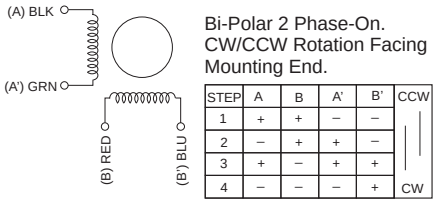
STEPPING MOTORS

CMV MILANO

General Specification

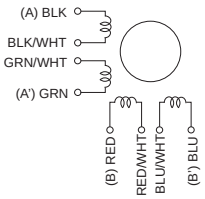
Item	NEMA Size	# 16 (DSH40)	# 17 (DST42)	# 23 (DSH56)	# 23 (DST56)	# 34 (DSH86)	# 34 (DST86)
	Frame Size	40 mm Square	42 mm Square	56 mm Square	56 mm Square	86 mm Square	86 mm Square
Step Angle Accuracy	± 5%						
Radial Play	0,025mm Max. (0,5 Kg Load)						
End Play	0,075mm Max. (1Kg Load)						
Shaft Run-Out	0,05 T.I.R. (mm)						
Concentricity	0,075 T.I.R. (mm)						
Perpendicularity	0,08 T.I.R. (Mm)						
Maximum Radial Load		3 Kg	3 Kg	7 Kg	7 Kg	11 Kg	18 Kg
Maximum Thrust Load		3 Kg	3 Kg	6 Kg	6 Kg	10 Kg	11,5 Kg
Temperature Rise	80° C Max						
AmbientTemperature Range	-10°C +50°C						
Insulation Class	130°C Class B						
Insulation Resistance	100MΩMin. At 500V DC						
Dielectric Strength	500V AC for 1 min.					900V AC for 1min.	

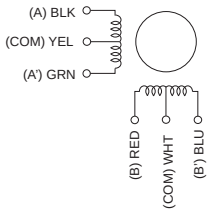
Wiring Diagram



Bi-Polar 2 Phase-On.
CW/CCW Rotation Facing
Mounting End.

STEP	A	B	A'	B'	
1	+	+	–	–	CCW
2	–	+	+	–	
3	+	–	+	+	
4	–	–	–	+	CW





Uni-Polar 2 Phase-On.
CW/CCW Rotation Facing
Mounting End.

STEP	A	B	A'	B'	COM	
1	–	–				CCW
2		–	–		+DCV	
3			–	–		
4	–			–		CW

Part Number Code

Example :

DS T 42 E S 4 1 A

- Shaft: A=single-sided, B=double-sided
- Winding code: details reserved
- Lead wire number: 8=user defined configuration
  6=unipolar
  4=bipolar series connection
  2=bipolar parallel connection
- Motor length:F. X. S. M. L. C.
- Step angle: D=0,9° E=1,8°
- Freme size: 40=40mm. 42=42mm.
  56=56mm. 86=86mm.
- H=hybride. T=high torque
- Stepping motor

DST42 Series

Specifications

2- phase High Torque rotay stepping motors (Frame size: 42mm .NEMA size : 17)

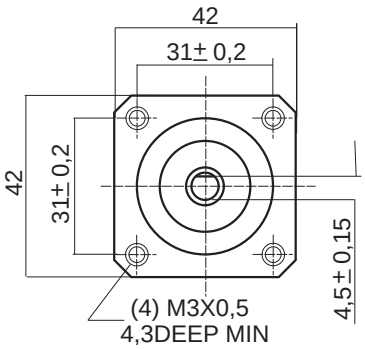
Part #	Step Angle (Degree)	Leads	Minimum Holding Torque (Kg-cm)	Voltage (Volts)	Rated Current (A/Phase)	Winding Resistance (Ohms±10%/Phase)	Inductance (mH±20%/Phase)	Rotor Inertia (g-cm²)	Motor Weight (gw)
DST42ES61A	1,8	6	1,6	4	0,95	4,2	2,5	35	200
DST42ES41A	1,8	4	2,2	5,66	0,68	8,4	10	35	200
DST42ES62A	1,8	6	1,6	9,6	0,4	24	15	35	200
DST42ES42A	1,8	4	2,2	13,6	0,28	48	60	35	200
DST42ES63A	1,8	6	1,6	12	0,31	38,5	23	35	200
DST42ES43A	1,8	4	2,2	17	0,22	77	92	35	200

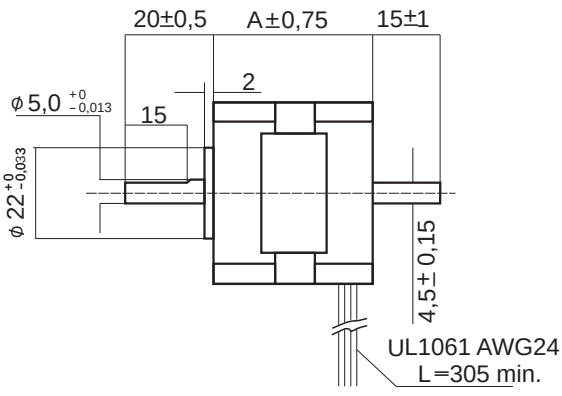
Part #	Step Angle (Degree)	Leads	Minimum Holding Torque (Kg-cm)	Voltage (Volts)	Rated Current (A/Phase)	Winding Resistance (Ohms±10%/Phase)	Inductance (mH±20%/Phase)	Rotor Inertia (g-cm²)	Motor Weight (gw)
DST42EM61A	1,8	6	2,6	4	1,2	3,4	3,2	53	250
DST42EM41A	1,8	4	3,6	5,8	0,85	6,8	12,8	53	250
DST42EM62A	1,8	6	2,6	6	0,8	7,5	7,7	53	250
DST42EM42A	1,8	4	3,6	8,5	0,57	15	30,8	53	250
DST42EM63A	1,8	6	2,6	12	0,4	30	28	53	250
DST42EM43A	1,8	4	3,6	17	0,3	60	112	53	250
DST42EM64A	1,8	6	2,6	24	0,2	120	112	53	250
DST42EM44A	1,8	4	3,6	34	0,14	240	448	53	250

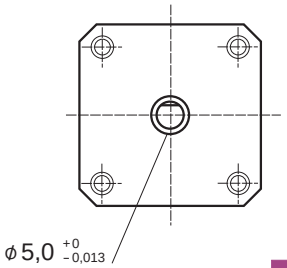
Part #	Step Angle (Degree)	Leads	Minimum Holding Torque (Kg-cm)	Voltage (Volts)	Rated Current (A/Phase)	Winding Resistance (Ohms±10%/Phase)	Inductance (mH±20%/Phase)	Rotor Inertia (g-cm²)	Motor Weight (gw)
DST42EL61A	1,8	6	3,2	4	1,2	3,3	3,3	68	350
DST42EL41A	1,8	4	4,4	5,7	0,85	6,6	13,2	68	350
DST42ES61A	1,8	6	3,2	6	0,8	7,5	7,5	68	350
DST42EL42A	1,8	4	4,4	8,2	0,57	15	30	68	350
DST42EL63A	1,8	6	3,2	12	0,4	30	28	68	350
DST42EL43A	1,8	4	4,4	17	0,28	60	112	68	350

DIMENSION (UNIT: mm.)

SPEC. \ DIM.	A
F	20,5
X	23,5
S	33
M	39
L	47



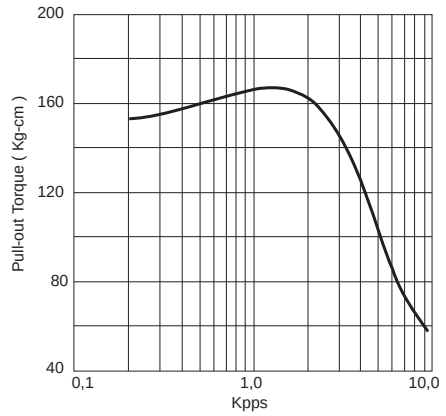




DST42 Series

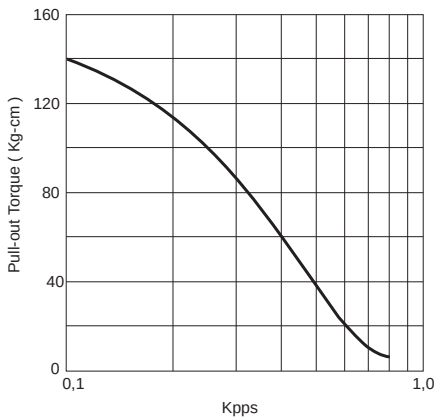
DST42ES61A

Current=0,95A/phase
Exciting mode= 2 phase on



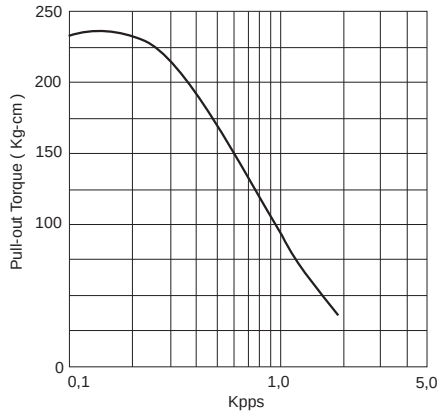
DST42ES41A

Voltage=5,65V
Exciting mode= 2 phase on



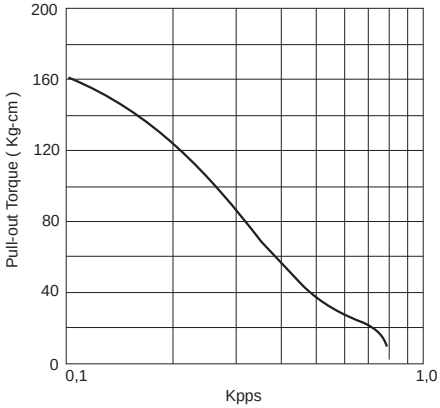
DST42ES62A

Voltage=9,6V
Exciting mode= 2 phase on



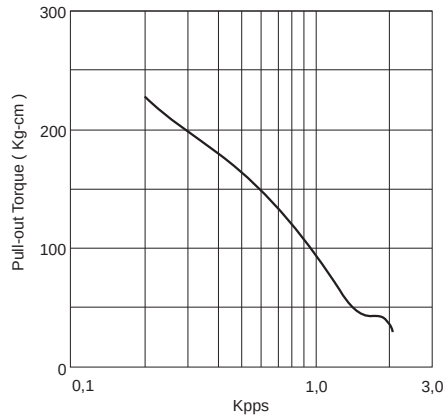
DST42ES42A

Voltage=13,44V
Exciting mode= 2 phase on



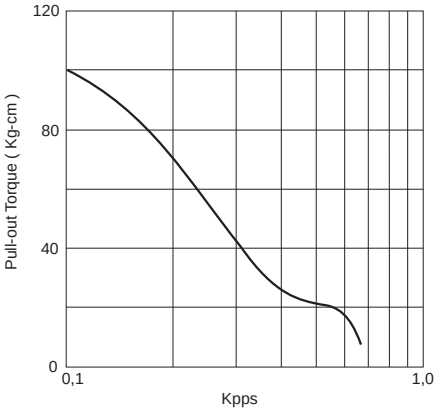
DST42ES63A

Voltage=12V
Exciting mode= 2 phase on



DST42ES43A

Voltage=17V
Exciting mode= 2 phase on

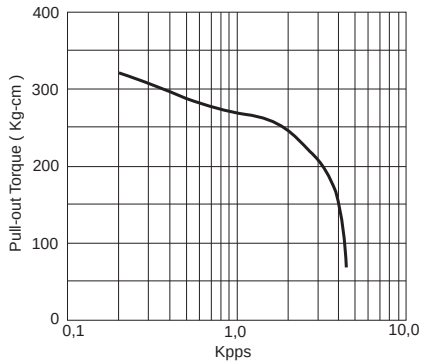


NOTE: * measured by costant voltage driver

DST42 Series

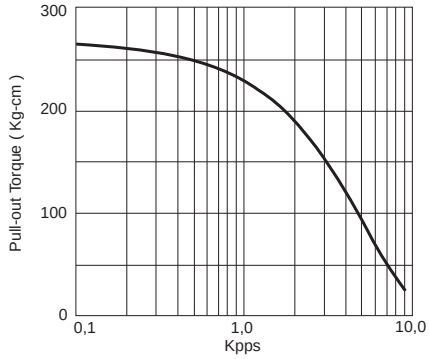
DST42EM61A

Current=1,2A/phase
Exciting mode= 2 phase on



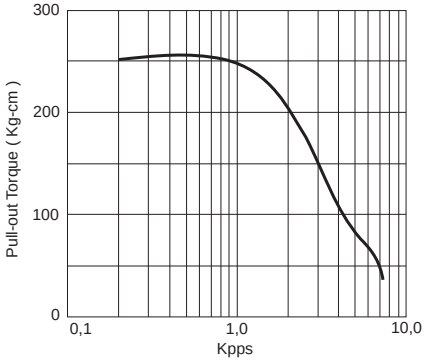
DST42EM41A

Current=0,75A/phase
Exciting mode= 2 phase on



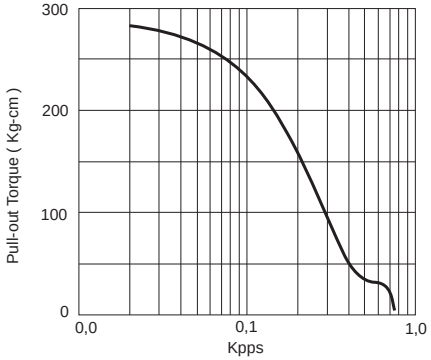
DST42EM62A

Current=0,8A/phase
Exciting mode= 2 phase on



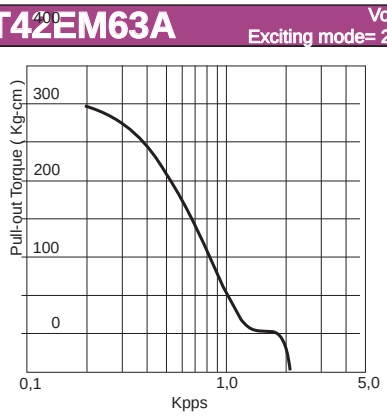
* DST42EM42A

Voltage=8,55V
Exciting mode= 2 phase on



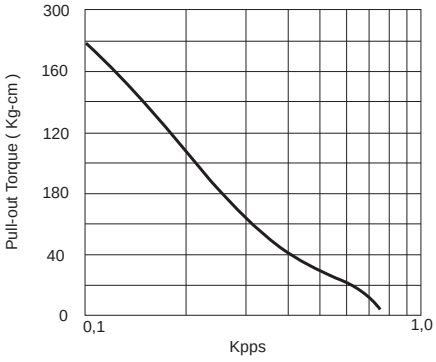
* DST42EM63A

Voltage=12V
Exciting mode= 2 phase on



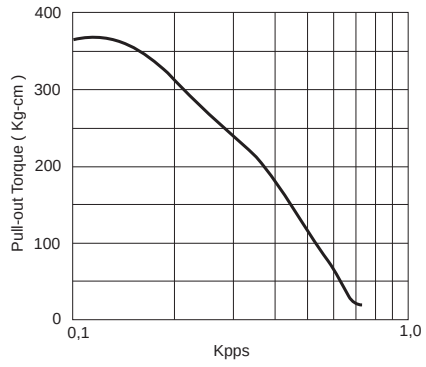
* DST42EM43A

Voltage=13,44V
Exciting mode= 2 phase on



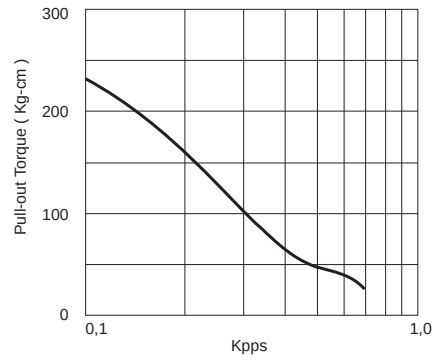
* DST42EM64A

Voltage=24V
Exciting mode= 2 phase on



* DST42EM44A

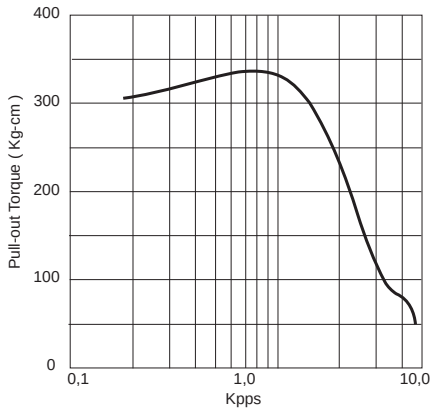
Voltage=36V
Exciting mode= 2 phase on



DST42 Series

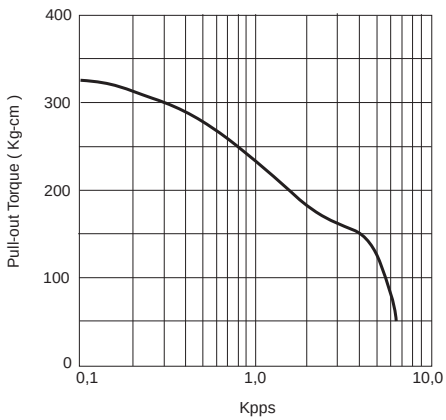
DST42EL61A

Current=1,2A/phase
Exciting mode= 2 phase on



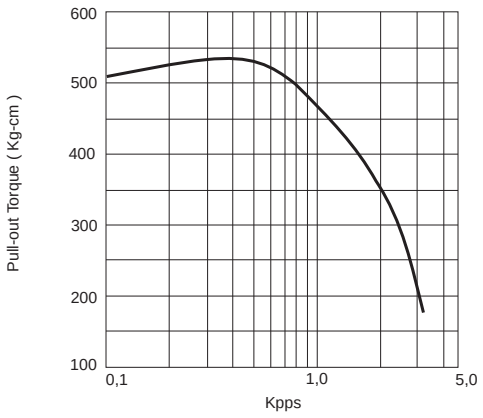
DST42EL41A

Current=0,75A/phase
Exciting mode= 2 phase on



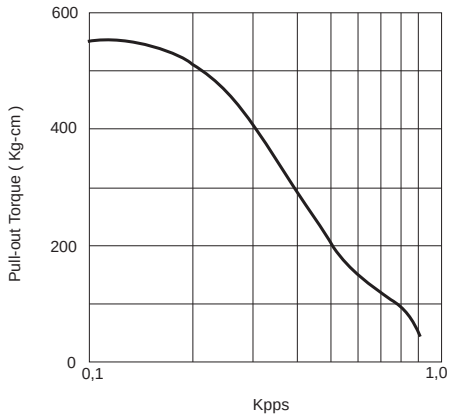
DST42EL62A

Current=0,8A/phase
Exciting mode= 2 phase on



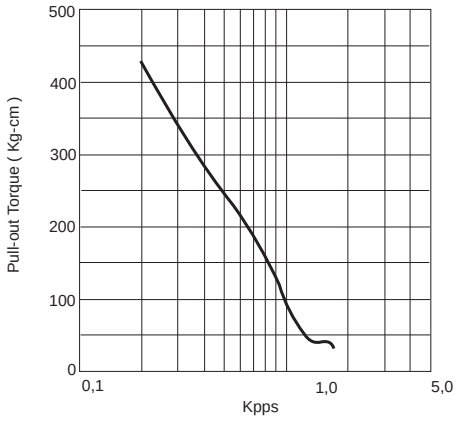
* DST42EL42A

Voltage=8,4V
Exciting mode= 2 phase on



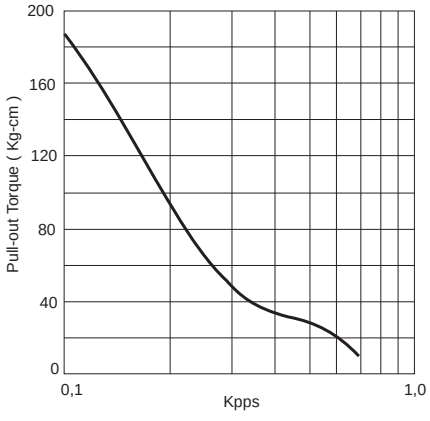
* DST42EL63A

Voltage=6V
Exciting mode= 2 phase on



* DST42EL43A

Voltage=13,44V
Exciting mode= 2 phase on



DST56 Series

CMV MILANO

Specifications

2- phase High Torque rotay stepping motors (Frame size: 56mm .NEMA size : 23)

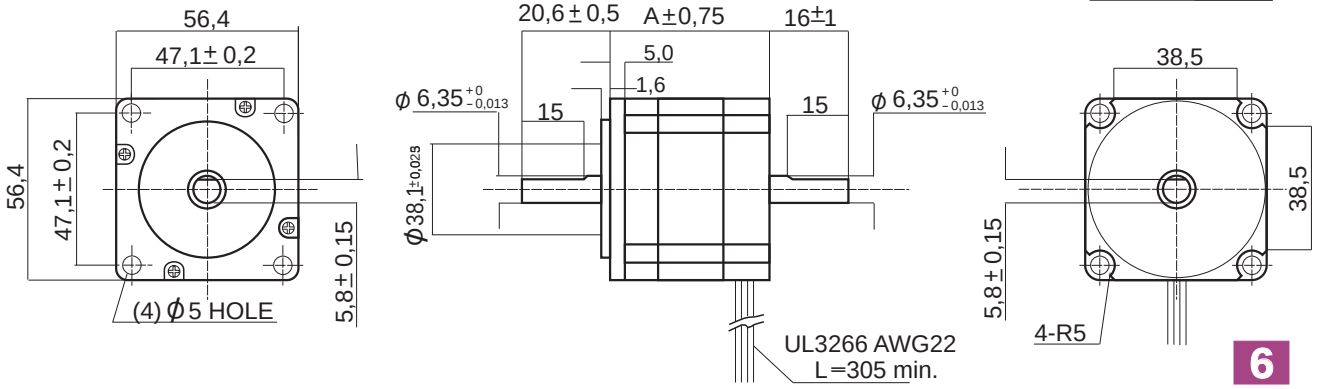
Part #	Step Angle (Degree)	Leads	Minimum Holding Torque (Kg-cm)	Voltage (Volts)	Rated Current (A/Phase)	Winding Resistance (Ohms±10% /Phase)	Inductance (mH±20%/Phase)	Rotor Inertia (g-cm²)	Motor Weight (gw)
DST56EX61A	1,8	6	3,9	5,7	1	5,7	5,7	120	470
DST56EX41A	1,8	4	5,4	8,1	0,71	11,4	11,4	120	470
DST56EX62A	1,8	6	3,9	2,8	2	1,4	1,4	120	470
DST56EX42A	1,8	4	5,4	4	1,42	2,8	2,8	120	470
DST56EX63A	1,8	6	3,9	19	3	0,7	0,7	120	470
DST56EX43A	1,8	4	5,4	2,7	2,12	1,3	1,3	120	470

Part #	Step Angle (Degree)	Leads	Minimum Holding Torque (Kg-cm)	Voltage (Volts)	Rated Current (A/Phase)	Winding Resistance (Ohms±10% /Phase)	Inductance (mH±20%/Phase)	Rotor Inertia (g-cm²)	Motor Weight (gw)
DST42EM61A	1,8	6	9	7,4	1	7,8	15	280	700
DST42EM41A	1,8	4	12,6	11	0,71	15,6	60	280	700
DST42EM62A	1,8	6	8	3,6	2	2	3,2	280	700
DST42EM42A	1,8	4	11,0	5,1	1,42	4	12,8	280	700
DST42EM63A	1,8	6	9	2,3	3	0,77	1,65	280	700
DST42EM43A	1,8	4	12,6	3,3	2,12	1,54	6,6	280	700

Part #	Step Angle (Degree)	Leads	Minimum Holding Torque (Kg-cm)	Voltage (Volts)	Rated Current (A/Phase)	Winding Resistance (Ohms±10% /Phase)	Inductance (mH±20%/Phase)	Rotor Inertia (g-cm²)	Motor Weight (gw)
DST42EL61A	1,8	6	13	8,6	1	8,6	16,5	480	1000
DST42EL41A	1,8	4	17	12,2	0,71	17,2	66	480	1000
DST42ES61A	1,8	6	13	4,5	2	2,25	3,8	480	1000
DST42EL42A	1,8	4	17	6,4	1,42	4,5	15,2	480	1000
DST42EL63A	1,8	6	13	3	3	1	1,7	480	1000
DST42EL43A	1,8	4	17	4,3	2,12	2	6,8	480	1000

DIMENSION (UNIT: mm.)

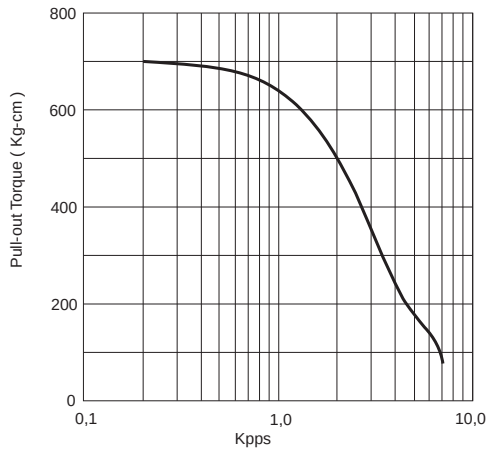
SPEC. \ DIM.	A
F	43,5
X	52
M	55
L	77,5
C	103



DST56 Series

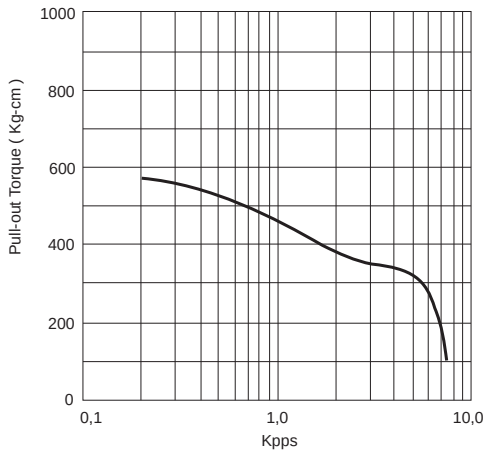
DST56EX61A

Current=1A/phase
Exciting mode= 2 phase on



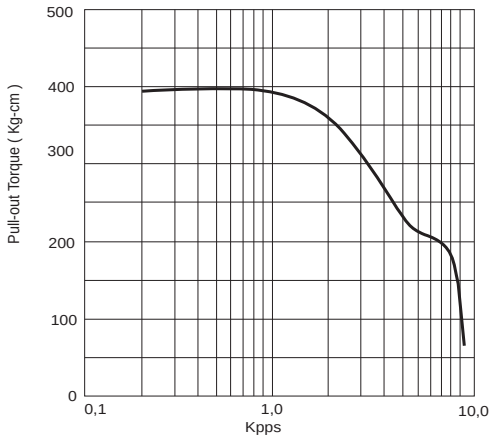
DST56EX41A

Current=1A/phase
Exciting mode= 2 phase on



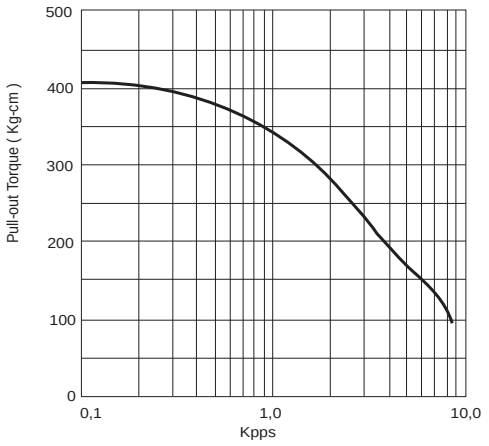
DST56EX62A

Current=2A/phase
Exciting mode= 2 phase on



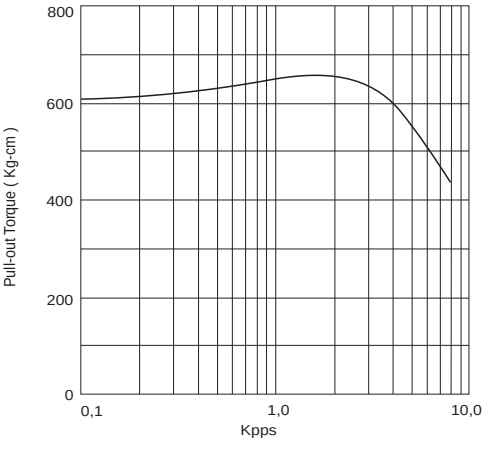
DST56EX42A

Current=1,5A/phase
Exciting mode= 2 phase on



DST56EX43A

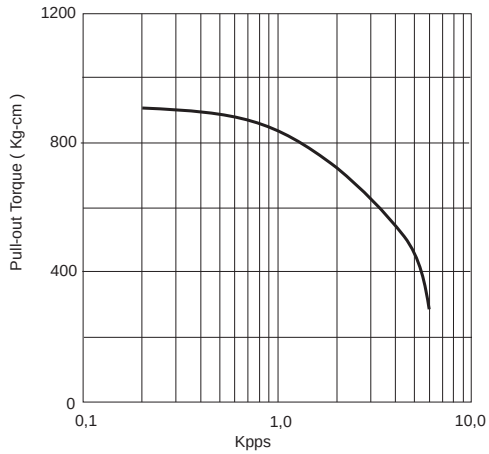
Current=2,1A/phase
Exciting mode= 2 phase on



DST56 Series

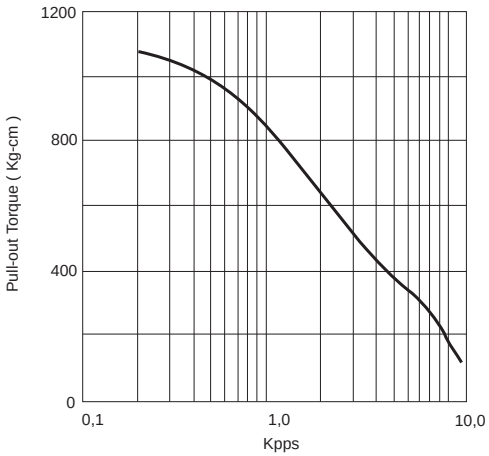
DST56EM61A

Current=1A/phase
Exciting mode= 2 phase on



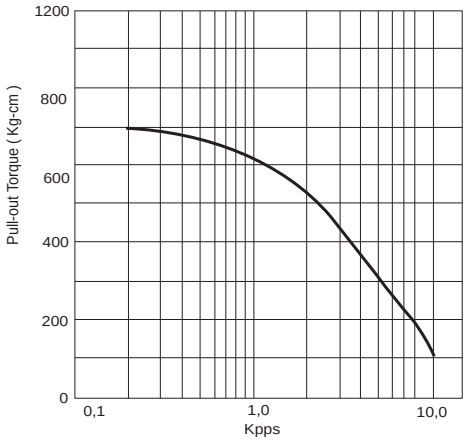
DST56EM41A

Current=0,75A/phase
Exciting mode= 2 phase on



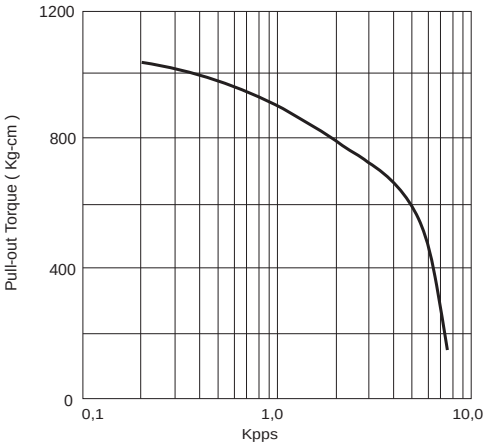
DST56EM62A

Current=2A/phase
Exciting mode= 2 phase on



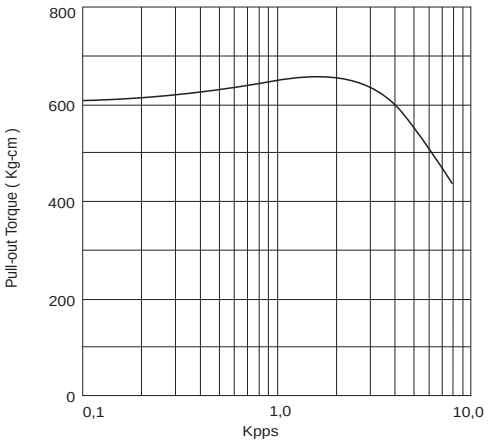
DST56EM42A

Current=1,5A/phase
Exciting mode= 2 phase on



DST56EM43A

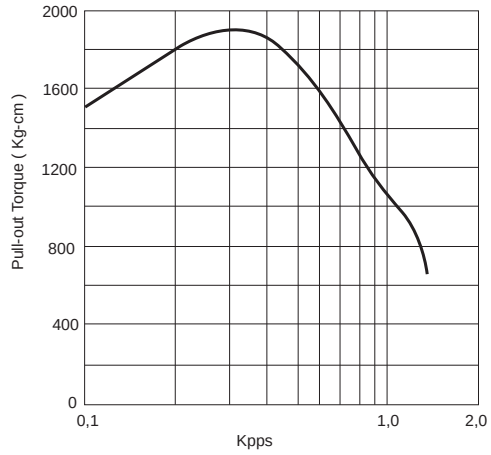
Current=1,5A/phase
Exciting mode= 2 phase on



DST56 Series

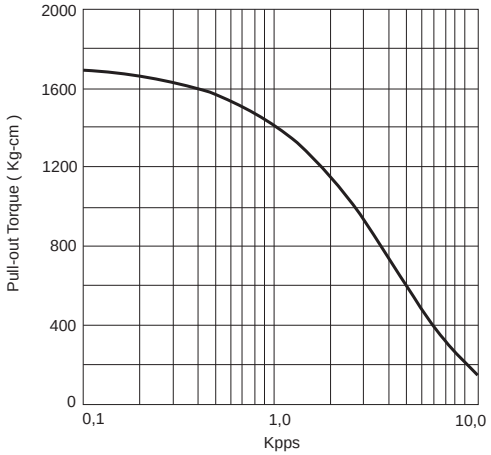
DST56EL61A

Current=1A/phase
Exciting mode= 2 phase on



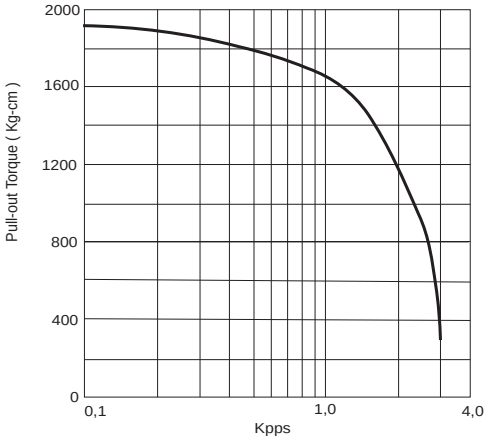
DST56EL41A

Current=0,75A/phase
Exciting mode= 2 phase on



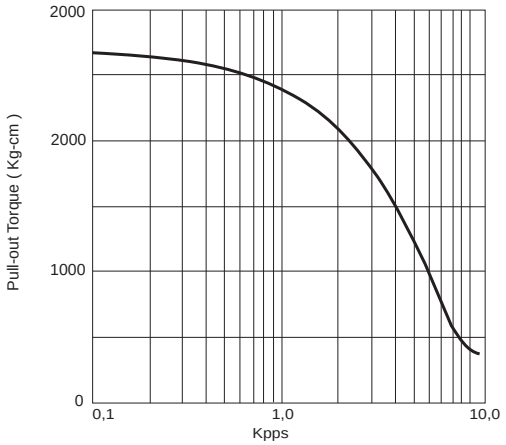
DST56EL62A

Current=2A/phase
Exciting mode= 2 phase on



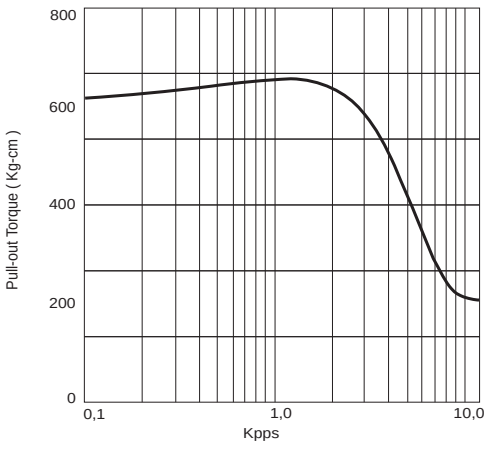
DST56EL42A

Current=1,45A/phase
Exciting mode= 2 phase on



DST56EL43A

Current=2A/phase
Exciting mode= 2 phase on



DST86 Series

Specifications

2- phase High Torque rotay stepping motors (Frame size: 86mm .NEMA size : 34)

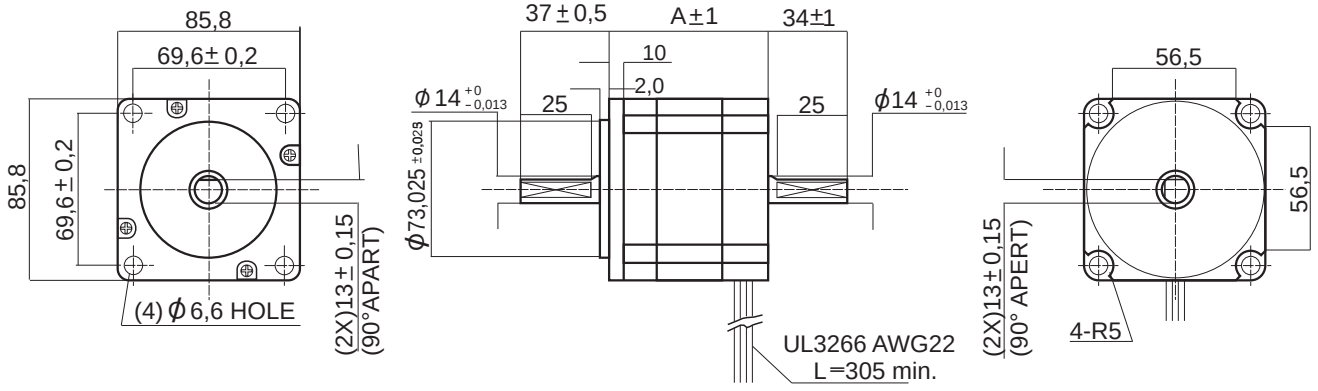
Part #	Step Angle (Degree)	Leads	Minimum Holding Torque (Kg-cm)	Voltage (Volts)	Rated Current (A/Phase)	Winding Resistance (Ohms±10%/Phase)	Inductance (mH±20%/Phase)	Rotor Inertia (g-cm²)	Motor Weight (gw)
DST86ES61A	1,8	6	22	4,4	2	2,2	8	1400	1750
DST86ES41A	1,8	4	30	6,3	1,42	4,4	32	1400	1750
DST86ES62A	1,8	6	22	3	3	1	4	1400	1750
DST86ES42A	1,8	4	30	4,3	2,12	2	16	1400	1750
DST86ES63A	1,8	6	22	2	4,5	0,48	1,7	1400	1750
DST86ES43A	1,8	4	30	2,9	3,2	1	6,8	1400	1750

Part #	Step Angle (Degree)	Leads	Minimum Holding Torque (Kg-cm)	Voltage (Volts)	Rated Current (A/Phase)	Winding Resistance (Ohms±10%/Phase)	Inductance (mH±20%/Phase)	Rotor Inertia (g-cm²)	Motor Weight (gw)
DST86EM61A	1,8	6	44	6,4	2	3,2	20	2700	2800
DST86EM41A	1,8	4	62	9,1	1,42	6,4	80	2700	2800
DST86EM62A	1,8	6	44	4,2	3	1,5	6,6	2700	2800
DST86EM42A	1,8	4	62	6	2,12	3	26,4	2700	2800
DST86EM63A	1,8	6	44	2,8	4,5	0,66	3	2700	2800
DST86EM43A	1,8	4	62	4	3,2	1,32	12	2700	2800

Part #	Step Angle (Degree)	Leads	Minimum Holding Torque (Kg-cm)	Voltage (Volts)	Rated Current (A/Phase)	Winding Resistance (Ohms±10%/Phase)	Inductance (mH±20%/Phase)	Rotor Inertia (g-cm²)	Motor Weight (gw)
DST86EL61A	1,8	6	66	7,6	2	3,8	2,5	4000	3930
DST86EL41A	1,8	4	92,4	11	1,42	7,6	10	4000	3930
DST86ES61A	1,8	6	66	3,8	4	0,95	5,5	4000	3930
DST86EL42A	1,8	4	92,4	5,4	2,83	1,9	22	4000	3930

DIMENSION (UNIT: mm.)

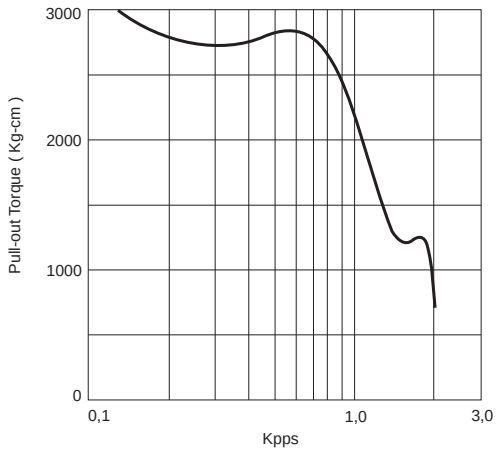
SPEC. \ DIM.	A
S	66
M	96
L	126



DST86 Series

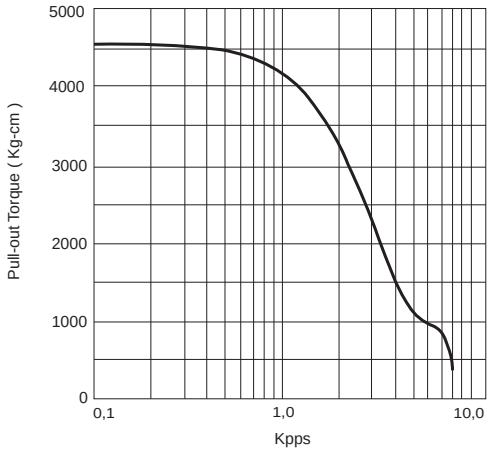
DST86ES61A

Current=2A/phase
Exciting mode= 2 phase on



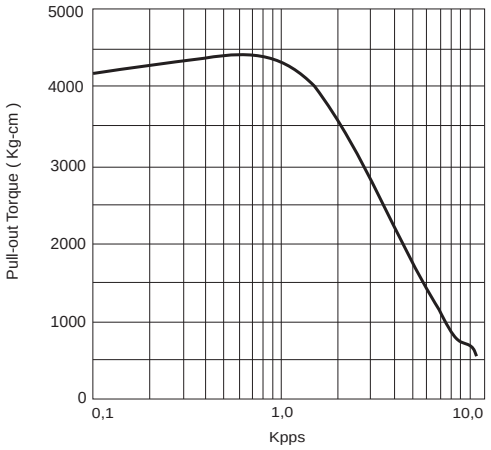
DST86ES41A

Current=1,32A/phase
Exciting mode= 2 phase on



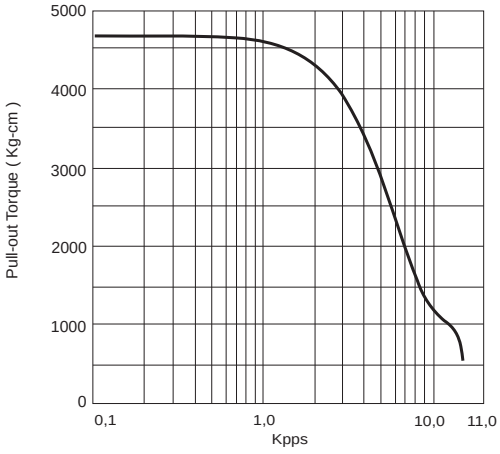
DST86ES42A

Current=2A/phase
Exciting mode= 2 phase on



DST86ES43A

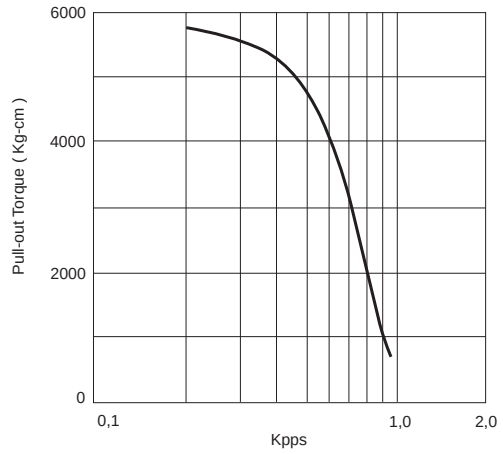
Current=3,1A/phase
Exciting mode= 2 phase on



DST86 Series

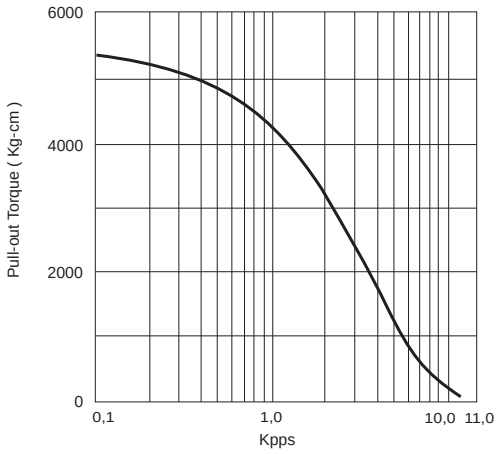
DST86EM61A

Current=2A/phase
Exciting mode= 2 phase on



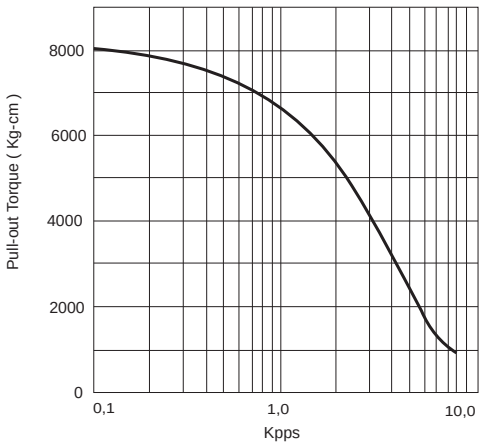
DST86EM41A

Current=1,5A/phase
Exciting mode= 2 phase on



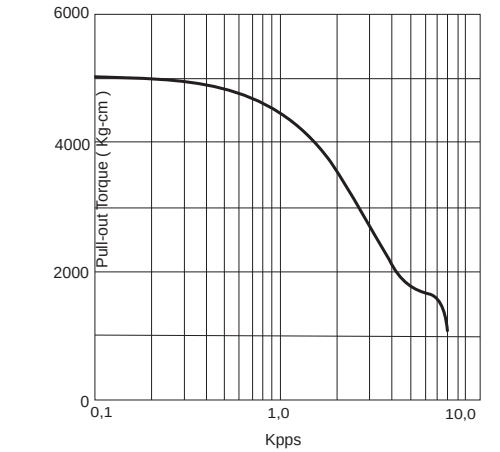
DST86EM42A

Current=2A/phase
Exciting mode= 2 phase on



DST86EM43A

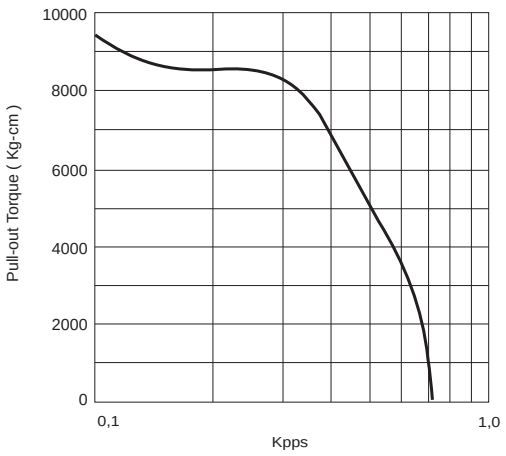
Current=3,25A/phase
Exciting mode= 2 phase on



DST86 Series

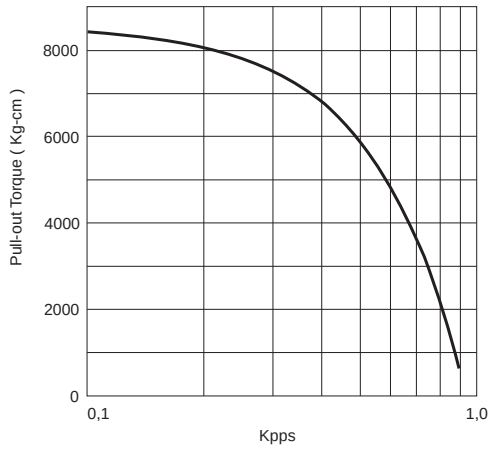
DST86EL61A

Current=2A/phase
Exciting mode= 2 phase on



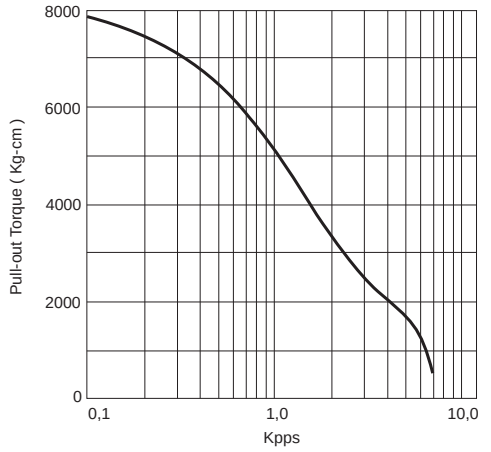
DST86EL41A

Current=1,5A/phase
Exciting mode= 2 phase on



DST86EL42A

Current=2,75A/phase
Exciting mode= 2 phase on



DSH40 Series

Specifications

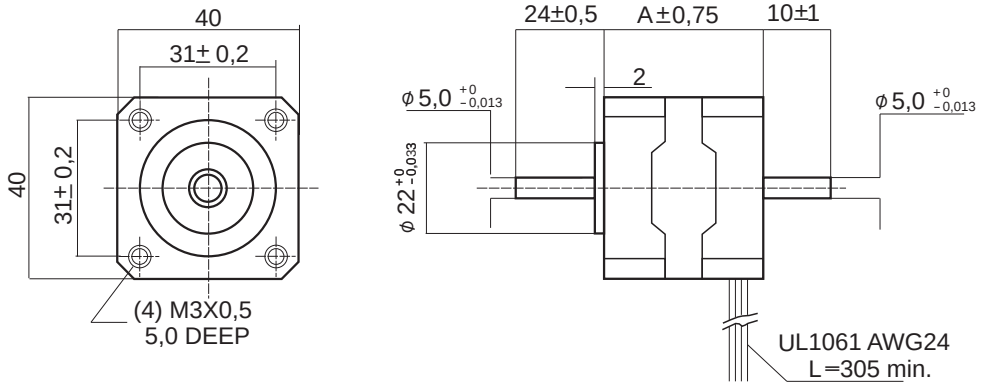
2- phase Hybrid rotary stepping motors (Frame size: 40mm .NEMA size : 16)

Part #	Step Angle (Degree)	Leads	Minimum Holding Torque (Kg-cm)	Voltage (Volts)	Rated Current (A/Phase)	Winding Resistance (Ohms±10%/Phase)	Inductance (mH±20%/Phase)	Rotor Inertia (g-cm²)	Motor Weight (gw)
DSH40ES61A	1,8	6	1	4	0,95	4,2	2,9	19	200
DSH40ES62A	1,8	6	1	9,6	0,4	24	16	19	200
DSH40ES63A	1,8	6	1	12	0,32	37,5	22	19	200

Part #	Step Angle (Degree)	Leads	Minimum Holding Torque (Kg-cm)	Voltage (Volts)	Rated Current (A/Phase)	Winding Resistance (Ohms±10%/Phase)	Inductance (mH±20%/Phase)	Rotor Inertia (g-cm²)	Motor Weight (gw)
DSH40EM61A	1,8	6	1,6	6	0,8	7,5	7,5	25	220
DSH40EM62A	1,8	6	1,6	12	0,4	30	30	25	220

Part #	Step Angle (Degree)	Leads	Minimum Holding Torque (Kg-cm)	Voltage (Volts)	Rated Current (A/Phase)	Winding Resistance (Ohms±10%/Phase)	Inductance (mH±20%/Phase)	Rotor Inertia (g-cm²)	Motor Weight (gw)
DSH40EL61A	1,8	6	2,16	4	1,2	3,3	3,3	35	260
DSH40EL62A	1,8	6	2,16	6	0,8	7,5	7,5	35	260
DSH40EL63A	1,8	6	2,16	12	0,4	30	30	35	260

DIMENSION (UNIT: mm.)



SPEC. \ DIM.	A
F	22
X	25,5
S	33
M	39
L	47

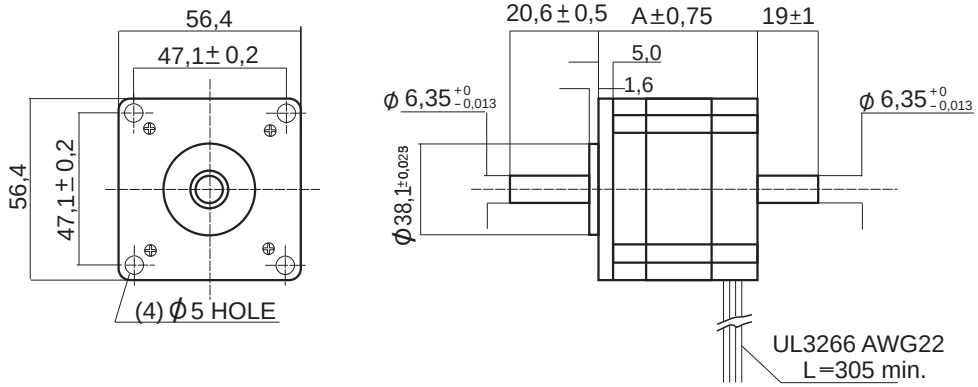
DSH56 Series

Specifications

2- phase Hybrid rotay stepping motors (Frame size: 56mm .NEMA size : 23)

Part #	Step Angle (Degree)	Leads	Minimum Holding Torque (Kg-cm)	Voltage (Volts)	Rated Current (A/Phase)	Winding Resistance (Ohms±10% /Phase)	Inductance (mH±20%/Phase)	Rotor Inertia (g-cm²)	Motor Weight (gw)
DSH56EX62A	1,8	6	2,5	12	0,4	30	30	60	340
DSH56EX63A	1,8	6	2,5	24	0,2	120	110	60	340
DSH56EX84A	1,8	8	2,5	2,25	1,5	1,5	1,7	60	340
DSH56ES61A	1,8	6	5	6	0,85	7,1	13	110	500
DSH56ES62A	1,8	6	5	12	0,42	29	38	110	500
DSH56ES63A	1,8	6	5	24	0,21	112	180	110	500
DSH56ES64A	1,8	6	5	5	1	5	9	110	500
DSH56ES65A	1,8	6	5	2,4	3,8	0,37	0,45	110	500
DSH56ES84A	1,8	8	5	5	1	5	9	110	500
DSH56EM61A	1,8	6	6	6	1,2	5	9	125	550
DSH56EM62A	1,8	6	6	12	0,6	20	38	125	550
DSH56EM63A	1,8	6	6	24	0,3	80	150	125	550
DSH56EM81A	1,8	8	6	6	1,2	5	9	125	550
DSH56EL61A	1,8	6	9	5,4	1,5	3,6	7	220	850
DSH56EL62A	1,8	6	9	12	0,68	17	33	220	850
DSH56EL63A	1,8	6	9	24	0,34	70,6	110	220	850
DSH56EL84A	1,8	8	9	5,1	1,6	3,2	6,3	220	850
DSH56EC61A	1,8	6	12	6	1,88	3,2	8	350	1400
DSH56EC62A	1,8	6	12	12	0,94	12,8	30	350	1400
DSH56EC63A	1,8	6	12	24	0,47	51	115	350	1400
DSH56EC84A	1,8	8	12	3,36	2,9	1,2	2,5	350	1400

DIMENSION (UNIT: mm.)



SPEC. \ DIM.	A
F	43,5
X	52
M	55
L	77,5
C	103

DSH86 Series

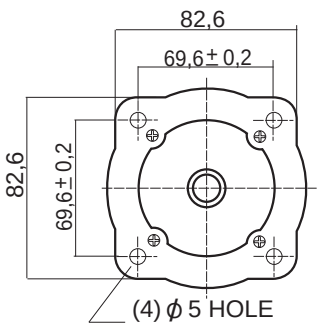
Specifications

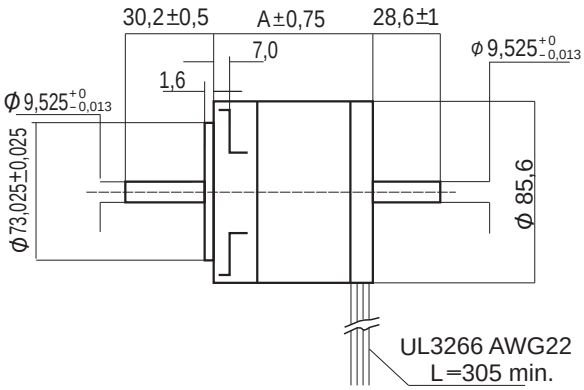
2- phase Hybrid rotary stepping motors (Frame size: 86 mm .NEMA size : 34)

Part #	Step Angle (Degree)	Leads	Minimum Holding Torque (Kg-cm)	Voltage (Volts)	Rated Current (A/Phase)	Winding Resistance (Ohms±10%/Phase)	Inductance (mH±20%/Phase)	Rotor Inertia (g-cm²)	Motor Weight (gw)
DSH86ES61A	1,8	6	13	1,8	4,5	0,4	1,5	560	1400
DSH86ES62A	1,8	6	13	5,5	1,25	4,4	14	560	1400
DSH86ES84A	1,8	8	17	1,9	4,2	45	1,5	560	1400

Part #	Step Angle (Degree)	Leads	Minimum Holding Torque (Kg-cm)	Voltage (Volts)	Rated Current (A/Phase)	Winding Resistance (Ohms±10%/Phase)	Inductance (mH±20%/Phase)	Rotor Inertia (g-cm²)	Motor Weight (gw)
DSH86EM61A	1,8	6	26	3	4	0,75	4,2	25	2600
DSH86EM62A	1,8	6	26	6	2	3	16	25	2600
DSH86EM63A	1,8	6	26	12	1	12	72	35	2600
DSH86EM81A	1,8	8	26	3	4	0,75	3,6	35	2600

DIMENSION (UNIT: mm.)





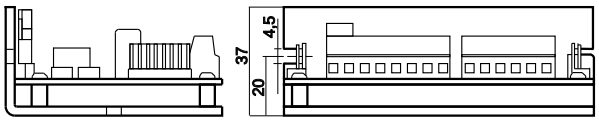
SPEC. \ DIM.	A
S	22
M	25,5
L	33

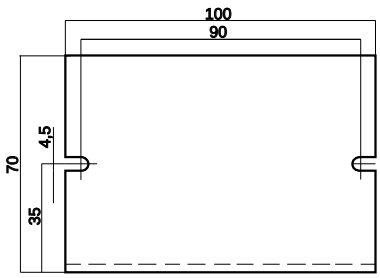
DU3231-DU3210-DU2121

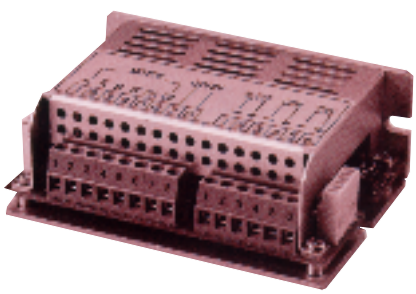
Specification

Driver Model N°		DU3231	DU3210	DU2121
Driving Method		Unipolar Constant Current	Unipolar Constant Current	Unipolar Constant Current
Power Input		DC24-36V 3A min	DC24-36V 3A min	DC24-36V 2A min
Rated current (A/phase)		2,5A/phase max	2A/phase max	1,5A/phase max
Stepping Angle		Microstep 200,400,800,1600	Full-step 1,8° / Half-step 0,9	Micro-Step 1,8° / 8 pulses
Function		Selection on One/Two Pulse Input Method Microstep Auto Corrent Down RUN/STOP Current Adjustable Motor Excitation OFF	Selection on One/Two Pulse Input Method Full/Half Step Auto Corrent Down RUN/STOP Current Adjustable Motor Excitation OFF	One Pulse Input Method Microstep Auto Corrent Down RUN/STOP Current Adjustable Motor Excitation OFF
Signal	Input Signal	Photo Coupler Input H=+4,5～+5,5V L=0～+0,5V 20 mA (Max) Impedance = 220 Ω	Photo Coupler Input H=+4,5～+5,5V L=0～+0,5V 20 mA (Max) Impedance = 330 Ω	Photo Coupler Input H=+4,5～+5,5V L=0～+0,5V 20 mA (Max) Impedance = 330 Ω
	OutputSignal	None	None	None
Operatig Temperature Restriction		0 ～ 40°C	0 ～ 40°C	0 ～ 40°C
Humidity Restriction		< 85 % RH	< 85 % RH	< 85 % RH
Weight		0,18	0,17	0,15
Exterior Dimension		100(W)X70(D)X37(H)	100(W)X70(D)X37(H)	100(W)X70(D)X37(H)

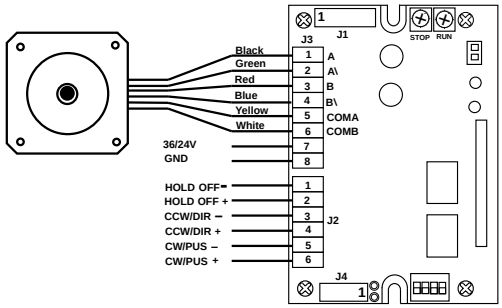
DU3231,DU3210,DU2121 Dimension



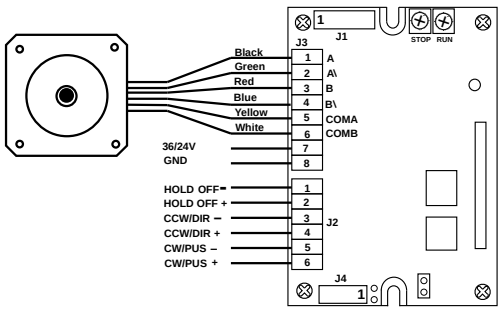




DU3231,DU3210 External Connection



DU2121 External Connection

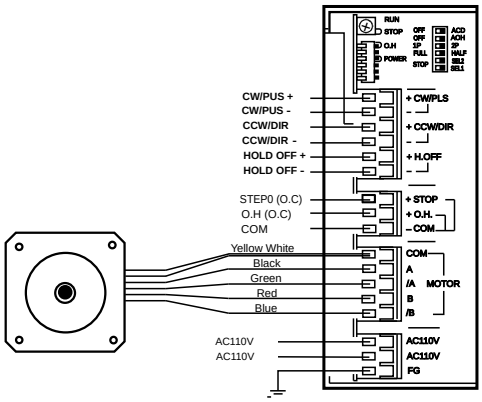


AU1210-AB1210-AB1410-AB1610

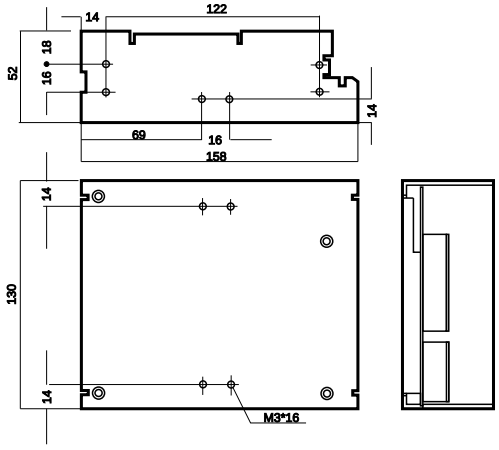
Specification

Driver Model N°		AU1210	AB1210	AB1410	AB1610
Driving Method		Unipolar Constant Current	Bipolar Constant Current	Bipolar Constant Current	Bipolar Constant Current
Power Input		AC110V (±10%) 60Hz	AC110V (±10%) 60Hz	AC110V (±10%) 60Hz	AC110V (±10%) 60Hz
Rated current		2A/phase max	2A/phase max	4A/phase max	6A/phase max
Stepping Angle		Full-step 1,8° / Half-step 0,9°	Full-step 1,8° / Half-step 0,9°	Full-step 1,8° / Half-step 0,9°	Full-step 1,8° / Half-step 0,9°
Function		Selection of One/Two Pulse Input Method Full/Half Step Auto Corrent Down RUN/STOP Current Adjustable Motor Excitation OFF Stepping Origin Output Overheat Protection			
Signal	Input Signal	Photo Coupler Input H=+4,5∽+5,5V L=0∽+0,5V 20 mA (Max) Interal Impedance = 220 Ω			
	Output Signal	Photo Coupler Open Collector DC24V, 15mA Below			
Operatig Temperature Restriction		0 ∽ 45°C			
Humidity Restriction		< 85 % RH			
Weight		0,75	0,75	0,75	0,75
Exterior Dimension		130(W)X158(D)X52(H)	130(W)X158(D)X52(H)	130(W)X158(D)X52(H)	130(W)X158(D)X52(H)

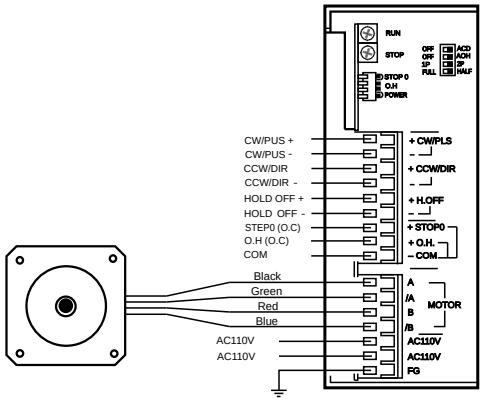
AU1210 External Connection



Dimension



AB1210,AB1410,AB1610 ExternalConnection

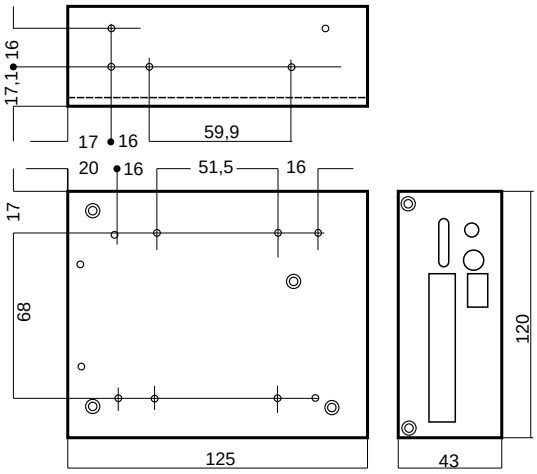


DB3231

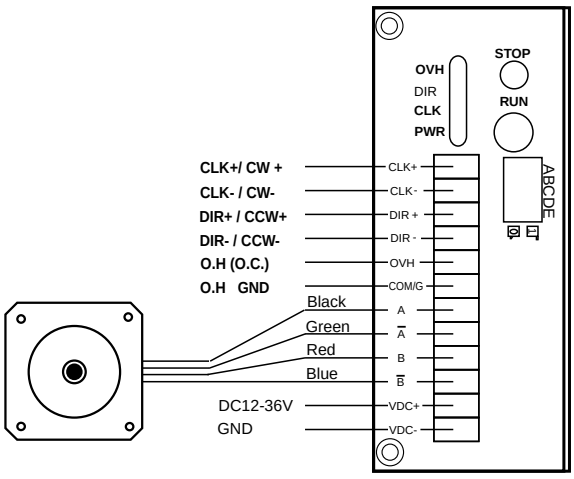
Specification

Driver Model N°		DB3231
Driving Method		Bipolar Constant Current
Power Input		~ DC12V 36V
Rated current		2,12A/phase
Stepping Angle		Microstep 200,400,800,10000
Function		Selection on One/Two Pulse Input Method Microstep Auto Corrent Down RUN/STOP Current Adjustable Overheat Protection
Signal	Input Signal	Photo Coupler Input H=+4-+24V L=0 +0,5V 25 mA (Max) Interal Impedance = 510
	Output Signal	Photo Coupler Open Collector DC24V, 25mA Below
Operatig Temperature Restriction		0~ 40°C
Humidity Restriction		< 85 % RH
Weight		0,5
Exterior Dimension		125 (W) X 102 (D) X 43 (H)

DB3231 Dimension



DB3231 External Connection

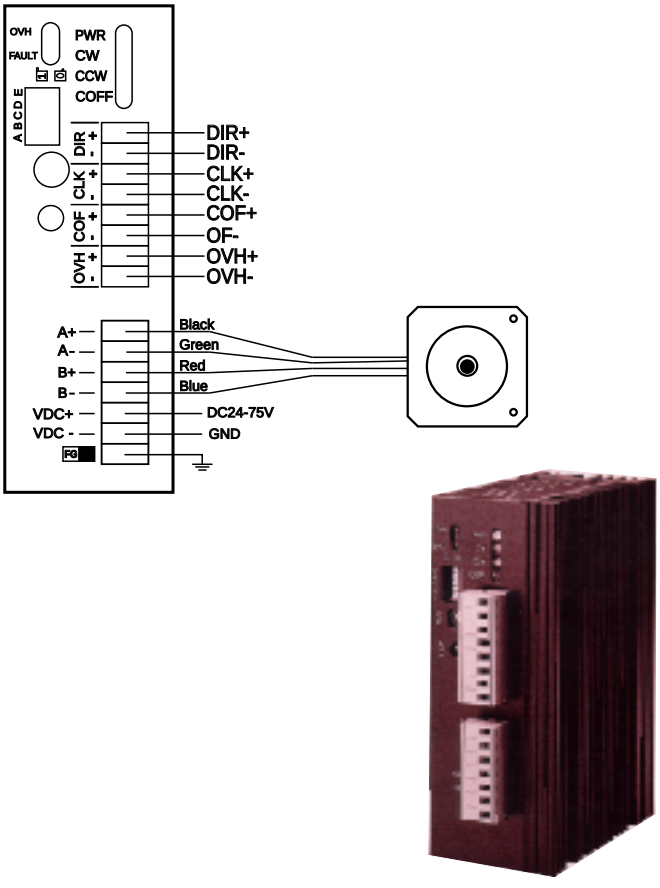


DB7620

Specification

Driver Model N°		DB7620
Driving Method		Bipolar Constant Current
Power Input		DC24V～75V
Rated current		1,5-6A / phase
Stepping Angle		Microstep 200,400,1000,1600,2000,3200,6400,10000 s/r
Function		One Pulse Input Method Microstep Auto Corrent Down RUN/STOP Current Adjustable Motor Excitation OFF Overheat Protection
Signal	Input Signal	Photo Coupler Input H=+4-+10V L=0～+0,5V 25 mA (Max) Interal Impedance =220Ω
	Output Signal	Photo Coupler Open Collector DC24V, 25mA Below
Operatig Temperature Restriction		0～40°C
Humidity Restriction		<85 % RH
Weight		0,74
Exterior Dimension		140 (W) X 99 (D) X 55 (H)

DB7620 External Connection



DB7620 Dimension