D.C. miniature gear-motors

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D.C. miniature gear-motors

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motor

encoder

gear-motors with two-phase Hall-effect 90° encoder

gear-motors with Hall-effect encoder

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general guide

gear-motors

TYPE		1271	B138F BS138F	B138F.4/12 BS138F.4/12	HL149	HV155	1308	E192	P205
Voltage	V	4-6-12	6-12	12	12-24	12-24	12-24	12-24	12-24
Reduction		10 ÷ 392	12 ÷ 1470	12 ÷ 608	10 ÷ 90	10 ÷ 90	30 ÷ 630	3 ÷ 625	4 ÷ 625
Max Torque	Ncm	20	50	50	15	25	100	300	900
Speed (no load)	RPM	255 ÷ 6	220 ÷ 1.8	320 ÷ 6.5	315 ÷ 37	660 ÷ 75	110 ÷ 5	1100 ÷ 6.4	1024 ÷ 6.7
Speed (max Torque)	RPM	165 ÷ 4	155 ÷ 1.6	250 ÷ 5.3	220 ÷ 30	460 ÷ 62	70 ÷ 4.5	770 ÷ 6	640 ÷ 6.3
Dimensions	mm	Ø 27	Ø 34	Ø 34	Ø 30	Ø 30	Ø 39.6	Ø 40.5	42 x 42

NOTE: It is recommended to avoid the use of the motor's internal inductance in PWM drive applications. It is advisable to use an external series inductance.

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Mclennan Micro-Motors Catalogue 1411

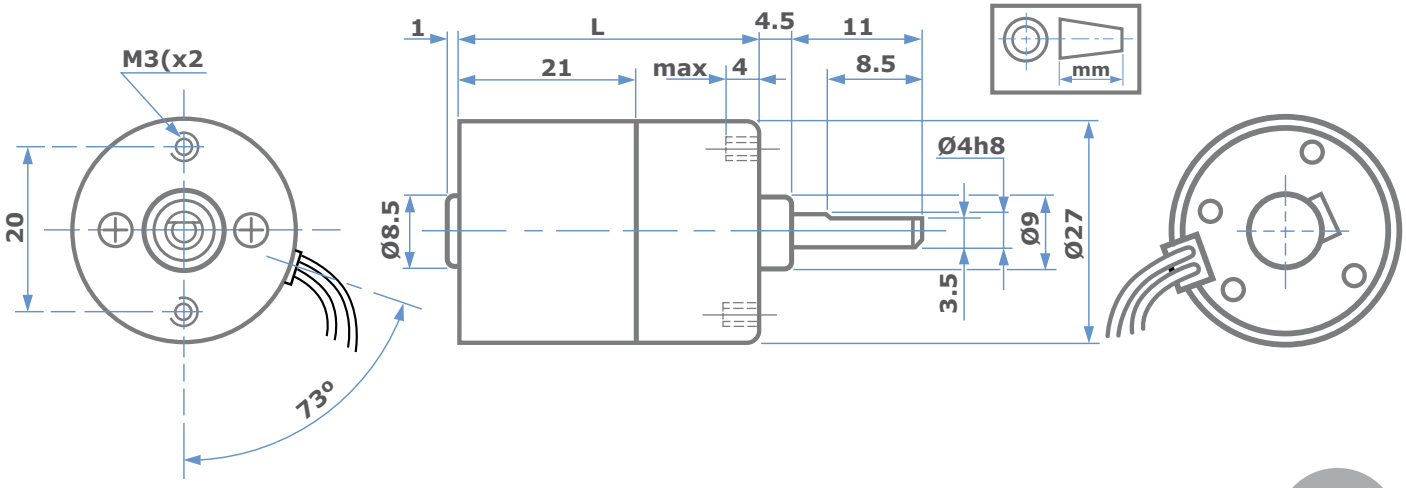
TECHNICAL DATA

series **1271**

- VDR interference suppression on the collector
- Precious metal brushes (Au - Ag - Cu)
- Direction of rotation depending on polarity
- Can be mounted in any position
- Maximum radial shaft load: 10N
- Maximum axial shaft load: 5N
- Temperature range: -20°C/60°C
- Approx weight: 55g

Typical values at ambient temperature +20°
Tolerance +/- 10%

TYPE	NOMINAL VOLTAGE	L	RATIO TO:1	MAXIMUM TORQUE	SPEED		CURRENT	
					NO LOAD	AT MAX TORQUE	NO LOAD	AT MAX TORQUE
	v	mm		Ncm	rpm		mA	
4 1271· 6 ·10 12	4.5 6 12	36	10	1.5	255 215 255	165 120 165	<35 <30 <20	100 85 50
4 1271· 6 ·21 12	4.5 6 12	36	20.8	2.5	125 105 125	80 60 80	<35 <30 <20	100 85 50
4 1271· 6 ·43 12	4.5 6 12	41	43.3	3.8	60 52 60	40 32 40	<35 <30 <20	100 85 50
4 1271· 6 ·90 12	4.5 6 12	41	90.3	8	30 25 30	18 13 18	<35 <30 <20	100 85 50
4 1271· 6 ·188 12	4.5 6 12	46	188	14	14 12 14	9 7 9	<35 <30 <20	100 85 50
4 1271· 6 ·392 12	4.5 6 12	46	391.8	20	7 6 7	5 4 5	<35 <30 <20	90 75 45



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TECHNICAL DATA

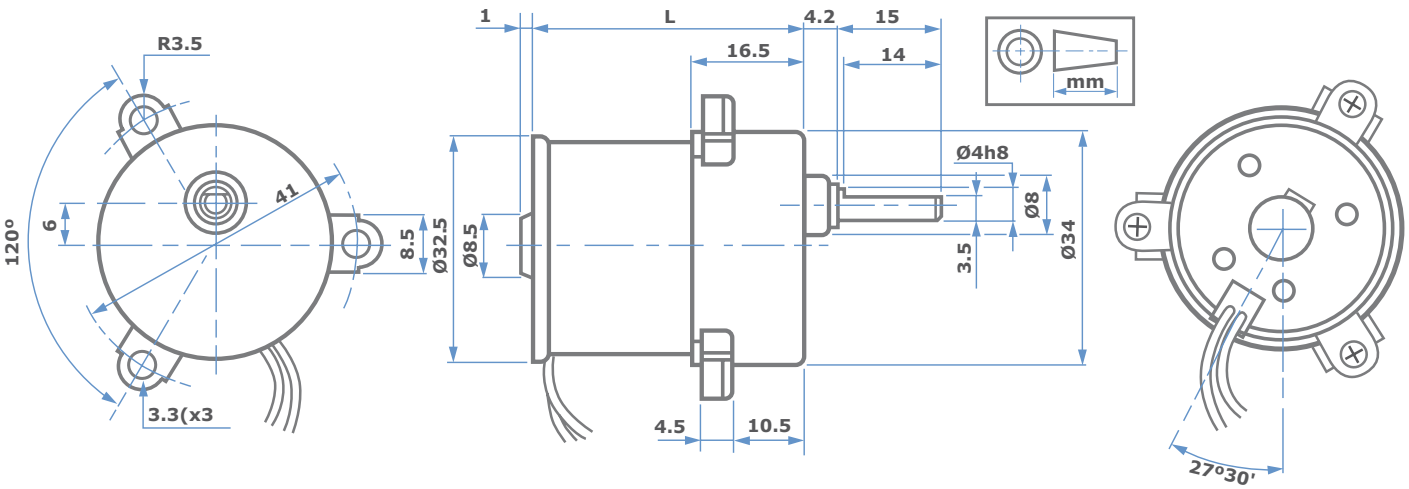
series **B138F**

- VDR interference suppression on the collector
- Precious metal brushes (Au - Ag - Cu)
- Direction of rotation depending on polarity
- Can be mounted in any position
- Maximum radial shaft load: 20N
- Maximum axial shaft load: 5N
- Temperature range: -20°C/60°C
- Approx weight: 85g

Typical values at ambient temperature +20°
Tolerance +/- 10%

TYPE	NOMINAL VOLTAGE	L	RATIO TO:1	MAXIMUM TORQUE	SPEED		CURRENT	
					NO LOAD	AT MAX TORQUE	NO LOAD	AT MAX TORQUE
	v	mm		Ncm	rpm		mA	
B138F· 6/12 ·12	6 12	37.5	12.25	1.5	220	155	<30 <20	100 55
B138F· 6/12 ·21	6 12	37.5	21.14	2.5	125	85	<30 <20	100 55
B138F· 6/12 ·36	6 12	37.5	35.73	4	73	53	<30 <20	95 50
B138F· 6/12 ·72	6 12	37.5	71.54	7	37	28	<30 <20	95 50
B138F· 6/12 ·149	6 12	37.5	149.05	14	18	13	<30 <20	95 50
B138F· 6/12 ·208	6 12	37.5	208.66	20	13	9	<30 <20	95 50
B138F· 6/12 ·608	6 12	37.5	608.61	50	4.3	3.3	<30 <20	90 48
B138F· 6/12 ·1470	6 12	37.5	1470.82	50	1.8	1.6	<30 <20	58 30

B138F



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TECHNICAL DATA

series

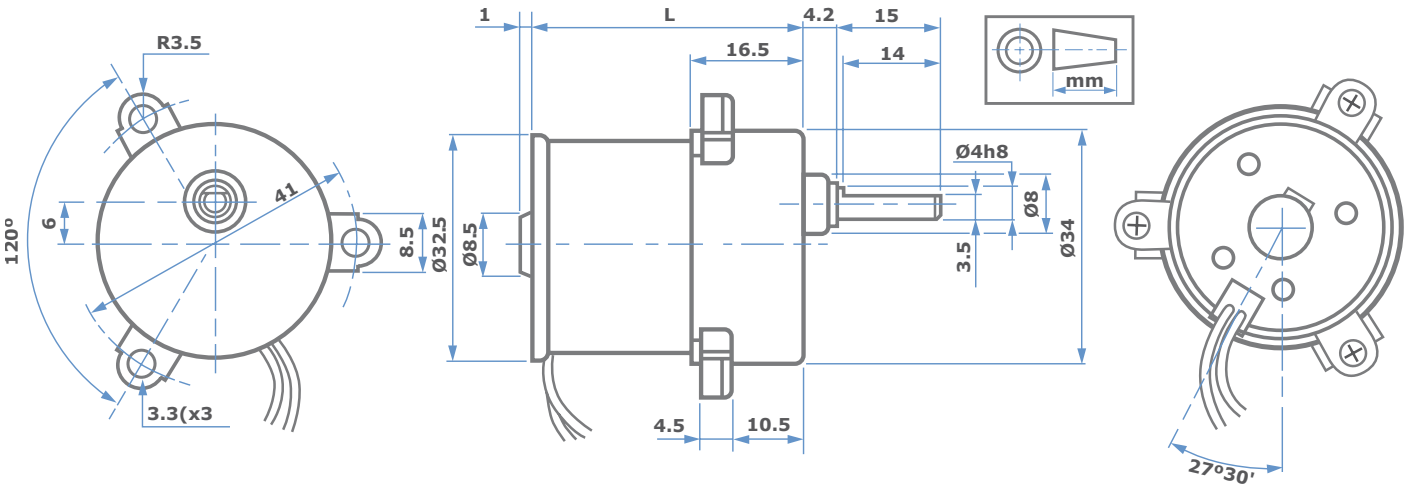
B138F.4/12

- VDR interference suppression on the collector
- Precious metal brushes (Au - Ag - Cu)
- Direction of rotation depending on polarity
- Can be mounted in any position
- Maximum radial shaft load: 20N
- Maximum axial shaft load: 5N
- Temperature range: -20°C/60°C
- Approx weight: 85g

Typical values at ambient temperature +20°
Tolerance +/- 10%

TYPE	NOMINAL VOLTAGE	L	RATIO TO:1	MAXIMUM TORQUE	SPEED		CURRENT	
					NO LOAD	AT MAX TORQUE	NO LOAD	AT MAX TORQUE
	v	mm		Ncm	rpm		mA	
B138F - 4/12 - 12	12	37.5	12.25	1.5	320	250	<30	80
B138F - 4/12 - 21	12	37.5	21.14	2.5	190	150	<30	80
B138F - 4/12 - 36	12	37.5	35.73	4.2	108	86	<30	80
B138F - 4/12 - 72	12	37.5	71.54	8.2	54	43	<30	80
B138F - 4/12 - 149	12	37.5	149.05	15	27	20	<30	80
B138F - 4/12 - 208	12	37.5	208.66	20	19	14	<30	80
B138F - 4/12 - 608	12	37.5	608.61	50	6.5	5.3	<30	75

B138F.4/12



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TECHNICAL DATA

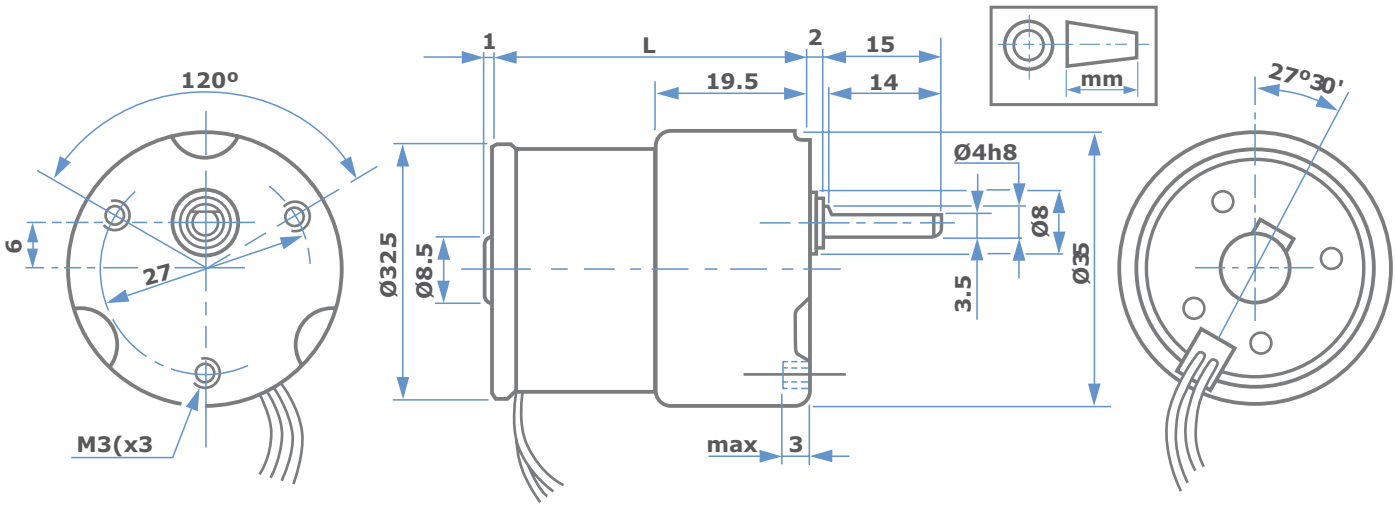
series **BS138F**

- VDR interference suppression on the collector
- Precious metal brushes (Au - Ag - Cu)
- Direction of rotation depending on polarity
- Can be mounted in any position
- Maximum radial shaft load: 20N
- Maximum axial shaft load: 5N
- Temperature range: -20°C/60°C
- Approx weight: 90g

Typical values at ambient temperature +20°
Tolerance +/- 10%

TYPE	NOMINAL VOLTAGE	L	RATIO TO:1	MAXIMUM TORQUE	SPEED		CURRENT	
					NO LOAD	AT MAX TORQUE	NO LOAD	AT MAX TORQUE
	v	mm		Ncm	rpm		mA	
BS138F·$^{6}_{12}$·12	$^{6}_{12}$	40	12.25	1.5	220	155	$^{<30}_{<20}$	$^{100}_{55}$
BS138F·$^{6}_{12}$·21	$^{6}_{12}$	40	21.14	2.5	125	85	$^{<30}_{<20}$	$^{100}_{55}$
BS138F·$^{6}_{12}$·36	$^{6}_{12}$	40	35.73	4	73	53	$^{<30}_{<20}$	$^{95}_{50}$
BS138F·$^{6}_{12}$·72	$^{6}_{12}$	40	71.54	7	37	28	$^{<30}_{<20}$	$^{95}_{50}$
BS138F·$^{6}_{12}$·149	$^{6}_{12}$	40	149.05	14	18	13	$^{<30}_{<20}$	$^{95}_{50}$
BS138F·$^{6}_{12}$·208	$^{6}_{12}$	40	208.66	20	13	9	$^{<30}_{<20}$	$^{95}_{50}$
BS138F·$^{6}_{12}$·608	$^{6}_{12}$	40	608.61	50	4.3	3.3	$^{<30}_{<20}$	$^{90}_{48}$
BS138F·$^{6}_{12}$·1470	$^{6}_{12}$	40	1470.82	50	1.8	1.6	$^{<30}_{<20}$	$^{58}_{30}$

BS138F



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TECHNICAL DATA

series

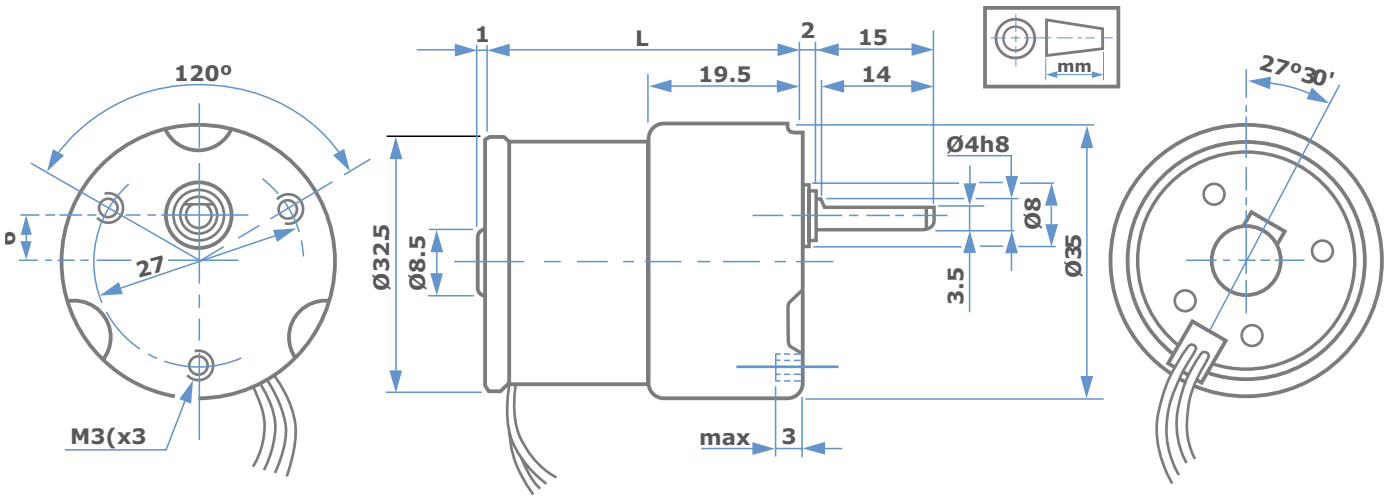
BS138F.4/12

VDR interference suppression on the collector
Precious metal brushes (Au - Ag - Cu)
Direction of rotation depending on polarity
Can be mounted in any position
Maximum radial shaft load: 20N
Maximum axial shaft load: 5N
Temperature range: -20°C/60°C
Approx weight: 90g

Typical values at ambient temperature +20°
Tolerance +/- 10%

TYPE	NOMINAL VOLTAGE	L	RATIO TO:1	MAXIMUM TORQUE	SPEED		CURRENT	
					NO LOAD	AT MAX TORQUE	NO LOAD	AT MAX TORQUE
	v	mm		Ncm	rpm		mA	
BS138F - 4/12 - 12	12	40	12.25	1.5	320	250	<30	80
BS138F - 4/12 - 21	12	40	21.14	2.5	190	150	<30	80
BS138F - 4/12 - 36	12	40	35.73	4.2	108	86	<30	80
BS138F - 4/12 - 72	12	40	71.54	8.2	54	43	<30	80
BS138F - 4/12 - 149	12	40	149.05	15	27	20	<30	80
BS138F - 4/12 - 208	12	40	208.66	20	19	14	<30	80
BS138F - 4/12 - 608	12	40	608.61	50	6.5	5.3	<30	75

BS138F.4/12



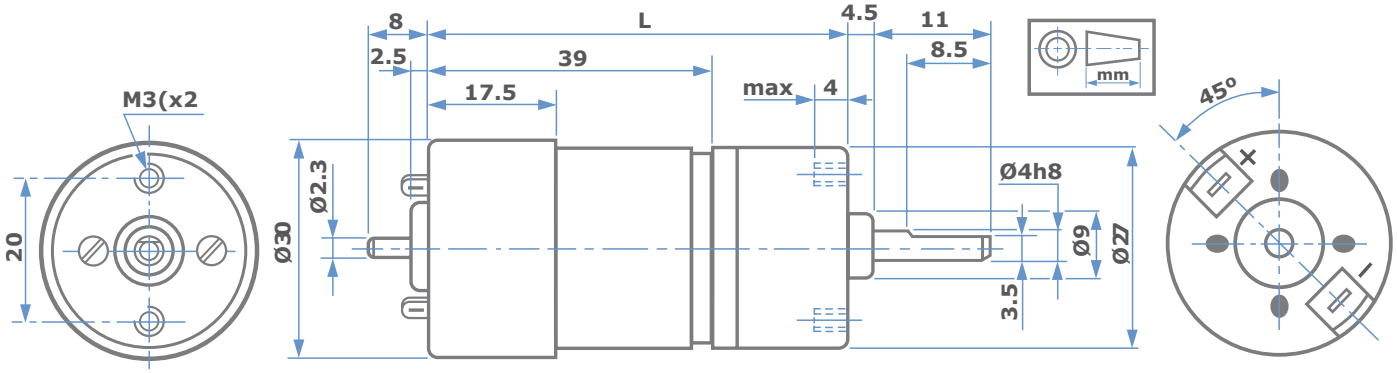
TECHNICAL DATA

series **HL149**

- VDR interference suppression on the collector
- Direction of rotation depending on polarity
- Can be mounted in any position
- Maximum radial shaft load: 10N
- Maximum axial shaft load: 5N
- Temperature range: -20°C/60°C
- Approx weight: 100g

Typical values at ambient temperature +20°
Tolerance +/- 10%

TYPE	NOMINAL VOLTAGE	L	RATIO TO:1	MAXIMUM TORQUE	SPEED		CURRENT	
					NO LOAD	AT MAX TORQUE	NO LOAD	AT MAX TORQUE
	v	mm		Ncm	rpm		mA	
HL149· 12/24 ·10	12 24	57.5	10	4	315	220	<60 <50	210 120
HL149· 12/24 ·21	12 24	57.5	20.8	7.5	160	115	<60 <50	200 115
HL149· 12/24 ·43	12 24	62.5	43.3	15	78	55	<60 <50	210 120
HL149· 12/24 ·90	12 24	62.5	90.3	15	37	30	<60 <50	150 85



TECHNICAL DATA

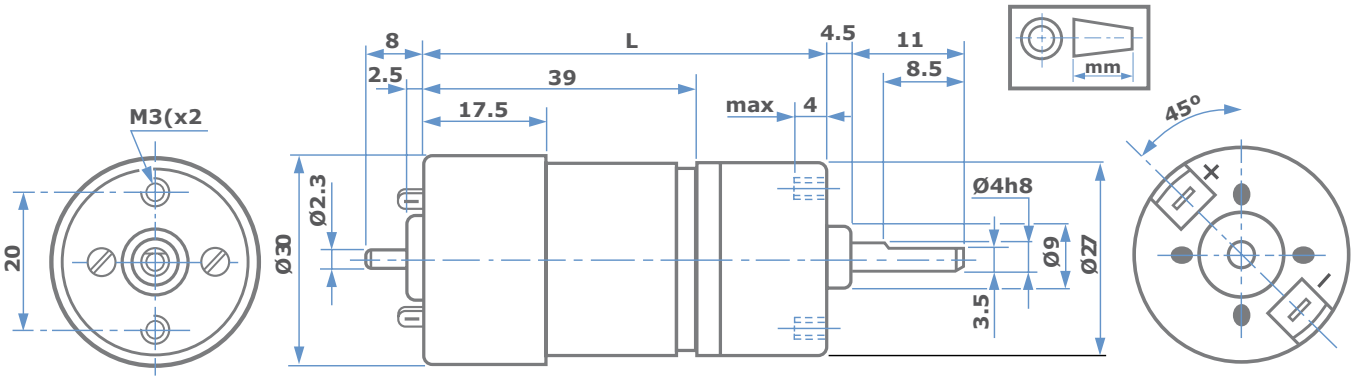
series **HV155**

- VDR interference suppression on the collector
- Direction of rotation depending on polarity
- Can be mounted in any position
- Maximum radial shaft load: 10N
- Maximum axial shaft load: 5N
- Temperature range: -20°C/60°C
- Approx weight: 100g

Typical values at ambient temperature +20°
Tolerance +/- 10%

HV155

TYPE	NOMINAL VOLTAGE	L	RATIO TO:1	MAXIMUM TORQUE	SPEED		CURRENT	
					NO LOAD	AT MAX TORQUE	NO LOAD	AT MAX TORQUE
	v	mm		Ncm	rpm		mA	
HV155·$\frac{12}{24}$·10	$\frac{12}{24}$	62.5	10	5	660	460	$\frac{<140}{<70}$	$\frac{620}{300}$
HV155·$\frac{12}{24}$·21	$\frac{12}{24}$	62.5	20.8	10	315	235	$\frac{<140}{<70}$	$\frac{600}{285}$
HV155·$\frac{12}{24}$·43	$\frac{12}{24}$	67.5	43.3	18	155	115	$\frac{<140}{<70}$	$\frac{580}{280}$
HV155·$\frac{12}{24}$·90	$\frac{12}{24}$	67.5	90.3	25	75	62	$\frac{<140}{<70}$	$\frac{440}{215}$



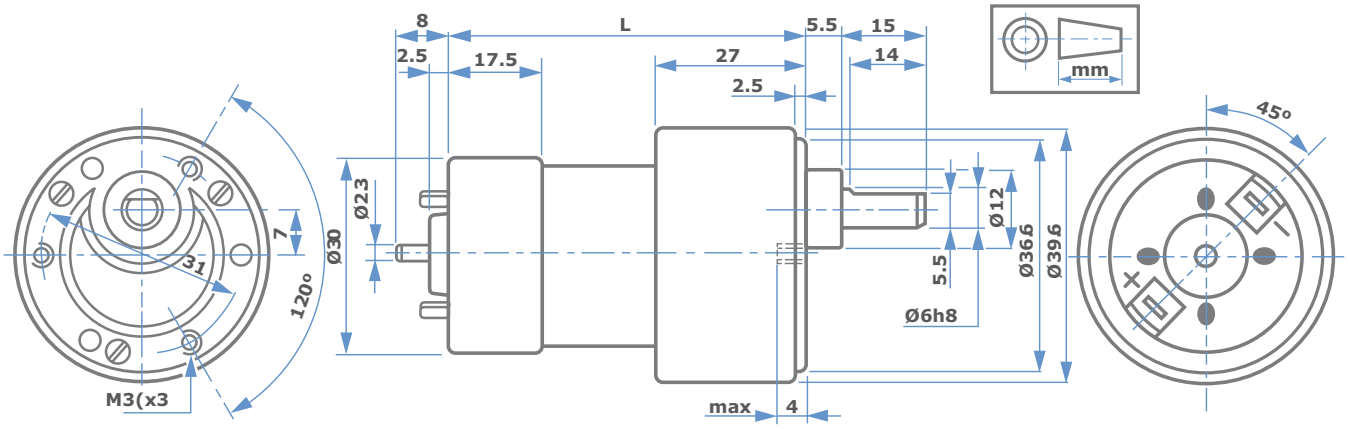
TECHNICAL DATA

series **1308**

- VDR interference suppression on the collector
- Direction of rotation depending on polarity
- Can be mounted in any position
- Maximum radial shaft load: 50N
- Maximum axial shaft load: 10N
- Temperature range: -20°C/60°C
- Approx weight: 190g

Typical values at ambient temperature +20°
Tolerance +/- 10%

TYPE	NOMINAL VOLTAGE	L	RATIO TO:1	MAXIMUM TORQUE	SPEED		CURRENT	
					NO LOAD	AT MAX TORQUE	NO LOAD	AT MAX TORQUE
	v	mm		Ncm	rpm		mA	
1308· 12/24 ·30	12/24	64	29.75	15	110	70	<60/<50	250/130
1308· 12/24 ·75	12/24	66.5	76.84	30	43	28	<60/<50	230/120
1308· 12/24 ·100	12/24	66.5	94.37	40	35	22	<60/<50	240/125
1308· 12/24 ·200	12/24	69	198.5	80	17	10	<60/<50	250/130
1308· 12/24 ·250	12/24	69	243.8	100	14	8.5	<60/<50	240/125
1308· 12/24 ·510	12/24	72	512.85	100	6.5	5	<60/<50	150/80
1308· 12/24 ·630	12/24	72	629.82	100	5	4.5	<60/<50	130/70

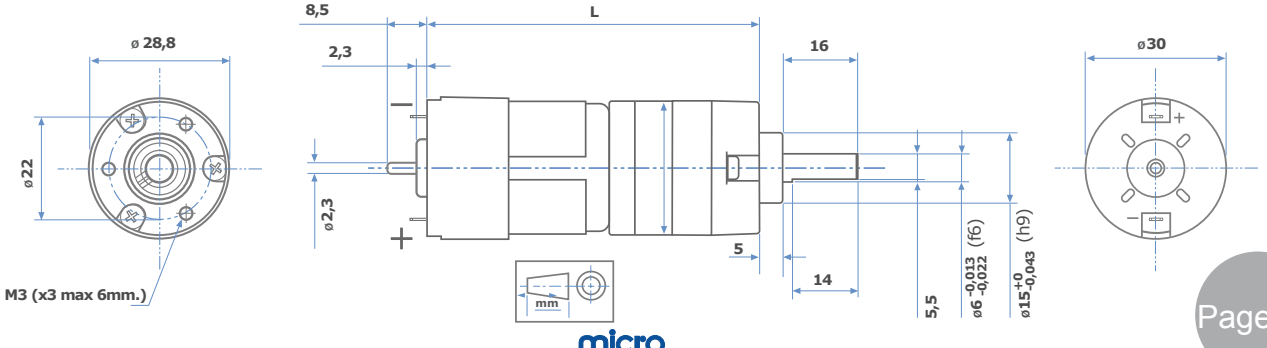


Series PS150

Planetary gear-motor.
Motor interference suppression by VDR
Outgoing shaft supported by two ball bearings.
Maximun radial shaft load: 200N
(10 mm from the fixing flange).
Maximum axial shaft load: 50N
Direction of rotation depending on polarity
Can be mounted in any position
Temperature range: -20°C/60°C
Approx weight: 150/220g.

Typical values at ambient temperature +20°
Tolerance +/- 10%

TYPE	NOMINAL VOLTAGE	L	RATIO TO :1	NOMINAL TORQUE	SPEED		CURRENT		INPUT POWER AT NOMINAL TORQUE
					NO LOAD	AT NOMINAL TORQUE	NO LOAD	AT NOMINAL TORQUE	
	V	mm		Ncm	rpm		mA		W
PS 150 • 12/24 • 3	12 24	63	3,4	3	2000 2040	1130 1340	<200 <150	820 430	9,8 10,3
PS 150 • 12/24 • 5	12 24	63	5	5	1365 1360	650 780	<200 <150	900 460	10,8 11,0
PS 150 • 12/24 • 12	12 24	71,2	11,56	10	570 575	300 340	<200 <150	900 440	10,8 10,6
PS 150 • 12/24 • 17	12 24	71,2	17	15	380 380	205 245	<200 <150	850 440	10,2 10,6
PS 150 • 12/24 • 25	12 24	71,2	25	20	260 272	163 180	<200 <150	770 400	9,2 9,6
PS 150 • 12/24 • 39	12 24	79,4	39,3	30	162 163	100 103	<200 <150	830 460	10,0 11,0
PS 150 • 12/24 • 58	12 24	79,4	57,8	50	111 115	57 65	<200 <150	940 470	11,3 11,3
PS 150 • 12/24 • 85	12 24	79,4	85	75	75 77	38 45	<200 <150	950 450	11,4 10,8
PS 150 • 12/24 • 125	12 24	79,4	125	100	54 54	26 34	<200 <150	900 440	10,8 10,6
PS 150 • 12/24 • 196	12 24	87,7	196,52	140	33 34	19 21	<200 <150	950 430	11,4 10,3
PS 150 • 12/24 • 289	12 24	87,7	289	180	23 23	14 17	<200 <150	800 400	9,6 9,6
PS 150 • 12/24 • 425	12 24	87,7	425	250	15 16	10 11	<200 <150	800 360	9,6 8,6
PS 150 • 12/24 • 625	12 24	87,7	625	250	11 11	8,5 8,5	<200 <150	530 280	6,4 6,7



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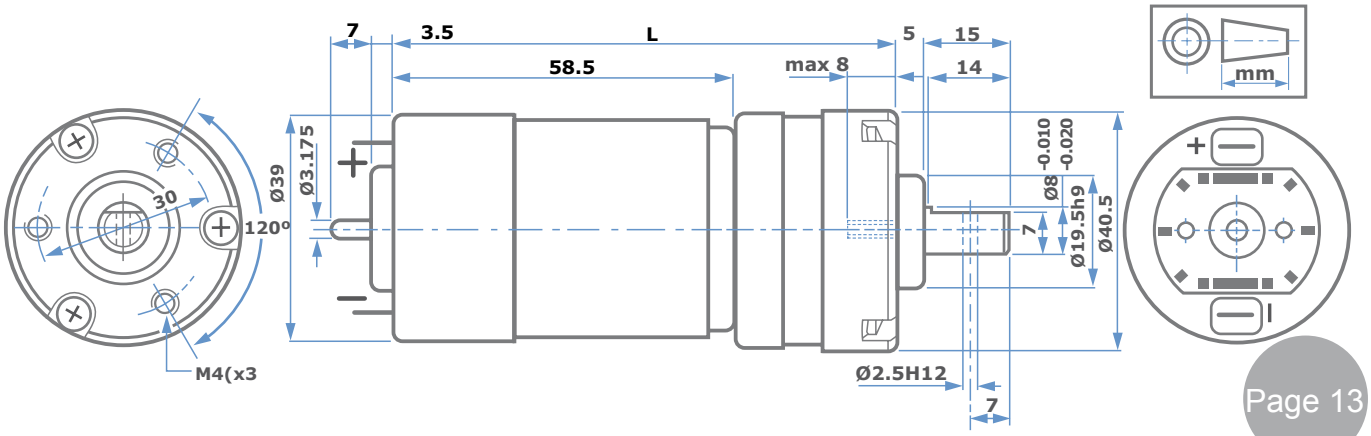
TECHNICAL DATA

series **E192**

Planetary gear-motor
Motor interference suppression by VDR and capacitors
Outgoing shaft two ball bearings supported
Maximum radial shaft load: 200N
(10 mm from the fixing flange)
Maximum axial shaft load: 100N
Direction of rotation depending on polarity
Can be mounted in any position
Temperature working range: -20°C/60°C
Approx weight: 385/480g

Typical values at ambient temperature +20°
Tolerance +/- 10%

TYPE	NOMINAL VOLTAGE	L	RATIO TO:1	MAXIMUM TORQUE	SPEED		CURRENT		INPUT POWER AT MAX TORQUE
					NO LOAD	AT MAX TORQUE	NO LOAD	AT MAX TORQUE	
	v	mm		Ncm	rpm		A		W
E192·12/24·3	12 24	86	3.66	15	1100 1100	700 770	<0.4 <0.2	1.70 0.96	20.4 23
E192·12/24·5	12 24	86	5	20	800 830	510 575	<0.4 <0.2	1.75 0.95	21 22.8
E192·12/24·13	12 24	93	13.44	45	300 300	200 225	<0.4 <0.2	1.65 0.85	19.8 20.4
E192·12/24·18	12 24	93	18.33	60	218 226	155 170	<0.4 <0.2	1.65 0.84	19.8 20.2
E192·12/24·25	12 24	93	25	90	160 166	105 118	<0.4 <0.2	1.75 0.88	21 21.1
E192·12/24·49	12 24	100	49.29	160	82 82	58 60	<0.4 <0.2	1.60 0.85	19.2 20.4
E192·12/24·67	12 24	100	67.22	220	59.5 61.5	40 45	<0.4 <0.2	1.80 0.88	21.6 21.1
E192·12/24·91	12 24	100	91.66	270	43.6 45	31 34	<0.4 <0.2	1.70 0.85	20.4 20.4
E192·12/24·125	12 24	100	125	300	32 33	24 26	<0.4 <0.2	1.32 0.64	15.9 15.4
E192·12/24·180	12 24	107	180.75	220	22 22	20 20	<0.4 <0.2	0.75 0.42	9 10.1
E192·12/24·246	12 24	107	246.48	300	15.2 16.8	14.5 15	<0.4 <0.2	0.87 0.43	10.5 10.3
E192·12/24·336	12 24	107	336.11	300	11.9 12.3	11 11.5	<0.4 <0.2	0.69 0.34	8.3 8.2
E192·12/24·458	12 24	107	458.3	300	9 9.5	8.5 9	<0.4 <0.2	0.54 0.28	6.5 6.7
E192·12/24·625	12 24	107	625	300	6.4 6.6	6 6.2	<0.4 <0.2	0.46 0.23	5.5 5.5



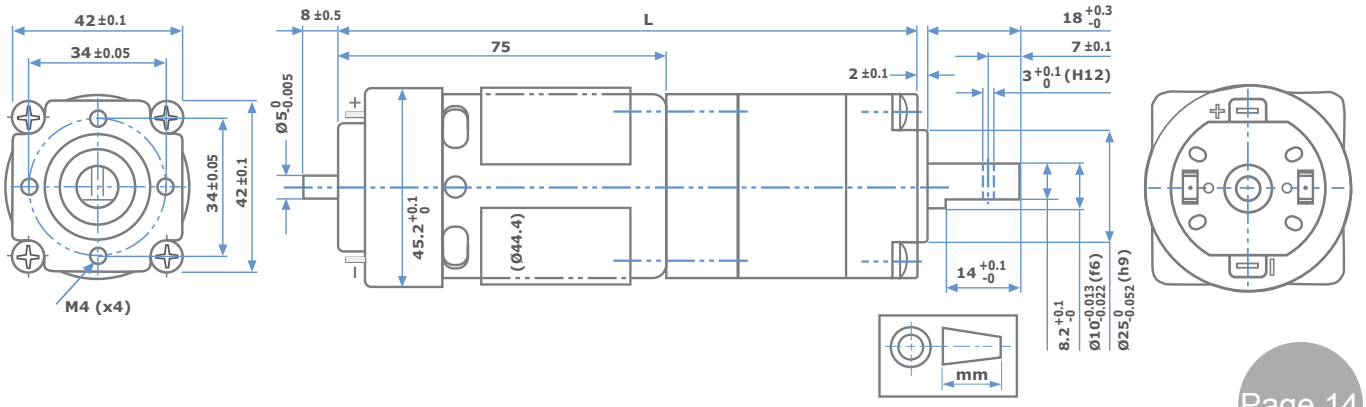
TECHNICAL DATA

series **P205**

- Planetary gear-motor
- Motor interference suppression by VDR
- Outgoing shaft supported by two ball bearings
- Maximum radial shaft load: 300N
(10 mm from the fixing flange)
- Maximum axial shaft load: 150N
- Direction of rotation depending on polarity
- Can be mounted in any position
- Working temperature range: -20°C/60°C
- Approx weight: 700/900g

Typical values at ambient temperature +20°
Tolerance +/- 10%

TYPE	NOMINAL VOLTAGE	L	RATIO TO:1	MAXIMUM TORQUE	SPEED		CURRENT		INPUT POWER AT MAX TORQUE
					NO LOAD	AT MAX TORQUE	NO LOAD	AT MAX TORQUE	
	v	mm		Ncm	rpm		A		W
P205·12/24·4	12 24	120.5	4	50	1024 1017	625 640	<0.7 <0.4	5.45 2.70	65.4 64.8
P205·12/24·6	12 24	120.5	6.25	60	656 652	459 470	<0.7 <0.4	4.20 2.15	50.4 51.6
P205·12/24·16	12 24	133	16	150	257 256	178 186	<0.7 <0.4	4.50 2.20	54.0 52.8
P205·12/24·25	12 24	133	25	250	165 165	110 116	<0.7 <0.4	4.55 2.30	54.6 55.2
P205·12/24·39	12 24	133	39.06	350	106 105	75 77	<0.7 <0.4	4.20 2.10	50.4 50.4
P205·12/24·64	12 24	145.5	64	600	64 64	41.5 45	<0.7 <0.4	4.80 2.40	57.6 57.6
P205·12/24·100	12 24	145.5	100	700	41.3 41.3	30.3 32.4	<0.7 <0.4	3.60 1.75	43.2 42.0
P205·12/24·156	12 24	145.5	156.25	800	26.5 26.5	21.3 22	<0.7 <0.4	2.85 1.45	34.2 34.8
P205·12/24·244	12 24	145.5	244.14	900	16.9 16.9	14.9 14.9	<0.7 <0.4	2.20 1.10	26.4 26.4
P205·12/24·400	12 24	158	400	900	10.2 10.2	9.4 9.4	<0.7 <0.4	1.65 0.85	19.8 20.4
P205·12/24·625	12 24	158	625	900	6.7 6.7	6.3 6.3	<0.7 <0.4	1.25 0.65	15.0 15.6



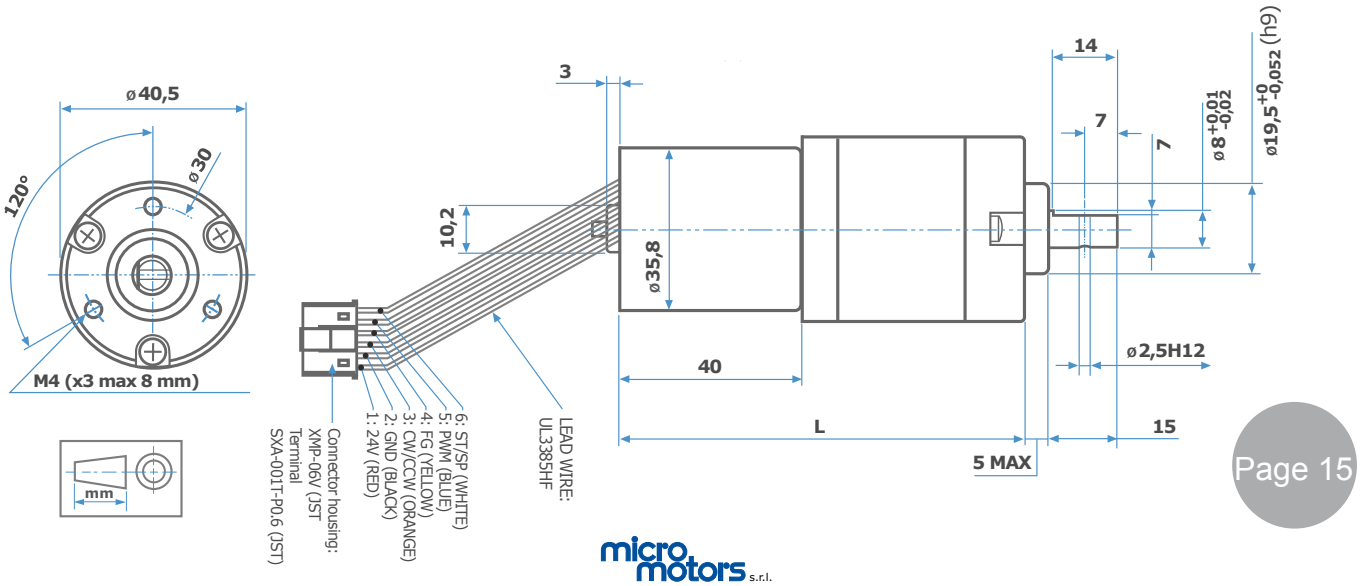
Series BL192

Brushless Planetary Gearmotor

Brushless gear-motor with electronics on-board.
Brushless motor 3 phase 12 pole with 3 Hall sensors.
Outgoing shaft supported by two ball bearings.
Maximun radial shaft load: 200N
(10 mm from the fixing flange).
Maximum axial shaft load: 100N.
Temperature range: -10 °C/+50 °C.
Approx weight: 320/420g.

Typical values at ambient temperature +20°
Tolerance +/- 10%

TYPE	NOMINAL VOLTAGE	L	RATIO TO :1	NOMINAL TORQUE	SPEED		CURRENT		INPUT POWER AT NOMINAL TORQUE
					NO LOAD	AT NOMINAL TORQUE	NO LOAD	AT NOMINAL TORQUE	
	V	mm		Ncm	rpm		mA		W
BL 192 • 24 • 3	24	67,5	3,66	15	1360	880	<350	1150	27,6
BL 192 • 24 • 5	24	67,5	5	20	1000	660	<350	1150	27,6
BL 192 • 24 • 13	24	74,5	13,44	45	370	255	<350	1100	26,4
BL 192 • 24 • 18	24	74,5	18,33	60	275	190	<350	1100	26,4
BL 192 • 24 • 25	24	74,5	25	90	210	138	<350	1100	26,4
BL 192 • 24 • 49	24	81,5	49,29	160	102	68	<350	1100	26,4
BL 192 • 24 • 67	24	81,5	67,22	220	73	50	<350	1100	26,4
BL 192 • 24 • 91	24	81,5	91,66	270	54	37	<350	1050	25,2
BL 192 • 24 • 125	24	81,5	125	300	40	30	<350	950	22,8
BL 192 • 24 • 180	24	88,5	180,75	220	29	24	<350	630	15,12
BL 192 • 24 • 246	24	88,5	246,48	300	20	17	<350	670	16,08
BL 192 • 24 • 336	24	88,5	336,11	300	15	13	<350	560	13,44
BL 192 • 24 • 458	24	88,5	458,33	300	11	10	<350	530	12,72
BL 192 • 24 • 625	24	88,5	625	300	8	7,5	<350	430	10,32



micro motors s.r.l.

Brushless motor
for series BL192

Ratings

N°	Item	Specification	Note
1	Rated voltage	DC 24V	
2	Min. operating voltage	DC 16V	
3	Max. operating voltage	DC 26.4V	
4	Type	3 phases 12 poles brushless motor with 3 hall sensor	
5	Rotating direction	CW/CCW	
6	Bearing type	Sleeve bearing	
7	Motor posture	Horizontal	
8	Motor mass	145g Typ.	

Electrical characteristics (temp. 20+/-5 °C, relative humidity 80% max)

N°	Item	Specification	Note
1	Dielectric strength	AC 600V 1 sec 1mA	Check between all shorted terminals and motor cover
2	Insulation resistance	DC 500V 10MΩ Min	
3	No load current	0.36A Max	DC 24V
4	No load speed	5000 +/- 15% RPM	DC 24V

Temperature ratings

N°	Item	Specification	Note
1	Operating ambient conditions	Dry bulb temp: -10 +50°C	Relative humidity: 0 - 90%
2	Max permissive coil temp.	115 °C	
3	Max permissive IC surface temp.	110 °C	
4	Max permissive FET surface temp.	110 °C	
5	Max Transistor Temperature	110 °C	
6	Max permissive lead wire temp.	105 °C	
7	Max permissive bearing temp.	90 °C	

Circuit protection

N°	Item	Specification	Note
1	Current limit	3A Typ.	Using PWM
2	Thermal shutdown	175 °C +/-30 °C	There is no guarantee of proper operation when thermal shutdown motor is reused
3	Motor lock protection	2 sec Typ.	When the motor locks, the motor current is automatically cut off within the defined time. The motor restarts by power supply reset.

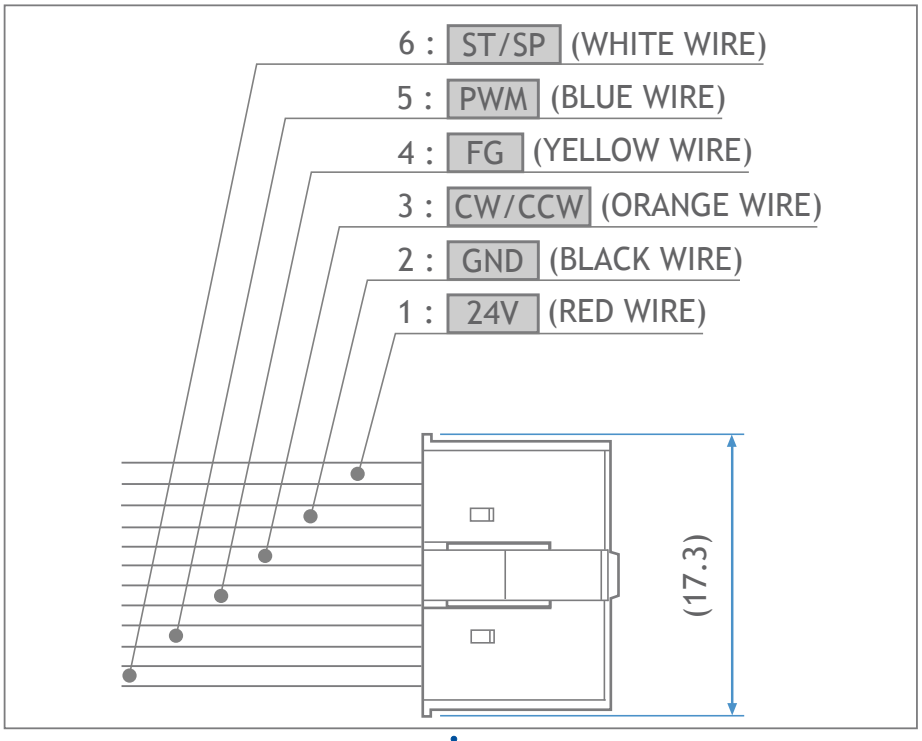
Brushless motor

for series BL192

Interface

Pin No.	Signal name	I/O	Specification	Note
1	VM	IN	DC 24V +/- 10%	Power supply
2	GND	IN	Ground	
3	CW/CCW	IN		
	Input voltage range		0-5V	High CW Low CCW
	VIH		2.0V Min	
	VIL		1.0V Max	
4	FG	OUT		
	VOH		6V Max	You need to pull up for FG terminal so that the terminal is open drain output.
	VOL		0.6V Max	
	Max rating of FG sink current		3mA	
	Number of FG output pulse		6 Pulse/round	
5	PWM	IN		
	Input voltage range		0-5V	High motor ON
	VIH		2.5V Min	Low motor OFF
	VIL		1.0V Max	
	Max PWM input frequency		40 kHz	Recommended between 15 to 25 kHz
6	START/STOP	IN		
	Input voltage range		0-5V	High motor Start
	VIH		2.0V Min	Low motor Stop
	VIL		1.0V Max	

You should connect a Schottky Barrier Diode between each signal line and and ground to prevent Ic from being damaged. We recommend to the connect 47uF capacitor between 5V to GND for protecting from filter actions by electrical noises. Do not change CW/CCW input until motor has stopped completely, if you change the CW/CCW signal during motor running, motor may have some damage or be destroyed.



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optional encoders

gear-motors with two-phase Hall-effect 90° encoder

1271-2S
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BS138F-2S
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HL149-2S
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1308-2S
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gear-motors with Hall-effect encoder

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gear-motors with two-phase Hall-effect 90° encoder

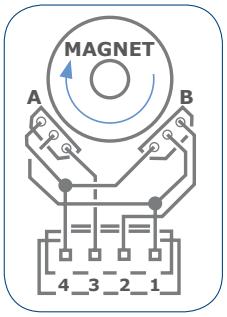
SIX POLES MAGNET:

THREE PULSES FOR MOTOR TURN

The sequence of the phases A-B is obtained connecting the motor with the polarities printed on the black bottom cover.

HALL-EFFECT SWITCHES

These Hall-effect switches are highly temperature stable and stress-resistant sensors best utilized in applications that provide steep magnetic slopes and low residual levels of magnetic flux density. Each device includes a voltage regulator. quadratic Hall voltage generator. temperature stability circuit. signal Schmitt chopper stabilized amplifier. Schmitt trigger and an open drain mosfet on a single silicon chip.
The on-board regulator permits operation with supply voltages of 3.5 to 24V. The output mosfet can sink up to 20 mA with suitable output pull up. they can be used directly with bipolar or MOS logic circuits.



connections

1 Green: GROUND
2 Yellow: O.C. B NPN
3 Blue: O.C. A NPN
4 Brown: Vcc (Hall)

ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	VALUE	UNITS
Supply Voltage	VDD	28	V
Supply Current	IDD	50	mA
Output Voltage	VOUT	28	V
Output Current	IOUT	50	mA
Storage Temperature Range	TS	-50 to 150	°C
Maximimum Junction Temperature	TJ	165	°C

Exceeding the absolute maximum ratings may cause permanent damage. Exposure to all absolute-maximum-rated conditions for extended periods may affect device reliability.

GENERAL ELECTRICAL SPECIFICATIONS

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYPE	MAX	UNITS
Supply Voltage	VDD	Operating	3.5	-	24	V
Supply Current	IDD	B<BRP	-	-	5	mA
Output Saturation Voltage	VDSon	IOUT=20mA. B>BOP	-	-	0.5	V
Output Leakage Current	IOFF	IB<BRP. VOUT=24V	-	0.3	10	µA
Output Rise Time	tr	RL=1kΩ. CL=20pF	-	0.25	-	µs
Output Fall Time	tr	RL=1kΩ. CL=20pF	-	0.25	-	µs

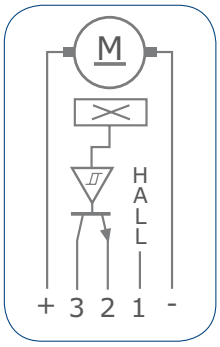
OC Operating Parameters TA = 25 °C, VDD = 3.5V to 24V (unless otherwise specified)

gear-motors with Hall-effect encoder

SIX POLES MAGNET:
THREE PULSES FOR MOTOR TURN

HALL-EFFECT SWITCHES

Hall-effect switches are highly temperature stable and stress-resistant sensors best utilized in applications that provide steep magnetic slopes and low residual levels of magnetic flux density. Each device includes a voltage regulator. quadratic Hall voltage generator. temperature stability circuit. signal chopper stabilized amplifier. Schmitt trigger and an open drain mosfet on a single silicon chip.
The on-board regulator permits operation with supply voltages of 3.5 to 24V. The output mosfet can sink up to 20 mA with suitable output pull up. they can be used directly with bipolar or MOS logic circuits.



connections

+ Red	: +Motor
3 Blue	: O.C. Output
2 Green	: Ground
1 Brown	: Vcc (Hall)
- Black	: -Motor

ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	VALUE	UNITS
Supply Voltage	VDD	28	V
Supply Current	IDD	50	mA
Output Voltage	VOUT	28	V
Output Current	IOUT	50	mA
Storage Temperature Range	TS	-50 to 150	°C
Maximum Junction Temperature	TJ	2.0	°C

Exceeding the absolute maximum ratings may cause permanent damage. Exposure to all absolute-maximum-rated conditions for extended periods may affect device reliability.

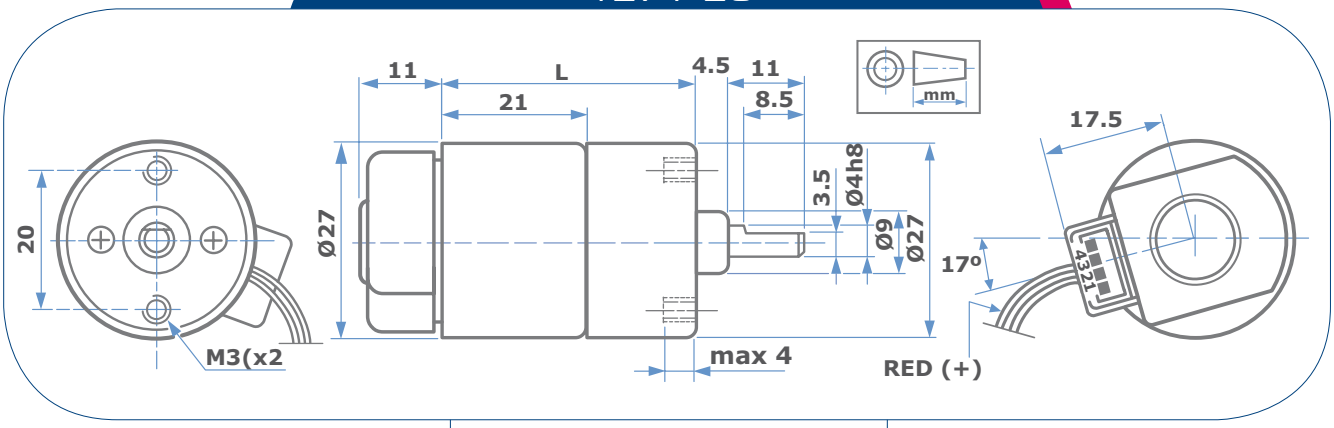
GENERAL ELECTRICAL SPECIFICATIONS

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYPE	MAX	UNITS
Supply Voltage	VDD	Operating	3.5	-	24	V
Supply Current	IDD	B<BRP	-	-	5	mA
Output Saturation Voltage	VDSon	IOUT=20mA. B>BOP	-	-	0.5	V
Output Leakage Current	IOFF	IB<BRP. VOUT=24V	-	0.3	10	µA
Output Rise Time	tr	RL=1kΩ. CL=20pF	-	0.25	-	µs
Output Fall Time	tr	RL=1kΩ. CL=20pF	-	0.25	-	µs

OC Operating Parameters TA = 25 °C, VDD = 3.5V to 24V (unless otherwise specified)

gear-motors with two-phase Hall-effect 90° encoder

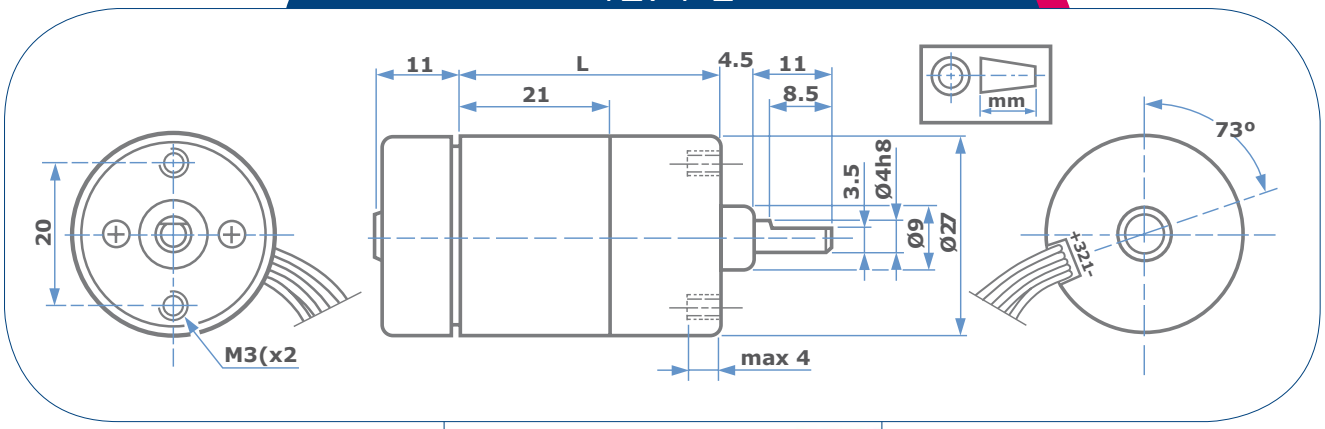
1271-2S



L = See: Series 1271

gear-motors with Hall-effect encoder

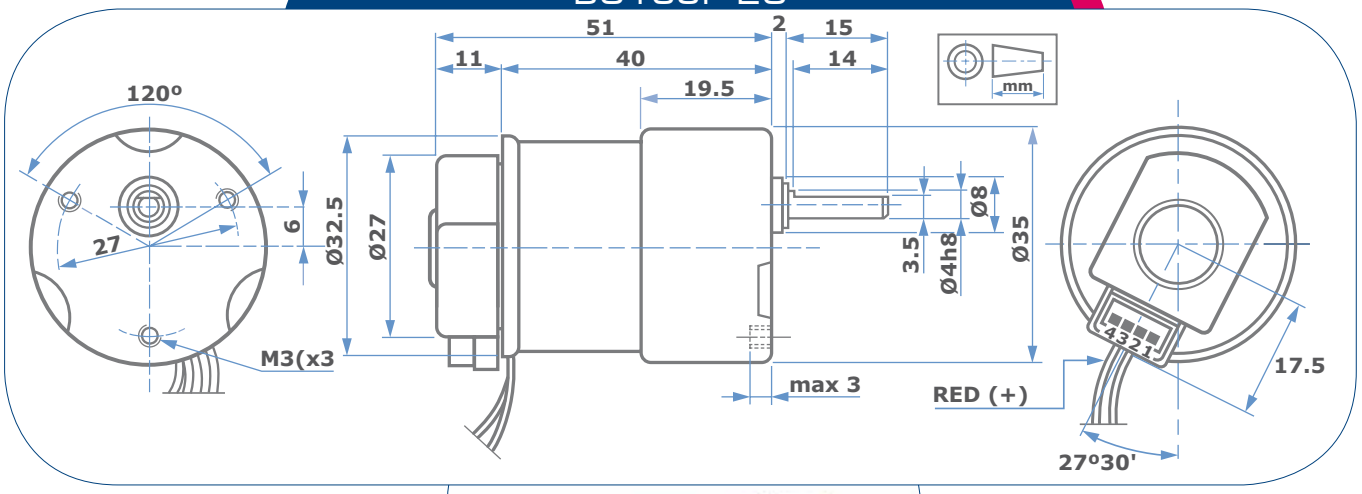
1271-E



L = See: Series 1271

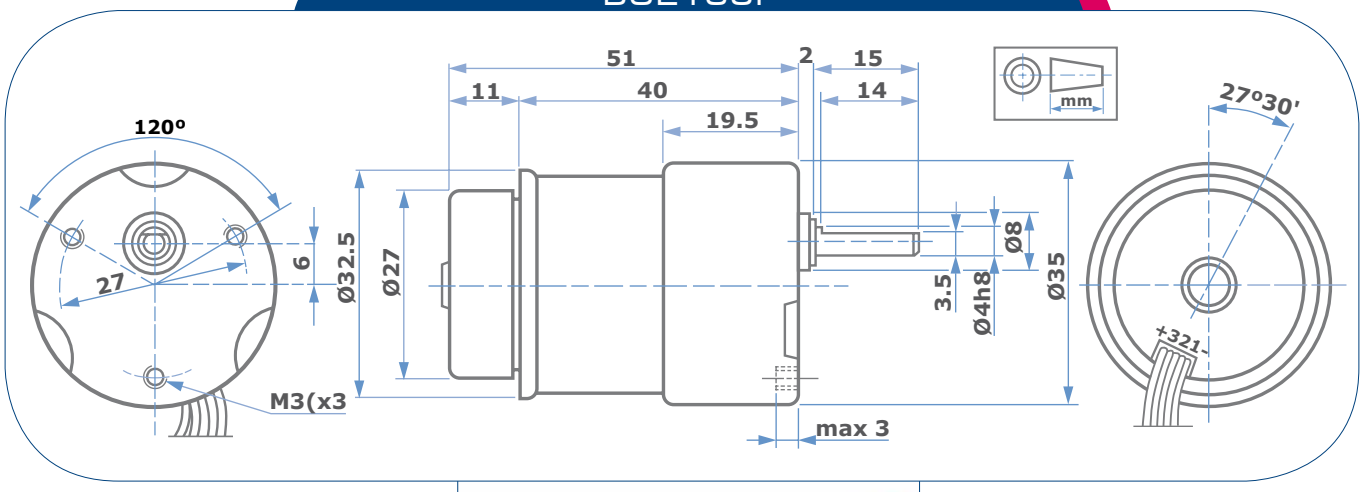
gear-motors with two-phase Hall-effect 90° encoder

BS138F-2S



gear-motors with Hall-effect encoder

BSE138F



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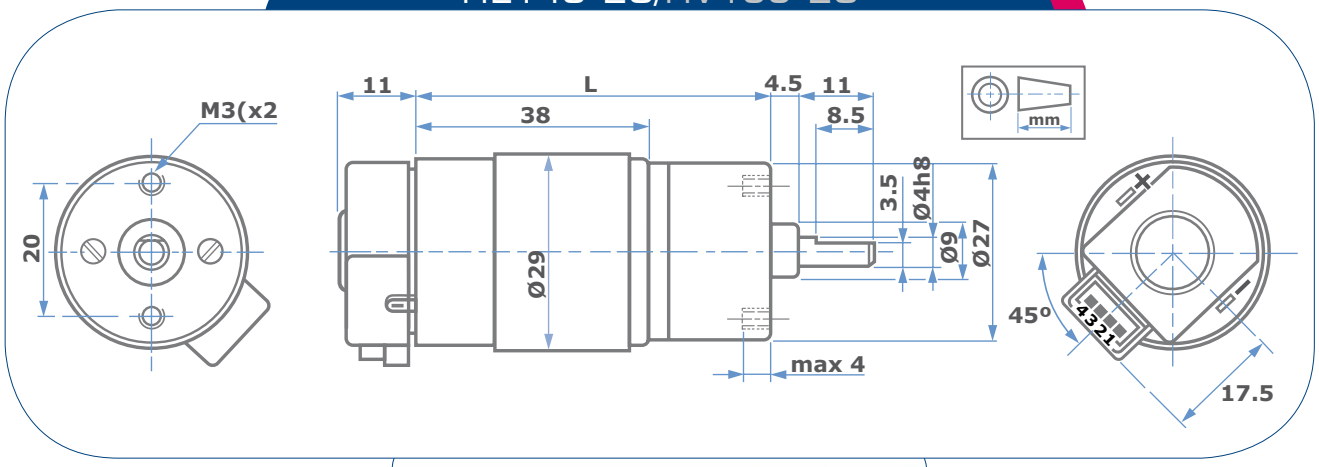
gear-motors with two-phase Hall-effect 90° encoder

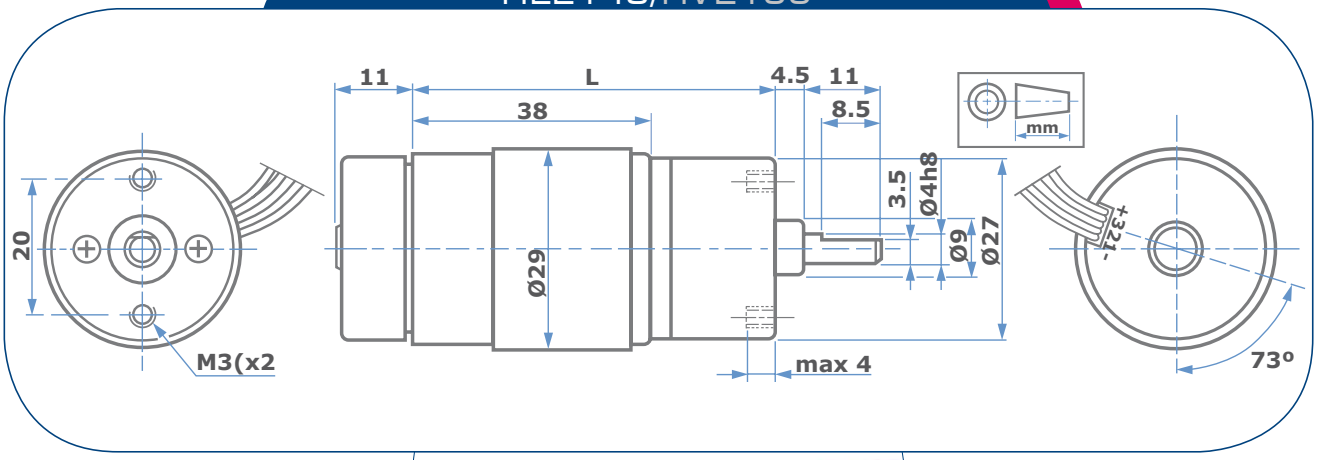
HL149-2S/HV155-2S



L = See: Series HL149 - HV155

gear-motors with Hall-effect encoder

HLE149/HVE155



L = See: Series HL149 - HV155

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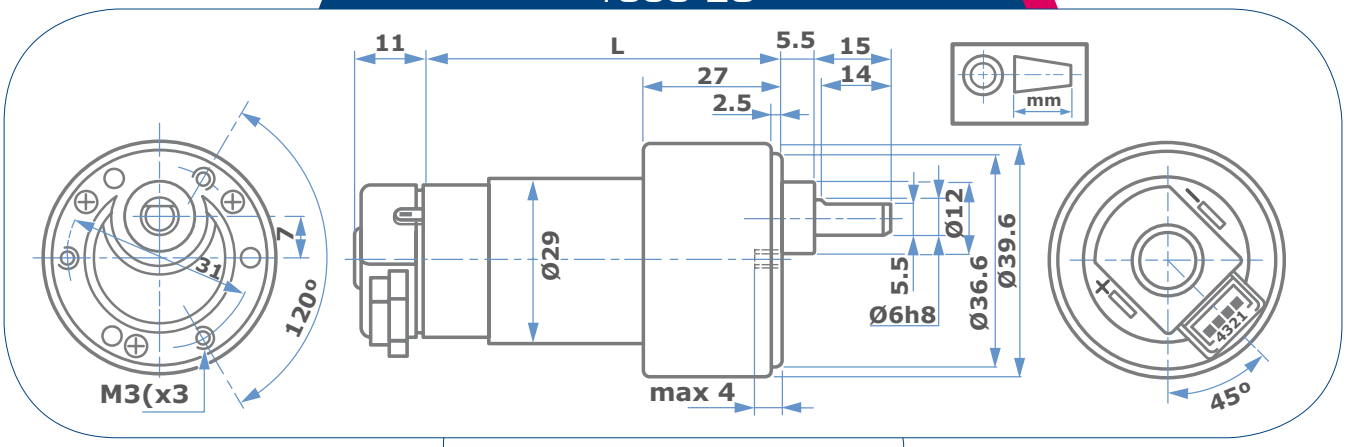
gear-motors with two-phase Hall-effect 90° encoder

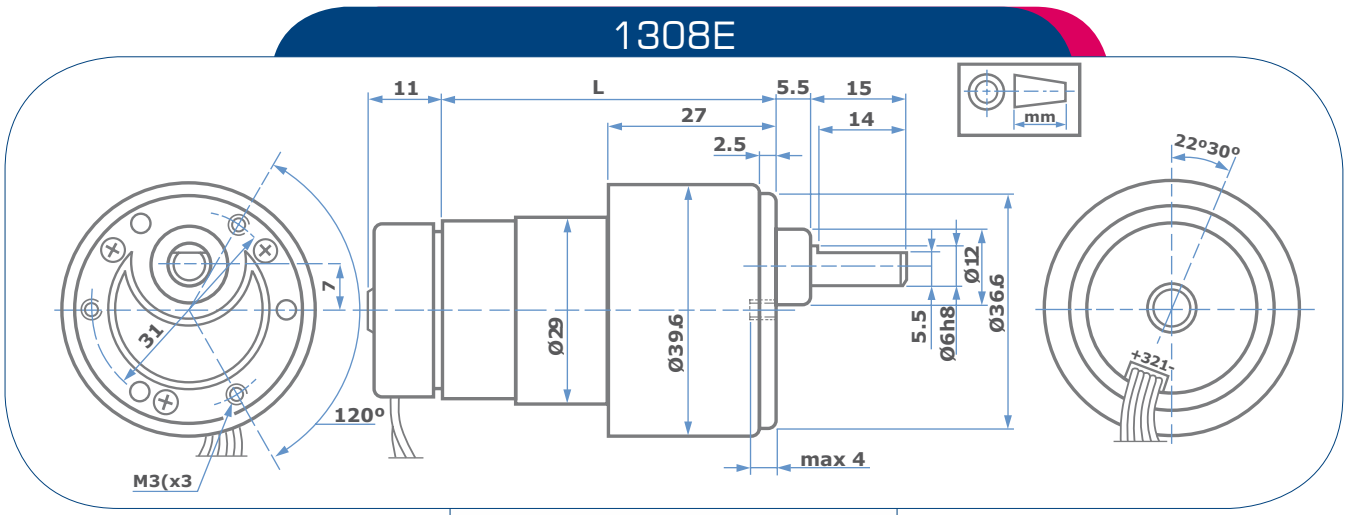
1308-2S



L = See: Series - 1308

gear-motors with Hall-effect encoder

1308E

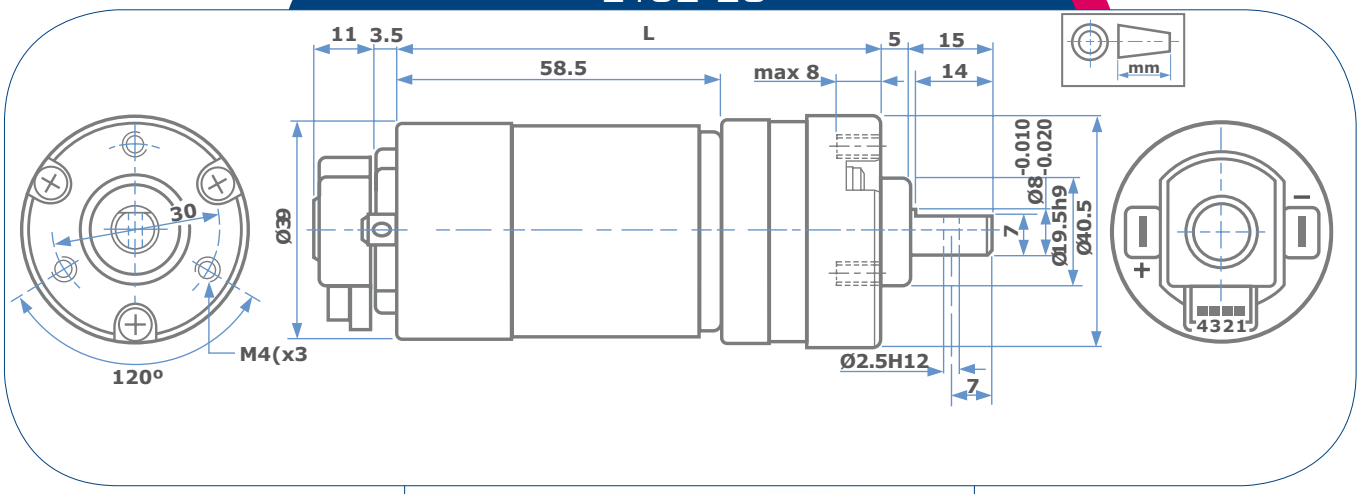


L = See: Series - 1308

micro motors s.r.l.

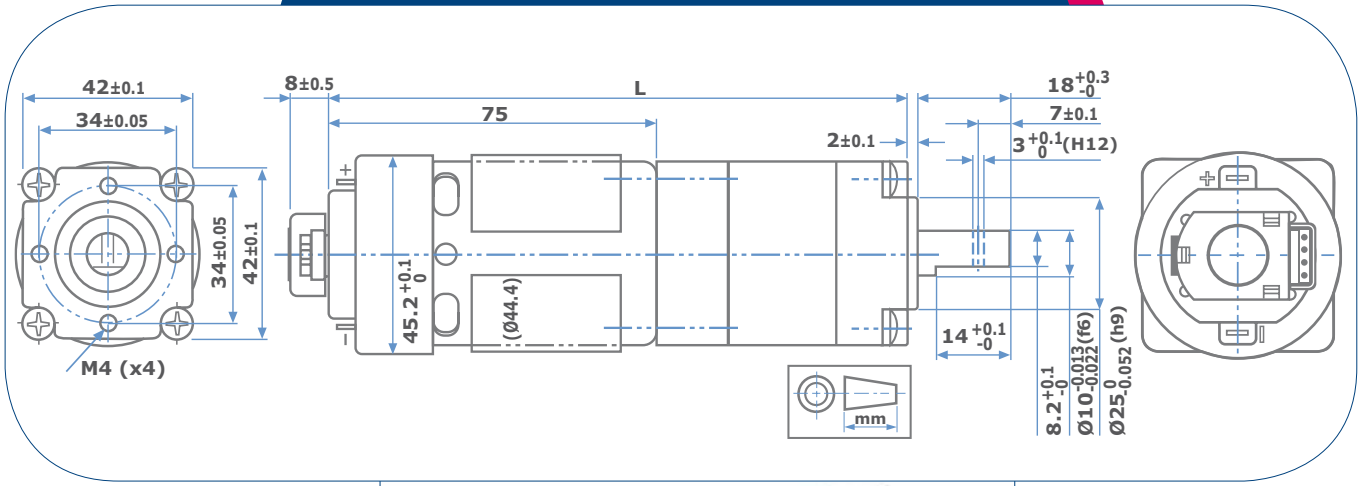
gear-motors with two-phase Hall-effect 90° encoder

E192-2S



L = See: Series E192

P205-2S



L = See: Series P205

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