

Stator & Rotor Part Sets

System Integration

Electromagnetic Designs



Our Permanent Magnet Brushless Motor (PMBL) solutions are optimized to achieve the lowest friction, cogging and ripple torque, enabling low noise, low vibration, and smooth system control.

A unique skewed stator design combined with our patented in-slot winding technology and overmolded solutions constitute our key differentiating factors when target is smooth torque, efficient thermal management and deep integration in the system.

Whether it is a Stator & Rotor, or a complete Motor, our innovative designs and technology will help you to develop your new compact and reliable electrified motion system.

Features & Benefits

- Maximum cogging torque of 20 mN.m (typical value of 10 mN.m)
- Efficiency of 80% to 90% over a wide range of operating points
- Optimum heat dissipation
- Compact design

Options

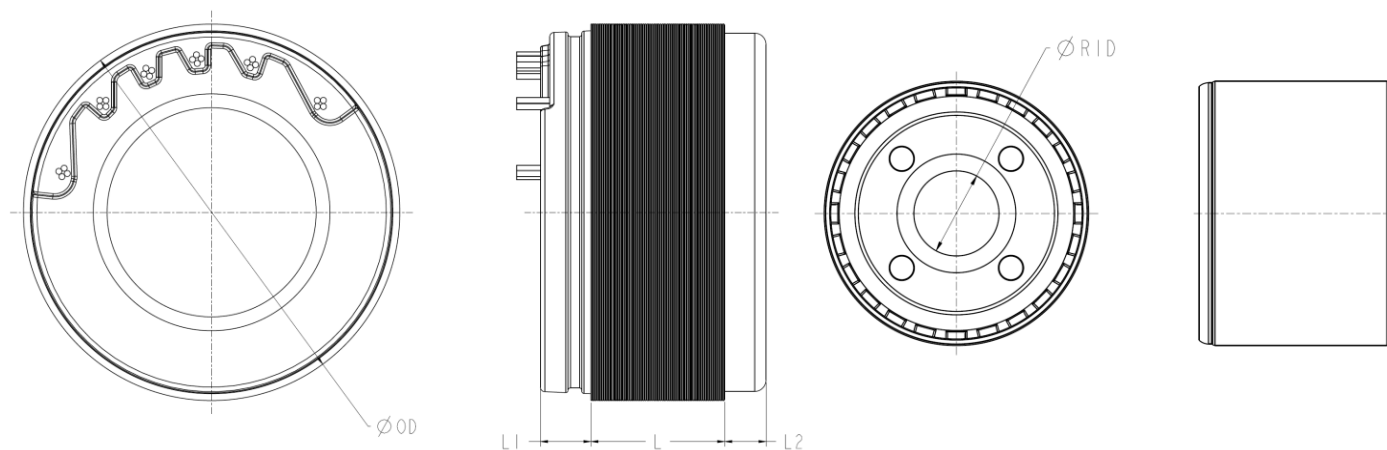
- Straight or skewed stator
- Hollow rotor
- SPM or IPM rotor
- 12V, 24V and 48V winding
- Leadframe

Typical Applications

- Steering and braking for passenger vehicles
- Torque assistance for e-bikes
- Pumps for vehicles and power tools
- Autonomous Mobile Robots (AMRs)
- Robotics (arms, joints)
- Material handling systems
- Medical equipment

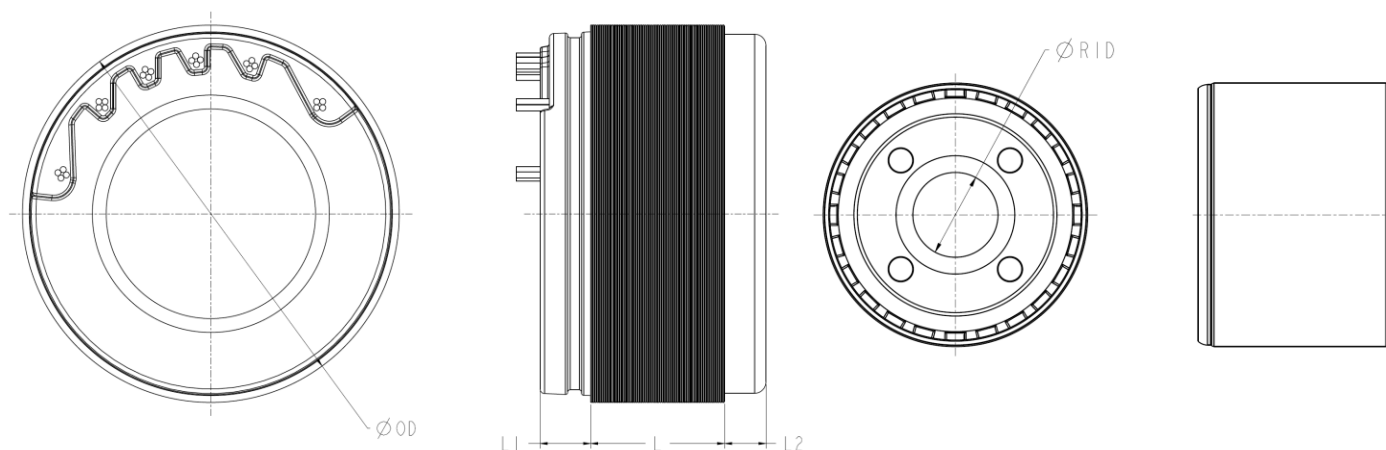
Specification | SPM TYPE

MOTOR	units	PRT820290S - HT	PRT820290S - HS	PRT820370S - HT	PRT820370S - HS
ROTOR		PRT290RS	PRT290RS	PRT370RS	PRT370RS
Poles		8	8	8	8
Type		SPM	SPM	SPM	SPM
Rotor weight	kg	0.29	0.29	0.37	0.37
ØRID	mm	14.33	14.33	14.33	14.33
Rotor inertia	kg/cm2	0.85	0.85	1.04	1.04
STATOR		PRT820290SS - HT	PRT820290SS - HS	PRT820370SS - HT	PRT820370SS - HS
Stator Weight	kg	0.90	0.90	1.05	1.05
ØOD	mm	82.00	82.00	82.00	82.00
L	mm	29.00	29.00	37.00	37.00
L1	mm	max 10	max 10	max 10	max 10
L2	mm	max 14	max 14	max 14	max 14
Slots		12	12	12	12
Wind. Config		Y	Δ	Y	Δ
Supply Voltage	V	48	48	48	48
Kt	Nm/A	0.103	0.030	0.134	0.039
Ke	Vs/rad	0.119	0.034	0.154	0.045
L-L Resistance	mΩ	125.20	31.30	145.50	36.40
No load speed	rpm	3200	10800	2400	8400
P	W	389.00	1364.00	381.00	1366.00
S2 - 30 min torque	Nm	1.33	1.30	1.70	1.70
S2 - 30 min Current	Apk	13.00	45.00	13.00	45.00
S2 - 2 min torque	Nm	3.30	3.30	4.30	4.30
S2 - 2 min Current	Apk	32.60	113.00	32.60	113.00
Peak torque	Nm	4.70	4.70	6.00	6.00
Peak Current	Apk	45.70	158.30	45.70	158.30
T&S Curve		<u>Annex 1</u>	<u>Annex 1</u>	<u>Annex 2</u>	<u>Annex 2</u>



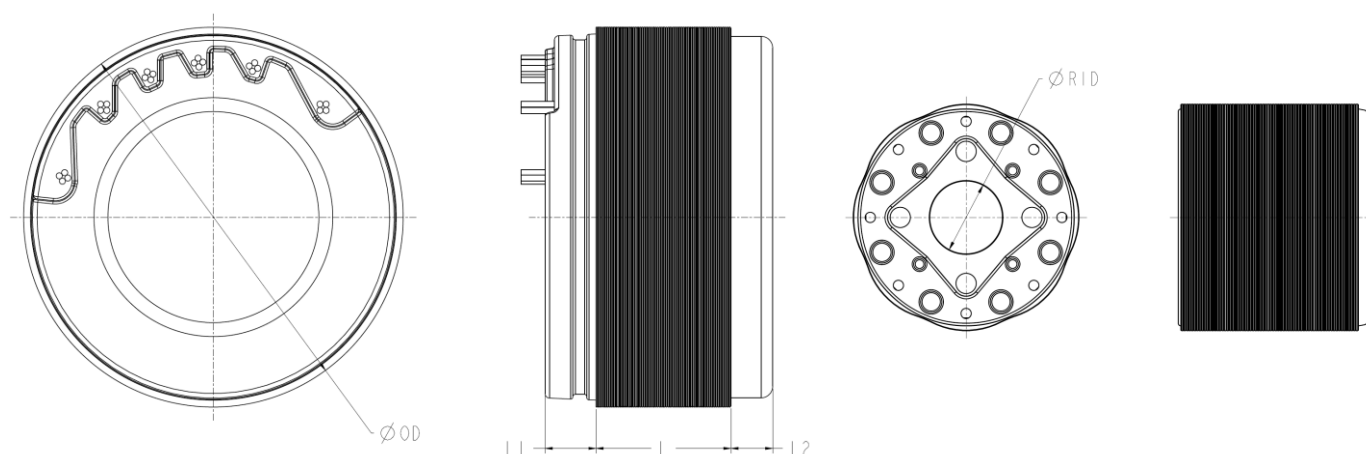
Specification | SPM TYPE

PRT820480S- HT	PRT820480S- HS	PRT845790S- HT	PRT845790S- HS	units	MOTOR
PRT480RS	PRT480RS	PRT790RS	PRT790RS		ROTOR
8	8	8	8		Poles
SPM	SPM	SPM	SPM		Type
0.48	0.48	0.74	0.74	kg	Rotor weight
14.33	14.33	17	17	mm	ØRID
1.32	1.32	2.06	2.06	kg/cm2	Rotor inertia
PRT820480SS- HT	PRT820480SS- HS	PRT845790SS- HT	PRT845790SS- HS		STATOR
1.31	1.31	1.88	1.88	kg	Stator Weight
82.00	82.00	84.5	84.5	mm	ØOD
48.00	48.00	79	79	mm	L
max 10	max 10	max 10	max 10	mm	L1
max 14	max 14	max 14	max 14	mm	L2
12	12	12	12		Slots
Y	Δ	Y	Δ		Wind. Config
48	48	48	48	V	Supply Voltage
0.168	0.049	0.2627	0.0663	Nm/A	Kt
0.193	0.056	0.3037	0.0762	Vs/rad	Ke
174.10	43.50	213.2	53.3	mΩ	L-L Resistance
1900	6600	1250	4500	rpm	No load speed
385.00	1366.00	512	1964	W	P
2.10	2.10	5.164	4.981	Nm	S2 - 30 min torque
13.00	45.00	16.6	58	Apk	S2 - 30 min Current
5.40	5.40	11.688	10.126	Nm	S2 - 2 min torque
32.60	113.00	41.5	144	Apk	S2 - 2 min Current
7.60	7.60	15.066	13.253	Nm	Peak torque
45.70	158.30	58	202	Apk	Peak Current
Annex 3	Annex 3	Annex 4	Annex 4		T&S Curve



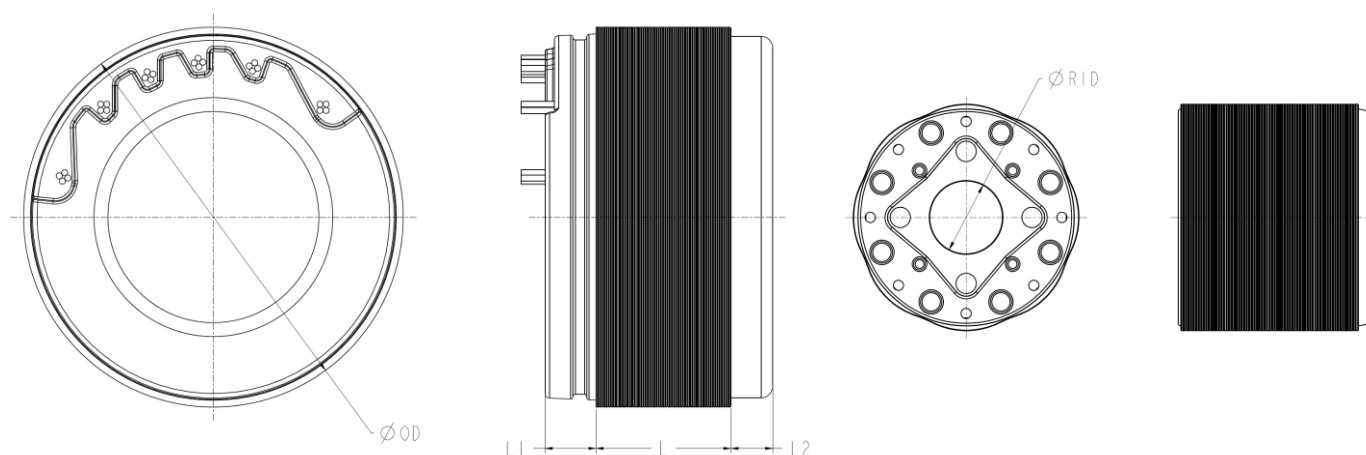
Specification | IPM TYPE

MOTOR	units	PRT480280I- HT	PRT480280I- HS	PRT820355I- HT	PRT820355I- HS
ROTOR		PRT280RI	PRT280RI	PRT355RI	PRT355RI
Poles		8	8	8	8
Type		IPM	IPM	IPM	IPM
Rotor weight	kg	0.102	0.102	0.33	0.33
ØRID	mm	10.252	10.252	14.33	14.33
Rotor inertia	kg/cm2	1.69	1.69	1.00	1.00
STATOR		PRT480280SI- HT	PRT480280SI- HS	PRT820355SI- HT	PRT820355SI- HS
Stator Weight	kg	0.2175	0.2192	1.00	1.00
ØOD	mm	48	48	82.00	82.00
L	mm	28	28	35.50	35.50
L1	mm	max 10	max 10	max 10	max 10
L2	mm	max 14	max 14	max 14	max 14
Slots		12	12	12	12
Wind. Config		Y	Δ	Y	Δ
Supply Voltage	V	48	48	48	48
Kt	Nm/A	0.0706	0.2192	0.131	0.033
Ke	Vs/rad	0.0794	0.0254	0.148	0.039
L-L Resistance	mΩ	583	153	147.50	12.30
No load speed	rpm	5400	17000	2800	10300
P	W	NA	897	445.00	1566.00
S2 - 30 min torque	Nm	0.2	0.6	1.87	1.75
S2 - 30 min Current	Apk	2.9	35.1	13.50	46.00
S2 - 2 min torque	Nm	0.5	0.5	4.14	3.71
S2 - 2 min Current	Apk	7.3	25.05	33.00	114.00
Peak torque	Nm	0.7	0.2	5.41	4.92
Peak Current	Apk	10.15	10	46.00	160.00
T&S Curve		Annex 5	Annex 5	Annex 6	Annex 6

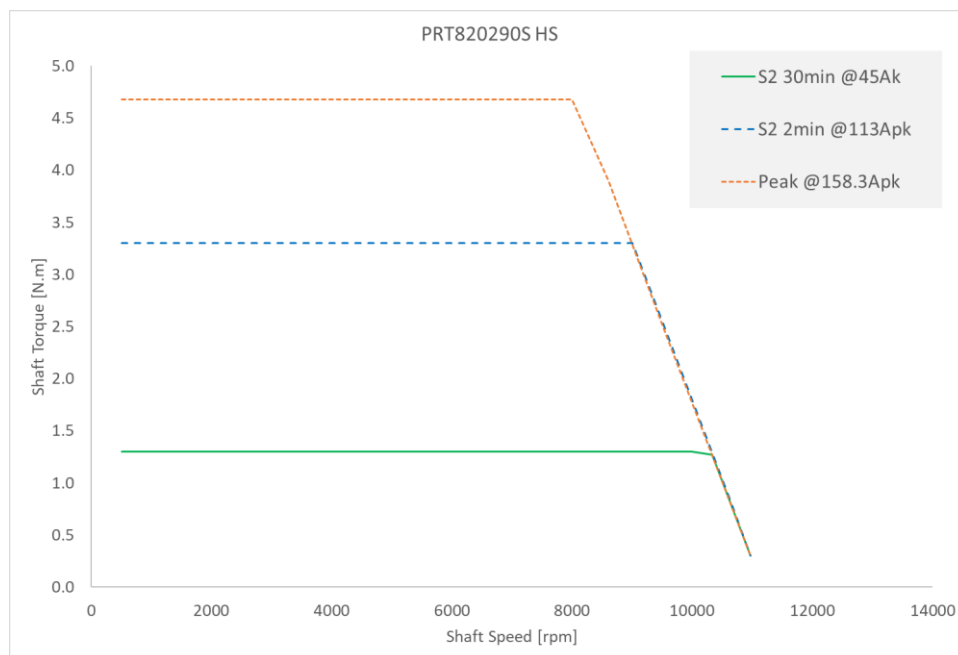
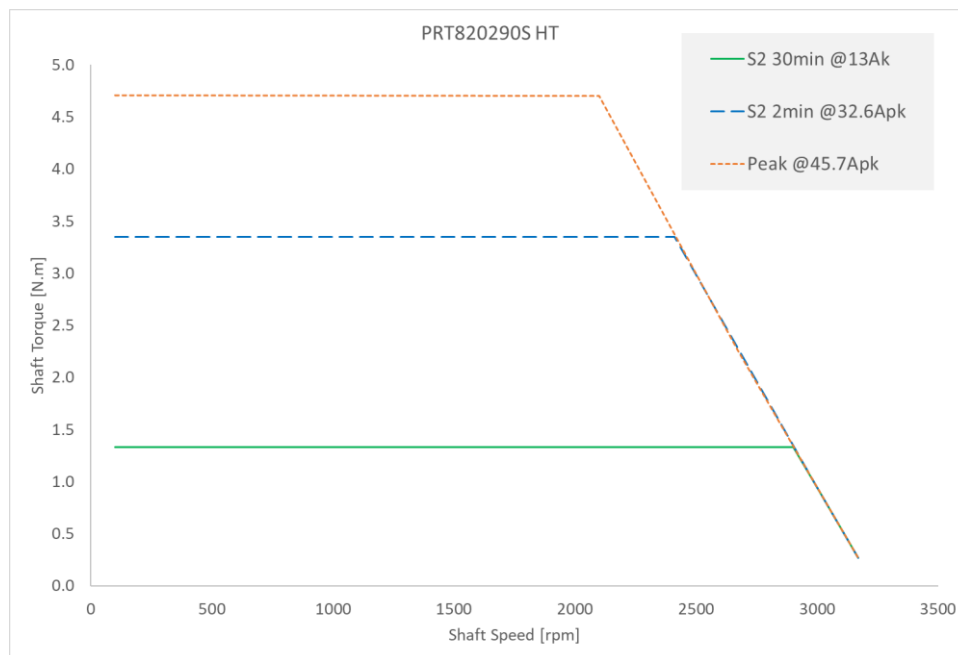
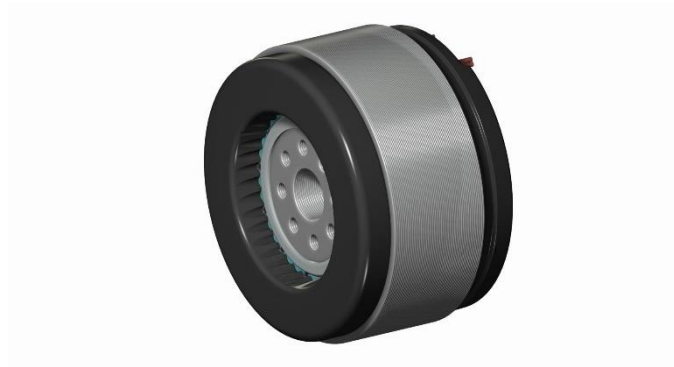


Specification | IPM TYPE

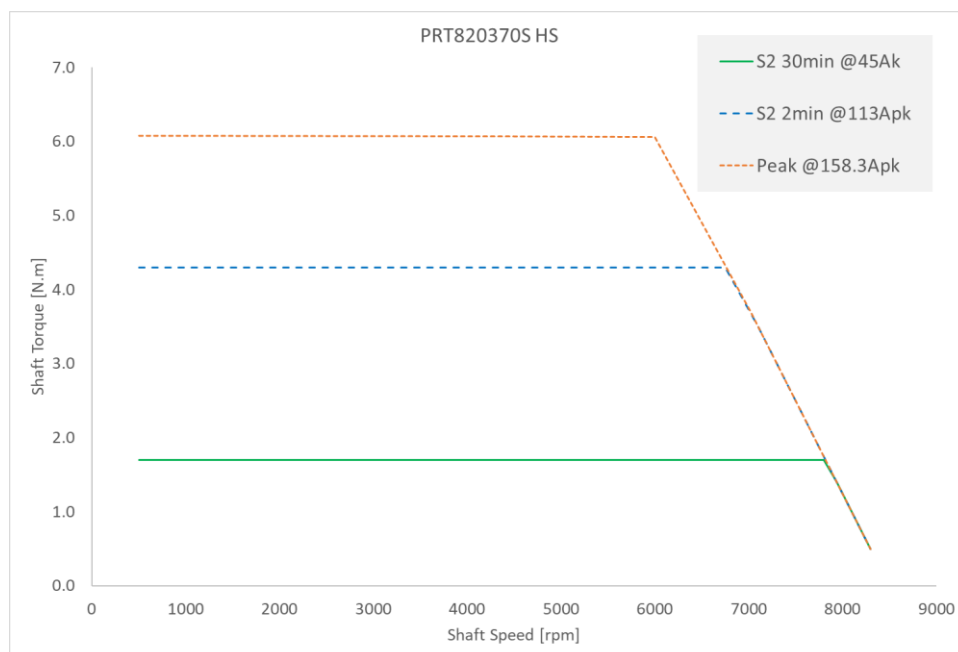
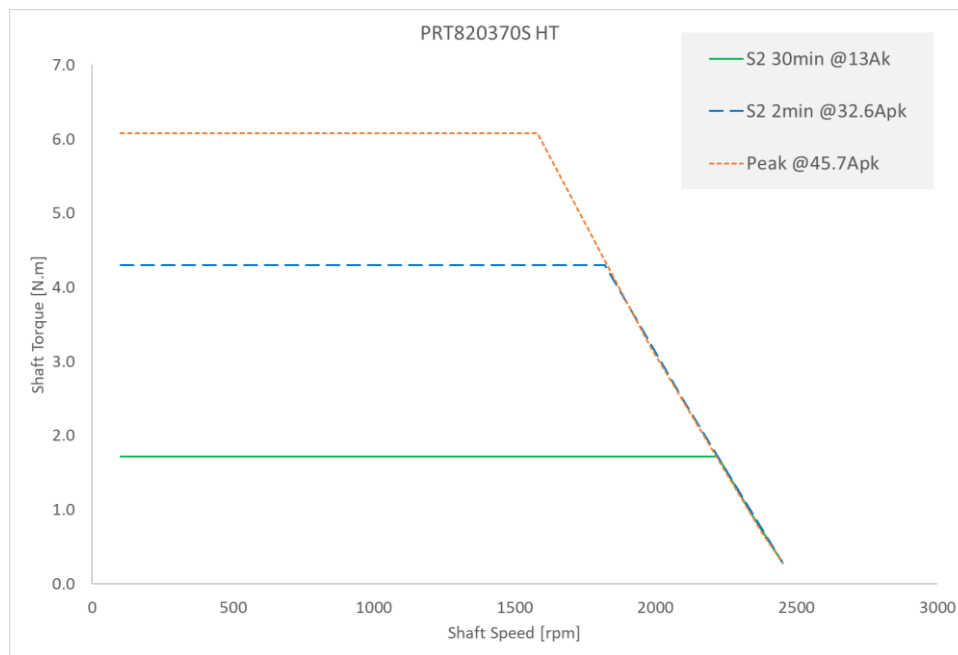
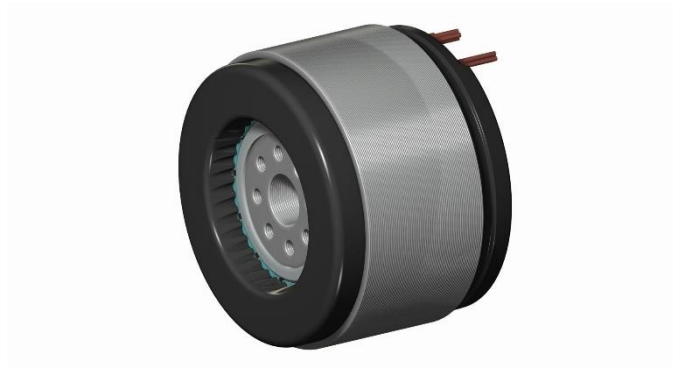
PRT820430I- HT	PRT820430I- HS	PRT900485I- HT	PRT900485I- HS	units	MOTOR
PRT430RI	PRT430RI	PRT485RI	PRT485RI		ROTOR
8	8	8	8		Poles
IPM	IPM	IPM	IPM		Type
0.40	0.40	0.54	0.54	kg	Rotor weight
14.33	14.33	14.33	44.60	mm	ØRID
1.20	1.20	1.80	0.33	kg/cm2	Rotor inertia
PRT820430SI- HT	PRT820430SI- HS	PRT900485SI- HT	PRT900485SI- HS		STATOR
1.16	1.16	1.56	1.56	kg	Stator Weight
82.00	82.00	90.00	90.00	mm	ØOD
43.00	43.00	48.50	48.50	mm	L
max 10	max 10	max 10	max 10	mm	L1
max 14	max 14	max 14	max 14	mm	L2
12	12	12	12		Slots
Y	Δ	Y	Δ		Wind. Config
48	48	48	48	V	Supply Voltage
0.185	0.038	0.169	0.044	Nm/A	Kt
0.210	0.045	0.192	0.051	Vs/rad	Ke
168.65	14.05	159.50	13.30	mΩ	L-L Resistance
2400	8500	2200	7100	rpm	No load speed
172.00	1568.00	560.00	1957.00	W	P
2.25	2.12	3.41	3.24	Nm	S2 - 30 min torque
13.50	46.00	16.50	57.50	Apk	S2 - 30 min Current
5.02	4.54	7.62	6.67	Nm	S2 - 2 min torque
33.00	114.00	41.50	143.00	Apk	S2 - 2 min Current
6.60	6.04	9.80	8.79	Nm	Peak torque
46.00	160.00	58.00	200.00	Apk	Peak Current
Annex 7	Annex 7	Annex 8	Annex 8		T&S Curve



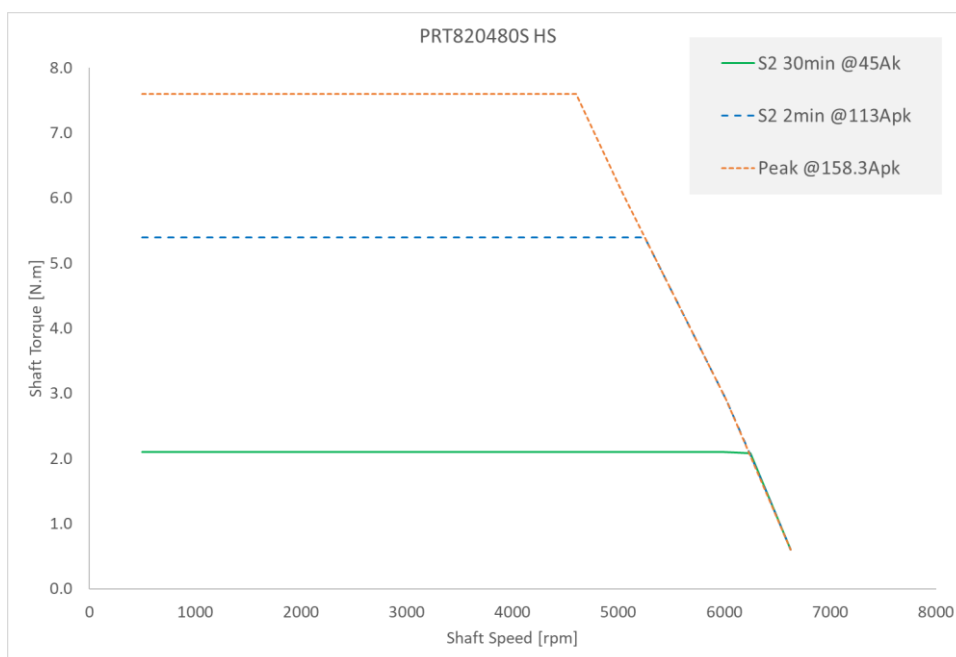
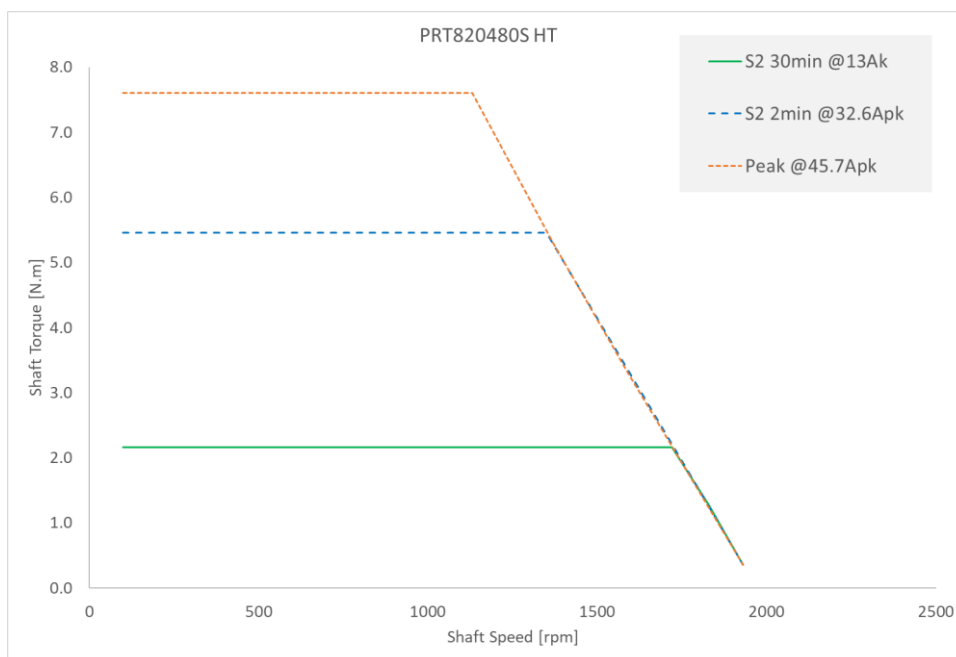
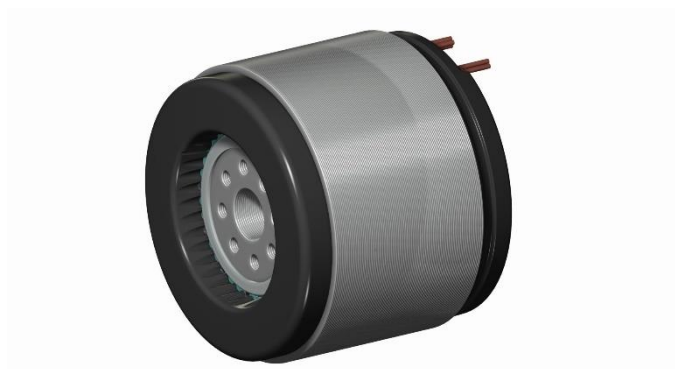
Annex 1 | PRT820290S-XX



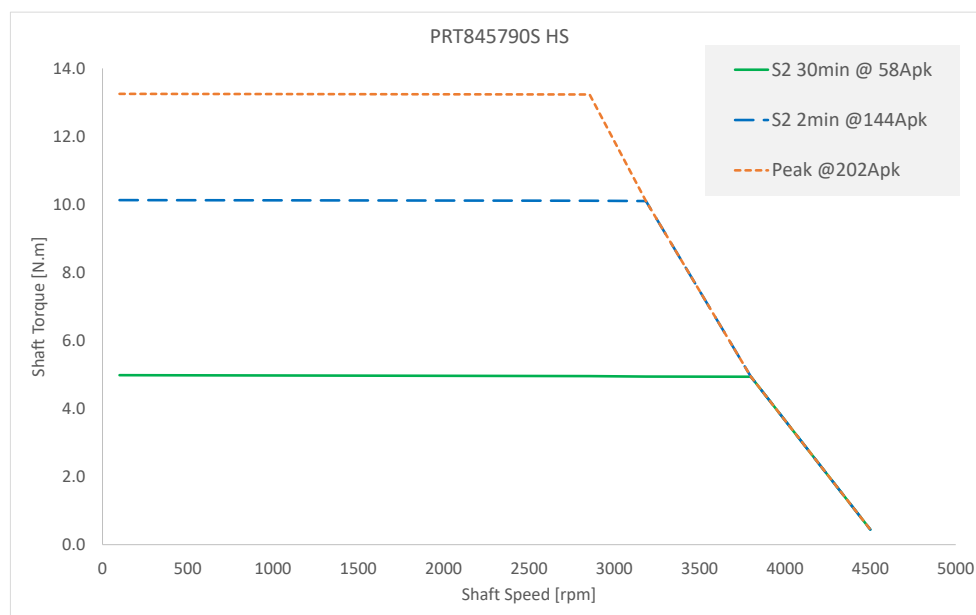
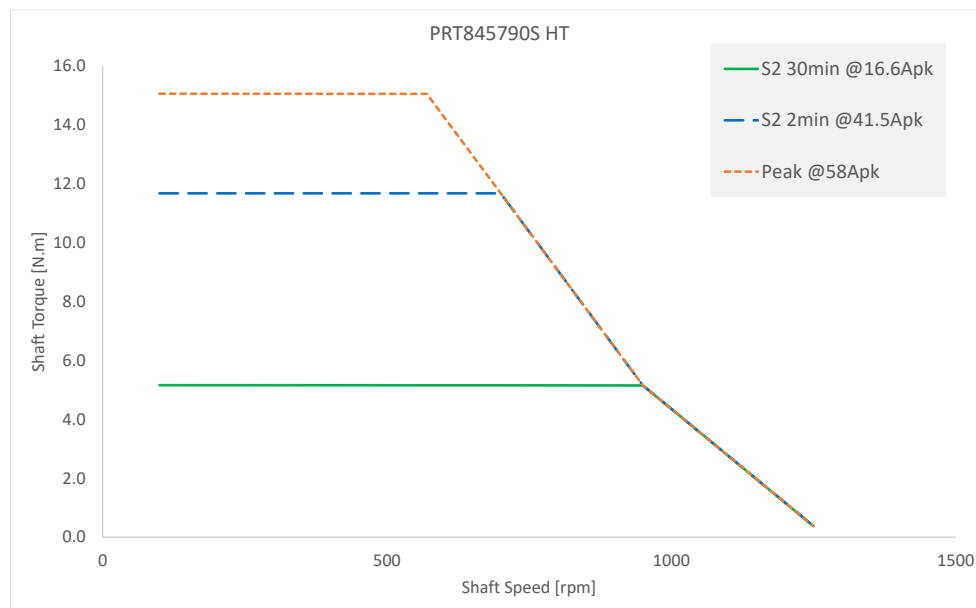
Annex 2 | PRT820370S-XX



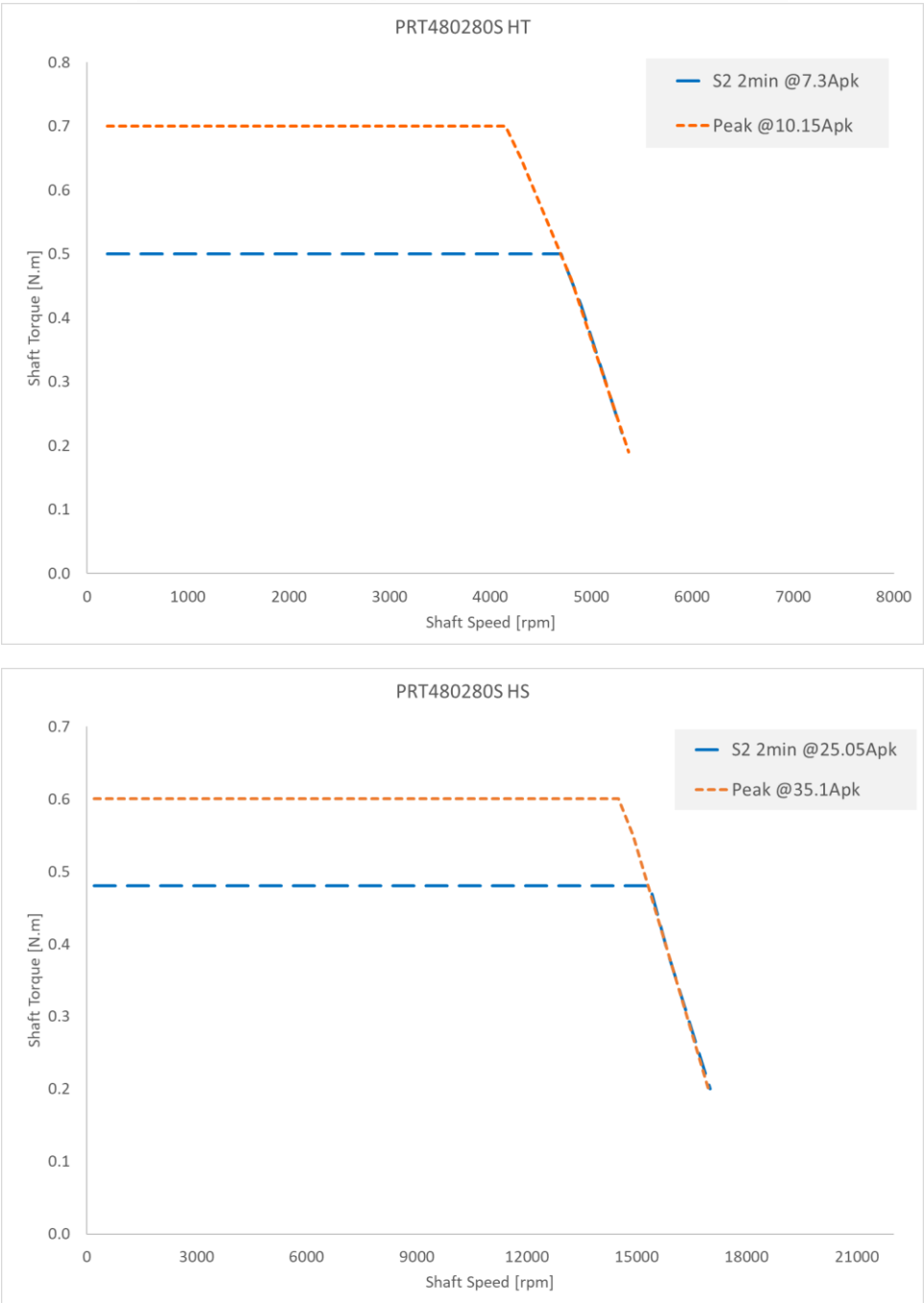
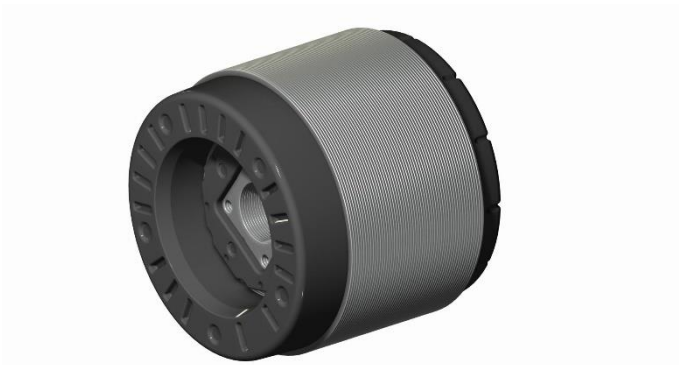
Annex 3 | PRT820480S-XX



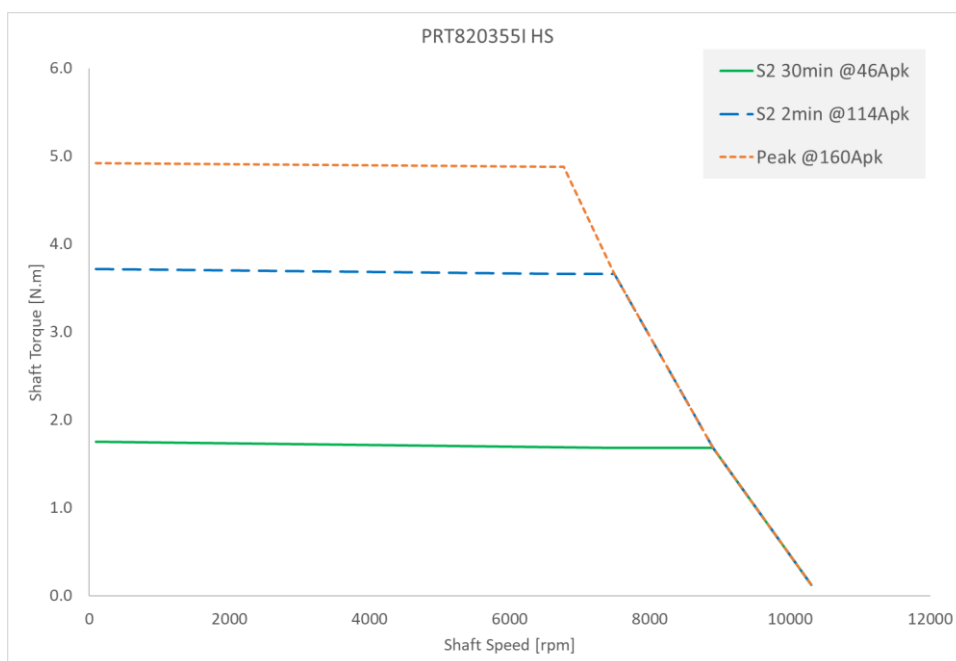
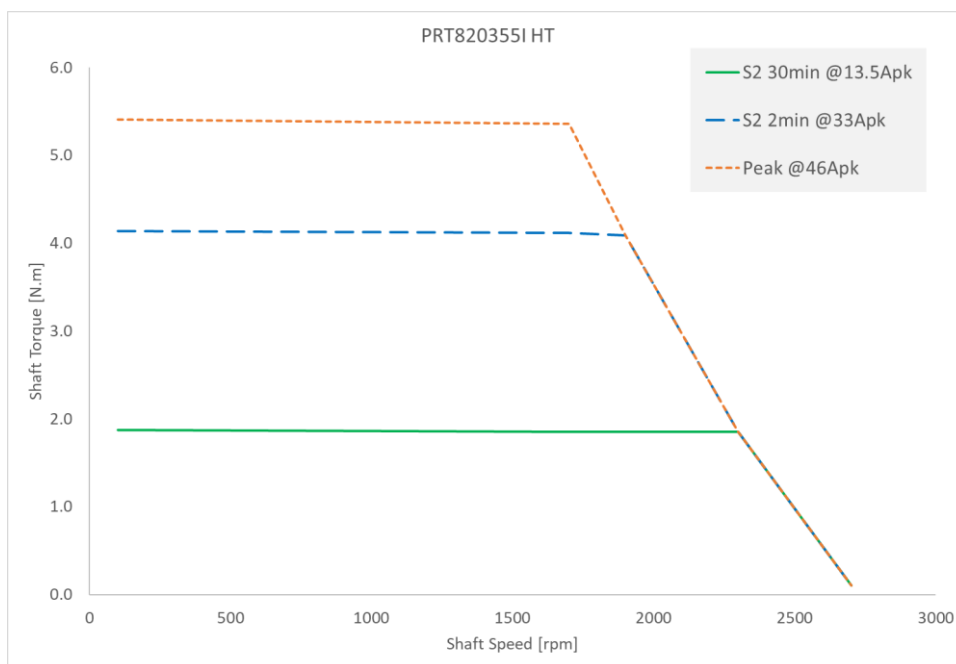
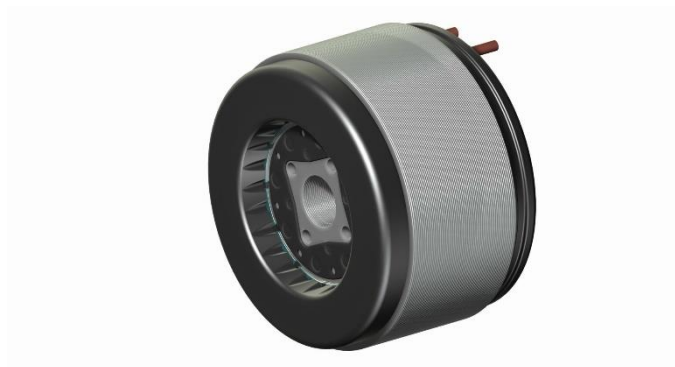
Annex 4 | PRT845790S-XX



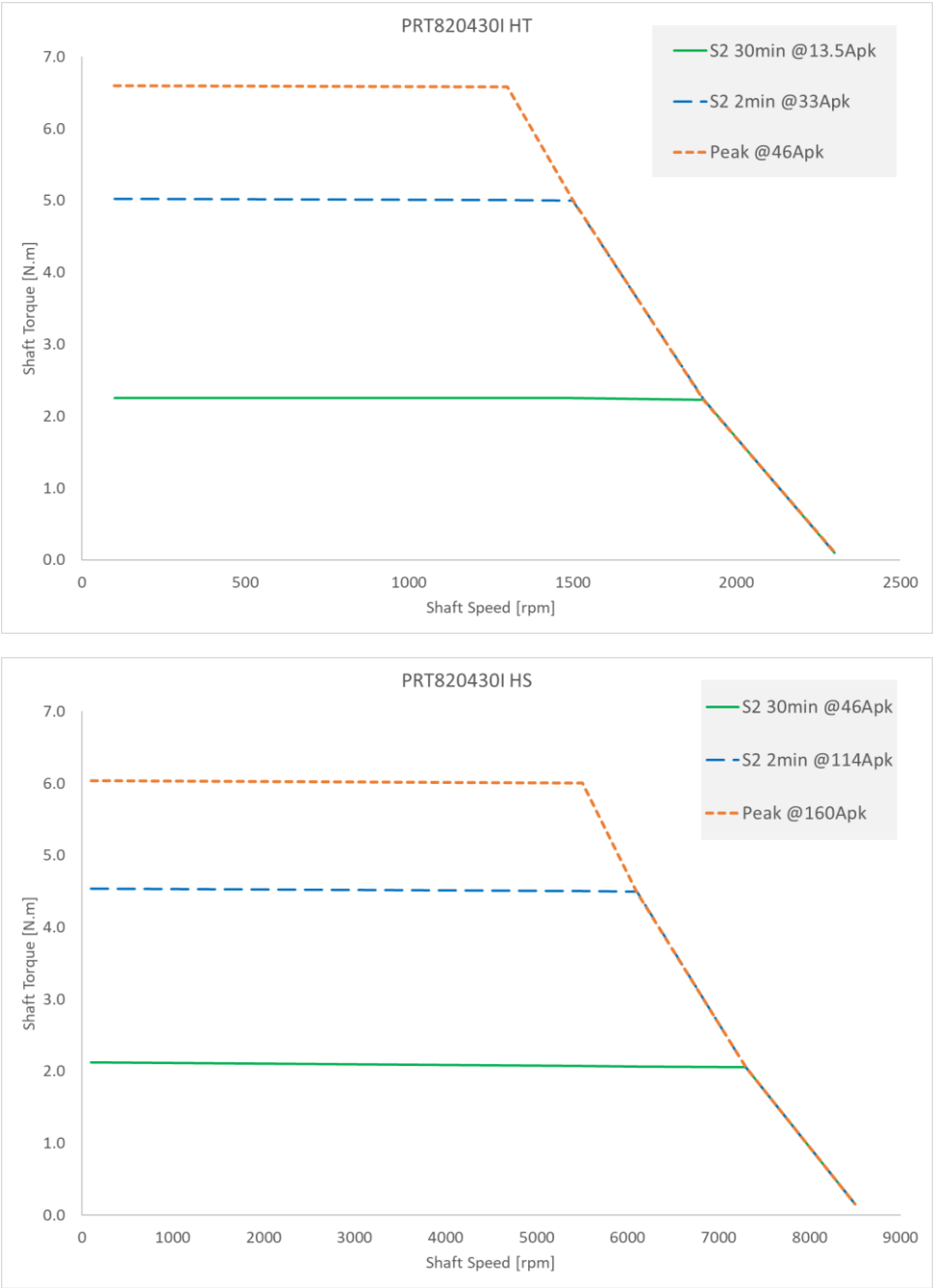
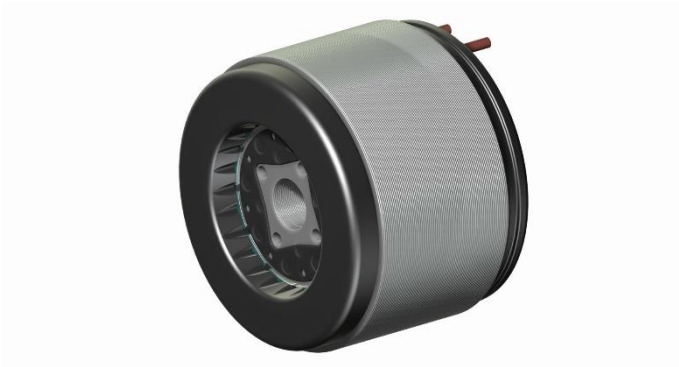
Annex 5 | PRT480280I-XX



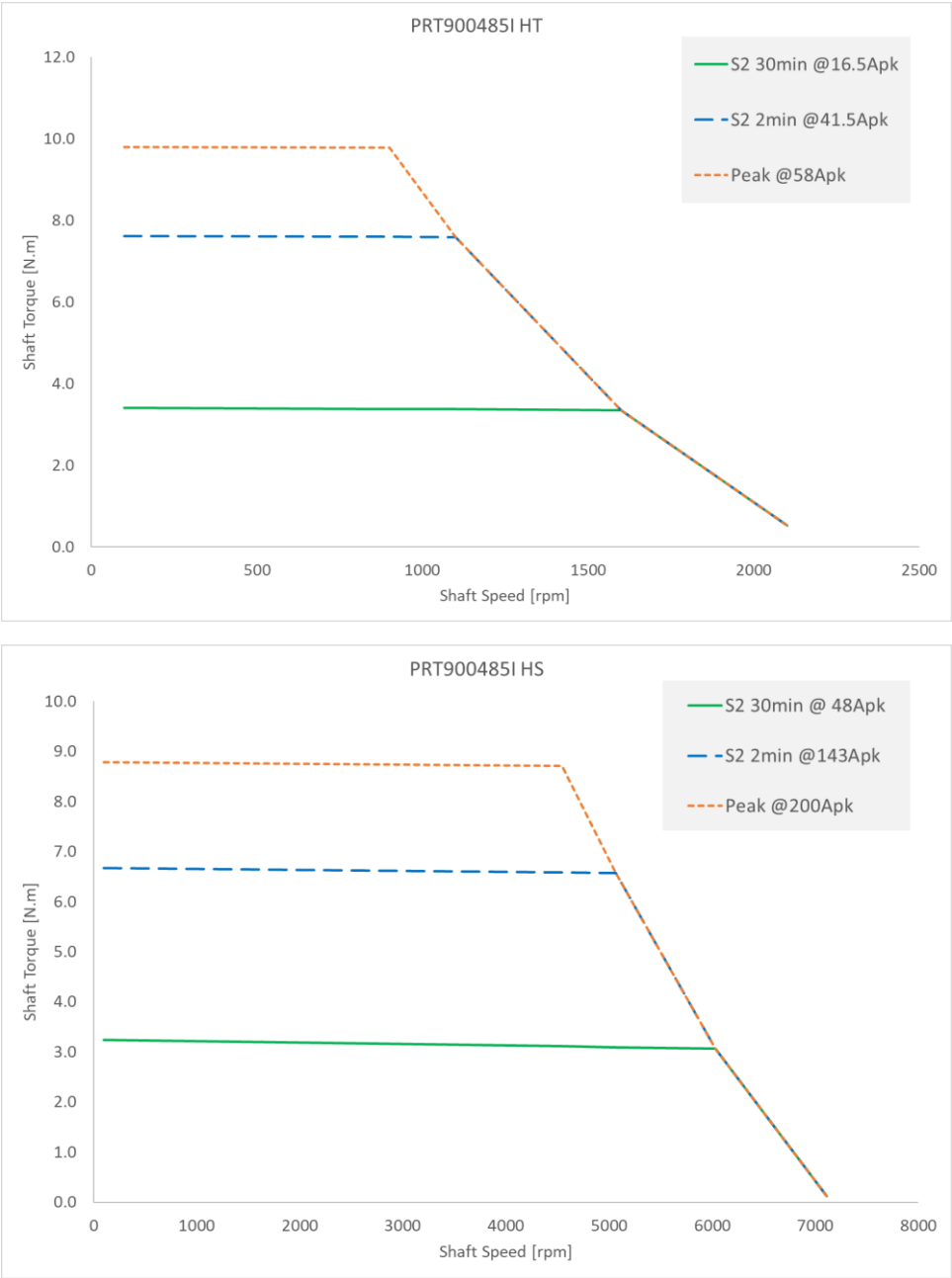
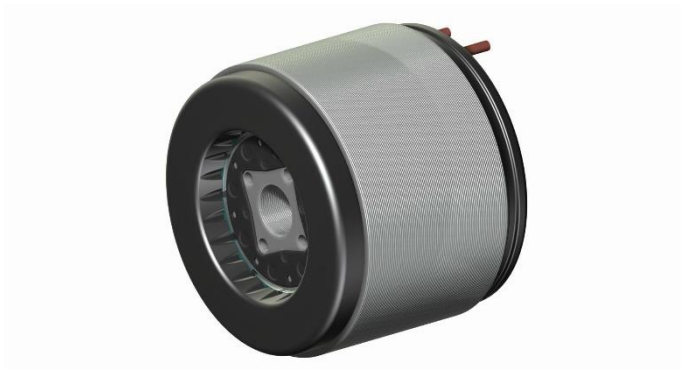
Annex 6 | PRT820355I-XX



Annex 7 | PRT820430I-XX



Annex 8 | PRT900485I-XX





Grazie
Gracias
Merci
Thank You
Danke
Obrigado
Tack

LET'S DESIGN YOUR NEXT PRODUCT TOGETHER

Your next generation of products and systems will be more compact, more precise, more maneuverable than ever before – and they won't be built with off-the-shelf motion technology.

We are Committed to Your Success

To develop advanced, leading edge systems, you need high performance, custom motion control products and the engineering expertise to optimize them for your application.

Design Collaboration for Innovation and Speed-to-Market

Allied Motion is known in the industry for our willingness to develop customized solutions to help ensure our customers' objectives are met.

Please contact us to discuss your specific application requirements.