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Shh_research@yahoo.com

/ cm

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Foelsch - - :

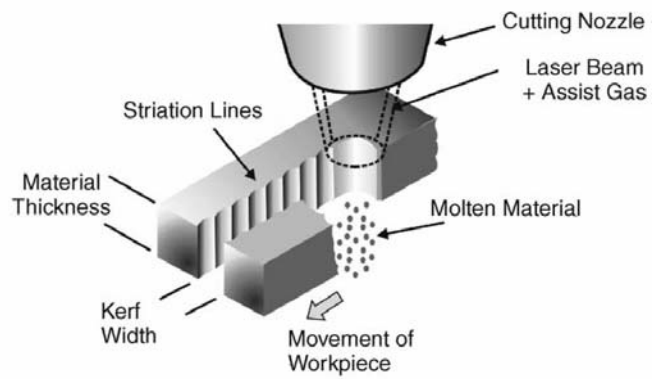
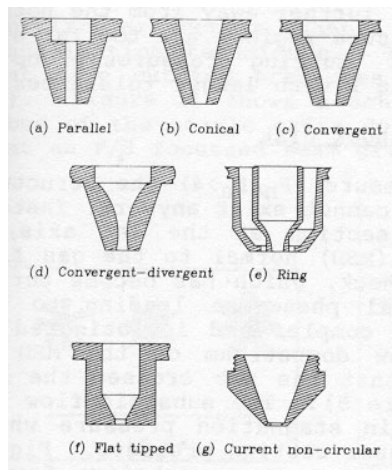
/ cm

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[1]

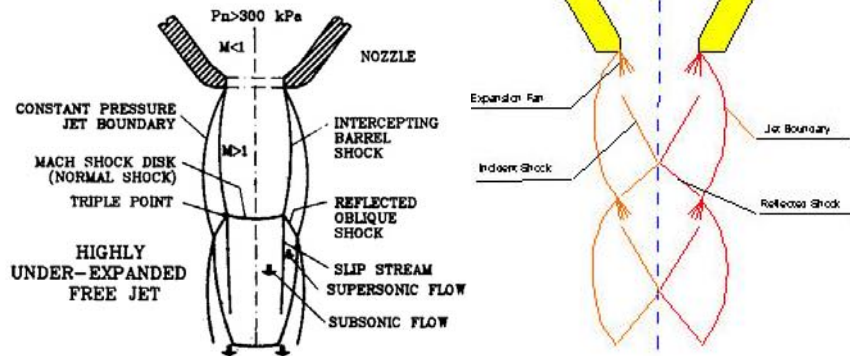
fieret



cm

[4]

Ward

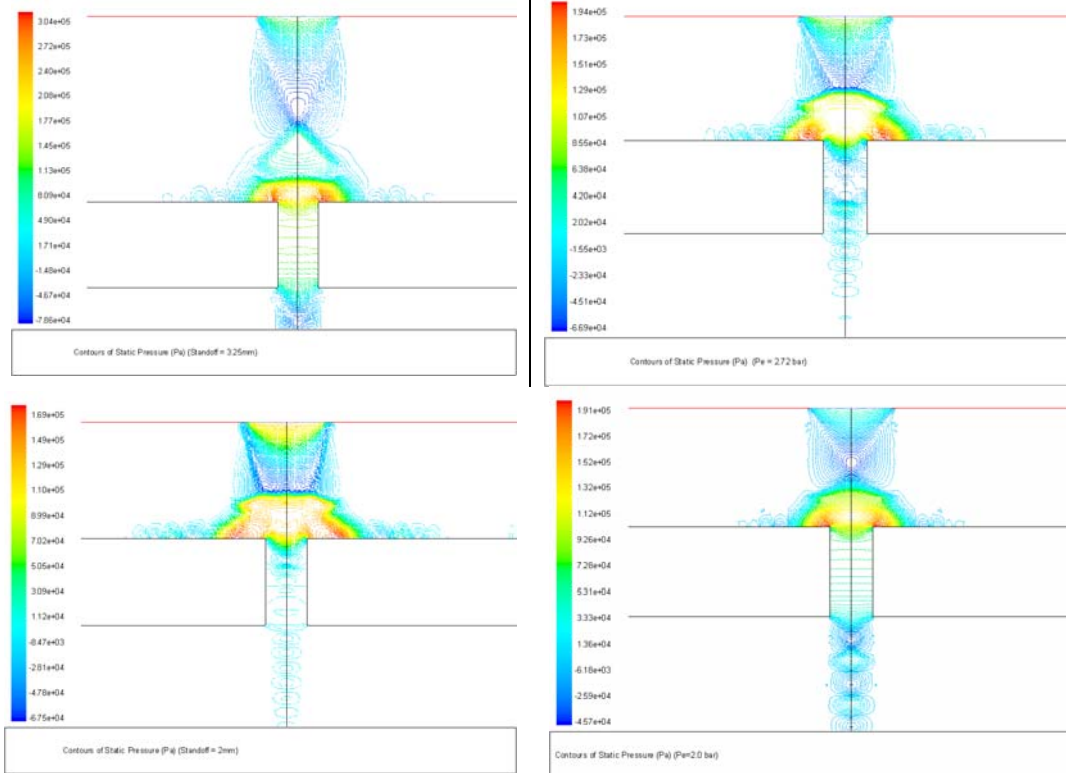


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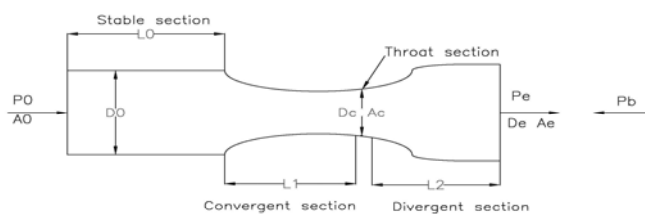
FLUENT

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[5].



D_0

$$D_0 = \sqrt{5} D_c \quad ()$$

L_0

D_c

$$\left(\frac{A_0}{A_c}\right)$$

$$\frac{A_0}{A_c} = \frac{Mc}{M_0} \left(\frac{1 + \frac{k-1}{2} M_0^2}{1 + \frac{k-1}{2} M_c^2} \right)^{\frac{k+1}{2(k-1)}} \quad ()$$

M_c

M_0

$$R = \frac{R_c}{\sqrt{1 - \left[1 - \left(\frac{R_c}{R_0}\right)^2\right] \frac{(1-a^2)}{\left(1 + \frac{a^2}{3}\right)^3}}} \quad ()$$

$$a = \frac{x}{L_1}$$

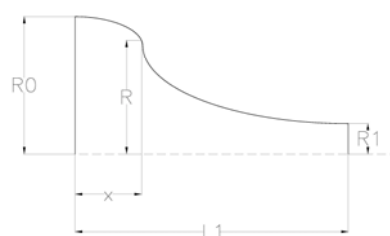
R_0

R_c

R

L_1 (

x



¹ NASA(Old name:NACA)

$$D_c(mm) = 1.43 \sqrt{\frac{V}{P_0 + 1}}$$

kg / mm^2

$P_0 (m^3 / h)$

V

$$\frac{A_1}{A_c} = \frac{M_c}{M_1} \left(\frac{1 + \frac{k-1}{2} M_1^2}{1 + \frac{k-1}{2} M_c^2} \right)^{\frac{k+1}{2(k-1)}}$$

()

$$\frac{P_0}{P_1} = \left(1 + \frac{k-1}{2} M_1^2 \right)^{\frac{k}{k-1}}$$

M_1

P_1

P_0

A_c

A_1

Characteristics

Pukett Busemann

Foelsch

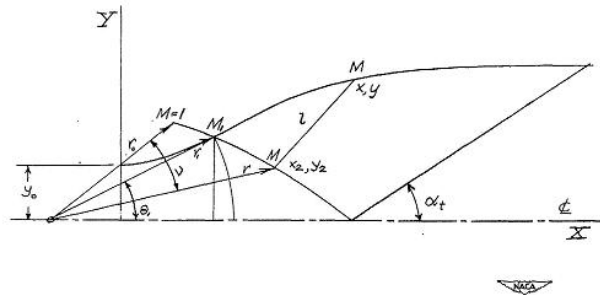
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Foelsch

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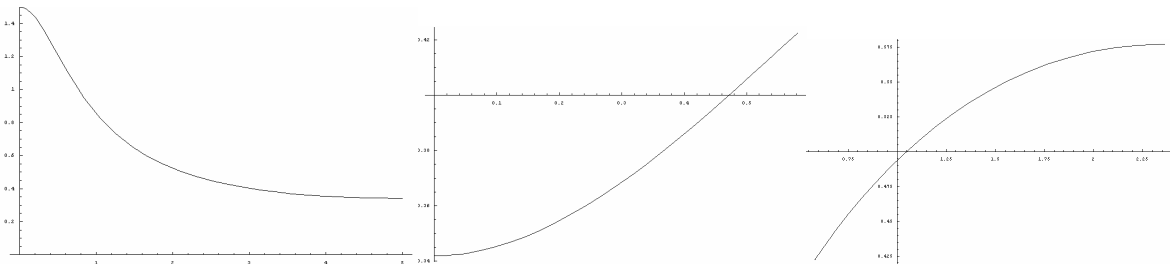
Foelsch

[7]:

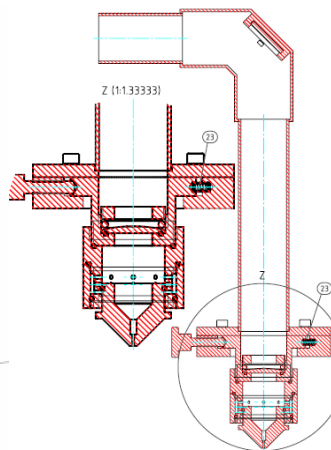
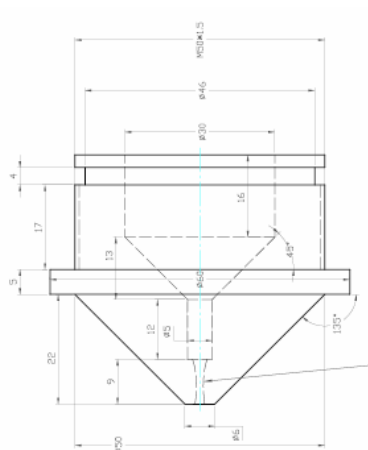


Mathematica

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[8].



در نازل های مافوق صوت جریان خروجی shock free بوده و بدلیل سرعت بالای جریان گاز خروجی ، از ممنوع بالایی برخوردار هستند.

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