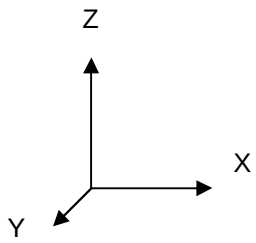
Date: 14.07.09

1. Definition of the project

Please describe the project exactly.

2. Arrangement of the application

Please sketch the requested operation under specification of dimensions and mass of the separate parts.



3. Requirement information (please check)

☐ Single application	☐ Technical improvement
☐ Series, quantitiy per year: _____	☐ Reduction of expenses
☐ New construction	☐ _____

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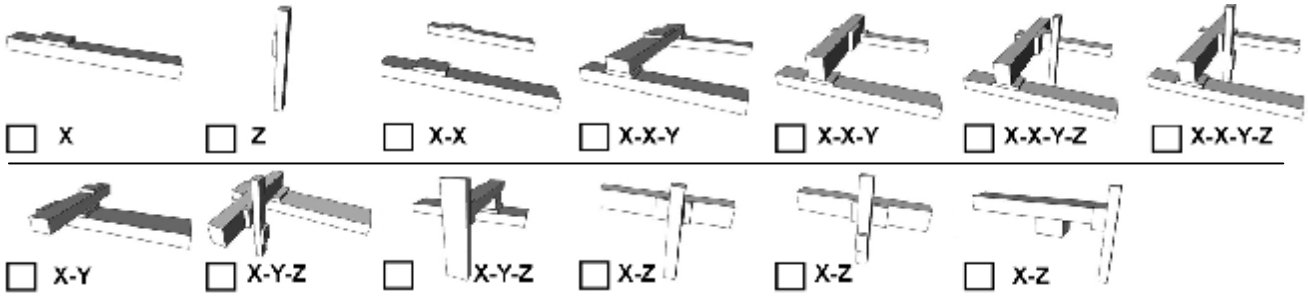
4. Information about the axis - system configuration (please check)



					X-axis horiz.	Y-axis horiz.	Z-axis vertic.
Basic information	Payload			[kg]			
	Moment arm to center of mass	X - direction		[mm]	Slide position: above(1) lateral(2) below(3)		
		Y - direction		[mm]			
		Z - direction		[mm]			
	Slide position: Please note applicable no.(1...3)						
	Type of mounting: Slide movable (standard) / Axis movable (cantilever)				☐ Standard ☐ Cantilever	☐ Standard ☐ Cantilever	☐ Standard ☐ Cantilever
	Stroke (incl. Over travel)			[mm]			
	Useful stroke			[mm]			
Load	Additional force (e.g. process force)			[N]			
	Force direction of the add. force (axis & direction e.g. Z+)						
Dynamics	Velocity V_{max}			[m/s]			
	Acceleration a_{max}			[m/s²]			
E-stop switch feat.					Yes ☐	No ☐	
Operating data	Total cycle time (incl. Dewll time)			[s]			
	Moving time (part of total cyc. time)			[s]			
	Operating hours per year			[h] per [days]	h per	days	
Accuracy	Repeatability			[mm]			
Environmental conditions	Temperature			[°C]			
	Humidity			[%]			
	Dirt,interference fields, site						
	Interfering contour						
Control	Controller	Bosch Rexroth	Indradrive Basic		☐	☐	☐
			Indradrive Advanced		☐	☐	☐
			Indradrive Cs		☐	☐	☐
		Siemens	Sinamics		☐	☐	☐
		Misc:_____					
	Interfaces				☐ Profibus ☐ Sercos III	☐ Profinet ☐ Parallel	☐ Sercos II ☐ _____
	Cable set				☐ 5m ☐10m ☐15m ☐ 20m	☐ 5m ☐10m ☐15m ☐ 20m	☐ 5m ☐10m ☐15m ☐ 20m

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5. MLD axis options			**X-axis horizontal**	**Y-axis horizontal**	**Z-axis vertical**
MLD Type: (N,K,T,M,FU) (if defined please note)					
Active slides (with linear motor) quantity					
Passive slides (without linear motor) quantity					
Slide center distance of multiple slides [mm]					
position measuring system:	Cable length and interface of the position measuring system, based on the choice of control				
	Magnetic measuring system (standard)		☐		
	Optical measuring system (highest resolution)		☐		
	Absolute measuring system		☐		
Inductive reference switch			☐	☐	☐
Limit switch	**Inductive limit switch**		☐	☐	☐
	Mechanical limit switch		☐	☐	☐
Cable track			☐ standard ☐ wide	☐ standard ☐ wide	☐ standard ☐ wide
Brake			☐	☐	☐
Switching Valve for the brake			☐	☐	☐
Wiper			☐	☐	☐
Shock absorber			☐	☐	☐
Centering sleeves			☐	☐	☐
Special design			☐ _____	☐ _____	☐ _____
Documentation	☐ Schunk standard design ☐ English Language: German / Scale: Installation instruction, Drawing(s), bill of material / Shipping mode: CD-Rom with PDFs				
	☐ Special design (chargeable) Definition:				

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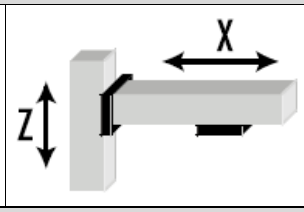
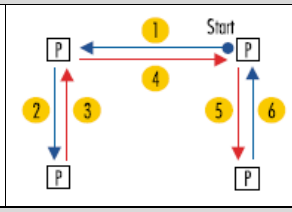
6. Cycle data

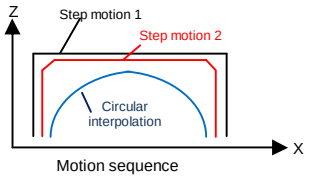
In order to calculate the best possible linear motor drive for your application, it is important to define the intended application as accurately as possible in advance.

Example:

pick & place - application







7. Cycle table (each system axis is examined individually)

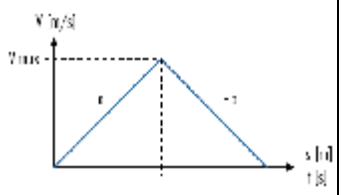
Cycle step	Axis	stroke [mm]	Permitted travel time [s]	Dwell time after positioning [s]	payload [kg]
1					
2					
3					
4					
5					
6					
7					
8					
9					
10					
11					
12					
13					
14					
15					

8. Basic calculation data

Definitions

Velocity	v	[m/s]	Weight-slide with motor	m_{eig}	[kg]
Acceleration	a	[m/s²]	Add. weight-user weight	m_{zus}	[kg]
Stroke	s	[m]	Counterforce	F_{geg}	[N or kgm/s²]
Time	t	[s]	Theoretical required force	F_{teo}	[N or kgm/s²]
Total moved mass	m_{ges}	[kg]			

Most extreme motion cycle



9. Formulas

Velocity	$v = a \cdot t = \sqrt{2a \cdot s}$	Acceleration	$a = 2s / t^2 = v / t$
Stroke	$s = a \cdot t^2 / 2 = v \cdot t / 2$	Time	$t = V / a = 2s / v$
Moved mass	$m_{ges} = m_{eig} + m_{zus}$	Force	$F_{teo} = m_{ges} \cdot a + F_{geg}$
Motor force	$F = (F_{teo}$ + control reserve) · dynamic correction factor – duty cycle factor		