquid	
Colour:	weakly yellow	
Odour:	pleasant	
		Test method
Melting point/freezing point:	<0 °C	
Boiling point or initial boiling point and boiling range:	>98 °C	
Flammability:	not applicable	
Lower explosion limits:	not applicable	
Upper explosion limits:	not applicable	
Flash point:	not determined	
Auto-ignition temperature:	not determined	
Decomposition temperature:	not determined	
pH-Value (at 20 °C):	approx. 7,0	K-QP1012C
Viscosity / kinematic:	not determined	
Water solubility: (at 20 °C)	completely miscible	
Solubility in other solvents		
not determined		
Partition coefficient n-octanol/water:	not determined	
Vapour pressure:	not determined	
Density (at 20 °C):	1,00 g/cm³	K-QP1012E
Relative vapour density:	not determined	
Particle characteristics:	not applicable	

9.2. Other information

Information with regard to physical hazard classes

Explosive properties	
not relevant	
Self-ignition temperature	
Solid:	not applicable
Gas:	not applicable
Oxidizing properties	
not relevant	

Other safety characteristics

Evaporation rate:	not determined
Solid content:	not determined
Sublimation point:	not applicable
Softening point:	not applicable
Pour point:	not applicable
Viscosity / dynamic:	not determined
Flow time:	not determined

SECTION 10: Stability and reactivity

10.1. Reactivity

This information is not available.



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10.2. Chemical stability

This information is not available.

10.3. Possibility of hazardous reactions

This information is not available.

10.4. Conditions to avoid

Do not expose to temperatures above 35 °C.

10.5. Incompatible materials

This information is not available.

10.6. Hazardous decomposition products

No decomposition if stored and applied as directed.

Further information

Do not mix with other detergents or chemicals.

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in GB CLP Regulation

Acute toxicity

Based on available data, the classification criteria are not met.

ATEmix calculated

ATE (oral) > 2000 mg/kg; ATE (dermal) > 2000 mg/kg; ATE (inhalation vapour) > 20 mg/l; ATE (inhalation dust/mist) > 5 mg/l

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
69011-36-5	i-C13-Fatty alcohol polyglycol ethers 5-12 EO				
	oral	ATE 500 mg/kg			

Irritation and corrosivity

Based on available data, the classification criteria are not met.

Sensitising effects

Based on available data, the classification criteria are not met.

Carcinogenic/mutagenic/toxic effects for reproduction

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

Based on available data, the classification criteria are not met.

Aspiration hazard

Based on available data, the classification criteria are not met.

11.2. Information on other hazards

Endocrine disrupting properties

This information is not available.

Further information

Health injuries are not known or expected under normal use.

SECTION 12: Ecological information

12.1. Toxicity

Based on available data, the classification criteria are not met.



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12.2. Persistence and degradability

No data is available on the product itself.

12.3. Bioaccumulative potential

This information is not available.

12.4. Mobility in soil

The formulation of the product does not contain halogen organic compounds (AOX) or AOX forming halogen compounds.

12.5. Results of PBT and vPvB assessment

The substances in the mixture do not meet the PBT/vPvB criteria according to UK REACH.

12.6. Endocrine disrupting properties

This product does not contain a substance that has endocrine disrupting properties with respect to non-target organisms as no components meets the criteria.

12.7. Other adverse effects

This information is not available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal recommendations

Container should be emptied thoroughly.
Do not pour remains of product in large quantities into the sewage.

List of Wastes Code - residues/unused products

070699 WASTES FROM ORGANIC CHEMICAL PROCESSES; wastes from the MFSU of fats, grease, soaps, detergents, disinfectants and cosmetics; wastes not otherwise specified

List of Wastes Code - used product

070699 WASTES FROM ORGANIC CHEMICAL PROCESSES; wastes from the MFSU of fats, grease, soaps, detergents, disinfectants and cosmetics; wastes not otherwise specified

Contaminated packaging

Clean container with water. Return cleaned containers to the company for recycling.
Offer rinsed packaging material to local recycling facilities.

SECTION 14: Transport information

Land transport (ADR/RID)

14.1. UN number or ID number: not applicable

14.2. UN proper shipping name: not applicable

14.3. Transport hazard class(es): not applicable

14.4. Packing group: not applicable

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: No

14.6. Special precautions for user

Not required

14.7. Maritime transport in bulk according to IMO instruments

not applicable

Other applicable information

Not classified as dangerous in the meaning of transport regulations.

SECTION 15: Regulatory information

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

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National regulatory information

Water hazard class (D): 1 - slightly hazardous to water

15.2. Chemical safety assessment

Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16: Other information

Changes

This data sheet contains changes from the previous version in section(s): 1

Abbreviations and acronyms

Acute Tox: Acute toxicity
Eye Dam: Eye damage
ADR: Accord européen sur le transport 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 Harmonized 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
LC50: Lethal concentration, 50%
LD50: Lethal dose, 50%
CLP: Classification, labelling and Packaging
REACH: Registration, Evaluation and Authorization of Chemicals
GHS: Globally Harmonised System of Classification, Labelling and Packaging of Chemicals
UN: United Nations
DNEL: Derived No Effect Level
DMEL: Derived Minimal Effect Level
PNEC: Predicted No Effect Concentration
ATE: Acute toxicity estimate
LL50: Lethal loading, 50%
EL50: Effect loading, 50%
EC50: Effective Concentration 50%
ErC50: Effective Concentration 50%, growth rate
NOEC: No Observed Effect Concentration
BCF: Bio-concentration factor
PBT: persistent, bioaccumulative, toxic
vPvB: very persistent, very bioaccumulative
RID: Regulations concerning the international carriage of dangerous goods by rail
ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
(Accord européen relatif au transport international des marchandises dangereuses par voies de navigation
intérieures)
EmS: Emergency Schedules
MFAG: Medical First Aid Guide
MARPOL: International Convention for the Prevention of Marine Pollution from Ships
IBC: Intermediate Bulk Container
SVHC: Substance of Very High Concern

For abbreviations and acronyms, see table at <http://abbrev.esdscom.eu>

Relevant H and EUH statements (number and full text)

H302	Harmful if swallowed.
H318	Causes serious eye damage.



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(The data for the relevant ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)

9 Safety Data Sheet care product, Papaya

EHRLE GmbH



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

1.1. Product identifier

EHRLE MT Papaya

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture

Fragrance

1.3. Details of the supplier of the safety data sheet

Company name: EHRLE GmbH
Street: Industriestraße 3
Place: D-89165 Dietenheim
Telephone: +49 7303 1600-0 Telefax: +49 7303 1600 600
E-mail: info@ehrle.com
Contact person: Department Labour
Internet: www.ehrle.com
Responsible Department: Notrufnummer für deutsch- und englischsprachige Länder: +49/89/19240
Vergiftungsinformationszentrale (VIZ) Österreich: +43 1 406 43 43
Nationale Notrufnummer für die Schweiz (Tox-Zentrum Zürich): 145
Numéro d'urgence France: INRS: +33 (0) 1 45 42 59 59
Numero d'emergenza Italia: Centro Antiveleni - 20162 Milano: 02/66101029
ETTSZ /Egészségügyi Toxikológiai Tájékoztató Szolgálat/, 1096 Budapest,
Nagyvárud tér 2. Ügyeleti telefonszám: +36 80 201-199
Emergency telephone number for all other countries: +49/8134/9305-169

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EHRLE Sp. z o.o. | Wierzyńska 45 | 72-005 Przecławie Polen | +48 91-814-5555 | www.ehrle.pl
EHRLE Austria GmbH | Technoparkstr. 4 | 5310 Mondsee | +43 6232 903 035 702 | www.ehrle-austria.at
EHRLE FS SIA | Zeltiņu iela 114 | Mārupē, Mārupes novads, LV-2167 Letland | +371 67869100 | www.ehrle.lv
EHRLE Slovakia s.r.o. | Mlynská 11 | SK - 902 03 Pezínok | +421 949 477788 | www.ehrle-slovakia.sk
EHRLE Česká s.r.o. | Zemědělská 1091/3b | Hradec Králové | +420 495 541 830 | www.ehrle.cz
EHRLE UK Ltd. | Unit 2 - Kinetic 45 - Newmarket Lane | Leeds LS9 0SH | +44 113 240 7291 | www.ehrle.co.uk
EHRLE France | 11 Rue de la Gare | 67610 La Wantzenau | +33 6 77 02 44 85 | www.ehrle.fr
KVANT Kft. - EHRLE-Hungária | Győr utca 2. | BITEP Ipari Park | 2040 Budafok | +36 (1) 371-0760 | www.ehrle.hu
EHRLE d.o.o. Veleniki | Novosadski put 74 | 21203 Veleniki Srbija | +38 1213 821 908 | www.ehrle.rs
VALOR Smartwash SRL | str. Mesteşeniului nr.150 | 547525 Săncrău de Mureş | +40 365 732 302 | www.ehrle-romania.ro
Imbema Surface Treatment BV | Hoogeveenweg 23-27 | 2913 LV Nieuwerkerk a/d IJssel | +31 86 130 6592 | www.imbema.com/ehrle

1.4. Emergency telephone number: see informations above

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Not required.

2.2. Label elements

Additional advice on labelling

This mixture is classified as not hazardous according to regulation (EC) 1272/2008 [CLP].

2.3. Other hazards

None known.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Chemical characterization
emulsifiers, fragrances



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Relevant ingredients

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification (GB CLP Regulation)			
69011-36-5	i-C13-Fatty alcohol polyglycol ethers 5-12 EO			1 - < 5 %
	931-138-8			
	Acute Tox. 4, Eye Dam. 1; H302 H318			

Full text of H and EUH statements: see section 16.

Specific Conc. Limits, M-factors and ATE

CAS No	EC No	Chemical name	Quantity
		Specific Conc. Limits, M-factors and ATE	
69011-36-5	931-138-8	i-C13-Fatty alcohol polyglycol ethers 5-12 EO	1 - < 5 %
	oral: ATE = 500 mg/kg Eye Dam. 1; H318: >= 10 - 100 Eye Irrit. 2; H319: >= 6 - < 10		

Further Information

preservatives (2-Bromo-2-Nitropropane-1,3-diol)

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

No hazards which require special first aid measures.

After inhalation

not hazardous by inhalation

After contact with skin

Wash off with plenty of water.

After contact with eyes

Rinse thoroughly with plenty of water, also under the eyelids.

After ingestion

Clean mouth with water and drink afterwards plenty of water. Prevent vomiting if possible.

Consult a physician if necessary.

4.2. Most important symptoms and effects, both acute and delayed

This information is not available.

4.3. Indication of any immediate medical attention and special treatment needed

Show this safety data sheet to the doctor in attendance.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Any extinguishing means and measures are acceptable.

5.2. Special hazards arising from the substance or mixture

This information is not available.

5.3. Advice for firefighters

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. The product itself does not burn.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures



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General advice

Not required

For non-emergency personnel

No special measures are necessary.

For emergency responders

No special measures are necessary.

6.2. Environmental precautions

Do not flush into surface water.

6.3. Methods and material for containment and cleaning up

For containment

Prevent spread over a wide area (e.g. by containment or oil barriers).

For cleaning up

Wipe up with absorbent material (e.g. cloth, fleece).

Clean contaminated articles and floor according to the environmental legislation.

Other information

Never return spills in original containers for re-use.

6.4. Reference to other sections

Refer to protective measures listed in sections 7 and 8.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

No special precautions required.

Advice on protection against fire and explosion

No special protective measures against fire required.

Advice on general occupational hygiene

General industrial hygiene practice. No special protective equipment required.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Store at room temperature in the original container. Store in a place accessible by authorized persons only.

Further information on storage conditions

Keep container tightly closed.

Never return unused material to storage receptacle.

7.3. Specific end use(s)

This information is not available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

8.2. Exposure controls

Appropriate engineering controls

Not required.

Individual protection measures, such as personal protective equipment

Skin protection

Not required

Respiratory protection

Not required



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Environmental exposure controls

Handle in accordance with good industrial hygiene and safety practice.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	liquid	
Colour:	brown	
Odour:	pleasant	
		Test method
Melting point/freezing point:	<0 °C	
Boiling point or initial boiling point and boiling range:	>98 °C	
Flammability:	not applicable	
Lower explosion limits:	not applicable	
Upper explosion limits:	not applicable	
Flash point:	not determined	
Auto-ignition temperature:	not determined	
Decomposition temperature:	not determined	
pH-Value (at 20 °C):	approx. 7,0	K-QP1012C
Viscosity / kinematic:	not determined	
Water solubility: (at 20 °C)	completely miscible	
Solubility in other solvents not determined		
Partition coefficient n-octanol/water:	not determined	
Vapour pressure:	not determined	
Density (at 20 °C):	1,00 g/cm ³	K-QP1012E
Relative vapour density:	not determined	
Particle characteristics:	not applicable	

9.2. Other information

Information with regard to physical hazard classes

Explosive properties not relevant	
Self-ignition temperature Solid:	not applicable
Gas:	not applicable
Oxidizing properties not relevant	

Other safety characteristics

Evaporation rate:	not determined
Solid content:	not determined
Sublimation point:	not applicable
Softening point:	not applicable
Pour point:	not applicable
Viscosity / dynamic:	not determined
Flow time:	not determined

SECTION 10: Stability and reactivity

10.1. Reactivity

This information is not available.



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10.2. Chemical stability

This information is not available.

10.3. Possibility of hazardous reactions

This information is not available.

10.4. Conditions to avoid

Do not expose to temperatures above 35 °C.

10.5. Incompatible materials

This information is not available.

10.6. Hazardous decomposition products

No decomposition if stored and applied as directed.

Further information

Do not mix with other detergents or chemicals.

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in GB CLP Regulation

Acute toxicity

Based on available data, the classification criteria are not met.

ATEmix calculated

ATE (oral) > 2000 mg/kg; ATE (dermal) > 2000 mg/kg; ATE (inhalation vapour) > 20 mg/l; ATE (inhalation dust/mist) > 5 mg/l

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
69011-36-5	i-C13-Fatty alcohol polyglycol ethers 5-12 EO				
	oral	ATE mg/kg	500		

Irritation and corrosivity

Based on available data, the classification criteria are not met.

Sensitising effects

Based on available data, the classification criteria are not met.

Carcinogenic/mutagenic/toxic effects for reproduction

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

Based on available data, the classification criteria are not met.

Aspiration hazard

Based on available data, the classification criteria are not met.

11.2. Information on other hazards

Endocrine disrupting properties

This information is not available.

Further information

Health injuries are not known or expected under normal use.

SECTION 12: Ecological information

12.1. Toxicity

Based on available data, the classification criteria are not met.



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12.2. Persistence and degradability

No data is available on the product itself.

12.3. Bioaccumulative potential

This information is not available.

12.4. Mobility in soil

The formulation of the product does not contain halogen organic compounds (AOX) or AOX forming halogen compounds.

12.5. Results of PBT and vPvB assessment

The substances in the mixture do not meet the PBT/vPvB criteria according to UK REACH.

12.6. Endocrine disrupting properties

This product does not contain a substance that has endocrine disrupting properties with respect to non-target organisms as no components meets the criteria.

12.7. Other adverse effects

This information is not available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal recommendations

Container should be emptied thoroughly.

Do not pour remains of product in large quantities into the sewage.

List of Wastes Code - residues/unused products

070699 WASTES FROM ORGANIC CHEMICAL PROCESSES; wastes from the MFSU of fats, grease, soaps, detergents, disinfectants and cosmetics; wastes not otherwise specified

List of Wastes Code - used product

070699 WASTES FROM ORGANIC CHEMICAL PROCESSES; wastes from the MFSU of fats, grease, soaps, detergents, disinfectants and cosmetics; wastes not otherwise specified

Contaminated packaging

Clean container with water. Return cleaned containers to the company for recycling.

Offer rinsed packaging material to local recycling facilities.

SECTION 14: Transport information

Land transport (ADR/RID)

14.1. UN number or ID number: not applicable

14.2. UN proper shipping name: not applicable

14.3. Transport hazard class(es): not applicable

14.4. Packing group: not applicable

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: No

14.6. Special precautions for user

Not required

14.7. Maritime transport in bulk according to IMO instruments

not applicable

Other applicable information

Not classified as dangerous in the meaning of transport regulations.

SECTION 15: Regulatory information

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



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National regulatory information

Water hazard class (D): 1 - slightly hazardous to water

15.2. Chemical safety assessment

Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16: Other information

Changes

This data sheet contains changes from the previous version in section(s): 1

Abbreviations and acronyms

Acute Tox: Acute toxicity
Eye Dam: Eye damage
ADR: Accord européen sur le transport 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 Harmonized 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
LC50: Lethal concentration, 50%
LD50: Lethal dose, 50%
CLP: Classification, labelling and Packaging
REACH: Registration, Evaluation and Authorization of Chemicals
GHS: Globally Harmonised System of Classification, Labelling and Packaging of Chemicals
UN: United Nations
DNEL: Derived No Effect Level
DMEL: Derived Minimal Effect Level
PNEC: Predicted No Effect Concentration
ATE: Acute toxicity estimate
LL50: Lethal loading, 50%
EL50: Effect loading, 50%
EC50: Effective Concentration 50%
ErC50: Effective Concentration 50%, growth rate
NOEC: No Observed Effect Concentration
BCF: Bio-concentration factor
PBT: persistent, bioaccumulative, toxic
vPvB: very persistent, very bioaccumulative
RID: Regulations concerning the international carriage of dangerous goods by rail
ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
(Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures)
EmS: Emergency Schedules
MFAG: Medical First Aid Guide
MARPOL: International Convention for the Prevention of Marine Pollution from Ships
IBC: Intermediate Bulk Container
SVHC: Substance of Very High Concern

For abbreviations and acronyms, see table at <http://abbrev.esdscom.eu>

Relevant H and EUH statements (number and full text)

H302 Harmful if swallowed.
H318 Causes serious eye damage.



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(The data for the relevant ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)

10 Safety Data Sheet care product, PepperMint

EHRLE GmbH



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

1.1. Product identifier

EHRLE MT PepperMint

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture

Fragrance

1.3. Details of the supplier of the safety data sheet

Company name: EHRLE GmbH
Street: Industriestraße 3
Place: D-89165 Dietenheim
Telephone: +49 7303 1600-0 Telefax: +49 7303 1600 600
E-mail: info@ehrlle.com
Contact person: Department Labour
Internet: www.ehrlle.com
Responsible Department: Notrufnummer für deutsch- und englischsprachige Länder: +49/89/19240
Vergiftungsinformationszentrale (VIZ) Österreich: +43 1 406 43 43
Nationale Notrufnummer für die Schweiz (Tox-Zentrum Zürich): 145
Numéro d'urgence France: INRS: +33 (0) 1 45 42 59 59
Numero d'emergenza Italia: Centro Antiveleni - 20162 Milano: 02/66101029
ETTSZ /Egészségügyi Toxikológiai Tájékoztató Szolgálat/, 1096 Budapest,
Nagyvárud tér 2. Ügyeleti telefonszám: +36 80 201-199
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EHRLE UK Ltd. | Unit 2 - Kinetic 45 - Newmarket Lane | Leeds LS9 0SH | +44 113 240 7291 | www.ehrlle.co.uk
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KVANT Kft. - EHRLE-Hungária | Győr utca 2. | BITEP Ipari Park | 2040 Budafok | +36 (1) 371-0760 | www.ehrlle.hu
EHRLE doo Velenik | Novosadski put 74 | 21203 Velenik Srbija | +38 1213 821 908 | www.ehrlle.rs
VALOR Smartwash SRL | str. Mesteşului nr 150 | 547025 Săncraiu de Mureş | +40 365 732 302 | www.ehrlle-romania.ro
Imbema Surface Treatment BV | Hoogeveenweg 23-27 | 2913 LV Nieuwerkerk a/d IJssel | +31 86 130 6592 | www.imbema.com/ehrlle

1.4. Emergency telephone number: see informations above

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Not required.

2.2. Label elements

Additional advice on labelling

This mixture is classified as not hazardous according to regulation (EC) 1272/2008 [CLP].

2.3. Other hazards

None known.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Chemical characterization
emulsifiers, fragrances



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according to UK REACH Regulation

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Relevant ingredients

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification (GB CLP Regulation)			
69011-36-5	i-C13-Fatty alcohol polyglycol ethers 5-12 EO			1 - < 5 %
	931-138-8			
	Acute Tox. 4, Eye Dam. 1; H302 H318			

Full text of H and EUH statements: see section 16.

Specific Conc. Limits, M-factors and ATE

CAS No	EC No	Chemical name	Quantity
		Specific Conc. Limits, M-factors and ATE	
69011-36-5	931-138-8	i-C13-Fatty alcohol polyglycol ethers 5-12 EO	1 - < 5 %
	oral: ATE = 500 mg/kg Eye Dam. 1; H318: >= 10 - 100 Eye Irrit. 2; H319: >= 6 - < 10		

Further Information

preservatives (2-Bromo-2-Nitropropane-1,3-diol)

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

No hazards which require special first aid measures.

After inhalation

not hazardous by inhalation

After contact with skin

Wash off with plenty of water.

After contact with eyes

Rinse thoroughly with plenty of water, also under the eyelids.

After ingestion

Clean mouth with water and drink afterwards plenty of water. Prevent vomiting if possible.

Consult a physician if necessary.

4.2. Most important symptoms and effects, both acute and delayed

This information is not available.

4.3. Indication of any immediate medical attention and special treatment needed

Show this safety data sheet to the doctor in attendance.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Any extinguishing means and measures are acceptable.

5.2. Special hazards arising from the substance or mixture

This information is not available.

5.3. Advice for firefighters

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. The product itself does not burn.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures



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Relevant ingredients

CAS No	Chemical name	Quantity
	EC No	Index No
	REACH No	
	Classification (GB CLP Regulation)	
69011-36-5	i-C13-Fatty alcohol polyglycol ethers 5-12 EO	1 - < 5 %
	931-138-8	
	Acute Tox. 4, Eye Dam. 1; H302 H318	

Full text of H and EUH statements: see section 16.

Specific Conc. Limits, M-factors and ATE

CAS No	EC No	Chemical name	Quantity
		Specific Conc. Limits, M-factors and ATE	
69011-36-5	931-138-8	i-C13-Fatty alcohol polyglycol ethers 5-12 EO	1 - < 5 %
		oral: ATE = 500 mg/kg Eye Dam. 1; H318: >= 10 - 100 Eye Irrit. 2; H319: >= 6 - < 10	

Further Information

preservatives (2-Bromo-2-Nitropropane-1,3-diol)

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

No hazards which require special first aid measures.

After inhalation

not hazardous by inhalation

After contact with skin

Wash off with plenty of water.

After contact with eyes

Rinse thoroughly with plenty of water, also under the eyelids.

After ingestion

Clean mouth with water and drink afterwards plenty of water. Prevent vomiting if possible.

Consult a physician if necessary.

4.2. Most important symptoms and effects, both acute and delayed

This information is not available.

4.3. Indication of any immediate medical attention and special treatment needed

Show this safety data sheet to the doctor in attendance.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Any extinguishing means and measures are acceptable.

5.2. Special hazards arising from the substance or mixture

This information is not available.

5.3. Advice for firefighters

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. The product itself does not burn.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures



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Environmental exposure controls
Handle in accordance with good industrial hygiene and safety practice.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	liquid	
Colour:	weakly yellow	
Odour:	pleasant	
		Test method
Melting point/freezing point:	<0 °C	
Boiling point or initial boiling point and boiling range:	>98 °C	
Flammability:	not applicable	
Lower explosion limits:	not applicable	
Upper explosion limits:	not applicable	
Flash point:	not determined	
Auto-ignition temperature:	not determined	
Decomposition temperature:	not determined	
pH-Value (at 20 °C):	approx. 7,0	K-QP1012C
Viscosity / kinematic:	not determined	
Water solubility: (at 20 °C)	completely miscible	
Solubility in other solvents		
not determined		
Partition coefficient n-octanol/water:	not determined	
Vapour pressure:	not determined	
Density (at 20 °C):	1,00 g/cm³	K-QP1012E
Relative vapour density:	not determined	
Particle characteristics:	not applicable	

9.2. Other information

Information with regard to physical hazard classes

Explosive properties	
not relevant	
Self-ignition temperature	
Solid:	not applicable
Gas:	not applicable
Oxidizing properties	
not relevant	

Other safety characteristics

Evaporation rate:	not determined
Solid content:	not determined
Sublimation point:	not applicable
Softening point:	not applicable
Pour point:	not applicable
Viscosity / dynamic:	not determined
Flow time:	not determined

SECTION 10: Stability and reactivity

10.1. Reactivity

This information is not available.



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10.2. Chemical stability

This information is not available.

10.3. Possibility of hazardous reactions

This information is not available.

10.4. Conditions to avoid

Do not expose to temperatures above 35 °C.

10.5. Incompatible materials

This information is not available.

10.6. Hazardous decomposition products

No decomposition if stored and applied as directed.

Further information

Do not mix with other detergents or chemicals.

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in GB CLP Regulation

Acute toxicity

Based on available data, the classification criteria are not met.

ATEmix calculated

ATE (oral) > 2000 mg/kg; ATE (dermal) > 2000 mg/kg; ATE (inhalation vapour) > 20 mg/l; ATE (inhalation dust/mist) > 5 mg/l

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
69011-36-5	i-C13-Fatty alcohol polyglycol ethers 5-12 EO				
	oral	ATE 500 mg/kg			

Irritation and corrosivity

Based on available data, the classification criteria are not met.

Sensitising effects

Based on available data, the classification criteria are not met.

Carcinogenic/mutagenic/toxic effects for reproduction

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

Based on available data, the classification criteria are not met.

Aspiration hazard

Based on available data, the classification criteria are not met.

11.2. Information on other hazards

Endocrine disrupting properties

This information is not available.

Further information

Health injuries are not known or expected under normal use.

SECTION 12: Ecological information

12.1. Toxicity

Based on available data, the classification criteria are not met.



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12.2. Persistence and degradability

No data is available on the product itself.

12.3. Bioaccumulative potential

This information is not available.

12.4. Mobility in soil

The formulation of the product does not contain halogen organic compounds (AOX) or AOX forming halogen compounds.

12.5. Results of PBT and vPvB assessment

The substances in the mixture do not meet the PBT/vPvB criteria according to UK REACH.

12.6. Endocrine disrupting properties

This product does not contain a substance that has endocrine disrupting properties with respect to non-target organisms as no components meets the criteria.

12.7. Other adverse effects

This information is not available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal recommendations

Container should be emptied thoroughly.

Do not pour remains of product in large quantities into the sewage.

List of Wastes Code - residues/unused products

070699 WASTES FROM ORGANIC CHEMICAL PROCESSES; wastes from the MFSU of fats, grease, soaps, detergents, disinfectants and cosmetics; wastes not otherwise specified

List of Wastes Code - used product

070699 WASTES FROM ORGANIC CHEMICAL PROCESSES; wastes from the MFSU of fats, grease, soaps, detergents, disinfectants and cosmetics; wastes not otherwise specified

Contaminated packaging

Clean container with water. Return cleaned containers to the company for recycling.

Offer rinsed packaging material to local recycling facilities.

SECTION 14: Transport information

Land transport (ADR/RID)

14.1. UN number or ID number: not applicable

14.2. UN proper shipping name: not applicable

14.3. Transport hazard class(es): not applicable

14.4. Packing group: not applicable

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: No

14.6. Special precautions for user

Not required

14.7. Maritime transport in bulk according to IMO instruments

not applicable

Other applicable information

Not classified as dangerous in the meaning of transport regulations.

SECTION 15: Regulatory information

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



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National regulatory information

Water hazard class (D): 1 - slightly hazardous to water

15.2. Chemical safety assessment

Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16: Other information

Changes

This data sheet contains changes from the previous version in section(s): 1

Abbreviations and acronyms

Acute Tox: Acute toxicity
Eye Dam: Eye damage
ADR: Accord européen sur le transport 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 Harmonized 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
LC50: Lethal concentration, 50%
LD50: Lethal dose, 50%
CLP: Classification, labelling and Packaging
REACH: Registration, Evaluation and Authorization of Chemicals
GHS: Globally Harmonised System of Classification, Labelling and Packaging of Chemicals
UN: United Nations
DNEL: Derived No Effect Level
DMEL: Derived Minimal Effect Level
PNEC: Predicted No Effect Concentration
ATE: Acute toxicity estimate
LL50: Lethal loading, 50%
EL50: Effect loading, 50%
EC50: Effective Concentration 50%
ErC50: Effective Concentration 50%, growth rate
NOEC: No Observed Effect Concentration
BCF: Bio-concentration factor
PBT: persistent, bioaccumulative, toxic
vPvB: very persistent, very bioaccumulative
RID: Regulations concerning the international carriage of dangerous goods by rail
ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
(Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures)
EmS: Emergency Schedules
MFAG: Medical First Aid Guide
MARPOL: International Convention for the Prevention of Marine Pollution from Ships
IBC: Intermediate Bulk Container
SVHC: Substance of Very High Concern

For abbreviations and acronyms, see table at <http://abbrev.esdscom.eu>

Relevant H and EUH statements (number and full text)

H302	Harmful if swallowed.
H318	Causes serious eye damage.



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(The data for the relevant ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)

11 Safety Data Sheet chemical TireShine

EHRLE GmbH



Safety Data Sheet

according to UK REACH Regulation

EHRLE MT TireShine

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

1.1. Product identifier

EHRLE MT TireShine

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture

Product for professional cleaning and maintenance

1.3. Details of the supplier of the safety data sheet

Company name: EHRLE GmbH
Street: Industriestraße 3
Place: D-89165 Dietenheim
Telephone: +49 7303 1600-0 Telefax: +49 7303 1600 600
E-mail: info@ehrle.com
Contact person: Department Labour
Internet: www.ehrle.com
Responsible Department: Notrufnummer für deutsch- und englischsprachige Länder: +49/89/19240
Vergiftungsinformationszentrale (VIZ) Österreich: +43 1 406 43 43
Nationale Notrufnummer für die Schweiz (Tox-Zentrum Zürich): 145
Numéro d'urgence France: INRS: +33 (0) 1 45 42 59 59
Numero d'emergenza Italia: Centro Antiveleni - 20162 Milano: 02/66101029
ETTSZ /Egészségügyi Toxikológiai Tájékoztató Szolgálat/, 1096 Budapest,
Nagyvárud tér 2. Ügyeleti telefonszám: +36 80 201-199
Emergency telephone number for all other countries: +49/8134/9305-169

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VALCOR Smartwash SRL | sat Mesteacănului nr. 150 | 547525 Sălcău de Mureș | +40 365 732 302 | www.ehrle-romania.ro
Imbema Surface Treatment BV | Hoogeveenweg 23-27 | 2013 LV Nieuwerkerk a/d IJssel | +31 88 130 6552 | www.imbema.com/ehrle

1.4. Emergency telephone number: see informations above

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Not required.

2.2. Label elements

Additional advice on labelling

This mixture is classified as not hazardous according to regulation (EC) 1272/2008 [CLP].

2.3. Other hazards

None known.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Chemical characterization

maintenance substances, additives, fragrances

Hazardous components

none (according to UK REACH Regulation)



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according to UK REACH Regulation

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Further Information

preservatives (Phenoxyethanol, Benzisothiazolinone)

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

No hazards which require special first aid measures.

After inhalation

not hazardous by inhalation

After contact with skin

Wash off with plenty of water.

After contact with eyes

Rinse thoroughly with plenty of water, also under the eyelids.

After ingestion

Clean mouth with water and drink afterwards plenty of water. Prevent vomiting if possible.

Consult a physician if necessary.

4.2. Most important symptoms and effects, both acute and delayed

This information is not available.

4.3. Indication of any immediate medical attention and special treatment needed

Show this safety data sheet to the doctor in attendance.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Any extinguishing means and measures are acceptable.

5.2. Special hazards arising from the substance or mixture

This information is not available.

5.3. Advice for firefighters

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. The product itself does not burn.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General advice

Not required

For non-emergency personnel

No special measures are necessary.

For emergency responders

No special measures are necessary.

6.2. Environmental precautions

Do not flush into surface water.

6.3. Methods and material for containment and cleaning up

For containment

Prevent spread over a wide area (e.g. by containment or oil barriers).

For cleaning up

Wipe up with absorbent material (e.g. cloth, fleece).

Clean contaminated articles and floor according to the environmental legislation.



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Other information

Wipe up with absorbent material (e.g. cloth, fleece). Do not allow to dry.

6.4. Reference to other sections

Refer to protective measures listed in sections 7 and 8.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

No special precautions required.

Advice on protection against fire and explosion

No special protective measures against fire required.

Advice on general occupational hygiene

General industrial hygiene practice. No special protective equipment required.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Store at room temperature in the original container. Store in a place accessible by authorized persons only.

Further information on storage conditions

Keep container tightly closed.

Never return unused material to storage receptacle.

7.3. Specific end use(s)

This information is not available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Additional advice on limit values

To date, no national critical limit values exist.

8.2. Exposure controls

Appropriate engineering controls

Not required.

Individual protection measures, such as personal protective equipment

Skin protection

Not required

Respiratory protection

Not required

Environmental exposure controls

Handle in accordance with good industrial hygiene and safety practice.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	liquid, viscous
Colour:	milky
Odour:	pleasant

Melting point/freezing point:	<0 °C
Boiling point or initial boiling point and boiling range:	>98 °C
Flammability	

Test method



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Solid/liquid:	not applicable
Lower explosion limits:	not applicable
Upper explosion limits:	not applicable
Flash point:	>100 °C
Auto-ignition temperature:	>300 °C
Decomposition temperature:	not determined
pH-Value (at 20 °C):	approx. 7,0 K-QP1012C
Viscosity / kinematic:	not determined
Water solubility:	miscible
(at 20 °C)	
Solubility in other solvents	
not determined	
Partition coefficient n-octanol/water:	not determined
Vapour pressure:	not determined
Density (at 20 °C):	0,99 g/cm³ K-QP1012E
Relative vapour density:	not determined

9.2. Other information

Information with regard to physical hazard classes

Explosive properties

Not explosive

Self-ignition temperature

Solid:

not applicable

Gas:

not applicable

Oxidizing properties

Not relevant

Other safety characteristics

Evaporation rate:

not determined

Solid content:

not determined

Sublimation point:

not applicable

Softening point:

not applicable

Pour point:

not applicable

Viscosity / dynamic:

approx. 680 mPa·s K-QP1012N

(at 20 °C)

Flow time:

not determined

SECTION 10: Stability and reactivity

10.1. Reactivity

This information is not available.

10.2. Chemical stability

This information is not available.

10.3. Possibility of hazardous reactions

This information is not available.

10.4. Conditions to avoid

Do not expose to temperatures above 35 °C.

10.5. Incompatible materials

This information is not available.

10.6. Hazardous decomposition products

No decomposition if stored and applied as directed.

Further information

Do not mix with other detergents or chemicals.



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SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in GB CLP Regulation

Acute toxicity

Based on available data, the classification criteria are not met.

Irritation and corrosivity

Based on available data, the classification criteria are not met.

Sensitising effects

Based on available data, the classification criteria are not met.

Carcinogenic/mutagenic/toxic effects for reproduction

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

Based on available data, the classification criteria are not met.

Aspiration hazard

Based on available data, the classification criteria are not met.

11.2. Information on other hazards

Endocrine disrupting properties

This information is not available.

Further information

Health injuries are not known or expected under normal use.

SECTION 12: Ecological information

12.1. Toxicity

Based on available data, the classification criteria are not met.

12.2. Persistence and degradability

Contains no substances known to be hazardous to the environment or not degradable in waste water treatment plants. Readily biodegradable, according to appropriate OECD test.

12.3. Bioaccumulative potential

This information is not available.

12.4. Mobility in soil

The formulation of the product does not contain halogen organic compounds (AOX) or AOX forming halogen compounds.

12.5. Results of PBT and vPvB assessment

The substances in the mixture do not meet the PBT/vPvB criteria according to UK REACH.

12.6. Endocrine disrupting properties

This product does not contain a substance that has endocrine disrupting properties with respect to non-target organisms as no components meets the criteria.

12.7. Other adverse effects

This information is not available.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal recommendations

Container should be emptied thoroughly. Do not pour remains of product in large quantities into the sewage.

List of Wastes Code - residues/unused products



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070699 WASTES FROM ORGANIC CHEMICAL PROCESSES; wastes from the MFSU of fats, grease, soaps, detergents, disinfectants and cosmetics; wastes not otherwise specified

List of Wastes Code - used product

070699 WASTES FROM ORGANIC CHEMICAL PROCESSES; wastes from the MFSU of fats, grease, soaps, detergents, disinfectants and cosmetics; wastes not otherwise specified

Contaminated packaging

Clean container with water. Return cleaned containers to the company for recycling.

SECTION 14: Transport information

Land transport (ADR/RID)

14.1. UN number or ID number: not applicable
14.2. UN proper shipping name: not applicable
14.3. Transport hazard class(es): not applicable
14.4. Packing group: not applicable

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: No

14.6. Special precautions for user

Not required

14.7. Maritime transport in bulk according to IMO instruments

not applicable

Other applicable information

Not classified as dangerous in the meaning of transport regulations.

SECTION 15: Regulatory information

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

EU regulatory information

Additional information

The product does not need to be labelled in accordance with EC directives or respective national laws.

National regulatory information

Water hazard class (D): 1 - slightly hazardous to water

15.2. Chemical safety assessment

Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16: Other information

Changes

This data sheet contains changes from the previous version in section(s): 3 / 6 / 7 / 8 / 12

Abbreviations and acronyms

ADR: Accord européen sur le transport 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 Harmonized 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
LC50: Lethal concentration, 50%
LD50: Lethal dose, 50%
CLP: Classification, labelling and Packaging



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REACH: Registration, Evaluation and Authorization of Chemicals
GHS: Globally Harmonised System of Classification, Labelling and Packaging of Chemicals
UN: United Nations
DNEL: Derived No Effect Level
DMEL: Derived Minimal Effect Level
PNEC: Predicted No Effect Concentration
ATE: Acute toxicity estimate
LL50: Lethal loading, 50%
EL50: Effect loading, 50%
EC50: Effective Concentration 50%
ErC50: Effective Concentration 50%, growth rate
NOEC: No Observed Effect Concentration
BCF: Bio-concentration factor
PBT: persistent, bioaccumulative, toxic
vPvB: very persistent, very bioaccumulative
RID: Regulations concerning the international carriage of dangerous goods by rail
ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
(Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures)
EmS: Emergency Schedules
MFAG: Medical First Aid Guide
MARPOL: International Convention for the Prevention of Marine Pollution from Ships
IBC: Intermediate Bulk Container
SVHC: Substance of Very High Concern

For abbreviations and acronyms, see table at <http://abbrev.esdscom.eu>

(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)

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EHRLE GmbH



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EHRLE MT Tornado

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

1.1. Product identifier

EHRLE MT Tornado

1.2. Relevant identified uses of the substance or mixture and uses advised against

Use of the substance/mixture

Product for professional cleaning and maintenance

1.3. Details of the supplier of the safety data sheet

Company name: EHRLE GmbH
 Street: Industriestraße 3
 Place: D-89165 Dietenheim
 Telephone: +49 7303 1600-0 Telefax: +49 7303 1600 600
 E-mail: info@ehrle.com
 Contact person: Department Labour
 Internet: www.ehrle.com
 Responsible Department: Notrufnummer für deutsch- und englischsprachige Länder: +49/89/19240
 Vergiftungsinformationszentrale (VIZ) Österreich: +43 1 406 43 43
 Nationale Notrufnummer für die Schweiz (Tox-Zentrum Zürich): 145
 Numéro d'urgence France: INRS: +33 (0) 1 45 42 59 59
 Numero d' emergenza Italia: Centro Antiveleni - 20162 Milano: 02/66101029
 ETTSZ /Egészségügyi Toxikológiai Tájékoztató Szolgálat/, 1096 Budapest,
 Nagyvárad tér 2. Ügyeleti telefonszám: +36 80 201-199
 Emergency telephone number for all other countries: +49/8134/9305-169

EHRLE GmbH | Industriestraße 3 | D-89165 Dietenheim | +49 7303 1600-0 | www.ehrle.com
 EHRLE Sp. z o.o. | Wąrzyniec 45 | 72-005 Przecław Pole | +48 91-814-5555 | www.ehrle.pl
 EHRLE Austria GmbH | Technoparkstr. 4 | 5310 Mondsee | +43 6232 903 035 702 | www.ehrle-austria.at
 EHRLE FS SIA | Zeltņu iela 114 | Mārupis, Mārupes novads, LV-2167 Lieldand | +371 67869100 | www.ehrle.lv
 EHRLE Slovakia s.r.o. | Mýtnárska 11 | SK - 902 03 Pezňok | +421 948 477780 | www.ehrle-slovakia.sk
 EHRLE Česká s.r.o. | Zemědělská 1091/3b | Hradec Králové | +420 495 541 830 | www.ehrle.cz
 EHRLE UK Ltd. | Unit 2 - Kinetic 45 - Newmarket Lane | Leeds LS9 0SH | +44 113 240 7291 | www.ehrle.co.uk
 EHRLE France | 11 Rue de la Gare | 67610 La Wantzenau | +33 6 77 02 44 85 | www.ehrle.fr
 KVANT Kft. - EHRLE-Hungária | Győr utca 2. | BITEP Ipari Park | 2040 Budafok | +36 (1) 371-0760 | www.ehrle.hu
 EHRLE doo Velemik | Novosadski put 74 | 21203 Velemik Srbija | +38 1213 821 908 | www.ehrle.rs
 VALOR Smartwash SRL | str. Mesteşeniului nr 150 | 547025 Sâncraiu de Mureş | +40 365 732 302 | www.ehrle-romania.ro
 Imbema Surface Treatment BV | Hoogeveenweg 23-27 | 2913 LV Nieuwerkerk a/d IJssel | +31 88 130 6592 | www.imbema.com/ehrle

1.4. Emergency telephone number: see informations above

SECTION 2: Hazards identification

2.1. Classification of the substance or mixture

Not required.

2.2. Label elements

Additional advice on labelling

This mixture is classified as not hazardous according to regulation (EC) 1272/2008 [CLP].

2.3. Other hazards

None known.

SECTION 3: Composition/information on ingredients

3.2. Mixtures

Chemical characterization

according to 648/2004/CE: nonionic surfactants <5%, anionic surfactants <5%, dyes, fragrances (Limonene)

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Hazardous components

CAS No	Chemical name			Quantity
	EC No	Index No	REACH No	
	Classification (GB CLP Regulation)			
97489-15-1	Sodium C14-17 Sec Alkyl Sulfonate			1 - < 5 %
	307-055-2		01-2119489924-20	
	Acute Tox. 4, Skin Irrit. 2, Eye Dam. 1, Aquatic Chronic 3; H302 H315 H318 H412			

Full text of H and EUH statements: see section 16.

Specific Conc. Limits, M-factors and ATE

CAS No	EC No	Chemical name	Quantity
		Specific Conc. Limits, M-factors and ATE	
97489-15-1	307-055-2	Sodium C14-17 Sec Alkyl Sulfonate	1 - < 5 %
		oral: ATE = 500 mg/kg Skin Irrit. 2; H315: >= 10 - 100 Eye Dam. 1; H318: >= 15 - 100 Eye Irrit. 2; H319: >= 10 - < 15	

SECTION 4: First aid measures

4.1. Description of first aid measures

General information

No hazards which require special first aid measures.

After inhalation

not hazardous by inhalation

After contact with skin

Wash off with plenty of water.

After contact with eyes

Rinse thoroughly with plenty of water, also under the eyelids.

After ingestion

Clean mouth with water and drink afterwards plenty of water. Prevent vomiting if possible.
Consult a physician if necessary.

4.2. Most important symptoms and effects, both acute and delayed

This information is not available.

4.3. Indication of any immediate medical attention and special treatment needed

Show this safety data sheet to the doctor in attendance.

SECTION 5: Firefighting measures

5.1. Extinguishing media

Suitable extinguishing media

Any extinguishing means and measures are acceptable.

5.2. Special hazards arising from the substance or mixture

This information is not available.

5.3. Advice for firefighters

Use extinguishing measures that are appropriate to local circumstances and the surrounding environment. The product itself does not burn.

SECTION 6: Accidental release measures

6.1. Personal precautions, protective equipment and emergency procedures

General advice

Not required



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For non-emergency personnel

No special measures are necessary.

For emergency responders

No special measures are necessary.

6.2. Environmental precautions

Do not flush into surface water.

6.3. Methods and material for containment and cleaning up

For containment

Prevent spread over a wide area (e.g. by containment or oil barriers).

For cleaning up

Wipe up with absorbent material (e.g. cloth, fleece).

Clean contaminated articles and floor according to the environmental legislation.

Other information

Never return spills in original containers for re-use.

6.4. Reference to other sections

Refer to protective measures listed in sections 7 and 8.

SECTION 7: Handling and storage

7.1. Precautions for safe handling

Advice on safe handling

No special precautions required.

Advice on protection against fire and explosion

No special protective measures against fire required.

Advice on general occupational hygiene

General industrial hygiene practice. No special protective equipment required.

7.2. Conditions for safe storage, including any incompatibilities

Requirements for storage rooms and vessels

Store at room temperature in the original container. Store in a place accessible by authorized persons only.

Further information on storage conditions

Keep container tightly closed.

Never return unused material to storage receptacle.

7.3. Specific end use(s)

This information is not available.

SECTION 8: Exposure controls/personal protection

8.1. Control parameters

Additional advice on limit values

To date, no national critical limit values exist.

8.2. Exposure controls

Appropriate engineering controls

Not required.

Individual protection measures, such as personal protective equipment

Skin protection

Not required

Respiratory protection

Not required

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Environmental exposure controls

Handle in accordance with good industrial hygiene and safety practice.

SECTION 9: Physical and chemical properties

9.1. Information on basic physical and chemical properties

Physical state:	liquid	
Colour:	greenish-blue	
Odour:	pleasant	
		Test method
Melting point/freezing point:	<-2 °C	
Boiling point or initial boiling point and boiling range:	>90 °C	
Flammability:	not applicable	
Lower explosion limits:	not applicable	
Upper explosion limits:	not applicable	
Flash point:	>100 °C	
Auto-ignition temperature:	>300 °C	
Decomposition temperature:	not determined	
pH-Value (at 20 °C):	approx. 10,5	K-QP1012C
Viscosity / kinematic:	not determined	
Water solubility: (at 20 °C)	completely miscible	
Solubility in other solvents		
not determined		
Partition coefficient n-octanol/water:	not determined	
Vapour pressure:	not determined	
Density (at 20 °C):	1,02 g/cm³	K-QP1012E
Relative vapour density:	not determined	
Particle characteristics:	not applicable	

9.2. Other information

Information with regard to physical hazard classes

Explosive properties	
not relevant	
Self-ignition temperature	
Solid:	not applicable
Gas:	not applicable
Oxidizing properties	
not relevant	

Other safety characteristics

Evaporation rate:	not determined
Solid content:	not determined
Sublimation point:	not applicable
Softening point:	not applicable
Pour point:	not applicable
Viscosity / dynamic:	not determined
Flow time:	not determined

SECTION 10: Stability and reactivity

10.1. Reactivity

This information is not available.



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10.2. Chemical stability

This information is not available.

10.3. Possibility of hazardous reactions

This information is not available.

10.4. Conditions to avoid

Do not expose to temperatures above 35 °C.

10.5. Incompatible materials

This information is not available.

10.6. Hazardous decomposition products

No decomposition if stored and applied as directed.

Further information

Do not mix with other detergents or chemicals.

SECTION 11: Toxicological information

11.1. Information on hazard classes as defined in GB CLP Regulation

Acute toxicity

Based on available data, the classification criteria are not met.

ATEmix calculated

ATE (oral) > 2000 mg/kg; ATE (dermal) > 2000 mg/kg; ATE (inhalation vapour) > 20 mg/l; ATE (inhalation dust/mist) > 5 mg/l

CAS No	Chemical name				
	Exposure route	Dose	Species	Source	Method
97489-15-1	Sodium C14-17 Sec Alkyl Sulfonate				
	oral	ATE mg/kg	500		

Irritation and corrosivity

Based on available data, the classification criteria are not met.

Sensitising effects

Based on available data, the classification criteria are not met.

Carcinogenic/mutagenic/toxic effects for reproduction

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

Based on available data, the classification criteria are not met.

Aspiration hazard

Based on available data, the classification criteria are not met.

11.2. Information on other hazards

Endocrine disrupting properties

This information is not available.

Further information

Health injuries are not known or expected under normal use.

SECTION 12: Ecological information

12.1. Toxicity

Based on available data, the classification criteria are not met.

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12.2. Persistence and degradability

Contains no substances known to be hazardous to the environment or not degradable in waste water treatment plants. The surfactants in the product meet all requirements of the detergents regulation 648/2004/EC.

12.3. Bioaccumulative potential

This information is not available.

12.4. Mobility in soil

This information is not available.

12.5. Results of PBT and vPvB assessment

The substances in the mixture do not meet the PBT/vPvB criteria according to UK REACH.

12.6. Endocrine disrupting properties

This product does not contain a substance that has endocrine disrupting properties with respect to non-target organisms as no components meets the criteria.

12.7. Other adverse effects

This information is not available.

Further information

Chemical Oxygen Demand (COD) 120 mg O₂/g.

SECTION 13: Disposal considerations

13.1. Waste treatment methods

Disposal recommendations

Container should be emptied thoroughly. Do not pour remains of product in large quantities into the sewage.

List of Wastes Code - residues/unused products

070699 WASTES FROM ORGANIC CHEMICAL PROCESSES; wastes from the MFSU of fats, grease, soaps, detergents, disinfectants and cosmetics; wastes not otherwise specified

List of Wastes Code - used product

070699 WASTES FROM ORGANIC CHEMICAL PROCESSES; wastes from the MFSU of fats, grease, soaps, detergents, disinfectants and cosmetics; wastes not otherwise specified

Contaminated packaging

Clean container with water. Return cleaned containers to the company for recycling.
Offer rinsed packaging material to local recycling facilities.

SECTION 14: Transport information

Land transport (ADR/RID)

14.1. UN number or ID number: not applicable

14.2. UN proper shipping name: not applicable

14.3. Transport hazard class(es): not applicable

14.4. Packing group: not applicable

14.5. Environmental hazards

ENVIRONMENTALLY HAZARDOUS: No

14.6. Special precautions for user

Not required

14.7. Maritime transport in bulk according to IMO instruments

not applicable

Other applicable information

Not classified as dangerous in the meaning of transport regulations.

SECTION 15: Regulatory information



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

National regulatory information

Water hazard class (D): 2 - obviously hazardous to water

15.2. Chemical safety assessment

Chemical safety assessments for substances in this mixture were not carried out.

SECTION 16: Other information

Changes

This data sheet contains changes from the previous version in section(s): 3 / 6 / 7 / 8 / 12

Abbreviations and acronyms

ADR: Accord européen sur le transport 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 Harmonized 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
LC50: Lethal concentration, 50%
LD50: Lethal dose, 50%
CLP: Classification, labelling and Packaging
REACH: Registration, Evaluation and Authorization of Chemicals
GHS: Globally Harmonised System of Classification, Labelling and Packaging of Chemicals
UN: United Nations
DNEL: Derived No Effect Level
DMEL: Derived Minimal Effect Level
PNEC: Predicted No Effect Concentration
ATE: Acute toxicity estimate
LL50: Lethal loading, 50%
EL50: Effect loading, 50%
EC50: Effective Concentration 50%
ErC50: Effective Concentration 50%, growth rate
NOEC: No Observed Effect Concentration
BCF: Bio-concentration factor
PBT: persistent, bioaccumulative, toxic
vPvB: very persistent, very bioaccumulative
RID: Regulations concerning the international carriage of dangerous goods by rail
ADN: European Agreement concerning the International Carriage of Dangerous Goods by Inland Waterways
(Accord européen relatif au transport international des marchandises dangereuses par voies de navigation intérieures)
EmS: Emergency Schedules
MFAG: Medical First Aid Guide
MARPOL: International Convention for the Prevention of Marine Pollution from Ships
IBC: Intermediate Bulk Container
SVHC: Substance of Very High Concern

For abbreviations and acronyms, see table at <http://abbrev.esdscom.eu>

Acute Tox: Acute toxicity

Skin Irrit: Skin irritation

Eye Dam: Eye damage

Aquatic Chronic: Chronic aquatic hazard

Relevant H and EUH statements (number and full text)



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H302	Harmful if swallowed.
H315	Causes skin irritation.
H318	Causes serious eye damage.
H412	Harmful to aquatic life with long lasting effects.

(The data for the hazardous ingredients were taken respectively from the last version of the sub-contractor's safety data sheet.)



13 Notes



Proof of customer service

Device type	Manufacturer no.:	Commissioning on:
-------------	-------------------	-------------------

Inspection carried out on:
Findings:

Signature

Inspection carried out on:
Findings:

Signature

Inspection carried out on:
Findings:

Signature

Inspection carried out on:
Findings:

Signature

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