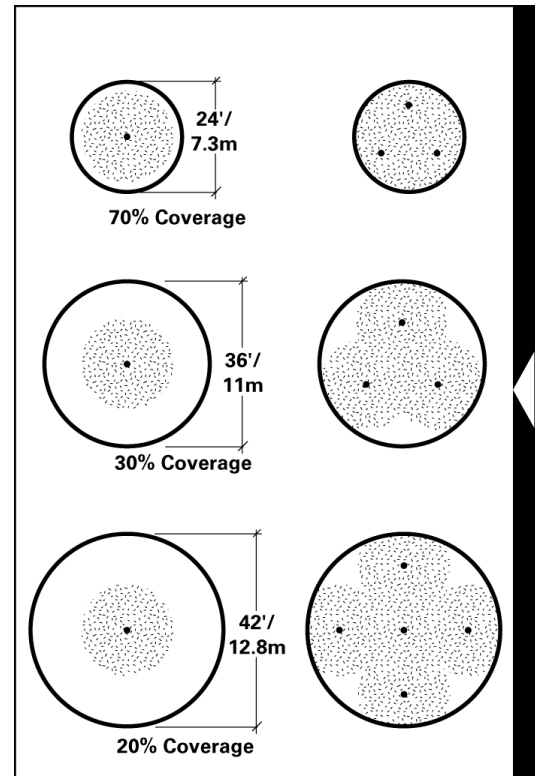


SENSING CABLES - PLACEMENT PATTERNS

WHY MULTI-CABLES.

Although it's important to monitor temperature profiles through the core of the bin, it's also important to compare temperatures across the grain mass in larger diameter bins. Frequent logging and a well placed sensor pattern are two main ingredients to a complete monitoring program. Such a program will enable you to pick-off small changes and avert problems, before spoilage occurs.

Being that grain is an excellent insulator, temperature changes are slow to detect more than 10 feet / 3m out from the sensing cable. For this reason, OPIsystems recommends a cable coverage pattern based on 20 feet (6 meter) centres. As the chart suggests, 01 centre cable in a 42' diameter bin results in coverage of only 20% of the bin, leaving 80% of the grain **not** monitored.



SENSING CABLE PLACEMENT STANDARD

OPIsystems' has the following standards for placing sensing cables inside storage facilities.

Round Bins:

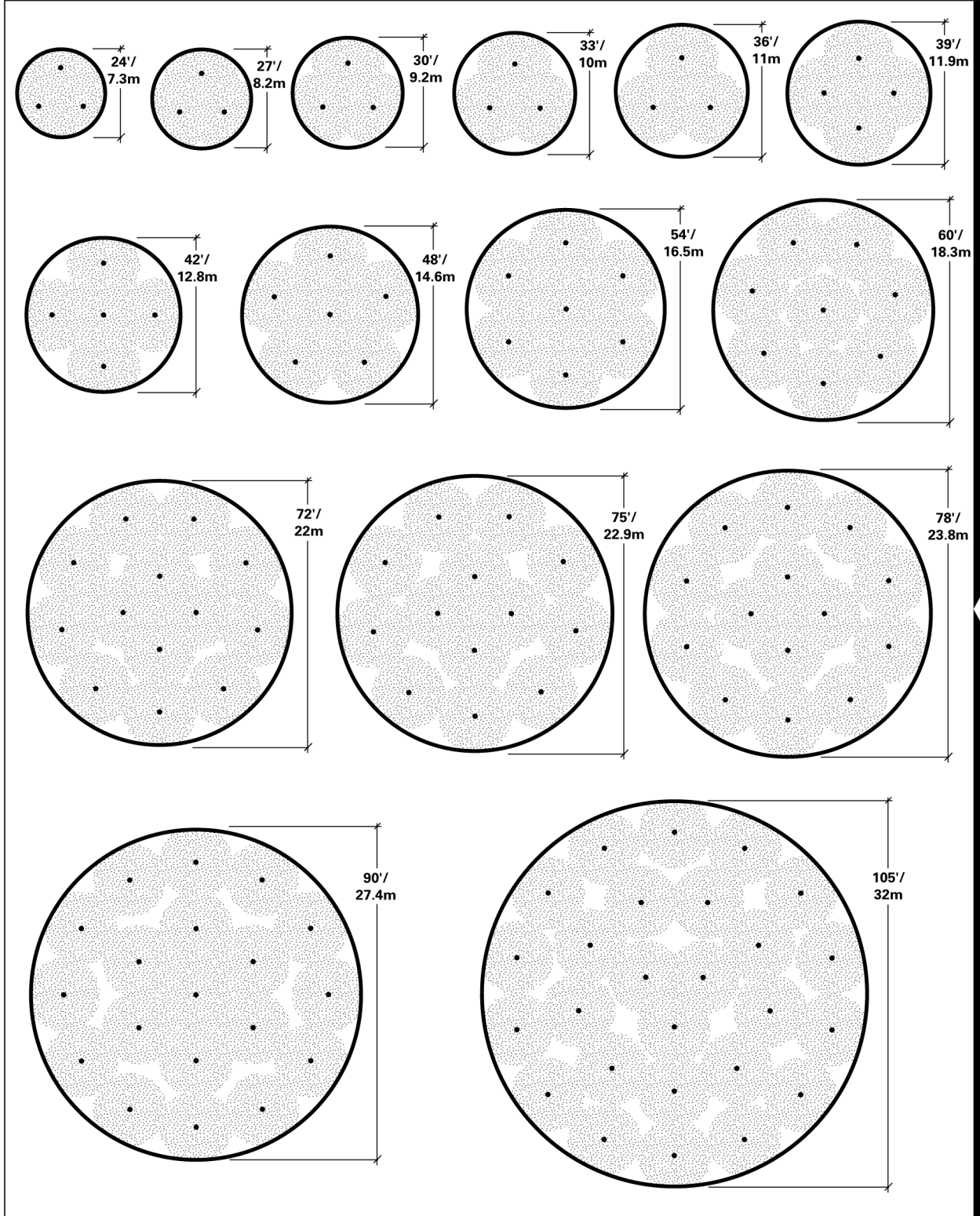
For bins with diameter less than 24 feet (5.1m) use 1 centre sensing cable.

For bins with diameter 24' (5.1m) or more use 3 or more sensing cables depending on size. See diagrams on the next pages for recommended cable placement in bins up to 105' (32m) in diameter.

Flat Store:

Space sensing cables on 20' (6m) centers, with rows 20' (6m) feet apart, as shown in the diagram.

ROUND BINS - RECOMMENDED PLACEMENT PATTERNS FOR SENSING CABLES



Sensing Cables - Multi-Cable Bin Recommendation Chart:

Bin Diameter	Total # of cables	Centre		Radius A			Radius B			Radius C		
		#	Distance : roof to bin base Eave +	#	Distance: bin centre to cable suspension	Distance: roof to bin base Eave +		Distance: bin centre to cable suspension	Distance : roof to bin base Eave +		Distance: bin centre to cable suspension	Distance: roof to bin base Eave +
Imperial												
24	3			3	7	2.5						
27	3			3	7	3.5						
30	3			3	8	4						
32	3			3	8	4.5						
33	3			3	8	4.5						
36	3			3	9	5						
38	4			4	9	5.5						
39	4			4	9.5	5.5						
42	5	1	12	4	14	4						
48	6	1	14	5	16	4.5						
54	7	1	16	6	18	5						
60	8	1	17	7	20	5.5						
72	13			4	10	15	9	27	5			
75	14			4	10	15.5	9	28	5			
78	14			4	10	16.5	10	29	5.5			
90	19	1	26	6	18	15.5	12	36	5			
105	26			3	9	25	9	26.5	15	14	44	4.5
Metric												
7.3				3	2.1	0.8						
8.2				3	2.1	1.1						
9.2				3	2.4	1.2						
9.8				3	2.4	1.4						
10.0				3	2.4	1.4						
11.0				3	2.7	1.5						
11.9				4	2.9	1.7						
12.8		1	3.6	4	4.3	1.2						
14.6		1	4.2	5	4.9	1.4						
16.5		1	4.7	6	5.5	1.5						
18.3		1	5.2	7	6.1	1.7						
22.0				4	3.0	4.6	9	8.2	1.5			
22.9				4	3.0	4.7	9	8.5	0.5			
23.8				4	3.0	5.0	10	8.8	1.7			
27.4		1	7.8	6	5.5	4.7	12	11	1.5			
32.0				3	2.7	7.6	9	8.1	4.6	14	13.4	1.4