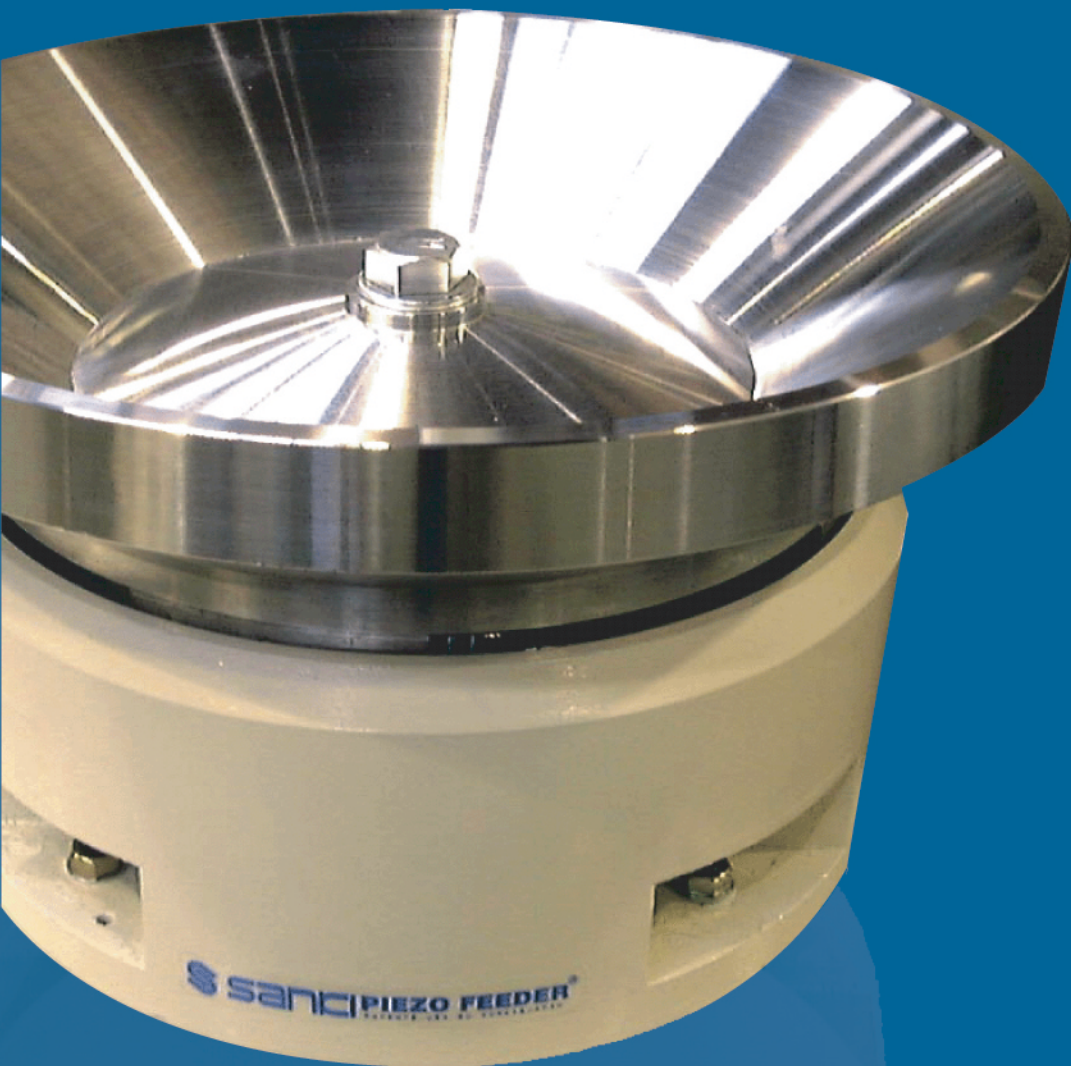


Sanki

Piezo



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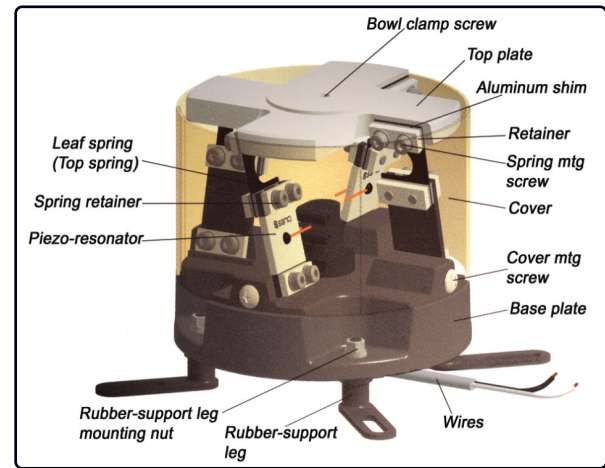
mirai inter-technologies

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PIEZO BOWL TYPE FEEDERS



Sanki's PIEZO vibratory drives are suited for a wide range of applications and different bowls may be installed at any position with a center or a peripheral lock. Non-standard tooling can also be installed by drilling mounting holes in the top plate. The drive unit has no coil or iron core and is durable as well as simple in its design.



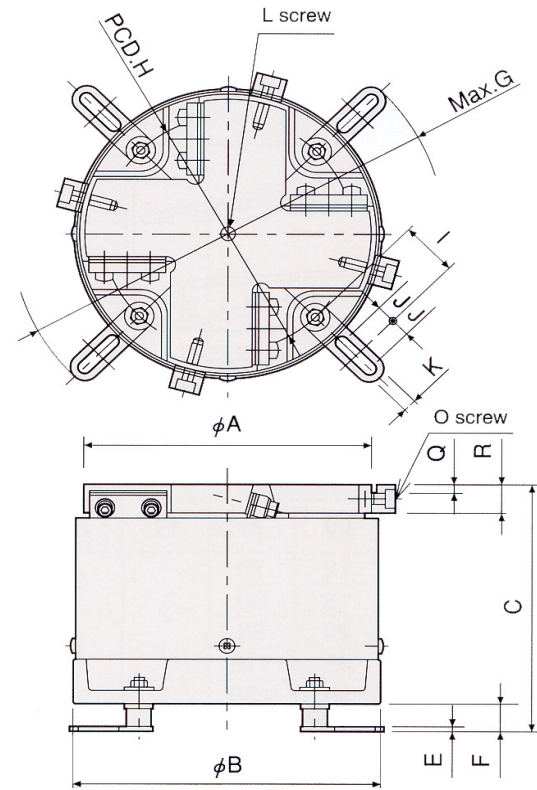
Dimensions

(Unit in mm)

Model	A	B	C	D	E	F	G	H	I	J	K	L	O	Q	R
PEF-90A	90	100	100	50	2.3	15	175	80	30	10	7	M6	-	-	-
PEF-120A	120	130	115				205	110				M8	4-M5	4.5	16
PEF-150A	150	160	137	225			130	M12					3-M5		
PEF-190A	190	210	187	-	3.2	19	290		180	35	15	10	M16	3-M8	6
PEF-230A	230	260	205				330	220	M16	3-M10				6	
PEF-300A	300	320	225	414			270	45		4-M10	25				
PEF-390B	390	440	252	4.5	25	645	465	60	15	10	25				
PEF-460B	460	530	304												

Specifications

Model		90A	120A	150A	190A	230A	300A	390B	460B	
Input Voltage	AC(V)	0 - 250								
Input Current (Standard Bowl)	(mA)	8	15	37	65	90	165			
Resonating Frequency (Standard Bowl)※1	(Hz ± 10Hz)	255	240	233	210	165	152	120	100	
Spring Angle (Standard)	(°)	15								
Piezo Element Model		SR-1639B	SR-2443B	SR-3860B	SR-5086A1		SR-65100A1	SR-68105C	SR-80116A	
Piezo-Element number	(pcs)	2				3				
Paint Color	Cover	Nittokoh S3-309								
	Unit Base	Nittokoh S2-1034								
Unit Weight	(kgs)	1.7	3.3	5.3	12.3	17.8	32.6	54	105	
Max. Bowl Dimensions	Diameter (∅) (mm)	120	150	250	310	370	500	620	760	
	Weight (kgs)	0.3	0.6	2	3	5	8	14	25	
Max Parts Weight	(kgs)	0.2	0.4	0.8	1.5	2.5	3	5		
Operating Temperature Range	(°C)	0 - 40								
Operating Humidity Range	(%/RH)	10 - 90								
Applicable Controller	Standard	NEW P212			NEW P312					
	High-Function	NEW P212-F			NEW P312-F					



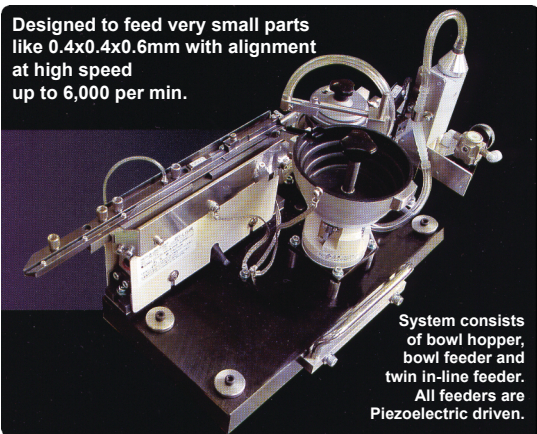
Note 1 : Varies depending on the way of bowl mounting. (Values in this table are for the system with a bare bowl.)

Note 2 : Workpiece weight is different from bowl capacity. For the capacity, see dimensions of bare bowl.

Note 3 : If the feed rate varies due to variations in workpiece weight, a feedback controller may be used to automatically correct for the condition

RELATED PRODUCTS

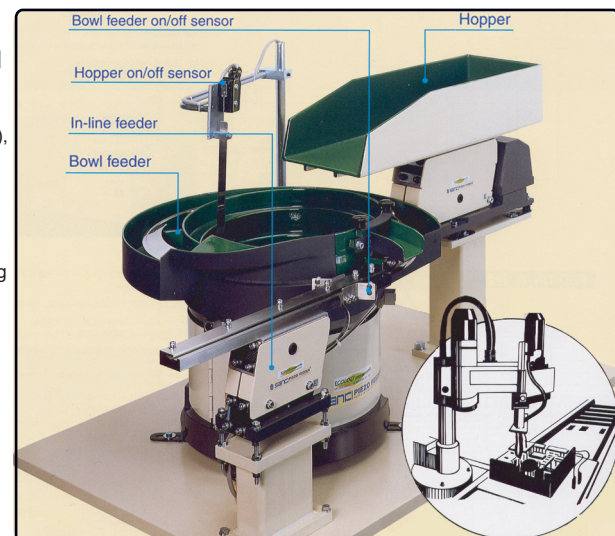
Designed to feed very small parts like 0.4x0.4x0.6mm with alignment at high speed up to 6,000 per min.



System consists of bowl hopper, bowl feeder and twin in-line feeder. All feeders are Piezoelectric driven.

TYPICAL LAYOUT

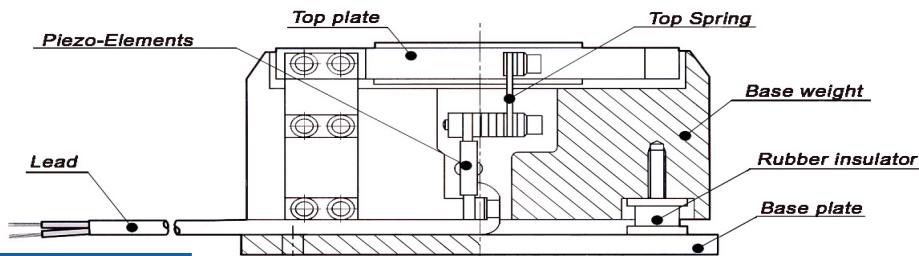
Piezo feeder systems typically consist of a hopper (to maintain proper parts volume in the bowl), a bowl feeder with parts level sensor and an in-line feeder with high level sensor. Mirai Inter-Tech is happy to provide fully tooling systems or individual components according to your needs.



PIEZO i - SERIES BOWL TYPE FEEDERS

FEATURES

- A base weight is provided at the cover to increase the moment of inertia. The important reactive force absorptivity further stabilizes vibration. Such stable vibration is available even at higher feed rates.
- Shorter height makes it easy to coordinate the vertical layout.
- The driving angle can be adjusted before machining. Micro-adjustment is possible according to the properties of each workpiece.



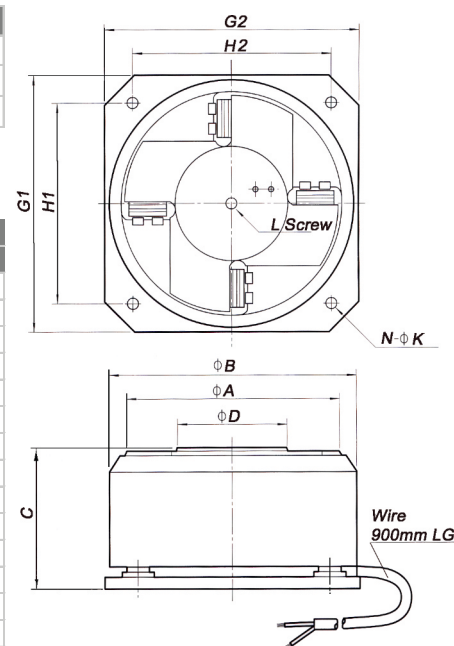
(Unit in mm)

Model	A	B	C	D	G1	G2	H1	H2	L	N-K	Bowl Dia
PEF-110 i	95	110	59	60	115	140	95	120	M8	3-Φ10	120
PEF-150 i	136	155	88.5	70	160		125		M8	4-Φ7	150, 198
PEF-190 i	190	214	105	90	max. 290		PCD250		M12	4-R3.5x20	190, 250

DIMENSIONS

SPECIFICATIONS

Model	Standard			High Freq.	Power Up Type		
	PEF-110 i	PEF-150 i	PEF-190 i	PEF-150 i-H	PEF-150 i-3	PEF-150 i-3H	
Input Voltage	AC(V)						0 - 250
Input Current (Standard Bowl)	(mA)						20
Resonating Frequency (Standard Bowl)*1	(Hz ± 10Hz)						280, 200, 160, 245, 200, 245
Spring Angle (Standard)	(°)						10, 15, 15, 15
Piezo Element Model	SR-1230	SR-2443C	SR-3860B1	SR-2443C	SR-2443C		
Piezo-Element number	(pcs)		2	3	2	3	
Paint Color	Cover	Nittokoh S3-309					
	Unit Base	Nittokoh S2-1034					
Unit Weight	(kgs)						2.5, 6.5, 11.8, 6.5, 6.5
Max. Bowl Dimensions	Diameter(Φ) (mm)	120, 250, 310, 250, 250					
	Weight (kgs)	0.5, 2, 3, 2, 2					
Max Parts Weight	(kgs)						
Operating Temperature Range	(°C)						0 - 40
Operating Humidity Range	(%/RH)						10 - 90
Applicable Controller	Standard	NEW P212		NEW P312	NEW P212		
	High-Function	NEW P212-F		NEW P312-F	NEW P212-F		



Note 1 : Varies depending on specifications of the bowl tooling. (Values in this table are for the system equipped with a bare Sanki bowl).
 Note 2 : This workpiece weight is different from the capacity. For the capacity, see dimensions of bare bowl.
 Note 3 : If the feed rate significantly varies due to variations in workpiece weight, use a Sanki feedback controller.
 Note 4 : Each model has R (Bowl CW turning) type and L (Bowl CCW turning) types.

RELATED PRODUCTS

P SERIES DRIVE POWER CONTROLLER

A compact VVVF power supply capable of changing the voltage and frequency to any level with PWM control system. Both voltage and frequency are displayed by digital LED

FEED-BACK CONTROLLER & PIEZO SENSOR

Designed to monitor bowl vibration with an external accelerometer (see photo), and adjust the output signal to keep the feed rate consistent.

SENSOR TIMER CONTROLLER

A digital controller using a single chip micro-computer to provide on & off (with delay) and product low outputs.

HOPPER

The use of a horizontal workpiece transfer trough helps prevent bridging of the workpiece. The transfer trough is vibrated very quietly. Both Piezo and Electromagnetic hoppers are available.

SPECIALTY FEEDER SYSTEM

Drum feeders can be a compact and cost effective solution for your feeding application. They are best for small, simple parts with modest feed rate, and can be delivered quickly !

TWIN INLINE FEEDER

Used to feed parts inline and return over flow parts.

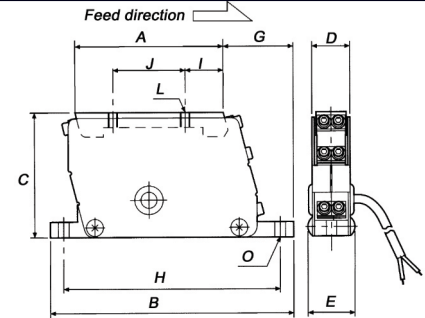
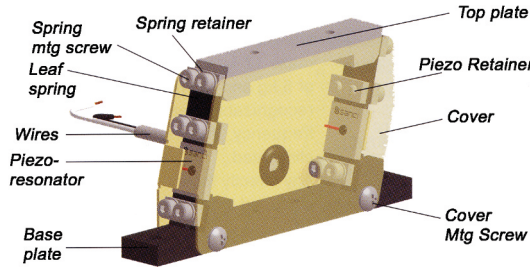
PIEZO IN-LINE TYPE FEEDERS

A wide range of in-line feeders are available from Sanki. Operating frequency can be set as high as 400Hz and vibration amplitude can be set to well under 0.02mm. The smallest drive weighs 0.25 kg in total and the largest one weighs 17 kg in total with a maximum permissible chute weight of 5 kg and maximum chute length of 700 mm. With all Sanki in-line feeders, once the controller frequency and amplitude are set there is no need to make any further adjustments. Directly mounted, intermediate spring, and rubber-support equipped types are available, and should be chosen according to the application.



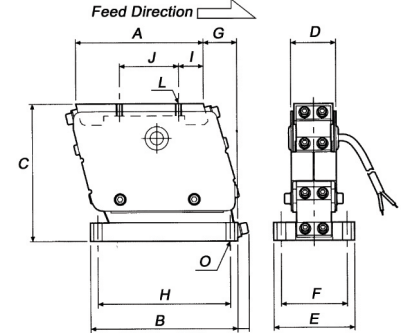
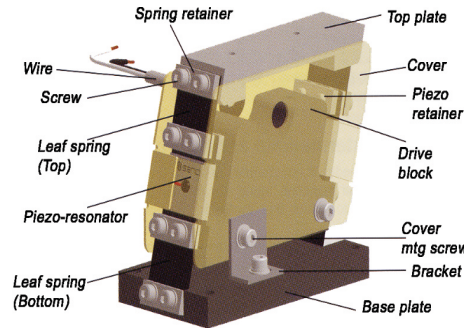
DIRECT MOUNTING TYPE

A simple construction. The highest feed rate is attainable. As the reactive force is directly transmitted to the mounting frame, however, this type is limited to compact feeders.



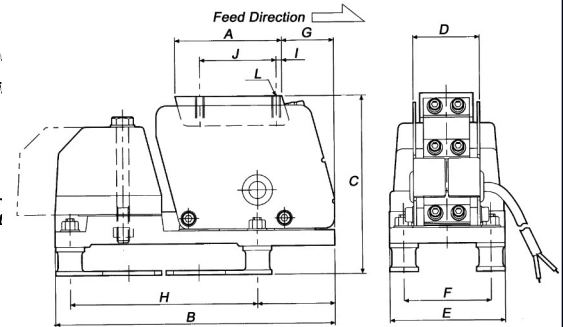
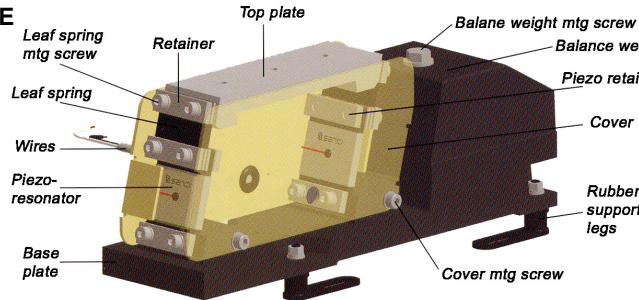
INTERMEDIATE SPRING TYPE

The feeder is installed between the drive unit and the mounting frame via an intermediate spring to reduce the reactive force applied to the frame. Capable of smoothly feeding medium and large-sized workpieces with less vibration.



RUBBER-SUPPORT LEG TYPE

The feeder is fixed to the frame with rubber supports to significantly reduce the reactive force so that minimal vibration is transmitted to the baseplate. Suitable for high-speed feeding of medium and large sized workpieces.



DIMENSIONS	Model	A	B	C	D	E	F	G	H	I	J	L	O
		L5A	L15A	L25A	L60A	L125A	L30AG	L75AG	L150AG	L200AG	L250AG		
Direct Mount	PEF-L5A	82	135	68	21.4	26.4	-	39	120	21	40	2 X M5	2 - Φ6
	PEF-L15A	106	165	77	29.4	34.4	-	43	145	22	50	2 X M5	2 - Φ7
	PEF-L25A	87	100	92	31.4	55	45	23	90	17	40	2 X M4	4 - Φ6
Intermediate Spring	PEF-L60A	123	140	119	48.2	75	62	30	128	16	40	3 X M5	4 - Φ7
	PEF-L125A	164	192	155	61.6	100	80	40	176	23	52	3 X M6	4 - Φ9
Rubber-Support Leg	PEF-L30AG	56	145	92	34.4	60	45	27	97	3	40	2 X M4	4 - R3.5 X 20
	PEF-L75AG	72	175	110	48.4	75	60	33	110	12	40	2 X M5	4 - R3.5 X 20
	PEF-L150AG	128	280	121	52.6	80	65	32	190	23	40	3 X M5	4 - R3.5 X 20
	PEF-L200AG	170	330	155	64.6	90	70	44	220	26	52	3 X M6	4 - R3.5 X 20
	PEF-L250AG	190	390	185	79.6	100	80	55	260	30	60	3 X M8	4 - R3.5 X 20

SPECIFICATION	Model	Direct Mount Type		Intermediate Spring Type			Rubber-Support Leg Type				
		L5A	L15A	L25A	L60A	L125A	L30AG	L75AG	L150AG	L200AG	L250AG
Input Voltage	AC(V)	0 - 250									
Input Frequency	(Hz)	60 - 300									
Input Current	(mA)	5	8	8	17	24	7	13	20	30	41
Resonating Frequency	(Hz±10Hz)	160	135	130	110	86	182	158	110	105	75
Drive Type		Piezo-Resonator									
Max. Track Length	(mm)	200	250	300	350	500	300	400	500	600	700
Max. Track Width	(mm)	15	20	22	33	45	20	34	45	48	50
Max. Track Weight	(kgs)	0.2	0.3	0.5	1.2	2.5	0.6	1.5	3	4	5
Operating Temperature Range	(°C)	0 - 40									
Operating Humidity Range	(%/RH)	10 - 90									
Paint Color		Unit : Nittokoh S2-1034 Cover : Nittokoh S3-309									
Unit Weight	(kgs)	0.5	0.8	1.4	3.8	9	2	3.5	7	13	18
Applicable Controller	Standard	P212									
	High-Function	P212-F									

Presented By:



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