

1. contact details

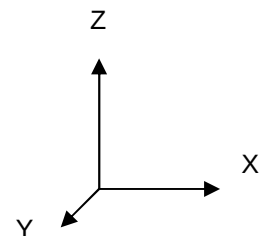
company:		address:	
contact person:		phone:	
email:		date:	
Schunk customer no.:		Schunk contact person:	

2. Definition of the project

Please describe the project exactly.

3. Arrangement of the application

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



4. Requirement information (please check)

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

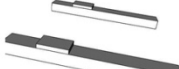
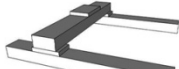
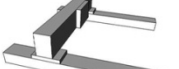
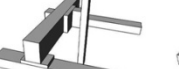
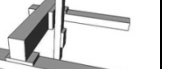
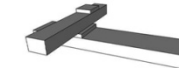
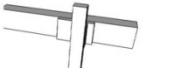
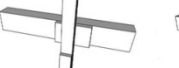
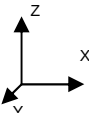
Please send form to: Automationsolution@de.schunk.com

Revision status:
00/ 02.02.2015

Inquiry checklist HSB linear modules

side 2 of 4

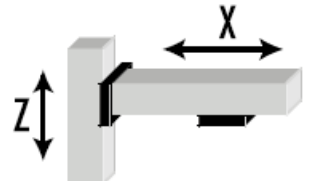
5. Information about the axis - system configuration (please check)

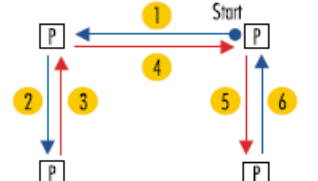
 ☐ X  ☐ Z  ☐ X-X  ☐ X-X-Y  ☐ X-X-Y  ☐ X-X-Y-Z  ☐ X-X-Y-Z						
 ☐ X-Y  ☐ X-Y-Z  ☐ X-Y-Z  ☐ X-Z  ☐ X-Z  ☐ X-Z 						
work piece:	weight (load) [kg]					
balance point:	distance (coordinate and zero point see torque info catalog): in X [mm] : in Y [mm]: in Z [mm]:					
basic information	top(1)  side(2)  bottom(3)  			X-axis horiz.	Y-axis horiz.	Z-axis vertical
	slide position: Please note applicable no.(1...3)					
	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]					
operating data	total cycle time (incl. dwell time) [s]					
	moving time (part of total cyc. time) [s]					
	operating hours per year [h] per [days]			hour per days		
accuracy	repeatability [mm]					
environmental conditions	temperature [°C]					
	humidity [%]					
	dirt, interference fields, site					
	interfering contour					
drive controller	drive	Bosch Rexroth	Indradrive Cs	☐	☐	☐
			Indradrive Basic/Advanced	☐ Bas. ☐ Adv.	☐ Bas. ☐ Adv.	☐ Bas. ☐ Adv.
		Siemens	Sinamics	☐	☐	☐
		other:				
	interface			☐ Profibus ☐ Profinet ☐ EtherCat ☐ Sercos III ☐ Parallel ☐		
	safety function			☐ STO ☐ SBC ☐ SLS ☐ STO=Safe torque off SBC=safe brake control SLS=safely limited speed		
Cable length			☐ 5m ☐ 10m ☐ 15m ☐ ____ ☐ 5m ☐ 10m ☐ 15m ☐ ____			
safety function	emergency brake, clamping ...(please describe)					

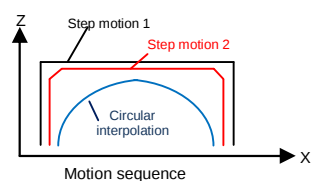
6. axis options				X-axis hor.	Y-axis hor.	Z-axis vert.	
Drive unit	axis type: Alpha, Beta, Gamma, Delta, Sigma						
	tooth belt:			☐	☐	☐	
	drive- shaft:	 AZ1:  AZ2:  AZ5:  AZ6:		☐ AZ1 ☐ AZ2 ☐ AZ	☐ AZ1 ☐ AZ2 ☐ AZ	☐ AZ1 ☐ AZ2 ☐ AZ	
		cover belt			☐	☐	☐
		with two independent slides (ZSSD)			☐	☐	☐
		toothed rack:			☐	☐	☐
	gear assembling and ratio						
	spindle drive			☐	☐	☐	
	spindle support			☐	☐	☐	
	left/right spindle			☐	☐	☐	
guidance	roller-(R), profile- (S), friction (G)						
slide	numbers of slides						
	middle distance of slides [mm]						
	long slide			☐ long	☐ long	☐ long	
limit switch	inductive	opener	Cable length	☐ 2m ☐ 10m	☐ 2m ☐ 10m	☐ 2m ☐ 10m	
		closer	Cable length	☐ 2m ☐ 10m	☐ 2m ☐ 10m	☐ 2m ☐ 10m	
	mechanic limit switch (without cable)						
energy chain	energy chain			☐	☐	☐	
motor connection	motor flange			☐	☐	☐	
	coupling (Type 2.0 without key., Type 2.1 ...w. key Type 6.0 clamping ring)			☐	☐	☐	
	deflection belt (URT), bevel gear (KRG)						
	connecting shaft (GX)			☐	☐	☐	
	bearing for drive shaft (SL)			☐	☐	☐	
air purge	air purge			☐	☐	☐	
assembling	number of nuts						
	number of fastening stripes						
motor	Bosch Rexroth	☐ MSK ☐		☐	☐	☐	
	Siemens	1FK7		☐	☐	☐	
	other:						
	brake:			☐	☐	☐	
gear	Bosch Rexroth	Type and ratio		☐	☐	☐	
	Siemens	Type and ratio		☐	☐	☐	
	other:	Type and ratio		☐	☐	☐	
7. additional							
documentation	☐ Schunk standard design Language: German / Scale: Installation instruction, Drawing(s), bill of material / Shipping mode: CD-Rom with PDFs						
	☐ Special design (chargeable) Definition:						
regulations	(Resources regulations,...):						

8. 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



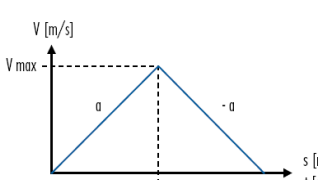




9. Cycle table (each system axis is examined individually)

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					

10. 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]				

11. 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	$F = (F_{teo} + \text{control reserve}) \cdot \text{dynamic correction factor} - \text{duty cycle factor}$		