

# TURBEL THRUSTORS



## > Description

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TURBEL is an electro-hydraulic operating device, built to generate a linear thrust along a stroke. All the thrusters of the TURBEL range are designed according to the DIN 15.430 standard in terms of force, stroke, fastenings and general dimensions.

## > Quality

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Our Company. is aware of the importance of the fulfilment in the quality levels demanded by a more and more competitive market. Following this commitment we certify our processes under UNE-EN - ISO 9001 standard.

Company. management strongly believes that a good quality system provides the necessary confidence to our market. It also demonstrates the capacity to fulfil commitments and guarantees that our products fulfil their specifications. Furthermore, the quality system must contribute to the efficient development of all our activities.

The quality policy of our company is based on the pursuit and achievement of the following objectives:

- > Reach the maximum degree of customer's satisfaction.
- > Reliability and fulfilment of the specifications, standards and codes applicable to our products.
- > Follow-up of the system's effectiveness and a its continuous improvement.

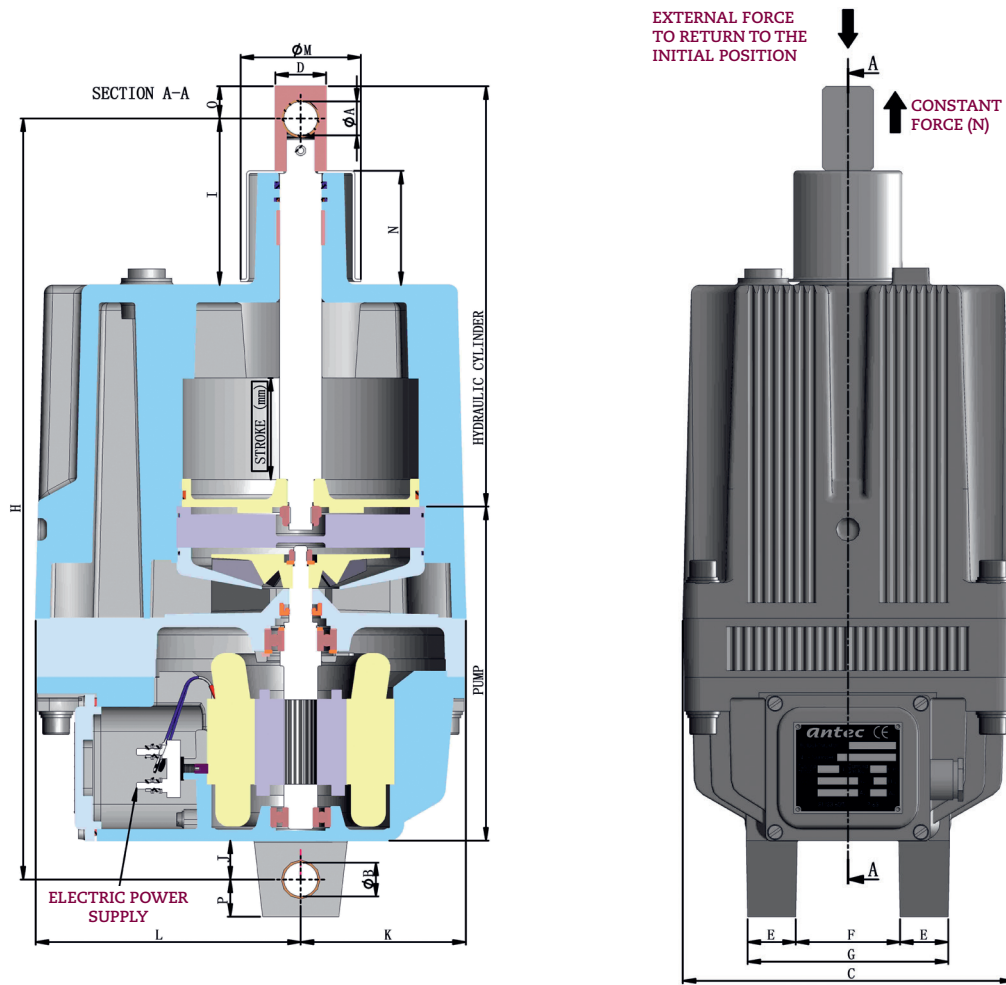
## > R+D+i

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Based on our commitment to innovation and permanent improvement, we have established our own R&D&I department. Constant and consistent investments in cutting-edge technology, secure the conditions for production at the highest possible level of quality.

As a consequence of this Quality Policy, Our Company. has developed this new Turbel Thrustor line which provides a safer and better performance for all brakes. We provide our clients with a highly experienced and motivated team of professionals. By working together and analysing each individual aspect thoroughly, we come up with solutions fitted to the specific needs. If necessary, we also provide customized designs for special devices.

# 1. Technical data and dimensions



TYPE TH	I		II						III											
MODEL	256	356	506	512	806	812	1306A	1312A	1306	1310	1312	2006	2012	3006	3010	3012	4006	4008	4012	
NOMINAL FORCE	N.		250	350	500		800		1300		1300		2000		3000		4000			
INNER SPRING FORCE (C OPTION)	N.		210	290	450	-	850	-	-	-	1250	-	-	2000	-	2700	-	-	-	-
NOMINAL STROKE	mm.		60		60	120	60	120	60	100	120	60	120	60	100	120	60	80	120	
DIMENSIONS	A	12	16	20						25										
	B	16		20						25										
	C	160		195						240										
	D	20	25	30						40										
	E	20		30						25										
	F	40		60						40										
	G	80		120						90										
	H	286	370	435	515	450	530	450	530	645	705	705	645	705	645	705	645	645	705	
	I	23	107	83.5	114.5	98.5	129.5	98.5	129.5	117	177	176.5	117	176.5	117	177	176.5	117	117	176.5
	J	20		23						35										
	K	80		97.5						120										
	L	120		156.5						140										
	M	*		53	54	71	54	71	54	71										
	N	3		52.5	83.5	67.5	98.5	67.5	98.5	73	133	132.5	73	132.5	73	133	132.5	73	73	132.5
O	12	15	19						25											
P	16		22						25											
STANDARD CURRENT CONSUMPTION 400 V 50 Hz	A.	0.42	0.48	0.67		0.76		1.15		0.88		1.05		1.29		1.88				
OIL VOLUME	L.	2		5	5.5	5	5.5	5	5.5	10										
WEIGHT WITH OIL	Kg.	13	13.5	26	30	26	30	26	30	45	46	46	45	46	45	46	45	45	46	
DUSTGUARD	-	NO		NO	NO	YES	NO	YES	NO	YES										

\* These turbels are not fitted with dustguards so this information is omitted. For any query on this point, please do not hesitate to contact the sales service

In Turbel thrusters TH-II-506, TH-II-512, TH-II-812 and TH-II-1312A, "M" dimension refers to the maximum diameter of the cover's neck.

The standard current consumption values at 400V 50Hz are considered at a room temperature of 20°C and after the turbel has performed several operations. These values are measured with the piston at the mechanical end position after the maximum stroke has been performed. During the travel of the piston the current consumption increases. At low temperatures these consumption values increase.

## 2. Electrical Features

### Motor

- VAC Motors.
- 2-pole three-phase asynchronous motor designed according to CEI-34/1.
- Class H insulation.

### Voltages and Frequencies

- Standard Turbel: 230/400V-50Hz. 3 Phases.
- Possible voltages: 185-760V at 50Hz, 200-910V at 60Hz.  
(01.132I Technical Data Sheet).
- Shipped from factory with turbels connected in  $\Delta$ .

### Terminal Boxes

- Connector with 6 or 9 poles as needed.
- Screws M4 for power connection.
- Screws M5 for grounding connection.
- Standard input of PG16 cable, for cable of 4x2.5 mm<sup>2</sup>.
- IP65 Protection.

### Service

- Continuous service S1 (100% Ed).
- Intermittent service S3 (60% Ed).
- For room temperatures >40°C the technical values change so a query is recommended.

### Circuit breaker

- If the power supply to the motor is protected with a circuit breaker, this must be set to twice the nominal value of the current.

## 3. Mechanical Features

### Assembly position of the Turbel

- Vertical assembly: The piston rod in the upper position of the turbel.
- Horizontal assembly: Terminal board box in the upper position of the turbel.

### Hydraulic fluid for operation of the Turbel

The Turbels are supplied with oil type SHELL MORLINA 10 for operating in a range of room temperatures between - 25°C and + 50°C (standard oil load).

For room temperature between - 40°C and + 70°C, the Turbels are supplied with an oil load type AEROSHELL FLUID 31.

Characteristics of the used oils:		Shell Morlina 10	Aeroshell Fluid 31
Colour		Light Brown	Red
Density at 15°C, kg/litre		0.881	0.850
Cinematic viscosity at:	40°C, cSt	10	14.33
	100°C, cSt	-	3.53
Ingition point		150°C	220°C
Freezing point		-33°C	<-55°C

### Paint specifications

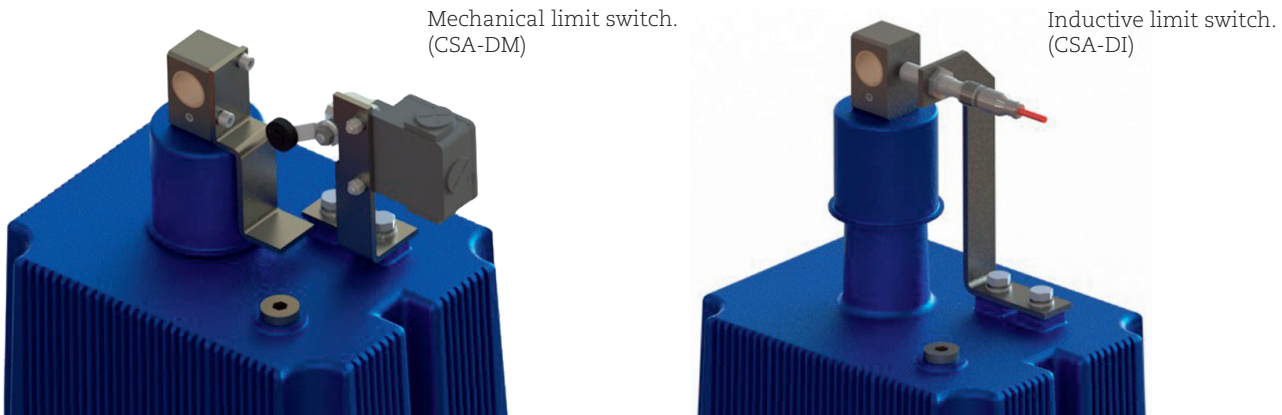
- Preparation of the painting surface. Degreasing procedure. Elimination of oil stains, grease and contaminating particles.
- Primer paint: No primer is applied. The material of the Turbel to be painted is aluminium.
- Finish paint type: Aliphatic Polyurethane Poxemic UV 2/C or similar.
- Colour: Optional as per client specifications. standard blue RAL 5005. -  
Painting procedure: Aerographic gun.
- Number of coats: 1 coat.
- Thickness of the dry film: 50 (±10) µm.

## 4. Options

### Limit switch (GSA)

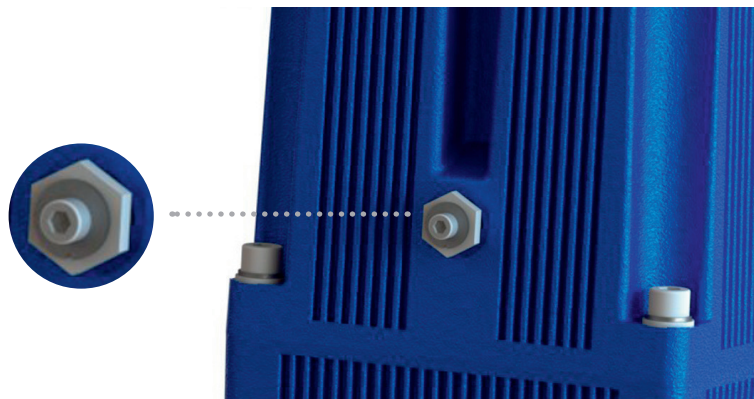
Opening signaling contact.

Mechanical or inductive limit switches can be fitted to electrically signal the end position of an open Turbel.



### Descent valve (VD)

The Turbel may be equipped with a delay valve. By turning the lever on the valve (only 90°) the piston descent time will be delayed.



### Turbel with an inner spring (C)

The Turbel can be equipped with an inner spring, so that in certain applications a return force of the piston is ensured.

### Turbel with ATEX certification

This EC Type-Examination Certificate refers to the design or build of a specified device in accordance with Directive 94/9/EC.

Marking on the device will be included.

### Turbel for working at high room temperatures between +50°C and +70°C (AT).

### Turbel for working at low room temperatures between -25°C and -40°C (BT).

For those temperatures the Turbel needs a special seal kit, different to the standard one.

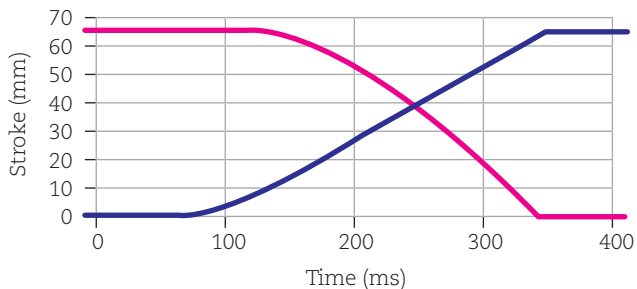
## 5. Time-Stroke Diagrams

The diagrams obtained are the result of applying the nominal load to the turbel at a room temperature of 20°C.

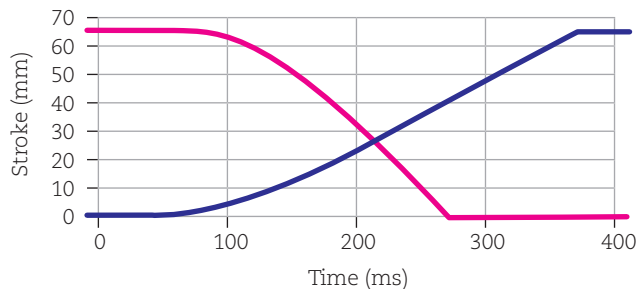
Diagram legend: — Lifting — Lowering

I

**TH-I-256**

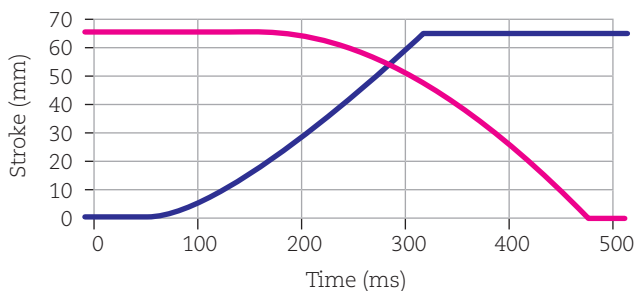


**TH-I-356**

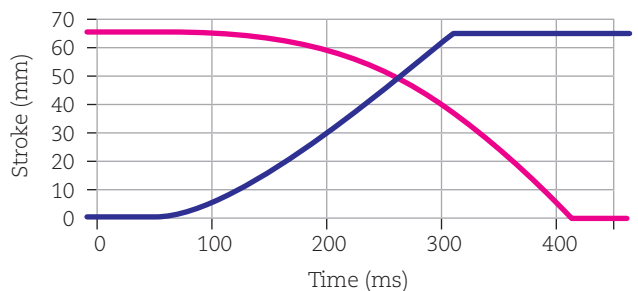


II

**TH-II-506**

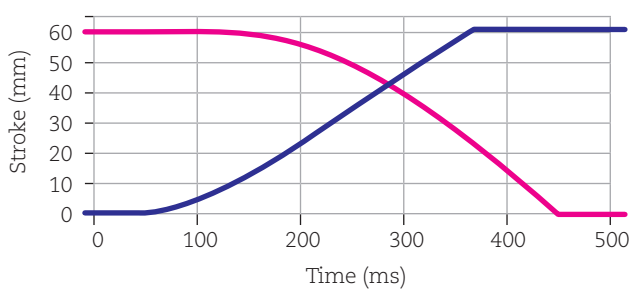


**TH-II-806**

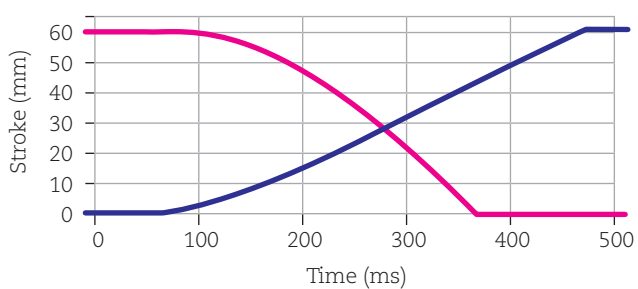


III

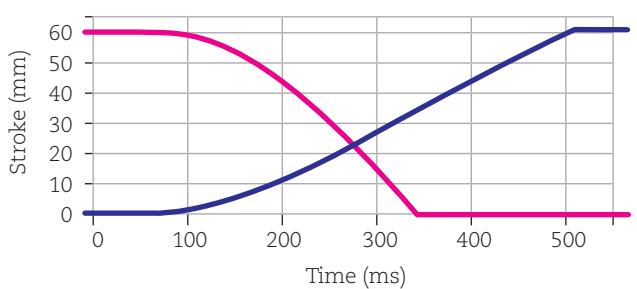
**TH-III-1306**



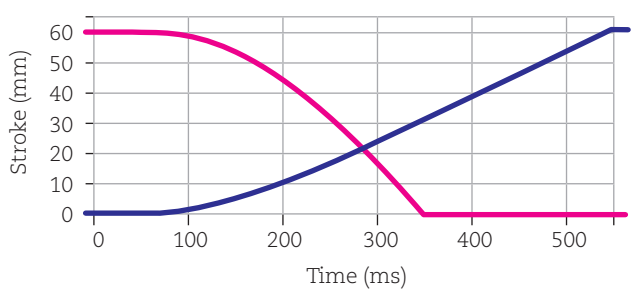
**TH-III-2006**



**TH-III-3006**



**TH-III-4006**



## 6. Order data

TH-TYPE	MODEL	VOLTAGE	FREQUENCY	OPTIONS	REMARKS*																				
					Client requests outside the standard.Example: Special operating room temperature, special paint,...																				
					CSA: Limit Switch. *DM: Mechanical detector. (Standard detector). *DI: Inductive sensor. VD: Descent valve. C: Inner spring. ATEX: Product with ATEX certificate. AT: High room temperatures. BT: Low room temperatures.																				
					50 Hz or 60 Hz.																				
					Operating voltage in triangle and star ( $\Delta$ and $\lambda$ ).																				
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\* **REMARKS:** Any clarification made by the client outside the above specifications shall be shown on the order as a remark and will not appear in the denomination of the order unless it involves a modification in the parts that comprise the Turbel.

### Example of a Turbel order:

**TH - II - 806 - 230/400 V. - 50 Hz. - CSA - AT**

**Remarks:** RAL 5003

our company certifies that all the Turbels have been tested on the company's test benches using the corresponding running oil.