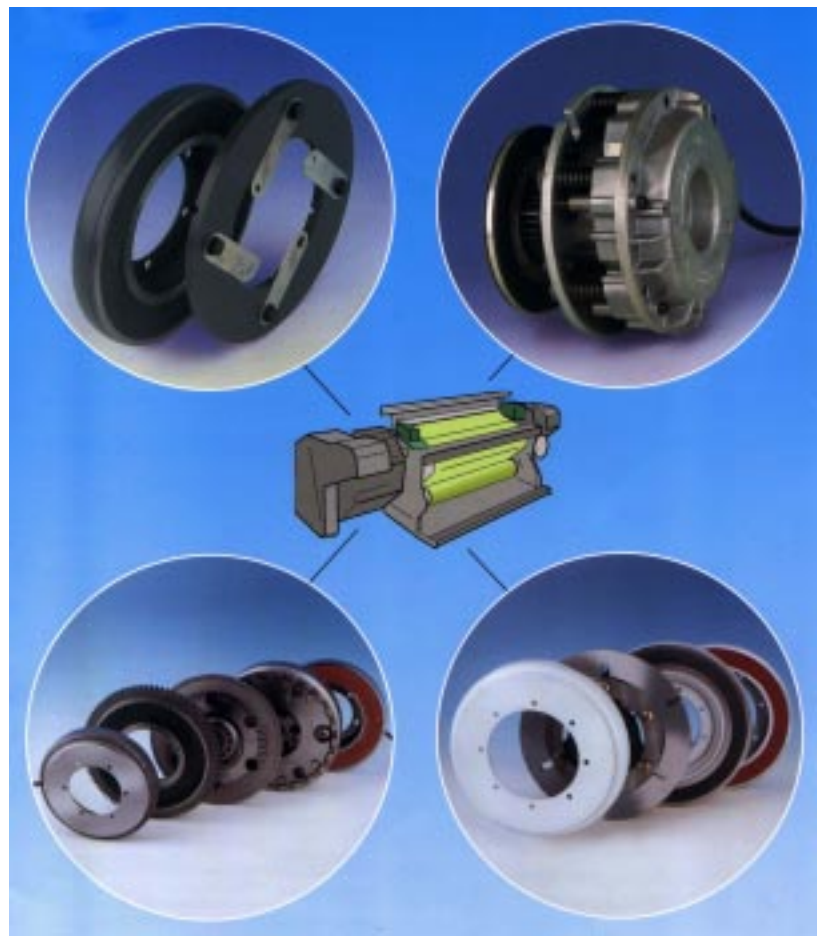
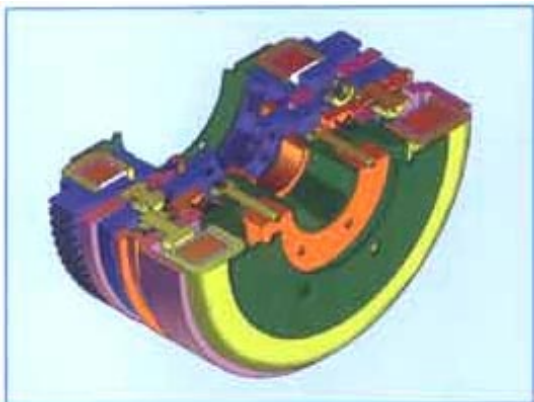
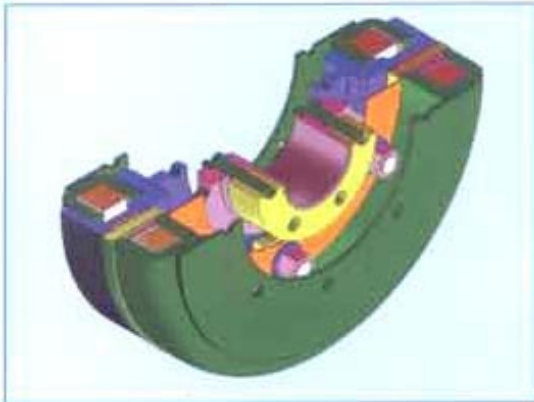


**Electromagnetic
single disc clutches, brakes
and teeth clutches for
weaving looms**





PRESENTATION

Thanks to 20 years experience acquired in the field of brakes and clutches at electromagnetic operation, **Vortex** has developed a series of specific products for weaving looms. Our experience which started on rapier looms, was later on passed to those air-jet and in those ones at water-jet. The application of our products can be made on all looms present on the market. **Vortex** takes special care to promptly satisfy new technical customer requirements and propose new solutions.

We are working in accordance to ISO 9000 STANDARD and, our products respect the norms in force.

Examples of clutch brake units for loom's control

VORTEX ENGINEERING WORKS

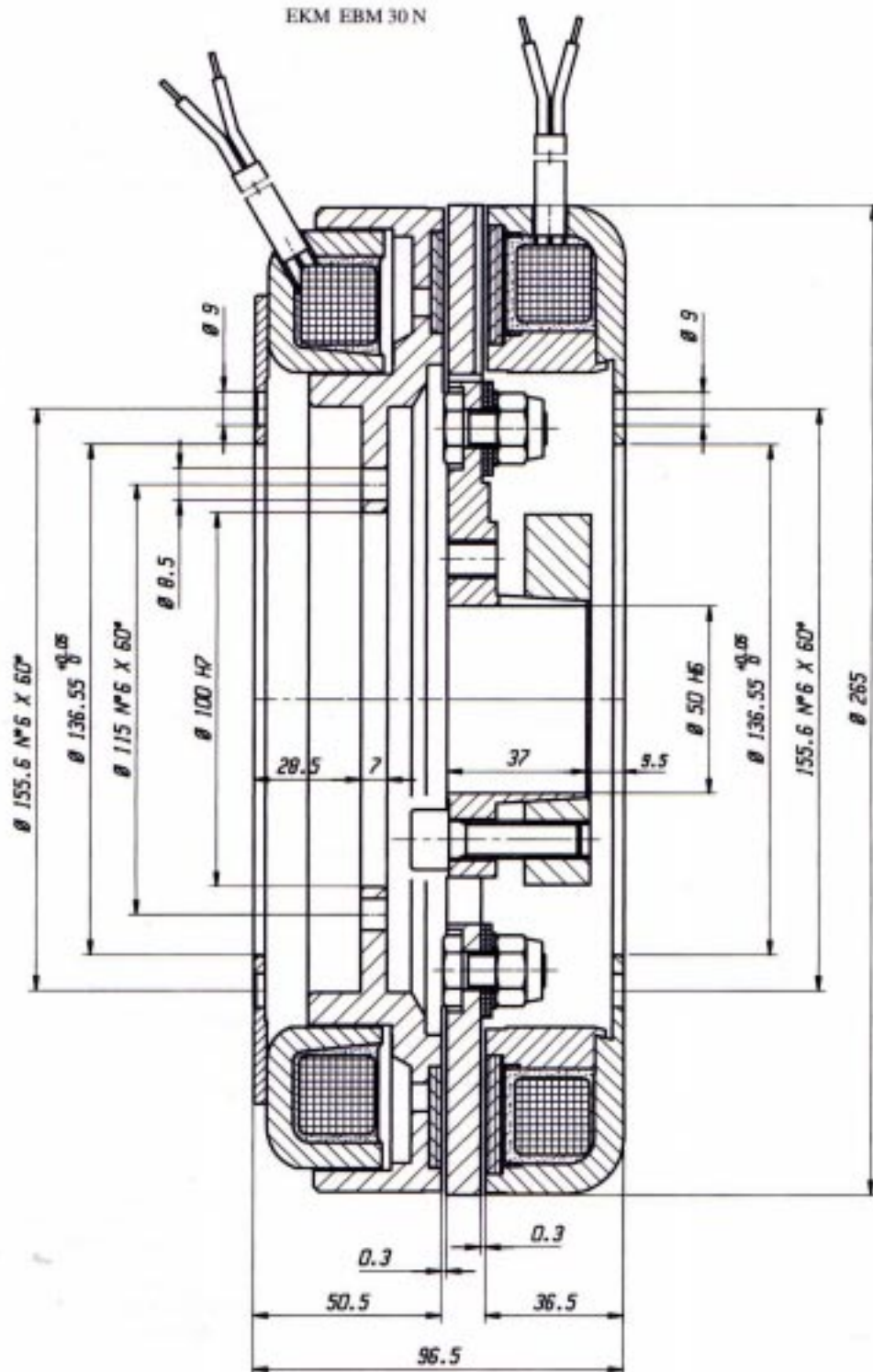


Examples of clutch brake units for loom's control

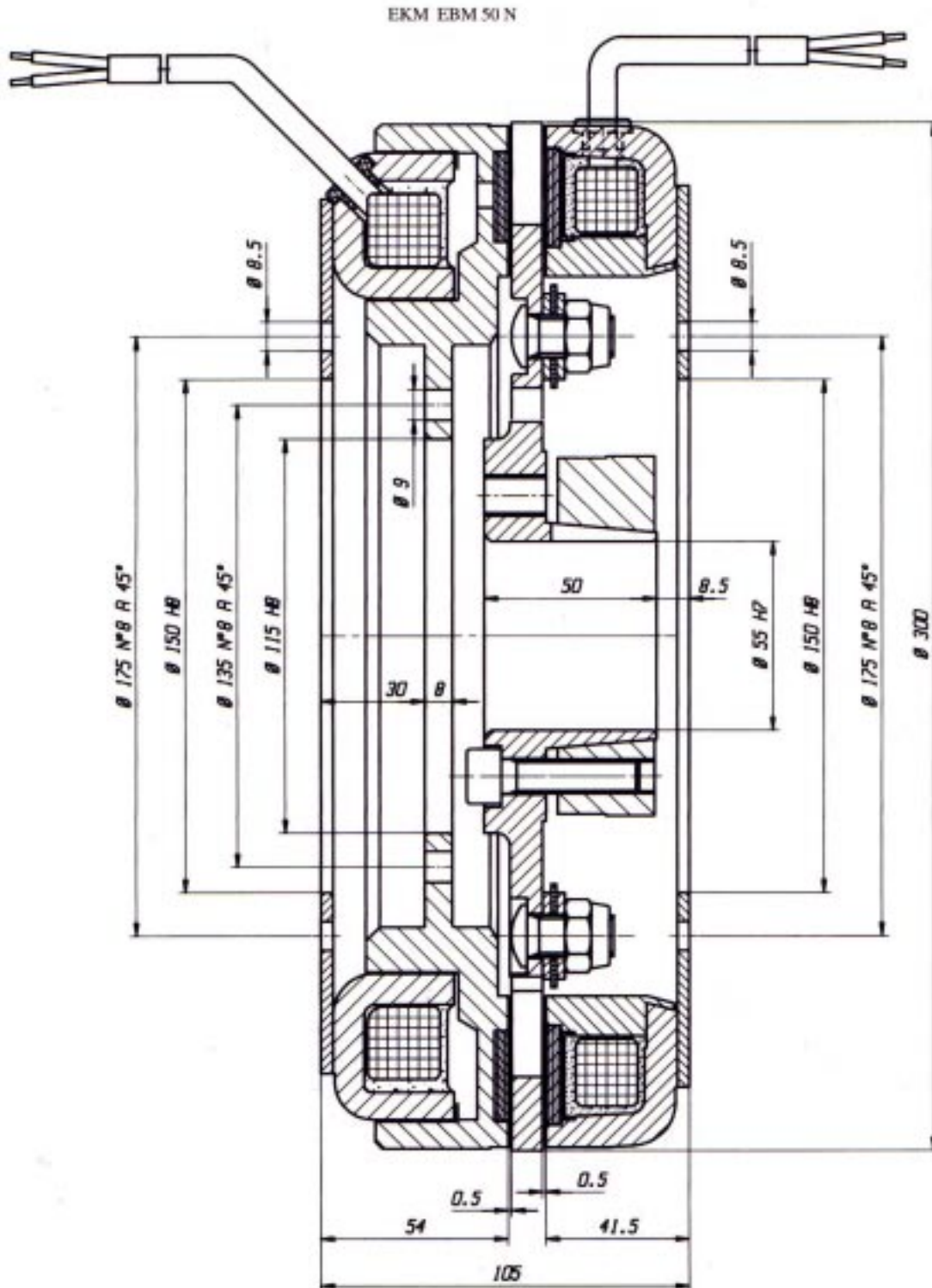
	EKM-EBM 30 N		EKM-EBM 30 DC		EKM30DC-EBM30N		EKM-EBM 50 N	
	clutch EKMS0N	brake EBM0N	clutch EKMD0C	brake EBMD0C	clutch EKMS0DC	brake EBM0N	clutch EKM50	brake EBM50
Static torque, at 24 V, after run in phase	700 Nm	900 Nm	1000 Nm	1000 Nm	900 Nm	900 Nm	1200 Nm	1200 Nm
Nominal dynamic torque after run in phase at 500 RPM	400 Nm	600 Nm	600 Nm	600 Nm	600 Nm	600 Nm	700 Nm	700 Nm
Nominal resistance of the coil at 20 °C	9 ohm	9 ohm	9 ohm	9 ohm	9 ohm	9 ohm	9,1 ohm	9,1 ohm
Nominal current	2,7 A	2,7 A	2,7 A	2,7 A	2,7 A	2,7 A	2,6 A	2,6 A
Nominal consumption	64 W	64 W	64 W	64 W	64 W	64 W	63 W	63 W
Coil resistance at 120°C	12,8 ohm	12,8 ohm	12,8 ohm	12,8 ohm	12,8 ohm	12,8 ohm	12,5 ohm	12,5 ohm
Average inductance	1,3 henry	1 henry	1,35 henry	1,45 henry	1,35 henry	1 henry	1,9 henry	1,67 henry

Holding tension 24 V Max R.P.M. 3.000 Max. coil temperature by continuous operation 120°C			
Insulation tension at 50 Hz for 5 seconds 1.500 V Max initial surge voltage 200 V Residual breakaway force - negligible			
Max current for 100 msec 15 A Insulation class H 200 Protection Class IP 44			

Examples of clutch brake units for loom's control



Examples of clutch brake units for loom's control



The electromagnetic brake for the weaving loom's motor

- It gives a self-braking motor; in economic looms it can substitute the main clutch-brake group.

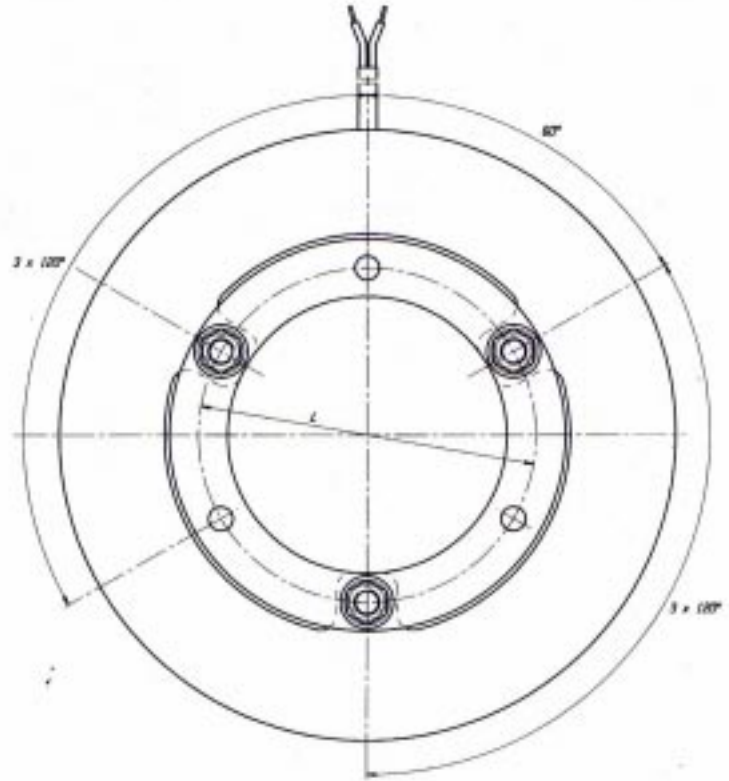
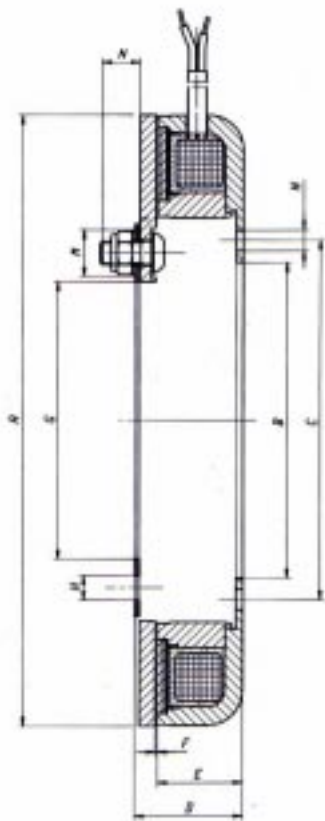
Main Characteristics :

- single disc
- high breaking torque with minimum dimensions;
- attention to minimize noise and vibrations;
- maintenance absence / high reliability / long life;
- dry operation

	EBM 185	EBM 225	EBM 265
Max R.P.M.	3000 rpm	3000 rpm	3000 rpm
Static torque, at 24 V, after run in phase	180 Nm	220 Nm	300 Nm
Nominal dynamic torque after run in phase at 500 RPM	100 Nm	130 Nm	200 Nm
Nominal resistance of the coil at 20 °C	15.1 ohm	12.6 ohm	9 ohm
Nominal current	1.6 A	1.9 A	2.6 A
Nominal consumption	38 W	45 W	64 W
Coil resistance at 120°C	21.1 ohm	17.6 ohm	12.6 ohm

Max. coil temperature by continuous operation	120° C	Residual breakaway force - negligible	
Holding tension	24 V	Insulation tension at 50 Hz for 5 seconds	1.500 V
		Insulation class	H 200
Max initial surge voltage	200 V	Max current for 100 msec	15 A
		Protection Class	IP 44

Motor brakes examples



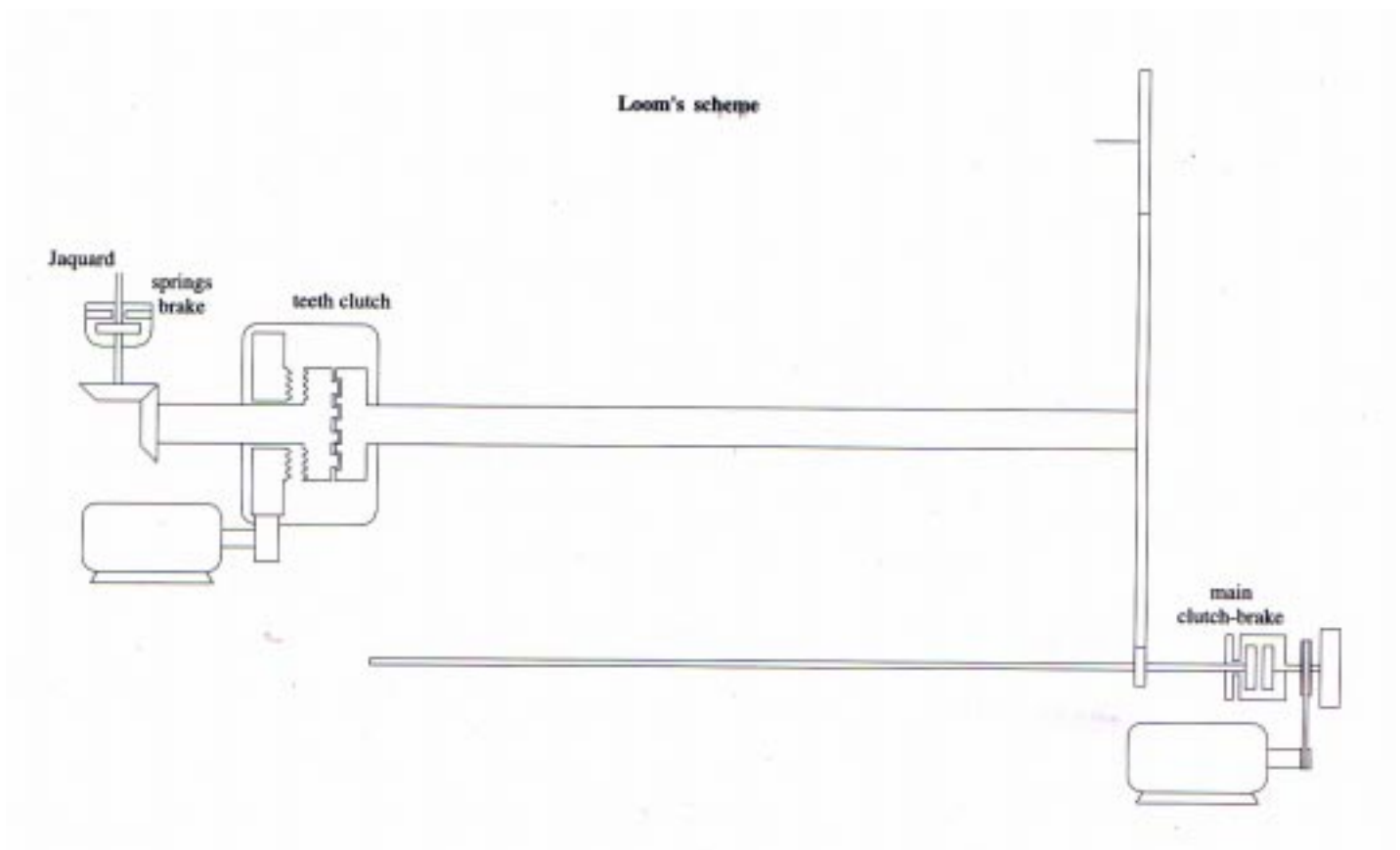
	A	B	C	D	E	F	G	H	L	M	N
EBM 185	172	75	89	36	26	0.3	63	6	90	10	7
EBM 225	215	89	108	44	33	0.5	86	8	106	18	9
EBM 265	265	137	155	48	37	0.5	120	10	145	22	9

Teeth clutch unit for slow motion and pick finder

With this units (**Vortex's** patent) in case of wire rupture in the rapier looms, only the jacquard /dobby must be stopped and slowly operated avoiding the flywheel and rapier inertia which get braked from the main brake
The “pick finder” side “or single point” guarantees the exact positioning of the rapier loom for taking again the normal weaving.

Main Characteristics

- short closing time delay (which depends from the initial survoltage) on the two rotation directions;
- high braking torque compared to the overall dimensions;
- minimized noise and vibration;
- average life (without maintenance) comparable to that one of the loom; high reliability;
- constructive simpleness;
- compactness and sturdiness.

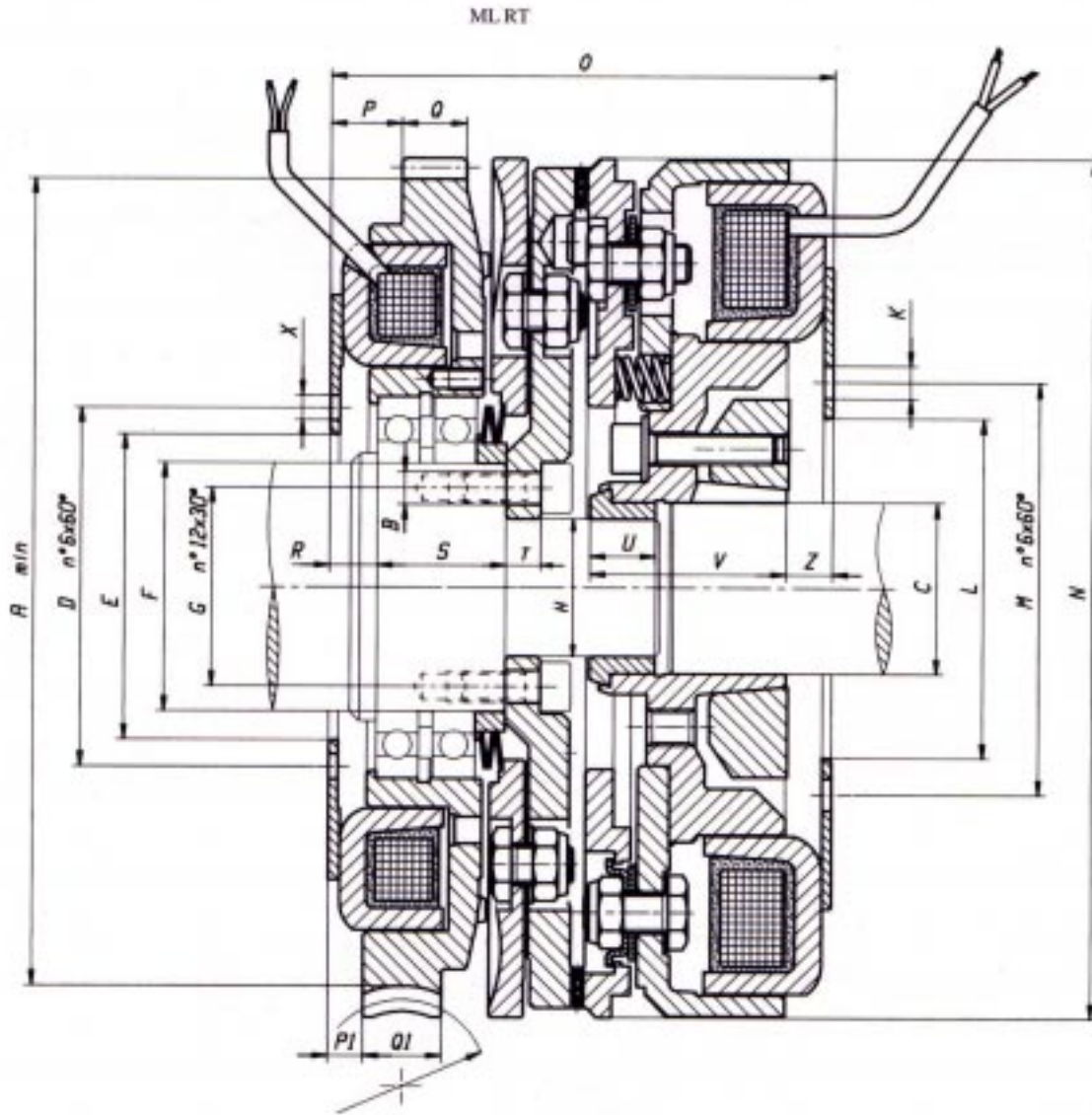


Examples of teeth clutches for slow motion and pick finder

Examples in the following pages	A, B		A, B		C	D
	ML RT 1		ML RT 2		RT1 pick finder	ML1 slow motion
	ML1 slow motion	RT1 pick finder	ML2 slow motion	RT2 pick finder		
Transmissible torque at 24 V	750 Nm	1000 Nm	1000 Nm	1400 Nm	1000 Nm	750 Nm
Nominal resistance of the coil at 24°C	7,2 ohm	30,3 ohm	12 ohm	30,3 ohm	30,3 ohm	7,2 ohm
Nominal current	3,3 A	0,8 A	2 A	0,8 A	0,8 A	3,3 A
Nominal consumption	80 W	19 W	48 W	19 W	19 W	80 W
Springs axial load	---	2000 N	---	2500 N	2000 N	---
Coil resistance at 120°C	10 ohm	42,4 ohm	16,8 ohm	42,4 ohm	42,4 ohm	10 ohm
Average inductance	0,6 henry	7,2 henry	---	---	7,2 henry	0,6 henry

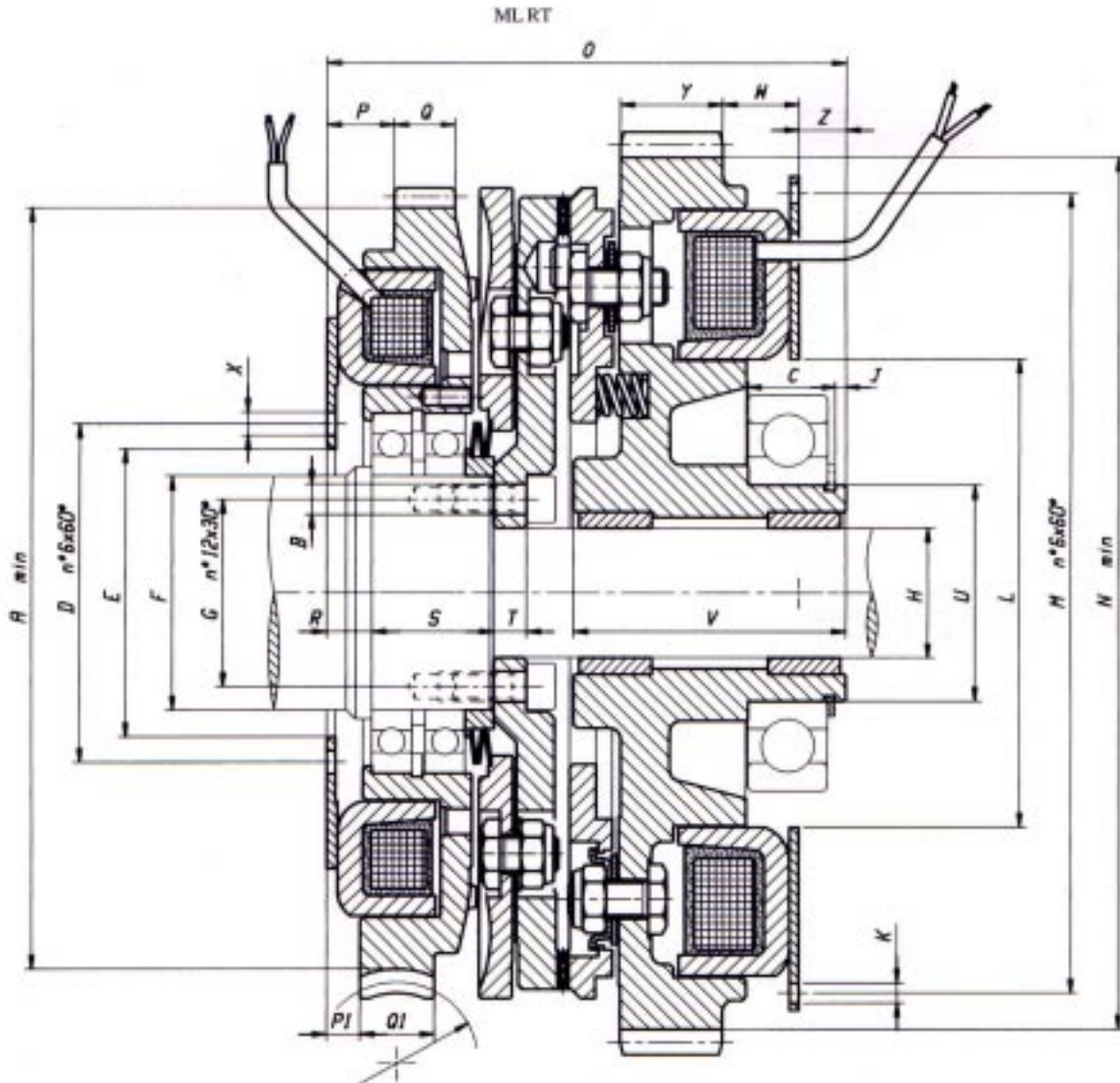
Holding tension 24 V	Max. coil temperature by continuous operation 120°C	Protection Class IP 44
Residual breakaway force - negligible	Max initial survoltage 200 V	Max current for 100 msec 15 A
Insulation class H 200	Insulation tension at 50 Hz for 5 seconds 1.500 V	

Teeth clutch unit for slow motion and pick finder
(1st solution rapier looms) Example A



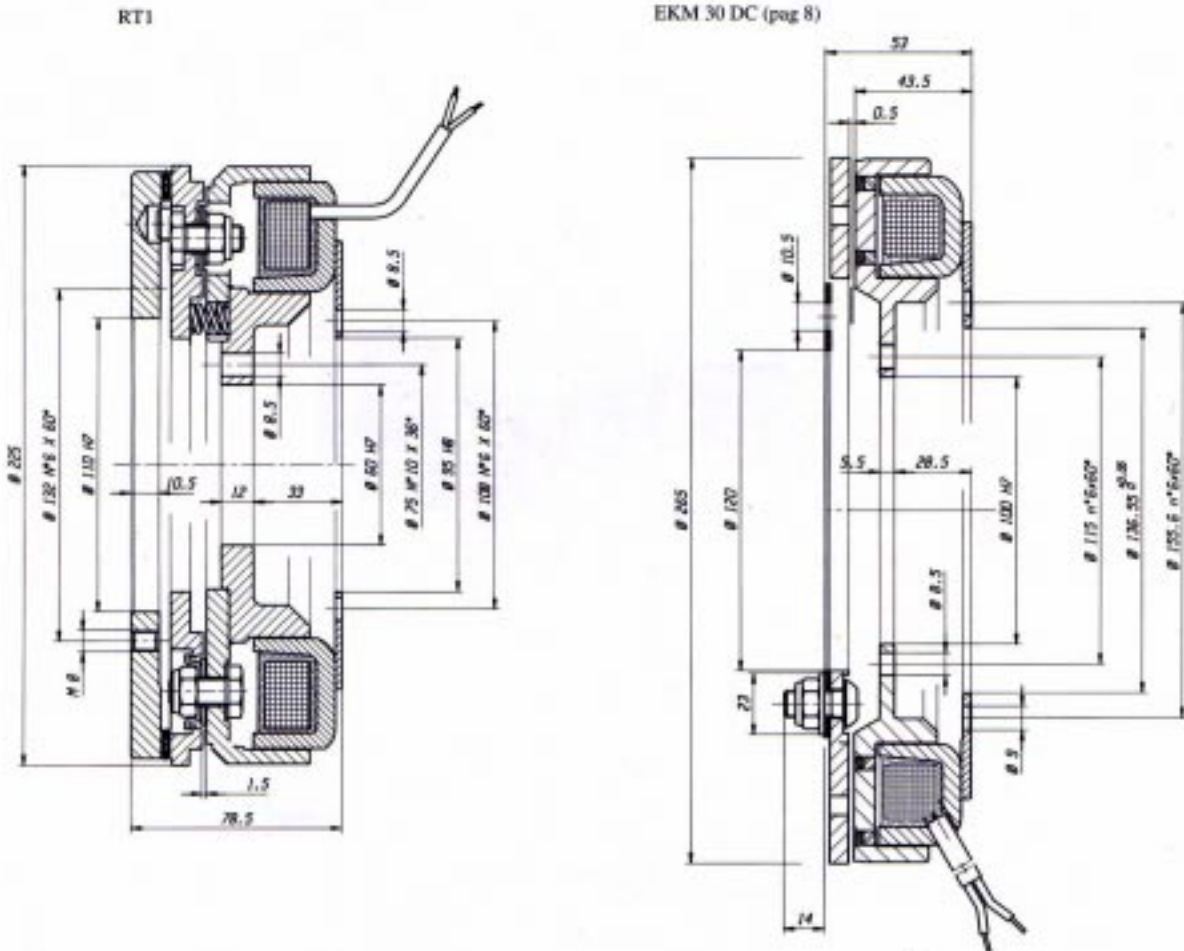
	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	Q	R	S	T	U	V	X	Y	Z
ML-RT-1	215	8.5	45	94	80	65	52	36	45	8.5	89	108	225	131	18	17	12	33	9	17	51	6.5	20	12
ML-RT-2	240	8.5	55	108	89	70	57	40	45	8.5	137	156	262	142	20	22	12.5	45	11	17	51	8.5	33	12

Teeth clutch unit for slow motion and pick finder
(1st solution rapier looms) Example B

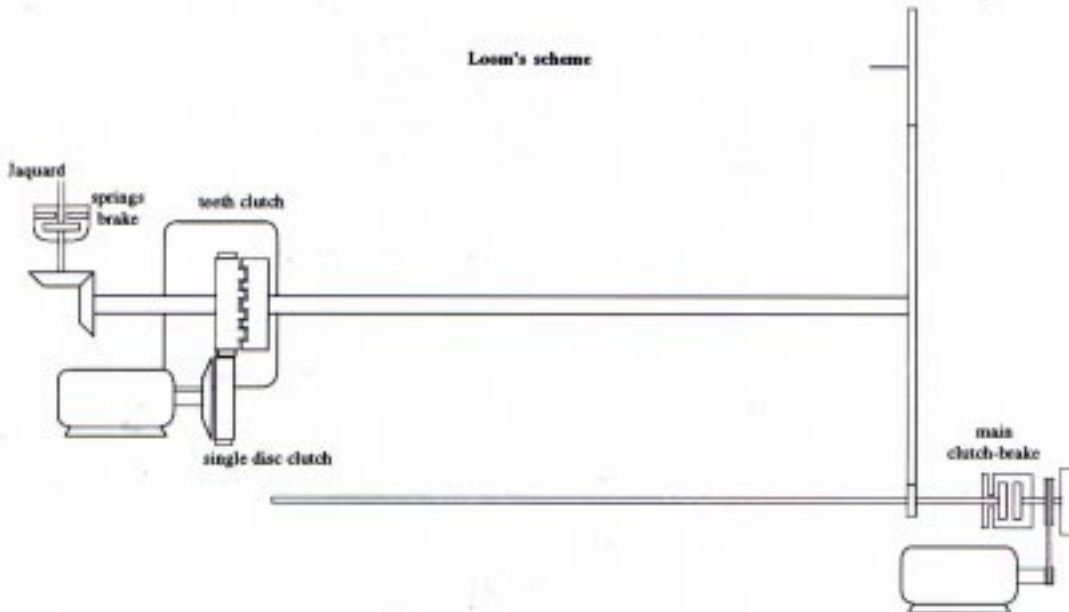


	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	Q	R	S	T	U	V	X	Y	W	Z
ML-RT-1	215	8.5	24	94	80	65	52	36	3	6.5	130	222	240	143	12	17	12	33	9	60	75	6.5	28	21	13
ML-RT-2	240	8.5	27	108	89	70	57	40	5	8.5	175	270	270	160	12	32	12.5	45	11	70	80	8.5	32	33	18

Teeth clutch unit for slow motion and pick finder and single disc clutch for slow-motion (2nd solution rapier looms) Example C

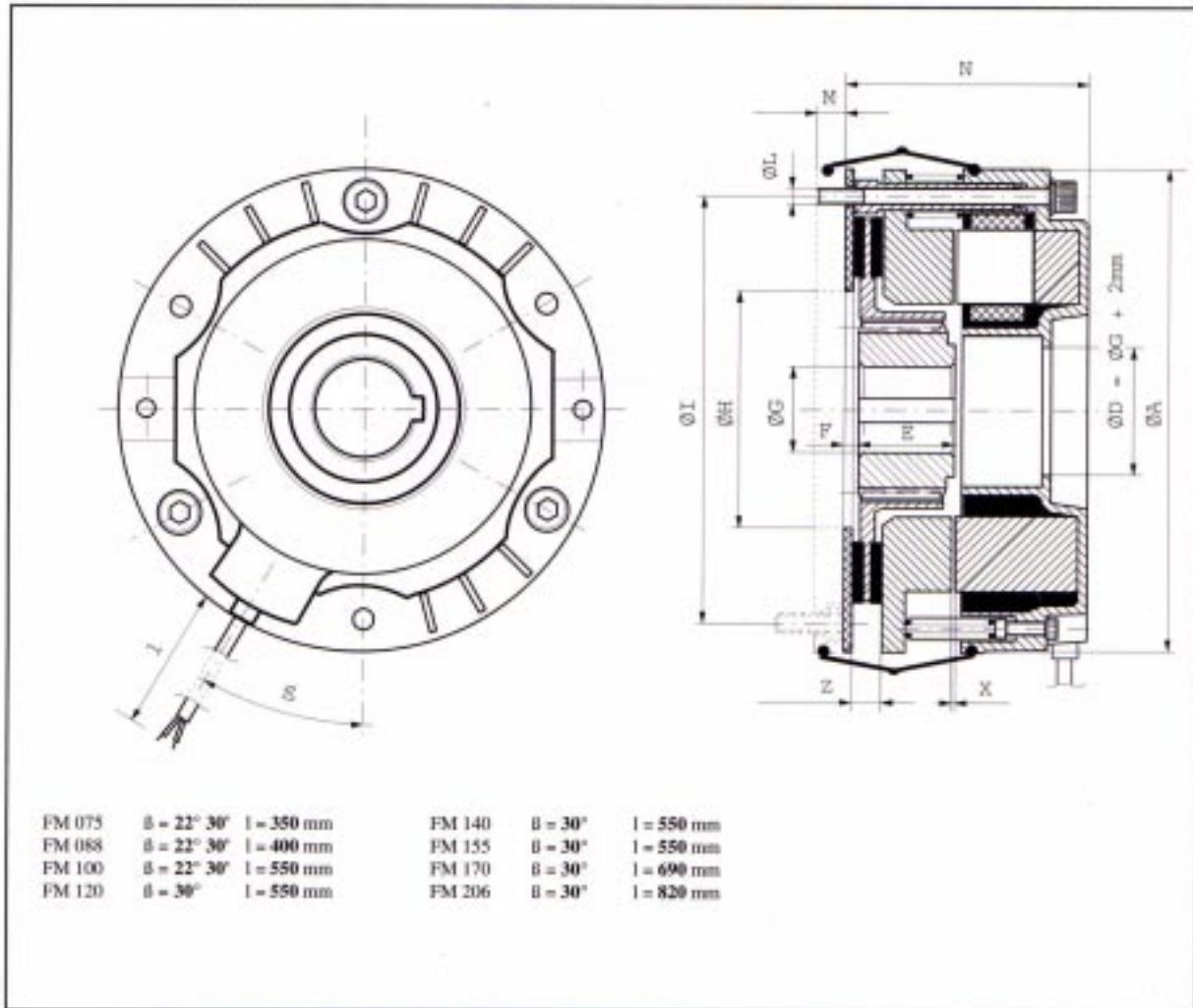


Loom's scheme



Spring brake for Jacquard

It is a spring brake with electromagnetic release used in the looms with jacquard, which is stopped immediately in case of a lack of current.



Size	A	E (js11)	F	H	I	L	M	N	X	Z	Ø G (H7)	circa mat clavette slot clavetero	Ø G Max.
FM 140	162	30	4/4,5	80	140	6xM8	16	85	0,3/0,35	9,5	28	8x1,7	32
FM 155	180	35	3/3,5	90	155	6xM8	16	90	0,3/0,35	9,5	40	12x2,1	40
FM 170	196	35	6,5/7	100	170	6xM8	16	97,5	0,3/0,35	11	35	10x2,1	42
FM 206	245	40	7,5/8	120	206	6xM10	20	116	0,3/0,4	13	42	12x2,1	55

Ø G = Preferential hole
 Ø G Max. = Max. hole

Technical Data

Size	FM 140	FM 155	FM 170	FM 206
Rated moment Nm	45	65	110	200
Max. moment after run-in phase Nm	60	100	150	300
Max. RPM g/l'	3500	3500	3000	2400
Friction work per operation J (Max.)	$6,6 \cdot 10^{-2}$	$8 \cdot 10^{-2}$	$11 \cdot 10^{-2}$	$20 \cdot 10^{-2}$
Max. friction work per hour J/h (Max.)	$9 \cdot 10^{-2}$	$9,5 \cdot 10^{-2}$	$10 \cdot 10^{-2}$	$12 \cdot 10^{-2}$
Inertia moment Kgm² (004)+(005)	$7,0 \cdot 10^{-4}$	$11,5 \cdot 10^{-4}$	$18 \cdot 10^{-4}$	$53 \cdot 10^{-4}$
Noenal air gap mm (X)	0,3+0,35	0,3+0,35	0,3+0,35	0,3+0,4
Air gap readjustement at mm (X max.)	0,8	0,8	0,9	0,9
Minimum thickness of friction disc (Z1) mm	6	6	7,5	8,5
Weight Kg	5,2	7	9	16,2

NOTE

The technical data,
dimensions and weights are subject to change
unless otherwise stated in the individual pages of this Catalogue.
The illustrations are for reference only.



Vortex Engineering Works

India's Foremost Manufacturers of full range of Long Life Clutches & Brakes

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