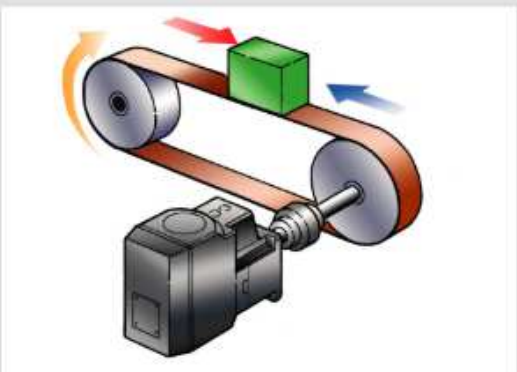
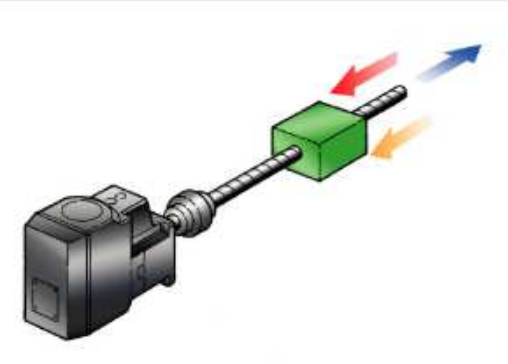
MotorSizer 4.0

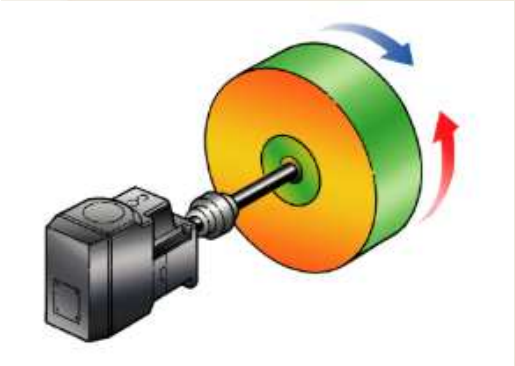
22/3-2022 – 14:00 local time

MotorSizer 4.0

About Motorsizer 4.0 → Mechanics → Time and distance → Filters → Calculation and results







Peter Nielsen
Support and Sales
Worldwide

MotorSizer 4.0

A great webbased calculator, that let you fast and easy calculate the motor + gear size necessary for your specific motion control application.

- Cost free
- Big selection of JVL motors and gears

You only need to know a little about Servo or Stepper motors.

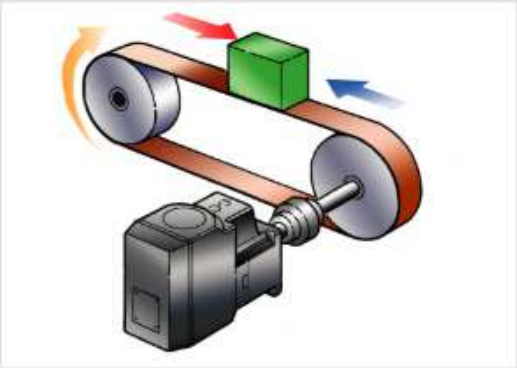
Can save new and work on old projects by your own or together with JVL.

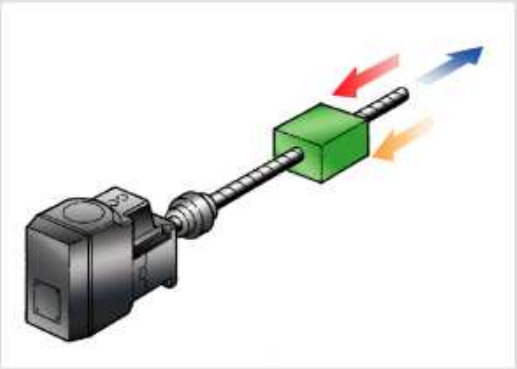
Link: https://motorsizer.azurewebsites.net/

Mechanics

You can choose between three different types of drive set-up:

- A belt driven construction
- A lead screw construction
- A rotary disc construction





JVL intelligent motors

Calculate
Messages
Compare
Print

Projects & Scenarios

Scenario Filter

- DIS
- P1
  - s1
  - s2
- franzthomsen.dk
- jvl.dk
  - mvj@jvl.dk

- jvl.dk
  - aw@jvl.dk
  - bvj@jvl.dk
  - jan.tausend@jvl.dk
  - krp@jvl.dk
  - michael.wiesner@jvl.dk
  - mvj@jvl.dk
  - ps@jvl.dk
  - sjh@jvl.dk

JVL intelligent motors — Motor Sizer — Welcome Peter Nielsen

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Messages
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Scenario Filter

- DIS
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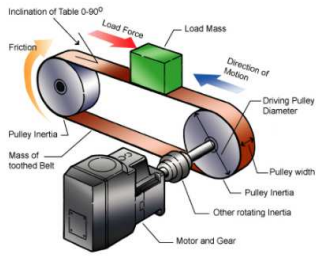
- jvl.dk

Belt Drive

Load Mass	50 kg
Inclination Table	30 deg
Friction	12 N
	Steel — Density [kg/m³] 7850
Pulley Diameter	100 mm
Pulley Thickness	1 mm
Number Pulleys	2
Mass Toothed Belt	0.5 kg
Toothed Belt Efficiency [%]	80
Other Rotating Inertia	1 kg·cm²
Actual Precision Mechanic Repeatable [mm]	0
Actual Mechanic Absolute [mm]	0

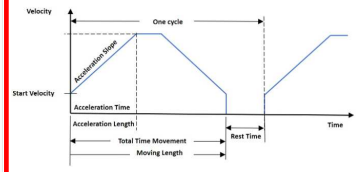
Hide Mechanical Drawing



Motion Profile

Moving Length	800 mm
Rest Time	0.1 s
Total Time Movement	1 s
Acceleration Time	0.15 s
Acceleration Slope	0 mm/s²
Acceleration Length	0 mm
Start Velocity (Only Steppers)	0 Rpm (motor)

Hide Motion Profile



Filters

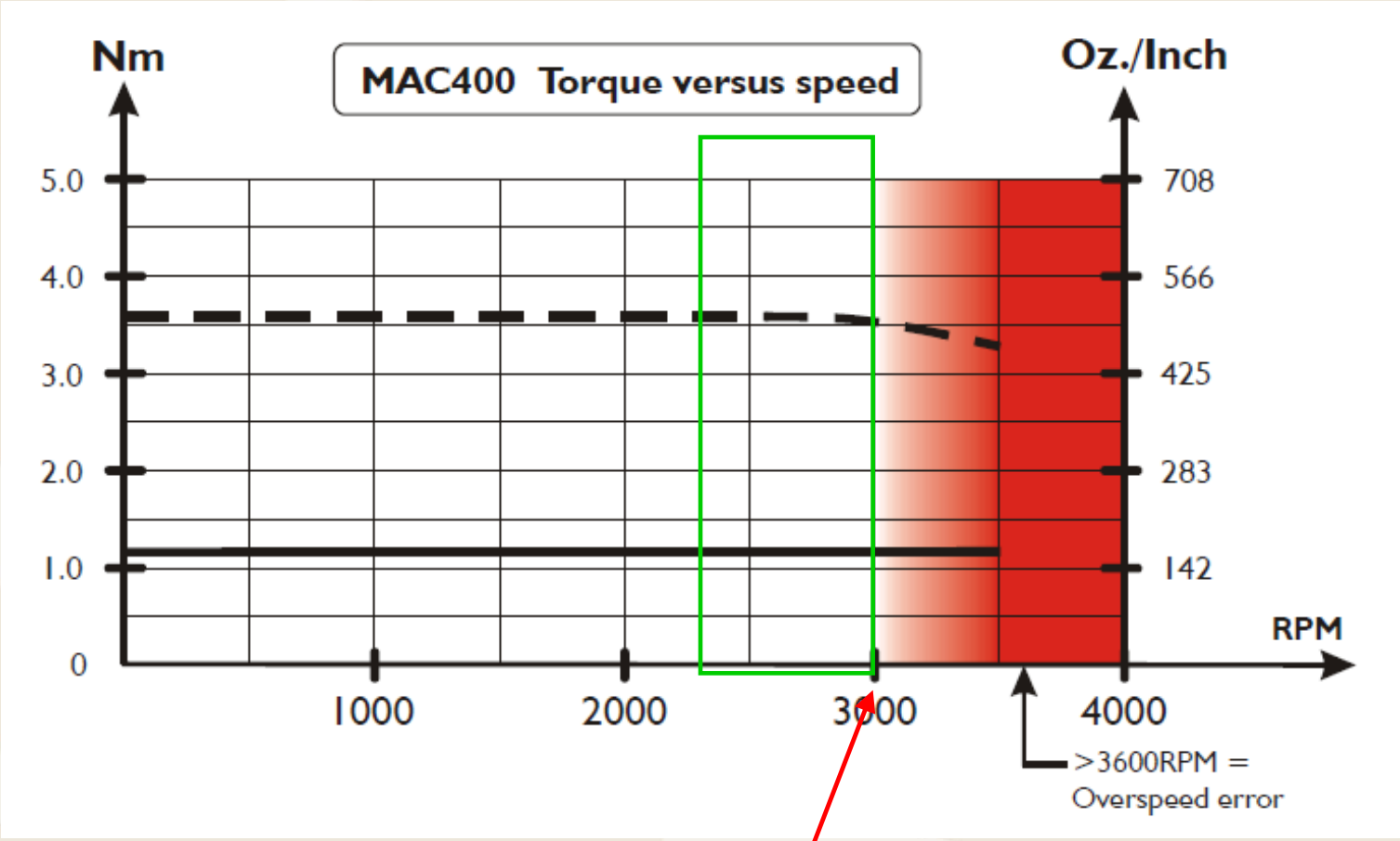
- Motors
- Gears
- IP Protection
- Supply Voltage
- Performance

Filters

- Motors
- Gears
- IP Protection
- Supply Voltage
- Performance

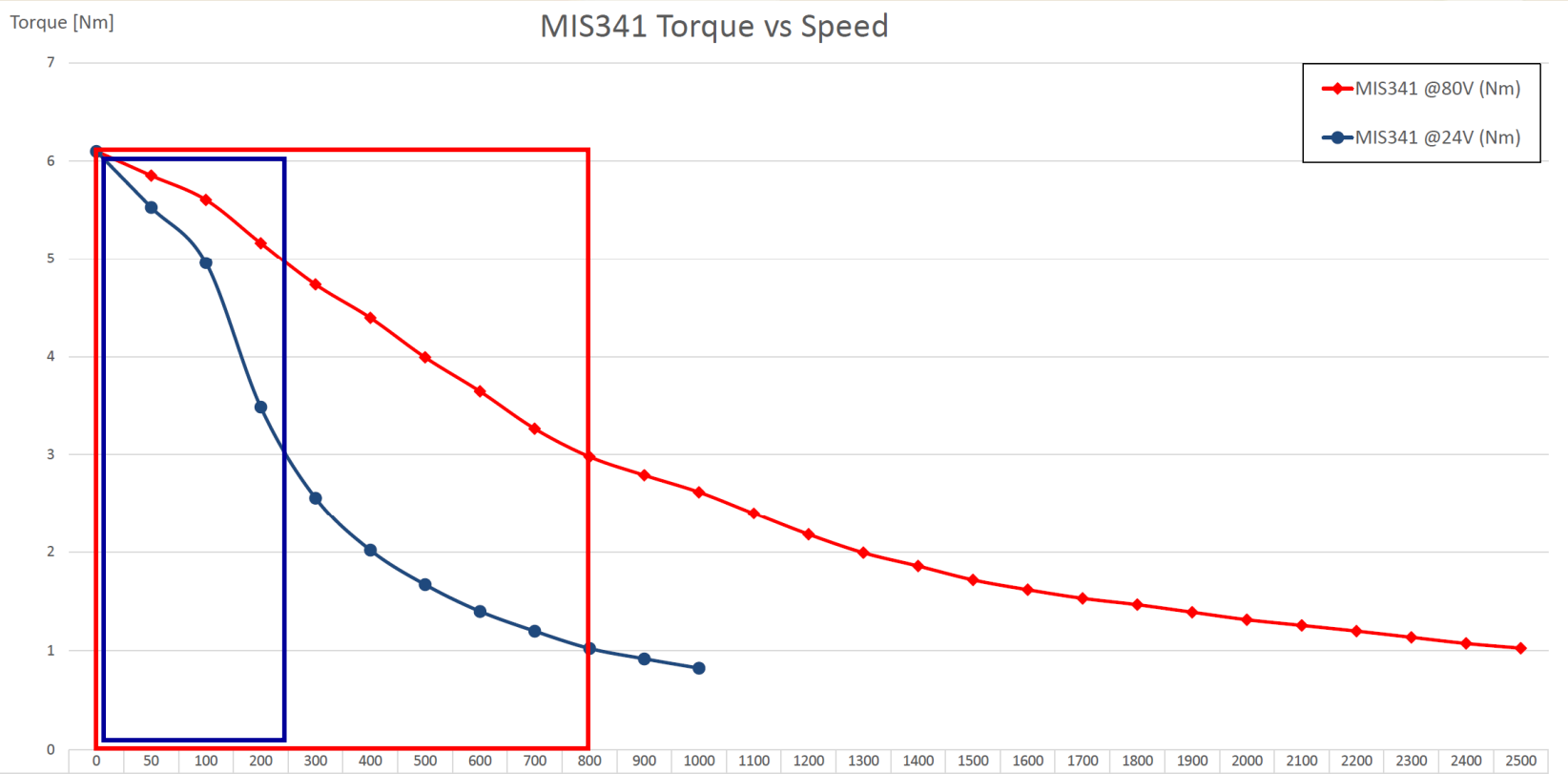

Motors
Gears
Planetary Preci
Planetary Low
Worm Gear
Rotary Table
Angled Gears
IP Protection
Motors
Gears
IP Protection
Motor House
Motor Shaft
Gear House
IP67
Motors
Gears
IP Protec
Supply Vo
AC
DC
12V
24V
48V
72V
Performance
Optimization
Optimization Min Count
Power Rated (50% - 100%)
Max Velocity (75% - 100%)
Advanced
Advanced
Power Peak (0% - 100%)
Torque Peak (0% - 100%)
Torque Rated (0% - 100%)
Filter Precision on
Requested Precision Rep...
Precision (0mm - 10mm)
Inertia Ratio JL/JM (0.0 - 19.7)
Net Weight Max (150.0kg)

Servo motor - MAC



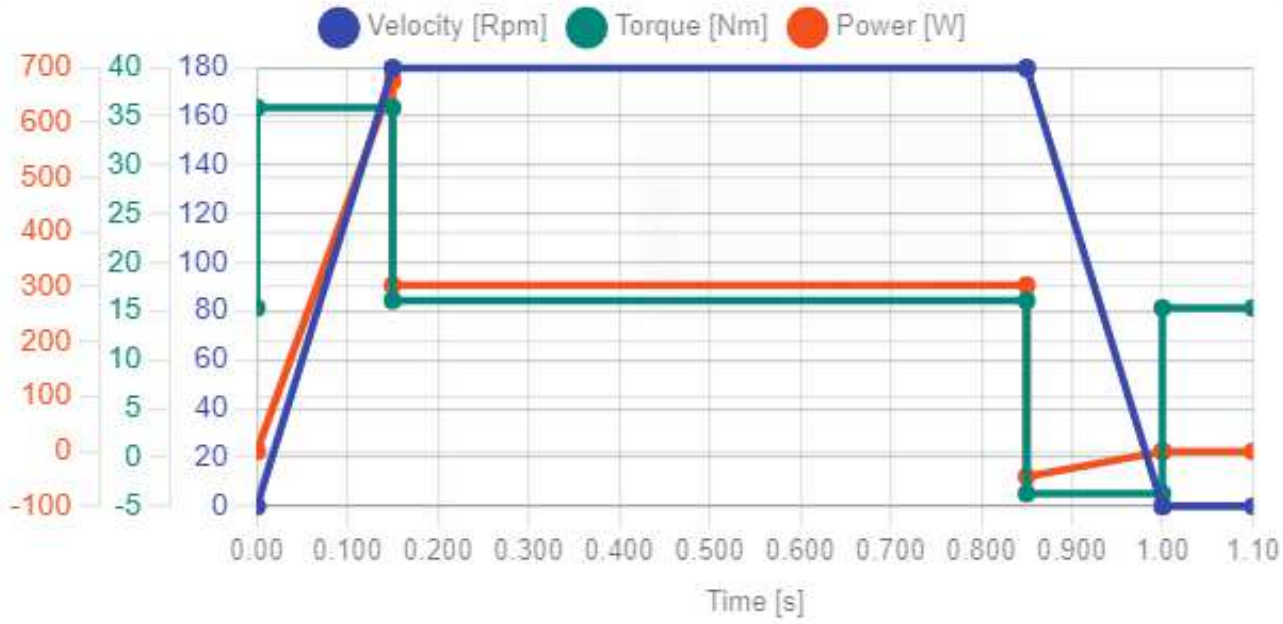
Max power

Stepper motor - MIS



Hide Motion Profile

Entire Cycle

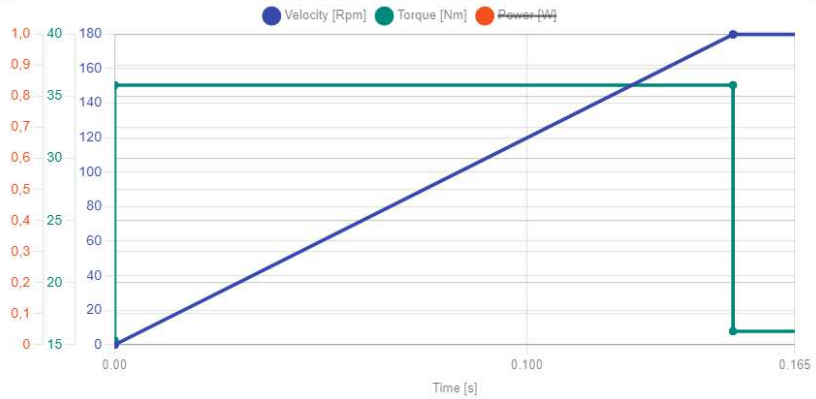


Hide Motion Profile

Entire Cycle

- Entire Cycle
- Entire Cycle and part of rest time
- Acceleration
- Deceleration

Acceleration



When calculated

Calculation Result: 0 / 13

Grouped

	Motor Number	Motor Description	Gear Number	Gear Description	Supply Voltage	Motor Power Rated [W]	Motor Power Peak [W]	Motor Velocity, Max [Rpm]	Motor Velocity, Max [mm/s]	M T F
	abc Filter...	abc Filter...	abc Filter...	abc Filter...	abc Filter...	abc Filter...	abc Filter...	abc Filter...	abc Filter...	a
>	**MAC402-D2** (2 / 0)									
>	**MAC400-D2** (10 / 0)									
>	**-** (1 / 1)									

Default motor is ”-” (without motor and gear)
Scroll up and down and sideways
Sort each column
Select specific values
”Compare” and ”Print” results – all data and curves
”Messages” used mainly internal for info about selected and not selcted motors and gears and calculations.

Calculation Result: 0 / 13

Grouped

Motor Number	Motor Description	Gear Number	Gear Description	Supply Voltage	Motor Power Rated [W]	Motor Power Peak [W]	Motor Velocity, Max [Rpm]	Motor Velocity, Max [mm/s]	M T F
abc Filter...	abc Filter...	abc Filter...	abc Filter...	abc Filter...	abc Filter...	abc Filter...	abc Filter...	abc Filter...	a
- (1 / 1)									
Default Motor	Default Motor	Default Gear	Default Gear		272.09	675.58	179.75	0.941	1
MAC400-D2 (10 / 0)									
MAC402-D2 (2 / 0)									
MAC402-D2-CAGM	Int.ServoDC 400W 1.28Nm IP55 Inc	HTRG08N01…	MP Gear 16:1,2t,15',M…	24DCV	289.43	718.75	2876.02	0.941	1
MAC402-D2-CAGM-A011	Int.ServoDC 400W 1.28Nm IP55 Inc Coating	HTRG08N01…	MP Gear 16:1,2t,15',M…	24DCV	289.43	718.75	2876.02	0.941	1

Compare

Comp

Input

Load M

Inclinat

Frictior

Pulley

Pulley

Pulley

Numbe

Mass T

Toothe

Other F

Actual

Actual

Result

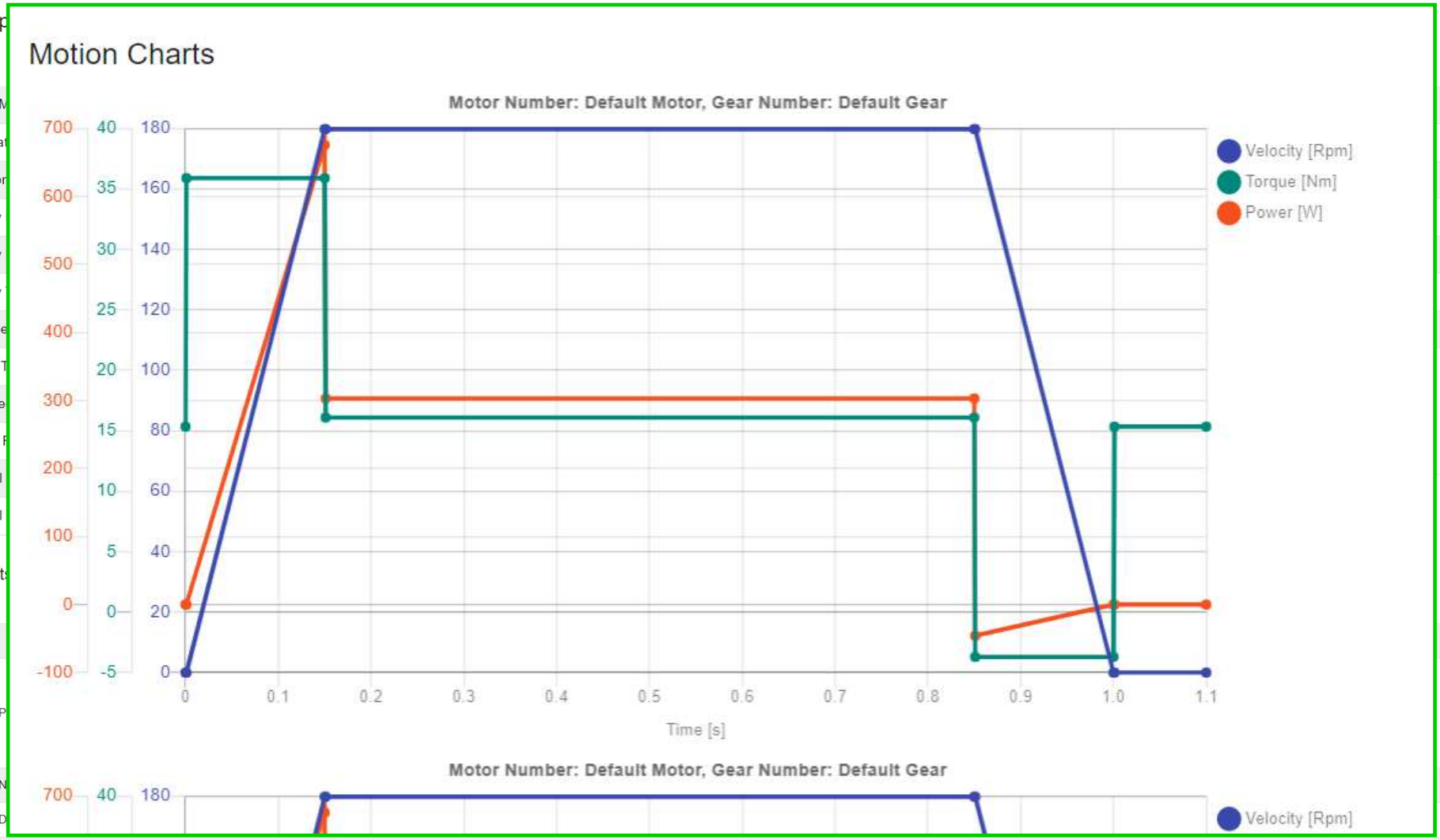
Name

Group

Motor P

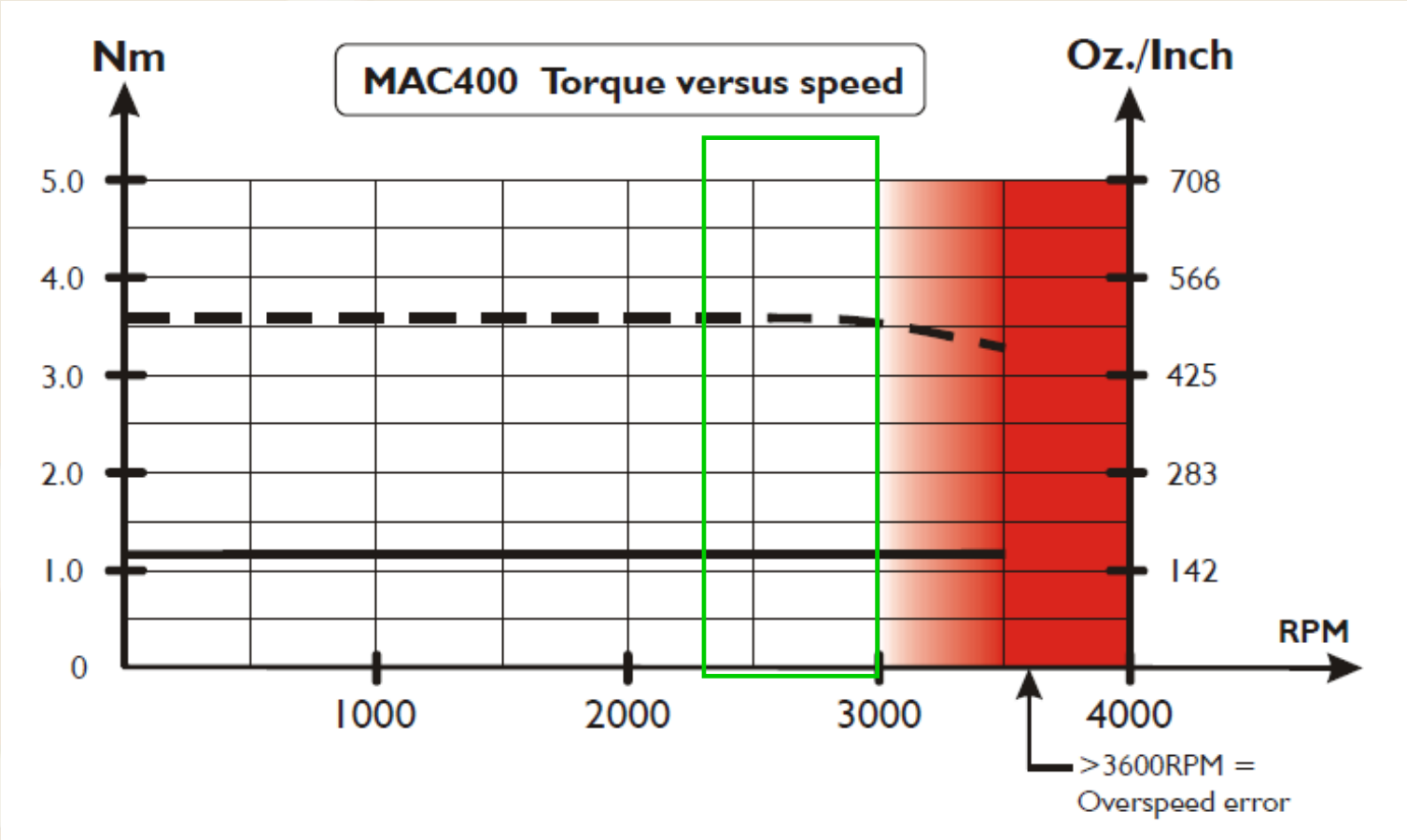
Motor N

Motor D

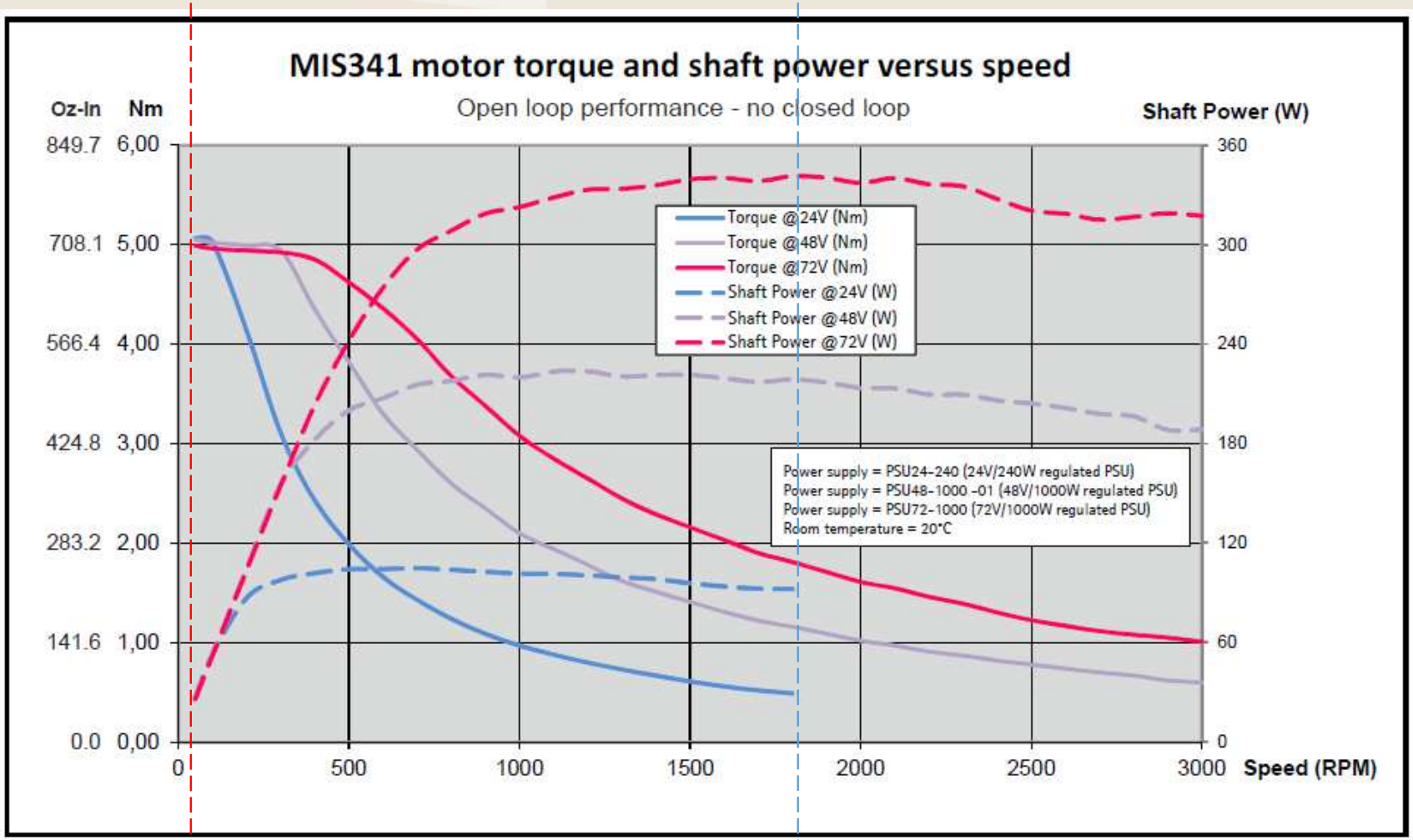


Motor Counts [Counts/rev]	200	200	8192	8192
Encoder			Incr. Encoder	Incr. Encoder
Flange and Shaft			MAC400 14mm	MAC400 14mm

How to select the MAC and the MIS.



Default: 75- 100% continuous speed

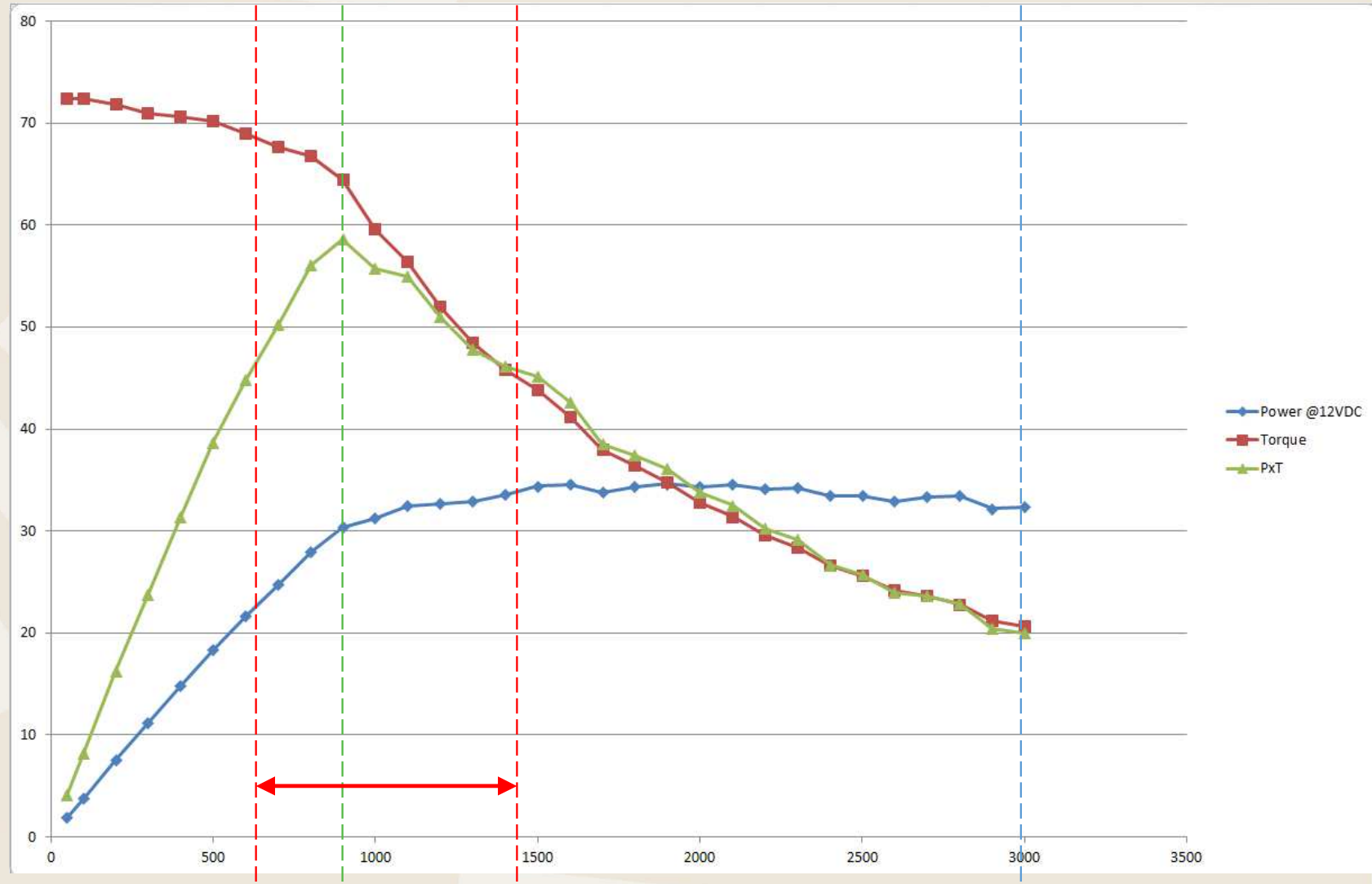


Max Torque

Max Power

MIS efficiency

With performance default
Speed – 75-100%

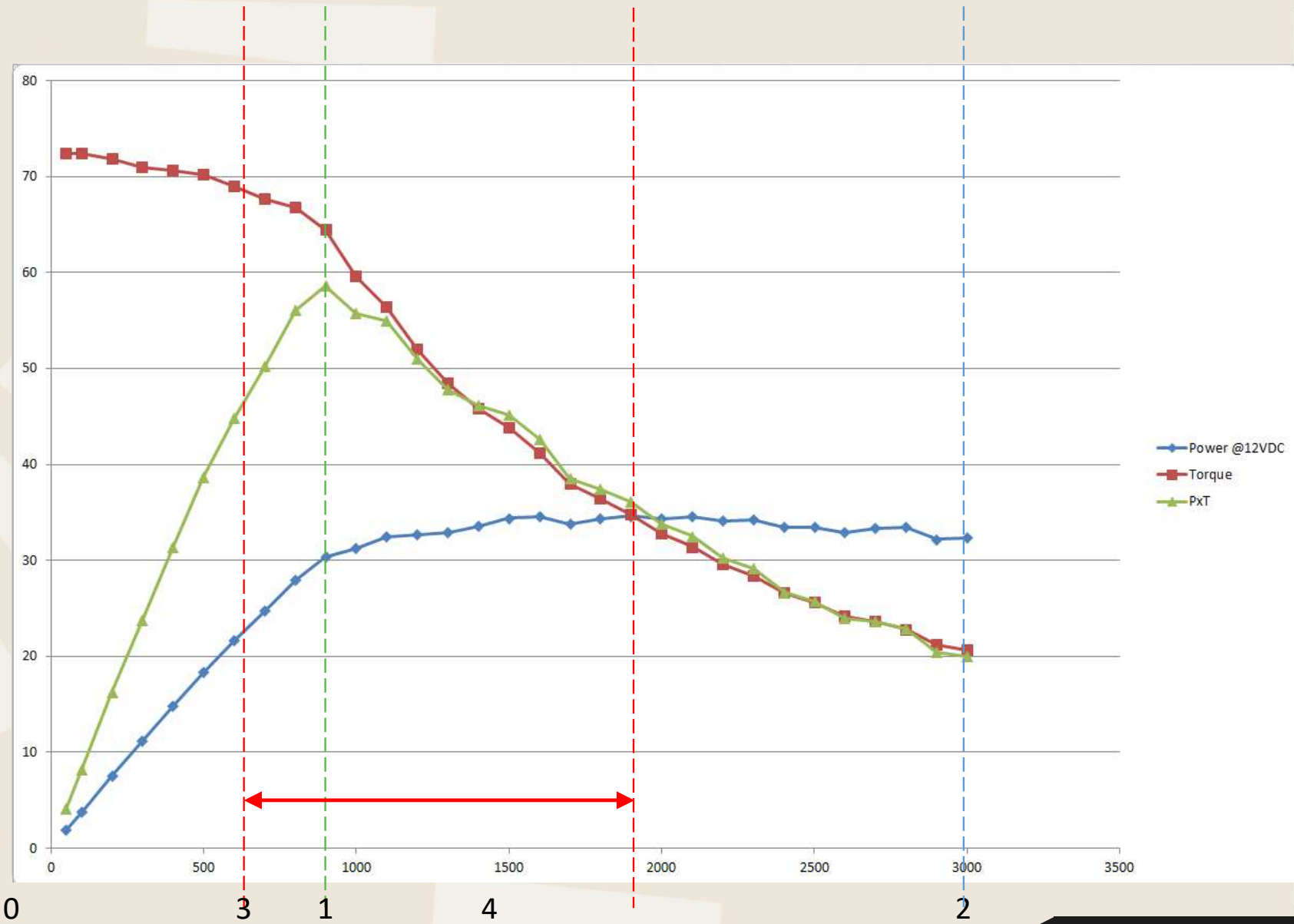


0: Start
1: Pos_PxT_Max (100%)
2: Pos_ABS_Max
3: 75% pos btw 1. and 0.
4: (100 + (100-75%)) * (Pos 2 – Pos 1)

Red arrow shows distance for calculation of motor and gear solutions.

0 3 1 4 2

With performance:
Speed – 75-120%



0: Start
1: Pos_PxT_Max (100%)
2: Pos_ABS_Max
3: 75% pos btw 1. and 0.
4: (120 + (100-75%)) * (Pos 2 – Pos 1)

Red arrow shows distance for calculation of motor and gear solutions.

MotorSizer 4.0 test

Link !

Questions?