

*the **KISS II** system.*

*A Simplified Approach to Building Cabinets  
Using the 32mm System*

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**Door/Drawer Arrangements for a 30-1/2" Cabinet (24 Increments of 32mm)**

24	5	5	5	5	5	5	5
	19	7	8	9	5	5	5
		12	11	10	5	6	7
					9	8	7

12	6	6	6	6	6	6
	18	6	7	8	9	6
12		12	11	10	9	6
						6

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Objectives:

- 1) Develop a system for building frameless cabinets that is easy to adapt to multiple sizes of cabinets with multiple sizes of doors and/or drawer fronts.
- 2) Create cabinets that have a minimal reveal at the top and bottom of doors and/or drawer fronts.
- 3) Create cabinet end panels that are unhanded to eliminate possible mistakes on the assembly bench.
- 4) Create doors that are unhanded, so that concealed hinges can be drilled a uniform distance from either end of the door by means of preset stops on the hinge drilling machine.
- 5) Develop a system that can be used for any type of drawer construction from wood or melamine drawer boxes to “high tech” metal drawer systems.
- 6) Make a system that will work with epoxy coated bottom mount slides, full extension ball bearing drawer slides, or metal drawer sides.
- 7) Make a system that allows for uniform construction of drawers that can be interchanged with any other like sized drawer regardless of where it might go into the drawer stack.
- 8) Make the system so easy to understand that everyone in the shop will be able to understand it.

Does this sound like what you are looking for in a 32mm system?

**Solution:**

***KISS II***

## Overview

The *KISS II* System was developed to help those who may be new to frameless cabinet construction, or those who presently build frameless cabinets and line bore 32mm holes, but don't use the system holes for mounting their hinges, or their drawer guides cabinet members. It is not intended to be presented as the way that you must make your cabinets, but is really designed to be a good starting point for designing your own variation of the 32mm system.

### Common features of most 32mm systems

**First, cabinet sides are drilled with “system holes” that are spaced 32mm apart.** By now nearly all line drilling equipment sold is based on this spacing. This spacing divides the end panels into increments of 32mm. Because one of our objectives is to create end panels that are unhandled, it is necessary that the distance from the top of the panel to the first system hole is the same as the distance from the bottom of the panel to the first hole. Page 6 lists end panel lengths from 20-3/8” to 96” that will produce unhandled end panels for cabinets using a first hole distance of **35mm** from either end of the panel.

**Second, door and drawer front heights are most frequently built in increments of 32mm.** These door or drawer front heights are reduced by the amount of reveal that you wish to maintain between your doors and or drawer fronts. Most frameless construction tries to maintain a reveal of about 3mm (1/8” prox.) on all sides of the doors and drawer fronts. Page 7 lists door and drawer front heights from 4-15/16” to 95-5/8” made to increments of 32mm (-3mm).

Lastly, because nearly all 32mm systems have doors and drawer fronts that are made to increments of 32mm and end panels that are made to increments of 32mm, there is a relationship of the system holes to the doors and drawer fronts. This is especially important for determining where to drill for hinge placement and drilling drawer fronts when using metal drawer systems. **With the *KISS II* system every possible reveal between drawer fronts or doors falls exactly on the center of one of the system holes in the cabinet.** This is especially nice when you need to locate a spreader. You can use the system hole as a guide for centering every possible spreader.

While the *KISS II* system lends itself nicely to the metal drawer systems, it can be used with any type of drawer construction or drawer slide system that is compatible with 32mm (i.e. has holes for 5mm system screws set back 37mm from the front edge of the cabinet). This includes many epoxy coated bottom mount drawer slides and side mounted ball bearing drawer slides.

Following the sections of cabinet sizes and door/drawer front sizes is a section explaining how to configure door and drawer fronts, some examples of layouts for typical base cabinets and information for various types of drawer construction, including metal drawers, wood or melamine drawers and full extension metal drawer systems.

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## The Constant

Nearly all self-closing drawer slides require an increased reveal between the top drawer and an over hanging countertop. This is because many slides have a ramp built into the drawer member that causes the drawer roll downward into the stay-closed position. This ramp also causes the drawer front to move upward as the drawer is opened. Most Grass drawer slides use a patented design that allows drawers to travel horizontally for the first  $\frac{3}{4}$ ". Many other slides rise as soon as they begin to travel out of the cabinet. This rise may cause binding of the drawer fronts when there are tight reveals between drawer fronts. Even the Grass slides may need extra clearance under a countertop that extends out past the drawer fronts. In these cases there needs to be additional reveal between the top drawer and the countertop.

In the *KISS II* system we add a **constant of 6mm** one time to each multiple of 32mm to create our incremental cabinet heights. Additionally, we deduct 3mm from the overall height of door/drawer sizes (to create 3mm reveal between drawer fronts). This creates a difference of 9mm (6mm + 3mm) between the overall height of the door/drawer combinations and the corresponding cabinet heights. Because the *KISS II* system produces cabinets that have both unhandled end panels and unhandled doors, the 9mm difference is split equally above and below the door/drawer combinations. All cabinets produced with this system will have a **4.5mm reveal above the top door/drawer** (clearance for an overhanging countertop) and a **4.5mm reveal below the bottom door/drawer** (enough to protect the doors or drawer fronts while on the workbench or while being transported to the job site).

Many cabinet jobs require a **36" finished countertop height**, an end panel height in an exact multiple of 32mm would fall slightly short of being an ideal height. An exact 24 incremental height would produce a panel height of 768mm (24 x 32mm) or approximately 30-1/4". Closer to 30-1/2" would be ideal, this would make a 1-1/2" thick countertop, plus a 4" toe kick space, equal a finished countertop height of 36". The *KISS II* system constant of **6mm** added to the 24 incremental cabinet height of 768mm produces cabinet heights of 774mm which is much closer to the ideal of 30-1/2" (actually 30.47").

All suggested end panel heights are a multiple of 32mm plus the constant (6mm). The constant is added only once to the selected multiple of 32mm for determining cabinet end panels (refer to the table on page 6 for *KISS II* cabinet heights). Door and drawer front heights for *KISS II* cabinets are found on page 7 (these are multiples of 32mm minus 3mm for reveal).

Cabinets need to be built to these sizes to fully utilize the benefits of the system, which include ***unhandled cabinet end panels and unhandled hinge drilling***.

It is possible to do variations of the *KISS II* system. Variations will produce either handed end panels or handed doors. Handed end panels have a different distance from the top of the panel to the first system hole than from the bottom of the panel up to the first system hole. Handed doors have a different distance from the top of the door to the top hinge, than from the bottom of the door to the bottom hinge.

The addition of the constant will create a starting reference point of **35mm** for line drilling. That is the distance from either end of the panel to the center of the first hole. When line boring this is always the place to set your fences while using the *KISS II* system.

**KISS II                      Cabinet Heights**

Increments	mm	Inches	Inches*	Increments	mm	Inches	Inches*
<b>1 2</b>	390	15.35	15-3/8"	<b>4 5</b>	1446	56.93	56-15/16"
<b>1 3</b>	422	16.61	16-5/8"	<b>4 6</b>	1478	58.19	58-3/16"
<b>1 4</b>	454	17.87	17-7/8"	<b>4 7</b>	1510	59.45	59-7/16"
<b>1 5</b>	486	19.13	19-1/8"	<b>4 8</b>	1542	60.71	60-11/16"
<b>1 6</b>	518	20.39	20-3/8"	<b>4 9</b>	1574	61.97	61-15/16"
<b>1 7</b>	550	21.65	21-5/8"	<b>5 0</b>	1606	63.23	63-1/4"
<b>1 8</b>	582	22.91	22-15/16"	<b>5 1</b>	1638	64.49	64-1/2"
<b>1 9</b>	614	24.17	24-3/16"	<b>5 2</b>	1670	65.75	65-3/4"
<b>2 0</b>	646	25.43	25-7/16"	<b>5 3</b>	1702	67.01	67"
<b>2 1</b>	678	26.69	26-11/16"	<b>5 4</b>	1734	68.27	68-1/4"
<b>2 2</b>	710	27.95	27-15/16"	<b>5 5</b>	1766	69.53	69-1/2"
<b>2 3</b>	742	29.21	29-3/16"	<b>5 6</b>	1798	70.79	70-13/16"
<b>2 4</b>	774	30.47	30-1/2"	<b>5 7</b>	1830	72.05	72-1/16"
<b>2 5</b>	806	31.73	31-3/4"	<b>5 8</b>	1862	73.31	73-5/16"
<b>2 6</b>	838	32.99	33"	<b>5 9</b>	1894	74.57	74-9/16"
<b>2 7</b>	870	34.25	34-1/4"	<b>6 0</b>	1926	75.83	75-13/16"
<b>2 8</b>	902	35.51	35-1/2"	<b>6 1</b>	1958	77.09	77-1/16"
<b>2 9</b>	934	36.77	36-3/4"	<b>6 2</b>	1990	78.35	78-3/8"
<b>3 0</b>	966	38.03	38-1/16"	<b>6 3</b>	2022	79.61	79-5/8"
<b>3 1</b>	998	39.29	39-5/16"	<b>6 4</b>	2054	80.87	80-7/8"
<b>3 2</b>	1030	40.55	40-9/16"	<b>6 5</b>	2086	82.13	82-1/8"
<b>3 3</b>	1062	41.81	41-13/16"	<b>6 6</b>	2118	83.39	83-3/8"
<b>3 4</b>	1094	43.07	43-1/16"	<b>6 7</b>	2150	84.65	84-5/8"
<b>3 5</b>	1126	44.33	44-5/16"	<b>6 8</b>	2182	85.91	85-1/8"
<b>3 6</b>	1158	45.59	45-9/16"	<b>6 9</b>	2214	87.17	87-3/16"
<b>3 7</b>	1190	46.85	46-7/8"	<b>7 0</b>	2246	88.43	88-9/16"
<b>3 8</b>	1222	48.11	48-1/8"	<b>7 1</b>	2278	89.69	89-11/16"
<b>3 9</b>	1254	49.37	49-3/8"	<b>7 2</b>	2310	90.94	90-15/16"
<b>4 0</b>	1286	50.63	50-5/8"	<b>7 3</b>	2342	92.20	92-3/16"
<b>4 1</b>	1318	51.89	51-7/8"	<b>7 4</b>	2374	93.46	93-7/16"
<b>4 2</b>	1350	53.15	53-1/8"	<b>7 5</b>	2406	94.72	94-3/4"
<b>4 3</b>	1382	54.41	54-7/16"	<b>7 6</b>	2438	95.98	96"
<b>4 4</b>	1414	55.67	55-11/16"				

\*rounded to nearest 1/16" - for best accuracy use metric measurements

## **KISS II Door/Drawer Heights**

Increments	mm	Inches	Inches*	Increments	mm	Inches	Inches*
<b>4</b>	125	4.92	4-15/16"	<b>4 1</b>	1309	51.54	51-9/16"
<b>5</b>	157	6.18	6-3/16"	<b>4 2</b>	1341	52.80	52-13/16"
<b>6</b>	189	7.44	7-7/16"	<b>4 3</b>	1373	54.06	54-1/16"
<b>7</b>	221	8.70	8-11/16"	<b>4 4</b>	1405	55.31	55-5/16"
<b>8</b>	253	9.96	9-15/16"	<b>4 5</b>	1437	56.57	56-9/16"
<b>9</b>	285	11.22	11-1/4"	<b>4 6</b>	1469	57.83	57-13/16"
<b>10</b>	317	12.48	12-1/2"	<b>4 7</b>	1501	59.09	59-1/8"
<b>11</b>	349	13.74	13-3/4"	<b>4 8</b>	1533	60.35	60-3/8"
<b>12</b>	381	15.00	15"	<b>4 9</b>	1565	61.61	61-5/8"
<b>13</b>	413	16.26	16-1/4"	<b>5 0</b>	1597	62.87	62-7/8"
<b>14</b>	445	17.52	17-1/2"	<b>5 1</b>	1629	64.13	64-1/8"
<b>15</b>	477	18.78	18-3/4"	<b>5 2</b>	1661	65.39	65-3/8"
<b>16</b>	509	20.04	20-1/16"	<b>5 3</b>	1693	66.65	64-1/2"
<b>17</b>	541	21.30	21-5/16"	<b>5 4</b>	1725	67.91	67-15/16"
<b>18</b>	573	22.56	22-9/16"	<b>5 5</b>	1757	69.17	69-3/16"
<b>19</b>	605	23.82	23-13/16"	<b>5 6</b>	1789	70.43	70-1/16"
<b>20</b>	637	25.08	25-1/16'	<b>5 7</b>	1821	71.69	71-11/16"
<b>21</b>	669	26.34	26-5/16"	<b>5 8</b>	1853	72.95	72-15/16"
<b>22</b>	701	27.60	27-5/8"	<b>5 9</b>	1885	74.21	74-3/16"
<b>23</b>	733	28.86	28-7/8"	<b>6 0</b>	1917	75.47	75-1/2"
<b>24</b>	765	30.12	30-1/8"	<b>6 1</b>	1949	76.73	76-3/4"
<b>25</b>	797	31.38	31-3/8"	<b>6 2</b>	1981	77.99	78"
<b>26</b>	829	32.64	32-5/8"	<b>6 3</b>	2013	79.25	79-1/4"
<b>27</b>	861	33.90	33-7/8"	<b>6 4</b>	2045	80.51	80-1/2"
<b>28</b>	893	35.16	35-3/16"	<b>6 5</b>	2077	81.77	81-3/4"
<b>29</b>	925	36.42	36-7/16"	<b>6 6</b>	2109	83.03	83-1/16"
<b>30</b>	957	37.68	37-11/16"	<b>6 7</b>	2141	84.29	84-5/16"
<b>31</b>	989	38.94	38-15/16"	<b>6 8</b>	2173	85.55	85-9/16"
<b>32</b>	1021	40.20	40-3/16"	<b>6 9</b>	2205	86.81	86-13/16"
<b>33</b>	1053	41.46	41-7/16"	<b>7 0</b>	2237	88.07	88-1/16"
<b>34</b>	1085	42.72	42-11/16"	<b>7 1</b>	2269	89.33	89-5/16"
<b>35</b>	1117	43.98	44"	<b>7 2</b>	2301	90.59	90-9/16"
<b>36</b>	1149	45.24	45-1/4"	<b>7 3</b>	2333	91.85	91-7/8"
<b>37</b>	1181	46.50	46-1/2"	<b>7 4</b>	2365	93.11	93-1/8"
<b>38</b>	1213	47.76	47-3/4"	<b>7 5</b>	2397	94.37	94-3/8"
<b>39</b>	1245	49.02	49"	<b>7 6</b>	2429	95.63	95-5/8"
<b>40</b>	1277	50.28	50-1/4"				

\* rounded to the nearest 1/16" for best accuracy use metric measurements

Now that you have tables for calculating cabinet heights and door/drawer front heights, you can begin doing door and drawer front layouts. This is where you see the flexibility of the 32mm system.

**Typical Base Cabinet with a Single Door/Drawer Combination**

For the purposes of example we will use a standard base cabinet height chosen from the table of cabinet heights of 774mm (30-1/2”). You can see from the table that this cabinet contains **24** increments of 32mm. All you need to do is come up with combinations of whole numbers that equal 24. You can find the door/drawer front sizes from the table of door/drawer front heights.

Examples	<b>20</b> increment door <u>+4</u> increment drawer	<b>19</b> increment door <u>+5</u> increment drawer	<b>18</b> increment door <u>+6</u> increment drawer
Equals	<b>24</b> increments	<b>24</b> increments	<b>24</b> increments

**Multiple Drawer Stacks**

Here again all you have to do is match up the number of increments in the cabinet size with the number of increments used by the total of drawer front increments. The example cabinet has **24** increments of 32mm. You can divide 24 any way you want. If you want a 3-drawer stack with equal sized drawer fronts, you simply divide 24 by 3, which equals 8. If you want a 4-drawer stack with equal sized fronts divide 24 by 4, which equals 6. Here are some examples of incremental combinations which all add up to 24.

**3 Drawer Combinations**

<b>5</b>	<b>5</b>	<b>5</b>	<b>6</b>	<b>6</b>	<b>6</b>	<b>7</b>	<b>7</b>	<b>8</b>
<b>7</b>	<b>8</b>	<b>9</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>7</b>	<b>8</b>	<b>8</b>
<u><b>+12</b></u>	<u><b>+11</b></u>	<u><b>+10</b></u>	<u><b>+12</b></u>	<u><b>+11</b></u>	<u><b>+10</b></u>	<u><b>+10</b></u>	<u><b>+9</b></u>	<u><b>+8</b></u>
<b>24</b>	<b>24</b>	<b>24</b>	<b>24</b>	<b>24</b>	<b>24</b>	<b>24</b>	<b>24</b>	<b>24</b>

**4 Drawer Combinations**

<b>5</b>	<b>5</b>	<b>5</b>	<b>6</b>
<b>5</b>	<b>5</b>	<b>5</b>	<b>6</b>
<b>5</b>	<b>6</b>	<b>7</b>	<b>6</b>
<u><b>+9</b></u>	<u><b>+8</b></u>	<u><b>+7</b></u>	<u><b>+6</b></u>
<b>24</b>	<b>24</b>	<b>24</b>	<b>24</b>



**KISS II Possible Door/Drawer Arrangements for a 2 4 Increment Cabinet 774mm height (30-1/2")**

<b>2 4</b> 765mm (30-1/8")	<b>5</b> 157mm (6-3/16")	<b>5</b> 157mm (6-3/16")	<b>5</b> 157mm (6-3/16")	<b>5</b> 157mm (6-3/16")	<b>5</b> 157mm (6-3/16")	<b>5</b> 157mm (6-3/16")	<b>5</b> 157mm (6-3/16")
	<b>19</b> 605mm (23-13/16")	<b>7</b> 221mm (8-11/16")	<b>8</b> 253mm (9-15/16")	<b>9</b> 285mm (11-1/4")	<b>5</b> 157mm (6-3/16")	<b>5</b> 157mm (6-3/16")	<b>5</b> 157mm (6-3/16")
		<b>5</b> 157mm (6-3/16")			<b>6</b> 189mm (7-7/16")	<b>7</b> 221mm (8-11/16")	
		<b>12 *</b> 381mm (15")	<b>11 *</b> 349mm (13-3/4")	<b>10 *</b> 317mm (12-1/2")	<b>9</b> 285mm (11-1/4")	<b>8</b> 253mm (9-15/16")	<b>7</b> 221mm (8-11/16")

<b>12 *</b> 381mm (15")	<b>6</b> 189mm (7-7/16")	<b>6</b> 189mm (7-7/16")	<b>6</b> 189mm (7-7/16")	<b>6</b> 189mm (7-7/16")	<b>6</b> 189mm (7-7/16")	<b>6</b> 189mm (7-7/16")
	<b>18</b> 573mm (22-9/16")	<b>6</b> 189mm (7-7/16")	<b>7</b> 221mm (8-11/16")	<b>8</b> 253mm (9-15/16")	<b>9</b> 285mm (11-1/4")	<b>6</b> 189mm (7-7/16")
<b>12 *</b> 381mm (15")		<b>11 *</b> 349mm (13-3/4")	<b>10 *</b> 317mm (12-1/2")	<b>9</b> 285mm (11-1/4")	<b>6</b> 189mm (7-7/16")	
<b>6</b> 189mm (7-7/16")						

\* Possible file drawer

**KISS II Possible Door/Drawer Arrangements for a 23 Increment Cabinet 742mm (29-3/16")**

<b>5</b> 157mm (6-3/16")	<b>5</b> 157mm (6-3/16")	<b>5</b> 157mm (6-3/16")	<b>5</b> 157mm (6-3/16")	<b>5</b> 157mm (6-3/16")	<b>5</b> 157mm (6-3/16")	<b>5</b> 157mm (6-3/16")
<b>18</b> 573mm (22-9/16")	<b>6</b> 189mm (7-7/16")	<b>7</b> 221mm (8-11/16")	<b>8</b> 253mm (9-15/16")	<b>6</b> 189mm (7-7/16")	<b>5</b> 157mm (6-3/16")	<b>5</b> 157mm (6-3/16")
	<b>12*</b> 381mm (15")	<b>11*</b> 349mm (13-3/4")	<b>10*</b> 317mm (12-1/2")	<b>6</b> 189mm (7-7/16")	<b>6</b> 189mm (7-7/16")	<b>5</b> 157mm (6-3/16")
				<b>6</b> 189mm (7-7/16")	<b>7</b> 221mm (8-11/16")	<b>8</b> 253mm (9-15/16")

<b>23</b> 733mm (28-7/17")	<b>11*</b> 349mm (13-3/4")	<b>6</b> 189mm (7-7/16")	<b>6</b> 189mm (7-7/16")	<b>6</b> 189mm (7-7/16")	<b>6</b> 189mm (7-7/16")	<b>7</b> 221mm (8-11/16")	<b>7</b> 221mm (8-11/16")
	<b>12*</b> 381mm (15")	<b>17</b> 541mm (21-5/16")	<b>6</b> 189mm (7-7/16")	<b>7</b> 221mm (8-11/16")	<b>8</b> 253mm (9-15/16")	<b>7</b> 221mm (8-11/16")	<b>8</b> 253mm (9-15/16")
			<b>11*</b> 349mm (13-3/4")	<b>10*</b> 317mm (12-1/2")	<b>9</b> 285mm (11-1/4")	<b>9</b> 285mm (11-1/4")	<b>8</b> 253mm (9-15/16")

\* Possible file drawer

**KISS II Possible Door/Drawer Arrangements for a 22 Incremental Cabinet 710mm (27-15/16")**

<b>5</b> 157mm (6-3/16")	<b>5</b> 157mm (6-3/16")	<b>5</b> 157mm (6-3/16")	<b>5</b> 157mm (6-3/16")	<b>5</b> 157mm (6-3/16")	<b>5</b> 157mm (6-3/16")	<b>5</b> 157mm (6-3/16")
<b>17</b> 541mm (21-5/16")	<b>5</b> 157mm (6-3/16")	<b>6</b> 189mm (7-7/16")	<b>7</b> 221mm (8-11/16")	<b>8</b> 253mm (9-15/16")	<b>5</b> 157mm (6-3/16")	<b>5</b> 157mm (6-3/16")
	<b>12*</b> 381mm (15")	<b>11*</b> 349mm (13-3/4")	<b>10*</b> 317mm (12-1/2")	<b>9</b> 285mm (11-1/4")	<b>5</b> 157mm (6-3/16")	<b>6</b> 189mm (7-7/16")
					<b>7</b> 221mm (8-11/16")	<b>6</b> 189mm (7-7/16")

<b>22</b> 701mm (27-5/8")	<b>11*</b> 349mm (13-3/4")	<b>6</b> 189mm (7-7/16")	<b>6</b> 189mm (7-7/16")	<b>6</b> 189mm (7-7/16")	<b>6</b> 189mm (7-7/16")	<b>7</b> 221mm (8-11/16")
	<b>11*</b> 349mm (13-3/4")	<b>16</b> 509mm (20-1/16")	<b>6</b> 189mm (7-7/16")	<b>7</b> 221mm (8-11/16")	<b>8</b> 253mm (9-15/16")	<b>7</b> 221mm (8-11/16")
			<b>10*</b> 317mm (12-1/2")	<b>9</b> 285mm (11-1/4")	<b>8</b> 253mm (9-15/16")	<b>8</b> 253mm (9-15/16")

\* Possible File Drawer

## **Hinging Doors using the *KISS II* system.**

### **The *KISS II* system creates unhanded doors.**

It is an equal distance from the either the top or bottom of the door to the centerline of the hinge.

It is therefore a simple matter to set a stop at **78.5mm** (3-1/16"prox.) on either side of the fence of a hinge drilling machine to get proper alignment of the door. Because it is an equal distance from either end of the door, expensive fence extensions or other devices for counting spaces of 32mm are not required. Any style of door that isn't handed by the nature of its design like an arched raised panel door, doesn't require that you keep track of the handing during the hinge drilling process. Even handed doors like arched raised panel doors, or doors that have been pre-drilled for decorative hardware, only require that you make sure you drill them on the proper side. They still don't require a drilling distance that is measured differently from the ends of the door.

**78.5mm** is the normal distance for unhanded doors that fit the *KISS II* system. If you need to space your hinges differently because of interference with a roll-out, lazy susan shelf or any other thing causing interference with the hinge, the distance can be changed +/- increments of 32mm. In other words you could drill your doors at 46.5mm, or 110.5mm or 142.5mm, etc. and you still maintain the symmetry of the hinge drilling.

For tall doors requiring more than 2 hinges, the hinge placement for the intermediate hinge(s) will be a multiple of 32mm added to the 78.5 drill distance. It is possible to measure this distance and mark a centerline on your door to indicate where the hinge should be inserted. Some machines are supplied with an extra piece which when mounted to the fence, provides a raised surface to make it easy to line up the mark on the door with the centerline of the drilling machine. It is also possible to line up the centerline on the door with the zero position on the fence of most hinge drilling machines.

Unhanded doors are a big benefit of the *KISS II* system. This feature may eliminate a potentially expensive error from occurring. It also makes door hinging a job that can be done by an entry-level employee.

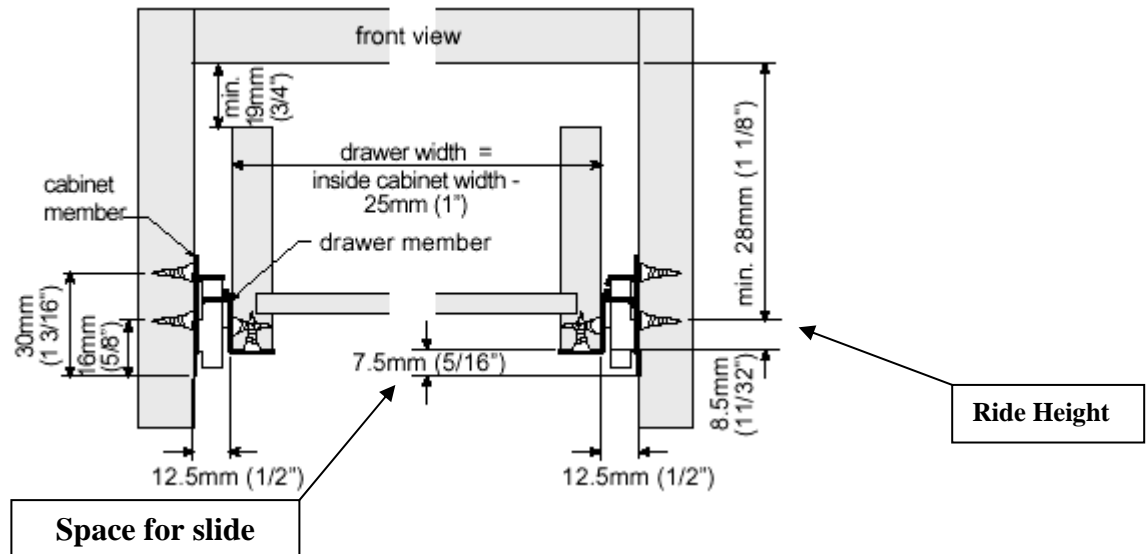
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## Building Drawers with the *KISS II* system

*It is important to take into account the parameters of the drawer slides that you are using.*



If for example if you want to use *wooden drawer boxes* with bottom mounted slides, it is important to take into account the *ride height* of the slide. Ride height is the relation of the bottom of the drawer box to the center of the *system hole*. A quick check of a hardware catalog shows that the ride height for this slide is 8.5mm. You will also note that the front flange of the cabinet member extends below the ride height another 7.5mm. That means that if you want to use the lowest system hole above the bottom of the cabinet *you must have at least 16mm* (8.5mm + 7.5mm) *clearance between the bottom of the cabinet and the center of the lowest system hole.*

**If like many cabinetmakers, you use 3/4" (19mm) material, then you will have to have a minimum of 35mm from the bottom of the cabinet to the center of the bottom hole when using this type of bottom mount drawer slides.**

The *KISS II* system cabinet sizes from the table on page 4 all are based on 35mm starting distance for the system holes. To achieve unhandled end panels it is necessary to have the same starting distance from either end of the panel. That is why **6mm** is the *constant* that is added once to the incremental number of 32mm spaces that is used for all end panels.

The 35mm starting distance, from the bottom of the cabinet, also utilizes the most available space possible with the Grass Zargen and Nova metal drawer systems.

**Any 32mm system that has both unhandled end panels and unhandled doors requires the same amount of reveal above the top door or drawer and below the bottom door or drawer.** The 6mm constant plus the 3mm reveal from the door/drawer front sizes combine to create a total of 9mm reveal 1/2 of which is above the top door/drawer and 1/2 below the bottom.

**Therefore all cabinets using *KISS II* will have 4.5mm (3/16") top and bottom reveal.**

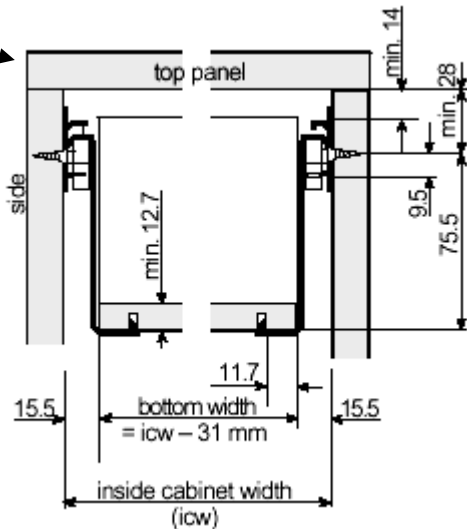
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## Building Metal Drawers Using *KISS II* System

Note: This drawing is not typical of recommended box construction. Sides of cabinet should extend to top of cabinet. Top panel should set between cabinet sides.



### Drawer Backs & Bottoms

**Width**-All drawer backs and bottoms should be cut **31mm (1-1/4") less than** the inside cabinet width (*icw*).

**Bottom Panel Length**-use the following table to determine the length of drawer bottom to use based upon the thickness of material you are using for the drawer back.

Metal Slide Length	Bottom Length <b>5/8" Back*</b>	Bottom length <b>3/4" Back*</b>
270mm (10-5/8")	251mm (9-7/8"prox)	248mm (9-3/4"prox)
350mm (13-3/4")	331mm (13-1/16"prox)	328mm (12-15/16"prox)
400mm (15-3/4")	381mm (15"prox)	378mm (14-7/8"prox)
440mm (17-5/16")	421mm (16-9/16"prox)	418mm (16-7/16"prox)
470mm (18-1/2")	451mm (17-3/4"prox)	448mm (17-5/8"prox)
510mm (20-1/16")	491mm (19-5/16"prox)	488mm (19-3/16"prox)
550mm (21-5/8")	531mm (20-7/8"prox)	528mm (20-13/16"prox)

\* These sizes are for 2", 4", 5", 6" or 9" tall sides.

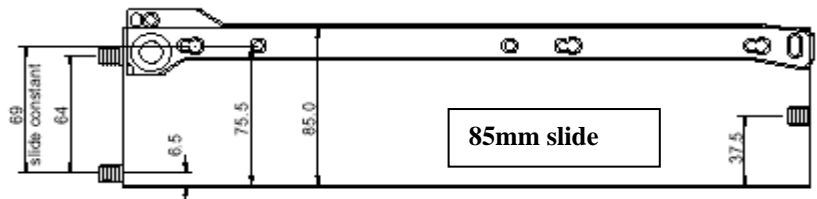
**Bottom Panel Thickness**-the bottom panel for any of these Metal slides can be made from materials which are 3/8" or thicker, 3/8", 1/2", 5/8" or 3/4" material will work fine. If you choose to use 3/8" material you must make sure to cut the groove in the bottom a little shallower than with the other materials, there are two router bits for making this groove, one for 3/8" material and one for all other bottom thickness'. This bit also slightly bevels the bottom corner of the material to ensure a tight fit with both the side and the bottom of the drawer sides. It is important to make the groove **11.5mm-11.7mm** from the edge of the drawer bottom to the edge of the groove to insure a tight fitting drawer bottom.

**Drawer backs**-can be cut to nearly any height. **Example:** using the a Pendeflex railing system you would normally use a 4" (actually 3-3/8") drawer side, but you cut the back 267mm (10-1/2") tall to accommodate the file rails. In other words the back can be taller than the side height of the slide if you desire. Here is a table to determine the height of a drawer back to make it flush to the top of the metal drawer side.

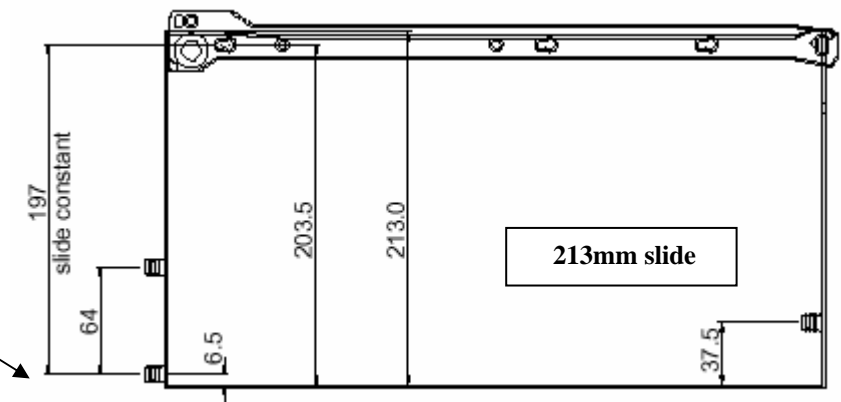
Metal Slide	Height of Back (to be flush with side)
43mm (1-3/4")*	45mm (1-3/4")*
85mm (3-3/8")	85mm (3-3/8")
117mm (4-5/8")	117mm (4-5/8")
149mm (5-7/8")	149mm (5-7/8")
213mm (8-3/8")	213mm (8-3/8")

\* Pencil slide height is 43mm, but a 45mm minimum back is recommended because 10mm hole is too close to the edge of 43mm back.

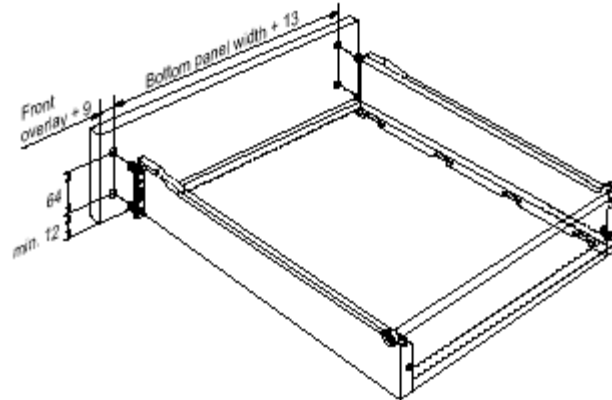
**Drilling of drawer backs**-all drawer backs require a **10mm diameter hole**, drilled **12mm** in from the outer edge of each side of the drawer back (this can be done with the side to side stop available for the some machines) **by 37.5mm** up from the bottom of the drawer back. **The top edge is always towards you with the bad side up.** Backs should be made from material which is 5/8" or 3/4" thick, as the **hole depth** should be **12.5mm** (1/2").



With some brands the 4", 5", 6" and 9" sides use same drilling distance from the bottom of the drawer front to the center of the bottom dowel. They all have 6.5mm distance from bottom of slide to center of dowel.



## Drawer Fronts



All of this brand of slides- **4"** (3-3/8"), **5"** (4-5/8"), **6"** (5-7/8") or **9"** (8-3/8") will require their drawer fronts to be drilled at **25.5mm** up from the bottom of the drawer front using the **KISS II** System. This is the distance from the bottom edge of the drawer front to the center of the bottom dowel for every possible (incremental) drawer front. The **depth** of the holes for fastening the fronts is **12.5mm** (1/2") the same as for the drilling of the backs.

**Drilling for Overlay**-It is possible that all of the drilling of the drawer front can be done using the right side of the drawer front as the reference side. This will help make the drawer square and the bottom fit tight even if there is some variation between the measurements of the drawer back and the drawer front.

### **\*What (Incremental) size of drawer front will work with which height slide?**

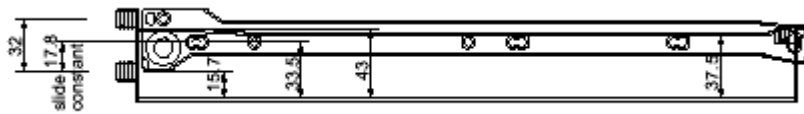
Here is a table to show you which size of drawer front will work with each different slide heights.

Incremental Drawer Front	Height of Drawer front	<b>45mm</b> <b>(2"prox)</b>	<b>85mm</b> <b>(4"prox)</b>	<b>117mm</b> <b>(5"prox)</b>	<b>149mm</b> <b>(6"prox)</b>	<b>213mm</b> <b>(9"prox)</b>
4	125mm (4-15/16")	X	*			
5	157mm (6-3/16")	X	X	*		
6	189mm (7-7/16")	X	X	X	*	
7	221mm (8-11/16")	X	X	X	X	
8	253mm (9-15/16")	X	X	X	X	*
9	285mm (11-1/4")	X	X	X	X	X
10	317mm (12-1/2")	X	X	X	X	X
11	349mm (13-3/4")	X	X	X	X	X
12	381mm (15")	X	X	X	X	X

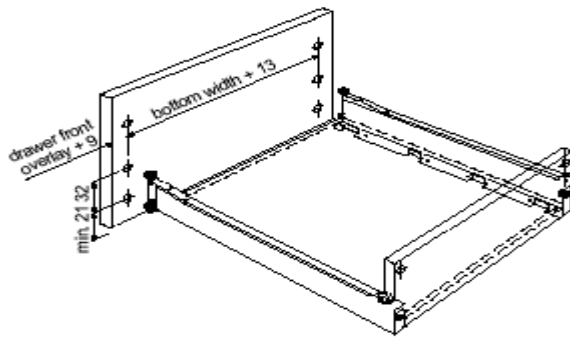
\* These will only work if they are not used on a top drawer or a drawer that has a stretcher above it. (They can be used on a top drawer if you hold the top back about 2" from the front of the cabinet or use a Full Extension member with the slide.)



## Using the Pencil Drawer with the *KISS II* System



The pencil drawer is unique in the metal drawer system. Because of height of the drawer side (43mm) there is not enough space for dowels spaced 64mm apart. The 45mm drawer member therefore has the 10mm dowels spaced 32mm apart. Most drilling machines have spindles spaced 32mm apart. All of the other heights of the metal drawer sides use 64mm spacing. The 45mm drawer side requires using a spindle that turns in the opposite direction of the other two spindles and will require a “left hand” turning bit.



Drilling the drawer back is the same as with any of the other drawer heights. You need to drill the same 10mm diameter hole, 12mm from the side and 37.5mm from the bottom. This is done in exactly the same way, using a side to side stop (if available for the machine you are using). This can be done with a single bit or with 2 bits set up for either the 64mm spacing or the 32mm spacing.

Drilling of drawer fronts using 45mm (pencil drawer) differs from the other sizes of slides because the 45 has a different *Drawer Slide Constant* than any of the other slides.

The drawer slide constant for the *standard height (85mm)* slide is 69mm. The 117mm slide constant is 101mm (69mm + the 1 increment of 32mm that it is taller than the *standard height (85mm)*). The 149mm slide constant is 133mm (69mm + the 2 increments of 32mm that it is taller than the *standard height (85mm)*). The 213mm slide constant is 197mm (69mm = the 4 increments of 32mm that it is taller than the *standard height (85mm)*).

The constant for *pencil drawer (45mm slide)* is 17.8mm, if you subtract that from the constant for 6036 of 69mm it equals 51.2mm and as we are using one less increment of 32 for 6035, you get:

$$69\text{mm} (-) 17.8\text{mm} = 51.2\text{mm} (-) 32\text{mm} = 19.2\text{mm}.$$

If you add this 19.2mm to the drill distance of 25.5mm for all the other slides you find:

***Pencil Drawers (45mm slides) requires the drawer fronts to be drilled at 44.7mm.***

Use 44.7mm (instead of the 25.5mm the other side heights require) when using the *KISS II* system with pencil drawer slides.

The ***shortest height drawer front*** that can be used in the *KISS II* system with the pencil drawer slide is the 4 ***increment front*** which has a height of 125mm (4-15/16”).

You can use any incremental drawer front that is larger than this, just as you can with any of the other drawer side heights just remember that the fronts drill a little differently.

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# *KISS II* Locating of Cabinet Members

Use this chart to determine which holes to use for mounting cabinet members of MetalDrawer Slides

Counting down from the top of the cabinet to the number of increments (of 32mm) covered by all door/drawer fronts above each drawer front.

**Examples:**

**24 increment Cabinet with 4ea 6 increment drawer fronts using 85mm slides**

First slide mounts into 3rd hole down from top (6 increments covered – 3)

Second slides mounts into 9th hole from top (12 increments covered – 3)

Third slide mounts into 15th hole from top (18 increments covered – 3)

Fourth slide mounts into 21st hole from top (24 increments covered – 3)

**Same 24 increment Cabinet with same 6 increment drawer fronts, but using 117mm slides**

First slide mounts into 2nd hole down from top (6 increments covered – 4)

Second slides mounts into 8th hole from top (12 increments covered – 4)

Third slide mounts into 14th hole from top (18 increments covered – 4)

Fourth slide mounts into 20th hole from top (24 increments covered – 4)

Slide Height	Shortest Height of Drawer Front That will work with each slide height	# of Holes to subtract from total holes covered from top
<b>85mm slide</b> (4" prox. Slide)  w/Full Extension Members	5 Increment      157mm – (6-3/16")	3
	4 Increment      125mm – (4-15/16")	2
<b>117mm slide</b> (5" prox. Slide)  w/Full Extension Members	6 Increment      189mm – (7-7/16")	4
	5 Increment      157mm – (6-3/16")	3
<b>149mm slide</b> (6" prox. Slide)  w/Full Extension Members	7 Increment      221mm – (8-11/16")	5
	6 Increment      189mm – (7-7/16")	4
<b>213mm slide</b> (9" prox. Slide)  w/Full Extension Members	9 Increment      285mm – (11-1/4")	7
	8 Increment      253mm – (9-15/16")	6

Options for a 5 drawer 774mm (30-1/2") 24 Increment Cabinet Using Metal Drawers

4	5
5	5
5	5
5	5
5	4

It is possible to build a 5 drawer cabinet using the *KISS II* System and using Metal drawer slides. The cabinet on the left side with the 4 increment drawer on the top can be built several different ways:

- 1) You can use 85mm slides on every one of the drawer fronts including the top drawer, but to make the top drawer remove properly you must either :
  - a) Bring the top short of being flush with the sides by about 2" which will allow the drawer member wheel to lift out over the cabinet member wheel.
  - b) Use a full extension member on the top drawer with an 85mm slide (the cabinet member then mounts into the hole that is 32mm lower than the hole without using the full extension member and the drawer can be easily removed.

The best and simplest option is b) using a full extension member on the top drawer.

- 2) You could use a 45mm Pencil drawer slide on the top drawer. (This option requires that the drawer front then be drilled at 44.7mm from the bottom of the drawer front instead of the 25.5mm that all other drawer fronts are drilled with in the *KISS II* system. The 45mm pencil drawer also requires drawer fronts drilled at 32mm spacing rather than the 64mm spacing of all the other side heights, so it requires changing the bits on the drilling machine.

Another option is to build the cabinet on the right, with the 4 increment drawer front on the bottom of the stack. You will be able to drill it the same as the other fronts (25.5mm) as long as you don't use a spreader between the 4<sup>th</sup> and 5<sup>th</sup> drawers. This option will be easier to match reveals with any adjacent cabinets with a top drawer.

It is possible also to build a 5 drawer cabinet of this size with equal sized drawers (150.6mm fronts) with 4.5mm top and bottom reveal and 3mm reveal between drawers (*KISS II* parameters). However, the cabinet members would not mount into the system screw holes. It would be possible to mount them with a drilling jig or with a CNC (point to point) machine.

## Building Wood or Melamine Drawer Boxes with *KISS II*

Here is a way to calculate the maximum height of a drawer side that will work with a bottom mounted slides.

Since these sizes will also work with ball bearing slides that don't require top clearance for the removal of drawers, you may want to use these heights for all of you drawer sides.

The **first hole** down from the top of a *KISS II* cabinet is **always 35mm**.

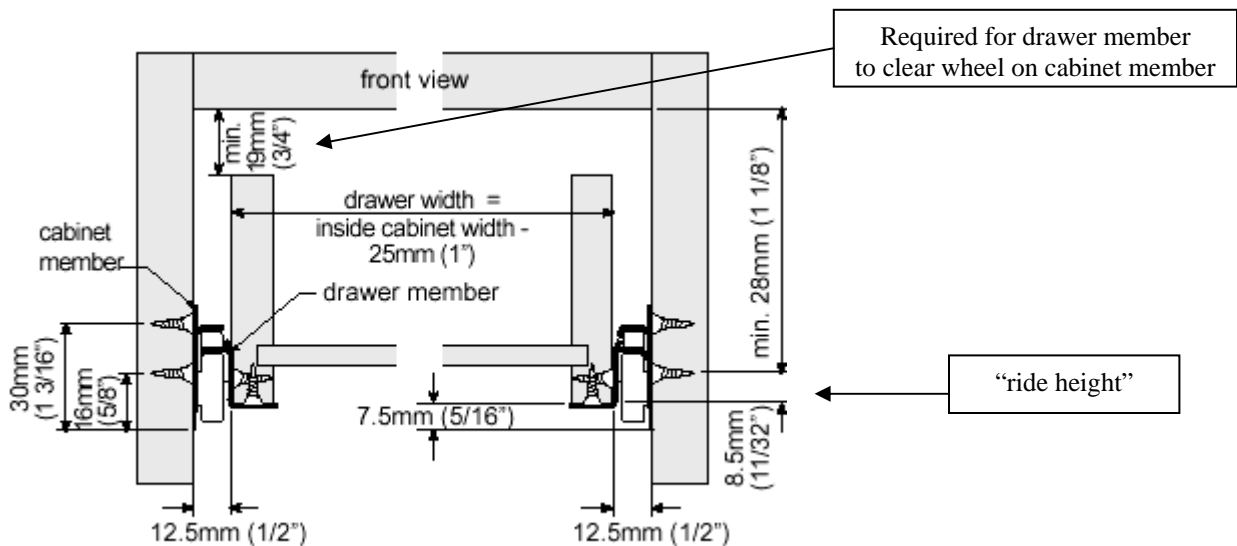
Most all bottom mounted epoxy coated slides require 19mm above the top of the drawer to be able lift the drawer out of the cabinet.

Here is how to calculate the maximum drawer side height, using bottom mounted epoxy slides, to fit into a *KISS II* cabinet based on each of the recommended drawer front heights.

Using the *KISS II* System **all of your possible reveals between drawer fronts and/or doors will center exactly on one of the system holes**. If you center your spreaders over these system holes the **3mm reveal will center on the spreader**. This is important if your specification calls for stops on all four sides of a drawer front (a WIC grade 1 requirement). A spreader also gives you a place to mount strikes for cam locks when they are required.

**The cabinet members mount into the system hole directly above a spreader (or possible spreader), or into the hole directly above the bottom of the cabinet.**

For example a 4-increment drawer front will cover 4 (32mm) increments on the cabinet. The cabinet member will mount into the 3<sup>rd</sup> hole from the top of the cabinet because the 4<sup>th</sup> hole will be where bottom of the drawer front will is. The 3<sup>rd</sup> hole is 99mm from the top of the cabinet (35+32+32mm).



Nearly every bottom mount drawer slide allows part of the drawer side to extend below the system hole used by the cabinet member (CM). The distance from the center of the system hole to the bottom of the drawer is typically referred to as **“ride height”** this is where the bottom of the drawer box will ride. Some bottom mounted drawer slides have a **ride height of 8.5mm**. These slides require 19mm (3/4") at the top of the cabinet (if using a 3/4" top) and another 19mm (3/4") for the drawer member to clear the wheel of the cabinet member. The formulas to determine maximum drawer side height on the next page are based on these requirements.

## Maximum Height of a Melamine or Wood Drawer Side

Use this table to determine how tall a drawer side can be using a bottom mount drawer slide with the *KISS II* system. This is the tallest a drawer side that can be used (including the drawer bottom if you are not putting the bottom into a dado). These sizes will allow enough room above the drawer for the wheel on the drawer member to clear the wheel on the cabinet member when removing the drawer from the cabinet.

Drawer Front Sizes			Hole # for CM Counted from top Or spreader*	Max. Drawer Side Height**	
# of Increments	(mm)	Inches		(mm)	Inches
4	125mm	4-15/16"	3	69.5mm	2-3/4"
5	157mm	6-3/16"	4	101.5mm	4"
6	189mm	7-7/16"	5	133.5mm	5-1/4"
7	221mm	8-11/16"	6	165.5mm	6-1/2"
8	253mm	9-15/16"	7	197.5mm	7-3/4"
9	285mm	11-1/4"	8	229.5mm	9-1/16"
10	317mm	12-1/2"	9	261.5mm	10-5/16"
11	349mm	13-3/4"	10	293.5mm	11-9/16"
12	381mm	15"	11	325.5mm	12-13/16"

\*Use this reference to determine which hole, down from the top of the cabinet to use for mounting the cabinet member when using bottom mount drawer slides.

For drawers falling below the top drawer on a multi-drawer stack, this is the number of the hole counted from a spreader, or the system hole where a spreader would mount, if you were adding spreaders between all drawers.

A system hole always falls exactly between every possible reveal between drawer fronts, using the *KISS II* system. This hole can be used for locating a spreader and is the hole to use for counting spaces when determining cabinet member location.

**Example:** When you use a 5-increment drawer front (6-3/16"), the total side height needs to be 4" or less (3-3/4" + 1/4" bottom if using 1/4" bottom without a dado).

The cabinet member would mount in the fourth hole from the top of the cabinet or the fourth hole down from the hole splitting the reveal created with the drawer above on a multiple drawer cabinet.

Another simple way to figure cabinet member placement is to count how many increments have been covered (with drawer fronts above and including the drawer) and mount the cabinet member into the hole that is 1 less than the number of increments covered.

**Example:** On a cabinet with 4 equal size 6 increment drawer fronts, the first cabinet member would mount into the 5<sup>th</sup> hole down. The second cabinet member would mount into the 11<sup>th</sup> hole down (12 [6 + 6] increments covered), the third into the 17<sup>th</sup> hole (18 [6 + 6 + 6] increments covered) and the last into the 23<sup>rd</sup> hole (24 [6 + 6 + 6 + 6] increments covered). This is all done referencing from the top of the side panel.