

GAMA



# Parts Manual

## Spray Unit

### ESH150-3PE~400V

Issue 1.0 27/05/2022  
Ref. NR-00143-ENG



***Before installing the unit and starting it up, carefully read all the technical and safety documentation included in this manual. Pay special attention to the information to know and understand the handling and the conditions of use of the unit. All of the information is aimed at enhancing User Safety and avoiding possible breakdowns derived from the incorrect use of the unit.***



## WARRANTY

HI-TECH SPRAY EQUIPMENT, S. A. (hereinafter "HI-TECH") grants this Limited Guarantee to the original buyer (hereinafter the "Client") for the unit and the original accessories given with the unit (hereinafter the "Product") against any fault in the design, materials or manufacture of the Product at the time of the first purchase by the user and for a duration of two (2) years thereafter.

If during the guarantee period and under normal conditions of use, the Product should fail to work correctly due to defects of design, material or manufacture, the authorised distributor of the country where the HI-TECH Product or technical assistance service has been purchased shall repair or replace the Product in accordance with what is established in the following:

### CONDITIONS

- a) The validity of this guarantee will be subject to the presentation of the original invoice issued by the HI-TECH authorised distributor for the sale of the Product along with the Product handed over for repair or replacement, which must show the date of purchase and the serial number. HI-TECH reserves the right to refuse to give the guarantee service when the indicated data fail to appear on the invoice or have been modified after the purchase of the Product.
- b) The repaired or replaced Product will continue to maintain the original guarantee for the time remaining until the end of the guarantee or for three (3) months from the repair date, if the remaining period of the original guarantee were shorter.
- c) This guarantee will not be applied to the faults in the Product caused by its faulty installation, the natural wear and tear of the components, any use other than that considered normal for this Product or which should fail to strictly comply with the instructions of use provided by HI-TECH; due to accident, carelessness, adjustments, alterations or modifications of the Product not authorised by HI-TECH or due to the use of accessories, heating devices, pumping equipment and/or dispensers that have not been approved or manufactured by HI-TECH.
- d) The guarantee applicable to the components and accessories forming part of the Product and which have not been made by HI-TECH will be limited to the guarantee offered by the original manufacturer thereof.

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All information provided in this manual has been included in the confidence that it is true, although it does not constitute any responsibility or implicit or explicit guarantee. HI-TECH reserves the right at any time and without prior warning to make all improvements and modifications necessary to this manual, in order to rectify any possible typographical errors, increase the information contained or insert the changes caused to the characteristics and performance of the unit.

## **SAFETY AND HANDLING**

The equipment described in this manual has been designed and manufactured in compliance with the following European Directives, following as application guide the harmonized standards detailed and in conformity with the relevant UK Statutory Instruments (and their amendments):



### **Directive 2006/42/EC on machinery (UK Supply of Machinery (Safety) Regulations 2008)**

UNE EN 12100:2012 (BS EN ISO 12100:2010)

### **Directive 2014/30/EU on electromagnetic compatibility (UK Electromagnetic Compatibility Regulations 2016)**

UNE EN 55011 (BS UNE EN 55011)

UNE EN 55016-2-1 (BS UNE EN 55016-2-1); UNE EN 55016-2-3 (BS UNE EN 55016-2-3);  
UNE EN 55032 (BS UNE EN 55032)

UNE EN 61000-3-2 (BS UNE EN 61000-3-2); UNE EN 61000-3-3 (BS UNE EN 61000-3-3);  
UNE EN 61000-4-2 (BS UNE EN 61000-4-2); UNE EN 61000-4-3 (BS UNE EN 61000-4-3);  
UNE EN 61000-4-4 (BS UNE EN 61000-4-4); UNE EN 61000-4-5 (BS UNE EN 61000-4-5);  
UNE EN 61000-4-6 (BS UNE EN 61000-4-6); UNE EN 61000-4-8 (BS UNE EN 61000-4-8); UNE  
EN 61000-4-11 (BS UNE EN 61000-4-11)

### **Directive 2014/68/EU on pressure equipment (UK Pressure Equipment (Safety) Regulations 2016)**

UNE EN 809:1999 +A1 (BS EN 809:1998 +A1:2009)

### **Directive 2014/35/EU on electrical safety (UK Electrical Equipment (Safety) Regulations 2016)**

UNE EN 60204-1:2019 (BS EN 60204-1:2018)

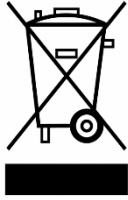
### **Directive 2003/10/EC on noise level (UK The Control of Noise at Work Regulations 2005)**

UNE EN ISO 3740 (BS EN ISO 3740:2019)

UNE EN ISO 3746 (BS EN ISO 3746:2010)

### **Directive 2011/65/EU on the restriction of the use of certain hazardous substances in electrical and electronic equipment with amendment 2015/863/EU (UK The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012)**

### **Directive 2012/19/EU on waste electrical and electronic equipment (UK The Waste Electrical and Electronic Equipment Regulations 2013)**

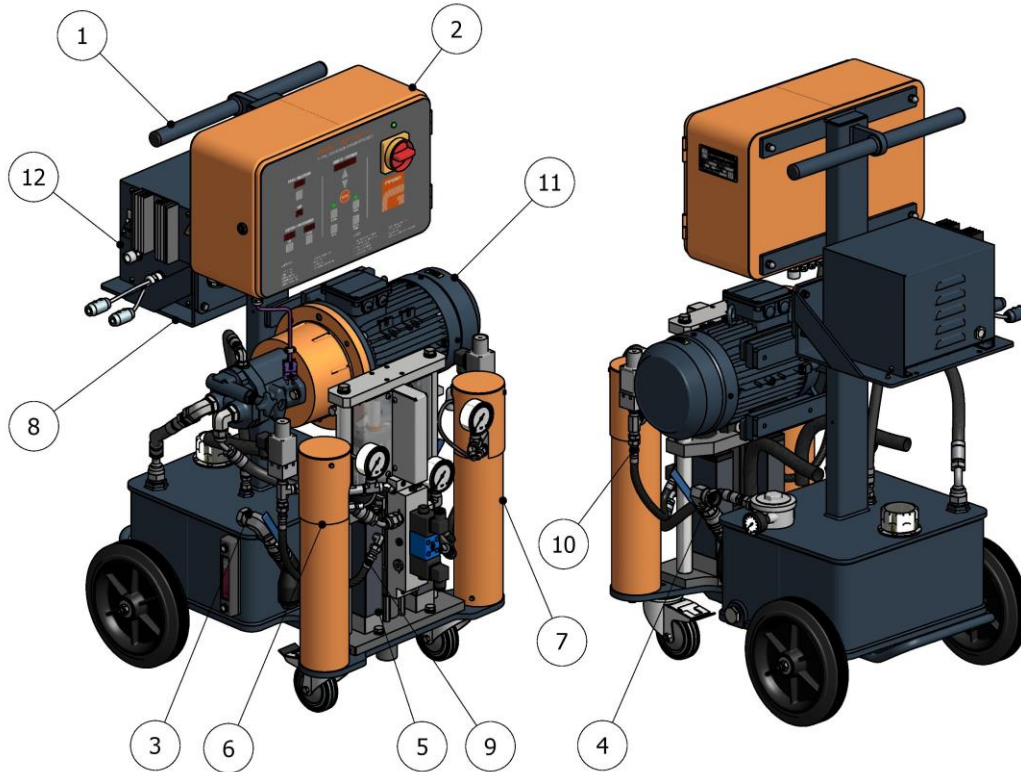


Electrical products cannot be thrown out with the rubbish. They must be taken to a dedicated collection point for an environmentally sound disposal in accordance with local regulations. You must contact your local collective or retailer for information about recycling. Before leaving WEEE at appropriate collection facilities, batteries must be removed and disposed of separately for proper recycling. The packaging materials are recyclable. Dispose of packaging materials in an environmentally sound manner and place them at the disposal of recycling sectors.

#### TRANSPORT AND STORAGE

Proper precautions must be taken so that the equipment can withstand the effects of transport and storage temperatures between  $-25^{\circ}\text{C}$  and  $+55^{\circ}\text{C}$  or up to  $+70^{\circ}\text{C}$  for short periods that do not exceed 24 hours. Also, appropriate means to prevent damage from moisture, vibrations or shocks must be foreseen.

**SPRAY UNIT MODEL ESH150-3PE~400V**



**Figure 1. Spray unit model ESH150-3PE~400V**

**Table 1. Spray unit parts list, model ESH150-3PE~400V**

Pos.	Description	Reference	Qty
1	Frame assembly	MQ-18021-00	1
2	Electrical console assembly	EL-00231	1
3	Inlet ISO Product	RA-00338	1
4	Inlet POL Product	RA-00338	1
5	Pump assembly	See Sheet 17	1
6	ISO heater assembly	See Table 3	1
7	POL heater assembly		
8	Transformer Support	MQ-18032-00	1
9	ISO hose - pump to heater	MA-00036	1
10	POL hose – pump to heater	MA-00035	1
11	Hydraulic motor and pump assembly	See Sheet 9	1
12	Hose Transformer	See Table 5	1

**Table 2. Basic configurations**

Reference	Description
	ESH150-3PE~400V; 3-phase 400V – Heated Hoses with integrated transformer
	ESH150-3PE~400V; 3-phase 400V – Heated Hoses with independent transformer
	ESH150-3PE~400V; 3-phase 400V – Recirculation Hoses without transformer

**Table 3. List of References ISO & POL Heater**

Reference	Description
CL-05000-00D	ISO 3000W + POL 3000W @ 400V Heater assy (see sheet 27)
CL-05000-00C	ISO 1800W – POL 1800W @ 400V Heater assy (see sheet 27)

*To order suitable replacement parts, check the electric power of these items that equipped your machine.*

**Table 4. List of References Size Pumps**

Reference	Description
	#4.5 PUMP SIZE (see sheet 20)
	#7.6 PUMP SIZE (see sheet 20)

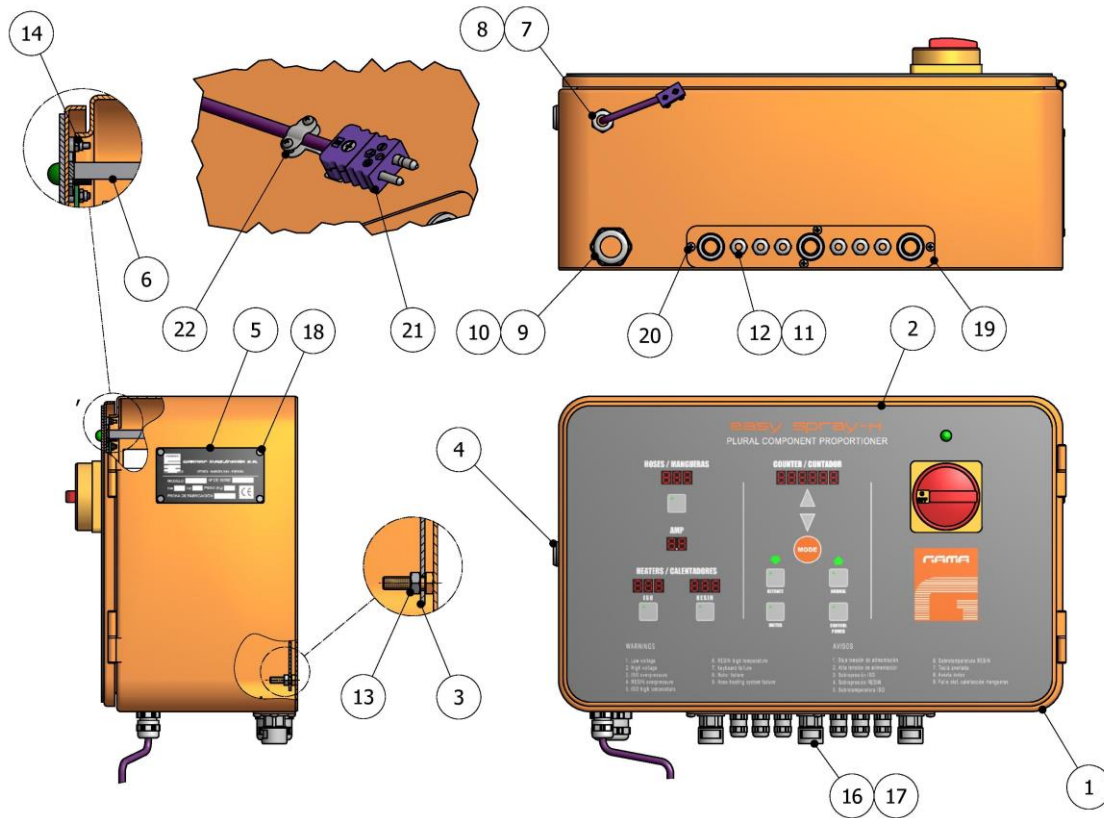
*To order suitable spare parts, check the pump sizes equipped your machine.*

**Table 5. List of References Hoses Transformer**

Reference	Description
EL-00127-20	3-phase 400V – Heated Hoses with integrated transformer
EL-00127-08	230V – Heated Hoses with independent transformer (OPTIONAL)



**ELECTRICAL CONSOLE**



**Figure 2. Electrical console for ESH150-3PE~400V**

**Table 6. List of parts for electrical console for ESH150-3PE~400V**

Pos.	Description	Reference	Qty
1	Soldered cabinet assembly	EL-00001-07H	1
2	Face panel assembly	See Table 7	
3	Cabinet back plate	EL-00018-03	1
4	Cabinet lock assy.	EL-00034	1
5	Rating plate	MQ-01010	1
6	Internal reinforcement brace	EL-00145	1
7	Plastic cap	EL-00088-08	1
	Cable gland (*)	EL-00088-05	1
8	Brass nut	EL-00090-01	1

(\*) Only versions with TCS.

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Pos.	Description	Reference	Qty
9	Cable gland	EL-00088-01	1
10	Brass nut	EL-00090-03	1
11	Cable gland	EL-00088-00	6
12	Brass nut	EL-00090-00	6
13	Hex nut	TN-00108	4
14	Hex nut	TN-00182	10
15			
16	Cable gland	EL-00087-00	3
17	Brass nut	EL-00090-01	3
18	Blind rivet	TN-00240	4
19	Lower cabinet cover	EL-00027-01F	1
20	Screw	TN-00031	4
21	TCS connector (*)	EL-00096-84	1
22	Staple (*)	EL-00096-86	1

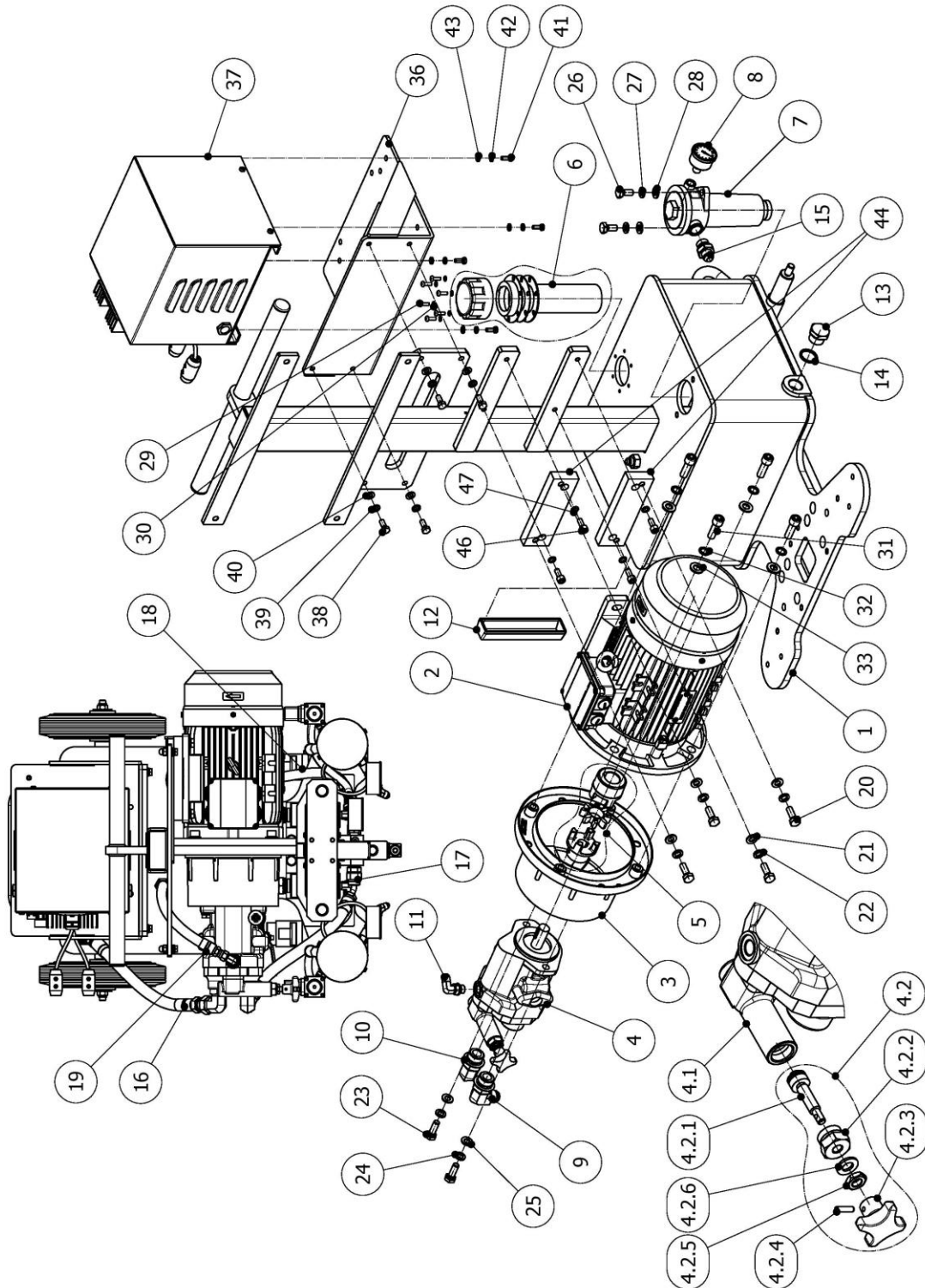
(\*) Only versions with TCS

**Table 7. List of parts for Face panel assembly**

	Easy spray-H face panel (standard)
Face panel 1x	EL-00232
Circuit 1x	EL-00015-05
Switch 1x	EL-00107-07
Command Switch 1x	EL-00107-06
Spacer 9x	EL-00019-03



**HYDR. DRIVE WITH 3-PHASE MOTOR 400V 50/60HZ**



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**Figure 3. 3-phase hydraulic drive 400V 50/60Hz (with VK pump)**



**Table 8. List of parts for Hydraulic Drive with 3-Phase Motor 400V 50/60Hz**

Pos.	Description	Reference	Qty
1	Frame assembly	MQ-18021-00	1
2	400V 3kW 3-phase electric motor	EL-00138-02	1
3	Bell Housing	HI-00082	1
4	10cc VK pump Assy. with Limiter	HI-00130-ESH	1
4.1	10 cc VK pump	HI-00130	1 (°)
4.2	Limiter Assy. VK Pump	HI-00044-00	1 (°)
4.2.1	VK Knob	HI-00042	1 (@)
	O-Ring	OR-00025	1 (*)
4.2.2	Knob Nut VK Pump	HI-00043	1 (@)
4.2.3	Knob VK Pump	HI-00044	1 (@)
4.2.4	Pin VK Pump	TN-00042	1 (@)
4.2.5	Lock Nut VK Pump	TN-00105	1 (@)
4.2.6	Washer VK Pump	TN-00162	1 (@)
5	Spidex elastic coupler	HI-00046	1
6	Fill cap assembly	HI-00002	1
7	Return filter assembly	HI-00123-00	1
8	Pressure gauge (included in POS 7)	HI-00123-03	1
9	Elbow coupler 90°	RA-00433	1
10	Nipple	RA-00537	1
11	Elbow 90°	RA-00177	1
12	Thermometer	HI-00001	1
13	Drain cap	RA-00538	1
14	Bi-material gasket	OR-00082	1
15	Nipple	RA-00316	1
16	Aspiration hose	HI-00132	1
17	Pressure hose	HI-00133	1
18	Return hose	HI-00053-02	1

(\*) Parts included in Pos 4.1. (@) Parts included in Pos.4.2

(°) Parts included in Pos 4

Cont. overleaf.



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Pos.	Description	Reference	Qty
19	Drain hose	HI-00131	1
20	Hex screw	TN-00129	4
21	AET washer	TN-00145	4
22	Flat washer	TN-00162	4
23	Hex screw	TN-00129	2
24	Glower washer	TN-00087	2
25	Flat washer	TN-00162	2
26	Allen Screw	TN-00189	2
27	Glower washer	TN-00087	2
28	Flat washer	TN-00162	2
29	ULS screw	TN-00417	6
30	Glower washer	TN-00109	6
31	Allen screw	TN-00053	4
32	AET washer	TN-00015	4
33	Flat washer	TN-00040	4
34			
35			
36	Transformer Support	MQ-18032-00	1
37	Hose Transformer	EL-00127-20	1
38	Hex. screw	TN-00187	4
39	Glower washer	TN-00028	4
40	Flat washer	TN-00119	4
41	Hex screw	TN-00453	4
42	Glower washer	TN-00025	4
43	Flat washer	TN-00024	4
44	Motor Base Adapter	MQ-18031	2
45			
46	Allen screw	TN-00027	4
47	AET washer	TN-00038	4

## FRAMEWORK COMPONENTS

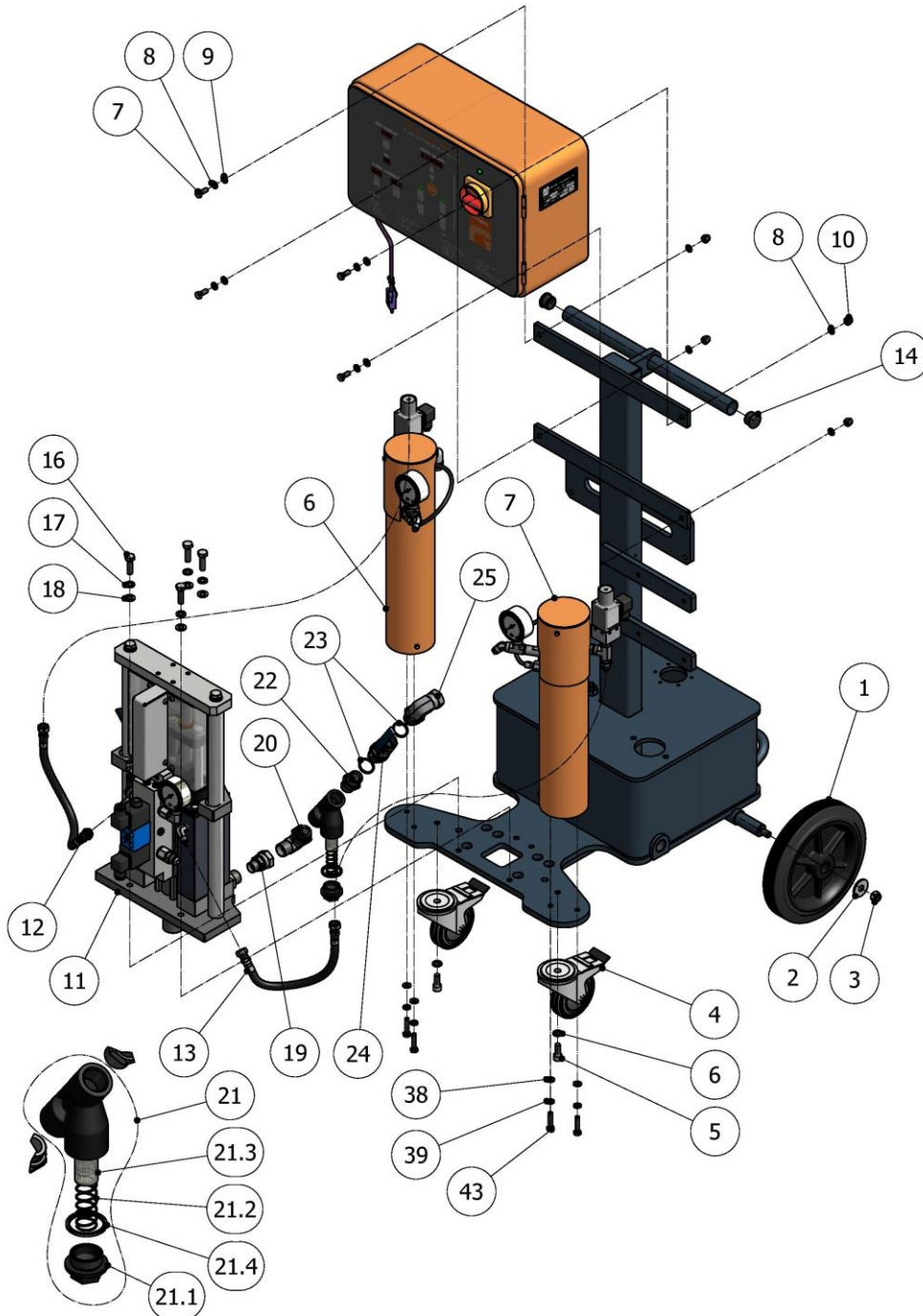


Figure 4. Framework components

**Table 9. List of framework components**

Pos.	Description	Reference	Qty.
1	Rear Wheel	MQ-08112	2
2	Washer	TN-00271	2
3	Lock Nut	TN-00030	2
4	Swivel Wheel with Brake	MQ-06021	2
5	Glower Washer	TN-00087	6
6	Allen Screw	TN-00189	2
7	Hex. Screw	TN-00187	4
8	Glower Washer	TN-00028	4
9	Glower Washer	TN-00028	4
10	Nut	TN-00029	4
11	Pump Assy	See pg. 17	1
12	ISO Hose (Pump to Heater)	MA-00196	1
13	POL Hose (Pump to Heater)	MA-00195	1
14	Insulated Hose ISO	MA-00199	1
15	Insulated Hose POL	MA-00200	1
16	Hex Screw	TN-00163	4
17	Glower Washer	TN-00087	4
18	Flat Washer	TN-00162	4
19	Reduction Lock Nut	RA-00141	2
20	Elbow 90°	RA-00072	2
21	30 Mesh Filter Assy	RA-00074-00-30	2
21.1	Filter Plug (included in Pos.21)	RA-00074-01	1 (@)
21.2	Filter Spring (included in Pos.21)	SP-00017	1 (@)
21.3	30 Mesh Filter (included in Pos.21)	RA-00074-03-30	1 (@)
21.4	Filter Seal (included in Pos.21)	OR-00061	1 (@)
22	Union	RA-00143	2
23	Metal Ring	OR-00082	4
24	Ball Valve	RA-00078	2
25	Elbow 90°	RA-00338	2

(@) Parts included in Filter Assy Pos. 21. Quantities for each filter.

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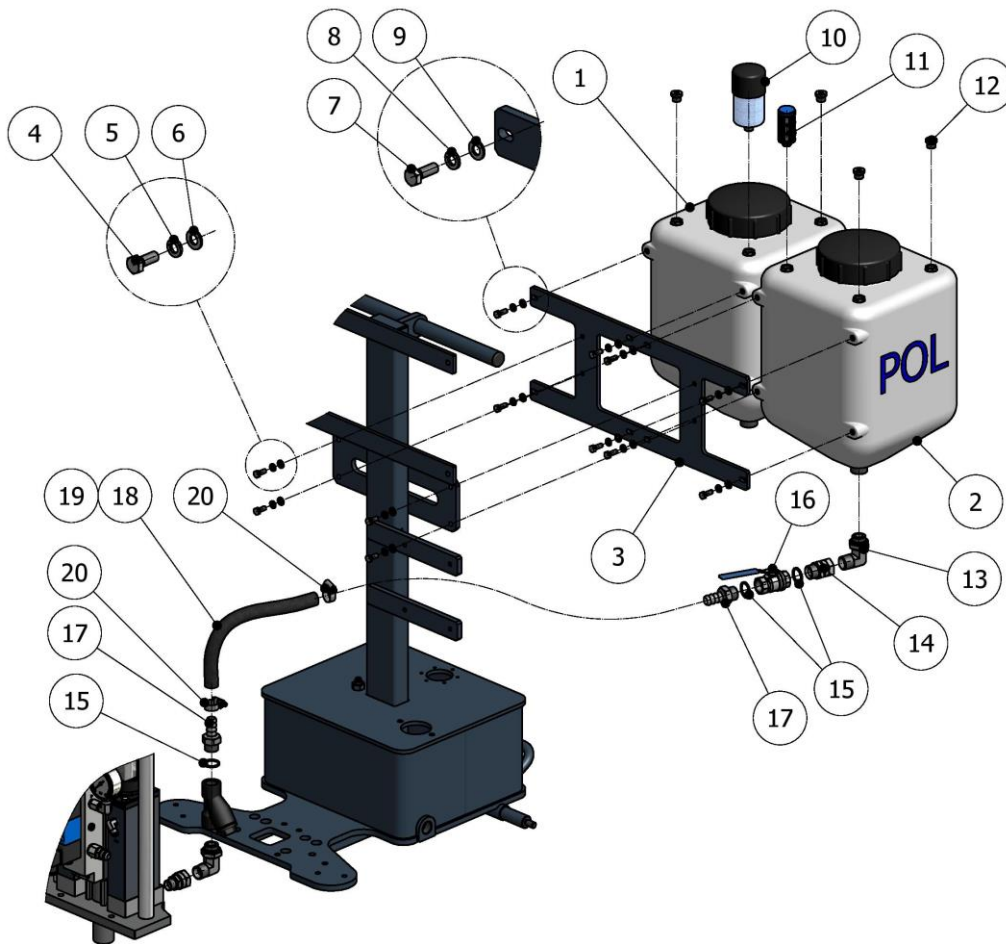


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Pos.	Description	Reference	Qty.
26	Manifold	MQ-20009	2
27	Pressure Gauche	HI-00019	2
28	Plug	RA-00013	2
29	Elbow 90°	RA-00050	1
30	Elbow 90°	RA-00051	1
31	Union	RA-00145	1
32	Union	RA-00144	1
33	ISO Heater Assy	See sheet 27	1
34	POL Heater Assy		



## FRAMEWORK COMPONENTS WITH TANKS (OPTIONAL)



**Figure 5. OPTIONAL Framework components with tanks**





**Table 10. List of framework components with tanks (optional)**

Pos.	Description	Reference	Qty.
1	ISO Tank Assy	MQ-06013-00	1
2	POL Tank Assy	MQ-06012-00	1
3	"H" Frame	MQ-18026	1
4	Hex. Screw	TN-00187	4
5	Glomer Washer	TN-00028	4
6	Flat Washer	TN-00119	4
7	Hex. Screw	TN-00187	8
8	Glomer Washer	TN-00028	8
9	Flat Washer	TN-00119	8
10	Filter	NE-00045	1 (*)
11	Muffler	NE-00056	1 (#)
12	Plug	RA-00049	2 (*) 2 (#)
13	Elbow 90°	RA-00072	2
14	Swivel Nut	RA-00073	2
15	Metal Ring	OR-00082	6
16	Ball Valve	RA-00078	2
17	Spike Nipple	RA-00219	4
18	Hydraulic Hose 3/4 x 500	MA-	2
19	Reinforce Spring (inserted in MA-)	SP-00009	2
20	Mikalor Clamp	TN-00364	4

**(\*) Items included in ISO Tank Assy Ref. 1**

**(#) Items included in POL Tank Assy Ref. 2.**

**Ref. Tank only with Cover; MQ-06012-01 (common for ISO & POL).**

## PROPORTIONING PUMP ASSEMBLY

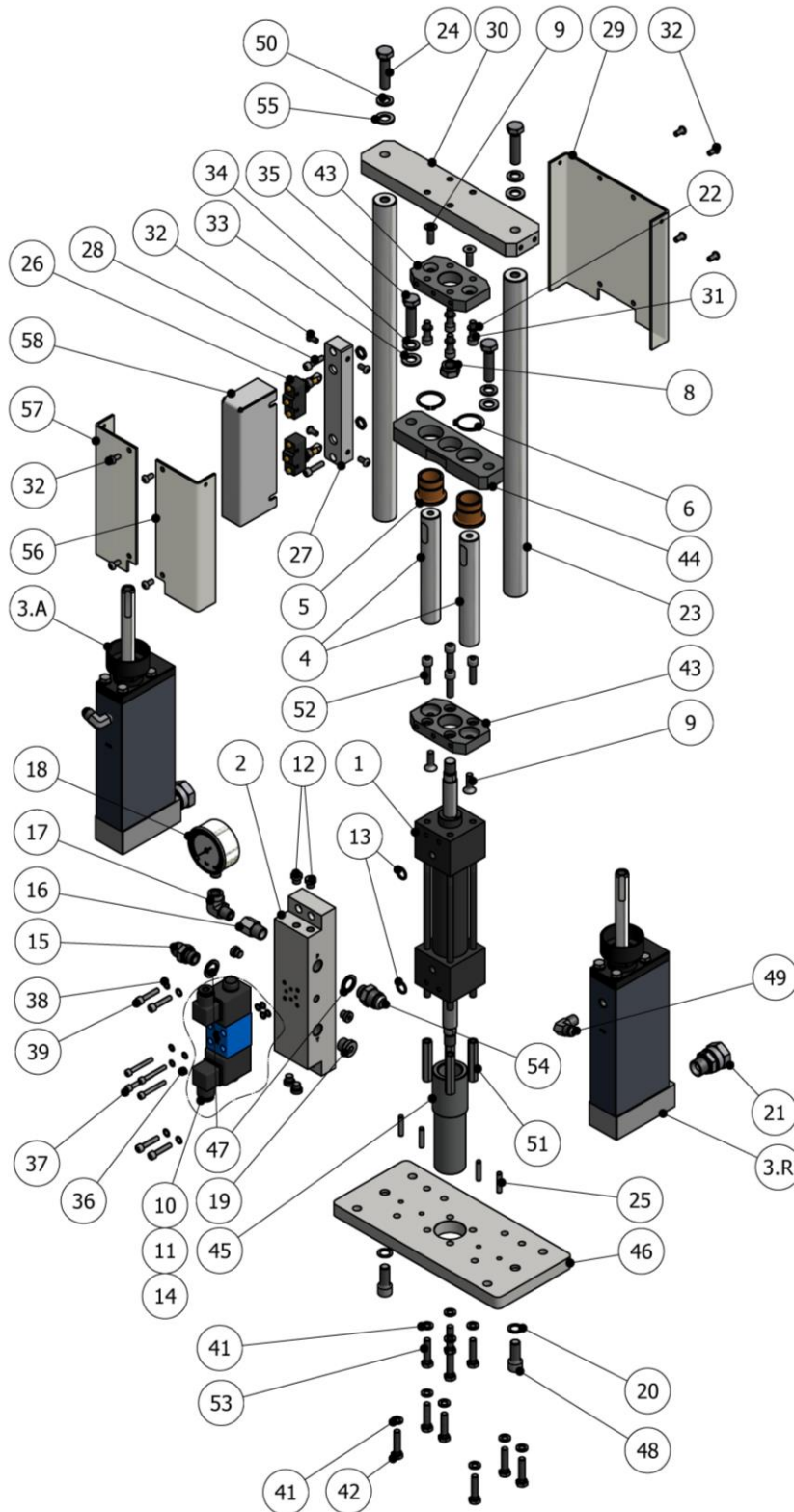


Figure 6. Proportioning pump assembly



**Table 11. List of parts for proportioning pump assembly**

Pos.	Description	Reference	Qty
1	Hydraulic cylinder	HI-00207	1
2	Hydraulic distributor block	MQ-18001	1
3.A	ISO proportioning pump	See Table 12	1
3.R	POL proportioning pump	See Table 12	1
4	Guide column	MQ-18006	2
5	Guide bush	TN-00314	2
6	Seeger ring	TN-00070	2
7			
8	Hex nut	TN-00415	1
9	Countersunk screw	TN-00191	4
10	Solenoid valve assy. NG4 C.A.	HI-00126	1
11	O-ring (included in "POS".10)	OR-00024	3
12	Flanged cap	RA-00211	6
13	O-ring	OR-00143	2
14	O-ring (included in "POS".10)	OR-00057	1
15	Nipple	RA-00388	1
16	Reduction	RA-00373	1
17	Elbow 90°	RA-00021	1
18	Pressure gauge 160 bar	HI-00015	1
19	Flanged cap	RA-00049	1
20	AET Washer	TN-00015	2
21	Swivel nut adapter	RA-00141	2
22	AET Washer	TN-00038	4
23	Column	MQ-18037	2
24	Hex. Screw	TN-00037	2
25	Pin	TN-00055	4
26	Pump Reversing Switch (with nuts)	EL-00020	2
27	Reversing Switch Support	MQ-18045	1
28	Allen Screw	TN-00169	2

(\*) Quantities per assembly.

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Pos.	Description	Reference	Qty
29	Polycarbonate protective casing	MQ-18014	1
30	Upper Plate	MQ-18036	1
31	Allen Screw	TN-00027	4
32	ULS Screw	TN-00170	12
33	Flat washer	TN-00040	2
34	Glomer washer	TN-00039	2
35	Hex screw	TN-00037	2
36	AET washer	TN-00017	4
37	Allen screw	TN-00198	4
38	AET washer	TN-00048	4
39	Allen screw	TN-00014	4
40			
41	Glomer washer	TN-00028	10
42	Hex screw	TN-00399	6
43	Column base plate	MQ-18004-MIC	2
44	Puma yoke	MQ-18005-MIC	1
45	Spacer	MQ-18002	1
46	Pump base plate	MQ-20007	1
47	Bi-material gasket	RA-00018	2
48	Extension nozzle	RA-00043	2
49	Elbow 45°	RA-00043	2
50	Glomer Washer	TN-00039	2
51	Hex. Spacer	MQ-18030	4
52	Allen screw	TN-00429	4
53	Hex. Screw	TN-00428	4
54	Nipple	RA-00062	1
55	Flat Washer	TN-00040	2
56	Front Panel RH	MQ-18048	1
57	Front Panel LH	MQ-18049	1
58	Reversing Switch Cover	MQ-18047	1

**Table 12. List of parts per proportioning pump size, easy spray-H**

Size of proportioning pump	Description	Reference
4.5	ISO / POL proportioning pump (see sheet 21)	PU-02001-ESG
7.6	ISO / POL proportioning pump (see sheet 21)	PU-02000-ESG

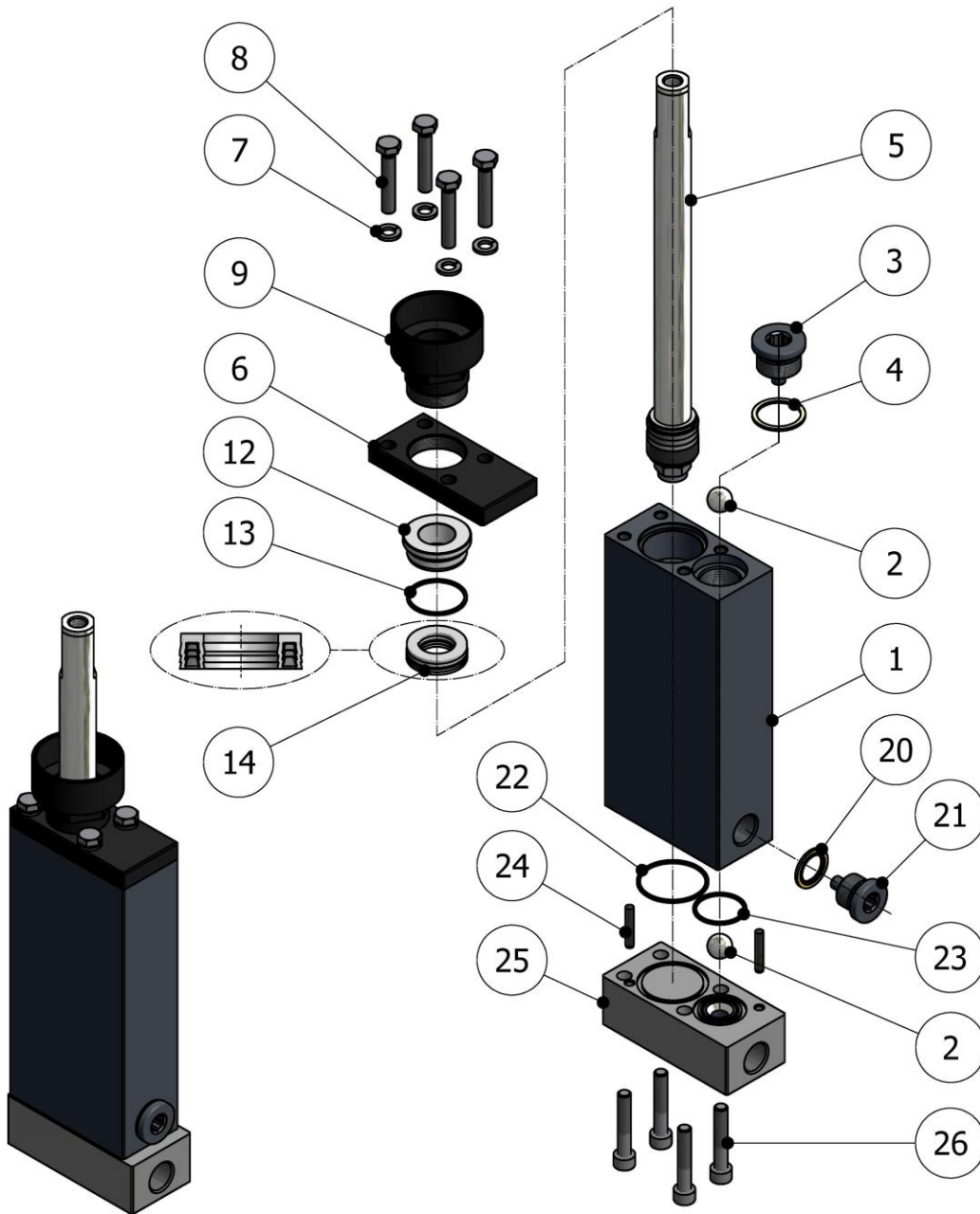
*The isocyanate and polyol pumps are identical.*

***N.B.: (\*) Standard Pump for ESH150-3PE~400V are 4.5 & 7.6 SIZE. Different sizes are available under order. For delivery time, please consult with Marketing department. See NR-00045-ENG Gama Parts Manual.***

*To order suitable spare parts, check the pump sizes equipped your machine.*



# PROPORTIONING PUMP



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Figure 7. Proportioning pump



**Table 13. List of parts for proportioning pump assembly**

Pos.	Description	Reference	Qty
1	Pump and upper bushing assy.	See Table 14	1
1.1	Pump housing	See Table 14	1
1.2	Ball seat bushing	PU-02000-09	1
2	Chrome-plated steel ball	TN-00012	2
3	Upper ball stopper	PU-02000-21	1
4	Stopper gasket	PU-02000-27	1
5	Shaft assy.	See page 24	1
6	Pump yoke	See Table 14	1
7	Locking washer	TN-00028	4
8	Hex head screw	TN-00051	4
9	Packing nut	See Table 14	1
12	Guide bush (#)	See Table 14	1
13	O-ring (#)	See Table 14	1
14	Retainer (#)	See Table 14	1
20	Gasket	OR-00023	1
21	Lower ball stopper	PU-02000-10	1
22	O-ring	See Table 14	1
23	O-ring	OR-00014	1
24	Pin	TN-00042	2
25	Base plate and bush assy.	See Table 14	1
25.1	Ball seat bushing	PU-02000-09	1
25.2	Pump base plate	See Table 14	1
26	Cylindrical head screw	TN-00046	4
27	Gasket kit (not shown in drawing)	See Table 17	1

**Notes:**

*The isocyanate and polyol pumps are identical.*

*The quantities indicated are for one pump.*

*(#) Parts included in gasket kit Pos. 27. (Includes replacement parts for 1 pump).*

*To order suitable spare parts, check the pump sizes equipped your machine.*





**Table 14. Components Variable SIZE, Parts List**

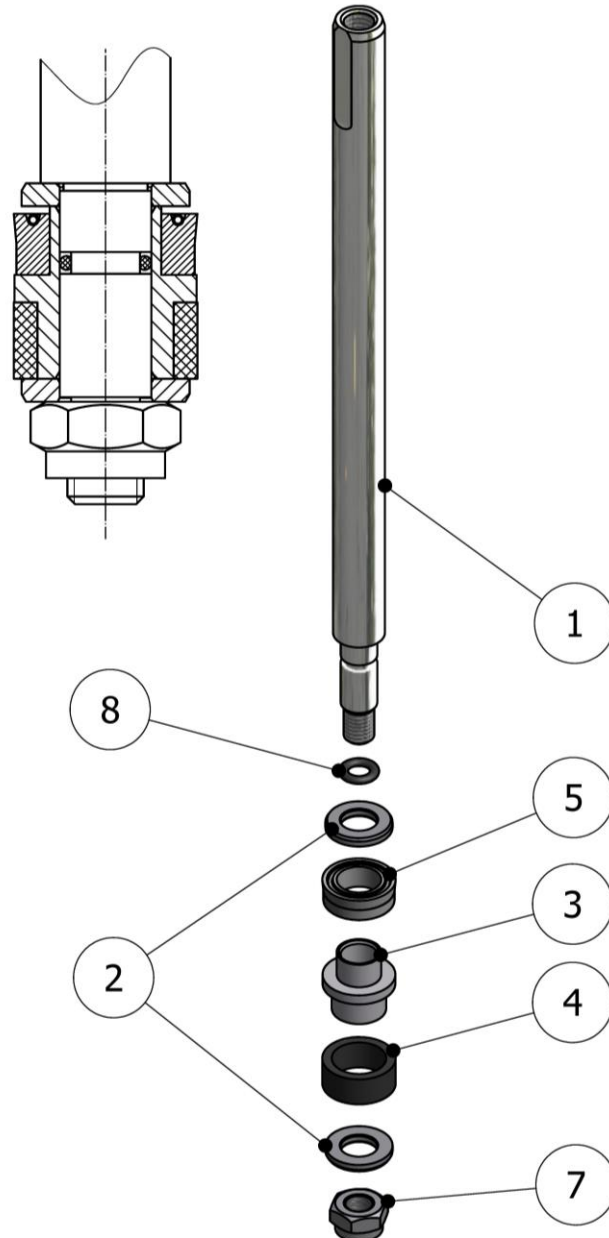
Ref.	Size 4.5	Size 7.6
1	PU-02001-02A	PU-02000-02A
1.1	PU-02001-02	PU-02000-02
6	PU-02000-03	PU-02000-03
9	PU-02001-31	PU-02000-31
12 ▲	PU-02001-30G	PU-02000-30G
13 ▲	OR-00125	OR-00021
14 ▲	OR-00117G	OR-00116G
25	PU-02000-01A	PU-02000-01A
25.2	PU-02000-01	PU-02000-01
22	OR-00013	OR-00013

**N.B.:** Standard Pump for ESH150-3PE~400V are 4.5 & 7.6 SIZE. Different sizes are available under order. For delivery time, please consult with Marketing department. See NR-00045-ENG Gama Parts Manual.

(▲) Parts included in the Repair Seal kit that containing the units for 1 pump set (see Table 17).

To order suitable spare parts, check the pump sizes equipped your machine.

## PROPORTIONING PUMP PISTON



*Figure 8. Proportioning pump piston, exploded view*



**Table 15. List of components of proportioning pump piston**

Pos.	Description	Reference	Qty
1	Pump shank	See Table 16	1
2	Washer	See Table 16	2
3	Pump rod	See Table 16	1
4	Rod guide (#)	See Table 16	1
5	Rod gasket (#)	See Table 16	1
6			
7	Self-locking nut	See Table 16	1
8	O-ring (#)	See Table 16	1
9	Gasket kit	See Table 17	1

**Note:**

**Quantities per pump.**

**(#) Parts included in gasket kit Pos. 9. (Includes replacement parts for 1 pump).**

**To order suitable spare parts, check the pump sizes equipped your machine.**

**Table 16. Piston Rod Size, Parts List**

Pump	Ref. 1	Ref. 2	Ref. 3	Ref. 4 ▲
7.6	PU-02000-06	PU-02000-08	PU-02000-07R	OR-00016
4.5	PU-02001-06	PU-02001-08	PU-02001-07R	OR-00050

Pump	Ref. 5 ▲	Ref. 6	Ref. 7	Ref. 8 ▲
7.6	OR-00156		TN-00030	OR-00015
4.5	OR-00151		TN-00165	OR-00049

**N.B.: Standard Pump for ESH150-3PE~400V are 4.5 & 7.6 SIZE. Different sizes are available under order. For delivery time, please consult with Marketing department. See NR-00045-ENG Gama Parts Manual.**

**(▲) Parts included in the Repair Seal kit that containing the units for 1 pump set (see Table 17).**

**To order suitable spare parts, check the pump sizes equipped your machine.**

**Table 17. Repair Seal Kit SIZE, Parts List**

SEAL KIT REF.	From Table 14			From Table 16		
	Ref. 12	Ref. 13	Ref. 14	Ref. 4	Ref. 5	Ref. 8
KT-00153 (4.5)	PU-02001-30G	OR-00125	OR-00117G	OR-00050	OR-00151	OR-00049
KT-00129 (7.6)	PU-02000-30G	OR-00021	OR-00116G	OR-00016	OR-00156	OR-00015

**N.B.: Standard Pump for ESH150-3PE~400V are 4.5 & 7.6 SIZE. Different sizes are available under order. For delivery time, please consult with Marketing department. See NR-00045-ENG Gama Parts Manual.**

**The Repair Seal Kit includes the parts for 1 pump set.**

**To order suitable spare parts, check the pump sizes equipped your machine.**



**PRIMARY HEATER**

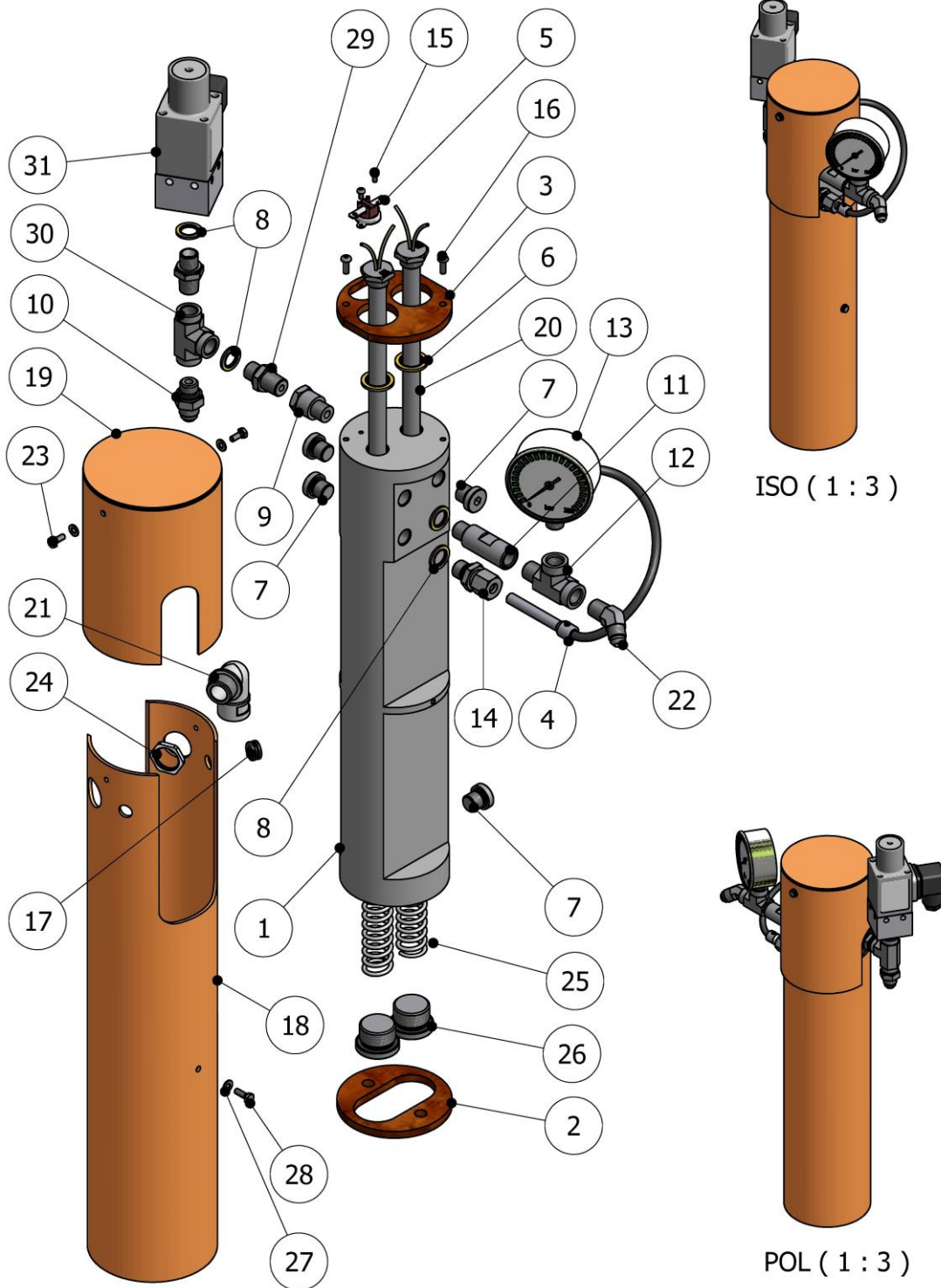


Figure 9. Primary heater



**Table 18. List of parts Primary heater**

Pos.	Description	Reference	Qty
1	Heater block	CLH-06001-01	1
2	Bottom insulating plate	CL-06001-03	1
3	Top insulating plate	CL-06001-02	1
4	Thermocouple	EL-00146-00	1
5	Thermal limit switch	EL-00006	1
6	Gasket	OR-00018	2
7	Cap	RA-00013	4
8	Gasket	OR-00054	4
9	Extension nozzle	RA-00077	1
10	Straight coupler	RA-00145	1
11	Male extension nozzle	RA-00100	1
12	"T" connector	RA-00018	1
13	Pressure gauge	HI-00019	1
14	Straight coupler for tube	RA-00231	1
15	Screw	TN-00128	2
16	Screw	TN-00143	2
17	Grommet	EL-00095-00	1
18	Heater casing	CL-06001-05	1
19	Heater cap	See Table 19	1
20	Element	See Table 19	2
21	Elbow coupler for tube	EL-00087-01	1
22	45° elbow coupler	See Table 19	1
23	Screw	TN-00317	2
24	Nut	EL-00090-01	1
25	Spring	SP-00009	2
26	Cap	RA-00012	2
27	Washer	TN-00104	3
28	Screw	TN-00324	1
29	Nipple	RA-00138	2
30	"T" connector	RA-00053	1
31	Pressure switch	HI-00020	1

**Note: The heaters for isocyanate and polyol are the same, except for outlet coupling POS.22, cover POS.19 and the assembly of the parts.**



**Table 19. List of heater models according to intensity**

Description	2x1500W @ 400 V	2x900W @ 400 V	Pos.19	Pos.22
Heater Assembly ISO	CLH-06003-00D	CLH-06003-00C	CL-06001-06	RA-00017
Heater Assembly POL	CLH-06004-00D	CLH-06004-00C	CL-06002-06	RA-00043
Resistance Ref. <b>POS.20</b>	EL-00189	EL-00255		

*To order suitable replacement parts, check the electric power of these items that equipped your machine.*



### INLET BYPASS KIT REF. KT-00119 (OPTIONAL)

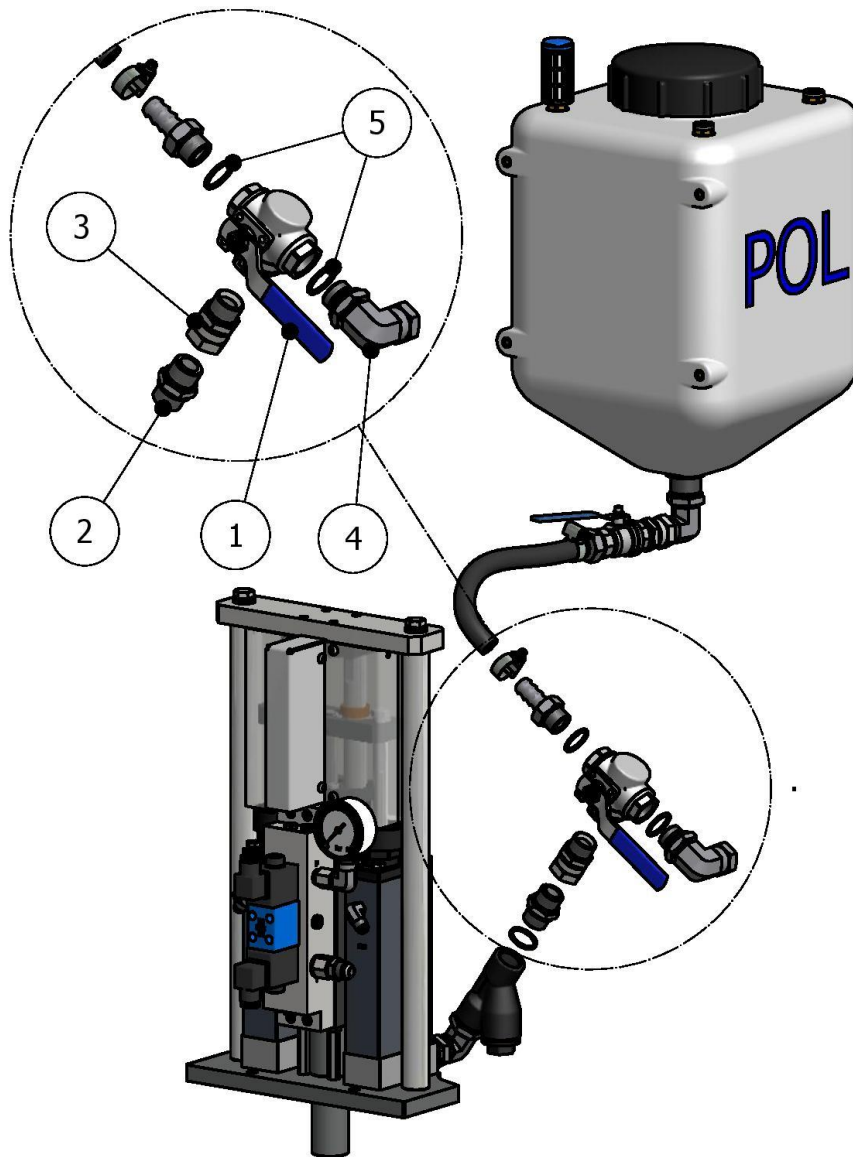


Figure 10. Inlet Bypass kit Ref. KT-00119

Only for version with tanks (OPTIONAL)



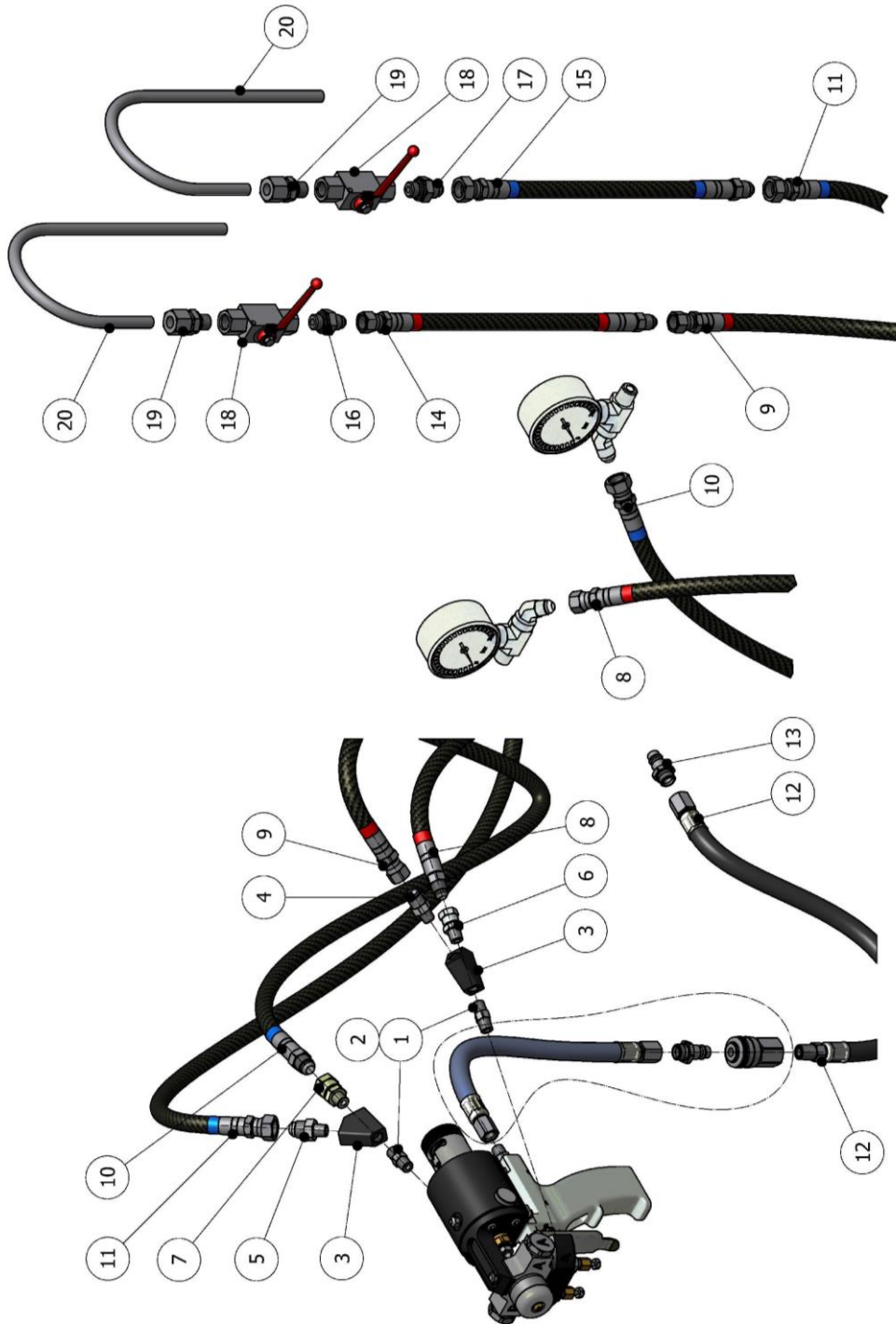
**Table 20. List of components of Inlet Bypass kit  
Ref. KT-00119**

Pos.	Description	Reference	Qty.
1	3 Way Ball Valve	RA-00458	2
2	Union	RA-00142	2
3	Swivel Nut	RA-00073	2
4	Elbow 90° with Swivel Nut	RA-00338	4
5	Metal O-Ring	OR-00082	4
	Hose 3/4" x 180 mm	MA-	2
	Reinforce Spring (inserted in MA-)	SP-00009	2

*Other parts of the drawing according to standard assembly with tanks.*

*The quantities reflected in the table correspond to the total units included in the kit for two Product Pumps.*

**RECIRCULATION KIT REF. KT-00059-90**



**Figure 11. Recirculation kit Ref. KT-00059-90**

*Only for version with tanks (OPTIONAL)*



**Table 21. List of components of recirculation kit**

Item.	Description	Part Number	Qty.
1	Nipple	RA-00112	2
2	Elbow	RA-00205	2
3	Manifold	RA-00464	2
4	Nipple	RA-00238	1
5	Nipple	RA-00237	1
6	Swivel (*)	RA-00005	1
7	Swivel (*)	RA-00006	1
8	Flex 10000 mm Supply ISO	MA-00060-3	1
9	Flex 10000 mm Recirculation ISO	MA-00060-2	1
10	Flex 10000 mm Supply POL	MA-00059-3	1
11	Flex 10000 mm Recirculation POL	MA-00059-2	1
12	Air Hose	MA-00194	1
13	Air Coupler	RA-00110	1
14	Flex 1000 mm Recirculation Extended ISO	MA-00177	1
15	Flex 1000 mm Recirculation Extended POL	MA-00178	1
16	Nipple	RA-00144	1
17	Nipple	RA-00145	1
18	Ball Valve	RA-00217	2
19	Swivel	RA-00218	2
20	Tube	MQ-06016	2
	Hose Cover 10000 mm	MA-00123	
	Insulating Cover 10000 mm	MA-00099	
	Insulating Cover 8000 mm	MA-00099-1	

***This kit is included with the version with tanks.***

***For more recirculation options, see NR-00093-ENG Gama Parts Manual.***

**CIRCUIT DIAGRAM: 3PE~400V 50/60HZ**

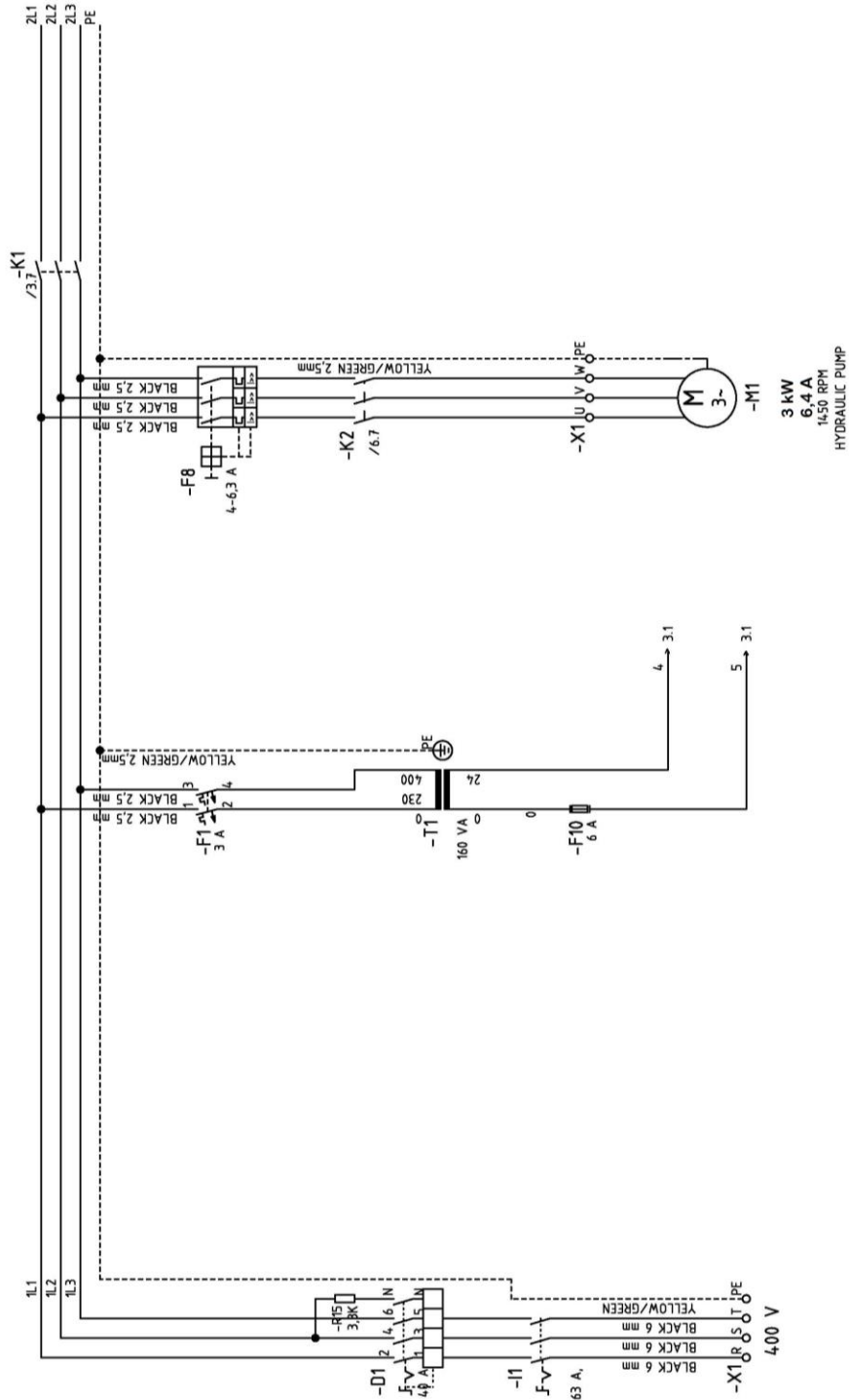


Figure 12. Circuit diagram: 3PE~400V 50/60Hz standard version (p.1/7)

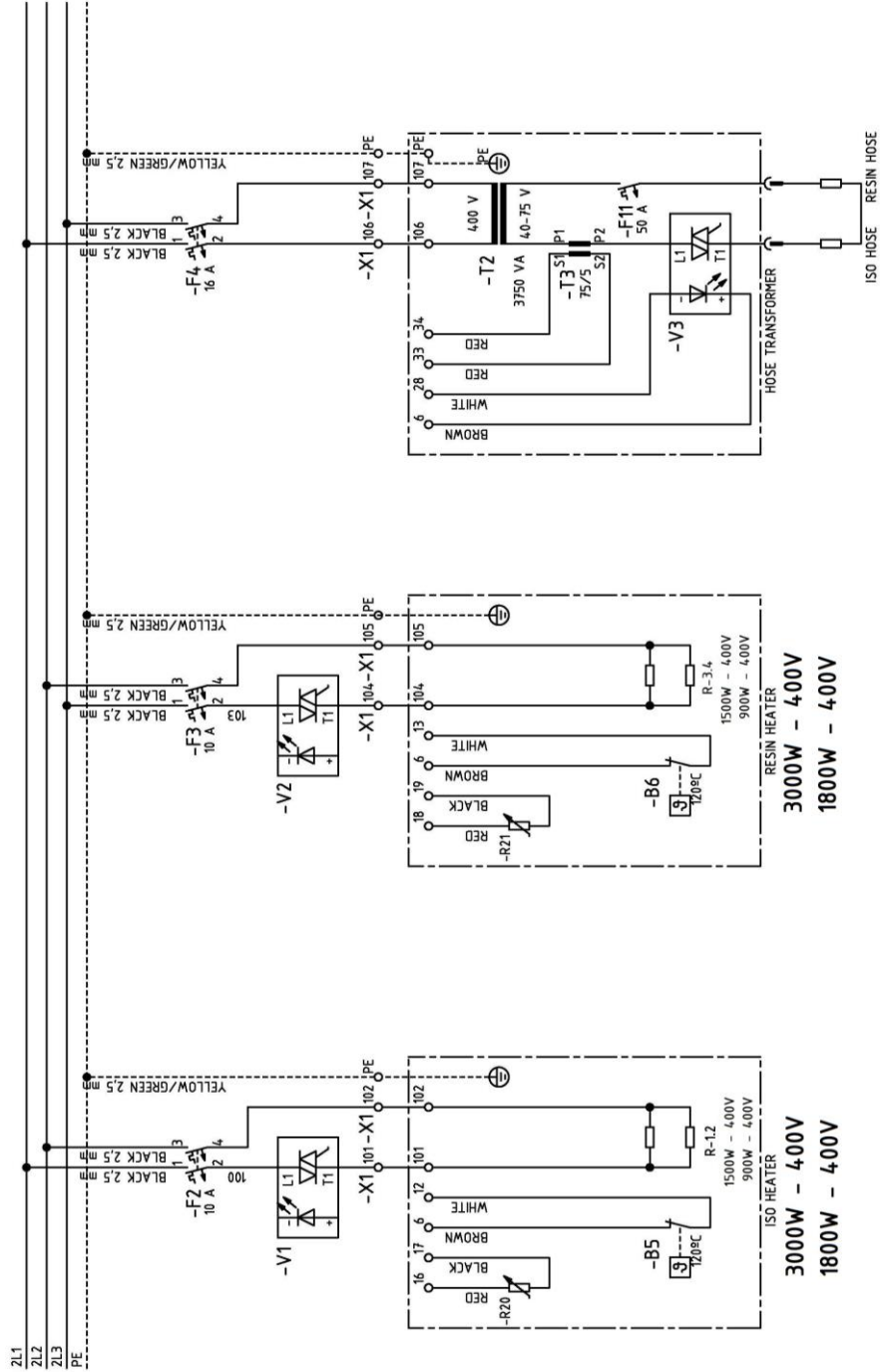


Figure 13. Circuit diagram: 3PE~400V 50/60Hz standard version (p.2/7)

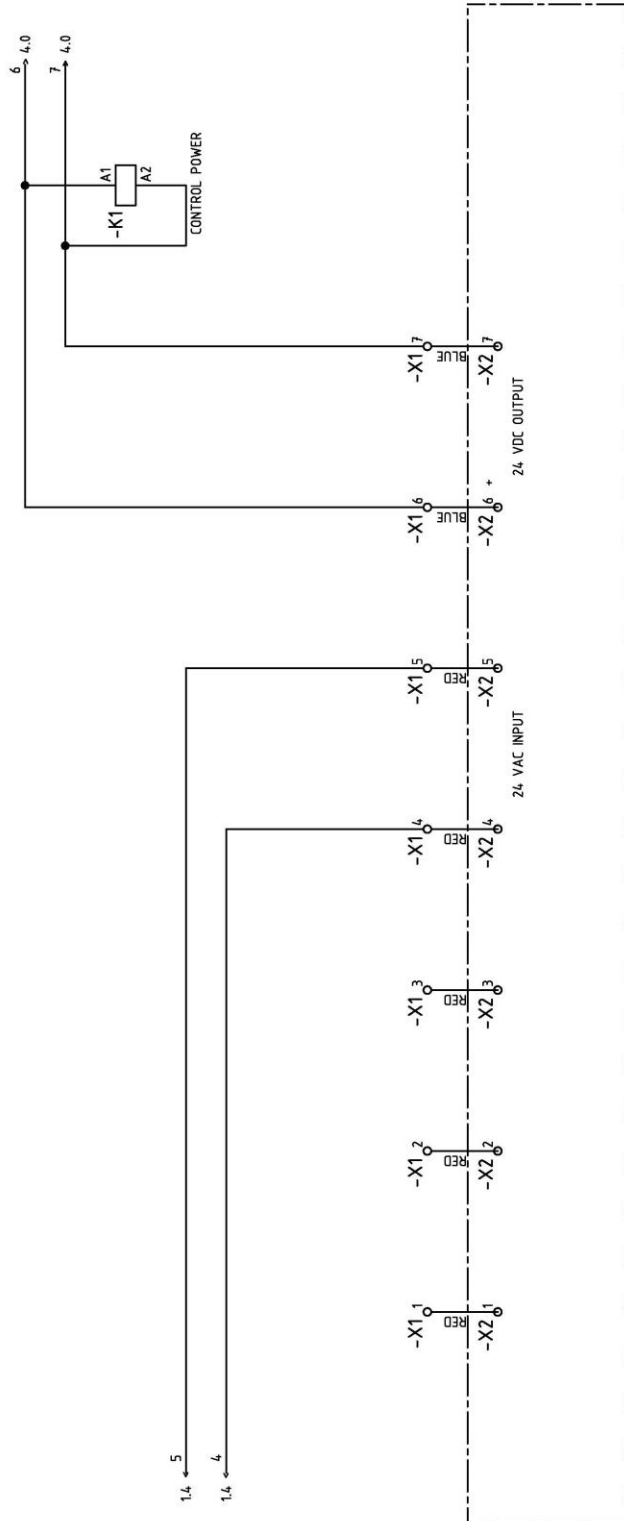


Figure 14. Circuit diagram: 3PE~400V 50/60Hz standard version (p.3/7)



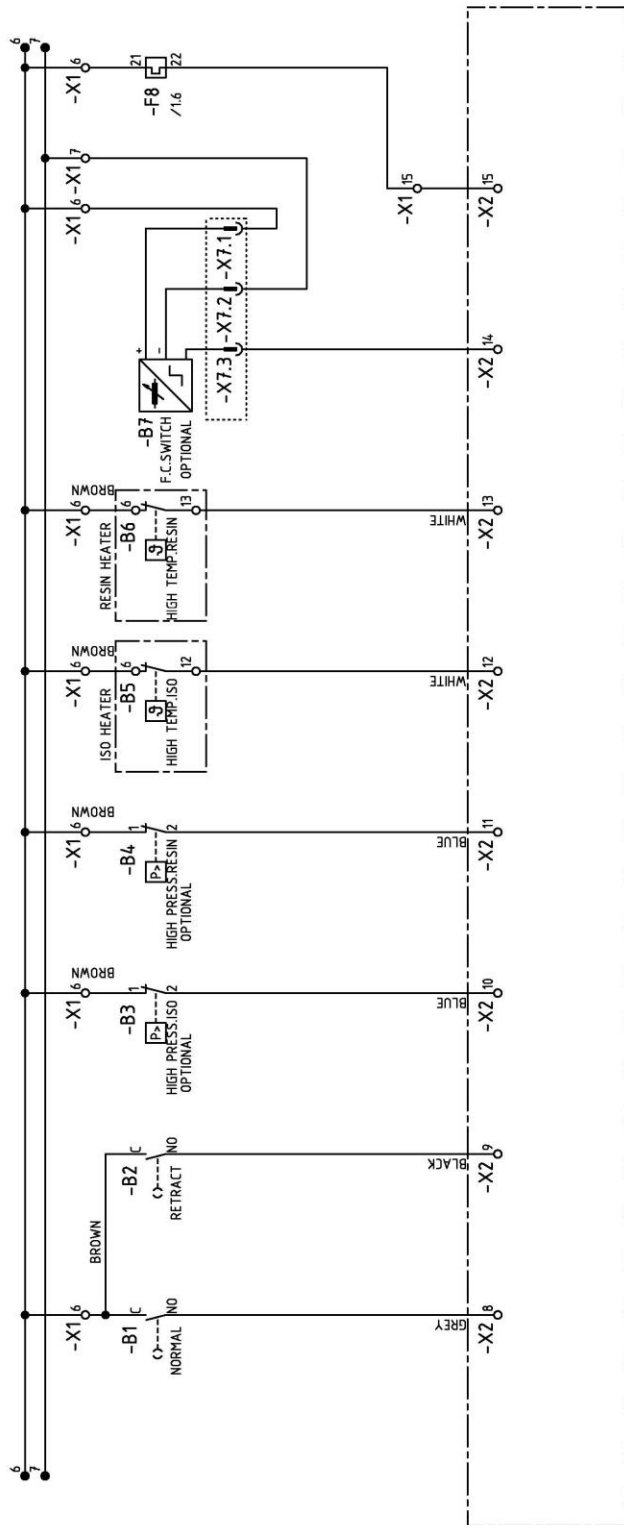


Figure 15. Circuit diagram: 3PE~400V 50/60Hz standard version (p.4/7)

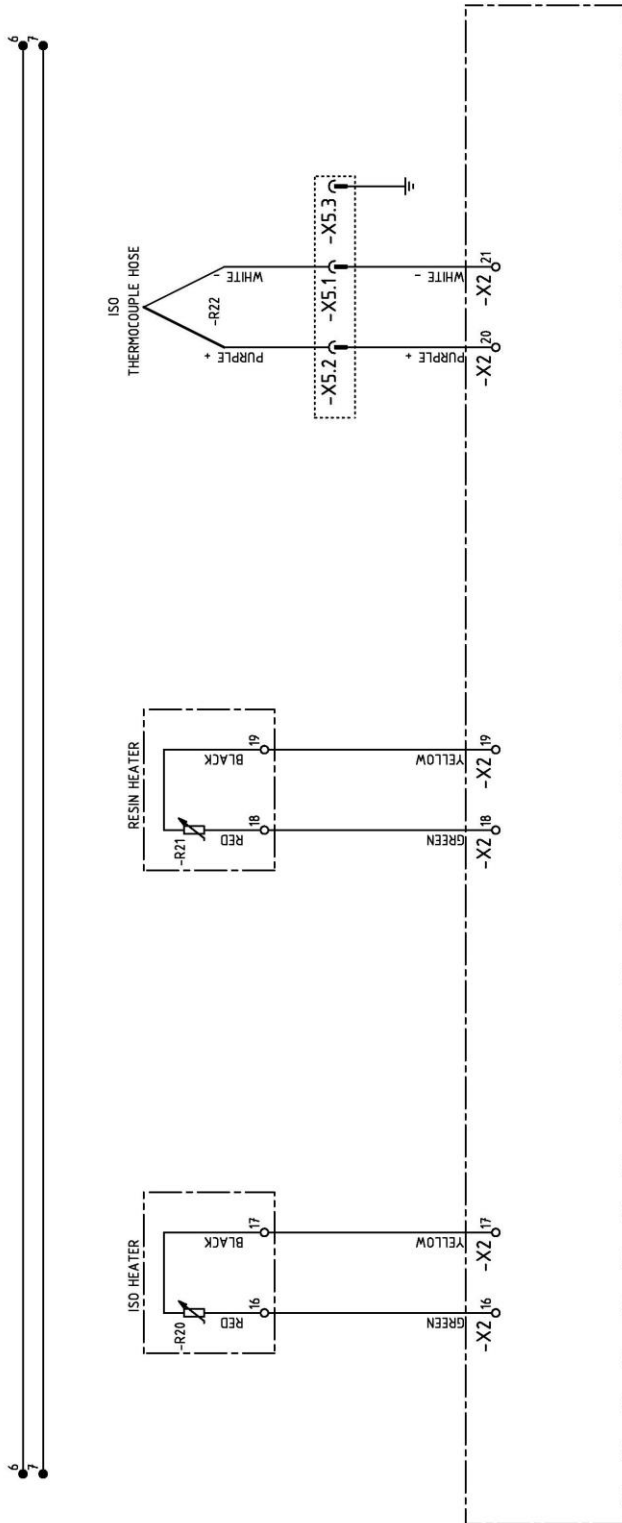


Figure 16. Circuit diagram: 3PE~400V 50/60Hz standard version (p.5/7)

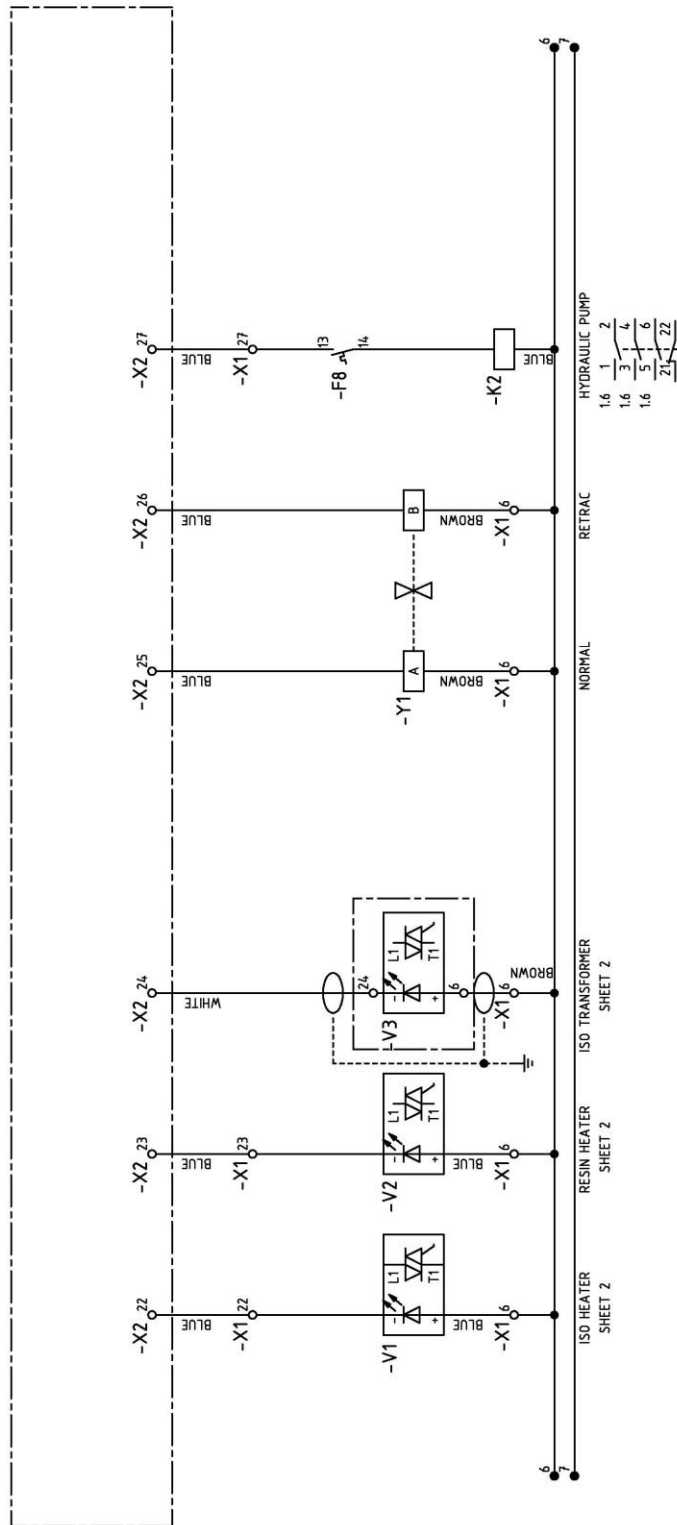


Figure 17. Circuit diagram: 3PE~400V 50/60Hz standard version (p.6/7)

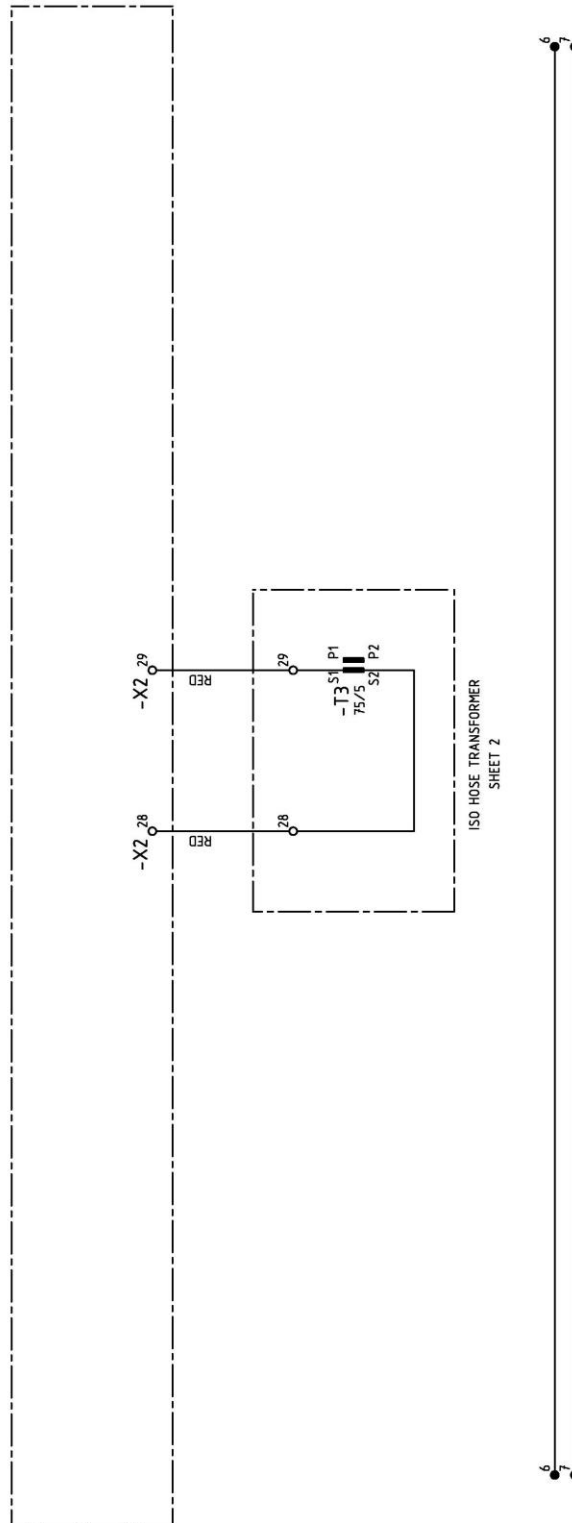


Figure 18. Circuit diagram: 3PE~400V 50/60Hz standard version (p.7/7)



**Table 22. List of parts for distribution board 3PE~400V 50/60Hz.**

Item	Description	Reference	Qty
F 10	FUSIBLE POINT	EL-00104-13	1
F 10	FUSE	EL-00128-03	2
I 1	SWITCH	EL-00107-07	1
I 1	CONTROL RED YELLOW	EL-00107-06	1
T 1	TRANSFORMER	EL-00127-01	1
D 1	DIFERENTIAL SWITCH	EL-00108-00	1
F 2,3	CIRCUIT BREAKERS	EL-00111-04	2
F 4	CIRCUIT BREAKERS	EL-00112-12	1
F 1	CIRCUIT BREAKERS	EL-00109-04	1
F8	CIRCUIT BREAKER	EL-00119-05	1
F8	AUXILIARY CONTACTOR	EL-00119-03	1
T 3	INTENSITY TRANSFORMER	EL-00127-03	1
V 1,2	RELE ESTADO SOLIDO	EL-00126-09	2
V 3	TRIAC	EL-00126-02	1
K 1	CONTACTOR	EL-00121-02	2
X 1	TREMINAL STRIP	EL-00105-03	1
	RESISTANCE 900W @ 400V	EL-00255	4
	RESISTANCE 1500W @ 400V	EL-00189	

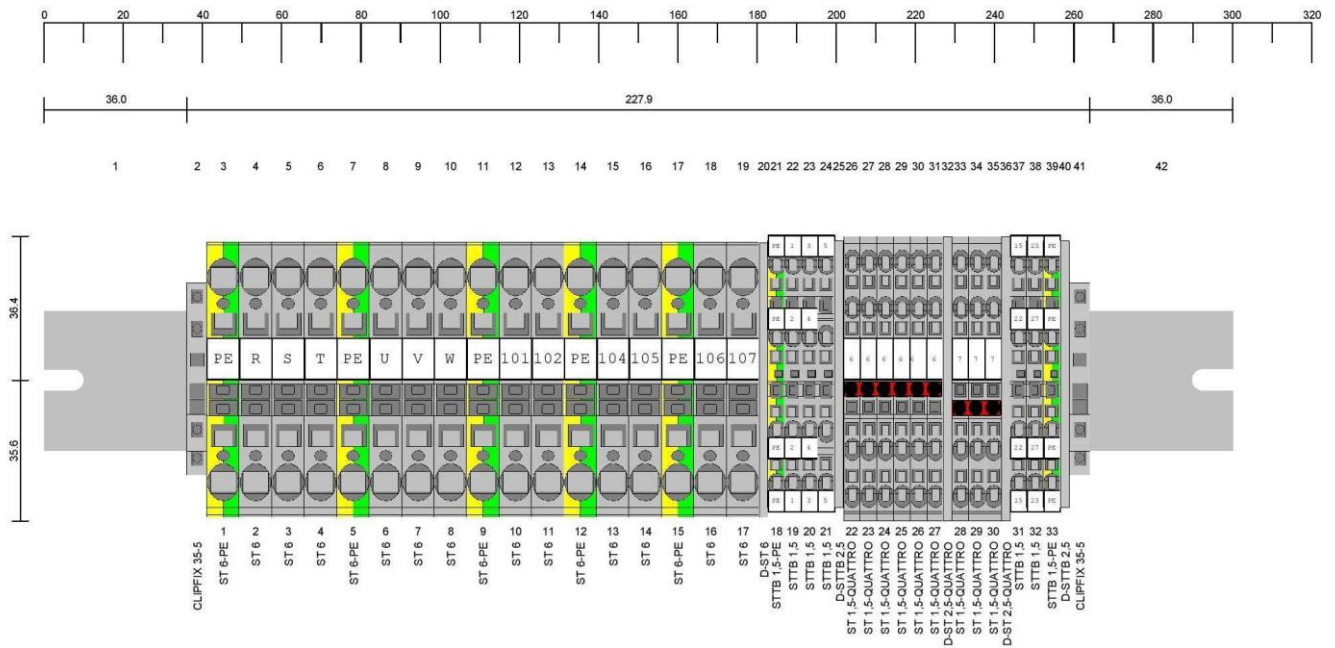
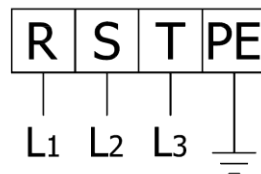


Figure 19. Distribution board

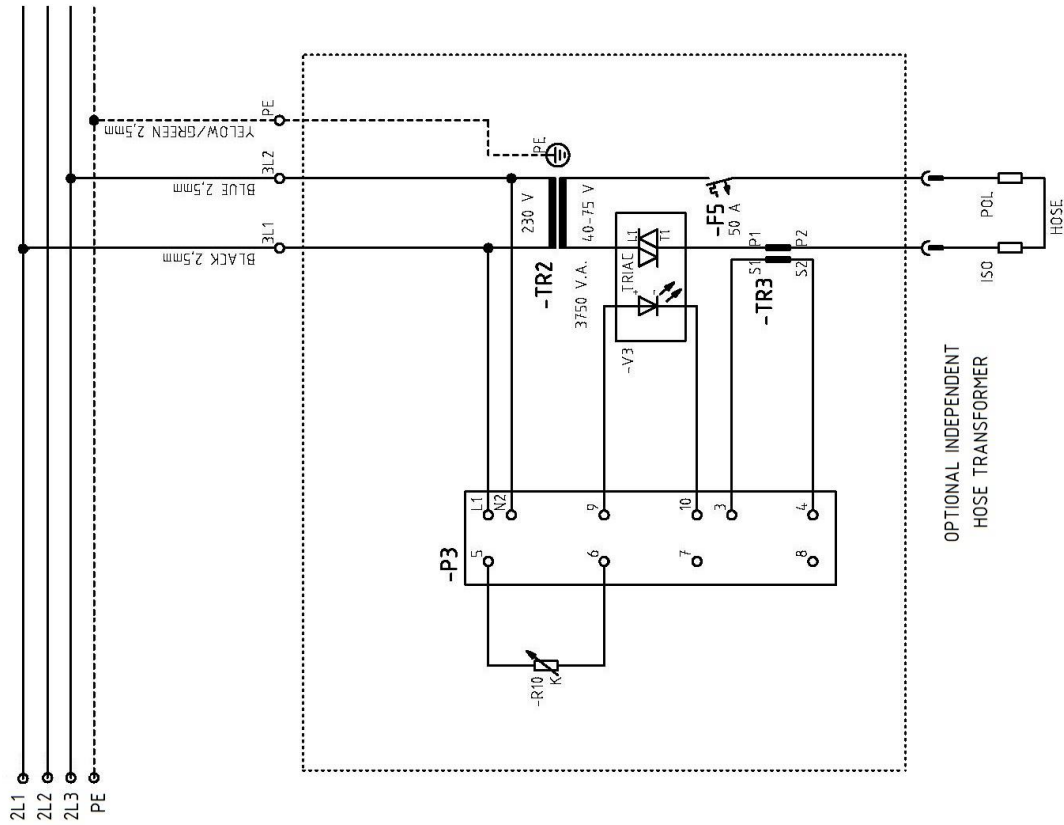


3PE~400V 50/60Hz

Figure 20. Connections

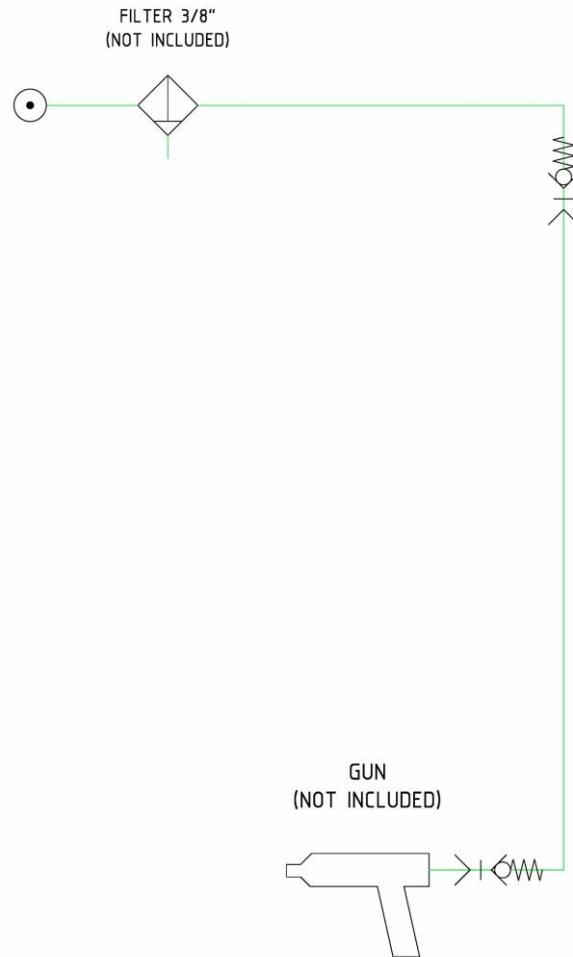


**INDEPENDENT HOSES TRANSFORMER (OPTIONAL)**



**Figure 21. Circuit diagram: Independent Hoses Transformer (Optional)**

## PNEUMATIC CIRCUIT

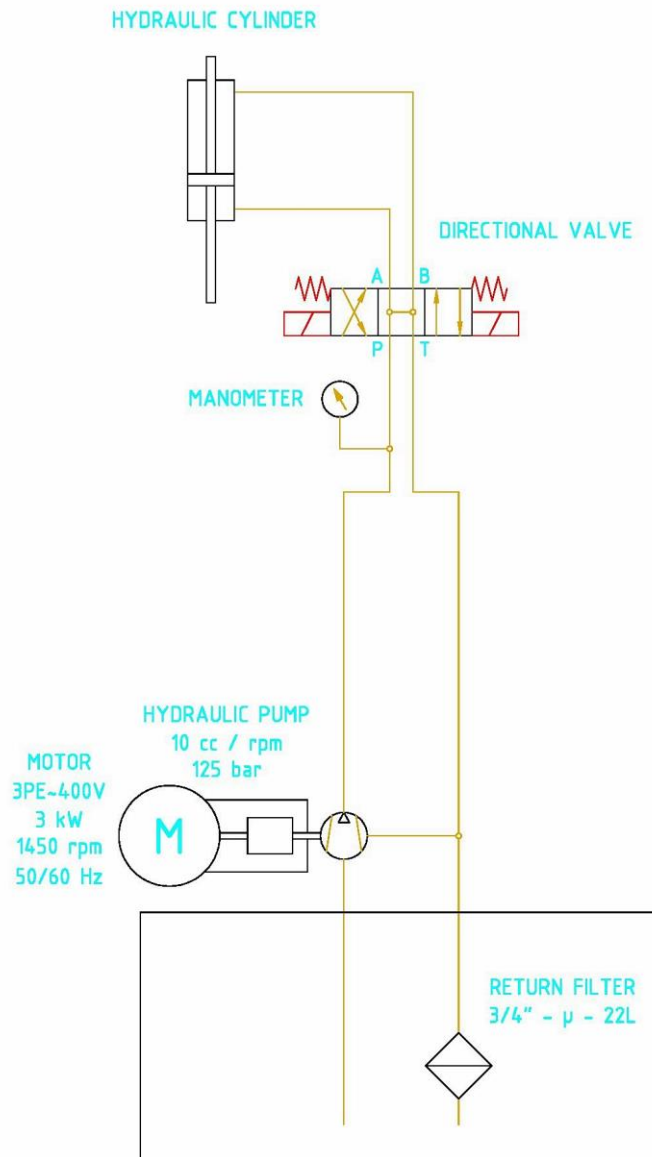


**Figure 22. Pneumatic circuit**





## HYDRAULIC CIRCUIT

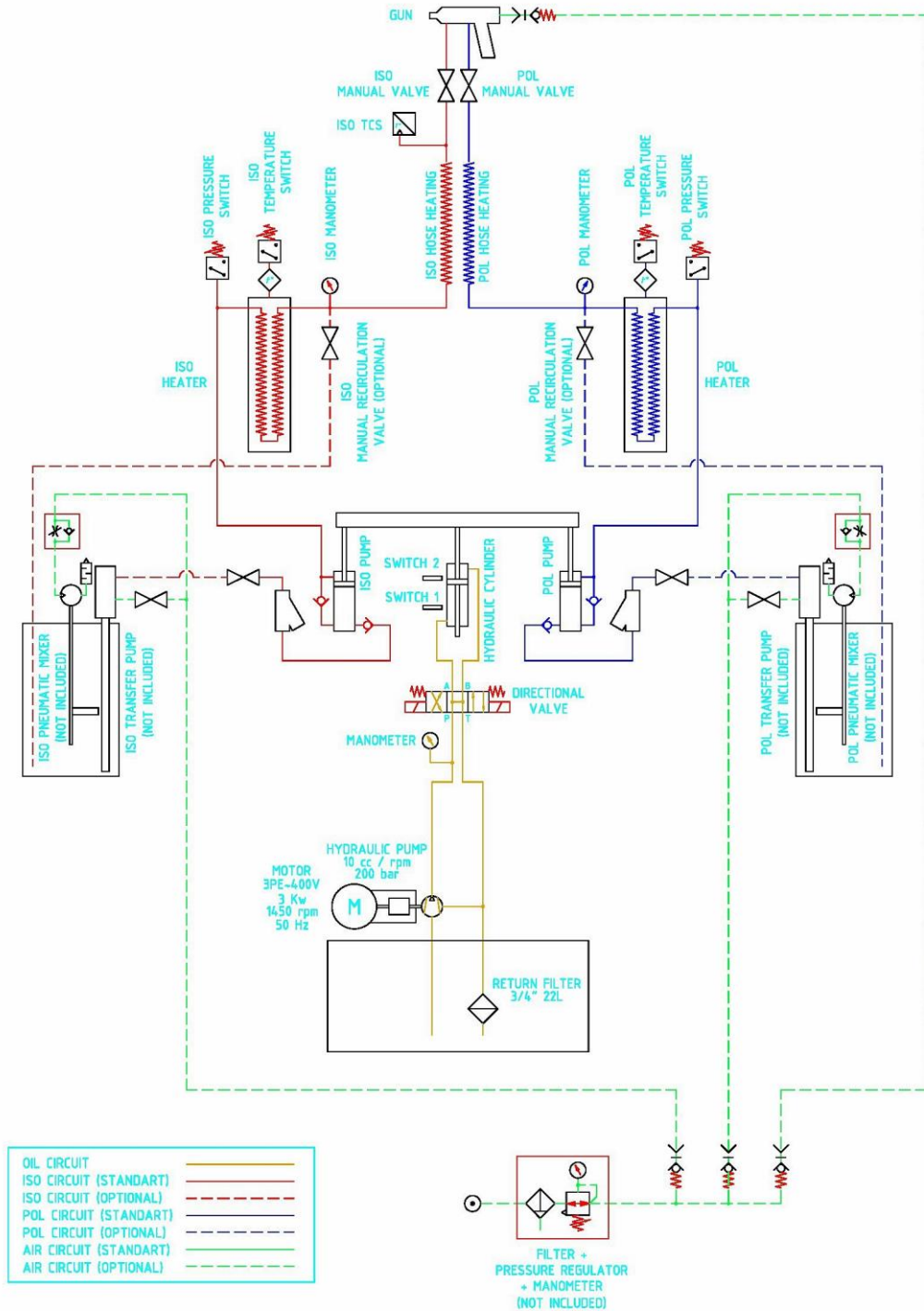


ORIGINAL MANUAL

Figure 23. Hydraulic circuit

**FUNCTIONAL DIAGRAM STANDARD MODEL**

ORIGINAL MANUAL



**Figure 24. Functional diagram standard model**



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