

$$\frac{\Delta v}{\Delta t} = \frac{117 \cdot 10^{-3} - 0}{10 - 0} = 11,7 \cdot 10^{-3} \text{ m s}^{-2}$$

Q12

$$D_1 = \frac{1}{2} 11,7 \cdot 10^{-3} \times 10^2 + 0 \times 10$$

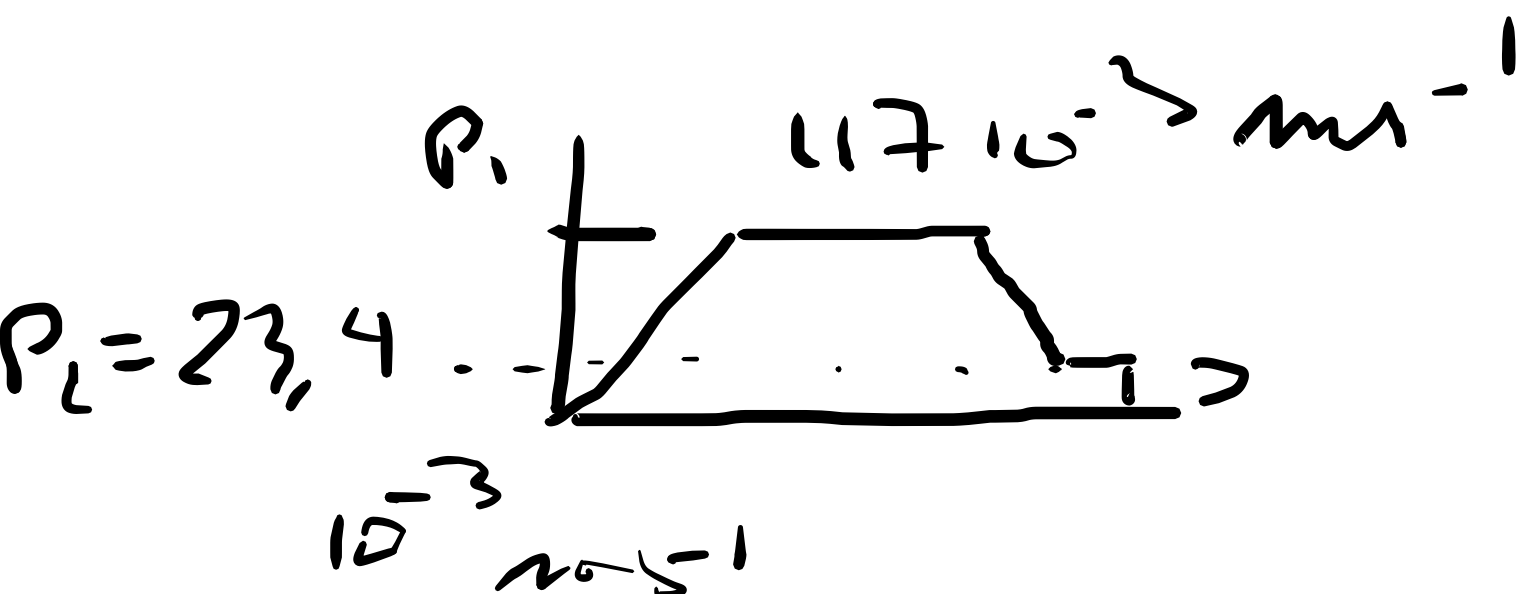
$$= 5,85 \cdot 10^1 \text{ m} = 0,585 \text{ m}$$

$$D_2 = 9,8 \times 0,117 = 1,1466 \text{ m}$$

$$D_3 = 8 \times 23,4 \cdot 10^{-3} = 0,187 \text{ m}$$

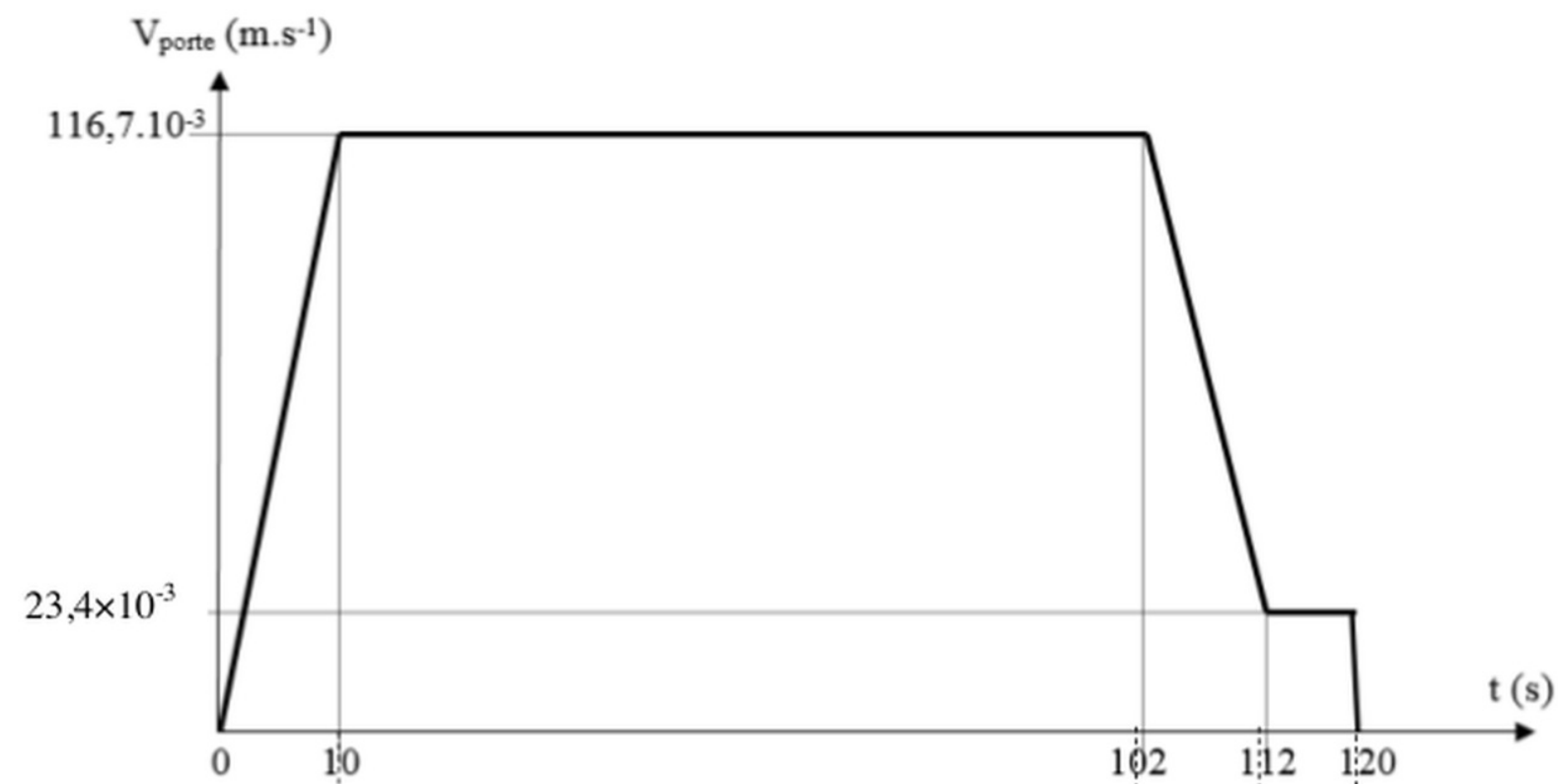
Q13

$$P = \vec{T} \cdot \vec{U} = \underbrace{T \cdot U}_{\text{cre}}$$



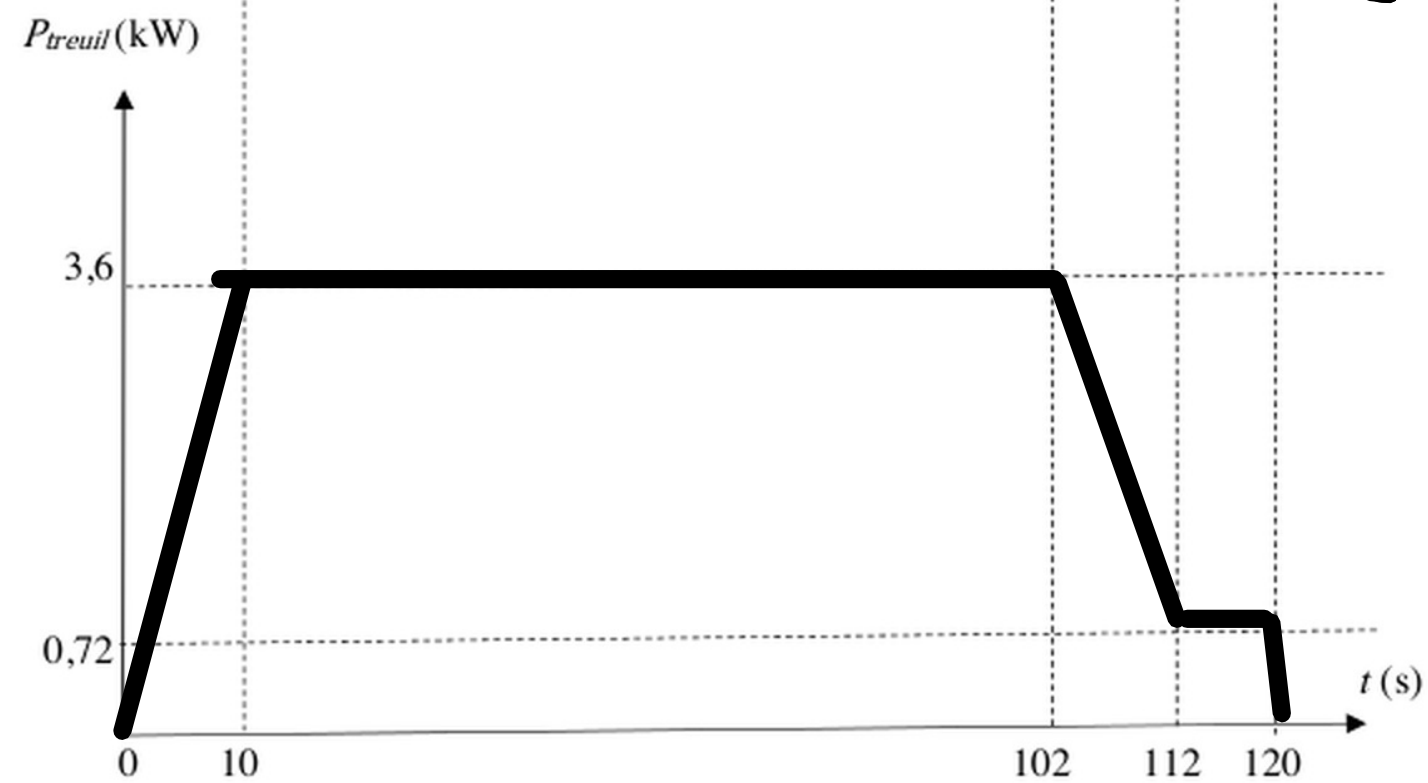
$$P_1 = 117 \cdot 10^{-3} \cdot 31 \cdot 10^{-3} \\ = 3,6 \text{ kW}$$

$$P_2 = 23,4 \cdot 10^{-3} \cdot 31 \cdot 10^{-3} \\ = 725 \text{ W}$$

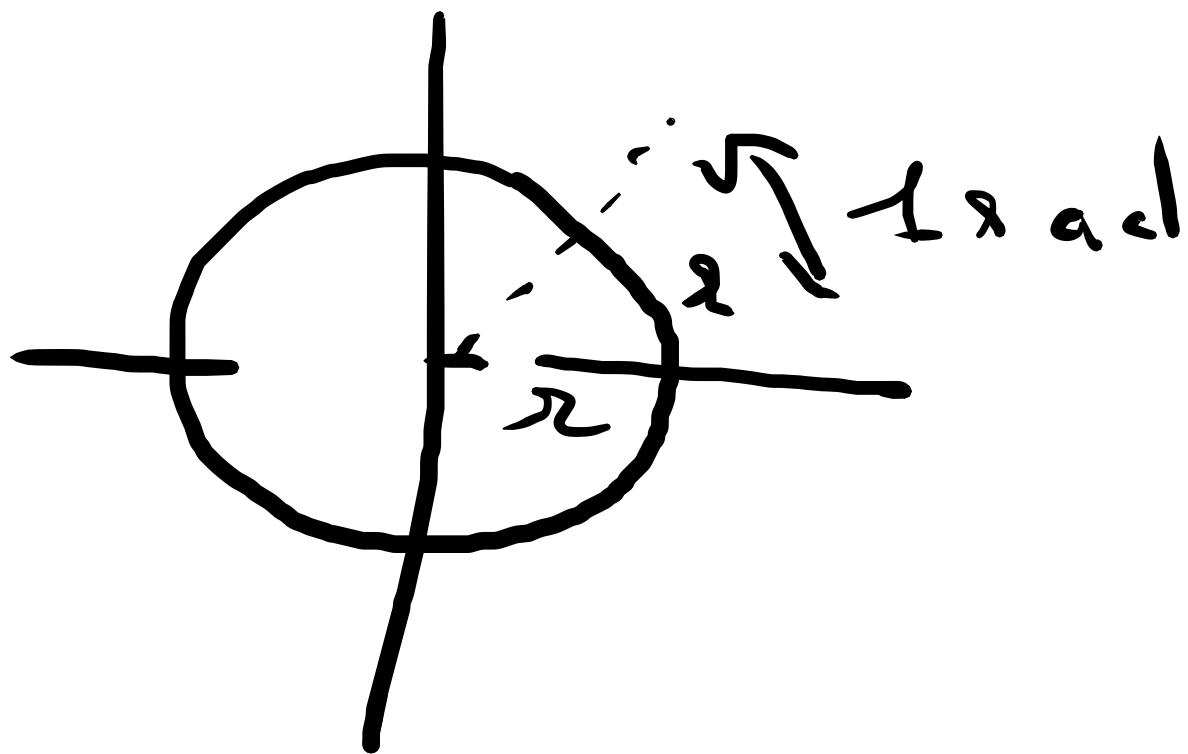


Distance parcourue	0,585	0,76	0,47 m	Distance totale :
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12 m
0,187



ω_{14}



$$v = \omega \cdot r$$

$$r = 0,1 \text{ m}$$

$$v = 0,117 \text{ ms}^{-1}$$

$$\omega = \frac{v}{r} = 1,17 \text{ rad s}^{-1}$$

$$\omega_m = 258 \times 1,17 = 301 \text{ rad s}^{-1}$$

$$n_m = \frac{301 \times 60}{2\pi} = 2882 \text{ turn}^{-1}$$

Q16 $P_{\text{beil}} = P_H \times \eta_{\text{red}} \times \eta_{\text{beil}}$

$$P_H = \frac{P_{\text{beil}}}{\eta_{\text{red}} \times \eta_{\text{beil}}} = \frac{36}{0,88 \times 0,8} = 5,1 \text{ kW}$$

C_H $P_H = C_H \times I_H \Rightarrow C_H = \frac{P_H}{I_H} = \frac{5,1 \text{ kW}^3}{301} = 18,3 \text{ Nm}$

	kW	kW	Nm	rpm	%	-	A	-	-	-	-	kgm ²	kg
Synchronous speed 3000 rpm – 2-pole version													
KPER 63 K2	0.18	0.18	0.62	2765	68	0.79	0.51	4.1	1.7	1.7	2.0	0.00013	4.9
KPER 63 G2	0.25	0.25	0.86	2775	67	0.79	0.72	4.2	2.0	2.0	2.2	0.00015	5.2
KPER 71 K2	0.37	0.37	1.29	2745	71.5	0.85	0.93	4.2	1.9	1.9	2.1	0.00025	6.7
KPER 71 G2	0.55	0.55	1.77	2730	73.5	0.86	1.33	5.0	1.9	1.9	2.3	0.00032	7.6
KPER 80 K2	0.75	0.75	2.56	2795	77.5	0.85	1.74	5.6	2.2	2.2	2.3	0.00057	10.7
KPER 80 G2	1.1	1.1	3.74	2810	77	0.84	2.59	5.6	2.2	2.1	2.4	0.00072	11.5
KPER 90 S2	1.5	1.5	5.06	2810	80	0.88	3.25	6.7	2.3	2.3	2.6	0.00132	16
KPER 90 L2	2.2	2.2	7.42	2830	82	0.88	4.65	7.0	2.6	2.1	2.6	0.0017	19
KPER 100 L2	3	3	10.1	2840	82.5	0.87	6.35	6.4	2.2	2.1	2.5	0.00275	25
KPER 112 M2	4	4	13.2	2885	85.5	0.85	8.5	6.7	2.0	1.9	2.6	0.0045	32
KPER 112 MX2	5.5	5.5	18.3	2875	85.5	0.87	11.2	7.0	2.2	2.0	2.7	0.0055	38
K11R 132 S2	5.5	5.5	18.4	2860	85.7	0.86	11.5	5.5	1.8	1.6	2.2	0.0081	52
K11R 132 SX2	7.5	-	24.7	2900	87	0.86	15	6.6	1.8	1.3	2.5	0.011	57
K11R 132 SX2	-	7.1	23.3	2905	87	0.86	14.5	6.8	1.9	1.4	2.6	0.011	57
K11R 160 M2	11	11	36.2	2900	88.5	0.90	21	7.0	2.4	2.0	2.4	0.0258	81
K11R 160 MX2	15	15	48.9	2930	89.4	0.90	28.5	7.1	2.2	1.7	2.9	0.0575	118
K11R 160 L2	18.5	18.5	60.5	2920	90.5	0.92	34	7.2	2.1	1.6	2.6	0.0675	134
K11R 180 M2	22	22	71.6	2935	91.8	0.92	39.5	6.8	1.7	1.4	2.6	0.105	165

Synchronous speed 1500 rpm – 4-pole version

KPER 63 K4	0.12	0.12	0.8	1360	57.5	0.70	0.45	3.1	1.7	1.6	2.0	0.00019	4.8
KPER 63 G4	0.18	0.18	1.2	1340	63	0.70	0.62	3.2	1.8	1.8	2.1	0.00024	5.2
KPER 71 K4	0.25	0.25	1.7	1370	64.5	0.76	0.77	3.5	1.8	1.6	1.9	0.0004	6.8
KPER 71 G4	0.37	0.37	2.6	1345	68	0.78	1.06	3.6	1.8	1.8	2.0	0.0005	7.8
KPER 80 K4	0.55	0.55	3.8	1390	70.5	0.74	1.6	4.2	2.0	1.9	2.1	0.00087	10.6
KPER 80 G4	0.75	0.75	5.2	1380	71.5	0.74	2.15	4.4	2.1	2.0	2.2	0.00107	11.7
KPER 90 S4	1.1	1.1	7.5	1400	75.5	0.83	2.65	5.0	2.1	2.0	2.2	0.00207	15.5
KPER 90 L4	1.5	1.5	10.3	1390	77.5	0.84	3.5	5.2	2.3	2.2	2.4	0.0026	18
KPER 100 L4	2.2	2.2	14.9	1395	82	0.81	5.05	5.6	2.2	2.0	2.3	0.004	23.5
KPER 100 LX4	3	3	20.1	1420	82	0.82	6.75	6.1	2.3	2.0	2.6	0.00725	30
KPER 112 M4	4	4	26.8	1425	83	0.81	9	6.7	2.4	2.3	2.8	0.009	37
K11R 132 S4	5.5	5.5	36.5	1440	85.7	0.89	11	6.5	1.9	1.7	3.0	0.015	50
K11R 132 M4	7.5	7.5	49.4	1450	87	0.84	15.5	6.0	2.0	1.7	2.9	0.028	70
K11R 160 M4	11	11	72.4	1450	88.4	0.85	22	6.8	2.2	1.9	3.3	0.055	92
K11R 160 L4	15	15	97.8	1465	89.4	0.86	29.5	7.3	2.5	2.0	3.0	0.078	120
K11R 180 M4	18.5	-	121	1460	90	0.86	36.5	6.8	2.5	2.0	2.9	0.09	136