

FB – Nr. 121_gb	Quality Management Form	SCHUNK 
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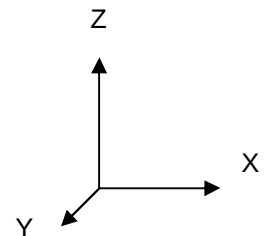
Date: 14.07.09

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.

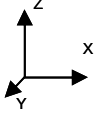
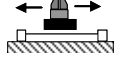


3. Requirement information (please check)

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

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4. Information about the axis - system configuration (please check)								
 ☐ X  ☐ Z  ☐ X-X  ☐ X-X-Y  ☐ X-X-Y  ☐ X-X-Y-Z  ☐ X-X-Y-Z								
 ☐ X-Y  ☐ X-Y-Z  ☐ X-Y-Z  ☐ X-Z  ☐ X-Z  ☐ X-Z								
 Basic information	Payload		[kg]		X-axis horiz.	Y-axis horiz.	Z-axis vertic.	
	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]						
..thereof 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/s ²]					
E-stop switch feat.				Yes ☐ No ☐				
Operating data	Total cycle time (incl. dwell time)		[s]					
	Moving time (part of total cyc. time)		[s]					
	Operating hours per year		[h] per [days]	h per days				
Accuracy	Repeatability		[mm]					
Enviromental conditions	Temperature		[°C]					
	Humidity		[%]					
	Dirt,interference fields, site							
	interfearing contour							
Control	Controller	Bosch Rexroth	Indradrive Basic	☐	☐	☐		
			Indradrive Advanced	☐	☐	☐		
			Indradrive Cs	☐	☐	☐		
		Siemens	Sinamics	☐	☐	☐		
		Misc: _____						
Interfaces			☐ Profibus ☐ Profinet ☐ Sercos II ☐ Sercos III ☐ Parallel ☐ _____					
Cable set			☐ 5m ☐ 10m ☐ 5m ☐ 10m ☐ 5m ☐ 10m ☐ 15m ☐ 20m ☐ 15m ☐ 20m ☐ 15m ☐ 20m					

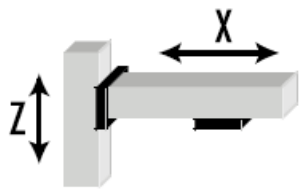
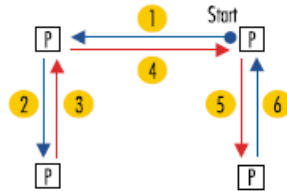
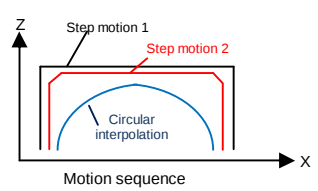
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5. HSB axis options				X-axis horizontal	Y-axis horizontal	Z-axis vertical
Drive	Axis: HSB a, HSB b, HSB d (if defined please note)					
	Tooth-belt drive:			☐	☐	☐
	driveshaft AZ1:  AZ2:  AZ6: 			☐ AZ1 ☐ AZ2 ☐ AZ6	☐ AZ1 ☐ AZ2 ☐ AZ6	☐ AZ1 ☐ AZ2 ☐ AZ6
	Cover band			☐	☐	☐
	Ball screw drive:			☐	☐	☐
	Spindle support			☐	☐	☐
	Ball screw drive right / left			☐	☐	☐
Guide system	Roller guide			☐	☐	☐
	Profiled rail guide			☐	☐	☐
	Slide guide			☐	☐	☐
Slides	number of slides					
	Slide center distance [mm]					
	Long slide			☐ Long	☐ Long	☐ Long
Limit switch	Inductive	NC (normally closed)	2m cable			
			10m cable			
		NO (normally open)	2m cable			
			10m cable			
	Mechanical (without cable)					
Motor assembling	Motor flange (Motor adapter kit)			☐	☐	☐
	Coupling			☐	☐	☐
	Angular gear belt drive			☐	☐	☐
	Bevel gear unit			☐	☐	☐
	Connecting shafts			☐	☐	☐
	Pillow block for connecting shafts			☐	☐	☐
Sealing air	Sealing air connection			☐	☐	☐
Mounting	number of T-nuts					
	number of Mounting strips					
Motor	Bosch Rexroth	☐ MSK	☐ _____	☐	☐	☐
	Siemens	1FK7		☐	☐	☐
	Misc.: _____					
	brake:			☐	☐	☐
Gear	Bosch Rexroth	☐ GTE	☐ GTM	☐	☐	☐
	Siemens			☐	☐	☐
	Misc.: _____					
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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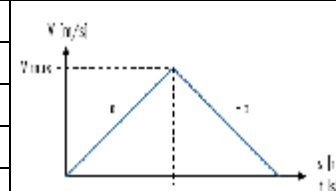
6. Cycle data In order to calculate the best possible linear motor drive for your application, it is important to define the intended application as accurately as possible in advance.

Example: pick & place - application			
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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						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]				

9. Formulas

Velocity	$v = a \cdot t = \sqrt{2a \cdot s}$	Acceleration	$a = 2s / t^2 = v / t$
Stroke	$s = a \cdot t^2 / 2 = v \cdot t$	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	$F = (F_{teo} + \text{control reserve}) \cdot \text{dynamic correction factor} - \text{duty cycle factor}$		