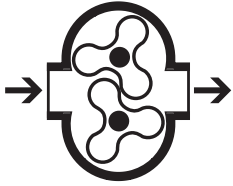
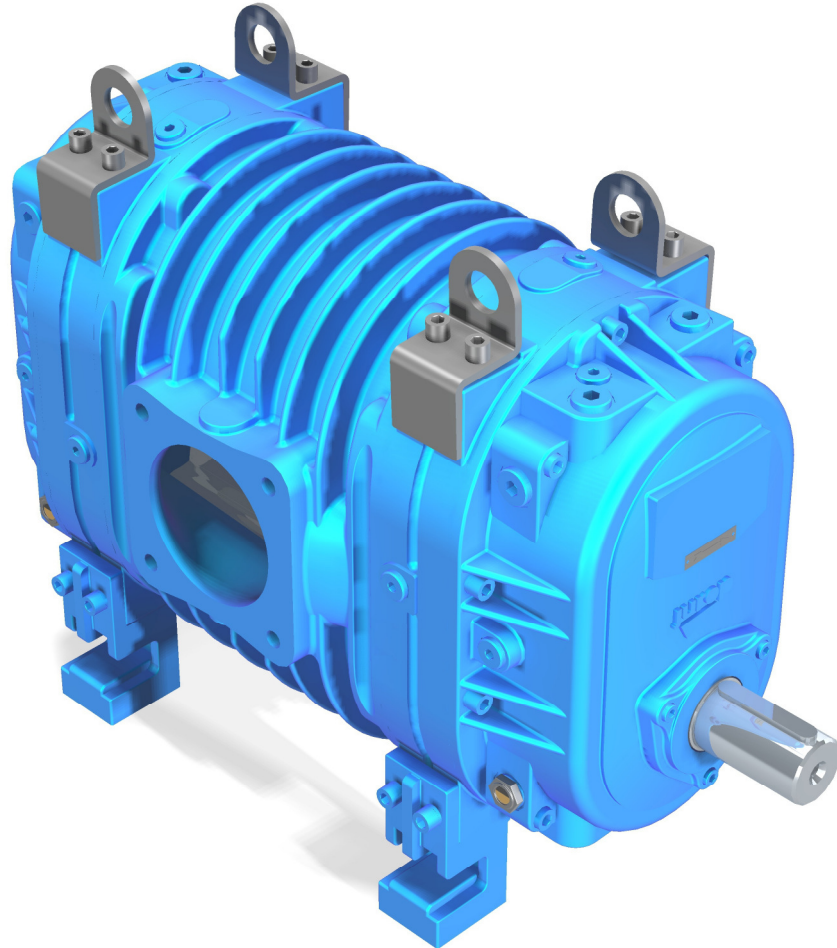


EN

CT 30-50-80-105-130-180-240-420-600



ORIGINAL INSTRUCTIONS



INSTALLATION, USE AND  
MAINTENANCE MANUAL

**Jurop**

COMPANY WITH  
QUALITY SYSTEM  
CERTIFIED BY DNV GL  
= ISO 9001 =

Rev. 08  
21-04-2016

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## 1. General warnings

### 1.1. Introduction

• This booklet contains the necessary instructions for a correct installation, running, use and maintenance of the compressor, as well as some practical suggestions for a safe operating.

• The knowledge of the following pages will grant a long and trouble-free operation of the compressor.

• Following the instructions below contributes to limiting pump repair expenses by extending its duration, as well as preventing hazardous situations, thereby increasing its reliability.

- It is recommended to:
  - Understand and apply carefully the instructions before running the compressor.
  - Keep the booklet at hand and have it known to all operators.

• Below is a brief description of the symbols used in this manual.



If these safety rules are not respected, operators can be injured and the compressor or oilers damaged remarkably.



If these safety rules are not respected, the compressor or system can be damaged.



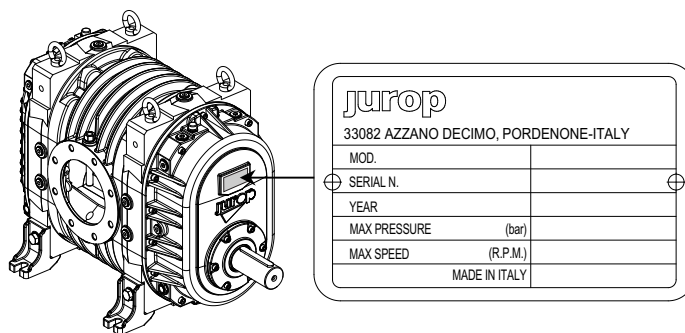
Suggestions for an environment friendly use of the compressor.



Useful information for an easy usage and maintenance of the compressor.

• The graphic representations and photographs contained in this manual are there to illustrate the product in the parts that make it up and in specific operating phases. Though the model shown in the manual may differ from the one purchased, the operating principle at the base of the illustrated operating phase is the same.

• Compressor has to be fitted with its own tag reporting the following data: Model, Serial number, Year, Max speed, Max pressure.



Pic. 1.1

### 1.2. Spare part request

• Use only **genuine spare parts** for maintenance and repairs. To order spare parts, provide the following details:

EXAMPLE:

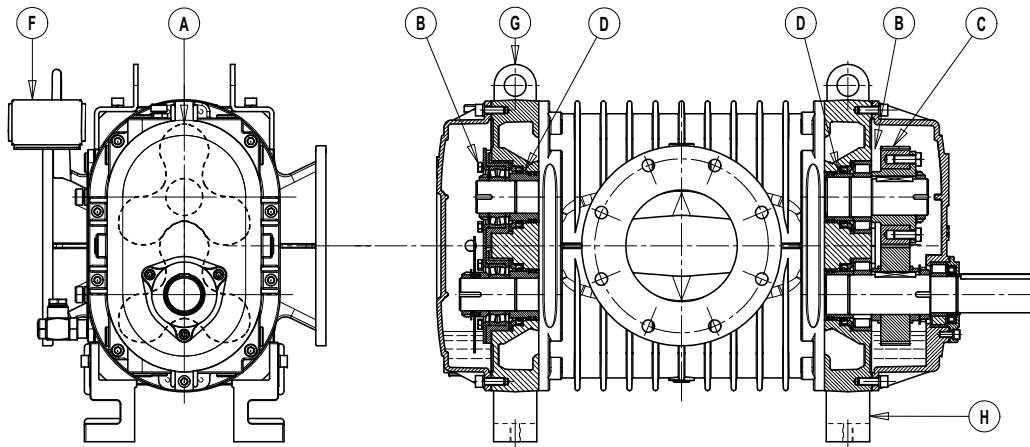
- a) The model of the compressor (see compressor tag): CT80
- b) The serial number of the compressor (see compressor tag): K60001
- c) A description of the parts (see parts list): PLUG G1/2
- d) The quantity (see parts list): n°2 pz
- e) The code number of the part (see parts list): 40267 016 03

### 1.3. Warranty terms and conditions

• Compliance with the installation, use and maintenance instructions provided by this manual **is crucial for the recognition of warranty** against defective parts.

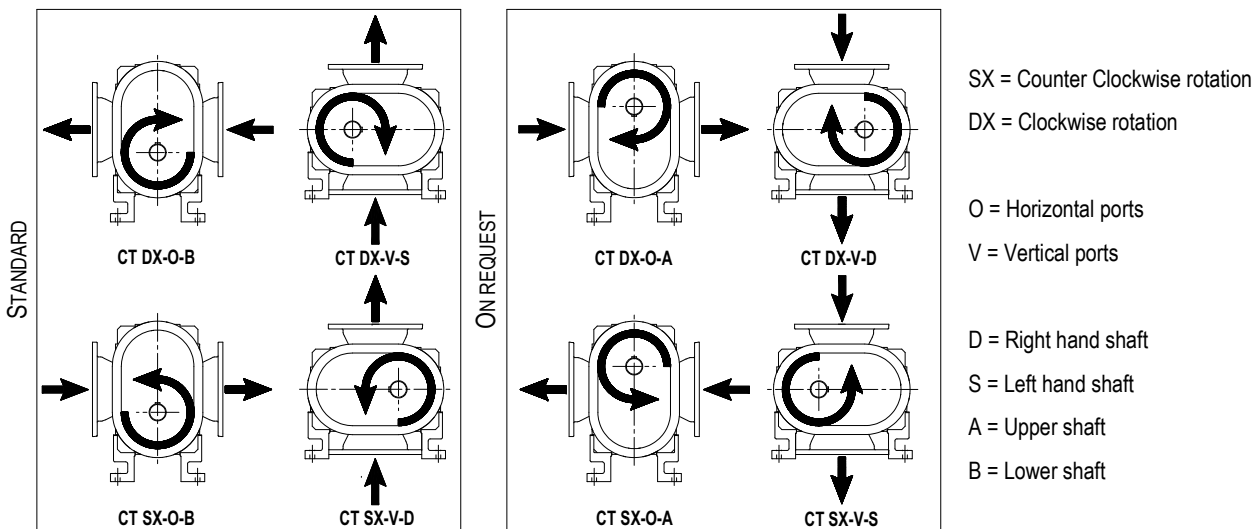
**2. Technical data**

- Tri-lobe rotary volumetric compressor with synchronised phase helical gears.
- Operating without oil and without wear.
- Clockwise or counter clockwise rotation on request.
- Dynamically balanced rotors to reduce vibrations (A).
- Splash lubricated bearings (B) and gears (C) in the front and rear boxes.
- Internal combined seals: Y-seals and labyrinth seals (D) with PTFE/cast iron rings with discharge into the atmosphere.
- Seals and gaskets for high temperatures.
- Removable lifting points (G - H).
- Upon request: drive elements for hydraulic motor.



Weight	CT30	CT50	CT80	CT105	CT130	CT180	CT240	CT420	CT600
Direct with smooth shaft	45 kg	55 kg	106 kg	118 kg	132 kg	190 kg	300 kg	617 kg	755 kg
With hydraulic motor HDR	70,5 kg	80,5 kg	133 kg	145 kg	159 kg	225 kg	336 kg	685 kg	823 kg
Multiplier	-	-	156 kg	168 kg	182 kg	-	-	-	-

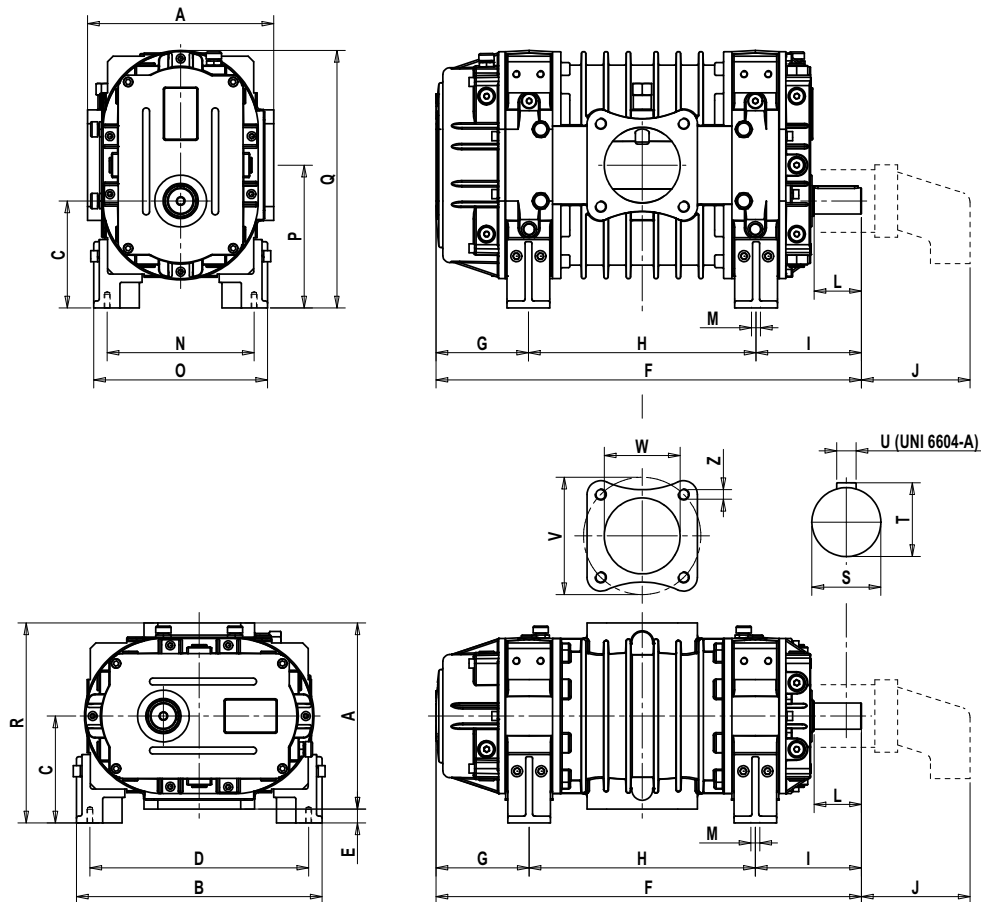
**2.1. Arrangements CT**



**Note:** CT 80-105-130M (with gearbox 3:1) are available only in the following arrangements CT DX-O-B e CT SX-O-B.

## 2.2. Dimensions CT

Direct with smooth shaft or HDR

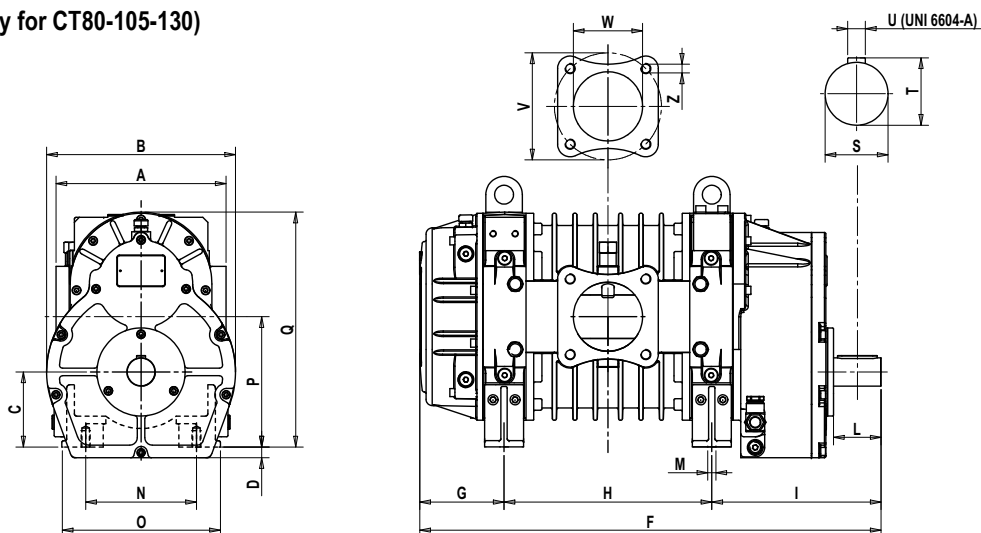


Model	A	B	C	D	E	F	G	H	I	J*	L	M
CT30	210	283	125	229	20	421	113	179	129	225.5	50	M12
CT50	210	283	125	229	20	481	113	239	129	225.5	50	M12
CT80	250	356	155	280	30	517	135	228	154	274	70	M14
CT105	250	356	155	280	30	567	135	278	154	274	70	M14
CT130	270	356	155	280	20	617	135	328	154	274	70	M14
CT180	312	410	167	335	11	699	108	350	241	290	86	M14
CT240	392	411	203	371	12	829	108	460	261	275	106	M14
CT420	438	794	234	742	15	956	147	422	385	443	150	M20
CT600	605	794	234	742	-68.5	1161	147	630	385	443	150	M20

Model	N	O	P	Q	R	S	T	U	V	W	Z
CT30	154	208	162	297	222	25 g6 -0.007 -0.020	27	8	110	55	4 x M12
CT50	154	208	162	297	222	25 g6 -0.007 -0.020	27	8	130	70	4 x M12
CT80	176	252	207	373	280	38 g6 -0.009 -0.025	41	10	150	85	4 x M16
CT105	176	252	207	373	280	38 g6 -0.010 -0.029	41	10	170	110	4 x M16
CT130	176	252	207	373	290	38 g6 -0.009 -0.025	41	10	170	110	4 x M16
CT180	200	276	234	436	323	50 g6 -0.009 -0.025	53.5	14	180	122	4 x M16
CT240	236	276	270	470	393	50 g6 -0.009 -0.025	53.5	14	240	155	8 x M16
CT420	532	584	339	658	453	70 g6 -0.010 -0.029	74.5	20	270	200	8 x M20
CT600	532	584	339	658	536	70 g6 -0.010 -0.029	74.5	20	350	250	12 x M20

(\*): With hydraulic motor.

**Multiplier (only for CT80-105-130)**



Model	A	B	C	D	F	G	H	I	L	M
CT80 M	250	300	119	17	630	135	228	267	72	M14
CT105 M	250	300	119	17	680	135	278	267	72	M14
CT130 M	270	300	119	17	730	135	328	267	72	M14

Model	N	O	P	Q	S	T	U	V	W	Z
CT80 M	176	252	207	373	45 g6 -0.009 -0.025	48.5	14	150	85	4 x M16
CT105 M	176	252	207	373	45 g6 -0.009 -0.025	48.5	14	170	110	4 x M16
CT130 M	176	252	207	373	45 g6 -0.009 -0.025	48.5	14	170	110	4 x M16

**2.3. Performances**

Performances referred to compressor operating at max. speed. Actual performance may vary of +/- 5%.

Performances		CT30	CT50	CT80	CT105	CT130	CT180	CT240	CT420	CT600
Air flow under free air condition	l/min	6000	9333	141767	18167	21666	30000	41167	69170	106700
	m³/h	360	560	850	1090	1300	1800	2470	4150	6400
Max. vacuum at continuous duty	%	50	50	50	50	50	50	50	50	50
Max. vacuum	%	55	55	55	55	55	55	55	55	55
Power required at max. vacuum	kW	5,6	8,8	14	18	25	34	46	77	124
Power required at 1,0 bar rel. (2,0 abs.)	kW	12	17	26	33	42	59	81	138	193
Max. relative pressure	bar	2,1	2,1	2,1	2,1	2,1	2,1	2,1	2,1	2,1

**REFERENCE CONDITIONS**

Conveyed gas: air

Ambient reference temperature: 20°C

Vacuum condition: atmospheric discharge

Vacuum functioning: free outlet

Absolute reference pressure: 1013mbar

Pressure condition: atmospheric suction

**Flow - power (vacuum)**

Model	Speed (rpm)	Vacuum											
		0%			30%			50%			55%*		
		Q	P	T <sub>2</sub> -T <sub>1</sub>	Q	P	T <sub>2</sub> -T <sub>1</sub>	Q	P	T <sub>2</sub> -T <sub>1</sub>	Q	P	T <sub>2</sub> -T <sub>1</sub>
m <sup>3</sup> /h	kW	°C	m <sup>3</sup> /h	kW	°C	m <sup>3</sup> /h	kW	°C	m <sup>3</sup> /h	kW	°C		
CT30	5000	<b>360</b>	<b>1.8</b>		330	4.1		<b>286</b>	<b>5.3</b>	97	276	5.6	
	4000	270	1.1		273	3.2		260	4.2	96,5	255	4.6	
	3000	180	0.6		155	2.3		115	3.0	94,1	105	3.3	
	2000	109	0.4		90	1.6		54	1.7	94,5	-	-	
CT50	5000	<b>560</b>	<b>2.6</b>		523	6.2		<b>463</b>	<b>8.1</b>	98.3	453	8.8	
	4000	430	1.7		390	5		330	6.4	88.5	315	7.0	
	3000	295	0.9		265	3.2		215	4.3	88	200	4.7	
	2000	170	0.6		142	2		100	2.5	90.7	90	2.8	
CT80	4500	<b>850</b>	<b>3</b>		796	9.5		<b>715</b>	<b>13</b>	96	702	14	118
	4000	750	2		664	7.2		556	11	92	516	16	114
	3000	560	1.5		495	5.5		406	7.9	98	384	8.6	114
	2000	380	1		292	4		184	5.4	98	158	5.9	118
CT105	4500	<b>1090</b>	<b>4</b>		1025	13		<b>931</b>	<b>17</b>	98	924	18	122
	4000	980	3		910	10		817	14	95	791	15	117
	3000	720	2		660	7		576	10	96	562	11	118
	2000	490	1		392	5		277	6.4	99	254	7.0	118
CT130	4500	<b>1300</b>	<b>5</b>		1220	16		<b>1130</b>	<b>23</b>	103	1100	25	121
	4000	1115	4		1175	14		1030	20	99	990	22	121
	3000	990	3		930	9		765	14	100	700	16	119
	2000	650	2		600	6.5		500	9.3	105	413	11	128
CT180	3300	<b>1800</b>	<b>6</b>		1640	22		<b>1526</b>	<b>32</b>		1490	34	
	2900	1555	4		1440	18		1310	28		1282	30	
	2500	1296	3		1200	16		1102	23		1073	25	
	2100	1145	2		993	12		871	18		842	19	
CT240	3300	<b>2470</b>	<b>8</b>		2280	29		<b>2120</b>	<b>43</b>		2070	46	
	2900	2160	6		2000	24		1820	37		1780	40	
	2500	1800	4		1670	20		1530	31		1490	33	
	2100	1590	3		1380	16		1210	23		1170	25	
CT420	2500	<b>4150</b>	<b>22</b>		3800	52		<b>3300</b>	<b>74</b>		3200	77	
	2200	3650	19		3190	43		2820	61		2750	65	
	1900	3200	12		2710	34		2420	48		2300	53	
	1600	2700	7		2310	27		1900	41		2250	44	
CT600	2500	<b>6400</b>	<b>42</b>		5900	80		<b>5390</b>	<b>116</b>		5130	124	
	2200	5750	29		5200	68		4600	98		4410	115	
	1900	4820	19		4900	56		3950	82		3700	89	
	1600	4000	12		3510	43		3100	68		2980	72	

Note: data at nominal speed.

(\*): conditions not foreseen for continuous duty.



**Flow - power (pressure)**

Mod.	Speed (rpm)	Pressure (bar abs)																				
		1,0			1,2			1,4			1,6			1,8			2,0			2,1*		
		Q	P	T <sub>2</sub> -T <sub>1</sub>	Q	P	T <sub>2</sub> -T <sub>1</sub>	Q	P	T <sub>2</sub> -T <sub>1</sub>	Q	P	T <sub>2</sub> -T <sub>1</sub>	Q	P	T <sub>2</sub> -T <sub>1</sub>	Q	P	T <sub>2</sub> -T <sub>1</sub>	Q	P	T <sub>2</sub> -T <sub>1</sub>
m <sup>3</sup> /h	kW	°C	m <sup>3</sup> /h	kW	°C	m <sup>3</sup> /h	kW	°C	m <sup>3</sup> /h	kW	°C	m <sup>3</sup> /h	kW	°C	m <sup>3</sup> /h	kW	°C	m <sup>3</sup> /h	kW	°C		
CT30	5000	360	1.8	336	3.7		312	5.7		286	7.5	78	260	9.3		234	12	141	224	13		
	4000	270	1.1	253	2.6		235	4.2		210	5.7	67	185	7.3		165	8.9	133	155	9.6		
	3000	180	0.6	170	1.6		160	2.7		135	3.9	68	110	5.1		85	6.4	122	75	7.0		
	2000	109	0.4	92	1		75	1.6		50	2.4	68	30	3.1		10	3.9	94	5.0	4.2		
CT50	5000	560	2.6	535	5.2		510	7.8		490	11	69.6	463	14		438	17	135.9	427	18		
	4000	430	1.7	410	3.7		390	5.7		365	8.0	65.9	340	10		315	12	121	300	14		
	3000	295	0.9	283	2.4		270	4.0		245	5.6	62.8	215	7.3		190	9.0	111.6	175	9.8		
	2000	170	0.6	160	1.5		150	2.4		125	3.6	64.3	100	4.8		75	5.9	112.4	60	6.5		
CT80	4500	850	3	819	7.5	21	787	12	43	760	17	69	734	22	94	707	26	124	694	29	132	
	4000	750	2	717	6	22	683	10	43	656	14	66	630	18	89	603	23	114	590	25	125	
	3000	560	1.5	528	4.3	24	496	7.1	45	468	10	67	440	13	89	412	16	113	400	17	123	
	2000	380	1	338	2.7	26	296	4.5	50	270	6.4	71	244	8.3	90	218	10	110	205	11	122	
CT105	4500	1090	4	1033	9.5	28	976	15	41	956	21	68	937	27	94	917	33	125	908	36	135	
	4000	980	3	951	8.5	24	922	14	41	888	19	67	853	24	92	818	30	115	800	32	130	
	3000	720	2	688	5.9	25	655	9.9	45	623	14	68	592	18	93	560	21	113	545	23	126	
	2000	490	1	440	3.5	24	390	6.0	47	361	8.5	69	332	11	91	304	13	114	290	15	122	
CT130	4500	1300	5	1165	12.5		1130	20		1110	27	76	1090	35	100	1060	42	125	1050	45	132	
	4000	1115	4	1071	10.5		1022	17		1000	24	71	972	30	95	950	37	118	935	40	128	
	3000	990	3	778	7.5		745	12		716	17	73	690	22	96	660	26	118	646	29	128	
	2000	650	2	510	4.7		460	7.5		433	10	72	410	14	93	382	17	115	370	18	125	
CT180	3300	1800	6	1458	17		1620	28		1577	38		1526	49		1476	59		1447	65		
	2900	1555	4	1494	13.5		1433	23		1382	33		1310	43		1274	52		1246	57		
	2500	1296	3	1257	11		1217	19		1159	28		1109	35		1066	43		1037	47		
	2100	1145	2	1080	8.5		1015	15		968	22		922	28		871	36		842	39		
CT240	3300	2470	8	2360	22.5		2250	37		2190	52		2120	67		2050	81		2010	89		
	2900	2160	6	2075	18.5		1990	31		1920	44		1820	58		1770	71		1730	78		
	2500	1800	4	1745	14.5		1690	25		1610	37		1540	47		1480	58		1440	64		
	2100	1590	3	1500	11.5		1410	20		1340	29		1280	38		1210	48		1170	53		
CT420	2500	4150	22	4080	45		4010	68		3920	92		3810	115		3730	138		3670	149		
	2200	3650	19	3585	39		3520	59		3460	79		3350	99		3230	119		3160	128		
	1900	3200	12	3100	29		3000	46		2850	63		2790	80		2670	98		2570	105		
	1600	2700	7	2610	21.5		2520	36		2410	51		2270	67		2120	82		2050	88		
CT600	2500	6400	42	6145	72		5890	102		5690	132		5500	163		5300	193		5200	207		
	2200	5750	29	5475	57		5200	85		4920	113		4680	142		4410	169		4190	183		
	1900	4820	19	4640	44		4460	69		4220	95		4000	120		3790	145		3670	158		
	1600	4000	12	3850	34		3700	56		3540	78		3390	100		3220	123		3180	133		

Note: data at nominal speed.

(\*): conditions not foreseen for continuous duty.

**2.4. Usage limitations**

Model	Speed (rpm)		P <sub>1</sub> (bar rel.) Min.		P <sub>2</sub> (bar rel.) Max		P <sub>2</sub> ·P <sub>1</sub> (bar)	T <sub>2</sub> (°C)	T <sub>2</sub> - T <sub>1</sub> (°C)
	Min.	Max	continues	intermittent (*)	continues	intermittent (*)			
CT30 - CT50	2000	5000	-0,5	-0,55	1	1,1	1	160	130
CT80 - CT105 - CT130	2000	4500	-0,5	-0,55	1	1,1	1	160	130
CT80 - CT105 - CT130 M	670	1500	-0,5	-0,55	1	1,1	1	160	130
CT180 - CT240	1700	3300	-0,5	-0,55	1	1,1	1	160	130
CT420 - CT600	1000	2500	-0,5	-0,55	1	1,1	1	160	130

P<sub>1</sub>: absolute pressure during suction  
P<sub>2</sub>: absolute pressure during delivery

T<sub>1</sub>: temperature during suction  
T<sub>2</sub>: temperature during delivery

(\*): conditions not foreseen for continuous duty  
Temperature -20/+40°C

## 2.5. Noise

Po Noise power LwA of the compressor only.  
 Measures according to: UNI EN ISO 9614-2


Measure tolerance:  $\pm 2\%$

Noise LwA dB (A)							
Model	Speed (rpm)	Vacuum (%)			Pressure (bar abs)		
		0%	30%	50%	1.0	1.6	2.0
CT30	2000	85,9	87,4	0	85,9	88,3	90,2
	3000	87,3	88,5	89,1	87,3	90,4	91,6
	4000	89,9	93,9	93,4	89,9	95,9	97,1
	5000	93,7	94,5	96,5	93,7	96,8	99,3
CT50	2000	78,7	79,5	82,1	78,7	83,4	87
	3000	81,3	86,1	89,6	81,3	89,1	92,7
	4000	83,4	88,4	90,7	83,4	91,2	95,7
	5000	84,4	90	91,8	84,4	92,4	98,6
CT80	2000	79,0	79,3	81,7	81,1	84,0	85,6
	3000	85,5	85,9	86,1	87,6	92,8	93,9
	4000	85,6	87,9	89,9	90,5	93,2	97,3
	4500	88,5	91,0	92,2	92,1	96,7	98,5
CT105	2000	82,6	84,1	84,5	83,7	89,3	91,9
	3000	87,1	87,8	88,8	88,8	96,5	98,7
	4000	87,3	88,4	92,3	93,0	98,7	99,9
	4500	90,3	92,9	93,8	96,6	102,5	103,2
CT130	2000	84,4	87,0	91,2	89,7	93,9	94,8
	3000	88,7	90,8	92,8	91,4	100,2	102,6
	4000	89,4	92,0	95,4	97,0	103,3	104,3
	4500	91,1	95,5	97,3	98,7	104,2	105,4
CT180	2100	84	88	90	92	95	97
	2500	87	91	93	94	97	99
	2900	89	94	96	96	99	103
	3300	92	97	99	98	102	106
CT240	2100	85	89	91	93	96	98
	2500	88	92	94	95	98	100
	2900	90	95	97	97	100	104
	3300	93	98	100	99	103	107
CT420	1200	93	96	97	95	101	104
	1600	95	98	100	97	102	106
	2000	98	101	103	100	105	109
	2400	100	104	106	104	108	112
CT600	1200	94	96	98	96	102	105
	1600	96	99	101	98	103	107
	2000	99	102	104	101	106	110
	2400	101	105	107	104	109	113

## 2.6. Lubrication

Room. Temp	Viscosity	Type	CASTROL	FUCHS	KLÜBER	MOBIL (ESSO)	SHELL	TOTAL
Over 10°C	ISO VG 150	Mineral oil	Alphasyn Range 150	Renolin Clp 150	Klübersynth Eg 4 150	SHC 629	Omala oils RI 150	Carter Sh 150

### 3. Safety and accident prevention




**Attention:**  
Carefully apply these prescriptions.

#### 3.1. General recommendations

- Installation and maintenance must be carried out with the unit totally disengaged from its drive system and must be performed by qualified personnel.
- Use adequate clothing (avoid ties, loose sleeves, necklaces and so on) and suitable protection equipments (gloves, protection glasses, boots...).
- To prevent errors and hazardous situations, establish what each operator is responsible for in the different maintenance operations.
- When transporting the compressor, use proper slinging. Store the compressor in stable places.
- Make sure that all the parts of the unit are idle and cool, before performing any maintenance operation.
- Before each maintenance operation, stop the compressor and restore the atmospheric pressure.
- When the compressor is running, some parts may reach very high temperatures (above 170°C). Use all necessary precautions to avoid contact.
- Operators working nearby must avoid prolonged exposure to the noise emitted by the aspirator, if not equipped with the proper ear-protection devices.
- Avoid accidental suction of solids: solids may be projected at high speed through the exhaust manifold and cause injuries.
- Do not start the machine if the protection devices provided for transmissions are removed. Replace damaged parts.
- Pressure relief valve: point the air flux away from the operators.


- Do not use the aspirator over its designed limits: the machine may be damaged and the operator may be injured.



**Do not exceed the power supply parameters indicated in the technical tables (see par. 2.3 - 2.4).**

#### 3.2. Intended use

- CT compressor are 3 lobe blowers specifically designed for vacuum plants that must convey gas free from polluting substances, oil or water: this is made possible due to the lack of sliding parts, and therefore oil lubrication within the compression chambers.
- Do not sack toxic substances and inflammable or explosive gasses, since the internal components of the compressor may reach high temperatures.
- Liquids or solids infiltrations can seriously damage the compressor.



**Attention: liquids or solids infiltrations can seriously damage the compressor.**

- Do not run the compressor over its designed operating limits (see par. 2.3 - 2.4): it may break and transmission can be damaged.

#### 3.3. Conveyed fluids

- The CT compressor is suitable for conveying filtered air. Before conveying other kind of gases, verify compatibility with compressor's characteristics.
- Please contact Jurop's Technical dept. if necessary.

### 4. Installation

#### 4.1. Compulsory accessories

- The correct installation of the compressors CT requires the following accessories:
  - Exhaust silencer;
  - Overheating alarm to connect to the thermostat on the exhaust port;
  - Undersigned suction filter on the vacuum line to avoid suction of foreign bodies or liquids;
  - Adequate overpressure safety valves.

Compressor	Standard air filter	Spark arrester ATEX
CT30 -...- CT130	1445002900	14450MNZB0
CT180 - CT240	1445003200	14450GU6B0
CT420 - CT600	1445006800	14450HYJB0

#### 4.2. Checking upon receipt

- When the goods are delivered, make sure that all parts listed on the delivery note are in perfect condition and have suffered no damage during shipping.

- Remove the parts of the packaging that can be dangerous if sucked by the compressor.
- Make sure the compressor has its identification plate affixed on the front cover. Compressors without such identification are to be considered anonymous and potentially dangerous: in such an event, they must not be used, otherwise the manufacturer will be deemed free from any liability whatsoever.

#### 4.3. Storing in the warehouse

- If the compressor will not be installed inside a short time after delivery:
  - Remove the guards from the ports and spray a film of protective oil over the inner surfaces of the body, rotors and sides. Then attach again the guards;
  - Store in a closed and dry place. Renew the preserving oil periodically.
- To temporarily store a used pump, follow the instructions below:
  - Thoroughly clean the pump.
  - Equip the pump with suitable anti-corrosion protection.

#### 4.4. Mounting

- When the compressor is installed it must be accessible for maintenance and fitted, with vibration adsorbing pads, to a bearing frame or level base (**Max. admitted angle 3° in all the directions**).
- The size of the frame must be suitable to support the compressor weight and avoid bending. It is recommended to install the compressor on vibration adsorbing pads to reduce the noise and vibrations produced during its operation.
- Leave enough space around the compressor to allow the free circulation of air for cooling; avoid exposure to dirt and debris.
- Leave enough room to access the oil drainage, filling and checking ports (see Fig. 4.1).
- The oil level control and drainage plugs are mounted correctly during the final inspection in the factory. Do not change their position.

- Oil levels, filler caps and oil drainages are individual for the front and rear gearboxes.

**Oil levels, filler caps and oil drainages are individual for the front and rear gearboxes.**

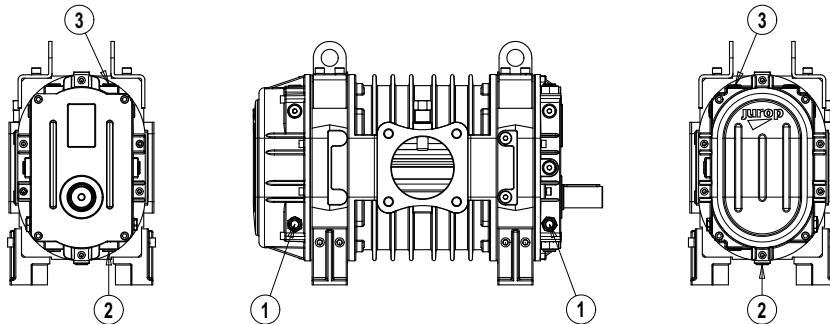
- Any changes made to rotation direction or to the assembly position must be agreed with our “Technical Assistance”.

**Any changes made to rotation direction or to the assembly position must be agreed with our Jurop.**

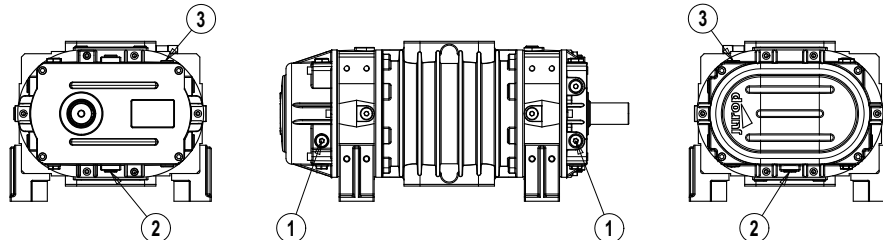
LUBRIFICATION FRONT AND REAR GEARBOX

1. Control oil level      2. Draining plug      3. Filling plug

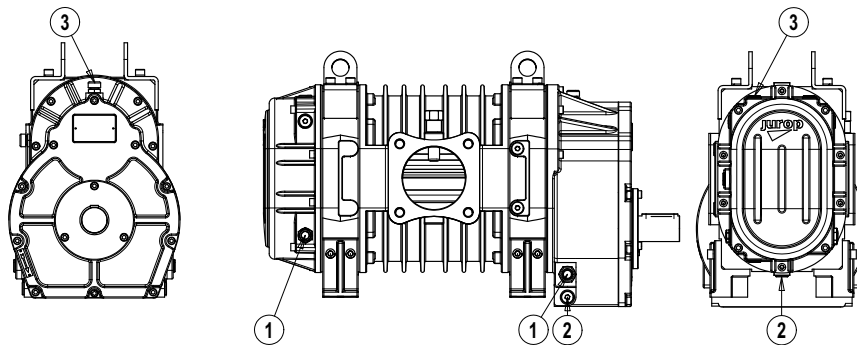
WITH HORIZONTAL PORTS



WITH VERTICAL PORTS



WITH GEARBOX



Pic. 4.1

#### 4.5. Vacuum – pressure line

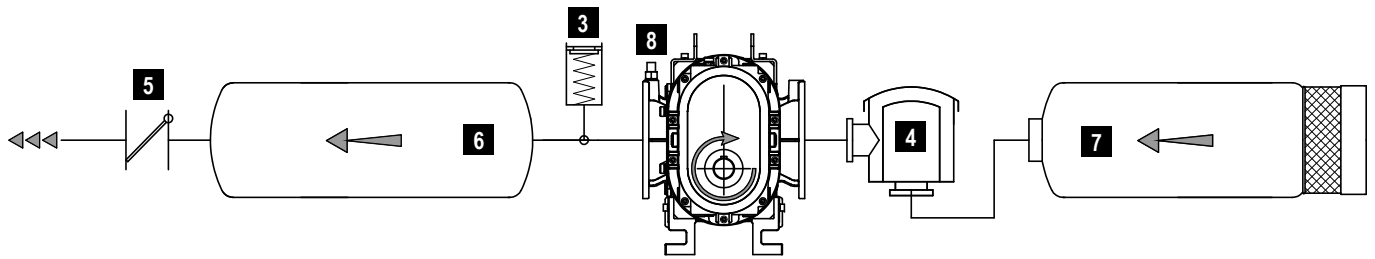
- See Fig. 4.2.
- The diameter of the vacuum and pressure line pipes must be suitable for the compressor's flow rate (approximate average air speed is 15-30 m/s); in any case, it should not be smaller than the ports diameter.

- The weight or dimensions of the pipes must in no way stress the compressor body. Use high temperature resistant rubber sleeves.
- Remove the port guards when mounting. The pipes and components of the whole line must be clean.
- Avoid constrictions and tight curves where they are not essential.
- The exhaust pipes can reach high temperatures. Protect those adequately from the operator reach.

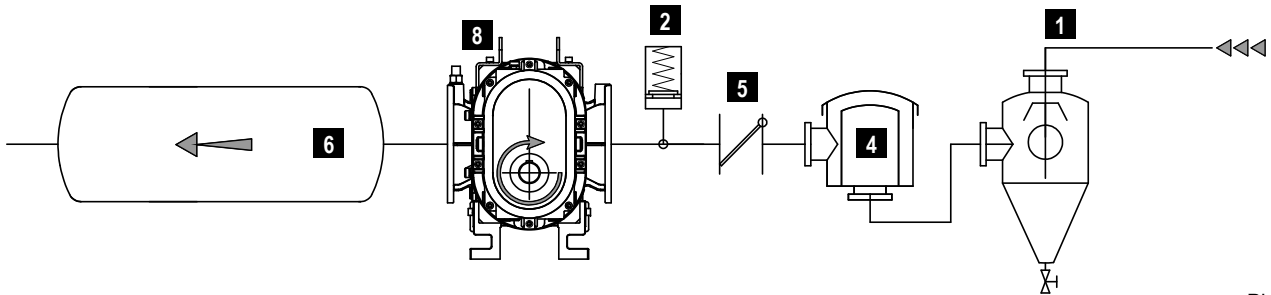
- A clapet valve on suction pipe avoids rotation in the opposite direction when the compressor stops.
- Over-pressure safety relief valve on the vacuum line: install it close to the compressor. Valve relief flow rate must limit the CT from exceeding a pressure of 2100 mbar or, in any case, the maximum allowed by the system. Do not interpose shutoff valves on the line between the compressor and the safety relief valve.
- Manometer and thermometer should be placed on a distance not superior to 350 mm from the compressor's escape valve.
- If necessary apply:
  - A second shutoff valve or suction filter. Liquids and materials must never reach the compressor;

- A venting valve on the suction line, controlled by the thermostat: when the compressor is overheating, this valve will open a direct connection with the atmosphere and consequently the compressor will suck fresh air, from the outside, for a better cooling (a 2" valve size can be enough for a good cooling without losing too much vacuum rate 30%). Install a silencer filter;
- A 4-way change-over valve to obtain alternatively vacuum or pressure in the system (this is not required if the compressor is used only for vacuum or only for pressure).

**Vacuum – pressure line - Pressure operation**



**Vacuum – pressure line - Vacuum operation**



Pic. 4.2

**Vacuum and pressure line components**

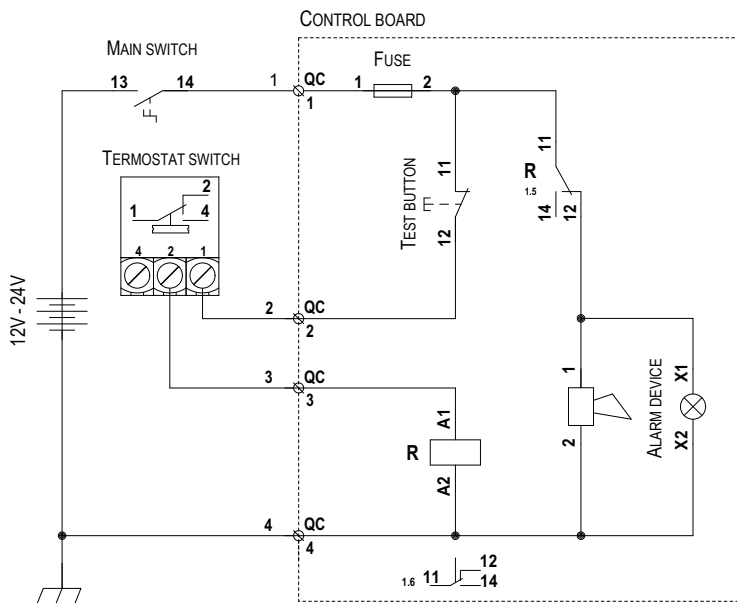
1	Secondary shutoff	5	Non return valve
2	Vacuum relief valve	6	Exhaust muffler
3	Overpressure valve	7	Suction muffler
4	Suction filter	8	Safety thermostat (optional)

- The clapet valve, on the suction line, avoids opposite rotation of the compressor when it is stopped under vacuum conditions. It is recommended to vent the vacuum tank to the atmospheric pressure in the following cases
  - Before servicing the compressor or its drive system. The pressure difference between inlet/outlet ports can start the machine turning automatically;
  - Before starting the machine again: otherwise it would require a higher starting torque.

**4.6. Overheating alarm (optional)**

- The compressor can be equipped at the request of a safety thermostat switch on the exhaust port. When reaching the maximum allowed temperature, the switch must send an electric signal to the alarm system or open a valve on the suction line, to let the fresh air coming in and cool the compressor.
  - Electric characteristics of the SPDT connector:
    - a. DC power supply: max 220V, 12W dc-13 (control coils data).
    - b. AC power supply:
      - max 440V, 10A ca-1 (resistive load);
      - max 440V, 6A ca-3 (start-stop for asynchronous motors);
      - max 440V, 4A ca-15 (power supply with control coils > 72VA);

**Attention: if the compressor is stopped under load, vent the system before any maintenance operation.**

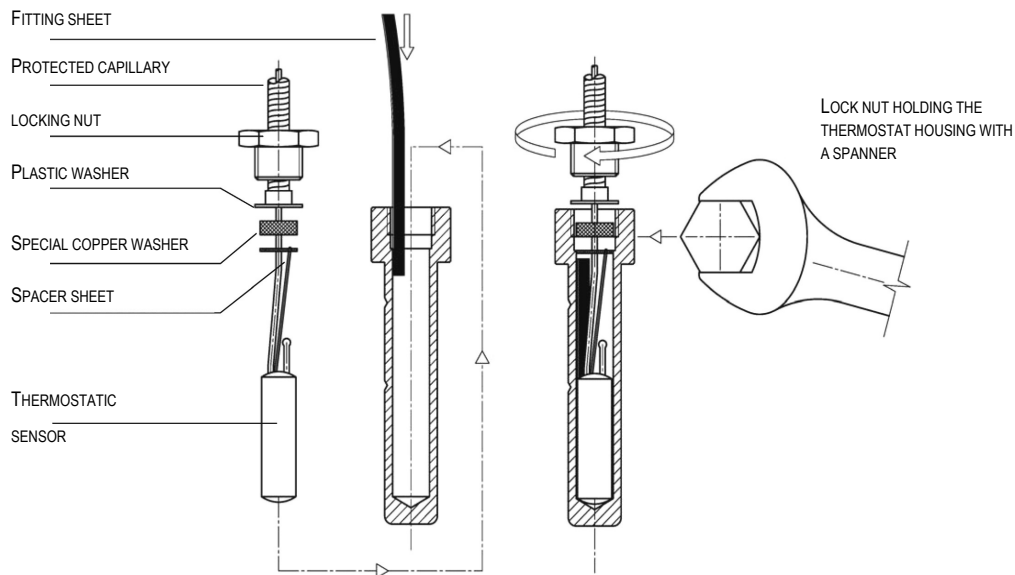


- Protection: IP67 (IEC 529 e DIN 40050).
- Ambient temperature: from -40 to +70°C.
- Core hitch: Pg 13.5 for cables from 5 to 14 mm.
- Use the NC (normally closed) contact of the switch to control the coils of a power relay. In this way (see above diagram) the alarm advises also in case of accidental wires damage (safety protection of the circuit).

**Sensor installation:**

1. The sensor of the thermostat is supplied by us already fitted inside its housing. In case of disassembling, follow the instruction (above drawing) to reassemble.
2. Unwind the protected capillary of the sensor avoiding tight curves or buckling. Fix the unit to a stable support before proceeding (to avoid vibrations or accidental impacts).
3. The thermostat operation can be influenced by the ambient temperature. The setting made by the manufacturer is correct to work in ambient temperatures between 0°C and 40°C. If the thermostat is frequently used over said temperature range, it could be necessary a new setting. Please contact the after sale technical service.
  - Check the following points to grant a correct operation of the thermostat:
    1. The spacer sheet keeps the sensor fitted on the lowest part of its housing.
    2. The fitting sheet must fill the clearance between the sensor and its seat in the housing; this is important to grant an easy and correct heat transmission.
    - Overheating can seize the compressor, causing a damage also in the drive line. Stop the compressor for cooling or drive it at free ports conditions (with the suction valves fully opened) to let it cool down properly. The compressor can be again operated only when the alarm is turned off after cooling.

**Attention: overheating can seize the compressor, causing a damage also in the drive line.**



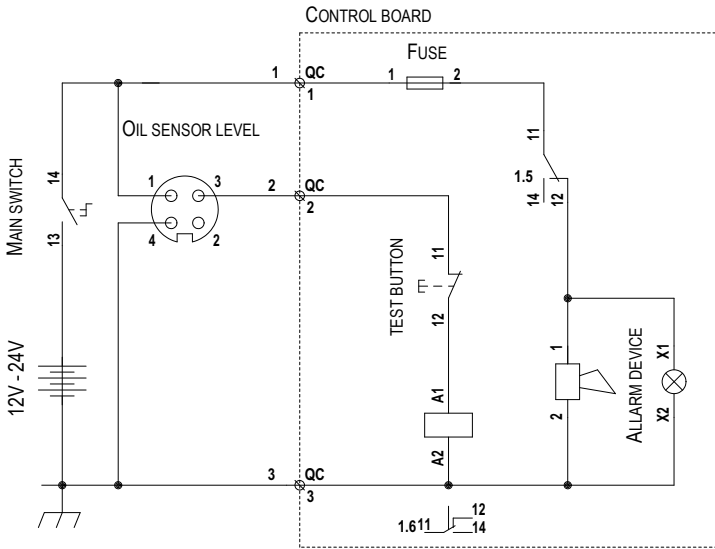
Pic. 4.3

**4.7. Oil level alarm (optional)**

- The compressor can be supplied at the request with two optical oil level switches, one in the front gearbox and one in the rear gearbox. When reaching the minimum oil level necessary for the gears lubrication in one of the gearboxes, the switch must send an electric signal to the alarm system.
- Electric characteristics of the K11 oil level switch:

- a. DC power supply: 10-28V;
  - b. AC power supply: 24V;
  - c. Protection: IP65 (IEC 529 e DIN 40050);
  - d. Ambient temperature: from -40 to +125°C.
- Use the NC (normally closed) contact of the switch to control the coils of a power relay. In this way (see above diagram) the alarm advises also in case of accidental wires damage (safety protection of the circuit).





• Working with an oil level lower than the minimum recommended leads to a rapid wear of internal seals, bearings and gears causing the seizure of the compressor.

**Attention: working with an oil level lower than the minimum recommended leads to a rapid wear of internal seals, bearings and gears.**

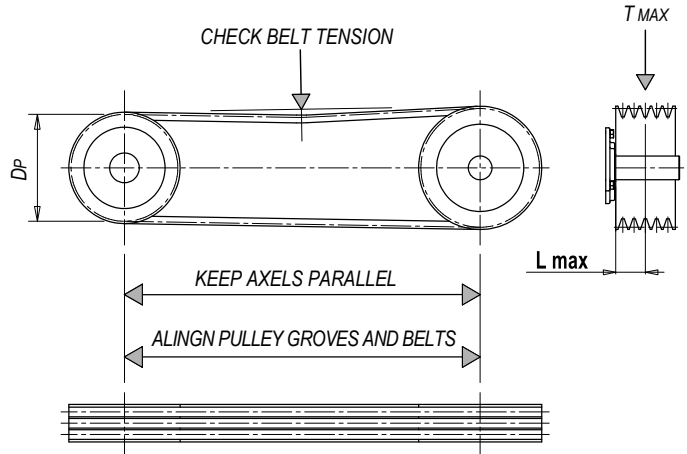
• Stop the compressor and refill both the gearboxes with the recommended oil (see par. 2.6).

#### 4.8. Drive systems - Power transmission

##### A) Belt drive

• Install a suitable pulley on the smooth shaft as close as possible to the compressor in order to avoid excessive bending stress on the drive shaft.

- Install a suitable pulley on the smooth shaft as close as possible to the compressor. Taper lock pulley are suggested.
- Do not use driven or driving pulleys with a pitch diameter inferior to 150 mm. Small pulleys require a high belt tension which may cause premature wear to the bearing or transmission damages.



Pic. 4.2

- Let the air circulate freely to cool down the compressor.
- A limited speed ratio allows a longer belts life while reducing stress on the shafts. When possible, prefer:
  - Pulleys with a pitch diameter bigger than the one indicated;
  - Motors or power take-offs with a speed similar to the one of the compressor.

Model	Rpm	T. max (N)	S. max (mm)	Drive min. pulley p. diam. (mm)	N° groves	Belts
CT 30	5000	1200	25	150 mm	2 x SPZ	XPZ
CT 50	5000	1200	25	150 mm	3 x SPZ	XPZ
CT 80	4500	3000	50	160 mm	2 x SPA	XPA
CT 80 M	1500	3800	35	200 mm	3 x SPB	XPB
CT 105	4500	3000	50	160 mm	3 x SPA	XPA
CT 105 M	1500	3800	35	225 mm	3 x SPB	XPB
CT 130	4500	3000	50	160 mm	4 x SPA	XPA
CT 130 M	1500	3800	35	250 mm	3 x SPB	XPB
CT 180	3300	3500	45	180 mm	4 x SPB	XPB
CT 240	3300	5000	55	180 mm	5 x SPB	XPB
CT 420	2500	6500	75	250 mm	4 x SPC	XPC
CT 600	2500	11500	87	250 mm	5 x SPC	XPC

Dp. min.: minimum pitch diameter of small pulley.

##### B) Hydraulic drive

• Only for the models CT80 - 105 - 130 - 180 - 240 - 420 - 600 it is possible to carry out the transmission by means of an hydraulic motor with high pressure, utilizable in open or close circuits.

Model	Displacement (cc/rev)	Operating pressure max (bar)	Max pressure draining line (bar)	Housing temperature max. (°C)
CT 30 HDR	6	350	2.5	90
CT 50 HDR	9.8	350	2.5	90
CT 80-105-130 HDR	19.6	350	1.5	90
CT 180 HDR	40.0	410	2.5	80
CT 240 HDR	51.3	420	2.5	90
CT 420 HDR	110	410	2.5	80
CT 600 HDR	125	410	2.5	80

• **Oil flow and pressure:** to be defined according to the vacuum compressor speed rotation.

• **Fluid:** mineral oil for hydraulic systems HLP DIN51524.

Temperature	Optimum viscosity ale	Max. viscosity allowed
-20 / +90 °C	12 – 40 cSt	1000 cSt

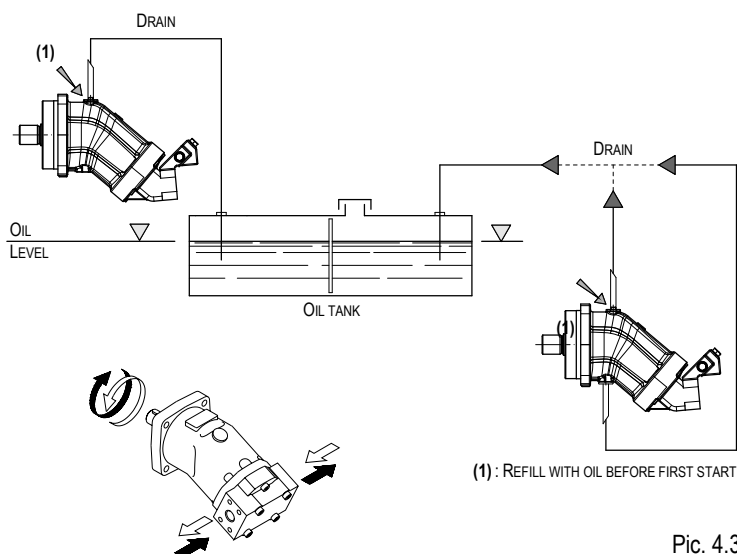
• Find the suitable fluid viscosity according to the working temperature.

Operative temperature	Viscosity a 40 °C
+30 / +40 °C	22 cSt
+60 / +80 °C	46 o 68 cSt

• **Filtration:** class 18/13 contamination according to ISO 4406 to be obtained with a  $\beta_x = 75$  filter.

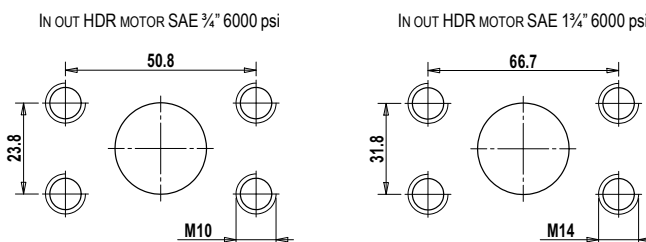
• **Check circuit connections:** they must be applied in the same rotation direction as that indicated by the arrow on the compressor front flange (see Fig. 4.3).

• **Draining:** connect directly to the tank above the maximum oil level. Operating without draining line may damage the motor.



Pic. 4.3

Compressor HDR	Drain Threaded	In-Out Flange
CT 30-50-80-105-130	G3/8	SAE 3/4" 6000psi
CT 180	G3/4	SAE 3/4" 6000psi
CT 240	M22x1.5	SAE 3/4" 6000psi
CT 420	M18x1.5	SAE 1 1/4" 6000psi
CT 600	M18x1.5	SAE 1 1/4" 6000psi



Pic. 4.4

• **Starting-up:** be sure that the system is well cleaned and pour oil into the tank and into the motor housing (necessary to lubricate the internal bearings).

• Vent the circuit and adjust the overpressure safety valve to the lowest possible value.

• Check the oil tank level.

• Increase pressure and rotation speed until operating values are reached.

• It is recommended to avoid rotation in the opposite direction when the compressor stops; this because it could damage the hydr. motor whether the circuits are open or closed (see also the "Vacuum – Pressure Line" paragraph). The hydraulic circuit must be protected against overpressures.



**Attention: it is recommended to avoid rotation in the opposite direction when the CT stops; this because it could damage the hdr motor.**

• Check the rotation speed, using the inductive sensor mounted on the hyd. motor bracket. Connect it to an electronic rev counter, suitable for 2 kHz max inductive sensors, and set the teeth number at z.

Compressor HDR	Z (teeth number of the inductive sensor gear)
CT 30-50	4
CT 80-105-130	24
CT 180-240	32
CT 420-600	2



## 5. Start up

### 5.1. Starting-up

- Check oil levels in gearbox front and rear.
- Check that all protection devices are correctly installed.
- Check that there are no obstacles in the vacuum/pressure line.
- Check rotation direction: open all system valves and start running slowly.
  - Rotation in the wrong direction is allowed at slow speed: possible damage to the line and/or compressor.



**Attention: rotation in the wrong direction is allowed at slow speed: possible damage to the line and/or compressor.**

- Close the valves and increase pressure or vacuum rate.
- Check speed under load and operation: absence of anomalous noise or vibrations.

### 5.2. Operating suggestions

• The manufacturer declines all responsibility for damages caused if the installation, operating and maintenance instructions are disregarded.

• When the overheating alarm advises (optional) the operator that the maximum operating temperature has been reached:

1. Stop the compressor and wait until it has cooled down;
2. If possible drive it with all the valves opened for the time necessary to a proper compressor cooling;
3. Work can be started again only when the temperature has returned to normal values;
4. If the alarm triggers often during normal use, it is necessary to check the conditions of use (temperature, pressures, speed) and the conditions of the system.

• When ambient temperatures are very low (like in the winter for instance), exhaust temperatures are lower than usual and the overheating alarm does not advise even if you are working at high speed and with high vacuum levels. We recommend not to exceed a temperature difference of 130°C between incoming and outgoing air, to avoid anomalous deformation of the components and block/seize the compressor.

• After operation in dusty environments, after accidental sucking of liquids inside the compressor or before a long inoperability period it is recommended to wash the compressor inside according to the following procedure:

1. Before washing the compressor, be sure that it has cooled down. To obtain this in a short time, it is possible to run the compressor for a few minutes at zero vacuum conditions, or stop it at all;



**Attention: it is recommended to avoid doing maintenance on the compressor when it is very hot.**

2. Use 1-2 liters of water mixed with a non-flammable detergent. We suggest some product like Henkel P3 Neutrasel 2860 IT: 5% concentration in water. This detergent grants a good protection against rust and oxidation;

3. Use one of the openings placed in the vacuum line (closest to the compressor) to suck some water mixed with detergent;
4. Start the compressor at low speed (about 2000 rpm) leaving opened all the suction valves in the tank, in order to keep low the vacuum rate (max vac. 10-20%). Let the detergent mix entering the compressor very slowly;
5. The detergent mix stays suspended in the compressor inside, before being expelled through the exhaust silencer. After keeping the compressor speed for a while to make the product reaching the internal parts, it is necessary to dry the compressor preventing oxidation. When the detergent mix is finished, continue running the compressor at the lowest possible vacuum rate for a few minutes, then close venting and suction valves up to 50% maximum, for a couple of minutes. With this operation the compressor will dry from the heated air and protected from the chemical attack of the detergent;
6. The cleansing by means of this detergent is able to guarantee protection for some days' inactivity. If the compressor is not used for more than two weeks, it is advisable to have 200 cc of anti-rust water-repellent protective oil aspired (or, in its absence, a very thin engine oil), after cleaning and drying the internal parts as indicated above.



**Attention: Avoid also this maintenance work on very hot aspirators (for instance, after a day of work) if they have not been previously cooled.**



**Recover the liquid detergent and dispose of it in compliance with the standards in force.**

- Do not convey the exceeding delivery outlet towards the suction port, otherwise it will suck warm gas.
- Control the air flow by adjusting the rotation speed: do not use the pressure relief valve to discharge the exceeding flow.
- It is recommended to avoid rotation in the opposite direction when the compressor stops. Use not return valve in the vacuum pressure line (see par. 4.5).
- Do not start running the compressor under load: that causes stress to the drive system.

## 6. Maintenance

### 6.1. Ordinary maintenance

• Installation and maintenance must be operated only by qualified personnel wearing the proper clothes and the necessary tools as well as protection devices.

• In the following table summarizes the main controls to be performed and the frequency of intervention.

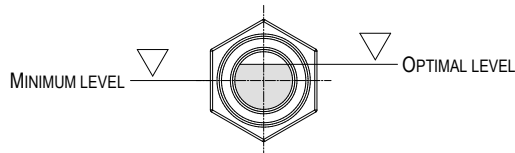
Operating Condition	Checking	Frequency
<b>OPERATING</b>	Working pressure	D
	Rotating speed	D
	Temperature	D
	Noise	D
<b>STANDSTILL</b>	Oil level	W
	Change oil in front gearbox	1000 h
	Change oil in rear gearbox	2000 h
	Clean filter and vacuum line shutoff	W

**Frequency**      **D:** daily      **W:** weekly

• The first oil change must be done inside 500 hours operation. Following changes every 5000 hours or 12 months.

### Checking oil level rear and front gearbox

• Check the oil level in both gearboxes (front/rear) when the compressor is still and cold. Oil sight, refill and drainage are showed in Fig. 4.1.



• The level of oil must not drop below minimum otherwise there is the risk of rapid wear of the internal components.

• Accidental breakage of the internal seals will cause the drop of the oil level in both the boxes. It is recommended to check frequently the oil level: daily or weekly as maximum, because frequents oil refills is a clear signal of worn out seals.

• Recommended lubricant: **synthetic gear oil TENNEX FACTOR SYNT ISO™**.

In case this oil is not available, it is possible to refill the level with a gear oil composed of polyalphaolefine (PAO), see par. 2.6.

• It is recommended to refill the oil level always with the same type: avoid mixing of various oil types.

• When changing the oil, also replace the washer on the drainage plug.



**Dispose of exhausted oil as provided by current specification.**

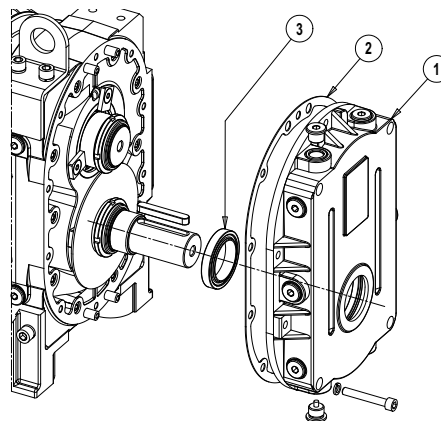
Model	Installation	Front gearbox (shaft side)	Rear gearbox
CT30 - CT50	Vertical	0,75 l	1,1 l
	Horizontal	0,25 l	0,3 l
CT80 - CT105 - CT130	Vertical	0,85 l	1,15 l
	Horizontal	0,45 l	0,6 l
CT180 - CT240	Vertical	0,65 l	0,55 l
	Horizontal	0,7 l	0,6 l
CT420 - CT600	Vertical	4,0 l	3,0 l
	Horizontal	2,3 l	1,9 l

### 6.2. Extraordinary maintenance

• Before starting any extraordinary maintenance operation, be sure the compressor stands still and follow the safety prescriptions as described in Cap. "Safety and accident prevention".

#### Replacing the front Y-seal (CT30-50-80-105-130)

• See Fig. 6.1.



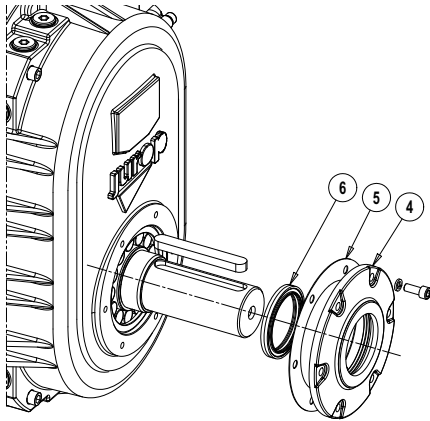
Pic. 6.1

- Remove the transmission.
- Unscrew the drainage plug of the front cover and empty it.
- Remove the front cover.
- Replace the Y-seal (3). Spread the Y-seal lip with high temperature grease 220°C NLGI2.
- Change the gasket (2) and fit the flange back on its seat. Do not damage the seal lip or turn it over when remounting.
- Refill with oil (recommended synthetic gear oil) the front box. Check the oil level sight, see Fig. 6.1.

Model	Gasket Code (2)	Y-seal Code (3)
CT30 - 50	1680710100	4022200153
CT80 - 105 - 130	1680709600	4022200154

**Replacing the front Y-seal (CT80-105-130 Multiplier, CT18-240, CT420-600 e CT420-600 HDR)**

- See Fig. 6.2.



Pic. 6.2

- Remove the transmission.
- Clean the front flange (4) and remove.
- Replace the sealing ring (6). Spread the Y-seal lip with high temperature grease 220°C NLGI2.
- Change the gasket (5) and fit the flange back on its seat. Do not damage the sealing lip or turn it over when remounting.

Model	Gasket Code (5)	Y-seal Code (6)
CT80 -105-130 M	1680708700	4022200412
CT180 - 240	1680708400	4022200425
CT420 - 600	1680710500	4022200152
CT420 - 600 HDR	1680701400	4022200152

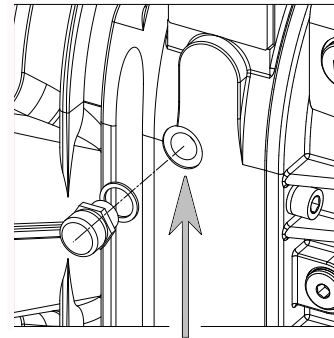
**Cleaning the rotors and body**

- This is necessary to eliminate hard formations.
- Remove the pipes from the suction and exhaust ports.
- Clean the inside surface of the body and rotors with solvents and scrape without scratching.

**Cleaning the seals venting plugs (CT80-105-130)**

- Remove the seals venting plugs and clean them with a solvent to remove possible obstructions.
- Do not use compressed air or solvents for the seals venting ducts in the pump benches where the seals venting ports are screwed. Internal seals can be damaged.

**Do not use compressed air or solvents for the seals venting ducts in the pump benches where the seals venting ports are screwed. Internal seals can be damaged.**



Pic. 6.3

**Cleaning the gearbox venting plugs front / rear (CT80-105-130)**

- Remove the gearbox venting plugs and clean them to remove possible obstructions.
- Keep clean the space around the gearbox venting plugs. Replace it, if necessary.

**General overhauling**

- In case of particularly hard formations, general overhaul of the pump is recommended: rotors wash-up, seals check, replacement of bearing and sealing ring, and lubricant replacement. The servicing operations which require the pump to be completely disassembled must be performed at a Service Centre authorised by Jurop.

**The servicing operations which require the pump to be completely disassembled must be performed at a Service Centre authorised by Jurop.**

## 7. Malfunctions: troubleshooting

PROBLEMS

### Reduced performances

Cause	Solution
• Speed not correct	• Check and restore
• Pipes and/or filters clogged or leaking	• Check conditions and restore
• Pipes are undersized	• Check the maximum compressor performance
• Safety valves not adjusted	• Check and adjust correctly

### Overheating

Cause	Solution
• Ambient and/or suction or injected air temperature is too high.	• Reduce pressure or vacuum rate
• Pipes are undersized	• Check, close to the compressor ports, the effective suction and delivery pressure. Do not exceed operating limits.

### Oil leakage

Cause	Solution
• Front sealing ring is worn	• Replace it
• Level indicators broken	• Replace it
• Oil leakage from internal seals	• Check the compressor inclination (max. 3°). • If this is not enough to solve the problem, contact the after sale Service to check the internal seals.

### Abnormal vibrations or noise (stop the compressor)


Cause	Solution
• The rotors are getting in contact	• Temperature is over the max working limits ( $T_2 > 160^{\circ}\text{C}$ and/or $T_2 - T_1 > 130^{\circ}\text{C}$ : see par. 11). Stop the compressor and leave it cooling. Start again only after the alarm has reset.
• Rotors with hard formations on the surface	• Inner wash of the compressor (see par 5.3) • Remove the in/out pipes and clean rotors and housing.
• Suction of liquids or foreign bodies	• If they have caused incrustations, the pipes must be removed and the rotors must be cleaned.
• Not uniform power transmission	• Check the operating conditions. Do not install propellers too much angled.

## 8. Scrapping

• Before scrapping the machine, the following materials need to be separated and suitably disposed of:

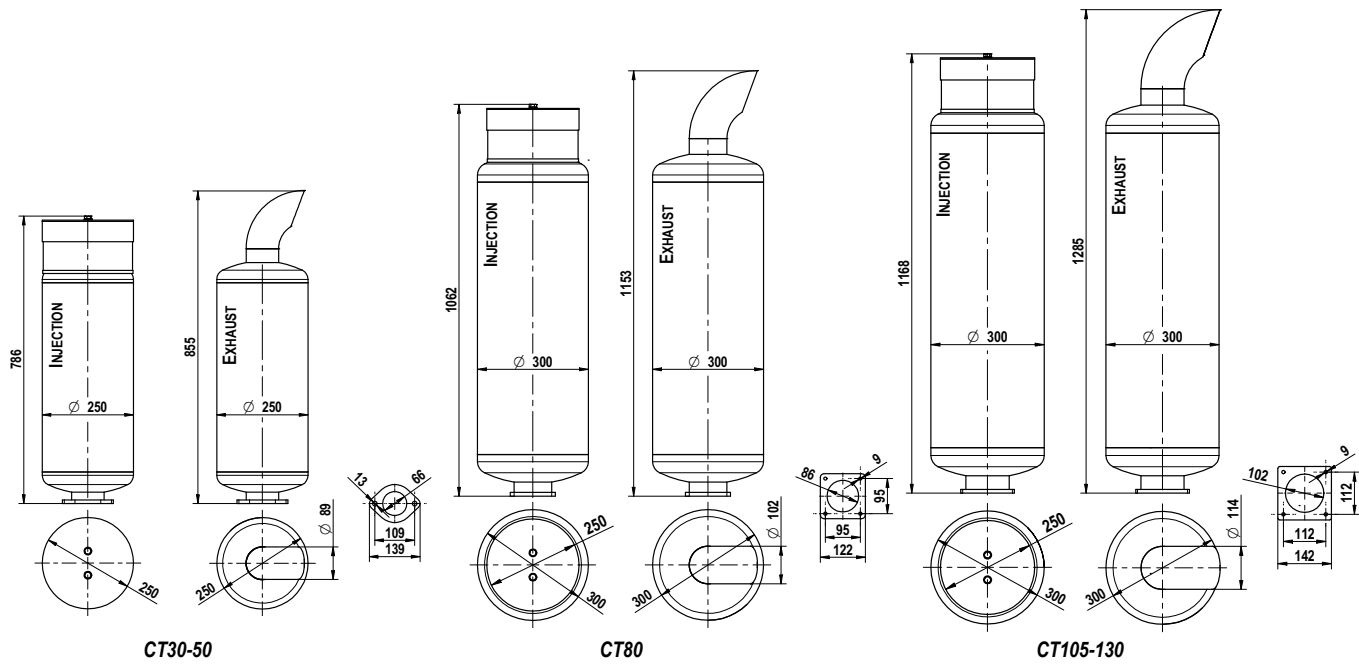
- Hydraulic oil.
- Rubber and plastic parts, such as hoses.
- Steel and aluminium parts.

• Recycling materials allow reducing the environmental impact and respecting the environment.

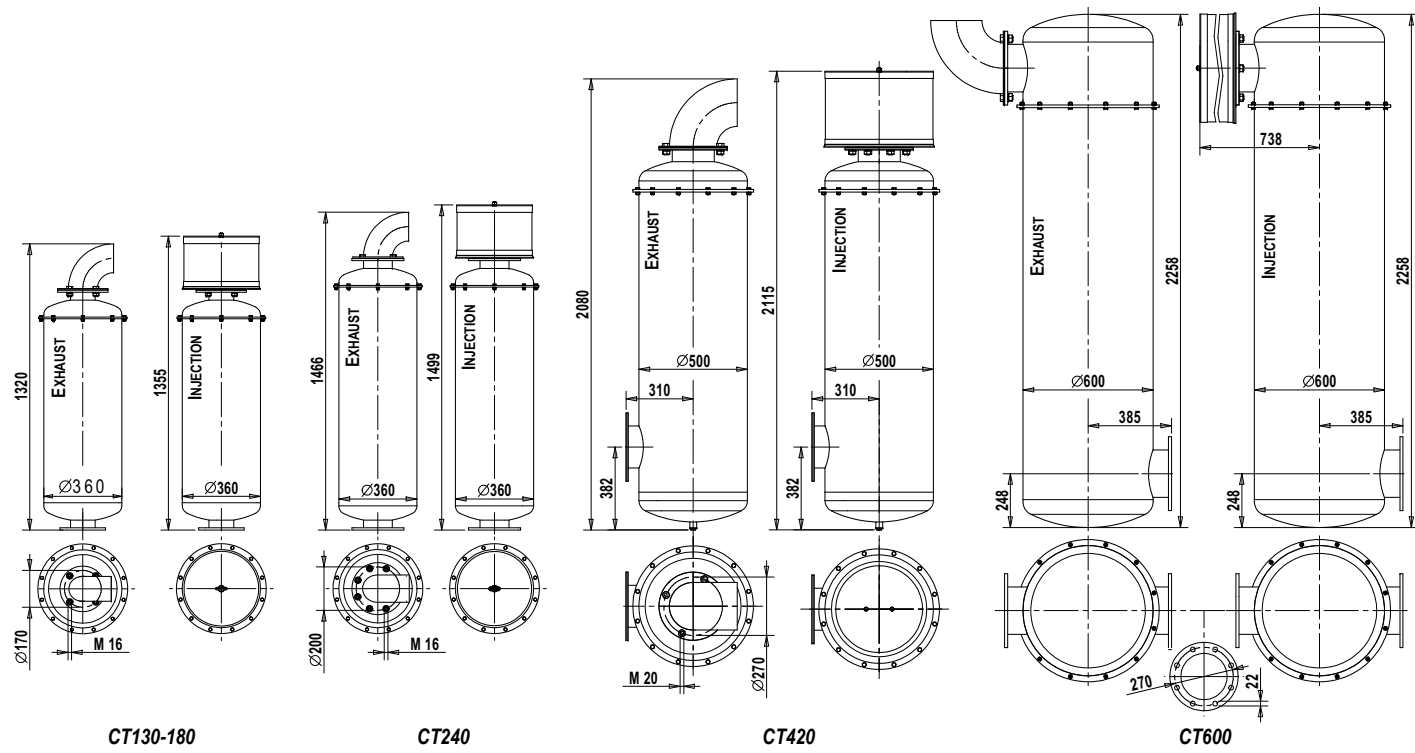


**Do not dispose of in the environment. Dispose of in compliance with the standards in force.**

## 9. Accessories

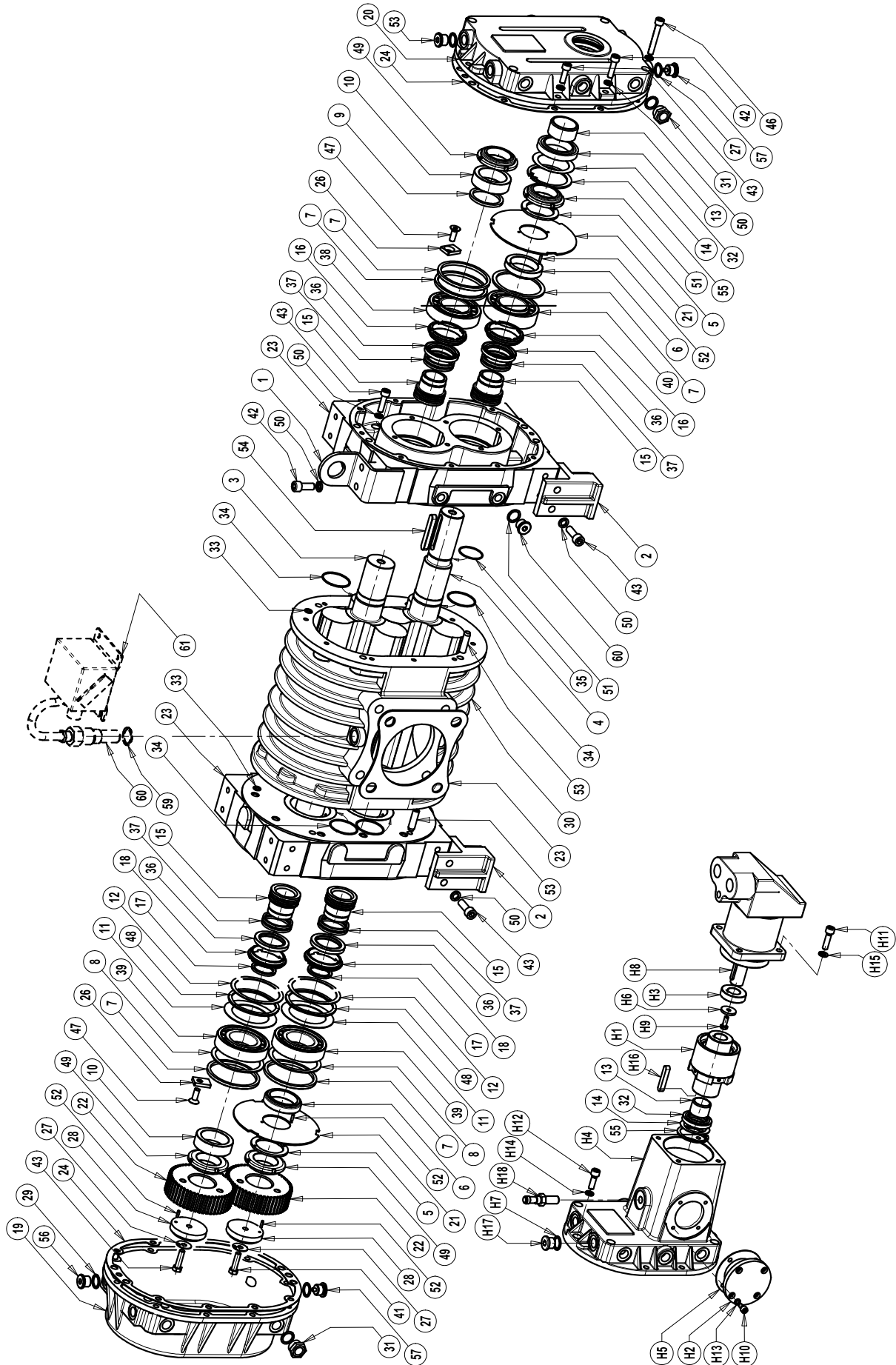


Model	CT30-50	CT30-50	CT80	CT80	CT105-130	CT105-130
Type	<i>Exhaust</i>	<i>Injection</i>	<i>Exhaust</i>	<i>Injection</i>	<i>Exhaust</i>	<i>Injection</i>
Code iron version	1547004900	1445004700	1547005000	1445004010	1547005100	1445004310
Code inox version	1547005200	1445005100	1547005300	1445005210	1547005400	1445004600



Model	CT130-180	CT130-180	CT240	CT240	CT420	CT420	CT600	CT600
Type	<i>Exhaust</i>	<i>Injection</i>	<i>Exhaust</i>	<i>Injection</i>	<i>Exhaust</i>	<i>Injection</i>	<i>Exhaust</i>	<i>Injection</i>
Flange (UNI 2277-67)	DN100 PN6	DN100 PN6	DN125 PN6	DN125 PN6	DN175 PN10	DN175 PN10	DN175 PN10	DN175 PN10
Code iron version	1414014600	1414014700	1414014200	1414014300	1414013800	1414013900	1414014000	1414014100
Code inox version	1414014800	1414014900	1414014400	1414014500	-	-	-	-

**CT30-50**





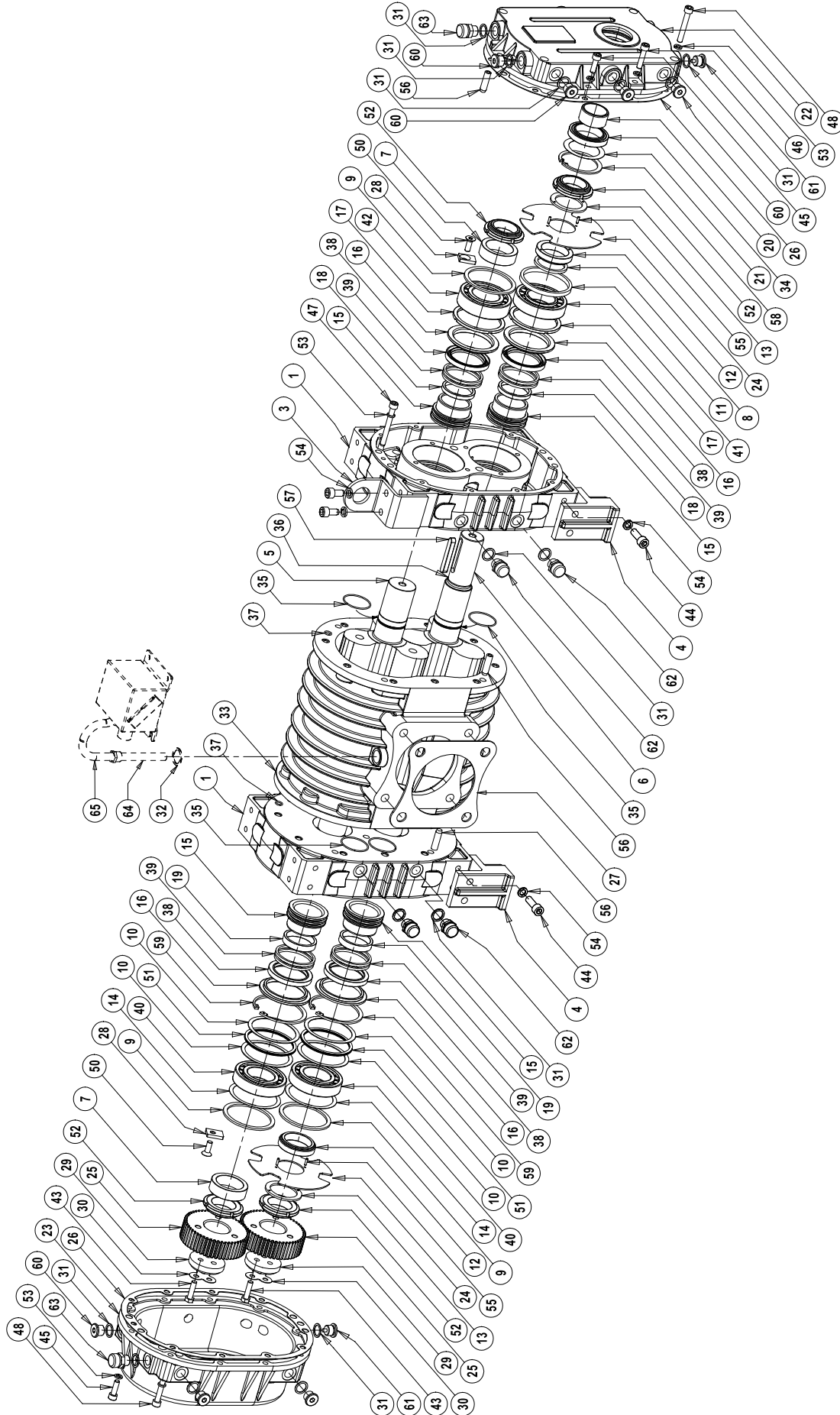
**CT30-50**

Pos.	Code	Description	Q.ty	Pos.	Code	Description	Q.ty
1	1613046100	LIFTING SUPPORT	2	31	4022104501	OIL LEVEL WARNING LIGHT PLUG G 3/8	2
2	1613501500	FOOT SUPPORT	4	32	4022200153	SEAL RING VITON 30 / 47/ 7	1
3	1621506700	REEL CONDUIT CT30	1	33	4022200317	RING OR108 VITON	20
	1621506900	REEL CONDUIT CT50	1	34	4022200325	RING OR 2106 VITON	4
4	1621506800	REEL CONDUCTOR CT30	1	35	4022200326	RING OR2081 VITON	1
	1621507000	REEL CONDUCTOR CT50	1	36	4022202808	SEAL 55X40X6	4
5	1624037400	DISTANCE PIECE OIL MIXER 3MM	2	37	4022203605	SEAL 48X42X3,5	4
6	1624037800	DISK DISTANCE PIECE OIL MIXER 12MM	2	38	402318TB00	BEARING NJ 206 R	1
7	1624037900	DISTANCE PIECE	5	39	402318UB00	BEARING NUP 206R	2
8	1624038000	CONTROL DISTANCE PIECE OF 0,1MM	-	40	402318VB00	BEARING NJ 2206 R	1
9	1624038100	SPACER 36X30X3.5	1	41	4026102807	SCREW M8X25	2
10	1624038200	SPACER 38X30X17	2	42	4026121405	SCREW M8X20	4
11	1624038500	SPACER 62X50X1	2	43	4026121406	SCREW M8X30	20
12	1624038600	SPACER 62X42X1	2	44	4026121407	SCREW M8X25	18
13	162404TPB0	BUSHING	1	45	4026121408	SCREW M8X35	2
14	162404TTB0	SPACER	1	46	4026121410	SCREW M8X45	8
15	1624044400	BUSHING	4	47	4026155706	SCREW M8X18	12
16	1624044600	SPACER	2	48	4026300006	COMPENSATION RING	6
17	1624044700	SPACER	2	49	402630RB02	SELF-LOCKING METAL RING M 45X1,5	4
18	1624044800	SPACER	2	50	4026350505	WASHER GROWER 8 SQUARE SECTION	52
19	1640102300	REAR COVER	1	51	4026359006	WASHER	8
20	1640102400	FRONT COVER	1	52	4026401101	CYLINDRICAL PLUG 3X12	6
21	1647001000	OIL MIXER DISK	2	53	4026401806	PROCESSED CYLINDRICAL PLUG 10X36	12
22	165101N5B0	PHASE GEARS M 1,5 Z 50	2	54	4026500808	TAB 8/ 7/ 45	1
23	1662501300	BENCH CT30-50	2	55	4026510528	RING SEEGER I48	1
24	1680710100	COVER GASKET	2	56	4026701602	ZINC-PLATED PLUG W/HEAD G 3/8	14
25	1680711100	GASKET DN150 PN6	2	57	4026701620	MAGNETIC PLUG W/HEAD G 3/8	2
	1680711000	GASKET DN150 PN6	2	58	4026904550	PLUIG G1/4	8
26	1681008700	KEARING KEEP PLATE	12	59	16851ABUB0	WASHER	1
27	1685006900	SAFETY WASHER	2	60	16630BJQB0	THERMOSTAT HOUSING CT30 (optional)	1
28	1685007000	GEARS WASHER	2		16630A1XB0	THERMOSTAT HOUSING CT50 (optional)	1
29	1685100200	ALUMINUM FLAT WASHER 17X22X1,5	18	61	4028249B00	TERMOSTAT (optional)	1
30	1687508600	HOUSING CT 30	1		1892006600	GASKET KIT CT30-50	1
	1687508500	HOUSING CT 50	1				

**CT30-50 HDR**

Pos.	Code	Description	Q.ty	Pos.	Code	Description	Q.ty
H1	14701007E0	JOINT	1	H10	4026121303	SCREW TCEI M6X12 GALV.	4
H2	1610051700	FLANGE	1	H11	4026121406	SCREW TCEI M8X30 GALV.	4
H3	16240061E0	SPACER	1	H12	4026121407	SCREW TCEI M8X25 GALV.	2
H4	16401041E0	COVER	1	H13	4026350503	WASHER GROWER 6 GALV.	4
H5	1680709700	GASKET	1	H14	4026350505	RONDELLA GROWER 8 GALV.	2
H6	16850028E0	WASHER 24X6.5X3	1	H15	4026350706	RONDELLA GROWER 8 GALV.	4
H7	1685100200	WASHER	2	H16	4026500808	TAB 8X7X45	1
H8	4024107572	HDR MOTOR	1	H17	4026701602	PLUG 3/8	2
H9	4026102704	SCREW TE M6X16 GALV..	1	H18	40283PUB21	INDUCTIVE SENSOR	1

**CT80-105-130**

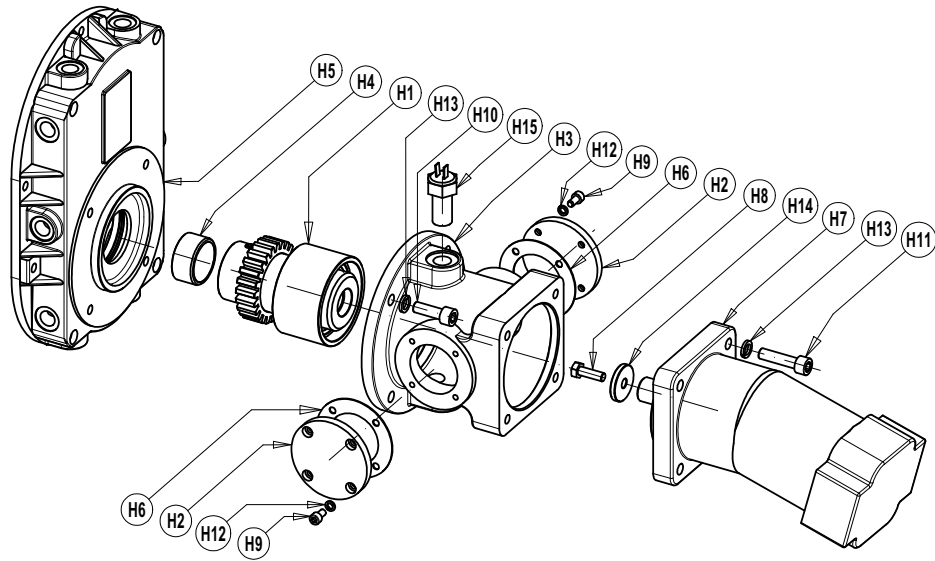




**CT80-105-130**

Pos.	Code	Description	Q.ty	Pos.	Code	Description	Q.ty
1	1662501200	BENCH	2	33	1687507800	HOUSING CT 80	1
2	1609000400	PLATE	2		1687507900	HOUSING CT 105	1
3	1613034900	LIFTING SUPPORT	2		1687508000	HOUSING CT 130	1
4	1613501300	FOOT SUPPORT	4	34	4022200154	SEAL RING DOMSEL 45X65X10 VITON	1
5	1621505700	REEL CONDUIT CT 80	1	35	4022200313	OR RING 2162	4
	1621505900	REEL CONDUIT CT 105	1	36	4022200316	OR RING 2137	1
	1621506100	REEL CONDUIT CT 130	1	37	4022200317	OR RING 108 VITON	20
6	1621505800	REEL CONDUCTOR CT 80	1	38	4022202806	SEAL 72X55X8	4
	1621506000	REEL CONDUCTOR CT 105	1	39	4022203601	RING 65X58X3,8	8
	1621506200	REEL CONDUCTOR CT 130	1	40	4023115046	BEARING	2
7	1624035500	SPACER 60/45/18	2	41	4023115051	BEARING	1
8	1624035600	SPACER 54/45/4	1	42	4023115053	BEARING	1
9	1624035700	SPACER 85/73/3	3	43	4026107111	SCREW TE 8,8 M8X30	6
10	1624036000	SPACER	4	44	4026120506	SCREW TCEI 8,8 M10X30	8
11	1624036100	SPACER 85/76/7	1	45	4026121407	SCREW TCEI 8,8 M8X25 GALV.	10
12	1624036200	OILFEAL DISK SPACER 13 MM	2	46	4026121408	SCREW TCEI 8,8 M8X35 GALV.	2
13	1624036300	OILFEAL DISK SPACER 3 MM	2	47	4026121416	SCREW TCEI 8,8 M8X70 GALV.	20
14	1624036900	SPACER	2	48	4026121418	SCREW TCEI 8,8 M8X55 GALV.	9
15	1624040300	SEAL BUSHING	4	49	4026121807	SCREW TCEI 8,8 M10X20 GALV.	4
16	1624040700	SPACER	4	50	4026155706	SCREW TSPEI 10,9 M8X18 GALV.	12
17	1624040800	SPACER 1 FRONT	2	51	4026300018	FEDER RING	8
18	1624040900	SPACER 2 FRONT	2	52	402630RB05	RING NUT M45X1,5	4
19	1624041000	SPACER 1 REAR	2	53	4026350505	WASHER GROWER 8	40
20	162404TQB0	BED FOR SEAL RING	1	54	4026350506	WASHER GROWER 10	12
21	162404TUB0	DISTANCE PIECE	1	55	4026401101	PIN 3X12	4
22	1640102100	FRONT COVER	1	56	4026401806	PIN 10X36	12
23	1640102200	REAR COVER	1	57	4026500911	TAB 10X8X63	1
24	1647001200	OILFEAL DISK	2	58	4026510538	SEEGER I 68	1
25	1651002RA0	PHASE TOOTHED WHEEL	2	59	4026510545	SEEGER I 85	2
26	1680709600	GASKET	2	60	4026701602	PLUG 3/8 GALV.	14
27	16807ZSPA0	GASKET CT80 DN80 PN6	2	61	4026701620	MAGNETIC PLUG W/HEAD G 3/8	2
	1680712000	GASKET CT105-130 DN100 PN6	2	62	4026910006	PLUG 3/8	4
28	1681008400	BEARING PLATE	12	63	4026910102	PLUG	2
29	1681008500	WASHER	2	64	16630A1XB0	THERMOSTAT HOUSING (OPTIONAL)	1
30	1681008600	WASHER	2	65	4028249B00	THERMOSTAT (OPTIONAL)	1
31	1685100200	WASHER 17X22X1,5	22				
32	16851ABUB0	ALUMINUM FLAT WASHER 28X22X1.5	1		18920013E0	KIT GASKET CT80-105-130 TL	1

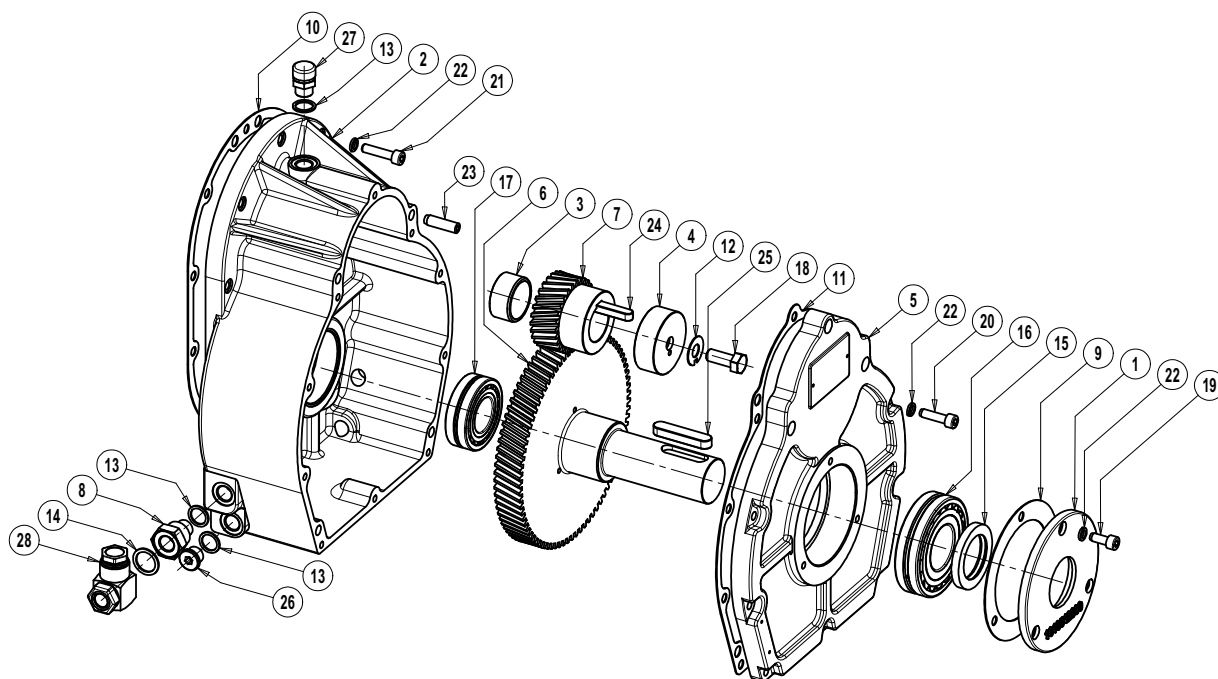
## CT80-105-130 HDR



## CT80-105-130 HDR

Pos.	Code	Description	Q.ty	Pos.	Code	Description	Q.ty
H1	147014H6B0	JOINT	1	H9	4026120301	SCREW M6X12	8
H2	1610051700	FLANGE	2	H10	4026120506	SCREW M10X30	4
H3	1612504500	HOUSING TRASMISSION HDR	1	H11	4026120508	SCREW M10X40	4
H4	162404TQB0	BUSHING	1	H12	4026350503	WASHER GROWER M6	8
H5	1640501500	COVER HDR	1	H13	4026350506	WASHER GROWER M10	8
H6	1680709700	GASKET	2	H14	4026353800	WASHER 35X8.5	1
H7	40241DZB00	HDR MOTOR	1	H15	4028321601	INDUCTIVE SENSOR	1
H8	4026102807	SCREW M8X25	1				

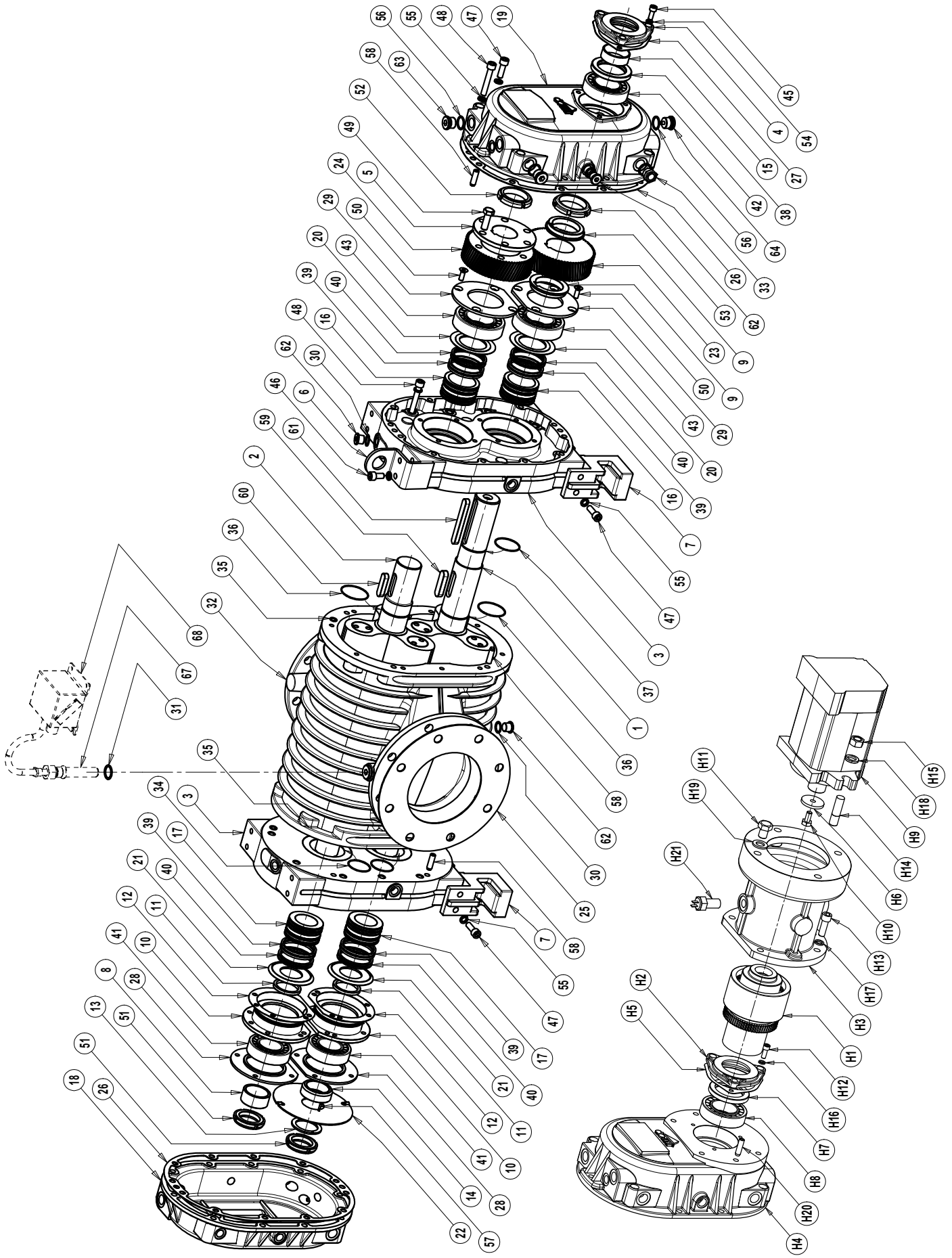
**CT80-105-130 M**



**CT80-105-130 Multiplier**

Pos.	Code	Description	Q.ty	Pos.	Code	Description	Q.ty
1	1610512300	FLANGE	1	15	4022200412	SEAL	1
2	161058B2B0	FRONT FLANGE	1	16	4023105008	BEARING 21309 E/C3	1
3	162404TQB0	BUSCING	1	17	4023105009	BEARING 22207 E/C3	1
4	1624082EB0	DISTANCE	1	18	4026107311	SCREW M12X30	1
5	164058B8B0	FRONT COVER	1	19	4026120403	SCREW M8X20	3
6	165107ZZB0	TOOTHED WHEEL	1	20	4026120406	SCREW M8X30	10
7	16510802B0	TOOTHED WHEEL	1	21	4026120407	SCREW M8X35	10
8	16730937B0	OIL LEVEL RACCORD	1	22	4026350505	WASHER GROWER M8	23
9	1680708700	GASKET	1	23	4026401806	PIN 10X36	8
10	1680709600	GASKET	1	24	4026500911	TAB 10X8X63	1
11	1680795CB0	GUARNIZIONE	1	25	4026501605	TAB 14X9X63	1
12	1685002400	WASHER	1	26	4026701620	PLUG 3/8	1
13	1685100200	WASHER 17X22X1.5	3	27	4026910102	PLUG 3/8	1
14	16851DBVB0	WASHER 21.5X28X1.5	1	28	40269KPB00	OIL LEVEL	1

**CT180-240**



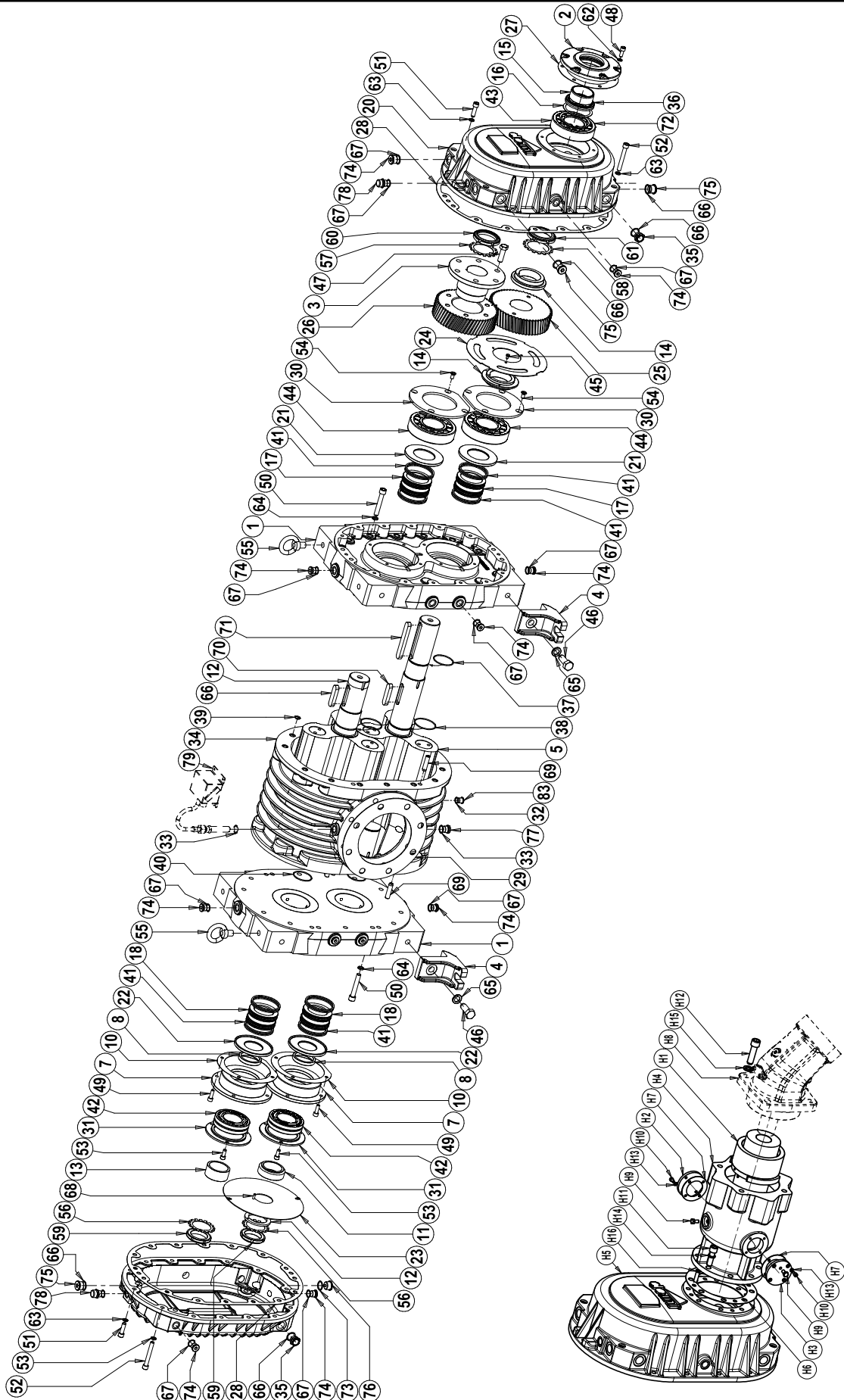
**CT 180-240**

Pos.	Code	Description	Q.ty	Pos.	Code	Description	Q.ty
1	16215001E0	REEL CONDUCTOR CT180	1	35	4022200318	OR 2043	20
	1521503400	REEL CONDUCTOR CT240	1	36	4022200320	OR 2200	2
2	16215002E0	REEL CONDUIT CT180	1	37	4022200322	OR 2175	1
	1521503300	REEL CONDUIT CT240	1	38	4022200425	SEAL	1
3	1662500200	BED	2	39	4022203600	SEAL PTFE	8
4	1610512200	FLANGE SHAFT	1	40	4022203610	SEAL	8
5	1611000900	HUB	1	41	4023105007	BEARING	2
6	1613034900	LIFTING SUPPORT	4	42	4023110060	BEARING	1
7	1613501200	SUPPORT	4	43	4023110065	BEARING	2
8	16240004E0	DISTANCE	1	44	4026102807	SCREW M8x25	8
9	1624027600	DISTANCE	2	45	4026121405	SCREW M8x20	3
10	16240029E0	BUSHING BEARING	2	46	4026121807	SCREW M10x20	8
11	1624027800	DISTANCE	2	47	4026120506	SCREW M10x30	20
12	1624041300	DISTANCE	2	48	4026121815	SCREW M10x60	28
13	1624036300	DISTANCE 3mm	1	49	40261D2C10	SCREW M12x35	6
14	1624039500	DISTANCE	1	50	4026155706	SCREW M8x18	8
15	1624030200	BUSHING FRONT SEAL	1	51	402630RB05	RING M45x1.5 SELF-LOCKING	2
16	1624501300	BUSHING DI 55	2	52	402630RB06	RING M50x1.5 SELF-LOCKING	1
17	1624501500	BUSHING DI 45	2	53	402630RB07	RING M55x2 SELF-LOCKING	1
18	1640102000	REAR COVER	1	54	4026350505	WASHER GROWER M8	11
19	1640500800	FRONT COVER	1	55	4026350506	WASHER GROWER M10	56
20	1647000000	DISK DI 55	2	56	4026359003	WASHER AL 21.5x26x1.5	12
21	1647000100	DISK DI 45	2	57	4026401101	PIN 3x12	2
22	1647001700	DISK OLIO	1	58	4026401806	PIN 10x35	16
23	1651008800	PHASE TOOTHED WHEEL	1	59	4026501206	TAB 14x9x100	1
24	1651008900	PHASE TOOTHED WHEEL	1	60	4026501603	TAB 14x9x50	1
25	16807001E0	GASKET CT180 DN100 PN10	2	61	4026501607	TAB 16x10x80 (CT180)	1
	1680613800	GASKET CT240 DN150 PN10	2		4026501609	TAB 16x10x100 (CT240)	1
26	1680708200	GASKET	2	62	4026701602	PLUG G3/8	17
27	1680708400	GASKET FRONT FLANGE	1	63	4026701603	PLUG G1/2	7
28	1681009200	PLATE REAR BEARING	2	64	4026701621	PLUG G1/2	2
29	1681008000	PLATE BEARING	2	67	166308WRB0	THERMOSTAT HOUSING CT180 (optional)	1
30	1685100200	WASHER AL 17x22x1.5	18		16630ZUPA0	THERMOSTAT HOUSING CT240 (optional)	1
31	16851ABUB0	WASHER CU 28x22.5x1.5	1	68	4028249B00	THERMOSTAT (optional)	1
32	16875002E0	HOUSING CT180	1				
	1687509800	HOUSING CT240	1				
33	4022104502	PLUG OIL LEVEL G1/2	4		1892009600	GASKET KIT CT180	1
34	4022200313	OR 2162	2		1892009700	GASKET KIT CT240	1

**CT 180-240 HDR**

Pos.	Code	Description	Q.ty	Pos.	Code	Description	Q.ty
H1	1470105600	JOINT	1	H11	4026107509	SCREW M16X20	2
H2	1610512200	FLANGE TRASMISSION	1	H12	4026120403	SCREW M8X20	3
H3	1612504200	HOUSING TRASMISSION HDR	1	H13	4026120610	SCREW M12X35	4
H4	1640501100	FRONT COVER HDR	1	H14	4026171404	SCREW M16X40	2
H5	1680708400	GASKET	1	H15	4026308009	NUT M16	2
H6	168500L1A0	WASHER 45X10X5	1	H16	4026350505	WASHER GROWER M8	3
H7	4022200425	SEAL	1	H17	4026350508	WASHER GROWER M12	4
H8	4023110060	BEARING 2210 ECJ/C3	1	H18	4026350611	WASHER GROWER M16	2
H9	4024107731	HDR MOTOR CT180	1	H19	4026357009	WASHER M16	2
	4024108602	HDR MOTOR CT240	1	H20	4026401806	PIN 10X36	2
H10	4026107208	SCREW M10X20	1	H21	4028321601	INDUCTIVE SENSOR	1

**CT420-600**





## CT 420-600

Pos.	Code	Description	Q.ty	Pos.	Code	Description	Q.ty
1	1662500600	BENCH	2	41	4022203613	SEAL	16
2	1610513700	FLANGE TRASMISSION	1	42	4023105014	BEARING	2
3	161104EAB0	HUB	1	43	4023110096	BEARING	1
4	1613501700	SUPPORT	4	44	4023110097	BEARING	2
5	1621508300	REEL CONDUCTOR CT420	1	45	4026101301	SCREW TE M6X10 GALV.	3
	1521506200	REEL CONDUCTOR CT600	1	46	4026101813	SCREW M20x50	4
6	1621508400	REEL CONDUIT CT420	1	47	40261D3C10	SCREW M16x50	6
	1521506100	REEL CONDUIT CT600	1	48	4026120505	SCREW M10x25	6
7	1624038700	BUSHING BEARING	2	49	4026120506	SCREW TCEI M10X30 GALV.	8
8	1624038800	SPACER	2	50	4026120718	SCREW M14x90	28
9	1624038900	SPACER	1	51	4026121711	SCREW M12x40	20
10	1624039000	SPACER	2	52	4026121720	SCREW TCEI M12X90 GALV.	8
11	1624039300	SPACER	1	53	4026121808	SCREW TCEI M10X25 GALV.	6
12	1624039400	SPACER	1	54	4026155807	SCREW M10x20	8
13	1624041800	SPACER	1	55	4026190103	EYEBOLT M20	4
14	1624042000	SPACER	1	56	4026306313	WASHER M65	2
15	162404TSB0	BOCCOLA TENUTA FRONTALE	1	57	4026306314	WASHER M70	1
16	162404TWB0	SPACER	1	58	4026306315	WASHER M75	1
17	1624502400	BUSHING DI 75	2	59	402630RB09	LOCKING COLLAR M65x2 SELF LOCK.	2
18	1624502500	BUSHING DI 65	2	60	402630RB10	LOCKING COLLAR M70x2 SELF LOCK.	1
19	1640102600	REAR COVER	1	61	402630RB11	LOCKING COLLAR M75x2 SELF LOCK.	1
20	1640501400	FRONT COVER	1	62	4026350506	WASHER GROWER 10 ZINC.	6
21	1647001400	DISK DI 75	2	63	4026350508	WASHER GROWER M12	28
22	1647001500	DISK DI 65	2	64	4026350509	WASHER GROWER M14	28
23	1647001600	REAR DISK	1	65	4026350512	WASHER GROWER 20 ZINC.	4
24	164707VCC0	FORNT DISK	1	66	4026359000	WASHER AL 32x26x1.5	14
25	165104E6B0	PHASE TOOTHED WHEEL	1	67	4026359003	WASHER 21,5X26X1,5	19
26	165104E7B0	PHASE TOOTHED WHEEL	1	68	4026401208	PIN 6x24	1
27	1680710500	GASKET	1	69	4026402011	PIN 14x55	8
28	1680710600	GASKET	2	70	4026501403	TAB 20x12x80	1
29	1680611900	GASKET CT420 DN175 PN10	2	71	4026501408	TAB 20x12x140	1
	16807D1WB0	GASKET CT600 DN200 PN10	2	72	4026510552	ELASTIC SEAL	1
30	1681008800	PLATE REAR BEARING	2	73	4026701602	PLUG 3/8	2
31	1681008900	PLATE	2	74	4026910007	PLUG G1/2	17
32	1685100200	WASHER 17X22X1,5	2	75	4026701604	PLUG G3/4	8
33	16851ABUB0	WASHER CU 28x22.5x1.5	1	76	4026701622	MAGNETIC PLUG G3/4	2
34	1687510100	HOUSING CT420	1	77	4026904510	PLUG	1
	1687510000	HOUSING CT600	1	78	4026910104	VENT PLUG	2
35	4022104504	PLUG OIL LEVEL G3/4	4	79	1663063800	THERMOSTAT HOUSING (optional)	1
36	4022200152	SEAL	1		4028249B00	THERMOSTAT (optional)	1
37	4022200305	OR 3256	1				
38	4022200327	OR 3275	2				
39	4022200328	OR 118	28	1892009800	GASKET KIT CT420	1	
40	4022200329	OR 3237	2	1892009900	GASKET KIT CT600	1	

## CT 420-600 HDR

Pos.	Code	Description	Q.ty	Pos.	Code	Description	Q.ty
H1	1470106300	JOINT	1	H9	4026103402	SCREW M8X1X10	2
H2	1610051700	FLANGE	1	H10	4026120301	SCREW M6X12	8
H3	1610051900	FLANGE	1	H11	4026120712	SCREW M14X45	8
H4	1612504600	HOUSING	1	H12	4026121215	SCREW M16X60	4
H5	1640501700	COVER HDR	1	H13	4026350503	WASHER GROWER M6	5
H6	1680701400	GASKET	1	H14	4026350509	WASHER GROWER M14	8
H7	1680709700	GASKET	2	H15	4026350611	WASHER GROWER M16	4
H8	4024107504	HDR MOTOR CT420	1	H16	4026401806	PIN 10X36	4
	40241SUB04	HDR MOTOR CT600	1				

<b>Model</b>	<b>Issue date</b>	<b>Revision No.</b>	<b>Revision date</b>	<b>Filled out by</b>	<b>Viewed by</b>
SERIE CT	25-08-2006	08	21-04-2016	U.T.	A.T.

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Juop SpA reserves the right to modify the products described in this manual without prior notice.