



Parts List			
Item	Qty	Part Number	Description
1	1	Brush_motor (2)	
2	1	Brush_motor (1)	
3	1	Spur Gear (13 teeth) (1)	Spur Gear; Module: 2.000000; Num Teeth: 13; Pressure Angle: 20.000000; Backlash: 0.00 mm
4	1	Spur Gear (13 teeth) (2)	Spur Gear; Module: 2.000000; Num Teeth: 13; Pressure Angle: 20.000000; Backlash: 0.00 mm
5	2	5972K91_Ball Bearing	
6	1	Guide Bushing	
7	1	Nut 1	
8	1	Clamp 1	
9	1	Clamp 2	
10	1	Nut 2	
11	1	Spring	
12	1	Rod	
15	2	Plate	
17	4	Pillar 1	
19	8		Hexagon Socket Button Head Screw ISO 7380-1 - M5 x 8
22	1	Holder	
23	4		Pan Head Screw ISO 7045 - M1.6 x 12 - H
24	4		Pan Head Screw ISO 7045 - M1.6 x 8 - H
25	4		Hexagon Thin Nut ISO 4035 - M1.6
26	1		Hexagon Socket Set Screw ISO 4026 - M2 x 3
28	2		Pan Head Screw ISO 7045 - M1.6 x 3 - H
29	1		Hexagon Socket Set Screw ISO 4026 - M2 x 2

Dept.	Technical reference	Created by Tadeusz Dmowski 15/06/2024	Approved by
		Document type	Document status
		Title PW FMD2 LMM	DWG No.
Rev.	Date of issue		Sheet 1/1

Data

Qmax	40 N
Lmax	50 mm
Vmax	3 mm/s
Δs	0,00002 m
L1	15 mm
L2	9,5 mm
L3	50 mm
E	210000 MPa
π	3,1415927
β	2
k	3
d	3
Re (10S20[345
k_cr	172,5
d_p (final p	4 mm
Thread pitch	0,5 mm
n_motor	5000 rot/min
$\eta_{\text{moto-re}}$	0,8
$\eta_{\text{gear tra}}$	0,9
d2	3,545 mm
μ	0,19
α	1,0471976 rad
Safety Fact	1,5

Calculations

L_B	65
d_min	2,36551 mm
σ_{cr}	27,30498 MPa
L2	9,462039 mm
L_T	74,5 mm
n_nut	360
i_red	13,88889
η_{red}	0,72
γ	0,044865
ρ'	0,215971
η_{np}	0,1682
η_{LMM}	0,121104
Npusher	0,12 W
Ncal	0,990883 W
P_DC	1,486325 W
Mnut	18,92447 Nmm
Mred	8,100837 Nmm

Yellow cell - for parameters chosen by the designer

Mred should be below DC motor's max torque

DC motor with max torque value of about 12[Nmm] was chosen for the project