

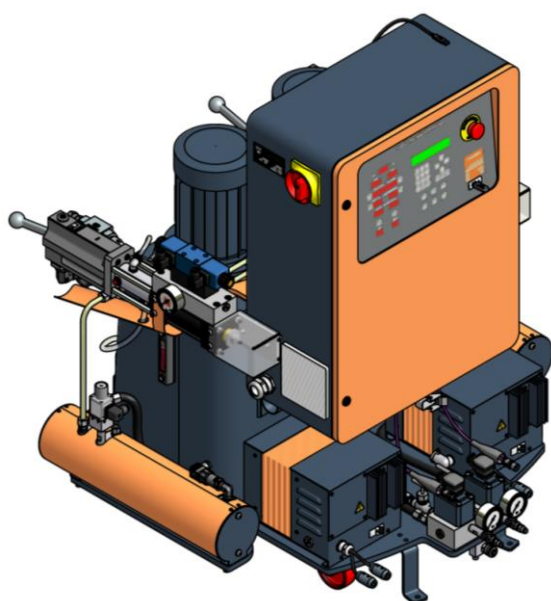


# Parts Manual

## Metering Unit

### evolution VR

Issue 3.7 25/10/12  
Ref. NR-00014-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

GARRAF MAQUINARIA, S. A. (hereinafter "GAMA") provides this **LIMITED WARRANTY** (hereinafter "Warranty") to the original purchaser (hereinafter "Customer") covering this equipment and the original GAMA manufactured accessories delivered with the equipment (hereinafter "Product") against defects in material or workmanship of the Product (hereinafter "Defect" or "Defective") for a period of two (2) years from the date of first purchase as shown on the original GAMA invoice (hereinafter "Warranty Period").

If during the Warranty Period under normal use, the Product is suspected by Customer to be Defective in material or workmanship, it is Customer's responsibility to contact GAMA and return the Product to GAMA as directed by GAMA, freight prepaid. If GAMA determines that the Product is Defective and that such Defect is covered by this Warranty, GAMA will credit Customer for the reasonable freight charges incurred by Customer in returning the Defective Product to GAMA, and GAMA (or its authorized agent) will, at GAMA's option, repair or replace the Product, subject to the following:

Original Invoice: The original invoice must be kept as proof of the date of first sale and the Product serial number. The Warranty does not cover any Product if the Original Invoice appears to have been modified or altered, or when the serial number on the Product appears to have been altered or defaced.

Product Maintenance: It is the Customer's responsibility to maintain the Product properly. See your maintenance schedule and owner's manual for details. The Warranty does not cover an improperly maintained Product.

Non-GAMA Components and Accessories: Non-GAMA manufactured components and accessories that are used in the operation of the Product are not covered by this Warranty. Such components and accessories shall be subject to the warranty offered to the Customer, if any, by the original manufacturer of such component or accessory.

Other Warranty Exclusions: The Warranty does not cover any Product that GAMA determines has been damaged or fails to operate properly due to misuse, negligence, abuse, carelessness, neglect, or accident. By way of example only, this includes:

- Normal wear and tear.
- Improper or unauthorized installation, repair, alteration, adjustment or modification of the Product.
- Use of heating devices, pumping equipment, dispensers, or other parts or accessories with the Product that have not been approved or manufactured by GAMA.
- Failure to follow the operating instructions and recommendations provided by GAMA.
- Cosmetic damage.
- Fire, flood, "acts of God," or other contingencies beyond the control of GAMA.

**THE WARRANTY DESCRIBED HEREIN IS THE EXCLUSIVE REMEDY FOR THE CUSTOMER AND IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS, IMPLIED, STATUTORY OR OTHERWISE, AND THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE AND ALL OTHER WARRANTIES ARE HEREBY DISCLAIMED. TO THE FULLEST EXTENT PERMITTED BY LAW, GAMA SHALL NOT BE RESPONSIBLE, WHETHER BASED IN CONTRACT, TORT (INCLUDING, WITHOUT LIMITATION, NEGLIGENCE), WARRANTY OR ANY OTHER LEGAL OR EQUITABLE GROUNDS, FOR ANY CONSEQUENTIAL, INDIRECT, INCIDENTAL, LOST PROFITS, SPECIAL, PUNITIVE OR EXEMPLARY DAMAGES, WHETHER TO PERSON OR PROPERTY, ARISING FROM OR RELATING TO THE PRODUCT, EVEN IF GAMA HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH LOSSES OR DAMAGES.**

Non-Warranty Service by GAMA: If GAMA determines that the suspected Defect of the Product is not covered by this Warranty, disposition of the Product will be made pursuant to the terms and conditions of GAMA's written estimate on a time and materials basis.

Continuing Warranty for Products Repaired or Replaced under Warranty: Following the repair or replacement of a Product covered by this Warranty, such Product will continue to be subject to the original Warranty for the remainder of original Warranty Period or for three (3) months from the repair or replacement date, whichever is longer.

No Rights Implied: Nothing in the sale, lease or rental of any Product by GAMA shall be construed to grant any right, interest or license in or under any patent, trademark, copyright, trade secret or other proprietary right or material owned by anyone; nor does GAMA encourage the infringement of same.

Exclusive Warranty: This writing is the final, complete, and exclusive expression of the Warranty covering the Product. Any statements made by GAMA, its employees or agents that differ from the terms of this Warranty shall have no effect. It is expressly understood that Customer's acceptance of this Warranty, by performance or otherwise, is upon and subject solely to the terms and conditions hereof, and any additional or different terms and conditions proposed or expressed by Customer or anyone, whether in writing or otherwise, are null and void unless specifically agreed to in writing by an Officer of GAMA.

## METERING UNIT evolution VR MODEL

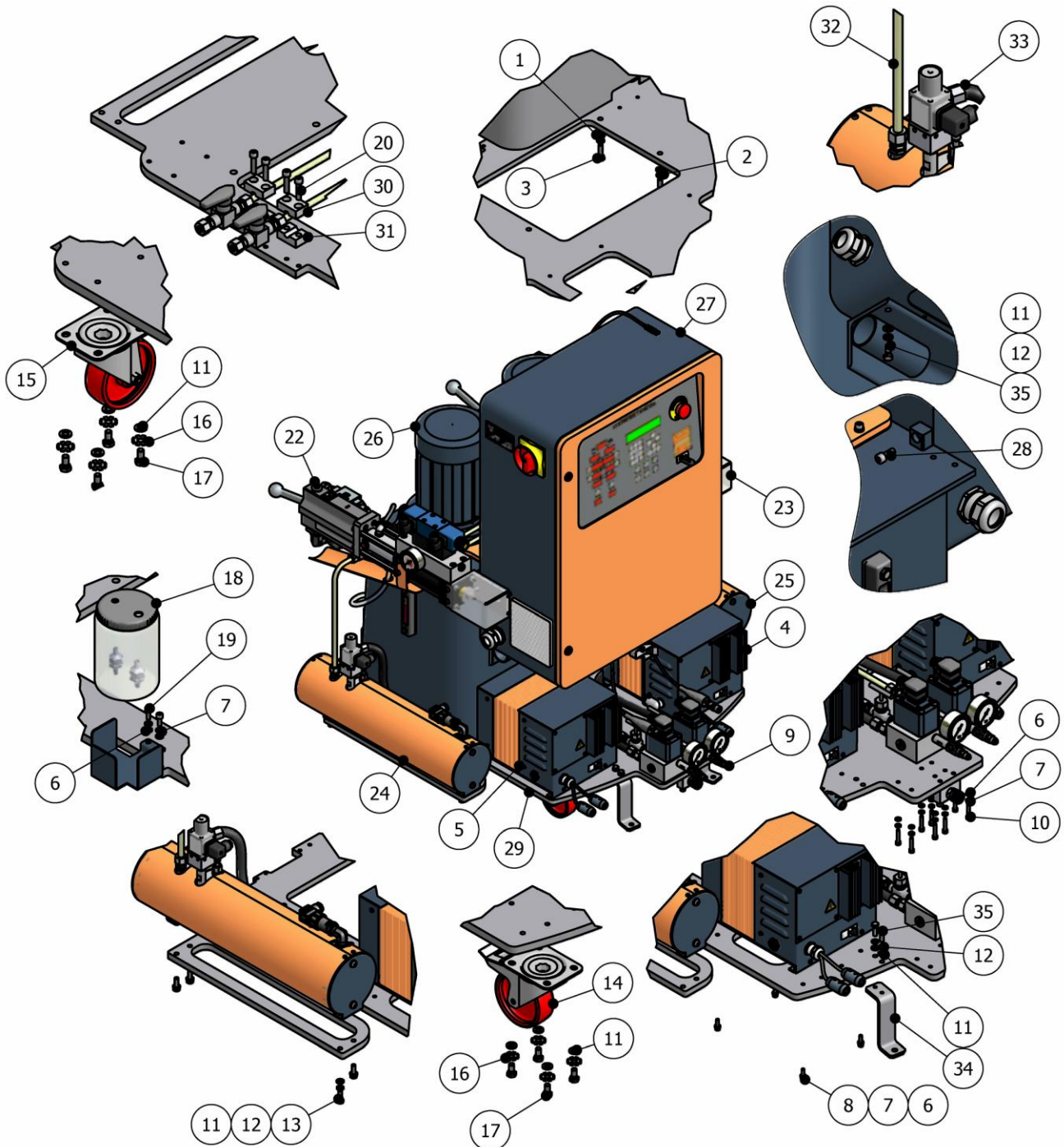


Figure 1. Metering Unit evolution VR Model



**Table 1. Metering Unit evolution VR Model, Parts List**

Ref.	Description	Parts Number	Qty.
1	Washer	TN-00162	4
2	Lock Washer	TN-00087	4
3	Hex Head Cap Screw	TN-00163	4
4	R Transformer (3x400v-N)	EL-00127-15	1
5	A Transformer (3x400v-N)	EL-00127-15	1
6	Washer	TN-00024	18
7	Lock Washer	TN-00025	18
8	Socket Head Cap Screw	TN-00026	8
9	Recirculation Kit (Manual – Automatic)	See Table 3	1
10	Socket Head Cap Screw	TN-00014	8
11	Washer	TN-00119	40
12	Lock Washer	TN-00028	31
13	Hex Head Cap Screw	TN-00146	8
14	Front Wheel with Brake	MQ-01002	2
15	Back Wheel	MQ-01016	2
16	Lock Washer	TN-00038	16
17	Hex Head Cap Screw	TN-00114	16
18	Lube Reservoir Hose Assembly	MQ-01009-00	1
19	Socket Head Cap Screw	TN-00248	2
20	Socket Head Cap Screw	TN-00245	4
22	A Pump/Heater Hose Assy.	See Table 4	1
23	R Pump/Heater Hose Assy.	See Table 5	1
24	A Primary Heater	See Table 2	1
25	R Primary Heater	See Table 2	1
26	Pump Motor Assembly	See Table 6	1
27	Electrical Console Assy.	EL-00077-00	1
28	Socket Head Cap Screw	TN-00176	2
29	Base Plate	MQ-05001	1
30	Upper Tube Clamp	MQ-05013	2



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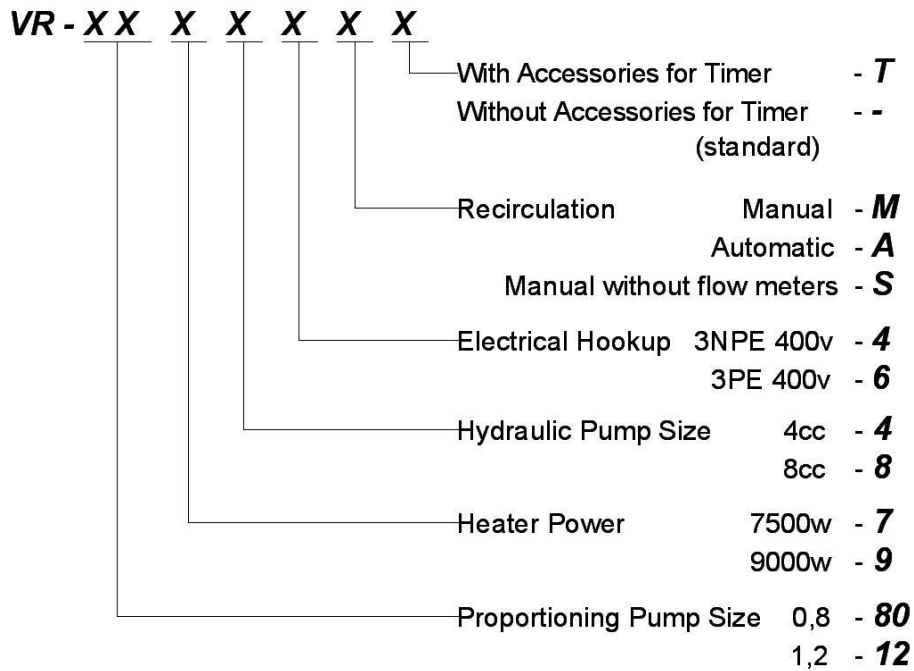
Ref.	Description	Parts Number	Qty.
31	Lower Tube Clamp	MQ-05014	2
32	Tube Inlet to Heater	HI-00010	2
33	Heater Output Hose	MA-00051	2
34	"Z" Bracket without Transfer Pumps Bracket	MQ-01017	2
35	Hex. Head Cap Screw	TN-00187	7

**Table 2. List of heaters as the Main Voltage of the unit**

Main Voltage	"A" Heater	"R" Heater	Power & Voltage of Resistance
3 x 400v-N	CL-05001-00C	CL-05002-00C	9000w(6x1500w) @ 400 v
	CL-05001-00D	CL-05002-00D	7500w(6x1250w) @ 400 v



## DESCRIPTION OF THE NOMENCLATURE



**Table 3. Recirculation Kit, Parts Number List**

Part Number Unit	Ref. 9	Description
VR-XXXXXA-	KT-00055	Automatic Recirculation Kit
VR-XXXXXM-	KT-00054	Manual Recirculation Kit
VR-XXXXXS-	KT-00056	Manual Recirculation Kit without Flow Meters

**N:B.:**

*Optionally the recirculation kits will be completed up to the tanks with the KT-00038-06*

**Table 4. A Pump Line Assembly, Parts Number List**

Part Number Unit	POS. 22	Description
VR-80XXXXX	PU-06200-008	A Pump Line Assembly # 0.8
VR-12XXXXX	PU-06200-012	A Pump Line Assembly # 1.2



**Table 5. R Pump Line Assembly, Parts Number List**

Part Number Unit	POS. 23	Description
VR-80XXXXX	PU-06300-008	R Pump Line Assembly # 0.8
VR-12XXXXX	PU-06300-012	R Pump Line Assembly # 1.2

**Table 6. Pump Motor Assembly, Parts List**

Part Number Unit	POS. 26	Description
VR-XXX4XXX	HI-00055-02	Motor 3Kw and Hydraulic Pump 4cc
VR-XXX8XXX	HI-00055-03	Motor 3Kw and Hydraulic Pump 8cc
VR-12X8XXX	HI-00055-04	Motor 4Kw and Hydraulic Pump 8cc



## ELECTRICAL CONSOLE ASSEMBLY

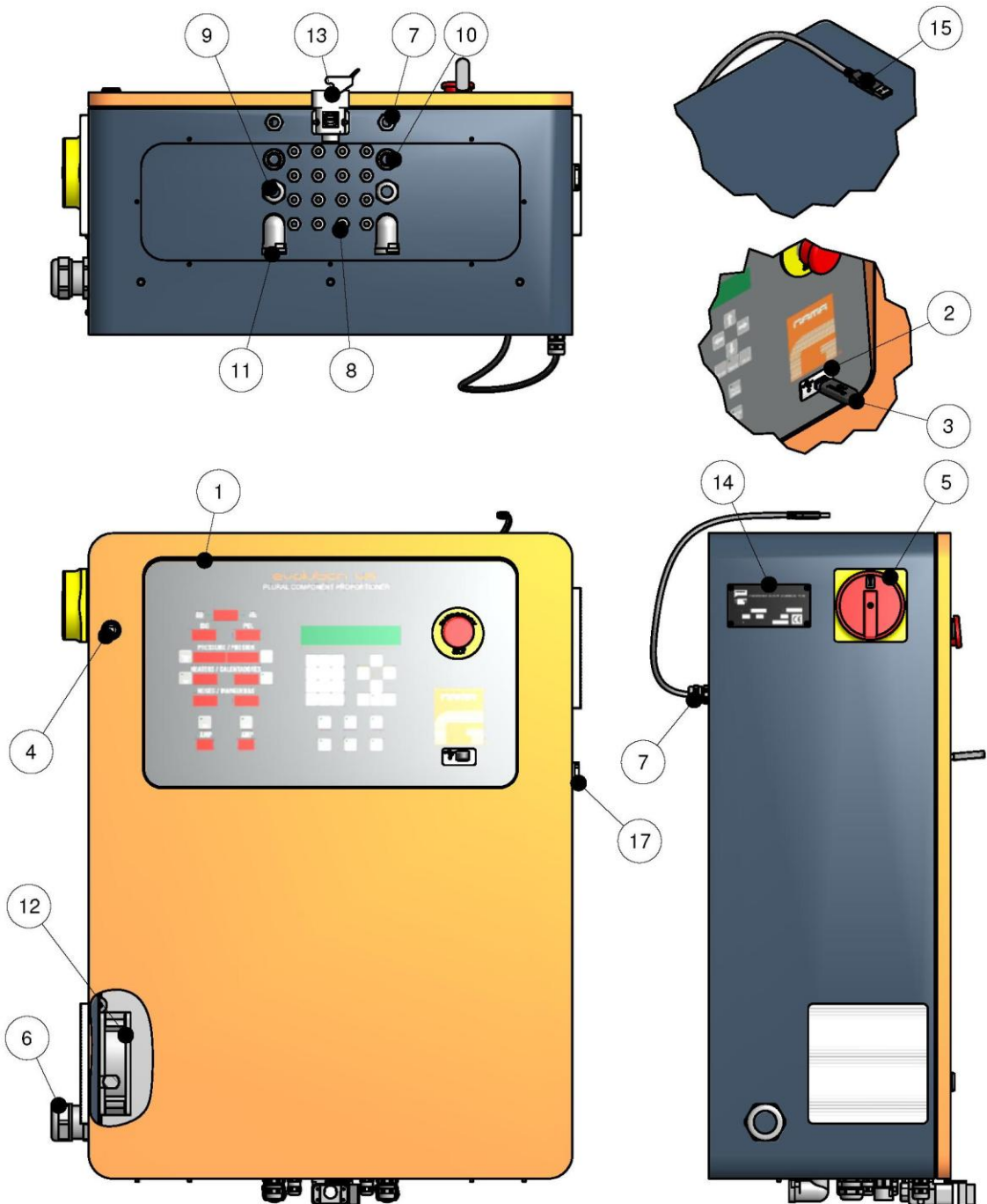


Figure 2. Electrical Console Assembly, evolution VR





**Table 7. Electrical Console, Parts List**

Ref.	Description	Parts Number	Qty.
1	Bezel	EL-00078-01	1
	Electric Circuit	EL-00078-02	1
2	USB Port (Included in Ref.1)	EL-00078-04	1
3	Pen Drive 1 GB (Included in Ref.1)	EL-00078-05	1
4	Lock Electrical Console Assembly	EL-00034	2
5	Switch	EL-00107-02	1
6	Cable Connector	EL-00088-04	1
	Nut	EL-00090-05	1
7	Strain Relief	EL-00088-05	3
	Nut	EL-00090-06	3
8	Strain Relief	EL-00088-00	16
	Nut	EL-00090-00	16
9	Strain Relief	EL-00088-02	2
	Nut	EL-00090-01	2
10	Strain Relief	EL-00087-00	2
	Nut	EL-00090-01	2
11	Strain Relief	EL-00087-02	2
	Nut	EL-00090-01	2
12	Fan	EL-00133-00	1
13	Base Connector	EL-00096-04	1
14	Standard Features Bezel	MQ-01010	1
15	Aerial USB Port	EL-00078-08	1
16	Internal Electronic Board	EL-00078-09	1
17	Acoustic adviser	EL-00130-00	1

## HIDRAULIC MANIFOLD

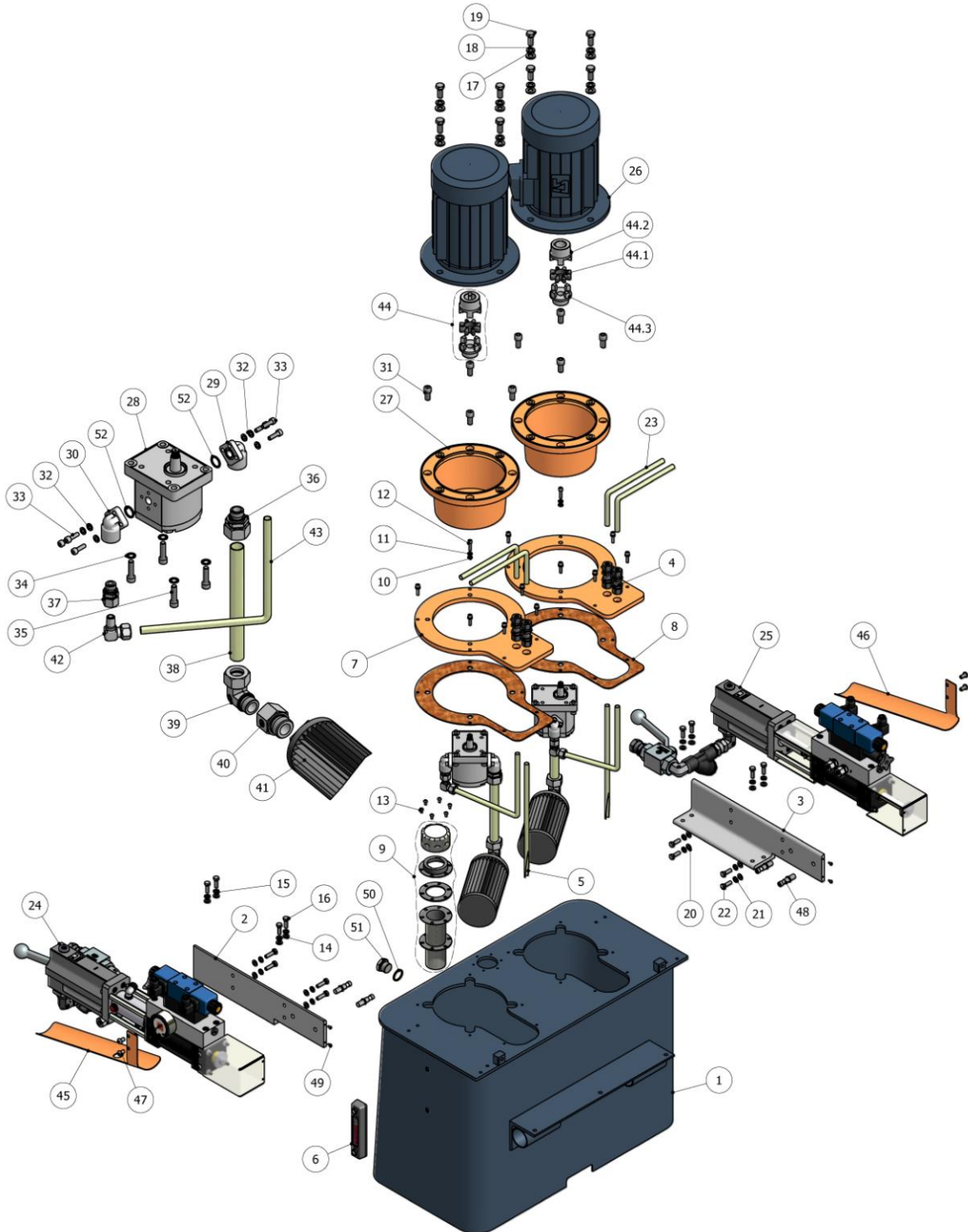


Figure 3. Hydraulic Manifold, exploded View



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**Table 8. Hydraulic Manifold, Parts List**

Ref.	Description	Parts Number	Qty.
1	Oil Tank	HI-00055-01	1
2	A Pump Bracket	MQ-05005	1
3	R Pump Bracket	MQ-05006	1
4	Adapter Bulkhead Union	RA-00025	4
5	Return Tube	HI-00010 (*)	2
6	Thermometer and Fluid Level Gauge	HI-00001	1
7	Motor Support	HI-00055-01G	2
8	Gasket	HI-00055-01H	2
9	HYD-Oil Filler	HI-00002	1
10	Washer	TN-00024	14
11	Lock Washer	TN-00025	14
12	Socket Head Cap Screw	TN-00169	14
13	ULS Screw	TN-00166	6
14	Washer	TN-00119	8
15	Lock Washer	TN-00028	8
16	Hex Head Cap Screw	TN-00146	8
17	Washer	TN-00040	8
18	Lock Washer	TN-00015	8
19	Hex Head Cap Screw	TN-00060	8
20	Washer	TN-00119	8
21	Lock Washer	TN-00028	8
22	Hex Head Cap Screw	TN-00146	8
23	Tube	HI-00010	4
24	A Pump Line assembly	See Table 9	1
25	R Pump Line Assembly	See Table 9	1
26	Electric Motor	See Table 9	2
27	Bell Housing	HI-00056	2
28	Hydraulic Pump	See Table 9	2
29	Suction Bridle	HI-00072	2
30	Pressure Bridle	HI-00071	2
31	Socket Head Cap Screw	TN-00177	8
32	Lock Washer	TN-00025	12



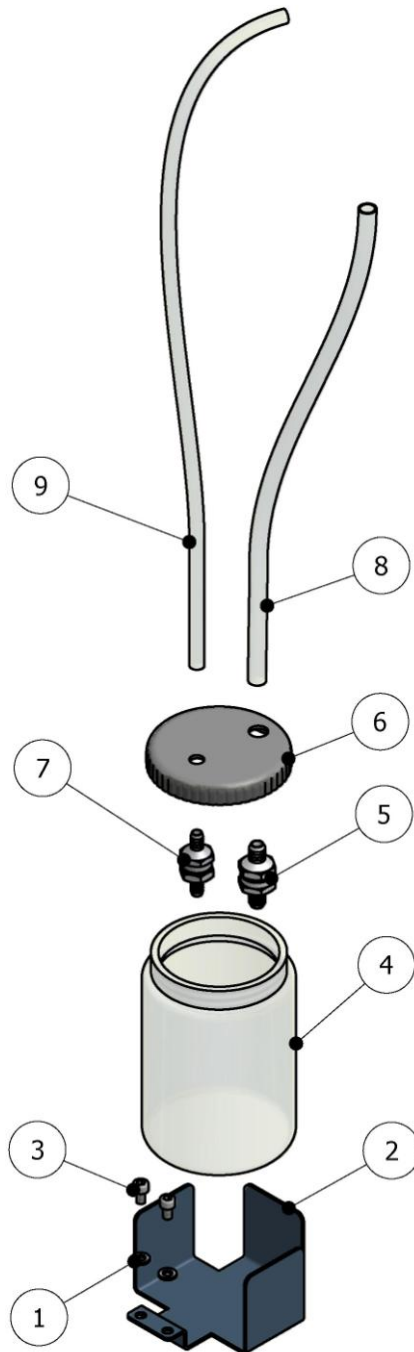
Ref.	Description	Parts Number	Qty.
33	Socket Head Cap Screw	TN-00257	12
34	Lock Washer	TN-00038	8
35	Socket Head Cap Screw	TN-00062	8
36	Male Stud Connector	RA-00198	2
37	Male Stud Connector	RA-00036	2
38	Tube	HI-00074 (*)	2
39	Street Elbow	RA-00199	2
40	Thread Reducer	RA-00175	2
41	Filter	HI-00070	2
42	Street Elbow	RA-00196	2
43	Tube	HI-00010 (*)	2
44	Couple Assembly	HI-00069-00	2
44.1	Alignment Spider	HI-00069-01	2
44.2	Shaft Coupling	HI-00069-02	2
44.3	Shaft Coupling	HI-00069-03	2
45	A Drip Pan	MQ-05017	1
46	R Drip Pan	MQ-05018	1
47	ULS Screw	TN-00135	4
48	Inductive Detector	EL-00136-03	4
49	ULS Screw	TN-00031	4
50	O-Ring	OR-00082	1
51	Plug	RA-00022	1
52	O-Ring	OR-00087	4

*The codes of the marked parts (\*), are referenced to the code of the raw material.*

**Table 9. Hydraulic Manifold, Parts List**

Part Number Unit	24	25	26	28
VR-80X44XX	PU-06201-008	PU-06301-008	EL-00136-06	HI-00057
VR-80X84XX	PU-06201-008	PU-06301-008	EL-00136-06	HI-00058
VR-12X84XX	PU-06201-012	PU-06301-012	EL-00136-07	HI-00058

## LUBE RESERVOIR HOSE ASSEMBLY



*Figure 4. Lube Reservoir Hose Assembly, Exploded View*



**Table 10. Lube Reservoir Hose Assembly, Parts List**

Ref.	Description	Parts Number	Qty.
1.1	Washer	TN-00024	2
1.2	Washer	TN-00025	2
2	Lube Reservoir Bracket	MQ-01008	1
3	Socket Head Cap Screw	TN-00248	2
4	Lube Reservoir Bottle	MQ-01009-01	1
5	Lube Reservoir Check Valve for Pipe 12x1	RA-00068	1
6	Lube Reservoir Bottle Cap	MQ-01009-02	1
7	Lube Reservoir Check Valve for Pipe 10x1	RA-00283	1
8	Supply Line	MA-00025	1
9	Return Line	MA-00024	1

**N.B.:**

**When are ordered as spare parts, the references 4 and 6 are not given separately.**

## “A” PUMP LINE ASSEMBLY

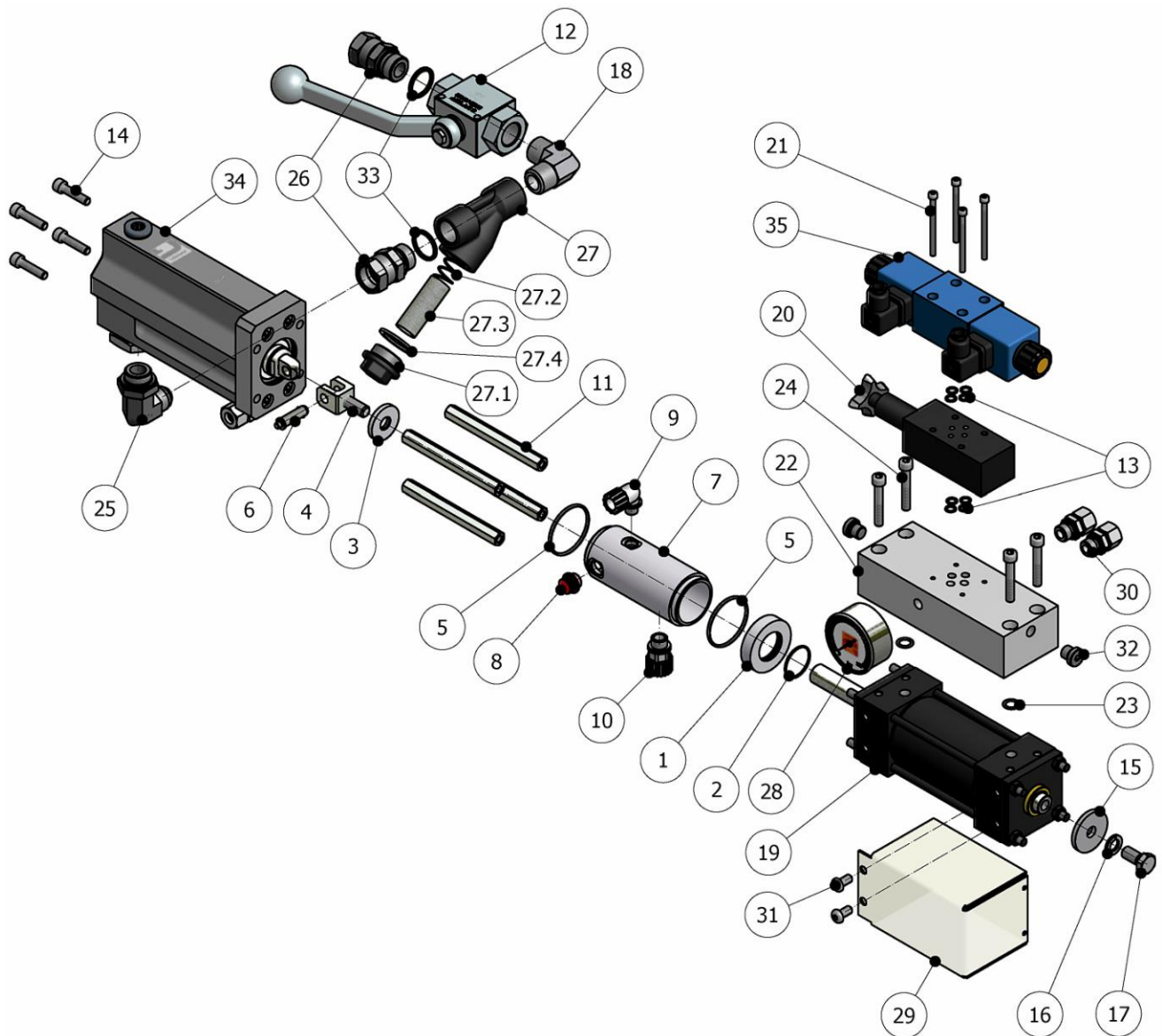


Figure 5. “A” Pump Line Assembly, Exploded View





**Table 11. "A" Pump Line Assembly, Parts List**

Ref.	Description	Parts Number	Qty.
1	Lube Cylinder Adapter Plate	PU-01021	1
2	O-Ring	OR-00021	1
3	Baffle	PU-01019	1
4	Hydraulic Cylinder Clevis	PU-01043	1
5	Lube Cylinder O-Ring	OR-00020	2
6	"A" Clevis Pin Assembly (Include 6.1 + 6.2+6.3)	PU-01044-00	1
6.1	Clevis Pin (included in Ref. 6)	PU-01044-01M	1
6.2	Clevis Pin Clip (included in Ref. 6)	TN-00136	1
6.3	Washer Supplement (Included in Ref. 7) not shown	TN-00024	1
7	Lube Cylinder	PU-01018	1
8	Polyethylene Pipe Plug	RA-00116	1
9	Lube Cylinder Elbow	RA-00066	1
10	Lube Cylinder fitting	RA-00067	1
11	Proportioning Pump Spacer	PU-01025	4
12	Ball Valve	RA-00293	1
13	O-Ring	OR-00035	8
14	Socket Head Cap Screw	TN-00245	4
15	Reversing Switch Activate Plate	PU-01037	1
16	Lock Washer	TN-00039	1
17	Hex Head Cap Screw	TN-00130	1
18	Street Elbow	RA-00194	1
19	Hydraulic Cylinder With Spacers	HI-00101	1
20	Safety Valve	HI-00067	1
21	Socket Head Cap Screw	TN-00243	4
22	Hydraulic Manifold	MQ-01007	1
23	O-Ring	OR-00019	2
24	Socket Head Cap Screw	TN-00090	4
25	Street Elbow	RA-00072	1
26	Swivel Union	RA-00073	2
27	Y Strainer	RA-00074-00	1
27.1	Filter Plug	RA-00074-01	1
27.2	Filter Spring	SP-00017	1



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Ref.	Description	Parts Number	Qty.
27.3	Filter	RA-00074-03-30	1
27.4	Filter Gasket	OR-00082	1
28	Hydraulic Gauge	HI-00078	1
29	Activator Plate Cover	PU-01038	1
30	Hex nipple	RA-00036	2
31	ULS Screw	TN-00135	2
32	Polyethylene Pipe Plug	RA-00013	2
33	Gasket	OR-00082	2
34	A" Proportioning Pump Assembly	See Table 12	1
35	Directional valve	HI-00054	1

**Table 12. "A" Proportioning Pump Size, List**

Part Number Pump Line Assy.	Pump Size	Description	POS. 34
PU-06200-008	0.8	A Pump Line Assembly # 0.8	PU-06201-008
PU-06200-012	1.2	A Pump Line Assembly # 1.2	PU-06201-012

## "R" PUMP LINE ASSEMBLY

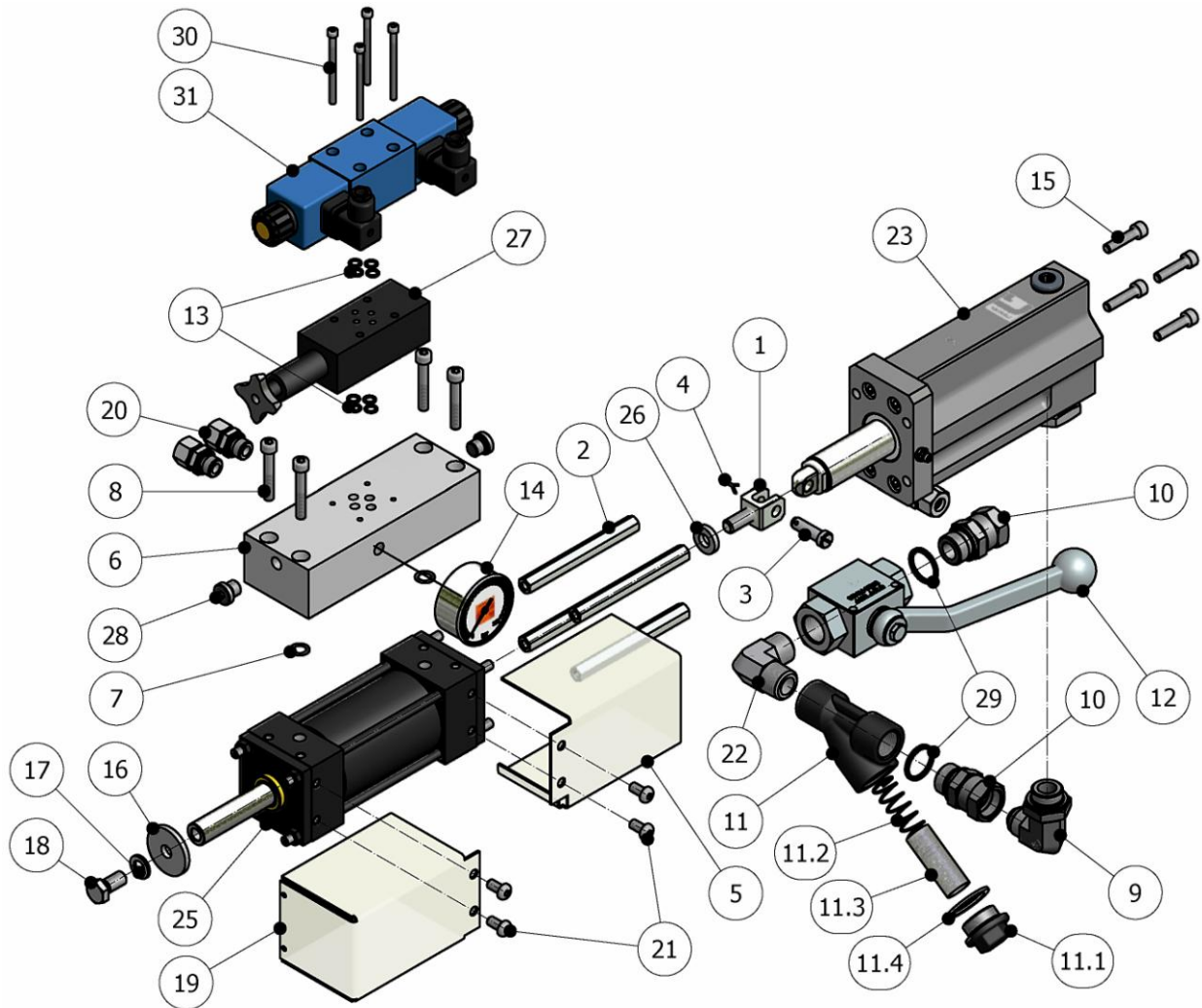


Figure 6. "R" Pump Line Assembly, Exploded View



**Table 13. "R" Pump Line Assembly, Parts List**

Ref.	Description	Parts Number	Qty.
1	Hydraulic Cylinder Clevis	PU-01043	1
2	Proportioning Pump Spacer	PU-01025	4
3	"R" Clevis Pin Assembly	PU-01045-01	1
4	Pin	TN-00077	1
	"R" Clevis Pin Assembly (Include ref. 3 & 4)	PU-01045-00	1
5	Activator Plate Cover	PU-01027	1
6	Hydraulic Manifold	MQ-01007	1
7	O-Ring	OR-00019	2
8	Socket Head Cap Screw	TN-00090	4
9	Street Elbow	RA-00072	1
10	Swivel Union	RA-00073	1
11	Y-Strainer	RA-00074-00	1
11.1	Filter Plug	RA-00074-01	1
11.2	Filter Spring	SP-00017	1
11.3	Filter	RA-00074-03-30	1
11.4	Filter Gasket	OR-00082	1
12	Ball Valve	RA-00293	1
13	O-Ring	OR-00035	8
14	Hydraulic Gauge	HI-00078	1
15	Socket Head Cap Screw	TN-00245	4
16	Reversing Switch Activate Plate	PU-01037	1
17	Lock Washer	TN-00039	1
18	Hex Head Cap Screw	TN-00130	1
19	Activator Plate Cover	PU-01038	1
20	Hex nipple	RA-00036	2
21	ULS Screw	TN-00135	2
22	Street Elbow	RA-00194	1
23	R Proportioning Pump Assembly	See Table 14	1
25	Hydraulic Cylinder With Spacers	HI-00101	1
26	Hydraulic Cylinder Clevis Washer	PU-01039	1

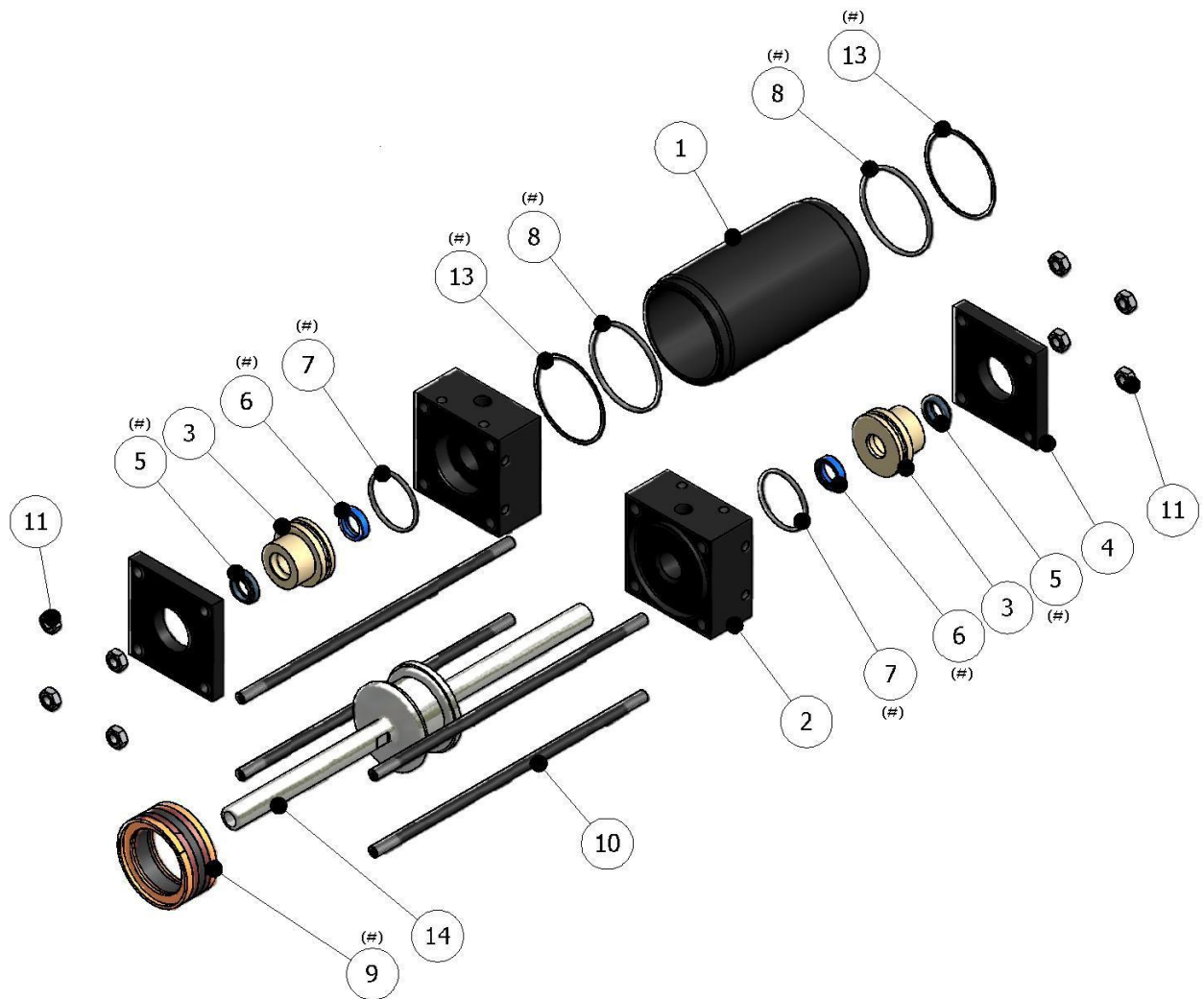


Ref.	Description	Parts Number	Qty.
27	Safety Valve	HI-00067	1
28	Polyethylene Pipe Plug	RA-00013	2
29	Gasket	OR-00082	2
30	Socket Head Cap Screw	TN-00243	4
31	Directional valve	HI-00054	1

**Table 14. "R" Proportioning Pump Size, List**

Part Number Pump Line Assy.	Pump Size	Description	POS. 23
PU-06300-008	0.8	R Pump Line Assembly # 0.8	PU-06301-008
PU-06300-012	1.2	R Pump Line Assembly #1.2	PU-06301-012

## HYDRAULIC CYLINDER WITH SPACERS



**Figure 7. Hydraulic Cylinder with Spacers, Exploded View**

**N.B.:** The indicated parts (#), are included in the repair seal kit KT-00010-01 (these are not supply separately).



**Table 15. Hydraulic Cylinder with Spacers, Parts List**

Ref.	Description	Parts Number	Qty.
1	Cylinder Body	HI-00025-05	1
2	Port Block	HI-00101-04	2
3	Rod Bushing	HI-00101-03	2
4	Front Plate	HI-00025-02	2
5	Rod Wiper	OR-00095	2 (#)
6	Shaft Seal	OR-00096	2 (#)
7	O-Ring	OR-00039	2 (#)
8	O-Ring	OR-00040	2 (#)
9	Piston O-ring	OR-00041-00	1 (#)
10	Hydraulic Cylinder Tie Rod	HI-00025-06	4
11	Nut (*)	TN-00029	4 (8)
13	O-Ring Anti Extrusion	OR-00063	2 (#)
14	Piston	HI-00101-01	1

*(\*) When the cylinder is supplied as a spare part 8 units are enclosed. In the Pump Line fitted in the machine, 4 units are enclosed.*

*(#) Parts & Qtys. are included in the Repair Seal Kit KT-00010-01 (these parts are not supply separately).*



## “A” PROPORTIONING PUMP ASSEMBLY

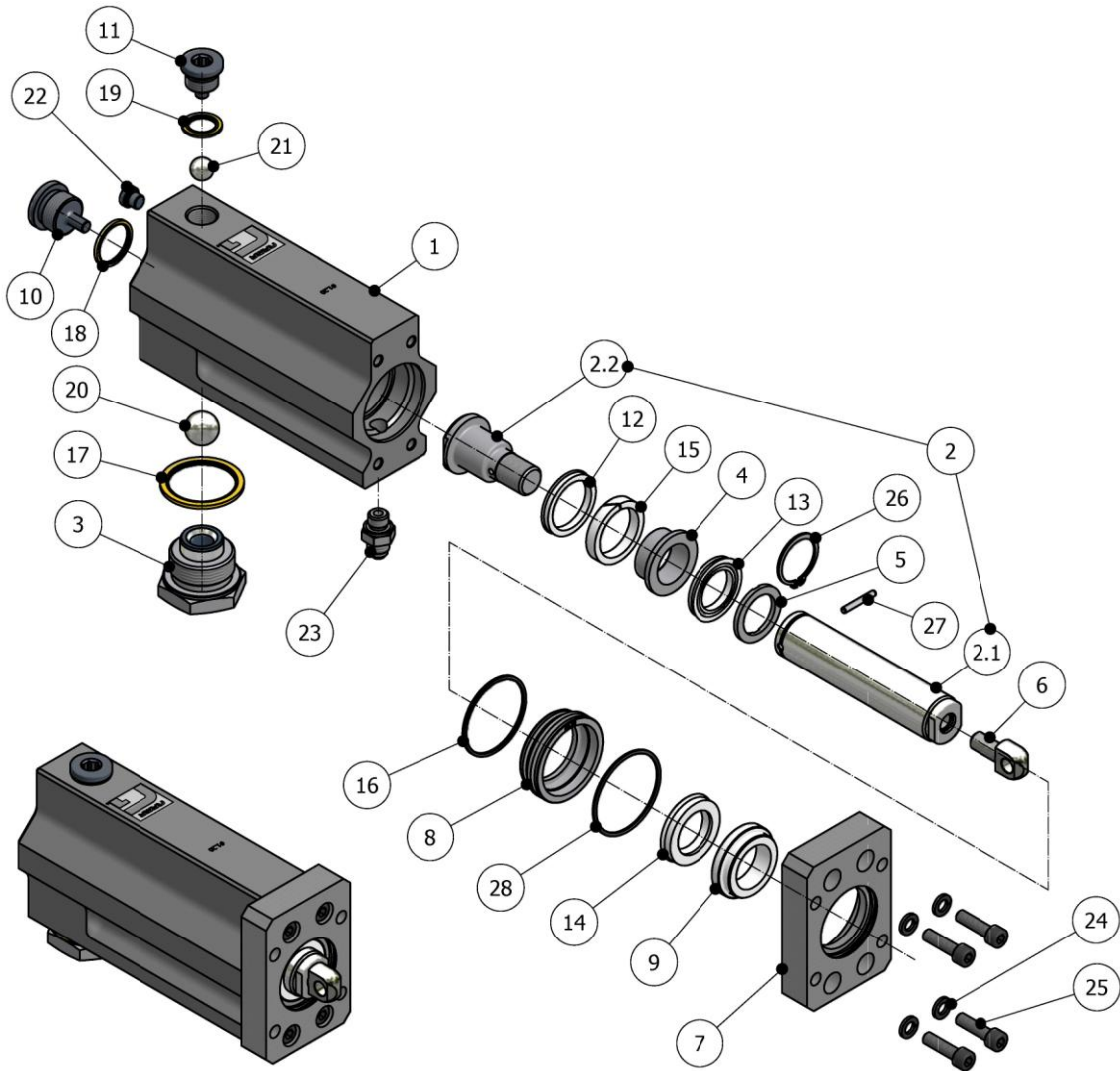


Figure 8. “A” Proportioning Pump Assembly, Exploded View



**Table 16. “A” Proportioning Pump Assembly, Parts List**

item.	Description	Part Number	Qty.
1	Body Pump with Check Valve Seat	See Table 17	1
2	Piston Rod Assembly (Only item. 2.1 y 2.2)	See Table 17	1
2.1	Piston Rod (Included in item 2)	See Table 17	1 (#)
2.2	Piston Head (Included in item 2)	See Table 17	1 (#)
3	Inlet Ball Seat Assembly	PU-01003-0J	1
4	Piston Seal Support	See Table 17	1
5	Piston Seal	See Table 17	1
6	Pump Clevis	PU01042	1
7	Monoblock Flange Pump – ISO	PU-06004	1
8	Seat Seal – ISO	See Table 17	1
9	Bearing ISO	See Table 18	1 (*)
10	Plug Side Pump	PU-01003-0E	1
11	Upper Plug Pump	PU-01003-0F	1
12	Piston Seal Wiper Ring	See Table 18	1 (*)
13	Piston Seal	See Table 18	1 (*)
14	Cylinder Seal	See Table 18	1 (*)
15	Piston Guide	See Table 18	1 (*)
16	O-Ring	OR-00009	1 (*)
17	Metallic Ring	OR-00088	1
18	Metallic Ring	OR-00082	1
19	Metallic Ring	OR-00023	1
20	Lower Ball	TN-00013	1
21	Upper Ball	TN-00012	1
22	Plug	RA-00211	1
23	Output Elbow	RA-00038	1
24	Washer	TN-00028	4
25	Allen Screw	TN-00062	4
26	Seeger Ring	See Table 17	1
27	Pin	See Table 17	1
28	O-Ring	OR-00115	1 (*)

**N.B.:** The parts marked with (\*), are included in the repair seal kit of “A” pump (see Table 19).

The parts marked with (#), are not supplied separately.



**Table 17. "A" Proportioning Pump Assembly, Parts List**

Pump	Item 1	Item 2 (2.1 + 2.2)	Item 2.1	Item 2.2	Item 4
0.80	PU-06101-008	PU-01006-008	PU-01007-008	PU-01008-008	PU-01009-008
1.20	PU-06101-012	PU-01006-012	PU-01007-012	PU-01008-012	PU-01009-012

Pump	Item 5	Item 8	Item 26	Item 27
0.80	PU-01010-008	PU-06009-008	TN-00067	TN-00085
1.20	PU-01010-012	PU-06009-012	TN-00070	TN-00086

**Table 18. Seals Monoblock "A" Pump**

item	#1.2
9	PU-06007-012
12	PU-01015-012
13	PU-01016-012
14	PU-01017-012
15	PU-01014-012
28	OR-00115

**Table 19. Repair Seal Kit "A" Pump**

Pump	Item
0.80	KT-00095-008
1.20	KT-00095-012

**N.B :**

*The standard proportioning pump sizes are #0.80 & #1.20. Different sizes are available under order. For delivery time, please consult with Marketing department.*

*The Repair seal kit include the parts indicated (\*) in the Table 16.*

## “R” PROPORTIONING PUMP ASSEMBLY

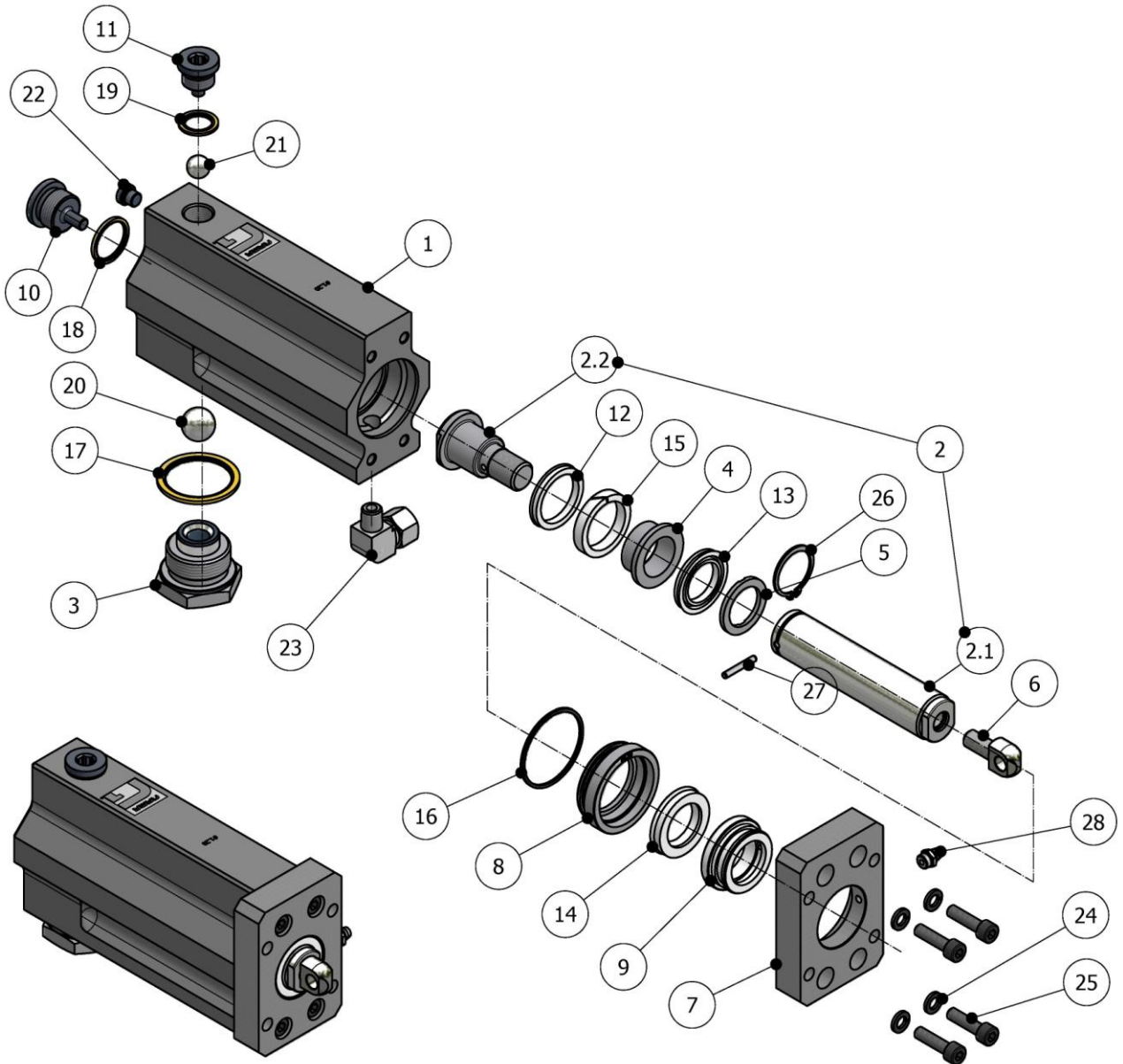


Figure 9. “R” Proportioning Pump Assembly, Exploded View



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**Table 20. “R” Proportioning Pump Assembly, Parts List**

<b>item.</b>	<b>Description</b>	<b>Part Number</b>	<b>Qty.</b>
1	Body Pump with Check Valve Seat	See Table 21	1
2	Piston Rod Assembly (Only item. 2.1 y 2.2)	See Table 21	1
2.1	Piston Rod (Included in item 2)	See Table 21	1 (#)
2.2	Piston Head (Included in item 2)	See Table 21	1 (#)
3	Inlet Ball Seat Assembly	PU-01003-0J	1
4	Piston Seal Support	See Table 21	1
5	Piston Seal	See Table 21	1
6	Pump Clevis	PU01042	1
7	Monoblock Flange Pump – POL	PU-06005	1
8	Seat Seal – POL	See Table 21	1
9	Bearing ISO	See Table 22	1 (*)
10	Plug Side Pump	PU-01003-0E	1
11	Upper Plug Pump	PU-01003-0F	1
12	Piston Seal Wiper Ring	See Table 22	1 (*)
13	Piston Seal	See Table 22	1 (*)
14	Cylinder Seal	See Table 22	1 (*)
15	Piston Guide	See Table 22	1 (*)
16	O-Ring	OR-00009	1 (*)
17	Metallic Ring	OR-00088	1
18	Metallic Ring	OR-00082	1
19	Metallic Ring	OR-00023	1
20	Lower Ball	TN-00013	1
21	Upper Ball	TN-00012	1
22	Plug	RA-00211	1
23	Exit Elbow	RA-00038	1
24	Washer	TN-00028	4
25	Allen Screw	TN-00062	4
26	Seeger Ring	See Table 21	1
27	Pin	See Table 21	1
28	Grease Fiting	TN-00073	1

**N.B.:** The parts marked with (\*), are included in the repair seal kit of “R” pump (see Table 23)

The parts marked with (#), are not supplied separately.



**Table 21. "R" Proportioning Pump Assembly, Parts List**

Pump	Item 1	Item 2 (2.1 + 2.2)	Item 2.1	Item 2.2	Item 4
0.80	PU-06101-008	PU-01006-008	PU-01007-008	PU-01008-008	PU-01009-008
1.20	PU-06101-012	PU-01006-012	PU-01007-012	PU-01008-012	PU-01009-012

Pump	Item 5	Item 8	Item 26	Item 27
0.80	PU-01010-008	PU-06006-008	TN-00067	TN-00085
1.20	PU-01010-012	PU-06006-012	TN-00070	TN-00086

**Table 22. Seals Monoblock "R" Pump**

Pump	Item 9	Item 12	Item 13	Item 14	Item 15
0.80	PU-06008-008	PU-01015-008	PU-01016-008	PU-01017-008	PU-01014-008
1.20	PU-06008-012	PU-01015-012	PU-01016-012	PU-01017-012	PU-01014-012

**Table 23. Repair Seal Kit "R" Pump**

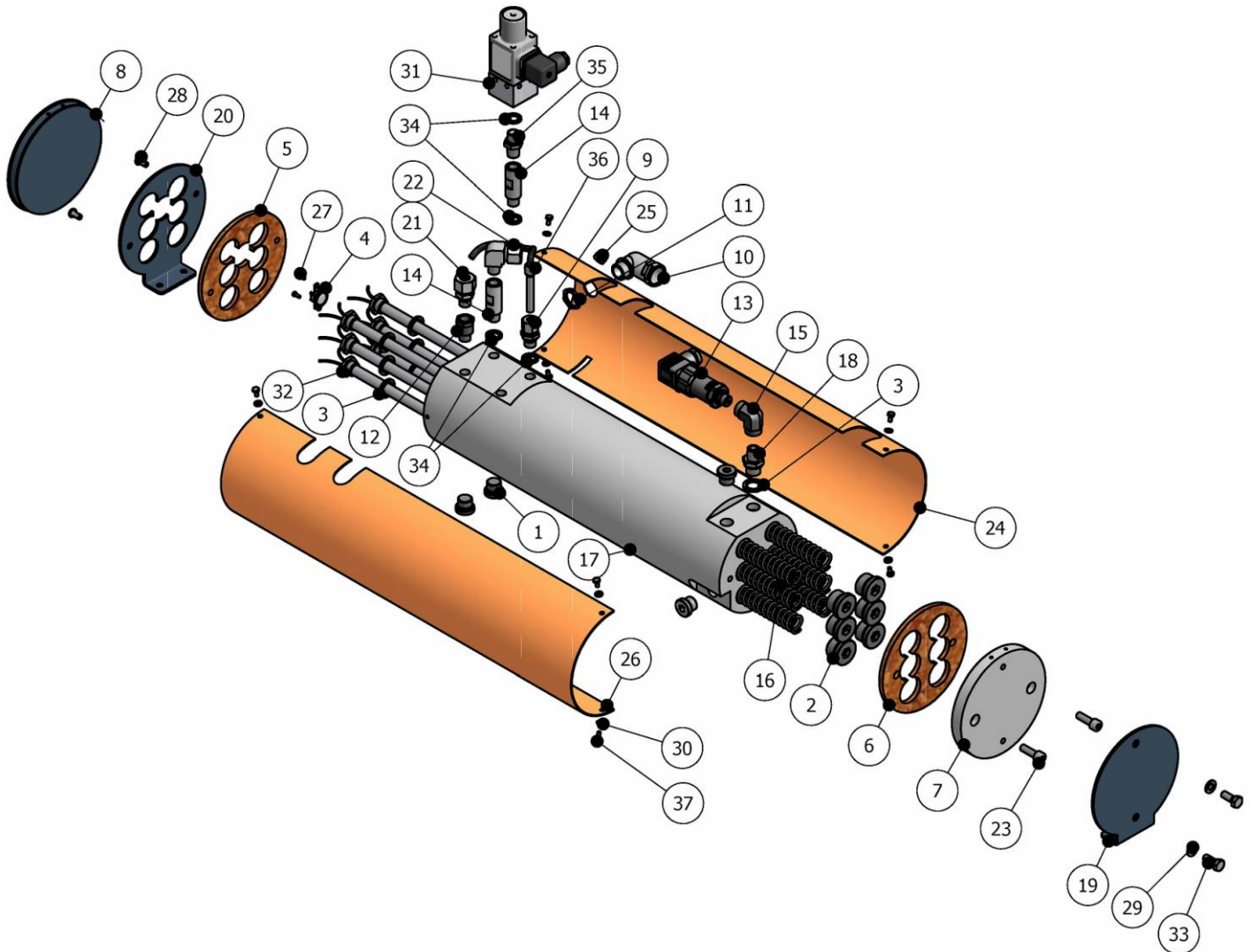
Pump	Item
0.80	KT-00096-008
1.20	KT-00096-012

**N.B :**

**(#) The standard proportioning pump sizes are #0.80 & #1.20. Different sizes are available under order. For delivery time, please consult with Marketing department.**

**The Repair seal kit include the parts indicated (\*) in the Table 20.**

**“A” PRIMARY HEATER**



*Figure 10. “A” Primary Heater, Exploded View*





**Table 24. "A" Primary Heater, Parts List**

Ref.	Description	Part Number	Qty.
1	Pipe Plug	RA-00049	4
2	Pipe Plug	RA-00012	6
3	Seal	OR-00018	7
4	Thermal Limit Switch	EL-00006	1
5	Top Insulate Plate	CL-01001-04	1
6	Bottom Insulate Plate	CL-01001-03	1
7	Bottom Cap	CL-01001-02	1
8	Cover	CL-01001-07	1
9	Thermocouple Nipple	RA-00231	1
10	Conduit Connector	EL-00087-02	1
11	Nut	EL-00090-01	1
12	Swivel Union	RA-00077	1
13	Pressure Transducer	HI-00033	1
14	Swivel Union	RA-00100	2
15	Male Elbow	RA-00105	1
16	Spring	SP-00009	6
17	Heat Block	CL-01001-01A	1
18	Thread Reducer	RA-00160	1
19	Heater Support Front	CL-05001-08	1
20	Heater Support Back	CL-05001-07	1
21	Tube Fitting	RA-00182	1
22	Elbow Tube Fitting	RA-00038	1
23	Socket Head Cap Screw	TN-00027	2
24	Heater Cover	CL-05001-05	1
25	Rubber Grommet	EL-00095-00	1
26	Heater Cover	CL-05001-06	1
27	Screw	TN-00128	2
28	ULS Screw	TN-00170	2
29	Washer	TN-00119	2
30	Washer	TN-00104	8
31	Pressure Switch	HI-00021	1



## Parts Manual

32	Heat Resistance	See Table 25	6
33	Hex. Screw	TN-00187	2
34	Seal	OR-00054	4
35	Swivel Union	RA-00138	1
36	Thermocouple	EL-00146-00	1
37	Hex. Screw	TN-00317	8

**Table 25. Parts List for each model of "A"-Heater**

Part Number	Description	POS. 32
CL-05001-00C	"A"-Heater 9000 watts 400 v	EL-00179
CL-05001-00D	"A"-Heater 7500 watts 400 v	EL-00197

## “R” PRIMARY HEATER

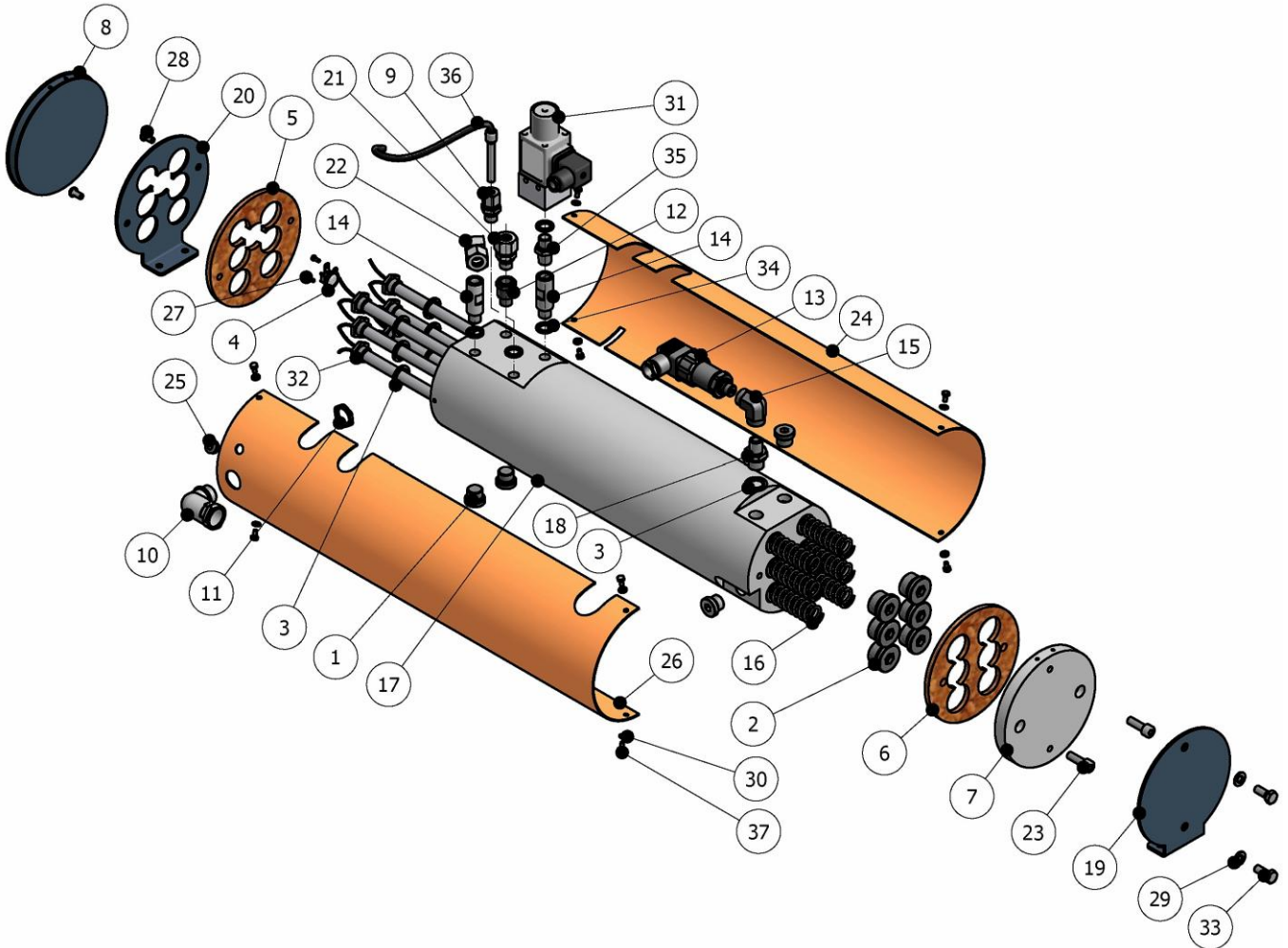


Figure 11. “R” Primary Heater, Exploded View



## Parts Manual

**Table 26. "R" Primary Heater, Parts List**

Ref.	Description	Part Number	Qty.
1	Pipe Plug	RA-00049	4
2	Pipe Plug	RA-00012	6
3	Seal	OR-00018	7
4	Thermal Limit Switch	EL-00006	1
5	Top Insulate Plate	CL-01001-04	1
6	Bottom Insulate Plate	CL-01001-03	1
7	Bottom Cap	CL-01001-02	1
8	Cover	CL-01001-07	1
9	Thermocouple Nipple	RA-00231	1
10	Conduit Connector	EL-00087-02	1
11	Nut	EL-00090-01	1
12	Swivel Union	RA-00077	1
13	Pressure Transducer	HI-00033	1
14	Swivel Union	RA-00100	2
15	Male Elbow	RA-00105	1
16	Spring	SP-00009	6
17	Heat Block	CL-01001-01A	1
18	Thread Reducer	RA-00160	1
19	Heater Support Front	CL-05001-08	1
20	Heater Support Back	CL-05001-07	1
21	Tube Fitting	RA-00182	1
22	Elbow Tube Fitting	RA-00038	1
23	Socket Head Cap Screw	TN-00027	2
24	Heater Cover	CL-05002-05	1
25	Rubber Grommet	EL-00095-00	1
26	Heater Cover	CL-05002-06	1
27	Screw	TN-00128	2
28	ULS Screw	TN-00170	2
29	Washer	TN-00119	2
30	Washer	TN-00104	8
31	Pressure Switch	HI-00021	1



## Parts Manual

32	Heat Resistance	See Table 27	6
33	Hex. Screw	TN-00187	2
34	Seal	OR-00054	4
35	Swivel Union	RA-00138	1
36	Thermocouple	EL-00146-00	1
37	Hex. Screw	TN-00317	8

**Table 27. Parts List for each model of "R"-Heater**

Part Number	Description	POS. 32
CL-05002-00C	"R"-Heater 9000 watts 400 v	EL-00179
CL-05002-00D	"R"-Heater 7500 watts 400 v	EL-00197

## PNEUMATIC COMPONENTS

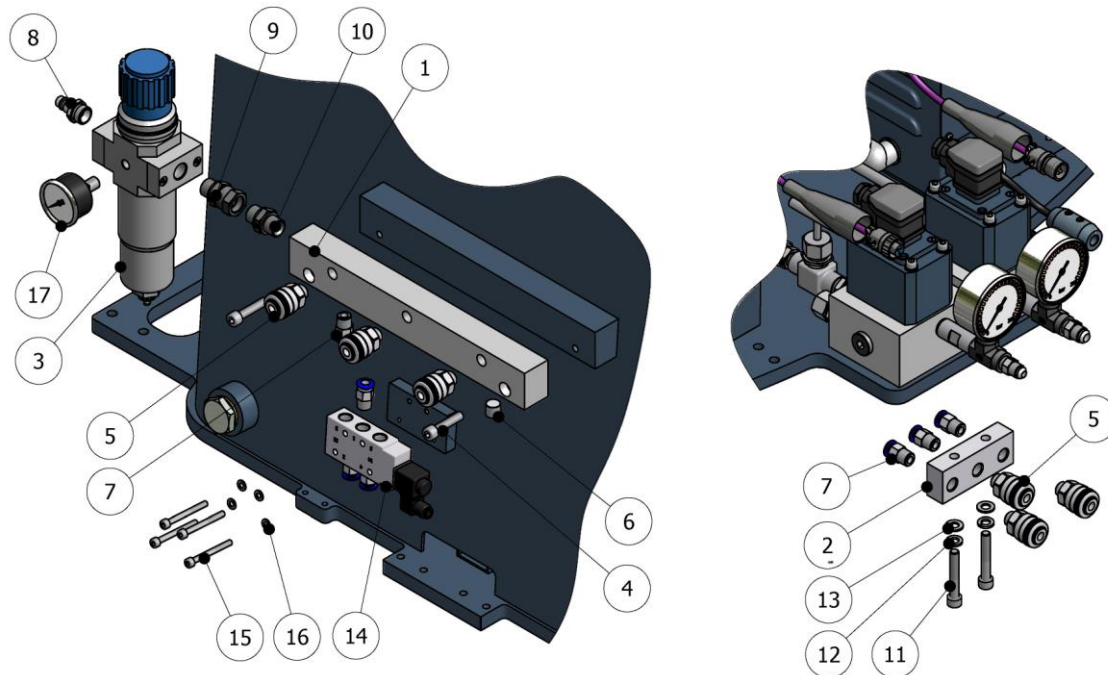


Figure 12. Pneumatic Components, Exploded View

Table 28. Pneumatic Components, Parts List

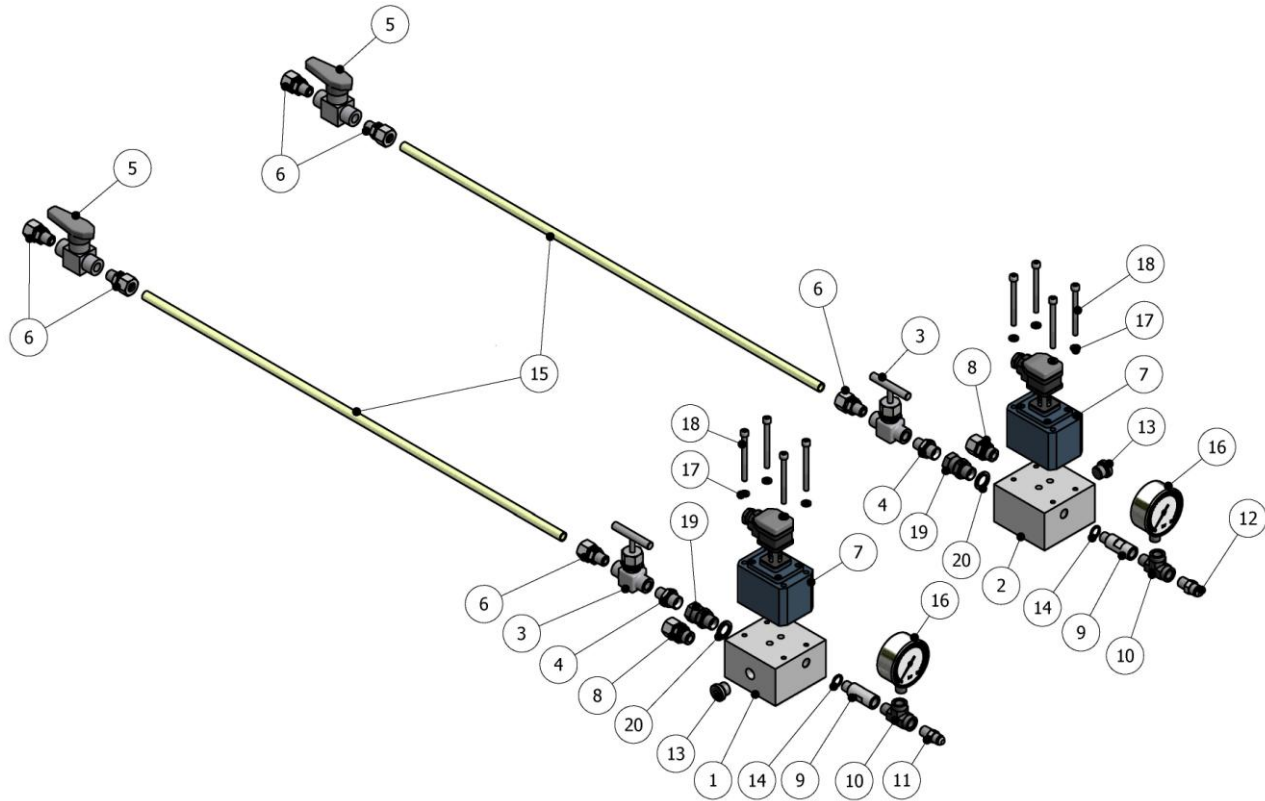
Ref.	Description	Part Number	Qty.
1	Air Manifold	MQ-05012	1
2	Air Connection Support for Gun with magnetic switch	MQ-02005	1
	Air Connection Support for Gun with Timer (Optional)	MQ-05020	1
3	Air Filter with Pressure Regulator	NE-00050	1
4	Screw	TN-00245	2
5	Fast Socket	RA-00095	4
	Fast Socket for Timer (Optional)		+2
6	Plug	RA-00120	2
7	Tube Fitting	RA-00150	2
	Tube Fitting for Timer (Optional)		+6
8	Coupler Plug	RA-00096	1
9	Swivel Union	RA-00089	1



## Parts Manual

Ref.	Description	Part Number	Qty.
10	Hex Nipple	RA-00090	1
11	Screw	TN-00090	2
12	Washer	TN-00028	2
13	Washer	TN-00119	2
14	Solenoid Valve with Coil for Timer (Optional)	NE-00042	1
15	Screw for Timer (Optional)	TN-00148	4
	Screw for Timer + Automatic Recirculation (Optional)	TN-00111	4
16	Washer	TN-00103	4
17	Manometer	NE-00033	1

**MANUAL RECIRCULATION KIT # KT-00054**



**Figure 13. Manual Recirculation Kit # KT-00054**

**Table 29. Manual Recirculation Kit, Parts List**

Ref.	Description	Part Number	Qty.
1	A Base Plate	MQ-05007	1
2	R Base Plate	MQ-05008	1
3	Manual Valve	RA-00264	2
4	Hex Nipple	RA-00160	2
5	Ball Valve	RA-00189	2
6	Male Stud Connector	RA-00033	6
7	Flow Meter	EL-00079-01	2
8	Male Stud Connector	RA-00036	2
9	Swivel Union	RA-00100	2
10	Pipe Tee	RA-00018	2





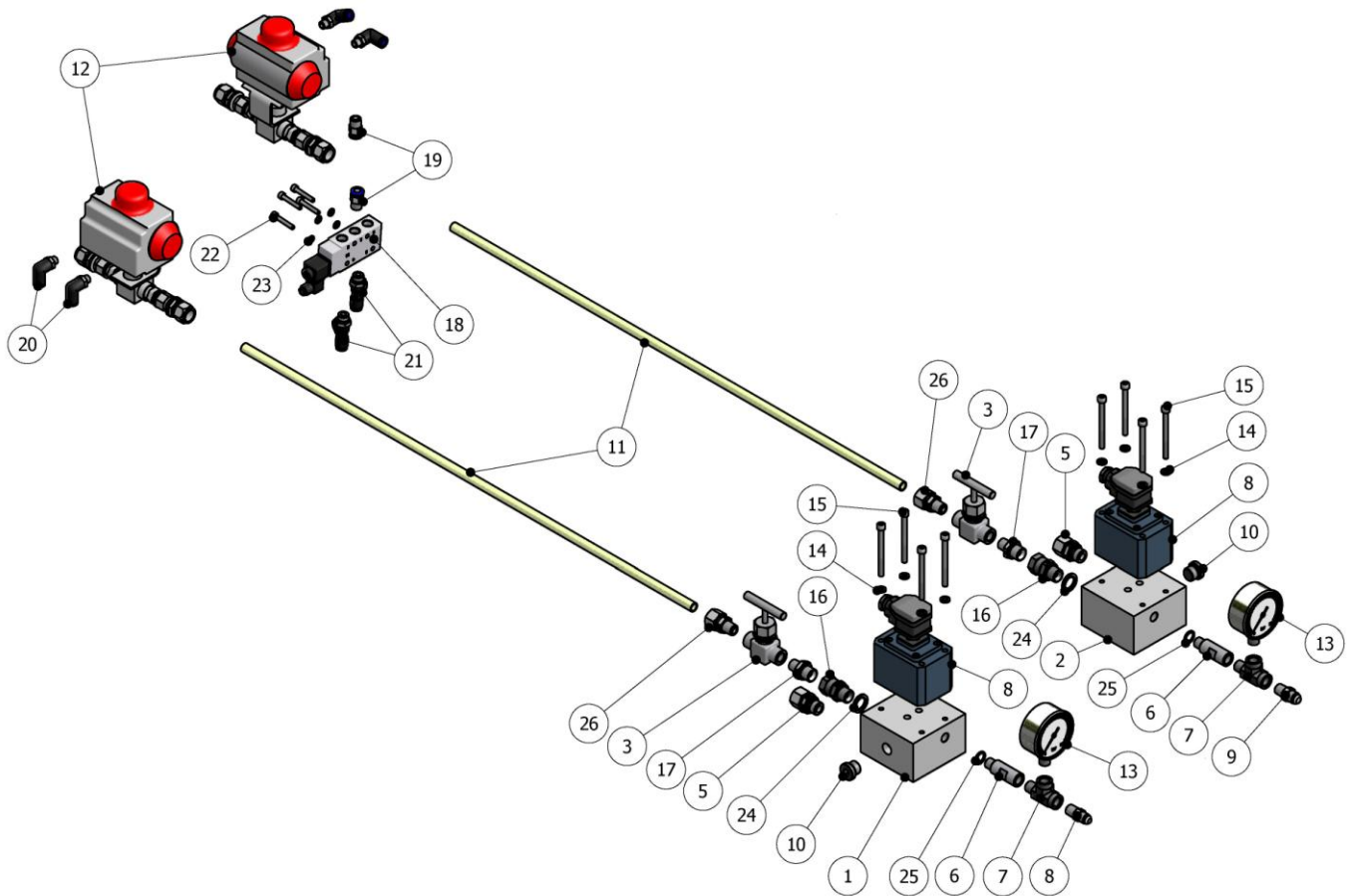
## Parts Manual

Ref.	Description	Part Number	Qty.
11	Hose Nipple	RA-00146	1
12	Hose Nipple	RA-00147	1
13	Plug	RA-00049	2
14	Seal	OR-00054	2
15	Tube	HI-00010	2
16	Liquid Fill Gauge	HI-00035	2
17	Lock Washer	TN-00025	8
18	Socket Head Cap Screw	TN-00178	8
19	Swivel union	RA-00089	2
20	Seal	OR-00018	2

**N.B.:**

*Optionally this recirculation kit will be completed up to the tanks with the KT-00038-06.*

## AUTOMATIC RECIRCULATION KIT # KT-00055



**Figure 14. Automatic Recirculation Kit # KT-00055**

**Table 30. Automatic Recirculation Kit, Parts List**

Ref.	Description	Part Number	Qty.
1	A Base Plate	MQ-05007	1
2	R Base Plate	MQ-05008	1
3	Manual Valve	RA-00264	2
4	Flow Meter	EL-00079-01	2
5	Male Stud Connector	RA-00036	2
6	Swivel Union	RA-00100	2
7	Pipe Tee	RA-00018	2



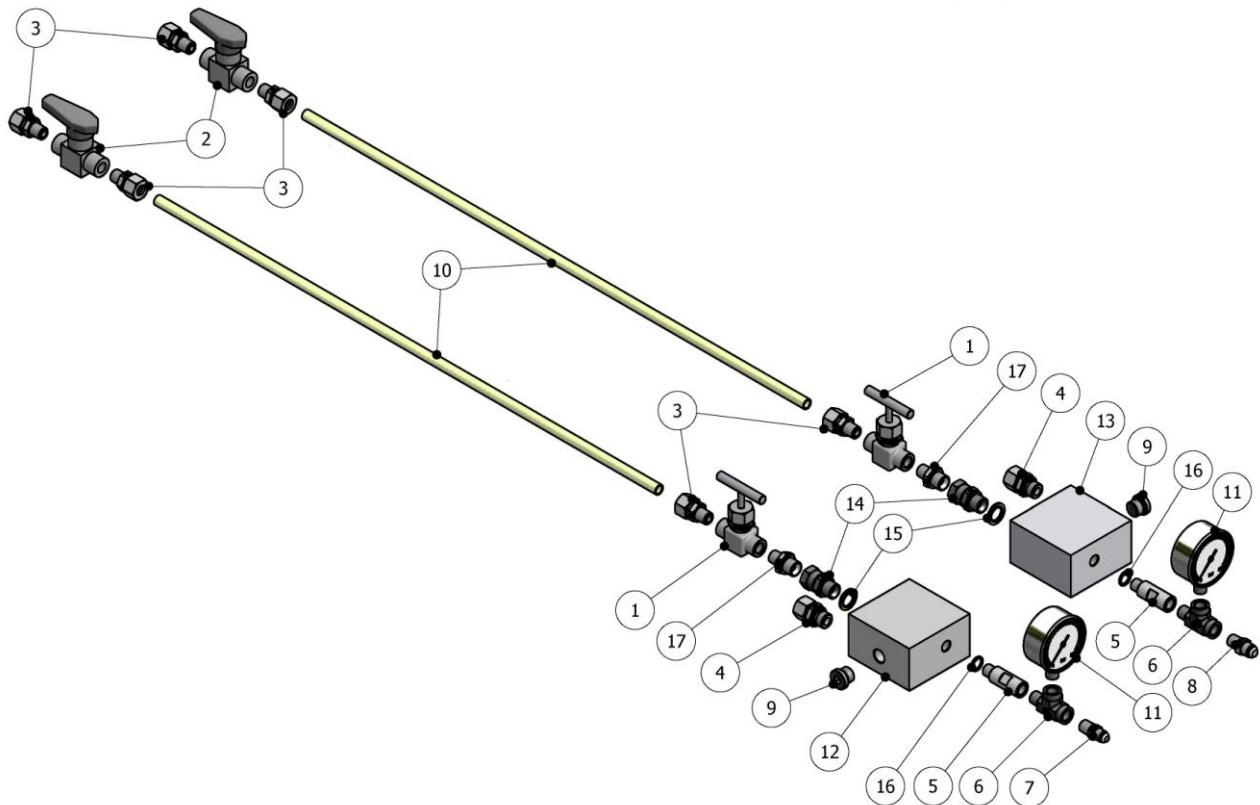
## Parts Manual

Ref.	Description	Part Number	Qty.
8	Hose Nipple	RA-00146	1
9	Hose Nipple	RA-00147	1
10	Plug	RA-00049	2
11	Tube	HI-00010	2
12	Ball Valve with Tube Connection and Pneumatic Actuator	NE-00023	2
13	Liquid Fill Gauge	HI-00035	2
14	Lock Washer	TN-00025	8
15	Socket Head Cap Screw	TN-00178	8
16	Swivel Union	RA-00089	2
17	Hex Nipple	RA-00160	2
18	Solenoid Valve with Coil	NE-00042	1
19	Tube Fitting	RA-00150	2
20	Push-in L-Fitting	RA-00248	4
21	Push-in T-Fitting	RA-00249	2
22	Screw	TN-00148	4
	Screw for Recirculation + Timer	TN-00111	4
23	Washer	TN-00103	4
24	Seal	OR-00018	2
25	Seal	OR-00054	2
26	Male Stud Connector	RA-00033	2

**N.B.:**

*Optionally this recirculation kit will be completed up to the tanks with the KT-00038-06.*

## MANUAL RECIRCULATION KIT WITHOUT FLOW METERS # KT-00056



**Figure 15. Manual Recirculation Kit Without Flow Meters # KT-00054**

**Table 31. Manual Recirculation Kit Without Flow Meters, Parts List**

Ref.	Description	Part Number	Qty.
1	Manual Valve	RA-00264	2
2	Ball Valve	RA-00189	2
3	Male Stud Connector	RA-00033	6
4	Male Stud Connector	RA-00036	2
5	Swivel Union	RA-00100	2
6	Pipe Tee	RA-00018	2
7	Hose Nipple	RA-00146	1
8	Hose Nipple	RA-00147	1



## Parts Manual

Ref.	Description	Part Number	Qty.
9	Plug	RA-00049	2
10	Tube	HI-00010	2
11	Liquid Fill Gauge	HI-00035	2
12	Base Plate without Flow Meter (ISO)	MQ-05015	1
13	Base Plate without Flow Meter (POL)	MQ-05016	1
14	Swivel Union	RA-00089	2
15	Seal	OR-00018	2
16	Seal	OR-00054	2
17	Hex Nipple	RA-00160	2

***N.B.:***

***Optionally this recirculation kit will be completed up to the tanks with the KT-00038-06.***

**GENERIC RECIRCULATION KIT # KT-00038-06  
(OPTIONAL)**

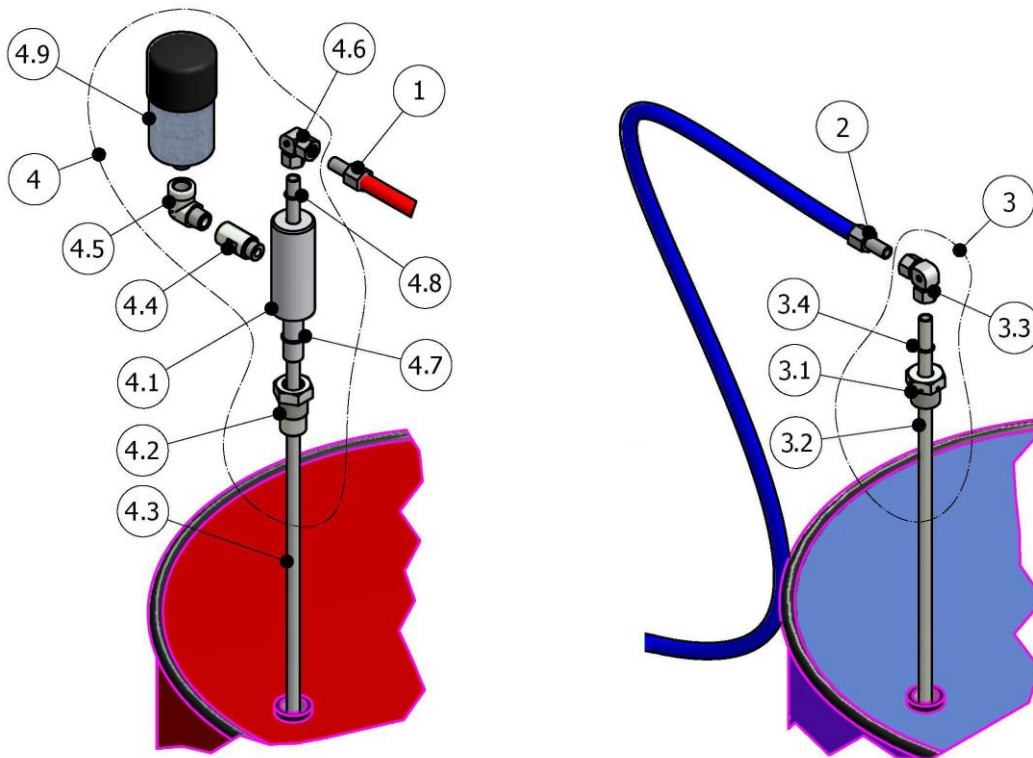


Figure 16. Generic Recirculation Kit Ref. KT-00038-06 (optional)

Table 32. Generic Recirculation Kit, Parts List

item.	Description	Part Number	Qty.
1	A-Hose 3 mts	MA-00049-01	1
2	R-Hose 3 mts	MA-00049-02	1
3	Assy. Connection to Tank without Filter	MQ-05010-00	1
3.1	Connection Tank	MQ-05009-A	1 (#)
3.2	Pipe	HI-00075	1 (#)
3.3	Elbow for Pipe	RA-00200	1 (#)
3.4	O-Ring	OR-00011	1 (#)

*It continues on the next page.*



*It continues of the previous page*

item	Description	Part Number	Qty.
4	Assy. Connection to Tank with Filter	MQ-05009-00	1
4.1	Body Connection	MQ-05010	1 (*)
4.2	Connection Tank	MQ-05009	1 (*)
4.3	Pipe	HI-00075	1 (*)
4.4	Extension	RA.00256	1 (*)
4.5	Elbow	RA-00257	1 (*)
4.6	Elbow for Pipe	RA-00200	1 (*)
4.7	O-Ring	OR-00055	2 (*)
4.8	O-Ring	OR-00011	1 (*)
4.9	Deshumidifier Filter	NE-00045	1 (*)

**N.B.:**

**(\*) Parts included in item 4**

**(#) Parts included in item 3**

***This Optional kit, connects the recirculation from the rear side of the machine up to the tanks of product and it complements itself with the kits KT-00054/55 and 56.***

## TRANSFER PUMPS SUPPORT (OPTIONAL)

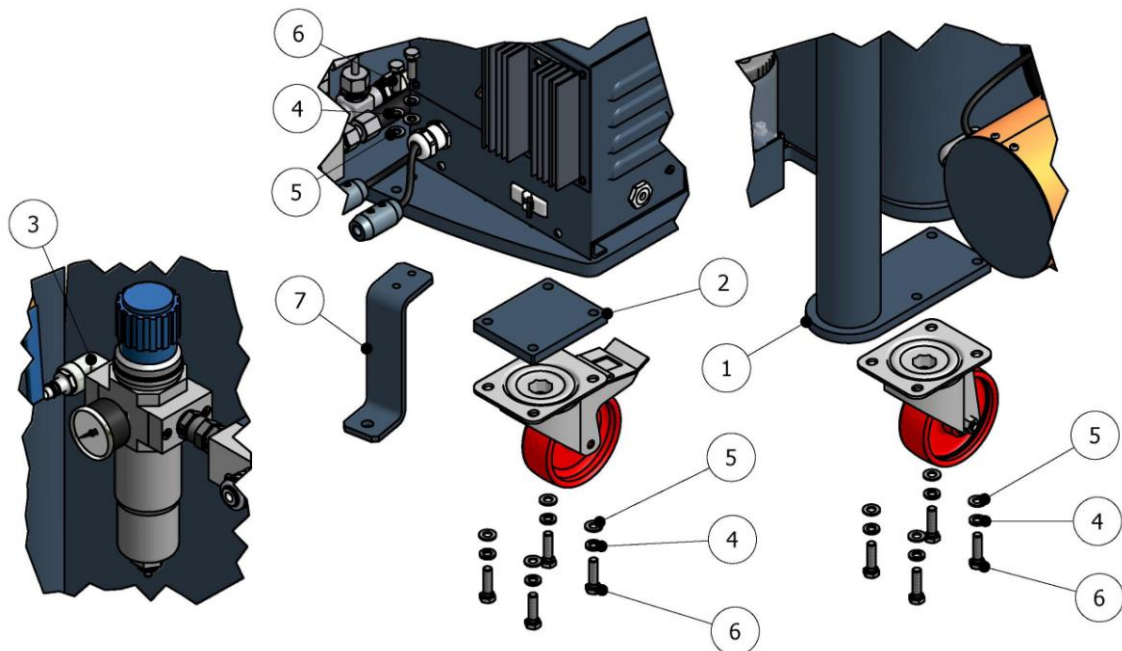
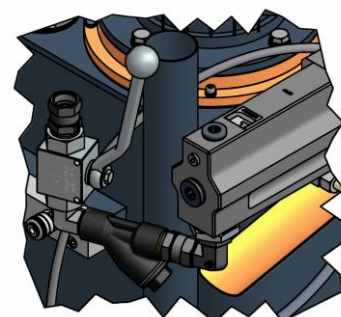


Figure 17. Transfer Pumps Support (optional)

Table 33. Transfer Pumps Support; Parts List (optional)

Ref.	Description	Part Number	Qty.
1	Transfer Pumps Support	MQ-01015-00	2
	Plug	RA-00013	2
2	Supplement Plate	MQ-01015-03	2
3	Elbow	RA-00257	1
4	Lock Washer	TN-00028	20
5	Washer	TN-00119	20
6	Hex Head Cap Screw	TN-00054	20
7	"Z" Bracket with Transfer Pumps Bracket	MQ-02014	2

**Note:** When transfer pump supports are fixed to the machine, the connectors in the product inlets must be re-orientated towards the corresponding proportioning pumps, as shown in the image.





## HOSES THERMOCOUPLES DETAIL

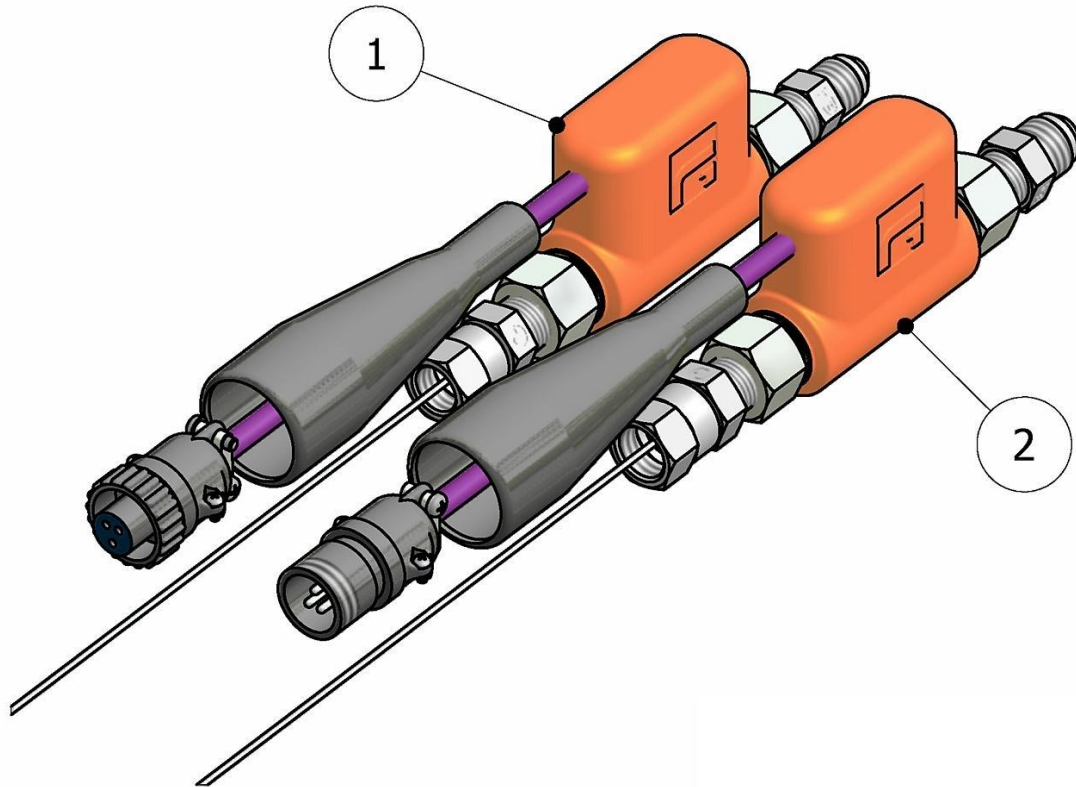


Figure 18. Hoses Thermocouples Detail

Table 34. Hoses Thermocouples, Parts List

Ref.	Description	Part Number	Qty.
1	ISO Thermocouple Assy	EL-00051-02	1
1.1	ISO Thermocouple	EL-00051-01	1
1.2	Swivel Union	RA-00148	1
1.3	Nipple	RA-00146	1
2	POL Thermocouple Assy.	EL-00052-02	1
2.1	POL Thermocouple	EL-00052-01	1
2.2	Swivel Union	RA-00149	1
2.3	Nipple	RA-00147	1

## Electrical Schematic Diagram 3 x 400 v. - Neutral 50/60Hz

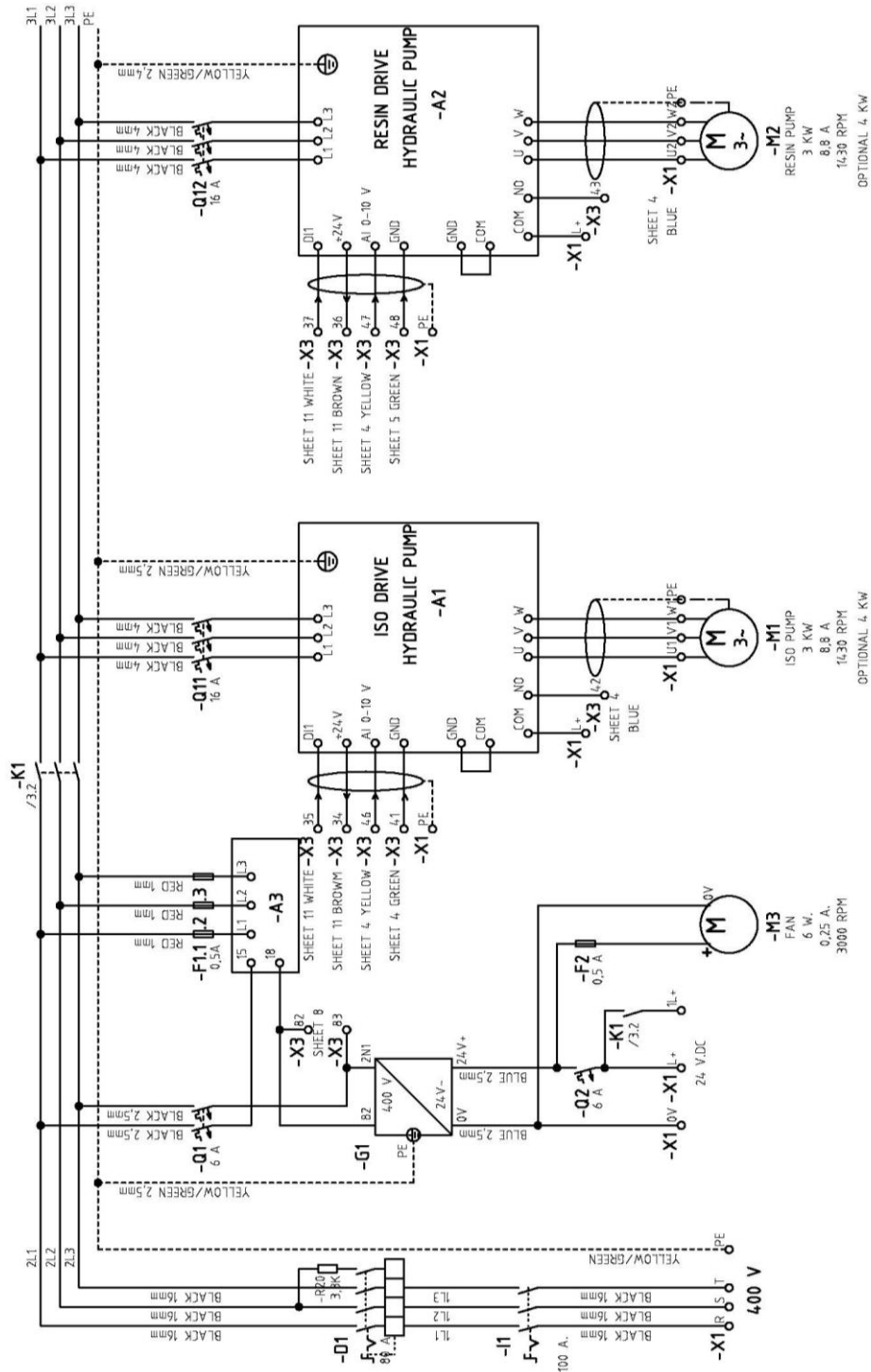


Figure 19. Electrical Schematic Diagram 3 x 400 v. - Neutral (Sheet 1 de 12)

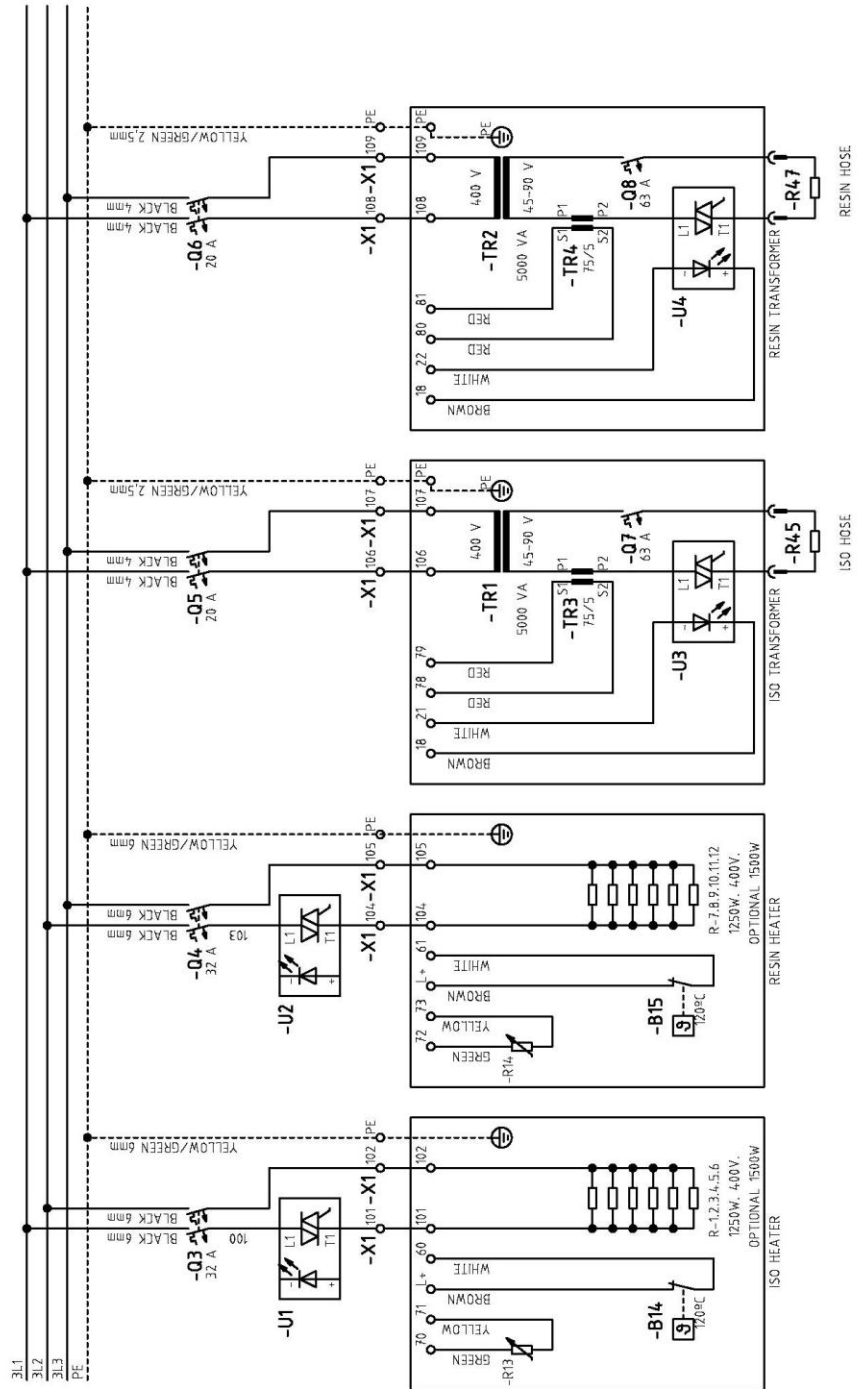


Figure 20. Electrical Schematic Diagram 3 x 400 v. - Neutral (Sheet 2 de 12)



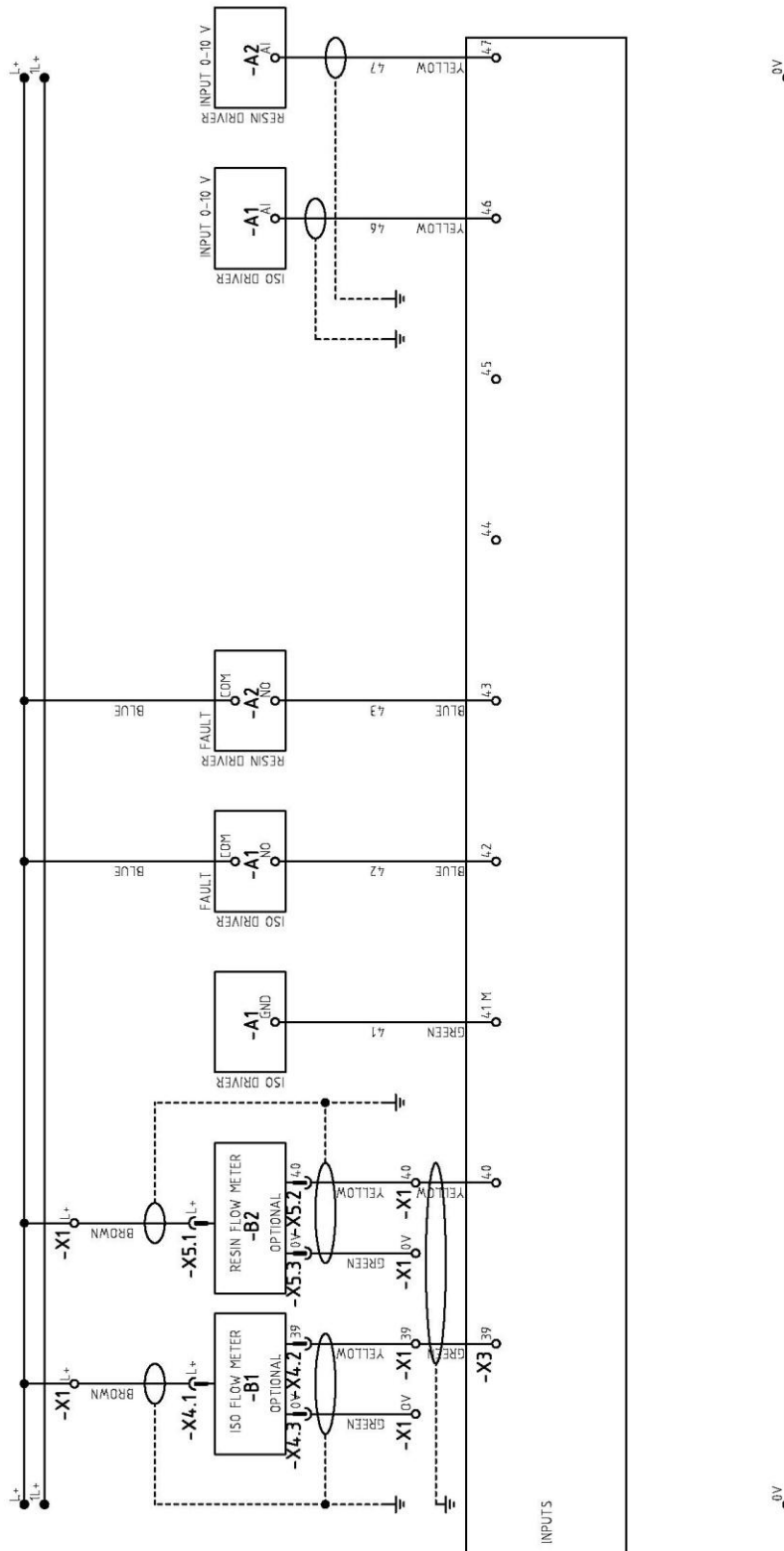


Figure 22. Electrical Schematic Diagram 3 x 400 v. - Neutral (Sheet 4 de 12)

# Parts Manual

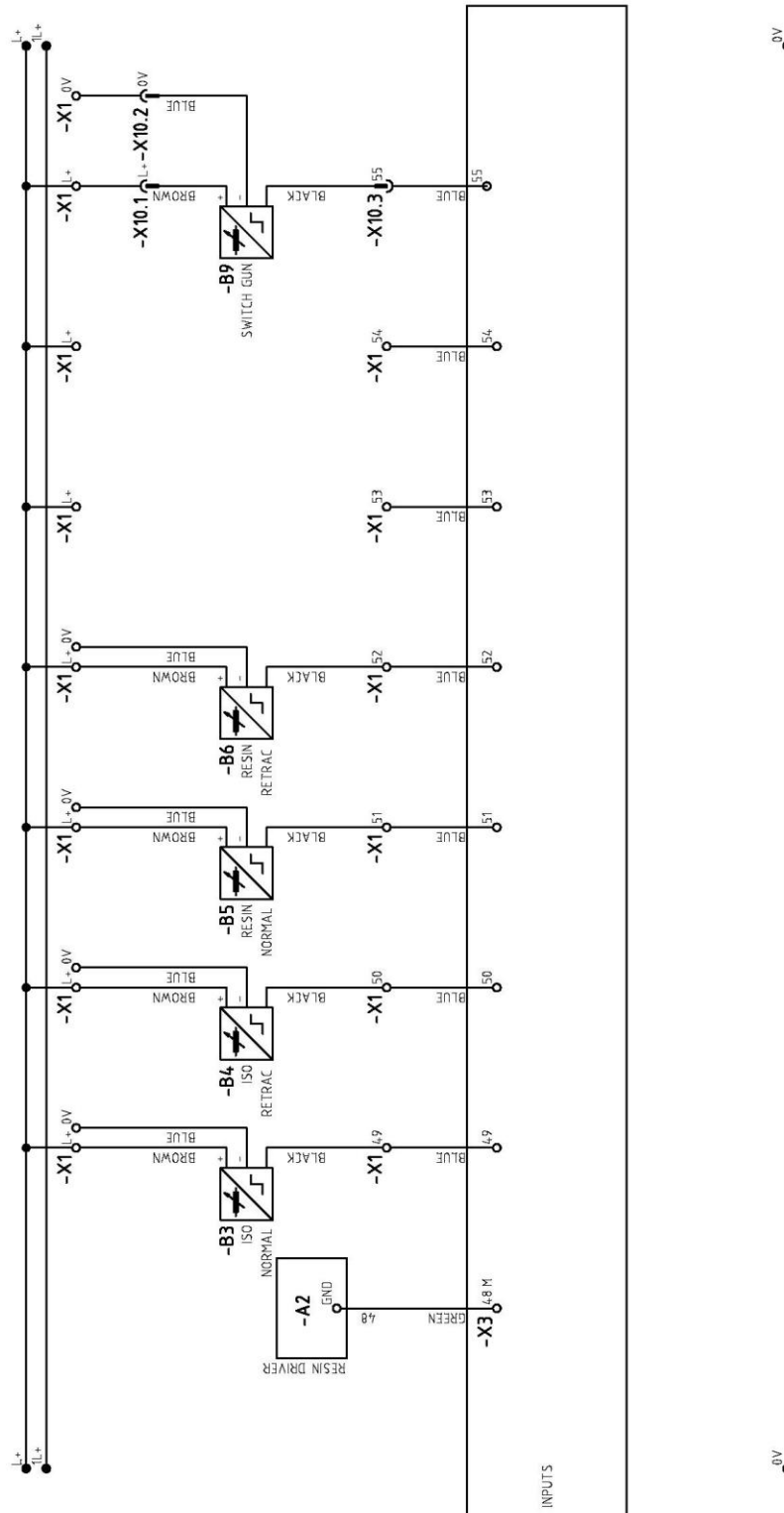


Figure 23. Electrical Schematic Diagram 3 x 400 v. - Neutral (Sheet 5 de 12)

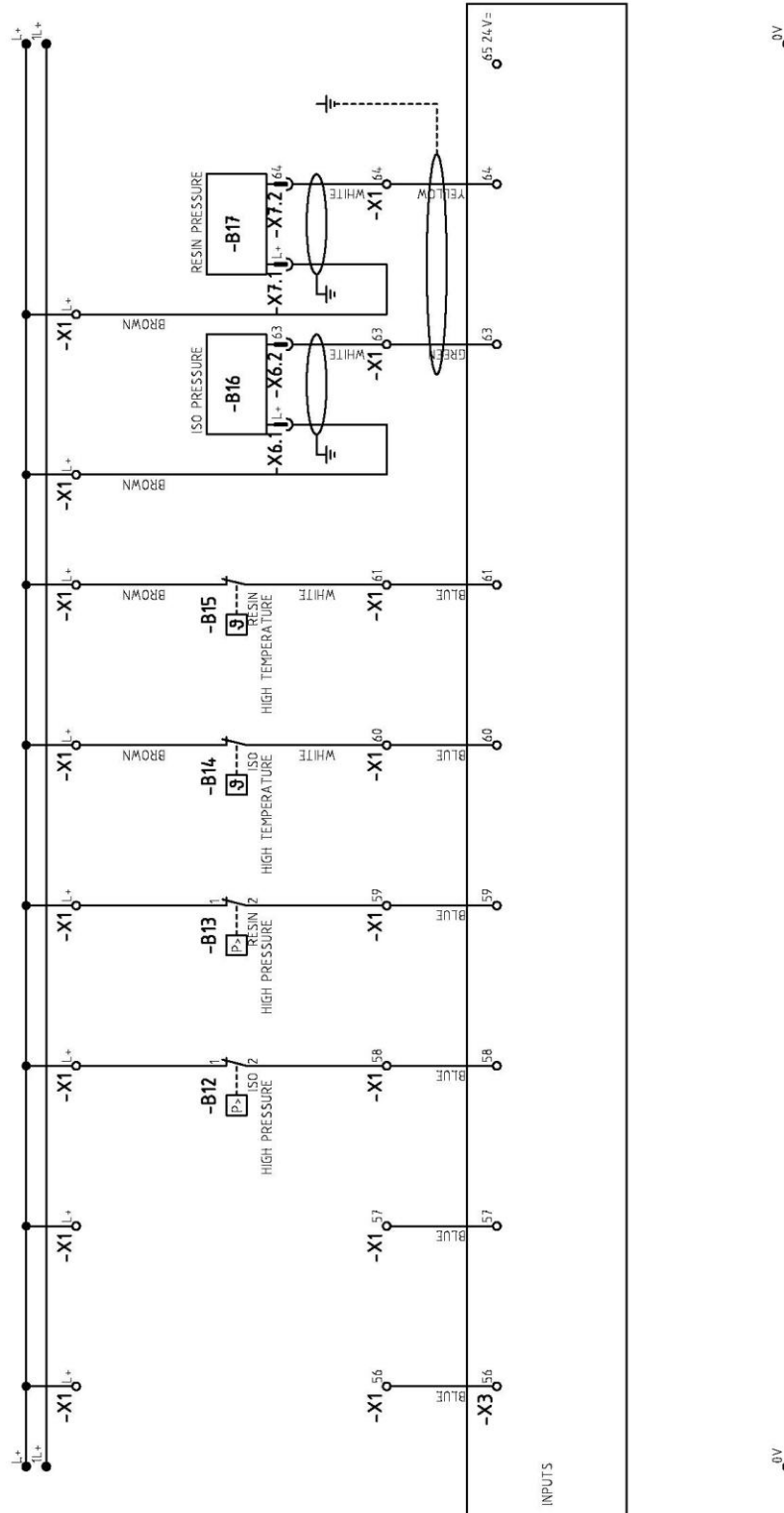


Figure 24. Electrical Schematic Diagram 3 x 400 v. - Neutral (Sheet 6 de 12)

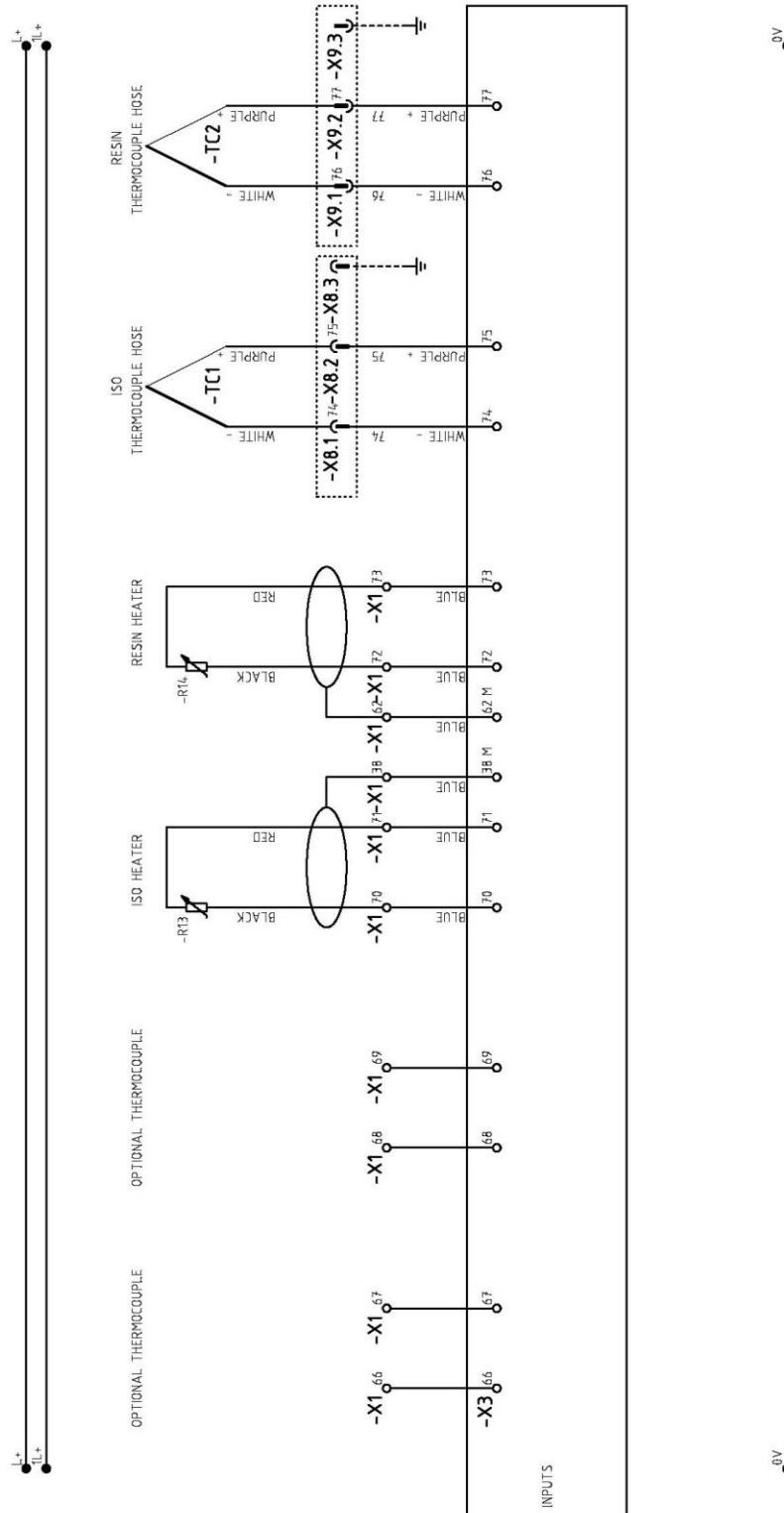


Figure 25. Electrical Schematic Diagram 3 x 400 v. - Neutral (Sheet 7 de 12)



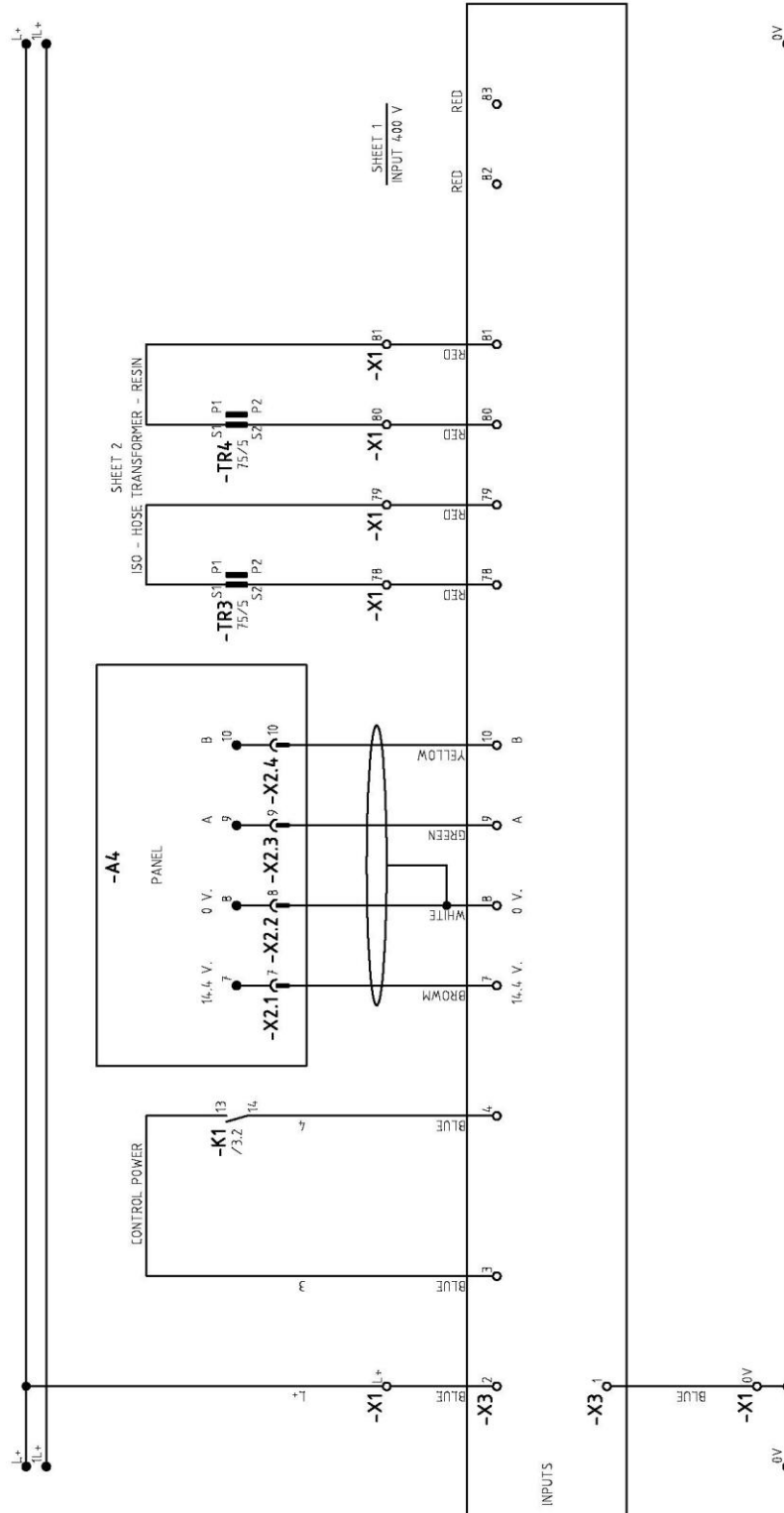


Figure 26. Electrical Schematic Diagram 3 x 400 v. - Neutral (Sheet 8 de 12)



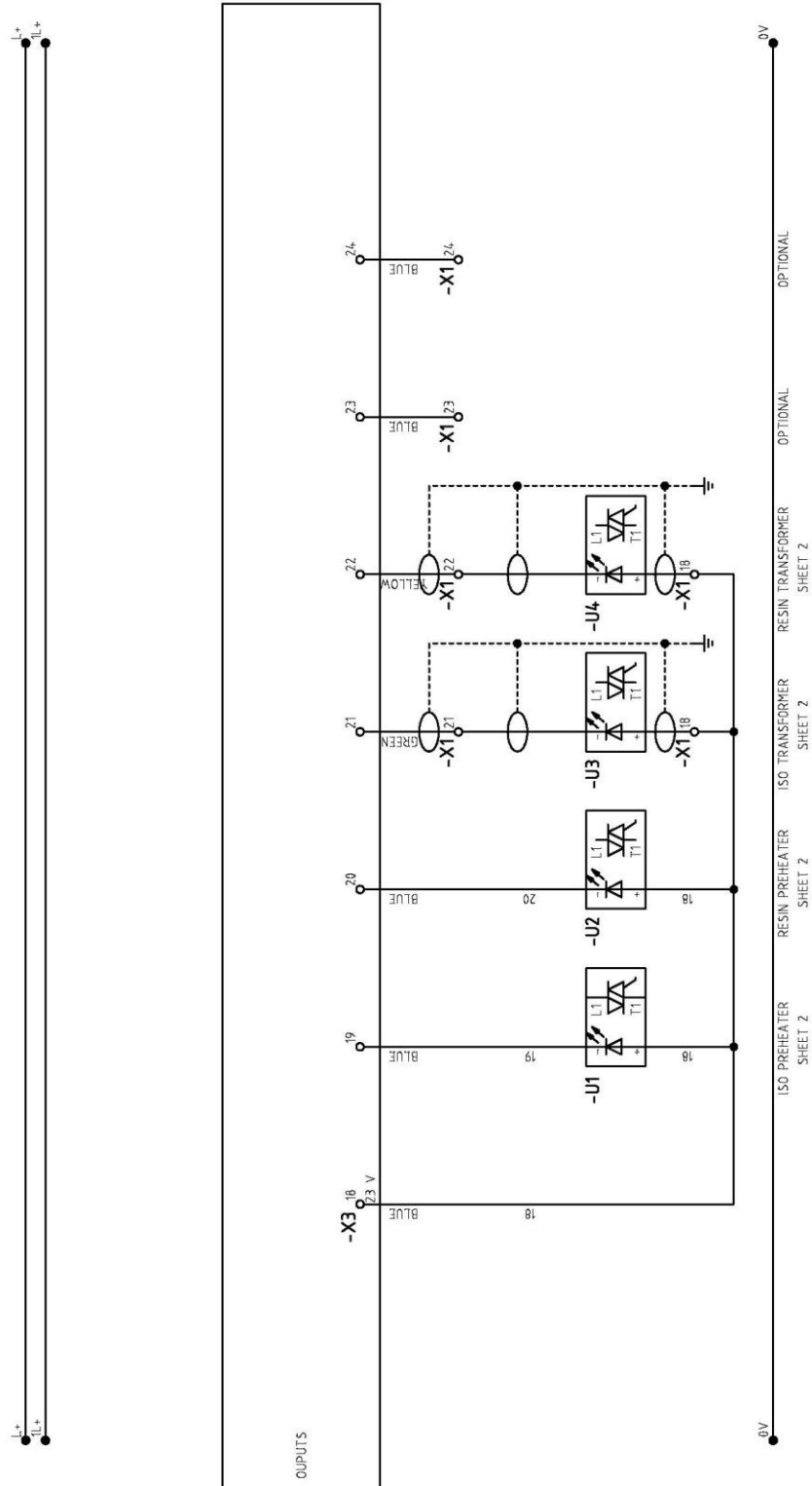


Figure 28. Electrical Schematic Diagram 3 x 400 v. - Neutral (Sheet 10 de 12)

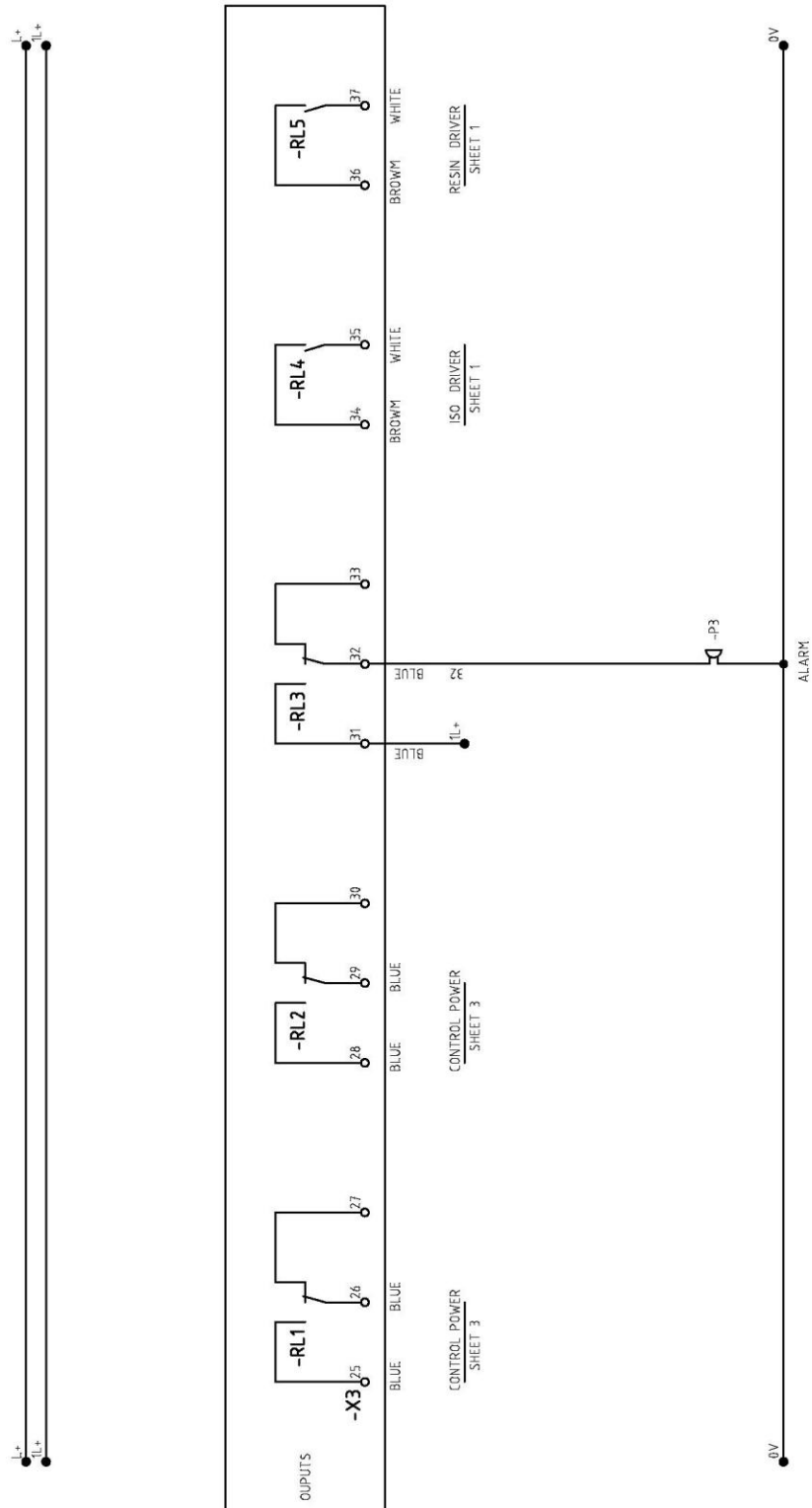


Figure 29. Electrical Schematic Diagram 3 x 400 v. - Neutral (Sheet 11 de 12)

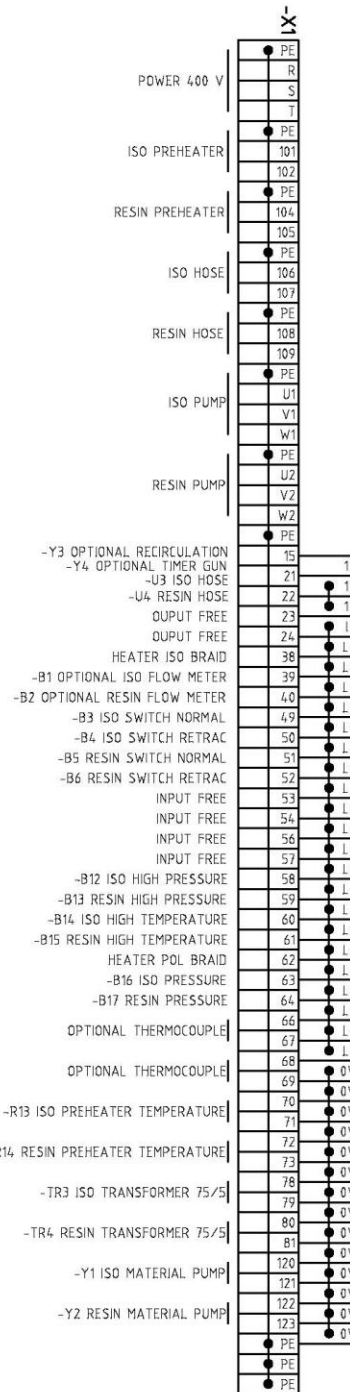


Figure 30. Electrical Schematic Diagram 3 x 400 v. - Neutral (Sheet 12 de 12)



**Table 35. Electrical Schematic Diagram 3 x 400v+Neutral, Parts List**

Ref.	Description	Part Number	Qty.
K1	Contactor	EL00120-01	3
K1	Contactor	EL-00124-01	3
R15	Varistor	EL-00120-00	1
A3	Control Fase	EL-00164-00	1
U1	Static Relay	EL-00126-03	1
U2	Static Relay	EL-00126-03	1
I1	Switch	EL-00107-08	1
I1		EL-00107-06	1
U5	Relay	EL-00126-01	1
U6	Relay	EL-00126-01	1
U7	Relay	EL-00126-01	1
U8	Relay	EL-00126-01	1
P3	Buzzer	EL-00130-00	
D1	Differential Switch	EL-00108-06	1
F1	Fuse	EL-00104-13	2
F2	Fuse	EL-00104-13	2
G1	Power Supply	EL-00135-00	1
F1	Fuse	EL-00128-00	4
F2	Fuse	EL-00128-00	4
Q3	Circuit Breaker	EL-00115-03	1
Q4	Circuit Breaker	EL-00115-03	1
Q2	Circuit Breaker	EL-00110-00	1
Q11	Circuit Breaker	EL-00112-02	1
Q12	Circuit Breaker	EL-00112-02	1
Q5	Circuit Breaker	EL-00113-04	1
Q6	Circuit Breaker	EL-00113-04	1
Q1	Circuit Breaker	EL-00110-04	1
U3	Triac	EL-00126-02	1
U4	Triac	EL-00126-02	1



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Ref.	Description	Part Number	Qty.
A1	Frequency Converter	EL-00134-02	1
A2	Frequency Converter	EL-00134-02	1
M3	Fan	EL-00133-01	1
TR1	Hose Transformer	EL-00127-15	1
TR2	Hose Transformer	EL-00127-15	1
TR3	Intensity Transformer	EL-00127-03	1
TR4	Intensity Transformer	EL-00127-03	1
R16	Varistor	EL-00129-00	1
R17	Varistor	EL-00129-00	1
R18	Varistor	EL-00129-00	1
R19	Varistor	EL-00129-00	1
B3	Detector	EL-00136-03	1
B4	Detector	EL-00136-03	1
B5	Detector	EL-00136-03	1
B6	Detector	EL-00136-03	1
B3	Detector Wire	EL-00137-03	1
B4	Detector Wire	EL-00137-03	1
B5	Detector Wire	EL-00137-03	1
B6	Detector Wire	EL-00137-03	1
X1		EL-00105-07	1
X10		EL-00096-04	1
X10		EL-00096-05	1

## HYDRAULIC SCHEMATIC DIAGRAM

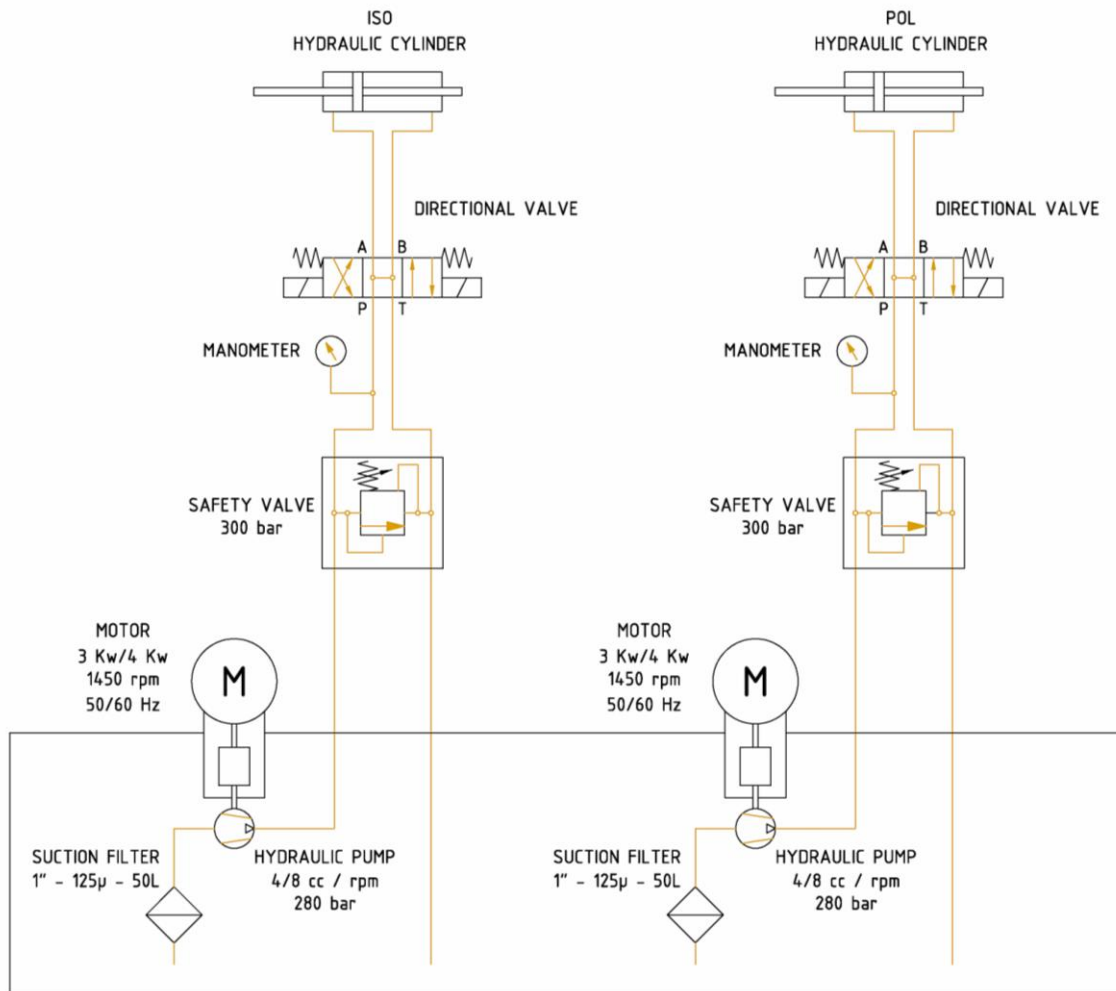


Figure 31. Hydraulic Schematic Diagram evolution VR



## PNEUMATIC SCHEMATIC DIAGRAM

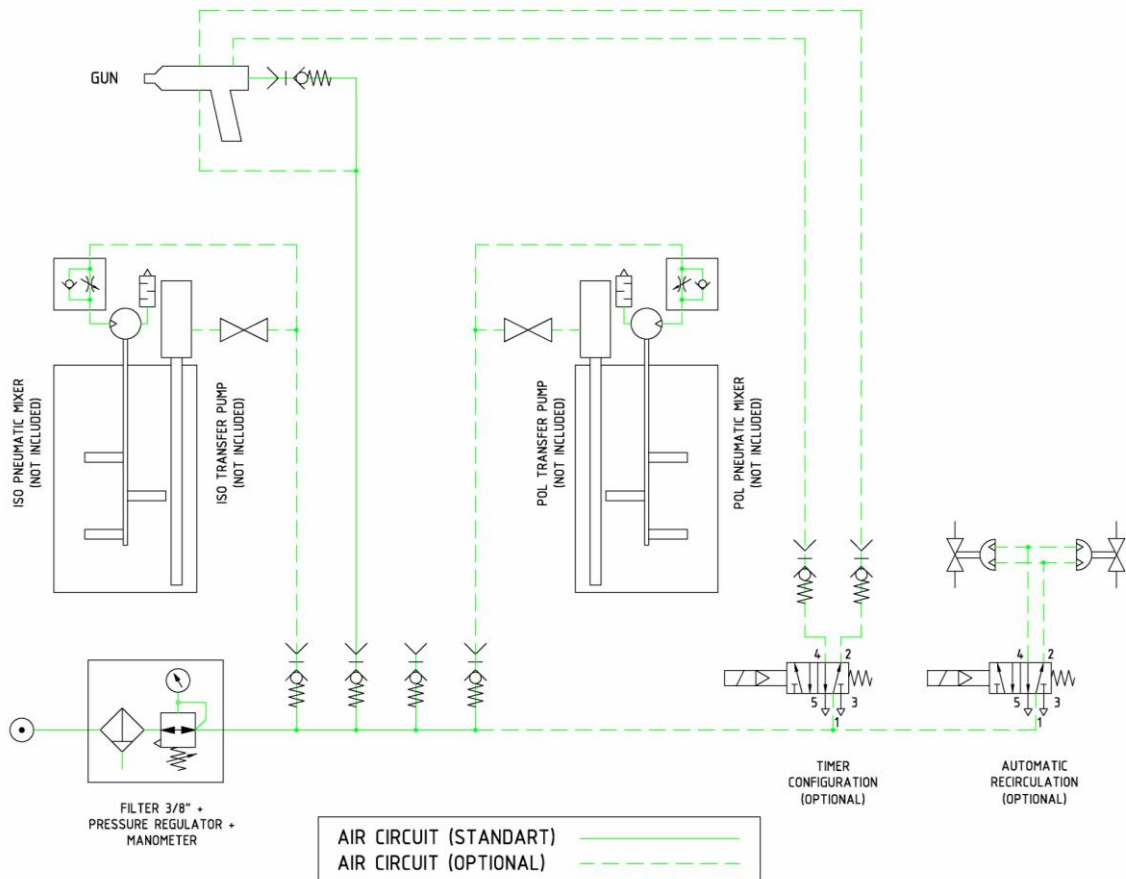


Figure 32. Pneumatic Schematic Diagram evolution VR

## FUNCTIONING SCHEMATIC DIAGRAM

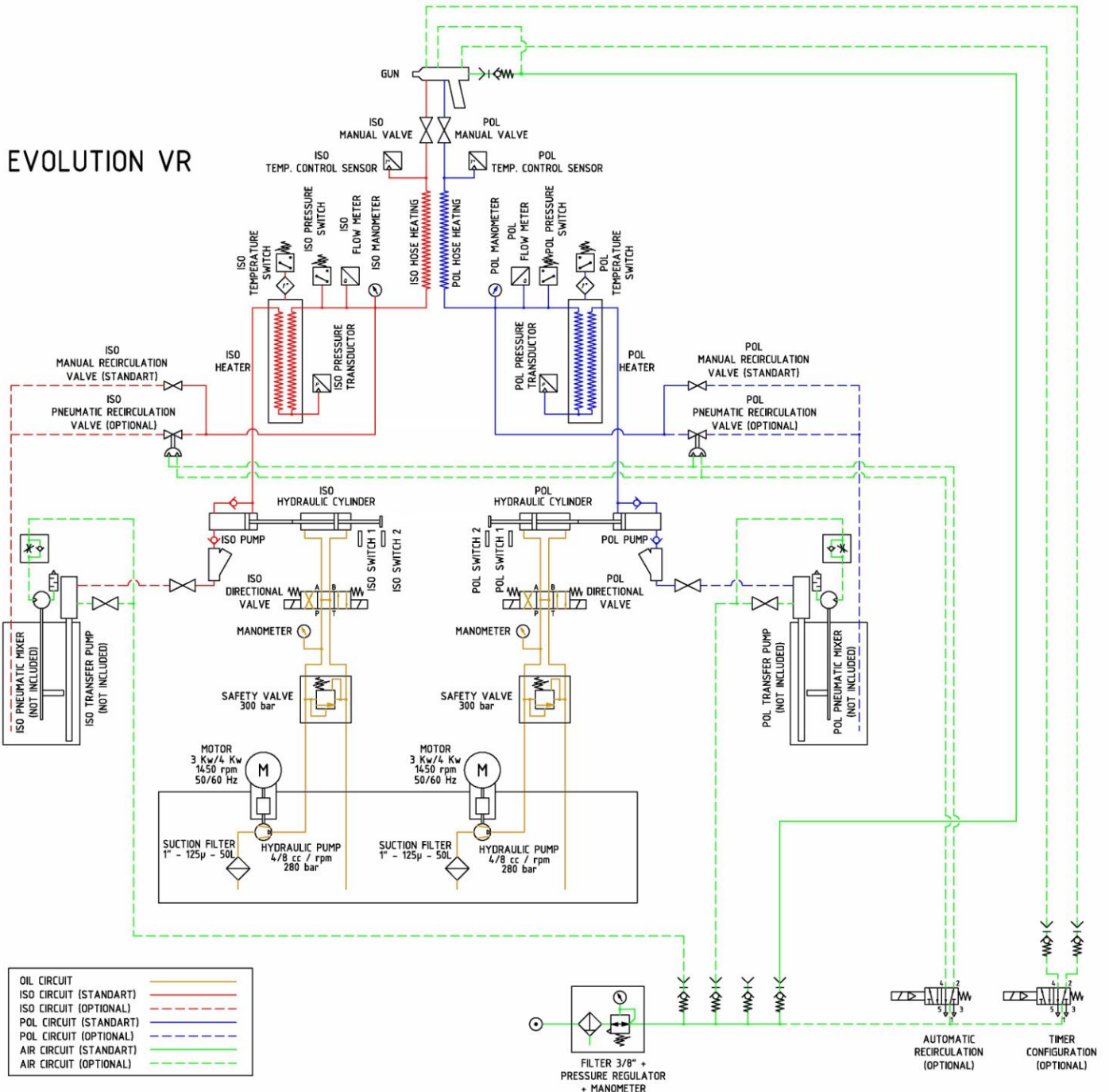


Figure 33. Functioning Schematic Diagram evolution VR



## CONTENT

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