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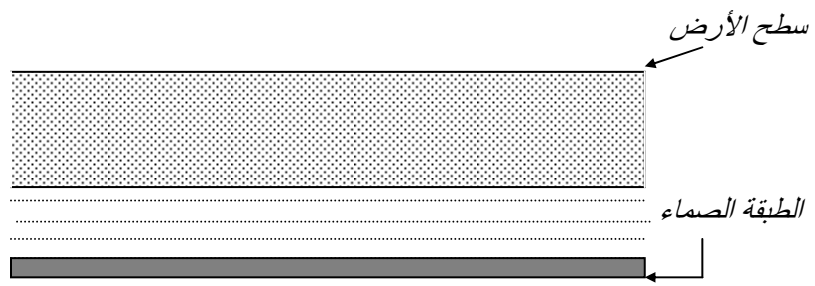
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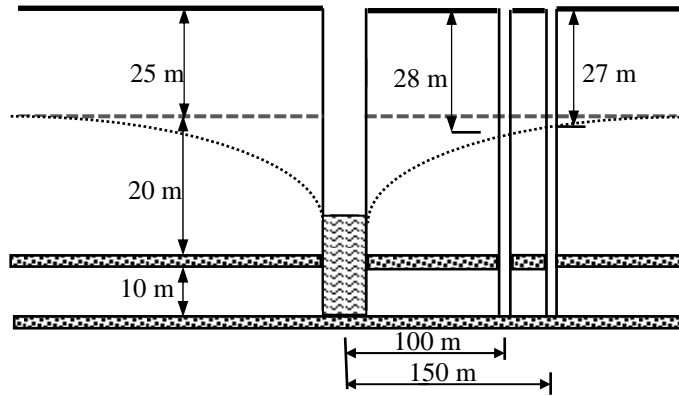
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$r_w = 30 \text{ cm}$   
 $Q = ?$

طبقة مسددة  
 $r_e = ?$

$K = 6 \text{ m/day}$

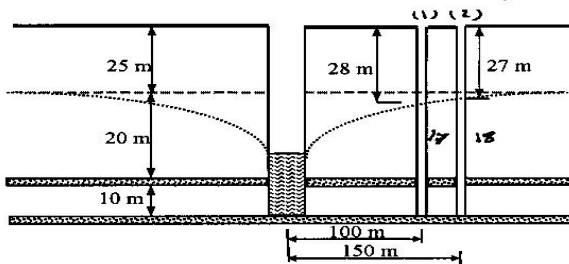
$Q_{max} = ?$

حجم آب  
کسر شده  
از هر واحد  
الایفه صادر  
شده

$D = 10 \text{ m}$   
 $h_e = 20 + 10 = 30 \text{ m}$   
 $h_1 = 55 - 28 = 27 \text{ m}$   
 $h_2 = 55 - 27 = 28 \text{ m}$   
 $h_w = ?$

س

$r_e = ?$   
 $r_1 = 100 \text{ m}$   
 $r_2 = 150 \text{ m}$   
 $r_w = 0.30$



از صورت زیر حالت اختتامه کامل الایفه الحامله للمیاء

$Q = \frac{2\pi KD(h_2 - h_1)}{\ln \frac{r_2}{r_1}} = \frac{2\pi \times 6 \times 10 (28 - 27)}{\ln \frac{150}{100}} = 929.8 \text{ m}^3/\text{day}$

$Q = \frac{2\pi KD(h_e - h_2)}{\ln \frac{r_e}{r_2}} \quad \therefore 929.8 = \frac{2\pi \times 6 \times 10 (30 - 28)}{\ln \frac{r_e}{150}} \quad r_e = ?$

$\therefore \frac{r_e}{150} = 2.25$

$\therefore r_e = 337.5 \text{ m}$

$Q = \frac{2\pi KD(h_e - h_w)}{\ln \frac{r_e}{r_w}} \quad \therefore 929.8 = \frac{2\pi \times 6 \times 10 (h_e - h_w)}{\ln \frac{337.5}{0.30}} \quad (h_e - h_w) = ?$

$\therefore h_e - h_w = 17.33 \text{ m}$

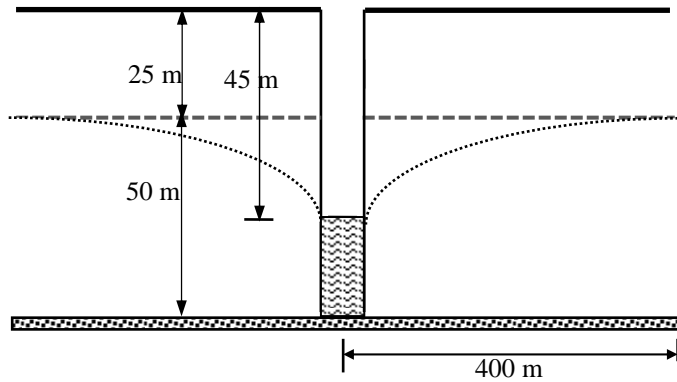
$\therefore h_w = 12.67 \text{ m}$

اقصى تصرفه عندنا  $h_w = D = 10 \text{ m}$

$Q_{max} = \frac{2\pi KD(h_e - h_w)}{\ln \frac{r_e}{r_w}} = \frac{2\pi \times 6 \times 10 (30 - 10)}{\ln \frac{337.5}{0.30}} = 1073.2 \text{ m}^3/\text{day}$

حجم آب کسری (اختتامه البئر للایفه الصماء الایفه شده)

$Q_s = 2\pi K r_w (h_e - h_w) = 2\pi \times 6 \times 0.30 \times 17.33 = 196 \text{ m}^3/\text{day}$



$$\begin{aligned}
 r_w &= 50 \text{ m} \\
 T &= 400 \text{ m}^3/\text{day} \\
 h_e &= 50 \text{ m} \\
 h_w &= 75 - 45 = 30 \text{ m} \\
 r_e &= 400 \text{ m} \\
 B &= 150 \text{ m}
 \end{aligned}$$

$$K = \frac{T}{b} = \frac{400}{50} = 8 \text{ m/day}$$

$$Q = \frac{\pi K (h_e^2 - h_w^2)}{\ln \frac{r_e}{r_w}} = \frac{\pi \times 8 (50^2 - 30^2)}{\ln \frac{400}{50}} = 6015.7 \text{ m}^3/\text{day}$$

النسبة المئوية من إجمالي الإنتاج:

$$\begin{aligned}
 Q_1 = Q_3 &= \frac{\pi K (h_e^2 - h_w^2) \ln \frac{B}{r_w}}{2 \ln \frac{r_e}{B} \cdot \ln \frac{B}{r_w} + \ln \frac{B}{2r_w} \cdot \ln \frac{r_e}{r_w}} \\
 &= \frac{\pi \times 8 (50^2 - 30^2) \ln \frac{150}{50}}{2 \ln \frac{400}{150} \ln \frac{150}{50} + \ln \frac{150}{2 \times 50} \ln \frac{400}{50}} = 5132.3 \text{ m}^3/\text{day}
 \end{aligned}$$

$$\Delta Q_1 = \Delta Q_3 = \frac{6015.7 - 5132.3}{6015.7} \times 100 = 14.68 \%$$

$$Q_2 = \frac{\pi K (h_e^2 - h_w^2) \ln \frac{B}{2r_w}}{2 \ln \frac{r_e}{B} \cdot \ln \frac{B}{r_w} + \ln \frac{B}{2r_w} \cdot \ln \frac{r_e}{r_w}} = \frac{\pi \times 8 (50^2 - 30^2) \ln \frac{150}{2 \times 50}}{2 \ln \frac{400}{150} \ln \frac{150}{50} + \ln \frac{150}{2 \times 50} \ln \frac{400}{50}} = 4508.6 \text{ m}^3/\text{day}$$

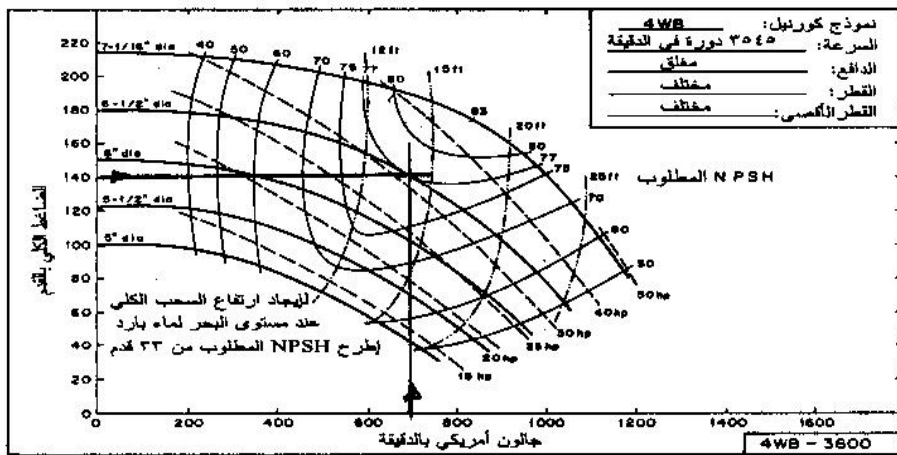
$$\Delta Q_2 = \frac{6015.7 - 4508.6}{6015.7} \times 100 = 25.05 \%$$

النسبة المئوية من إجمالي الإنتاج لكل منفتحة من حفر الإنتاج:

$$\begin{aligned}
 Q_1 = Q_2 = Q_3 &= \frac{\pi K (h_e^2 - h_w^2)}{\ln \frac{r_e^3}{r_w \cdot B^2}} \\
 &= \frac{\pi \times 8 (50^2 - 30^2)}{\ln \frac{400^3}{50 \times 150^2}} = 4650.8 \text{ m}^3/\text{day}
 \end{aligned}$$

$$\Delta Q_1 = \Delta Q_2 = \Delta Q_3 = \frac{6015.7 - 4650.8}{6015.7} \times 100 = 22.69 \%$$

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به الرسم عند سرعة 3545 دور في الدقيقة وضاغط 18 قدم

$$D = 6.5 \text{ m} = 165 \text{ mm}$$

$$E = 77\%$$

القدرة الزلزلية عند نقطة التساطيع تتنحى بين 30-40 hp فنتار السهم الشكك  
 وهذا قدرة المراد اللدزم لتسهيل المصنعة

$$BP_A = 40 \text{ hp} = 30 \text{ kW}$$

القدرة اللدزمه لظروف التشغيل الفعليه

$$BP_R = \frac{Q \cdot H}{102 E} = \frac{(2650/160) \times 42.67}{102 \times 0.77} = 24 \text{ kW}$$

$$kW = 134 \text{ hp}$$

النسبة المئوية للتحميل على المراد

$$\text{Motor Loading} = \frac{BP_R}{BP_A} \times 100 = \frac{24}{30} \times 100 = 80\%$$

المخطط المؤثر على الجواب أثناء البوعلامه اللتام وكل المصنعة في عند أيضا بقية للضاغط أي عند

$$H = 180 \text{ ft} = 54.9 \text{ m}$$

به الرسم عند قيمة ضاغط السحب الصفاف الموجب المطلوب NPSHR = 14.5 ft = 4.27 m

$$NPSHA = NPSHR = 4.27 \text{ m}$$

أيضا ارتفاع المصنعة دونه حدوده تكون

$$\therefore 4.27 = P_{atmos} - Z_{max} - h_{fs} - P_v$$

$$8.5 \text{ m} \leftarrow \text{جودل } P_{atmos}$$

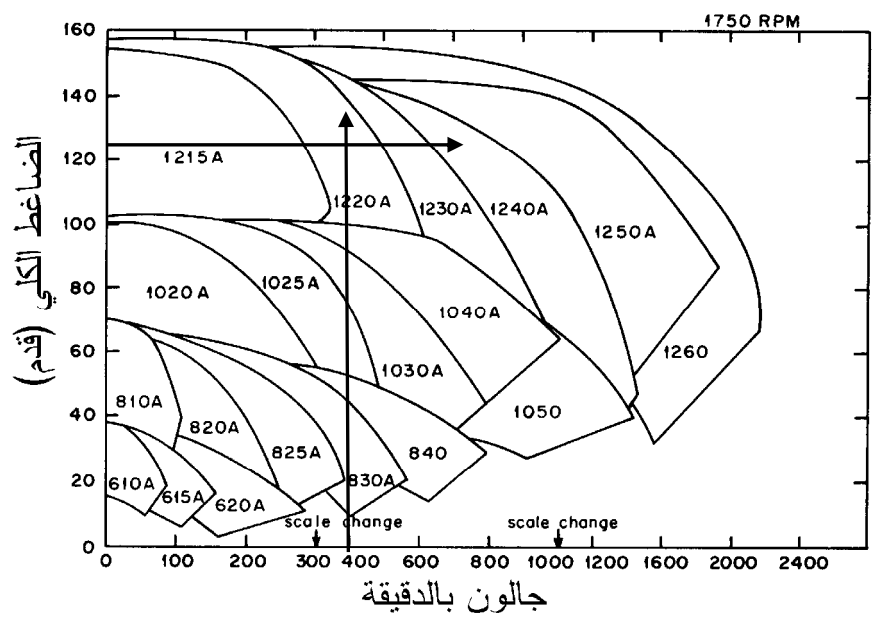
$$\therefore Z_{max} = 8.5 - 1.57 - 0.125 - 4.27 = 2.53 \text{ m}$$

$$0.125 \text{ m} \leftarrow \text{جودل } P_v$$

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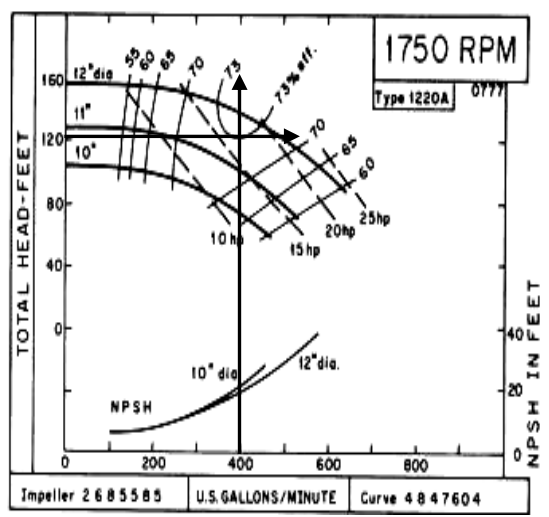
D = 12 in

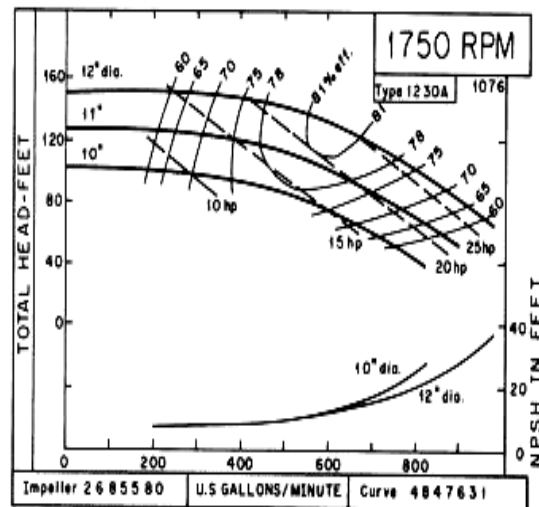
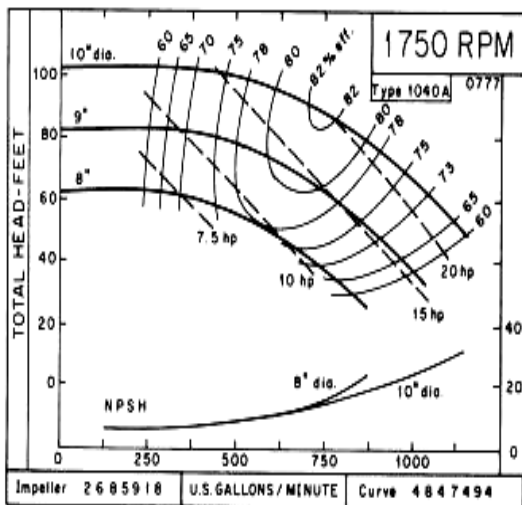
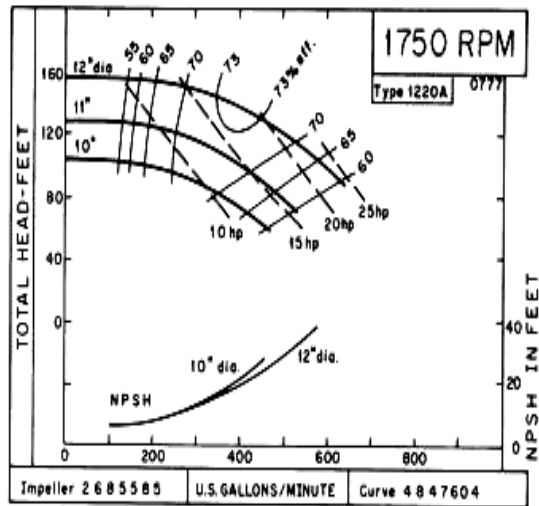
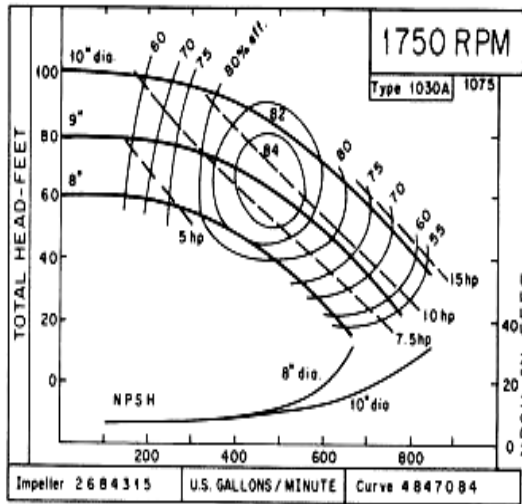
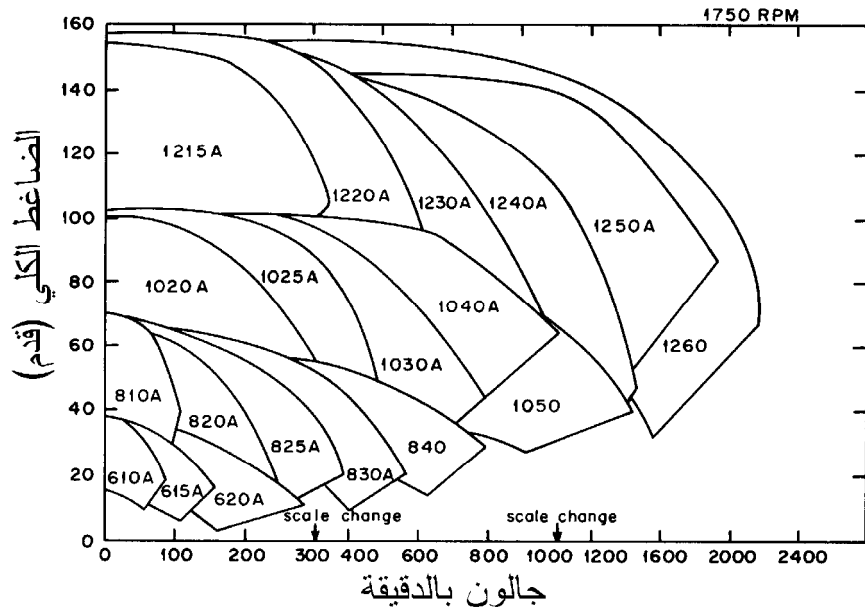
E = 75 %

BP<sub>A</sub> = 20 hp = 14.92 kw

$$BP_R = \frac{Q \cdot H}{102 E} = \frac{25.22 \times 36.58}{102 \times 0.75} = 12.10 \text{ kw}$$

$$\text{Motor Loading} = \frac{12.10}{14.92} \times 100 = 81 \%$$







$$V_s = 0.4 \sqrt{K} \text{ (m/day)}$$

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$$\therefore Q = 7200 \text{ m}^3/\text{day} = \frac{7200}{24 \times 3600} = 0.0833 \text{ m}^3/\text{s}$$

$V = 2 \text{ m/s}$  سرعة جريان الماء في الأنبوب العنق

$$\therefore A = \frac{Q}{V} = \frac{0.0833}{2} = 0.04166 = \frac{\pi}{4} d^2$$

$$\therefore d = 0.23 \text{ m} = 23 \text{ cm} \quad \therefore d_{act} = 25 \text{ cm}$$

$$d_s = \frac{25 \text{ cm}}{\text{طول القناة}}$$

$$\therefore V_s = 0.4 \sqrt{K} = 0.4 \sqrt{16} = 1.6 \text{ cm/s} \quad \text{سرعة الماء في القناة}$$

$$\therefore Q_s = \pi d_s L_s P (1-c) V_s$$

$$0.0833 = \pi \left(\frac{25}{100}\right) L_s \times \frac{25}{100} (1-0.40) \times \frac{1.6}{100}$$

$$\therefore L_s = 44.19 \text{ m}$$

← طول القناة

$$\therefore (N_o) = 8 \text{ at } 1 \text{ cm}^2$$

$$\therefore 8 = \frac{1 \text{ cm}^2 \times 0.25}{A_{ome}} \quad \text{مساحة الفتحة} \\ \text{مساحة الفتحة}$$

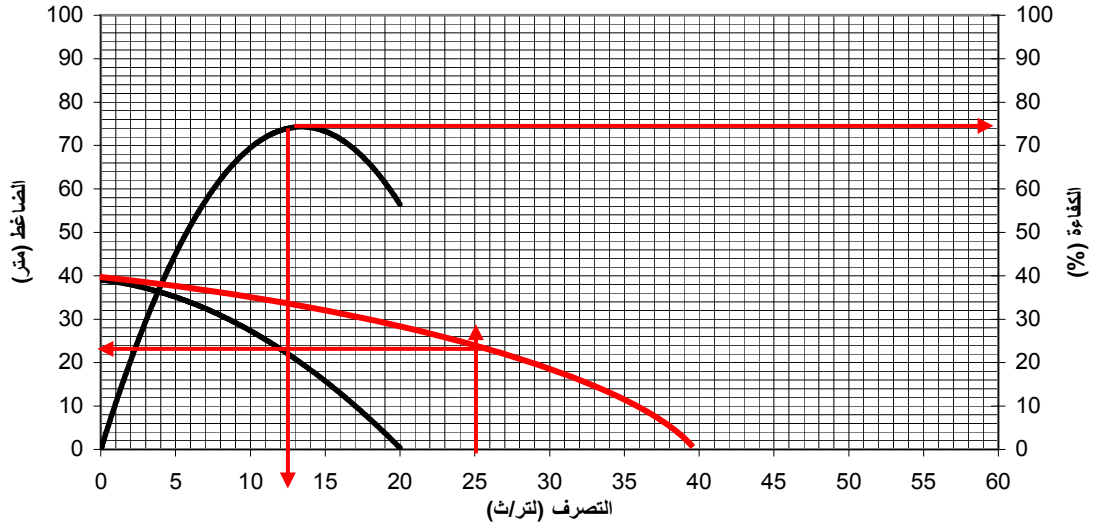
$$\therefore A_{ome} = 0.03125 \text{ cm}^2 = 3.125 \text{ mm}^2$$

$$\therefore A_{ome} = L \cdot W = 2 W \cdot W = 2 W^2$$

$$\therefore 3.125 = 2 W^2$$

$$\therefore W = 1.56 \text{ mm}$$

$$L = 3.125 \text{ mm}$$



$$BP = \frac{Q \times H}{102E} = \frac{12.5 \times 22}{102 \times 0.74} = 3.64 \text{kw}$$

$$BP = \frac{Q \times H}{102E} = \frac{25 \times 22}{102 \times 0.74} = 7.28 \text{kw}$$