

# DC Motor Ø 31

# 1.13.021.XXX



1.13.021.XXX

Design	
Commutator	Copper/7-segments
RFI Protection	2 chokes (not 1.13.021.701)
Insulation class	Winding H, otherwise A
Protection class	IP40
Commutation	carbon brushes
Armature	straight slot
Magnet system	Permanent magnets, 2-pole
Bearings	2 sintered bronze bearings, drive end with ball bearing on model 1.13.021.605/606
Housing	Steel, corrosion protected
End shields	brush end plastic drive end zinc die-cast

Type 1.13.021.XXX			343	344	318	605	606	701
<b>Characteristics*</b>								
Rated voltage	V	V	12	24	24	12	24	12
Rated power	$P_N$	W	6.3	6.3	8.8	10	10	2.8
Rated torque	$T_N$	mNm	20	20	21	32	32	10
Rated speed	$n_N$	rpm	3000	3000	4000	3000	3000	2650
Rated current	$I_N$	A	0.90	0.50	0.54	1.20	0.60	0.45

<b>No load characteristics*</b>								
No load speed	$n_o$	rpm	4400	4200	5250	4100	4200	4100
No load current	$I_o$	A	0.10	0.05	0.07	0.10	0.07	0.07

<b>Starting characteristics*</b>								
Starting torque	$T_s$	mNm	61	61	85	120	120	28
Starting current	$I_s$	A	2.50	1.30	2.00	4.80	2.40	1.15

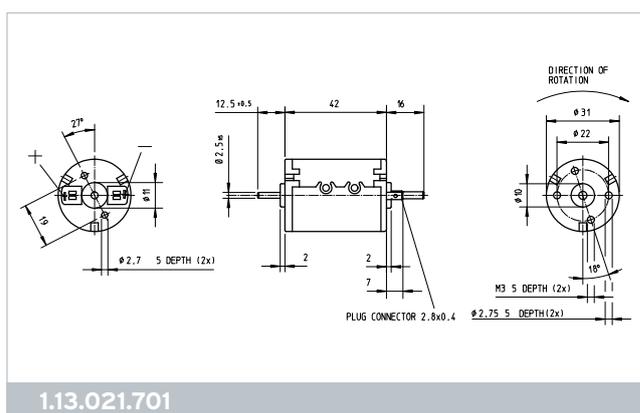
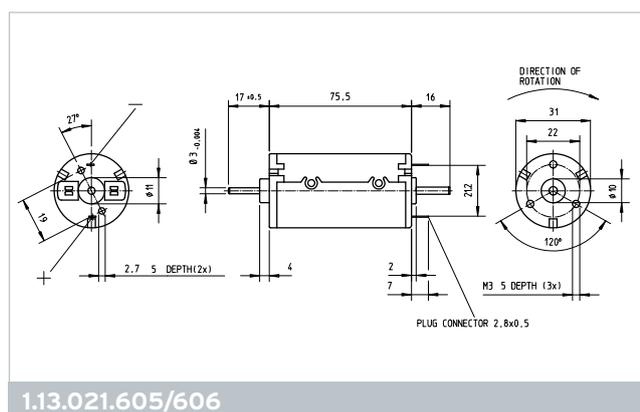
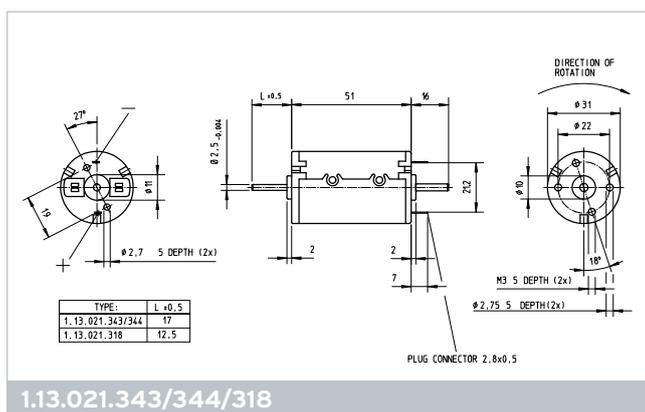
<b>Performance characteristics*</b>								
max. Output power	$P_{max}$	W	7.0	7.0	10	15	15	3.0
max. Constant torque	$T_{max}$	mNm	11	11	14	19	19	6

<b>Motor parameters*</b>								
Weight	G	g	135	135	135	235	235	105
Rotor inertia	J	gcm <sup>2</sup>	16	16	16	33	33	9.1
Terminal resistance	R	Ohm	4.8	19	12	2.4	11	10
Mech. time constant	$\tau_m$	ms	11	11	11	15	15	10
Electr. time constant	$\tau_e$	ms	0.8	0.8	0.8	0.8	0.8	0.8
Speed regulation constant	$R_m$	rpm/mNm	71	65	61	35	35	146
Torque constant	$k_t$	mNm/A	25	48	42	27	55	25
Thermal resistance	$R_{th1}$	K/W	10	10	10	5	5	13
Thermal resistance	$R_{th2}$	K/W	11	11	11	8	8	13
Axial play		mm	0.05 - 0.7	0.05 - 0.7	0.05 - 0.7	< 0.1	< 0.1	0.05 - 0.7
Direction of rotation	bidirectional							

## Operational conditions

Temperature range	T	°C	-10 - +70
Axial force	$F_A$	N	5
Radial force, 15 mm from mounting surface	$F_R$	N	20/1.13.021.605/606=40

\* at 25° C



## Customized versions

The following modifications are available upon request:

- ▶ Encoder possible
- ▶ Internal chokes and/or capacitors
- ▶ Speed adjustment by winding change
- ▶ Addition of wire harnesses
- ▶ Modification of shaft length on both ends
- ▶ Modification of shaft configuration (flat, groove, etc.)
- ▶ Assembly of gears, pinions, worms, etc.
- ▶ Assembly of adapters and mounting plates

Note: Is used with Bühler gear motor types 1.61.046.xxx, 1.61.042.xxx and 1.61.077.xxx