

SERIES NT

AC Linear Solenoids

Open frame linear solenoids ideally suited for AC applications, having the frame and the plunger of laminated steel construction, featuring high permeability and low magnetic losses. They are designed to be operated in any position, being able turning an electric pulse into an axial pull action. Coil winding insulation being in Class F. Performance, as shown in the following diagrams, is always referred to a temperature rise of 80°C in open air, with 35°C ambient temperature and coil fed at 105% of rated supply voltage (as per VDE 0580). Since the mechanical energy generated by

solenoids is a constant, any amount of that force eventually not utilised by relevant application will be expended under form of impact force. Consequently, any application should correctly use the smallest available solenoid performing the required action, not exceeding the maximum admitted operational temperature. To select the right solenoid, an exact determination of the duty cycle is equally essential: whenever the maximum cycle is exceeding 300 seconds, a continuously rated solenoid (ED=100) should be used. Otherwise the relative duty factor would result as follows:



$$ED\% = \frac{\text{ON time}}{(\text{ON} + \text{OFF time})} \times 100$$

(Cycle = ON + OFF time)

ON and OFF times corresponding to relative duty factors lower than ED=100 result, for standard ED values, from the following diagram:

Current values given in our diagrams are at nominal voltage. Forces shown are referred to solenoids fed @ 90% of rated voltage, with 'hot' coil and 20°C ambient temperature.

RELATIVE DUTY FACTOR (ED%)									
Operation per hour	Total cycle (seconds)	ED 40		ED 25		ED 15		ED 5	
		ON	OFF	ON	OFF	ON	OFF	ON	OFF
12	300	120	180	75	225	45	255	15	285
120	30	12	18	7.5	22.5	4.5	25.5	1.5	28.5
300	12	4.8	7.2	3.0	9.0	1.8	10.2	0.6	11.4
600	6	2.4	3.6	1.5	4.5	0.9	5.1	0.3	5.7
1200	3	1.2	1.8	0.75	2.25	0.45	2.55	0.15	2.85
1800	2	0.8	1.2	0.5	1.5	0.3	1.7	0.1	1.9
3000	1.2	0.48	0.72	0.3	0.9	0.18	1.02	0.06	1.14

Any AC solenoid, due to its high power consumption (VA), will rapidly overheat and fail to operate, whenever its plunger is prevented from seating properly. To avoid this, a proper spring can be interposed between plunger and application. When adopting a solenoid please also bear in mind what follows:

- 1) Any load should be always applied strictly along the plunger main axis (to avoid excessive wear due to friction, and noise magnifying due to vibration generated by the AC power supply).
- 2) Any mechanical stroke-limiting device eventually provided, should be made of non magnetic material.

3) The expected life of a solenoid would be remarkably increased as much as its impact force could be absorbed by the solenoid mounting frame.

When a continuously rated (ED=100) solenoid is required but space is not enough, a resistor and/or a limiting impedance could be used to feed a smaller intermittently rated solenoid (ED<100). Models NT1 and NT2 are supplied with built-in fixing brackets, while models NT3 and NT4 have no bracket, even if these are available as a separate optional kit (for mounting on left, right or lower side position, as required).

Prior to select the right solenoid you must

always know the force required, as well as stroke, maximum feeding time, minimum OFF time, ambient temperature and supply voltage. If in doubt to select the best type for your application, please do not hesitate contacting us to help you making the right choice, supplying us with all above required information. Even if you can't find the solenoid you require in our range, please let us know, as we do have both the experience and the know-how to solve any problem in this field.

ORDERING INFORMATION

NT3-24AC-F100-D60

1 2 3 4 5 6 7

- 1 - Solenoid series: NT
- 2 - Type (size) :1-2-3-4
- 3 - Coil supply voltage (AC only).
- 4 - Coil terminals:
F = Faston 0.25 (6.3x0,8mm)
C = 150mm leads
- 5 - Relative duty service ED%:
Permanently (100) or intermittently rated coils (standard values: 40-25-15-5)

- 6 - Fixing brackets (NT1-NT2 only):
D = on right side (standard)
S = on left side (on request)
- 7 - Coil supply frequency
(if different from 50 Hz).

NB: When ordering standard types you can omit the last two groups of code (6 and 7).

AVAILABLE TYPES

NT1

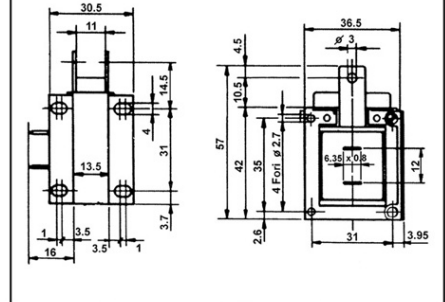
Coil supply voltages :
 Insulating resistance :
 Dielectric strength :
 Coil terminals :
 Total weight :
 Plunger weight :

12-24-110-220-230-240 VAC (50 or 60Hz)
 > 100 MΩ @ 500V DC
 1.5 KV
 Faston 6.3x0.8 mm or leads (150mm)
 190 grams
 50 grams

Axial Force (Kg) Vs. Stroke and Duty Service (ED)					
ED	Stroke (mm)				
	2	5	10	15	20
100	1.10	0.70	0.55	0.45	-
40	1.85	1.25	0.95	0.75	-
25	2.05	1.45	1.05	0.85	-
15	2.40	1.70	1.20	0.95	-
5	2.85	1.95	1.40	1.05	-

Coil Rated Current (VA) Vs. Stroke and Duty Service (ED)						
ED	Stroke (mm)					
	0	2	5	10	15	20
100	22	50	84	118	136	
40	55	97	137	176	190	
25	68	110	154	198	216	
15	84	132	172	220	238	
5	112	158	207	248	258	

NT1



NT2

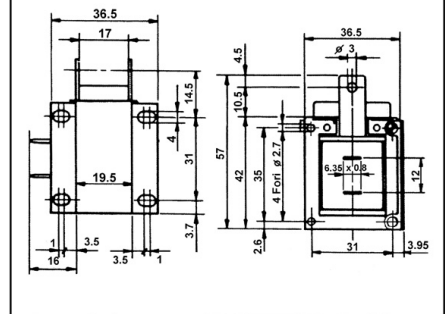
Coil supply voltages :
 Insulating resistance :
 Dielectric strength :
 Coil terminals :
 Total weight :
 Plunger weight :

12-24-110-220-230-240 VAC (50 or 60Hz)
 > 100 MΩ @ 500V DC
 1.5 KV
 Faston 6.3x0.8 mm or leads (150mm)
 240 grams
 75 grams

Axial Force (Kg) Vs. Stroke and Duty Service (ED)					
ED	Stroke (mm)				
	2	5	10	15	20
100	1.70	1.40	1.05	0.75	-
40	2.70	2.20	1.60	1.10	-
25	3.10	2.50	1.80	1.25	-
15	3.60	2.90	2.05	1.40	-
5	4.30	3.40	2.40	1.70	-

Coil Rated Current (VA) Vs. Stroke and Duty Service (ED)						
ED	Stroke (mm)					
	0	2	5	10	15	20
100	27	51	79	108	121	
40	75	132	192	260	295	
25	97	160	225	285	318	
15	120	187	253	308	340	
5	154	225	284	340	370	

NT2



NT3

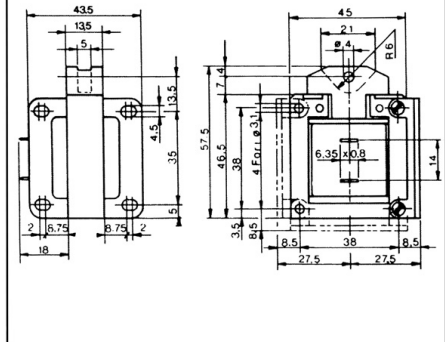
Coil supply voltages :
 Insulating resistance :
 Dielectric strength :
 Coil terminals :
 Total weight :
 Plunger weight :

12-24-110-220-230-240 VAC (50 or 60Hz)
 > 100 MΩ @ 500V DC
 1.5 KV
 Faston 6.3x0.8 mm or leads (150mm)
 260 grams
 75 grams

Axial Force (Kg) Vs. Stroke and Duty Service (ED)					
ED	Stroke (mm)				
	2	5	10	15	20
100	2.10	1.60	1.00	0.80	0.70
40	2.70	2.05	1.30	1.00	0.95
25	2.90	2.20	1.40	1.20	1.05
15	3.10	2.35	1.50	1.30	1.15
5	4.00	2.90	1.85	1.50	1.35

Coil Rated Current (VA) Vs. Stroke and Duty Service (ED)						
ED	Stroke (mm)					
	0	2	5	10	15	20
100	19	63	99	132	154	172
40	35	96	148	198	232	268
25	44	110	165	215	250	278
15	53	132	185	232	270	298
5	97	176	235	290	345	378

NT3



NT4

Coil supply voltages :
 Insulating resistance :
 Dielectric strength :
 Coil terminals :
 Total weight :
 Plunger weight :

12-24-110-220-230-240 VAC (50 or 60Hz)
 > 100 MΩ @ 500V DC
 1.5 KV
 Faston 6.3x0.8 mm or leads (150mm)
 340 grams
 110 grams

Axial Force (Kg) Vs. Stroke and Duty Service (ED)					
ED	Stroke (mm)				
	2	5	10	15	20
100	3.35	2.70	1.85	1.35	1.15
40	4.00	3.20	2.15	1.70	1.45
25	4.30	3.40	2.40	1.80	1.55
15	4.60	3.60	2.55	1.90	1.65
5	5.30	4.20	2.90	2.10	1.8

Coil Rated Current (VA) Vs. Stroke and Duty Service (ED)						
ED	Stroke (mm)					
	0	2	5	10	15	20
100	27	105	168	235	280	300
40	50	150	235	325	390	435
25	70	175	270	385	485	550
15	95	210	320	430	520	585
5	165	285	400	515	605	705

NT4

