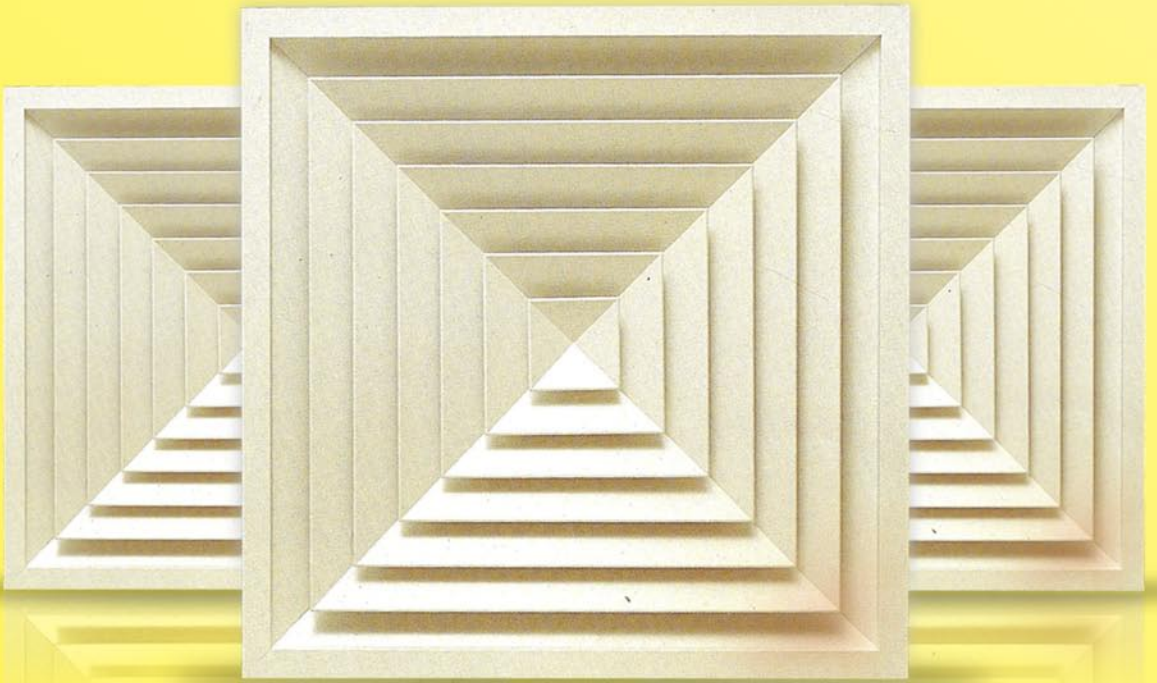


CONNOLS-AIR

MULTI PATTERN AIR DIFFUSERS



HIGHEST QUALITY AIR DISTRIBUTION EQUIPMENT

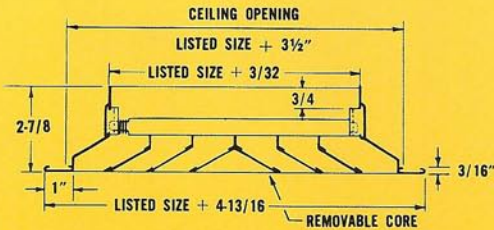
SERIES M SQUARE & RECTANGULAR AIR DIFFUSERS

MODEL MF

Surface Mounted Diffuser Overlap Border

The Model MF is designed for surface mounting in plaster or other ceiling material where a flat, overlapping border is required. Other features include —

- All extruded aluminum construction
- Baked white paint as standard finish
- Removable core
- Available in fifteen different patterns. See page 4.
- Available with opposed blade volume control or air extractor. See page 3.

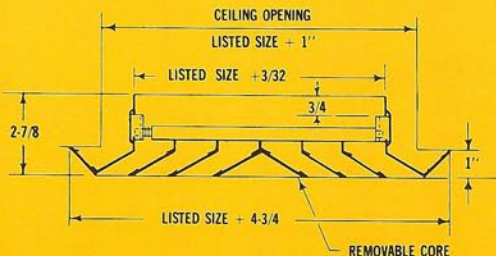


MODEL MB

Surface Mounted Diffuser Bevel Border

The Model MB offers this multi-pattern diffuser with the added features of a beveled frame which brings the air discharge one inch below the ceiling line.

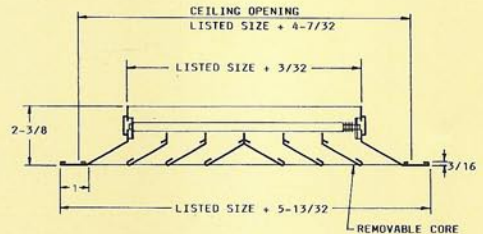
- Light corrosion resistant aluminum construction
- Easily removable, snap-out, multi-pattern core
- Available in fifteen different patterns. See page 4.
- Available with air volume and air equalizing control, see page 3.
- Baked white paint as standard finish.



MODEL MS

Surface Mounted Diffuser Overlap Border

The Model MS is another multi-pattern diffuser designed for surface mounting in plaster or other ceiling where a flat, overlapping border is required. In addition, MS diffuser is suitable for lay-in installation on inverted T-bar ceiling system. Two frames are available to give MS dimensions of 23-3/4 x 23-3/4 and 23-3/8 x 23-3/8 inches to suit ceiling dimensions of 24 x 24 and 23-3/8 x 23-3/8 inches respectively. Unlike MX model diffuser MS frame is partly visible when installed on inverted T-bar ceiling.

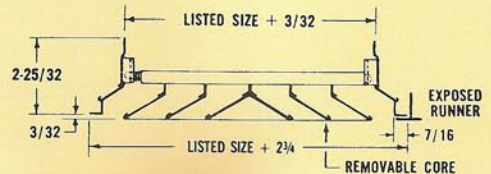


MS diffuser has the same features, construction, finish, adjustment and accessories as in MF unit.

MODEL MX

Lay-on Tee Bar Conceal Border

The Model MX is another unit available for tile ceilings (generally known as the inverted T-bar, Exposed T, Exposed Runner, Lay-in). The MX is furnished in dimensions 11 3/4 x 11 3/4, 11 3/4 x 23 3/4, or 23 3/4 x 23 3/4.



MX has the same features of construction, finish, adjustment and accessories as the MF unit.

NECK SIZE	TILE SIZE	NECK SIZE	TILE SIZE
0606	12 x 12 or 11 3/4 x 11 3/4	0606	24 x 24 or 23 3/4 x 23 3/4
0609		0609	
0909		0612	
		0909	
		0912	
	0915		
	0918		
	0921		
		1212	
		1215	
0912	12 x 24 or 11 3/4 x 23 3/4	1515	
0915		1818	
0918		2121	
0921			

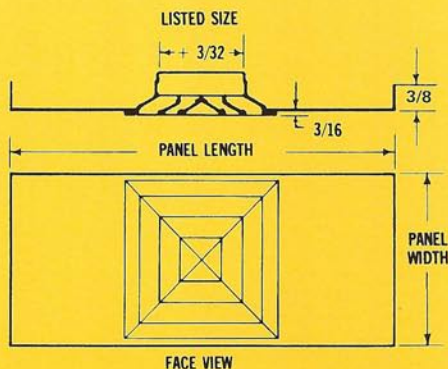
SERIES M

SQUARE & RECTANGULAR AIR DIFFUSERS

MODEL MP

Panel Mounted Diffusers

To fit varying job conditions, the MS diffuser is mounted in a panel to meet ceiling tile dimensions. The panel is suitable for special ceiling adaptations such as spline, snap-in-tee, Lay-in and others. Baked white enamel as standard. The nominal panel sizes are 12 x 12, 12 x 24, 24 x 24 and 48 x 24. The actual panel sizes will be adjusted to suit different ceiling system. The table below shows the MS diffuser size suitable for matching with each panel size. The panel can be constructed of aluminium or steel.



MS Diffuser Neck Size	MPT MPX MPS			
	NOMINAL PANEL SIZE (X)			
	12X12	24X12	24X24	48X24
0606	X	X	X	X
0906	—	X	X	X
1206	—	X	X	X
1506	—	X	X	X
1806	—	X	X	X
2106	—	—	X	X
0909	—	—	X	X
1209	—	—	X	X
1509	—	—	X	X
1809	—	—	X	X
2109	—	—	X	X
1212	—	—	X	X
1512	—	—	X	X
1812	—	—	X	X
2112	—	—	—	X
1515	—	—	X	X
1815	—	—	X	X
2115	—	—	—	X
1818	—	—	X	X
2118	—	—	—	X

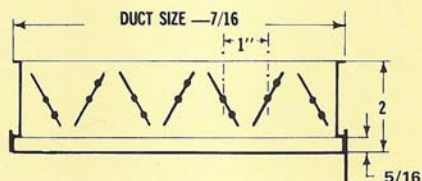
'X' denotes MS neck size suitable for each panel size

DAMPER and AIR EXTRACTOR

for any series M diffuser installations

DAMPER

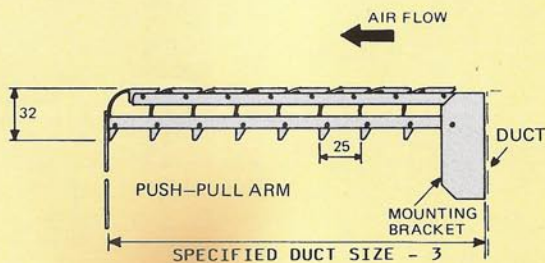
The type BD, opposed blade damper will provide positive air balancing and volume control. The manually adjustable damper may be either duct mounted or snapped onto the diffuser.



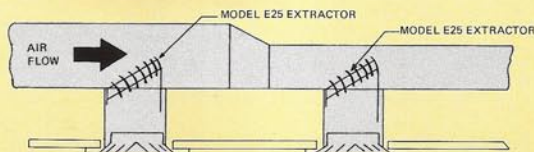
AIR EXTRACTOR

E25 extractors are constructed of pregalvanised steel vanes assembled at 25mm centres to provide smooth efficient turning of air flow from one duct to another. The extractor vanes are gang-operated and synchro to remain parallel with air flow regardless of the extractors angle. Installed at the take-off on the downstream side the air extractors extract, equalize and provide volume control of air flow into air outlets, reducing air turning pressure loss and ensuring a quieter system operation. Sound levels of air outlets can be reduced considerably due to the absence of turbulence in the duct and localised high velocities in the grilles. The air extractor may be furnished with appropriate operator for adjustment after installation.

Type 1 extractor is furnished with a push-pull arm and type 2 extractor with a worm gear operator.


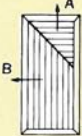


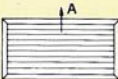
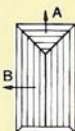

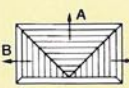

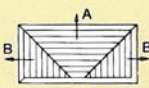



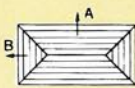
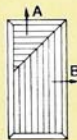


MODEL E25 TYPE 1 EXTRACTOR



INSTALLATION OF EXTRACTOR AT BRANCH TAKE OFF TO SUPPLY CEILING DIFFUSER

PATTERNS

PATTERN DESIGNATOR	DESCRIPTION	PATTERN DESIGNATOR	DESCRIPTION
 TYPE 11	One-way blow. Square diffuser.	 TYPE 26	Two-way blow. Corner pattern. Major portion of airflow to left (as illustrated).
 TYPE 13	One-way blow. Blades parallel to the short dimension. Airflow perpendicular to short dimension.	 TYPE 31	Three-way blow. Square diffuser.
 TYPE 12	One-way blow. Blades parallel to the long dimension. Airflow perpendicular to long dimension.	 TYPE 33	Three-way blow. Single segment in direction of short dimension.
 TYPE 21	Two-way blow. Square diffuser.	 TYPE 32	Three-way blow. Single segment in direction of long dimension. Single segment dimension is twice the double segment dimension.
 TYPE 23	Two-way blow. Blades parallel to the short dimension. Airflow perpendicular to short dimension.	 TYPE 32	Three-way blow. Single segment in direction of long dimension. Single segment dimension is greater than twice the double segment dimension.
 TYPE 22	Two-way blow. Blades parallel to the long dimension. Airflow perpendicular to long dimension.	 TYPE 41	Four-way blow. Square diffuser.
 TYPE 24	Two-way blow. Square diffuser corner pattern. Airflow is two streams 90° apart.	 TYPE 42	Four-way blow. Rectangular diffuser.
 TYPE 25	Two-way blow. Corner pattern. Major portion of airflow to right (as illustrated).		

* Views shown are Reflected Ceiling Plan

SELECTION PROCEDURE ENGINEERING DATA

TABLE 1 RECOMMENDED MAXIMUM CFM

CEILING HEIGHT (Ft.)	MAX. CFM PER DIRECTION (Each Diffuser)	COOLING DIFFERENTIAL MAXIMUM
8	150	20°
10	500	25°
12	750	30°

TABLE 2 RECOMMENDED SOUND LEVELS and NECK VELOCITIES

NC CRITERIA	DESCRIPTION	TYPICAL LOCATION	SUGGESTED MAXIMUM VELOCITY	
			200 CFM FPM	500 CFM FPM
Below 20	EXTREMELY QUIET	SOUND STUDIOS SPECIAL LABORATORIES	400	300
25	VERY QUIET	CONCERT HALLS	500	450
30	FAIRLY QUIET	LABORATORIES, THEATRES, BOARD ROOMS	700	650
35	PARTLY QUIET	HOTEL ROOMS, CLASS- ROOMS, PRIVATE OFFICES	800	750
40	PARTLY LOUD	GENERAL OFFICES, LABORATORIES, LOBBIES	950	900

How to select your Kno-Draft Type M Diffuser—

1. Select the diffuser pattern from the chart on page 4. Selection will depend on the size and shape of the space to be conditioned, and on the layout of air distribution ductwork.
2. For standard styles and applications, the outlet sizes can be selected from the performance and selection charts on pages 6-10.
 - a.) Check recommended limits of capacity (CFM) from Table 1, page 5.
 - b.) Check recommended limits in neck velocity in relation to sound levels from Table 2, page 5.
 - c.) Selection of all diffusers supplied by the same branch duct should be made at approximately the same neck velocities in order to facilitate balancing after installation.
 - d.) Recheck throw data from pages 6-10, sound data from page 12 and pressure drop from page 14. Readjust any sizes which appear out of harmony with the majority.

Neck velocity can be determined from CFM divided by neck area. Diffuser aspect ratio should be based on space proportions and the throw in each direction.

FIGURE 1

SELECTION & PERFORMANCE

1-WAY BLOW

NECK SIZE	NECK VELOCITY	300	350	400	450	500	550	600	650	700	
11	6 x 6 .25	TOT. CFM	A 75	A 88	A 100	A 112	A 125	A 137	A 150	A 162	A 175
		CFM/SIDE	75	88	100	112	125	137	150	162	175
		THRO	5-9	5-10	6-11	6-12	7-13	7-13	8-15	8-15	8-16
	9 x 9 .56	TOT. CFM	A 168	A 196	A 224	A 252	A 280	A 308	A 336	A 364	A 392
		CFM/SIDE	168	196	224	252	280	308	336	364	392
		THRO	6-11	6-12	7-13	7-14	8-15	9-17	9-18	10-19	10-20
	12 x 12 1.00	TOT. CFM	A 300	A 350	A 400	A 450	A 500	A 550	A 600	A 650	A 700
		CFM/SIDE	300	350	400	450	500	550	600	650	700
		THRO	6-12	7-14	8-15	8-16	9-18	10-20	11-21	11-22	12-23
15 x 15 1.56	TOT. CFM	A 468	A 547	A 625	A 702	A 780	A 858	A 936	A 1014	A 1092	
	CFM/SIDE	468	547	625	702	780	858	936	1014	1092	
	THRO	7-14	8-15	9-17	10-19	10-20	11-22	12-23	12-24	13-25	
18 x 18 2.25	TOT. CFM	A 675	A 787	A 900	A 1012	A 1125	A 1240	A 1350	A 1462	A 1575	
	CFM/SIDE	675	787	900	1012	1125	1240	1350	1462	1575	
	THRO	8-15	9-17	10-19	11-21	11-22	12-24	13-25	13-27	15-29	
21 x 21 3.06	TOT. CFM	A 920	A 1075	A 1224	A 1377	A 1530	A 1683	A 1836	A 1990	A 2142	
	CFM/SIDE	920	1075	1224	1377	1530	1683	1836	1990	2142	
	THRO	8-16	11-21	10-20	11-22	12-24	13-25	14-27	15-29	16-31	
13	6 x 9 .375	TOT. CFM	A 112	A 131	A 150	A 169	A 188	A 206	A 225	A 244	A 262
		CFM/SIDE	112	131	150	169	188	206	225	244	262
		THRO	5-10	6-11	6-12	7-13	7-14	8-15	8-16	9-17	9-17
	9 x 9 .75	TOT. CFM	A 225	A 263	A 300	A 338	A 375	A 413	A 450	A 488	A 525
		CFM/SIDE	225	263	300	338	375	413	450	488	525
		THRO	6-11	7-13	7-14	8-15	9-17	9-18	10-20	10-20	11-22
	9 x 18 1.125	TOT. CFM	A 338	A 394	A 450	A 506	A 562	A 619	A 675	A 731	A 787
		CFM/SIDE	338	394	450	506	562	619	675	731	787
		THRO	7-13	7-14	8-16	9-17	9-18	10-20	11-22	12-23	12-24
9 x 21 1.31	TOT. CFM	A 393	A 458	A 524	A 590	A 655	A 720	A 786	A 852	A 917	
	CFM/SIDE	393	458	524	590	655	720	786	852	917	
	THRO	7-13	8-15	8-16	9-18	10-20	10-20	12-23	12-24	13-25	
12 x 18 1.5	TOT. CFM	A 450	A 525	A 600	A 675	A 750	A 825	A 900	A 975	A 1050	
	CFM/SIDE	450	525	600	675	750	825	900	975	1050	
	THRO	7-14	8-15	9-17	10-19	10-20	11-22	12-23	12-24	13-25	
12	9 x 6 .375	TOT. CFM	A 112	A 131	A 150	A 169	A 188	A 206	A 225	A 244	A 262
		CFM/SIDE	112	131	150	169	188	206	225	244	262
		THRO	5-10	6-11	6-12	7-13	7-14	8-15	8-16	9-17	9-17
	12 x 6 .5	TOT. CFM	A 150	A 175	A 200	A 225	A 250	A 275	A 300	A 325	A 350
		CFM/SIDE	150	175	200	225	250	275	300	325	350
		THRO	5-10	6-12	7-13	7-14	8-15	8-16	9-17	9-18	10-20
	15 x 6 .625	TOT. CFM	A 188	A 219	A 250	A 281	A 312	A 344	A 375	A 406	A 438
		CFM/SIDE	188	219	250	281	312	344	375	406	438
		THRO	6-11	6-12	7-13	8-15	8-16	9-17	9-18	10-20	11-21
18 x 6 .75	TOT. CFM	A 225	A 263	A 300	A 337	A 375	A 413	A 450	A 487	A 525	
	CFM/SIDE	225	263	300	337	375	413	450	487	525	
	THRO	6-11	7-13	7-14	8-15	9-17	9-18	10-19	10-20	11-22	
21 x 6 .875	TOT. CFM	A 261	A 306	A 350	A 394	A 437	A 481	A 525	A 570	A 612	
	CFM/SIDE	261	306	350	394	437	481	525	570	612	
	THRO	6-12	7-13	8-15	8-16	9-17	10-19	10-20	11-22	11-22	
15 x 9 .938	TOT. CFM	A 281	A 328	A 375	A 422	A 469	A 516	A 563	A 610	A 656	
	CFM/SIDE	281	328	375	422	469	516	563	610	656	
	THRO	6-12	7-13	8-15	9-17	9-18	10-19	10-20	11-22	12-23	
18 x 9 1.125	TOT. CFM	A 338	A 394	A 450	A 506	A 563	A 619	A 675	A 731	A 788	
	CFM/SIDE	338	394	450	506	563	619	675	731	788	
	THRO	7-13	7-14	8-16	9-17	10-19	10-20	11-22	12-23	12-24	
21 x 9 1.31	TOT. CFM	A 393	A 458	A 524	A 590	A 655	A 720	A 786	A 852	A 917	
	CFM/SIDE	393	458	524	590	655	720	786	852	917	
	THRO	7-13	8-15	8-16	9-18	10-20	11-21	11-22	12-24	13-25	

THROW Selection in most cases should be based on the longer throw figure indicated above. The two figures shown represent readings taken as follows: (a) the shorter

dimension represents the distance at which the air is traveling at 100 FPM; (b) the greater throw is recorded with the air traveling at 50 FPM.

FIGURE 1

SELECTION & PERFORMANCE

2-WAY BLOW

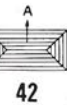
NECK SIZE	NECK VELOCITY	300			350			400			450			500			550			600			650			700		
A 21	6 x 6	TOT. CFM	A 75	A 88	A 100	A 112	A 125	A 137	A 150	A 162	A 175	A	A	A	A	A	A	A	A	A	A	A	A	A	A	A		
	.25	CFM/SIDE	38	44	50	56	63	69	75	81	88	88																
		THRO	4-7	4-8	5-9	5-9	5-10	5-10	6-11	6-11	6-11	7-13	7-13	7-13	7-13	7-13	7-13	7-13	7-13	7-13	7-13	7-13	7-13	7-13	7-13	7-13		
A 23	9 x 9	TOT. CFM	A 168	A 196	A 224	A 252	A 280	A 308	A 336	A 364	A 392	A	A	A	A	A	A	A	A	A	A	A	A	A	A			
	.56	CFM/SIDE	84	98	112	126	140	154	168	182	196	196																
		THRO	5-9	5-10	6-11	6-11	6-12	6-12	7-13	7-13	7-14	8-15	8-15	8-15	8-15	8-15	8-15	8-15	8-15	8-15	8-15	8-15	8-15	8-15	8-15	8-15		
A 22	12 x 12	TOT. CFM	A 300	A 350	A 400	A 450	A 500	A 550	A 600	A 650	A 700	A	A	A	A	A	A	A	A	A	A	A	A	A	A			
	1.00	CFM/SIDE	150	175	200	225	250	275	300	325	350	350																
		THRO	5-10	6-11	7-13	7-13	7-14	7-14	8-15	8-15	8-16	9-17	9-17	9-17	9-17	9-17	9-17	9-17	9-17	9-17	9-17	9-17	9-17	9-17	9-17	9-17		

FIGURE 1

SELECTION & PERFORMANCE

4-WAY BLOW

NECK SIZE	NECK VELOCITY	300		350		400		450		500		550		600		650		700	
		A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B
6 x 6 .25	TOT. CFM	19	19	22	25	25	28	31	31	34	38	38	41	44	44	44	44	44	44
	CFM/SIDE	3-6	3-6	4-7	4-8	4-8	4-8	5-9	5-9	5-10	5-10	5-10	6-11	6-11	6-11	6-11	6-11	6-11	6-11
	THRO																		
9 x 9 .56	TOT. CFM	42	42	49	56	56	63	70	70	77	84	84	91	98	98	98	98	98	98
	CFM/SIDE	4-7	4-7	4-8	5-9	5-9	5-10	6-11	6-11	6-12	6-12	6-12	7-13	7-14	7-14	7-14	7-14	7-14	7-14
	THRO																		
12 x 12 1.0	TOT. CFM	75	75	88	100	100	113	125	125	138	150	150	163	175	175	175	175	175	175
	CFM/SIDE	5-9	5-9	5-10	6-11	6-11	6-12	7-13	7-13	7-13	8-15	8-15	8-15	8-16	8-16	8-16	8-16	8-16	8-16
	THRO																		
15 x 15 1.56	TOT. CFM	117	117	137	156	156	176	195	195	215	234	234	254	273	273	273	273	273	273
	CFM/SIDE	5-10	5-10	6-11	6-12	6-12	7-13	7-14	7-14	8-15	8-16	8-16	9-17	9-18	9-18	9-18	9-18	9-18	9-18
	THRO																		
18 x 18 2.25	TOT. CFM	169	169	197	225	225	253	281	281	310	337	337	365	394	394	394	394	394	394
	CFM/SIDE	6-11	6-11	6-12	7-13	7-13	7-14	8-15	8-15	9-17	9-18	9-18	10-19	10-20	10-20	10-20	10-20	10-20	10-20
	THRO																		
21 x 21 3.06	TOT. CFM	230	230	269	306	306	344	382	382	421	459	459	497	535	535	535	535	535	535
	CFM/SIDE	6-11	6-11	7-13	7-14	7-14	8-15	9-17	9-17	9-18	10-19	10-19	11-21	11-22	11-22	11-22	11-22	11-22	11-22
	THRO																		
24 x 24 4.00	TOT. CFM	300	300	350	400	400	450	500	500	550	600	600	650	700	700	700	700	700	700
	CFM/SIDE	6-12	6-12	7-13	8-15	8-15	9-17	9-18	9-18	10-19	11-21	11-21	11-22	12-23	12-23	12-23	12-23	12-23	12-23
	THRO																		
6 x 9 3.75	TOT. CFM	37	19	44	22	50	25	56	28	63	31	69	34	75	37	82	40	87	44
	CFM/SIDE	4-7	3-6	4-8	4-7	5-9	4-8	5-10	4-8	6-11	5-9	6-11	5-10	6-12	5-10	7-13	6-11	7-13	6-11
	THRO																		
6 x 12 .5	TOT. CFM	56	19	66	22	75	25	84	28	94	31	103	34	113	37	122	40	131	44
	CFM/SIDE	4-8	3-6	5-9	4-7	5-10	4-8	6-11	4-8	6-12	5-9	6-12	5-10	7-13	5-10	7-14	6-11	8-15	6-11
	THRO																		
9 x 12 .75	TOT. CFM	71	42	82	49	94	56	106	63	117	70	129	77	141	84	153	91	165	98
	CFM/SIDE	5-9	4-7	5-10	4-8	5-10	5-9	6-11	5-10	6-12	6-11	7-13	6-12	7-14	6-12	8-15	7-13	8-16	7-14
	THRO																		
9 x 15 .938	TOT. CFM	99	42	115	49	132	56	148	63	164	70	181	77	197	84	214	91	231	98
	CFM/SIDE	5-9	4-7	5-10	4-8	6-11	5-9	6-12	5-10	7-13	6-11	8-15	6-12	8-15	6-12	9-17	7-13	9-17	7-14
	THRO																		
9 x 18 1.125	TOT. CFM	130	42	148	49	169	56	190	63	211	70	232	77	253	84	274	91	296	98
	CFM/SIDE	5-10	4-7	6-11	4-8	6-12	5-9	7-13	5-10	8-15	6-11	8-16	6-12	9-17	6-12	9-17	7-13	10-19	7-14
	THRO																		
9 x 21 1.31	TOT. CFM	155	42	181	49	206	56	232	63	257	70	283	77	309	84	335	91	360	98
	CFM/SIDE	5-10	4-7	6-12	4-8	7-13	5-9	7-14	5-10	8-15	6-11	9-17	6-12	9-17	6-12	9-18	7-13	10-20	7-14
	THRO																		
12 x 15 1.25	TOT. CFM	112	75	131	87	150	100	169	112	188	125	206	138	225	150	244	163	263	175
	CFM/SIDE	5-10	5-9	6-11	5-10	6-12	6-11	7-13	6-12	7-14	7-13	8-15	7-13	8-16	8-15	9-17	8-15	9-18	8-16
	THRO																		
12 x 18 1.5	TOT. CFM	150	75	175	87	200	100	225	112	250	125	274	138	300	150	324	163	350	175
	CFM/SIDE	5-10	5-9	6-11	5-10	7-13	6-11	7-14	6-12	8-15	7-13	8-16	7-13	9-17	8-15	9-18	8-15	10-20	8-16
	THRO																		
12 x 21 1.75	TOT. CFM	188	75	218	88	250	100	281	112	313	125	344	138	375	150	406	163	438	175
	CFM/SIDE	6-11	5-9	6-12	5-10	7-13	6-11	8-15	6-12	8-16	7-13	9-17	7-13	9-18	8-15	10-20	8-15	11-21	8-16
	THRO																		
12 x 24 2.0	TOT. CFM	225	75	262	88	300	100	337	112	375	125	412	138	450	150	487	163	525	175
	CFM/SIDE	6-11	5-9	7-13	5-10	7-14	6-11	8-15	6-12	9-17	7-13	9-18	7-13	10-19	8-15	10-20	8-15	12-24	8-16
	THRO																		
15 x 18 1.875	TOT. CFM	164	112	192	137	219	156	246	175	274	195	301	214	329	234	357	253	384	273
	CFM/SIDE	5-10	5-10	6-12	6-11	7-13	6-12	7-14	7-13	8-15	7-14	9-17	8-15	9-17	8-16	10-19	9-17	10-20	9-18
	THRO																		
18 x 21 2.62	TOT. CFM	224	168	262	196	300	225	337	253	374	281	412	310	449	337	486	365	524	393
	CFM/SIDE	6-11	6-11	7-13	6-12	7-14	7-13	8-15	7-14	9-17	8-16	9-18	9-17	10-19	9-18	10-20	10-19	11-22	10-20
	THRO																		
18 x 24 3.0	TOT. CFM	281	169	328	197	375	225	422	253	468	281	515	310	563	337	608	367	656	393
	CFM/SIDE	6-12	6-11	7-13	6-12	8-15	7-13	9-17	7-14	9-18	8-16	10-19	9-17	10-20	9-18	11-22	10-19	12-23	10-20
	THRO																		

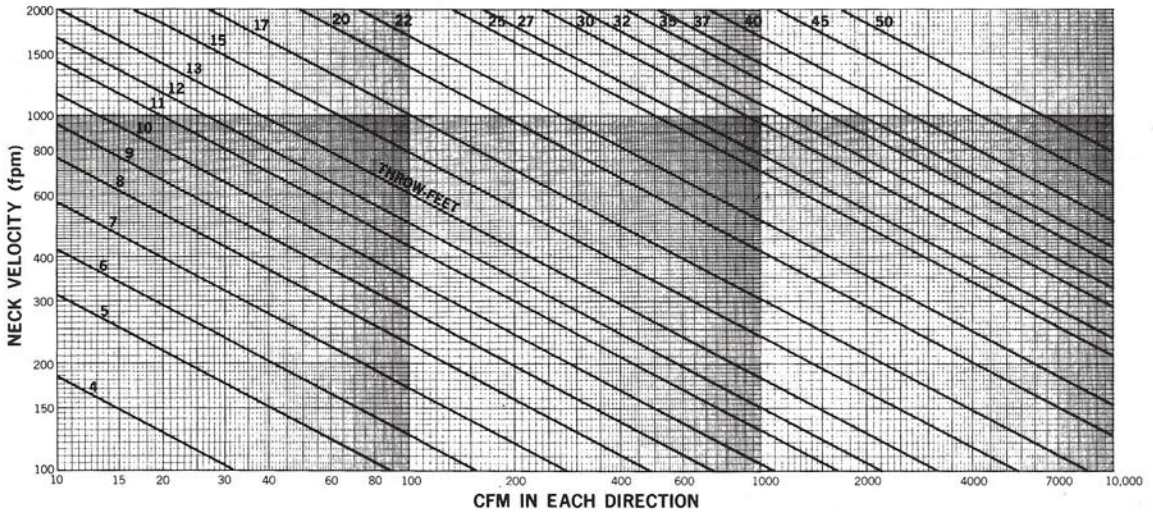


THROW

Selection in most cases should be based on the longer throw figure indicated above. The two figures shown represent readings taken as follows: (a) the shorter

dimension represents the distance at which the air is traveling at 100 FPM; (b) the greater throw is recorded with the air traveling at 50 FPM.

FIGURE 2 THROW CHARACTERISTICS



**TABLE 3
AREAS OF
TRIANGLES AND
TRAPEZOIDS
(SQ. FT.)**

Dimension "X"	3"	4 1/2"	6"	7 1/2"	9"	10 1/2"	12"	13 1/2"	15"		
3"	.031	.016									
4 1/2"	.070										
6"	.125	.063									
7 1/2"	.195	.094									
9"	.281	.141	.125								
10 1/2"	.383	.156	.188								
12"	.50	.25	.188	.234							
13 1/2"	.635	.219	.281								
15"	.781	.39	.250	.328	.375						
16 1/2"	.945	.281	.375	.438	.469						
18"	1.13	.563	.313	.422	.50	.547					
19 1/2"	1.32	.344	.469	.563	.625	.656					
21"	1.53	.766	.375	.516	.625	.703	.750				
24"	2.00	1.00	.438	.609	.75	.859	.938	.984			
27"	2.53	1.27	.500	.703	.875	1.02	1.13	1.20	1.25		
30"	3.13	1.56	.563	.797	1.00	1.17	1.31	1.42	1.50	1.55	
33"	3.78	1.89	.625	.891	1.13	1.33	1.50	1.64	1.75	1.83	1.88
36"	4.5	2.25	.688	.984	1.25	1.48	1.69	1.86	2.00	2.11	2.19
39"	5.28	2.64	.75	1.08	1.38	1.64	1.88	2.08	2.25	2.39	2.50
42"	6.13	3.06	.813	1.17	1.50	1.80	2.06	2.30	2.50	2.67	2.81

**TABLE 4
AREAS OF
SQUARES AND
RECTANGLES**

Size	3"	6"	9"	12"	15"	18"	21"	24"	27"	30"	33"	36"
6"	.125	.25										
9"	.188	3.75	.56									
12"	.25	.50	.75	1.00								
15"	.313	6.25	.938	1.25	1.56							
18"	.375	.75	1.125	1.50	1.875	2.25						
21"	.438	.875	1.31	1.75	2.19	2.62	3.06					
24"	.50	1.00	1.50	2.00	2.50	3.00	3.50	4.00				
27"	.563	1.125	1.69	2.25	2.81	3.375	3.94	4.50	5.06			
30"	.625	1.25	1.875	2.50	3.125	3.75	4.475	5.00	5.625	6.25		
33"	.688	1.375	2.06	2.75	3.44	4.125	4.81	5.50	6.19	6.875	7.56	
36"	.75	1.5	2.25	3.00	3.75	4.50	5.25	6.00	6.75	7.50	8.25	9.00
39"	.813	1.625	2.44	3.25	4.06	4.875	5.69	6.50	7.31	8.125	8.94	9.75
42"	.875	1.75	2.625	3.50	4.375	5.25	6.125	7.00	7.875	8.75	9.625	10.50

NECK AREAS (SQ. FT.)

FIGURE 3 SOUND DATA

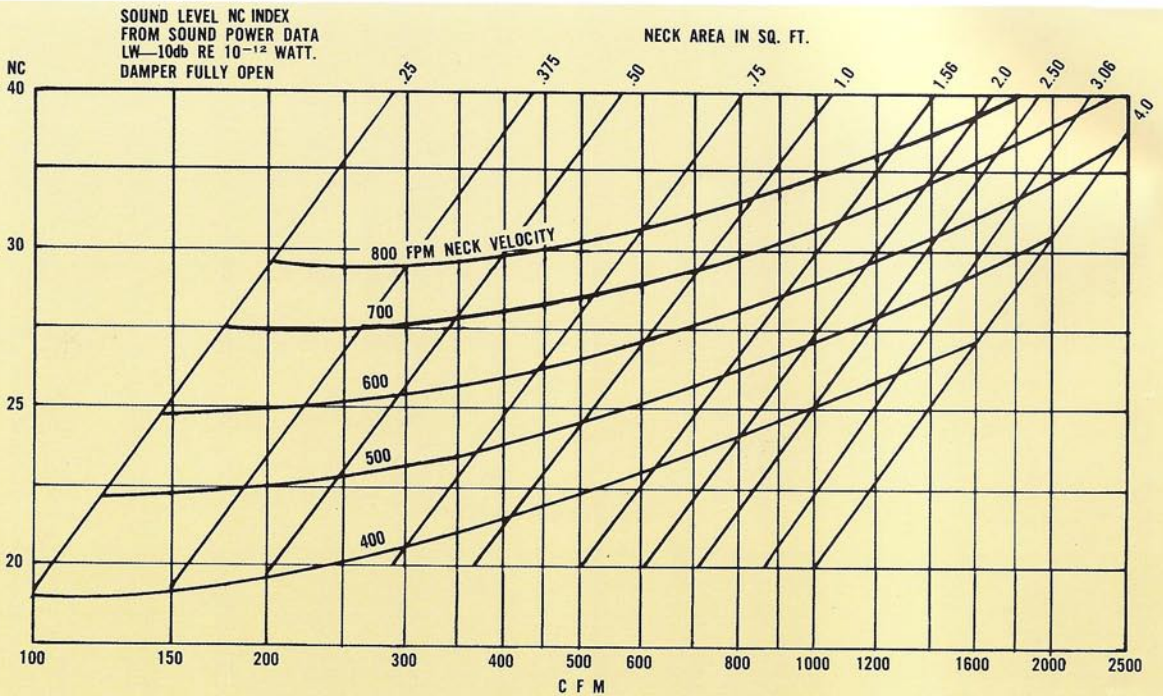
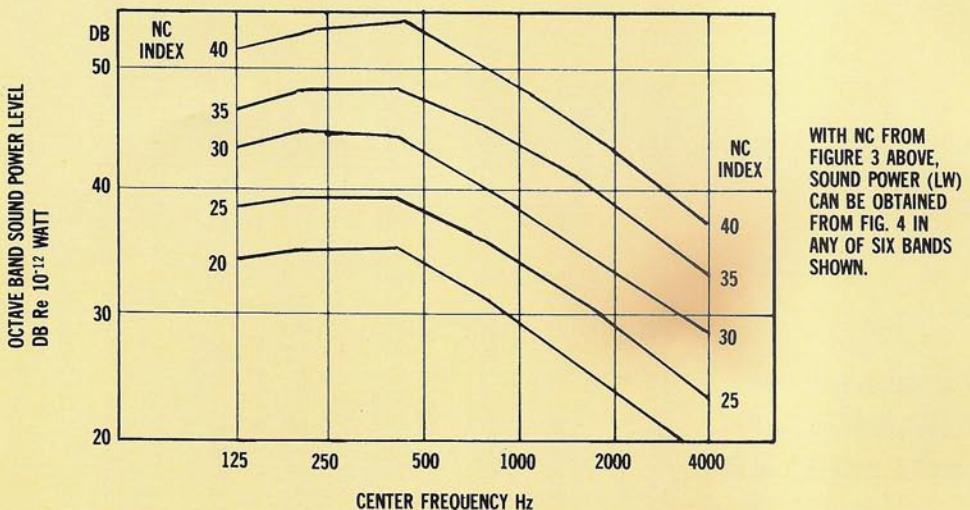


Table is based on 4-way. FOR 3-WAY ADD 2 FOR 2-WAY ADD 2 FOR 1-WAY ADD 1

FIGURE 4 TYPICAL SOUND POWER SPECTRA



NC Index is a sound rating based on $L_w 10^{-12} W$ and using a 10db reduction in all octave bands. The resulting room NC value for any application may vary from the NC Index shown in Fig. 3 because the room NC value is affected by room absorption and system characteristics.

TABLE 5 AIR DETERMINATION FACTORS (Ak)

SUPPLY AIR AREA FACTORS (AK)

4w	MB, MX			NECK SIZE	AREA Sq. Ft.	MF, MT, MP			
	3w	2w	1w			4w	3w	2w	1w
.113	.107	.103	.107	0606	.25	.135	.128	.122	.118
.160	.150	.145	.150	0609	.375	.186	.180	.172	.165
.212	.206	.200	.206	0612	.50	.240	.232	.225	.218
.25	.23	.21	.21	0615	.625	.288	.282	.272	.265
				0621	.875	.382	.375	.365	.360
.236	.218	.218	.220	0909	.56	.265	.257	.250	.240
.30	.28	.25	.25	0912	.75	.335	.328	.320	.313
.38	.36	.33	.34	0915	.938	.41	.396	.390	.385
.44	.42	.40	.42	0918	1.125	.48	.47	.45	.46
.50	.48	.45	.48	0921	1.31	.55	.54	.53	.53
.40	.39	.38	.39	1212	1.0	.43	.42	.41	.41
.46	.44	.42	.44	1215	1.25	.52	.51	.50	.50
.58	.58	.54	.56	1218	1.5	.62	.61	.60	.60
.68	.66	.64	.66	1221	1.75	.71	.69	.68	.68
.75	.73	.71	.71	1224	2.0	.81	.79	.77	.79
.60	.59	.58	.59	1515	1.56	.64	.63	.62	.62
.72	.70	.68	.70	1518	1.875	.72	.70	.69	.69
				1521	2.19	.88	.86	.84	.86
				1524	2.5	1.0	.97	.95	.98
.86	.84	.81	.84	1818	2.25	.91	.88	.86	.89
.95	.92	.90	.92	1821	2.62	1.05	1.01	.98	1.03
1.07	1.01	.98	1.00	1824	3.0	1.19	1.15	1.12	1.17
1.10	1.04	1.00	1.04	2121	3.06	1.22	1.17	1.15	1.20
1.25	1.18	1.10	1.12	2124	3.5	1.38	1.33	1.29	1.36
1.50	1.45	1.40	1.45	2424	4.0	1.58	1.52	1.47	1.55

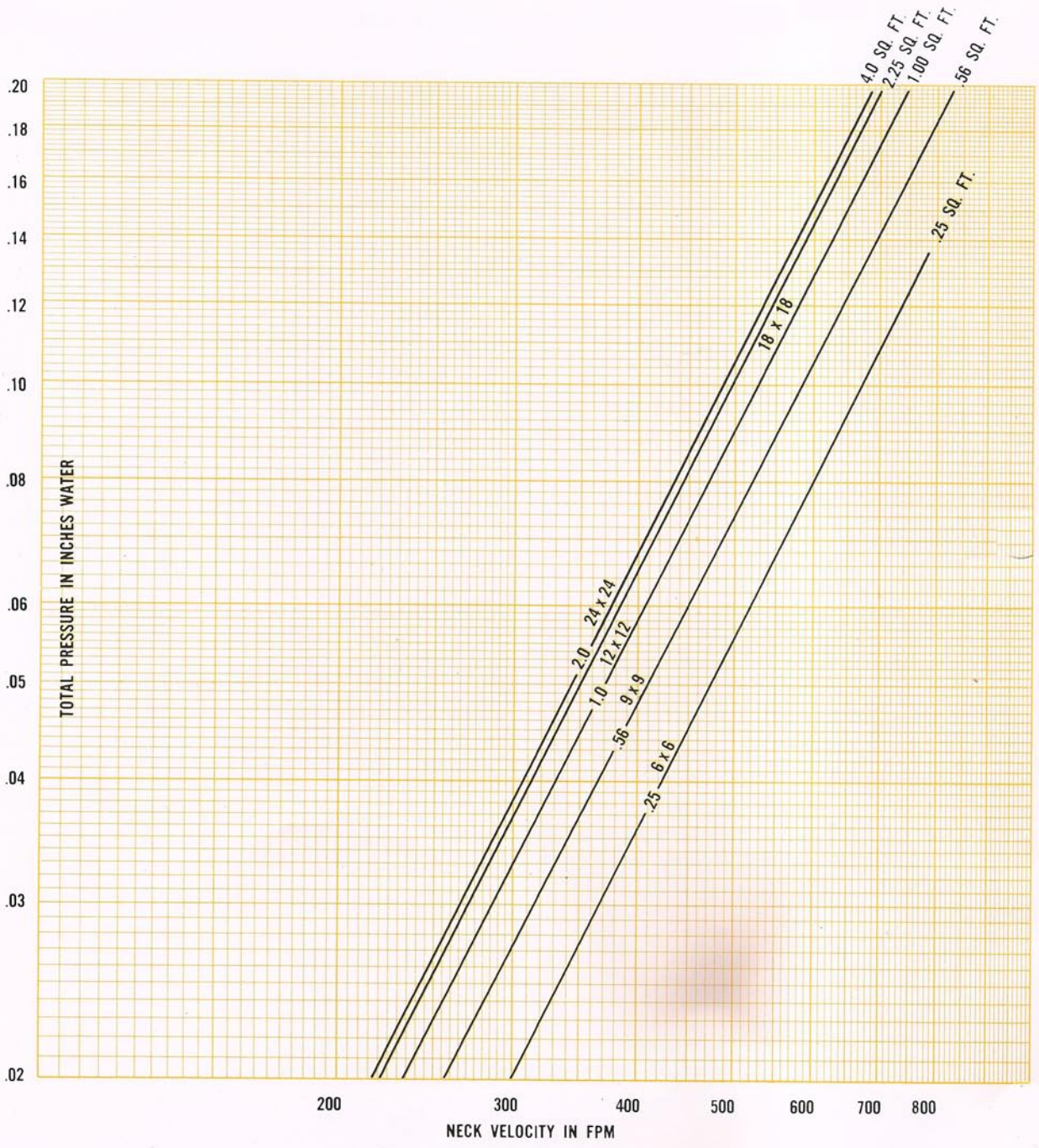
CFM = AIR DETERMINATION FACTOR (Ak) × AVERAGE VELOMETER READING (FPM)*

* Based on average of readings taken from center of each side with Alnor Velometer (2220 A Jet) —

BALANCING OF SUPPLY DIFFUSERS —

Using an Alnor Velometer (instrument for measuring air velocity in FPM, manufactured by Illinois Testing Laboratory) equipped with a 2200 A jet sensing tip, take readings in the centers of all active outer passages. To determine delivered CFM, average the readings, multiply by the air balancing factor as shown in Table 5.

FIGURE 5 TOTAL PRESSURE



For types MB and MX, use 1.20 multiplier for Pr

ORDER SPECIFICATIONS

Type MF, MB, MX, MS Diffusers

SIZE: XXXX
CORE PATTERN: XX (See Page 4)
MODEL: M
BORDER: F-Overlap
X-Lay-In
T-Snap-In
S-Spline
B-Bevel
ACCESSORIES: BD- Damper
E25-1 Extractor with push-pull arm
E25-3 Extractor with worm gear operator
(E25-2 with external operator is not suitable for series M diffusers)
FL-Fusible link
(use only with BD)

Note: E25 will be shipped loose for field installation

EXAMPLE : 091212-MF-E25

Type MP Panel Diffusers

SIZE: XXXX (MS Diffuser Size)
CORE PATTERN: XX (See Page 4)
MODEL: MP
BORDER: X-Lay-In
T-Tile Size
S-Spline
PANEL SIZE: XXXX (See Page 3)
ACCESSORIES: BD- Damper
E25-1 Extractor with push-pull arm
E25-3 Extractor with worm gear operator
(E25-2 with external operator is not suitable for series M diffusers)
FL-Fusible link
(use only with BD)

Note: MP Panel Diffuser consists of MS Diffuser mounted in panel
E25 will be shipped loose for field installation

EXAMPLE: 121542-MPX-2424-BD

STANDARD WARRANTY

Connols-Air, Singapore (the "Company"), warrants that every product manufactured and sold by them and described herein will be free from defects in material and workmanship under normal use and service for a period of one year after purchase. The Company's obligation under this warranty shall be limited to replacing any such product which proves to be defective in workmanship or material under normal use and service within such period. Any improper use, including but not limited to, substitution of parts not approved by the Company, neglect, accident or any alteration or repair by others in such a manner as in the Company's opinion materially and adversely affects the products, shall void this Warranty.

No person is authorized to assume for the Company any

other liability with respect to any product sold by the Company, nor is any employee or representative authorized to alter this warranty in any way or grant any other warranty, unless such change is authorized in writing by an officer of the Company at its home office. The Company shall have no liability whatsoever in any event for payment of incidental or consequential damages, including without limitation, installation or delay costs or damages for injury to persons or property. Every claim under this warranty shall be deemed waived unless submitted in writing, and received by the Company within thirty (30) days of the date to which each claim relates, is discovered or should have been discovered.



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