Motors, Drives & Power Transmission

Light Duty DC Motors

Low Cost DC Motor

multicomp

High Speed | Medium Torque | High Torque

Order Code	599-104	599-116	599-128
Operating voltage Range (V dc)	1.5 to 3	1.5 to 4.5	2.4 to 4.5
Nominal voltage (V dc)	**1.5/3**	**1.5/3**	**3**
No load Speed (RPM)	8700/16300	3000/6300	9600
Direction of rotation	Anti-clockwise	Clockwise	Clockwise
Current (A)	0.3/0.38	0.08/0.11	0.22
At Maximum Efficiency			
Speed (RPM)	6500/12000	2300/4900	7850
Current (A)	0.81/1.15	0.26/0.41	0.99
Torque (g/cm)	6.2/10.0	5./9.0	20.1
Efficiency (%)	33.9/35.6	38.3/46.0	55.2
Output (W)	0.41/1.23	0.14/0.51	1.64
Stall torque (g/cm)	24/44	21/44	112
Dimensions			
Length inc. shaft (mm)	38	38	45
Shaft length/dia.	7.7/2	6.9/2	10.4/2
Diameter (mm)	20.1	23.8	24.2
Weight (g)	17	28	42

627184

Description	Mftrs. List No.	Order Code	Price Each 1+	25+	100+	250+
High Speed	MM10	**599-104**				
Medium Torque	MM18	**599-116**				
High Torque	MM28	**599-128**				

DC Geared Micro-Motor

micro motors s.r.l.

B138F Series

Body - Dia. = 34, L = 37.5mm
Shaft - Dia. = 4.8, L = 14mm

The B138F features a durable spur gearbox in a 34mm-diameter moulded-plastic housing with three-point mounting built-in for straightforward installation.
A wide range of standard reduction ratios is available, from 12.25:1 to 1470.82:1, with maximum output torque from 1.5 to 50Ncm.
The sturdy gearmotor boasts a 20N radial-shaft loading with axial shaft load to 5N.
Available with a nominal operating voltage of 12V dc and with VDR interference suppression included, the motor includes precious metal brushes and flying leads for flexible installation.

601613

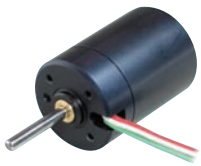
Rated Torque	Speed @ rated torque	Ratio	Mftrs. List No.	Order Code	Price Each 1+
1.5 N-cm	155rpm	1:12.25	B138 F-12-12	**178-4825**●	
4 N-cm	53rpm	1:35.73	B138 F-12-36	**178-4826**●	
14 N-cm	13rpm	1:149.05	B138 F-12-149	**178-4827**●	
50 N-cm	1.6rpm	1:1470.82	B138 F-12-1470	**178-4828**●	

Medium Duty DC Motors

Small DC Motor

Allied Motion

Brushless BL30 EB Series



Dia. = 32, L (Body) = 42.3, L (Spindle) = 12.5mm Dia. (Spindle) 4mm

- Integrated speed control loop to adjust motor speed from 200 to 5000 RPM
- This two-wire version is as simple to control as a DC motor, needing only a DC voltage to operate
- 11 W max. power output
- 3500 rpm nominal speed
- IP54 level protection sealing
- Thermal overload protection with automatic recovery
- Reverse supply voltage protection
- Low EMI - complies with EN 55014

The BL30 EB is an extremely compact brushless DC motor with integrated drive electronics. This motor is an outer rotor motor providing a robust bearing system capable of handling high side loads. High quality components ensure an operating life of min. 20000 hours. The output torque of 30 mNm at a constant speed of 3500 RPM makes this motor ideal for small membrane and peristaltic pumps, laser scanners, high-end fan and medical applications.

601713

Direction of Rotation	Mftrs. List No.	Order Code	Price Each 1+
4 Screw fixing	8204-045-15221 (BL30)	**178-4849**●	
4 Screw fixing	8204-045-15471 (BL30)	**178-4850**●	

12 and 24 Vdc 42mm Diameter

Crouzet

- For low speed drive applications
- Motor maximum power: 17W
- Sintered-bronze bearing

Body Length=88,
Dia Shaft=6,
Length Shaft=25.6

		308-9496	308-9502
Nominal voltage		12V	24V
No load characteristics			
Speed of rotation	rpm	2960	2750
Power consumption	W	4.8	4.3
Current consumption	A	0.4	0.18
Nominal characteristics			
Speed of	rpm	2000	2000
Torque	N-m	0.075	0.075
Rating power	W	15.7	15.6
Power consumption	W	30	26.4
Current consumption	A	2.5	1.1
Box warming	°C	44	40
Efficiency	%	52	59

231223

Voltage (V)	Mftrs. List No.	Order Code	Price Each 1+	3+	10+
12V	82800036	**308-9496**			
24V	82800037	**308-9502**			

24 Vdc, 63mm Diameter

Crouzet

- Motor maximum power: 33W
- ∅ 63mm: with 2 ball bearings. Power supply through 2 output threads
- For low speed driving applications

Body Length=108
Shaft Dia.=8, Shaft Length=25

Medium Duty DC Motors - continued

24 Vdc, 63mm Diameter - continued

		308-9782
Nominal voltage		24V
No load characteristics		
Speed	rpm	2100
Power consumption	W	4.8
Current consumption	A	0.2
Nominal characteristics		
Speed	rpm	1500
Torque	mN-m	0.172
Rating power	W	27
Power consumption	W	45
Current consumption	A	1.9
Max. operating temperature	°C	50
Efficiency	%	60

231224

	Mftrs. List No.	Order Code	Price Each 1+	3+	10+
24V	82830010	**308-9782**			

12 and 24 Vdc, 42mm and 63mm Diameter

Crouzet

- For applications demanding high power
- Power supply through 2 input springs
- Motor maximum power: 42 to 255W
- ∅ 42mm: Sintered-bronze bearing
- ∅ 63mm: with 2 ball bearings

Types		308-9939	308-9940	308-9952
Nominal voltage		12V	24V	24V
No load characteristics				
Speed	rpm	4150	4050	3700
Power consumption	W	7.32	7.44	10.8
Current consumption	A	0.61	0.31	0.45
Nominal characteristics				
Speed	rpm	3100	3200	3200
Torque	mN-m	0.1	0.1	0.27
Rating power	W	32.5	33.5	90
Power consumption	W	51	52	120
Current consumption	A	4.25	2.15	5
Max. operating temperature	°C	63	54	50
Efficiency	%	63	64	75
Body Dia.	mm	42	42	63
Body Length	mm	118	118	133
Shaft Dia.	mm	6	6	8
Shaft Length.	mm	25.2	25.2	25

231225

Voltage (V dc)	Dia. (mm)	Mftrs. List No.	Order Code	Price Each 1+	3+	10+
12	42	82850001	**308-9939**			
24	42	82850002	**308-9940**			
24	63	82890001	**308-9952**			

12 Volt dc Servo

PREMOTEC

- Designed for low noise, smooth running and accurate speed applications
- Ironless rotor, low inertia and high starting torque
- Suitable gearboxes also avaliable

Body: L=39.5, Dia.=29.
Shaft=7.5x3.0 dia.

Current @ no load	56mA	Starting torque	30mNmmN-m
Current @ nominal torque	164 to 238mA	Nominal torque	5mNmN-m
Nominal operating voltage	12V dc	Direction or rotation	Reversible
Maximum voltage	15V dc	Operating temperature	-10°C to +60°C-10°C60°C

220487

Mftrs. List No.	Order Code	Price Each 1+	5+	10+	25+	50+
9904-120-18105	**147-875**					

DC Servo Motor

Mclennan

Low Inertia - M66CE Series

The M66CE is a high performance low inertia dc servo motor, providing high output power and offers smooth operation over a wide speed range. The M66CE motor incorporates a skewed ironless rotor thereby ensuring linear speed and torque characteristic combined with rapid acceleration and reversal capabilities.
There is a 17mm long rear shaft of 4mm diameter and a 24mm long front shaft of 6mm diameter. The 2 connecting wires are approximately 235mm long.

Dia. = 66, L (Body) = 64, L (O/A) = 105mm

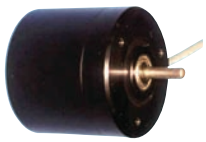
601608

Speed @ rated torque	Rated Torque	Nominal Voltage	Mftrs. List No.	Order Code	Price Each 1+
1800rpm	8 N-cm	12VDC	M66CE-12	**178-4823**●	
2300rpm	12 N-cm	24VDC	M66CE-24	**178-4824**●	

Brushless DC Motor

Mclennan

BLDC 58 Series with Integrated Electronics



- 24 Vdc operation,
- Maximum speed 3650 rpm
- Maximum speed @ rated torque 3000 rpm
- Ball bearings
- 6 wire outputs to provide variable speed control
- Internal over-temperature protection

Dia. = 68, L (Body) = 62.1, L (Spindle) = 25, Dia. (Spindle) 5.989mm

The BLDC 58 is a variable speed 24 Vdc brushless motor with integrated drive electronics providing up to 50 watts continuous output power and a variable speed proportional to a 0-5 V control signal. The unit provides a compact solution to a variety of light industrial applications such as conveyor drives, paper feed and pump drives. Scientific applications include stirring equipment, peristaltic pumps, mixing machines, as well as any variable speed application that requires long maintenance free life and operating speeds from 100 to 3000 rpm. The motor's design incorporates an external rotor and magnet system which provides particularly smooth running, high grade bearings and drive electronics, all of which are housed in an enclosure suitable for use up to IP55 operating conditions. The inclusion of the drive electronics within the motor greatly simplifies the use of the motor as well as reducing overall system cost.

601722

Continuous Output Power	Rated Torque	Mftrs. List No.	Order Code	Price Each 1+
35W	0.11N-m	BLDC58-35L	**178-4853**●	
50W	0.17N-m	BLDC58-50L	**178-4854**●	

6 and 12 V dc - 10mm Diameter

maxon motor

With Plastic Planetary Gearheads

NEW

Motor without Gearbox Fitted

Planetary Gearhead

RE10 Motors
- 0.75W
- 10mm Diameter
- 17mm Length
- Precious metal brushes
- 1.8 x 0.2mm terminals, 6.4mm pitch

GP 10K Planetary Gearheads
- Plastic housing
- Stainless steel output shaft
- 2mm Diameter x 3.9mm long shaft
- Sleeve output bearing

636217

Nominal Voltage /Ratio	Mftrs. List No.	Order Code	Price Each 1+	5+	10+
Motor Without Gearbox					
6V	118386	**190-9094**●			
12V	118391	**190-9096**●			
Planetary Gearhead					
16:1	110309	**190-9088**●			
64:1	110310	**190-9089**●			
256:1	110311	**190-9090**●			
1024:1	110312	**190-9091**●			

Brushless DC Motor

Mclennan

BLDC 48 Series with Integrated Electronics

- 24 Vdc operation,
- 12 Watt output power
- Choice of models providing clockwise or counter clockwise operation
- 4 wire outputs to provide variable speed control
- 3200 rpm @ rated torque

Dia. = 54, L (Body) = 36, L (Spindle) = 17.15mm, Dia. (Spindle) 5.989mm

The BLDC 48 is a variable speed brushless DC motor with integrated drive electronics providing up to 12 watts continuous output power.
The units provides a compact solution to a variety of light industrial applications such as conveyor drives, tensioning mechanisms, paper feed and pump drives. Scientific applications include stirring equipment, peristaltic pumps, mixing machines, as well as any variable speed application that requires long maintenance free life and operating speeds from 100 to 3000 rpm. The motor's design incorporates an external rotor and magnet system which provides particularly smooth running, high grade bearings and drive electronics, all of which are housed in an enclosure suitable for use up to IP55 operating conditions. The inclusion of the drive electronics within the motor greatly simplifies the use of the motor as well as reducing overall system cost.
The motors have internal drive electronics that provides control similar to a conventional dc motor. By reducing the applied voltage the speed and peak torque are reduced. An internal current control circuit automatically limits motor current to a safe level to protect the motor against stall conditions. These 4 wire motors include speed control loop electronics & internal amplifier to provide a complete and accurate velocity control system within the motor. The motor speed is externally controlled by means of a 0-5V control signal.

601716

RoHS ● Compliant ▲ Non-compliant

Direction of Rotation	Mftrs. List No.	Order Code	Price Each 1+
4 Screw fixing	BLDC48-12L-031	**415-8428**	
4 Screw fixing	BLDC48-12L-033	**178-4852**●	
4 Screw fixing	BLDC48-12L-037	**178-4851**●	

6 and 12 V dc, 13mm Diameter

maxon motor

With Planetary Gearheads

Motor without Gearbox fitted
Body: L = 20.5
Diameter = 13
Shaft: L = 6
Diameter = 1.5

Motor

Voltage	Speed(RPM)	Power	Stall Torque(mNm)	Mftrs. List No.	Order Code
6Vdc	11061	1.2W	2.7	203889	176-1299
12Vdc	13422	1.2W	3.1	203892	176-1300

Planetary Gearhead (Metal Gears)

Motor Speed with Gearhead fitted (RPM) 6V	12V	Gearhead Reduction Radio	Torque(Nm) Constant/Peak		Length with Motor Fitted	Mftrs. List No.	Order Code
650165	789	17:1		0.3	39.3	110314	190-9093
165	200	67:1	0.3	0.45	43.1	110315	176-1301
40	48	275:1	0.3	0.45	47.0	110316	176-1302
9.8	11.9	1119:1	0.35	0.53	50.8	110317	176-1303

242092

	Order Code	Price Each 1+	5+	10+
Motor Without Gearbox				
6VDC	**176-1299**●			
12VDC	**176-1300**●			
Planetary Gearhead				
17:1	NEW **190-9093**●			
67:1	**176-1301**●			
275:1	**176-1302**●			
1119:1	**176-1303**●			

6 and 12 V dc, 16mm Diameter

maxon motor

With Planetary Gearheads

Motor without Gearbox Fitted
Body: L=25.4, Dia=16
Shaft: L=6.1, Dia=1.5

Planetary Gearhead
Body: Dia=16
Shaft: L=8, Dia=3

Motor

Voltage	Speed(RPM)	Power	Stall Torque(mNm)	Mftrs. List No.	Order Code
6V	7533	2W	0.0036	110044	176-1270
12V	7200	2W	0.00312	110048	176-1271

Planetary Gearhead (Plastic Gears)

Motor Speed with Gearhead fitted (RPM) 6V	12V	Gearhead Reduction Radio	Torque(Nm) Constant/Peak		Length with Motor Fitted	Mftrs. List No.	Order Code
392	379	19:1	0.15	0.225	44.5	110322	176-1272
89	85	84:1	0.2	0.3	48.1	110323	176-1273
20	19	370:1	0.25	0.375	51.7	110324	176-1275
4.6	4.4	1621:1	0.3	0.45	55.3	110325	176-1276

204328

	Order Code	Price Each 1+	5+	10+
Motor Without Gearbox				
6V	**176-1270**●			
12V	**176-1271**●			
Planetary Gearhead				
19:1	**176-1272**●			
84:1	**176-1273**●			
370:1	**176-1275**●			
1621:1	**176-1276**●			

6, 12 and 24 V dc, 22mm Diameter

maxon motor

With Spur and Planetary Gearheads

Motor without Gearbox Fitted
Body : L = 31.9, Dia = 22.
Shaft : L = 6.5, Dia = 2

Spur Gearhead
Body : Dia =24
Shaft : L = 6.2, Dia = 3

Planetary Gearhead
Body : Dia = 22
Shaft : L = 9.1, Dia = 4

Motor

Voltage	Speed (RPM)	Power	Stall Torque(Nm)	Mftrs. List No.	Order Code
9V	6646	5W	0.0154	110119	176-1277
18V	6646	5W	0.01506	110124	176-1278
36V	6533	5W	0.0143	110127	176-1279

Spur Gearhead

Motor Speed with Gearhead Fitted (RPM) 6V	12V	24V	Gearhead Reduction Ratio	Torque (mNm) Constant/Peak		Length with Motor Fitted	Mftrs. List No.	Order Code
923	923	907	7.2:1	100	150	45.6	110480	176-1284
335	335	330	20:1	100	150	49.3	110481	176-1285
205	205	202	32:1	100	150	49.3	110482	176-1287
103	103	101	64:1	100	150	49.3	110483	176-1288
51	51	50	131:1	100	150	49.3	110484	176-1289
20	20	20	325:1	100	150	53.1	110486	176-1290
Planetary Gearhead (High Torque)								
364	364	340	19:1	500	800	64.1	110338	176-1280
79	79	77	84:1	800	1200	70.9	110339	176-1281
18	18	17	370:1	1000	1600	77.7	110340	176-1282
4.1	4.1	4	1621:1	1000	1600	84.5	110341	176-1283

229309

	Order Code	Price Each 1+	5+	10+	+	+	+
Motor Without Gearbox							
9V	**176-1277**●						
18V	**176-1278**●						
36V	**176-1279**●						
Spur Gearhead							
7.2:1	**176-1284**●						
20:1	**176-1285**●						
32:1	**176-1287**●						
64:1	**176-1288**●						
131:1	**176-1289**●						
325:1	**176-1290**●						
Planetary Gearhead (High Torque)							
19:1	**176-1280**●						
84:1	**176-1281**●						
370:1	**176-1282**●						
1621:1	**176-1283**●						

24 V dc

maxon motor

26mm Diameter

Motor without Gearbox
Body: L = 44.7
Diameter = 26
Shaft: L = 10.3
Diameter = 3

Motor

Voltage	Speed(RPM)	Power	Stall Torque(mNm)	Mftrs. List No.	Order Code
24Vdc	8406	11W	81.5	121394	176-1306

242093

	Order Code	Price Each 1+	5+	10+
Motor Without Gearbox				
24VDC	**176-1306**●			

12 and 24 V dc, 32mm Diameter

maxon motor

A-max 32 Motors & Planetary Gearheads

Motor without Gearhead fitted
Body: L = 60, Dia = 32.
Shaft: L = 9.5, Dia = 4w

Planetary Gearhead (Metal Gears)
Body: Dia = 32
Shaft: L = 17, Dia = 6

Motor

Voltage	Speed (RPM)	Power	Stall Torque(mNm)	Mftrs. List No.	Order Code
12V	4450	15W	0.00904	242467	176-1291
24V	5780	15W	0.120	242472	176-1292

Planetary Gearhaed (Metal Gears)

Motor Speed with Gearhead Fitted (RPM) 12V	24V	Gearhead Reduction Ratio	Torque (Nm) Constant	Peak	Length with Motor Fitted	Mftrs. List No.	Order Code
927	1204	4.8:1	0.75	1.13	86.5	166156	176-1293
249	324	18:1	2.25	3.38	96.4	166159	176-1294
67	87	66:1	4.5	6.75	103.1	166165	176-1295
40	52	111:1	4.5	6.75	103.1	166169	176-1296
18	23	246:1	4.5	6.75	109.8	166174	176-1297

204327

	Order Code	Price Each 1+	5+	10+
Motor Without Gearbox				
12V	**176-1291**●			
24V	**176-1292**●			
Planetary Gearhead (Metal Gears)				
4.8:1	**176-1293**●			
18:1	**176-1294**●			
66:1	**176-1295**●			
111:1	**176-1296**●			
246:1	**176-1297**●			

12 and 24 V dc, 32mm Diameter

maxon motor

With Through Shaft

- Dual shaft allows gearhead and encoder to be fitted
- Supplied with pinion for 32mm gearboxes **see below**
- Recommended Adhesive is Loctite 603 - Order Codes 137-0154 (50ml), 702-4071 (50ml)

Body: L = 61.5 Diameter = 32 | Shaft: L = 9.8 Diameter = 4 | Rear Shaft: L = 15.6 Diameter = 4

Motors

Voltage	Speed(RPM)	Power	Stall Torque(mNm)	Mftrs. List No.	Order Code
12Vdc	4590	15W	96.8	243066	176-1307
24Vdc	5860	15W	129	240987	176-1308

Planetary Gearhaed (Metal Gears)

Motor Speed with Gearhead Fitted (RPM) 12V	24V	Gearhead Reduction Ratio	Torque (Nm) Constant	Peak	Length with Motor Fitted	Mftrs. List No.	Order Code
927	1204	4.8:1	0.75	1.13	86.5	166156	176-1293
249	324	18:1	2.25	3.38	96.4	166159	176-1294
67	87	66:1	4.5	6.75	103.1	166165	176-1295
40	52	111:1	4.5	6.75	103.1	166169	176-1296
18	23	246:1	4.5	6.75	109.8	166174	176-1297

242094

Motors	Order Code	Price Each 1+	5+	10+
12VDC	**176-1307**●			
24VDC	**176-1308**●			
Planetary Gearhead (Metal Gears)				
4.8:1	**176-1293**●			
18:1	**176-1294**●			
66:1	**176-1295**●			
111:1	**176-1296**●			
246:1	**176-1297**●			

24 V dc, 36mm Diameter

maxon motor

With Through Shaft

- Dual shaft allows gearhead and encoder to be fitted
- Motors can be used with 42mm gearboxes using adapter kit

Body: L = 71.2 Diameter = 36 | Shaft: L = 20 Diameter = 6 | Rear Shaft: L = 15.6 Diameter = 4

Motor

Voltage	Speed(RPM)	Power	Stall Torque(mNm)	Mftrs. List No.	Order Code
24Vdc	6210	70W	783	137576	176-1309

242095

Motor	Order Code	Price Each 1+	5+	10+
24VDC	**176-1309**●			

24 V dc, 40mm Diameter

maxon motor

With Through Shaft

- Dual shaft allows gearhead and encoder to be fitted
- Motors can be used with 42mm gearboxes using adapter kit

Body: L = 71 Diameter = 40 | Shaft: L = 20.3 Diameter = 6 | Rear Shaft: L = 15.6 Diameter = 4

Motor

Voltage	Speed(RPM)	Power	Stall Torque(mNm)	Mftrs. List No.	Order Code
24Vdc	7580	150W	2290	148867	176-1310

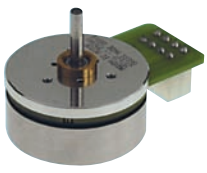
242096

Motor	Order Code	Price Each 1+	5+	10+
24VDC	**176-1310**●			

Flat Brushless Motor - 24 Volt

maxon motor

45mm and 90mm Diameter - With Hall Sensors



- Flat and short design
- Highly dynamic
- Unsurpassed service life
- Maintenance-free
- Small magnetic cogging
- Excellent volume/performance ratio
- Recommended Motor Controller 170-7742
- Connecting cable 170--7743

535237

Description	Mftrs. List No.	Order Code	Price Each 1+
50W Motor	251601	**170-7741**●	
90W Motor	323772	NEW **190-9092**●	
Accessories			
Connecting Cable, 1000mm	278584	**170-7743**●	

Encoder Unit

maxon motor

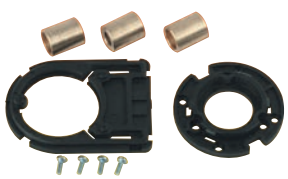
- Encoder unit for use with maxon servo amplifiers
- Fits Maxon motors with rear shafts
- Built in line driver

242098

Mftrs. List No.	Order Code	Price Each 1+	5+
110518	**176-1322**●		

Encoder Mounting Kit

maxon motor



- Enables encoder 4205136 to be fitted to various motors
- Kit includes sleeves for 2,4 and 6 mm shaft diameters

242099

Mftrs. List No.	Order Code	Price Each 1+	5+	10+	+
MMUK02043	**176-1321**●				

12 and 24V dc, 32mm Diameter

Crouzet

With Ovoid Gearheads

Motor without Gearhead
L=44.6, ∅=32
Axe L=12, ∅=2

Motor with Gearhead
L=61.3, W=54.2,
H=65.9,
Shaft L=3.2, dia =8
fixing centers 47.6, ∅ 3.2

RoHS ● Compliant ▲ Non-compliant

- Motor available with or without fitted Gearbox
- Sintered bronze bearings lubricated for life
- High performance plastic gears
- Fitted with interference suppresion

Voltage	Motor Speed without Gearhead RPM	Torque (Nm)	Mftrs. List No.	Order Code
12V	5000	0.0077	82860003	599-803
24V	5000	0.0077	82860004	599-815

204340

Output Speed (RPM)	Voltage (V dc)	Mftrs. List No.	Order Code	Price Each 1+	10+	25+
Motor Without Gearhead						
50005000	1212V	82860003	**599-803**			
50005000	2424V	82860004	**599-815**			

Motor with Fitted Gearhead				Price Each 1+	3+	10+
430430	12	82861006.	**311-5525**			
108108	12	82861009.	**311-5550**			
5454	12	82861010.	**311-5562**			
3.63.6	12	82861014.	**311-5604**			
Motor with Fitted Gearhead						
430430	24	82861015.	**311-5616**			
108108	24	82861018.	**311-5641**			
2222	24	82861020.	**311-5665**			
1111	24	82861021.	**311-5677**			
8.68.6	24	82861022.	**311-5689**			
3.63.6	24	82861023.	**311-5690**			

DC Motors Geared

Geared DC Instrument Motors

1271 Series

- Suitable to a wide range of applications
- Small sized unit
- The integral iron core motor provides smooth operation
- Has bi-directional variable speed capability
- Gearhead utilises a multi-stage metal spur gear train
- Working torque rated up to 0.2Nm
- Suitable for mounting in any attitude
- Reliable over a wide ambient temperature range
- Equipped with integral VDR electrical suppression

Overall Length	Gear Ratio	Nominal Voltage	No-load Speed	Rated Speed	Rated Torque (Ncm)	Rated Current (mA)	Mass (grams)	Order Code
51.5	21:1	12	125	80	2.5	50	55	399-9919
56.5	43:1	12	60	40	3.8	50	57	399-9920
56.5	90:1	12	30	18	8.0	50	58	399-9932
61.5	188:1	12	14	9	14	50	59	400-0961

Body diameter	27 mm	Max. Axial shaft load	5 N
Max. No load current	20 mA	Ambient temperature range	-20°C to +60°C
Max. Radial shaft load	10 N		

250201

Mftrs. List No.	Order Code	Price Each 1+	5+	10+
1271-12-21	**399-9919**			
1271-12-43	**399-9920**			
1271-12-90	**399-9932**			
1271-12-188	**400-0961**			

DC Geared Motor

E192 and P205 Series

E192 Series

P205 Series

The gear motors, the E192 and P205, are suitable for medium and high torque miniature power-transmission applications.
The E192 and P205 series feature low-backlash precision grade planetary gearboxes with dual bearing output shaft support for maximum life and load-carrying capacity.
The E192 returns 300 N-cm maximum torque and the larger P205 is specified at 900 N-cm.
Both series offer a range of gear ratios from 3.66:1 to 625:1.
The E192 has a nominal diameter of 40.5mm and lengths from 86 to 107mm while the P205 has a 42mm gearbox housing and lengths from 120.5 to 158mm.
Brushed DC drive motors fitted with interference-suppression electronics are available in 24V DC as standard.
They are equipped with rear-output shaft as an optional to mount an encoder or position sensor.
Motor termination is via convenient spade terminals.

601637

Rated Torque	Speed @ rated torque	Ratio	Mftrs. List No.	Order Code	Price Each 1+
E192 Series					
0.2N-m	575rpm	5:1	E192-24-5	**178-4836**●	
0.9N-m	118rpm	25:1	E192-24-25	**178-4837**●	
1.6N-m	60rpm	49.29:1	E192-24-49	**178-4838**●	
3N-m	15rpm	246.48:1	E192-24-246	**178-4839**●	
3N-m	9rpm	458.33:1	E192-24-458	**178-4840**●	
P205 Series					
0.2N-m	470rpm	6.25:1	P205-24-6	**178-4841**●	
2.5N-m	113rpm	25:1	P205-24-25	**178-4842**●	
7N-m	32.4rpm	100:1	P205-24-100	**178-4843**●	
9N-m	14.9rpm	244.14:1	P205-24-244	**178-4844**●	
9N-m	6.3rpm	625:1	P205-24-625	**178-4846**●	

DC Servo Amplifier Module

1A Output

H = 23, W = 95, D = 85mm

The **MSE40-1** DC servo amplifier is ideally suited to instrumentation applications that require accurate velocity or positional control using analogue control techniques. The unit is a circuit board module designed for incorporation in customers control cabinets. The amplifier provides a maximum 1 amp output to the servo motor. The
The MSE40-1 provides bi-directional control of the servo motor and incorporates a current limit circuit to protect the motor and amplifier against stall conditions. The
unit utilises an operational amplifier to control the power stage together with both voltage and current feedback circuitry. On-board trimmers enable the amplifier gain and current feedback (IFB) to be adjusted to ensure stable operation in both positional and velocity control applications.

601641

Motor Current Output (Max.)	Supply Voltage	Mftrs. List No.	Order Code	Price Each 1+
1A	±20VDC to ±24VDC	MSE40-1	**178-4847**●	

Synchronous Motor

Turntable - 250 rpm

- Versions available with or without flange mounting
- Nominal voltage 110V ac
- Supply frequency 50 Hz
- Speed at 50 Hz 250 rpm
- Maximum axial force 1.5 N
- Ambiant temperature range from -5°C to +70°C

Body - Dia. = 51, H = 23.9mm.
Mounting Holes - Dia. 3.7, W = 60.2mm

The 31813 series low speed synchronous motor is a development of the standard industrial series specifically designed for use in high quality record decks that utilise the belt drive principle. Particular attention has been given to the magnetisation of the 24 pole rotor to optimise smooth running. This, together with the high accuracy of stator pole placement minimises torque ripple and provides low audible noise. The motor which is designed for mounting horizontally with output shaft vertically up is provided with an increased shaft length and a 3 mm diameter to aid the fitting of the drive pulley. When fitting the drive pulley the shaft rear end should be supported to ensure that the axial load limitation is not exceeded. The windings have been specifically designed to facilitate dual voltage operation, a 6.8K Ohm resistor being used in series when operation from a 220V ac supply is required.

601727

Type Torque	Mftrs. List No.	Order Code	Price Each 1+
With Flange	9904 111 31813	**178-4855**●	
Cropped - No Flange	9904 111 31813 (CROP)	**178-4856**●	

DC Geared Motor

12 Volt dc Geared

- High quality, long life 12Vdc motors
- Integrated gearboxes
- Permanent magnet stator
- Flat commutator and built-in spark suppressor
- Chemical resistant polyacetal housing

Body: L = 65.5, Dia = 38.6, Flange = 39 x 39
Fixing centres = 32 32 2.7 dia., Shaft = 8.5 4.0 dia.

Current @ no load	45mA	Maximum voltage	18V dc
Current @ nominal torque	185mA	Direction of rotation	Reversible
Nominal operating voltage	12V dc	Operating temperature	-20°C to +60°C

(Shaft Speed RPM)	Reduction Ratio	Torque (Nm)N-m	Mftrs. List No.	Order Code
60	50:1	0.125	9904-120-52605	147-873
330	9:1	0.025	9904-120-52602	147-874

204358

Order Code	Price Each 1+	5+	25+	100+	250+
147-873					
147-874					

DC Motors Geared - continued

12 and 24V dc - 40mm Diameter

maxon motor

Spur Gearheads

- High quality reversible motor
- Ironless rotor gives excellent linear speed-torque performance
- Precious metal brush commutation guarantees low contact resistance, low starting voltage, low electrical interference and high efficiency
- Matching spur gearheads have steel gears on bronze shafts
- Motor (Without Gearhead) fitted with bracket and pinion
- Flat on output drive shaft for easy load coupling

Motor with Gearhead fitted
Body: L = 68 (18:1 and 30:1 gearbox fitted), 70 (60:1 and 100:1), 73 (200:1), 75 (500:1 and 900:1)
Dia. = 40, Flange = 38 38,
Fixing centres = 30.5 30.5 2.6
Shaft Dia. = 15 6 dia.

Voltage	Motor Speed without Gearhead RPM	Torque(Nm) Constant/Peak	Mftrs. List No.	Order Code
12V	4090	0.01366/0.0319	2140.934-61.112-050	176-1260
24V	4110	0.013/0.03	2140.937-61.112-050	176-1261

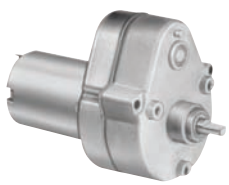
Motor Speed with Gearhead Fitted (RPM) 12V	24V	Gearhead Reduction Ratio	Torque(Nm) Constant/Peak	Mftrs. List No.	Order Code
220	230	18:1	0.2/0.6	110453	176-1263
135	140	30:1	0.2/0.6	110454	176-1264
65	70	60:1	0.3/0.9	110455	176-1265
40	42	100:1	0.6/1.8	110456	176-1266
20	21	200:1	0.6/1.8	110457	176-1267
8	8	500:1	0.6/1.8	110458	176-1268
4	4	900:1	0.6/1.8	110459	176-1269

204317

Voltage (dc)	Order Code	Price Each 1+	10+	20+
Motor - Without Gearhead				
12V	**176-1260●**			
24V	**176-1261●**			
Gearhead				
18:1	**176-1263●**			
30:1	**176-1264●**			
60:1	**176-1265●**			
100:1	**176-1266●**			
200:1	**176-1267●**			
500:1	**176-1268●**			
900:1	**176-1269●**			

12 and 24V dc

Crouzet



- Speed range : 2.9 to 108 rpm
- Mechanical resistance gearhead : 0.5 to 2Nm, high performance plastic gears
- Motor maximum power : 3.9W, fitted with interference suppression

231239

Speed (rpm)	Mftrs. List No.	Order Code	Price Each 1+	3+	10+
12 V Motor with Gearhead					
108	82869001	**308-9370**			
27	82869007	**308-9393**			
2.9	82869010	**308-9423**			
24V Motor with Gearhead					
54	82869012	**308-9447**			
27	82869013	**308-9459**			
7.2	82869015	**308-9472**			
2.9	82869016	**308-9484**			

12 and 24V dc Geared Motor

Crouzet

- High quality full metal gearhead
- Basic speed range - 7.3 to 616 rpm
- Mechanical resistance of 5Nm for longer life
- 33W maximum motor power

627188

Speed (RPM)	Ratio	Mftrs. List No.	Order Code	Price Each 1+	3+	10+
12 V Motor with Gearhead						
266	6.75	80835012	**308-9861**			
24 V Motor with Gearhead						
147	12.25	80835004	**308-9812**			
73	24.5	80835002	**308-9794**			
47	38.28	80835003	**308-9800**			
14.7	122.5	80835006	**308-9836**			
7.4	245	80835005	**308-9824**			

12 or 24V dc Geared Motor

Crouzet

- Speed range from 1.5 to 441 rpm
- Mechanical resistance gearhead : 0.5Nm, sintered metal gears
- Fitted with interference suppression
- Output Power = 3.9 watt

441	82862001	82862004
141	82862002	82862005
45	82862003	82862006
14	82862201	82862204
5	82862202	82862205
1.5	82862203	82862206

231250

Speed (RPM)	Mftrs. List No.	Order Code	Price Each 1+	3+	10+
12 V					
441	82862001	**307-9521**			
141	82862002	**307-9533**			
45	82862003	**307-9545**			
24 V					
441	82862004	**307-9557**			
141	82862005	**307-9569**			
45	82862006	**307-9570**			
14	82862204	**307-9612**			
1.5	82862206	**308-7335**			

DC Motor Controllers

ESCON Servo Controllers

maxon motor

NEW

The ESCON servo controllers are small-sized, powerful 4-quadrant PWM servo controller for the highly efficient control of permanent magnet-activated DC motors. The featured operating modes - speed control (closed loop), speed control (open loop), and current control - meet the highest requirements. The ESCON servo controllers are designed being commanded by an analog set value and features extensive analog and digital I/O functionality and are being configured via USB interface using the graphical user interface «ESCON Studio» for Windows PCs.

Operating voltage	10 to 36VDC	Continuous output current	2A
Maximum output voltage	0.98 x Vcc	PWM frequency	53.6kHz
Maximum output current	4A	Maximum efficiency	95%

663222

Description	Mftrs. List No.	Order Code	Price Each 1+	+	+
Controller	403112	**213-3061●**			
Accessories					
Connector Set	404404	**213-3062●**			
Analogue I/O Cable	403964	**213-3063●**			
DC Motor Cable	403962	**213-3065●**			
Digital I/O Cable	403965	**213-3066●**			
Encoder Cable	275934	**213-3067●**			
Power Cable	403957	**213-3068●**			
USB Cable	403968	**213-3069●**			

RoHS ● Compliant ▲ Non-compliant

Motor Control Amplifier

Brushless DC Motors

H = 95, W = 75, D = 24mm

- Digital speed control
- Maximum speed - 120000rpm (2 Pole motor)
- Operates as speed, current or open loop speed control
- Brake, direction and disable input
- Status indicator - red and green LED
- Adjustable maximum current limit
- Gain can be adjusted in two stages
- Adjustable speed ramp
- Protection against heat overload
- Current limit for blocked motor

The DEC 50/5 1-Q-EC, 1-Quadrant amplifier is designed for controlling EC motors with Hall sensors with a maximum output of 250 watts. This speed controller, open loop speed controller, current controller is a perfect match for the EC 45 Flat Motor - 170-7741.

535238

Mftrs. List No.	Order Code	Price Each 1+
230572	**170-7742**	

Euroamp 60 - DC Servo Amplifier Module

2A Output

H = 100, W = 60, D = 220mm

The **MSE 421** provides a continuous output power rating up to 60 watts with precise servo control of dc servo motors. Operating from a single rail supply which enables battery operation if required, the unit utilises a MOSFET based linear output stage with virtually zero electrical emissions. The motor operation benefits from the improved smoothness and prolonged life. The unit is suitable for low inductance motors without the need for an additional choke.

601694

Motor Current Output (Max.)	Supply Voltage	Mftrs. List No.	Order Code	Price Each 1+
2A	10VDC to 30VDC	MSE421	**178-4848**	

DC Motor Drives

The 507 and 508 series drives are ideal for speed or torque control of permanent magnet or shunt wound DC motors from single-phase supply.
The 512C is ideal for single motor or multi-drive low power applications. Designed for use on single phase supplies, the 512C is suitable for controlling permanent magnet or wound field DC motors in speed or torque control.

507 and **508** Models
- Compact design with minimal footprint construction
- IP20 protected covers
- DIN Rail mounting
- Selectable 110V ac or 230V ac supply
- Selectable Taco or Armature voltage feedback

512 Model
- Fully isolated control circuits
- Selectable 110V ac to 415V ac supply
- Multi input speed and current set points
- Zero speed and health outputs
- Extremely linear control loops

Drive Model	Enclosure	O/P Rating (A)	Isolation	Drive Order Code	DC Motor Ref.
507	IP00	6	Nil	650-390	A & B
508	IP00	12	Nil	650-407	C
507/EE1	IP44	6	Nil	650-468	A & B
512C8	IP00	8	Isolated	650-419	A, B & C

230 volt supply required for 180 volt motors.
Controllers should be matched to motor amps within their minimum/maximum ratings, also ensure fuse loadings are compatible

221340

Output (A)	Mftrs. List No.	Order Code	Price Each 1+	5+	10+
6A	507	**650-390**			
12A	508	**650-407**			
6A	507/EE1	**650-468**			
8A	512C8	**650-419**			

Medium Duty AC Motors

Synchronous Motor

Turntable - 250 rpm

- Versions available with or without flange mounting
- Nominal voltage 110V ac
- Supply frequency 50 Hz
- Speed at 50 Hz 250 rpm
- Maximum axial force 1.5 N
- Ambiant temperature range from -5°C to +70°C

Body - Dia. = 51, H = 23.9mm.
Mounting Holes - Dia. 3.7, W = 60.2mm

The 31813 series low speed synchronous motor is a development of the standard industrial series specifically designed for use in high quality record decks that utilise the belt drive principle. Particular attention has been given to the magnetisation of the 24 pole rotor to optimise smooth running. This, together with the high accuracy of stator pole placement minimises torque ripple and provides low audible noise. The motor which is designed for mounting horizontally with output shaft vertically up is provided with an increased shaft length and a 3 mm diameter to aid the fitting of the drive pulley. When fitting the drive pulley the shaft rear end should be supported to ensure that the axial load limitation is not exceeded. The windings have been specifically designed to facilitate dual voltage operation, a 6.8K Ohm resistor being used in series when operation from a 220V ac supply is required.

601727

Type Torque	Mftrs. List No.	Order Code	Price Each 1+
With Flange	9904 111 31813	**178-4855**	
Cropped - No Flange	9904 111 31813 (CROP)	**178-4856**	

240V ac Synchronous

- Suitable for ac servo systems where instant start/stop and reverse is required
- Requires 0.1µF 350V ac capacitor for operation (not supplied)
- Available with or without mounting ears
- Gearboxes also available

Body: L=25, Dia.=51. Shaft=8.2x3.0 dia. Fix. Cent.=60.2x3.5 dia. (if mounting ears fitted)

Current	16mA	Torque	0.02mN-m
Power consumption	3.5W	Required phasing capacitor	0.1µF @ 330V ac
Operating voltage	240V ac -15%+10%	Operating temperature	-20°C to +60°C

220488

Description	Speed (RPM)	Mftrs. List No.	Order Code	Price Each 1+	5+	25+
With mounting ears	250	9904-111-31104	**147-876**			
Without mounting ears	250	9904-111-31104-2108	**147-877**			

Synchronous Geared/Gearhead Motors,

One Direction

- Constant speed according to the power supply frequency
- Wide speed range
- Highly reliable control of rotational direction (> 10^7 operations)
- Rotor with Permanent magnet

231289

RPM	Mftrs. List No.	Order Code	Price Each 1+	3+	10+
Anti-clockwise Rotation					
30	82344738	**309-1260**			
15	82344741	**309-1296**			
5	82344756	**309-1399**			
1	82344771	**309-4200**			
Clockwise Rotation					
4	82344738	**309-1405**			
1	82344778	**309-4250**			
0.5	82344779..	**313-4982**			

Gearboxes

High Precision Instrument Gearhead

- Suitable for use with the dc servo, ac synchronous and four phase stepper motors, 147-878, 147-879.
- Based on the international ovoid standard
- Internal components provide high efficiency and reliable operation in applications demanding long life

Body: H = 63, W = 50, D = 16.5,
Shaft = 10 4 dia

When used with synchronous and stepper motors, 147-878, 147-879, the motors must be ordered without mounting ears fitted. Supplied with full instructions. The motor pinion may be fitted to the motor using Loctite Grade 601 (Order Code 146-317)

Gearboxes - continued

High Precision Instrument Gearhead - continued

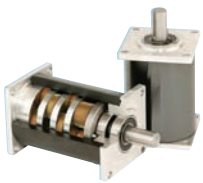
Ratio	dc Servo Speed RPM	Sync Motor Speed	Stepper Motor Step Angle	Order Code
25:3	360	30rpm	0.9°	147-880
25:2	250	20rpm	0.6°	147-881
25:1	120	10rpm	0.3°	147-882
50:1	60	5rpm	0.15°	147-883
125:1	25	2rpm	0.06°	147-884
250:1	12	1rpm	0.03°	147-885
1250:1	2.5	0.2rpm	0.36°	147-886
15000:1	0.2	0.016rpm	0.03°	147-887

231951

Ratio	Mftrs. List No.	Order Code	Price Each 1+	10+	25+
25:3	P5-G04L82	**147-880**			
25:2	P5-G06L82	**147-881**			
25:1	P5-G11L82	**147-882**			
50:1	P5-G17L82	**147-883**			
125:1	P5-G23L82	**147-884**			
250:1	P5-G27L82	**147-885**			
1250:1	P5-G41L82	**147-886**			
15000:1	P5-G62L82	**147-887**			

Planetary Gearheads

Industrial - IP57 Series



The IP57 gear box is designed to provide long life in industrial automation, industrial, scientific and process control applications that require repetitive cycling featuring high dynamics, accurate velocity or positional control. Advanced manufacturing techniques, combined with a design focused on the needs of state of the art motion control has resulted in a combination of optimised performance characteristics combined with economic prices.

H = 57.2, W = 57.2, Diameter = 66.68mm

- Planetary construction for high torque and compact dimensions
- Supplied complete with 6.35mm pinion
- Suitable for use with either servo or stepper motors
- Stainless steel output shaft
- Plastic body cover

601277

Body Depth (mm)	Mftrs. List No.	Order Code	Price Each 1+
54	IP57-M01-5:1	**178-4794●**	
68	IP57-M01-10:1	**178-4795●**	
80	IP57-M01-50:1	**178-4796●**	
Mounting Kits			
400MAX00001	FITTING KIT 1 - 5:1	**178-4797●**	
400MAX00002	FITTING KIT 2 -10:1	**178-4798●**	
400MAX00003	FITTING KIT 3 -25:1	**178-4799●**	

High Precision Gearbox

With Spur Gear - Series 2038

- Supplied complete with 2mm & 3mm pinions
- Stainless steel output shaft
- Plastic body cover

Body: H = 38, W = 38, Shaft = 6mm dia.

601271

Body Depth (mm)	Mftrs. List No.	Order Code	Price Each 1+
14.55	2038-6:1	**178-4790●**	
17.4	2038-30:1	**178-4792●**	
20.25	2038-100:1	**178-4793●**	

Linear Actuators

Linear Actuators - Digital

48mm Stroke Leadscrew

The actuators are based on 4 phase permanent magnet stepper motor technology and utilise a rotor with an internal thread to provide linear motion via a leadscrew.
The leadscrew may be attached to the driven mechanism. When the leadscrew is prevented from rotating the operation of the motor imparts linear motion to the screw. The maximum travel of the mechanism is 48 mm

601569

Nominal Voltage	Maximum Force	Mftrs. List No.	Order Code	Price Each 1+
12V	8.9N-m	26DBM20B2U-L	**178-4815●**	
5V	13.3N-m	26DBM10B1U-L	**178-4816●**	
12V	28N-m	35DBM10B2U-L	**178-4817●**	

Linear Actuators


L28 Series


L41 Series


L59 Series

- Suitable for precision linear axes
- The combination of high torque stepper motor with high pitch spindle gives high speed, high thrust and tractive forces
- Higher service lifetime have been achieved

NEW

Thrust (N)	Speed (mm/sec)	Resolution (mm/step)	Current/ winding (A)	Dimensions (mm) W	L	Mftrs. List No.	Order Code
30	100	0.025	0.67	28	31.5	L2818S0604-T5X5	196-2017
60	140	0.025	0.67	28	50.5	L2818L0604-T5X5	196-2018
120	40	0.01	1.4	42.3	31	L4118S1404-T6X2	196-2019
80	100	0.025	1.4	42.3	31	L4118S1404-T5X5	196-2020
300	80	0.01	1.8	42.3	49	L4118L1804-T6X2	196-2021
220	200	0.025	1.8	42.3	49	L4118L1804-T5X5	196-2022
1000	25	0.01	2.1	56.4	76	L5918L3008-T10X2	196-2023

638878

Thrust (N)	Mftrs. List No.	Order Code	Price Each 1+	5+	10+	25+
30	L2818S0604-T5X5	**196-2017●**				
60	L2818L0604-T5X5	**196-2018●**				
120	L4118S1404-T6X2	**196-2019●**				
80	L4118S1404-T5X5	**196-2020●**				
300	L4118L1804-T6X2	**196-2021●**				
220	L4118L1804-T5X5	**196-2022●**				
1000	L5918L3008-T10X2	**196-2023●**				

Anti-rotation Linear Actuators


L28 Series


L41 Series


L59 Series

- The combination of high torque stepper motor with high pitch spindle gives high speed, high thrust and tractive forces
- Higher service lifetime have been achieved
- The rotary movement of the stepper motor can be directly converted into a linear movement
- These motors can also replace the standard motors and linear actuators in the size 42 mm

NEW

Thrust (N)	Speed (mm/sec)	Resolution (mm/step)	Current/ winding (A)	Dimensions (mm) W	L	Mftrs. List No.	Order Code
30	100	0.025	0.67	28	50	L2818L0604-T5X5-A50	196-2025
120	40	0.01	1.4	42.3	25	L4118S1404-T6X2-A25	196-2026
80	100	0.025	1.4	42.3	25	L4118S1404-T5X5-A25	196-2027
300	80	0.01	1.8	42.3	50	L4118L1804-T6X2-A50	196-2028
220	200	0.025	1.8	42.3	50	L4118L1804-T5X5-A50	196-2029
1000	25	0.01	1.48	56.4	50	L5918L3008-T10X2-A50	196-2030

638879

Thrust (N)	Mftrs. List No.	Order Code	Price Each 1+	5+	10+	25+
30	L2818L0604-T5X5-A50	**196-2025●**				
120	L4118S1404-T6X2-A25	**196-2026●**				
80	L4118S1404-T5X5-A25	**196-2027●**				
300	L4118L1804-T6X2-A50	**196-2028●**				
220	L4118L1804-T5X5-A50	**196-2029●**				
1000	L5918L3008-T10X2-A50	**196-2030●**				

Threaded Spindles

- Threaded spindles for all linear actuators and linear positioning drives
- Standard tolerance +3mm
- Max. accuracy according to DIN ISO 2768-1 (1991-06)
- End matching: T6x1, T6x2 with 4 mm, T5x5 with 3 mm and T10x2 with 8 mm diameter

NEW

Length	Pitch	Dimensions (mm) Outside dia.	Core dia.	Mftrs. List No.	Order Code
200 mm	2	6	5	ZST6-2-200-1	196-2031
300 mm	2	6	5	ZST6-2-300-1	196-2032
200 mm	5	5.4	3.6	ZST5-5-200-1	196-2033
300 mm	5	5.4	3.6	ZST5-5-300-1	196-2034
200 mm	2	9.7	8.2	ZST10-2-200-1	196-2035
300 mm	2	9.7	8.2	ZST10-2-300-1	196-2037

638880

Length	Mftrs. List No.	Order Code	Price Each 1+	5+	10+	25+
200 mm	ZST6-2-200-1	196-2031●				
300 mm	ZST6-2-300-1	196-2032●				
200 mm	ZST5-5-200-1	196-2033●				
300 mm	ZST5-5-300-1	196-2034●				
200 mm	ZST10-2-200-1	196-2035●				
300 mm	ZST10-2-300-1	196-2037●				

Linear Positioning Drives

Nanotec

NEW

LSNUT-T6X2-F

Body: H= 42.3mm, W= 42.3mm, D= 31mm
Shaft: 75mm x 4mm (196-2038), 150mm x 4mm (196-2039)

- Stroke-independent movement to any position
- Stroke is dependent on the available spindle length
- Replacement for hydraulic and pneumatic cylinders with considerably higher flexibility
- Threaded bushings are made of polyetherketone high-performance plastic

Operating temperature	-10°C to +50°C	Holding torque	0.2N-m
Operating voltage	2.8 V	Detent torque	0.0059N-m
Current/phase	1.4A	Step angle	1.8°
Resistance/phase	2ohm	Step accuracy	±5%
Inductance/phase	3.6mH		

638866

Mftrs. List No.	Order Code	Price Each 1+	5+	10+	25+
LS4118S1404-T6X2-75	196-2038●				
LS4118S1404-T6X2-150	196-2039●				
LSNUT-T6X2-F	196-2040●				

Stepper Motors

Stepper Motor Frame Size 23

SANYO DENKI

Bipolar Winding - 0.9° Step Angle

H = 60, W = 60mm

NEW

With optimum magnetic circuit design the torque of these motors is improved over conventional 0.9° stepper motors. The NEMA size 23 mounting enables these motors to easily replace any size 23 (56mm) motors. They deliver more torque and are therefor suitable for more powerful and faster machine applications.
A new lead wire holder system eliminates the protrusion of the lead wire outlet, not compromising motor performance and saving valuable space.

- Two phase
- High torque
- High resolution and precision
- Low vibration and noise
- Compact size with space saving features

220496

Motor Length (mm)	Holding Torque (Nm)	Mftrs. List No.	Order Code	Price Each 1+
42	0.69	SH1601-5240	170-8567●	
54	1.28	SH1602-5240	170-8568●	
76	2.15	SH1603-5240	170-8571●	

Ultra Flat Stepper Motor

Nanotec

Body: H= 66mm, W= 66mm, D= 9.6m
Shaft: 13.5mm x 4mm

NEW

- Maximum torque and high positioning accuracy combined with minimum overall height
- Step angle of 1.8° (with microstep to < 0.02°)
- Stable speed behaviour is possible at the lowest speeds
- Eliminates the need for gears and keeps the installation space to a minimum

Applications:

- Semiconductor automation
- Medical laboratory and inspection devices
- Laser technology, test equipment and monitoring cameras

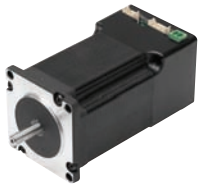
Operating temperature	-10°C to 50°C	Detent torque	0.005N-m
Supply voltage	3.8V	Resistance/phase	3.8ohm
Current/phase	1A	Inductance/phase	2mH
Holding torque	0.064N-m	Rotor inertia	16 gcm^2

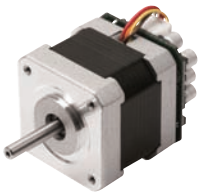
638546

Mftrs. List No.	Order Code	Price Each 1+	5+	10+	25+
ST6318F1004-A	196-2049●				

Plug and Drive Motors

Nanotec





NEW

PD4-N59
Body: H= 56.4mm, W= 56.4mm, D= 66.6mm (196-2041), D= 101.6mm (196-2042)
Shaft: 20.6mm x 6.35mm

PD2-041
Body: H= 42.3mm, W= 42.3mm, D= 49mm (196-2043), D= 31mm (196-2044)
Shaft: 24mm x 5mm

Features:

- Integrated positioning control and encoder
- Configurable with Windows® software NANOPRO
- Automatic error correction closed loop
- Ready-assembled cables ensure fast and faultless wiring and commissioning
- Microstep changeover from 200-2000 (4000) steps/rev
- Optimum system adaptation through optocoupler input
- CAN Open / RS 485 max. 9 Nm / IP54

	PD4-N59	PD2-041
Operating temperature	-10°C to +40°C	0°C to +40°C
Supply voltage	24 V to 48 V	12 V to 24 V
Interface	RS-485 (4-wire), CAN bus (CANopen)	RS-485 (4-wire), CANopen
Step angle	1.8°	

638585

Holding torque	Detent torque	Current/phase	Mftrs. List No.	Order Code	Price Each 1+	5+	10+	25+
PD4-N59								
0.537N-m	0.0147 N-m	4.8A	PD4-N5918X4204	196-2041●				
1.98N-m	0.068 N-m	1.8A	PD4-N5918L4204	196-2042●				
PD2-041								
0.5N-m	0.0137 N-m	1.8A	PD2-O4118L1804	196-2043●				
0.2N-m	0.006 N-m	1.4A	PD2-O4118S1404	196-2044●				

ST5709 Series Stepping Motors

Nanotec

2 Phases - High Torque

- 8 connecting lines
- Can be driven both in a unipolar form and in a bipolar form
- Step angle 0.9°, two shaft ends
- Holding torque 106/191 Ncm for bipolar drive
- Simple encoder fitting

Type	holding torque (Ncm)	Current A	Weight (Kg)	Lenght A (mm)
ST5709S1208-B	75	1.2	0.65	52.5
ST5709L1108-B	135	1.1	1.0	77.5

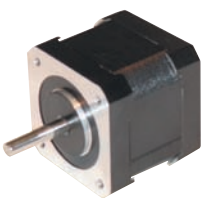
334393

Mftrs. List No.	Order Code	Price Each 1+	5+	10+	25+
ST5709S1208-B	474-3155				
ST5709L1108-B	474-3167				

ST4209 Series Stepping Motors

Nanotec

2 Phases - High Torque



- 8 connecting lines
- Can be driven in both a unipolar form and a bipolar form
- Step angle 0.9°, two shaft ends
- Holding torque 21 Ncm with a bipolar drive

Type	holding torque (Ncm)	Current (A)	Weight (Kg)	Lenght A (mm)
ST4209S1006-B	21	0.67	0.22	33.5

334330

Mftrs. List No.	Order Code	Price Each 1+	5+	10+	25+
ST4209S1006-B	474-3143				

ST Series Stepping Motors

Nanotec

2 Phases - High Torque

- 6 connecting lines
- Can be driven in both a unipolar form and a bipolar form
- Step angle 1.8°, two shaft ends
- Holding torque 7/10.6 Ncm for bipolar drive
- Simple encoder fitting

Type	holding torque (Ncm)	Current (A)	Weight (Kg)	Lenght A (mm)
ST2818S1006-B	5	0.95	0.12	31.2
ST2818M1006-B	7,5	0.95	0.2	44.5

334407

Mftrs. List No.	Order Code	Price Each 1+	5+	10+	25+
ST2818S1006-B	**474-3179**				
ST2818M1006-B	**474-3180**				

Stepper Motor - Super Thin

SANYO DENKI

Bipolar Winding - 1.8° Step Angle

- Ultra thin
- Two phase
- High torque
- Low mass
- Low vibration and noise
- Compact 42mm flange size

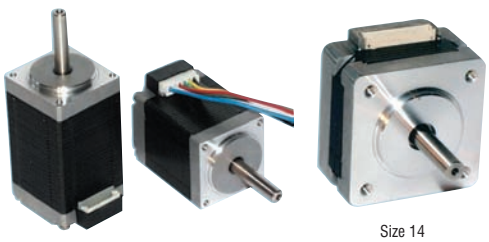
H = 42, W = 42mm

535472

Motor Length (mm)	Holding Torque (Nm)	Mftrs. List No.	Order Code	Price Each 1+
11.6	0.083	SS2421-5041	**170-8572●**	
18.6	0.186	SS2422-5041	**170-8573●**	
25.6	0.24	SS2423-5041	**170-8574●**	

Mini Hybrid Stepper Motors

ASTROSYN



Size 11 Size 14

- High torque in compact size
- Unipolar and bipolar operation
- Light weight
- Low noise
- Low inertia rotor
- High accuracy 1.8° step angle
- Frame size 11 (28x28mm) or 14 (35x35mm)

Step Angle	Holding Torque	No. of Leads	Phase Current	Phase Resistance	Phase Inductance	Order Code
1.8°	7N cm	6	0.95A	3.4ohm	1.6mH	842-5868
1.8°	9N cm	6	0.95A	4.6ohm	2.3mH	842-5876
1.8°	11N cm	4	0.75A	5.7ohm	7mH	842-5884
1.8°	7N cm	4	0.75A	4.3ohm	4mH	842-5892
1.8°	8N cm	6	0.76A	10.5ohm	4.8mH	842-5906
1.8°	5N cm	6	0.4A	22ohm	10mH	842-5914

380873

Frame Size	Mftrs. List No.	Order Code	Price Each 1+	5+	10+	25+
11	MY3002	**842-5868●**				
11	MY5002	**842-5876●**				
14	MY4001	**842-5884●**				
14	MY5401	**842-5892●**				
14	MY5602	**842-5906●**				
14	MY7001	**842-5914●**				

Hybrid Stepper Motor - Two Phase

TRINAMIC

42mm NEMA 17 - 1.8° Step Angle

- 5mm Diameter, 20mm length, D cut shaft
- Optimized for microstep operation
- Up to 40V operating voltage
- 4 Wire connection
- Neodymium magnets for maximum torque

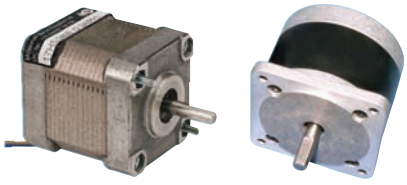
416141

Holding Torque	Mftrs. List No.	Order Code	Price Each 1+	10+	50+
0.26N-m	QSH4218-35-10-027	**101-0725●**			
0.35N-cm	QSH4218-41-10-035	**101-0726●**			
27N-cm	QSH4218-51-10-049	**101-0727●**			

Hybrid Stepper Motor with Rear Shaft

Mclennan

High Performance - 1.8° Step Angle



Size 17 Size 34

The high performance **17HS-240E** size 17 hybrid stepper motor provides 200 steps per revolution when used with full step drives or 400 steps per revolution in the preferred half step drive mode. The motor utilises advanced high energy magnet technology to provide increased torque while the low inductance windings provide excellent high speed performance. Consequently the unit is ideally suited to applications that require high dynamic performance and where space is at a premium. The motor is designed specifically for use with Bi-polar drive circuits

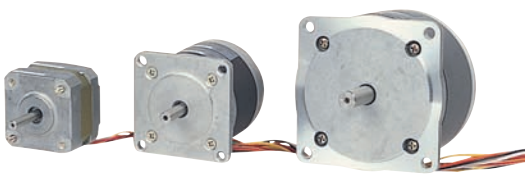
The high performance **23HSX** and **34HSX** hybrid stepper motors conform to the international NEMA standard, and provide 200 steps per revolution when used with full step drives or 400 steps per revolution in the preferred half step drive mode. The motors are provided with 8 leads connection to provide a choice of Uni-polar or Bi-polar operation.

601560

Frame Size	Holding Torque Uni-polar	Mftrs. List No.	Order Code	Price Each 1+
17	29N-cm	17HS-240E	**178-4803●**	
23	75N-cm	23HSX206E	**178-4805●**	
34	230N-cm	34HSX108E	**178-4806●**	

Hybrid 1.8° Step Angle

ASTROSYN



Size 17 Body: H=42, W=42, D=33 Shaft: 24x5.0 dia

Size 23 Body: H=57.2, W=57.2, D=51 Shaft: 20.6x6.35 dia

Size 34 Body: H=82, W=82, D=61 (93, 586-419) Shaft: 30.5x9.52 dia

- 4 phase hybrid construction gives a much higher working torque than permanent magnet types
- Very high resolution 1.8° step angle
- 6 and 8 leads - can be bipolar or unipolar driven
- Model 959-8693 is manufactured with rear shaft

Rated Voltage (V)	Current Rated (A)	Resistance Per Phase (Ω)	Inductance Per Phase (mH)	Detent Torque (mNm)	Holding Torque (mNm)	Step Angle	Body Size	Order Code
12	0.16	75	60	1.5	9	1.8°	17	959-8642
5	1	5	9.5	6	50	1.8°	23	959-8650
12	0.6	20	35		0.539	1.8°	23	959-8693
3	1.7	1.8	10	100	1200	1.8°	34	959-8669

220494

Body Size	Holding Torque (mNm)	Mftrs. List No.	Order Code	Price Each 1+	5+	10+	25+
17	9	Y129	**959-8642**				
23	50	Y163	**959-8650**				
23	0.539	MY180	**959-8693**				
34	1200	Y281	**959-8669**				

Stepper Motor and Drive Unit

Integral Drive and Motion Controller

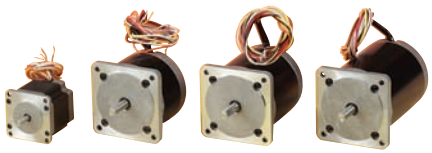
The STM is a Drive+Motor unit,fusing step motor and drive technologies into a single device, offering savings on space, wiring and cost over conventional motor and drive solutions. The system offers over voltage, under voltage, over temperature, motor shorts and motor open phase protection.

- Stand-alone Operation
- Q Programmer for complex motion
- Conditional Processing
- Math Functions
- Multi-tasking
- Register Manipulation
- Encoder Following
- Dynamic Current Control
- Anti-Resonance
- Torque Ripple Smoothing
- Microstep Emulation

601570

Frame Size	Maximum Torque	Mftrs. List No.	Order Code	Price Each 1+
23	1.483N-m	STM23Q-3AN - I S	**178-4814**	

Hybrid, High Torque with Rear Shaft



Size 23
Body: H=57.2
W=57.2, D=55 391-2681, D=78.5 391-2693
Shaft: 20.6x6.35 dia 391-2681
20.6x8 dia 391-2693
Rear shaft: L=19

Size 34
Body: H=86, W=86
D=67 391-2700,D=94 391-2711, D=125 3912723
Shaft: L=30.2x9.525 dia.
Rear shaft:L=28.5

- High quality NEMA 23 & 34 frame size motors
- High energy magnet technology provides typically 50% more torque than standard hybrid types
- Rear shaft for fitting encoders, handwheels, parking brakes etc.
- High resolution (1.8 degree step size) also suitable for half stepping and microstepping
- 8 lead connection suitable for 4 phase Uni-polar drives and Bi-polar drives with series or parallel connected coils

Uni-polar Uni Polar	Rated Current Bi Polar Coils in Series	Rated Coils in Parallel	Resistance Per Phase (Ω)	Inductance Per Phase (mH)	Holding Torque (Nm)	Step Angle	Body Size	Order Code
1.0	0.7	1.4	6.2	8.8	0.98	1.8°	23	391-2681
3.0	2.1	4.2	1.1	1.7	1.63	1.8°	23	391-2693
4.3	3.0	6.0	0.75	3.5	4.8	1.8°	34	391-2711
6.4	4.0	8.5	0.5	2.5	7.6	1.8°	34	391-2723

233665

Body Size	Holding Torque (Nm)	Mftrs. List No.	Order Code	Price Each 1+	5+	10+
23	0.98	23HSX-202E	**391-2681**			
23	1.63	23HSX-306E	**391-2693**			
34	4.8	34HSX-208E	**391-2711**			
34	7.6	34HSX-312E	**391-2723**			

Hybrid Stepper Motor - Two Phase

57.2mm NEMA 23 - 1.8° Step Angle

- 6.3mm Diameter, 20.6mm length shaft
- Optimized for microstep operation
- Up to 84V operating voltage
- 4 Wire connection
- Neodymium magnets for maximum torque
- **CE** Approved

416142

Holding Torque	Mftrs. List No.	Order Code	Price Each 1+	10+	50+
0.47N-m	QSH5718-41-30-047	**101-0728**			

Stepper Motor with Driver

PANdrive Series - NEMA 17

H = 42, W = 42mm

- 7V dc to 30V dc Supply
- Three motor lengths available
- Step / Direction input (5 - 24V signal)
- Up to 350kHz microstep frequency
- Driver disable input
- RS485 host interface (optional use / use for parameterization)
- 2 local inputs for reference switches
- Optically isolated inputs for step, direction and disable
- Up to 256 times adjustable microstep resolution
- Adjustable standby current
- Reference move and turn CW / CCW via RS485
- StallGuard™ for reference search

This PANdrive Series is a full mechatronic solution including a 42mm flange motor (NEMA17). It joins a convenient electronic controller with a range of 3 different motor torques. This series offers three motor torques options and can be controlled via an optical isolated Step/Direction interface. The power supply, interface and the multi purpose I/Os can be connected with small JST connectors. The firmware of the module can be updated via the serial interface. With the integrated StallGuard feature it is possible to detect overload and stall of the motor.

416130

Typ	Haltemoment	Motorlänge	Schnittstelle
PD2-013-42	0.35N-m	39.4mm	Takt/Richtung (+RS-485)
PD3-013-42	0.49N-m	49.5mm	Takt/Richtung (+RS-485)

Holding Torque (Nm)	Motor Length (mm)	Mftrs. List No.	Order Code	Price Each 1+	10+	50+
0.35	59	PD2-013-42	**101-0706**			
0.49	69	PD3-013-42	**101-0707**			

Stepper Motor - NEMA17 42mm

Controller / Driver and Serial Interface

- 7V to 34V Motor supply voltage
- Up to 16 times microstepping
- Memory holds 2048 commands
- Automatic ramp generation in hardware
- Sensorless motor stall detection
- Dynamic current control

This series of combined 42mm motor and controller/driver is a full mechatronic solution. It joins a convenient electronic controller with a range of different motor torques. The motors can be controlled via RS232, RS485, CAN or IIC interfaces. The power supply, interface and the multi-purpose I/O's can be connected by small JST connectors. The unit is provided with the PC based development environment TMCL-IDE. By using the high level commands provided fast development of motion control applications is guaranteed. Communications traffic is kept to a minimum as all time critical operations are performed on board. The program can be stored in the on board EEPROM for stand-alone operation. The firmware of the module can be updated via the serial interface.

Typ	Haltemoment	Motorlänge	Schnittstelle
PD1-110-42-232	0.26N-m	33.3mm	RS-232
PD1-110-42-485	0.26N-m	33.3mm	RS-485
PD1-110-42-CAN	0.26N-m	33.3mm	CAN
PD2-110-42-232	0.33N-m	39.4mm	RS-232
PD2-110-42-485	0.33N-m	39.4mm	RS-485
PD2-110-42-IIC	0.33N-m	39.4mm	IIC
PD2-110-42-CAN	0.33N-m	39.4mm	CAN
PD3-110-42-232	0.50N-m	49.5mm	RS-232
PD3-110-42-485	0.50N-m	49.5mm	RS-485
PD3-110-42-IIC	0.50N-m	49.5mm	IIC
PD3-110-42-CAN	0.50N-m	49.5mm	CAN

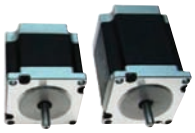
416136

Holding Torque	Mftrs. List No. - Interface	Order Code	Price Each 1+	10+	50+	100+
0.26N-m	PD1-110-42-232	**101-0708**				
0.26N-m	PD1-110-42-485	**101-0709**				
0.33N-m	PD2-110-42-232	**101-0713**				
0.33N-m	PD2-110-42-IIC	**101-0715**				
0.50N-m	PD3-110-42-232	**101-0717**				
0.50N-m	PD3-110-42-485	**101-0718**				
0.50N-m	PD3-110-42-IIC	**101-0719**				
0.50N-m	PD3-110-42-CAN	**101-0720**				
Adaptor - Multi-Interface to USB						
USB-2-X V2		**121-4547**				

Hybrid Stepper Motor - Two Phase

NEMA 23 - 1.8° Step Angle

NEW



- NEMA 23 mounting configuration
- flange 56.4 mm Max.
- 6.35 mm axis diameter, 20.6 mm length
- Step angle: 1.8°
- Optimized for microstep operation
- Up to 75V dc operating voltage
- 4 wire connection
- Neodymium magnets for maximum torque

636201

Holding Torque	Mftrs. List No.	Order Code	Price Each 1+	5+	10+	+
55N-cm	QSH5718-41-28-055	**190-7701**				
101N-cm	QSH5718-51-28-101	**190-7702**				
189N-cm	QSH5718-76-28-189	**190-7703**				

Mechatronic Drive with Stepper Motor

NEMA 23 Flange

NEW

The PD-109-57 V2 is a full mechatronic solution including a 57mm flange motor (NEMA23). It combines a convenient electronic controller with a range of 3 different motor types and offers 3 motor torque options that can be controlled via a RS-232 or RS-485 interface. The power supply, interface and the multi purpose I/Os can be connected via two pluggable screw connectors. The PD-109-57 V2 comes with the PC based software development environment TMCL-IDE for the Trinamic Motion Control Language (TMCL™). Using predefined TMCL™ high level commands like "move to position" or "constant rotation" a rapid development of motion control applications is guaranteed. Communication traffic is kept very low since all time critical operations, e.g. ramp calculation are performed on-board. The TMCL™ program can be stored in the on-board EEPROM for stand-alone operation. The firmware of the module can be updated via the serial interface. With the stallGuard™ feature it is possible to detect motor overload or motor stall.

Typ	Haltemoment	Motorlänge	Motorstrom
QSH5718-41-30-047	0.47N-m	41.0mm	2.1A
QSH5718-55-30-098	0.98N-m	55.0mm	3.0A
QSH5718-79-30-163	1.63N-m	78.5mm	3.0A

- 18V to 55V supply voltage
- 3A RMS nominal motor current (5A peak possible)
- Total length: 71 mm / 85 mm / 108 mm:
- max. torque 0.47Nm / 0.98Nm / 1.63Nm
- RS232 and RS485 host interface
- 2 inputs for reference/stop switches (TTL)
- 3 general purpose input and 1 output (TTL)
- Up to 16 times microstepping memory for 2048 TMCL™ commands
- Automatic ramp generation in hardware
- On the fly alteration of motion parameters (e.g. position, velocity, acceleration)
- StallGuard™ for sensorless motor stall detection
- Optically isolated inputs
- Dynamic current control
- Stand-alone operation using TMCL™ or remote controlled operation
- PC-based application development software TMCL-IDE included
- Pluggable screw terminal connectors for all external signals

636203

Holding Torque	Mftrs. List No.	Order Code	Price Each 1+	5+	10+	+
0.55N-m	PD1-109-57-RS V2	**190-7704**				
1.0N-m	PD2-109-57-RS V2	**190-7705**				
1.26N-m	PD3-109-57-RS V2	**190-7706**				

Mechatronic Drive and Stepper Motor

PANdrive PD Series

NEW

The PANdrive series is a mechatronic solution including a motor, a controller board and a sensOstep™ encoder. It can be controlled via serial interface or operated in stand-alone mode. Power supply, external encoder, interface and I/Os can be connected with JST connectors. With the advanced stallGuard2™ the motor load can be detected with high resolution. The outstanding coolStep™ technology for sensorless load dependent current control allows efficient motor operation. The Pandrive comes with the PC based software development environment TMCL-IDE for the Trinamic Motion Control Language (TMCL™).

Typ	Haltemoment	Motorlänge	Motorstrom
QSH5718-41-30-047	0.47N-m	41.0mm	2.1A
QSH5718-55-30-098	0.98N-m	55.0mm	3.0A
QSH5718-79-30-163	1.63N-m	78.5mm	3.0A

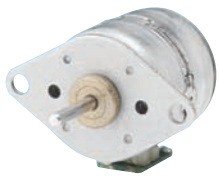
- CAN, USB, RS232and RS485 step and direction interfaces
- Inputs for ref. & stop switches
- 48V DC (nom.) supply voltage
- General purpose I/Os
- stallGuard2™ sensorless high resolution load detection
- CoolStep™ sensorless load dependent current control
- Up to 256 times microstepping
- MicroPlyer™ 16 to 256 times microstepping interpolation
- Memory for 2048 TMCL commands
- On the fly alteration of motion parameters (e.g. position, velocity, acceleration)
- Stand-alone operation using TMCL™ or remote controlled operation
- PC-based application development software TMCL-IDE included
- Pluggable JST connectors

636206

Frame Size	Holding Torque	Mftrs. List No.	Order Code	Price Each 1+	5+	10+	+
NEMA 23	1.01N-m	PD57-2-1060-TMCL	**190-7708**				
NEMA 23	2.1N-m	PD60-3-1060-TMCL	**190-7709**				
NEMA 34	7N-m	PD86-3-1180-TMCL	**190-7710**				

Instrument Stepper Motor

Can Stack - Permanent Magnet



These instrument stepper motors are high quality permanent magnet types providing a choice of 18 or 7.5 degree step angle.
The motors offer excellent performance combined with low pricing. They are ideally suited to instrumentation applications for the small to medium volume user to construct advanced single and multi-axis positioning systems.

601537

Step Angle	Holding Torque	Diameter Motor	Mftrs. List No.	Order Code	Price Each 1+
18°	0.388N-cm	15.01mm	15M020D1B	**178-4800**	
7.5°	0.6N-cm	26.2mm	26M048B1U	**178-4801**	
7.5°	0.9N-cm	26.2mm	26M048B2U	**178-4802**	

Stepper Motor - 1.8°

8-way Connector

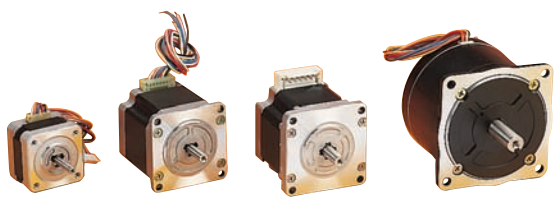
- Excellent EMC Characteristics
- Simple connection via 8-way connector
- Unipolar, Bipolar Parallel or Series connection
- High torque
- Low Vibration
- High Quality

601565

Frame Size	Holding Torque 2 ph on	Mftrs. List No.	Order Code	Price Each 1+
23	0.9N-m	23HT18C230	**178-4807**	
23	1.4N-m	23HT18C435	**178-4809**	
34	2.45N-m	34HT18C145	**178-4812**	
34	7.35N-m	34HT18C340	**178-4813**	
Version with Encoder and 9 way, "D" type connector				
23	0.9N-m	23HT18C230CL500	**178-4811**	

Hybrid, High Torque 1.8° Step Angle

SANYO DENKI



Size 17	Size 23	Size 24	Size 34
Body: H=42 W=42, D=32 (39, 800-1839) (41, 720-460) (48, 800-1847) Shaft: 24x5 dia	Body: H=56 W=56, D=53.8 (75.8, 800-1855) Shaft: 21x6.35 dia	Body: H=82, W=60 D=53.8 (85.8, 635-236)	Body: H=82, W=82 D=62,(92.2, 635-248, 25.9 635-250) Shaft: 30x12 dia. Keyway L=25, W=4, D=2.5

- 2 phase hybrid rare earth magnet technology offering 15% to 20% more torque than standard hybrid types
- New size 17 motors achieving 10-37% more torque from improved construction and materials
- New length size 23 motor for improved torque performance
- Improved high speed operation, low noise and low vibration
- Very high positional accuracy, designed for micro-stepping
- Can be unipolar or bipolar driven (bipolar only size 34)
- Integrated JST connector supplied with new size 17 and 24 frame size (mating connectors and contacts supplied)

Rated Voltage (V)	Rated Current (A)	Resistance Per Phase (Ω)	Inductance Per Phase (mH)	Holding Torque (mNm)	Step Angle	Body Size	Order Code
3.15V	1A	3.15	2.8	0.147	1.8°	17	994-8252
3.6V	1.2A	3	4.3	0.265	1.8°	17	994-8260
V3.2	2A	1.6	3.8	0.83	1.8°	23	994-8279
4V	2A	2	3.6	1.17	1.8°	24	994-8120
5.2V	A2	2.6	5.6	2.1	1.8°	24	994-8139
2.4V	4A	0.6	3.5	2.75	1.8°	34	994-8287
2.8V	4A	0.7	5.7	5.09	1.8°	34	994-8147
3.6V	A4	0.9	8.1	7.44	1.8°	34	994-8155

220496

Body Size	Holding Torque (Nm)	Mftrs. List No.	Order Code	Price Each 1+	5+	10+
17	0.147	103H546-0440	**994-8252**			
17	0.265	103H548-0440	**994-8260**			
17	0.3	103H5208-0440	**800-1839**			
17	0.37	103H5210-0440	**800-1847**			
23	0.83	103H7123-0440	**994-8279**			
23	1.27	103H7126-0440	**800-1855**			
24	1.17	103H7822-0440	**994-8120** ●			
24	0.2	103H5205-0440	**171-8268** ●			
34	5.09	103H8222-6340	**170-8563** ●			
34	7.44	103H8223-6340	**170-8564** ●			

Stepper Motor - NEMA 23 57mm

Controller / Driver

The PD-109-57 is a full mechatronic solution including a 57mm flange motor (NEMA23). It combines the stepper motor with a motor controller / driver and a serial interface. The power supply, interface and the multi purpose I/Os can be connected via two pluggable screw connectors. The unit comes with a PC based software environment TMCL-IDE for the Trinamic Motion Control Language (TMCL). Using predefined TMCL high level commands a rapid and fast development of motion control applications is guaranteed. Communication traffic is kept to a minimum since critical operations are performed on-board. The TMCL program can be stored in the on-board EEPROM for stand-alone operation. The firmware of the module can be updated via the serial interface.

- 18V to 55V Supply voltage
- 3A RMS Nominal motor current
- RS232 and RS485 host interface
- 2 Inputs for reference and stop switches
- 3 General purpose inputs and 1 output
- Up to 16 times microstepping
- Memory for 2048 commands
- Automatic ramp generation in hardware
- Sensorless motor stall detection
- Optically isolated inputs
- Dynamic current control

416140

Max. Torque	Mftrs. List No.	Order Code	Price Each 1+	10+	50+
0.98N-m	PD2-109-57-RS	**101-0722** ●			
1.63N-m	PD3-109-57-RS	**101-0723** ●			

Stepper Motor Drivers

Microstep Constant Current Driver IC

IMT-901

The IMT 901 is a PWM chopper type sinusoidal micro step bipolar stepping motor driver. Sinusoidal micro step operation is generated by means of built-in hardware and is outputted for operation by clock signal inputting.

H = 14, W = 36, D = 5mm

- Only one IC for power and logic (up to 2,5 A/phase)
- reduced space, assembly time and cost of a microstep driver
- Maximum functions yet with a minimum of external components
- Selectable 1/1, 1/2, 1/4 and 1/8 Step
- Enables individual application-related microstep switching
- Smooth and constant running for reduced system resonance
- Current down system or current zeroing
- reduced motor power losses and heating during stand-still

334335

Type	Order Code	Price Each 1+	5+	10+	25+
IMT-901	**474-3295**				

Stepper Motor Positioning Controller

SMCI35

SMCI12

NEW

- Programmable with NanoPro software
- Microstep 1/1 - 1/64 final output stage (0.014° step resolution)
- Sequence control / (SoftSPS) with NanoJ easy, a Java-based programming environment
- Optical encoder evaluable, automatic error correction
- USB, RS232, RS485, SPI or CANopen interface
- ClosedLoop - sinusoidal commutation
- Connection cable (ZK-SMCI12), used for easy connection of the USB converter to the motor

	SMCI35	SMCI12
Operating voltage	24 V to 48 V	12 V to 24 V
Phase current	6A	2.7A
Interface	TTL-RS232 (3.3 V)	RS485 4-wire or CANopen
Operating temperature	0°C to +40°C	Step frequency 16 kHz with full step
Step resolution	1/1, 1/2, 1/4, 1/5, 1/8, 1/10, 1/32, 1/64	

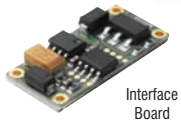
638684

Mftrs. List No.	Order Code	Price Each 1+	5+	10+	25+
SMCI35	**196-2045** ●				
SMCI12	**196-2046** ●				
ZK-SMCI12	**196-2047** ●				

Accessories

RSxxx-USB converter

SMC135 cable



Interface Board

NEW

- For use with SMCIxx series plug & drive motors, SMCI35 stepper motor controller and PD4-N & PD6-N motors
- The additional ZIB-PD6-N board is used for the fast, time saving wiring of the plug & drive motors
- Ready assembled connection cable facilitate and reduce the assembly costs and avoid errors
- Operating temperature: -25°C to +90°C

638881

Length	Type	Mftrs. List No.	Order Code	Price Each 1+	5+	10+	25+
—	USB Converter Cable	ZK-RS232-USB-3.3V	**196-2051** ●				
0.5 mm	Connection Cable	ZK-ZHR6-500	**196-2052** ●				
0.09 mm	Connection Cable	ZK-ZHR5-90	**196-2053** ●				
0.5 mm	Cable Set	ZK-PD4N	**196-2054** ●				
—	RS232-USB Converter Cable	ZKRS485-USB	**196-2055** ●				
45 mm x 110 mm	Interface Board	ZIB-PDX-N	**196-2056** ●				

Stepper Motor Driver, Unipolar 0.5A

- Simple to use Unipolar (4 Phase) stepper drive
- Compact size only 80mm by 40mm
- Full step and half step modes
- On board internal clock, external LS, TTL frequency can also be used
- Rated at 350mA per phase at 24V
- Fitted wit a MTA100 6 way header

L=55, W=40, H=15

Supply Voltage	7-24V dc	Step Frequency	40 to 300Hz adjustable
Motor output	350mA per phase (typ), 500mA(max)	Ambient Operating Temperature	0°C to 40°C

231230

Mftrs. List No.	Order Code	Price Each 1+	5+	10+	25+
SE2	**318-7585**				

Stepper Motor Driver - Unipolar, 2A

ASTROSYN

L=160, W=100, H=17

- Designed to match a wide range of permanent magnet and hybrid stepper motors having 6 or 8 lead configurations
- Full logic translation providing full step and half step modes
- Simple control interface requiring only a pulse and direction input
- Single rail operation - can drive motors up to 2 Amps per phase at 30V dc
- Standard single Eurocard with 32 way DIN 41612 style B connection
- Supplied with comprehensive instructions

Supply Voltage	15-30V dc (+10% max)
Current Consumption: (Board Only)	60mA
Motor Output	2A per phase max (current sinking)
Aux output	+12V dc, 50mA max
Max input frequency (clock)	30kHz(minimum pulse width 5µs)
Control Inputs	CMOS schmitt trigger inputs operating at +12V with 10 KΩ pull ups Logic 0 (Low) 0V to +2V Logic 1 (High) +9V to +15V

231231

Mftrs. List No.	Order Code	Price Each 1+	5+	10+	25+	50+
XPVP134	**959-8685**					

Bi-polar Stepper Motor Drive

Mclennan

- High performance
- Increased efficiency
- No heatsink required
- Single rail supply for both logic and motor
- Standard thermal protection and condition monitoring
- Designed for mounting in 3U high Euro-racks

H = 100, W = 60, L = 160

Supply Voltage	15 - 42 Vdc
Logic Supply Voltage	No seperate supply required, use motor supply
Current consumption range	1 - 3 Amps
Output stage	2 Phase Bi-polar, chopped constant current set by on-board DIP switch
Step logic	Full step / half step
Output current per phase	0.5 - 3.5 Amps
Control signals	CMOS Schmitt trigger inputs operating at +12V with 10KΩ pull up resistors and diode isolation Logic 0 (low) 0V to +2V Logic 1 (high) +9V to +30V max.

242870

Mftrs. List No.	Order Code	Price Each 1+	5+	10+
MSE570 EVO 2	**415-8544**			

Stepper Motor Controller - 2 Phase

Microstepping - 2A

SANYO DENKI

H = 29, W = 64, D = 56mm

- Two Phases
- Unipolar and Bipolar versions
- 24 to 36V dc Power Supply
- Terminal bloc connections
- Optocoupler input / output interface
- Input pulse mode selection
- Motor current switch function when driving
- Current switch function when stopping
- Low vibration mode
- Microstep function
- **CE** and **TUV** approved, **UL** Recognised

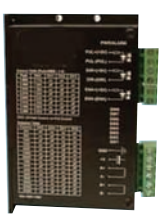
535473

Description	Mftrs. List No.	Order Code	Price Each 1+
Unipolar	US1D200P10	**170-8565●**	
Bipolar	BS1D200P10	**170-8566●**	

Stepper Motor Drive Modules

Bi-polar Motors - Step and Half Step Control

Mclennan



PM 542

PM 546

The drive modules are designed for installation in standard 19" Euro-rack units. They are 3U high with an ultra slim 34mm (7E) width.

- Chopped constant current power stage for high performance reduced current consumption
- Selectable full or half step phase logic control
- Adjustable current settings
- Choice of automatic or externally selectable reduced current for stationary motor conditions
- Over temperature monitor
- Drive healthy status output - Opto Isolated
- Opto isolated control inputs
- Control from external clock and direction signals
- Alternative on-board voltage controlled oscillator

601573

Designed for use with Hybrid Motor Types	Maximum Current / Phase	Mftrs. List No.	Order Code	Price Each 1+
17 - 23 Hybrid stepper motors	2A	PM542	**178-4818●**	
23 & 34 Hybrid stepper motors	6A	PM546	**178-4819●**	

Stepper Motor Controller

6 Axis - 1.4A, 48V

TRINAMIC

- Up to 1.4A RMS coil current (2A peak)
- 15V to 48V Supply voltage
- Up to 16 times microstepping
- Supports 2 Phase bipolar motors with 0.3A to 1.4A coil current
- CAN, RS 485 and RS 232 Interfaces
- **CE** Approved

H = 35, W = 152, D = 180mm

The SIXpack 2 is a highly integrated stepper motor controller unit in a small and robust steel housing. Up to six 2-phase motors can be driven independently or with linear interpolation in any combination. With three interface options and integrated drivers it is easily integrated in all kinds of automation environments where motion control is desired. The SIXpack can be remote-controlled using a simple command set, which is identical for all interface options.
The Controller is complete with PC evaluation software

416088

Mftrs. List No.	Order Code	Price Each 1+	5+	10+	50+
TMC SIXPACK 2	**101-0702●**				

ST Stepper Motor Drive Modules

Up to 5A per Phase

Applied Motion Products

- Advanced current control
- Anti-resonance / Electronic damping
- Torque ripple smoothing
- Command signal smoothing
- Microstep emulation
- Self test and auto setup

178-4820 - H = 76.2, W = 28.5, D = 86.1mm

178-4820
- Pulse and Direction Control
- CW / CCW Pulse
- A/ B Quadrature
- Velocity (Oscillator) mode
- Host commands
- SiNet Hub compatible
- ST Configurator software for setup

601599

Description Inputs & Outputs	Mftrs. List No.	Order Code	Price Each 1+
3 Digital Inputs, 1 Analogue Input and 1 Digital Output	ST5-S	**178-4820●**	

Stepper Motor Drive

Step and Direction Control

TRINAMIC

H = 23, W = 63, D = 63mm

- Up to 3.5A RMS coil current (5A peak)
- 12V to 48V dc supply
- Supports two phase motors with 0.5A to 3.5A coil current
- Remote diagnostics and parameter setup via RS-485 interface
- Move and turn CW / CCW via RS-485 interface
- Fully protected drive
- Digital selection of motor current and standby current
- All setup parameters stored in internal EEPROM
- Micro step resolution can be changed for high accuracy or high speed

The IDX is a small and rugged step / direction stepper motor driver system. The parameters of micro step resolution and motor current can easily be changed via the RS-485 interface with an ASCII protocol. Also the firmware of the module can be updated via the serial interface. All settings are stored in an internal EEPROM so that no bus system is required. The module is fully protected and comes with a stand-alone reference search feature, using the integrated reference switch input or StallGuard™. The motor switches and power supply can be connected easily by screw terminal connectors. The housing is based on an aluminium plate which also acts as a heat-sink.

416123

Mftrs. List No.	Order Code	Price Each 1+	10+	50+	100+
TMC-IDX	**101-0703●**				

RoHS ● Compliant ▲ Non-compliant

Stepper Motor Drive, 6 amp

L=220, W=100, H=76

- Drives 4,6 or 8 lead motors upto 70Vdc and 6A per phase
- Selectable output current, 2A to 6A allows 23 to 42 frame size motors to be driven
- Full and half-step modes (microstep available by using additional 'piggy-back' board)
- Provision for assembly of simple 'on board' oscillator
- Output stage overload and thermal protection
- Standby and boost outputs available to power external devices
- 5V and 12V dc auxiliary outputs available to power external devices

Warning: Serious damage to the output stage can occur if any of the motor connections become disconnected whilst the drive stage is required

Motor Supply Voltage	20-70VDC(Smoothed unregulated)
Logic supply voltage	15-28VDC(Smoothed unregulated)
Output Current range	2-6A (DIL switch Selectable)
Suitable Motor Current rating	2A-9A (4,6 or 8 lead types)
Auxiliary outputs (regulated)	+12V dc, 50mA max +5V dc, 50mA max
Max input frequency (clock)	20kHz(10[b5] S Min. Width) negative edge trigger
Control inputs	CMOS Schmitt trigger inputs operating at +12V with 10kΩ pull ups Logic 0 (low) 0V to +2V Logic 1 (high) +9V to +30V max.

231238

Mftrs. List No.	Order Code	Price Each 1+	5+	10+	20+
PVP2460	**715-4320**				

High Performance Microstepping Driver

- High performance microstepping driver suitable for 2 and 4 phase hybrid steppers
- Advanced bipolar constant-current chopper circuit with current control technology
- Suited to motion control applications requiring low noise, low vibration, high speed and high precision
- Supply voltage to 40V dc, current to 3.5A
- Inaudible 20kHz chopping frequency
- TTL compatible and optically isolated input signals
- Automatic idle current reduction
- Mixed-decay current control for reduced motor heating
- 14 selectable step resolutions in decimal and binary
- Microstepping to 51200 steps/revolution
- Suitable for 4, 6 or 8 lead wire motors
- Overcurrent, overvoltage and short circuit protected
- Compact size

Electrical

Drive Current	Adjustable from 1.3 to 3.5A
Supply Voltage	Input voltage from 24 to 40V dc
Step Control	Half step or microstepping
Control Inputs	Connections for pulse, direction and enable signals
Pulse Signal	Speed control to maximum frequency 300kHz
Direction Signal	Clockwise or counter-clockwise rotation
Enable Signal	Driver enable or disable
Logic Signals	Current from 6 to 30mA
Mechanical	
Material	Black coated aluminium with integral heatsink
Mounting	Free standing or via mounting holes
Dimensions	45x132x76mm
Weight	0.355kg

380874

Mftrs. List No.	Order Code	Price Each 1+	5+	10+
P403	**842-5922●**			

High Performance Microstepping Driver

- High performance microstepping driver suitable for 2 and 4 phase hybrid steppers
- Advanced bipolar constant-current chopper circuit with current control technology
- Suited to motion control applications requiring low noise, low vibration, high speed and high precision
- Supply voltage to 90V dc, current to 7.7A
- Inaudible 20kHz chopping frequency
- TTL compatible and optically isolated input signals
- Automatic idle current reduction
- Mixed-decay current control for reduced motor heating
- 14 selectable step resolutions in decimal and binary
- Microstepping to 51200 steps/revolution
- Suitable for 4, 6 or 8 lead wire motors
- Overcurrent, overvoltage and short circuit protected
- Compact size

Electrical

Drive Current	Adjustable from 2.8 to 7.7A
Supply Voltage	Input voltage from 24 to 90V dc
Step Control	Half step or microstepping
Control Inputs	Connections for pulse, direction and enable signals
Pulse Signal	Speed control to maximum frequency 300kHz
Direction Signal	Clockwise or counter-clockwise rotation
Enable Signal	Driver enable or disable
Logic Signals	Current from 6 to 30mA
Mechanical	
Material	Black coated aluminium with integral heatsink
Mounting	Free standing or via mounting holes
Dimensions	50x120x102mm
Weight	0.45kg

380875

Mftrs. List No.	Order Code	Price Each 1+	5+	10+
P808	**842-5930●**			

Variable Speed Drives Altivar ATV12

Single Phase

NEW

- Suitable for applications involving simple industrial machines and certain consumer machines
- Designed without an EMC filter
- Protect people and equipment (when a short circuit occurs)
- Maintain protection upstream of the drive in the event of a short circuit on the power stage

Operating temperature	-25°C to +70°C
IP degree of protection	IP 20

Power Rating	Operational Current (A)	Dimensions (mm) L	W	D	Mftrs. List No.	Order Code
240 V Nominal						
180 W	1.4	142	34	102.2	ATV12H018M2	204-2992
370 W	2.4	130	53	121.2	ATV12H037M2	204-2993
550 W	3.5	130	63	131.2	ATV12H055M2	204-2994
750 W	4.2	130	63	131.2	ATV12H075M2	204-2995
1.5 kW	7.5	142	105	156.2	ATV12HU15M2	204-2996
2.2 kW	10	143	105	131.2	ATV12HU22M2	204-2997
120 V Nominal						
180 W	1.4	142	34	102.2	ATV12H018F1	204-2998
370 W	2.4	130	53	121.2	ATV12H037F1	204-2999
750 W	4.2	130	63	131.2	ATV12H075F1	204-3000

640422

Power Rating	Mftrs. List No.	Order Code	Price Each 1+
240 V Nominal			
180 W	ATV12H018M2	**204-2992●**	
370 W	ATV12H037M2	**204-2993●**	
550 W	ATV12H055M2	**204-2994●**	
750 W	ATV12H075M2	**204-2995●**	
1.5 kW	ATV12HU15M2	**204-2996●**	
2.2 kW	ATV12HU22M2	**204-2997●**	
120 V Nominal			
180 W	ATV12H018F1	**204-2998●**	
370 W	ATV12H037F1	**204-2999●**	
750 W	ATV12H075F1	**204-3000●**	

Variable Speed Drives Altivar ATV312

Single and Three Phase

NEW

- Designed to meet the configuration requirements found in the main industrial communication installations
- Can be connected to other industrial communication buses and networks using one of the communication cards
- Several communication cards for industrial applications are available as options
- Enclosed model designed to comply with the EMC standard and protected by a temperature controlled switch or thermal overload relay

Power Rating	Operational Current (A)	Dimensions (mm) L	W	D	Mftrs. List No.	Order Code
Three phase - 500 V Nominal						
370 W	1.5	143	152	105	ATV312H037N4	204-3001
550 W	1.9	143	152	105	ATV312H055N4	204-3003
750 W	2.3	143	152	105	ATV312H075N4	204-3004
1.1 kW	3	143	152	105	ATV312HU11N4	204-3005
1.5 kW	4.1	143	152	105	ATV312HU15N4	204-3006
2.2 kW	5.5	184	152	142	ATV312HU22N4	204-3007
3 kW	7.1	184	152	142	ATV312HU30N4	204-3008
4 kW	9.5	184	152	142	ATV312HU40N4	204-3009
5.5 kW	14.3	232	180	172	ATV312HU55N4	204-3010
7.5 kW	17	232	180	172	ATV312HU75N4	204-3011
11 kW	27.7	329.5	245	192	ATV312HD11N4	204-3012
15 kW	33	329.5	245	192	ATV312HD15N4	204-3013
Single phase - 240 V Nominal						
180 W	1.5	145	72	132	ATV312H018M2	204-3015
370 W	3.3	145	72	132	ATV312H037M2	204-3016
550 W	3.7	145	72	142	ATV312H055M2	204-3017
750 W	4.8	145	72	142	ATV312H075M2	204-3018

Stepper Motor Drivers - continued

Variable Speed Drives Altivar ATV312 - continued

Single and Three Phase - continued

Power Rating	Operational Current (A)	Dimensions (mm) L	W	D	Mftrs. List No.	Order Code
Three phase - 500 V Nominal						
1.1 kW	6.9	143	107	152	ATV312HU11M2	204-3019
1.5 kW	8	143	107	152	ATV312HU15M2	204-3020
2.2 kW	11	184	142	152	ATV312HU22M2	204-3021
Communication Card						
For use with variable speed drives					VW3A31207	204-3022
					VW3A31208	204-3023
					VW3A31209	204-3024

640423

Power Rating	Mftrs. List No.	Order Code	Price Each 1+
Three phase - 500 V Nominal			
370 W	ATV312H037N4	**204-3001●**	
550 W	ATV312H055N4	**204-3003●**	
750 W	ATV312H075N4	**204-3004●**	
1.1 kW	ATV312HU11N4	**204-3005●**	
1.5 kW	ATV312HU15N4	**204-3006●**	
2.2 kW	ATV312HU22N4	**204-3007●**	
3 kW	ATV312HU30N4	**204-3008●**	
4 kW	ATV312HU40N4	**204-3009●**	
5.5 kW	ATV312HU55N4	**204-3010●**	
7.5 kW	ATV312HU75N4	**204-3011●**	
11 kW	ATV312HD11N4	**204-3012●**	
15 kW	ATV312HD15N4	**204-3013●**	
Single phase - 240 V Nominal			
180 W	ATV312H018M2	**204-3015●**	
370 W	ATV312H037M2	**204-3016●**	
550 W	ATV312H055M2	**204-3017●**	
750 W	ATV312H075M2	**204-3018●**	
1.1 kW	ATV312HU11M2	**204-3019●**	
1.5 kW	ATV312HU15M2	**204-3020●**	
2.2 kW	ATV312HU22M2	**204-3021●**	
Communication Card			
–	VW3A31207	**204-3022●**	
–	VW3A31208	**204-3023●**	
–	VW3A31209	**204-3024●**	

Graphic Display Terminals Altivar

Remote



NEW

- Display terminal is attached to the front of the drive in remote graphic display terminal
- Includes the integrated 7 segment display terminal for drives supplied without a graphic display terminal
- A remote mounting kit for mounting on an enclosure door with IP 54 degree of protection
- **Remote mounting kit contents:** All the mechanical fittings and fixing accessories

640424

Product Type	Mftrs. List No.	Order Code	Price Each 1+
Remote Graphic Display Terminal	VW3A1101	**204-3025●**	
Door mounting kit	VW3A1102	**204-3027●**	
Transparent door	VW3A1103	**204-3028●**	
Remote cable - 1m	VW3A1104R10	**204-3029●**	
Remote cable - 3m	VW3A1104R30	**204-3030●**	
Remote cable - 5m	VW3A1104R50	**204-3031●**	
Remote cable - 10m	VW3A1104R100	**204-3032●**	
RJ45 female/female adaptor	VW3A1105	**204-3033●**	

Stepper Motor Controllers

SMC42 Series/Controllers

- max. phase current 2 A/phase
- Microstep setting up to one eighth step for low-resonance, quiet running
- automatic current reduction at rest with the required supply voltage being only 21-37 V

Technical data:
SMC42 microstep power-amplifier

Current:	0,3 - 2,0 A / Phase
Type:	Bipolar-Chopper-Driver
Temperature	0°C to +40°C
Connection:	with screw-clamps
Fasteningmode:	for DIN-Railmounting EN 50 022 35 x 7,5
Weight:	130g

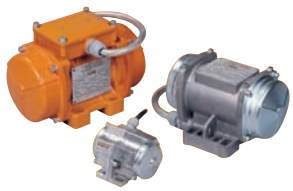
Type	Phase current	Description	Type	Phase current	Description
SMC42-0,3-1	0.3A	Power emplifier, microstep	SMC42-2,0-1	2.0A	Power emplifier, microstep
SMC42-1,0-1	1.0A	Power emplifier, microstep			

334328

Type	Order Code	Price Each 1+	5+	10+	25+
SMC42-0,3-1	**474-3118**				
SMC42-1,0-1	**474-3120**				
SMC42-2,0-1	**474-3131**				

Vibratory Motors

Single-Phase



Electric external vibrators are typically used for feeding, screening, compacting, hopper evacuation, etc. Typical industries include: concrete, chemical, food, packaging and mechanical handling.

- Adjustable eccentric weights for varying centrifugal force
- Enclosure protection to **IP65**
- Bearings specially selected to withstand high radial loads and speeds
- Terminal box has two cable entry points permitting wiring from either side

Max. CF kg	Power watts	Current Amps	Dimensions H	W	D	Weight kg	Mftrs. List No.	Order Code
4	20	0.13	69mm	90mm	104mm	0.85	M4	703-5111
21	22	0.1	73mm	110mm	148mm	1.7	M20	703-5123
62	120	0.27	120mm	127mm	193mm	4.1	M3/65	703-5135

221415

Mftrs. List No.	Order Code	Price Each 1+	3+	5+	10+	20+
M4	**703-5111●**					
M20	**703-5123●**					
M3/65	**703-5135**					

Motor Protection Relays

Electronic Overload Relays

- Inverse time delay response characteristic
- Independent adjustment of trip delays for starting and running conditions
- Locked rotor (shearpin) protection
- Thermistor input
- Adjustable reset delay
- Phase loss protection with override
- Range of current transformers available (two required for 3∅ measurement)
- Latching version retains fault status when power removed

Supply	Product Type		Order Code
115/230V	Standard	DMPR230S000	715-4811
115/230V	Latching	DMPR230L000	715-4835

Current Transformers Basic Range Range (A)		Order Code
1.4 - 20	01000158221	715-4860
17.5 - 100	01000158222	715-4872

224608

RoHS ● Compliant ▲ Non-compliant

DMPR	Order Code	Price Each 1+	5+	10+	25+	50+
115/230V	**715-4811**					
115/230V	**715-4835**					
Current Transformers						
Range (A)						
1.4 - 40	**715-4860**					
17.5 - 100	**715-4872**					

Soft Starters

Soft Starter - Altistar ATS01

110 V to 480 V

NEW

Provides torque surge suppression during starting and stopping operations for single-phase and three-phase asynchronous motors rated from 3 to 85 Amps (110 to 575 Volts). 45 mm wide to line up with IEC motor starters and eliminate wasted space. Designed for side-by-side mounting, it requires 25% less panel space. Installation is simplified with DIN rail or panel mounting, a removable control wiring terminal and contactor-style power wiring.

- Simple control wiring with many units requiring no control power
- Simple front-panel ramp time and starting voltage adjustments
- Two LEDs to indicate power on and motor up to speed
- Selectable kickstart for hard to start loads
- Built-in bypass contactor for cool, reliable operation
- Two or three wire control
- Fault relay and up to speed signal
- **Applications:** Simple Machine Control

204-2958, 204-2959: W= 22.5mm, H= 100mm, D= 100.4mm
204-2960 to 204-2962: W= 45mm, H= 124mm, D= 112.8mm

Supply voltage	110 V to 480 V	Supply frequency	50 to 60 Hz
Operating temperature	-10°C to +40°C	IP degree of protection	IP20

640068

Current Rating	Motor Power kW (400) V	HP (230) V	Power dissipation (W)	Mftrs. List No.	Order Code	Price Each 1+
3 A	0.37	0.5	4	ATS01N103FT	**204-2958●**	
6 A	2.2	1	1	ATS01N106FT	**204-2959●**	
9 A	4	2	1	ATS01N109FT	**204-2960●**	
12 A	5.5	3	1	ATS01N112FT	**204-2961●**	
25 A	7.5	5	1	ATS01N125FT	**204-2962●**	

Soft Starter - Altistar ATS22

230V to 440V

NEW

Provides pre-engineered, integrated solution for reduced voltage starting and soft stopping of standard three-phase asynchronous induction (squirrel cage) motors. The enclosed controllers consist of a circuit breaker disconnect and an Altistart 22 soft starter in a stand-alone enclosure.

- Reduced current inrush, reduced voltage drop and mechanical shocks
- An integral shorting contactor to reduce steady state controller operational losses
- Achieve greater energy efficiency with simple system integration and control
- Integrated bypass reduces the number of external components: power wiring, contactor and control wiring for coil
- **Applications:** Pumping, HVAC, Packaging, Agitator, Mixer, Fans and Water Wastewater

Supply voltage	230 V to 440 V	IP degree of protection	IP20 and IP00
Supply frequency	50 to 60 Hz	Approvals	**CCC, CSA, C-Tick, GOST and UL**
Operating temperature	-10°C to +40°C		

640079

Current Rating	Motor Power kW (400) V	Power dissipation (W)	Mftrs. List No.	Order Code	Price Each 1+
17 A	7.5	39	ATS22D17Q	**204-2974●**	
32 A	15	44	ATS22D32Q	**204-2975●**	
47 A	22	48	ATS22D47Q	**204-2977●**	
62 A	30	59	ATS22D62Q	**204-2978●**	
75 A	37	63	ATS22D75Q	**204-2979●**	
88 A	45	66	ATS22D88Q	**204-2980●**	
110 A	55	73	ATS22C11Q	**204-2981●**	
140 A	75	82	ATS22C14Q	**204-2982●**	
170 A	90	91	ATS22C17Q	**204-2983●**	
210 A	110	117	ATS22C21Q	**204-2984●**	
250 A	132	129	ATS22C25Q	**204-2985●**	
320 A	160	150	ATS22C32Q	**204-2986●**	
410 A	220	177	ATS22C41Q	**204-2987●**	
480 A	250	218	ATS22C48Q	**204-2989●**	
590 A	315	251	ATS22C59Q	**204-2991●**	

Soft Starter - Altistar ATS01

200 V to 240 V and 380 V to 415 V

NEW

Provides torque surge suppression during starting and stopping operations for single-phase and three-phase asynchronous motors rated from 3 to 85 Amps (110 to 575 Volts). 45 mm wide to line up with IEC motor starters and eliminate wasted space. Designed for side-by-side mounting, it requires 25% less panel space. Installation is simplified with DIN rail or panel mounting, a removable control wiring terminal and contactor-style power wiring.

ATS01N206 to ATS01N212 : W= 45mm, H= 124mm, D= 112.8mm
ATS01N222 to ATS01N232 : W= 45mm, H=154mm, D=112.8mm

- Simple control wiring with many units requiring no control power
- Simple front-panel ramp time and starting voltage adjustments
- Two LEDs to indicate power on and motor up to speed
- Selectable kickstart for hard to start loads
- Built-in bypass contactor for cool, reliable operation
- Two or three wire control
- Fault relay and up to speed signal
- **Applications:** Simple Machine Control

Operating temperature	-10°C to +40°C	IP degree of protection	IP20
Supply frequency	50 to 60 Hz		

640333

Current Rating	Motor Power kW	HP	Power dissipation (W)	Mftrs. List No.	Order Code	Price Each 1+
200 V to 240 V						
6 A	0.75	1	4	ATS01N206LU	**204-2963●**	
9 A	–	2	–	ATS01N209LU	**204-2965●**	
12 A	2.2	3	4	ATS01N212LU	**204-2966●**	
22 A	4	5	4.5	ATS01N222LU	**204-2967●**	
32 A	7.5	10	4.5	ATS01N232LU	**204-2968●**	
380 V to 415 V						
6 A	1.5	–	4	ATS01N206QN	**204-2969●**	
9 A	4	–	4	ATS01N209QN	**204-2970●**	
12 A	5.5	–	4	ATS01N212QN	**204-2971●**	
22 A	7.5	–	4.5	ATS01N222QN	**204-2972●**	
32 A	15	–	4.5	ATS01N232QN	**204-2973●**	

Electronic Soft Starters

3 - Phase AC Induction Motors

- Voltage - 230V rms to 460V rms
- Current - 5A to 41A (460V)
- Control voltage - 24V dc
- Start time - 1s to 30s
- Stop time - 0 to 30s
- Start pedestal voltage - 30% to 100%
- Standard Duty - IE AC53B, 3-5, 355
- DIN rail mounting
- Two phase control
- Internally bypassed
- Over current protected

Case Size 1 - H = 140, W = 45, D = 120mm
Case Size 2 - H = 165, W = 55, D = 120mm

This range of soft starters display the latest developments in design and technology from a company that has over 25 years experience of innovative design and manufacture of motor starters.
With the addition of the optional fan, these units can be upgraded from 10 starts or 5 starts + 5 stops per hour to 60 starts or 30 starts + 30 stops per hour.

545229

Case Size	Operational Current (A)	Motor kW (kW)	HP (460) V	Mftrs. List No.	Order Code	Price Each 1+
1	5	2.2	2.2	PFE-02	**176-0605**	
1	7	3	3	PFE-04	**176-0606**	
1	9	4	4	PFE-06	**176-0607**	
1	12	5.5	5.5	PFE-08	**176-0608**	
1	16	7.5	7.5	PFE-10	**176-0611**	
2	22	11	11	PFE-12	**176-0612**	
2	30	15	15	PFE-14	**176-0613**	
2	36	18.5	18.5	PFE-16	**176-0614**	
2	41	22	22	PFE-18	**176-0615**	
Fan for Case Size 1 Softstarters				PFEFAN01	**176-0616**	
Fan for Case Size 2 Softstarters				PFEFAN02	**176-0617**	

Soft Starters - continued

Electronic Soft Starters

SIEMENS

3RW40

- Protection of the machineś mechanical power-transmitting elements during start-up and ramp-down
- They efficiently guard the network against high inrush peaks through reduced power input
- Optimum adjustment to the drive application through separate potentiometers starting voltage (40 to 100%), start-up time up to 20 sec. And soft ramp-down 0 to 20 sec and settable current limiting
- Reduced mounting costs and wiring through simple 4-wire motor supply line
- Integrated intrinsic device protection against overloads
- Selectable manual or remote RESET

Rated Control Supply Voltage	110 to 230VAC	Ambient Temperature	40 °C
Rated Operational Voltage	200 to 480V	Fan Size 3RW40 2	S0
Dimensions (W x H x D) 3RW4024-28	45x125x149mm	3RW40 3	S2
3RW4036	55x160x165mm		

499352

Operational Current (A)	Rated power-3 phase motors kW @ 230V	kW @ 400V	Mftrs. List No.	Order Code	Price Each 1+	5+
Soft Starters						
12.5	3	5.5	3RW4024-1BB14	**154-1425**●		
25	5.5	11	3RW4026-1BB14	**154-1427**●		
32	7.5	15	3RW4027-1BB14	**154-1428**●		
38	11	18.5	3RW4028-1BB14	**154-1429**●		
45	11	22	3RW4036-1BB14	**154-1430**●		
Accessories						
Fan S0			3RW4928-8VB00	**154-1431**●		
Fan S2			3RW4947-8VB00	**154-1433**●		
Sealing Cover			3RW4900-0PB10	**154-1434**●		

Electronic Soft Starters 3RW30

SIEMENS

- Optimum adjustment to the drive application through separate potentiometers for starting voltage (40...100%) and start-up time up to 20s
- Minimum power loss through integrated bypass contacts after start-up completion
- Up to 70% space savings in the control cabinet compared to star-delta combination
- Reduced mounting costs and wiring through simple 4-wire motor supply line

Rated Control Supply Voltage	110 to 230V
Rated Operational Voltage	200 to 480V
3RW3003	200 to 400V
Dimensions (W x H x D) 3RW3003	22.5x102x120mm
3RW3013 - 18	45x95x93mm
3RW3026 - 28	45x125x119mm
3RW3036	55x160x143mm
Ambient Temperature	40 °C
Fan Size 3RW3013-18	S00
3RW3026-28	S0
3RW3036	S2

Mftrs. List No.	Operational Current	Rated power of 3-phase motors with rated operational voltage kW @ 230 V	kW @ 400 V	Order Code
3RW3003-1CB54	3.0	0.55	1.1	157-3677
3RW3013-1BB14	3.6	0.75	1.5	157-3678
3RW3014-1BB14	6.5	1.5	3	157-3679
3RW3016-1BB14	9.0	2.2	4	157-3680
3RW3017-1BB14	12.5	3	5.5	157-3681
3RW3018-1BB14	17.6	4	7.5	157-3683
3RW3026-1BB14	25.0	5.5	11	157-3684
3RW3027-1BB14	32.0	7.5	15	157-3685
3RW3028-1BB14	38.0	11	18.5	157-3686
3RW3036-1BB14	45.0	11	22	157-3687

508260

Mftrs. Part No.	Order Code	Price Each 1+	5+	10+
3RW3003-1CB54	**157-3677**●			
3RW3013-1BB14	**157-3678**●			
3RW3014-1BB14	**157-3679**●			
3RW3016-1BB14	**157-3680**●			
3RW3017-1BB14	**157-3681**●			
3RW3018-1BB14	**157-3683**●			
3RW3026-1BB14	**157-3684**●			
3RW3027-1BB14	**157-3685**●			
3RW3028-1BB14	**157-3686**●			
3RW3036-1BB14	**157-3687**●			

AC Motor Speed Control

AC Inverter Drives

ABB

ACS55 Series

The ACS55 Drive is simple to buy, simple to install and above all simple to configure and use.
The device can be easily integrated into existing panels, replacing contactors and motor starters due to its compact size. It is ideal for new installations wherever energy savings of small AC induction motors is desired.
The optional potentiometer has two switches in addition to the potentiometer for drive control; start/stop and forward/reverse. The ACS50-POT potentiometer does not require any external power source.

- Descriptive interface
- Compact size and shape
- Flexible mounting options - DIN rail or wall mount
- Automatic switching frequency
- Built-in EMC filter unit
- Compliant with Low Voltage Directive 73/23/EEC with supplements
- Meets EMC Directive 89/336/EEC with supplements
- **CE**, **C-Tick**, **GOST-R** Approved, **UL** Recognised

P_N Hp / kW	Output Current (A) - Max.	Input Current (A)	Dimensions Height	Width	Depth	Mftrs. List No	Order Code
0.5 / 370	3.3	6.9	170	45	128	ACS55-01E-02A2-2	169-8778
1.0 / 750	6.5	10.8	170	67.5	128	ACS55-01E-04A3-2	169-8779
2.0 / 1.5	11.4	18.2	226	70	159	ACS55-01E-07A6-2	169-8780
3.0 / 2.2	14.7	22	226	70	159	ACS55-01E-09A8-2	169-8781

532476

Power	Mftrs. List No.	Order Code	Price Each 1+	5+	10+
370W	ACS55-01E-02A2-2	**169-8778**●			
750W	ACS55-01E-04A3-2	**169-8779**●			
1.5kW	ACS55-01E-07A6-2	**169-8780**●			
2.2kW	ACS55-01E-09A8-2	**169-8781**●			
Accessories					
Remote Potentiometer	XUK001733	**169-8782**●			

Frequency Inverter

EATON
Powering Business Worldwide

M-MAX Series

- 2 Relays - 1 NO, 1 CO, 230V ac 2A
- **CE** and **c-Tick** Approved, **UL** Recognised
- Integrated RFI filter
- Dynamic motor control with sensorless vector control or V/f control
- Integrated keypad and display unit
- Electronic reference value potentiometer
- Fixed frequencies
- PI controller
- 6 Digital control inputs - 24V dc
- 1 Digital output - Transistor, 24V dc, 50mA
- 2 Analog inputs - 0 to 10V dc and 0/4 to 20 mA
- 1 Analog output - 0/4 to 20 mA
- Serial interface - RS485 / Mobus RTU

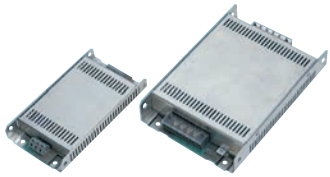
537804

No. of Phases	Motor Rating	Mftrs. List No.	Order Code	Price Each 1+
Mains supply voltage: 1 AC 230V, 50/60 Hz				
Single	250W	MMX12AA1D7F0-0	**171-5996**●	
Single	370W	MMX12AA2D4F0-0	**171-5997**●	
Single	550W	MMX12AA2D8F0-0	**171-5998**●	
Single	1.1kW	MMX12AA4D8F0-0	**171-6002**●	
Single	750W	MMX12AA3D7F0-0	**171-6000**●	
Single	1.5kW	MMX12AA7D0F0-0	**171-6003**●	
Single	2.2kW	MMX12AA9D6F0-0	**171-6004**●	
Mains supply voltage: 3 AC 400V, 50/60 Hz				
Three	370W	MMX34AA1D3F0-0	**171-6005**●	
Three	550W	MMX34AA1D9F0-0	**171-6006**●	
Three	750W	MMX34AA2D4F0-0	**171-6007**●	
Three	1.5kW	MMX34AA4D3F0-0	**171-6009**●	
Three	2.2kW	MMX34AA5D6F0-0	**171-6010**●	
Three	3kW	MMX34AA7D6F0-0	**171-6011**●	
Three	4kW	MMX34AA9D0F0-0	**171-6012**●	
Three	5.5kW	MMX34AA012F0-0	**171-6014**●	

RoHS ● Compliant ▲ Non-compliant

Single & Three-Phase Motor Inverter Filters

ROXBURGH EMC



Motor inverter high performance filters designed to enable inverters to meet the most stringent **EMC** limits as laid down in **EN55022B.** Flexible mounting options ensure minimal canel space occupation. Finger proof terminals are used up to 30A and insulating boots cover stud terminals above 30A. Designed to meet the requirements of **IEC950**.

Operating voltage	250V ac 520V ac	Single phase Three phase
Operating temperature	-25°C to +85°C	
Overload current	150% for 1 minute, 200% for 1 second	
Typical worst case insertion loss	70 - 80dB	

Rating (A)	L	W	H	Weight (kg)	Mftrs. List No.	Order Code
Single Phase						
10	214	145	40	0.95	MIF10	118-7729
16	214	145	40	0.95	MIF16	118-7730
Three Phase						
16	214	204	47	1.6	MIF316	118-7732
23	214	204	47	1.6	MIF323	118-7733
30	360	175	50	1.8	MIF330	118-7734

231344

Rating (A)	Order Code	Price Each 1+	5+	10+	25+
Single Phase					
10	**118-7729**●				
16	**118-7730**●				
Three Phase					
16	**118-7732**●				
23	**118-7733**●				
30	**118-7734**●				

iDrive Series Single or 3 Phase

IMO

- Simplified torque vector or V/F control
- Integrated class B EMC filter
- DIN rail or screw fix mounting as standard
- Auto energy saving for pumps and fans
- PID with sleep mode for pumps and fans
- RS232/RS485 options
- Remote keypad option
- Basic or advanced use set-up
- PC and PDA software
- 8 programmable preset speeds
- Parameter copy module
- Sink/Source switching
- CE marked for EMC & LVD european directives
- **UL, cUL & TUV** approved

iDrive uses a uniquely simple twelve parameter set-up for nominal applications, but for more advanced operation the hidden b-functions can be accessed. Simple, small and powerful the new low-cost iDrive comes with powerful domestic class B EMC filter, DC injection motor stopping (to satisfy the Machinery Directive **EN98/37/EC**), PC and Hewlett Packard PDA software. Single phase 200V and 3-phase 400V models available.

Input Supply Frequency	50/60Hz	Input Supply Voltage 3 phase	380 to 480VAC
Ambient Temperature	-10 to 50°C	Output Frequency	0 to 200Hz
Switching Frequency	4 to 16kHz	Overload Protection	150% for 60 sec.
Input Supply Voltage Single Phase	200 to 240VAC		

Power Rating	Weight (Kg)	Dimensions (WxHxD)	Mftrs. List No.	Order Code
Single Phase (200V)				
370/0.55kW	0.73	77x132x130.5mm	IDRIVE-EDX-040-21-E	129-3086
1.5kW	1.25	118x132x148mm	IDRIVE-EDX-150-21-E	129-3088
2.2kW	1.3	118x132x148mm	IDRIVE-EDX-220-21-E	129-3089
Three Phase (400V)				
750W	1.68	118x132x148mm	IDRIVE-EDX-075-43-E	129-3090
1.5kW	1.7	118x132x148mm	IDRIVE-EDX-150-43-E	129-3091
2.2kW	1.73	118x132x148mm	IDRIVE-EDX-220-43-E	129-3092

449723

Mftrs. List No.	Order Code	Price Each 1+	2+	5+	10+	25+
Single Phase (200V)						
IDRIVE-EDX-040-21-E	**129-3086**●					
IDRIVE-EDX-150-21-E	**129-3088**●					
IDRIVE-EDX-220-21-E	**129-3089**●					
Three Phase (400V)						
IDRIVE-EDX-075-43-E	**129-3090**●					
IDRIVE-EDX-150-43-E	**129-3091**●					
IDRIVE-EDX-220-43-E	**129-3092**●					

CIMR-J7Z Series - EMC Filters and Output Chokes

OMRON

A range of compact, low leakage, footprint style, RFI filters and Output Chokes are available which will enable EMC compliance to be achieved whilst occupying the minimum of panel space.

202583

RFI Filters Single Phase	Order Code	Price Each 1+	5+	10+
0.1kW - 0.55kW	**318-1601**			
0.7kW - 1.5kW	**318-1613**			

DC Motor Speed Control

DC Motor Controller - 4 Quadrant 2A

H = 25, W = 130, D = 52

A four quadrant linear output controller ideally suited for small dc motors and gear motors up to 60W

- Linear control minimises electrical noise
- Single polarity supply gives bi-directional control
- Armature feedback provides variable control over a speed range up to 50:1
- Control by potentiometer, dc control voltage or FSR hand control
- Adjustable current limit
- Inbuilt thermal protection

Supply Voltage	10 - 35Vdc	Current limit	100mA to 2A
Max output voltage	±26Vdc	Speed control input resistant	200 kΩ
Max output current	±2A		

204330

Order Code	Price Each 1+	5+	10+	15+	20+	30+
909-907						

Servo Amplifier ADS50/5, ADS50/10

maxon motor

H = 180 W = 103 D = 26

- ADS50/5 drives brushed permanent magnet motors up to 250 Watts
- ADS50/10 drives brushed permanent magnet motors up to 500 Watts
- Wide input power supply range of 12 to 50 Vdc
- Built in motor choke on ADS 50/5 allows the connection of motors with very low inductivity

Four modes can be selected by DIP switches

- Speed control using tacho signals
- Speed control using encoder signals
- I x R compensated speed control
- Torque and current control

	176-1318	**176-1319**
Supply Voltage	12 to 50VDC	12 to 50VDC
Maximum Output Voltage	0.95 x Vcc	0.95 x Vcc
Maximum Output Current	5A	10A
Maximum Output Current (Peak)	10A	20A

242100

Mftrs. List No.	Current Rating	Order Code	Price Each 1+	5+	10+
145391	5A	**176-1318**●			
201583	10A	**176-1319**●			

Servo Amplifier LSC 30/2

maxon motor

H = 100 W = 103 D = 34

- I x R compensation
- Voltage regulator
- Digital encoder control
- DC tacho control
- Current control

Set value can be set in several Ways:

- ±10V to connect to layout systems, such as a positioning controller
- Auxiliary voltages ±3.9 V are provided for use with an external potentiometer
- Speed ajustment can be obtained using internal potentiometer

Other features include:

- Wide input voltage range 12 to 30 Vdc
- Modular style aluminium housing offers several mounting options including 19" rack (3HE)

The LSC 30/2 is a linear 4-Q servo amplifier used to control permanent magnet DC motors up to approx 50W.
It allows the following operating modes:

Supply Voltage	12 to 30VDC	Max. Output Current	2A
Max. Output Voltage	25VDC	Max. Power Output	50W

242101

Mftrs. List No.	Current Rating	Order Code	Price Each 1+	5+	10+	+	+
250521	2A	**176-1320**●					

DC Motor Speed Control - continued

DC Motor Speed Controllers - 507, 508 Series

Non-Isolated

A compact non-isolated range of speed controllers suitable for shunt wound and permanent magnet dc motors up to 12A rating.

- Suitable for 110/120 or 220/240V single phase AC supplies (switch selectable)
- Fully isolated heatsink
- Adjustable speed ramp up and ramp down times (1-15 secs)
- Adjustable armature current limit (0-100%)
- Adjustable motor maximum and minimum speed limits
- Control signals available for zero speed, drive healthy and speed trim

650-390 H=125, W=96, D=66
650-407 H=125, W=96, D=77

- Switch selectable speed range
- Switch selectable feedback mode
- Adjustable IR compensation (for armature voltage feedback control)
- Torque control of motor
- Stall timer isolates motor current after 15 seconds to prevent motor overheating
- In built high transient suppression and fuseless overcurrent protection above 200% overload
- DIN rail mounting
- Supplied complete with comprehensive instruction manual

Supply voltage	110/120 or 220/240Vac ±10% 45-65 Hz
Armature output voltage	90 or 180Vdc
Armature output current:	
650-390	6A
650-407	12A
Field output voltage	100 or 210Vdc
Field output current	2A
Typical full load speed regulation	0.1% with tacho feedback3% with armature voltage feedback

Note: The ac mains supply to the modules must be fused as this line is not internally protected.

204311

Output Rating	Mftrs. List No.	Order Code	Price Each 1+	5+	10+
6A	507	**650-390**			
12A	508	**650-407**			

DC Motor Speed Controllers - 512C Series

Isolated

A compact isolated range of speed controllers suitable for shunt wound and permanent magnet dc motors up to 32A rating.

650-419 H=240, W=160, D=85
650-420 H=240, W=160, D=85
650-432 H=240, W=160, D=123

- Suitable for 110/120 or 220/240 or 380/415V single phase supplies (switch selectable)
- Switch selectable current calibration
- Buffered 0-10V output for speed indication
- Buffered 0-7.5V output for current indication (7.5V=150%)
- Adjustable speed ramp up and down times (0-40 secs)
- Linear current feedback for accurate torque control
- Zero speed or zero setpoint relay driver output - 24V dc
- Drive healthy relay driver output - 24V dc
- Adjustable maximum and minimum speeds
- Adjustable IR compensation (for armature voltage feedback speed control)
- 150% current overload capacity for 60 seconds
- Indication of mains on, stall trip and overcurrent trip
- Supplied with comprehensive instruction manual
- On board auxiliary supply fusing
- Adjustable maximum current levels
- Adjustable speed stability
- Speed trim input
- Total setpoint output
- Stall detection and trip

Supply voltage	110/120, 220/240 or 380/415Vac ±10% 50/60 Hz
Armature output voltage	90, 180 or 320Vdc
Armature output current:	
650-419	8A
650-420	16A
650-432	32A
Field output voltage	100, 210 or 360Vdc
Field output current	2A
Typical full load speed regulation	0.1% with tacho feedback 3% with armature voltage feedback

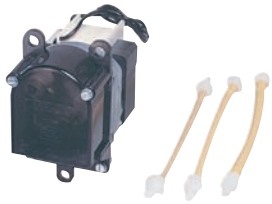
204312

Output Rating	Mftrs. List No.	Order Code	Price Each 1+	5+	10+
8A	512C8	**650-419**			
16A	512C16	**650-420**			
32A	512C32	**650-432**			

Peristaltic Pump

Peristaltic Pump

250V ac Motor



H=120, W=65, D=124, Fix centres=52.38x73.66

- Provides accurate pumping of fluids
- No fluid or pump contamination as the fluid is contained within the tube
- Flow rates of 1.5, 5 and 10 litres per hour available, dependent on size of tube
- 3 tubes supplied changeable by removal of front cover
- Roller guide provides minimum pressure between the roller and tube therefore no lubrication is required
- Operating Voltage 230V ac, 50Hz
- Operating Current 350mA

231297

Mftrs. List No.	Order Code	Price Each 1+	10+	20+
PUMP 9L	**538-140**			

Peristaltic Pump

Long Life Squeeze Tubing

IP56 - H = 92, W = 82, D = 103mm

Without Enclosure - H = 63, W = 67, D =

- Self priming
- Suitable for a wide range of applications
- Polypropylene housing which is shockproof and resistant to chemical aggression
- PC plugs for easy installation.
- Easy maintenance - Takes only seconds to replace squeeze tube
- Easy mounting by using the wall mounting bracket supplied

- Two types available, Enclosed to IP65 and open for mounting in equipment housing
- Variable speed models available for adjusting dose rate
- Supplied with foot valve, suction tubing, discharge tubing and injection valve
- Conform to the following standards: 73/23CEE of 19/2/73, 89/336CEE of 3/5/89 & EN60335-1

When the pump is powered, the roller assembly rotates. In doing so it pinches the tube between the rollers and the pump body.
Any air or liquid inside the squeeze tube between the rollers moves along in a clockwise fashion. This action sucks the chemical up, through the squeeze tube and out through the discharge tubing.

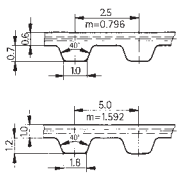
Tube Materials:
Sant. - Santoprene is not suitable for solvents.
Sek. - Sekobril is not recommended for use with strong acids or alkaline solution. Swells up in many organic solutions

544380

Flow Rate	Pressure	Tube Material	Voltage Supply	Mftrs. List No.	Order Code	Price Each 1+
IP65 Protection Enclosure						
Speed Adjustable						
0.6l/h to 4l/h	0.1 bar	Sant.	230VAC	PR-4 230V AC	**175-8185●**	
1l/h to 7l/h	0.1 bar	Sant.	230VAC	PR-7 230V AC	**175-8187●**	
1l/h to 7l/h	0.1 bar	Sant.		PR-7 24VAC	**175-8188●**	
0.15l/h to 1l/h	3 bar	Sek.	230VAC	PR-1 230V AC	**175-8189●**	
0.15l/h to 1l/h	3 bar	Sek.	24VAC	PR-1 24V AC	**175-8190●**	
3l/h to 18l/h	0.1 bar	Sant.	230VAC	PR-18 230VAC	**175-8191●**	
Time Adjustable						
6l/h	0.1 bar	Sant.	230VAC	PRT-6 230V AC	**175-8192●**	
6l/h	0.1 bar	Sant.	230VAC	PRT-6 230VAC	**175-8193●**	
9l/h	0.1 bar	Sant.	230VAC	PRT-9 230V AC	**175-8194●**	
9l/h	0.1 bar	Sant.	230VAC	PRT-9 230VAC	**175-8195●**	
0.4l/h	3 bar	Sek.	230VAC	PM-0.4 230V AC	**175-8197●**	
1.5l/h	3 bar	Sek.	230VAC	PM-1.5 230V AC	**175-8198●**	
Fixed Flow Rate - Without Enclosure						
1.5l/h	0.1 bar	Sant.	230VAC	PG-1.5 230VAC	**175-8199●**	
3l/h	0.1 bar	Sant.	230VAC	PG-3 230V AC	**175-8200●**	
0.4l/h	3 bar	Sek.	230VAC	PG-0.4 230VAC	**175-8201●**	
1.5l/h	0.1 bar	Sant.	230VAC	PBR-1.5 230VAC	**175-8203●**	
3l/h	0.1 bar	Sant.	230VAC	PBR-3 230VAC	**175-8204●**	
0.4l/h	3 bar	Sek.	230VAC	PBR-0.4 230VAC	**175-8205●**	

Synchroflex Belt Pulleys

Synchroflex® Timing Belts



RoHS ● Compliant ▲ Non-compliant

The Synchroflex® range of belts consists of only two components, a wear resistant Contilan carcass and high grade endless galvanized steel wire tension members. The excellent bond between the two results in a belt with high tooth load capacity combined with low elastic elongation, making them unsurpassed for quality and accuracy. The Synchroflex® process produces close tolerance timing belts to ensure optimum mesh in all power ranges. Synchroflex® belts comply with DIN 7721, having proved themselves in operation for more than 30 years.

- Slipless, synchronous operation
- Efficiencies up to 98%
- Belt speeds up to 80 m/sec
- Operating temperature range -10°C to +80°C
- Chemically stable
- Chemically resistant to ozone and sunlight
- Conditionally resistant to acids and alkalis
- Resistant to fats and petrol
- Extremely oil resistant
- Hydrolysis resistant
- High positional and angular accuracy
- Can be welded to other thermoplastics
- Suitable for positioning and stepper motor drives

627207

Long Length (mm)	Mftrs. List No.	Order Code	Price Each 1+	5+	10+	20+	50+
Pitch 2.5mm, W = 6mm							
245	6T2.5.245	**708-9740**					
265	6T2.5/265	**708-9752**					
285	6T2.5/285	**708-9764**					
500	6T2.5/500	**708-9788**					
Pitch 5mm, W = 10mm							
165	10T5/165	**708-9790**					
225	10T5/225	**708-9806**					
245	10T5/245	**708-9818**					
260	10T5/260	**708-9820**					
305	10T5/305	**708-9831**					
340	10T5/340	**708-9843**					
355	10T5/355	**708-9855**					
365	10T5/365	**708-9867**					
390	10T5/390	**708-9879**					
455	10T5/455	**708-9880**					
480	10T5/480	**708-9892**					
690	10T5/690	**708-9909**					
815	10T5/815	**708-9910**					
990	10T5/990	**708-9934**					
1380	10T5/1380	**708-9958**					
Pitch 5mm, W = 16mm							
455	16T5/455	**709-0055**					

Pulleys

Synchroflex®

- Light alloy pulleys
- Plated flanges
- Pilot bored
- Generated toothforms

Suitable for all Synchroflex® belts of their respective pitches

Pitch	Belt W	No. of Teeth	d_K	d_B	Bore d^{H7}	W1	W	d_N	Mftrs. List No.	Order Code
2.5	6	14	10.60	14	3	10	16	14	LS16T2.5/14-2	709-2570
2.5	6	16	12.20	16	4	10	16	16	LS16T2.5/16-2	709-2581
2.5	6	22	17.00	23	4	10	16	12	LS16T2.5/22-2	709-2593
2.5	6	28	21.75	25	4	10	16	14	LS16T2.5/28-2	709-2600
2.5	6	32	24.95	28	6	10	16	16	LS16T2.5/32-2	709-2611
2.5	6	48	37.70	-	6	10	16	26	LS16T2.5/48-2	709-2623
2.5	6	60	47.25	-	8	10	16	34	LS16T2.5/60-2	709-2635
5	10	10	15.05	20	4	15	21	8	LS21T5/10-2	709-2404
5	10	12	18.25	23	4	4	15	21	LS21T5/12-2	709-2416
5	10	14	21.45	26	6	15	21	14	LS21T5/14-2	709-2428
5	10	15	23.05	28	6	15	21	16	LS21T5/15-2	709-2430
5	10	18	27.80	33	6	15	21	20	LS21T5/18-2	709-2441
5	10	27	42.20	47	8	15	21	30	LS21T5/27-2	709-2453
5	10	32	50.10	55	8	15	21	38	LS21T5/32-2	709-2477
5	10	40	62.85	67	8	15	21	40	LS21T5/40-2	709-2489
5	16	15	23.05	28	6	21	27	16	LS27T5/15-2	709-2490
5	16	20	31.00	36	6	21	27	24	LS27T5/20-2	709-2519
5	16	25	39.00	43	6	21	27	26	LS27T5/25-2	709-2520
5	16	30	46.95	51	8	21	27	34	LS27T5/30-2	709-2532
5	16	40	62.85	67	8	21	27	40	LS27T5/40-2	709-2544
5	16	48	75.55	-	8	21	27	50	LS27T5/48-2	709-2556
5	16	60	94.65	-	8	21	27	65	LS27T5/60-2	709-2568

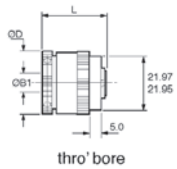
221984

Pitch	Belt Width	No. of Teeth	Order Code	Price Each 1+	5+	10+	20+	50+
2.5	6	14	**709-2570**					
2.5	6	16	**709-2581**					
2.5	6	22	**709-2593**					
2.5	6	28	**709-2600**					
2.5	6	32	**709-2611**					
2.5	6	48	**709-2623**					
2.5	6	60	**709-2635**					
5	10	10	**709-2404**					
5	10	12	**709-2416**					
5	10	14	**709-2428**					
5	10	15	**709-2430**					
5	10	18	**709-2441**					
5	10	27	**709-2453**					
5	10	32	**709-2477**					
5	10	40	**709-2489**					
5	16	15	**709-2490**					
5	16	20	**709-2519**					
5	16	25	**709-2520**					
5	16	30	**709-2532**					
5	16	40	**709-2544**					
5	16	48	**709-2556**					
5	16	60	**709-2568**					

Friction Clutches

Adjustable Friction Clutches

Huco Dynatork



- Adjustable rotary friction clutches
- Available in two torque ranges
- Compact proportions
- Use as a torque limiter or tensioning device
- Can be fully mounted or adapted for in-line coupler use with coupler adaptor
- Use bore adaptors for alternative shaft sizes

Huco Vari-Tork are friction devices with a facility for adjusting the drag or slip torque.

Controlled slip takes place between the hub and housing whenever the load exceeds the set torque.

The construction is simple and robust, comprising a series of steel clutch plates engaging a hub plus a series of friction rings engaing a housing. Pressure is brought to bear on the plates and friction rings by an adjuster acting through a spring and pressure plate.

As a torque limiter, Vari-Tork interrupts continuity between power source and load when this reaches a pre-determined level. As a tensioning device, Vari-Tork typically maintains tension in a filament or tape winding operation by exerting drag on the feed spool.

The further this is screwed home, the greater the slipping torque between the hub and housing. The load can be connected to either the steel inner hub or the aluminium alloy housing.

Power dissipation at 20°C	7.0 watts - 2 plate model 8.6 watts - 6 plate model	Max. Permissible surface temperature Max. Slipping speed	80°C rpm
Backlash	2° max.		

Order Code	707-6794	707-6800
Mftrs' List No.	271P.25.28.F	279P.25.28.F
∅ D	25.8	25.8
L	26.4	32.4
L 1	Thro'	Thro'
∅ B1 Max. Bores	8	8
Screw size	M3	M3
Max. drag torque Nm		

221958

Clutch	Bore mm	Mftrs. List No.	Order Code	Price Each 1+	5+	10+	25+
2 Plate	8	271P.25.28.F	**707-6794**				
6 Plate	8	279P.25.28.F	**707-6800**				
Adaptor		289P.25.28.F	**707-6812**				

Motor Couplings

Uni-Lat Couplings

Backlash-Free Torque Drive

Huco Dynatork

The Uni-Lat is a one-part zero-backlash coupler rated for intermittent operation. Its special feature is a short overall length combined with exceptional misalignment capability. Torque is transmitted through a pair of injection-moulded acetal rings formed with bearings allowing the hubs pivotal and radial displacement. This unique principle combines the mechanisms of the universal joint and the Oldham coupling and is free of flex related restoring forces.

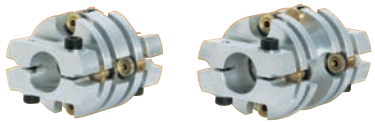
- Backlash free
- Flex-free mechanical action
- Low bearing loads
- 10° angular and 1mm radial compensation
- Short space envelope
- Electrically isolating
- Low inertia
- Axially stiff
- Torsionally damping

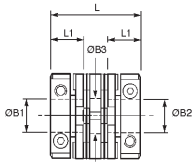
627213

Size	Bore	Mftrs. List No.	Order Code	Price Each 1+	10+	20+	50+
18	6mm	207P18.2222.F	**707-1358**				
18	6.35mm	207P18.2424.F	**707-1371**				
27	10mm	207P27.3232.F	**707-1401**				

Clamping Elements

Huco-Flex M, Short Spacer





- Torsionally rigid
- No moving parts
- Near infinite, backlash-free life
- Dynamically balanced design
- Angular, radial and axial compliance
- All-metal construction
- Non-magnetic
- Low inertia
- Use bore adaptors to fit a full range of shaft sizes

The HucoFlex M® are torsionally rigid, high-performance precision couplers with excellent kinematic properties, no moving parts and near-infinite life expectancy. They are rated for continuous uni- and bidirectional rotation and are typically specified for high resolution measuring devices, high-gain velocity or motion control systems, position-critical frictional loads, dynamometers, precision encoders, etc.
Typically, Flex-M conduct the transmission through two complementary angles when compensating for radial shaft errors. The greater the distance between the membrances, the larger the radial error that can be accommodated. To cater for differing levels of radial error, Flex-M are made in standard lengths.

∅D	L	[1]L1	∅B1 & B2	Screw Size	Moment of Inertia kgm^2 - 10^5	Order Code
25.6	28.4	10.0	6x6		16	707-2715
33.5	40.1	14.0	0.375x0.375		73	707-2740
33.5	40.1	14.0	10x10		73	707-2764
41.5	48.5	17.0	16x16		222	707-2776

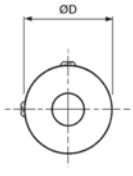
1. Length of supported through bore. Shafts can near-butt.

Peak Torque Nm	Max. Compliance Angular	Max. Compliance Radial mm	Max. Compliance Axial ±mm	Torsional Nm/rad	Order Code
2.3	4	0.2	0.2	385	707-2715
5.6	3	0.2	0.2	935	707-2764
11.3	2	0.2	0.2	1980	707-2776

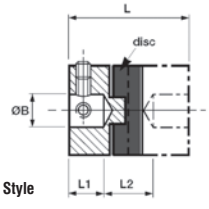
229791

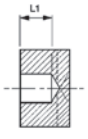
Size	Bore	Mftrs. List No.	Order Code	Price Each 1+	5+	10+	25+
26	6mm x 6mm	466P26.2222.F	**707-2715**				
33	10mm x 10mm	466P33.3232.F	**707-2764**				
41	16mm x 16mm	466P41.4242.F	**707-2776**				

Oldham Coupling, Blind Hub Standard Series



Set Screw Style





controlled bore depth L1 provides a register when pre-assembling hubs to shafts

set screw style

Blind Hubs

∅D	L	[1]L1	[2]L1	∅B	Screw Size	Moment of Inertia kgm^2 x 10^{-8}	Order Code
12.7	15.9	4.3	7.3	3	Metric	26	707-5558
12.7	15.9	4.3	7.3	4	Metric	26	707-5560
12.7	15.9	4.3	7.3	5	Metric	26	707-5571
12.7	15.9	4.3	7.3	6	Metric	26	707-5583
12.7	15.9	4.3	7.3	6.35	Metric	26	707-5595
19.1	22	6.3	9.4	4	Metric	67	707-5601
19.1	22	6.3	9.4	6	Metric	67	707-5613
19.1	22	6.3	9.4	6.35	Metric	67	707-5625
25.4	28.4	8.6	11.2	8	Metric	252	707-5522
25.4	28.4	8.6	11.2	10	Metric	252	707-5546

1. Length of parallel bore. Bores normally terminate in 118° incl. angle
2. Distance between unchamfered shafts bottomed-out to L1
3. Values apply to complete couplers with Max. bores

Peak Torque Nm	Max. Offset Angular°	Max. Offset Radial mm	Max. Offset Axial mm	Order Code
0.8	1	1.5	0.10	707-5558
0.8	1	1.5	0.10	707-5560
0.8	1	1.5	0.10	707-5571
0.8	1	1.5	0.10	707-5583
0.8	1	1.5	0.10	707-5595
1.6	1	2.0	0.20	707-5601
1.6	1	2.0	0.20	707-5613
1.6	1	2.0	0.20	707-5625
3.4	1	2.8	0.20	707-5522
3.4	1	2.8	0.20	707-5546

Maximum offset values are mutually exclusive
Couplers can sustain 10^6 minimum reversal cycles at these values

627357

Size	Bore	Mftrs. List No.	Order Code	Price Per Pack 1+	5+	10+	15+	20+
Pack Quantity = 4								
12.7	3	232P13.14.F	**707-5558**					
12.7	4	232P13.18.F	**707-5560**					
12.7	5	232P13.20.F	**707-5571**					
12.7	6	232P13.22.F	**707-5583**					
12.7	6.35	232P13.24.F	**707-5595**					
19.1	4	232P19.18.F	**707-5601**					
19.1	6	232P19.22.F	**707-5613**					
19.1	6.35	232P19.24.F	**707-5625**					
Pack Quantity = 2								
25.4	8	232P25.28.F	**707-5522**					
25.4	10	232P25.32.F	**707-5546**					

Oldham Couplings

- Backlash-free
- Flex-free mechanical action - low bearing loads
- High radial misalignment capability
- Torsionally stiff with alternative shock absorbing wear element
- Electrically isolating
- Low inertia
- Mix & Match hubs for a range of shaft combinations
- Max. speed: 3000rpm

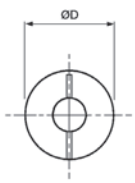
Standard set screw, X-Y through series

A robust three-part coupler rated for intermittent operation, the Huco Oldham has zero backlash, high torsional stiffness and offers easy connection of drives in blind or difficult installations. The Oldham is widely used for motion control, typically in positioning tables, fluid delivery, optical systems and similar applications.

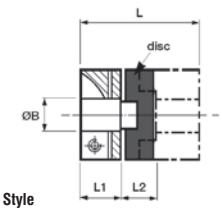
Components
The Huco Oldham coupler consists of two hubs + one torque disc. The hubs determine the method of installation and shaft attachment, the discs determine the quality of motion. The two hub styles and two disc materials that comprise the range are fully interchangeable within each of the several sizes available. To take advantage of this flexibility, hubs and discs are specified and supplied separately. Through-bored hubs are recommended when backlash-free life is a primary consideration. The protective coating applied to these hubs has a lower abrasion factor, giving between two-three times more freedom from backlash than blind hubs.

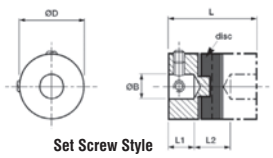
mot16/221356

Oldham Coupling, Through-Bore X-Y Series



Clamp Style





Set Screw Style

∅D	L	[1]L1	[2]L1	∅B	Screw Size	Moment of Inertia kgm^2 x 10^{-8}	Order Code
19.1	26	9.4	7.2	4	UNC	59	707-5923
19.1	26	9.4	7.2	5	UNC	59	707-5935
19.1	26	9.4	7.2	6	UNC	59	707-5947
19.1	26	9.4	7.2	6.35	UNC	59	707-5959
25.4	32.4	11.6	9.2	6	Metric	252	707-5856
25.4	32.4	11.6	9.2	6.35	Metric	252	707-5868
25.4	32.4	11.6	9.2	8	Metric	252	707-5870
33.3	48	15	18	8	Metric	1133	707-5960
33.3	48	15	18	10	Metric	1133	707-5984
41.3	50.8	17.8	15.3	12	Metric	3177	707-5900

1. Max permissible shaft penetration with standard disc
2. Min. distance between shafts with standard disc
3. Values apply to complete couplers with Max. bores

Static Break Torque Nm	Peak Torque Nm	Max. Offset Angular°	Max. Offset Radial mm	Max. Offset Axial mm	Order Code
10	10	1	2.0	0.20	707-5923
10	10	1	2.0	0.20	707-5935
10	10	1	2.0	0.20	707-5947
10	10	1	2.0	0.20	707-5959
13	13	1	2.8	0.20	707-5856
13	13	1	2.8	0.20	707-5868
13	13	1	2.8	0.20	707-5870
53	53	1	3.6	0.25	707-5960
53	53	1	3.6	0.25	707-5984
57	57	1	4.5	0.25	707-5900

Maximum offset values are mutually exclusive
Couplers can sustain 10^6 minimum reversal cycles at these values

627363

∅D (mm)	Bore (mm)	Mftrs. List No.	Order Code	Price Each 1+	5+	10+	15+	20+
19.1	4	453P19.18.F	**707-5923**					
19.1	5	453P19.20.F	**707-5935**					
19.1	6	453P19.22.F	**707-5947**					
19.1	6.35	453P19.24.F	**707-5959**					
25.4	6	452P25.22.F	**707-5856**					
25.4	6.35	452P25.24.F	**707-5868**					
25.4	8	452P25.28.F	**707-5870**					
33.3	8	453P33.28.F	**707-5960**					
33.3	10	452P33.32.F	**707-5984**					
41.3	12	452P41.35.F	**707-5900**					

Oldham Couplings

Backlash-Free Torque Disc

Standard Discs

- Manufactured in Actel
- High torsional stiffness
- Good bearing properties
- Long backlash-free life

For use with Oldham laterla displacement coupler hubs.

Size	13	19	25	33	41
Static Break Torque Nm	1	2.5	3.2	13	14
Peak Torque Nm					
Max. Offsets Angular°	1	1	1	1	1
Max. Offsets Radial mm	1.5	2.0	2.8	3.6	4.5
Max. Offsets Axial mm	0.10	0.20	0.20	0.25	0.25
Max. Recommended Speed rpm	3000	3000	3000	3000	3000
Mftrs. List No.	236P13.F	236P19.F	236P25.F	236P33.F	236P41.F
Order Code	700-2531	700-2543	700-2555	700-2567	700-2579

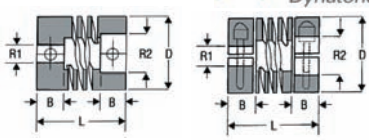
Temperature factors 0°C - 60°C: factor 1, 60°C-85°C:factor 1.5

221372

Sold in Packs of 4

Size	Order Code	Price Per Pack 1+	5+	10+	15+	20+
13	**700-2531**					
19	**700-2543**					
25	**700-2555**					
33	**700-2567**					
41	**700-2579**					

Panamech Multi-Beam Couplings



A range of multi-beam flexible couplings designed to perform where higher speeds, greater misalignment and limited lubrication would exceed the capabilities of other couplings. Both styles are manufactured from aluminium and are of one piece construction. Typical applications include stepper motors, rotary encoders, robotics, pumps, measuring instruments, valves etc.

- One piece construction
- Zero backlash
- Torsionally rigid
- No lubrication needed
- Constant velocity
- High flexibility
- For use with high or low speeds
- Can be reversed
- Allowable misalignment 5° / 0.13mm
- Available with clamp or set screw fixings

Clamp Screw Fixing - Angular Offset = 5°, Parallel Offset = 0.127mm

Model	Bores	D	L	B	Cap Screw	Torque Nm	Order Code
DBCR3	3	12.7	19.05	6		1.46	721-4704
DBCR3	4	12.7	19.05	6		1.4	721-4716
DBCR3	4	12.7	19.05	6		0.9	721-4728
DBCR4	4	19.05	22.86	7		4.06	721-4730
DBCR4	5	19.05	22.86	7		4.06	721-4741
DBCR4	6	19.05	22.86	7		4	721-4753
DBCR4	0.25	19.05	22.86	7		3.2	721-4765
DBCR5	6	25.4	31.75	10		6.5	721-4777
DBCR5	8	25.4	31.75	10		5.9	721-4789
DBCR5	10	25.4	31.75	10		4.3	721-4807
DBCR6	10	31.75	44.45	12		9.7	721-4819
DBCR6	12	31.75	44.45			7.2	721-4820

Set Screw Fixing - Angular Offset = 3°, Parallel Offset = 0.1mm

Model	Bores	D	L	B	Cap Screw	Torque Nm	Order Code
DBSR2	3	9.52	14.2	2.8		0.65	721-4832

Set Screw Fixing - Angular Offset = 5°, Parallel Offset = 0.127mm

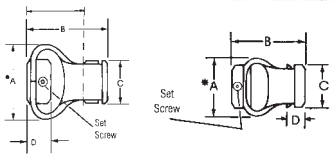
Model	Bores	D	L	B	Cap Screw	Torque Nm	Order Code
DBSR3	3	12.7	19.05	6		1.46	721-4844
DBSR3	4	12.7	19.05	6		1.4	721-4856
DBSR3	5	12.7	19.05	6		0.9	721-4868
DBSR4	4	19.05	22.86	7		4.06	721-4870
DBSR4	5	19.05	22.86	7		2.5	721-4881
DBSR4	6	19.05	22.86	7		4	721-4893
DBSR4	0.25	19.05	22.86	7		3.2	721-4900
DBSR5	6	25.4	31.75	10		6.5	721-4911
DBSR5	8	25.4	31.75	10		5.9	721-4923
DBSR5	0.375	25.4	31.75	10		4.52	721-4935
DBSR5	10	25.4	31.75	10		4.3	721-4947
DBSR6	10	31.75	44.45	12		9.75	721-4959

627367

Bore Diameters (mm)	Mftrs. List No.	Order Code	Price Each 1+	5+	10+	25+
Clamp Fixing						
3	725.13.1414	**721-4704**				
4	725.13.1818	**721-4716**				
4	725.13.1820	**721-4728**				
4	725.19.1818	**721-4730**				
5	725.19.2020	**721-4741**				
6	725.19.2222	**721-4753**				
0.25	725.19.2424	**721-4765**				
6	725.25.2222	**721-4777**				
8	725.25.2828	**721-4789**				
10	725.25.3232	**721-4807**				
10	725.32.3232	**721-4819**				
12	725.32.3535	**721-4820**				
Set Screw Fixing						
3	724.09.1414	**721-4832**				
3	724.13.1414	**721-4844**				
4	724.13.1818	**721-4856**				
5	724.13.2020	**721-4868**				
4	724.19.1818	**721-4870**				
5	724.19.2020	**721-4881**				
6	724.19.2222	**721-4893**				
0.25	724.19.2424	**721-4900**				
6	724.25.2222	**721-4911**				
8	724.25.2828	**721-4923**				
0.375	724.25.3131	**721-4935**				
10	724.25.3232	**721-4947**				
10	724.32.3232	**721-4959**				

Flex-K Coupling

Misalignment Coupling



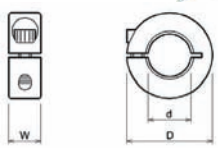
- Annealed steel hubs, zinc plated and tough elastcast
- Polyurethane set screw fixing
- Angular, parallel and axial flexibility
- Isolates vibration and absorbs shock

Model	Bores	A	B	C	D	Set Screw	Torque Nm	Order Code
5801	6	28.5	28.5	17.5	8			721-5617
5801	0.25	28.5	28.5	17.5	8			721-5629
5802	6	47.6	44.5	25.5	12.6			721-5630
5802	8	47.6	44.5	25.5	12.6			721-5642
5802	10	47.6	44.5	25.5	12.6			721-5654
5803	12	54	54	31.8	15.8			721-5680
5804	16	54	60.3	31.8	15.8			721-5721

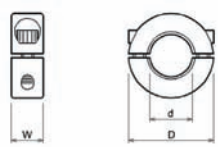
627429

Type	Bore Dia.'s (mm)	Mftrs. List No.	Order Code	Price Each 1+	5+	10+	25+
5801	6	047102222.FAR	**721-5617**				
5801	0.25	047102424.FAR	**721-5629**				
5802	6	047202222.FAR	**721-5630**				
5802	8	047202828.FAR	**721-5642**				
5802	10	047203232.FAR	**721-5654**				
5803	12	047303535.FAR	**721-5680**				
5804	16	047404242.FAR	**721-5721**				

Clamp Collars



1 Piece Collar



2 Piece Collar

- Effective all round grip
- For Hardened and Plain shafts
- Sizes to fit most standard size shafts
- Easy installation and adjustment
- Steel with black finish

[d] Bore (mm)	[D] O.D. (mm)	[W] Width (mm)	Screw	Screw Torque Max. (Nm)	Order Code
1 Piece Collars					
8	18	9	M3 x 8	2.1	347-1615
10	24	9	M3 x 10	2.1	347-1627
12	28	11	M4 x 12	4.6	347-1639
16	34	13	M5 x 16	9.5	347-1652

Clamping Elements - continued

Clamp Collars - continued

[d] Bore (mm)	[D] O.D. (mm)	[W] Width (mm)	Screw	Screw Torque Max. (Nm)	Order Code
1 Piece Collars					
20	40	15	M6 x 16	16	347-1664
25	45	15	M6 x 16	16	347-1688
45	45	15			347-1846
2 Piece Collars					
45	45	15	M3 x 8	2.1	347-1846

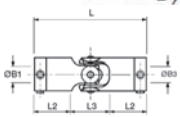
627872

Bore Dia. (mm)	Mftrs. List No.	Order Code	Price Each 1+	5+	10+
1 Piece Collars					
8	046101008FAR	**347-1615**			
10	046101010FAR	**347-1627**			
12	046101012FAR	**347-1639**			
16	046101016FAR	**347-1652**			
20	046101020FAR	**347-1664**			
25	046101025FAR	**347-1688**			
2 Piece Collar					
25	046201025FAR	**347-1846**			

Universal Joints

Acetal Universal Joints

Huco-Pol®



Huco Pol® is a range of light-duty, backlash free universal joints. Manufactured from acetal and non-ferrous metals. They are intended for intermittent applications where low mass, corrosion resistance and electrical isolation are advantageous. Applications include business machines, domestic appliances, laboratory equipment and healthcare products. These universal joints have only a fraction of the torque capability of steel joints and are not intended to substitute these in the normal way. They do provide a relatively low-cost means of routing transmission paths through angles too severe for normal misalignment couplers.

- Light Weight
- Moulded acetal bodies
- Backlash free
- Electrically isolating
- No maintenance
- Maximum working angle of 45°
- 1000rpm maximum speed

∅D	L	L2	L3	∅ B1 & B3	Screw Torque Size	Static Break	★ Peak	End Loading ★ Max.	Order Code
11.1	37.6	13.1	11.4	5 x 5mm		1.9	0.36	38	707-7130
14.3	46.2	15.7	14.8	6 x 6mm		4.5	0.85	67	707-7142
17.5	67.6	22.3	23.0	10 x 10mm		6.8	1.6	98	707-7191

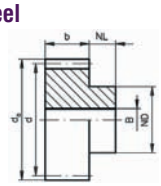
★ These values are mutually exclusive
L2 - Bore depth
L3 - Distance between fully entered shafts

627430

Bore Dia.'s (mm)	Pack Qty.	Mftrs. List No.	Order Code	Price Each 1+	5+	10+	25+	50+
5	2	103P09.2020.F	**707-7130**					
6	1	103P13.2222.F	**707-7142**					
10	1	103P16.3232.F	**707-7191**					

Spur Gears, Steel

Spur Gears - Steel



- High quality machined gears for industrial use.
- Milled teeth, straight interlocking
- Bore tolerances to H7
- Pressure angle 20°
- Manufactured to DIN 3967
- Quality grade 8
- Material Steel, 9 SMn 28K
- Module = 1.0
- Thickness (b) = 10mm

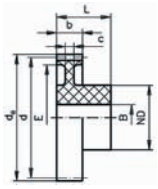
No. teeth	O.D.	Pitch dia.	Hub dia.	Hub length	Bore	Torque (Ncm)	Mftrs. List No.	Order Code
12	14	12	10	6	4	11.3	101214012FAR	347-0544
20	22	20	15	6	6	31.4	101214020FAR	347-0581
22	24	22	15	6	6	38	101214022FAR	347-0593
24	26	24	15	8	6	45.2	101214024FAR	347-0600
60	62	60	40	12	10	280	101214060FAR	347-0817

627875

No. teeth	Order Code	Price Each 1+	5+	10+
12	**347-0544**			
20	**347-0581**			
22	**347-0593**			
24	**347-0600**			
60	**347-0817**			

Spur Gears, Acetal

Spur Gears - Acetal



- High strength
- Low friction coefficient
- Injection moulded
- Machined bores
- Pressure angles 20°

No. teeth	O.D.	Pitch dia.	Hub dia.	Hub length	Bore	Torque (Ncm)	Mftrs. List No.	Order Code
Module 0.5 - Thickness(b) 3mm								
12	7	6	4	7	2	0.6	101281012FAR	347-1147
15	8.5	7.5	6	10	3	1.0	101281015FAR	347-1160
16	9	9	6	10	3	1.2	101281016FAR	347-1172
18	10	6	8	10	4	1.5	101281018FAR	347-1196
20	11	10	8	10	4	1.8	101281020FAR	347-1214
22	12	11	10	10	4	2.2	101281022FAR	347-1226
24	13	12	10	10	4	2.7	101281024FAR	347-1240
30	16	15	12	10	4	4.2	101281030FAR	347-1287
32	17	16	12	10	4	4.8	101281032FAR	347-1299
36	19	18	12	10	4	6.1	101281036FAR	347-1317
38	20	19	12	10	4	6.8	101281038FAR	347-1329
40	21	20	12	10	4	7.5	101281040FAR	347-1330
48	25	24	15	10	6	10.8	101281048FAR	347-1366
60	31	30	15	10	6	16.8	101281060FAR	347-1421
70	36	35	15	10	6	19.6	101281070FAR	347-1457
80	41	6	15	4	6	22.3	101281080FAR	347-1482
Module 1.0 - Thickness(b) 9mm								
12	14	12	9	17	4	8.0	101283012FAR	346-9943
14	16	14	9	17	4	11.1	101283014FAR	346-9955
16	18	16	9	17	4	14.5	101283016FAR	346-9979
18	20	18	9	17	4	18.3	101283018FAR	346-9980
20	22	20	9	17	4	22.6	101283020FAR	346-9992
24	26	24	15	18	6	32.6	101283024FAR	347-0015
25	27	25	15	18	6	35.4	101283025FAR	347-0027
30	32	30	15	18	6	50.9	101283030FAR	347-0052
40	42	40	18	18	8	90.6	101283040FAR	347-0106
45	47	45	18	18	8	110	101283045FAR	347-0120
60	62	60	21	18	8	200	101283060FAR	347-0209
80	82	80	21	4	10	260	101283080FAR	347-0260

273189

Module	No. teeth	Order Code	Price Each 1+	5+	10+
Module 0.5 - Thickness(b) 3mm					
0.5	12	**347-1147**			
0.5	15	**347-1160**			
0.5	16	**347-1172**			
0.5	18	**347-1196**			
0.5	20	**347-1214**			
0.5	22	**347-1226**			
0.5	24	**347-1240**			
0.5	30	**347-1287**			
0.5	32	**347-1299**			
0.5	36	**347-1317**			
0.5	38	**347-1329**			
0.5	40	**347-1330**			
0.5	48	**347-1366**			
0.5	60	**347-1421**			
0.5	70	**347-1457**			
0.5	80	**347-1482**			
Module 1.0 - Thickness(b) 9mm					
1.0	12	**346-9943**			
1.0	14	**346-9955**			
1.0	16	**346-9979**			
1.0	18	**346-9980**			
1.0	20	**346-9992**			
1.0	24	**347-0015**			
1.0	25	**347-0027**			
1.0	30	**347-0052**			
1.0	40	**347-0106**			
1.0	45	**347-0120**			
1.0	60	**347-0209**			
1.0	80	**347-0260**			