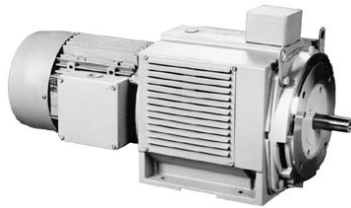


**“AT” Ajusto-Spede® Drives
1 through 200 HP**

**MODELS AT-140 THROUGH AT-440 DRIVES
Drive Information**



AT-140 through AT-280



AT-320 through AT-440

Description

Dynamatic® Model AT Drives is a combination of an air-cooled, adjustable speed clutch and a flange mounted AC induction motor. The AT Drive transmits torque at variable speeds. There is no physical contact between input and output members. This results in smooth response, thereby eliminating shock loading and extending equipment life. All drives have an integral tachometer generator

mounted around the output shaft to provide a feedback signal to the drive's controller. The controller provides the DC excitation for the clutch coil. The feedback signal from the tachometer generator is used as a reference signal within the controller to maintain accurate speed regulation. The controllers for the drives are described starting on Page 72 of this catalog.

Features	Customer Benefits
AC power input - AT drives and controllers are available to run on virtually any three phase voltage input.	Compatible with existing wiring and plant power.
Approximately 250% motor torque available at clutch output.	Accelerates high inertia loads quickly and handles intermittent overloads without having to increase the horsepower rating.
one-year warranty on AT mechanical drives.	AT drives are built to give long, reliable, low cost life in diverse applications.
Simple design - Drive consists of a clutch, AC induction motor and a separate controller.	Easy to understand, install, operate and maintain.
Fewer wearing parts - All AT variable speed drives have only four bearings and no slip rings or brushes.	Minimum downtime and maximum production from initial start-up.
0.5% speed regulation is standard.	Provides a consistent, high quality customer product under changing load and environmental conditions.
Uses existing wiring and motor starters.	Easy to retrofit in industrial environments.
Controller circuits are isolated from power lines.	Electronic controller is resistant to line noise.
Totally enclosed fan cooled AC motor is standard.	Suitable for harsh industrial environments.

revised 04/12/20188

**"AT" Ajusto-Spede® Drives
1 through 200 HP**

Specifications for AT-140 Through AT-440 Drives

Motor	HP and RPM Totally Enclosed Fan Cooled (TEFC) NEMA Design B Class F insulation, Class B rise 1.15 service factor ***Input power - see note below one-year warranty	See selection table - Page 41 Standard Standard Standard Standard 208/220 through 380V, 3 phase, 50 Hz 230 through 460V, 3 phase, 60 Hz 575V, 3 phase, 60 Hz Standard
Clutch	Stationary coil Coil voltages Rated for constant torque Starting torque Intermittent torque AC tachometer generator Cooling one-year warranty	Standard 45 or 90 VDC - Standard; 110, 220 VDC - Optional Standard Approximately 250% Approximately 250% Standard 100% self ventilated Standard
Controllers (Sold Separately)	Model 3000 and Model 4000 (Solid State) Model 4050, DSI-700 and Mark III (Solid State) Model EC-2000 and PDC-2000 (Digital) Closed loop speed control Speed regulation Regulated speed range Input power Enclosure Panel mount, open construction Output voltage, to clutch coil One-year warranty	Can be used with AT-140 through AT-250 Can be used with AT-140 through AT-440 Can be used with AT-140 through AT-440 Standard 0.5% Standard; 0.1% Optional (EC-2000 only) 34 to 1 available Line transformer (sold separately) - motor winding transformer not available NEMA 1 - Standard; NEMA 12 - Optional; NEMA 13 for 4000 & 4050 - Standard Optional 45 VDC or 90 VDC standard; 220 VDC optional (EC-2000 only) Standard
Status Indication	Speed indicating signal	0-60 VAC from tachometer generator for optional meter
Environmental Ratings	Storage temperature Operating temperature Maximum operating temperature Altitude	-20° to 65° C (-4° to 149° F) Standard 0° to 40° C (32° to 104° F) Standard (Others available; consult factory) 65° C (De-rating required) 1000 m (3300 Ft.) Standard
Codes and Standards	Mechanical NEMA, as applicable Mechanical CSA Controllers CSA	Standard Approved Approved
Reliability Testing	Mechanical 100% dynamometer tested Controllers Pre-tested components Computer test and pre-calibrated PCBs	Standard Standard Standard

*****NOTE: New factory standards for motor input power, two (2) options available:**
 1) 208/220 through 380 VAC, 3 phase, 50 Hz.; 230 through 460 VAC, 3 phase, 60 Hz.
 2) 575 VAC, 3 phase, 60 Hz.

**"AT" Ajusto-Spede® Drives
1 through 200 HP**

Ordering Information

The Model AT drive includes an 1800 RPM, TEFC, AC induction motor, with 230 through 460 VAC, 3 phase, 60 Hz., 208/220 through 380 VAC, 3 phase, 50 Hz. or 575 VAC, 3 phase, 60 Hz., 1.15 SF, NEMA design B, Class F insulation, motor is flange mounted to a brushless clutch in a cast iron housing with 100% rated motor torque continuously available over the speed range shown. The service factor for drives specified with a 50 Hz. motor is 1.0. A controller is required, but not included. A Drive/Controller Compatibility and Selection Chart can be found starting on Page 70. Controllers can be found starting on Page 72. Operator stations can be found starting on Page 117. Model 4000 and 4050 controllers (except Press Drive versions) require a separate 115 VAC center tapped transformer for control. Standard units consist of 45 or 90 VDC epoxy clutch coil, a second (loose) nameplate, 230 through 460 VAC, 3 phase, 60 Hz., 208/220 through 380 VAC, 3 phase, 50 Hz. or 575 VAC, 3 phase, 60 Hz. TEFC motor and spherical roller bearing (available on Models AT-280 through AT-440 only).
****Consult factory for non-standard units).**

Selection Table - 60 Hz 45V Coil

HP	Speed Range (RPM)	Model Number	Motor Frame Size
1	1690-50	AT-140014-0145	145TC
2	1650-50	AT-140024-0145	145TC
3	1680-50	AT-180034-0145	182TC
5	1650-50	AT-180054-0145	184TC
7.5	1660-350 1680-50	AT-180074-0145 AT-210074-0145	213TC 213TC
10	1655-175	AT-210104-0145	215TC
15	1625-700 1690-50	AT-210154-0145 AT-250154-0145	254TC 254TD
20	1665-350	AT-250204-0145	256TD
25	1670-50 1092-50	AT-280254-0145 AT-320256-0145	284TD 326TD
30	1695-175 1705-50 1097-50	AT-280304-0145 AT-320304-0145 AT-320306-0145	286TD 326TD 326TD
40	1680-569 1665-50 1082-233	AT-280404-0145 AT-320404-0145 AT-320406-0145	324TD 326TD 365TD
50	1655-805 1700-175 1122-50	AT-280504-0145 AT-320504-0145 AT-360506-0145	326TD 326TD 365TD
60	1690-438 1670-50 1102-214	AT-320604-0145 AT-360604-0145 AT-360606-0145	365TD 365TD 405TD
75	1665-700 1705-163 1097-156	AT-320754-0145 AT-360754-0145 AT-440756-0145	405TD 405TD 405TD
100	1675-560 1685-175 1112-408	AT-361004-0145 AT-441004-0145 AT-441006-0145	405TD 405TD 445TD
125	1650-798 1690-490 1097-560	AT-361254-0145 AT-441254-0145 AT-441256-0145	445TD 449TD 449TD
150	1695-700	AT-441504-0145	449TD
200	1660-963	AT-442004-0145	449TD

Selection Table - 60 Hz 90V Coil

HP	Speed Range (RPM)	Model Number	Motor Frame Size
1	1690-50	AT-140014-0190	145TC
2	1650-50	AT-140024-0190	145TC
3	1680-50	AT-180034-0190	182TC
5	1650-50	AT-180054-0190	184TC
7.5	1660-350 1680-50	AT-180074-0190 AT-210074-0190	213TC 213TC
10	1655-175	AT-210104-0190	215TC
15	1625-700 1690-50	AT-210154-0190 AT-250154-0190	254TC 254TD
20	1665-350	AT-250204-0190	256TD
25	1670-50 1092-50	AT-280254-0190 AT-320256-0190	284TD 326TD
30	1695-175 1705-50 1097-50	AT-280304-0190 AT-320304-0190 AT-320306-0190	286TD 326TD 326TD
40	1680-569 1665-50 1082-233	AT-280404-0190 AT-320404-0190 AT-320406-0190	324TD 326TD 365TD
50	1655-805 1700-175 1122-50	AT-280504-0190 AT-320504-0190 AT-360506-0190	326TD 326TD 365TD
60	1690-438 1670-50 1102-214	AT-320604-0190 AT-360604-0190 AT-360606-0190	365TD 365TD 405TD
75	1665-700 1705-163 1097-156	AT-320754-0190 AT-360754-0190 AT-440756-0190	405TD 405TD 405TD
100	1675-560 1685-175 1112-408	AT-361004-0190 AT-441004-0190 AT-441006-0190	405TD 405TD 445TD
125	1650-798 1690-490 1097-560	AT-361254-0190 AT-441254-0190 AT-441256-0190	445TD 449TD 449TD
150	1695-700	AT-441504-0190	449TD
200	1660-963	AT-442004-0190	449TD

****Consult factory for any additional accessories and/or modifications you may require that are not listed on the next page.**

**"AT" Ajusto-Spede[®] Drives
1 through 200 HP
Modifications**

For the following modifications, please consult factory:

Bases, Slide - Adjustable slide bases are available for the horizontal mounting of a drive with motor.

Part Number - AT-140 - 81453-0100

Part Number - AT-180 - 81453-0200

Part Number - AT-210 - 81453-0300

Part Number - AT-250 - 81453-0400

Part Number - AT-280 - 81453-0500

Part Number - AT-320 - 64131-0200

Part Number - AT-360 - 64131-0300

Part Number - AT-440 - 64131-0500

Brake, Adjustable, Integrally Mounted - A non-contacting, adjustable torque brake is integrally mounted to the drive for stopping purposes or for use with the Mutuatrol[®] controller modification. Brakes may require an adjustable brake circuit in the controller. Adjustable brake available for models AT-320 through AT-440 only. Factory installed only.

Brake, Friction, Integrally Mounted - An electromagnetic friction brake is integrally mounted to the drive for stopping or holding purposes. Brakes may require a fixed brake circuit in the controller. Friction brake available for models AT-320 through AT-440 only. Factory installed only.

Protection, Coal Feeder - Includes an epoxy encapsulated tachometer and clutch coil, external epoxy paint, soldered and epoxy coated tachometer leads and high temperature grease. Not available for Models AT-320 through AT-440.

Protection, Food Plant - Includes a TEFC motor, encapsulated tachometer and clutch coil, labyrinth shaft seal, external epoxy paint and nickel-plated end bell. This modification provides protection against semi-corrosive or semi-caustic wash down.

Protection, Jungle - Includes a TEFC motor, encapsulated clutch coil, screen over all air drive openings, discharge louvers in the "up" position and external epoxy paint.

Protection No. 1 - Includes a TEFC motor, an epoxy encapsulated tachometer and clutch coil. This modification provides protection for outdoor applications.

Protection, Paper Mill - Includes all features of Protection No. 1 plus external epoxy paint. This modification provides protection against severe wash down elements.

Protection, Screens Only - Includes screens over all drive air openings. This modification provides protection from entry of rodents, stones, etc.

Protection, Tropical - Includes all features of Protection No. 1 plus, screens over all air openings and the spraying of all practical surfaces with a special fungus retarding varnish. This modification provides drive protection for jungle environments.

Switch, Clutch Thermal - To safeguard the clutch drum from excessive heat due to overload or high ambient temperatures, a thermal switch rated at 89° C is placed in the discharge air stream. This switch has a NC contact.

VT Drive Duty - Broader speed range is achieved for centrifugal loads. Minimum speed is 50 RPM.

**"AT" Ajusto-Spede[®] Drives
1 through 200 HP**

Drive Engineering Data

Adjustable Speed Drive Data

Model	Clutch Torque Lb. Ft. at Slip RPM of ❶					Rated Dissipation HP at Input RPM of ❷					Inertia Lb. Ft. ² Output Member
	50	75	100	150	1750	900	1000	1200	1500	1800	
AT-140	4.5	6.0	7.2	9.5	25.0	1.6	1.8	2.0	2.6	3.0	0.9
AT-140C ❸	6.0	7.5	9.0	12.0	27.0	1.6	1.8	2.0	2.6	3.0	0.9
AT-180	10.0	13.5	16.0	21.0	46.0	3.3	3.6	4.1	5.2	6.0	2.0
AT-180C	13.0	17.5	21.5	26.0	50.0	3.3	3.6	4.1	5.2	6.0	2.0
AT-210	19.0	25.0	32.0	44.0	74.0	5.0	5.3	6.2	7.8	9.0	3.6
AT-210C	23.0	33.0	38.0	50.0	78.0	5.0	5.3	6.2	7.8	9.0	3.6
AT-250	42.0	56.0	68.0	82.0	115.0	8.8	9.5	11.0	14.0	16.0	6.2
AT-250C	60.0	80.0	92.0	110.0	130.0	8.8	9.5	11.0	14.0	16.0	6.2
AT-280	56.0	73.0	85.0	105.0	195.0	15.0	17.0	20.0	24.0	27.0	15.9
AT-280C	100.0	128.0	160.0	200.0	230.0	15.0	17.0	20.0	24.0	27.0	15.9
AT-320	70.0	110.0	140.0	185.0	460.0	24.5	27.0	32.0	39.0	45.0	30.5
AT-320C	140.0	200.0	250.0	300.0	550.0	24.5	27.0	32.0	39.0	45.0	30.5
AT-360	130.0	170.0	210.0	250.0	640.0	39.0	42.5	49.0	59.0	68.0	55.0
AT-360C	230.0	320.0	370.0	440.0	700.0	39.0	42.5	49.0	59.0	68.0	55.0
AT-440	325.0	380.0	415.0	485.0	860.0	51.0	56.0	65.0	78.0	90.0	123.0
AT-440C	450.0	575.0	650.0	760.0	1060.0	51.0	56.0	65.0	78.0	90.0	123.0

Adjustable Speed Drive Data

Model	Motor Frame	Overhung Load Lbs. at Output RPM of ❶						45V Clutch Coil Current (Hot Amps)	Weight Lbs. ❹
		900		1200		1800			
		Std.	Spher.	Std.	Spher.	Std.	Spher.		
AT-140	143T/145T	378	-	378	-	378	-	3.40	150
AT-180	182T/215T	281	-	281	-	281	-	3.90	263
AT-210	213T/254T	790	-	790	-	680	-	3.90	430
AT-250	254T/286T	682	-	682	-	664	-	4.20	630-675
AT-280	284T/326T	1124	1124	1116	-	961	1124	7.20	1050-1214
AT-320	326T/365T	1490	1739	1341	1739	1156	1739	7.04	1297-1806
AT-360	365T/405T	2012	2796	1811	2796	1560	2796	8.37	2490-2712
AT-440	405T/447T	3372	3372	3372	3372	3372	3372	8.23	3055-3650

- ❶ Values are for four-pole motor speeds.
- ❷ Indicates maximum HP that can be safely dissipated at a given input speed. Dissipation should be de-rated 10% for each 10° F (5.5° C) above 100° F (38° C) ambient, to 150° F (71° C) maximum ambient.
- ❸ Values are based on B-10 bearing life of 15,000 hours. For 20,000 hours use 91% of the values shown. The figures are the maximum weights at the center of a standard output shaft keyway perpendicular to the axis. Ratings are for ball bearings or spherical roller bearings, as noted.
- ❹ Approximate weight of brake.
- ❺ Copper plated drum.

**"AT" Ajusto-Spede® Drives
1 through 200 HP**

Brake Engineering Data

Adjustable Torque Brake Data

Model	Brake Torque in Lb. Ft. at Output RPM of Model				Brake Dissipation HP at Brake RPM of				Brake Rotor Lb. Ft ²	45 V Brake Coil Current (Hot Amps)	Wt. Lbs. ④
	600	900	1200	1800	600	900	1200	1800			
AT-320B	120	138	147	153	3.3	5.0	6.7	10.0	7.1	5.5	150
AT-360B	120	138	147	153	3.3	5.0	6.7	10.0	7.1	5.5	150
AT-440B	120	138	147	153	3.3	5.0	6.7	10.0	7.1	5.5	150

Adjustable Speed Drive with Adjustable Torque Brake Data

Model	Motor Frame	Drive with Motor Overhung Load in Lbs. at Output RPM of ③		
		900 Spherical	1200 Spherical	1800 Spherical
AT-320B	326T/365T	1739	1739	1739
AT-360B	365T/405T	2796	2796	2796
AT-440B	405T/445T	3372	3372	3372

Adjustable Speed Drive with Friction Brake Data

Model	Motor Frame	Electrically Engaged			Drive with Overhung Load in Lbs. at Output RPM of			Weight Lbs. ④
		Static Torque Lb. Ft.	Inertia Lb. Ft. ²	Brake Model	900	1200	1800	
AT-320F	326T/365T	240	1.06	310	1490	1340	1155	30
AT-360F	365T/405T	465	2.14	312	2010	1810	1560	50
AT-440F	405T/445T	-	-	-	-	-	-	-

- ③ Values are based on B-10 bearing life of 15,000 hours. For 20,000 hours use 91% of the values shown. The figures are the maximum weights at the center of a standard output shaft keyway perpendicular to the axis. Contact the factory for overhung load ratings on model/motor frame combinations and other configurations not listed.
- ④ Approximate weight of brake.

**"AT" Ajusto-Spede® Drives
1 through 200 HP**

Engineering Data

Noise Levels - AT Adjustable Speed Drives

These sound pressure levels are **typical** values given for engineering information only, and it is **not guaranteed** that any particular production unit will exceed these values.

Microphone 3 feet from side of drive, tested in a semi-anechoic chamber above reflecting plane per IEEE-85. All readings are sound pressure level, dB; reference 20 micro-Newton's per square meter. Average sound pressure in a 3-foot radius hemispherical free field. Noise level for 1200 RPM drives will be 9 dB less than 1800-RPM values shown, and for 3600 RPM the noise level will be 15 dB greater.

Model	RPM	Sound Pressure dB	
		Output Rating	Output Stalled
AT-140	1800	65.0	-
AT-180	1800	72.0	-
AT-210	1800	72.0	-
AT-250	1800	76.0	-
AT-280	1800	78.0	-
AT-320	1800	83.2	86.4
AT-360	1800	85.9	87.3
AT-440	1800	87.1	89.0

Full Load Motor Currents

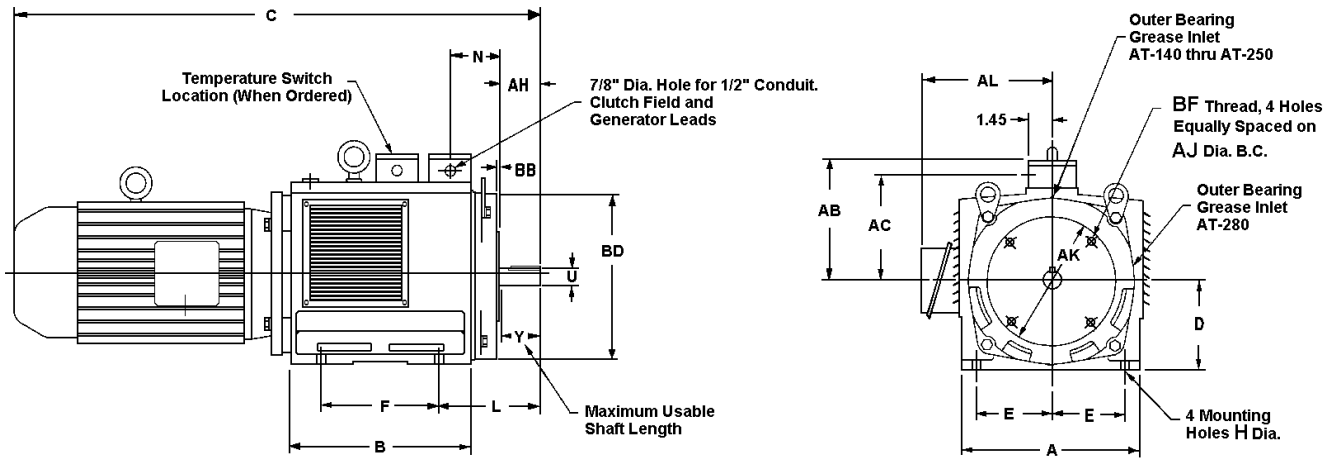
The full load motor currents shown in the following table are typical values for 4-pole motors. Full load current for 6-and 8-pole motors will typically be higher than the values listed for 4-pole motors. This table is intended for use as an aid in sizing motor branch circuit components. For setting motor over-current protection devices, consult the motor nameplate. For full load motor currents of 200 and 208-volt motors, increase the corresponding 230 volt motor full load current by 15% and 10% respectively. Multi-speed motors will have the full load current varying with speed in which case the nameplate rating shall be used.

HP	Full Load Amperes for 4 Pole Motors at				
	230V	460V	575V	220V	380V
	60Hz	60Hz	60Hz	50Hz	50Hz
1	3.4	1.7	-	3.69	2.1
1.5	5.2	2.6	-	5.48	3.2
2	6.4	3.2	-	6.99	4.0
3	8.8	4.4	-	9.83	5.7
5 ^①	13.2	6.6	-	-	-
7.5	20.4	10.2	-	-	11.7
10	26.2	13.1	-	-	15.8
15	36.2	18.1	-	-	22.0
20	46.0	23.0	-	-	29.0
25	58.0	29.0	-	-	36.0
30	66.0	33.0	-	-	42.0
40	104.0	52.0	41.0	-	-
50	130.0	65.0	52.0	-	-
60	152.0	76.0	61.0	-	-
75	184.0	92.0	74.0	-	-
100	240.0	120.0	96.0	-	-
125	296.0	148.0	118.0	-	-
150	344.0	172.0	138.0	-	-
200	448.0	224.0	179.0	-	-

① 184TC Frame

**"AT" Ajusto-Spede® Drives
1 through 200 HP**

Outline Drawings – AT-140 through AT-280



D-81430

Model	Motor Frame	A	B	C ^①	D ^②	E	F	H	L	N	Shaft Extension			AB	AC	AH
											U ^③	Y ^④	KEY			
140	143TC 145TC	8.68	8.41	22.40 24.90	4.50	3.75	5.12	.50	5.00	2.96	.875	1.94	.18 Sq. x 1.38 Lg.	6.81	5.56	2.00
180	182TC 184TC 213TC	10.25	10.07	27.94 28.94 30.56	5.25	4.25	6.25	.50	6.25	3.18	1.125	2.50	.25 Sq. x 1.75 Lg.	7.75	6.50	2.62
210	213TC 215TC 254TC	12.00	10.96	32.06 33.56 36.43	6.25	5.00	6.50	.62	7.62	3.81	1.375	3.00	.31 Sq. x 2.38 Lg.	8.63	7.38	3.12
250	254TD 256TD 284TD	14.00	12.52	38.79 40.54 40.41	7.00	5.50	7.25	.62	8.75	3.41	1.625	3.62	.38 Sq. x 2.88 Lg.	9.63	8.38	3.75
280	284TD 286TD 324TD 326TD	18.00	13.00	42.91 44.41 45.30 46.80	9.00	7.50	8.12	.75	10.00	5.35	1.875	3.83	.50 Sq. x 3.50 Lg.	12.09	10.84	3.83

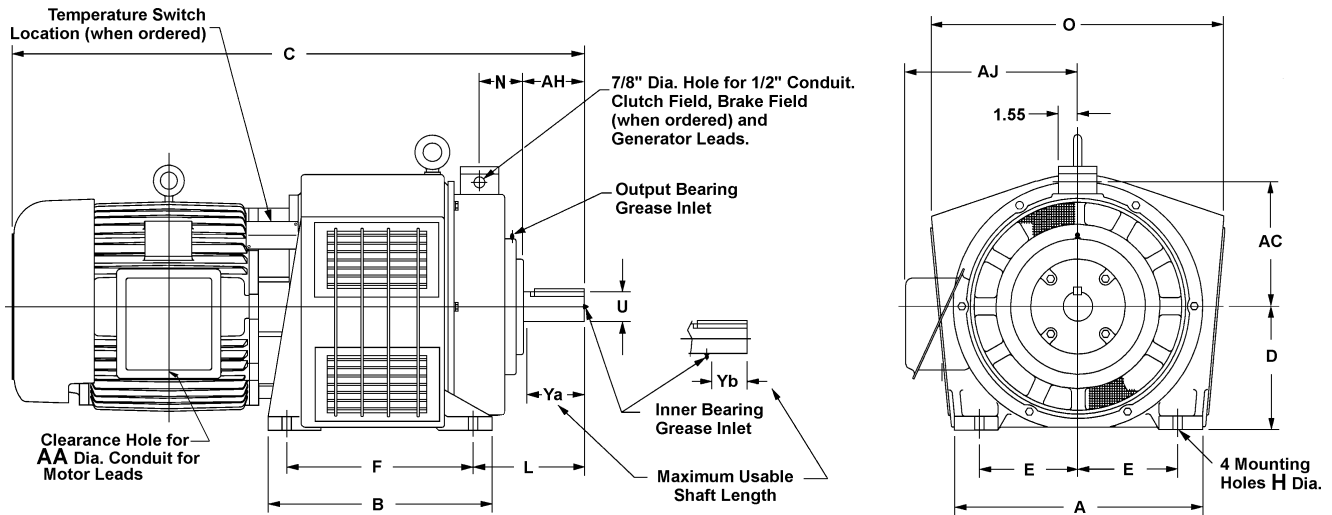
Model	Motor Frame	AJ	AK ^⑤	AL	BB	BD	BF
140	143TC 145TC	5.88	4.499	5.56	.12	8.38	3/8 - 16
180	182TC 184TC 213TC	7.25	8.499	7.19 7.50	.25	10.06	1/2 - 13
210	213TC 215TC 254TC	7.25	8.499	7.50 8.10	.27	11.82	1/2 - 13
250	254TD 256TD 284TD	7.25	8.499	10.00 12.31	.27	13.32	1/2 - 13
280	284TD 286TD 324TD 326TD	9.00	10.499	12.31 14.38	.25	15.20	1/2 - 13

- ① C is approximate overall dimension dependent on motor specified.
- ② D dimension will never be exceeded. When exact dimension is needed shims up to .03 may be required.
- ③ U shaft diameter tolerance 1.50" and smaller +.0000/-.0005, over 1.50" +.000/-0.01.
- ④ Y is maximum useable shaft length.
- ⑤ AK Pilot diameter tolerance +.000/-0.002.

DIMENSIONS ARE IN INCHES

**"AT" Ajusto-Spede® Drives
1 through 200 HP**

Outline Drawings – AT-320 through AT-440



C-92190/C-92191, C-93190/C-93191, C-94190/C-94191

Model	Motor Frame	A	B	C	D ^①	E	F	H	L	N	O	Shaft Extension		
												U ^②	Ya ^③	Yb ^③
320 (STD)	326T	20.00	18.00	49.50	10.00	8.00	15.00	.75	9.00	3.29	23.60	2.375	4.75	2.88
	365T			51.50										
360 (STD)	365T	22.00	23.00	56.18	11.00	9.00	20.00	.88	14.00	5.78	25.76	2.875	6.44	4.62
	405T			63.12										
	445T			71.75										
440 (STD)	405T	24.00	24.00	67.50	12.00	10.00	21.00	.88	17.14	6.80	28.72	3.375	8.26	5.62
	445T			76.10										
	449T			84.14										

Model	Motor Frame	KEY	AA ^④	AB	AC	AH	AJ
320 (STD)	326T	.62 Sq. x 4.00 Lg.	2.00	11.25	10.00	4.88	13.18
	365T		3.00				16.68
360 (STD)	365T	.75 Sq. x 6.00 Lg.	3.00	12.37	11.12	6.57	16.68
	405T						17.68
	445T						19.75
440 (STD)	405T	.88 Sq. x 7.50 Lg.	3.00	13.87	12.62	8.58	17.94
	445T						19.56
	449T						19.56

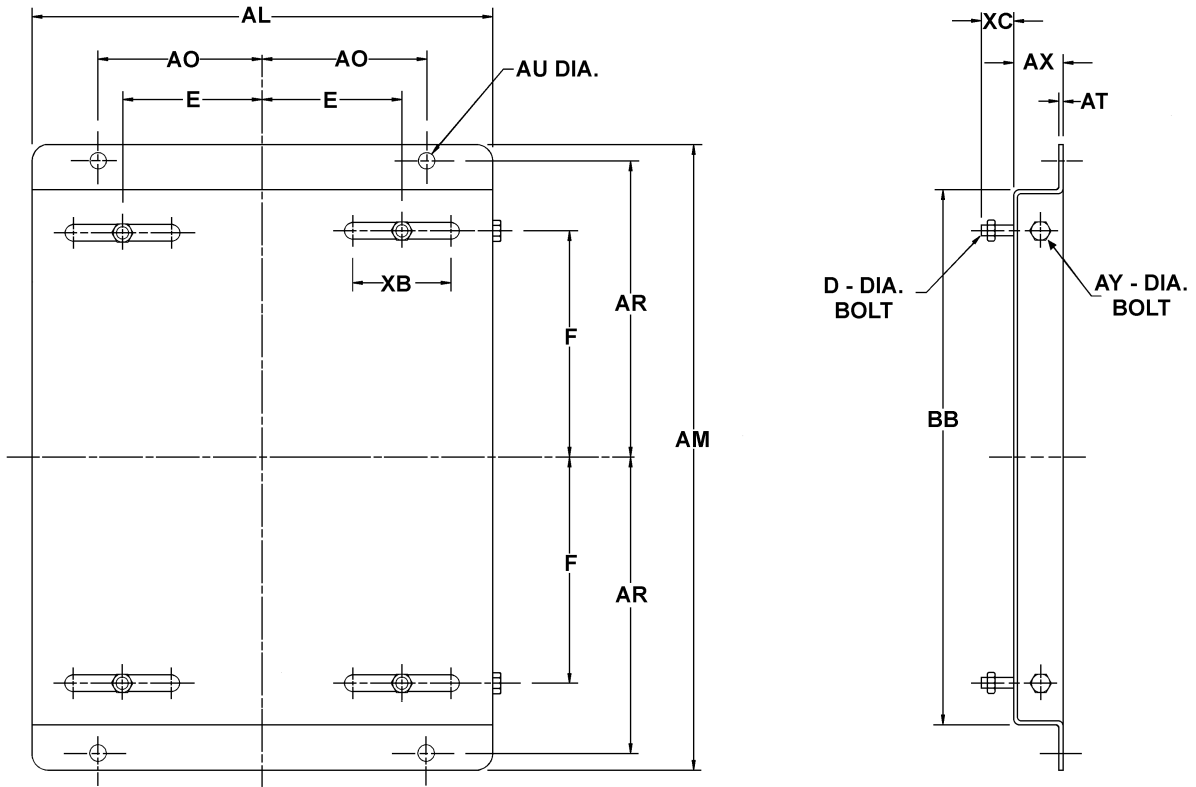
- ① D dimension will never be exceeded. When exact dimension is needed, shims up to .03 inch may be required.
- ② U shaft diameter tolerance: +.000/-.001 inch. Diameter shown is standard. Smaller diameter shafts of 2.125 for Model 320 and 2.375 for Model 360 are available upon request.
- ③ Y Dimensions are usable shaft lengths: Ya grease fitting on end; Yb grease fitting on side.
- ④ Conduit box can be turned to any of four positions: horizontally, vertically, opposite side or on top upon request.

To get weights on above units, please contact the factory.

DIMENSIONS ARE IN INCHES

**"AT" Ajusto-Spede® Drives
1 through 200 HP**

Outline Drawings – Adjustable Slide Base Models AT-140 - 440



C-81453, C-64131

Adjustable Slide Base for Dynamatic® Model AT-140 Through AT-440 Drives with Motor

Model	Base Number	D-Bolt	E	F	AL	AM	AO	AR	AT	AU
AT-140	81453-0100	3/8 x 3.00 Lg.	3.75	2.56	12.75	11.50	4.50	5.00	.134	.50
AT-180	81453-0200	3/8 x 3.00 Lg.	4.25	3.12	14.00	13.00	5.00	6.00	.134	.50
AT-210	81453-0300	1/2 x 3.00 Lg.	5.00	3.25	16.00	14.00	6.00	6.50	.164	.50
AT-250	81453-0400	1/2 x 3.00 Lg.	5.50	3.62	18.00	16.50	7.00	7.25	.187	.62
AT-280	81453-0500	5/8 x 3.00 Lg.	7.50	4.06	22.00	17.00	9.00	7.50	.250	.75
AT-320	64131-0200	5/8 x 3.00 Lg.	8.00	7.50	28.75	25.12	10.00	11.25	.250	.88
AT-360	64131-0300	3/4 x 3.00 Lg.	9.00	10.00	31.25	30.12	11.00	13.75	.320	.88
AT-440	64131-0500	3/4 x 3.00 Lg.	10.00	10.50	35.00	33.00	12.50	15.00	.320	1.00

Model	Base Number	AX	AY-Bolt	BB	XB	XC
AT-140	81453-0100	1.50	1/2 Dia.	8.50	3.00	1.00
AT-180	81453-0200	1.50	1/2 Dia.	10.00	3.00	1.00
AT-210	81453-0300	1.75	1/2 Dia.	11.00	3.50	1.25
AT-250	81453-0400	2.00	5/8 Dia.	12.50	4.00	1.25
AT-280	81453-0500	2.25	5/8 Dia.	13.00	5.00	1.75
AT-320	64131-0200	3.00	3/4 x 11.00 Lg.	18.75	7.00	2.50
AT-360	64131-0300	3.00	3/4 x 14.00 Lg.	24.75	7.50	2.50
AT-440	64131-0500	3.50	7/8 x 16.00 Lg.	25.75	8.00	2.50

DIMENSIONS ARE IN INCHES

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DRIVE SOURCE INTERNATIONAL, INC.

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DSI - STANDARD TERMS AND CONDITIONS OF SALE

1. PRICE BOOKS

Price books are intended only as sources of general information. They are not to be construed as quotations or as representations that products described therein are available, or will be made available for immediate delivery.

2. QUOTATIONS

Seller may make quotations verbally or in writing. Verbal quotations shall expire automatically unless Seller receives Buyer's purchase order number on the day the quotation is made. Written quotations shall expire automatically unless Seller receives Buyer's written purchase order within 15 days after the date appearing on the quotation. No quotation is to operate as an offer to sell but only as a description of products. Accordingly, even prior to its expiration date, any quotation is subject to change by Seller at any time upon verbal or written notice to Buyer. All quotations are deemed to incorporate Seller's Standard Terms and Conditions of Sale.

3. ACCEPTANCE OF PURCHASE ORDERS.

Notwithstanding any contrary language contained in Buyer's purchase order, each purchase order shall be subject to acceptance by an authorized employee of Seller's plant, and each purchase and sale transaction shall be governed exclusively by these Standard Terms and Conditions of Sale. Seller reserves the right at any time before delivery and payment to correct clerical, stenographic or other errors in quotations, purchase orders or acknowledgments.

4. PRICE POLICY

Regardless of prices set forth in quotations, acknowledgments or elsewhere, Buyer shall pay a purchase price as follows:

- (a) For the following products: Fractional Horsepower Ajusto-Spede®, AC Motors, renewal parts and service, Buyer shall pay Seller's published prices in effect on the date when shipment is made or service performed.
- (b) For all other products, Buyer shall pay a purchase price equal to the smaller of: (a) Seller's published prices in effect on the date when shipment is made or (b) the prices set forth in Seller's acknowledgment increased by 1% for each month or fraction thereof that elapses between the date when the acknowledgment is mailed from Seller's factory to Buyer (designated as the "Issue Date" on the acknowledgment) and the date when shipment is made or the date for which shipment was originally scheduled (as stated on the acknowledgment) by Seller, whichever occurs sooner. However, in the event that shipment is originally scheduled to occur in excess of 12 months after Issue Date, Buyer shall pay Seller's published prices in effect on the date when shipment is made; and in any case where shipment is delayed beyond Seller's originally scheduled date for shipment by Buyer's actions or at Buyer's request,

Buyer shall pay escalation charges based on the revised delivery schedule.

5. MINIMUM BILLING

The minimum billing for each purchase order shall be \$100.00 net.

6. TAXES

Any and all sales, use, personal property or other excise taxes which the Seller may be required to pay or collect, including first destination taxes, will be added to each invoice and shall be payable by Buyer on the same terms as the purchase price unless the Buyer has furnished the Seller a tax exemption certificate acceptable to the taxing authority.

7. PAYMENT TERMS

Payment terms shall be net 30 days except for International orders, which will be cash in advance. However, on orders of \$100,000.00 or more and having delivery schedule 6 months or longer from date of order, the payment terms shall be as specified by Seller at time of quotation.

8. SHIPPING TERMS

Except as otherwise agreed, Seller shall be entitled to select carrier and make delivery in more than one shipment, in which event Buyer shall pay separately for each partial shipment.

All shipments shall be made F.O.B. point of shipment. Seller shall prepay freight (UPS shipments only), which shall be billed to Buyer as a separate item on the product invoice at Seller's standard rates applicable to the destination, or at Buyer's option, shipment shall be made freight collect. All truck shipments shall be made freight collect, unless otherwise agreed.

9. PACKAGING

At no additional charge, all products shall be packaged for domestic shipment in accordance with Seller's standard specifications. Additional charge shall be made if Buyer specifies special domestic packaging, packaging in accordance with government or military standards, overseas packaging or other special packaging. Refer to Seller's plant, nearest sales office or representative for further information.

10. TITLE AND RISK OF LOSS

Risk of loss in transit shall be borne entirely by Buyer at all times after the products are delivered to the carrier for shipment. However, title to the products and right to stop delivery in transit shall remain with Seller until Seller receives payment in full.

11. DELAYS OR DEFAULT IN DELIVERY

Seller shall have no liability to Buyer, and Buyer shall not be entitled to cancel any purchase order, for Seller's delay or default in delivery due to strikes, secondary boycotts, riots,

wars, accidents, fires, floods, explosions, vandalism, government embargoes, priorities or regulations, shortages of labor, fuel, materials, supplies, power or transportation facilities, or other similar or dissimilar causes beyond Seller's reasonable control. Under no circumstances shall Seller have any liability for penalties or consequential damages of any kind resulting in whole or in part from Seller's delay in delivering, or failure to deliver, any products ordered by Buyer.

12. CHANGES TO ORDERS IN PROCESS

There shall be a charge for any and all changes in specification after an order is in process, based on the status of the order at the time the change is made. The additional charge shall be a minimum of \$50 net per item when engineering has not been started or is not required and a minimum of \$100 net per item when re-engineering is required. The additional charge shall be in addition to any change in the price of the product resulting from the change in specification. The order "Issue Date" will be moved forward to the date of the change and shipment will be rescheduled in accordance with the then current lead times. Buyer shall pay escalation charges based on the new "Issue Date" and scheduled shipping date as defined in paragraph B.

13. CANCELLATION

After Seller accepts Buyer's purchase order by faxing Seller's written acknowledgment, Buyer's cancellation of any order or portion thereof may be accomplished only upon (i) Seller's receipt of written cancellation notice at Seller's plant (cancellation notice by telephone will be deemed only as authorization for Seller temporarily to suspend performance on Buyer's order pending written confirmation of cancellation) and ii) Buyer's payment of the following cancellation charges:

Notwithstanding anything to the contrary contained herein, the minimum cancellation charges for products shall be 50% per line item or 50% per complete order.

With respect to all costs and expenses described above, Seller shall provide such substantiating documentation as Buyer may reasonably request, and Seller's computations, thus documented, and shall be conclusive and binding between the parties. With respect to all canceled products, materials and supplies described above, Seller shall, upon payment of the applicable cancellation charges, make such disposition as Buyer may specify in writing within 30 calendar days after Seller notifies Buyer of the applicable cancellation charges. Buyer's failure to so specify within said 30-day period shall constitute Buyer's authorization for Seller to make such disposition as Seller chooses with no further obligation to Buyer.

14. PATENT INFRINGEMENT

With respect to all products manufactured to Buyer's design, Buyer shall indemnify and hold Seller harmless from and against any and all loss, cost, expense, claims, demands, suits and judgments resulting from actual or alleged patent infringements. With respect to all other products sold by Seller, Seller shall defend any suit or proceeding brought against Buyer on a claim that such a product, or any part thereof when employed in the manner intended by Seller, infringes any U.S. patent, provided that Seller is notified promptly in writing and given all necessary information, assistance and authority to defend same. Seller shall pay all damages and costs awarded against Buyer as a result thereof. If the court finds such an infringement, and the use

of any product, in the manner intended by Seller is enjoined, Seller shall at its sole expense, at Buyer's option (a) procure for Buyer the right to continue using said product, (b) replace said product with a non-infringing product, (c) modify said product so that it becomes non-infringing or (d) remove said product and refund its purchase price and transportation and installation costs. Seller shall have no further liability for actual or alleged patent infringement except as provided herein.

15. PRODUCT WARRANTY AND DISCLAIMER

Seller warrants to Buyer, subject to the limitations, conditions and disclaimers stated herein, that all new products manufactured by Seller shall be free from defect in material and workmanship and shall deliver their rated output as indicated on the nameplates for a period of one (1) year from the date of shipment to the Buyer. Buyer must notify Seller in writing of defect or failure to deliver rated output within the applicable warranty period and give Seller the opportunity to determine that the defect or failure exists. Buyer shall, at Buyer's expense, make each allegedly defective product available for Seller's inspection at Buyer's place of business or, at Seller's option, return each such product to Sellers plant or service center as designated by Seller, freight both ways to be paid by Buyer. No products shall be returned to Seller's plant or service center except in accordance with Seller's prior written instructions. Determination of any defect is made at Seller's sole discretion and Seller's decision is final. To remedy any defect, the Seller may at its option, repair, rebuild or replace the defective component or complete product, using new or re-manufactured components or complete product. In any case the repaired, rebuilt or replaced product shall be warranted hereunder for the then non-expired portion of the original warranty period. Seller's sole obligation to Buyer, and Buyer's sole remedy against Seller, for any breach of this warranty shall be Seller's obligation to repair or replace the product as provided herein or, at Seller's option, to repay, upon return of the defective product, the price paid for such product by Buyer.

Any tampering, misuse, mis-application, and/or improper installation of the product by Buyer or Buyer's representatives may void warranty. Additionally, any service/repair work performed by any personnel not pre-authorized by Seller to perform the service/repair work will void warranty. Products sold by Seller, but not manufactured by Seller, shall be warranted as to defects in material and workmanship consistent with the warranty policy of the original manufacturer of the products. In no event shall Seller have any liability for incidental or consequential damages of any kind resulting from a breach of this warranty. THIS WARRANTY IS EXCLUSIVE AND IS GIVEN IN LIEU OF ALL OTHER WARRANTIES, EITHER EXPRESSED OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY FOR MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.

16. RETURNS

No products shall be returned to Seller, whether for inspection, repair, replacement or any other reason, without prior written consent from Seller's plant, sales office or representative

Revised April 12, 2018