

# Linear Motors

**LMG DATA SHEETS**

***ETEL***

MOTOR PERFORMANCE		Winding codes	3QA			
		UNIT	FREE AIR COOLING			
<b>Fp</b>	Peak force	N	281			
<b>Fc</b>	Continuous force	N	66.6			
<b>Fs</b>	Standstill force	N	50.3			
<b>Ip</b>	Peak current	Arms	17.2			
<b>Ic</b>	Continuous current	Arms	2.56			
<b>Is</b>	Standstill current	Arms	1.94			
<b>vs</b>	Rated low speed	mm/s	0.20			
<b>Pc</b>	Power dissipation @ Ic	W	47.0			
<b>Fd</b>	Max. detent force (average to peak)	N	6.7			
<b>Fa</b>	Attraction force	N	580			

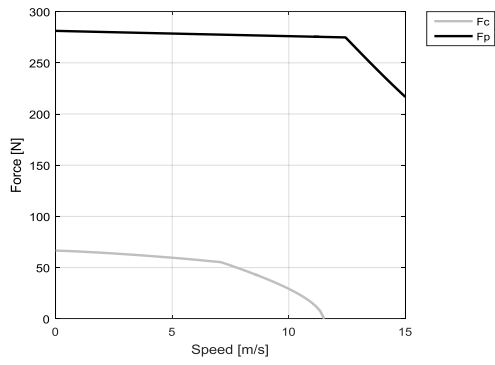
MOTOR SETTING		UNIT				
<b>Kt</b>	Force constant	N/Arms	26.9			
<b>Ku</b>	Back EMF constant (*)	Vrms/(m/s)	16.3			
<b>Km</b>	Motor constant	N/√W	12.0			
<b>R20</b>	Electrical resistance at 20°C (*)	Ohm	3.35			
<b>L</b>	Electrical inductance (*)	mH	14.9			
<b>rth</b>	Thermal time constant	s	1570			
<b>Rth</b>	Thermal resistance	K/W	2.32			
<b>2tp</b>	Magnetic period	mm	32			
<b>mw</b>	Magnetic way mass	kg/m	3.51			
<b>mm</b>	Motor mass	kg	0.587			

MOTOR ENVIRONMENT		UNIT				
<b>Udc</b>	Nominal DC bus voltage	VDC	600			
<b>Gm</b>	Mechanical gap	mm	0.90			
<b>Ss</b>	Stator exchange surface	m²	0.01			
<b>x</b>	Assumed stroke	m	0.29			
<b>θamb</b>	Ambient temperature	°C	20			
<b>θmax</b>	Maximum coil temperature	°C	130			

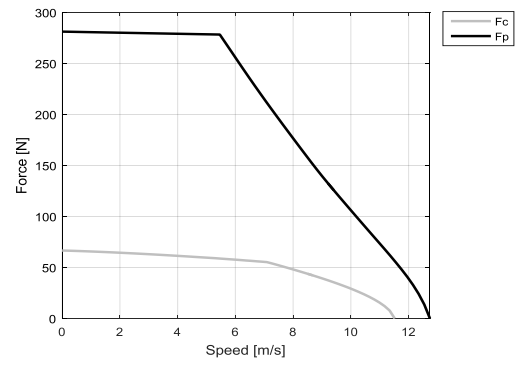
**Notes:** (\*) terminal to terminal.  
Hypotheses and tolerances are in ETEL handbook.

**Caution:** Any use of the motor beyond speed/torque limit could lead to hazardous voltage and serious injuries. Customer is responsible for setting safeties/limitations that will keep the motor in its safe operating area. ETEL cannot be held responsible if the motor is used in an improper way.

3QA - FREE AIR COOLING - 600V



3QA - FREE AIR COOLING - 300V



MOTOR PERFORMANCE		Winding codes	3QA			
		UNIT	FREE AIR COOLING			
<b>Fp</b>	Peak force	N	489			
<b>Fc</b>	Continuous force	N	104			
<b>Fs</b>	Standstill force	N	78.8			
<b>Ip</b>	Peak current	Arms	17.2			
<b>Ic</b>	Continuous current	Arms	2.41			
<b>Is</b>	Standstill current	Arms	1.82			
<b>vs</b>	Rated low speed	mm/s	0.18			
<b>Pc</b>	Power dissipation @ Ic	W	58.3			
<b>Fd</b>	Max. detent force (average to peak)	N	11			
<b>Fa</b>	Attraction force	N	980			

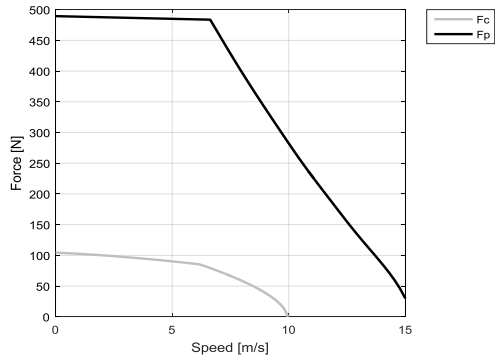
MOTOR SETTING		UNIT				
<b>Kt</b>	Force constant	N/Arms	44.9			
<b>Ku</b>	Back EMF constant (*)	Vrms/(m/s)	27.1			
<b>Km</b>	Motor constant	N/√W	16.9			
<b>R20</b>	Electrical resistance at 20°C (*)	Ohm	4.70			
<b>L</b>	Electrical inductance (*)	mH	27.4			
<b>rth</b>	Thermal time constant	s	1800			
<b>Rth</b>	Thermal resistance	K/W	1.87			
<b>2tp</b>	Magnetic period	mm	32			
<b>mw</b>	Magnetic way mass	kg/m	6.19			
<b>mm</b>	Motor mass	kg	0.878			

MOTOR ENVIRONMENT		UNIT				
<b>Udc</b>	Nominal DC bus voltage	VDC	600			
<b>Gm</b>	Mechanical gap	mm	0.90			
<b>Ss</b>	Stator exchange surface	m²	0.01			
<b>x</b>	Assumed stroke	m	0.29			
<b>θamb</b>	Ambient temperature	°C	20			
<b>θmax</b>	Maximum coil temperature	°C	130			

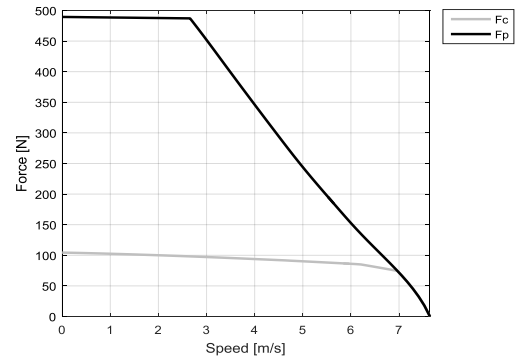
**Notes:** (\*) terminal to terminal.  
Hypotheses and tolerances are in ETEL handbook.

**Caution:** Any use of the motor beyond speed/torque limit could lead to hazardous voltage and serious injuries. Customer is responsible for setting safeties/limitations that will keep the motor in its safe operating area. ETEL cannot be held responsible if the motor is used in an improper way.

**3QA - FREE AIR COOLING - 600V**



**3QA - FREE AIR COOLING - 300V**



MOTOR PERFORMANCE		Winding codes	3QA			
		UNIT	FREE AIR COOLING			
<b>Fp</b>	Peak force	N	697			
<b>Fc</b>	Continuous force	N	138			
<b>Fs</b>	Standstill force	N	104			
<b>Ip</b>	Peak current	Arms	17.2			
<b>Ic</b>	Continuous current	Arms	2.30			
<b>Is</b>	Standstill current	Arms	1.74			
<b>vs</b>	Rated low speed	mm/s	0.16			
<b>Pc</b>	Power dissipation @ Ic	W	68.2			
<b>Fd</b>	Max. detent force (average to peak)	N	16			
<b>Fa</b>	Attraction force	N	1300			

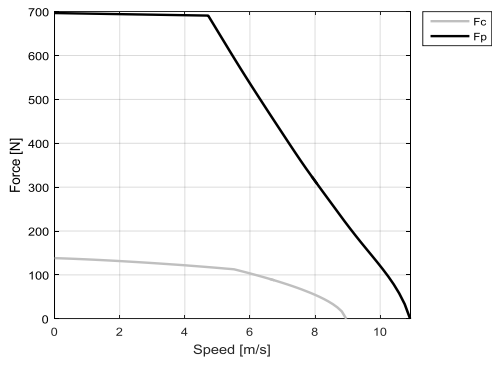
MOTOR SETTING		UNIT				
<b>Kt</b>	Force constant	N/Arms	62.7			
<b>Ku</b>	Back EMF constant (*)	Vrms/(m/s)	38.0			
<b>Km</b>	Motor constant	N/√W	20.8			
<b>R20</b>	Electrical resistance at 20°C (*)	Ohm	6.05			
<b>L</b>	Electrical inductance (*)	mH	35.9			
<b>rth</b>	Thermal time constant	s	1970			
<b>Rth</b>	Thermal resistance	K/W	1.60			
<b>2tp</b>	Magnetic period	mm	32			
<b>mw</b>	Magnetic way mass	kg/m	7.96			
<b>mm</b>	Motor mass	kg	1.17			

MOTOR ENVIRONMENT		UNIT				
<b>Udc</b>	Nominal DC bus voltage	VDC	600			
<b>Gm</b>	Mechanical gap	mm	0.90			
<b>Ss</b>	Stator exchange surface	m²	0.02			
<b>x</b>	Assumed stroke	m	0.29			
<b>θamb</b>	Ambient temperature	°C	20			
<b>θmax</b>	Maximum coil temperature	°C	130			

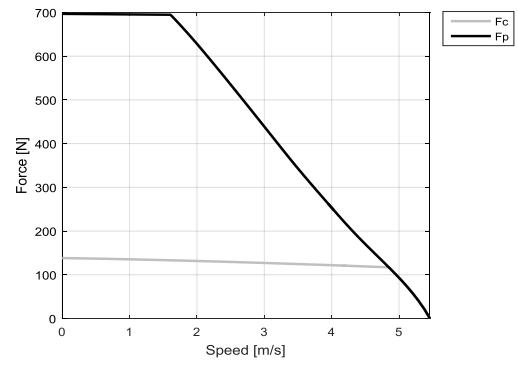
**Notes:** (\*) terminal to terminal.  
Hypotheses and tolerances are in ETEL handbook.

**Caution:** Any use of the motor beyond speed/torque limit could lead to hazardous voltage and serious injuries. Customer is responsible for setting safeties/limitations that will keep the motor in its safe operating area. ETEL cannot be held responsible if the motor is used in an improper way.

3QA - FREE AIR COOLING - 600V



3QA - FREE AIR COOLING - 300V



MOTOR PERFORMANCE		Winding codes	3QA	3QB		
		UNIT	FREE AIR COOLING	FREE AIR COOLING		
<b>Fp</b>	Peak force	N	521	521		
<b>Fc</b>	Continuous force	N	123	123		
<b>Fs</b>	Standstill force	N	92.9	92.9		
<b>Ip</b>	Peak current	Arms	15.5	31.0		
<b>Ic</b>	Continuous current	Arms	2.39	4.79		
<b>Is</b>	Standstill current	Arms	1.81	3.62		
<b>vs</b>	Rated low speed	mm/s	0.18	0.18		
<b>Pc</b>	Power dissipation @ Ic	W	82.2	82.2		
<b>Fd</b>	Max. detent force (average to peak)	N	7.1	7.1		
<b>Fa</b>	Attraction force	N	1000	1000		

MOTOR SETTING		UNIT				
<b>Kt</b>	Force constant	N/Arms	53.3	26.6		
<b>Ku</b>	Back EMF constant (*)	Vrms/(m/s)	32.3	16.2		
<b>Km</b>	Motor constant	N/√W	16.8	16.8		
<b>R20</b>	Electrical resistance at 20°C (*)	Ohm	6.70	1.68		
<b>L</b>	Electrical inductance (*)	mH	36.2	9.05		
<b>rth</b>	Thermal time constant	s	1750	1750		
<b>Rth</b>	Thermal resistance	K/W	1.33	1.33		
<b>2tp</b>	Magnetic period	mm	32	32		
<b>mw</b>	Magnetic way mass	kg/m	3.51	3.51		
<b>mm</b>	Motor mass	kg	1.10	1.10		

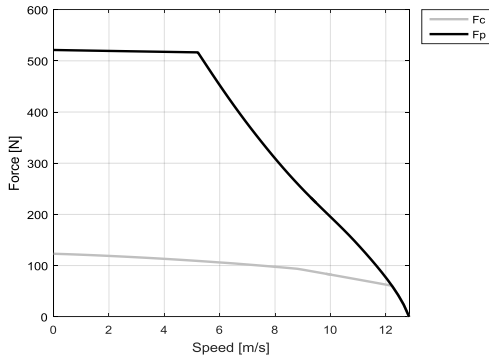
MOTOR ENVIRONMENT		UNIT				
<b>Udc</b>	Nominal DC bus voltage	VDC	600	600		
<b>Gm</b>	Mechanical gap	mm	0.90	0.90		
<b>Ss</b>	Stator exchange surface	m²	0.02	0.02		
<b>x</b>	Assumed stroke	m	0.47	0.47		
<b>θamb</b>	Ambient temperature	°C	20	20		
<b>θmax</b>	Maximum coil temperature	°C	130	130		

**Notes:** (\*) terminal to terminal.  
Hypotheses and tolerances are in ETEL handbook.

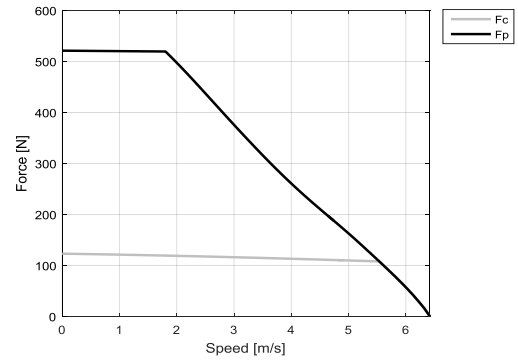
**Caution:** Any use of the motor beyond speed/torque limit could lead to hazardous voltage and serious injuries. Customer is responsible for setting safeties/limitations that will keep the motor in its safe operating area. ETEL cannot be held responsible if the motor is used in an improper way.



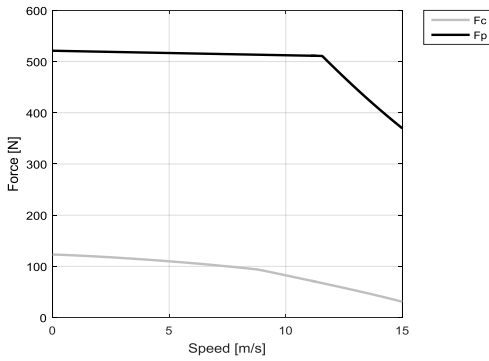
**3QA - FREE AIR COOLING - 600V**



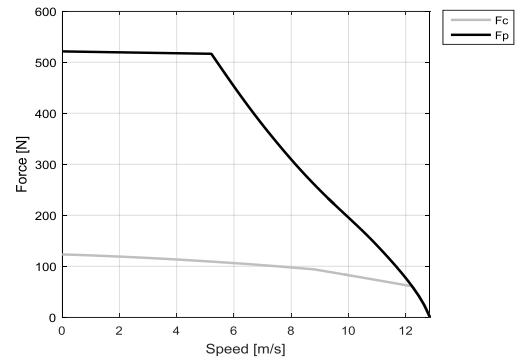
**3QA - FREE AIR COOLING - 300V**



**3QB - FREE AIR COOLING - 600V**



**3QB - FREE AIR COOLING - 300V**



MOTOR PERFORMANCE		Winding codes	3QA	3QB		
		UNIT	FREE AIR COOLING	FREE AIR COOLING		
<b>Fp</b>	Peak force	N	905	905		
<b>Fc</b>	Continuous force	N	191	191		
<b>Fs</b>	Standstill force	N	144	144		
<b>Ip</b>	Peak current	Arms	15.5	31.0		
<b>Ic</b>	Continuous current	Arms	2.23	4.46		
<b>Is</b>	Standstill current	Arms	1.69	3.38		
<b>vs</b>	Rated low speed	mm/s	0.16	0.16		
<b>Pc</b>	Power dissipation @ Ic	W	99.9	99.9		
<b>Fd</b>	Max. detent force (average to peak)	N	12	12		
<b>Fa</b>	Attraction force	N	1800	1800		

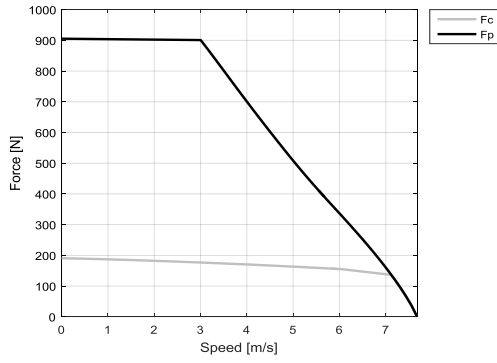
MOTOR SETTING		UNIT				
<b>Kt</b>	Force constant	N/Arms	89.3	44.6		
<b>Ku</b>	Back EMF constant (*)	Vrms/(m/s)	54.1	27.0		
<b>Km</b>	Motor constant	N/√W	23.8	23.8		
<b>R20</b>	Electrical resistance at 20°C (*)	Ohm	9.40	2.35		
<b>L</b>	Electrical inductance (*)	mH	54.2	13.6		
<b>rth</b>	Thermal time constant	s	2030	2030		
<b>Rth</b>	Thermal resistance	K/W	1.09	1.09		
<b>2tp</b>	Magnetic period	mm	32	32		
<b>mw</b>	Magnetic way mass	kg/m	6.19	6.19		
<b>mm</b>	Motor mass	kg	1.65	1.65		

MOTOR ENVIRONMENT		UNIT				
<b>Udc</b>	Nominal DC bus voltage	VDC	600	600		
<b>Gm</b>	Mechanical gap	mm	0.90	0.90		
<b>Ss</b>	Stator exchange surface	m²	0.03	0.03		
<b>x</b>	Assumed stroke	m	0.47	0.47		
<b>θamb</b>	Ambient temperature	°C	20	20		
<b>θmax</b>	Maximum coil temperature	°C	130	130		

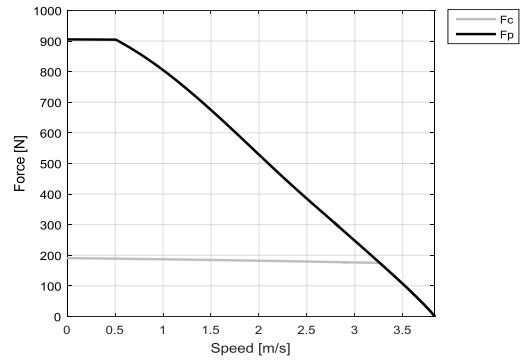
**Notes:** (\*) terminal to terminal.  
Hypotheses and tolerances are in ETEL handbook.

**Caution:** Any use of the motor beyond speed/torque limit could lead to hazardous voltage and serious injuries. Customer is responsible for setting safeties/limitations that will keep the motor in its safe operating area. ETEL cannot be held responsible if the motor is used in an improper way.

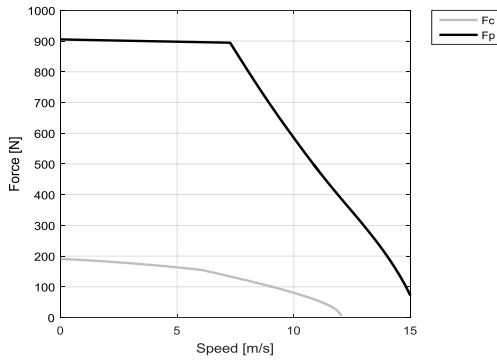
**3QA - FREE AIR COOLING - 600V**



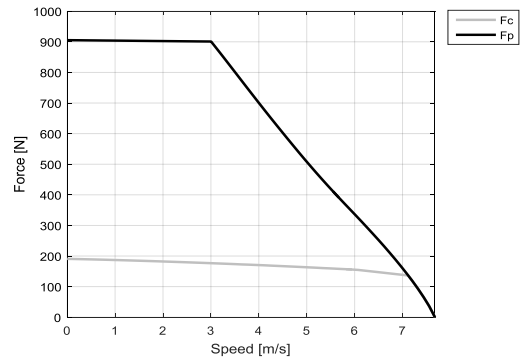
**3QA - FREE AIR COOLING - 300V**



**3QB - FREE AIR COOLING - 600V**



**3QB - FREE AIR COOLING - 300V**



MOTOR PERFORMANCE		Winding codes	3QA	3QB		
		UNIT	FREE AIR COOLING	FREE AIR COOLING		
<b>Fp</b>	Peak force	N	1280	1280		
<b>Fc</b>	Continuous force	N	260	260		
<b>Fs</b>	Standstill force	N	196	196		
<b>Ip</b>	Peak current	Arms	15.5	31.0		
<b>Ic</b>	Continuous current	Arms	2.17	4.35		
<b>Is</b>	Standstill current	Arms	1.65	3.29		
<b>vs</b>	Rated low speed	mm/s	0.15	0.15		
<b>Pc</b>	Power dissipation @ Ic	W	122	122		
<b>Fd</b>	Max. detent force (average to peak)	N	17	17		
<b>Fa</b>	Attraction force	N	2500	2500		

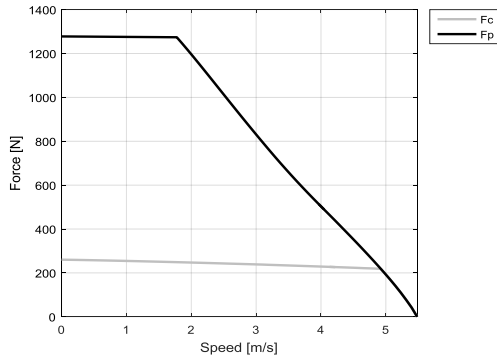
MOTOR SETTING		UNIT				
<b>Kt</b>	Force constant	N/Arms	125	62.6		
<b>Ku</b>	Back EMF constant (*)	Vrms/(m/s)	75.7	37.8		
<b>Km</b>	Motor constant	N/√W	29.4	29.4		
<b>R20</b>	Electrical resistance at 20°C (*)	Ohm	12.1	3.02		
<b>L</b>	Electrical inductance (*)	mH	79.5	19.9		
<b>rth</b>	Thermal time constant	s	2200	2200		
<b>Rth</b>	Thermal resistance	K/W	0.891	0.891		
<b>2tp</b>	Magnetic period	mm	32	32		
<b>mw</b>	Magnetic way mass	kg/m	7.96	7.96		
<b>mm</b>	Motor mass	kg	2.19	2.19		

MOTOR ENVIRONMENT		UNIT				
<b>Udc</b>	Nominal DC bus voltage	VDC	600	600		
<b>Gm</b>	Mechanical gap	mm	0.90	0.90		
<b>Ss</b>	Stator exchange surface	m²	0.03	0.03		
<b>x</b>	Assumed stroke	m	0.47	0.47		
<b>θamb</b>	Ambient temperature	°C	20	20		
<b>θmax</b>	Maximum coil temperature	°C	130	130		

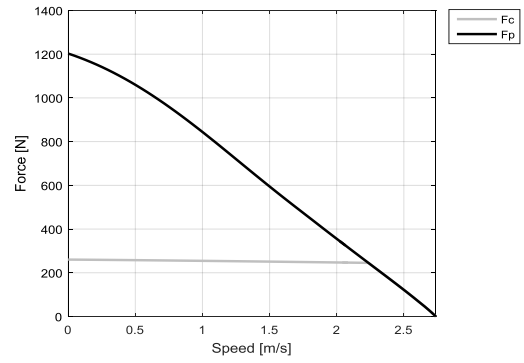
**Notes:** (\*) terminal to terminal.  
Hypotheses and tolerances are in ETEL handbook.

**Caution:** Any use of the motor beyond speed/torque limit could lead to hazardous voltage and serious injuries. Customer is responsible for setting safeties/limitations that will keep the motor in its safe operating area. ETEL cannot be held responsible if the motor is used in an improper way.

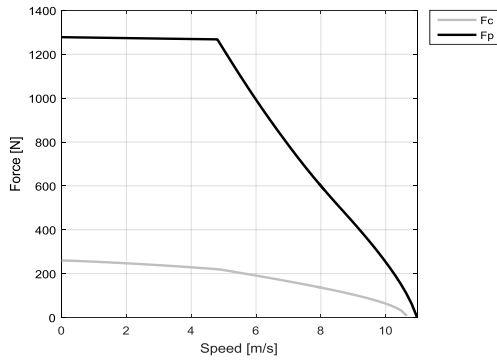
**3QA - FREE AIR COOLING - 600V**



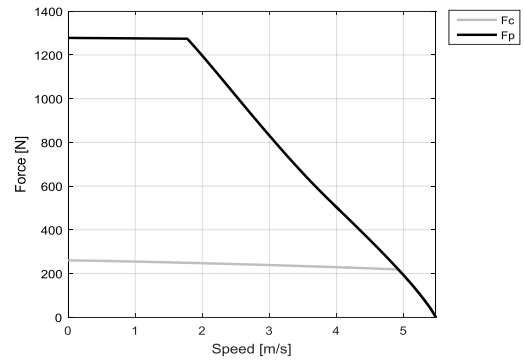
**3QA - FREE AIR COOLING - 300V**



**3QB - FREE AIR COOLING - 600V**



**3QB - FREE AIR COOLING - 300V**



MOTOR PERFORMANCE		Winding codes	3QB			
		UNIT	FREE AIR COOLING			
<b>Fp</b>	Peak force	N	1840			
<b>Fc</b>	Continuous force	N	342			
<b>Fs</b>	Standstill force	N	258			
<b>Ip</b>	Peak current	Arms	31.0			
<b>Ic</b>	Continuous current	Arms	4.03			
<b>Is</b>	Standstill current	Arms	3.06			
<b>vs</b>	Rated low speed	mm/s	0.13			
<b>Pc</b>	Power dissipation @ Ic	W	140			
<b>Fd</b>	Max. detent force (average to peak)	N	24			
<b>Fa</b>	Attraction force	N	3600			

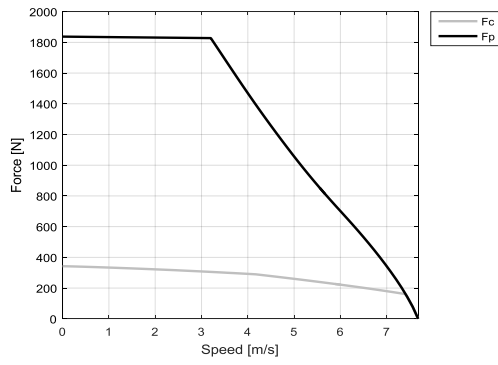
MOTOR SETTING		UNIT				
<b>Kt</b>	Force constant	N/Arms	89.0			
<b>Ku</b>	Back EMF constant (*)	Vrms/(m/s)	54.1			
<b>Km</b>	Motor constant	N/√W	36.2			
<b>R20</b>	Electrical resistance at 20°C (*)	Ohm	4.03			
<b>L</b>	Electrical inductance (*)	mH	27.3			
<b>rth</b>	Thermal time constant	s	2450			
<b>Rth</b>	Thermal resistance	K/W	0.775			
<b>2tp</b>	Magnetic period	mm	32			
<b>mw</b>	Magnetic way mass	kg/m	12.6			
<b>mm</b>	Motor mass	kg	3.00			

MOTOR ENVIRONMENT		UNIT				
<b>Udc</b>	Nominal DC bus voltage	VDC	600			
<b>Gm</b>	Mechanical gap	mm	0.90			
<b>Ss</b>	Stator exchange surface	m²	0.04			
<b>x</b>	Assumed stroke	m	0.47			
<b>θamb</b>	Ambient temperature	°C	20			
<b>θmax</b>	Maximum coil temperature	°C	130			

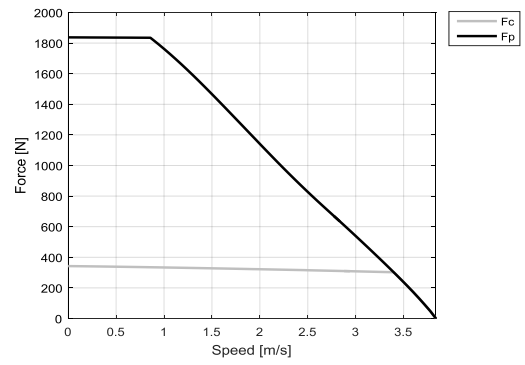
**Notes:** (\*) terminal to terminal.  
Hypotheses and tolerances are in ETEL handbook.

**Caution:** Any use of the motor beyond speed/torque limit could lead to hazardous voltage and serious injuries. Customer is responsible for setting safeties/limitations that will keep the motor in its safe operating area. ETEL cannot be held responsible if the motor is used in an improper way.

3QB - FREE AIR COOLING - 600V



3QB - FREE AIR COOLING - 300V



MOTOR PERFORMANCE		Winding codes	3QA	3QC		
		UNIT	FREE AIR COOLING	FREE AIR COOLING		
<b>Fp</b>	Peak force	N	764	764		
<b>Fc</b>	Continuous force	N	176	176		
<b>Fs</b>	Standstill force	N	132	132		
<b>Ip</b>	Peak current	Arms	14.9	44.7		
<b>Ic</b>	Continuous current	Arms	2.28	6.83		
<b>Is</b>	Standstill current	Arms	1.72	5.17		
<b>vs</b>	Rated low speed	mm/s	0.17	0.17		
<b>Pc</b>	Power dissipation @ Ic	W	112	112		
<b>Fd</b>	Max. detent force (average to peak)	N	8.8	8.8		
<b>Fa</b>	Attraction force	N	1560	1560		

MOTOR SETTING		UNIT				
<b>Kt</b>	Force constant	N/Arms	80.2	26.7		
<b>Ku</b>	Back EMF constant (*)	Vrms/(m/s)	48.6	16.2		
<b>Km</b>	Motor constant	N/√W	20.7	20.7		
<b>R20</b>	Electrical resistance at 20°C (*)	Ohm	10.1	1.12		
<b>L</b>	Electrical inductance (*)	mH	49.7	5.53		
<b>rth</b>	Thermal time constant	s	1850	1850		
<b>Rth</b>	Thermal resistance	K/W	0.981	0.981		
<b>2tp</b>	Magnetic period	mm	32	32		
<b>mw</b>	Magnetic way mass	kg/m	3.51	3.51		
<b>mm</b>	Motor mass	kg	1.62	1.62		

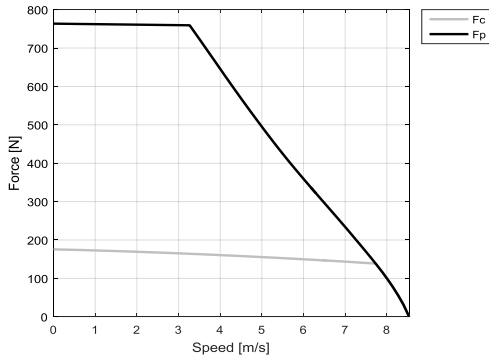
MOTOR ENVIRONMENT		UNIT				
<b>Udc</b>	Nominal DC bus voltage	VDC	600	600		
<b>Gm</b>	Mechanical gap	mm	0.90	0.90		
<b>Ss</b>	Stator exchange surface	m²	0.03	0.03		
<b>x</b>	Assumed stroke	m	0.51	0.51		
<b>θamb</b>	Ambient temperature	°C	20	20		
<b>θmax</b>	Maximum coil temperature	°C	130	130		

**Notes:** (\*) terminal to terminal.  
Hypotheses and tolerances are in ETEL handbook.

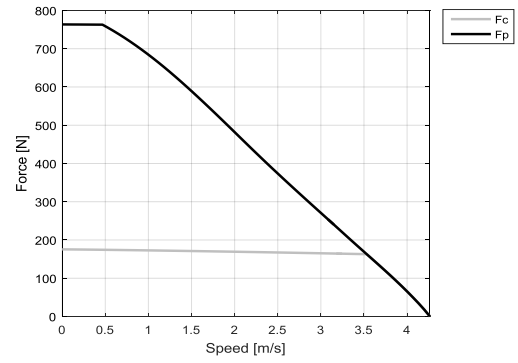
**Caution:** Any use of the motor beyond speed/torque limit could lead to hazardous voltage and serious injuries. Customer is responsible for setting safeties/limitations that will keep the motor in its safe operating area. ETEL cannot be held responsible if the motor is used in an improper way.



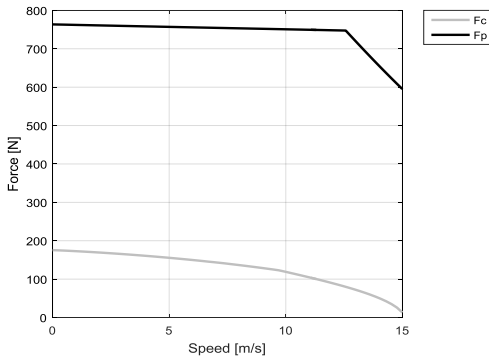
**3QA - FREE AIR COOLING - 600V**



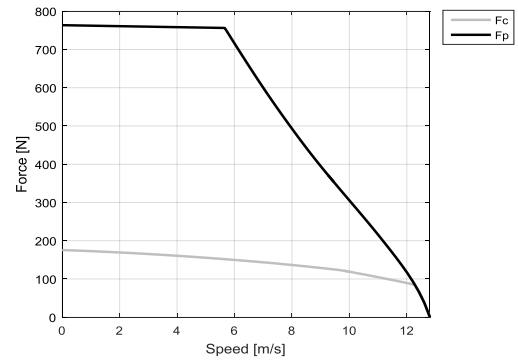
**3QA - FREE AIR COOLING - 300V**



**3QC - FREE AIR COOLING - 600V**



**3QC - FREE AIR COOLING - 300V**



MOTOR PERFORMANCE		Winding codes	3QA	3QC		
		UNIT	FREE AIR COOLING	FREE AIR COOLING		
<b>Fp</b>	Peak force	N	1320	1320		
<b>Fc</b>	Continuous force	N	277	277		
<b>Fs</b>	Standstill force	N	209	209		
<b>Ip</b>	Peak current	Arms	14.9	44.7		
<b>Ic</b>	Continuous current	Arms	2.19	6.56		
<b>Is</b>	Standstill current	Arms	1.66	4.97		
<b>vs</b>	Rated low speed	mm/s	0.15	0.15		
<b>Pc</b>	Power dissipation @ Ic	W	144	144		
<b>Fd</b>	Max. detent force (average to peak)	N	15	15		
<b>Fa</b>	Attraction force	N	2600	2600		

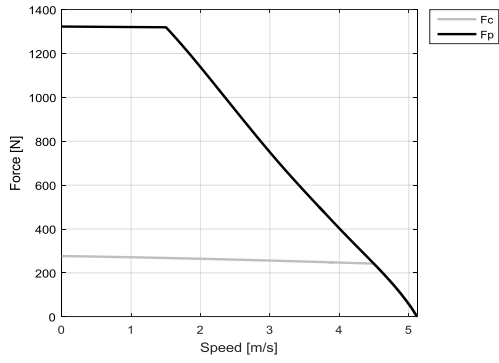
MOTOR SETTING		UNIT				
<b>Kt</b>	Force constant	N/Arms	134	44.5		
<b>Ku</b>	Back EMF constant (*)	Vrms/(m/s)	81.0	27.0		
<b>Km</b>	Motor constant	N/√W	29.0	29.0		
<b>R20</b>	Electrical resistance at 20°C (*)	Ohm	14.1	1.57		
<b>L</b>	Electrical inductance (*)	mH	83.0	9.23		
<b>rth</b>	Thermal time constant	s	2110	2110		
<b>Rth</b>	Thermal resistance	K/W	0.757	0.757		
<b>2tp</b>	Magnetic period	mm	32	32		
<b>mw</b>	Magnetic way mass	kg/m	6.19	6.19		
<b>mm</b>	Motor mass	kg	2.41	2.41		

MOTOR ENVIRONMENT		UNIT				
<b>Udc</b>	Nominal DC bus voltage	VDC	600	600		
<b>Gm</b>	Mechanical gap	mm	0.90	0.90		
<b>Ss</b>	Stator exchange surface	m²	0.04	0.04		
<b>x</b>	Assumed stroke	m	0.51	0.51		
<b>θamb</b>	Ambient temperature	°C	20	20		
<b>θmax</b>	Maximum coil temperature	°C	130	130		

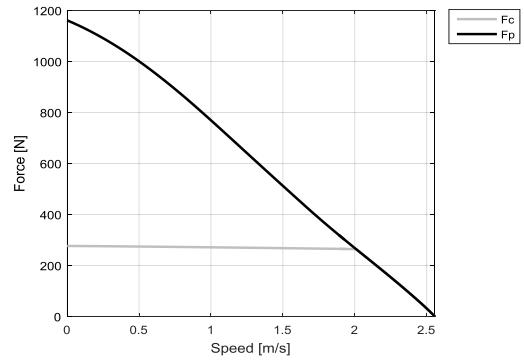
**Notes:** (\*) terminal to terminal.  
Hypotheses and tolerances are in ETEL handbook.

**Caution:** Any use of the motor beyond speed/torque limit could lead to hazardous voltage and serious injuries. Customer is responsible for setting safeties/limitations that will keep the motor in its safe operating area. ETEL cannot be held responsible if the motor is used in an improper way.

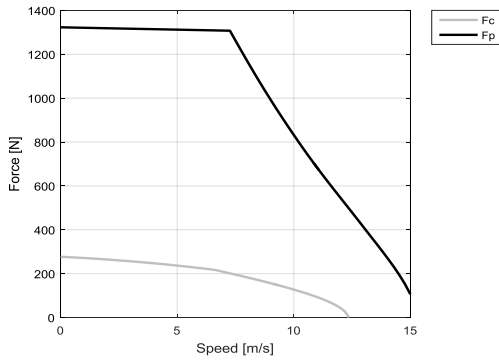
**3QA - FREE AIR COOLING - 600V**



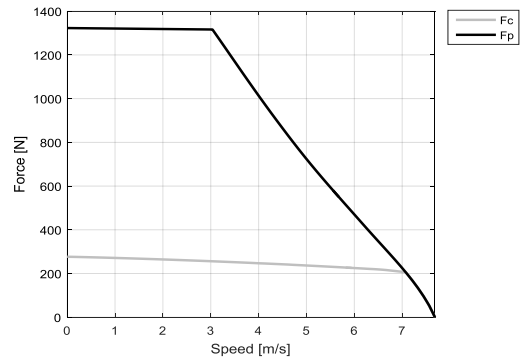
**3QA - FREE AIR COOLING - 300V**



**3QC - FREE AIR COOLING - 600V**



**3QC - FREE AIR COOLING - 300V**



MOTOR PERFORMANCE		Winding codes	3QC			
		UNIT	FREE AIR COOLING			
<b>Fp</b>	Peak force	N	1870			
<b>Fc</b>	Continuous force	N	374			
<b>Fs</b>	Standstill force	N	282			
<b>Ip</b>	Peak current	Arms	44.7			
<b>Ic</b>	Continuous current	Arms	6.37			
<b>Is</b>	Standstill current	Arms	4.82			
<b>vs</b>	Rated low speed	mm/s	0.14			
<b>Pc</b>	Power dissipation @ Ic	W	175			
<b>Fd</b>	Max. detent force (average to peak)	N	21			
<b>Fa</b>	Attraction force	N	3600			

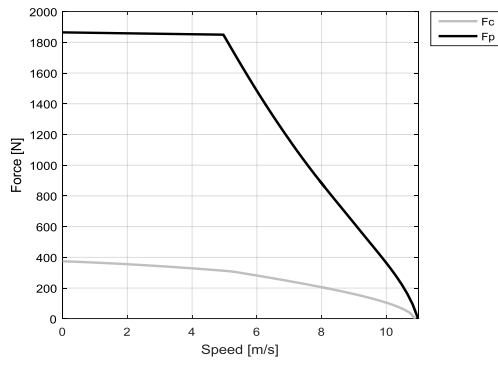
MOTOR SETTING		UNIT				
<b>Kt</b>	Force constant	N/Arms	62.3			
<b>Ku</b>	Back EMF constant (*)	Vrms/(m/s)	37.8			
<b>Km</b>	Motor constant	N/√W	35.8			
<b>R20</b>	Electrical resistance at 20°C (*)	Ohm	2.02			
<b>L</b>	Electrical inductance (*)	mH	12.9			
<b>rth</b>	Thermal time constant	s	2290			
<b>Rth</b>	Thermal resistance	K/W	0.623			
<b>2tp</b>	Magnetic period	mm	32			
<b>mw</b>	Magnetic way mass	kg/m	7.96			
<b>mm</b>	Motor mass	kg	3.21			

MOTOR ENVIRONMENT		UNIT				
<b>Udc</b>	Nominal DC bus voltage	VDC	600			
<b>Gm</b>	Mechanical gap	mm	0.90			
<b>Ss</b>	Stator exchange surface	m²	0.05			
<b>x</b>	Assumed stroke	m	0.51			
<b>θamb</b>	Ambient temperature	°C	20			
<b>θmax</b>	Maximum coil temperature	°C	130			

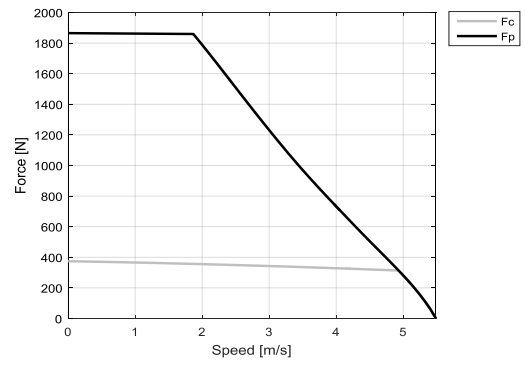
**Notes:** (\*) terminal to terminal.  
Hypotheses and tolerances are in ETEL handbook.

**Caution:** Any use of the motor beyond speed/torque limit could lead to hazardous voltage and serious injuries. Customer is responsible for setting safeties/limitations that will keep the motor in its safe operating area. ETEL cannot be held responsible if the motor is used in an improper way.

3QC - FREE AIR COOLING - 600V



3QC - FREE AIR COOLING - 300V



MOTOR PERFORMANCE		Winding codes	3QC			
		UNIT	FREE AIR COOLING			
<b>Fp</b>	Peak force	N	2700			
<b>Fc</b>	Continuous force	N	506			
<b>Fs</b>	Standstill force	N	381			
<b>Ip</b>	Peak current	Arms	44.7			
<b>Ic</b>	Continuous current	Arms	6.00			
<b>Is</b>	Standstill current	Arms	4.55			
<b>vs</b>	Rated low speed	mm/s	0.13			
<b>Pc</b>	Power dissipation @ Ic	W	207			
<b>Fd</b>	Max. detent force (average to peak)	N	29			
<b>Fa</b>	Attraction force	N	5200			

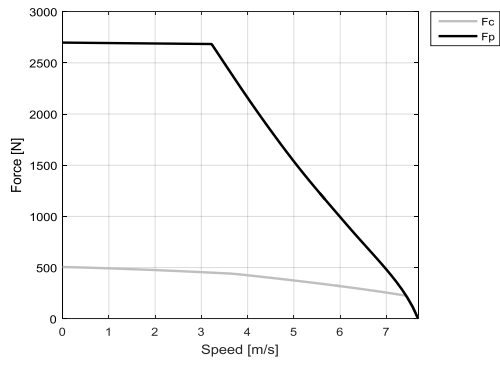
MOTOR SETTING		UNIT				
<b>Kt</b>	Force constant	N/Arms	89.1			
<b>Ku</b>	Back EMF constant (*)	Vrms/(m/s)	54.0			
<b>Km</b>	Motor constant	N/√W	44.3			
<b>R20</b>	Electrical resistance at 20°C (*)	Ohm	2.69			
<b>L</b>	Electrical inductance (*)	mH	18.5			
<b>rth</b>	Thermal time constant	s	2540			
<b>Rth</b>	Thermal resistance	K/W	0.525			
<b>2tp</b>	Magnetic period	mm	32			
<b>mw</b>	Magnetic way mass	kg/m	12.6			
<b>mm</b>	Motor mass	kg	4.40			

MOTOR ENVIRONMENT		UNIT				
<b>Udc</b>	Nominal DC bus voltage	VDC	600			
<b>Gm</b>	Mechanical gap	mm	0.90			
<b>Ss</b>	Stator exchange surface	m²	0.06			
<b>x</b>	Assumed stroke	m	0.51			
<b>θamb</b>	Ambient temperature	°C	20			
<b>θmax</b>	Maximum coil temperature	°C	130			

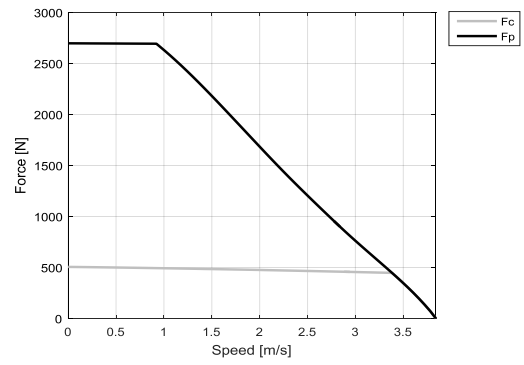
**Notes:** (\*) terminal to terminal.  
Hypotheses and tolerances are in ETEL handbook.

**Caution:** Any use of the motor beyond speed/torque limit could lead to hazardous voltage and serious injuries. Customer is responsible for setting safeties/limitations that will keep the motor in its safe operating area. ETEL cannot be held responsible if the motor is used in an improper way.

3QC - FREE AIR COOLING - 600V



3QC - FREE AIR COOLING - 300V



MOTOR PERFORMANCE		Winding codes	3QB	3QD		
		UNIT	FREE AIR COOLING	FREE AIR COOLING		
<b>Fp</b>	Peak force	N	1790	1790		
<b>Fc</b>	Continuous force	N	378	378		
<b>Fs</b>	Standstill force	N	285	285		
<b>Ip</b>	Peak current	Arms	29.8	59.6		
<b>Ic</b>	Continuous current	Arms	4.44	8.88		
<b>Is</b>	Standstill current	Arms	3.36	6.73		
<b>vs</b>	Rated low speed	mm/s	0.15	0.15		
<b>Pc</b>	Power dissipation @ Ic	W	198	198		
<b>Fd</b>	Max. detent force (average to peak)	N	20	20		
<b>Fa</b>	Attraction force	N	3410	3410		

MOTOR SETTING		UNIT				
<b>Kt</b>	Force constant	N/Arms	89.3	44.7		
<b>Ku</b>	Back EMF constant (*)	Vrms/(m/s)	54.1	27.1		
<b>Km</b>	Motor constant	N/√W	33.7	33.7		
<b>R20</b>	Electrical resistance at 20°C (*)	Ohm	4.70	1.17		
<b>L</b>	Electrical inductance (*)	mH	27.4	6.85		
<b>τth</b>	Thermal time constant	s	2130	2130		
<b>Rth</b>	Thermal resistance	K/W	0.550	0.550		
<b>2τp</b>	Magnetic period	mm	32	32		
<b>mw</b>	Magnetic way mass	kg/m	6.19	6.19		
<b>mm</b>	Motor mass	kg	3.18	3.18		

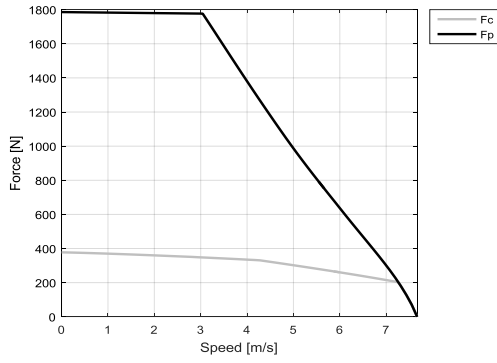
MOTOR ENVIRONMENT		UNIT				
<b>Udc</b>	Nominal DC bus voltage	VDC	600	600		
<b>Gm</b>	Mechanical gap	mm	0.90	0.90		
<b>Ss</b>	Stator exchange surface	m²	0.06	0.06		
<b>x</b>	Assumed stroke	m	0.69	0.69		
<b>θamb</b>	Ambient temperature	°C	20	20		
<b>θmax</b>	Maximum coil temperature	°C	130	130		

**Notes:** (\*) terminal to terminal.  
Hypotheses and tolerances are in ETEL handbook.

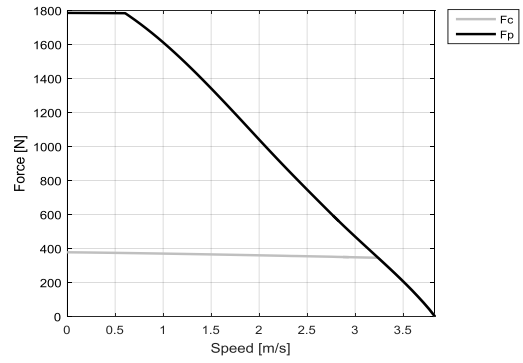
**Caution:** Any use of the motor beyond speed/torque limit could lead to hazardous voltage and serious injuries. Customer is responsible for setting safeties/limitations that will keep the motor in its safe operating area. ETEL cannot be held responsible if the motor is used in an improper way.



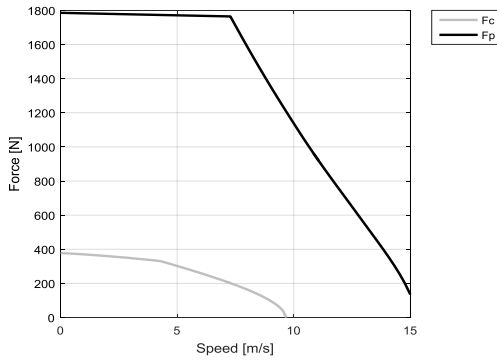
**3QB - FREE AIR COOLING - 600V**



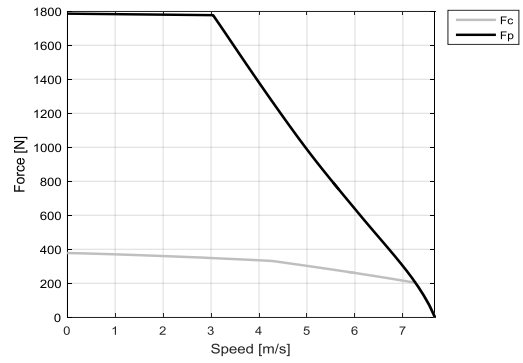
**3QB - FREE AIR COOLING - 300V**



**3QD - FREE AIR COOLING - 600V**



**3QD - FREE AIR COOLING - 300V**



MOTOR PERFORMANCE		Winding codes	3QB	3QD		
		UNIT	FREE AIR COOLING	FREE AIR COOLING		
<b>Fp</b>	Peak force	N	2520	2520		
<b>Fc</b>	Continuous force	N	513	513		
<b>Fs</b>	Standstill force	N	387	387		
<b>Ip</b>	Peak current	Arms	29.8	59.6		
<b>Ic</b>	Continuous current	Arms	4.33	8.66		
<b>Is</b>	Standstill current	Arms	3.28	6.56		
<b>vs</b>	Rated low speed	mm/s	0.14	0.14		
<b>Pc</b>	Power dissipation @ Ic	W	243	243		
<b>Fd</b>	Max. detent force (average to peak)	N	28	28		
<b>Fa</b>	Attraction force	N	4770	4770		

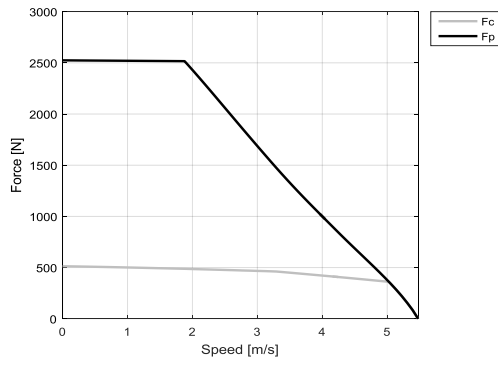
MOTOR SETTING		UNIT				
<b>Kt</b>	Force constant	N/Arms	125	62.5		
<b>Ku</b>	Back EMF constant (*)	Vrms/(m/s)	75.8	37.9		
<b>Km</b>	Motor constant	N/√W	41.5	41.5		
<b>R20</b>	Electrical resistance at 20°C (*)	Ohm	6.05	1.51		
<b>L</b>	Electrical inductance (*)	mH	38.1	9.54		
<b>rth</b>	Thermal time constant	s	2300	2300		
<b>Rth</b>	Thermal resistance	K/W	0.449	0.449		
<b>2tp</b>	Magnetic period	mm	32	32		
<b>mw</b>	Magnetic way mass	kg/m	7.96	7.96		
<b>mm</b>	Motor mass	kg	4.23	4.23		

MOTOR ENVIRONMENT		UNIT				
<b>Udc</b>	Nominal DC bus voltage	VDC	600	600		
<b>Gm</b>	Mechanical gap	mm	0.90	0.90		
<b>Ss</b>	Stator exchange surface	m²	0.07	0.07		
<b>x</b>	Assumed stroke	m	0.69	0.69		
<b>θamb</b>	Ambient temperature	°C	20	20		
<b>θmax</b>	Maximum coil temperature	°C	130	130		

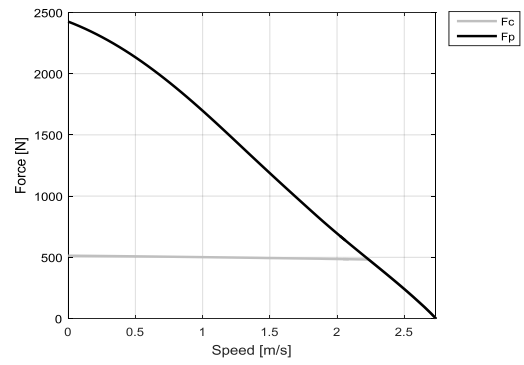
**Notes:** (\*) terminal to terminal.  
Hypotheses and tolerances are in ETEL handbook.

**Caution:** Any use of the motor beyond speed/torque limit could lead to hazardous voltage and serious injuries. Customer is responsible for setting safeties/limitations that will keep the motor in its safe operating area. ETEL cannot be held responsible if the motor is used in an improper way.

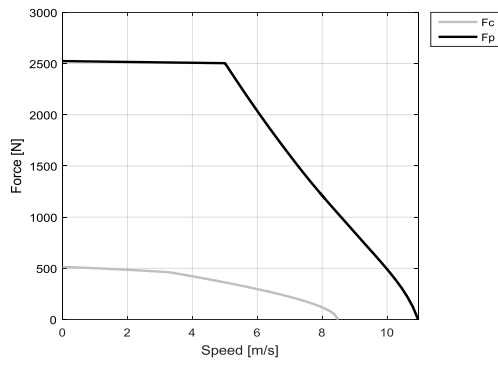
**3QB - FREE AIR COOLING - 600V**



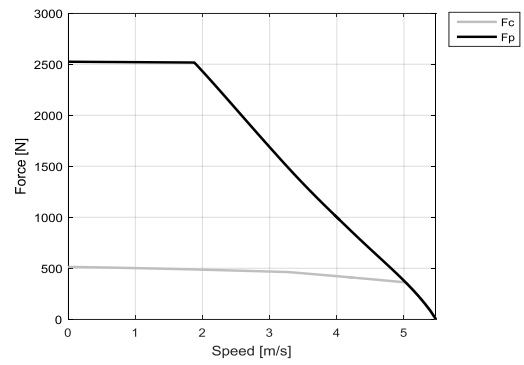
**3QB - FREE AIR COOLING - 300V**



**3QD - FREE AIR COOLING - 600V**



**3QD - FREE AIR COOLING - 300V**



MOTOR PERFORMANCE		Winding codes	3QB	3QD		
		UNIT	FREE AIR COOLING	FREE AIR COOLING		
<b>Fp</b>	Peak force	N	3630	3630		
<b>Fc</b>	Continuous force	N	689	689		
<b>Fs</b>	Standstill force	N	520	520		
<b>Ip</b>	Peak current	Arms	29.8	59.6		
<b>Ic</b>	Continuous current	Arms	4.08	8.16		
<b>Is</b>	Standstill current	Arms	3.09	6.18		
<b>vs</b>	Rated low speed	mm/s	0.13	0.13		
<b>Pc</b>	Power dissipation @ Ic	W	288	288		
<b>Fd</b>	Max. detent force (average to peak)	N	40	40		
<b>Fa</b>	Attraction force	N	6820	6820		

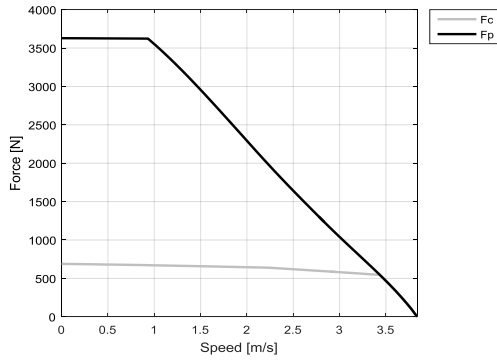
MOTOR SETTING		UNIT				
<b>Kt</b>	Force constant	N/Arms	178	89.2		
<b>Ku</b>	Back EMF constant (*)	Vrms/(m/s)	108	54.1		
<b>Km</b>	Motor constant	N/√W	51.3	51.3		
<b>R20</b>	Electrical resistance at 20°C (*)	Ohm	8.07	2.02		
<b>L</b>	Electrical inductance (*)	mH	53.8	13.4		
<b>rth</b>	Thermal time constant	s	2550	2550		
<b>Rth</b>	Thermal resistance	K/W	0.378	0.378		
<b>2tp</b>	Magnetic period	mm	32	32		
<b>mw</b>	Magnetic way mass	kg/m	12.6	12.6		
<b>mm</b>	Motor mass	kg	5.80	5.80		

MOTOR ENVIRONMENT		UNIT				
<b>Udc</b>	Nominal DC bus voltage	VDC	600	600		
<b>Gm</b>	Mechanical gap	mm	0.90	0.90		
<b>Ss</b>	Stator exchange surface	m²	0.09	0.09		
<b>x</b>	Assumed stroke	m	0.69	0.69		
<b>θamb</b>	Ambient temperature	°C	20	20		
<b>θmax</b>	Maximum coil temperature	°C	130	130		

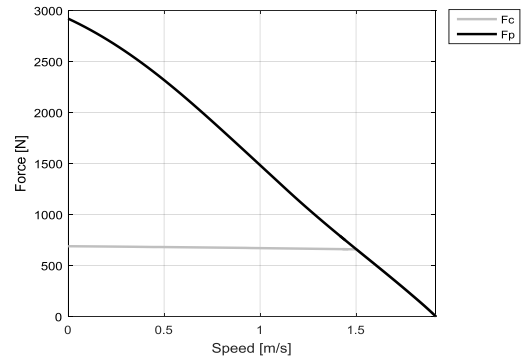
**Notes:** (\*) terminal to terminal.  
Hypotheses and tolerances are in ETEL handbook.

**Caution:** Any use of the motor beyond speed/torque limit could lead to hazardous voltage and serious injuries. Customer is responsible for setting safeties/limitations that will keep the motor in its safe operating area. ETEL cannot be held responsible if the motor is used in an improper way.

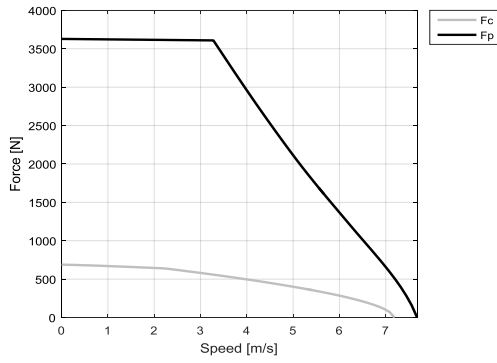
**3QB - FREE AIR COOLING - 600V**



**3QB - FREE AIR COOLING - 300V**



**3QD - FREE AIR COOLING - 600V**



**3QD - FREE AIR COOLING - 300V**

