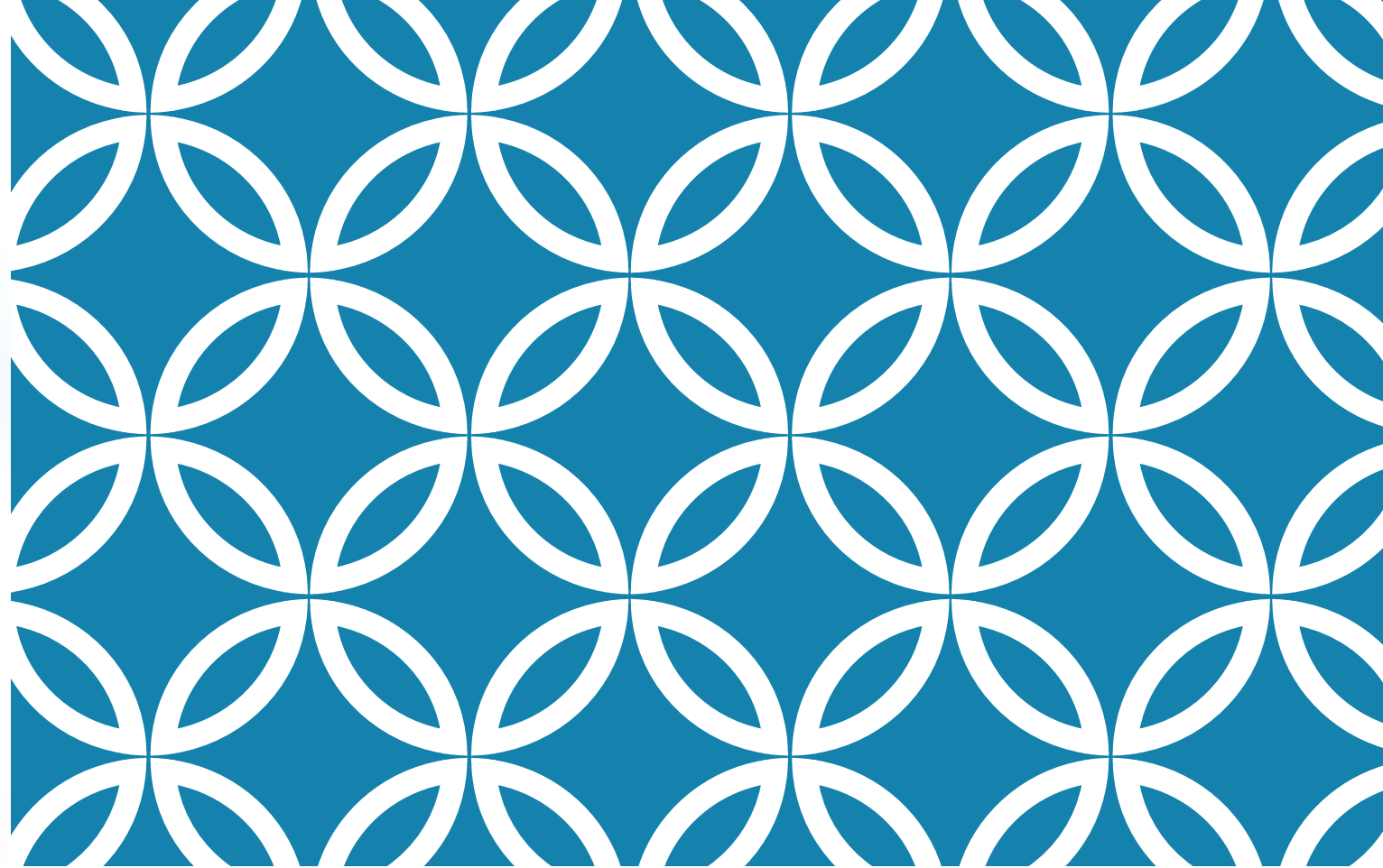




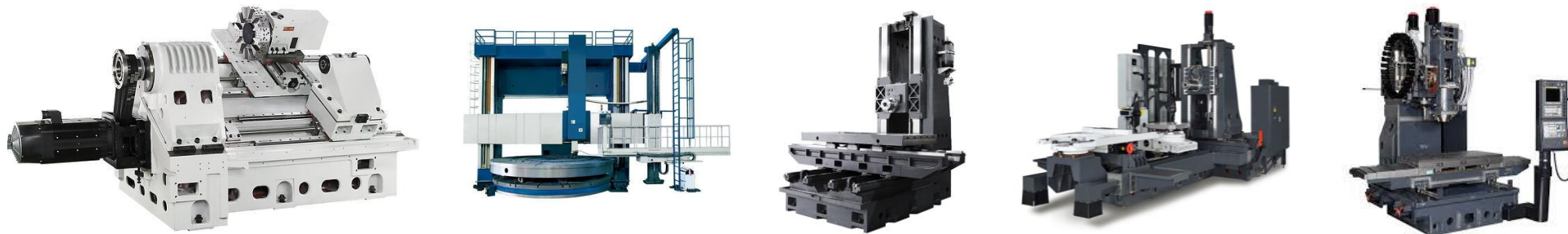
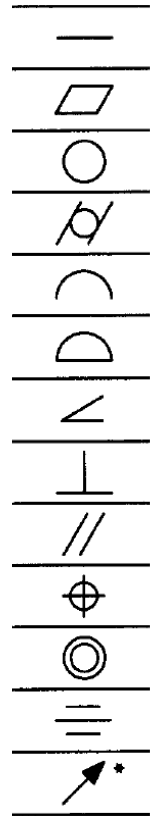
EZL — EASY MACHINE LEVELLING

KGK Engineering
Jan - 2025



IMPORTANCE OF MACHINE LEVELLING

- Improper / Out of Spec Machine Levelling affects Part Geometry (esp Larger Parts) & Machine Element Life (Ball screw, LM Guides ...)
- Machine Levelling can change over time based on floor conditions & other events such as crashes.
- Together they can impact Repeatability, Accuracy, Process Stability & Ease of Process Maintenance

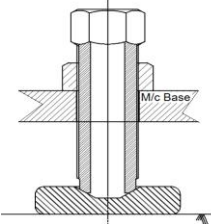
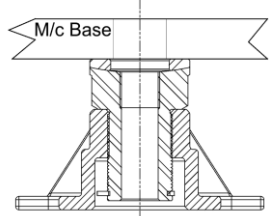
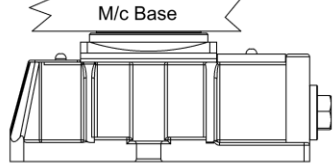


MACHINE LEVELLING DEVICE REQUIREMENTS

- Should spread Static & Dynamic Operating Loads thru & over the largest available area & have a Rigid configuration
- Reduced Unit Load on floor
- Operator Friendly – Low Effort for adjustment / Ergonomic Operating Position / Fine Adjustment provision
- Should have Grouting / Mc Anchoring provision
- Should facilitate lower overall M/c manufacturing cost (Any operation done to the Machine Base can be potentially expensive given its size)
- Should allow flexibility in Base Design by allowing Support at any location

Machine Levelling Devices Configurations : Screw Based & Wedge Based

LEVELLING CONFIGURATIONS COMPARISON

	Conventional Screw in Tapped Base	Screw Jack	Wedge Based (Versatile)
			
Principle of Operation	Screw Based	Screw Based	Wedge Based
Machine (M/c) Base Preparation	M/c Base needs to be tapped	Not Required	Not Required
Load Bearing Area availability	Low	Good	Best
Rigidity	Lower dependent on Thread	Lower dependent on Thread	High ... Self locking arrangement of Screw & Wedge
Unit Load on Floor	High	High	Low
Adjustment Precision / Vert. Adj. per rev of Adj. Screw	Coarse / ~ 1.5 mm	Coarse / ~ 1.5 mm	Fine / ~0.38 mm
Torque requirement for Adjustment	High Dependent of Thread Size / Wt	High Dependent of Thread Size / Wt	Low Wedge - Screw has high Mech. Adv.
Machine Base Grouting	Limited Options	Provision inbuilt	Provision inbuilt
Device Operation in restricted Spaces	Difficult	Difficult	Easy
Application	Low Weight M/cs (< 1 or 2 T) in Levelling Non-Critical M/cs	Medium Weight M/cs (2 - 5T) in Levelling Non-Critical M/cs	M/cs that require precise levelling (Regardless of M/c Weight)

WHY KGK EZL ...

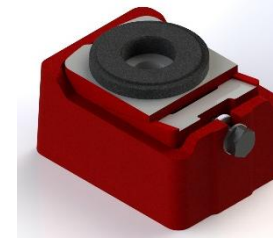
Large Range



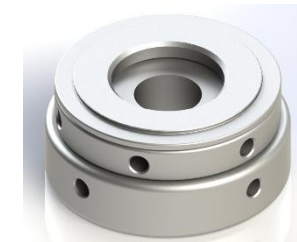
EZL-1
Conventional - Versatile



EZL-2
Cost Optimized, Versatile



EZL-3
Conventional, Low Cost

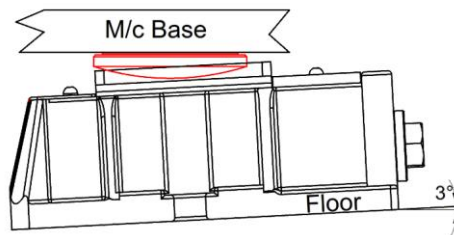


EZL-4
Low Height

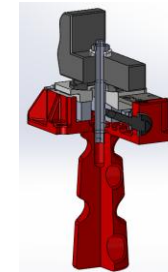


EZL-5
Levelling Jack

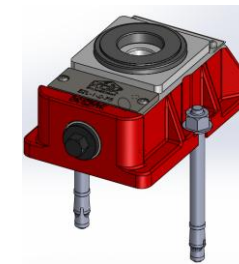
Standard Features



Spherical M/c Resting Pad to take up Floor Angular Variations up to $\pm 3^\circ$



Thru-Device Anchoring / Grouting Facility to provide Rigid Floor connection

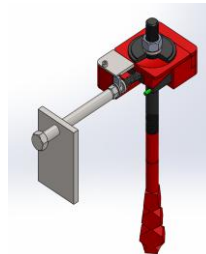


Side Anchoring / Grouting Facility to provide Rigid Floor connection

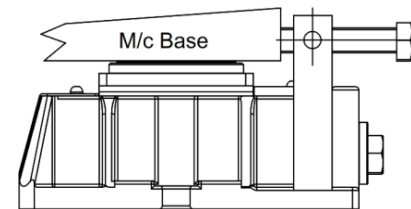
Options



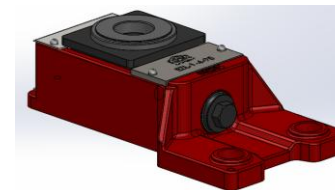
Spacer Pack to Extend Vertical Adjustment Range at Site



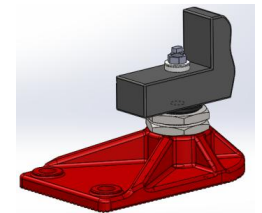
Remote Levelling provides Levelled Support to the Base Anywhere



Lateral Adjustment Feature to move M/c horizontally during Levelling



Front Grout : Allows M/c to be grouted in-situ after Levelling. Can be retrofitted to M/cs which require Grouting



EZL RANGE

Appli- cation	Photo	Model Series	Description	Total Load Capacity (Tons)			Standard Features		Options				
				1	2	4	Spherical Seating	Thru Assy Grouting	Spacer Pack	Anchor Bolts	Lateral Adjustme	Remote Adjustment	Front Grout
Critical Machines (CNC M/cs, Large M/cs ...)		EZL-1	Wedge based Conventional - Versatile	on Request	●	●	●	●	●	●	●	●	●
		EZL-2	Wedge based Cost Optimized - Versatile	on Request	●		●	●	●	●	●	●	
		EZL-3	Wedge based Low Cost	on Request	●	●	●	●	●	●		●	
General, Non Critical ...		EZL-4	Screw Based Low Height	on Request	●		●	●	●	●			
		EZL-5	Screw based Levelling Jack	●	●		●	●	●	●			●

● Available

Higher Tonnages available on Request

Individual Product Specs available in the Annexure

INFO FOR MACHINE BUILDERS

- EZL series does not require any tapped holes in M/c Base (this operation can be eliminated). Levelling provision is inbuilt in the EZL Assembly
- Only a clearance hole for Anchor Bolt is required if M/c is to be grouted
- Front Grout variant can be used where conventional grouting is difficult & allows for grouting after M/c is installed. Can also be retrofitted for M/cs that require grouting...
- Remote Levelling option (EZL 1,2 & 3) allows large Machine bases to be supported irrespective of proximity to M/c Base edge allowing for strength & material optimization
- Wedge based designs (EZL1, 2 & 3) provide very fine levelling control & the self locking arrangement ensures that M/c level can be changed only when the Ad. screw is turned.
- We also offer Servo controlled Motorized Levelling solutions suited for fast levelling during M/c Assembly ... Contact us for details

CONTACT US FOR MACHINE LEVELLING SOLUTIONS



KGK Engineering

No 36, Electronic City Phase II

Bangalore 560100

www.kgkengineering.com

Contact

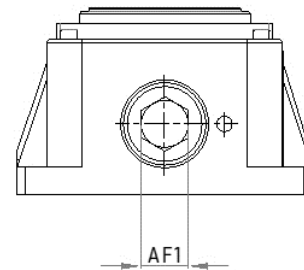
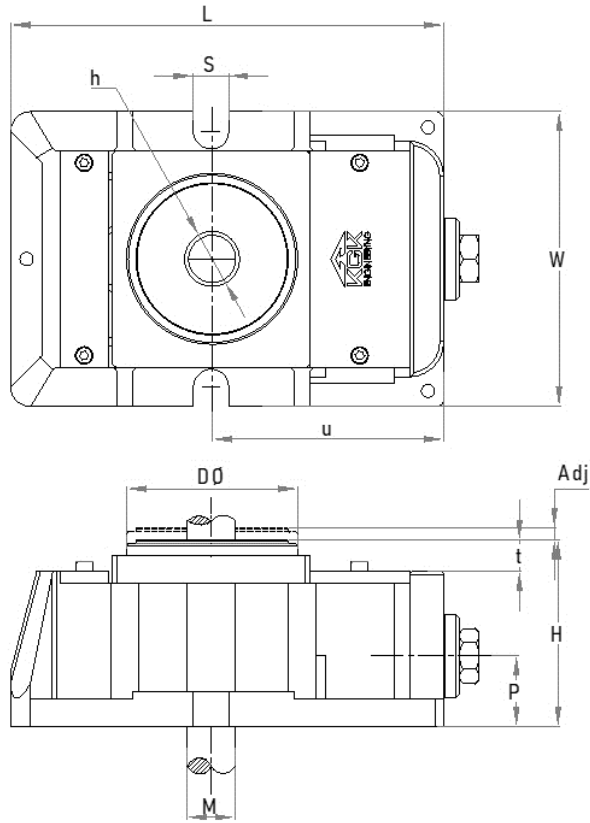
Ashok Rao : 98860 15674 / Ashokrao@kgkengineering.com

Mahesh M. G. : 95919 91547 / Maheshmg@kgkengineering.com

Govindraj : 81973 66663 / Govindraj@kgkengineering.com

ANNEXURE PRODUCT SPECIFICATION SHEETS

EZL-1 SERIES DATA

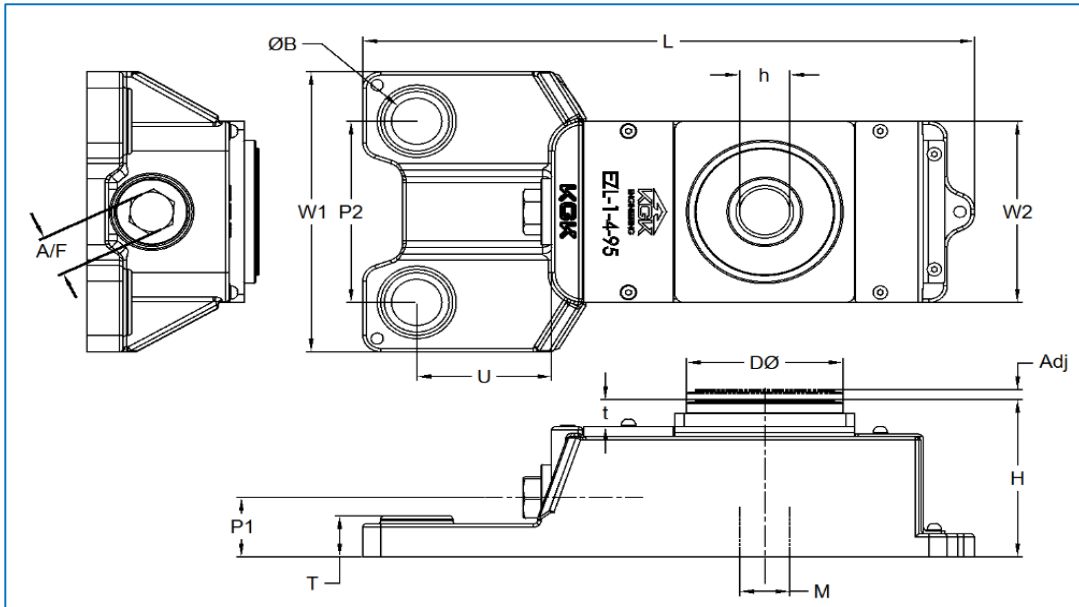


Dimensions in mm

	EZL-1-2-75	EZL-1-4-95
L	175	220
W	120	150
H	75	95
S	17	18
t	8.5	16
u	94	118.2
P	32	36
h	Ø22	Ø26
DØ	Ø77	Ø87
Adj	5	6
M	M20	M24
AF1	19	24
AF2	10	12
Load bearing Capacity per Assembly (Kgs)	2000	4000
Vertical lift mm per adjustment screw rotation	0.28	0.28

- EZL-1 Series are wedge actuated - suited for M/c's where levelling & its stability is critical to M/c's performance.
- Ideally suited for HMC, VMC, Lathes, Large Format Machines – VTL, Plano Milling M/c's
- Allows for multiple methods of grouting & remote levelling.
- Offers the best rigid support for the M/c with low adjustment torque in a operator friendly orientation.
- M/c sits on a spherical pad which accommodates any angular variations between the floor & M/c base

EZL-1-FG (FRONT GROUT) DATA



Dimensions in mm		
	EZL-1-2-75-FG	EZL-1-4-95-FG
L	290	340
W1	150	170
W	90	110
H	75	95
ØB	Ø20	Ø28
T	25	25
t	8.5	16
U	75	75
P1	31	36
P2	90	110
h	Ø24	Ø28
DØ	Ø77	Ø87
Adj	5	6
M	M20	M24
AF1	16	24
Static Load bearing Capacity per Assembly (Kgs)	2000	4000
Vertical lift mm per Adjustment screw rotation	0.28	0.28

- Used where M/c has to be grouted after installation / levelling.
- Floor can be easily drilled thru the Holes in the base after installation is completed
- Chemical Anchor Bolts are inserted in the drilled holes into the floor & allowed to set (typically overnight).
- M/c is grouted by tightening the Anchor Nuts the following day
- This variant can be retrofitted to M/cs that require grouting because of floor conditions or changed requirements
- *Completely eliminates need for elaborate foundation preparation*
- M/c sits on a spherical pad which accommodates any angular variations between the floor & M/c base
- Anchor Bolt / Drilling to be arranged by Customer

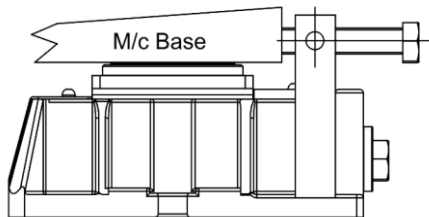
EZL-1 SERIES OPTIONS / ACCESSORIES

Spacer Pack



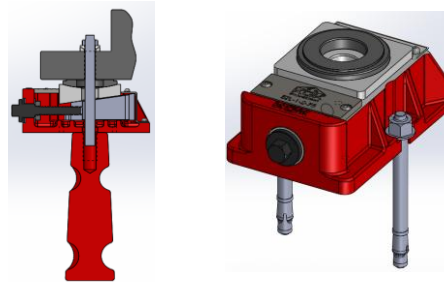
Consists of 3 x 5 mm Slotted Spacers which can be inserted during Levelling Process to take care of unusual floor level variations.
Extends Range by 15 mm

Lateral Adjustment



Allows for horizontal movement of the Machine

Machine Grouting



Thru Assembly

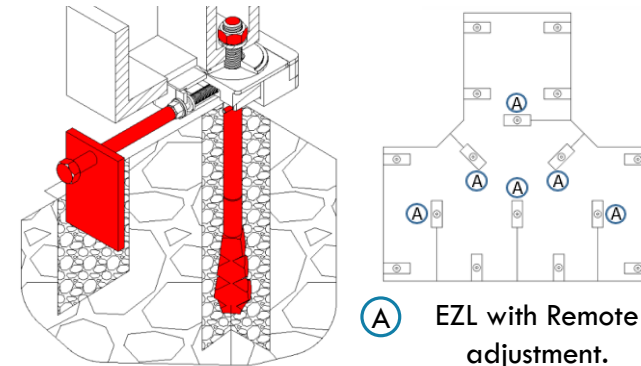
Side Slots

- Thru Device Grouting or Side Slot Grouting options available
- Anchor Bolt (DIN529F) or Anchor Casting can be provided
- Anchor Bolt Length will be as per Customer Requirement
- M20/M24 Spherical Washer & Nut



Anchor Casting

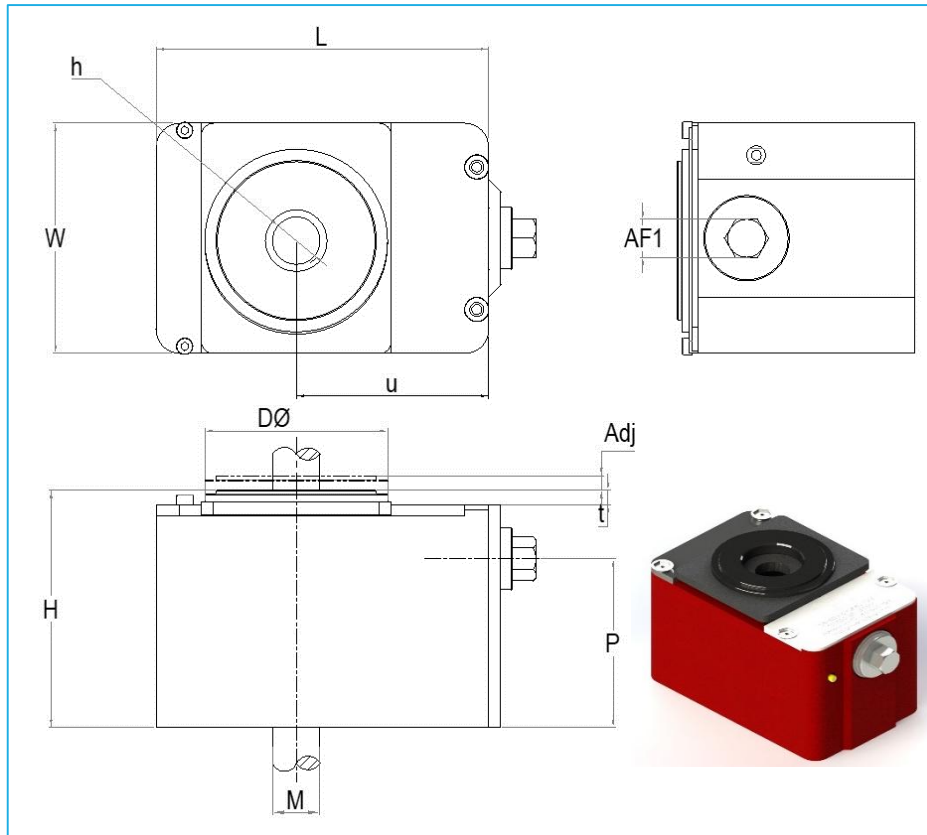
Remote Levelling



A EZL with Remote adjustment.

- Remote Levelling Option allows EZL to be placed at inaccessible locations & be remotely operated.
- This gives the option to support the machine wherever required giving more flexibility in Machine Design to enhance rigidity.
- Contact us for details

EZL-2 SERIES DATA



Dimensions in mm			
	EZL-2-2-50	EZL-2-2-80	EZL-2-2-100
L	153.5	153.5	153.5
W	95	95	95
H	50	80	100
t	6	6	6
P	21	51	71
h	Ø38	Ø38	Ø38
DØ	Ø77	Ø77	Ø77
Vertical Adj	6	6	6
M	M12	M12	M12
A/F	16	16	16
Angle	3°	3°	3°
Load bearing capacity per Assy. Kgs	2000	2000	2000
Vertical lift mm per adjustment screw rotation	0.3	0.3	0.3

- EZL-2 Series are cost optimized wedge actuated version of EZL-1 (eg Side Grout & Lateral movement options are not available on this Series).
- Suited for M/cs where levelling & its stability is critical to M/c's performance. Ideally suited for HMC, VMC, Lathes, Large Format Machines – VTL, Plano Milling M/cs
- Allows for thru-device grouting & remote levelling.
- Available in different heights.
- M/c sits on a spherical pad which accommodates any angular variation between the floor & M/c base
- Offers the best rigid support for the M/c with low adjustment torque in a operator friendly orientation.

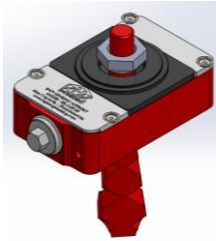
EZL-2 SERIES OPTIONS / ACCESSORIES

Spacer Pack



Consists of 3 x 5 mm Slotted Spacer which can be inserted during Levelling Process to take care of unusual floor level variations.
Extends Range by 15 mm

Machine Grouting



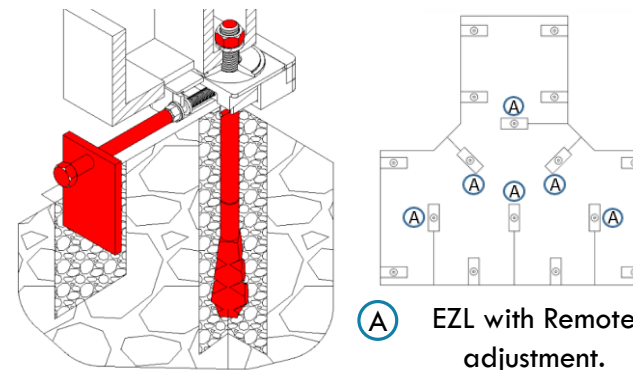
Thru Assembly

- Thru Device Grouting
- Anchor Bolt (DIN529F) or Anchor Casting can be provided
- Anchor Bolt Length will be as per Customer Requirement
- M20/M24 Spherical Washer & Nut



Anchor Casting

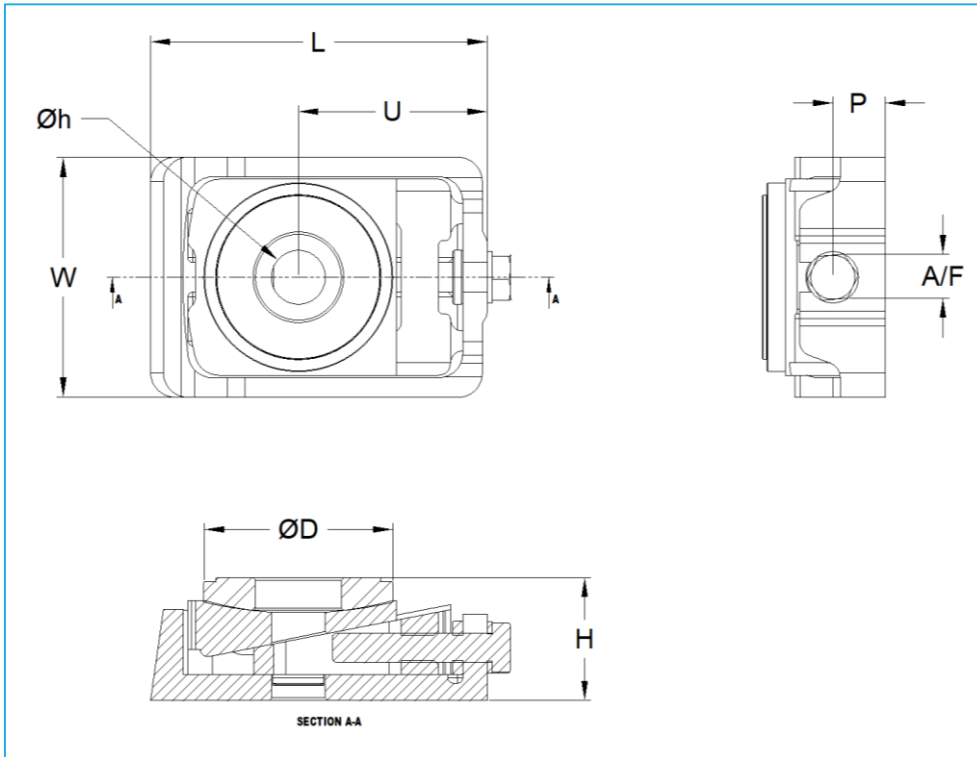
Remote Levelling



A EZL with Remote adjustment.

- Remote Levelling Option allows EZL to be placed at inaccessible locations & be remotely operated.
- This gives the option to support the machine wherever required giving more flexibility in Machine Design to enhance rigidity.
- Contact us for details

EZL-3 SERIES DATA



Dimensions in mm				
	EZL-3-2-38	EZL-3-2-50	EZL-3-2-80	EZL-3-2-140
L	130	137	137	137
W	80	98	98	98
H	38	50	80	140
t	6	5.5	5.5	5.5
P	16	21.5	51.5	111.5
h	Ø22	Ø22	Ø22	Ø22
DØ	Ø77	Ø77	Ø77	Ø77
Adj	5.5	6	6	6
M	M20	M20	M20	M20
AF1	16	19	19	19
Load bearing capacity per Assy. Kgs	2000	2000	2000	2000
Vertical lift per adj. screw rotation mm	0.35	0.35	0.35	0.35

- EZL-3 Series are cost optimized wedge actuated version of EZL-2 (Open-Type arrangement).
- Suited for M/cs where levelling & its stability is critical to M/c's performance. Ideally suited for HMC, VMC, Lathes, Large Format Machines – VTL, Plano Milling M/cs
- Allows for thru-device grouting & remote levelling.
- Available in different heights.
- Offers the best rigid support for the M/c with low adjustment torque in a operator friendly orientation.
- M/c sits on a spherical pad which accommodates any angular variation between the floor & M/c base

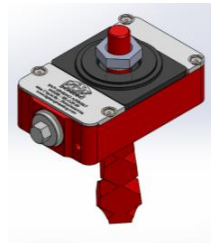
EZL-3 SERIES OPTIONS / ACCESSORIES

Spacer Pack



Consists of 3 x 5 mm Slotted Spacer which can be inserted during Levelling Process to take care of unusual floor level variations.
Extends Range by 15 mm

Machine Grouting



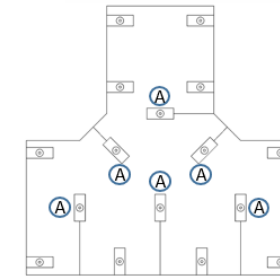
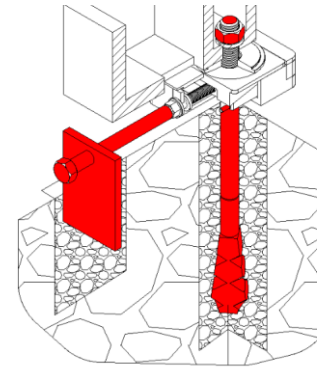
Thru Assembly

- Thru Device Grouting
- Anchor Bolt (DIN529F) or Anchor Casting can be provided
- Anchor Bolt Length will be as per Customer Requirement
- M20/M24 Spherical Washer & Nut



Anchor Casting

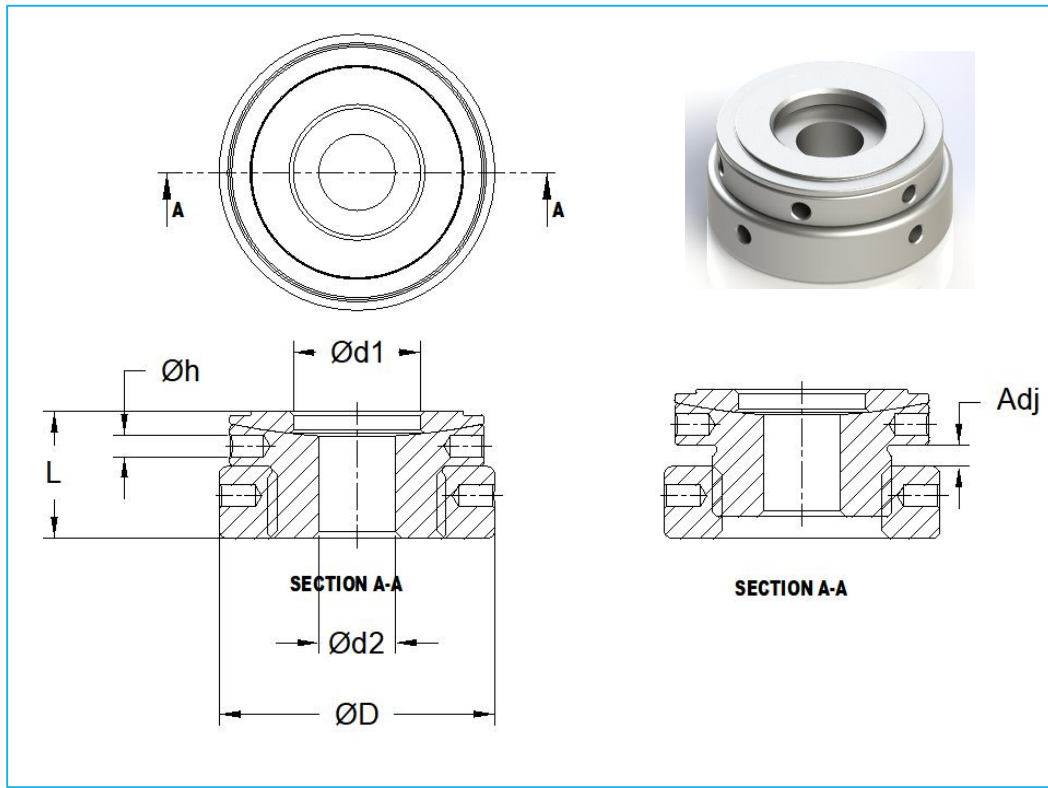
Remote Levelling



A EZL with Remote adjustment.

- Remote Levelling Option allows EZL to be placed at inaccessible locations & be remotely operated.
- This gives the option to support the machine wherever required giving more flexibility in Machine Design to enhance rigidity.
- Contact us for details

EZL-4 SERIES DATA

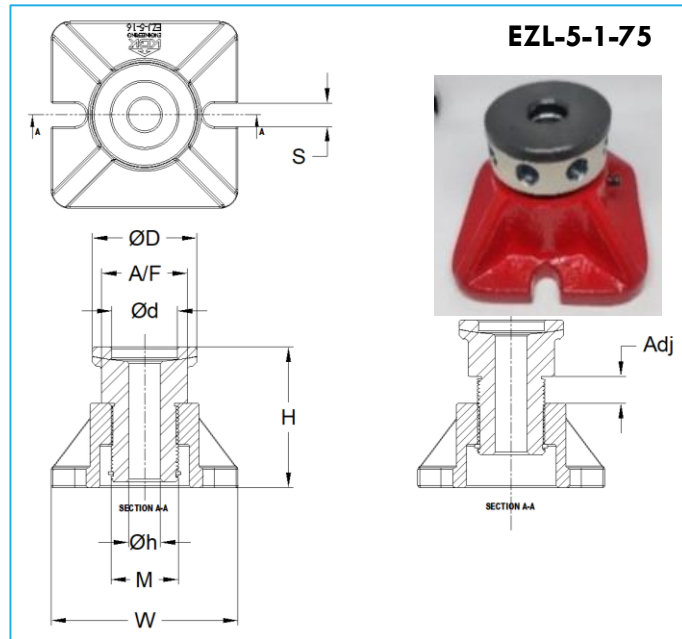


Dimensions in mm

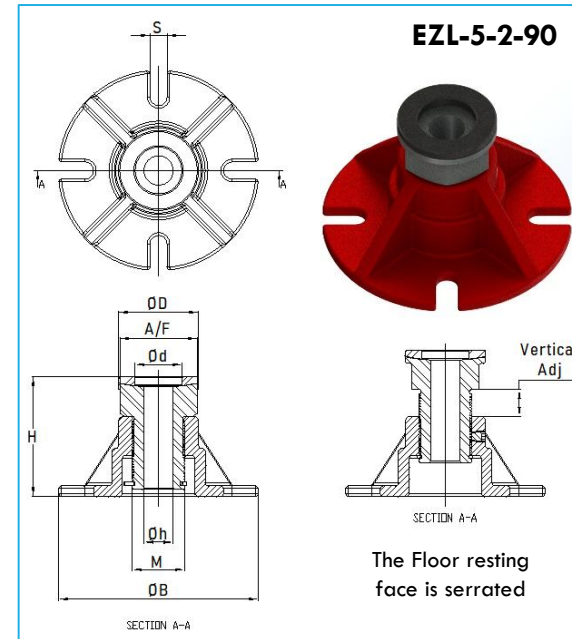
	EZL-CHK-M12-M16	EZL-CHK-M16-M20	EZL-CHK-M20-M24
L	30	35	40
Øh	Ø5.1	Ø5.1	Ø5.1
Ød1	Ø30	Ø35	Ø50
Ød2	Ø18	Ø22	Ø27
ØD	Ø65	Ø75	Ø95
Adj	5	6	6
Load bearing capacity per Assy. - Kgs	1000	2000	3000
Vertical lift mm per adjustment screw rotation	1.5	1.5	1.5

- EZL-4 Series are screw actuated chocks.
- Typically used where gap between M/c & floor has to be kept low.
- Allows for thru device grouting / fastening. Suited for large motors & connected equipment for easy vertical alignment

EZL-5 SERIES DATA



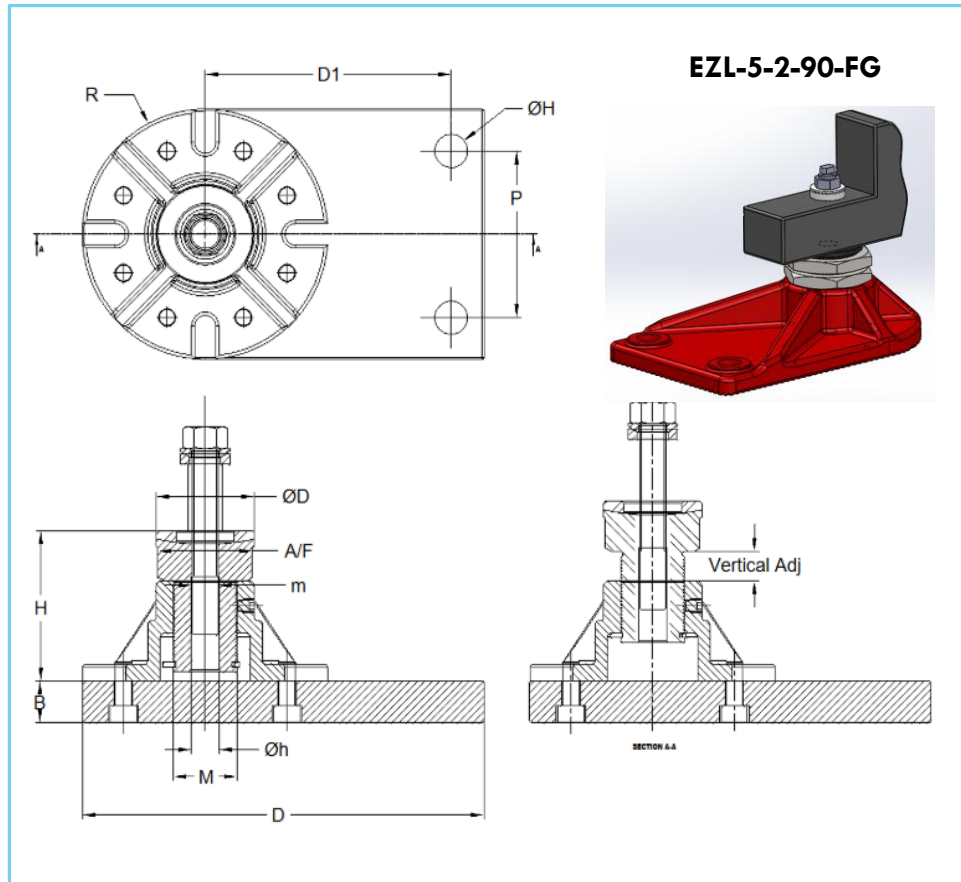
Dimensions (mm)		Specifications	
	EZL-5-1-75		EZL-5-1-75
ØD	Ø56	Load bearing capacity per Assy. - Kgs	1000
Ød	Ø35		
H	75		
Øh	Ø17	Vertical lift per adj. screw rotation - mm	2mm
M	M36x2		
W	Sq100		
S	12.5		
A/F	46		
Vertical Adj	14		



Dimensions (mm)		Specifications	
	EZL-5-2-90		EZL-5-2-90
ØD	Ø60	Load bearing capacity per Assy. - Kgs	2000
Ød	Ø35		
H	90		
m	M24x3	Vertical lift per adj. screw rotation - mm	2mm
Øh	Ø22		
M	M40x2		
ØB	Ø150		
S	12.8		
A/F	50		
Vertical Adj	20		

- EZL-5 Series are cost optimized screw actuated Devices
- Suited for M/cs where levelling & its stability is not so critical to M/c's performance.
- Ideally suited for light metal cutting machines, Laser Cutting M/cs, Wood Working M/cs ...
- Allows for thru-device grouting
- M/c sits on a spherical pad which accommodates any angular variation between the floor & M/c base
- EZL-5-2-90 is provided with serrations on the Floor Resting face
- Optional Spacer pack can be provided to extend Adjustment range
- Optional Foundation bolts can be provided

EZL-5-FG (FRONT GROUT) DATA



Dimensions (mm)		Specifications	
	EZL-5-2-90-FG		EZL-5-2-90-FG
D	245	Load bearing Capacity per Assy. - Kgs	2000
B	25		
H	90		
ØD	Ø60		
m	M24x3		
M	M42x1.5	Vertical lift mm per Adjustment screw rotation	2
Øh	Ø22		
D1	150		
ØH	Ø20		
P	100		
R	75		
A/F 1	60		
Vertical Adj	20		

- Used where M/c has to be grouted after installation / levelling.
- Floor can be easily drilled thru the Holes in the base after installation is completed
- Chemical Anchor Bolts are inserted in the drilled holes into the floor & allowed to set (typically overnight).
- M/c is grouted by tightening the Anchor Nuts the following day
- This variant can be retrofitted to M/cs that require grouting because of floor conditions or changed requirements
- *Completely eliminates need for elaborate foundation preparation*
- M/c sits on a spherical pad which accommodates any angular variations between the floor & M/c base
- Anchor Bolt / Drilling to be arranged by Customer