

Manually Operated Units

Vertical Types

Linear Actuators

Manually Operated Units – Vertical Types

Components

Parts	Frame	Table	Lift Table	Angle Plate
Material	Aluminum Alloy	Aluminum Alloy	Aluminum Alloy	Aluminum Alloy
Surface Treatment	Clear Anodize	Clear Anodize	Clear Anodize	Clear Anodize

Parts	Lead Screws	Lead Screw Nut	Nut Bracket	Side Plate
Material	1045 Carbon Steel or Equivalent	Brass	Aluminum Alloy	Aluminum Alloy
Surface Treatment	Black Oxide	—	Clear Anodize	Clear Anodize

Handwheel Type A

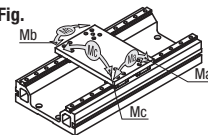
Handwheel Type B

Handwheel Type C

Allowable Load / Allowable Moment

Part Number	Type	No.	Handwheel Type	Elevator Table Selection	Base Length L (mm)	Effective Stroke St (mm)	Lead Screw Thread Dia.	Lead	When Load Applied to Point A	When Load Applied to Point B	Allowable Load (N)			Allowable Moment (N-m)			W	P	IH	Mass (kg)						
											Ma	Mb	Mc	Ma	Mb	Mc				A	B	C				
KUL	20	A	Plastic Handle	Blank (w/)	170	62	20	4	294	270	43	43	81	120	75	220	170	6.1	6.1	6.4	6.8	6.8	7.1			
					220	112																		7.9	7.9	8.2
					320	212																		8.5	8.5	8.8
					370	262																		10.3	10.3	10.6
					470	312																		10.8	10.8	11.1
KUL	20	B	Plastic Offset Handwheel – Folding Type	N (w/o)	170	62	20	4	294	270	43	43	81	120	75	220	170	6.1	6.1	6.4	6.8	6.8	7.1			
					220	112																		7.9	7.9	8.2
					320	212																		8.5	8.5	8.8
					370	262																		10.3	10.3	10.6
					470	312																		10.8	10.8	11.1
KUL	20	C	Five Spoked Handwheel	N (w/o)	170	62	20	4	294	270	43	43	81	120	75	220	170	6.1	6.1	6.4	6.8	6.8	7.1			
					220	112																		7.9	7.9	8.2
					320	212																		8.5	8.5	8.8
					370	262																		10.3	10.3	10.6
					470	312																		10.8	10.8	11.1

Moment Fig.

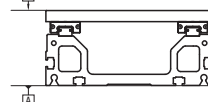


Accuracy

Type	Parallelism (mm)	Backlash (mm)
KUL	0.15	0.3

*Parallelism is surface B running parallelism in respect to surface A. (See the figure below)
 *Backlash is not a guaranteed value but reference value.

Parallelsim Fig.



Part Number Example

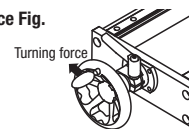
Part Number: **KUL20** - Handwheel Type: **A** - Elevator Table: **Blank** - H: **320** (with Lift Table)
 Part Number: **KUL20** - Handwheel Type: **A** - Elevator Table: **N** - H: **320** (without Lift Table)

Required Torque / Required Turning Force

Part Number	Type	No.	Required Torque (N·m)	Required Turning Force (N)
KUL	20		0.86	33.112

*Required torque and turning force are at the allowable load.
 *Turning force is the force that rotates the handwheel. (See the figure on the right)

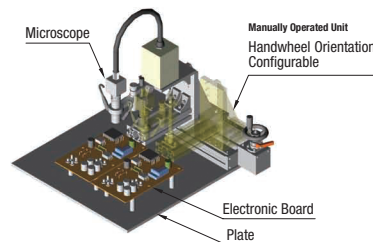
Turning Force Fig.



Microscope Inspection Stage

Inspects a few types of electric components (at specific portion).

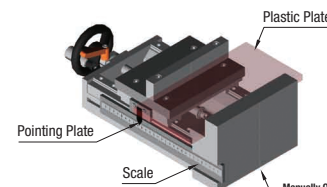
Manually Operated Unit is used for the axis of XY Inspection Stage to slide a microscope.



Crack Inspection and Simplified Measurement Device

Operates crack inspection and simplified measurement for plastic plates.

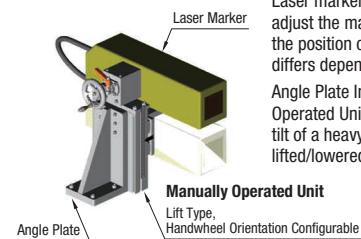
Manually Operated Unit is used to prevent claims due to slight cracks and scratches after delivery. Conducts inspection with constant pressure loaded, and measures dimensions with an attached scale.



Laser Marker Lifting Device

Laser marker is lifted/lowered to adjust the marking position since the position of laser engraving differs depending on products.

Angle Plate Integrated Manually Operated Unit is used to prevent tilt of a heavy laser marker when lifted/lowered.



Manually Operated Units

Vertical Type with Position Indicator

Linear Actuators

Manually Operated Units – Vertical Type with Position Indicator

Components

Parts	Frame	Table	Lift Table	Angle Plate
Material	Aluminum Alloy	Aluminum Alloy	Aluminum Alloy	Aluminum Alloy
Surface Treatment	Clear Anodize	Clear Anodize	Clear Anodize	Clear Anodize

Parts	Lead Screws	Lead Screw Nut	Nut Bracket	Side Plate
Material	1045 Carbon Steel or Equivalent	Brass	Aluminum Alloy	Aluminum Alloy
Surface Treatment	Black Oxide	—	Clear Anodize	Clear Anodize

Handwheel Type A

Handwheel Type B

Handwheel Type C

Allowable Load / Allowable Moment

Part Number	Type	No.	Handwheel Type	Elevator Table Selection	Base Length L (mm)	Effective Stroke St (mm)	Lead Screw Thread Dia.	Lead	When Load Applied to Point A	When Load Applied to Point B	Allowable Load (N)			Allowable Moment (N-m)			W	P	IH	Mass (kg)						
											Ma	Mb	Mc	Ma	Mb	Mc				A	B	C				
KULD	20	A	Plastic Handle	Blank (w/)	170	62	20	4	294	270	43	43	81	120	75	220	170	6.3	6.3	6.6	7.2	7.2	7.5			
					220	112																		8.3	8.3	8.6
					320	212																		8.9	8.9	9.2
					370	262																		10.6	10.6	10.9
					470	312																		11.1	11.1	11.4
KULD	20	B	Plastic Offset Handwheel – Folding Type	N (w/o)	170	62	20	4	294	270	43	43	81	120	75	220	170	6.3	6.3	6.6	7.2	7.2	7.5			
					220	112																		8.3	8.3	8.6
					320	212																		8.9	8.9	9.2
					370	262																		10.6	10.6	10.9
					470	312																		11.1	11.1	11.4
KULD	20	C	Five Spoked Handwheel	N (w/o)	170	62	20	4	294	270	43	43	81	120	75	220	170	6.3	6.3	6.6	7.2	7.2	7.5			
					220	112																		8.3	8.3	8.6
					320	212																		8.9	8.9	9.2
					370	262																		10.6	10.6	10.9
					470	312																		11.1	11.1	11.4

Part Number Example

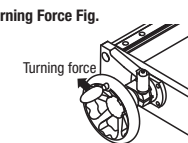
Part Number: **KULD20** - Handwheel Type: **A** - Elevator Table: **Blank** - H: **320** (with Lift Table)
 Part Number: **KULD20** - Handwheel Type: **A** - Elevator Table: **N** - H: **320** (without Lift Table)

Required Torque / Required Turning Force

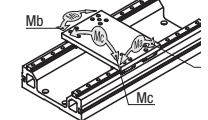
Part Number	Type	No.	Required Torque (N·m)	Required Turning Force (N)
KULD	20		1.46	56.142

*Required torque and turning force are when allowable load is applied on two tables.
 *Turning force is the force that rotates the handwheel. (See the figure on the right)

Turning Force Fig.



Moment Fig.



Accuracy

Type	Parallelism (mm)	Backlash (mm)
KULD	0.15	0.3

*Parallelism is when surface B and surface A are running side by side. (See figure below)
 *Backlash is not a guaranteed value but reference value.

Parallelsim Fig.

