

# Electromechanical products

## Verelec

### General information



The Verelec jack is an actuator which converts rotating power into linear power. The former can be provided by an electric motor via a bevel gear system (worm and wheel) and a screw nut system.

#### Applications

Verelec jacks enable the mechanical manipulation of trap doors, doors, elevating tables, covers, levellers, switching controls, medical equipment, beds, radiology tables, operating shut-off valves etc.

#### Performance

4 types : V 152, V 302, V 602, V 902.  
Capacities : 150, 300, 600 and 900 daN.  
5 possible travel lengths : 150, 225, 300, 400 and 500 m.  
5 possible travel speeds : 140, 280, 470, 710 and 940 mm/min  
(except V 902 : 1 060 mm/min).  
Silent operation.

#### Exceptional adaptability

Easy adaptability due to only two anchorage points.  
Operation in any position.  
Choice of motor type according to the power supply voltage available.

### Construction

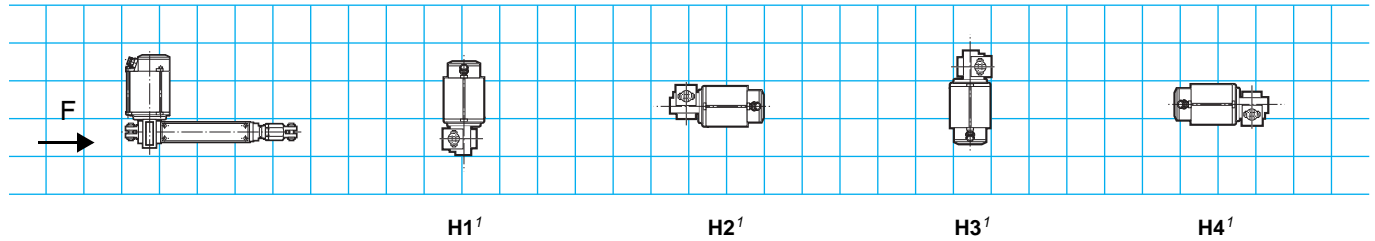
#### Description of Verelec (V) electric jacks

Component	Materials	Remarks
Housing	Aluminium (V 152, V 302) Cast iron (V 602, V 902)	- treated AS7G - excellent mechanical characteristics - GS 600-3 - excellent mechanical resistance
Wheel	Bronze	- UE12P - Sand-moulded - Delson anti-wear treatment (except V 152)
Screw	Steel	- 42CD4 steel shaped by a cutter
Working screw	Steel	- rolled trapezoidal threads : excellent surface state and increased surface hardness : 450 HV
Working nut	Plastic (V 152, V 302) Bronze (V 602, V 902)	- non contaminated polyamide - greased for life - UE12P - Delson treatment : improved friction coefficient
Piston	Steel	- chromium plated steel, precision ground along entire length
Drive and guide bush	Aluminium + rings (V 152, V 302) Cast iron + rings (V 602, V 902)	- generously dimensioned - wiper seal incorporated - Teflon rings ensure linear control with a very low friction coefficient - maintenance free
Fixing coupling	Housing end : aluminium (V 152, V 302) cast iron (V 602, V 902) Piston end : steel (all models)	- treated AS7G  - GS 600-3 - galvanised steel - clevis axis holes on pads
External tube	Steel (all models)	- galvanised steel
Housing lubrication	Grease	- synthetic grease - greased for life
Working screw lubrication	Grease	- mineral - 20°C to + 80°C - grease nipples on V 602, V 902
Standard motor		LS from 0.12 to 0.18 W 3-phase/single phase (V 152, V 302) LS from 0.12 to 0.37 kW - 3-phase or single phase on V 602 - 3-phase only on V 902
Brake motors		FMC : failsafe brake asynchronous motor ranging from 0.12 to 0.25 kW - IP 40 protection FCR : failsafe brake asynchronous motor with field deviator - IP 44 protection
Other motors		MBT : low voltage direct current (dc) motor with permanent magnets 12 to 48 V from 0.12 to 0.37 kW MFA : direct current (dc) motor with permanent magnets 180 V from 0.12 to 0.37 kW
Finish	Paint Zinc plating Chromium plating	- shade : RAL 6000 (green), system I (1 polyurethane vinyl layer of 25/30 µm) - on front coupling (stainless steel axes) - on piston

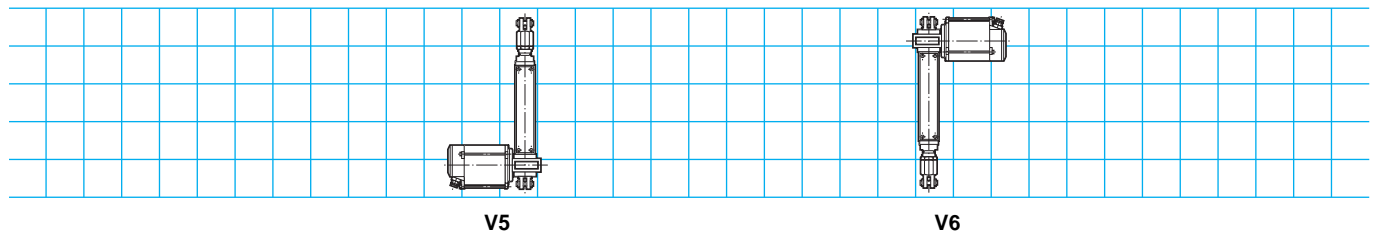
# Electromechanical products Verelec

## Mounting positions

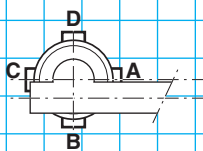
### Motor in standard position



1. View from direction F.

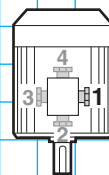


### Terminal box positions

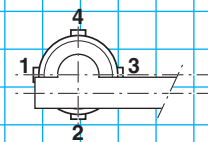


A : standard

### Cable gland positions



1 : standard  
LS or MBT 82 type motor



1 : standard  
D 18 T or P-MBT 1141 type motor

References, for example IM 1001 (B3), are standard references for the motors and are only used for convenience : the mounting positions of the gearboxes have not been standardized.

# Electromechanical products Verelec

## Adaptation possibilities

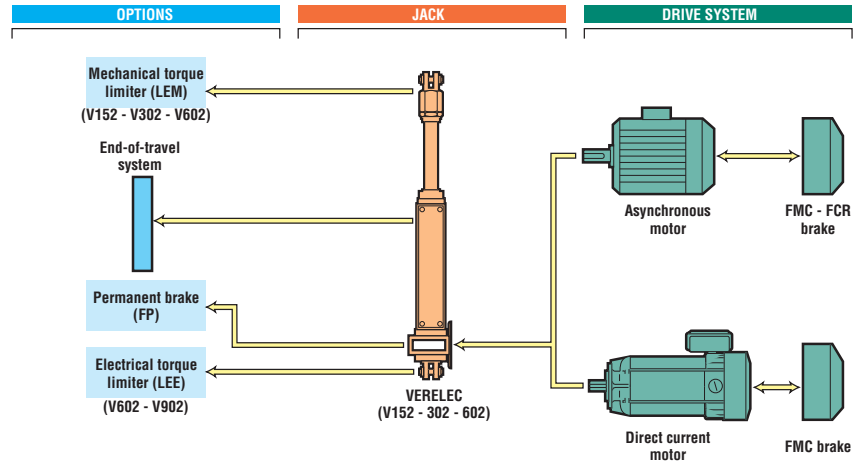
Leroy-Somer offers a wide range of motors for these jacks.

These motors have mountings already incorporated (B14 F65 and BA special Verelec motors).

- Multi-position operation of jacks (dry air).
- Various options are available :
  - mechanical torque limiter (V152 to 602)
  - electrical torque limiter (V 602 and V 902)
  - adjustable end-travel limit switch.

☞ Verelec jacks can be used in conjunction with the following drives :

- **single phase asynchronous motors :**
  - LS motor from 0.12 to 0.37 kW,
  - LS motor FMC brake from 0.12 to 0.37 kW,
- **3-phase asynchronous motors :**
  - LS motor from 0.12 to 0.37 kW,
  - FMC brake motor from 0.12 to 0.37 kW,
  - FCR brake motor from 0.25 to 0.37kW
- **direct current (dc) motors :**
  - MFA from 0.12 to 0.37 kW.
- **low voltage direct current (dc) motors (12 to 48 V)**
  - MBT from 0.12 to 0.37 kW.



## Designation / Coding

<b>V</b>	<b>152</b>	<b>400</b>	<b>710</b>	<b>FC LEM</b>	<b>H4</b>	<b>D18P</b>	<b>0.12 kW</b>	<b>230/400 V 50 Hz</b>
Jack type	Size	Travel of piston in mm	Speed of the piston rod in mm	Options	Position to be specified for operation in damp atmosphere or outdoors	No. of poles, type of LS motor and frame size, type of brake	Motor power rating	Choke characteristics

☞ **Codification example :**

Verelec V152 - 400 - 710 - FC - LEM 4P D18P - 0.12 kW, 230 V single phase, 50 Hz

Designation	Code
V152 400 710 D18 P	
0.12 kW 230 V	
single phase	EV 000139
+ FC	EV 000101
+ LEM	EV 000102

All the products in this catalogue have a code.

The coding table is incorporated in the price list with the list of designations.

Each electromechanical product is classified in order of power.

# Electromechanical products Verelec

## Selection

Verelec		V152	V302	V602	V902
Rated torque in daN	Traction	150	300	600	900
	Compression	See selection table p. D10.5			
Standard piston travel in mm		150 - 225 - 300 - 400 - 500			
Special piston travel in mm		600 - 750 - Consult Leroy-Somer			
Speed of linear advance in mm/min		140 - 280 - 470 - 710 - 940			140 - 280 - 470 - 710 - 1060
Special speeds		Consult Leroy-Somer (max. motor speed 3000 min <sup>-1</sup> )			
Front and rear coupling		Clevis end	Clevis end	Clevis end	Clevis end
"FC" end - travel limit option		Yes	Yes	Yes	Yes
Torque limiter option		LEM mechanical torque limiter	LEM mechanical torque limiter	LEM mechanical torque limiter LEE electrical torque limiter	LEE electrical torque limiter
Shaft extension option for manual control	Motor end	Yes, excepting with D18	Yes, excepting with D18	Yes	Yes
	Gearbox end	No	No	Yes	Yes
Stainless steel piston rod mounting		Consult Leroy-Somer			
Duty factor (with rated load)		20 % - 30 mn			

Type	Speed of linear advance mm/min	Power rating kW	Motors					
			Asynchronous, 230/400 V, 50 Hz		Asynchronous, 230/400 V, 50 Hz		12 or 24 V direct current	
			3-phase without brake	single phase without brake	3-phase with brake	single phase with brake	without brake	with brake
<b>V152</b>	140	0.12	D 18 T	D 18 P	LS 63 FMC	LS 63 P FMC	MBT 82 S	MBT 82 S FMC
<b>V152</b>	280	0.12	D 18 T	D 18 P	LS 63 FMC	LS 63 P FMC	MBT 82 S	MBT 82 S FMC
<b>V152</b>	470	0.12	D 18 T	D 18 P	LS 63 FMC	LS 63 P FMC	MBT 82 S	MBT 82 S FMC
<b>V152</b>	710	0.12	D 18 T	D 18 P	LS 63 FMC	LS 63 P FMC	MBT 82 S	MBT 82 S FMC
<b>V152</b>	940	0.12	D 18 T	D 18 P	LS 63 FMC	LS 63 P FMC	MBT 82 S	MBT 82 S FMC
<b>V302</b>	140	0.12	D 18 T	D 18 P	LS 63 FMC	LS 63 P FMC	MBT 82 S	MBT 82 S FMC
<b>V302</b>	280	0.12	D 18 T	D 18 P	LS 63 FMC	LS 63 P FMC	MBT 82 S	MBT 82 S FMC
<b>V302</b>	470	0.18	D 18 T	D 18 P	LS 63 FMC	LS 71 P FMC	MBT 82 M	MBT 82 M FMC
<b>V302</b>	710	0.18	D 18 T	D 18 P	LS 63 FMC	LS 71 P FMC	MBT 82 M	MBT 82 M FMC
<b>V302</b>	940	0.18	D 18 T	D 18 P	LS 63 FMC	LS 71 P FMC	MBT 82 M	MBT 82 M FMC
<b>V602</b>	140	0.18	LS 63 T	LS 71 P	LS 63 FMC	LS 71 P FMC	MBT 82 M	MBT 82 M FMC
<b>V602</b>	280	0.18	LS 63 T	LS 71 P	LS 63 FMC	LS 71 P FMC	MBT 82 M	MBT 82 M FMC
<b>V602</b>	470	0.25	LS 71	LS 71 P	LS 71 FMC	LS 71 P FMC	MBT 1141 S	MBT 1141 S FMC
<b>V602<sup>1</sup></b>	710	0.37	LS 71	LS 71 P	LS 71 FCR	LS 71 P FMC	MBT 1141 S	MBT 1141 S FMC
<b>V602<sup>1</sup></b>	940	0.37	LS 71	LS 71 P	LS 71 FCR	LS 71 P FMC	MBT 1141 S	MBT 1141 S FMC
<b>V902</b>	140	0.25	LS 71	-	LS 71 FMC	-	MBT 1141 S	MBT 1141 S FMC
<b>V902</b>	280	0.25	LS 71	-	LS 71 FMC	-	MBT 1141 S	MBT 1141 S FMC
<b>V902<sup>1</sup></b>	470	0.37	LS 71	-	LS 71 FMC	-	MBT 1141 S	MBT 1141 S FMC
<b>V902</b>	710	0.37	-	-	FCR	-	-	MBT 1141 S FMC
<b>V902</b>	1060	0.37	-	-	FCR	-	-	MBT 1141 S FMC

1. Single phase or 3-phase asynchronous motor, non ventilated.

# Electromechanical products Verelec

## Selection

### Electric jacks (V152, V302, V602, V902)

**Asynchronous motors** : LS 4 poles, IP 55, 50 Hz, class F

**3-phase/single phase** : D 18 TP, 230/400 V 3-phase and 230 V single phase for V152/V302

**3-phase** : *multi-voltage* : 220/380 V - 240/415 V from 0.12 to 0.37 kW

**Single phase** : *multi-voltage* : 220/240 V from 0.12 to 0.37 kW

**Brake motors** : asynchronous, LS types FMC, FCR

**FMC** : *multi-voltage* : 220/380 V - 240/415 V from 0.12 to 0.37 kW

**FCR** : *multi-voltage* : 220/380 V - 230/400 V from 0.25 to 0.37 kW

**Direct current (dc) motors** :

Low voltage from 12 to 48 V from 0.12 to 0.37 kW

FMC brake possible from 0.12 to 0.37 kW

**Class I**  
(Kp=1)

Integral mounting **M1**

### Maximum permissible torque during compression

Torque during compression daN	Length of travel (mm)				
	150	225	300	400	500
100			<b>V152</b>		
150					
200					
250			<b>V302</b>		
300					
350					
400					
450			<b>V602</b>		
500					
550					
600					
650					
700					
750			<b>V902</b>		
800					
850					
900					

### Maximum permissible torque during traction for a travel length from 150 mm to 500 mm

Torque during traction	
daN	Type
150	<b>V152</b>
300	<b>V302</b>
600	<b>V602</b>
900	<b>V902</b>

### Selection example :

Power supply voltage :	230/400 V
Speed of linear advance of piston :	470 mm/mn
Required torque :	320 daN in compression
Length of travel :	300 mm

**Designation : V 602 300 470 4P LS 71 0.25 kW**

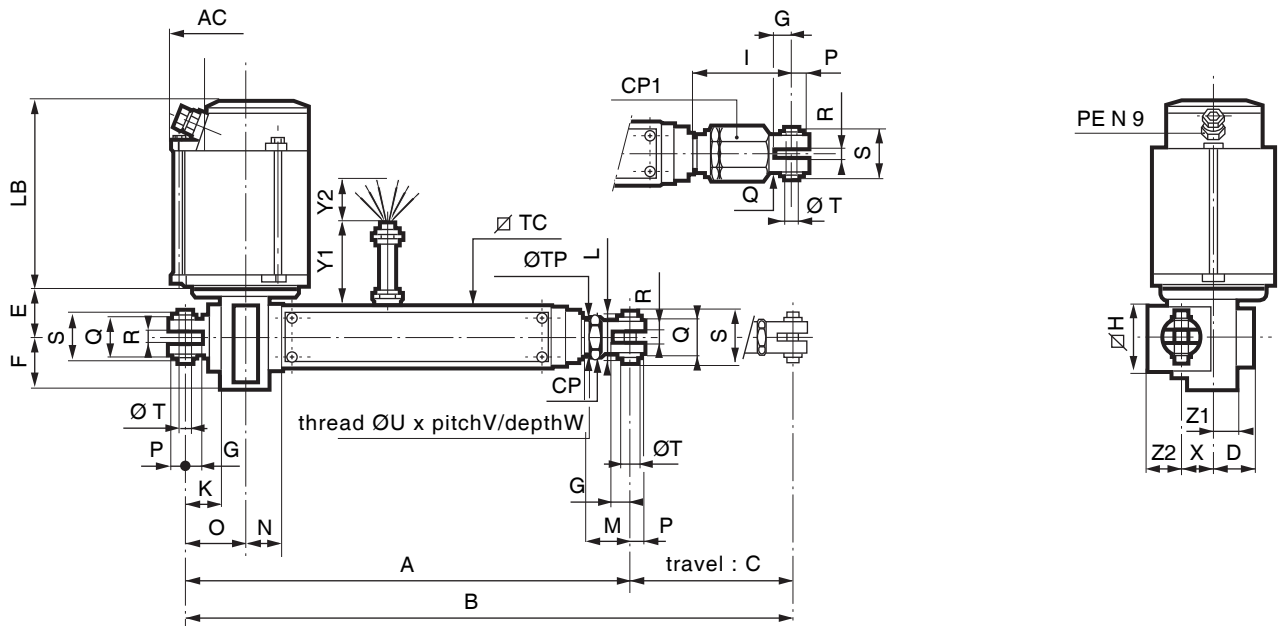
# Electromechanical products Verelec

## Dimensions

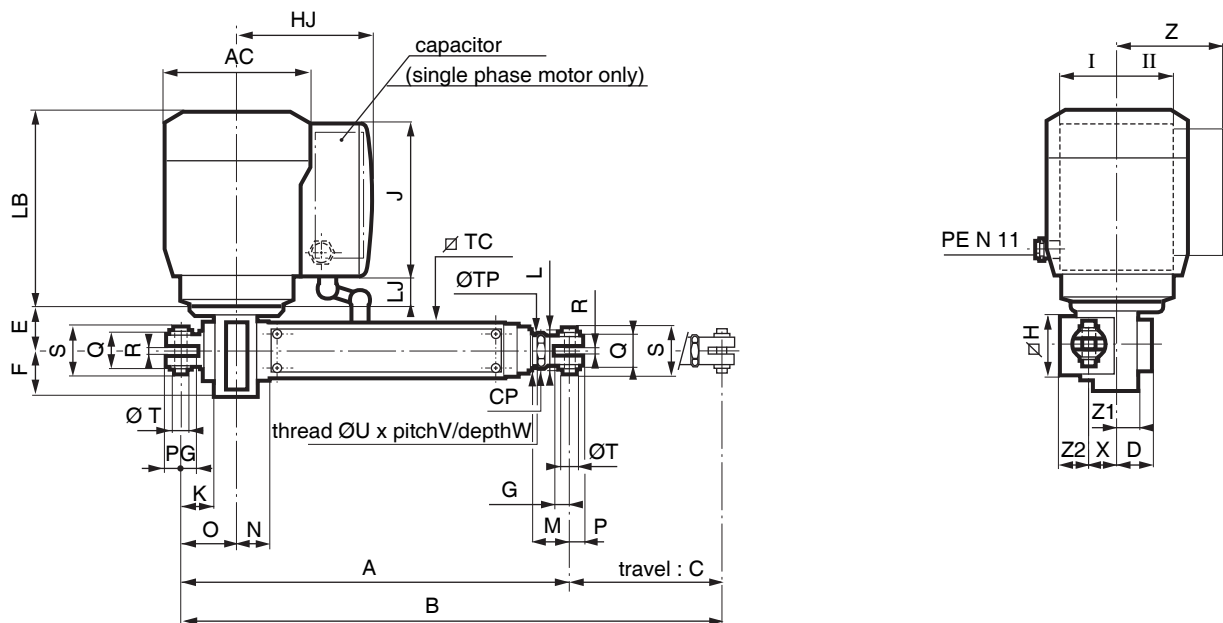
### Dimensions of Verelec V152 electric jacks

Dimensions in millimetres

- Standard mounting : D 18 T/P type motor (capacitor supplied separately)



- Mounting with LS 63 type or MBT 86 S direct current (dc) motor<sup>1</sup> with or without FMC brake



1. For MBT 86 S direct current (dc) motor, the end-travel limit switch flying leads are identical to standard mounting.

# Electromechanical products

## Verelec

### Dimensions

#### Dimensions of Verelec V152 electric jacks

Dimensions in millimetres

Jack																													
Type	CP	CP1	D	E	F	G	∅ H	I	K	L	M	N	O	P	Q	R	S	∅ T	∅ TC	∅ TP	U	V	W	X	Y <sub>1</sub>	Y <sub>2</sub>	Z <sub>1</sub>	Z <sub>2</sub>	
V 152	27	36	34	40	40	14	50	79	29.5	32	34	28	47	11	25	10.1	40	10	7	45	25	22	1.5	25	25	400	100	18.5	25

#### Motors and FMC brake motors

Type	AC	LB	LB with FMC	HJ max	LJ	J max	I+II max	PE	Z max	Weight kg
D 18 T/P	109	146	-	-	-	-	-	9	-	3.5
LS 63	124	172	222	119	23	137	103	11	-	4.8
LS 63 P	124	172	222	119	23	137	103	11	88	5
MBT 82 S	82	150	198	-	-	-	-	-	-	2.9

Additional FMC brake weight: +0.9

#### Travel

Without LEM <sup>1</sup>		Weight kg	Travel C	With LEM <sup>1</sup>	
A	B			A1	B1
350	500	2.2	150	395	545
425	650	2.6	225	470	695
500	800	3	300	545	845
600	1000	3.5	400	645	1045
700	1200	4	500	745	1245
Additional weight	FC <sup>2</sup>	0.85			
Additional weight	LEM <sup>1</sup>	0.5			

1. LEM : Mechanical torque limiter.

2. FC : Travel limiter.

Note : All options must be specified when ordering. A standard jack cannot be fitted with option(s) without substantial factory modifications.

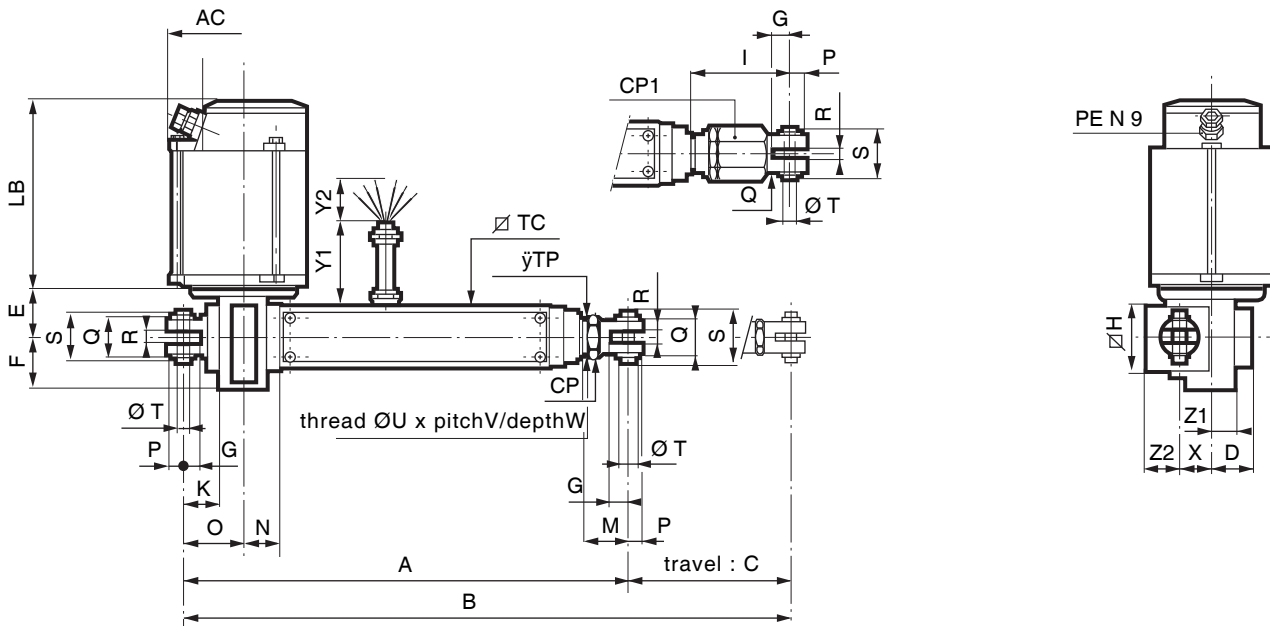
# Electromechanical products Verelec

## Dimensions

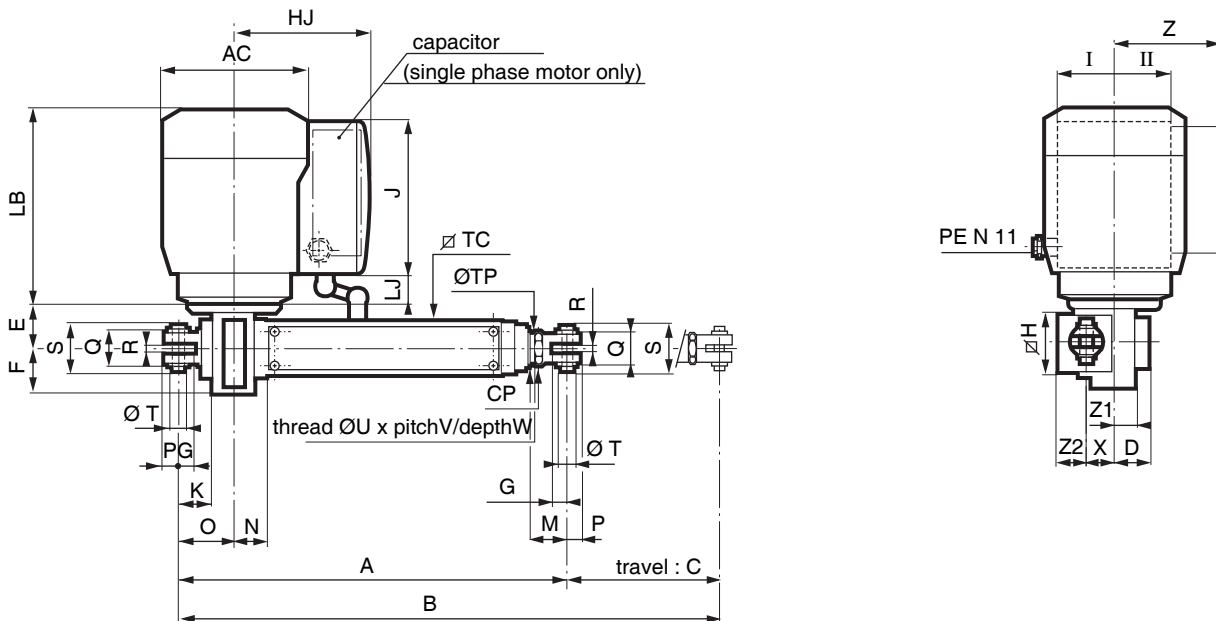
### Dimensions of Verelec V302 electric jacks

Dimensions in millimetres

- Standard mounting : D 18 T/P type motor (capacitor supplied separately)



- Mounting with LS 63 and 71 type or MBT 86 L direct current (dc) motor with or without FMC brake



1. For MBT 82 M direct current motor, the end-travel limit switch lying leads are identical to standard mounting.

# Electromechanical products Verelec

## Dimensions

### Dimensions of Verelec V302 electric jacks

Dimensions in millimetres

Type	Jack																										
	CP	CP1	D	E	F	G	H	I	K	M	N	O	P	Q	R	S	T	TC	TP	U	V	W	X	Y <sub>1</sub>	Y <sub>2</sub>	Z <sub>1</sub>	Z <sub>2</sub>
V 302	32	46	34	40	40	15	54	84	29.5	39	28	47	13	32	12.1	42	12f7	50	30	26	1.5	26	25	400	100	18.5	27

### Motors and FMC brake motors

Type	Motors and FMC brake motors									Weight kg
	AC	LB	LB with FMC	HJ max	LJ	J max	I+II max	PE	Z max	
D 18 T/P	109	176	-	-	-	-	-	9	-	4
LS 63	124	172	222	119	23	137	103	11	-	5
LS 71 P	140	183	233	129	23	137	103	11	85	7
MBT 82 M	82	170	218	-	-	-	-	-	-	3.5
Additional FMC brake weight :										+0.9

### Travel

Without LEM <sup>1</sup>		Weight kg	Travel C	With LEM <sup>1</sup>	
A	B			A1	B1
360	510	3	150	405	555
435	660	3.6	225	480	705
510	810	4.25	300	555	855
610	1010	5.1	400	655	1055
710	1210	6	500	755	1255
Additional weight	FC <sup>2</sup>	0.85			
Additional weight	LEM <sup>1</sup>	0.85			

1. LEM : Mechanical torque limiter.

2. FC : Travel limiter

Note : All options must be specified when ordering. A standard jack cannot be fitted with option(s) without substantial factory modifications.

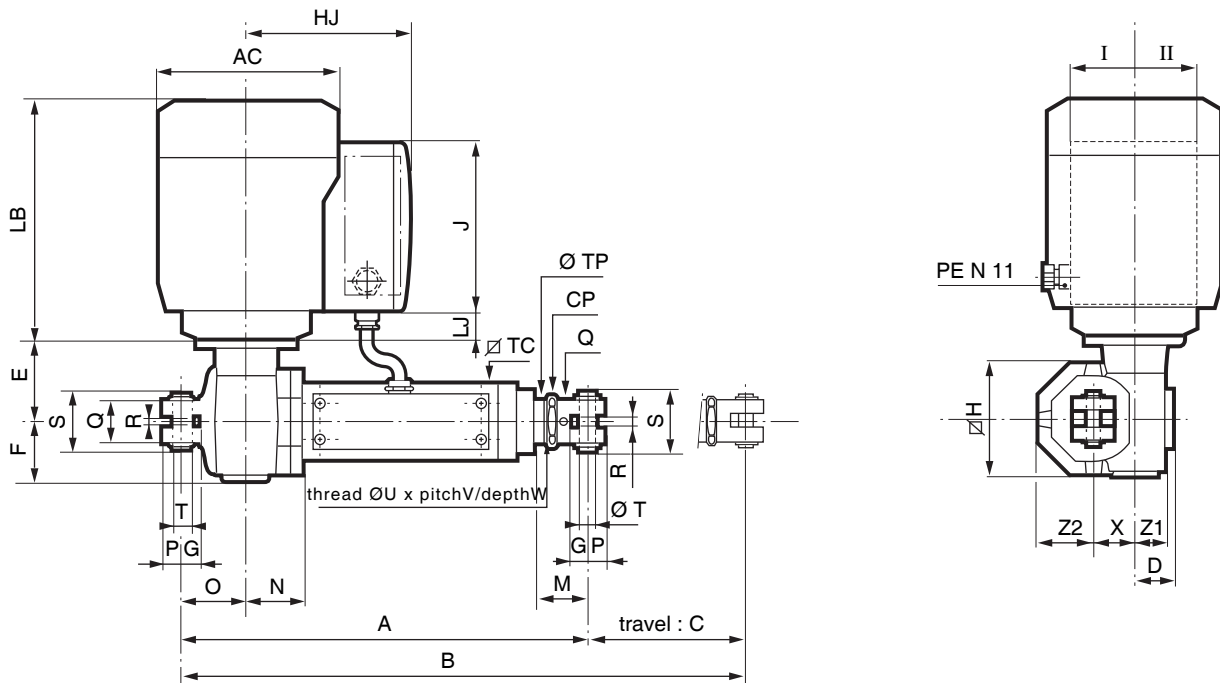
# Electromechanical products Verelec

## Dimensions

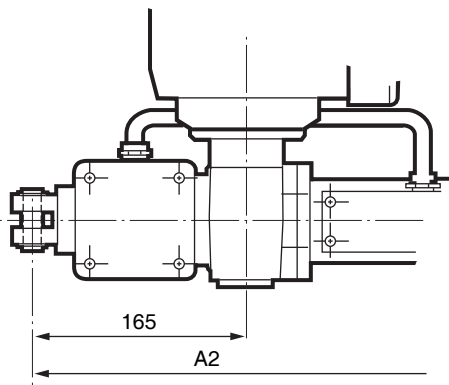
### Dimensions of Verelec V602 electric jacks

Dimensions in millimetres

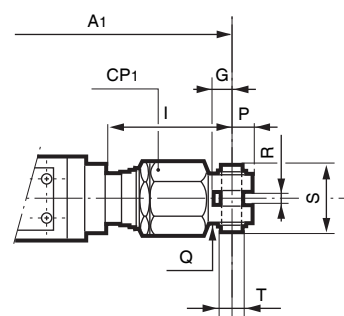
- Mounting with LS 71 type or MBT 114 S direct current (dc) motor<sup>1</sup> with or without FMC brake



1. For MBT 1141 type direct current motor, the end-travel limit switch flying leads are identical to standard mounting of V152 / V302.



OPTION : LEE electrical torque limiter



OPTION : LEM mechanical torque limiter

# Electromechanical products Verelec

## Dimensions

### Dimensions of Verelec V602 electric jacks

Dimensions in millimetres

Type	Jack																							
	CP	CP1	D	E	F	G	∠ H	I	M	N	O	P	Q	R	S	∅ T	∠ TC	∅ TP	U	V	W	X	Z <sub>1</sub>	Z <sub>2</sub>
<b>V 602</b>	36	46	34	70	45	16	84	90	40	51	52	13	35	12.1	45	12f7	60	35	30	1.5	32	33	24	42

Type	Motors and and FMC - FCR brake motors									Weight kg
	AC	LB	LB with FMC	HJ max	LJ	J max	I+II max	PE	Z max	
<b>LS 71</b>	140	183	233	119	23	137	103	11	-	7
<b>LS 71 FCR</b>	140	245	-	119	12	137	103	11	85	7.3
<b>LS 71 P</b>	140	183	233	129	23	137	103	11	85	7
<b>MBT 1141 S</b>	118	167	215	-	-	-	-	-	-	6
Additional FMC brake weight :										+ 0.9

Travel							
Without LEM <sup>1</sup>		Weight kg	Travel C	With LEM <sup>1</sup>		With LEE <sup>2</sup>	
A	B			A1	B1	A2	B2
400	550	7.5	150	450	600	500	650
475	700	8.25	225	525	750	575	800
550	850	9	300	600	900	650	950
650	1050	10	400	700	1100	750	1150
750	1250	11	500	800	1300	850	1350
Additional weight	FC <sup>3</sup>	0.85					
Additional weight	LEM <sup>1</sup>	1					
Additional weight	LEE <sup>2</sup>	3.4					

1. LEM : Mechanical torque limiter.

2. LEE : Electrical torque limiter.

3. FC : Travel limiter.

Note : All options must be specified when ordering. A standard jack cannot be fitted with option(s) without substantial factory modifications.

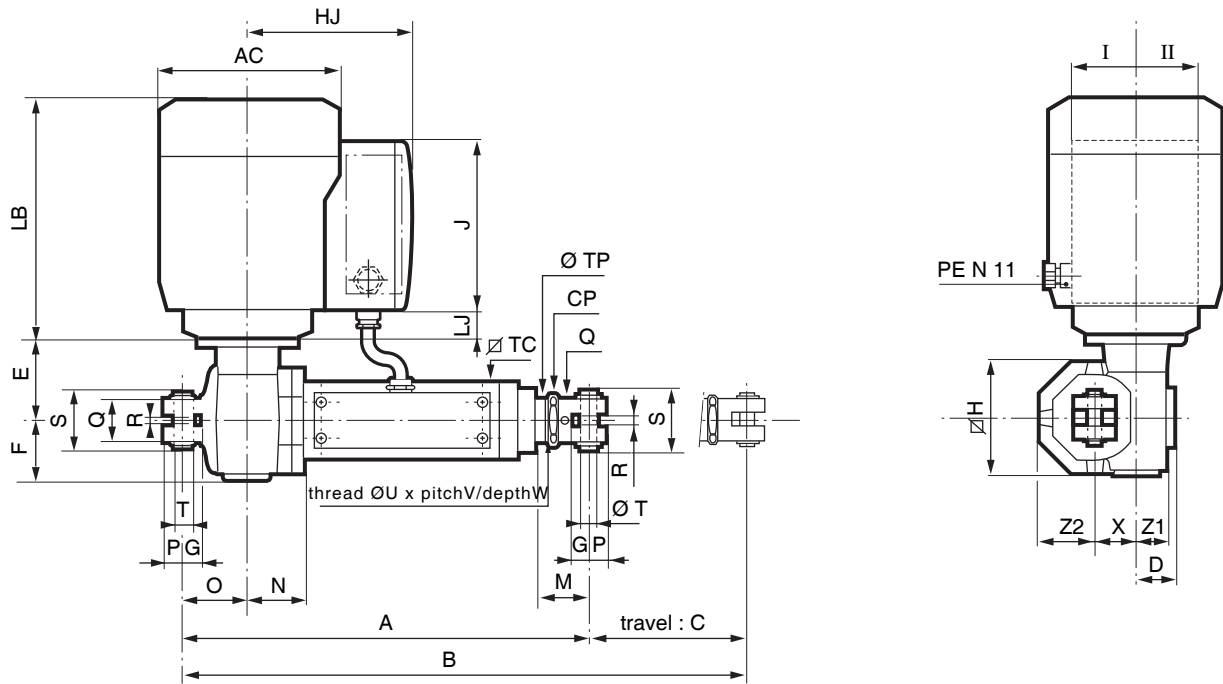
# Electromechanical products Verelec

## Dimensions

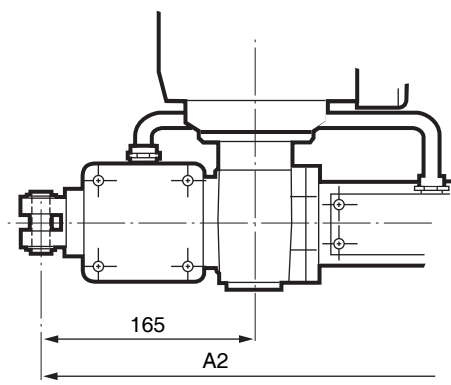
### Dimensions of Verelec V902 electric jacks

Dimensions in millimetres

- Mounting with LS 71 type or MBT 114 S direct current (dc) motor<sup>1</sup> with or without FMC brake



1. For MBT 1141 direct current motor, the end-travel limit switch flying leads are identical to standard mounting.



OPTION : LEE electrical torque limiter

# Electromechanical products Verelec

## Dimensions

### Dimensions of Verelec V902 electric jacks

Dimensions in millimetres

Type	Jack																					
	CP	D	E	F	G	∠ H	M	N	O	P	Q	R	S	∅ T	∠ TC	∅ TP	U	V	W	X	Z <sub>1</sub>	Z <sub>2</sub>
<b>V 902</b>	41	33	75	52.5	25	100	50	62	65	17	40	16.1	50	16 f7	70	40	32	1.5	36	38.6	26	50

### Motors and FMC - FCR brake motors

Type	AC	LB	LB with FMC	HJ max	LJ	J max	I + II max	PE	Weight kg
<b>LS 71</b>	140	183	233	119	23	137	103	11	7
<b>LS 71 FCR</b>	140	245	-	119	23	137	103	11	7.3
<b>MBT 1141 S</b>	118	167	215	-	-	-	-	-	6

Additional FMC brake weight : +0.9

### Travel

Without LEE <sup>1</sup>		Weight kg	Travel C	With LEE <sup>1</sup>	
A	B			A2	B2
445	595	11	150	545	695
520	745	12	225	620	845
595	895	13	300	695	995
695	1095	14.5	400	795	1195
795	1295	16	500	895	1395
Additional weight	FC <sup>2</sup>	0.85			
Additional weight	LEE <sup>1</sup>	3.5			

1. LEE : Electrical torque limiter.

2. FC : Travel limiter.

Note : All options must be specified when ordering. A standard jack cannot be fitted with option(s) without substantial factory modifications.

