TECHNICAL SHEET Nº 3101

ELECTROMAGNETIC BRAKE-CLUTCH

SINGULAR PLANE
Whithout collector rings
Type EFE

Description

The electromagnetic brake-clutch **EFE** is a very compact unit, extremely narrow, and providing a quick and reliable answer.

Its small length makes it possible to place it on the end of projecting shafts, such as on electric motors, therefore it is an easy-to-install and reliable drive control unit.

It is free from collector rings, keeping the electromagnetic unit self-centered by means of a set of self-protected radial bearings, in such a way that they make it independent from the performance of the mechanical brake-clutch unit.

The same electromagnetic unit acts as a support for the rest of the unit, making up in itself a compact and self-supporting unit.

Service versions

We manufacture only one service version:

Version for working under dry conditions. The presence of oil, greases or similar products highly reduces the torque that can be transmitted.

Types

We manufacture only one version, that is:

Construction 1, to be installed, indiscriminately, either for connecting two shafts, or to be mounted on a single shaft.

Operation

It must be driven alternatively, going from the clutch, –run–, function, to the brake, –stop–, function and vice versa. Both functions must not be connected at the same time, since, as they are opposed, the first one invalidates the second one.

Supply voltage

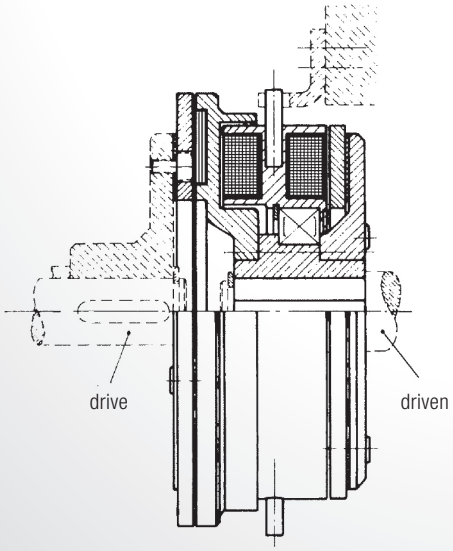
Standard voltage 24 V.D.C., other tensions on request.

The connection must be carried out using the corresponding connection cards which are duly marked on the body of the unit.

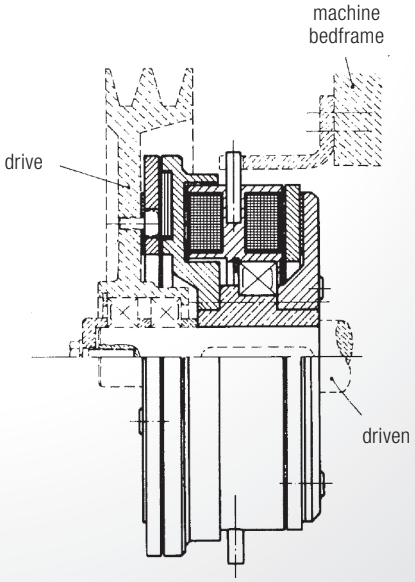
Applications

For all types of packing and proportioning machines. Machines of any type for the food industry, wooden case nailers, graphic arts, machines for paint manufacturing, circular knitting machines, knitting frames, textile machines in general, machine tools, such as lathes, milling machines, etc.

ASSEMBLY EXAMPLES



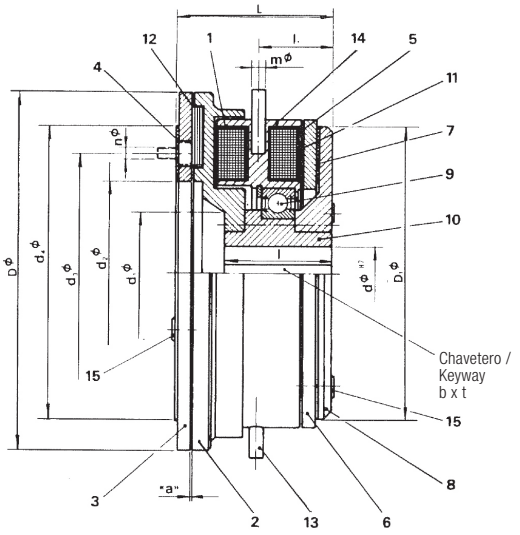
Exemple B: Transmission between two independent shafts, well aligned and without axial clearance.



Exemple A: Pulley or pinion transmission, etc. with driven shaft.

ELECTROMAGNETIC BRAKE-CLUTCH TYPE EFE
SINGULAR PLANE
Without collector rings
Type EFE

Characteristics and Dimensions



Keyways according to DIN 6885

1. Clutch coil
2. Ferodo-holding disc
3. Clutch armature
4. Elastic membrane
5. Brake coil
6. Brake armature
7. Elastic membrane
8. Armature support
9. Ball bearing
10. Central body
11-12. Ferodos
13. Fastening pin (2 a 180º)
14. Inductor core
15. Rivet

SIZE			1	3,5	7	15	30	60
Max. transmissible torque		**da Nm.**	1	3,5	7	15	30	60
Max. Revolutions per minute		**n**	5000	4000	3500	2700	2000	1500
Power consumption		**Watios**	18	32	57	73	67	84
Mass (construction 1)		**kg**	1,75	4	6,5	12	20,5	52
J (driven part)		**kg cm²**	8	38	75	250	750	1350
Working capacity	hour max.	**KJ.**	120	240	400	720	1050	2050
	connection max.		2,8	5,5	9,5	17	23	48
Response time	standard	**sec.**	0,025	0,040	0,048	0,052	0,070	0,090
	with rapid excitation		0,018	0,024	0,030	0,031	0,042	0,055
Air-space = dimension “a”		**mm**	0,3	0,3	0,4	0,5	0,6	0,8
		D	87	125	166	170	250	292
		D_1	80	125	143	180	225	276
		d	14	25	30	35	50	60
		d_1	–	55	60	90	100	158
		d_2	45	65	85	100	144	175
		d_3	60	92	110	130	170	240
		d_4	70	110	135	165	194	280
		L	63	65,5	72	84	105	140
		l	58,6	45	50	60	75	100
		l_1	27,5	31	35	41	48	60
		m	4	6	8	8	10	12
		n	3 x M4	3 x M6	3 x M6	3 x M6	4 x M8	6 x M10
		b	5	8	8	10	14	18
		t	2,2	3	3	3,4	3,6	4,3

Clutch performance

When we excite coil **1** with current, the polar mass **2** is magnetized and it draws the clutch ring **3**, which grates on the aforementioned polar mass and the friction lining **12**, giving rise to the transmission.

When we interrupt the current supply to coil **1**, the membrane **4** which has undergone an elastic deformation when clutching, recovers its normal position, resulting thus in the declutching of ring **3** and stopping the transmission.

Brake performance

When we excite coil **5** with current, the ring **6**, which grates on the inductor body **14** and on the friction lining **11**, is drawn. Since the inductor body **14** is in rest position and it is lock by means of pins **13**, the energy is absorbed by the brake ring during the friction.

Installation conditions

It can work, both on vertical and horizontal shafts.

When assembling it, between pieces 2-3 there must be an air gap as described in the technical data table and it has to be verified that the piece to which the armature 3 is srewn down does not have any axial clearance.

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