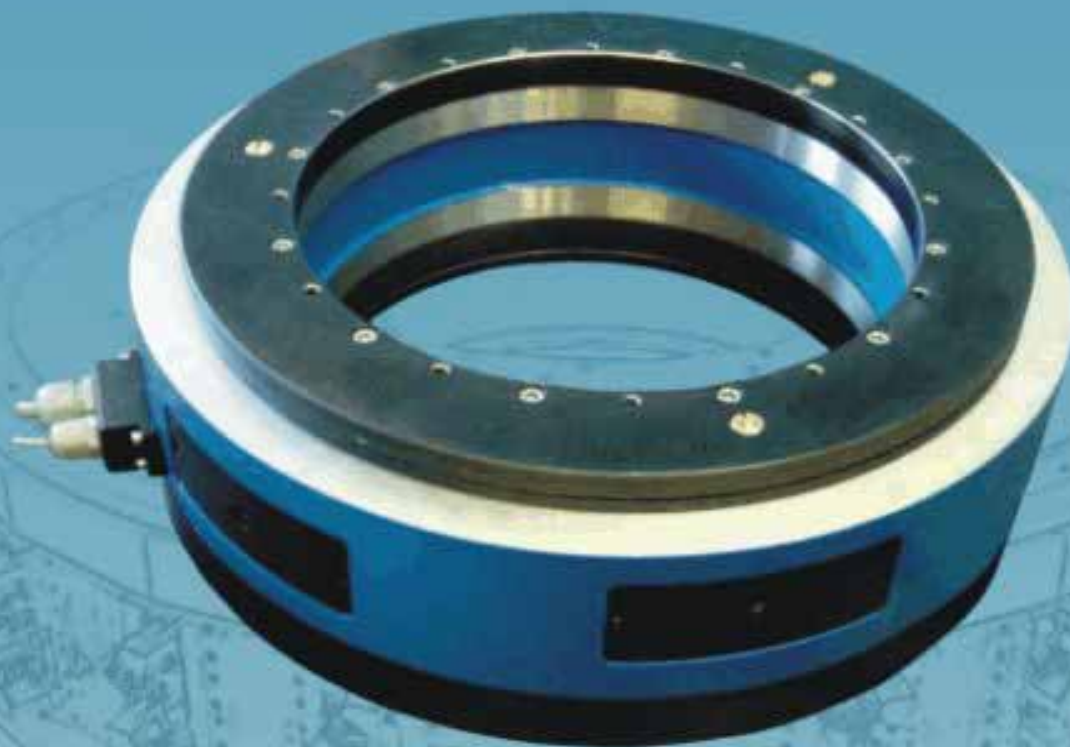


TORQUE MOTORS
series RSM-36

RUCH
SERVOMOTOR



Synchronous motor RSM-T36-321-25

Rotary AC-synchronous motors Series RM-36. Catalogue

Rotor

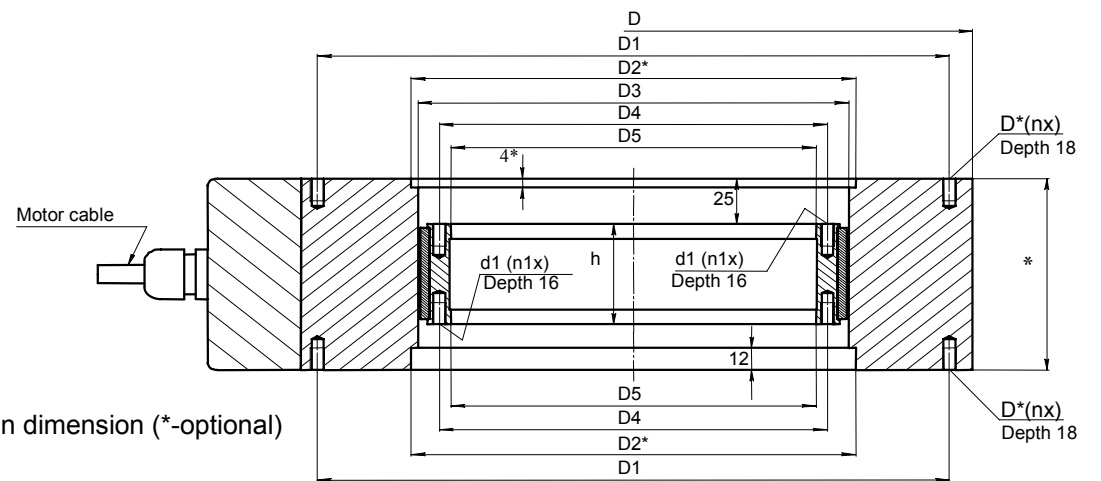


Stator



Minsk
rev. Nov. 2008

Common characteristics torque motors of RM-36 series



Synchronous motor overall and join dimension (*-optional)

	Continuous moment at convection cooling M_A , Nm	Continuous moment at water cooling M_W , Nm	Peak moment M_p , Nm	Max. velocity at M_A and 540 V DC (coil at 20C) [S/T]	Number of poles par P	D, mm	D1, mm	D2, mm	D3, mm	D4, mm	D5, mm	H, mm	h, mm	d1	d	n	n1
RM- P- 36- 183*25- FS/FT	40	78	93	619/1072	16	290	270	190	184.25	162	150H7	80	30	M6	M6	12	8
RM- P- 36- 183*50- FS/FT	80	156	187	305/540								105	55				
RM- P- 36- 183*75- BS/BT	115	225	280	446/777								130	80				
RM- P- 36- 183*100- BS/BT	154	300	373	332/583								155	105				
RM- P- 36- 183*150- BS/BT	230	449	560	217/387								205	155				
RM- P- 36- 275*25- FS/FT	90	175	210	271/477	24	382	360	280H7	275.92	253	240H7	80	30	M6	M6	18	9
RM- P- 36- 275*50- BS/BT	173	337	420	296/517								105	55				
RM- P- 36- 275*75- BS/BT	259	442	551	215/377								130	80				
RM- P- 36- 275*100- BS/BT	345	674	839	144/257								155	105				
RM- P- 36- 275*150- AS/AT	518	1011	1259	145/258								205	155				
RM- P- 36- 366*25- FS/FT	154	300	373	331/574	32	475	450	370H7	367.59	343	330H7	80	30	M6	M6	24	12
RM- P- 36- 366*50- BS/BT	307	599	746	164/290								105	55				
RM- P- 36- 366*75- BS/BT	461	899	1119	107/192								130	80				
RM- P- 36- 366*100- BS/BT	614	1199	1492	78/142								155	105				
RM- P- 36- 366*150- AS/AT	921	1798	2239	79/143								205	155				
RM- P- 36- 458*25- BS/BT	240	468	583	211/368	40	565	542	465H7	459.27	434	420H7	80	30	M6	M8	15	
RM- P- 36- 458*50- BS/BT	480	936	1166	103/184								105	55				
RM- P- 36- 458*75- BS/BT	720	1405	1749	67/121								130	80				
RM- P- 36- 458*100- AS/AT	959	1873	2332	77/138								155	105				
RM- P- 36- 458*150- AS/AT	1439	2809	3498	49/90								205	155				
RM- P- 36- 550*25- BS/BT	345	674	839	145/255	48	657	635	555H7	550.94	525	510H7	80	30	M6		18	
RM- P- 36- 550*50- BS/BT	691	1348	1679	70/127								105	55				
RM- P- 36- 550*75- AS/AT	1036	2023	2518	71/128								130	80				
RM- P- 36- 550*100- AS/AT	1382	2697	3358	52/95								155	105				
RM- P- 36- 550*150- AS/AT	2072	4045	5037	33/61								205	155				

	Continuous moment at convection cooling M_A , Nm	Continuous moment at water cooling M_W , Nm	Peak moment M_p , Nm	Max. velocity at M_A and 600V DC (coil at 20C) [S/T]	Number of poles par P	D, mm	D1, mm	D2, mm	D3, mm	D4, mm	D5, mm	H, mm	h, mm	d1	d	n	n1
RM- P- 36- 641*25- BS/BT	470	918	1143	106/187	56	750	726	645H7	642.61	616	600H7	80	30	M6		21	18
RM- P- 36- 641*50- BS/BT	940	1835	2285	51/92								105	55				
RM- P- 36- 641*75- AS/AT	1410	2753	3428	51/93								130	80				
RM- P- 36- 641*100- AS/AT	1880	3671	4571	37/69								155	105				
RM- P- 36- 641*150- AS/AT	2821	5506	6856	23/44								205	155				

Torque motors RM - P - 36 – 183 - ...

Notes:

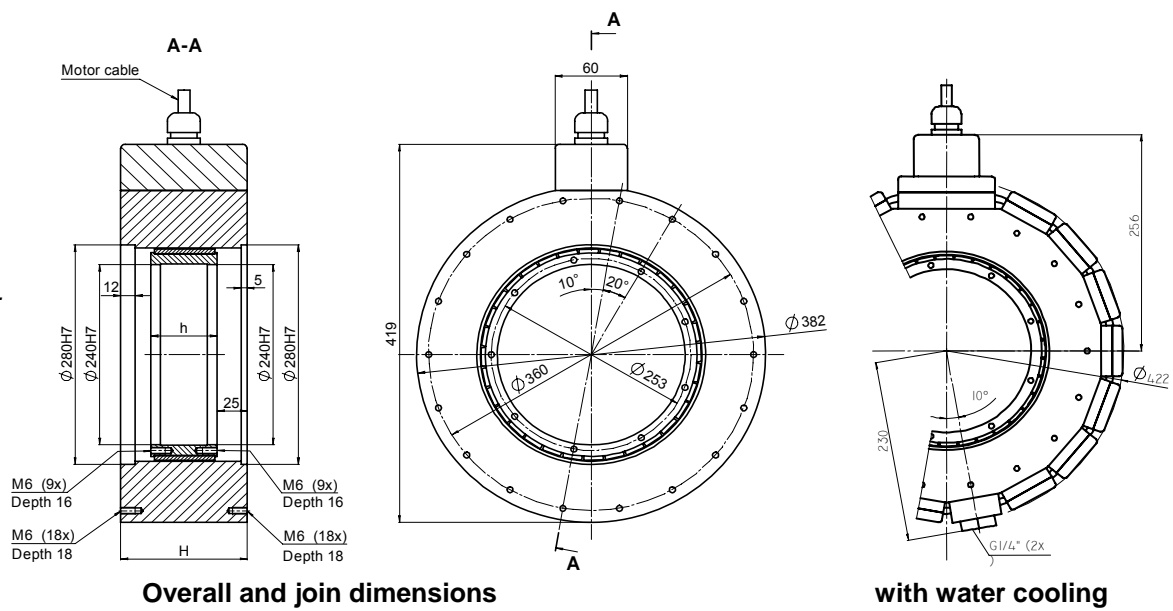
1. Motor has peak torque at peak current I_p (2...3 sec)
2. Max temperature of rotor 70°C.
3. The stator has build-in threshold sensor for temperature 120°C.
4. Max. input pressure of liquid fluid - 1,1 bar
5. All data are subject to change without notice
6. All data tolerance $\pm 10\%$.
7. *-optional

Parameter			RM-P-36-183*25		RM-P-36-183*50		RM-P-36-183*75		RM-P-36-183*100		RM-P-36-183*150	
			FS	FT	FS	FT	BS	BT	BS	BT	BS	BT
Peak torque (coil at 20°C)	Mp	Nm	93		187		280		373		560	
Continuous torque (coil at 120°C), water cooling	Mw	Nm	78		156		225		300		449	
Continuous stall torque (coil at 120°C), water cooling	Ms	Nm	61		122		176		234		351	
Continuous torque (coil at 120°C), air cooling	Ma	Nm	40		80		115		154		230	
Detent torque	Md	Nm	0.4		0.7		1.1		1.5		2.2	
Rotor inertia	Jr	kgm ²	0.01		0.02		0.04		0.05		0.07	
Number of poles pairs	P		16		16		16		16		16	
Stator height	H	mm	80		105		130		155		255	
Motor mass ¹	m	kg										
Peak power dissipation (coil at 20°C)**	Pp	W	1388	1443	2085	2128	2976	3062	3714	3796	5196	5274
Continuous power dissipation (coil at 120°C), water cooling**	Pw	W	929	981	1381	1421	1827	1905	2269	2343	3180	3230
Continuous power dissipation (coil at 120°C), air cooling**	Pa	W	254	289	356	382	484	537	589	638	801	847
Coolant flow for temperature difference 5°C by power Pw**	Cf	L/min	2.7	2.8	4.0	4.1	5.2	5.5	6.5	6.7	9.0	9.2
Recommended supply voltage DC	Us	V	540	540	540	540	540	540	540	540	540	540
Maximum velocity at Mp and Us (Coil at 20°C)	Np	rpm	402.1	713.0	192	352	285	508	209	378	132	247
Maximum velocity at Mw and Us (Coil at 20°C)	Nw	rpm	459	804	222	402	335	592	247	442	158	290
Maximum velocity at Ma and Us (Coil at 20°C)	Na	rpm	618	1072	305	540	446	772	332	583	217	386
Peak current at Mp and N=0	Ip	Arms	14	24	14	24	29	51	29	51	29	51
Continuous current at 120°C, water cooling at Mw and N=0	Iw	Arms	11.3	19.6	11.3	19.6	23.0	39.9	23.0	39.9	23.0	39.9
Continuous current at 120°C, air cooling at Ma and N=0	Ia	Arms	5.6	9.6	5.6	9.6	11.3	19.6	11.3	19.6	11.3	19.6
Motor constant (coil at 20°C)	Ko	Nm/√W	3.2		5.1		6.5		7.7		9.7	
Back EMF constant (*) (peak phase-phase)	Ku	V/(rad/s)	5.9	3.4	11.7	6.8	8.3	4.8	11.1	6.4	16.6	9.6
Electrical resistance at 20°C (*)	R	Ohm	3.42	1.14	5.28	1.76	1.65	0.55	2.08	0.69	2.94	0.98
Electrical inductance (*)	L	mH	29.8	9.9	59.6	19.9	19.8	6.6	26.4	8.8	39.6	13.2

Torque motors RM - P - 36 – 275 - ...

Notes:

8. Motor has peak torque at peak current I_p (2...3 sec)
9. Max temperature of rotor 70°C .
10. The stator has build-in threshold sensor for temperature 120°C .
11. Max. input pressure of liquid fluid - 1,1 bar
12. All data are subject to change without notice
13. All data tolerance $\pm 10\%$.
14. *-optional



Overall and joint dimensions

with water cooling

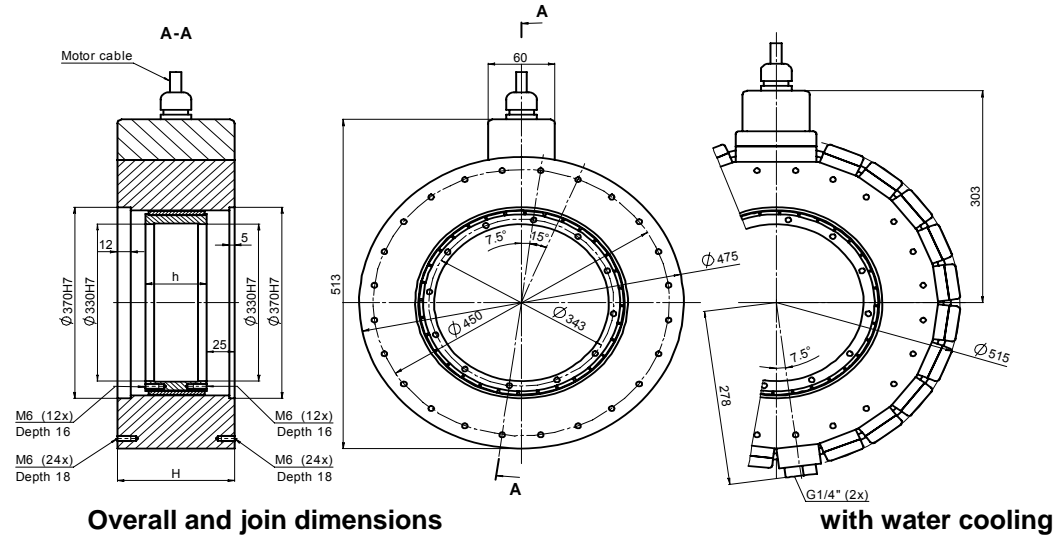
Parameter	Unit	RM-P-36-275*25		RM-P-36-275*50		RM-P-36-275*75		RM-P-36-275*100		RM-P-36-275*150										
		FS	FT	BS / BT	BS	BT	BS	BT	AS	AT										
Peak torque (coil at 20°C)	Mp	Nm	210	420	551	839	1259													
Continuous torque (coil at 120°C), water cooling	Mw	Nm	175	337	442	674	1011													
Continuous stall torque (coil at 120°C), water cooling	Ms	Nm	137	263	346	527	790													
Continuous torque (coil at 120°C), air cooling	Ma	Nm	90	173	259	345	518													
Detent torque	Md	Nm	2.0	4.0	5.9	7.9	11.9													
Rotor inertia	Jr	kgm ²	0.05	0.09	0.14	0.19	0.28													
Number of poles pairs	P		24	24	24	24	24													
Stator height	H	mm	80	105	130	155	205													
Motor mass ¹	m	kg	45.4	63.3	81.3	99.25	135.2													
Peak power dissipation (coil at 20°C)**	Pp	W	2043	2099	3300/3390	4425	4528	5514	5597	7795	7911									
Continuous power dissipation (coil at 120°C), water cooling**	Pw	W	1358	1410	2025/2112	2707	2802	3353	3427	4740	4844									
Continuous power dissipation (coil at 120°C), air cooling**	Pa	W	357	392	537/595	709	774	850	890	1201	1270									
Coolant flow for temperature difference 5°C by power Pw**	Cf	L/min	3.9	4.0	5.8/6.0	7.8	8.0	9.6	9.8	13.6	13.9									
Recommended supply voltage DC	Us	V	540	540	540	540	540	540	540	540	540									
3 phases winding combination			FS	FT	BS	BT	BS	BT	BS	BT	AS	AT	BS	BT	AS	AT	BS	BT	AS	AT
Maximum velocity at Mp and Us (Coil at 20°C)	Np	rpm	171	405	498	600	246	435	161	289	248	437	117	214	184	327	73	139	118	215
Maximum velocity at Mw and Us (Coil at 20°C)	Nw	rpm	259	461	578	600	288	506	189	337	290	507	139	251	215	381	88	163	140	252
Maximum velocity at Ma and Us (Coil at 20°C)	Na	rpm	271	600	600	600	382	600	253	443	383	600	188	332	287	499	122	219	189	333
Peak current at Mp and N=0	Ip	Arms	14.0	24.2	29.7	51.4	29.7	51.4	29.7	51.4	44.5	77.1	29.7	51.4	44.5	77.1	29.7	51.4	44.5	77.1
Continuous current at 120°C, water cooling at Mw and N=0	Iw	Arms	11.3	19.6	23.0	39.9	23.0	39.9	23.0	39.9	34.6	59.9	23.0	39.9	34.6	59.9	23.0	39.3	34.6	59.9
Continuous current at 120°C, air cooling at Ma and N=0	Ia	Arms	5.6	9.6	11.3	19.6	11.3	19.6	11.3	19.6	17.0	29.4	11.3	19.6	17.0	29.4	11.3	19.6	17.0	29.4
Motor constant (coil at 20°C)	Ko	Nm/√W	5.8	5.7	9.2	11.9	14.1	17.8												
Back EMF constant (*) (peak phase-phase)	Ku	V/(rad/s)	13.2	7.6	6.2	3.6	12.4	7.2	18.7	10.8	12.4	7.2	24.9	14.4	16.6	9.6	37.3	21.6	24.9	14.4
Electrical resistance at 20°C (*)	R	Ohm	5.13	1.71	1.19	0.40	1.83	0.61	2.47	0.82	1.10	0.37	3.12	1.04	1.39	0.46	4.41	1.47	1.96	0.65
Electrical inductance (*)	L	mH	44.7	14.9	9.9	3.3	19.8	6.6	29.7	9.9	13.2	4.4	39.6	13.2	17.6	5.9	59.4	19.8	26.4	8.8

* terminal-terminal value ** for connection star ¹ Sum rotor and stator mass

Torque motors RM - P - 36 – 366 - ...

Notes:

1. Motor has peak torque at peak current I_P (2...3 sec)
2. Max temperature of rotor 70°C .
3. The stator has build-in threshold sensor for temperature 120°C .
4. Max. input pressure of liquid fluid - 1,1 bar
5. All data are subject to change without notice
6. All data tolerance $\pm 10\%$.



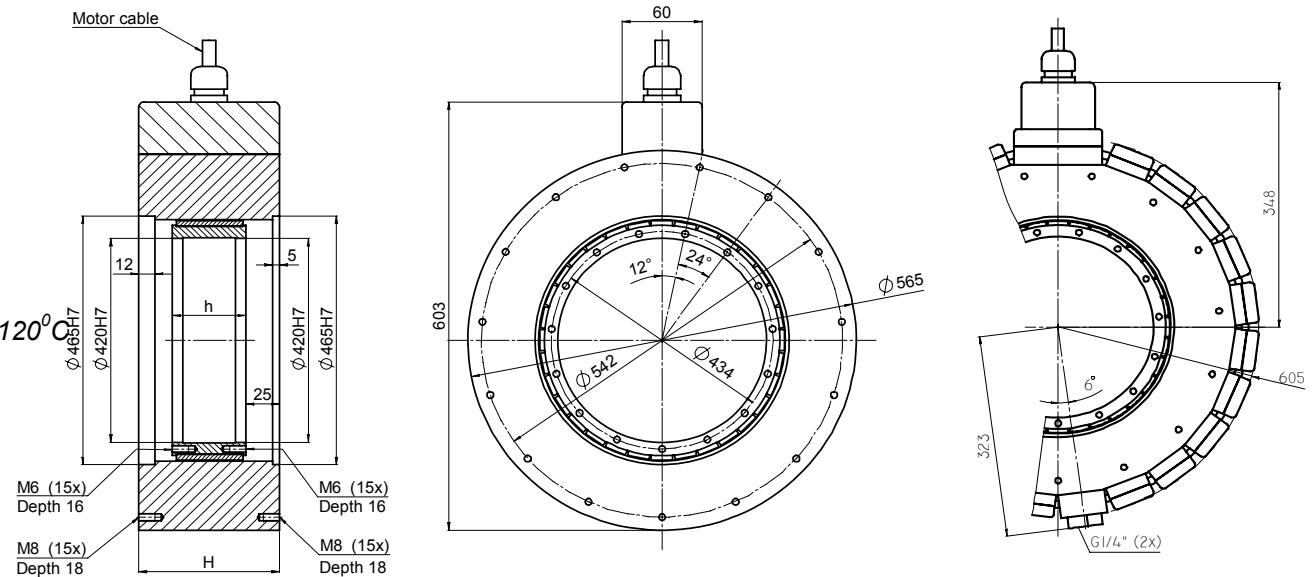
Parameter	Unit	RM-P-36-366*25	RM-P-36-366*50	RM-P-36-366*75	RM-P-36-366*100	RM-P-36-366*150					
Peak torque (coil at 20°C)	Mp Nm	373	746	1119	1492	2239					
Continuous torque (coil at 120°C), water cooling	Mw Nm	311	599	899	1199	1798					
Continuous stall torque (coil at 120°C), water cooling	Ms Nm	243	468	702	936	1405					
Continuous torque (coil at 120°C), air cooling	Ma Nm	160	307	461	614	921					
Detent torque	Md Nm	1.5	3.0	4.5	6.0	9.0					
Rotor inertia	Jr kgm ²	0.12	0.24	0.36	0.48	0.72					
Number of poles pairs	P	32	32	32	32	32					
Stator height	H mm	80	105	130	155	205					
Motor mass ¹	m kg	59.4	83.5	107.4	131.4	179.4					
Peak power dissipation (coil at 20°C)**	Pp W	3095	4393	5866	7347	10315					
Continuous power dissipation (coil at 120°C), water cooling**	Pw W	1622	2695	3576	4465	6250					
Continuous power dissipation (coil at 120°C), air cooling**	Pa W	434	712	918	1130	1557					
Coolant flow for temperature difference 5°C by power Pw**	Cf L/min	1.2	1.9	2.6	3.2	4.5					
Recommended supply voltage DC	Us V	600	600	600	600	600					
3 phases winding combination		FS	FT	BS	BT	BS	BT	BS	BT	BS	BT
Maximum velocity at Mp and Us (Coil at 20°C)	Np rpm	123	225	136	243	87	160	63	118	38	75
Maximum velocity at Mw and Us (Coil at 20°C)	Nw rpm	142	257	159	283	103	187	75	138	46	89
Maximum velocity at Ma and Us (Coil at 20°C)	Na rpm	195	344	213	373	140	248	104	185	67	121
Peak current at Mp and N=0	Ip Arms	14.0	24.2	29.7	51.4	29.7	51.4	29.7	51.4	29.7	51.4
Continuous current at 120°C, water cooling at Mw and N=0	Iw Arms	11.3	19.6	23.0	39.9	23.0	39.9	23.0	39.9	23.0	39.9
Continuous current at 120°C, air cooling at Ma and N=0	Ia Arms	5.6	9.6	11.3	19.6	11.3	19.6	11.3	19.6	11.3	19.6
Motor constant (coil at 20°C)	Ko Nm/√W	9.0		14.2		18.3		21.7		27.4	
Back EMF constant (*) (peak phase-phase)	Ku V/(rad/s)	23.5	13.6	22.1	12.8	33.2	19.2	44.2	25.5	66.4	38.3
Electrical resistance at 20°C (*)	R Ohm	6.84	2.28	2.44	0.81	3.30	1.10	4.16	1.39	5.88	1.96
Electrical inductance (*)	L mH	59.6	19.9	26.4	8.8	39.6	13.2	52.8	17.6	79.2	26.4

* terminal-terminal value ** for connection star ¹ Sum rotor and stator mass

Torque motors RM - P -36 - 458 - ...

Notes:

1. Motor has peak torque at peak current I_P (2...3 sec)
2. Max temperature of rotor 70°C .
3. The stator has build-in threshold sensor for temperature 120°C
4. Max. input pressure of liquid fluid - 1,1 bar
5. All data are subject to change without notice
6. All data tolerance $\pm 10\%$.



Overall and join dimensions

with water cooling

Parameter	Unit	RM-P-36-458*25		RM-P-36-458*50		RM-P-36-458*75		RM-P-36-458*100		RM-P-36-458*150			
		B	B	B	B	A	B						
Peak torque (coil at 20°C)	Mp Nm	583	1166	1749	2332	3498							
Continuous torque (coil at 120°C), water cooling	Mw Nm	468	936	1405	1873	2809							
Continuous stall torque (coil at 120°C), water cooling	Ms Nm	366	732	1097	1463	2195							
Continuous torque (coil at 120°C), air cooling	Ma Nm	240	480	720	959	1439							
Detent torque	Md Nm	2.3	4.7	7.0	9.3	14.0							
Rotor inertia	Jr kgm ²	0.25	0.50	0.75	1.00	1.51							
Number of poles pairs	P	40	40	40	40	40							
Stator height	H mm	80	105	130	155	205							
Motor mass ¹	m kg	72.1	101.8	131.4	161.1	220.5							
Peak power dissipation (coil at 20°C)**	Pp W	3636	5449	7294	9147	12859							
Continuous power dissipation (coil at 120°C), water cooling**	Pw W	2253	3330	4436	5549	7781							
Continuous power dissipation (coil at 120°C), air cooling**	Pa W	625	865	1125	1391	1927							
Coolant flow for temperature difference 5°C by power Pw**	Cf L/min	1.6	2.4	3.2	4.0	5.6							
Recommended supply voltage DC	Us V	600	600	600	600	600							
3 phases winding combination		BS	BT	BS	BT	BS	BT	BS	BT	AS	AT	BS	BT
Maximum velocity at Mp and Us (Coil at 20°C)	Np rpm	176	311	85	154	53	101	38	73	62	115	22	46
Maximum velocity at Mw and Us (Coil at 20°C)	Nw rpm	206	361	100	180	64	118	46	87	74	135	27	55
Maximum velocity at Ma and Us (Coil at 20°C)	Na rpm	273	471	135	238	88	158	65	117	101	179	41	76
Peak current at Mp and N=0	Ip Arms	29.7	51.4	29.7	51.4	29.7	51.4	29.7	51.4	44.5	77.1	29.7	51.4
Continuous current at 120°C, water cooling at Mw and N=0	Iw Arms	23.0	39.9	23.0	39.9	23.0	39.9	23.0	39.9	34.6	59.9	23.0	39.9
Continuous current at 120°C, air cooling at Ma and N=0	Ia Arms	11.3	19.6	11.3	19.6	11.3	19.6	11.3	19.6	17.0	29.4	11.3	19.6
Motor constant (coil at 20°C)	Ko Nm/√W	12.3	19.8	25.5	30.3	38.3							
Back EMF constant (*) (peak phase-phase)	Ku V/(rad/s)	17.3	10.0	34.6	20.0	51.8	29.9	69.1	39.9	46.1	26.6	103.7	59.9
Electrical resistance at 20°C (*)	R Ohm	1.98	0.66	3.05	1.02	4.12	1.37	5.20	1.73	2.31	0.77	7.35	2.45
Electrical inductance (*)	L mH	16.5	5.5	33.0	11.0	49.5	16.5	66.0	22.0	29.3	9.8	99.0	33.0

* terminal-terminal value ** for connection star ¹ Sum rotor and stator mass

