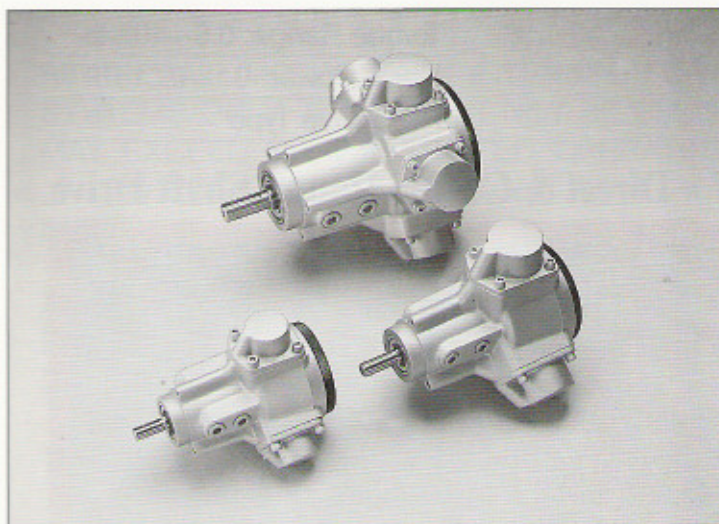


UTAM4 Series RADIAL PISTON AIR MOTOR



- **AIRPRO**® air motors are designed for use in industrial applications such as powering air driven machinery, raising foundry cokes and drags, rotating a turntable, mixing paint, powering cranes, valve actuation and power source for mechanical hands.
- Speed could be easily controlled by flow adjustment from 100 r.p.m. up to Max. speed.
- Compact in size, light in weight and simple in structure are features of all models
- **AIRPRO**® air motors can be mounted any way you like — Flange mounting and foot mounting are available.
- Air lines should be equipped with lubricators. Mount the lubricator as close to the motor as possible.

SPECIFICATIONS

Model No.	Item	Type	Gear Ratio	*Max. Power				Starting Torque ft-lb	Stall Torque ft-lb	Max. Allowable Shaft Load		Weight		
				Horse Power hp	Torque ft-lb	Speed rpm (Ref)	Air Consumption scfm			Radial Load lb	Thrust Load lb	Direct Drive lb	Flange Mount lb	Foot Mount lb
UTAM4-010	S	Direct Drive	—	0.10	0.47	1100	7	0.51	0.87	22	13	3.2	3.3	4.6
	G005	Geared Drive	1/5	0.09	2.09	220		2.16	3.61	55	33	—	6.6	6.4
	G010		1/10		4.19	110		4.33	7.22	121	55			
	G020		1/20		8.44	55		8.66	15.55	242	99			
UTAM4-015	S	Direct Drive	—	0.17	1.01	900	9.2	1.44	2.16	31	22	5.5	5.7	7.5
	G005	Geared Drive	1/5	0.15	4.33	180		6.49	9.38	88	55	—	11.2	11.0
	G010		1/10		8.66	90		12.99	19.48	176	77			
	G020		1/20		17.32	45		25.98	38.97	308	154			
UTAM4-030	S	Direct Drive	—	0.31	2.16	750	14.1	3.46	4.33	44	31	10.1	10.6	14.1
	G005	Geared Drive	1/5	0.27	9.38	150		15.15	19.48	110	66	—	19.6	19.4
	G010		1/10		19.48	75		30.31	38.97	220	99			
	G020		1/20		38.97	38		60.61	77.93	396	187			
Media	Filtered (Under 40µm) and lubricated air													
*Max. Operating Pressure	90 psig (7kgf/cm ²)													
Ambient and media temperature	32 ~ 158°F (0 ~ 70°C) at no freezing condition.													
**Lubrication for line lubricators	Should be necessary/Recommended oil; misting-type oils rated 150-200 SSU at 100°F (38°C)/ISO VG 32													
**Recommended gear oil	Same as Shell Oil Co. Alvania # EP RIO 71039 Grade "00" or Sun Petroleum Products Prestige 740 AEP Grade "00"													

* These Motors must be operated with sufficient load to prevent speed from exceeding maximum allowable speed shown on performance curve. Do not operate motors at more than 80% of or near Max. power speed.

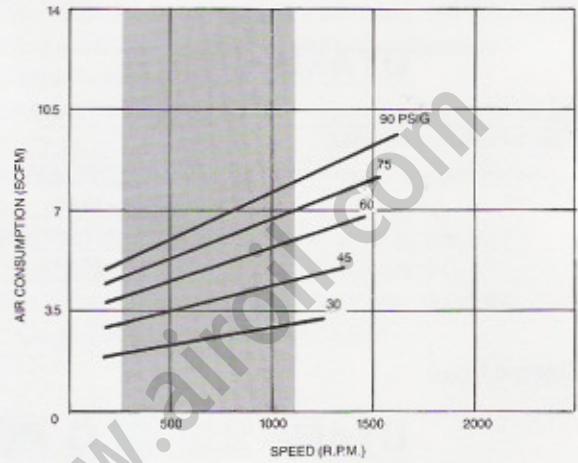
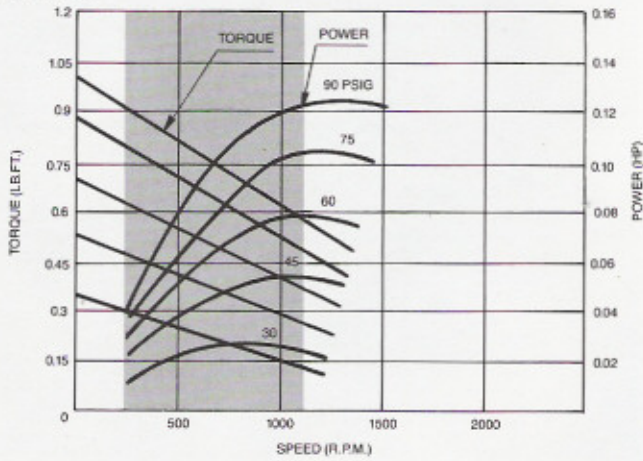
** The oil used must be compatible with materials of construction. Contact your lubricant supplier and the builder of equipment to be lubricated to obtain lubricant recommendations.

The proper grades of grease and oil are essential to the economical operation of any air motor.

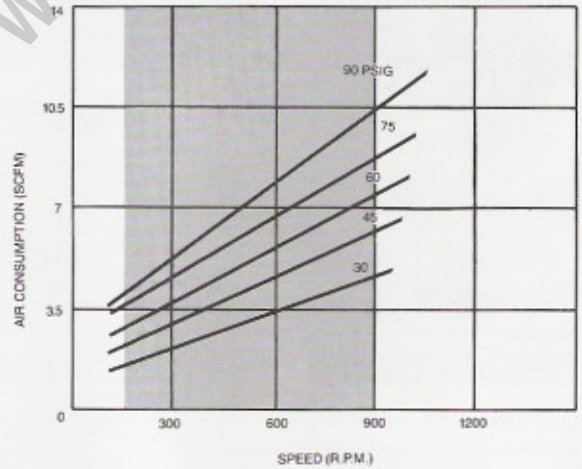
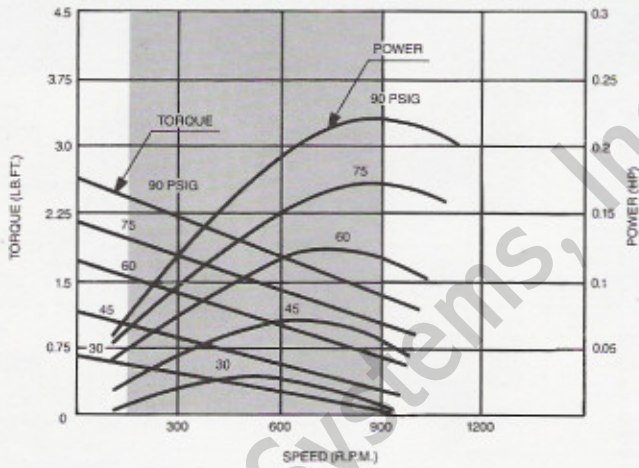
UTAM4 Series RADIAL PISTON AIR MOTOR

PERFORMANCE FIGURES/DIRECT DRIVE

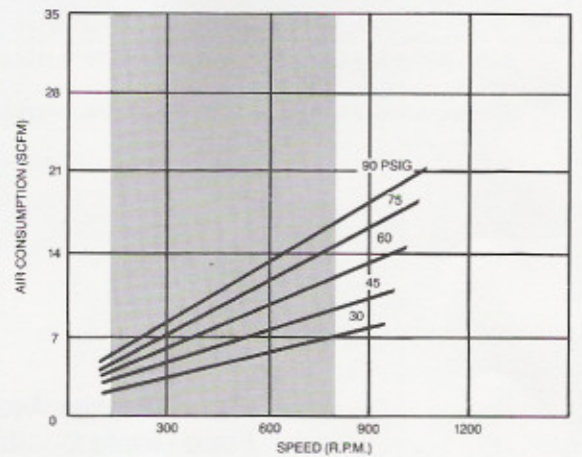
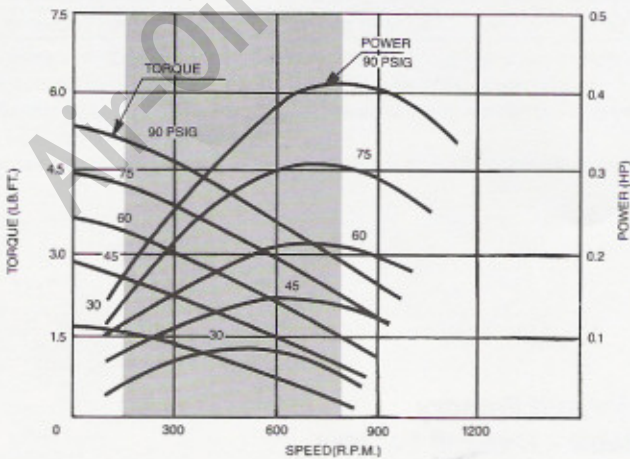
UTAM4-010S



UTAM4-015S

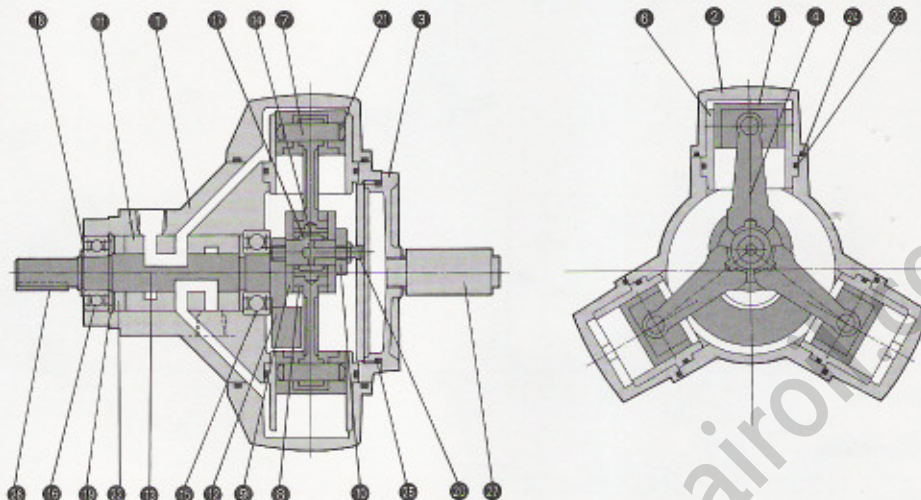


UTAM4-030S

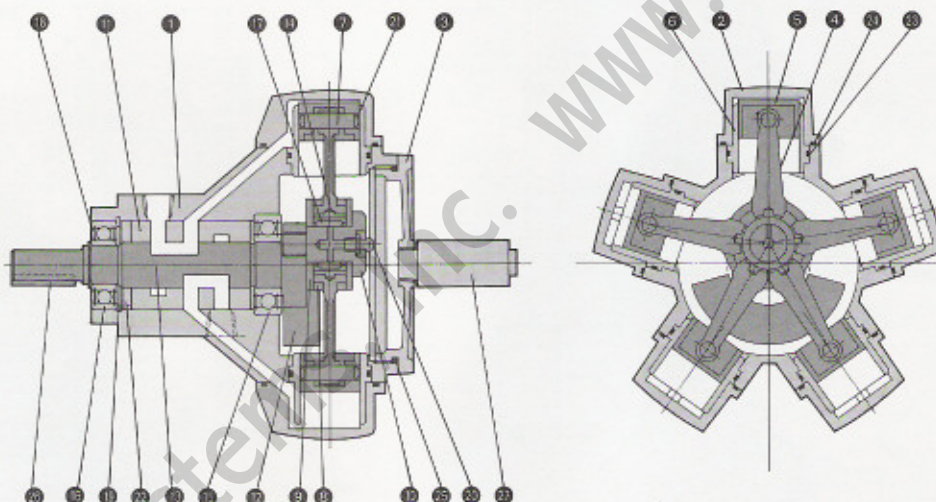


INSIDE STRUCTURE/DIRECT DRIVE

UTAM4-010S-015S



UTAM4-030S



PARTS LIST

No.	Name	Material	Q'ty
1	Casing	Aluminum alloy	1
2	Cylinder cover	Aluminum alloy	3 (5)
3	End cover	Synthetic resin	1
4	Connecting rod	Aluminum alloy	3 (5)
5	Piston	Brass casting	3 (5)
6	Sleeve	Cast iron	3 (5)
7	Piston pin	Carbon steel	3 (5)
8	Ring	Carbon steel	2
9	Thrust washer	Carbon steel	2
10	Crank pin	Carbon steel	1
11	Valve bushing	Cast iron	1
12	Balance weight	Carbon steel	1
13	Shaft	Chrome molybdenum steel	1
14	Liner	Synthetic resin	3 (5)

No.	Name	Material	Q'ty
15	Bearing	—	1
16	Bearing	—	1
17	Needle bearing	—	1
18	Snap ring	—	1
19	Snap ring	—	1
20	Grease nipple	—	1
21	Copper rivet	—	1
22	Oil seal	N.B.R.	1
23	Gasket	N.B.R.	3 (5)
24	Gasket	N.B.R.	3 (5)
25	Gasket	N.B.R.	1
26	Key	—	1
27	Muffler	—	1

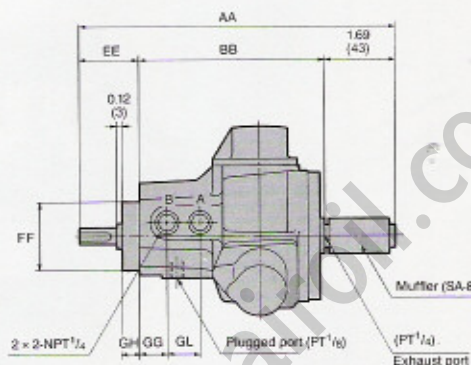
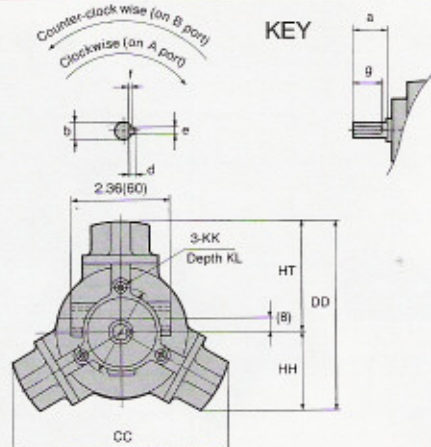
(* Q'ty is for UTAM4-30S.

UTAM4 Series RADIAL PISTON AIR MOTOR

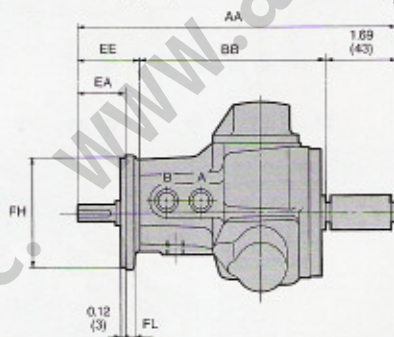
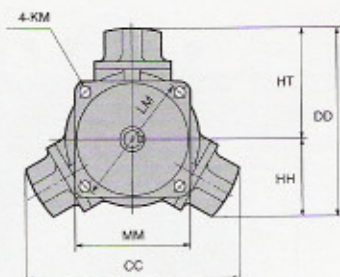
DIMENSIONS/DIRECT DRIVE/UTAM4-010S•015S

inch (mm)

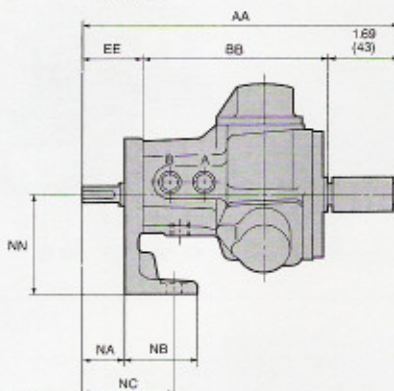
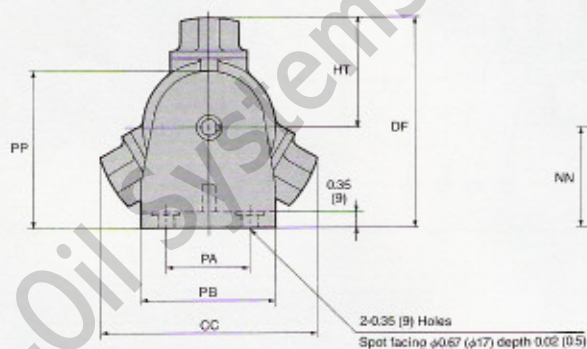
• Standard



• With Flange Mounting



• With Foot Mounting



DIMENSIONS

inch (mm)

Symbol Model No.	AA	BB	CC	DD	DF	EA	EE	*FF	**FH	FL	GG	GH	GL	HH	HT	KK	KL	KM
UTAM4-010S	7.56 (192)	4.45 (113)	5.12 (130)	4.53 (115)	5 (127)	1.14 (29)	1.42 (36)	φ1.6535 (φ42)	φ2.6772 (φ68)	0.20 (5)	0.67 (17)	0.39 (10)	0.79 (20)	1.89 (48)	2.64 (67)	(M5 × 0.8)	0.31 (8)	φ0.24 (φ6)
UTAM4-015S	8.86 (225)	5.39 (137)	6.46 (164)	5.59 (142)	5.98 (152)	1.42 (36)	1.77 (45)	φ1.8898 (φ48)	φ3.0709 (φ78)	0.28 (7)	0.75 (19)	0.47 (12)	1.10 (28)	2.36 (60)	3.23 (82)	(M6 × 1)	0.47 (12)	φ0.28 (φ7)

*Tolerance-.00098" (.025) **Tolerance-.001" (.03)

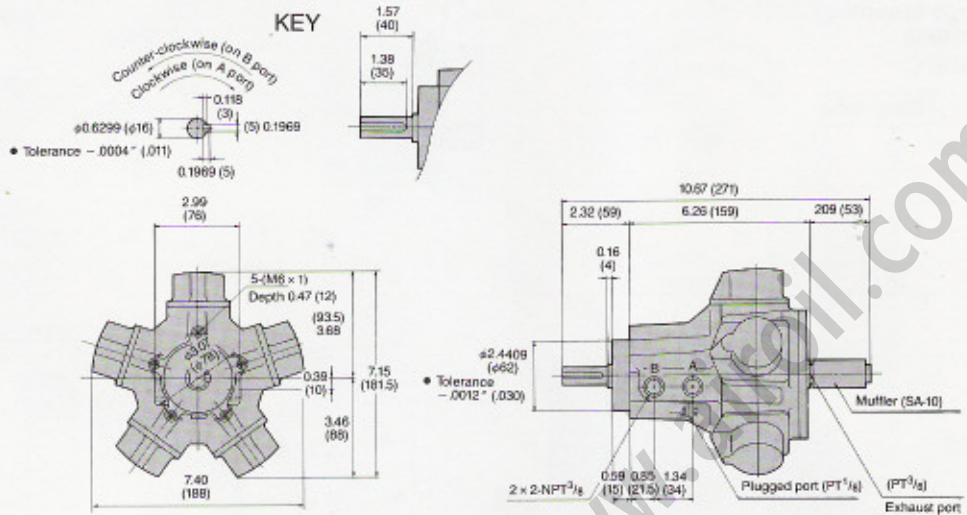
Symbol Model No.	LL	LM	MM	NA	NB	NC	NN	PA	PB	PP	KEY					
											a	***b	d	e	f	g
UTAM4-010S	φ2.17 (φ55)	φ3.15 (φ80)	□2.83 (□72)	1.02 (26)	1.77 (45)	2.20 (56)	2.36 ± .004 (60 ± 0.1)	1.97 (50)	3.15 (80)	3.70 (94)	0.91 (23)	φ0.3937 (φ10)	0.118 (3)	0.118 (3)	0.071 (1.8)	0.787 (20)
UTAM4-015S	φ2.44 (φ62)	φ3.62 (φ92)	□3.39 (□86)	1.30 (33)	1.97 (50)	2.48 (63)	2.76 ± .004 (70 ± 0.1)	2.76 (70)	3.94 (100)	4.33 (110)	1.18 (30)	φ0.4724 (φ12)	0.157 (4)	0.157 (4)	0.098 (2.5)	1.063 (27)

***Tolerance-.0004" (.011)

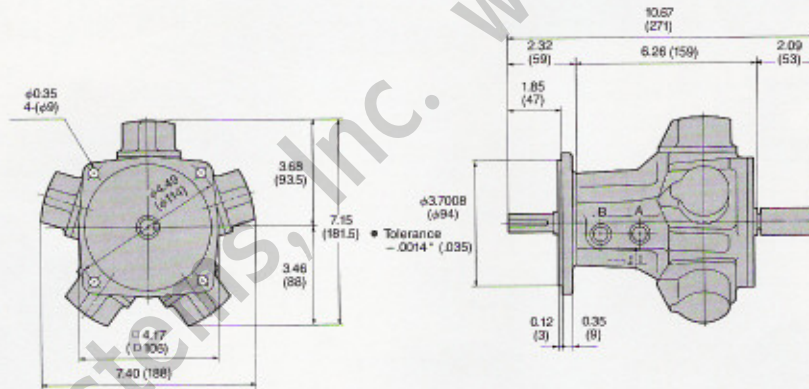
DIMENSIONS/DIRECT DRIVE/UTAM4-030S

inch (mm)

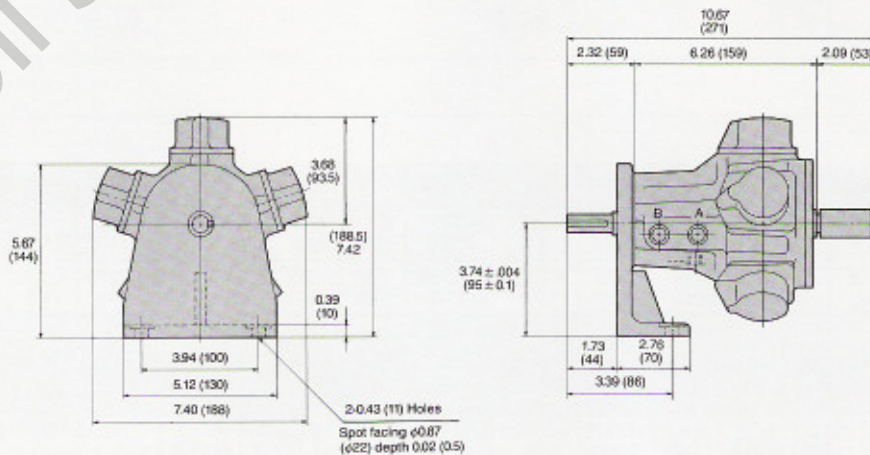
• Standard



• With Flange Mounting



• With Foot Mounting



Air-Oil Systems, Inc. www.air-oil.com

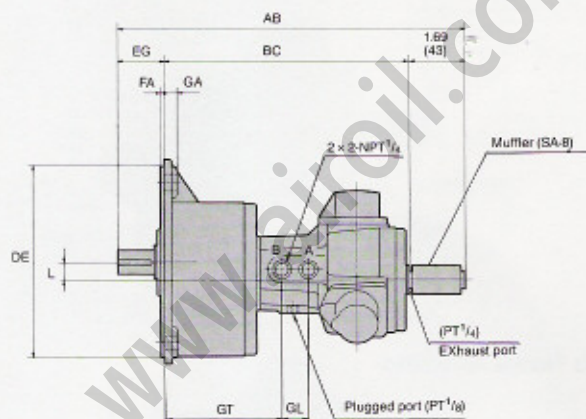
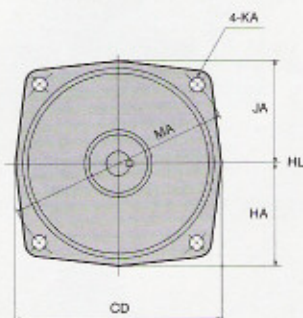
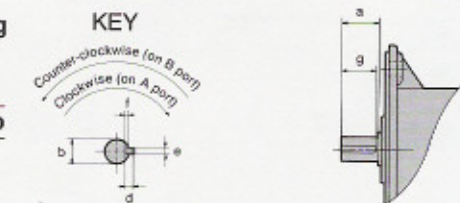
UTAM4 Series RADIAL PISTON AIR MOTOR

DIMENSION/GEARED DRIVE/UTAM4-010-015 **G** ***

inch (mm)

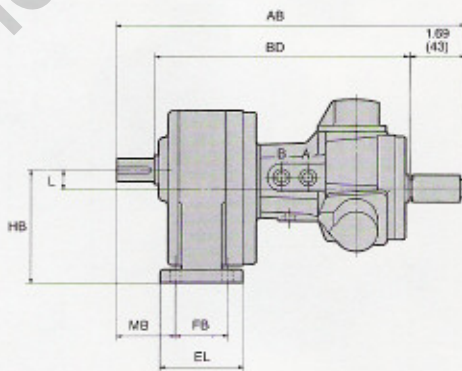
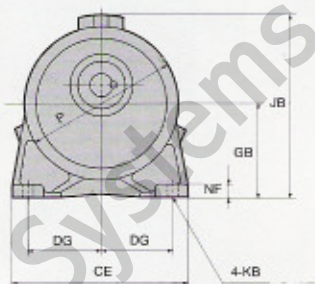
- With Flange Mounting
UTAM4-010FG
UTAM4-015FG

Gear ratio



- With Foot Mounting
UTAM4-010LG
UTAM4-015LG

Gear ratio



DIMENSIONS

inch (mm)

Model No.	Symbol	AB	BC	BD	CD	CE	*DE	DG	EG	EL	FA	FB	GA	GB	GL	GT	HA
UTAM4-010**G***		10.45 (265.5)	7.38 (187.5)	7.57 (192.5)	6.10 (155)	5.28 (134)	φ5.7087 (φ145)	2.17 (55)	1.38 (35)	2.52 (64)	0.12 (3)	1.57 (40)	0.39 (10)	2.80 (71)	0.79 (20)	3.60 (91.5)	3.05 (77.5)
UTAM4-015**G***		12.32 (313)	8.78 (223)	9.06 (230)	6.50 (165)	6.06 (154)	φ5.8268 (φ148)	2.56 (65)	1.85 (47)	3.54 (90)	0.16 (4)	2.56 (65)	0.47 (12)	2.83 (72)	1.10 (28)	4.13 (105)	3.25 (82.5)

*Tolerance - .0016 (.04)

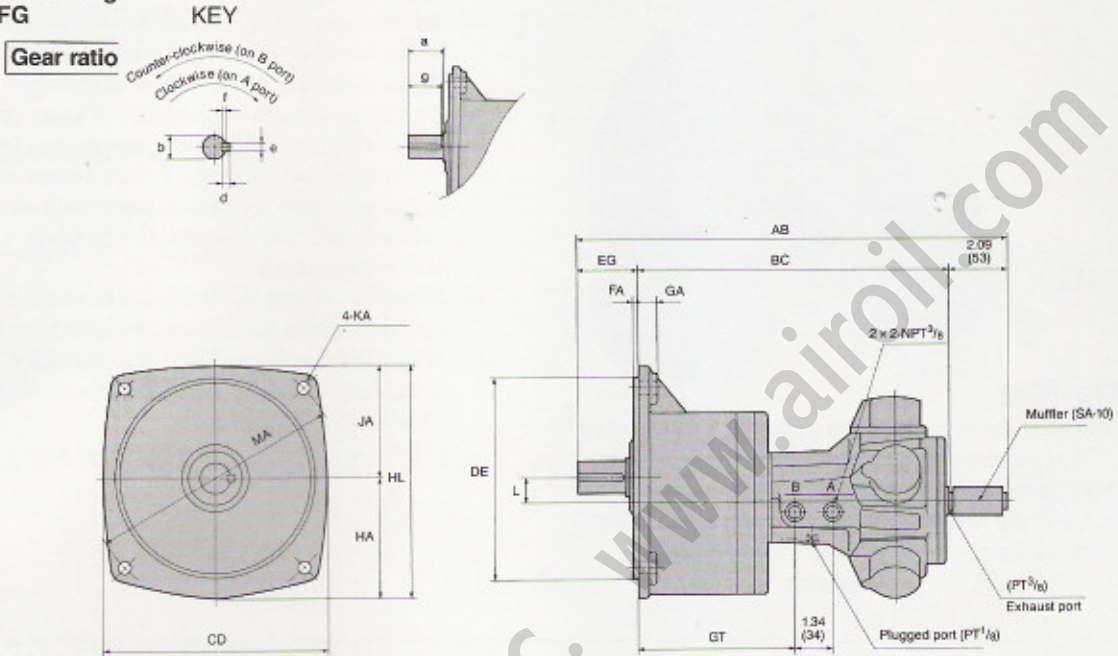
Model No.	Symbol	HB	HL	JA	JB	KA	KB	L	MA	MB	NF	P	KEY					
													a	**b	d	e	f	g
UTAM4-010**G***		3.35 (85)	6.10 (155)	3.05 (77.5)	5.43 (138)	φ0.43 (φ11)	φ0.35 (φ9)	0.55 (14)	φ6.69 (φ170)	1.77 (45)	0.39 (10)	φ4.41 (φ112)	1.18 (30)	0.7087 (φ18)	0.2362 (6)	0.2362 (6)	0.14 (3.5)	1.06 (27)
UTAM-015**G***		3.54 (90)	6.50 (165)	3.25 (82.5)	6.06 (154)	φ0.43 (φ11)	φ0.43 (φ11)	0.71 (18)	φ7.28 (φ185)	2.17 (55)	0.47 (12)	φ4.92 (φ125)	1.57 (40)	0.8661 (φ22)	0.2362 (6)	0.2362 (6)	0.14 (3.5)	1.38 (35)

**Tolerance - .0005 (.013)

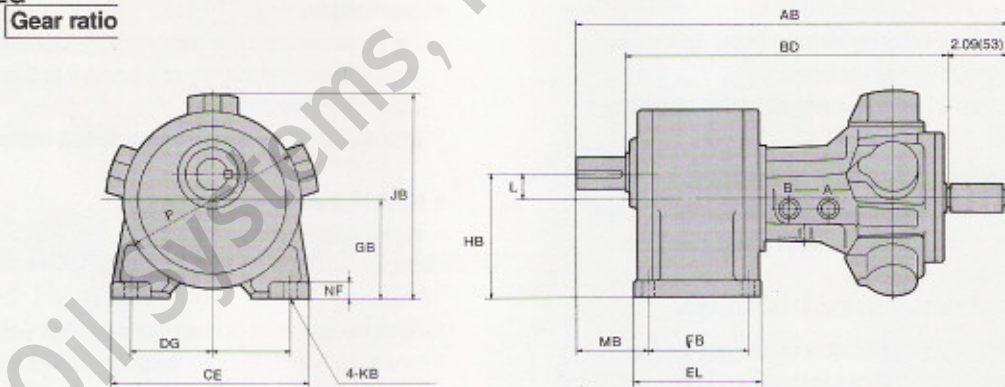
DIMENSIONS/GEARED DRIVE/UTAM4-030 F_G***

inch (mm)

- With Flange Mounting
UTAM4-030FG



- With Foot Mounting
UTAM4-030LG



DIMENSIONS

inch (mm)

Model No.	Symbol	AB ₁	BC	BD	CD	CE	*DE	DG	EG	EL	FA	FB	GA	GB	GT
UTAM4-030**G***		14.33 (364)	10.28 (261)	10.47 (266)	7.36 (187)	6.69 (170)	φ6.6929 (φ170)	2.76 (70)	1.97 (50)	4.72 (120)	0.16 (4)	3.54 (90)	0.59 (15)	3.46 (88)	4.86 (123.5)

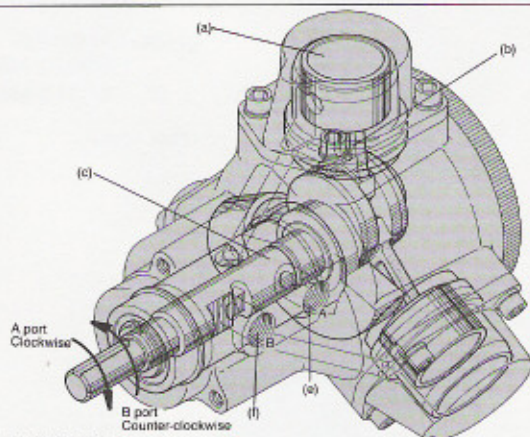
*Tolerance - .0016 (.04)

Model No.	Symbol	HA	HB	HL	JA	JB	KA	KB	L	MA	MB	NF	P	KEY					
														a	**b	d	e	f	g
UTAM4-030**G***		3.94 (100)	4.33 (110)	7.64 (194)	3.70 (94)	7.15 (181.5)	φ0.43 (φ11)	φ0.43 (φ11)	0.87 (22)	φ8.46 (φ215)	2.56 (65)	0.59 (15)	φ5.98 (φ152)	1.77 (45)	1.1024 (φ28)	0.2756 (7)	0.3150 (8)	0.16 (4)	1.57 (40)

**Tolerance - .0005 (.013)

UTAM4 Series RADIAL PISTON AIR MOTOR

OPERATIONAL PRINCIPLE OF RADIAL PISTON TYPE AIR MOTOR



MECHANISM

In radial piston type air motor, each piston (a), connected with crankshaft (c) by connecting rod (b), interlocking with rotary valve which provides compressed air to each cylinder through A port (e), accordingly corresponding piston thrusts crank then obtains turning force. While B port (f) on the opposite side functions as exhaust port.

ADVANTAGES

- Radial piston type air motors have more positive starting torque, better speed control at low speeds, and better stopping characteristics than vane motors.
- They have lower air consumption at lower speeds.
- Output torque is developed by pressure acting on pistons.
- Power developed by piston motors increases with inlet pressure, number of pistons, piston area, stroke and speed.
- Primary factor limiting speed in a piston motor is the inertia of the moving parts.
- Radial piston type air motors are basically low speed devices capable of reaching free speeds up to 1500 rpm.
- They can move heavy loads at all speeds and are particularly adaptable to applications requiring high starting torque and slow speed.

HANDLING INSTRUCTIONS & CAUTIONS

- **Mounting**
 - When installing motors, be sure all couplings, sprockets, attachments, etc. are properly guarded. Failure to comply could result in serious bodily harm or property damage.
 - When air is admitted to one port on reversible tools, the other port becomes an exhaust port; if it is plugged, it will produce a severe "back pressure" and greatly reduce speed and power of the motor. Do not plug exhaust ports of motor. Use mufflers.
 - In corrosive or dusty atmospheres, it is recommended that air lines be equipped with micro (coalescing) filters, air filters and exhaust mufflers.
- **Piping**
 - Mount the lubricator, regulator, filter and directional control valve as close to the motor as possible.
 - Before mounting, flush pipe with compressed air and remove cutting powder, cutting oil and dust.
 - When steel tubes are used for piping, be sure they are zincplated pipes.
 - Do not plug exhaust ports of directional control valve to keep away from "back pressure".
- **Lubrication**
 - Air lines should be equipped with lubricators. Recommended supply of lubricant is 5 drop/min. at 70 psig (Setting pressure). Mount the lubricator as close to the motor as possible.
- **Environmental conditions**
 - **Keep away from —**
 - * Dust
 - * Moisture
 - * Corrosive gases and chemicals or their solutions
 - * More than 158°F temperature and direct sunlight