

## Comparison of Sand to Isotherm Feeder sizes and Steel saving.

Sand Riser		Riser Geometrical Modulus	Riser Solidification Modulus	Equivalent Isotherm Riser		Steel Saving	Saved Steel per 1kg Isotherm	Assembly		Powder per Rise Isotop A
dia	h	M=V/O	M=V/O.f	dia	h					
mm	mm	cm	cm	cm	cm	kg				kg
<b>Riser Height = 200mm</b>										
293	294	4.9	5.3	20	20	95	36	6 pieces Z20		0.2
<b>Riser Height = 300mm</b>										
351	441	6.3	6.8	24	30	240	45	7 pieces Z2		0.4
404	438	7.0	7.6	28	30	262	51	8 pieces Z2		2.3
<b>Riser Height = 400mm</b>										
410	592	7.6	8.1	28	40	390	55	2 x 8 pieces Z20		2.3
460	590	8.3	9.0	32	40	460	59	2 x 9 pieces Z20		3.6
517	584	9.1	9.8	35	40	582	67	2 x 10 pieces Z20		4.0
576	588	9.6	10.6	39	40	734	77	2 x 11 pieces Z20		5.9
<b>Riser Height = 500mm</b>										
510	720	9.4	10.3	35	50	720	70	10 pieces Z20 x 10 pieces Z2		4.0
576	735	10.4	11.1	39	50	918	77	11 pieces Z20 + 11 pieces Z2		5.9
631	735	11.0	12.0	43	50	1102	85	12 pieces Z20 + 12 pieces Z2		8.1
686	735	11.7	12.7	47	50	1302	93	13 pieces Z20 + 13 pieces Z2		10.9
734	730	12.3	13.5	50	50	1466	97	14 pieces Z20 + 14 pieces Z2		12.0
<b>Riser Height = 600mm</b>										
580	880	10.9	11.6	39	60	1123	79	2 x 11 pieces Z2		5.9
635	880	11.7	12.5	43	60	1340	87	2 x 12 pieces Z2		8.1
682	880	12.2	13.3	47	60	1530	91	2 x 13 pieces Z2		10.9
746	888	12.8	14.2	50	60	1877	103	2 X 14 pieces Z2		12.0
783	888	13.5	14.9	54	60	2031	105	2 x 15 pieces Z2		15.6
841	888	14.2	15.7	58	60	2343	73	2 x 16 pieces Z40		19.0
<b>Riser Height = 900mm</b>										
841	1332	15.9	17.3	58	90	3457	72	3 x 16 pieces Z40		19.0
885	1305	16.6	18.2	61	90	3828	75	3 x 17 pieces Z40		21.0
925	1310	17.1	19.0	64	90	4181	79	3 x 18 pieces Z40		24.0
1000	1310	18.1	19.8	69	90	4887	86	3 x 19 pieces Z40		31.0
1058	1310	18.7	20.6	73	90	5429	90	3 x 20 pieces Z40		38.0
1146	1310	19.9	22.1	80	90	6419	69	3 x 22 pieces Z40		48.0
<b>Riser Height = 1200mm</b>										
1218	1740	22.6	24.7	84	120	9630	74	4 x 18 pieces Z60		56.0
1349	1740	24.3	26.8	93	120	11813	81	4 x 20 pieces Z60		76.0
1479	1740	25.9	28.7	103	120	14200	83	4 x 22 pieces Z60		100.0
1711	1740	28.7	31.7	118	120	19000	96	3 X 15 pieces Z80		191.0
<b>Riser Height = 1400mm</b>										
1479	2030	27.1	29.6	102	140	16567	83	13 x (2 pieces Z7 + 2 pieces Z80)		102.0
1711	2030	30.1	33.1	118	140	22172	96	15 x (2 pieces Z7 + 2 pieces Z80)		191.0
1934	2030	32.9	36.3	134	140	29320	106	17 x (2 pieces Z7 + 2 pieces Z80)		251.0

### Optional size proposals for use of Isotherm - Cycloid Elements

Z20/Z2 Tiles / Ring.	Z40	Z60	mm Dia	Height	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600
6			200		5.4	5.9	6.2												
7			240		6.0	6.8	7.2	7.4											
8			280		6.7	7.6	8.1	8.5	8.7										
9			320			8.3	8.9	9.4	9.7										
10			350			9.0	9.8	10.3	10.7	10.9									
11			390			9.6	10.6	11.2	11.6	11.9	12.3								
12			430				11.2	12.0	12.5	12.8	13.1					<b>solidification modulus cm.</b>			
13			470				11.9	12.7	13.3	13.7	14.1	14.4							
14	14		500				12.5	13.5	14.2	14.6	15.0	15.3	15.6						
15	15		540				13.1	14.1	14.9	15.5	16.0	16.1	16.7	17.0					
16	16		580					14.8	15.7	16.3	16.9	17.3	17.7	18.0					
17	17		615					15.3	16.3	17.1	17.7	18.2	18.6	18.9	19.0				
18	18		640					15.9	16.9	17.8	18.5	19.0	19.5	19.8	20.0	20.5			
	19		690					16.6	17.6	18.6	19.3	19.8	20.3	20.7	21.0	21.4			
	20		725						18.3	19.3	20.0	20.6	21.2	21.5	21.8	22.2			
	21		760						18.7	19.6	20.7	21.4	21.9	22.3	22.7	23.0	23.3		
	22		800							20.4	21.4	22.1	22.7	23.1	23.6	23.9	24.3		
	23		840							21.6	22.1	22.9	23.5	24.0	24.5	24.9			
	24		870							22.0	22.8	23.6	24.3	24.8					
	25		910								23.4	24.3	25.0	25.6					
	26		950								24.1	25.0	25.8						
	27		980								<b>solidification modulus cm.</b>		24.8						
		18	840														25.3	25.6	25.8
		19	885												25.8	26.1	26.4	26.8	27.0
		20	930											26.2	26.8	27.2	27.6	27.9	28.3
		21	975										26.5	27.2	27.6	28.2	28.7	29.0	29.4
		22	1030									26.5	27.4	28.0	28.7	29.3	29.8	30.2	30.6
		23	1080									27.3	28.2	29.0	29.7	30.3	30.8	31.2	31.7
		24	1120									28.2	29.1	30.3	30.7	31.3	31.9	32.4	
		25	1170									28.9	30.0	30.9	31.6	32.3			
		26	1220									29.7	30.8	31.7	32.5	33.2			
		27	1260										31.6	32.6					

