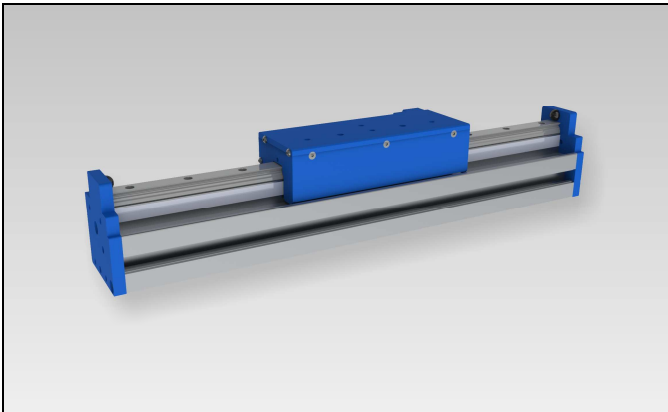


HighForce®-U Direct Drive Servo Guides

Linear direct drive servo guides from the **HighForce®-U** series are dynamic single-axes guides with high maximum speed combined with smooth motion. The design with a stable basic mechanism, a wide guide rail and two carriages makes a resilient linear motor guide. U-shaped, ironless linear servo motors, with peak forces from 100 N up to 400 N are used as drives. The positioning sensor, which is integrated into the slider, has a resolution less than +/- 1 µm and a absolute accuracy less than +/- 5 µm. Positioning controllers with 230 VAC supply can be connected, no matter which one.

HighForce®-P and **HighForce®-U** linear guides can be combined with each other into various cartesian handling systems.



Characteristics **HighForce®-U** Servo Guides

- modular expandable linear motor guides
- peak force 100 up to 400 N
- standard stroke up to 1.696 mm
- guide made of stable aluminum profiles, one guide rail with two carriages
- speed up to 5 m/s
- acceleration up to 150 m/s²
- positioning accuracy < +/- 1 µm
- absolute accuracy < +/- 5 µm
- linear measurement sensor integrated into slider
- many accessories and options

Data **HighForce®-U** Linear Motors

HFU types	peak force [N]	cont. force nat. cooling [N]	I _{max} at 230 V _{eff} [A _{eff}]		mass of slider (incl. motor activ part) [kg]
			winding version		
			N	S	
HFU-49x78	100	29	2,8	5,0	0,6
HFU-49x138	200	58	5,5	10,0	0,65
HFU-49x198	300	87	8,3	15,0	1,5
HFU-49x258	400	116	11,0	20,0	2,0

Mechanical Data **HighForce®-U** Linear Servo Guides

HFU types	guide width [mm]	height of guide to top of slider [mm]	width of slider [mm]	length of slider C [mm]	mass of slider without motor [kg]	mass per 100 mm guide [kg]
HFU-49x78	61,1	78,0	61,1	154	0,52	0,7
HFU-49x138	61,1	78,0	61,1	154	0,49	0,7
HFU-49x198	61,1	78,0	61,1	214	1,26	0,7
HFU-49x258	61,1	78,0	61,1	274	1,68	0,7

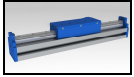
Load Forces & Load Torques **HighForce®-U** Linear Servo Guides

HFU types	F _y [N]	F _z [N]	M _x [Nm]	M _y [Nm]	M _z [Nm]	
HFU-49x78	520	520	15	70	70	
HFU-49x138	520	520	15	70	70	
HFU-49x198	520	520	15	87	87	
HFU-49x258	520	520	15	100	100	

Dimensions **HighForce®-U** Linear Servo Guides

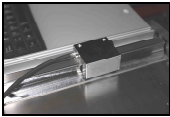
	HFU-49
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Available Stroke Lengths **HighForce®** -U Lineare Servo Guides

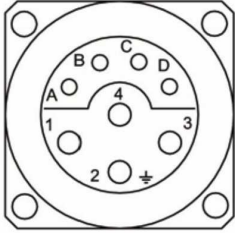
	HFU-49				
	stroke [mm]				
	HFU49x78	HFU49x138	HFU-49x198	HFU-49x258	
total length of guide L [mm]	100 N	200 N	300 N	400 N	
206	26	26			
316	136	136	76	16	
406	226	226	166	106	
466	286	286	226	166	
556	376	376	316	256	
616	436	436	376	316	
706	526	526	466	406	
766	586	586	526	466	
796	616	616	556	496	
856	676	676	616	556	
916	736	736	676	616	
946	766	766	706	646	
1.066	886	886	826	766	
1.096	916	916	856	796	
1.186	1.006	1.006	946	886	
1.246	1.066	1.066	1.006	946	
1.336	1.156	1.156	1.096	1.036	
1.386	1.206	1.206	1.146	1.086	
1.576	1.396	1.396	1.336	1.276	
1.636	1.456	1.456	1.396	1.336	
1.726	1.546	1.546	1.486	1.426	
1.876	1.696	1.696	1.636	1.576	

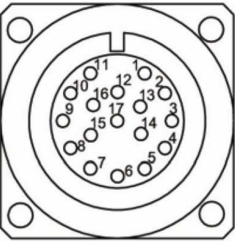
STEP files on demand!

Standard Linear Measurement Sensor for **HighForce®-U** Linear Servo Guides

sensor- typ	system / supply	output signals	signal pitch	positioning accuracy (dep. on controller)	linearity error per meter of measuring length	V _{max} [m/s]	max. signal frequency [kHz]
S02	inductive system / 5 VDC 220 mA 	sin/cos 1 V _{ss} additional absolute code marks	40 µm	< +/- 1 µm	< +/- 10 µm/m	5	125

Connector Assignments for **HighForce®-U** Linear Servo Guides

motor connection	signal	pin	connector
phase 1	U	1	
phase 2	V	4	
phase 3	W	3	
PE	PE	2	
yellow	KTY21	A	
green	KTY21	B	
brown	PTC+	C	
white	PTC-	D	

sensor connection	signal	pin	connector
green	A+	1	
yellow	A-	2	
brown	B+	3	
white	B-	4	
blue	0 V	7	
red	+5 VDC	8	
pink	Z+	10	
grey	Z-	11	
red / white	5 VDC-Sensor	16	
blue / white	GND Sensor	17	

Accessories & Options **HighForce®-U** Linear Servo Guides

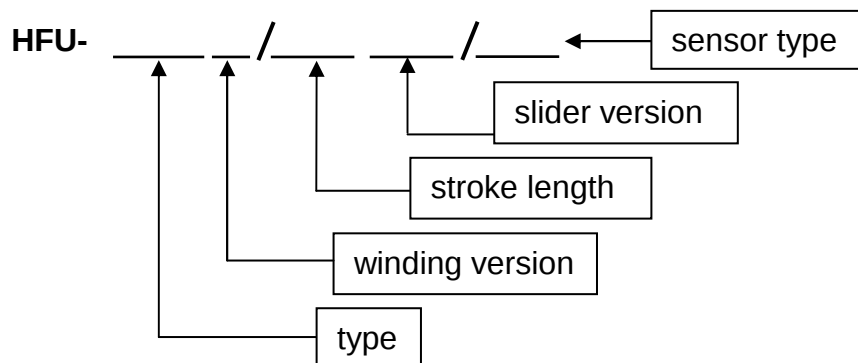
standard

- slot nut M6 (pack of ten)
- slot nut M8 (pack of ten)
- mech. limit switch (2 pieces) for HFU-49
- second slider for HFP-49

on demand

- absolute positioning measurement sensor
- central lubrication device
- cable chain
- ready-to-use cables with the controller
- longer sliders
- servo & positioning controller

HighForce®-U Order Key



Size: e.g. 49x138
Winding version: N (normal) or S (fast)
Stroke length: mm (see table 'available stroke lengths')
Guide version: -/- (standard) or R (longer sliders on demand)
Sensor type: S02

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Technical changes reserved!