

EXPANDED MESH

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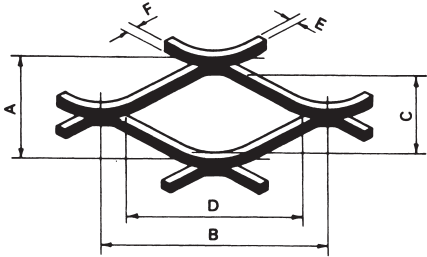
13

Expanded
Mesh

EXPANDED MESH

TERMINOLOGY AND TYPES

- A. WIDTH OF MESH (S.W.D.)
- B. LENGTH OF MESH (L.W.D.)
- C. WIDTH OF OPENING
- D. LENGTH OF OPENING
- E. STRAND THICKNESS
- F. STRAND WIDTH



TERMINOLOGY

S.W.D.	Short Way Diamond
L.W.D.	Long Way Diamond
Bond	Area where strands intersect
Strand Width	Surface area of metal strips forming diamond
Strand Thickness	Gauge of material being expanded
Flattening	Flattened short dimension diamond parallel to rolls
Cross Flattening*	Flattened long way diamond parallel to rolls
Deburring	Mesh passed through wire brushes to remove burrs
Levelling	Mesh roller levelled to reduce curving

* Cross flattening results in distortion of the diamond in expanded mesh.

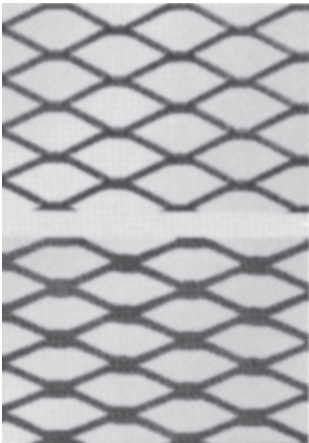
EXPANDED MESH – TYPES:

STANDARD EXPANDED MESH...

the original and most popular type of expanded mesh with the familiar diamond shaped opening. The strands are turned at a sharp angle to the plane of the sheet giving a dimensional appearance to the finished material.

FLATTENED EXPANDED MESH...

is produced by passing standard mesh through heavy rolls that flatten the strands and bridges to provide an overall level surface. This process, which reduces the original thickness by approximately one gauge, delivers a product particularly suited to applications where a slidable surface is required.



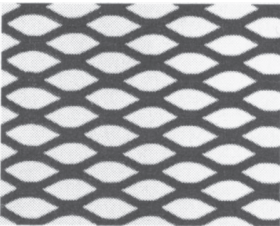
EXPANDED MESH

ILLUSTRATED GUIDE TO STANDARD SIZES AND STYLES

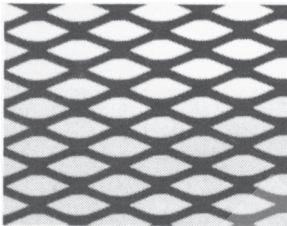
ALL ILLUSTRATIONS ACTUAL SIZE

STANDARD

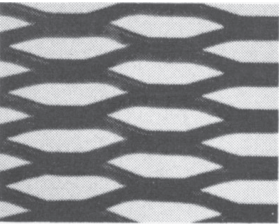
FLATTENED



$\frac{3}{16}$ "-20
S.W.D. .203"
L.W.D. .500"



$\frac{3}{16}$ "-20F
S.W.D. .218"
L.W.D. .500"



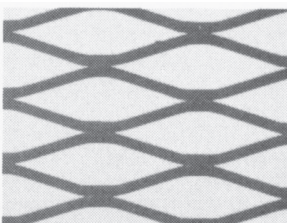
$\frac{1}{4}$ "-20
S.W.D. .250"
L.W.D. 1.00"



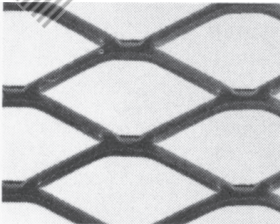
$\frac{1}{4}$ "-20F
S.W.D. .250"
L.W.D. 1.05"



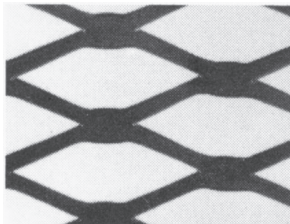
$\frac{5}{16}$ "-20
S.W.D. .333"
L.W.D. 1.00"



$\frac{5}{16}$ "-20F
S.W.D. .333"
L.W.D. 1.03"



$\frac{1}{2}$ "-20
S.W.D. 0.50"
L.W.D. 1.20"



$\frac{1}{2}$ "-20F
S.W.D. 0.50"
L.W.D. 1.25"

Cont'd

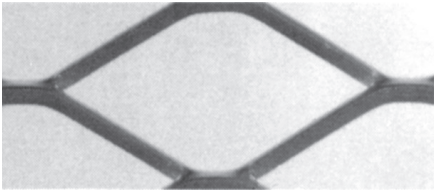
EXPANDED MESH

ILLUSTRATED GUIDE TO STANDARD SIZES AND STYLES (Cont'd)

ALL ILLUSTRATIONS ACTUAL SIZE

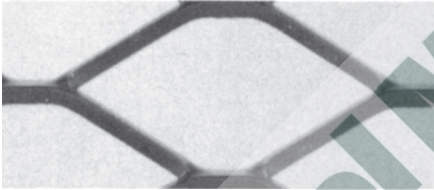
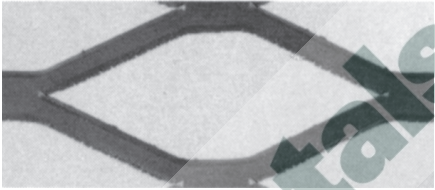
STANDARD

FLATTENED



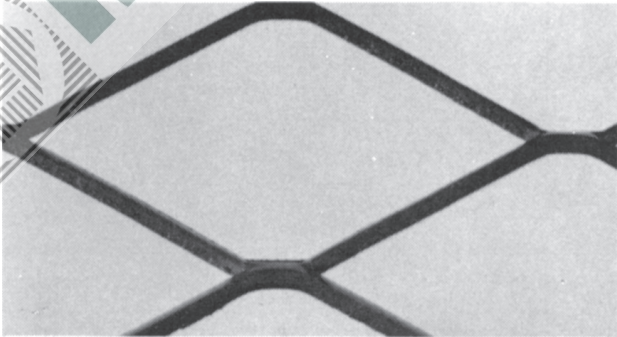
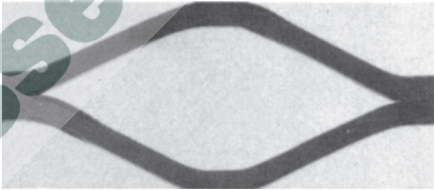
$\frac{3}{4}$ "-18R
S.W.D. .923"
L.W.D. 2.0"

$\frac{3}{4}$ "-18F
S.W.D. .923"
L.W.D. 2.1"



1"-12R
S.W.D. 1.0"
L.W.D. 2.25"

1"-12F
S.W.D. 1.0"
L.W.D. 2.30"



$1\frac{1}{2}$ "-12R
S.W.D. 1.33"
L.W.D. 3.0"

3, 4, 5, 6.25 pound grating and reinforcing mesh – not illustrated

EXPANDED MESH

SIZE, WEIGHT, STYLE DATA STANDARD STEEL

STYLE NO. (Use this number for ordering)	WEIGHT PER 100 SQ. FT.	CENTRE TO CENTRE OF BRIDGES		SIZE OF OPENINGS		STRAND	
		A	B	C	D	E	F
		SWD	LWD	SWD	LWD	THICK.	WIDTH
3/16-22	56	.203	.50	.110	.313	.030	.047
3/16-20	90	.203	.50	.080	.313	.036	.063
1/4-20	86	.25	1.0	.125	.718	.036	.072
1/4-18	114	.25	1.0	.110	.718	.048	.072
5/16-22	42	.333	1.0	.219	.781	.030	.056
5/16-20	57	.333	1.0	.250	.750	.036	.063
5/16-18	104	.333	1.0	.188	.688	.048	.087
1/2-20	43	.500	1.2	.438	.938	.036	.072
1/2-18	70	.500	1.2	.438	.938	.048	.088
1/2-16	86	.500	1.2	.375	.938	.060	.087
1/2-13	147	.500	1.2	.312	.938	.090	.096
3/4-18	44	.923	2.0	.870	1.69	.048	.102
3/4-16	54	.923	2.0	.813	1.75	.060	.101
3/4-13	80	.923	2.0	.750	1.69	.090	.096
3/4-10 (13 Ga.)	120	.923	2.0	.750	1.63	.090	.144
3/4- 9 (10 Ga.)	180	.923	2.0	.688	1.56	.135	.150
1-16	47	1.00	2.3	.938	2.00	.060	.087
1-14	78	1.00	2.3	.875	1.56	.074	.125
1-12	96	1.00	2.3	.907	1.56	.105	.109
1-10	170	1.00	2.3	.750	1.56	.135	.155
1-10H	200	1.00	2.3	.750	1.56	.135	.180
1 1/2-16	40	1.33	3.0	1.25	2.63	.060	.108
1 1/2-14	33	1.41	3.0	1.32	2.63	.075	.075
1 1/2-13	60	1.33	3.0	1.89	2.50	.090	.105
1 1/2-12	74	1.33	3.0	1.11	2.38	.105	.109
1 1/2-10L (13 Ga.)	79	1.33	3.0	1.20	2.52	.09	.140
1 1/2-10	170	1.33	3.0	1.00	2.38	.135	.200
1 1/2-10H	200	1.33	3.0	.83	2.38	.135	.240
1 1/2-9 (10 Ga.)	120	1.33	3.0	1.16	2.45	.135	.142

ALL WEIGHTS AND DIMENSIONS SHOWN ABOVE ARE APPROXIMATE

Special size sheets can be produced to order.

EXPANDED MESH

SIZE, WEIGHT, STYLE DATA FLATTENED STEEL

STYLE NO. (Use this number for ordering)	WEIGHT PER 100 SQ. FT.	CENTRE TO CENTRE OF BRIDGES		SIZE OF OPENINGS		STRAND	
		A	B	C	D	E	F
		SWD	LWD	SWD	LWD	THICK.	WIDTH
3/16-22F	72	.218	.500	.094	.343	.027	.063
3/16-20F	86	.218	.500	.094	.343	.032	.063
1/4-20F	88	.250	1.05	.084	.715	.030	.079
1/4-18F	108	.250	1.05	.075	.715	.040	.080
5/16-22F	39	.333	1.02	.203	.813	.027	.075
5/16-20F	54	.333	1.03	.203	.813	.032	.075
5/16-18F	95	.333	1.03	.172	.813	.040	.099
1/2-20F	40	.500	1.25	.375	1.00	.029	.079
1/2-18F	66	.500	1.25	.312	1.00	.039	.097
1/2-16F	82	.500	1.25	.312	1.00	.056	.096
1/2-13F	140	.500	1.25	.312	1.00	.070	.107
3/4-18F	40	.923	2.10	.690	1.75	.042	.112
3/4-16F	51	.923	2.10	.750	1.75	.048	.111
3/4-13F	75	.923	2.10	.688	1.78	.070	.106
3/4-10F (13 Ga.)	114	.923	2.10	.637	1.755	.070	.160
3/4- 9F	171	.923	2.12	.560	1.69	.120	.165
1-16F	44	1.00	2.30	.813	2.10	.050	.098
1-14F	63	1.00	2.30	.813	2.00	.070	.125
1-12F	98	1.00	2.30	.813	2.00	.085	.156
1-10F	165	1.00	2.30	.750	1.90	.110	.160
1 1/2-16F	38	1.33	3.20	1.06	2.75	.048	.119
1 1/2-14F	46	1.33	3.20	1.06	2.75	.061	.116
1 1/2-13F	57	1.33	3.20	1.06	2.75	.070	.116
1 1/2-12F	66	1.41	3.20	1.30	2.63	.085	.116
1 1/2-10F	165	1.33	3.20	0.90	2.56	.110	.188
1 1/2-9F (10 Ga.)	114	1.33	3.20	1.00	2.56	.110	.158

ALL WEIGHTS AND DIMENSIONS SHOWN ABOVE ARE APPROXIMATE

Special size sheets can be produced to order.

EXPANDED MESH

SIZE, WEIGHT, STYLE DATA ALUMINUM

STANDARD

STYLE NO. (Use this number for ordering)	WEIGHT PER 100 SQ. FT.	CENTRE TO CENTRE OF BRIDGES		SIZE OF OPENINGS		STRAND	
		A	B	C	D	E	F
		SWD	LWD	SWD	LWD	THICK.	WIDTH
3/16-.032	28	.203	.50	.080	.313	.032	.060
5/16-.032	22	.333	1.0	.219	.69	.032	.080
5/16-.051	35	.333	1.0	.188	.92	.051	.080
1/2-.032	14	.500	1.2	.400	.921	.032	.077
1/2-.051	25	.500	1.2	.375	.937	.051	.080
1/2-.081	41	.500	1.2	.375	.937	.081	.080
3/4-.051	17	.923	2.0	.812	1.75	.051	.109
3/4-.081L	27	.923	2.0	.750	1.68	.081	.110
3/4-.081H	41	.923	2.0	.750	1.68	.081	.165
3/4-.125	65	.923	2.0	.687	1.68	.125	.169
1 1/2-.081	22	1.33	3.0	1.187	2.50	.081	.129
1 1/2-.125	43	1.33	3.0	1.187	2.50	.125	.162

FLATTENED

STYLE NO. (Use this number for ordering)	WEIGHT PER 100 SQ. FT.	CENTRE TO CENTRE OF BRIDGES		SIZE OF OPENINGS		STRAND	
		A	B	C	D	E	F
		SWD	LWD	SWD	LWD	THICK.	WIDTH
3/16-.032F	20	.218	.50	.094	.343	.028	.060
5/16-.032F	20	.333	1.02	.188	.813	.030	.082
5/16-.051F	34	.333	1.02	.156	.780	.045	.082
1/2-.032F	13	.500	1.25	.271	1.00	.029	.100
1/2-.051F	24	.500	1.27	.312	1.00	.040	.091
1/2-.081F	39	.500	1.27	.312	1.00	.060	.091
3/4-.051F	16	.923	2.13	.750	1.81	.040	.122
3/4-.081LTF	25	.923	2.13	.687	1.75	.070	.134
3/4-.081HF	39	.923	2.13	.687	1.75	.070	.181
3/4-.125F	62	.923	2.13	.625	1.75	.095	.187
1 1/2-.081F	21	1.33	3.15	1.062	2.75	.055	.143
1 1/2-.125F	41	1.33	3.15	1.00	2.75	.095	.181

STOCK SIZES are: 4' (SWD) x 8' (LWD)

Special sizes produced to order.

EXPANDED MESH

SIZE, WEIGHT, STYLE DATA STAINLESS STEEL

STANDARD

STYLE NO. (Use this number for ordering)	WEIGHT PER 100 SQ. FT.	CENTRE TO CENTRE OF BRIDGES		SIZE OF OPENINGS		STRAND	
		A	B	C	D	E	F
		SWD	LWD	SWD	LWD	THICK.	WIDTH
5/16-20ST	86	.333	1.0	.219	.75	.037	.078
5/16-18ST	114	.333	1.0	.189	.69	.050	.078
1/2-20ST	50	.500	1.2	.437	.94	.037	.080
1/2-18ST	67	.500	1.2	.437	.94	.050	.080
1/2-16ST	84	.500	1.2	.437	.94	.062	.080
3/4-20ST	35	.923	2.0	.850	1.66	.037	.125
3/4-18ST	48	.923	2.0	.850	1.70	.050	.105
3/4-16ST	60	.923	2.0	.812	1.75	.062	.106
3/4-14ST	73	.923	2.0	.814	1.63	.078	.106
1 1/2-16ST	41	1.33	3.0	1.25	2.75	.062	.106
1 1/2-9ST	137	1.33	3.0	1.13	2.50	.140	.155

FLATTENED

STYLE NO. (Use this number for ordering)	WEIGHT PER 100 SQ. FT.	CENTRE TO CENTRE OF BRIDGES		SIZE OF OPENINGS		STRAND	
		A	B	C	D	E	F
		SWD	LWD	SWD	LWD	THICK.	WIDTH
5/16-20STF	82	.333	1.0	.180	.79	.030	.069
5/16-18STF	110	.333	1.0	.159	.73	.039	.069
1/2-20STF	48	.500	1.26	.312	1.00	.033	.091
1/2-18STF	65	.500	1.26	.312	1.00	.040	.091
1/2-16STF	81	.500	1.26	.312	1.00	.050	.091
3/4-20STF	34	.923	2.0	.661	1.79	.030	.128
3/4-18STF	46	.923	2.1	.671	1.78	.039	.127
3/4-16STF	57	.923	2.1	.750	1.81	.050	.118
1 1/2-16STF	39	1.33	3.2	1.062	2.75	.050	.119
1 1/2-9STF	131	1.33	3.2	.937	2.63	.119	.165

STOCK SIZES are: 4' (SWD) x 8' (LWD)

Special sizes produced to order.

EXPANDED STEEL GRATING

STYLE	WEIGHT PER SQUARE FOOT	STANDARD SHEET SIZE FEET		DIAMOND SIZE CENTRE TO CENTRE INCHES		ACTUAL SIZE OF OPENING		STRAND SIZE INCHES		OVERALL THICKNESS IN INCHES
		SWD	LWD	SWD	LWD	SWD	LWD	WIDTH	THICK.	
3	3 lbs	8	4	1.33	5.33	.940	3.44	.264	.183	.540
4	4 lbs	8	4	1.33	5.33	.940	3.44	.300	.215	.618
5	5 lbs	8	4	1.33	5.33	.813	3.38	.331	.250	.655
6.25	6.25 lbs	8	4	1.41	5.33	.813	3.38	.350	.312	.715

Some of our service centres also carry the following in stock:

– 3' SWD x 8' and 10' LWD; 8' and 10' SWD x 3' LWD

– 4' SWD x 8' and 10' LWD; 8' and 10' SWD x 4' LWD

Special sizes available on request.

Expanded Mesh Grating also produced in Aluminum and Stainless.

DEFLECTION DATA

CONCENTRATED					UNIFORM		
	24" SPAN	36" SPAN	48" SPAN		24" SPAN	36" SPAN	48" SPAN
3#	C 275#	165#	75#	U 275#	100#	—	
	D .250"	.250"	.250"	D .250"	.220"	—	
4#	C 440#	220#	100#	U 350#	150#	50#	
	D .250"	.250"	.250"	D .240"	.245"	.250"	
5#	C 540#	310#	140#	U 600#	175#	100#	
	D .245"	.250"	.250"	D .240"	.240"	.250"	
6.25#	C 800#	300#	150#	U 800#	300#	115#	
	D .220"	.240"	.240"	D .220"	.250"	.240"	

C = Concentrated load per square foot

U = Uniform load per square foot

D = Deflection in inches

Material meets U.S. Federal specification RR-G-661b for deflection requirements and all requirements of U.S. Military specifications MIL-M-17194-C and MIL-6-18015

STRUCTURAL GRATING (CARBON STEEL) SELECTION CHART

CONCENTRATED LOAD (Lbs Per Foot of Length of Catwalk or Platform)	CLEAR SPAN (Distance between supports, measured from the inside edge of one support to the inside edge of the next support)							
	23"	30"	35"	42"	47"	54"	60"	72"
50 lbs Light or Occasional Pedestrian Traffic	3.00 3.14	3.00 3.14	3.00 3.14	3.00 3.14	3.00 3.14	4.00 4.27	5.00 6.25	10.00
100 lbs Normal or Frequent Pedestrian Traffic	3.00 3.14	3.00 3.14	3.00 3.14	4.00 4.27	5.00 6.25	7.00	7.00	10.00
150 lbs Heavy or Constant Pedestrian Traffic	3.00 3.14	4.00 4.27	4.00 4.27	5.00 6.25	6.25	7.00	10.00	
200 lbs Pedestrian Traffic with Light Equipment	3.00 3.14	4.00 4.27	4.27 5.00	6.25	7.00	10.00	10.00	
250 lbs Pedestrian Traffic with Light Equipment	4.00 4.27	5.00	5.00 6.25	7.00	10.00	10.00		
300 lbs Heavy Duty Applications Please consult manufacturer	4.00 4.27	5.00 6.25	6.25	10.00	10.00			
350 lbs Heavy Duty Applications Please consult manufacturer	4.00 4.27	6.25	7.00	10.00	10.00			
500 lbs Heavy Duty Applications Please consult manufacturer	5.00	7.00	10.00	10.00	10.00			
600 lbs Heavy Duty Applications Please consult manufacturer	6.25	10.00	10.00	10.00				
800 lbs Heavy Duty Applications Please consult manufacturer	7.00	10.00	10.00					

REINFORCING MESH

STYLE NO.	WT. PER 100 SQ.FT. (lbs.)	APPROX. SIZE OF MESH CENTRE TO CENTRE OF BRIDGES		STRAND		
		SWD	LWD	THICK	WIDTH	
3" .135-53	53	3.0	8.0	.141	.135	Mesh may be used for light slab construction
3" .135-119	119	3.0	8.0	.313	.135	Meshes usually used for bridge floors and heavy slab construction
3" .179-200	200	3.0	8.0	.406	.179	

EXPANDED MESH

TOLERANCES

SHEETS	Standard Sized Sheets	Flattened Sheets
Steel		
Aluminum	SWD + $\frac{1}{2}$ " - 0"	SWD + $\frac{1}{2}$ " to $\frac{3}{4}$ " - 0"
Stainless	LWD + $\frac{1}{8}$ " - 0"	LWD + 1" - 0"



SHEARING	Random Sheared - (Sharp Edges)
Steel	
Aluminum	plus or minus $\frac{1}{8}$ " SWD and LWD
Stainless	
Grating	3, 4, 5 lb. plus or minus $\frac{3}{16}$ " SWD or LWD
	6.25 plus or minus $\frac{1}{4}$ " SWD or LWD
Note: 6.25 Torch Sheared	

SHEARING	Bond Shearing - (No Sharp Edges)
Steel	plus $\frac{1}{2}$ " of diamond size, minus 0"
Aluminum	Note: It is not practical to specify square
Stainless	bond shearing in flattened material.

PERFORATED SHEETS AND PLATES

This product, normally carried in steel, aluminum and galvanized can be made in almost a limitless number of patterns and base materials. It is widely utilized in structural, architectural, filtration and air movement applications. Russel Metals can supply from stock a vast multitude of sizes and patterns and can easily source any other items from 24 ga to 1" thick. Material can be steel, stainless steel, aluminum, nickel alloy, plastic, brass or copper.

SHEET AND PLATE SIZE SPECIFICATIONS

A. Standard Stock Size Sheets and Plates: 36" x 96", 36" x 120", 48" x 96", 48" x 120". The width and length will be standard mill shearing plus any stretch of the material by perforating unless otherwise specified.

B. Sheets and Plates Resheared After Perforating Tolerance of the width and length will be:

For thickness lighter than $\frac{1}{8}"$, $\pm \frac{1}{32}"$.

For thickness $\frac{1}{8}"$ to $\frac{3}{16}"$ inclusive, $\pm \frac{1}{16}"$.

For thickness heavier than $\frac{3}{16}"$ to $\frac{1}{2}"$ inclusive, $\pm \frac{1}{8}"$.

For thickness heavier than $\frac{1}{2}"$ to $\frac{3}{4}"$ – check with branch.

C. Coiled Stock – We manufacture perforated material in coils up to 10,000 lbs., 48" wide. Our standard coil is 6,000 lbs. with an inside diameter of 20".

THICKNESS OF METALS

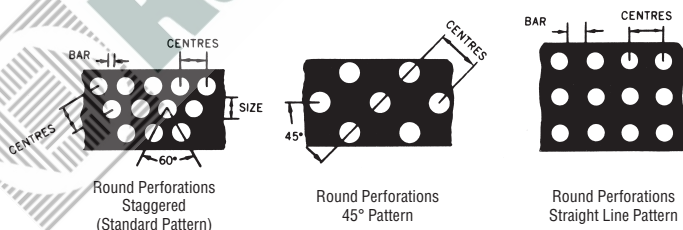
STEEL: Use decimal fraction or Manufacturers' Standard Gauge

STAINLESS STEEL, MONEL, INCONEL: Use decimal fraction or U.S. Standard Gauge

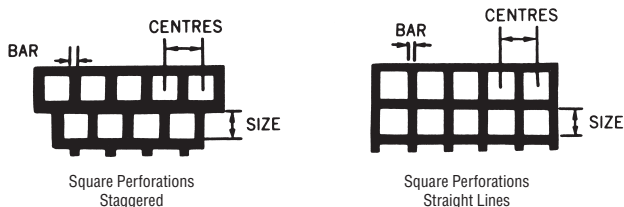
COPPER, BRASS, MUNTZ AND ALUMINUM: Use decimal fraction or Brown and Sharpe Gauge.

PERFORATIONS

ROUND PERFORATIONS: Staggered (60° pattern) is Standard. Variations include 45° staggered and straight line pattern.

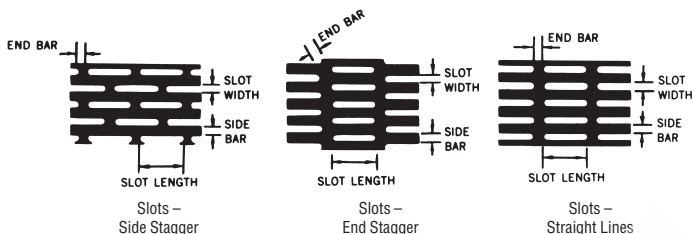


SQUARE PERFORATIONS: Staggered or Straight Line Pattern.



PERFORATED SHEETS AND PLATES (CONT'D)

SLOTTED PERFORATIONS: Side staggered, end staggered or straight lines. Standard slotted perforations will be round end slots. Specify if square end slots are required.



OTHER PERFORATIONS: Typical examples are:

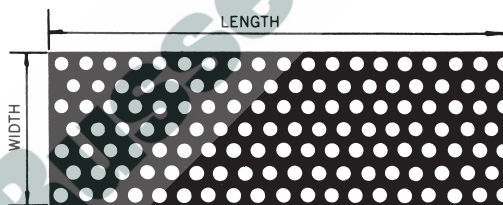
- Embossed openings, such as the dimple perforation in Safety Tread Safety Flooring
- Louvered Slots
- Special shapes (diamonds, oblongs, triangles, etc.)

SPACING OF PERFORATIONS

Spacing for large perforations will be designated by either Centers of Perforations, or by the Open Area required. Spacing for small perforations will be designated by either Centers, or Open Area, or if more practical, by the Number of Perforations to the Square Inch.

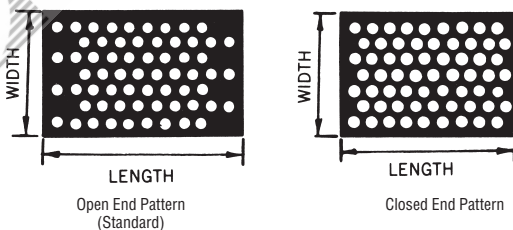
PATTERN OF PERFORATIONS

Staggered Perforations, both round and square – direction of the stagger will normally be the short dimension of the sheet, as illustrated below.



END PATTERNS

The figures below illustrate two types of end patterns.



MARGINS

If margins are not specified we will supply material with minimum or no margins.

Perforated material with special margins to your requirements can be supplied. The margins for each of the four sides of the sheet should be specified. If close tolerances on the margins are necessary this must be clearly shown.

PERFORATED SHEETS AND PLATES (CONT'D)

FLATNESS OF SHEETS AND PLATES

All Standard sheets can be supplied commercially flat. However, if your job should fall under one of the following categories, it is recommended that you discuss the flatness requirements with Russel Metals before proceeding:

1. Perforated Sheet with extra wide margins.
2. Blank areas required within the perforated area.
3. Perforated sheets with very large percentage of open area.
4. Heavy gauge metal in relation to the size of perforation.
5. Special Alloys.

OTHER INFORMATION

If other work is required in addition to perforating, submit complete details including sketches.

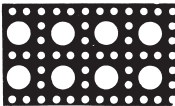
ORNAMENTAL PATTERNS



No. 11 Grecian design
35% open area.



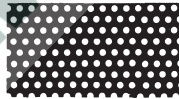
No. 19 Windsor
45% open area.



No. 14 Large Round
Cane Design.
39% open area.



No. 76 $\frac{1}{16}$ " round
 $\frac{1}{4}$ " staggered centres.
23% open area.



No. 79 $\frac{1}{8}$ " round
 $\frac{1}{2}$ " staggered centres.
33% open area.



No. 84 $\frac{1}{8}$ " round
 $\frac{1}{4}$ " staggered centres.
40% open area.



No. 92 $\frac{3}{16}$ " round
 $\frac{1}{4}$ " staggered centres.
51% open area.



No. 108 $\frac{3}{8}$ " round
 $\frac{1}{2}$ " staggered centres.
51% open area.



No. 53 $\frac{1}{8}$ " x $\frac{1}{2}$ " slot
 $\frac{1}{2}$ " bar. Side staggered.
38% open area.



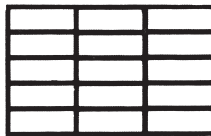
No. 31 Square Design
 $\frac{3}{16}$ " (0.200")
 $\frac{1}{4}$ " straight centres.
64% open area.



No. 35 Square Design
 $\frac{3}{8}$ " (0.375")
 $\frac{1}{2}$ " straight centres.
56% open area.



No. 40 Square Design
 $\frac{1}{2}$ " (0.500")
 $\frac{1}{16}$ " straight centres.
53% open area.



No. 45 Square End Slot Design
0.200" x 0.637",
.050" bars.
74% open area.