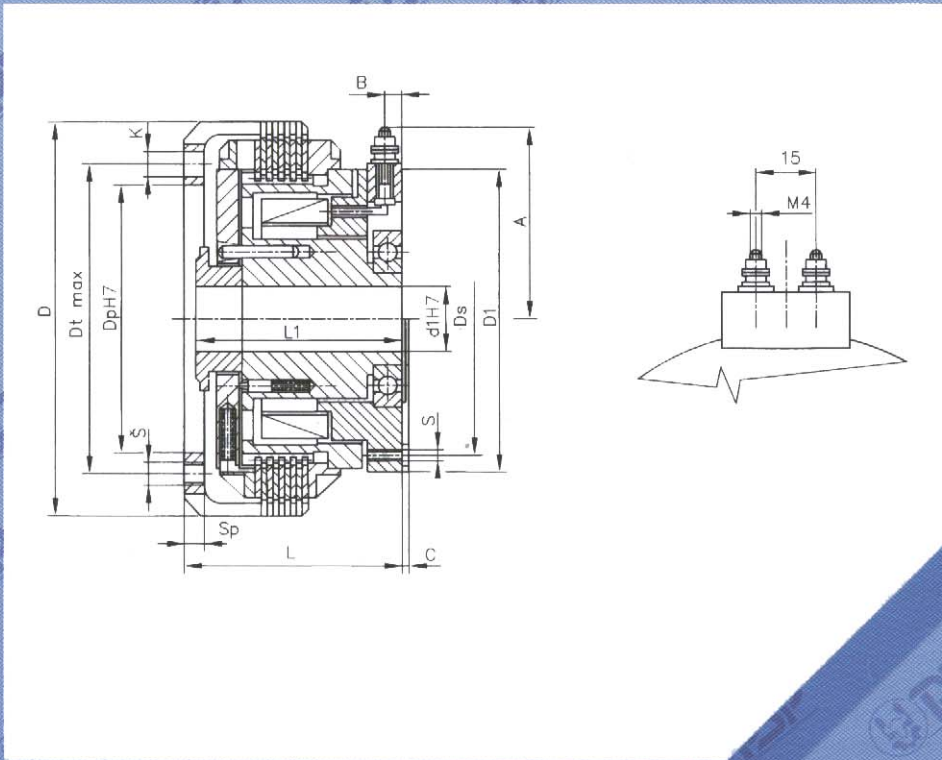




POHONY • DRIVES • ANTRIEBE



ELECTRICALLY ACTUATED MULTI-PLATE RINGLESS CLUTCHES

ELA

CLUTCHES ELA ARE THE MODERNIZED TYPE OF MULTI-PLATE CLUTCHES WITH RINGS AND SUBSTITUTE ELK TYPE CLUTCHES IN FUNCTION AND DIMENSIONS. CLUTCHES ARE USED IN VARIOUS MACHINES AND EQUIPMENTS LIKE MACHINE TOOLS, TEXTILE AND FOOD MACHINES, PACKING MACHINES AND TRANSPORT EQUIPMENTS. CLUTCHES CAN BE USED IN SUCH OPERATION WHERE CLUTCHES WITH RINGS ARE FORBIDDEN BECAUSE OF SPARKING. THEY ARE DESTINATED INTO LUBRICATED CONDITIONS. IF THE BALL BEARING OF COIL CARRIER IS COVERED, CLUTCH CAN BE USED IN DRY SURROUNDING.

MAIN TECHNICAL DATA AND DIMENSIONS (mm)

Size		1	2	4	6.3	10	16	25	40	63
Torque										
- dynamic	Nm	10	20	40	63	100	160	250	400	630
- static lubric. dry	Nm	14	28	56	90	140	225	355	560	900
	Nm	12.5	25	50	80	125	200	315	500	800
Revolution	min ⁻¹	3000	3000	3000	3000	3000	2500	2200	2000	1750
Coil value (20°C)										
Voltage	V	24	24	24	24	24	24	24	24	24
Current	A	1.05	1.2	1.25	1.4	1.65	1.85	2.5	3	3.28
Input	W	25.2	28.8	30	33.6	39.6	44.4	60	72	78
Moment of inertia „J“										
- inner parts	kgm ²	1.25·10 ⁻³	2.25·10 ⁻³	3.9·10 ⁻³	6.25·10 ⁻³	9.5·10 ⁻³	1.55·10 ⁻²	2.8·10 ⁻²	5.2·10 ⁻²	1.10 ⁻¹
- outer parts	kgm ²	5.1·10 ⁻⁴	9.5·10 ⁻⁴	1.6·10 ⁻³	2.7·10 ⁻³	4.5·10 ⁻³	7.1·10 ⁻³	1.2·10 ⁻²	2.25·10 ⁻²	4.25·10 ⁻²
Air gap										
- wet running	mm	0.3	0.3	0.3	0.3	0.35	0.4	0.4	0.4	0.45
- dry running	mm	0.6	0.6	0.6	0.6	0.7	0.8	0.8	0.8	0.9
Tolerance of air gap	mm	+0.00	+0.00	+0.00	+0.00	+0.00	+0.00	+0.00	+0.00	+0.00
		-0.10	-0.10	-0.10	-0.10	-0.10	-0.15	-0.15	-0.15	-0.15
Weight	kg	2.1	2.5	3.2	4.1	5.0	7	10.2	13.6	21

ADVANTAGE OF RINGLESS CLUTCHES ELA

- supply of field (exciting) current is provided to the clamps on coil carrier, clutches do not need brush holders and brushes,
- possible problems with field current supply are removed, there is no need to check brush wear and exchange brushes,
- clutches have adjusting nut and resting area for plates made from aluminium alloy (5-times lighter than ELK). The moment of inertia of armature plate with adjusting nut is considerably lower and thus are removed the possible problems with carrier pins in the course of reversion,
- both aluminium parts sizably direct magnetic flux into functional places and its leakage is lowered,
- design of adjusting nut is entirely new, arrestment is made only by balls mounted on springs,
- adjusting of nut is very easy even on inaccessible places, there is no need to manipulate with lock screw of adjusting nut,
- moment of inertia of magnetic body with connected parts is lowered because some parts are made from aluminium and because exciting coil does not rotate,
- inner and outer plates and thus spare parts are identical with previous clutches,
- clutch jacket, all connection dimensions, drilling of jacket and magnet body, as well as construction length are identical with ELK clutch,
- series of moments of inertia is identical.

It is possible to say that the clutches are fully interchangeable with ELK clutches but they have higher functional quality and technical workmanship.

DIMENSIONS (mm)

Size	1	2	4	6.3	10	16	25	40	63
D	100	110	120	132	147	162	182	202	235
DpH7	-	-	50	60	70	80	90	100	110
	50	50	60	70	80	90	100	110	120
	60	60	70	80	90	100	110	120	140
	70	70	80	90	100	110	120	140	160
Dtmax	80	85	95	105	115	130	150	165	190
Sp	5	5	6	7	7	7	8	8	10
Pcs No x Š	4xM6	4xM6	6xM6	6xM6	6xM8	6xM8	6xM10	6xM10	6xM12
Pcs No x K	2x6	2x6	3x6	3x8	3x8	3x8	3x10	3x10	3x12
L	56	59	63	66	69	73	80	88	98
L1-0.1	53	56	59	61	64	68	75	82	92
D1	76	90	90	105	115	128	140	150	170
Ds	68	77	82	95	100	112	125	135	155
Pcs No x S	3xM4	3xM4	3xM4	3xM4	3xM4	3xM6	3xM6	3xM6	3xM6
A	48	55	55	68	74	82	88	94	103
B	5	5	5	5	5	5	5	5	5
C	2.5	2.5	2.5	2.5	2.5	3	3	3	3
d1H7	15	18	20	25	28	30	40	45	50
	17	20	25	28	30	35	45	50	55
	18	22	28	30	35	40	50	55	60
	20	25	30	35	40	45	55	60	70

Jacket and set of outer steel plates form driving part of clutch. Driven part is formed by magnet body with press off and carrier pins, distance bushing, armature plate with adjusting nut and set of inner plates with metal-ceramic friction lining.

Exciting coil is fixed to the carrier which seats on ball bearing in magnetic body, bears supply terminals of field current and does not rotate.

After the field current starts to go to the coil, the rotating magnet body is magnetized, attracts the armature plate and adjusting nut grips set of alternated inner and outer plates. Torque is transmitted by friction of plates. After the field current is switched off, pins press off the armature plate to the distance bushing and set of plates is successively released.

Adjusting of ELA clutch is simple. Aluminium adjusting nut has on its inner surface 24 grooves into which ball on spring fits in. Ball on spring seats in armature plate. Arrestment is adequate against undesirable move round of nut even in the course of quick reversation, because the moment of inertia of aluminium nut is five times lower than the one of steel nut. By pressing of radial ring of nut it is possible to overcome the nut arrestment and turn the nut for one groove pitch in both directions. There is no need to manipulate with any screws. Pitch of thread is 1.5 mm and turning for one groove (1/24 of perimeter) changes the air gap for 0.0625 mm.