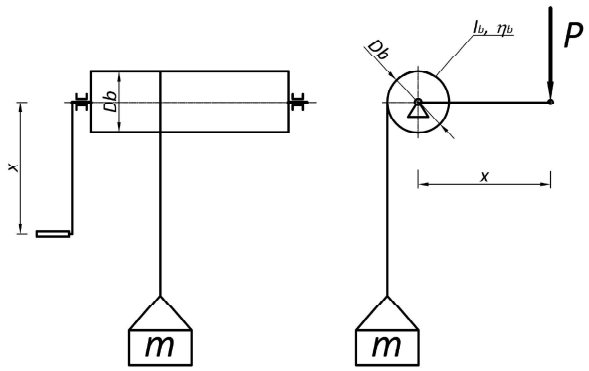
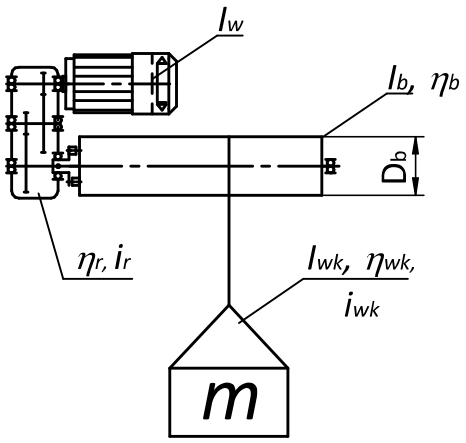
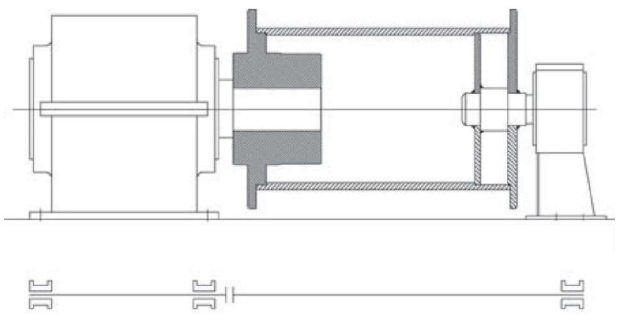
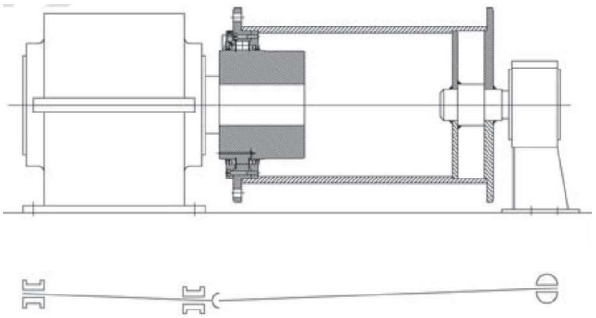


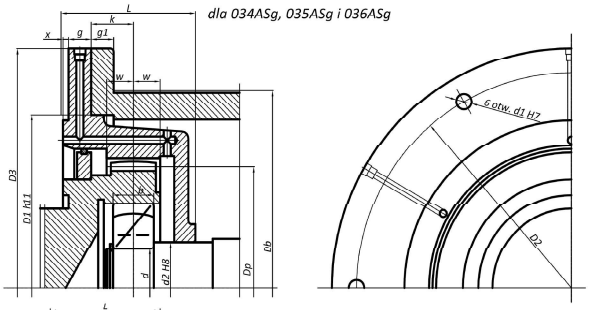
Dane:
m_Q =50 kg
D_b = 0,2 m
I_b = 0,85 kgm^2



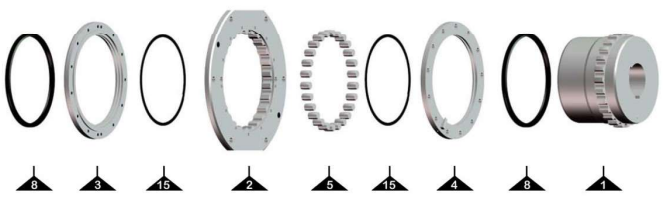
Zakładamy
v_p = 0,48 m/s

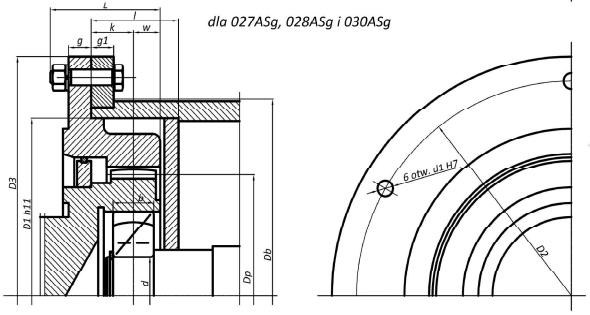






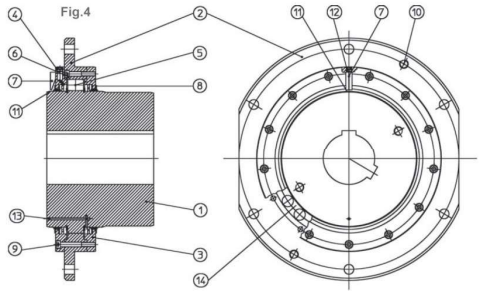
Sprzęgła przybębnowe

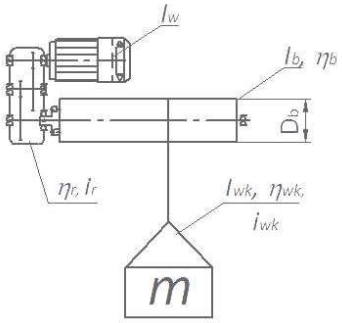




COMPONENT LIST

1	Hub
2	Sleeve flange
3	Internal cover
4	External cover
5	Barrel
6	Fixing screw
7	Pointer
8	Double-lip seal
9	Fixing screw
10	Removal threading
11	Wear notches
12	Lubricant supply
13	Overflow hole
14	Assembly marking
15	Retaining ring





Zapotrzebowanie mocy w ruchu ustalonym:

$$N_u = \frac{m_Q \cdot g \cdot v_p}{\eta_c}$$

Sprawność całkowita

$$\eta_c = \eta_b \cdot \eta_r$$

Wymagana moc znamionowa silnika

$$N_{zn} \geq 1{,}1 \cdot N_u \cdot \sqrt{\frac{\varepsilon_{rz}}{\varepsilon_{zn}}}$$

P_{N1} [kW]	n_2 [1/min]	M_a [Nm]	i	F_{Ra} [N]	SEW f_B					m [kg]	
0.37	10	340	131.87*	6590	1.20	K	47	DT	71D4	25	368
	11	310	121.48*	6960	1.30	KF	47	DT	71D4	28	369
	13	265	104.37	7330	1.50	KA	47	DT	71D4	24	370
						KAF	47	DT	71D4	27	369
	15	235	90.86	7580	1.70	K	47	DT	71D4	25	368
	16	220	85.12*	7670	1.85	KF	47	DT	71D4	28	369
	18	193	75.20*	7810	2.1	KA	47	DT	71D4	24	370
	20	179	69.84	7880	2.2	KAF	47	DT	71D4	27	369
	22	162	63.30*	7960	2.5						
	14	250	97.81	2520	0.80						
	16	215	83.69	5470	0.95						
	19	186	72.54	5690	1.10						
	20	174	67.80	5630	1.15						
	24	150	58.60	5510	1.35						
	28	128	49.79	5350	1.55						
	31	114	44.46	5230	1.75						
	36	97	37.97	5060	2.1						
	39	91	35.57	4990	2.2						
	46	77	29.96	4800	2.6						
	48	74	28.83	4750	2.7	K	37	DT	71D4	18	363
	55	64	24.99	4590	3.1	KF	37	DT	71D4	20	364
	59	60	23.36	4510	3.3	KA	37	DT	71D4	17	365
	68	52	20.19	4350	3.8	KAF	37	DT	71D4	19	364
	80	44	17.15	4160	4.1						
	90	39	15.31	4040	4.5						
	105	34	13.08	3860	4.9						
	114	31	12.14	3780	5.1						
	132	27	10.49	3630	6.0						
	159	23	8.91	3460	7.0						
	173	20	7.96	3350	7.6						
	203	17	6.80	3190	8.6						
	217	16	6.37	3130	8.9						
	257	14	5.36	2970	10						
0.55	0.08	55000	16978	190000	0.90						
	0.10	46200	14272	190000	1.10	K	187 R97	DT	80K4	1760	417
	0.10	42000	13116	190000	1.20	KH	187 R97	DT	80K4	1700	417
	0.12	36700	11647	190000	1.35						
	0.19	23800	7343	190000	2.1						
	0.12	37500	11573	150000	0.85						
	0.13	33300	10264	150000	0.95						
	0.16	27900	8628	150000	1.15	K	167 R97	DT	80K4	1180	417
	0.21	21200	6562	150000	1.50	KH	167 R97	DT	80K4	1140	417
	0.25	16900	5355	150000	1.90						
	0.33	13100	4079	150000	2.5						
	0.20	22300	6881	109700	0.80	K	157 R97	DT	80K4	790	417
	0.23	19200	5931	111600	0.95	KF	157 R97	DT	80K4	870	417
	0.34	12900	3979	114400	1.40	KA	157 R97	DT	80K4	750	417
	0.45	9880	3051	115300	1.80	KAF	157 R97	DT	80K4	810	417
	0.31	14900	4423	76100	0.85	K	127 R77	DT	80K4	475	417
	0.35	13100	3889	79100	1.00	KF	127 R77	DT	80K4	520	417
	0.41	11100	3311	80200	1.20	KA	127 R77	DT	80K4	445	417
	0.45	10000	3009	80700	1.30	KAF	127 R77	DT	80K4	480	417
	0.52	8590	2607	81200	1.50						
	0.71	6620	1926	81900	1.95						
	0.77	6040	1757	82100	2.2	K	127 R77	DT	80K4	470	417
	0.88	5270	1541	82200	2.5	KF	127 R77	DT	80K4	510	417
	1.0	4610	1342	82400	2.8	KA	127 R77	DT	80K4	445	417
	1.2	4020	1177	82500	3.2	KAF	127 R77	DT	80K4	480	417
	1.3	3520	1025	82600	3.7						
	0.46	10100	2977	65000	0.80	K	107 R77	DT	80K4	315	417
	0.52	8830	2599	65000	0.90	KF	107 R77	DT	80K4	325	417
	0.59	7720	2286	65000	1.05	KA	107 R77	DT	80K4	285	417
	0.70	6540	1939	65000	1.20	KAF	107 R77	DT	80K4	310	417

P_m [kW]	n_a [1/min]	M_a [Nm]	i	F_{Ra} [1)] [N]	SEW f_B					m [kg]	
0.37	10	340	131.87*	6690	1.20	K	47	DT	71D4	25	368
	11	310	121.48*	6960	1.30	KF	47	DT	71D4	28	369
	13	265	104.37	7330	1.50	KA	47	DT	71D4	24	370
						KAF	47	DT	71D4	27	369
	15	235	90.86	7580	1.70	K	47	DT	71D4	25	368
	16	220	85.12*	7670	1.85	KF	47	DT	71D4	28	369
	18	193	75.20*	7810	2.1	KA	47	DT	71D4	24	370
	20	179	69.84	7880	2.2	KAF	47	DT	71D4	27	369
	22	162	63.30*	7960	2.5						
	14	250	97.81	2520	0.80						
	16	215	83.69	5470	0.95						
	19	186	72.54	5690	1.10						
	20	174	67.80	5630	1.15						
	24	150	58.60	5510	1.35						
	28	128	49.79	5350	1.55						
	31	114	44.46	5230	1.75						
	36	97	37.97	5060	2.1						
	39	91	35.57	4990	2.2						
	46	77	29.96	4800	2.6						
	48	74	28.83	4750	2.7	K	37	DT	71D4	18	363
	55	64	24.99	4590	3.1	KF	37	DT	71D4	20	364
	59	60	23.36	4510	3.3	KA	37	DT	71D4	17	365
	68	52	20.19	4350	3.6	KAF	37	DT	71D4	19	364
	80	44	17.15	4160	4.1						
	90	39	15.31	4040	4.5						
	105	34	13.08	3860	4.9						
	114	31	12.14	3780	5.1						
	132	27	10.49	3630	6.0						
	155	23	8.91	3460	7.0						
	173	20	7.96	3350	7.6						
	203	17	6.80	3190	8.6						
	217	16	6.37	3130	8.9						
	257	14	5.36	2970	10						

Motoreduktor K37DT71D4

opis katalogowy

K37DT71D4

Dane produktowe

Prędkość znamionowa silnika	[1/min]	: 1380
Wyjściowa prędkość obrotowa	[1/min]	: 46
Przełożenie całkowite		: 29,96
Wyjściowy moment	[Nm]	: 77
Współczynnik pracy SEW-Fb		: 2,60
Pozycja pracy		: M1A
powłoka gruntowa / kryjąca		: 7031 Blue Grey (20070310)
Pozycja wtyczki / skrzynki zaciskowej	[°]	: 0
Wejście przewodów/ pozycja złączy.		: X
Wał wyjściowy	[mm]	: 25x50
Dopuszczalna siła poprzeczna na wyjściu przy n=1400	[N]	: 4800
Ilość środka smarnego pierwszej przekładni	[Litr]	: 0,55
Moc silnika	[kW]	: 0,37
Współczynnik obciążenia		: S1-100%
Sprawność (50/75/100% Pn)	[%]	: 61,5 / 65,6 / 65,5
Znak CE		: Nie
Napięcie silnika	[V]	: 230/400
Schemat połączeń		: DT13
Częstotliwość	[Hz]	: 50
Prąd znamionowy	[A]	: 1,99 / 1,15
Cos Phi		: 0,76
Klasa termiczna		: B
Typ zabezpieczenia silnika		: IP54
Waga netto	[Kg]	: 19

Wyposażenie dodatkowe

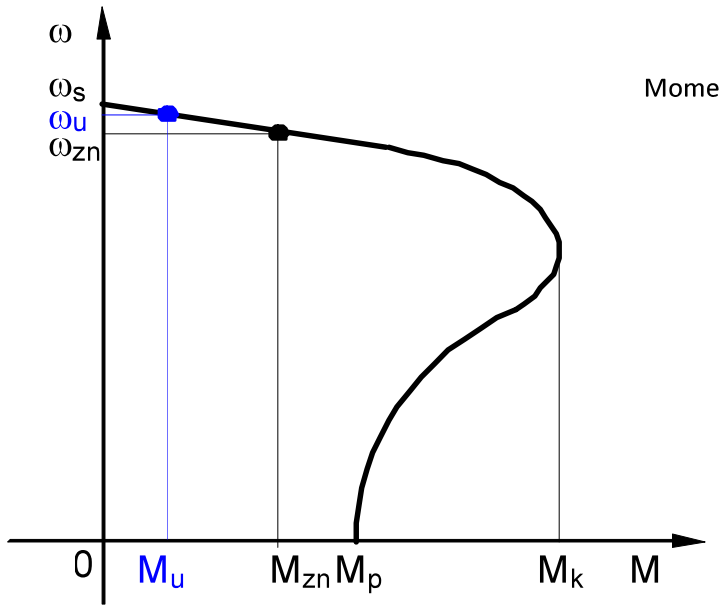
Wał wyjściowy: 25x50 mm

Silnik DT71D4

1500 1/min - S1

Motor type	P_N M_N [kW] [Nm]	n_N [rpm]	I_N 380 -415 V (400 V) [A]	cosφ	EFF 2	$\eta_{75\%}$ $\eta_{100\%}$ [%]	I_A/I_N	M_A/M_N M_H/M_N	J_{Mot} 2) 3) [10^{-4} kgm^2]		Z_0 BG[4] BGE[5] [1/h]	M_{Bmax} [Nm]	$m^{1)}$ 2) 3) [kg]	
DT56M4	0.09 0.66	1300	0.31 (0.29)	0.68	-	-	2.6	2.1 1.8	1.1	1.2	10000 -	0.8	6)	
DT56L4	0.12 0.88	1300	0.46 (0.42)	0.68	-	-	2.6	2.2 1.9	1.1	1.2	10000 -	1.2		
DR63S4	0.12 0.83	1380	0.39 (0.39)	0.69	-	-	3.3	2.4 2.2	3.6	4.8	10000 -	2.4	6.1	7.6
DR63M4	0.18 1.3	1320	0.55 (0.55)	0.78	-	-	2.9	1.8 1.7	3.6	4.8	10000 -	3.2	6.1	7.6
DR63L4	0.25 1.8	1300	0.73 (0.68)	0.81	-	-	2.8	1.8 1.7	4.4	5.6	10000 -	3.2	6.7	8.2
DT71D4	0.37 2.6	1380	1.24 (1.15)	0.76	-	-	3.0	1.8 1.7	4.6	5.5	6000 9500	5	7.0	9.9

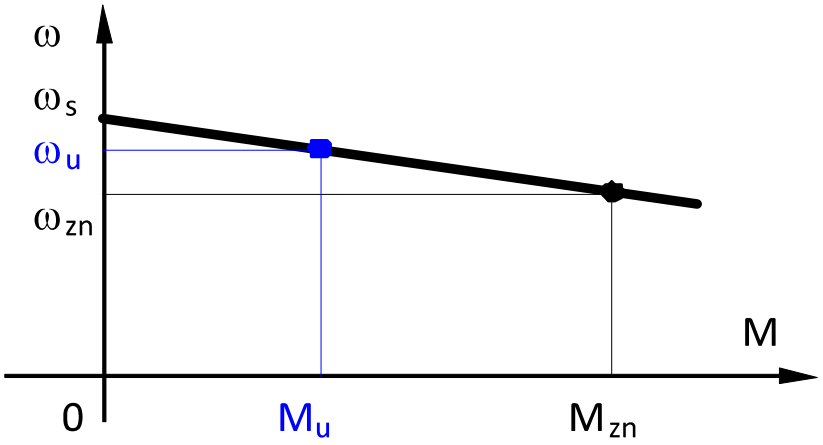
Charakterystyka mechaniczna silnika asynchronicznego klatkowego



Moment oporów w ruchu ustalonym

$$M_u = \frac{m_Q \cdot g \cdot D_b}{2 \cdot i_r \cdot \eta_c}$$

wyznaczanie prędkości w ruchu ustalonym przy podnoszeniu

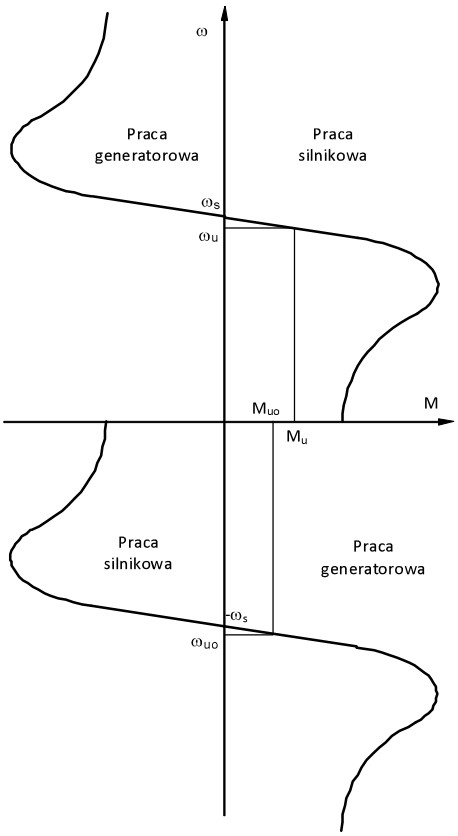


$$\frac{\omega_s - \omega_u}{M_u} = \frac{\omega_s - \omega_n}{M_n} \Rightarrow \omega_u = \omega_s - \frac{M_u}{M_n} \cdot (\omega_s - \omega_n)$$

$$v_p = \omega_u \cdot \frac{D_b}{2 \cdot i_r}$$

$$R_z = \frac{D_b}{2 \cdot i_r}$$ promień zastępczy

wyznaczanie prędkości w ruchu ustalonym przy opuszczaniu

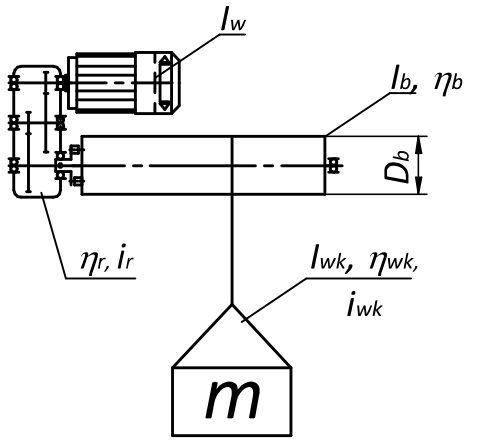


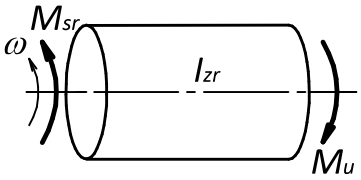
Moment oporów w ruchu ustalonym

$$M_{uo} = \frac{m_Q \cdot g \cdot D_b}{2 \cdot i_r} \cdot \eta_c$$

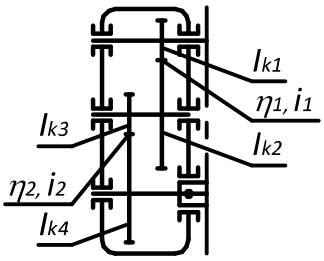
$$\omega_{uo} = \omega_s - \frac{M_{uo}}{M_n} \cdot (\omega_s - \omega_n)$$

Redukcja do układu jednomasowego



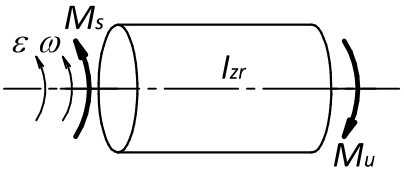


$$E_{k\_zr} = \frac{1}{2} \cdot I_{zr} \cdot \omega^2$$



$$E_{k\_zr} = \sum \frac{1}{2} \cdot I_i \cdot \omega_i^{\,2} + \sum \frac{1}{2} \cdot m_i \cdot v_i^{\,2}$$

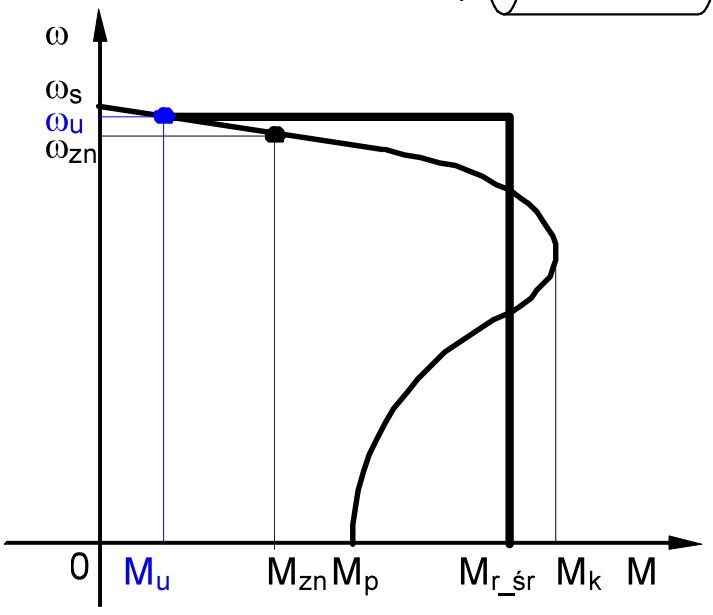
Charakterystyka mechaniczna – dynamika rozruchu



$$I_{zr} \cdot \frac{d\omega_s}{dt} = M_s - M_u$$

$$\frac{d\omega_s}{dt} = \frac{M_s - M_u}{I_{zr}}$$

$$M_s = M_{r\_śr} = 0{,}9 \cdot M_k$$



$$t_r = \frac{I_{zr} \cdot \omega_u}{M_{r\_śr} - M_u}$$