

Understanding Paper Weight & Thickness

Choosing the correct paper for a digital print job can be confusing. Should your paper choice be determined by Basis Weight, M Weight, Caliper or GSM? Each of these are different and the specification of the sheet may look the same in some cases, but they may be far from what you need for your job. The information below is laid out to help you better understand the difference and make the correct choice when choosing the paper for your job.

Basis Weight:

You have heard the term 20# Bond, 60# Text & 100# Cover. These paper specifications are referencing Basis Weight. The weight, measured in pounds, of 500 sheets of paper *in that paper's basic sheet size* is its basis weight. Even after the paper is trimmed to a smaller size, it is still categorized by the weight of its basic size sheet. However, the basic sheet size is not the same for all paper grades, which causes confusion when comparing different types of paper and their weights.

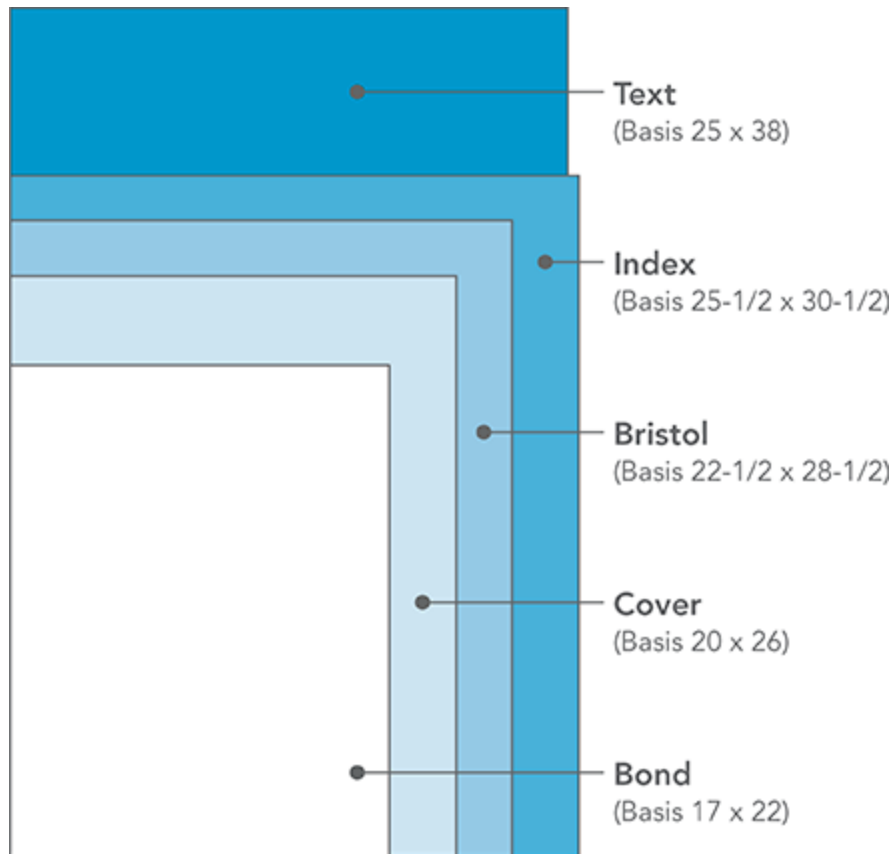
Examples:

- When 500 sheets of bond paper at its basic sheet size of 17 x 22 inches weighs 20 pounds, that paper is still identified as 20 lb. paper even after it is trimmed to the familiar 8.5 x 11 inch size.
- When 500 sheets of cover stock at its basic sheet size of 20 x 26 inches weighs 65 pounds, the cover stock is still referred to as 65 lb. cover even when trimmed to a smaller size.

Basic Sheet Sizes for Different Types of Paper

- Bond, copy paper, ledger paper and rag paper all have a basic sheet size of 17 x 22 inches.
- Offset, [book](#), text and [coated](#) papers have a basic sheet size of 25 x 38 inches.
- Cover stock has a basic sheet size of 20 x 26 inches.
- Tag stock has a basic sheet size of 24 x 36 inches.
- Index stock has a basic sheet size of 25.5 x 30.5 inches.
- Bristol stock has a basic sheet size of 22.5 x 28.5 inches.

Because the basis weight is based on sheet sizes that differ among types of paper, basis weight alone isn't sufficient for choosing a paper. An 80 lb. text paper is not the same as 80 lb. cover, for instance—it is much lighter weight. You need to know if you're talking about bond paper or cover paper or one of the other types of paper to compare them by weight.



GSM

The metric system measures paper weight in grams per square meter (g/m²) or GSM. The scale is continuous, meaning that all categories of paper use the same scale. This avoids the confusion of the Basis Weight system and promotes a good sense of relative weights. Most digital presses list specified compatible substrates in minimum and maximum GSM. The GSMs stated in compatibility charts and OEM spec guides are based standard papers. Density is a component of GSM measurements, meaning that the more pulp, filler or fibers in a substrate the denser it will be. This will result in a heavier GSM. The issue is much more prevalent when you are looking at synthetic substrates for digital printing. In these cases, it is better to pay attention to the substrates caliper.

Caliper

Caliper indicates the paper's thickness. Measured in thousandths of an inch using a micrometer, the caliper can either be expressed as .007 or 7 pt. A paper's caliper is affected by its basis weight and finish. For example, a 100# cover stock with a Smooth Finish would not have the same caliper as a 100# Cover stock with a Felt Finish. The felt finish would be coarser and thus have a thicker caliper although the basis weights would be the same.

M Weight

M weight is the term used for the weight of 1,000 sheets of a given size of paper. It is used to determine the weight of a printed piece or number of pieces based on the given size of the sheet.

Paper Weight Comparison Chart

Bond Ledger	Offset Text	Cover	Tag	Index	Points	Caliper (Inches)	Millimeters	Metric (grams/sq meter)
Equivalent Weight								
16	40	22	37	33	3.2	.0032	0.081	60.2 gsm
18	45	24	41	37	3.6	.0036	0.092	67.72 gsm
20	50	28	46	42	3.8	.0038	0.097	75.2 gsm
24	60	33	56	50	4.8	.0048	0.12	90.3 gsm
28	70	39	64	58	5.8	.0058	0.147	105.35 gsm
29	73	40	62	60	6	.0060	0.152	109.11 gsm
31	81	45	73	66	6.1	.0061	0.155	116.63 gsm
32	85	45	74	67	6.15	.00615	0.156	120 gsm
35	90	48	80	74	6.2	.0062	0.157	131.68 gsm
36	90	50	82	75	6.8	.0068	0.173	135.45 gsm
39	100	54	90	81	7.2	.0072	0.183	146.73 gsm
40	100	56	93	83	7.3	.0073	0.185	150.5 gsm
43	110	60	100	90	7.4	.0074	0.188	161.78 gsm
44	110	61	102	92	7.6	.0076	0.193	165.55 gsm
47	120	65	108	97	8	.0078	0.198	176.83 gsm
53	135	74	122	110	9	.0085	0.216	199.41 gsm
54	137	75	125	113	9	.009	0.229	203.17 gsm
58	146	80	134	120	9.5	.0092	0.234	218.22 gsm
65	165	90	150	135	10	.0095	0.241	244.56 gsm
67	170	93	156	140	10.5	.010	0.25	252.08 gsm
72	183	100	166	150	11	.011	0.289	270.0 gsm
76	192	105	175	158	13	.013	0.33	285.95 gsm
82	208	114	189	170	14	.014	0.356	308.52 gsm
87	220	120	200	180	15	.015	0.38	312 gsm
105	267	146	244	220	18	.0175	0.445	385.06 gsm

Kelly Paper Price Lists Include All Measurements

Text - Smooth								
Item Number	Size	Basis	MWT	GSM	Caliper	Color	Sheets/Ctn	
P0203865	8.5x11	50	9.84	74	0.0039	White	5000	