


VALUTAZIONE DI IMPATTO AMBIENTALE PER  
REALIZZAZIONE DI POZZI GEOTERMICI E DI UNA  
CENTRALE ORC PER PRODUZIONE DI ENERGIA  
ELETTRICA NEL COMUNE DI JOLANDA DI SAVOIA (FE)  
PROGETTO POLA

**IMPIANTO GEOTERMICO – PIPING MATERIAL  
LIST**

<b>SOCIETÀ RICHIEDENTE</b>		<b>TECNICO INCARICATO</b>	
 <b>GEOTERMIA ZERO EMISSION ITALIA SRL</b> Sede legale: via Maurizio Gonzaga 2, Milano PEC: Geotermia.italia@legalmail.it		 <b>GIPRI srl</b> V. G. March 14/A, 57121 Livorno Tel. +39 0586 426547 info@gipri.it - www.gipri.it	
<b>TITOLO ELABORATO</b>			
<b>Impianto geotermico – Piping material list</b>			
<b>DATA</b> 14/12/2022	<b>RIF. FILE</b> -	<b>SCALA</b> -	

0A	14/12/2022	PRIMA EMISSIONE	Turboden	J.Bernini	L.Villani
REV.	DATA	DESCRIZIONE	REDATTO	ESAMINATO	ACCETTATO


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	Job N°:	P22060	Doc:	P22060-G-1000
	Impianto:	Pola	Rev:	0
	Cliente:	G.I.P.R.I. S.r.l.	Data:	24/10/2022
	Location:	Jolanda di Savoia	Pagina:	1 of 5


# Piping Material List

## Ciclo ORC ad alta pressione

REVISION					
0	Prima emissione	AB0386	MD0098	MD0098	24/10/2022
REV.	DESCRIZIONE	AUTORE	CONTROLLATO DA	APPROVATO DA	DATA

		Job N°:	P22060		Doc:	P22060-G-1000				
		Impianto:	Pola		Rev:	0				
		Cliente:	G.I.P.R.I. S.r.l.		Data:	24/10/2022				
		Location:	Jolanda di Savoia		Pagina:	2 of 5				
Pos.	Piping	Quantità	u.m.	NPS "	Schedula	MATERIALE	NOTE	kg/m	Peso [kg]	REV.
1	PIPE NPS 2" Sch. STANDARD	0	m	2	STANDARD	ASTM A106 Gr.B	ASME B36.10M	5,4	0	
2	PIPE NPS 3" Sch. STANDARD	539	m	3	STANDARD	ASTM A106 Gr.B	ASME B36.10M	11,3	6.095	
3	PIPE NPS 4" Sch. STANDARD	1150	m	4	STANDARD	ASTM A106 Gr.B	ASME B36.10M	16,1	18.510	
4	PIPE NPS 5" Sch. STANDARD	0	m	5	STANDARD	ASTM A106 Gr.B	ASME B36.10M	21,8	0	
5	PIPE NPS 6" Sch. STANDARD	0	m	6	STANDARD	ASTM A106 Gr.B	ASME B36.10M	28,3	0	
6	PIPE NPS 8" Sch. STANDARD	415	m	8	STANDARD	ASTM A106 Gr.B	ASME B36.10M	42,6	17.678	
7	PIPE NPS 10" Sch. STANDARD	46	m	10	STANDARD	ASTM A106 Gr.B	ASME B36.10M	60,4	2.777	
8	PIPE NPS 12" Sch. STANDARD	408	m	12	STANDARD	ASTM A106 Gr.B	ASME B36.10M	74,0	30.178	
9	PIPE NPS 14" Sch. STANDARD	0	m	14	STANDARD	ASTM A106 Gr.B	ASME B36.10M	81,4	0	
10	PIPE NPS 16" Sch. STANDARD	81	m	16	STANDARD	ASTM A106 Gr.B	ASME B36.10M	93,4	7.565	
11	PIPE NPS 18" Sch. STANDARD	0	m	18	STANDARD	ASTM A106 Gr.B	ASME B36.10M	105,3	0	
12	PIPE NPS 20" Sch. STANDARD	0	m	20	STANDARD	ASTM A106 Gr.B	ASME B36.10M	117,3	0	
13	PIPE NPS 22" Sch. STANDARD	423	m	22	STANDARD	ASTM A106 Gr.B	ASME B36.10M	129,3	54.675	
14	PIPE NPS 22" Sch. Sch.20	0	m	22	Sch.20	ASTM A106 Gr.B	ASME B36.10M	129,3	0	
15	PIPE NPS 20" Sch. EXTRA STRONG	190	m	20	EXTRA STRONG	ASTM A106 Gr.B	ASME B36.10M	155,3	29.512	
16	PIPE NPS 22" Sch. SCH.40	40	m	22	SCH.40	ASTM A106 Gr.B	ASME B36.10M	212,8	8.510	
17	PIPE NPS 30" Sch. STANDARD	0	m	30	STANDARD	ASTM A106 Gr.B	ASME B36.10M	177,1	0	
18	PIPE NPS 32" Sch. STANDARD	0	m	32	STANDARD	ASTM A106 Gr.B	ASME B36.10M	189,0	0	
19	PIPE NPS 34" Sch. STANDARD	0	m	34	STANDARD	ASTM A106 Gr.B	ASME B36.10M	201,0	0	
20	PIPE NPS 36" Sch. STANDARD	0	m	36	STANDARD	ASTM A106 Gr.B	ASME B36.10M	212,9	0	
21	PIPE NPS 36" Sch. SCH.20	194	m	36	SCH.20	ASTM A106 Gr.B	ASME B36.10M	212,9	41.310	
22	PIPE NPS 42" Sch. STANDARD	0	m	42	STANDARD	ASTM A106 Gr.B	ASME B36.10M	248,8	0	
23	PIPE NPS 48" Sch. SCH.40	0	m	48	SCH.40	ASTM A106 Gr.B	ASME B36.10M	810,6	0	
24	PIPE NPS 52" Sch. SCH.40	0	m	52	SCH.40	ASTM A106 Gr.B	ASME B36.10M	961,4	0	
25	PIPE NPS 56" Sch. SCH.40	0	m	56	SCH.40	ASTM A106 Gr.B	ASME B36.10M	1035,3	0	
26	PIPE NPS 64" Sch. SCH.40	41	m	64	SCH.40	ASTM A106 Gr.B	ASME B36.10M	598,0	24.519	
Pos.	Raccordi - Curve	QT.Y	u.m.	NPS "	Sch	MATERIAL	NOTES	kg/pcs	Weight [kg]	REV.
27	Elbows 90° L.R. 2" Sch. STANDARD	0	pcs.	2	STANDARD	ASTM SA234 WPB	ASME B16.9	0,7	0	
28	Elbows 90° L.R. 3" Sch. STANDARD	0	pcs.	3	STANDARD	ASTM SA234 WPB	ASME B16.9	2,0	0	
29	Elbows 90° L.R. 4" Sch. STANDARD	5	pcs.	4	STANDARD	ASTM SA234 WPB	ASME B16.9	3,9	19	
30	Elbows 90° L.R. 5" Sch. STANDARD	0	pcs.	5	STANDARD	ASTM SA234 WPB	ASME B16.9	6,5	0	
31	Elbows 90° L.R. 6" Sch. STANDARD	0	pcs.	6	STANDARD	ASTM SA234 WPB	ASME B16.9	10,1	0	
32	Elbows 90° L.R. 8" Sch. STANDARD	5	pcs.	8	STANDARD	ASTM SA234 WPB	ASME B16.9	20,4	102	
33	Elbows 90° L.R. 10" Sch. STANDARD	0	pcs.	10	STANDARD	ASTM SA234 WPB	ASME B16.9	36,1	0	
34	Elbows 90° L.R. 12" Sch. STANDARD	3	pcs.	12	STANDARD	ASTM SA234 WPB	ASME B16.9	53,1	159	
35	Elbows 90° L.R. 14" Sch. STANDARD	0	pcs.	14	STANDARD	ASTM SA234 WPB	ASME B16.9	68,1	0	
36	Elbows 90° L.R. 16" Sch. STANDARD	6	pcs.	16	STANDARD	ASTM SA234 WPB	ASME B16.9	89,3	536	
37	Elbows 90° L.R. 18" Sch. STANDARD	0	pcs.	18	STANDARD	ASTM SA234 WPB	ASME B16.9	113,0	0	
38	Elbows 90° L.R. 20" Sch. STANDARD	0	pcs.	20	STANDARD	ASTM SA234 WPB	ASME B16.9	140,0	0	
39	Elbows 90° L.R. 22" Sch. STANDARD	10	pcs.	22	STANDARD	ASTM SA234 WPB	ASME B16.9	170,0	1.700	
40	Elbows 90° L.R. 24" Sch. STANDARD	0	pcs.	24	STANDARD	ASTM SA234 WPB	ASME B16.9	202,0	0	
41	Elbows 90° L.R. 20" Sch. EXTRA STRONG	21	pcs.	20	EXTRA STRONG	ASTM SA234 WPB	ASME B16.9	186,0	3.906	
42	Elbows 90° L.R. 22" Sch. EXTRA STRONG	0	pcs.	22	EXTRA STRONG	ASTM SA234 WPB	ASME B16.9	225,0	0	
43	Elbows 90° L.R. 30" Sch. STANDARD	0	pcs.	30	STANDARD	ASTM SA234 WPB	ASME B16.9	317,9	0	
44	Elbows 90° L.R. 32" Sch. STANDARD	0	pcs.	32	STANDARD	ASTM SA234 WPB	ASME B16.9	362,0	0	
45	Elbows 90° L.R. 34" Sch. STANDARD	0	pcs.	34	STANDARD	ASTM SA234 WPB	ASME B16.9	408,0	0	
46	Elbows 90° L.R. 36" Sch. STANDARD	0	pcs.	36	STANDARD	ASTM SA234 WPB	ASME B16.9	458,0	0	
47	Elbows 90° L.R. 40" Sch. STANDARD	0	pcs.	40	STANDARD	ASTM SA234 WPB	ASME B16.9	567,0	0	
48	Elbows 90° L.R. 42" Sch. STANDARD	0	pcs.	42	STANDARD	ASTM SA234 WPB	ASME B16.9	625,4	0	
49	Elbows 90° L.R. 48" Sch. STANDARD	0	pcs.	48	STANDARD	ASTM SA234 WPB	ASME B16.9	817,7	0	
50	Elbows 90° L.R. 52" Sch. STANDARD	0	pcs.	52	STANDARD	ASTM SA234 WPB	ASME B16.9	960,3	0	
51	Elbows 90° L.R. 56" Sch. STANDARD	0	pcs.	56	STANDARD	ASTM SA234 WPB	ASME B16.9	1110,5	0	
52	Elbows 90° L.R. 64" Sch. SCH.40	1	pcs.	64	SCH.40	ASTM SA234 WPB	ASME B16.9	2282,6	2.283	

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		Location:	Jolanda di Savoia		Pagina:	3 of 5				
Pos.	Raccordi - Riduttori	Quantità	u.m.	NPS "	Schedula	MATERIALE	NOTE	kg/m	Peso [kg]	REV.
53	Reducer 2" Sch. STANDARD	0	pcs.	2	STANDARD	ASTM SA234 WPB	ASME B16.9	0,5	0	
54	Reducer 3" Sch. STANDARD	114	pcs.	3	STANDARD	ASTM SA234 WPB	ASME B16.9	1,0	119	
55	Reducer 4" Sch. STANDARD	1	pcs.	4	STANDARD	ASTM SA234 WPB	ASME B16.9	1,8	2	
56	Reducer 5" Sch. STANDARD	0	pcs.	5	STANDARD	ASTM SA234 WPB	ASME B16.9	2,8	0	
57	Reducer 6" Sch. STANDARD	0	pcs.	6	STANDARD	ASTM SA234 WPB	ASME B16.9	4,0	0	
58	Reducer 8" Sch. STANDARD	1	pcs.	8	STANDARD	ASTM SA234 WPB	ASME B16.9	6,3	6	
59	Reducer 10" Sch. STANDARD	6	pcs.	10	STANDARD	ASTM SA234 WPB	ASME B16.9	10,7	64	
60	Reducer 12" Sch. STANDARD	10	pcs.	12	STANDARD	ASTM SA234 WPB	ASME B16.9	15,4	154	
61	Reducer 14" Sch. STANDARD	0	pcs.	14	STANDARD	ASTM SA234 WPB	ASME B16.9	26,8	0	
62	Reducer 16" Sch. STANDARD	2	pcs.	16	STANDARD	ASTM SA234 WPB	ASME B16.9	34,0	68	
63	Reducer 18" Sch. STANDARD	0	pcs.	18	STANDARD	ASTM SA234 WPB	ASME B16.9	39,9	0	
64	Reducer 20" Sch. EXTRA STRONG	4	pcs.	20	EXTRA STRONG	ASTM SA234 WPB	ASME B16.9	78,4	313	
65	Reducer 22" Sch. EXTRA STRONG	4	pcs.	22	EXTRA STRONG	ASTM SA234 WPB	ASME B16.9	84,3	337	
66	Reducer 24" Sch. STANDARD	0	pcs.	24	STANDARD	ASTM SA234 WPB	ASME B16.9	72,0	0	
67	Reducer 26" Sch. STANDARD	0	pcs.	26	STANDARD	ASTM SA234 WPB	ASME B16.9	88,3	0	
68	Reducer 28" Sch. STANDARD	0	pcs.	28	STANDARD	ASTM SA234 WPB	ASME B16.9	86,6	0	
69	Reducer 30" Sch. STANDARD	0	pcs.	30	STANDARD	ASTM SA234 WPB	ASME B16.9	123,9	0	
70	Reducer 32" Sch. STANDARD	0	pcs.	32	STANDARD	ASTM SA234 WPB	ASME B16.9	140,9	0	
71	Reducer 34" Sch. STANDARD	0	pcs.	34	STANDARD	ASTM SA234 WPB	ASME B16.9	159,1	0	
72	Reducer 36" Sch. STANDARD	0	pcs.	36	STANDARD	ASTM SA234 WPB	ASME B16.9	178,4	0	
73	Reducer 40" Sch. STANDARD	0	pcs.	40	STANDARD	ASTM SA234 WPB	ASME B16.9	220,3	0	
74	Reducer 42" Sch. STANDARD	0	pcs.	42	STANDARD	ASTM SA234 WPB	ASME B16.9	242,8	0	
75	Reducer 48" Sch. STANDARD	0	pcs.	48	STANDARD	ASTM SA234 WPB	ASME B16.9	317,2	0	
76	Reducer 52" Sch. STANDARD	0	pcs.	52	STANDARD	ASTM SA234 WPB	ASME B16.9	431,8	0	
77	Reducer 56" Sch. STANDARD	0	pcs.	56	STANDARD	ASTM SA234 WPB	ASME B16.9	431,8	0	
78	Reducer 64" Sch. SCH.40	1	pcs.	64	SCH.40	ASTM SA234 WPB	ASME B16.9	1197,7	1.198	
Pos.	Raccordi - Raccordi a T	QT.Y	u.m.	NPS "	Sch	MATERIAL	NOTES	kg/pcs	Weight [kg]	REV.
79	TEE 2" Sch. STANDARD	0	pcs.	2	STANDARD	ASTM SA234 WPB	ASME B16.9	1,3	0	
80	TEE 3" Sch. STANDARD	0	pcs.	3	STANDARD	ASTM SA234 WPB	ASME B16.9	3,4	0	
81	TEE 4" Sch. STANDARD	0	pcs.	4	STANDARD	ASTM SA234 WPB	ASME B16.9	5,7	0	
82	TEE 5" Sch. STANDARD	0	pcs.	5	STANDARD	ASTM SA234 WPB	ASME B16.9	9,0	0	
83	TEE 6" Sch. STANDARD	0	pcs.	6	STANDARD	ASTM SA234 WPB	ASME B16.9	13,3	0	
84	TEE 8" Sch. STANDARD	0	pcs.	8	STANDARD	ASTM SA234 WPB	ASME B16.9	24,4	0	
85	TEE 10" Sch. STANDARD	0	pcs.	10	STANDARD	ASTM SA234 WPB	ASME B16.9	41,4	0	
86	TEE 12" Sch. STANDARD	0	pcs.	12	STANDARD	ASTM SA234 WPB	ASME B16.9	59,9	0	
87	TEE 14" Sch. STANDARD	0	pcs.	14	STANDARD	ASTM SA234 WPB	ASME B16.9	72,1	0	
88	TEE 16" Sch. STANDARD	4	pcs.	16	STANDARD	ASTM SA234 WPB	ASME B16.9	99,3	397	
89	TEE 18" Sch. STANDARD	0	pcs.	18	STANDARD	ASTM SA234 WPB	ASME B16.9	127,9	0	
90	TEE 20" Sch. STANDARD	0	pcs.	20	STANDARD	ASTM SA234 WPB	ASME B16.9	160,9	0	
91	TEE 22" Sch. STANDARD	5	pcs.	22	STANDARD	ASTM SA234 WPB	ASME B16.9	198,2	991	
92	TEE 24" Sch. STANDARD	0	pcs.	24	STANDARD	ASTM SA234 WPB	ASME B16.9	223,6	0	
93	TEE 20" Sch. EXTRA STRONG	11	pcs.	20	EXTRA STRONG	ASTM SA234 WPB	ASME B16.9	200,5	2.206	
94	TEE 22" Sch. EXTRA STRONG	0	pcs.	22	EXTRA STRONG	ASTM SA234 WPB	ASME B16.9	248,6	0	
95	TEE 30" Sch. STANDARD	0	pcs.	30	STANDARD	ASTM SA234 WPB	ASME B16.9	387,8	0	
96	TEE 32" Sch. STANDARD	0	pcs.	32	STANDARD	ASTM SA234 WPB	ASME B16.9	451,6	0	
97	TEE 34" Sch. STANDARD	0	pcs.	34	STANDARD	ASTM SA234 WPB	ASME B16.9	515,3	0	
98	TEE 36" Sch. STANDARD	0	pcs.	36	STANDARD	ASTM SA234 WPB	ASME B16.9	586,9	0	
99	TEE 40" Sch. STANDARD	0	pcs.	40	STANDARD	ASTM SA234 WPB	ASME B16.9	737,1	0	
100	TEE 42" Sch. STANDARD	0	pcs.	42	STANDARD	ASTM SA234 WPB	ASME B16.9	813,0	0	
101	TEE 48" Sch. STANDARD	0	pcs.	48	STANDARD	ASTM SA234 WPB	ASME B16.9	1063,1	0	
102	TEE 52" Sch. STANDARD	0	pcs.	52	STANDARD	ASTM SA234 WPB	ASME B16.9	1248,4	0	
103	TEE 56" Sch. STANDARD	0	pcs.	56	STANDARD	ASTM SA234 WPB	ASME B16.9	1443,7	0	
104	TEE 64" Sch. STANDARD	0	pcs.	64	STANDARD	ASTM SA234 WPB	ASME B16.9	1880,6	0	



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TURBODEN

Job N°:

P22060

Doc:

P22060-G-1000

Impianto:

Pola

Rev:

0

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G.I.P.R.I. S.r.l.

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24/10/2022

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Jolanda di Savoia

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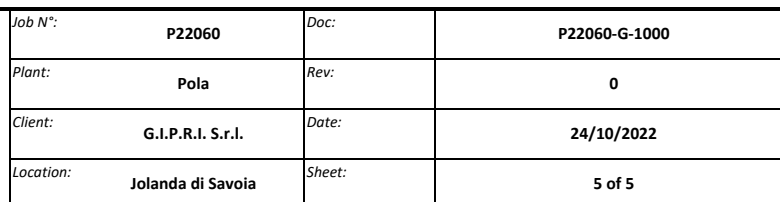
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Pos.	Raccordi - Flange	Quantità	u.m.	NPS "	Schedula	MATERIALE	NOTE	kg/m	Peso [kg]	REV.
105	Flanges 2" ANSI300	0	pcs.	2	ANSI300	ASTM A105	ASME B16.5	5	0	
106	Flanges 3" ANSI300	0	pcs.	3	ANSI300	ASTM A105	ASME B16.5	7	0	
107	Flanges 4" ANSI300	4	pcs.	4	ANSI300	ASTM A105	ASME B16.5	12	48	
108	Flanges 5" ANSI300	2	pcs.	5	ANSI300	ASTM A105	ASME B16.5	15	30	
109	Flanges 6" ANSI300	0	pcs.	6	ANSI300	ASTM A105	ASME B16.5	19	0	
110	Flanges 8" ANSI300	4	pcs.	8	ANSI300	ASTM A105	ASME B16.5	31	124	
111	Flanges 10" ANSI300	12	pcs.	10	ANSI300	ASTM A105	ASME B16.5	42	504	
112	Flanges 12" ANSI300	28	pcs.	12	ANSI300	ASTM A105	ASME B16.5	63	1.764	
113	Flanges 14" ANSI300	0	pcs.	14	ANSI300	ASTM A105	ASME B16.5	85	0	
114	Flanges 16" ANSI300	0	pcs.	16	ANSI300	ASTM A105	ASME B16.5	112	0	
115	Flanges 18" ANSI300	0	pcs.	18	ANSI300	ASTM A105	ASME B16.5	138	0	
116	Flanges 20" ANSI300	13	pcs.	20	ANSI300	ASTM A105	ASME B16.5	171	2.223	
117	Flanges 22" ANSI300	0	pcs.	22	ANSI300	ASTM A105	ASME B16.5	207	0	
118	Flanges 24" ANSI300	0	pcs.	24	ANSI300	ASTM A105	ASME B16.47 type A	247	0	
119	Flanges 26" ANSI300	0	pcs.	26	ANSI300	ASTM A105	ASME B16.47 type A	288	0	
120	Flanges 28" ANSI300	0	pcs.	28	ANSI300	ASTM A105	ASME B16.47 type A	334	0	
121	Flanges 30" ANSI300	0	pcs.	30	ANSI300	ASTM A105	ASME B16.47 type A	383	0	
122	Flanges 32" ANSI300	0	pcs.	32	ANSI300	ASTM A105	ASME B16.47 type A	435	0	
123	Flanges 34" ANSI300	0	pcs.	34	ANSI300	ASTM A105	ASME B16.47 type A	491	0	
124	Flanges 36" ANSI300	0	pcs.	36	ANSI300	ASTM A105	ASME B16.47 type A	550	0	
125	Flanges 40" ANSI300	0	pcs.	40	ANSI300	ASTM A105	ASME B16.47 type A	678	0	
126	Flanges 42" ANSI300	0	pcs.	42	ANSI300	ASTM A105	ASME B16.47 type A	747	0	
127	Flanges 48" ANSI300	0	pcs.	48	ANSI300	ASTM A105	ASME B16.47 type A	975	0	
128	Flanges 52" ANSI300	0	pcs.	52	ANSI300	ASTM A105	ASME B16.47 type A	1326	0	
129	Flanges 56" ANSI300	0	pcs.	56	ANSI300	ASTM A105	ASME B16.47 type A	1326	0	
130	Flanges 60" ANSI300	0	pcs.	60	ANSI300	ASTM A105	ASME B16.47 type A	1732	0	

NB: La lista materiali include il 10% di margine sulla quantità totale

Total Weight 260.583 kg


SALDATURE							
Pos.	NPS "	Quantità	u.m.	% Prefabbricazione	Saldature prefabbricate	u.m.	REV.
	2	0	"	0%	0	"	
	4	448	"	0%	0	"	
	6	0	"	0%	0	"	
	8	408	"	0%	0	"	
	10	290	"	0%	0	"	
	12	1080	"	0%	0	"	
	14	0	"	0%	0	"	
	16	560	"	0%	0	"	
	18	0	"	0%	0	"	
	20	2360	"	0%	0	"	
	22	2200	"	0%	0	"	
	24	0	"	0%	0	"	
	26	0	"	0%	0	"	
	28	0	"	0%	0	"	
	30	0	"	0%	0	"	
	32	0	"	0%	0	"	
	34	0	"	0%	0	"	
	36	612	"	0%	0	"	
	40	0	"	0%	0	"	
	42	0	"	0%	0	"	
	48	0	"	0%	0	"	
	52	0	"	0%	0	"	
	56	0	"	0%	0	"	
	60	0	"	0%	0	"	



NB: La lista materiali include il 10% di margine sulla quantità totale

## PESO DEI SUPPORTI


Il peso dei supporti del piping del ciclo HT, del ciclo LT e del piping RGS è 100 ton.

	Job N°:	P22060	Doc:	P22060-G-2000
	Impianto:	Pola	Rev:	0
	Cliente:	G.I.P.R.I. S.r.l.	Data:	04/11/2022
	Location:	Jolanda di Savoia	Pagina:	1 of 5


# Piping Material List


## Ciclo a bassa pressione

REVISION					
0	Prima emissione	AB0386	MD0098	MD0098	04/11/2022
REV.	DESCRIZIONE	AUTORE	CONTROLLATO DA	APPROVATO DA	DATA

		Job N°:	P22060		Doc:	P22060-G-2000				
		Impianto:	Pola		Rev:	0				
		Cliente:	G.I.P.R.I. S.r.l.		Data:	04/11/2022				
		Location:	Jolanda di Savoia		Pagina:	2 of 5				
Pos.	Piping	Quantità	u.m.	NPS "	Schedula	MATERIALE	NOTE	kg/m	Peso [kg]	REV.
1	PIPE NPS 2" Sch. STANDARD	0	m	2	STANDARD	ASTM A106 Gr.B	ASME B36.10M	5,4	0	
2	PIPE NPS 3" Sch. STANDARD	271	m	3	STANDARD	ASTM A106 Gr.B	ASME B36.10M	11,3	3.064	
3	PIPE NPS 4" Sch. STANDARD	582	m	4	STANDARD	ASTM A106 Gr.B	ASME B36.10M	16,1	9.368	
4	PIPE NPS 5" Sch. STANDARD	0	m	5	STANDARD	ASTM A106 Gr.B	ASME B36.10M	21,8	0	
5	PIPE NPS 8" Sch. STANDARD	326	m	8	STANDARD	ASTM A106 Gr.B	ASME B36.10M	42,6	13.887	
6	PIPE NPS 10" Sch. STANDARD	14	m	10	STANDARD	ASTM A106 Gr.B	ASME B36.10M	60,4	845	
7	PIPE NPS 12" Sch. STANDARD	247	m	12	STANDARD	ASTM A106 Gr.B	ASME B36.10M	74,0	18.270	
8	PIPE NPS 12" Sch. SCH.20	0	m	12	SCH.20	ASTM A106 Gr.B	ASME B36.10M	49,8	0	
9	PIPE NPS 16" Sch. STANDARD	202	m	16	STANDARD	ASTM A106 Gr.B	ASME B36.10M	93,4	18.865	
10	PIPE NPS 16" Sch. EXTRA STRONG	40	m	16	EXTRA STRONG	ASTM A106 Gr.B	ASME B36.10M	123,5	4.939	
11	PIPE NPS 18" Sch. STANDARD	0	m	18	STANDARD	ASTM A106 Gr.B	ASME B36.10M	105,3	0	
12	PIPE NPS 20" Sch. STANDARD	240	m	20	STANDARD	ASTM A106 Gr.B	ASME B36.10M	117,3	28.152	
13	PIPE NPS 20" Sch. EXTRA STRONG	78	m	20	EXTRA STRONG	ASTM A106 Gr.B	ASME B36.10M	155,3	12.115	
14	PIPE NPS 24" Sch. STANDARD	0	m	24	STANDARD	ASTM A106 Gr.B	ASME B36.10M	141,2	0	
15	PIPE NPS 26" Sch. STANDARD	0	m	26	STANDARD	ASTM A106 Gr.B	ASME B36.10M	153,2	0	
16	PIPE NPS 28" Sch. STANDARD	0	m	28	STANDARD	ASTM A106 Gr.B	ASME B36.10M	165,1	0	
17	PIPE NPS 30" Sch. STANDARD	0	m	30	STANDARD	ASTM A106 Gr.B	ASME B36.10M	177,1	0	
18	PIPE NPS 32" Sch. STANDARD	0	m	32	STANDARD	ASTM A106 Gr.B	ASME B36.10M	189,0	0	
19	PIPE NPS 34" Sch. STANDARD	127	m	34	STANDARD	ASTM A106 Gr.B	ASME B36.10M	201,0	25.525	
20	PIPE NPS 36" Sch. STANDARD	0	m	36	STANDARD	ASTM A106 Gr.B	ASME B36.10M	212,9	0	
21	PIPE NPS 40" Sch. STANDARD	0	m	40	STANDARD	ASTM A106 Gr.B	ASME B36.10M	236,8	0	
22	PIPE NPS 42" Sch. STANDARD	0	m	42	STANDARD	ASTM A106 Gr.B	ASME B36.10M	248,8	0	
23	PIPE NPS 48" Sch. SCH.40	0	m	48	SCH.40	ASTM A106 Gr.B	ASME B36.10M	810,6	0	
24	PIPE NPS 52" Sch. SCH.40	0	m	52	SCH.40	ASTM A106 Gr.B	ASME B36.10M	961,4	0	
25	PIPE NPS 56" Sch. SCH.40	45	m	56	SCH.40	ASTM A106 Gr.B	ASME B36.10M	523,5	23.557	
26	PIPE NPS 60" Sch. SCH.40	0	m	60	SCH.40	ASTM A106 Gr.B	ASME B36.10M	1192,0	0	
Pos.	Raccordi - Curve	Quantità	u.m.	NPS "	Schedula	MATERIALE	NOTE	kg/m	Peso [kg]	REV.
27	Elbows 90° L.R. 2" Sch. STANDARD	0	pcs.	2	STANDARD	ASTM SA234 WPB	ASME B16.9	0,7	0	
28	Elbows 90° L.R. 3" Sch. STANDARD	0	pcs.	3	STANDARD	ASTM SA234 WPB	ASME B16.9	2,0	0	
29	Elbows 90° L.R. 4" Sch. STANDARD	5	pcs.	4	STANDARD	ASTM SA234 WPB	ASME B16.9	3,9	19	
30	Elbows 90° L.R. 5" Sch. STANDARD	0	pcs.	5	STANDARD	ASTM SA234 WPB	ASME B16.9	6,5	0	
31	Elbows 90° L.R. 6" Sch. STANDARD	0	pcs.	6	STANDARD	ASTM SA234 WPB	ASME B16.9	10,1	0	
32	Elbows 90° L.R. 8" Sch. STANDARD	0	pcs.	8	STANDARD	ASTM SA234 WPB	ASME B16.9	20,4	0	
33	Elbows 90° L.R. 10" Sch. STANDARD	5	pcs.	10	STANDARD	ASTM SA234 WPB	ASME B16.9	36,1	181	
34	Elbows 90° L.R. 12" Sch. STANDARD	3	pcs.	12	STANDARD	ASTM SA234 WPB	ASME B16.9	53,1	159	
35	Elbows 90° L.R. 16" Sch. STANDARD	17	pcs.	16	STANDARD	ASTM SA234 WPB	ASME B16.9	89,3	1.518	
36	Elbows 90° L.R. 16" Sch. EXTRA STRONG	8	pcs.	16	EXTRA STRONG	ASTM SA234 WPB	ASME B16.9	118,0	944	
37	Elbows 90° L.R. 18" Sch. STANDARD	0	pcs.	18	STANDARD	ASTM SA234 WPB	ASME B16.9	113,0	0	
38	Elbows 90° L.R. 20" Sch. EXTRA STRONG	8	pcs.	20	EXTRA STRONG	ASTM SA234 WPB	ASME B16.9	186,0	1.488	
39	Elbows 90° L.R. 22" Sch. STANDARD	0	pcs.	22	STANDARD	ASTM SA234 WPB	ASME B16.9	170,0	0	
40	Elbows 90° L.R. 24" Sch. STANDARD	0	pcs.	24	STANDARD	ASTM SA234 WPB	ASME B16.9	202,0	0	
41	Elbows 90° L.R. 26" Sch. STANDARD	0	pcs.	26	STANDARD	ASTM SA234 WPB	ASME B16.9	238,0	0	
42	Elbows 90° L.R. 28" Sch. STANDARD	0	pcs.	28	STANDARD	ASTM SA234 WPB	ASME B16.9	276,0	0	
43	Elbows 90° L.R. 30" Sch. STANDARD	0	pcs.	30	STANDARD	ASTM SA234 WPB	ASME B16.9	317,9	0	
44	Elbows 90° L.R. 32" Sch. STANDARD	0	pcs.	32	STANDARD	ASTM SA234 WPB	ASME B16.9	362,0	0	
45	Elbows 90° L.R. 34" Sch. STANDARD	0	pcs.	34	STANDARD	ASTM SA234 WPB	ASME B16.9	408,0	0	
46	Elbows 90° L.R. 36" Sch. STANDARD	0	pcs.	36	STANDARD	ASTM SA234 WPB	ASME B16.9	458,0	0	
47	Elbows 90° L.R. 40" Sch. STANDARD	0	pcs.	40	STANDARD	ASTM SA234 WPB	ASME B16.9	567,0	0	
48	Elbows 90° L.R. 42" Sch. STANDARD	0	pcs.	42	STANDARD	ASTM SA234 WPB	ASME B16.9	625,4	0	
49	Elbows 90° L.R. 48" Sch. STANDARD	0	pcs.	48	STANDARD	ASTM SA234 WPB	ASME B16.9	817,7	0	
50	Elbows 90° L.R. 52" Sch. STANDARD	0	pcs.	52	STANDARD	ASTM SA234 WPB	ASME B16.9	960,3	0	
51	Elbows 90° L.R. 56" Sch. SCH.40	1	pcs.	56	SCH.40	ASTM SA234 WPB	ASME B16.9	1751,5	1.751	
52	Elbows 90° L.R. 60" Sch. STANDARD	0	pcs.	60	STANDARD	ASTM SA234 WPB	ASME B16.9	1279,7	0	



		Job N°:	P22060		Doc:	P22060-G-2000				
		Impianto:	Pola		Rev:	0				
		Cliente:	G.I.P.R.I. S.r.l.		Data:	04/11/2022				
		Location:	Jolanda di Savoia		Pagina:	3 of 5				
Pos.	Raccordi - Riduttori	Quantità	u.m.	NPS "	Schedula	MATERIALE	NOTE	kg/m	Peso [kg]	REV.
53	Reducer 2" Sch. STANDARD	0	pcs.	2	STANDARD	ASTM SA234 WPB	ASME B16.9	0,5	0	
54	Reducer 3" Sch. STANDARD	72	pcs.	3	STANDARD	ASTM SA234 WPB	ASME B16.9	1,0	75	
55	Reducer 4" Sch. STANDARD	1	pcs.	4	STANDARD	ASTM SA234 WPB	ASME B16.9	1,8	2	
56	Reducer 5" Sch. STANDARD	0	pcs.	5	STANDARD	ASTM SA234 WPB	ASME B16.9	2,8	0	
57	Reducer 6" Sch. STANDARD	0	pcs.	6	STANDARD	ASTM SA234 WPB	ASME B16.9	4,0	0	
58	Reducer 8" Sch. STANDARD	6	pcs.	8	STANDARD	ASTM SA234 WPB	ASME B16.9	6,3	38	
59	Reducer 10" Sch. STANDARD	1	pcs.	10	STANDARD	ASTM SA234 WPB	ASME B16.9	10,7	11	
60	Reducer 12" Sch. STANDARD	4	pcs.	12	STANDARD	ASTM SA234 WPB	ASME B16.9	15,4	62	
61	Reducer 14" Sch. STANDARD	0	pcs.	14	STANDARD	ASTM SA234 WPB	ASME B16.9	26,8	0	
62	Reducer 16" Sch. EXTRA STRONG	2	pcs.	16	EXTRA STRONG	ASTM SA234 WPB	ASME B16.9	44,6	89	
63	Reducer 18" Sch. STANDARD	0	pcs.	18	STANDARD	ASTM SA234 WPB	ASME B16.9	39,9	0	
64	Reducer 20" Sch. STANDARD	4	pcs.	20	STANDARD	ASTM SA234 WPB	ASME B16.9	58,9	236	
65	Reducer 20" Sch. EXTRA STRONG	4	pcs.	20	EXTRA STRONG	ASTM SA234 WPB	ASME B16.9	78,4	313	
66	Reducer 24" Sch. STANDARD	0	pcs.	24	STANDARD	ASTM SA234 WPB	ASME B16.9	72,0	0	
67	Reducer 26" Sch. STANDARD	0	pcs.	26	STANDARD	ASTM SA234 WPB	ASME B16.9	88,3	0	
68	Reducer 28" Sch. STANDARD	0	pcs.	28	STANDARD	ASTM SA234 WPB	ASME B16.9	86,6	0	
69	Reducer 30" Sch. STANDARD	0	pcs.	30	STANDARD	ASTM SA234 WPB	ASME B16.9	123,9	0	
70	Reducer 32" Sch. STANDARD	0	pcs.	32	STANDARD	ASTM SA234 WPB	ASME B16.9	140,9	0	
71	Reducer 34" Sch. STANDARD	0	pcs.	34	STANDARD	ASTM SA234 WPB	ASME B16.9	159,1	0	
72	Reducer 36" Sch. STANDARD	0	pcs.	36	STANDARD	ASTM SA234 WPB	ASME B16.9	178,4	0	
73	Reducer 40" Sch. STANDARD	0	pcs.	40	STANDARD	ASTM SA234 WPB	ASME B16.9	220,3	0	
74	Reducer 42" Sch. STANDARD	0	pcs.	42	STANDARD	ASTM SA234 WPB	ASME B16.9	242,8	0	
75	Reducer 48" Sch. STANDARD	0	pcs.	48	STANDARD	ASTM SA234 WPB	ASME B16.9	317,2	0	
76	Reducer 52" Sch. STANDARD	0	pcs.	52	STANDARD	ASTM SA234 WPB	ASME B16.9	431,8	0	
77	Reducer 56" Sch. SCH.40	1	pcs.	56	SCH.40	ASTM SA234 WPB	ASME B16.9	899,6	900	
78	Reducer 60" Sch. STANDARD	0	pcs.	60	STANDARD	ASTM SA234 WPB	ASME B16.9	564,0	0	
Pos.	Raccordi - Raccordi a T	Quantità	u.m.	NPS "	Schedula	MATERIALE	NOTE	kg/m	Peso [kg]	REV.
79	TEE 2" Sch. STANDARD	0	pcs.	2	STANDARD	ASTM SA234 WPB	ASME B16.9	1,3	0	
80	TEE 3" Sch. STANDARD	0	pcs.	3	STANDARD	ASTM SA234 WPB	ASME B16.9	3,4	0	
81	TEE 4" Sch. STANDARD	0	pcs.	4	STANDARD	ASTM SA234 WPB	ASME B16.9	5,7	0	
82	TEE 5" Sch. STANDARD	0	pcs.	5	STANDARD	ASTM SA234 WPB	ASME B16.9	9,0	0	
83	TEE 6" Sch. STANDARD	0	pcs.	6	STANDARD	ASTM SA234 WPB	ASME B16.9	13,3	0	
84	TEE 8" Sch. STANDARD	0	pcs.	8	STANDARD	ASTM SA234 WPB	ASME B16.9	24,4	0	
85	TEE 10" Sch. STANDARD	0	pcs.	10	STANDARD	ASTM SA234 WPB	ASME B16.9	41,4	0	
86	TEE 12" Sch. STANDARD	0	pcs.	12	STANDARD	ASTM SA234 WPB	ASME B16.9	59,9	0	
87	TEE 16" Sch. STANDARD	16	pcs.	16	STANDARD	ASTM SA234 WPB	ASME B16.9	99,3	1.589	
88	TEE 16" Sch. EXTRA STRONG	0	pcs.	16	EXTRA STRONG	ASTM SA234 WPB	ASME B16.9	122,9	0	
89	TEE 18" Sch. STANDARD	0	pcs.	18	STANDARD	ASTM SA234 WPB	ASME B16.9	127,9	0	
90	TEE 20" Sch. STANDARD	0	pcs.	20	STANDARD	ASTM SA234 WPB	ASME B16.9	160,9	0	
91	TEE 20" Sch. EXTRA STRONG	4	pcs.	20	EXTRA STRONG	ASTM SA234 WPB	ASME B16.9	200,5	802	
92	TEE 24" Sch. STANDARD	0	pcs.	24	STANDARD	ASTM SA234 WPB	ASME B16.9	223,6	0	
93	TEE 26" Sch. STANDARD	0	pcs.	26	STANDARD	ASTM SA234 WPB	ASME B16.9	287,6	0	
94	TEE 28" Sch. STANDARD	0	pcs.	28	STANDARD	ASTM SA234 WPB	ASME B16.9	337,7	0	
95	TEE 30" Sch. STANDARD	0	pcs.	30	STANDARD	ASTM SA234 WPB	ASME B16.9	387,8	0	
96	TEE 32" Sch. STANDARD	0	pcs.	32	STANDARD	ASTM SA234 WPB	ASME B16.9	451,6	0	
97	TEE 34" Sch. STANDARD	0	pcs.	34	STANDARD	ASTM SA234 WPB	ASME B16.9	515,3	0	
98	TEE 36" Sch. STANDARD	0	pcs.	36	STANDARD	ASTM SA234 WPB	ASME B16.9	586,9	0	
99	TEE 40" Sch. STANDARD	0	pcs.	40	STANDARD	ASTM SA234 WPB	ASME B16.9	737,1	0	
100	TEE 42" Sch. STANDARD	0	pcs.	42	STANDARD	ASTM SA234 WPB	ASME B16.9	813,0	0	
101	TEE 48" Sch. STANDARD	0	pcs.	48	STANDARD	ASTM SA234 WPB	ASME B16.9	1063,1	0	
102	TEE 52" Sch. STANDARD	0	pcs.	52	STANDARD	ASTM SA234 WPB	ASME B16.9	1248,4	0	
103	TEE 56" Sch. STANDARD	0	pcs.	56	STANDARD	ASTM SA234 WPB	ASME B16.9	1443,7	0	
104	TEE 60" Sch. STANDARD	0	pcs.	60	STANDARD	ASTM SA234 WPB	ASME B16.9	1663,7	0	


		Job N°:	P22060		Doc:	P22060-G-2000				
		Impianto:	Pola		Rev:	0				
		Cliente:	G.I.P.R.I. S.r.l.		Data:	04/11/2022				
		Location:	Jolanda di Savoia		Pagina:	4 of 5				
Pos.	Raccordi - Flange	Quantità	u.m.	NPS "	Scheda	MATERIALE	NOTE	kg/m	Peso [kg]	REV.
105	Flanges 2" ANSI300	0	pcs.	2	ANSI300	ASTM A105	ASME B16.5	5	0	
106	Flanges 3" ANSI300	0	pcs.	3	ANSI300	ASTM A105	ASME B16.5	7	0	
107	Flanges 4" ANSI300	4	pcs.	4	ANSI300	ASTM A105	ASME B16.5	12	48	
108	Flanges 5" ANSI300	2	pcs.	5	ANSI300	ASTM A105	ASME B16.5	15	30	
109	Flanges 6" ANSI300	0	pcs.	6	ANSI300	ASTM A105	ASME B16.5	19	0	
110	Flanges 8" ANSI300	36	pcs.	8	ANSI300	ASTM A105	ASME B16.5	31	1.116	
111	Flanges 10" ANSI300	4	pcs.	10	ANSI300	ASTM A105	ASME B16.5	42	168	
112	Flanges 12" ANSI300	4	pcs.	12	ANSI300	ASTM A105	ASME B16.5	63	252	
113	Flanges 14" ANSI300	0	pcs.	14	ANSI300	ASTM A105	ASME B16.5	85	0	
114	Flanges 16" ANSI300	1	pcs.	16	ANSI300	ASTM A105	ASME B16.5	112	112	
115	Flanges 18" ANSI300	0	pcs.	18	ANSI300	ASTM A105	ASME B16.5	138	0	
116	Flanges 20" ANSI300	12	pcs.	20	ANSI300	ASTM A105	ASME B16.5	171	2.052	
117	Flanges 22" ANSI300	0	pcs.	22	ANSI300	ASTM A105	ASME B16.5	207	0	
118	Flanges 24" ANSI300	0	pcs.	24	ANSI300	ASTM A105	ASME B16.47 type A	247	0	
119	Flanges 26" ANSI300	0	pcs.	26	ANSI300	ASTM A105	ASME B16.47 type A	288	0	
120	Flanges 28" ANSI300	0	pcs.	28	ANSI300	ASTM A105	ASME B16.47 type A	334	0	
121	Flanges 30" ANSI300	0	pcs.	30	ANSI300	ASTM A105	ASME B16.47 type A	383	0	
122	Flanges 32" ANSI300	0	pcs.	32	ANSI300	ASTM A105	ASME B16.47 type A	435	0	
123	Flanges 34" ANSI300	0	pcs.	34	ANSI300	ASTM A105	ASME B16.47 type A	491	0	
124	Flanges 36" ANSI300	0	pcs.	36	ANSI300	ASTM A105	ASME B16.47 type A	550	0	
125	Flanges 40" ANSI300	0	pcs.	40	ANSI300	ASTM A105	ASME B16.47 type A	678	0	
126	Flanges 42" ANSI300	0	pcs.	42	ANSI300	ASTM A105	ASME B16.47 type A	747	0	
127	Flanges 48" ANSI300	0	pcs.	48	ANSI300	ASTM A105	ASME B16.47 type A	975	0	
128	Flanges 52" ANSI300	0	pcs.	52	ANSI300	ASTM A105	ASME B16.47 type A	1326	0	
129	Flanges 56" ANSI300	1	pcs.	56	ANSI300	ASTM A105	ASME B16.47 type A	1326	1.326	
130	Flanges 60" ANSI300	0	pcs.	60	ANSI300	ASTM A105	ASME B16.47 type A	1732	0	

NB: La lista materiali include il 10% di margine sulla quantità totale

Total Weight 173.869 kg

SALDATURE								
Pos.	NPS "	Quantità	u.m.	% Prefabbricazione	Saldature prefabbricate	u.m.		REV.
	2	0	"	0%	0	"		
	4	260	"	0%	0	"		
	6	0	"	0%	0	"		
	8	704	"	0%	0	"		
	10	180	"	0%	0	"		
	12	480	"	0%	0	"		
	14	0	"	0%	0	"		
	16	2016	"	0%	0	"		
	18	0	"	0%	0	"		
	20	1860	"	0%	0	"		
	22	0	"	0%	0	"		
	24	0	"	0%	0	"		
	26	0	"	0%	0	"		
	28	0	"	0%	0	"		
	30	0	"	0%	0	"		
	32	0	"	0%	0	"		
	34	408	"	0%	0	"		
	36	0	"	0%	0	"		
	40	0	"	0%	0	"		
	42	0	"	0%	0	"		
	48	0	"	0%	0	"		
	52	0	"	0%	0	"		
	56	560	"	0%	0	"		
	60	0	"	0%	0	"		





	Job N°:	P22060	Doc:	P22060-G-3000
	Impianto:	Pola	Rev:	0
	Cliente:	G.I.P.R.I. S.r.l.	Date:	21/10/2022
	Location:	Jolanda di Savoia	Sheet:	1 of 4


# Piping Material List

## Circuito acqua geotermica

REVISION					
0	Prima emissione	AB0386	MD0098	MD0098	21/10/2022
REV.	DESCRIZIONE	AUTORE	CONTROLLATO DA	APPROVATO DA	DATA

		Job N°:	P22060		Doc:	P22060-G-3000				
		Impianto:	Pola		Rev:	0				
		Cliente:	G.I.P.R.I. S.r.l.		Data:	21/10/2022				
		Location:	Jolanda di Savoia		Pagina:	2 of 4				
Pos.	Piping	Quantità	u.m.	NPS "	Schedula	MATERIALE	NOTE	kg/m	Peso [kg]	REV.
1	PIPE NPS 2" Sch. STANDARD	0	m	2	STANDARD	ASTM A106 Gr.B	ASME B36.10M	5,4	0	
2	PIPE NPS 3" Sch. STANDARD	0	m	3	STANDARD	ASTM A106 Gr.B	ASME B36.10M	11,3	0	
3	PIPE NPS 4" Sch. STANDARD	0	m	4	STANDARD	ASTM A106 Gr.B	ASME B36.10M	16,1	0	
4	PIPE NPS 5" Sch. STANDARD	0	m	5	STANDARD	ASTM A106 Gr.B	ASME B36.10M	21,8	0	
5	PIPE NPS 6" Sch. STANDARD	0	m	6	STANDARD	ASTM A106 Gr.B	ASME B36.10M	28,3	0	
6	PIPE NPS 8" Sch. STANDARD	0	m	8	STANDARD	ASTM A106 Gr.B	ASME B36.10M	42,6	0	
7	PIPE NPS 10" Sch. STANDARD	0	m	10	STANDARD	ASTM A106 Gr.B	ASME B36.10M	60,4	0	
8	PIPE NPS 12" Sch. SCH.80	48	m	12	SCH.80	ASTM A106 Gr.B	ASME B36.10M	132,2	6.347	
9	PIPE NPS 14" Sch. STANDARD	0	m	14	STANDARD	ASTM A106 Gr.B	ASME B36.10M	81,4	0	
10	PIPE NPS 16" Sch. SCH.80	60	m	16	SCH.80	ASTM A106 Gr.B	ASME B36.10M	203,4	12.207	
11	PIPE NPS 18" Sch. STANDARD	0	m	18	STANDARD	ASTM A106 Gr.B	ASME B36.10M	105,3	0	
12	PIPE NPS 20" Sch. STANDARD	0	m	20	STANDARD	ASTM A106 Gr.B	ASME B36.10M	117,3	0	
13	PIPE NPS 22" Sch. SCH.80	120	m	22	SCH.80	ASTM A106 Gr.B	ASME B36.10M	361,4	43.368	
14	PIPE NPS 24" Sch. STANDARD	0	m	24	STANDARD	ASTM A106 Gr.B	ASME B36.10M	141,2	0	
15	PIPE NPS 26" Sch. STANDARD	0	m	26	STANDARD	ASTM A106 Gr.B	ASME B36.10M	153,2	0	
16	PIPE NPS 28" Sch. STANDARD	0	m	28	STANDARD	ASTM A106 Gr.B	ASME B36.10M	165,1	0	
17	PIPE NPS 30" Sch. STANDARD	0	m	30	STANDARD	ASTM A106 Gr.B	ASME B36.10M	177,1	0	
18	PIPE NPS 32" Sch. STANDARD	0	m	32	STANDARD	ASTM A106 Gr.B	ASME B36.10M	189,0	0	
19	PIPE NPS 34" Sch. STANDARD	0	m	34	STANDARD	ASTM A106 Gr.B	ASME B36.10M	201,0	0	
20	PIPE NPS 36" Sch. STANDARD	0	m	36	STANDARD	ASTM A106 Gr.B	ASME B36.10M	212,9	0	
21	PIPE NPS 40" Sch. STANDARD	0	m	40	STANDARD	ASTM A106 Gr.B	ASME B36.10M	236,8	0	
22	PIPE NPS 42" Sch. STANDARD	0	m	42	STANDARD	ASTM A106 Gr.B	ASME B36.10M	248,8	0	
23	PIPE NPS 48" Sch. STANDARD	0	m	48	STANDARD	ASTM A106 Gr.B	ASME B36.10M	284,7	0	
24	PIPE NPS 52" Sch. STANDARD	0	m	52	STANDARD	ASTM A106 Gr.B	ASME B36.10M	308,6	0	
25	PIPE NPS 56" Sch. STANDARD	0	m	56	STANDARD	ASTM A106 Gr.B	ASME B36.10M	331,9	0	
26	PIPE NPS 60" Sch. STANDARD	0	m	60	STANDARD	ASTM A106 Gr.B	ASME B36.10M	356,4	0	
Pos.	Raccordi - Curve	Quantità	u.m.	NPS "	Schedula	MATERIALE	NOTE	kg/m	Peso [kg]	REV.
27	Elbows 90° L.R. 2" Sch. STANDARD	0	pcs.	2	STANDARD	ASTM SA234 WPB	ASME B16.9	0,7	0	
28	Elbows 90° L.R. 3" Sch. STANDARD	0	pcs.	3	STANDARD	ASTM SA234 WPB	ASME B16.9	2,0	0	
29	Elbows 90° L.R. 4" Sch. STANDARD	0	pcs.	4	STANDARD	ASTM SA234 WPB	ASME B16.9	3,9	0	
30	Elbows 90° L.R. 5" Sch. STANDARD	0	pcs.	5	STANDARD	ASTM SA234 WPB	ASME B16.9	6,5	0	
31	Elbows 90° L.R. 6" Sch. STANDARD	0	pcs.	6	STANDARD	ASTM SA234 WPB	ASME B16.9	10,1	0	
32	Elbows 90° L.R. 8" Sch. STANDARD	0	pcs.	8	STANDARD	ASTM SA234 WPB	ASME B16.9	20,4	0	
33	Elbows 90° L.R. 10" Sch. STANDARD	0	pcs.	10	STANDARD	ASTM SA234 WPB	ASME B16.9	36,1	0	
34	Elbows 90° L.R. 12" Sch. SCH.80	12	pcs.	12	SCH.80	ASTM SA234 WPB	ASME B16.9	84,7	1.016	
35	Elbows 90° L.R. 14" Sch. STANDARD	0	pcs.	14	STANDARD	ASTM SA234 WPB	ASME B16.9	68,1	0	
36	Elbows 90° L.R. 16" Sch. SCH.80	12	pcs.	16	SCH.80	ASTM SA234 WPB	ASME B16.9	195,0	2.340	
37	Elbows 90° L.R. 18" Sch. STANDARD	0	pcs.	18	STANDARD	ASTM SA234 WPB	ASME B16.9	113,0	0	
38	Elbows 90° L.R. 20" Sch. STANDARD	0	pcs.	20	STANDARD	ASTM SA234 WPB	ASME B16.9	140,0	0	
39	Elbows 90° L.R. 22" Sch. SCH.80	22	pcs.	22	SCH.80	ASTM SA234 WPB	ASME B16.9	492,0	10.824	
40	Elbows 90° L.R. 24" Sch. STANDARD	0	pcs.	24	STANDARD	ASTM SA234 WPB	ASME B16.9	202,0	0	
41	Elbows 90° L.R. 26" Sch. STANDARD	0	pcs.	26	STANDARD	ASTM SA234 WPB	ASME B16.9	238,0	0	
42	Elbows 90° L.R. 28" Sch. STANDARD	0	pcs.	28	STANDARD	ASTM SA234 WPB	ASME B16.9	276,0	0	
43	Elbows 90° L.R. 30" Sch. STANDARD	0	pcs.	30	STANDARD	ASTM SA234 WPB	ASME B16.9	317,9	0	
44	Elbows 90° L.R. 32" Sch. STANDARD	0	pcs.	32	STANDARD	ASTM SA234 WPB	ASME B16.9	362,0	0	
45	Elbows 90° L.R. 34" Sch. STANDARD	0	pcs.	34	STANDARD	ASTM SA234 WPB	ASME B16.9	408,0	0	
46	Elbows 90° L.R. 36" Sch. STANDARD	0	pcs.	36	STANDARD	ASTM SA234 WPB	ASME B16.9	458,0	0	
47	Elbows 90° L.R. 40" Sch. STANDARD	0	pcs.	40	STANDARD	ASTM SA234 WPB	ASME B16.9	567,0	0	
48	Elbows 90° L.R. 42" Sch. STANDARD	0	pcs.	42	STANDARD	ASTM SA234 WPB	ASME B16.9	625,4	0	
49	Elbows 90° L.R. 48" Sch. STANDARD	0	pcs.	48	STANDARD	ASTM SA234 WPB	ASME B16.9	817,7	0	
50	Elbows 90° L.R. 52" Sch. STANDARD	0	pcs.	52	STANDARD	ASTM SA234 WPB	ASME B16.9	960,3	0	
51	Elbows 90° L.R. 56" Sch. STANDARD	0	pcs.	56	STANDARD	ASTM SA234 WPB	ASME B16.9	1110,5	0	
52	Elbows 90° L.R. 60" Sch. STANDARD	0	pcs.	60	STANDARD	ASTM SA234 WPB	ASME B16.9	1279,7	0	

<div> clean energy ahead <b>TURBODEN</b></div>			Job N°:		P22060		Doc:		P22060-G-3000		
			Impianto:		Pola		Rev:		0		
			Cliente:		G.I.P.R.I. S.r.l.		Data:		21/10/2022		
			Location:		Jolanda di Savoia		Pagina:		3 of 4		
Pos.	Raccordi - Riduttori	Quantità	u.m.	NPS "	Schedula	MATERIALE	NOTE	kg/m	Peso [kg]	REV.	
53	Reducer 2" Sch. STANDARD	0	pcs.	2	STANDARD	ASTM SA234 WPB	ASME B16.9	0,5	0		
54	Reducer 3" Sch. STANDARD	0	pcs.	3	STANDARD	ASTM SA234 WPB	ASME B16.9	1,0	0		
55	Reducer 4" Sch. STANDARD	0	pcs.	4	STANDARD	ASTM SA234 WPB	ASME B16.9	1,8	0		
56	Reducer 5" Sch. STANDARD	0	pcs.	5	STANDARD	ASTM SA234 WPB	ASME B16.9	2,8	0		
57	Reducer 6" Sch. STANDARD	0	pcs.	6	STANDARD	ASTM SA234 WPB	ASME B16.9	4,0	0		
58	Reducer 8" Sch. STANDARD	0	pcs.	8	STANDARD	ASTM SA234 WPB	ASME B16.9	6,3	0		
59	Reducer 10" Sch. STANDARD	0	pcs.	10	STANDARD	ASTM SA234 WPB	ASME B16.9	10,7	0		
60	Reducer 12" Sch. STANDARD	0	pcs.	12	STANDARD	ASTM SA234 WPB	ASME B16.9	15,4	0		
61	Reducer 14" Sch. STANDARD	0	pcs.	14	STANDARD	ASTM SA234 WPB	ASME B16.9	26,8	0		
62	Reducer 16" Sch. STANDARD	0	pcs.	16	STANDARD	ASTM SA234 WPB	ASME B16.9	34,0	0		
63	Reducer 18" Sch. STANDARD	0	pcs.	18	STANDARD	ASTM SA234 WPB	ASME B16.9	39,9	0		
64	Reducer 20" Sch. STANDARD	0	pcs.	20	STANDARD	ASTM SA234 WPB	ASME B16.9	58,9	0		
65	Reducer 22" Sch. STANDARD	0	pcs.	22	STANDARD	ASTM SA234 WPB	ASME B16.9	64,3	0		
66	Reducer 24" Sch. STANDARD	0	pcs.	24	STANDARD	ASTM SA234 WPB	ASME B16.9	72,0	0		
67	Reducer 26" Sch. STANDARD	0	pcs.	26	STANDARD	ASTM SA234 WPB	ASME B16.9	88,3	0		
68	Reducer 28" Sch. STANDARD	0	pcs.	28	STANDARD	ASTM SA234 WPB	ASME B16.9	86,6	0		
69	Reducer 30" Sch. STANDARD	0	pcs.	30	STANDARD	ASTM SA234 WPB	ASME B16.9	123,9	0		
70	Reducer 32" Sch. STANDARD	0	pcs.	32	STANDARD	ASTM SA234 WPB	ASME B16.9	140,9	0		
71	Reducer 34" Sch. STANDARD	0	pcs.	34	STANDARD	ASTM SA234 WPB	ASME B16.9	159,1	0		
72	Reducer 36" Sch. STANDARD	0	pcs.	36	STANDARD	ASTM SA234 WPB	ASME B16.9	178,4	0		
73	Reducer 40" Sch. STANDARD	0	pcs.	40	STANDARD	ASTM SA234 WPB	ASME B16.9	220,3	0		
74	Reducer 42" Sch. STANDARD	0	pcs.	42	STANDARD	ASTM SA234 WPB	ASME B16.9	242,8	0		
75	Reducer 48" Sch. STANDARD	0	pcs.	48	STANDARD	ASTM SA234 WPB	ASME B16.9	317,2	0		
76	Reducer 52" Sch. STANDARD	0	pcs.	52	STANDARD	ASTM SA234 WPB	ASME B16.9	431,8	0		
77	Reducer 56" Sch. STANDARD	0	pcs.	56	STANDARD	ASTM SA234 WPB	ASME B16.9	431,8	0		
78	Reducer 60" Sch. STANDARD	0	pcs.	60	STANDARD	ASTM SA234 WPB	ASME B16.9	564,0	0		
Pos.	Raccordi - Riduttori	Quantità	u.m.	NPS "	Schedula	MATERIALE	NOTE	kg/m	Peso [kg]	REV.	
79	TEE 2" Sch. STANDARD	0	pcs.	2	STANDARD	ASTM SA234 WPB	ASME B16.9	1,3	0		
80	TEE 3" Sch. STANDARD	0	pcs.	3	STANDARD	ASTM SA234 WPB	ASME B16.9	3,4	0		
81	TEE 4" Sch. STANDARD	0	pcs.	4	STANDARD	ASTM SA234 WPB	ASME B16.9	5,7	0		
82	TEE 5" Sch. STANDARD	0	pcs.	5	STANDARD	ASTM SA234 WPB	ASME B16.9	9,0	0		
83	TEE 6" Sch. STANDARD	0	pcs.	6	STANDARD	ASTM SA234 WPB	ASME B16.9	13,3	0		
84	TEE 8" Sch. STANDARD	0	pcs.	8	STANDARD	ASTM SA234 WPB	ASME B16.9	24,4	0		
85	TEE 10" Sch. STANDARD	0	pcs.	10	STANDARD	ASTM SA234 WPB	ASME B16.9	41,4	0		
86	TEE 12" Sch. SCH.80	0	pcs.	12	SCH.80	ASTM SA234 WPB	ASME B16.9	77,0	0		
87	TEE 14" Sch. STANDARD	0	pcs.	14	STANDARD	ASTM SA234 WPB	ASME B16.9	72,1	0		
88	TEE 16" Sch. SCH.80	0	pcs.	16	SCH.80	ASTM SA234 WPB	ASME B16.9	120,0	0		
89	TEE 18" Sch. STANDARD	0	pcs.	18	STANDARD	ASTM SA234 WPB	ASME B16.9	127,9	0		
90	TEE 20" Sch. STANDARD	0	pcs.	20	STANDARD	ASTM SA234 WPB	ASME B16.9	160,9	0		
91	TEE 22" Sch. SCH.80	2	pcs.	22	SCH.80	ASTM SA234 WPB	ASME B16.9	271,5	543		
92	TEE 24" Sch. STANDARD	0	pcs.	24	STANDARD	ASTM SA234 WPB	ASME B16.9	223,6	0		
93	TEE 26" Sch. STANDARD	0	pcs.	26	STANDARD	ASTM SA234 WPB	ASME B16.9	287,6	0		
94	TEE 28" Sch. STANDARD	0	pcs.	28	STANDARD	ASTM SA234 WPB	ASME B16.9	337,7	0		
95	TEE 30" Sch. STANDARD	0	pcs.	30	STANDARD	ASTM SA234 WPB	ASME B16.9	387,8	0		
96	TEE 32" Sch. STANDARD	0	pcs.	32	STANDARD	ASTM SA234 WPB	ASME B16.9	451,6	0		
97	TEE 34" Sch. STANDARD	0	pcs.	34	STANDARD	ASTM SA234 WPB	ASME B16.9	515,3	0		
98	TEE 36" Sch. STANDARD	0	pcs.	36	STANDARD	ASTM SA234 WPB	ASME B16.9	586,9	0		
99	TEE 40" Sch. STANDARD	0	pcs.	40	STANDARD	ASTM SA234 WPB	ASME B16.9	737,1	0		
100	TEE 42" Sch. STANDARD	0	pcs.	42	STANDARD	ASTM SA234 WPB	ASME B16.9	813,0	0		
101	TEE 48" Sch. STANDARD	0	pcs.	48	STANDARD	ASTM SA234 WPB	ASME B16.9	1063,1	0		
102	TEE 52" Sch. STANDARD	0	pcs.	52	STANDARD	ASTM SA234 WPB	ASME B16.9	1248,4	0		
103	TEE 56" Sch. STANDARD	0	pcs.	56	STANDARD	ASTM SA234 WPB	ASME B16.9	1443,7	0		
104	TEE 60" Sch. STANDARD	0	pcs.	60	STANDARD	ASTM SA234 WPB	ASME B16.9	1663,7	0		



clean energy ahead

TURBODEN

Job N°:

P22060

Doc:

P22060-G-3000

Impianto:

Pola

Rev:

0

Cliente:

G.I.P.R.I. S.r.l.

Data:

21/10/2022

Location:

Jolanda di Savoia

Pagina:

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Pos.	Raccordi - Flange	Quantità	u.m.	NPS "	Schedula	MATERIALE	NOTE	kg/m	Peso [kg]	REV.
105	Flanges 2" ANSI600	0	pcs.	2	ANSI600	ASTM A105	ASME B16.5	6	0	
106	Flanges 3" ANSI600	0	pcs.	3	ANSI600	ASTM A105	ASME B16.5	10	0	
107	Flanges 4" ANSI600	0	pcs.	4	ANSI600	ASTM A105	ASME B16.5	19	0	
108	Flanges 5" ANSI600	0	pcs.	5	ANSI600	ASTM A105	ASME B16.5	31	0	
109	Flanges 6" ANSI600	0	pcs.	6	ANSI600	ASTM A105	ASME B16.5	37	0	
110	Flanges 8" ANSI600	0	pcs.	8	ANSI600	ASTM A105	ASME B16.5	53	0	
111	Flanges 10" ANSI600	0	pcs.	10	ANSI600	ASTM A105	ASME B16.5	86	0	
112	Flanges 12" ANSI600	12	pcs.	12	ANSI600	ASTM A105	ASME B16.5	103	1.236	
113	Flanges 14" ANSI600	0	pcs.	14	ANSI600	ASTM A105	ASME B16.5	157	0	
114	Flanges 16" ANSI600	12	pcs.	16	ANSI600	ASTM A105	ASME B16.5	218	2.616	
115	Flanges 18" ANSI600	0	pcs.	18	ANSI600	ASTM A105	ASME B16.5	252	0	
116	Flanges 20" ANSI600	0	pcs.	20	ANSI600	ASTM A105	ASME B16.5	313	0	
117	Flanges 22" ANSI600	28	pcs.	22	ANSI600	ASTM A105	ASME B16.5	375	10.512	
118	Flanges 24" ANSI600	0	pcs.	24	ANSI600	ASTM A105	ASME B16.5	443	0	
119	Flanges 26" ANSI600	0	pcs.	26	ANSI600	ASTM A105	ASME B16.5	519	0	
120	Flanges 28" ANSI600	0	pcs.	28	ANSI600	ASTM A105	ASME B16.5	600	0	
121	Flanges 30" ANSI600	0	pcs.	30	ANSI600	ASTM A105	ASME B16.5	686	0	
122	Flanges 32" ANSI600	0	pcs.	32	ANSI600	ASTM A105	ASME B16.5	778	0	
123	Flanges 34" ANSI600	0	pcs.	34	ANSI600	ASTM A105	ASME B16.5	876	0	
124	Flanges 36" ANSI600	0	pcs.	36	ANSI600	ASTM A105	ASME B16.5	980	0	
125	Flanges 40" ANSI600	0	pcs.	40	ANSI600	ASTM A105	ASME B16.5	1205	0	
126	Flanges 42" ANSI600	0	pcs.	42	ANSI600	ASTM A105	ASME B16.5	1326	0	
127	Flanges 48" ANSI600	0	pcs.	48	ANSI600	ASTM A105	ASME B16.5	1725	0	
128	Flanges 52" ANSI600	0	pcs.	52	ANSI600	ASTM A105	ASME B16.5	2338	0	
129	Flanges 56" ANSI600	0	pcs.	56	ANSI600	ASTM A105	ASME B16.5	2338	0	
130	Flanges 60" ANSI600	0	pcs.	60	ANSI600	ASTM A105	ASME B16.5	3044	0	

NB: La lista materiali include il 10% di margine sulla quantità totale

Total Weight 91.010 kg

SALDATURE									
Pos.	NPS "	Quantità	u.m.	% Prefabbricazione	Salsature prefabbricate	u.m.			REV.
	2	0	"	0%	0	"			
	4	0	"	0%	0	"			
	6	0	"	0%	0	"			
	8	0	"	0%	0	"			
	10	0	"	0%	0	"			
	12	504	"	0%	0	"			
	14	0	"	0%	0	"			
	16	688	"	0%	0	"			
	18	0	"	0%	0	"			
	20	0	"	0%	0	"			
	22	2024	"	0%	0	"			
	24	0	"	0%	0	"			
	26	0	"	0%	0	"			
	28	0	"	0%	0	"			
	30	0	"	0%	0	"			
	32	0	"	0%	0	"			
	34	0	"	0%	0	"			
	36	0	"	0%	0	"			
	40	0	"	0%	0	"			
	42	0	"	0%	0	"			
	48	0	"	0%	0	"			
	52	0	"	0%	0	"			
	56	0	"	0%	0	"			
	60	0	"	0%	0	"			



Job N°:	P22060	Doc :	P22060-G-4000
Impianto:	Pola	Rev:	0
Cliente:	G.I.P.R.I. S.r.l.	Data:	21/10/2022
Sito:	Jolanda di Savoia - Italy		


## LISTA FLUIDI CONSUMABILI

### P22060

#### REVISIONI DOCUMENTO

0	Prima emissione	AB0386	MD0098	MD0098	21/10/2022
REV.	DESCRIZIONE	AUTORE	CONTR. DA	APP. DA	DATA



		Job N°:	P22060	Doc.:	P22060-G-4000
		Impianto:	Pola	Rev.:	0
		Cliente:	G.I.P.R.I. S.r.l.	Data:	21/10/2022
		Sito:	Jolanda di Savoia - Italy	Oggetto:	LISTA FLUIDI CONSUMABILI P22060
Pos.	Descrizione	Quantità	Fluido	Consumo	Note
1	Olio Lubrificante - Lubrifica e tenute meccaniche turbina HT	Primo riempimento: 2700 L	Olio minerale - tipologia da definire	~250 L	Valore stimato
2	Olio Lubrificante - Lubrifica e tenute meccaniche turbina LT	Primo riempimento: 2700 L	Olio minerale - tipologia da definire	~250 L	Valore stimato
3	Tenute meccaniche pompe fluido di lavoro (HT e LT)	Primo riempimento: 25 L / pompa	Olio minerale - tipologia da definire	~200 L (*)	Valore stimato * Numero di pompe considerato: 11
4	Lubrificante per i cuscinetti del motore delle pompe fluido di lavoro (HT e LT)	Primo riempimento: ~150 g / pompa	Grasso al litio complesso	~3500 g (*)	Intervallo di lubrifica da specificare dopo la selezione del motore. * Numero di pompe considerato: 11
5	Lubrificante per i cuscinetti delle pompe fluido di lavoro (HT e LT)	Primo riempimento: ~2.5 L / pompa	Olio minerale - tipologia da definire	~30 L (*)	Intervallo di lubrifica da specificare dopo la selezione del motore. * Numero di pompe considerato: 11
6	Lubrificante per i motori del condensatore raffreddato ad aria (HT e LT)	Primo riempimento: ~30 g / ventilatore	Grasso al litio complesso	~3720 g (*, **)	Intervallo di lubrifica da specificare dopo la selezione del motore. * Numero di ventilatori considerati: 124 ** Intervallo di lubrifica ~2 anni
7	Lubrificante per il riduttore del condensatore raffreddato ad aria (HT e LT)	Primo riempimento: ~80 g / ventilatore	Grasso al litio complesso	~9920 g (*, **)	Intervallo di lubrifica da specificare dopo la selezione del motore. * Numero di ventilatori considerati: 124 ** Intervallo di lubrifica ~2 anni
8	Inertizzazione serbatoio di stoccaggio (quantità per due serbatoi)	560 Nm <sup>3</sup> (@0.01barg) 56 bombole di azoto 50 litri @ 200bar	Azoto	560 Nm <sup>3</sup> prima dell'ispezione del serbatoio	Utilizzato per: inertizzazione del serbatoio di stoccaggio isobutano prima di ispezioni straordinarie Minimo grado di purezza: 99.9% Massimo contenuto di acqua: meno di 40 ppm V / V Massimo contenuto di ossigeno: meno di 100 ppm V / V
9	Inertizzazione del circuito ORC HT	Quantità da definire in accordo al volume finale del circuito (fornitura @0.01barg)	Azoto	Manutenzione straordinaria	Utilizzato per: inertizzazione del circuito dell'isobutano lato ORC HT Minimo grado di purezza: 99.9% Massimo contenuto di acqua: meno di 40 ppm V / V Massimo contenuto di ossigeno: meno di 100 ppm V / V
10	Inertizzazione del circuito ORC LT	Quantità da definire in accordo al volume finale del circuito (fornitura @0.01barg)	Azoto	Manutenzione straordinaria	Utilizzato per: inertizzazione del circuito dell'isobutano lato ORC LT Minimo grado di purezza: 99.9% Massimo contenuto di acqua: meno di 40 ppm V / V Massimo contenuto di ossigeno: meno di 100 ppm V / V
11	Inertizzazione filtri circuito ORC HT	2Nm3 (fornitura @0.01barg) 0.3 Bombole di azoto 50 litri @ 200bar	Azoto	Una volta all'anno per ciascun filtro	Utilizzato per: manutenzione filtri. Effettuato con bombola portatile di azoto. Minimo grado di purezza: 99.9% Massimo contenuto di acqua: meno di 40 ppm V / V Massimo contenuto di ossigeno: meno di 100 ppm V / V
12	Inertizzazione filtri circuito ORC LT	2Nm3 (fornitura @0.01barg) 0.3 Bombole di azoto 50 litri @ 200bar	Azoto	Una volta all'anno per ciascun filtro	Utilizzato per: manutenzione filtri. Effettuato con bombola portatile di azoto. Minimo grado di purezza: 99.9% Massimo contenuto di acqua: meno di 40 ppm V / V Massimo contenuto di ossigeno: meno di 100 ppm V / V
13	Circuito ausiliario dell'acqua di raffreddamento	Primo riempimento: ~2.5 m3	Miscela acqua glicole	Periodica ricarica del circuito: <0.5%	Utilizzato per raffreddamento del generatore e della centralina di lubrifica.
14	Acqua di manutenzione	N/A	Acqua nessuna richiesta specifica	Nessun consumo durante normale funzionamento, solo durante la manutenzione	Può essere utilizzato il bacino per la ricarica dell'acqua di raffreddamento.
15	Unità chiller ORC HT	Primo riempimento: ~3 kg	R134a	< 0,1%	
16	Unità chiller ORC HT	Primo riempimento: ~50 L	Motorex Cool Core Ready	Primo riempimento del circuito di raffreddamento Ricarica periodica del circuito dopo le operazioni di manutenzione.	
17	Unità chiller ORC LT	Primo riempimento: ~3 kg	R134a	< 0,1%	
18	Unità chiller ORC LT	Primo riempimento: ~50 L	Motorex Cool Core Ready	Primo riempimento del circuito di raffreddamento Ricarica periodica del circuito dopo le operazioni di manutenzione.	
19	Motore della pompa del vuoto (HT e LT)	Primo riempimento: ~5 L	Olio di lubrifica	~5 L	
20	Compressore dell'aria	Primo riempimento: ~50 L	Olio di lubrifica	~50 L	