Electro-Magnetic Toothed Clutch

Characteristics
- Electrically operated 24 or 103,5 VDC depending size
- Toothed clutch
- Activated by power on

Utilisation
- Coupling of a pulley or a hub
- Engagement has to be made at standstil or at very low speed, in case of doubt consult the factory
- For wet operation use models VAR n0 For dry operation use models VAR n4 (sealed bearings)

Particularities
- Positive coupling for drive without slipping
- Standard available for random or synchronised operation (one or more position(s)/rev). Multiposition/rev as option (VAR n0 or VAR n4, “n” indicates number of positions)
- Option : detection disc allows the coupling position to be validated, see E320 VAR504
- Fixed inductor mounted on ball bearings
- Non sealed bearings for use oil environment
- Sealed bearings for dry operation

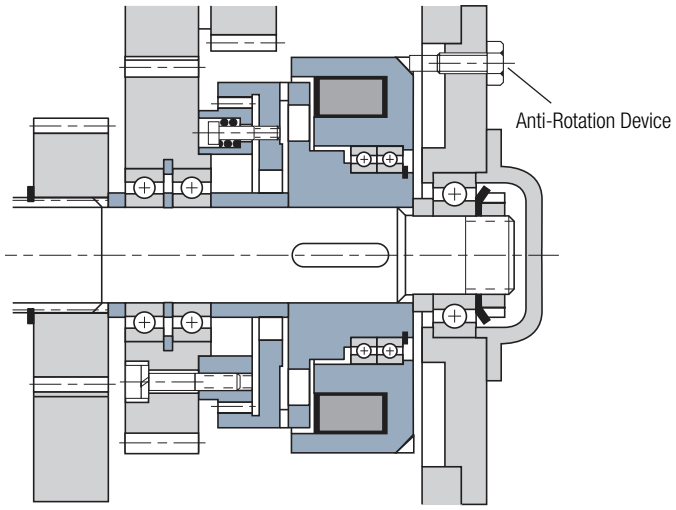
Adjustments
- Verify position of tooth “J” prior to installation
- No wear adjustment required

Maintenance Manual
- SM 309

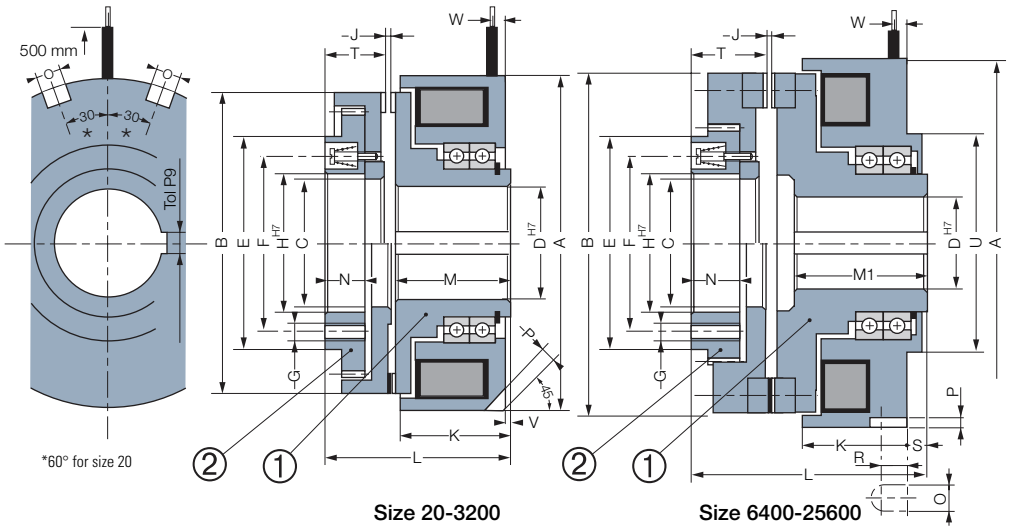
Mounting Precautions
- The anti-rotation device of the electromagnet shall be inserted in anti rotation slot, with a side play of 0,5 mm and a 1 mm play to the bottom. This avoids a normal stress on the ball bearings.
- It is forbidden to use in case of vibrations
- Device intended for horizontal use; for vertical use, please consult the factory

Power Supply
- For sizes until 3200 CBC 400–24 , CBC 450–24, CBC 140–5 + CBC 140–T
- For sizes 6400 to 25600 CBC 140–5

Mounting Example



Electro-Magnetic Toothed Clutch



Size 20-3200 Size 6400-25600

Bearings	Random	Synchronised 1 Rounded
Open	VAR 00	VAR 10
Sealed	VAR 04	VAR 14

Indirect Drives

Sizes			20	50	100	200	400	800	1600	3200	6400	12800	25600
Nom. Torque		[Nm]	20	50	100	200	400	800	1,600	3200	6400	12800	25600
Max. Speed	VAR 00 / 10	[min-1]	-	5000	4300	3600	3300	2,700	2,100	1800	1500	1500	1200
	VAR 04 / 14	[min-1]	5000	3900	3500	2800	2600	2100	1500	1400	1000	–	–
Voltage		[VDC]	24	24	24	24	24	24	24	24	24	103,5	103,5
Power	P20	[W]	15	21	26	29	48	54	64	74,5	101	140	248
	A		72	82	100	115	125	153	202	235	340	410	490
	B		66	75	90	105	115	140	185	215	320	385	460
	C		28	40	49,5	58	63	76	99	117	153	180	220
	D* min		10	20	20	25	30	30	50	50	80	90	110
	D* max		22	30	32	42	46	55	80	85	110	125	150
	E		-	65,5	75,5	85,5	100,5	115,5	155,5	180,5	215,5	275,5	340,5
	F		45	55	64	75	85	100	135	155	190	250	300
	G		3xM4	4xM5	4xM5	4xM6	6xM6	6xM8	6xM10	6xM10	12xM12	12xM16	16xM46
	H		32	45	53	65	70	85	115	130	153	190	235
	J		0,3	0,4	0,5	0,5	0,5	0,6	0,7	0,8	1	1	1
	K		33	28,5	32	37	38	45,5	60,5	72	79	91	106
	L		47	44	50	57,5	60	74	97	120	174	211	295
	M		34	29	32,3	37,3	38,3	46	61	72,3	-	-	-
	M1		-	-	-	-	-	-	-	-	100	125	205
	N		5,4	8	10	12	12,5	17	21	28	35	41	55
	O		6	6	10	10	10	10	10	12	18	18	18
	P		3,5	3	4	4	4	5	6	8	8	10	12
	R		-	-	-	-	-	-	-	-	12	15	18
	S		-	-	-	-	-	-	-	-	11	18	68,5
	T		12,8	14	16,5	19	20	26	34	45	58,5	70	87,5
	U		-	-	-	-	-	-	-	-	187	235	300
	V		2	-	-	-	-	-	-	-	-	-	-
	W		7	7	7	7	7	10	12	15	19	22	25
Inertia	❶	[kgm²]	0,00008	0,0001	0,0003	0,0008	0,0011	0,0032	0,015	0,0339	0,319	0,775	2,000
Inertia	❷	[kgm²]	0,00015	0,0002	0,0006	0,001	0,002	0,007	0,030	0,0629	0,406	1,08	2,660
Weight		[kg]	1	1,2	2	3	4	7	14	29,5	82	145	254
Connection			Leads				Cable						

Keyways according to
ISO R773 / BS 4235 / DIN 6885-1 / NF E 22-175, tolerance P9
* Mandatory delivered with finished bores

Connector Options
(Delivered without cable)
2 poles, capacity :
0,5/2,5mm²

E320 VAR 504

Electro-Magnetic Toothed Clutch

Characteristics
- Electrically operated 24 or 103,5 VDC depending size
- Toothed clutch
- Activated by power on

Utilisation
- Coupling of a pulley or a hub
- Engagement has to be made at standstil or at very low speed, in case of doubt consult the factory
- For wet operation use models VAR n0
  For dry operation use models VAR n4 (sealed bearings)

Particularities
- Positive coupling for drive without slipping
- Standard available for random or synchronised operation (one or more position(s)/rev).
  Multiposition/rev as option (VAR n0 or VAR n4, “n” indicates number of positions)
- Fixed inductor mounted on ball bearings
- Non sealed bearings for use oil environment
- Sealed bearings for dry operation

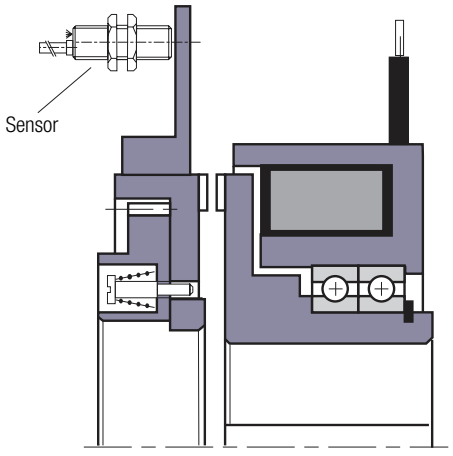
Adjustments
- Verify position of tooth “J” prior to installation
- No wear adjustment required

Maintenance Manual
- SM 309

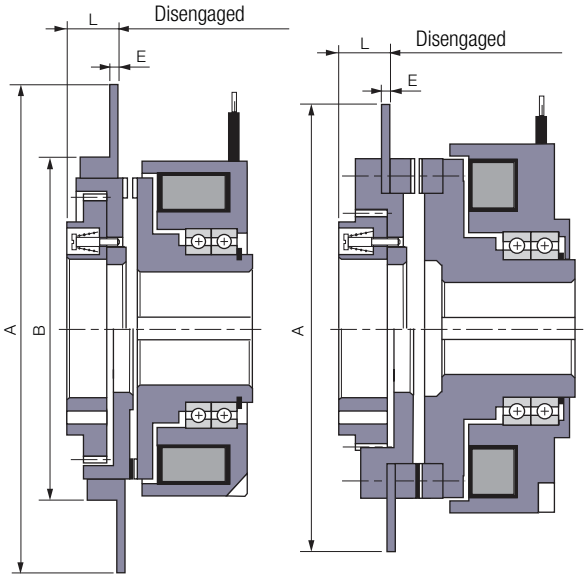
Mounting Precautions
- The anti-rotation device of the electromagnet shall be inserted in anti rotation slot, with a side play of 0,5 mm and a 1 mm play to the bottom. This avoids a normal stress on the ball bearings.
- It is forbidden to use in case of vibrations
- Device intended for horizontal use; for vertical use, please consult the factory

Power Supply
- For sizes until 3200
  CBC 400–24 , CBC 450–24,
  CBC 140–5 + CBC 140–T
- For sizes 6400 to 25600
  CBC 140–5

Mounting Example



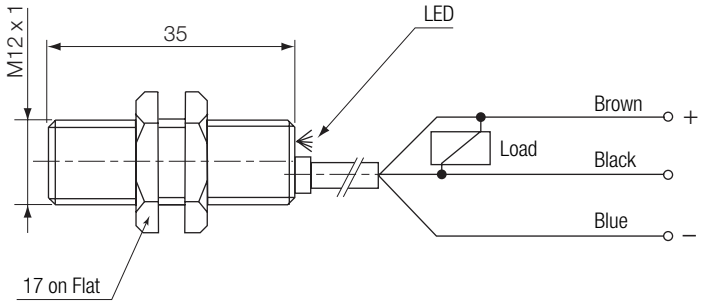
Connector Options
(Delivered without cable)
2 poles, capacity : 0,5/2,5mm^2



Size 50 - 1600 Size 3200 - 25600

Other dimensions, see page 39

Inductive Proximity Sensor



Part number BT768000124

Sizes		50	100	200	400	800	1600	3200	6400	12800	25600
A		135	152	168	178	205	250	288	400	465	540
B		88	104	120	132	158	205	235	–	–	–
E		3	3	3	3	3	3	3	5	5	5
L		12	14	15,5	16	20,5	28	40	37,5	42	59,5
Inertia*	[kgm²]	0,0003	0,0005	0,0007	0,0010	0,0020	0,0043	0,017	0,081	0,142	0,242

* Value to be added to Inertia (2), see page 39.

INDUCTIVE PROXIMITY SENSOR
with built-in electronic board

Characteristics

Rate operating distance (steel target)	2 mm
Monting	shilded
Switching element function	Normally open
Cable	NPN, 3 x 0,34 mm², 2 m
Usable supply voltage	18 V... 30 VDC
Ripple voltage	10 %
No load supply voltage	10 mA
Rated operational current	120 mA
Voltage drop	1,5 V
Off-state current	10 µA
Short circuit protection	yes
Overload protection	yes
Reverse battery protection	yes
Wire break resistance	yes
EMC	Group A
Operating frequency	2000 Hz
Hysteresis	15 %
Temperature drift	10 %
Repeat accuracy	10 %
Housing	Nickel-plated brass
Front cap	PBTP
Degree of protection (EN 60529)	IP 67
Ambiant air temperature	–25°C... +70°C
Part number	BT768 000 124

E320 VAR 05 / VAR 15

Electro-Magnetic Toothed Clutch

Characteristics
- Electrically operated 24 VDC
- Toothed clutch
- Activated by power on

Utilisation
- Coupling of two shafts in line
- Engagement has to be made at standstill or at very low speed, in case of doubt consult the factory

Particularities
- Positive coupling for drive without slipping
- Standard available for random or synchronised operation (one or more position(s)/rev). Multiposition/ rev as option (VAR n5, “n” indicates number of positions)
- Option : detection disc allows the coupling position to be validated, see E320 VAR504 page 41
- Fixed inductor mounted on ball bearings
- Sealed bearings
- Equipped with an elastic coupling

Adjustments
- No wear adjustment required

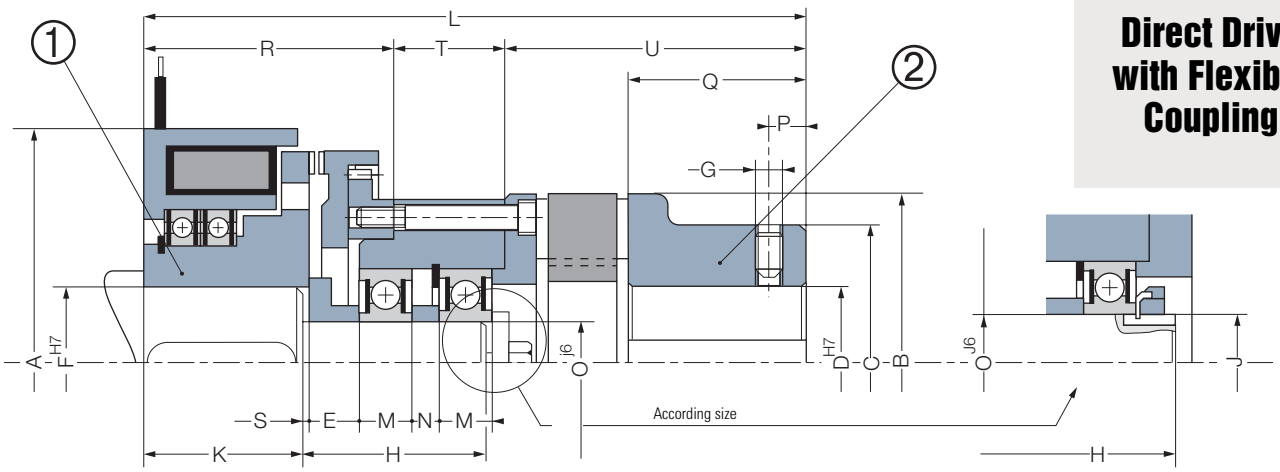
Maintenance Manual
- SM 309

Mounting Precautions
- The anti-rotation device of the electromagnet shall be inserted in anti rotation slot, with a side play of 0,5 mm and a 1 mm play to the bottom. This avoids a normal stress on the ball-bearings.
- It is forbidden to use in case of vibrations
- Device intended for horizontal use; for vertical use, please consult the factory

Power Supply
- For sizes until 3200
  CBC 400–24 - CBC 450–24,
  CBC 140–5 + CBC 140–T
- For size 6400 to 25600
  CBC 140–5

Electro-Magnetic Toothed Clutch

Direct Drive with Flexible Coupling



Sizes			50	100	200	400	800	1600	3200	6400	12800	25600
Nom. Torque		[Nm]	50	100	200	400	800	1600	3200	6400	12800	25600
Coupling			28/38	38	42	48	55	75	90	125	160	180
Max. Speed		[min-1]	3900	3500	2800	2600	2100	1500	1400	1000	1500	1200
Voltage		[VDC]	24	24	24	24	24	24	24	24	103,5	103,5
Power	P20	[W]	21	26	29	48	54	64	74,5	101	160	248
	A		82	100	115	125	153	202	235	340	410	490
	B		65	80	95	105	120	160	200	290	335	460
	C		65	66	75	85	98	135	160	230	180	220
	D* min		10	12	14	15	20	30	40	60	80	85
	D* max		40	38	42	48	55	75	90	145	160	180
	E		17	10,7	13,7	21,7	28	19	20,7	45	48	37
	F* min		20	20	25	30	30	50	55	80	90	110
	F* max		30	32	42	46	55	80	85	110	125	150
	G		M8	M8	M8	M8	M10	M10	M12	M12	M16	M16
	H		41	41,7	44,7	47,7	54	68	107	160	173	179
	J		-	-	-	-	-	-	M55X2	M65X2	M80X2	M90X2
	K		28	31,3	36,3	37,3	45	60	70,3	98	123	203
	L		135	154	171	184	211	273	332	432	528	690
	M		12	12	12	13	13	16	21	23	26	30
	N		-	7	7	-	-	17	28	52	53	62
	O		20	20	25	30	30	50	55	65	80	90
	P		10	10	10	10	20	20	30	30	40	40
	Q		35	45	50	56	65	85	100	140	175	195
	R		44	50	57,5	60	74	97	120	174	211	295
	S		1	1	1	1	1	1	2	2	2	2
	T	❶	29	27	27,5	29	29	35	48	30	32	76
	U		62	77	86	95	108	141	164	228	285	319
Inertia	❶	[kgm²]	0,0001	0,0003	0,0008	0,0011	0,0032	0,015	0,0353	0,324	0,775	2,000
Inertia	❷	[kgm²]	0,0009	0,0027	0,0057	0,0088	0,0219	0,0864	0,229	1,197	TBD	TBD
Weight		[kg]	2,5	4,5	6,8	8,3	15,5	31	61	161	TBD	TBD
Connection			**Leads**				**Cable**					

Keyways according to
ISO R773 / BS 4235 / DIN 6885-1 / NF E 22-175, tolerance P9
* Mandatory delivered with finished bores

Connector Options
(Delivered without cable)
2 poles, capacity :
0,5/2,5mm²

E330 VAR 04 / VAR 14

Electro-Magnetic Toothed Clutch

Characteristics
- Electrically operated 207/103,5 VDC
- Toothed clutch
- Activated by spring pressure

Utilisation
- Coupling of a pulley or a hub
- Engagement has to be made at standstil or at very low speed, in case of doubt consult the factory
- Destined to remain coupled over long periods

Particularities
- This device works with two voltages: one for disengagement, one for position maintain
- Positive coupling for drive without slipping
- Standard available for random or synchronised operation (one or more position(s)/rev). Multiposition/rev as option (VAR n4, “n” indicates number of positions)
- Option : detection disc allows the coupling position to be validated, see E330 VAR504
- Fixed inductor mounted on ball bearings
- Sealed bearings

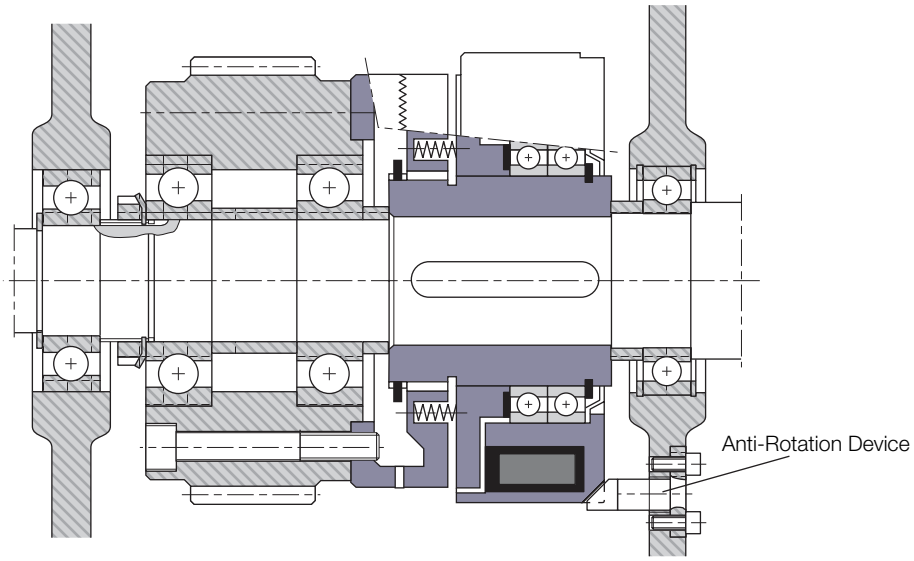
Adjustments
- Verify position of tooth “Q” prior to installation
- No wear adjustment required

Maintenance Manual
- SM 310

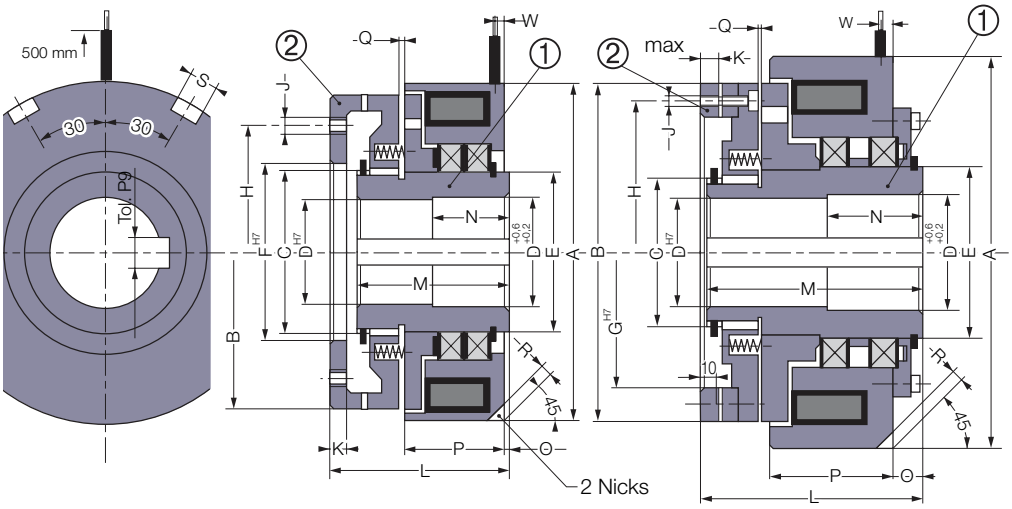
Mounting Precautions
- The anti-rotation device of the electromagnet shall be inserted in anti rotation slot, with a side play of 0,5 mm and a 1 mm play to the bottom. This avoids a normal stress on the ball-bearings.
- It is forbidden to use in case of vibrations
- Device intended for horizontal use; for vertical use, please consult the factory
- The customers mounting method must take into account the axial thrust

Power Supply CBC 140-5
- Overexcitation delay: 0,5 s (size 50) to 2 s (size 12800)

Mounting Example



Electro-Magnetic Toothed Clutch



Size 50 - 1600** | Size 3200 - 12800

Sealed Bearings	Random	Synchronised 1 Rounded
	VAR 04	VAR 14

Indirect Drive

Sizes			50	100	200	400	800	1600	3200	6400	12800
Nom. Torque		[Nm]	50	100	200	400	800	1600	3200	6400	12800
Max. Speed		[min-1]	4300	3600	3300	2600	2000	1800	1450	1200	1000
U pull in / holding* **		[VCD]	207/103,5	207/103,5	207/103,5	207/103,5	207/103,5	207/103,5	207/103,5	207/103,5	207/103,5
Power pull in	P20	[W]	102	149	193	242	332	338	640	920	1224
Holding	P20	[W]	27	39	51	63	87	89	160	230	306
	A		100	115	125	153	202	245	290	350	425
	B		90	105	115	140	185	225	265	320	385
	C		45	55	60	75	100	105	125	145	175
	D* min		19	24	28	28	38	48	65	80	100
	D* max		30	38	42	55	75	80	95	110	130
	E		45	55	60	75	105	110	130	150	180
	F min		40	45	50	65	105	110	-	-	-
	F max		58	70	80	100	130	155	-	-	-
	G		-	-	-	-	-	-	215	260	315
	H**		68	82	92	110	148	175	240	290	355
	J**		4xM6	4xM6	6xM6	6xM8	6xM10	6xM12	12xM12	12xM14	12xM16
	K		5	6	6	7	8	12	15	18	24
	L		58	63	65	80	100	145	165	200	245
	M		51	55	57	71	90	130	160	198	240
	N		20	21	23	25	30	48	55	65	78
	O		1,7	1,7	0,5	0,7	0,5	15	15	22	23
	P		32	37	38	45,5	60,5	75	90	107	133,5
	Q		1	1,1	1,2	1,3	1,3	2	2,3	2,7	3,2
	R		4	4	4	5	6	7	8	10	12
	S		10	10	10	10	10	12	16	18	20
	W		7	7	7	7	10	12	15	19	22
Axial load on drive cup 2		[daN]	30	45	65	115	180	330	900	1500	2200
Inertia	❶	[kgm²]	0,00100	0,00160	0,0027	0,0087	0,0330	0,0845	0,2150	0,554	1,370
Inertia	❷	[kgm²]	0,00034	0.,00073	0,0010	0,0025	0,0095	0,022	0,0418	0,104	0,290
Weight		[kg]	2,4	3,4	4,2	8	18	33,5	55,5	98	178
Connection			**Leads**					**Cable**			

Keyways according to
ISO R773 / BS 4235 / DIN 6885-1 / NF E 22-175, tolerance P9
* Mandatory delivered with finished bores
** Drive cup sizes 50 to 1600 supplied non drilled. Fixing holes are shown for information only
*** For other voltages, please consult us.

Connector Options
(Delivered without cable)
2 poles, capacity :
0,5/2,5mm²

E330 VAR 504

Electro-Magnetic Toothed Clutch

Characteristics
- Electrically operated 103,5/48 or 207/103,5 VDC depending size
- Toothed clutch
- Activated by spring pressure

Utilisation
- Coupling of a pulley or a hub
- Engagement has to be made at standstil or at very low speed, in case of doubt consult the factory
- Destined to remain coupled over long periods

Particularities
- This device works with two voltages: one for disengagement, one for position maintain
- Positive coupling for drive without slipping
- Standard available for random or synchronised operation (one or more position(s)/rev). Multiposition/ rev as option (VAR n4, “n” indicates number ofpositions)

Fixed inductor mounted on ball bearings
Sealed bearings

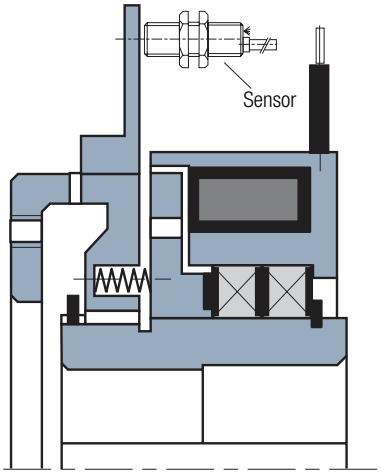
Adjustments
- Verify position of tooth “Q” prior to installation
- No wear adjustment required

Maintenance Manual
- SM 310

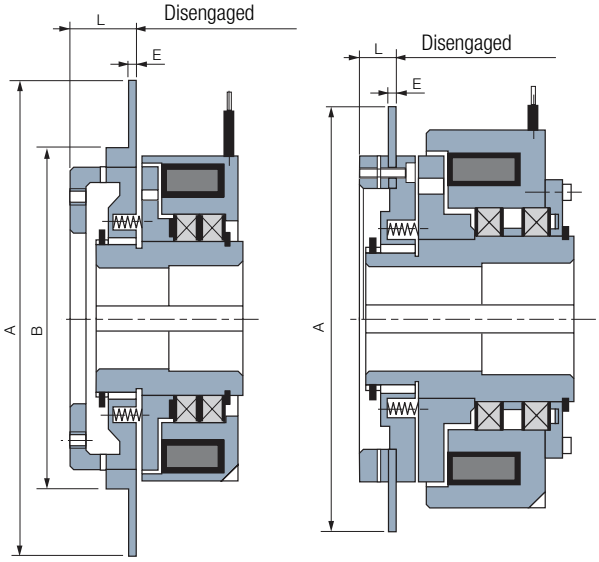
Mounting Precautions
- The anti-rotation device of the electromagnet shall be inserted in anti rotation slot, with a side play of 0,5 mm and a 1 mm play to the bottom. This avoids a normal stress on the ball-bearings.
- It is forbidden to use in case of vibrations
- Device intended for horizontal use; for vertical use, please consult the factory
- The customers mounting method must take into account the axial thrust

Power Supply CBC 140-5
- Overexcitation delay: 0,5 s (size 50) to 2 s (size 12800)

Mounting Example



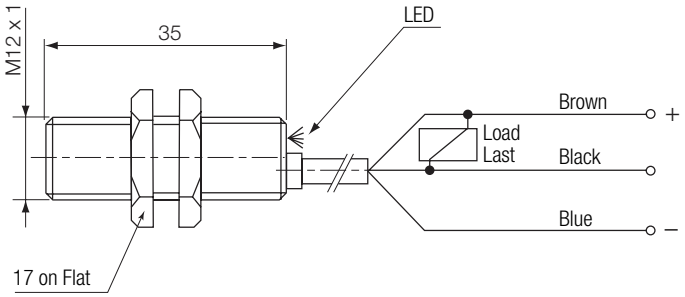
Connector Options
(Delivered without cable)
2 poles, capacity : 0,5/2,5mm^2



Size 50 - 1600 Size 3200 - 12800

Other dimensions, see page 45

Inductive Proximity Sensor



Part Number BT768000124

Sizes		50	100	200	400	800	1600	3200	6400	12800
A		152	168	178	205	250	300	344	400	465
B		104	120	132	158	205	245	-	–	–
E		3	3	3	3	3	3	4	5	5
L		23	23	24,5	32	37	53	42,5	48	62
Inertia*	[kgm²]	0,0003	0,0005	0,0007	0,0010	0,0020	0,0043	0,017	0,081	0,142

* Value to be added to Inertia (2), see page 45.

INDUCTIVE PROXIMITY SENSOR
with built-in electronic board

Characteristics

Rate operating distance (steel target)	2 mm
Monting	shilded
Switching element function	Normally open
Cable	NPN, 3 x 0,34 mm², 2 m
Usable supply voltage	18 V... 30 VDC
Ripple voltage	10 %
No load supply voltage	10 mA
Rated operational current	120 mA
Voltage drop	1,5 V
Off-state current	10 µA
Short circuit protection	yes
Overload protection	yes
Reverse battery protection	yes
Wire break resistance	yes
EMC	Group A
Operating frequency	2000 Hz
Hysteresis	15 %
Temperature drift	10 %
Repeat accuracy	10 %
Housing	Nickel-plated brass
Front cap	PBTP
Degree of protection (EN 60529)	IP 67
Ambient air temperature	–25°C... +70°C
Part number	BT768000124

E330 VAR 05 / VAR 15

Electro-Magnetic Toothed Clutch

Characteristics
- Electrically operated 207/103,5 VDC
- Toothed clutch
- Activated by spring pressure

Utilisation
- Coupling of two shafts in line
- Coupling has to be made at standstill or at very low speed, in case of doubt consult the factory
- Destined for remain connected long periods

Particularities
- This device works with two voltages: one for disengagement, one for position maintain
- Positive coupling for drive without slipping
- Option : detection disc allows the coupling position to be validated, see E330 VAR504 page 47
- Fixed inductor mounted on ball bearings
- Sealed bearings
- Equipped with an elastic coupling

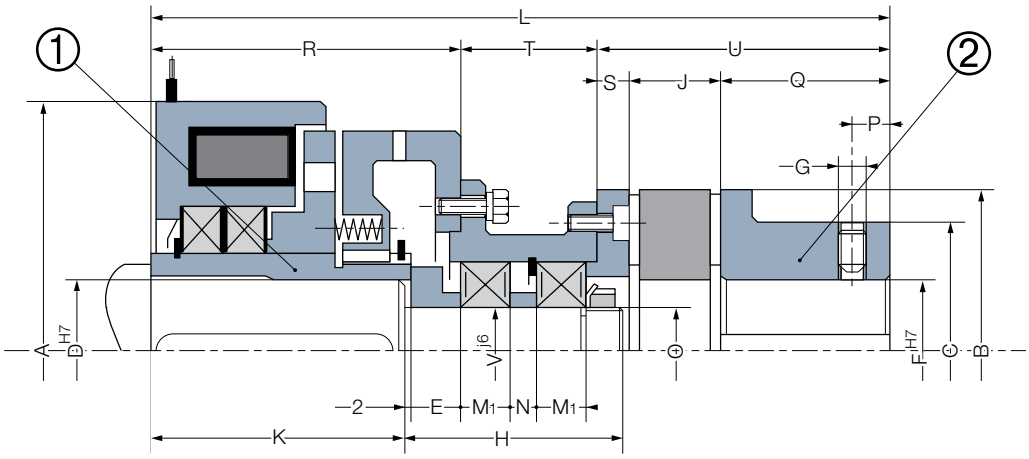
Adjustments
- No wear adjustment required

Maintenance Manual
- SM 310

Mounting Precautions
- The anti-rotation device of the electromagnet shall be inserted in anti rotation slot, with a side play of 0,5 mm and a 1 mm play to the bottom. This avoids a normal stress on the ball-bearings.
- It is forbidden to use in case of vibrations
- Device intended for horizontal use; for vertical use, please consult the factory

Power Supply CBC 140-5
- Overexcitation delay: 0,5 s (size 50) to 2 s (size 6400)

Electro-Magnetic Toothed Clutch



Sizes			50*	100	200	400	800	1600	3200	6400
Nom. Torque		[Nm]	50	100	200	400	800	1600	3200	6400
Coupling			28/38	38	42	55	75	90	110	140
Max. Speed		[min-1]	4300	3600	3300	2600	2000	1800	1450	1200
U pull in / holding ***		[VDC]	207/103,5	207/103,5	207/103,5	207/103,5	207/103,5	207/103,5	207/103,5	207/103,5
Power pull in	P20	[W]	102	149	193	242	332	338	640	920
Holding	P20	[W]	27	39	51	63	87	89	160	230
	A		100	115	125	153	202	245	290	350
	B		65	80	95	120	160	200	255	320
	C		65	66	75	98	135	160	200	255
	D** min		20	20	25	35	40	48	70	85
	D** max		30	38	42	55	70	80	95	110
	E		9	8	8	7	10	11	21	21
	F min		10	12	14	20	30	40	60	60
	F max		40	38	42	55	75	90	125	160
	G		M8	M8	M8	M10	M10	M12	M12	M12
	H		34	54	57	66	82	100	109	118
	J		20	24	26	30	40	45	55	65
	K		49	53	55	69	88	128	158	196
	L		149	181	191	235	302	384	460	555
	M1		12	14	15	17	23	25	63,5	68,3
	N		-	7	7	12	12	24	-	-
	O		-	M20X1	M25X1,5	M35X1,5	M40X1,5	M45X1,5	M70X2	M80X2
	P		10	10	10	20	20	30	30	30
	Q		35	45	50	65	85	100	120	155
	R		58	63	65	80	100	145	165	200
	S		7	8	10	13	16	19	24	31
	T		29	41	40	47	61	75	96	104
	U		62	77	86	108	141	164	199	251
	V		20	20	25	35	40	45	70	80
Inertia	❶	[kgm²]	0,00100	0,0016	0,0027	0,0087	0,033	0,0845	0,2212	0,565
Inertia	❷	[kgm²]	0,00107	0,00293	0,0055	0,0196	0,150	0,162	0,522	1,220
Weight		[kg]	3,6	6	8	17,2	35	61,5	108,3	170
Connection			**Leads**			**Cable**				

Direct Drive with Flexible Coupling

Keyways according to
ISO R773 / BS 4235 / DIN 6885-1 / NF E 22-175, tolerance P9
* For size 50, bearings are located axially by washer and screw (instead of threaded nut)
** Mandatory delivered with finished bores
*** For other voltages, please consult us.

Connector Options
(Delivered without cable)
2 poles, capacity :
0,5/2,5mm²