

# iLMA90

## General technical data

			iLMA 90															
			Version S				Version M				Version L				Version XL			
			Classic Plate		High Performance		Classic Plate		High Performance		Classic Plate		High Performance		Classic Plate		High Performance	
PARAMETER	SYM	UNIT	Low Speed	High Speed	Low Speed	High Speed	Low Speed	High Speed	Low Speed	High Speed	Low Speed	High Speed	Low Speed	High Speed	Low Speed	High Speed	Low Speed	High Speed
Supply voltage	V <sub>DC</sub>	V (DC)	600															
Continuous Force*	F <sub>C</sub>	N	444		495		877		978		1311		1461		1744		1944	
Peak Force (1s)*	F <sub>P</sub>	N	976		1124		1929		2221		2882		3318		3835		4416	
Ultimate Force (0,5s)*	F <sub>U</sub>	N	1230		1445		2430		2856		3631		4267		4831		5678	
Attraction force of magnets**	F <sub>A</sub>	N	2034		2874		3735		5277		5436		7680		8838		12486	
Cogging (Detent) force	F <sub>G</sub>	N	15,0		18,0		0,0		0,0		0,0		0,0		0,0		0,0	
Force constant	K <sub>F</sub>	$\frac{N}{A_{RMS}}$	148,0	64,6	165,0	72,1	146,2	63,8	163,0	71,2	145,7	63,6	162,3	70,9	145,3	63,4	162,0	70,7
Motor constant	K <sub>M</sub>	$\frac{N}{\sqrt{W}}$	35,3	35,2	39,4	39,2	49,2	49,2	54,8	54,9	60,1	60,0	66,9	66,9	69,2	69,2	77,1	77,1
Back EMF Phase-Phase Constant	K <sub>BEMF</sub>	$\frac{V}{(m/s)}$	85,4	37,3	98,7	43,1	84,4	36,9	97,5	42,6	84,1	36,7	97,1	42,4	83,9	36,6	96,9	42,3
Maximum Continuous Current	I <sub>C</sub>	A <sub>RMS</sub>	3,0	6,9	3,0	6,9	6,0	13,7	6,0	13,7	9,0	20,6	9,0	20,6	12,0	27,5	12,0	27,5
Peak Current	I <sub>P</sub>	A <sub>RMS</sub>	6,0	20,6	6,0	20,6	18,0	41,2	18,0	41,2	27,0	61,8	27,0	61,8	36,0	82,4	36,0	82,4
Ultimate Current	I <sub>U</sub>	A <sub>RMS</sub>	15,0	34,3	15,0	34,3	30,0	68,7	30,0	68,7	45,0	103,0	45,0	103,0	60,0	137,4	60,0	137,4
Resistance at 20°C Phase - Phase	R <sub>25</sub>	Ω	11,7	2,3	11,7	2,3	5,9	1,1	5,9	1,1	3,9	0,8	3,9	0,8	2,9	0,6	2,9	0,6
Resistance at 125°C Phase - Phase	R <sub>120</sub>		16,5	3,2	16,5	3,2	8,3	1,6	8,3	1,6	5,5	1,1	5,5	1,1	4,2	0,8	4,2	0,8
Induction Phase - Phase	L <sub>P</sub>	mH	75,5	14,4	75,5	14,4	37,7	7,2	37,7	7,2	25,1	4,8	25,1	4,8	18,9	3,6	18,9	3,6
Electrical time constant***	t <sub>C</sub>	mS	6,5	6,4	6,5	6,4	6,4	6,4	6,4	6,4	6,4	6,4	6,4	6,4	6,4	6,4	6,4	6,4
Max. Winding temperature****	T <sub>max</sub>	°C	20															
Thermal Resistance	R <sub>th</sub>	$\frac{K}{W}$	0,471				0,234				0,156				0,117			
Thermal Resistance to heatsink	R <sub>th_HS</sub>	$\frac{K}{W}$	0,125				0,063				0,042				0,031			
Motor overall length	ML	mm	128,4				233,4				338,4				443,4			
Motor overall width	MW	mm	120															
Motor overall height	MH	mm	23,5															
Motor mass	mm	kg																
Motor wires cross-section	SC	mm <sup>2</sup>	1,5								2,5							
Sensor wires cross-section	SSC	mm <sup>2</sup>	0,25															
Motor cable length	LM	mm	400															
Sensor cable length	LS	mm	400															
Magnet Pitch	τ	mm	30															

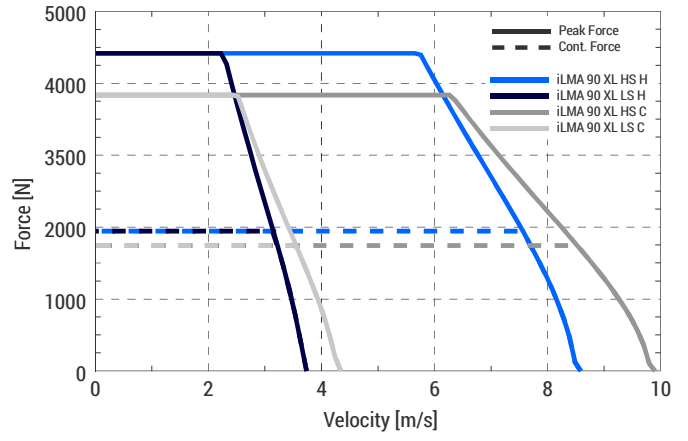
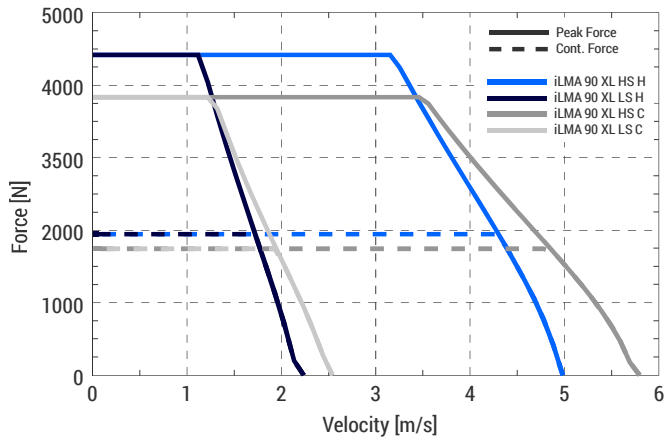
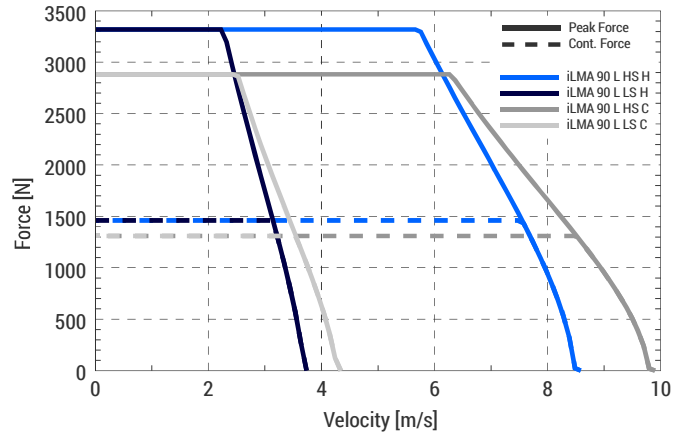
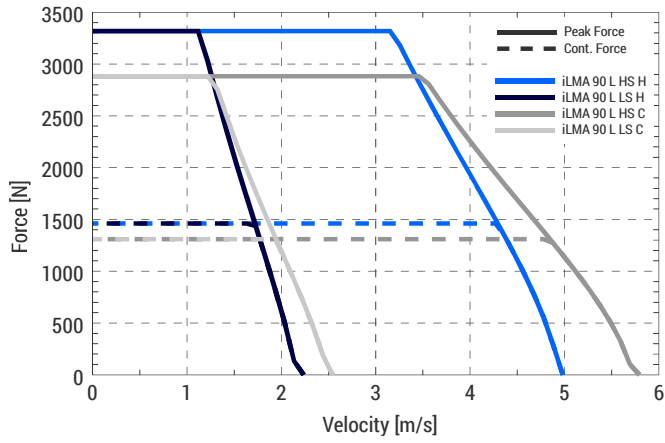
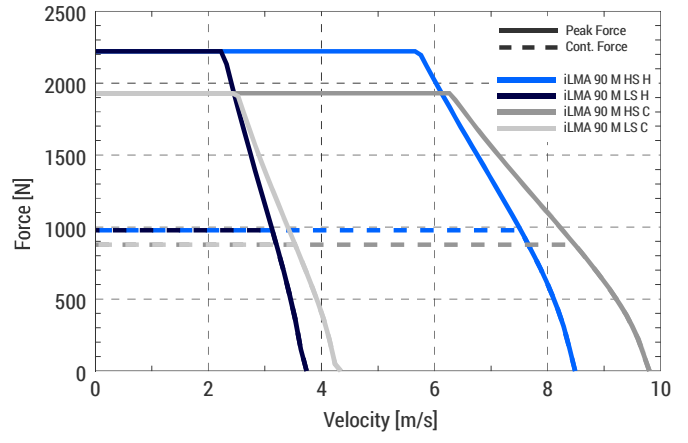
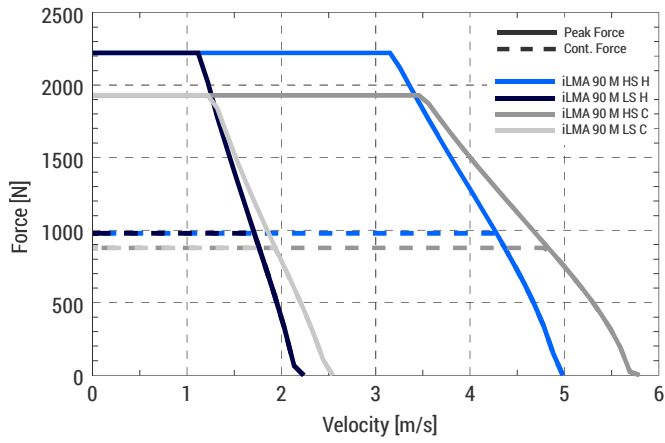
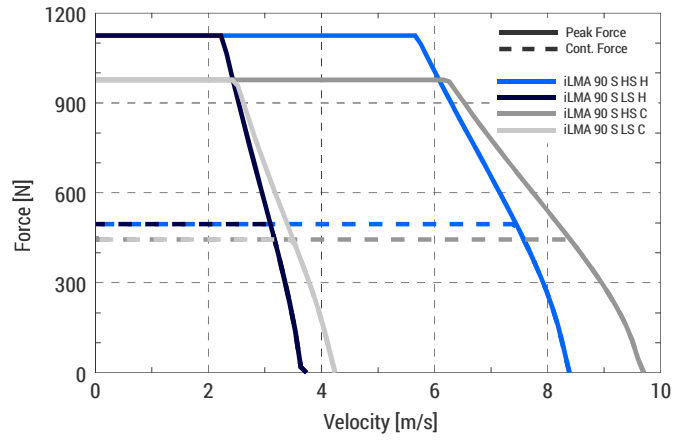
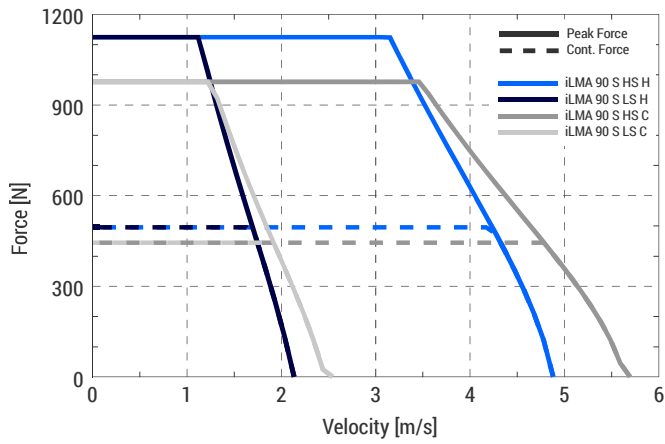
\* Magnets at 20 °C

\*\* RMS at 0 A and air gap of 0,6 mm

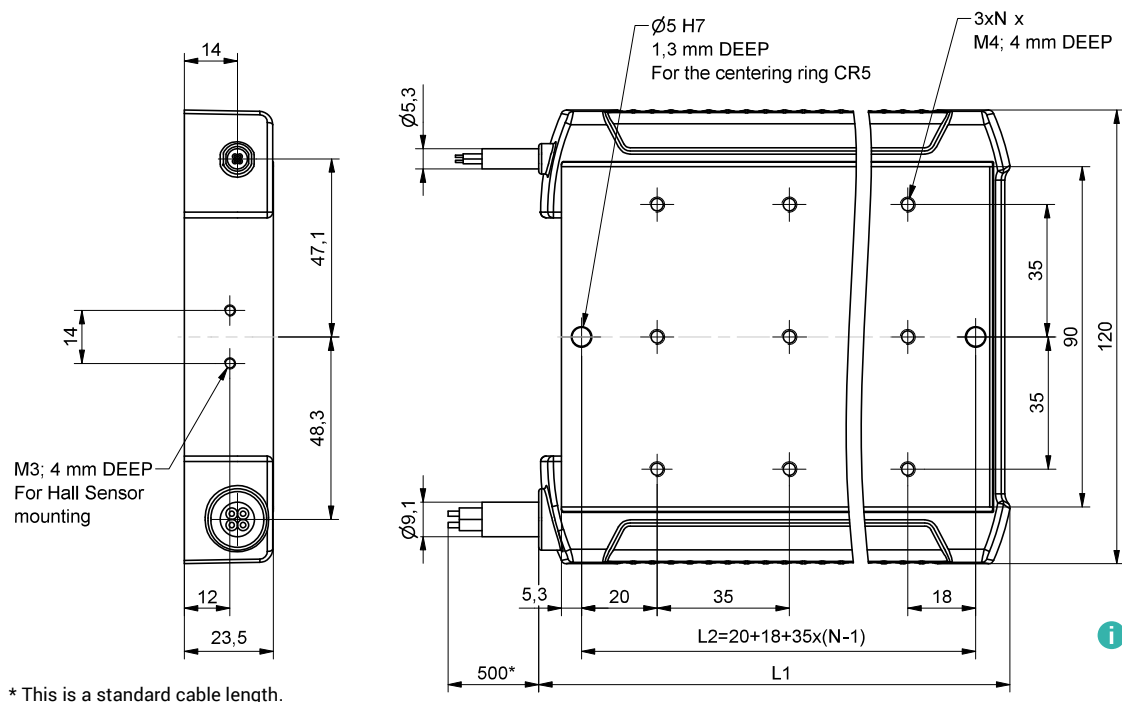
\*\*\* Windings at 20 °C

\*\*\*\* Maximum allowed magnet plate temperature is 90 °C

Force as a function of velocity diagrams



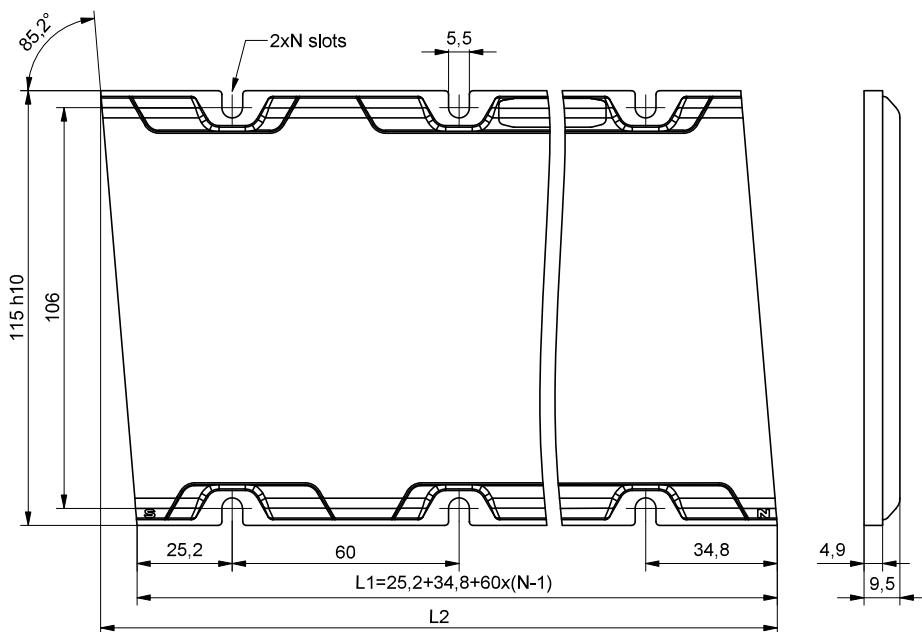
### Forcer dimensions



**i** All dimensions are in mm.  
 The scale of the drawings may not be equal.

iLMA90	L1	L2	N
iLMA 90 S HS/LS	128	108	3
iLMA 90 M HS/LS	233	213	6
iLMA 90 L HS/LS	338	318	9
iLMA 90 XL HS/LS	443	423	12

### Magnet plate dimensions

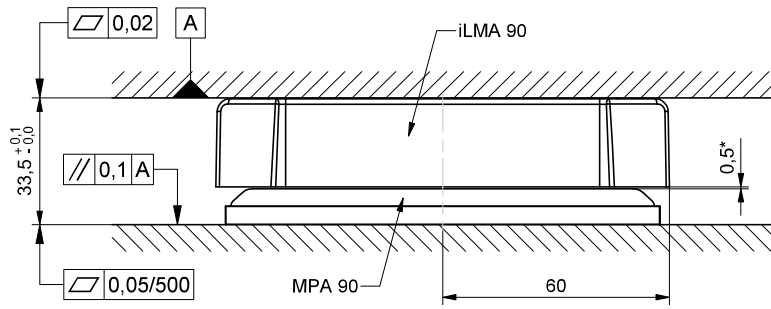


MPA90	L1	L2	N
MPA 90 120 C/H	120	129,6	2
MPA 90 180 C/H	180	189,6	3
MPA 90 300 C/H	300	309,6	5

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## Mounting tolerances

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\*This the recommended air gap between the forcer and the magnet plate.