PDS-□ BELT UNIT

■ Large speed change ratio

Two types of speed change pulleys (types AK and PE) are combined to obtain a large speed change ratio.

■ One-touch speed change operation

A detent is contained for easy speed change operation. Rotate the handle clockwise to obtain a low speed, counterclockwise a high speed.

■ Easy-to-read handle scale

Read the scale indicated by the indicator needle as a main scale and the rotating dial on the handle as a vernier.

Specification

Model			PDS-02	PDS-04	PDS-07	PDS-15	PDS-22	PDS-37
Motor 〔kW〕(4P)			0.2	0.4	0.75	1.5	2.2	3.7
Speed Change Ratio			1:4	1:3.5	1:4	1:4	1:4.5	1:3
Output Rotation Speed 〔r/min〕		50Hz	500～2000	720～2520	600～2400	500～2000	500～2250	780～2350
		60Hz	600～2400	870～3050	720～2880	600～2400	600～2700	940～2820
Speed Change Drive	Motor	Model	AK-90	AK-124	AK-140	AK-155	AK-185	AK-216
		Mass 〔kg〕	1.3	2.4	2.8	3.7	5.4	6.9
	Machine	Model	PE-106	PE-124	PE-155	PE-185	PE-216	PE-216
		Mass 〔kg〕	1.6	2.2	4.0	6.0	10	10

※Use at an input rotation speed 1800r/min or less.
※The output rotation speed is that when a 3-phase, 4-pole motor is installed.
※Consult Miki Pulley or its agent in your country if the motor capacity is 5.5kw or higher.

■ Ordering Information: Specify PDS - □ - □

Model

Option
No mark: Standard
SD : Indicator of Handle Rotation Speed
TH : With square bore bushing for adjustment in machine stoppage

■ Belt No. and Center distance between shafts

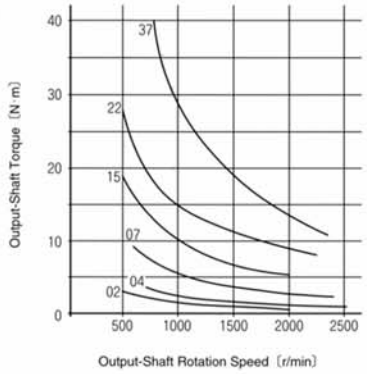
Model	PDS-02	PDS-04	PDS-07	PDS-15	PDS-22	PDS-37
Center Distance	163	200	172	182	230	247
Belt No.	1022V 220	1422V 270	1422V 270	1922V 298	2322V 364	2322V 396
Center Distance	172	242	214	211	275	279
Belt No.	1022V 223	1422V 300	1422V 300	1922V 321	2322V 396	2322V 421
Center Distance	200	278	252	235	304	304
Belt No.	1022V 247	1422V 330	1422V 330	1922V 338	2322V 421	2322V 441

※The center distance is Dimension C in the design type diagram shown on the right page.

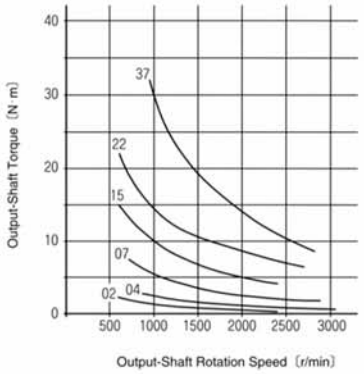
Performance

■ Output Torque Curve (When mounted on 3-phase, 4-pole motor)

50Hz

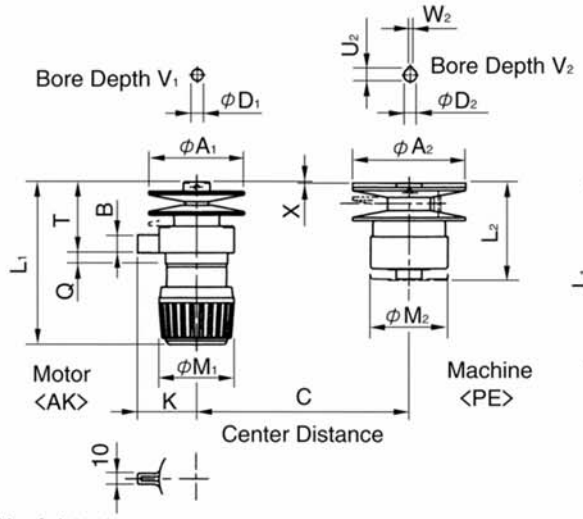


60Hz



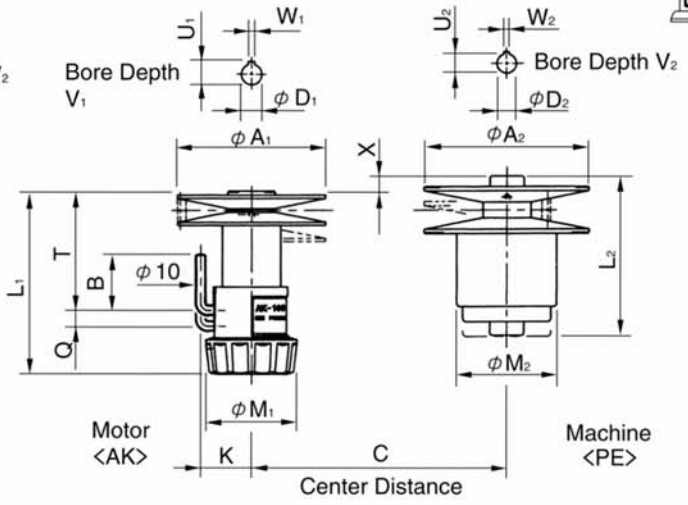
Design Types and Dimensions

■ PDS-02



※Width of detent

■ PDS-04~37



Model		PDS-02	PDS-04	PDS-07	PDS-15	PDS-22	PDS-37
AK	A1	90	124	140	155	185	216
	M1	70	86	86	86	86	86
	L1	153	164	172	205	231	240
	B	17	53	53	53	62	74
	K	55	48	48	48	53	53
	Q	10	11	15	17	21	17.5
	T	67	107	112	142	165	175
	D1	11	14	19	24	28	28
	U1	—	16	21.5	27	31	31
	W1	—	5	6	8	8	8
	V1	25	30	40	50	60	60
	max.P.D	85	114	135	148	178	200
	min.P.D	34.5	58	58	60	70	110
	Handle Rotation Speed	5	5.5	7.5	8.5	10.5	8.5
PE	A2	106	124	155	185	216	216
	M2	73	79	94	104	126	126
	L2	91	122	151	172	205	205
	D2	12	15	18	22	25	30
	U2	13.5	17	20.5	24.5	28	33
	W2	4	5	6	6	8	8
	V2	30	40	45	55	50	65
	max.P.D	101	118	150	178	208	208
	min.P.D	54.5	63	77	100	112	120
X		-1	12	14	16.5	17.5	17.5
CAD File No.		PDS1	PDS2	PDS3	PDS4	PDS5	PDS6

PDC-□N BELT UNIT

■ Unit

This is a non-stage speed change unit combining a speed change pulley, motor and driven shaft on a bed.

■ Large speed change ratio

Two types of speed change pulleys (types AK and PE) are combined to obtain a large speed change ratio.

■ One-touch speed change operation

A detent is contained for easy speed change operation. Rotate the handle clockwise to obtain a low speed, counterclockwise a high speed.

■ Easy-to-read handle scale

Read the scale indicated by the indicator needle as a main scale and the rotating dial on the handle as a vernier.

Specification

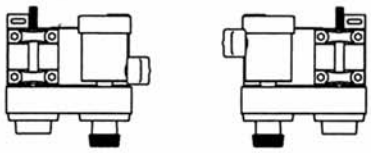
Model		PDC-02N	PDC-04N	PDC-07N	PDC-15N	PDC-22N	PDC-37N
Motor	〔kW〕(4P)	0.2	0.4	0.75	1.5	2.2	3.7
Speed Change Ratio		1:4	1:3.5	1:4	1:4	1:4.5	1:3
Output Rotation Speed 〔r/min〕	50Hz	500～2000	720～2520	600～2400	500～2000	500～2250	780～2350
	60Hz	600～2400	870～3050	720～2880	600～2400	600～2700	940～2820
Output Shaft Torque	50Hz 〔N·m〕	3.0～0.6	3.6～1.0	9.2～2.4	19～5.4	28～8.2	40～11
	50Hz {kgf·m}	0.3～0.06	0.36～0.10	0.92～0.24	1.9～0.54	2.8～0.82	4.0～1.10
	60Hz 〔N·m〕	2.4～0.5	2.9～0.8	7.5～2.0	15～4.3	22～6.6	32～8.8
	60Hz {kgf·m}	0.24～0.05	0.29～0.08	0.75～0.20	1.5～0.43	2.2～0.66	3.2～0.88
Mass	〔kg〕	20	27	39	75	70	85
Speed Change Drive	Motor	AK-90	AK-124	AK-140	AK-155	AK-185	AK-216
	Reducer	PE-106	PE-124	PE-155	PE-185	PE-216	PE-216
Belt		1022V220	1422V270	1422V270	1922V298	2322V364	2322V396

■ Ordering Information: Specify

PDC - □ N - □ - □

Model Shape Option

■ Shape



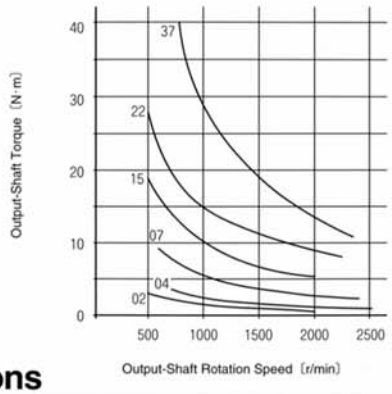
L R

Decide by on which side the output shaft position is located when viewed from the handle side.

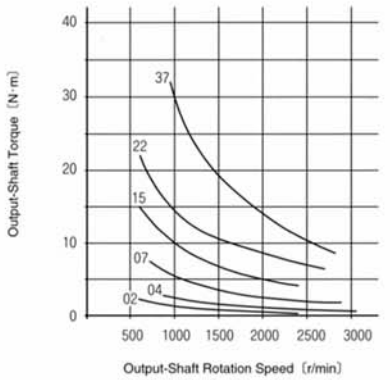
Performance

■ Output Shaft Torque Curve

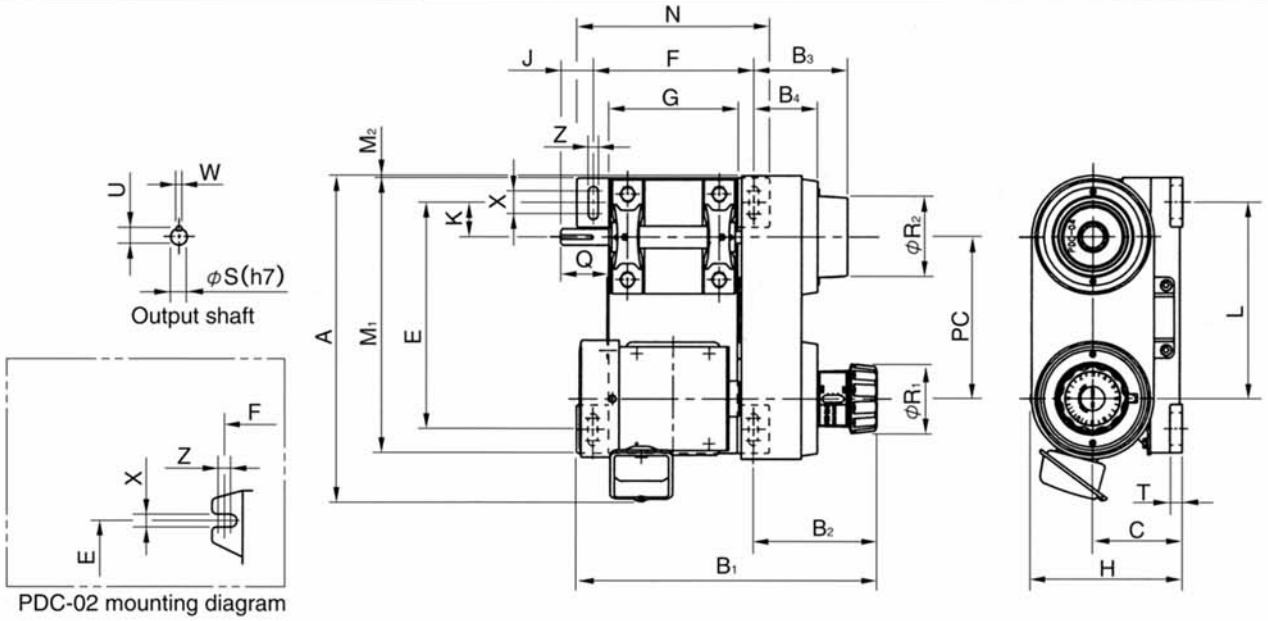
50Hz



60Hz



Design Types and Dimensions



Model	PDC-02	PDC-04	PDC-07	PDC-15	PDC-22	PDC-37
A	305	405	400	440	520	550
B_1	333	375	425	485	570	580
B_2	138	155	165	195	230	240
B_3	90	120	145	165	200	210
B_4	55	85	75	105	130	140
C	95	110	120	130	140	152
E	240	280	290	320	390	390
F	180	200	240	270	320	320
G	150	160	200	230	280	280
H	165	185	210	235	264	276
J	45	40	65	65	80	85
K	35	42	58	67	64	64
L	198	242	230	249	294	309
M_1	300	340	350	380	450	450
M_2	0	3	3	8	31	31
N	200	240	280	310	360	360
PC	163	200	172	182	230	247
Q	60	60	85	85	100	105
R_1	70	86	86	86	86	86
R_2	90	100	110	121	150	150
T	15	15	20	20	20	20
X	11	28	25	25	25	25
Z	10	12	15	15	15	15
S	20	20	25	25	30	30
U	22.5	22.5	28	28	33	33
W	6	6	8	8	8	8

PDG-□BSN BELT UNIT

■ Unit

This is a non-stage speed change unit combining a speed change pulley, motor and worm reducer on a bed.

■ Large speed change ratio

Two types of speed change pulleys (types AK and PE) are combined to obtain a large speed change ratio.

■ One-touch speed change operation

A detent is contained for easy speed change operation. Rotate the handle clockwise to obtain a low speed, counterclockwise a high speed.

■ Easy-to-read handle scale

Read the scale indicated by the indicator needle as a main scale and the rotating dial on the handle as a vernier.

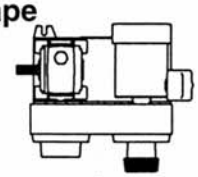
Specification

Model			PDG-02BSN		PDG-04BSN		PDG-07BSN		PDG-15BSN		PDG-22BSN		PDG-37BSN	
Motor Capacity 〔kW〕			0.2		0.4		0.75		1.5		2.2		3.7	
Speed Change Ratio			1:4		1:3.5		1:4		1:4		1:4.5		1:3	
	Speed Reduction Ratio	Frequency	Output Shaft Rotation Speed 〔r/min〕	Output Shaft Torque 〔N·m〕{kgf·m}	Output Shaft Rotation Speed 〔r/min〕	Output Shaft Torque 〔N·m〕{kgf·m}	Output Shaft Rotation Speed 〔r/min〕	Output Shaft Torque 〔N·m〕{kgf·m}	Output Shaft Rotation Speed 〔r/min〕	Output Shaft Torque 〔N·m〕{kgf·m}	Output Shaft Rotation Speed 〔r/min〕	Output Shaft Torque 〔N·m〕{kgf·m}	Output Shaft Rotation Speed 〔r/min〕	Output Shaft Torque 〔N·m〕{kgf·m}
Speed Change Drive	1/10	50Hz	50~200	23~4.8 2.3~0.48	72~252	27~8.1 2.7~0.81	60~240	70~20 7~2	50~200	150~44 15~4.4	50~225	220~67 22~6.7	78~235	320~91 32~9.1
		60Hz	60~240	18~4 1.8~0.4	87~305	22~6.5 2.2~0.65	72~288	57~16 5.7~1.6	60~240	120~35 12~3.5	60~270	170~54 17~5.4	94~282	250~73 25~7.3
	1/20	50Hz	25~100	41~8.9 4.1~0.89	36~126	48~15 4.8~1.5	30~120	130~37 13~3.7	25~100	220~81 22~8.1	25~113	400~130 40~13	39~118	570~170 57~17
		60Hz	30~120	33~7.4 3.3~0.74	44~154	38~12 3.8~1.2	36~144	110~30 11~3	30~120	200~65 20~6.5	30~135	320~100 30~10	47~141	450~140 45~14
	1/30	50Hz	17~68	54~12 5.4~1.2	24~84	64~20 6.4~2	20~80	170~50 17~5	17~68	290~110 29~11	17~75	500~180 50~18	26~78	770~240 77~24
		60Hz	20~80	42~9.9 4.2~0.99	29~102	51~16 5.1~1.6	24~96	140~41 14~4.1	20~80	280~90 28~9	20~90	410~140 41~14	32~95	610~190 61~19
	1/40	50Hz	12.5~50	54~15 5.4~1.5	18~63	76~25 7.6~2.5	15~60	190~63 19~6.3	12.5~50	250~140 25~14	12.5~56	500~230 50~23	20~59	730~300 73~30
		60Hz	15~60	53~13 5.3~1.3	22~77	62~20 6.2~2	18~72	170~53 17~5.3	15~60	250~110 25~11	15~67	500~180 50~18	24~71	730~240 73~24
	1/50	50Hz	10~40	54~18 5.4~1.8	15~52	99~32 9.9~3.2	12~48	200~77 20~7.7	10~40	280~170 28~17	10~45	450~280 45~28	16~47	770~390 77~39
		60Hz	12~48	54~15 5.4~1.5	17~60	80~26 8~2.6	15~60	200~64 20~6.4	12~48	280~140 28~14	12~54	450~220 45~22	19~56	770~310 77~31
	1/60	50Hz	8.5~34	54~21 5.4~2.1	12~42	95~35 9.5~3.5	10~40	190~89 19~8.9	8.5~34	260~190 26~19	8.5~37	420~300 42~30	13~39	680~430 68~43
		60Hz	10~40	54~17 5.4~1.7	15~52	91~28 9.1~2.8	12~48	190~74 19~7.4	10~40	260~160 26~16	10~45	420~260 42~26	16~47	680~340 68~34
Mass 〔kg〕			21		33		50		75		102		140	
Speed Change Drive	Motor		AK-90		AK-124		AK-140		AK-155		AK-185		AK-216	
	Reducer		PE-106		PE-124		PE-155		PE-185		PE-216		PE-216	
Belt			1022V220		1422V270		1422V270		1922V298		2322V364		2322V396	
Reducer			N-PA-12		N-PA-15		N-PA-18		N-PA-22		N-PA-25		N-PA-30	

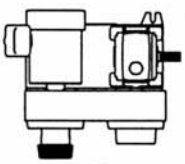
■ Ordering Information: Specify PDG-□BSN-□-□-□

Model | Shape | Speed Reduction Ratio | Option

■ Shape



L



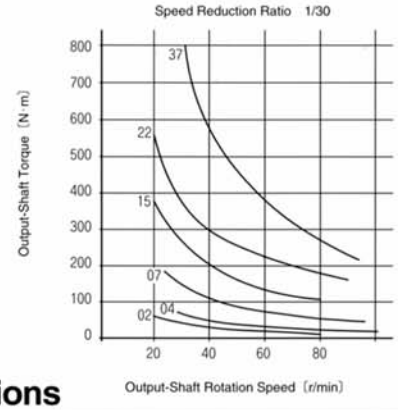
R

Decide by on which side the output shaft position is located when viewed from the handle side.

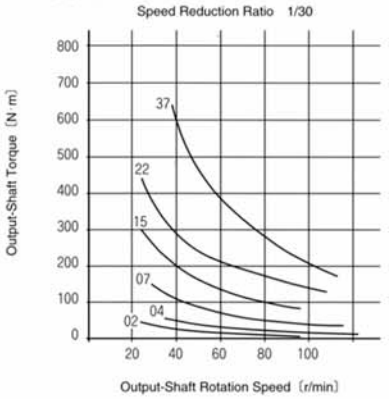
Performance

■ Output Shaft Torque Curve

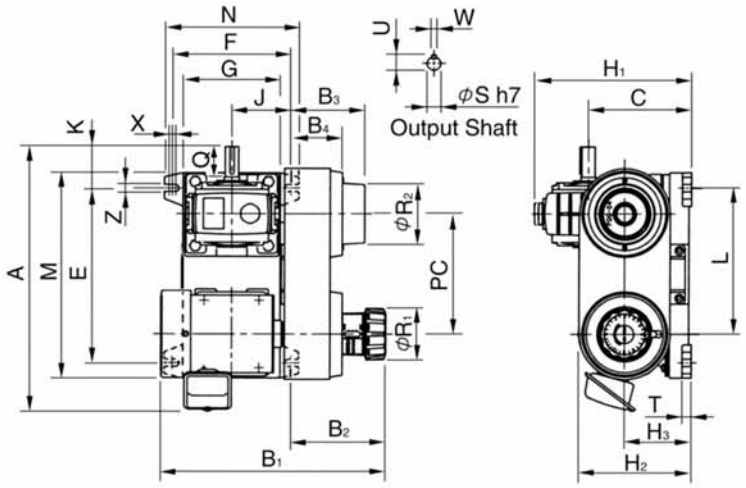
50Hz



60Hz



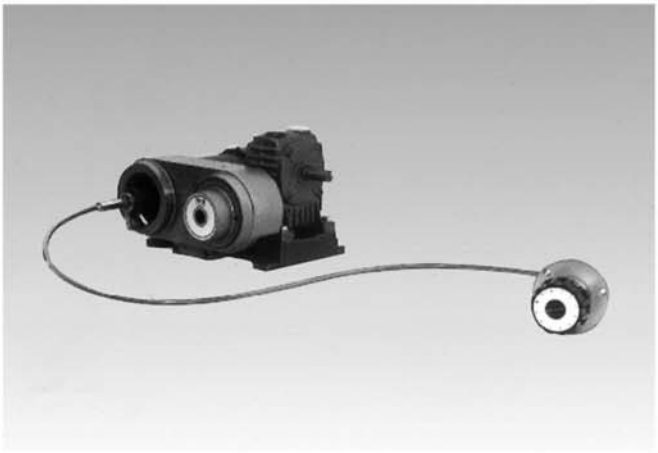
Design Types and Dimensions



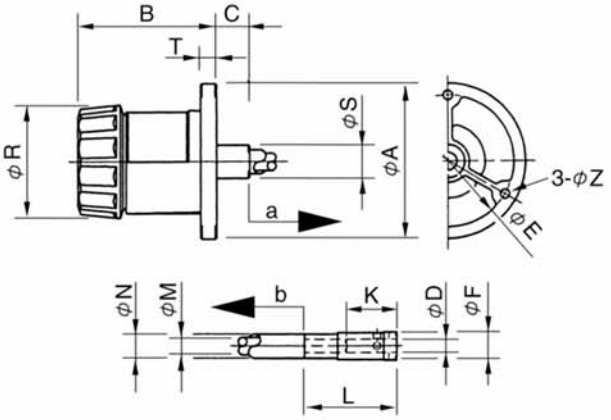
Model	PDG-02BSN	PDG-04BSN	PDG-07BSN	PDG-15BSN	PDG-22BSN	PDG-37BSN
A	325	440	440	475	565	615
B_1	333	370	425	485	570	650
B_2	138	160	165	195	230	230
B_3	90	125	145	165	200	200
B_4	55	85	75	105	130	130
C	145	170	190	210	240	280
E	240	290	290	320	390	410
F	180	195	240	270	320	390
G	150	160	200	230	280	330
H_1	225	260	295	325	380	445
H_2	165	185	210	235	265	285
H_3	95	110	120	130	140	160
J	90	98	120	135	160	195
K	60	68	73	73	93	110
L	198	242	230	249	308	327
M	290	340	350	380	450	490
N	200	220	280	310	360	450
PC	163	200	172	182	230	247
Q	40	50	60	65	75	85
R_1	70	86	86	86	86	86
R_2	90	100	110	121	150	150
T	15	15	20	20	20	20
X	10	10	10	10	10	20
Z	11	12	15	15	15	20
S	17	22	28	32	38	45
U	19	24.5	31	35	41	48.5
W	5	6	8	10	10	14
CAD File No.	PDG-BSR1	PDG-BSR2	PDG-BSR3	PDG-BSR4	PDG-BSR5	PDG-BSR6

※CAD file numbers are for the R configuration. Input PDG-BSL□ depending on the configuration.

■ Remote operation unit RF



RF is a flexible-shaft remote operation unit for remote operation by setting it on a belt speed change drive unit. Its construction is extremely simple and is an economy type, mounting a flange with the handle of Type AK. Speed change operation is performed by rotating the speed change handle.



Model	Speed Changer	Handle Rotation Speed	Dimensions													
			A	B	C	D	E	F	K	L	M	N	R	S	T	Z
RFA-90	PDS·PDC·PDG-02	5	100	75	25	10	82	20	38	70	10	14	70	25	11	7
RFB-90		10														
RFA-124	PDS·PDC·PDG-04	5.5	118	94	25	10	100	20	38	70	10	14	86	25	12	7
RFB-124		11														
RFA-140	PDS·PDC·PDG-07	7.5	118	94	25	10	100	20	38	70	10	14	86	25	12	7
RFB-140		15														
RFA-155	PDS·PDC·PDG-15	8.5	118	94	25	10	100	20	38	70	10	14	86	25	12	7
RFB-155		17														
RFA-185	PDS·PDC·PDG-22	10.5	118	104	25	10	100	20	38	70	13	18	86	25	12	7
RFB-185		21														
RFA-216	PDS·PDC·PDG-37	8.5	118	104	25	10	100	20	38	70	13	18	86	25	12	7
RFB-216		17														

※Three standard flexible shaft lengths are available, 1000, 1600 and 2500mm. Consult Miki Pulley or its agent in your country about your requirements on other lengths.
※Design the radius of curvature to R300 or more.

■ Specify the following information when ordering:

Unit Type

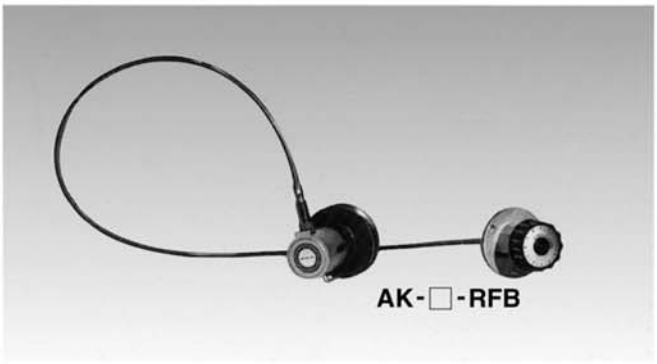
PDC-02-RFA-SD (Wire length mm)
- SD: Marked "SD" only when an index handle is provided.
- RFA or RFB: Configuration, RFA or RFB.
- 02: Motor capacity
- PDC: Model

RF Type Only

RF A/B -90-SD (Wire length mm)
- SD: Marked "SD" only when an index handle is provided.
- 90: Speed drive size
- A/B: Configuration

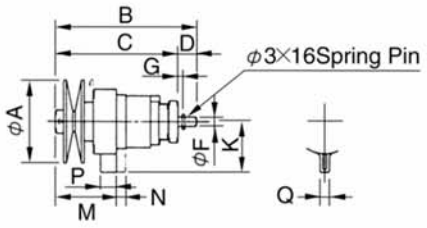
■ Speed changer for remote operation unit RF AK-□-RFA·AK-□-RFB

AK-□-RFA and AK-□-RFB are remotely operated by coupling them to RF by a flexible shaft. RFA is taken out axially, while RFB is taken out perpendicularly to the axis.

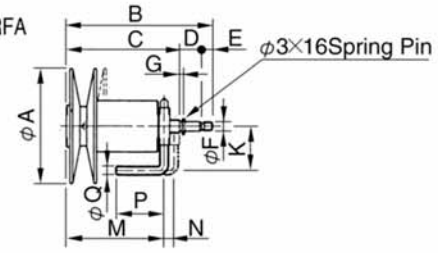


AK-□-RFA

AK-90-RFA

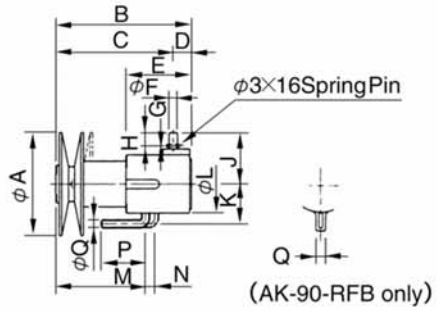


AK-124~216-RFA



Model	A	B	C	D	E	F	G	K	M	N	P	Q
AK-90-RFA	90	154	134	20	—	10	6	55	67	10	17	10
AK-124-RFA	124	160	124	24	12		4	48	107	11	53	
AK-140-RFA	140	169	133	24	12		4	48	112	15	53	
AK-155-RFA	155	201	165	24	12		4	48	142	17	53	
AK-185-RFA	185	228	192	24	12		4	53	165	21	62	
AK-216-RFA	216	236	200	24	12		4	53	175	17.5	74	

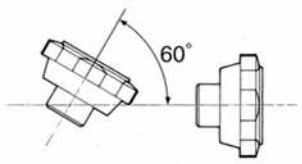
AK-□-RFB



Model	A	B	C	D	E	F	G	H	J	K	L	M	N	P	Q
AK-90-RFB	90	171	149	22	78	10	4	20	62	55	70	67	10	17	10
AK-124-RFB	124	162	140							48	70	107	11	53	
AK-140-RFB	140	171	149							48	70	112	15	53	
AK-155-RFB	155	203	181							48	70	142	17	53	
AK-185-RFB	185	230	208							53	80	165	21	62	
AK-216-RFB	216	238	216							53	80	175	17.5	74	

■ Index handle SD for remote operation unit RF

Rotate the handle to move the indicator needle. One turn of the handle will move the short needle one scale division in the twin needle type. This allows fine-resolution reading of the handle rotation speed. It can be mounted from horizon to 60° as shown below.



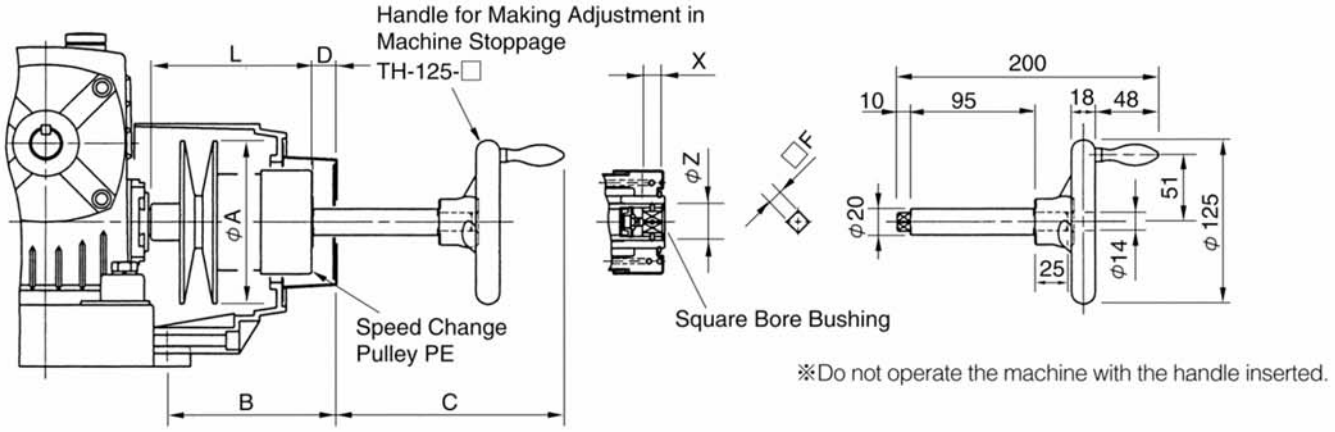
Model	Index Handle
RFA-90-SD	SD-53B-9L
RFA-124-SD	SD-53B-90A-9L
RFA-140-SD	
RFA-155-SD	
RFA-185-SD	SD-53B-90A-12L
RFA-216-SD	
RFB-90-SD	SD-53B-12L
RFB-124-SD	SD-53B-90A-12L
RFB-140-SD	SD-53B-90A-16L
RFB-155-SD	SD-53B-90A-25L
RFB-185-SD	
RFB-216-SD	

※If mounted with SD (rotation speed indicator), the handle dimensions will slightly differ.

2

■ Square bore for mounting adjusting handle TH in machine stoppage

A handle is inserted while the machine is stopped for easy fine adjustment and position alignment.
Mount the handle for adjustment TH, which is used during machine stoppage, on the square-bore bushing of the type-PE speed change pulley and make fine adjustment and position alignment.
The handle for adjusting while the machine is stopped is an option (TH-125-□) and needs to be purchased separately.



※Do not operate the machine with the handle inserted.

Dimensions of PDG-BS Unit When Mounted

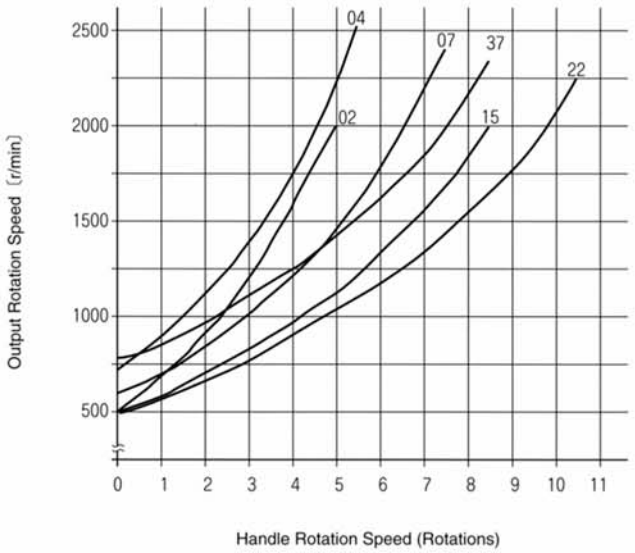
Handle Model	Speed Change Pulley	A	B	C	D	□F	L	X	Z
TH-125-12	PE-106	106	90	176	14	12	91	15	24
TH-125-12	PE-124	124	125	169	21	12	122	15	28
TH-125-15	PE-155	155	145	176	14	15	151	15	32
TH-125-15	PE-185	185	165	172	18	15	172	20	40
TH-125-15	PE-216	216	200	175	15	15	205	20	50
TH-125-15	PE-216	216	200	165	25	15	205	20	50

Model **TH - 125 - □**
Dimension F

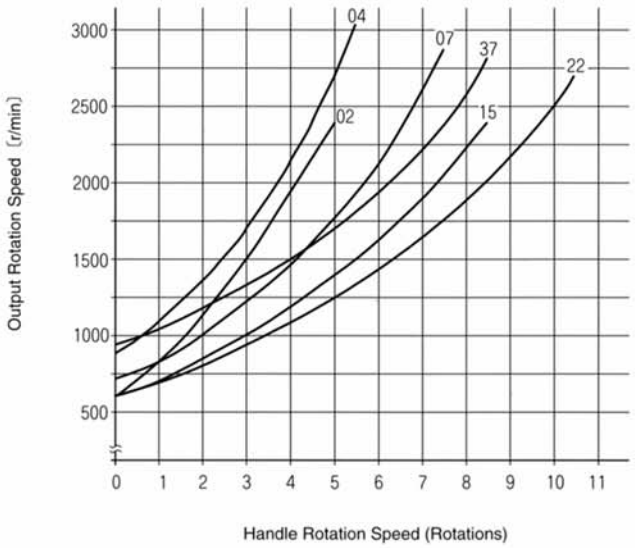
Design Check Items

■ Handle Rotation Speed and Output Rotation Speed (When mounted on 3-phase, 4-pole motor)

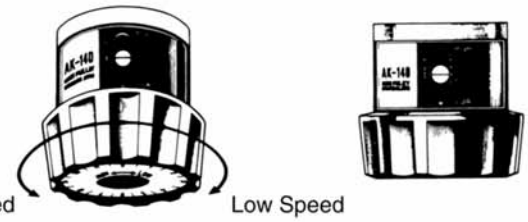
50Hz



60Hz



1. Install in a well-ventilated place, avoiding a place which is moist and dust, high in ambient temperature, where water or oil is splashed, or with a corrosive or flammable gas ambience. Install in a place which allows easy checking.
   The operating ambient temperature is −10℃ to +40℃.
2. Install the type AK on the motor shaft and type PE on the driven side.
3. The recommended input rotation speed is 1500 to 1800r/min. (4-pole motor drive is recommended)
4. Fix the detent rod radially. (Type PDS)
5. Make sure to produce belt running line, parallelism of two shafts and perpendicularity correctly when installing a speed changer. (Type PDS)
6. Install a cover on the rotating part when mounting on a machine.
7. Install on a floor. The base to mount the equipment on must be secure. Make sure that the base does not vibrate. When installing on a floor, raise the mounting base of the equipment above the floor to avoid absorbing moisture. Inadequate mounting causes vibration during operation. Mount securely using bolts that have a sufficient strength.
8. When mounting a sprocket or gear on an output shaft, make sure that the specified overhang load is not exceeded. When directly coupling an output shaft and mating machine, align the shaft center carefully using a flexible shaft coupling.
9. Do not carry the unit by holding its handle.
10. Remove the air cap mounted on the oiling plug of the worm reducer after mounting it.
11. Consult Miki Pulley or its agent in your country when installing speed change drives in a machine which operates in forward and reverse directions and is exposed to repetitive loads and impact loads.
12. Rotate the handle clockwise to operate at a low speed, rotating counterclockwise to operate at a high speed.



13. Read the scale indicated by the indicator needle as a main scale and the dial on the handle as a vernier.
14. Do not rotate the handle when the speed changer is stopped.
15. Output rotation can be in any direction.
16. Make a test run and rotate the handle to detect abnormal vibration or abnormal sound.
17. Check the output rotation speed.
18. Stop the speed changer first before performing forward and reverse operation.
19. Running-in to gradually increase speed from a low speed is recommended to run in meshing surfaces of the toothed wheels of the reducer.
20. Check the speed changer, speed change belt and reducer if operation has been,stopped for a long time.
21. Check abnormal wear of the speed change belt.
22. A strong spring is contained in the speed changer (type PE). The speed changer must not be disassembled.