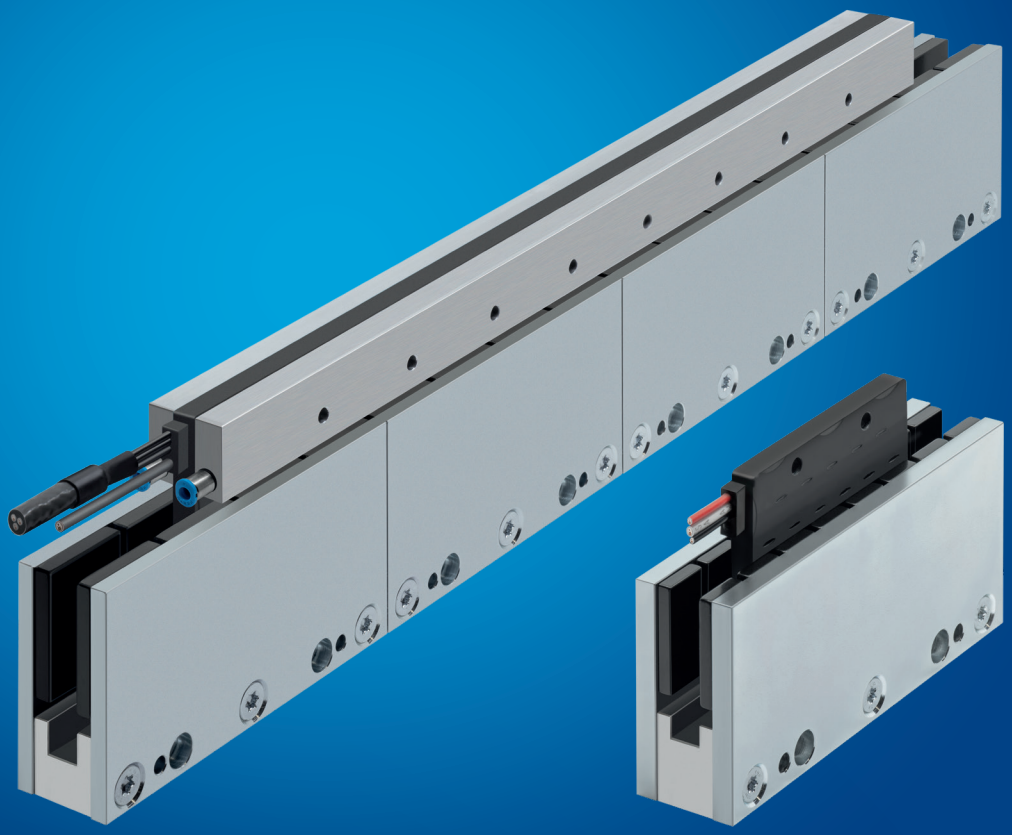

Linear Motors

ILF+ DATA SHEETS

ETEL

ETEL

IRONLESS LINEAR MOTOR

ILF+ Standard

ILF+03-030

MOTOR PERFORMANCE		Winding codes	KA	KA	NA	NA
		UNIT	FREE AIR COOLING	FORCED AIR COOLING	FREE AIR COOLING	FORCED AIR COOLING
Fp	Peak force	N	97.9	97.9	96.7	96.7
Fc	Continuous force	N	21.3	31.6	21.2	31.5
Fs	Standstill force	N	16.0	23.6	15.9	23.5
Ip	Peak current	Arms	3.48	3.48	7.55	7.55
Ic	Continuous current	Arms	0.738	1.09	1.61	2.39
Is	Standstill current	Arms	0.555	0.815	1.21	1.78
vs	Rated low speed	mm/s	1.0	4.0	1.1	4.1
Pc	Power dissipation @ Ic	W	26.6	56.4	26.4	55.8
Fd	Max. detent force (average to peak)	N	0	0	0	0
Fa	Attraction force	N	0.0	0.0	0.0	0.0

MOTOR SETTING		UNIT				
Kt	Force constant	N/Arms	29.5	29.5	13.4	13.4
Ku	Back EMF constant (*)	Vrms/(m/s)	17.9	17.9	8.17	8.17
Km	Motor constant	N/√W	4.99	4.99	4.99	4.99
R20	Electrical resistance at 20°C (*)	Ohm	23.2	23.2	4.82	4.82
L	Electrical inductance (*)	mH	12.3	12.3	2.55	2.55
τth	Thermal time constant	s	314	79.7	303	78.5
Rth	Thermal resistance	K/W	4.11	1.90	4.14	1.92
2τp	Magnetic period	mm	32	32	32	32
mw	Magnetic way mass	kg/m	8.16	8.16	8.16	8.16
mm	Motor mass	kg	0.0995	0.169	0.0959	0.165

MOTOR ENVIRONMENT		UNIT				
Udc	Nominal DC bus voltage	VDC	600	600	600	600
Ss	Stator exchange surface	m²	0.03	0.03	0.03	0.03
x	Assumed stroke	m	0.18	0.18	0.18	0.18
θamb	Ambient temperature	°C	20	20	20	20
θmax	Maximum coil temperature	°C	130	130	130	130
θa	Inlet air temperature	°C	N/A	20	N/A	20
qa	Minimum air flow	l/min	N/A	33	N/A	33
Δpa	Minimum inlet air gauge pressure	bar	N/A	0.3	N/A	0.3

Notes: (*) terminal to terminal.
Hypotheses and tolerances are in ETEL Integration Manual.

Caution: Any use of the motor beyond speed/force 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.

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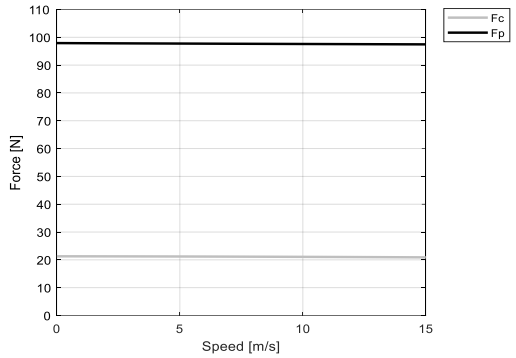
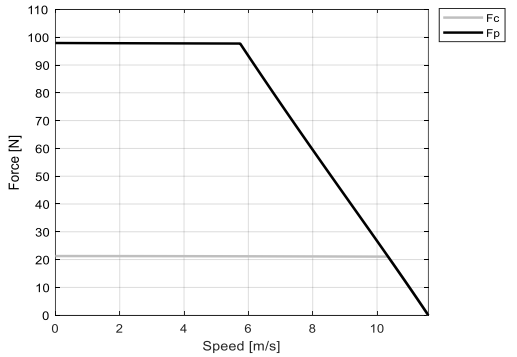
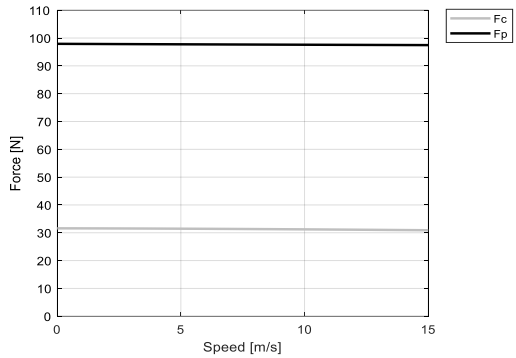
KA - FREE AIR COOLING - 600V



KA - FREE AIR COOLING - 300V



KA - FORCED AIR COOLING - 600V



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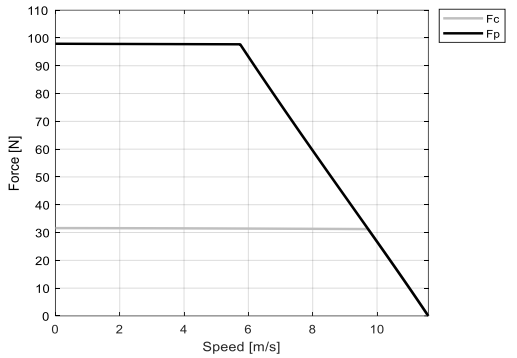

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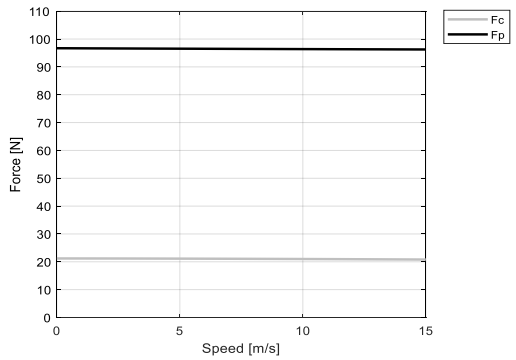

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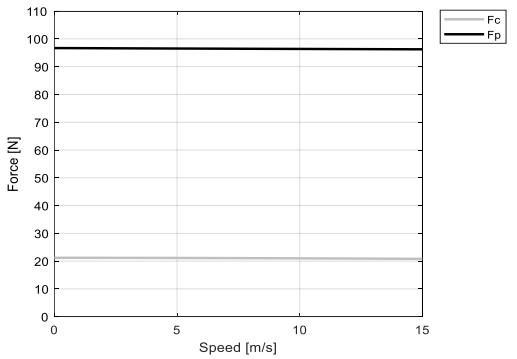

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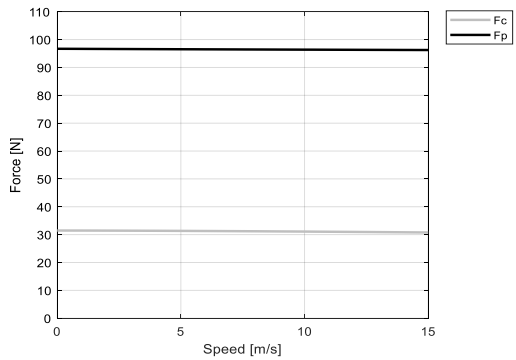
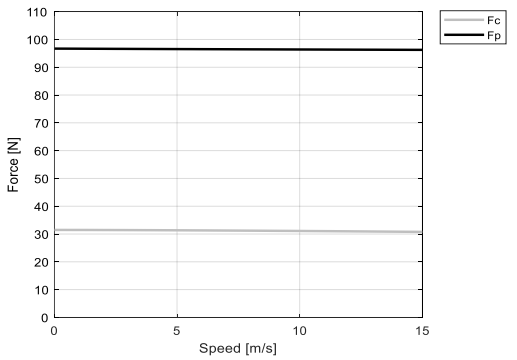


NA - FORCED AIR COOLING - 300V



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IRONLESS LINEAR MOTOR

ILF+06-030

		Winding codes	KB	KB	NB	NB
MOTOR PERFORMANCE		UNIT	FREE AIR COOLING	FORCED AIR COOLING	FREE AIR COOLING	FORCED AIR COOLING
Fp	Peak force	N	196	196	193	193
Fc	Continuous force	N	40.9	51.8	40.8	51.6
Fs	Standstill force	N	30.9	38.9	30.8	38.7
Ip	Peak current	Arms	6.97	6.97	15.1	15.1
Ic	Continuous current	Arms	1.42	1.79	3.11	3.92
Is	Standstill current	Arms	1.07	1.35	2.35	2.95
vs	Rated low speed	mm/s	1.1	2.4	1.2	2.5
Pc	Power dissipation @ Ic	W	49.8	77.5	49.4	76.8
Fd	Max. detent force (average to peak)	N	0	0	0	0
Fa	Attraction force	N	0.0	0.0	0.0	0.0
MOTOR SETTING		UNIT				
Kt	Force constant	N/Arms	29.5	29.5	13.4	13.4
Ku	Back EMF constant (*)	Vrms/(m/s)	17.9	17.9	8.17	8.17
Km	Motor constant	N/√W	7.05	7.05	7.06	7.06
R20	Electrical resistance at 20°C (*)	Ohm	11.6	11.6	2.41	2.41
L	Electrical inductance (*)	mH	6.13	6.13	1.27	1.27
τth	Thermal time constant	s	283	131	276	129
Rth	Thermal resistance	K/W	2.20	1.39	2.22	1.40
2τp	Magnetic period	mm	32	32	32	32
mw	Magnetic way mass	kg/m	8.16	8.16	8.16	8.16
mm	Motor mass	kg	0.194	0.326	0.187	0.319
MOTOR ENVIRONMENT		UNIT				
Udc	Nominal DC bus voltage	VDC	600	600	600	600
Ss	Stator exchange surface	m²	0.05	0.05	0.05	0.05
x	Assumed stroke	m	0.38	0.38	0.38	0.38
θamb	Ambient temperature	°C	20	20	20	20
θmax	Maximum coil temperature	°C	130	130	130	130
θa	Inlet air temperature	°C	N/A	20	N/A	20
qa	Minimum air flow	l/min	N/A	33	N/A	33
Δpa	Minimum inlet air gauge pressure	bar	N/A	0.3	N/A	0.3

Notes: (*) terminal to terminal.
Hypotheses and tolerances are in ETEL Integration Manual.

Caution: Any use of the motor beyond speed/force 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.

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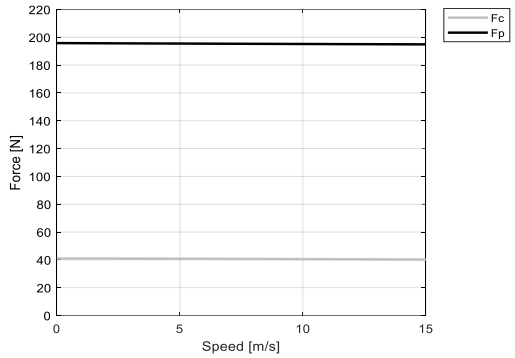
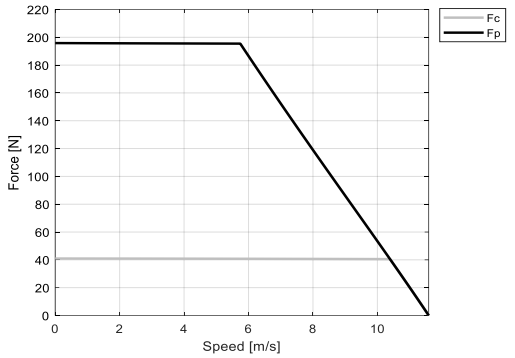
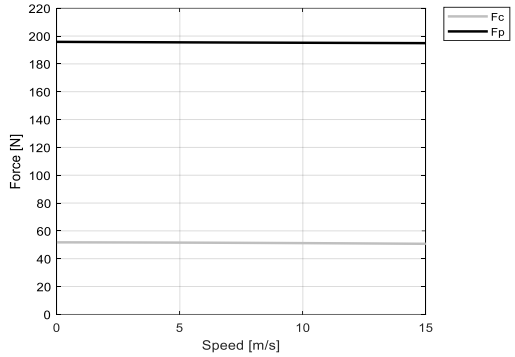
KB - FREE AIR COOLING - 600V



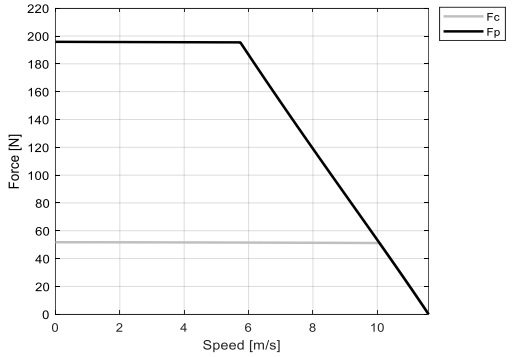
KB - FREE AIR COOLING - 300V



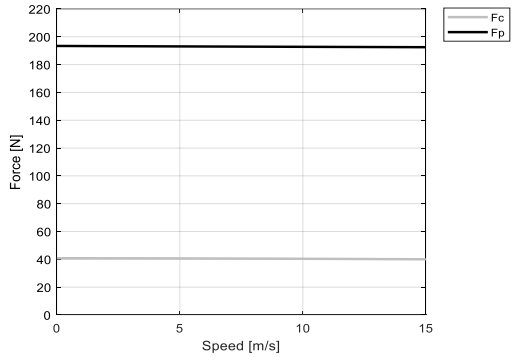
KB - FORCED AIR COOLING - 600V



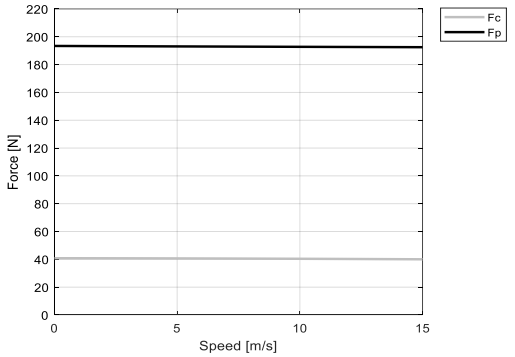
KB - FORCED AIR COOLING - 300V



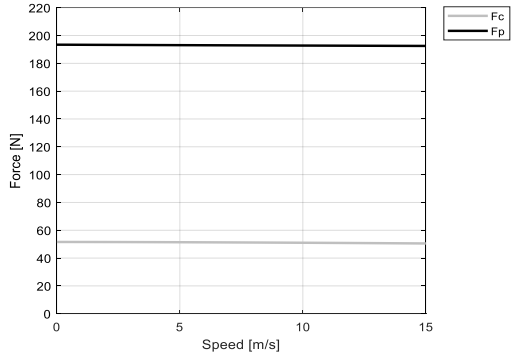
NB - FREE AIR COOLING - 600V



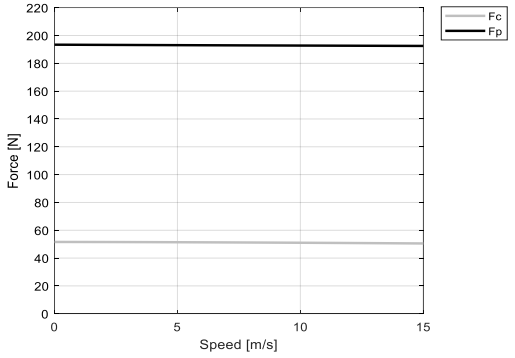
NB - FREE AIR COOLING - 300V



NB - FORCED AIR COOLING - 600V



NB - FORCED AIR COOLING - 300V



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ETEL

IRONLESS LINEAR MOTOR

ILF+ Standard

ILF+09-030

MOTOR PERFORMANCE		Winding codes	KC	KC	NC	NC
		UNIT	FREE AIR COOLING	FORCED AIR COOLING	FREE AIR COOLING	FORCED AIR COOLING
Fp	Peak force	N	294	294	290	290
Fc	Continuous force	N	60.0	68.8	59.8	68.5
Fs	Standstill force	N	45.3	51.8	45.1	51.6
Ip	Peak current	Arms	10.5	10.5	22.7	22.7
Ic	Continuous current	Arms	2.09	2.39	4.58	5.24
Is	Standstill current	Arms	1.58	1.80	3.45	3.94
vs	Rated low speed	mm/s	1.1	1.7	1.1	1.8
Pc	Power dissipation @ Ic	W	72.1	92.9	71.4	92.2
Fd	Max. detent force (average to peak)	N	0	0	0	0
Fa	Attraction force	N	0.0	0.0	0.0	0.0

MOTOR SETTING		UNIT				
Kt	Force constant	N/Arms	29.5	29.5	13.4	13.4
Ku	Back EMF constant (*)	Vrms/(m/s)	17.9	17.9	8.17	8.17
Km	Motor constant	N/√W	8.64	8.64	8.65	8.65
R20	Electrical resistance at 20°C (*)	Ohm	7.75	7.75	1.61	1.61
L	Electrical inductance (*)	mH	4.09	4.09	0.849	0.849
τth	Thermal time constant	s	300	184	292	181
Rth	Thermal resistance	K/W	1.52	1.17	1.53	1.18
2τp	Magnetic period	mm	32	32	32	32
mw	Magnetic way mass	kg/m	8.16	8.16	8.16	8.16
mm	Motor mass	kg	0.288	0.483	0.277	0.473

MOTOR ENVIRONMENT		UNIT				
Udc	Nominal DC bus voltage	VDC	600	600	600	600
Ss	Stator exchange surface	m²	0.08	0.08	0.08	0.08
x	Assumed stroke	m	0.44	0.44	0.44	0.44
θamb	Ambient temperature	°C	20	20	20	20
θmax	Maximum coil temperature	°C	130	130	130	130
θa	Inlet air temperature	°C	N/A	20	N/A	20
qa	Minimum air flow	l/min	N/A	33	N/A	33
Δpa	Minimum inlet air gauge pressure	bar	N/A	0.3	N/A	0.3

Notes: (*) terminal to terminal.
Hypotheses and tolerances are in ETEL Integration Manual.

Caution: Any use of the motor beyond speed/force 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.

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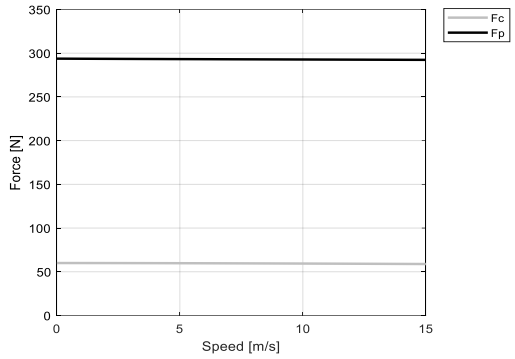
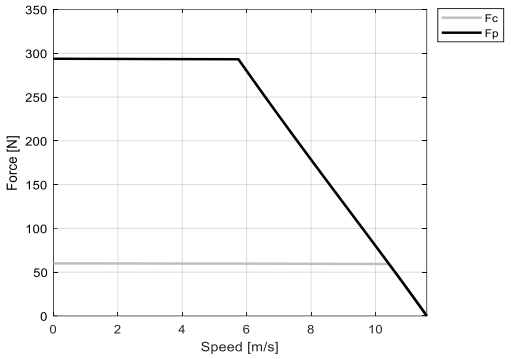
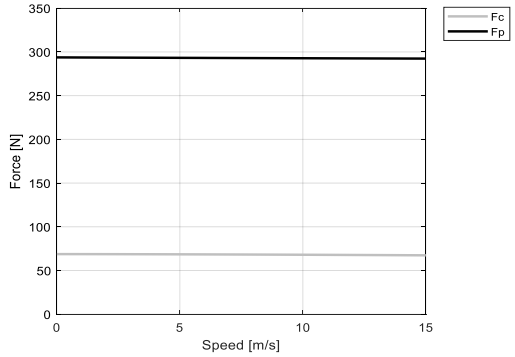
KC - FREE AIR COOLING - 600V



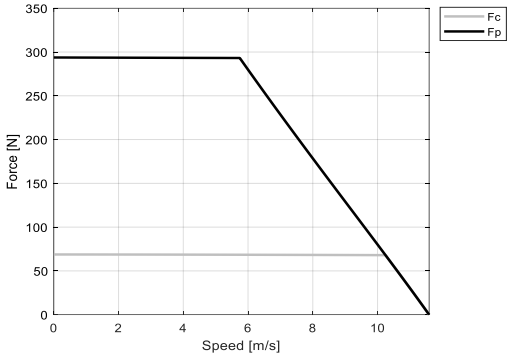
KC - FREE AIR COOLING - 300V



KC - FORCED AIR COOLING - 600V



KC - FORCED AIR COOLING - 300V



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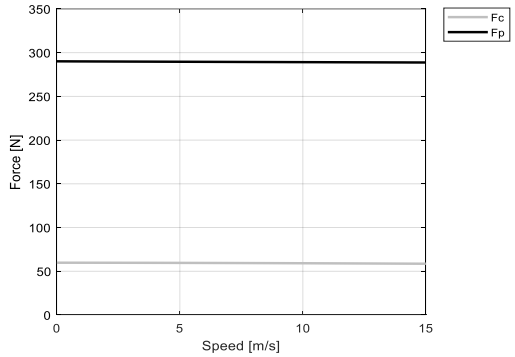

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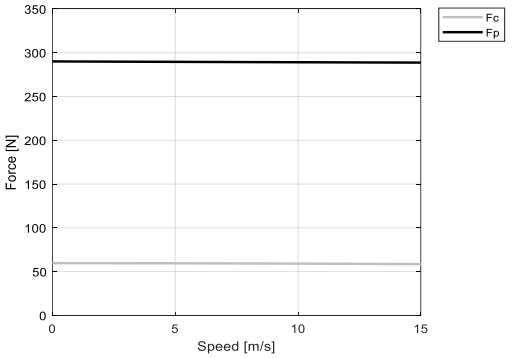

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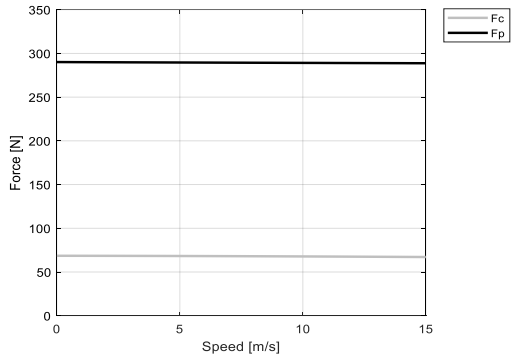
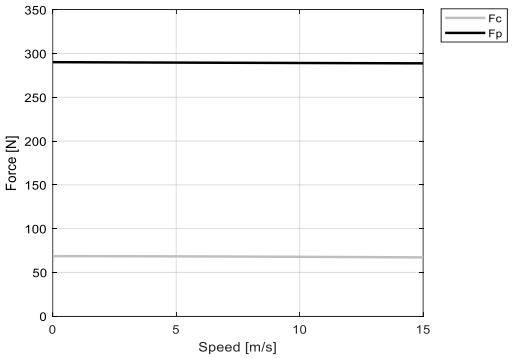


NC - FORCED AIR COOLING - 300V



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