

MODUL -4

LOCAL EXHAUST VENTILATION (LEV)



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TIPE HOOD

HOOD :

Fungsi untuk menangkap kontaminan pada sumbernya, dimana udara yang terkontaminasi ditarik kedalam ventilasi.

TYPE HOOD

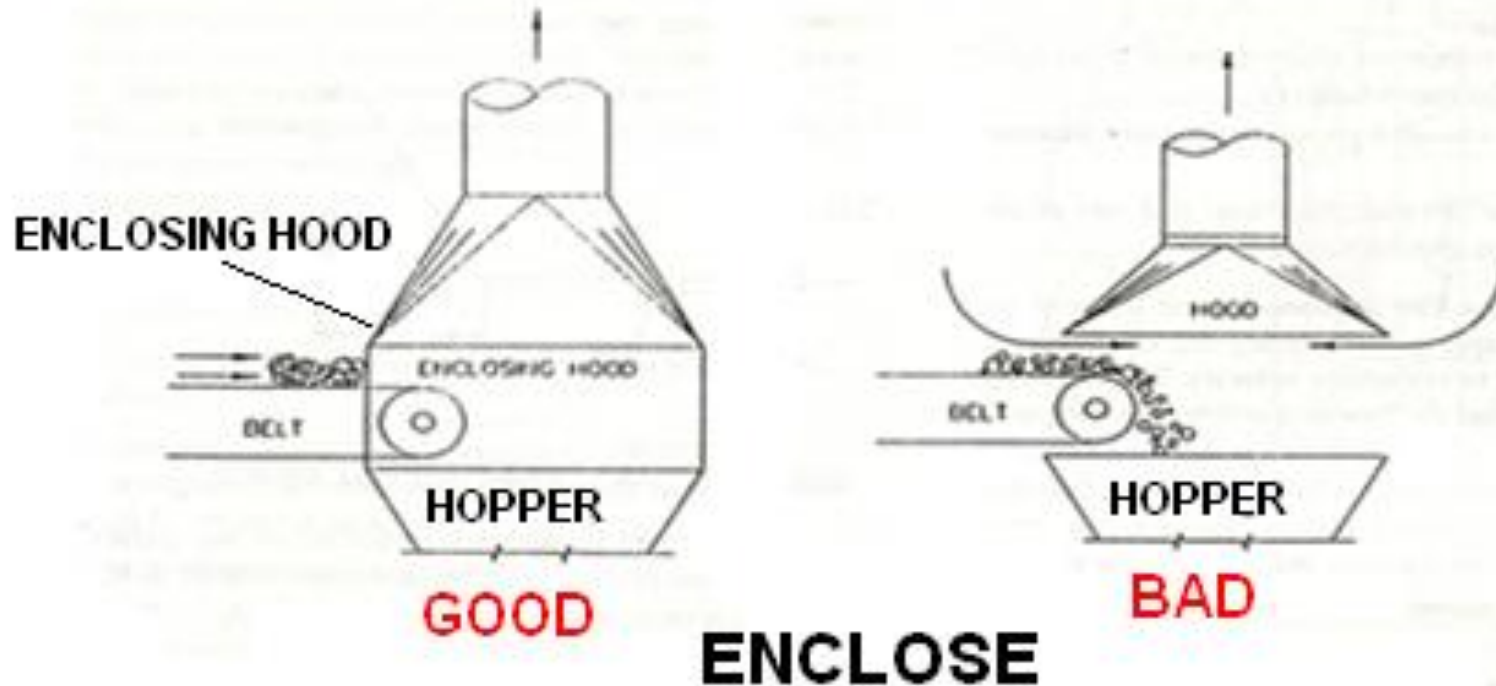
Secara fisik dan karakteristiknya dalam prose menangkap kontaminan, hood/kap terdapat 2 (dua) type yaitu :

1. Enclosing hood,
2. Exterior hood

2.1. Enclosing hood,

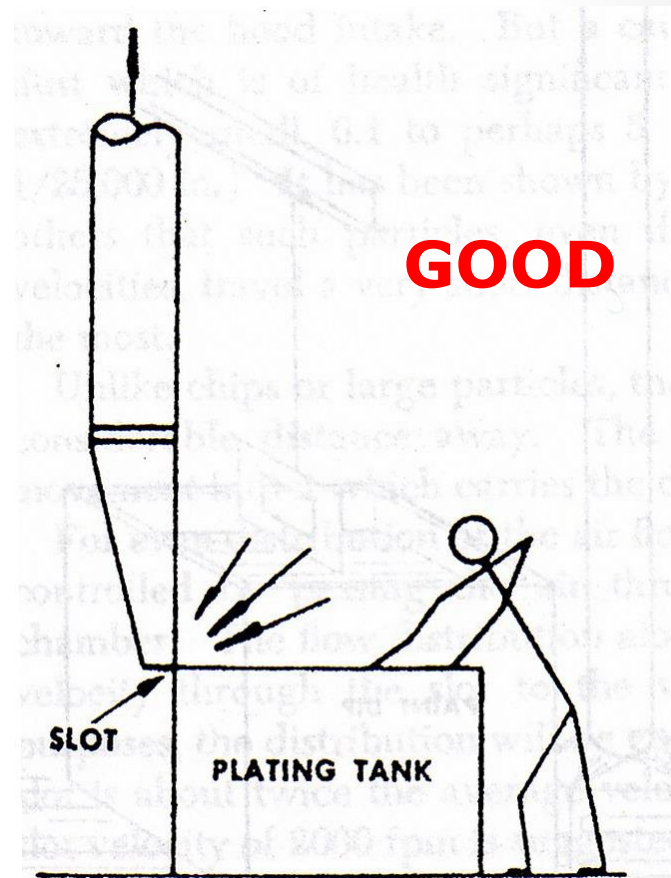
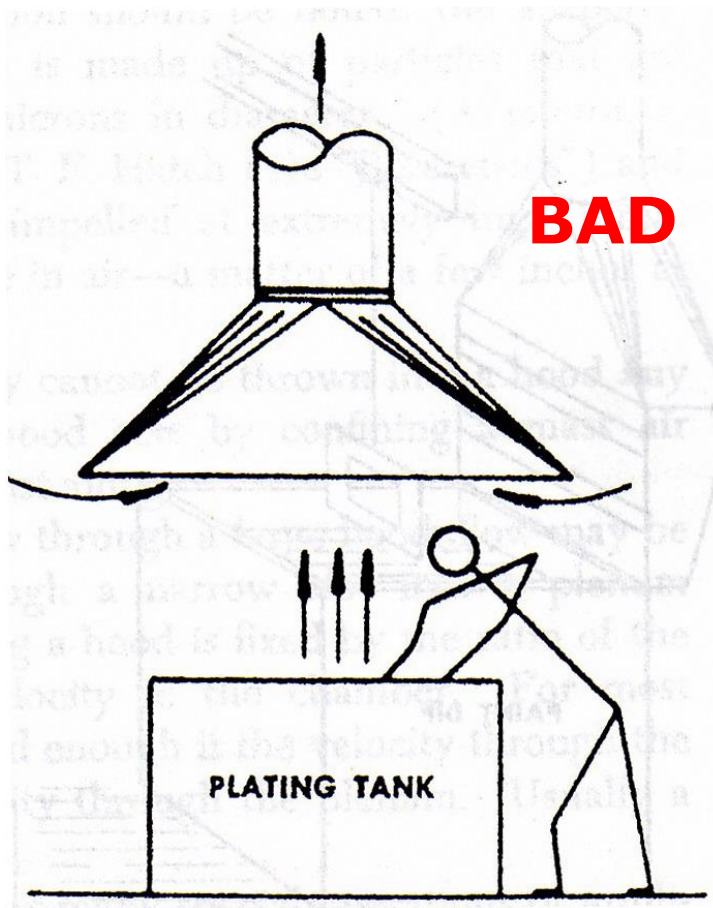
- ❖ Sistem ini dirancang untuk mengambil keuntungan dari pergerakan yang dilakukan oleh kontaminan untuk menangkapnya tanpa membutuhkan sejumlah besar udara
- ❖ Hood adalah tempat dimana proses emisi memasuki exhaust sistem.
- ❖ Sebuah lapangan udara dibuat dalam hood untuk fungsi di atas.
- ❖ Gbr.3-1, 3-3, ACGIH manual menunjukkan tata-nama, terkait dengan LEV

Gambar : A, ENCLOSE



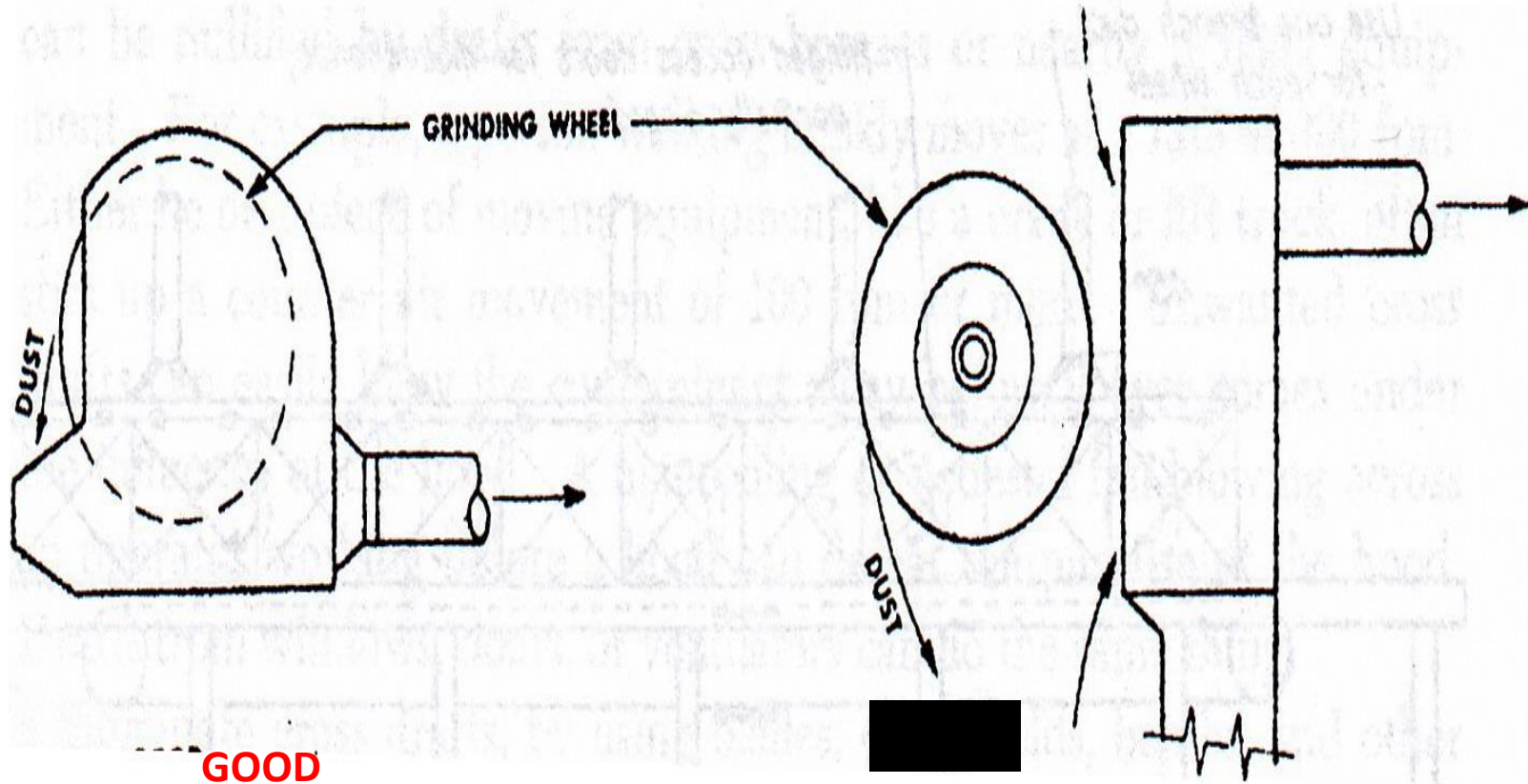
Enclose the operation as much as possible. The more completely enclose the source. The less air required for control

Gambar B : Direction of air flow



The hood should be located so the contaminant is removed away from the breathing zone of the worker

Gambar, C



BAD

THE HOOD SHOULD BE SO LOCATED AND SHAPED THAT THE ORIGINAL VELOCITY OF THE CONTAMINANT WILL THROW IT INTO THE HOOD OPENING

2.2. Exterior Hood :

Hood terletak berdekatan dengan sumbernya. Contohnya adalah slot sepanjang tepi tangki atau membuka persegi panjang di atas meja las.

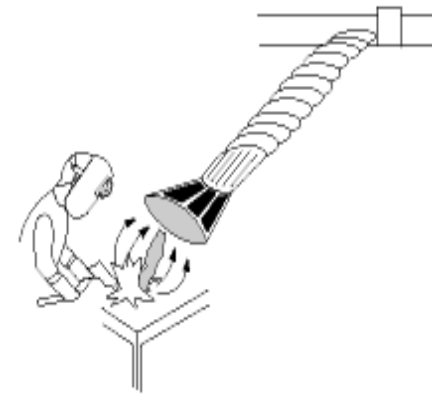
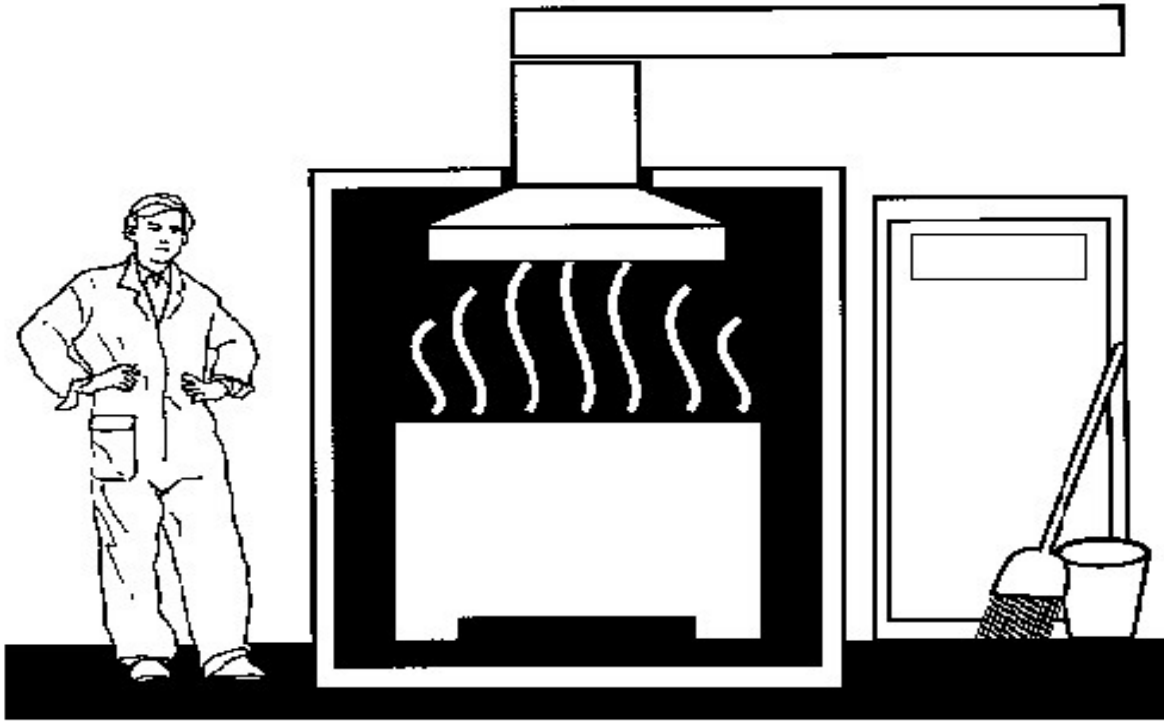


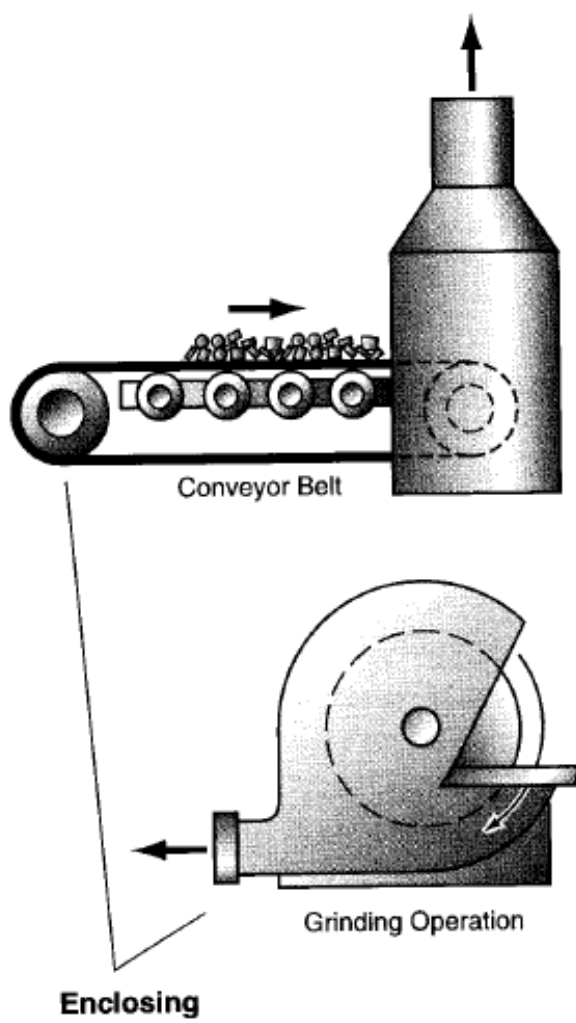
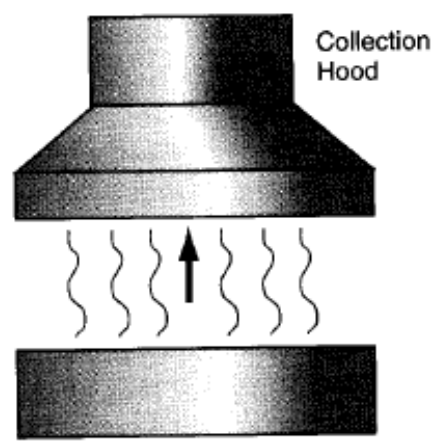
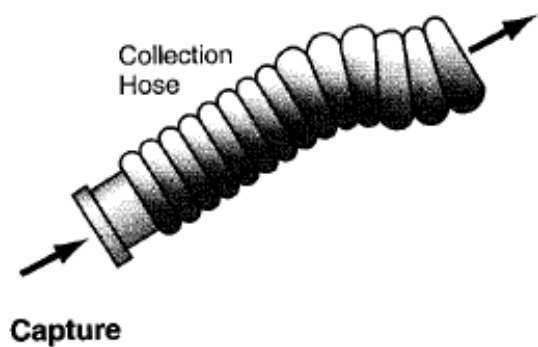
BAD

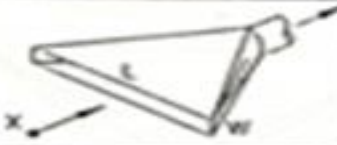



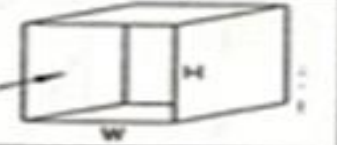





GOOD

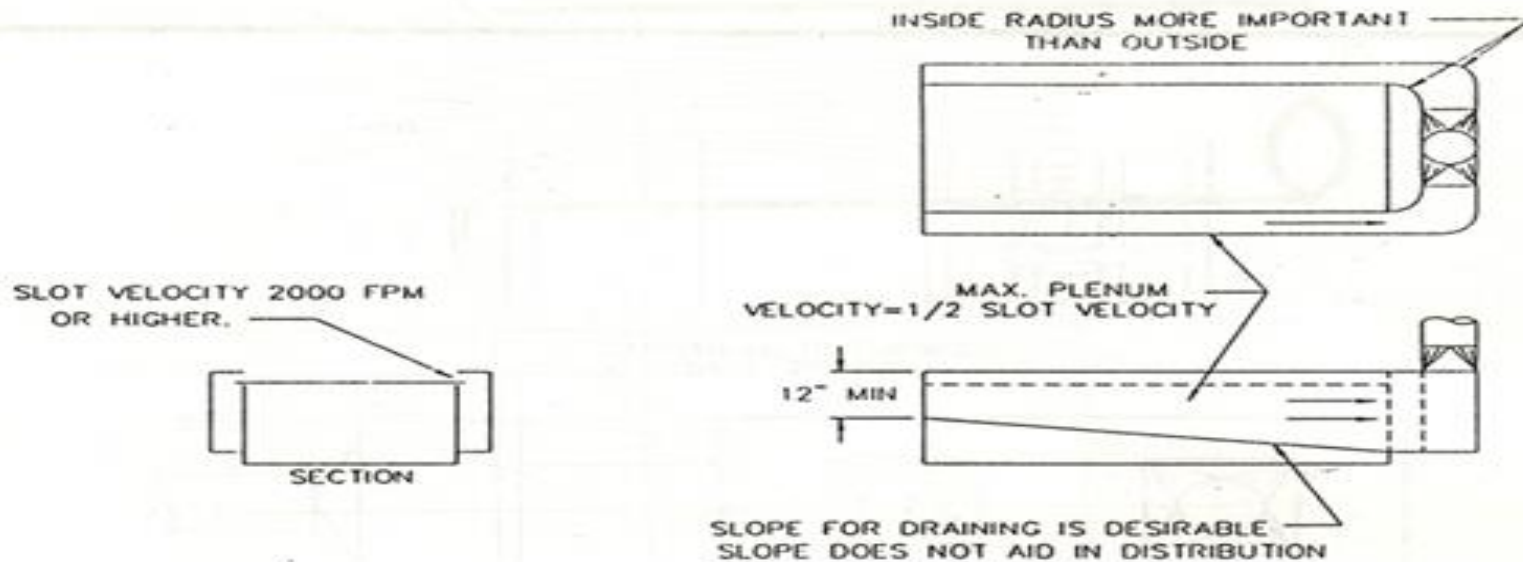
More local exhaust



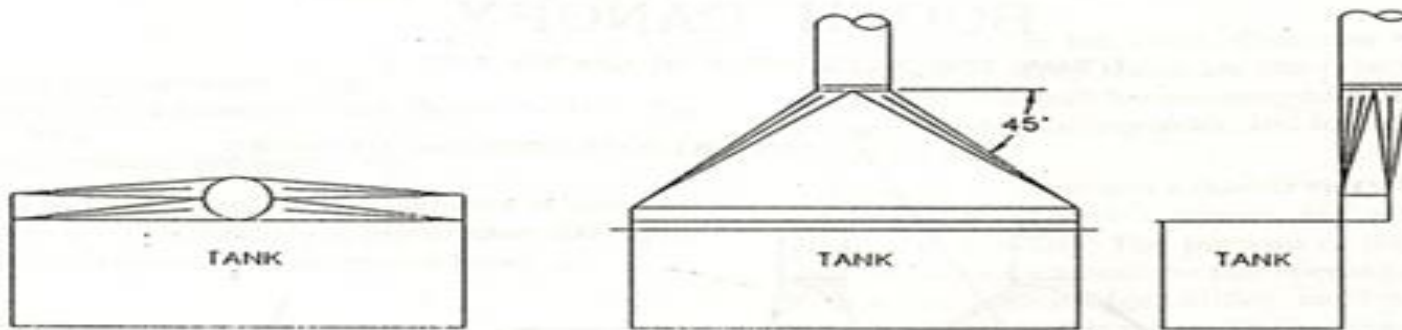


HOOD TYPE	DESCRIPTION	ASPECT RATIO, W/L	AIR FLOW
	SLOT	0.2 OR LESS	$Q = 3.7 LVX$
	FLANGED SLOT	0.2 OR LESS	$Q = 2.8 LVX$
	PLAIN OPENING	0.2 OR GREATER AND ROUND	$Q = V(10K^2 + A)$
	FLANGED OPENING	0.2 OR GREATER AND ROUND	$Q = 0.75V(10K^2 + A)$
	BOOTH	TO SUIT WORK	$Q = VA = VAM$
	CANOPY	TO SUIT WORK	$Q = 1.4 PV^2$ SEE VS-903 P = PERIMETER D = HEIGHT ABOVE WORK
	PLAIN MULTIPLE SLOT OPENING 2 OR MORE SLOTS	0.2 OR GREATER	$Q = V(10K^2 + A)$
	FLANGED MULTIPLE SLOT OPENING 2 OR MORE SLOTS	0.2 OR GREATER	$Q = 0.75V(10K^2 + A)$

TEKNIK DISTRIBUSI



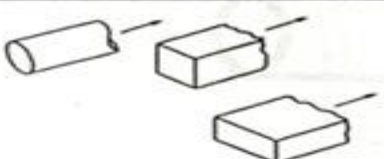
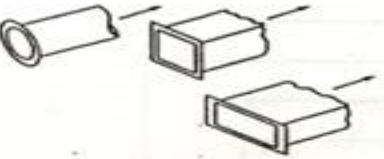

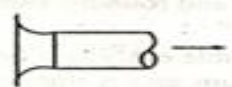
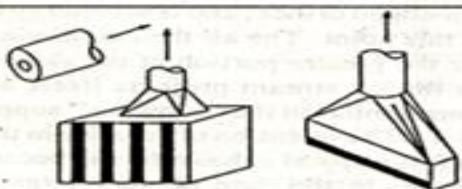

DISTRIBUTION BY SLOT RESISTANCE



DISTRIBUTION BY FISH TAIL

WITH LOW PLENUM VELOCITIES AND HIGH SLOT VELOCITIES, GOOD DISTRIBUTION IS OBTAINED. SLOTS OVER 10 FEET TO 12 FEET IN LENGTH USUALLY NEED MULTIPLE TAKE-OFFS.

HOOD LOSS FACTOR

HOOD TYPE	DESCRIPTION	HOOD ENTRY LOSS FACTOR (F_h)
	PLAIN OPENING	0.93
	FLANGED OPENING	0.49
	TAPER OR CONE HOOD	SEE FIGURE 5-15
	BELL MOUTH INLET	0.04
	ORIFICE	SEE FIGURE 5-15
	TYPICAL GRINDING HOOD	(STRAIGHT TAKEOFF)
		0.65
		(TAPERED TAKEOFF)
		0.40

3. JENIS HOOD

- ❖ Exterior Hood :
Hood terletak berdekatan dengan sumbernya.
Contohnya adalah slot sepanjang tepi tangki atau membuka persegi panjang di atas meja las.

- ❖ Kriteria pemilihan hood:
 - Karakteristik fisik peralatan.
 - Pencemaran generasi mekanisme.
 - Equipment surface /Peralatan permukaan.Gambar 3-3, 3-5, petunjuk ACGIH , ttg berbagai jenis hood.

LEV system design,

Kontaminan udara yang tidak ditangkap, karena desain Hood LEV tidak cocok dengan proses dan sumber (s)



Source: HSE