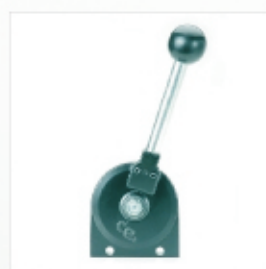




CONTROL CABLES (TOWLINES)



A WORLD OF CABLES

# PULL-PUSH CABLES

Mechanic cables manufactured by Cables y Controles are designed to work as: Pull or Pull-Push actuators. Our high technology manufacturing processes and the use of the best raw materials produce the best quality.

## PULL-PUSH CABLES FITTED TO YOUR NEEDS

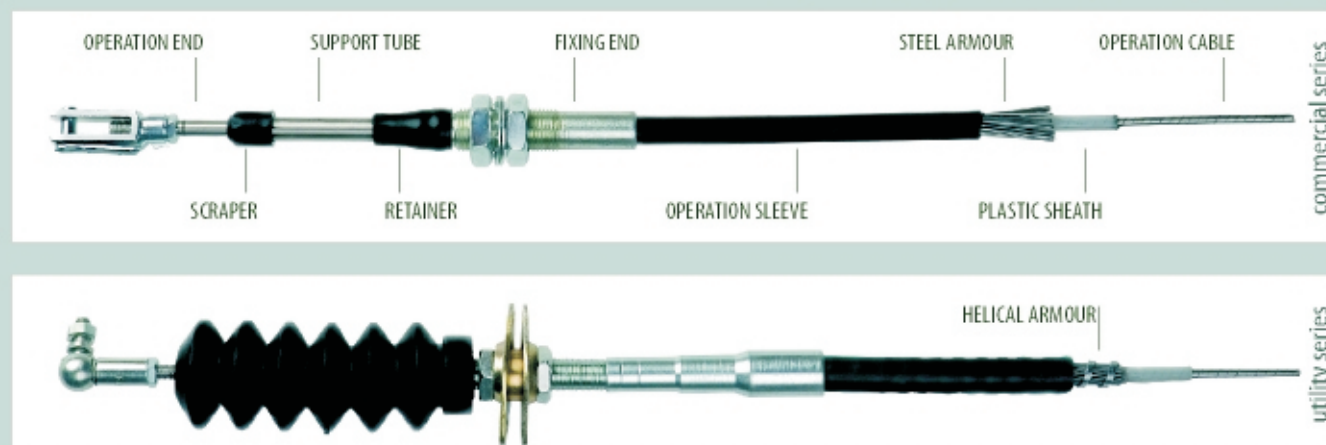
We have a very wide range of pull-push cables, including their numerous components, levers, pedals and accessories, that will exceed your expectations.

### COMERCIAL SERIES CABLES

- Smooth operation.
- Inexpensive.
- Temperature range:  $-64.4^{\circ}\text{F} + 230^{\circ}\text{F}$  ( $-53^{\circ}\text{C} + 110^{\circ}\text{C}$ )

### UTILITY SERIES CABLES

- Great flexibility.
- High resistance.
- Allows sharp bends.
- Temperature range:  $-64.4^{\circ}\text{F} + 230^{\circ}\text{F}$  ( $-53^{\circ}\text{C} + 110^{\circ}\text{C}$ )



## SLEEVE AND PULL-PUSH INNER CABLE

**"U" SERIES:** The inner cable is a 1.9 mm diameter stainless steel wire or a stainless steel flexible shielded cable. Available in COMMERCIAL series.

**"V" SERIES:** The inner cable is a 2.8 mm diameter stainless steel flexible shielded cable. Available in COMMERCIAL and UTILITY series.

**"L" SERIES:** The inner cable is a 3.2 mm diameter stainless steel flexible shielded cable. Available in COMMERCIAL and UTILITY series.

**"M" SERIES:** The inner cable is a 4.65 mm diameter stainless steel flexible shielded cable. Available in COMMERCIAL and UTILITY series.

**"H" SERIES:** The cable is a 6 mm diameter stainless steel flexible shielded cable. Available in UTILITY series only.

## NO MAINTENANCE REQUIRED

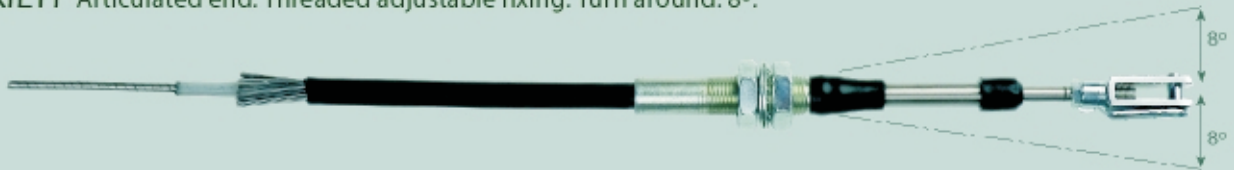
Due to the effectiveness of the scrapers and retainers, specially designed for protection from dust and dirt, and to careful lubrication with top-quality parts, a subsequent maintenance is not needed.

## STAINLESS STEEL

All pull-push cables made by Cables y Controles feature stainless steel operating parts to ensure optimal performance in extreme conditions.

## SERIAL TERMINAL TYPES

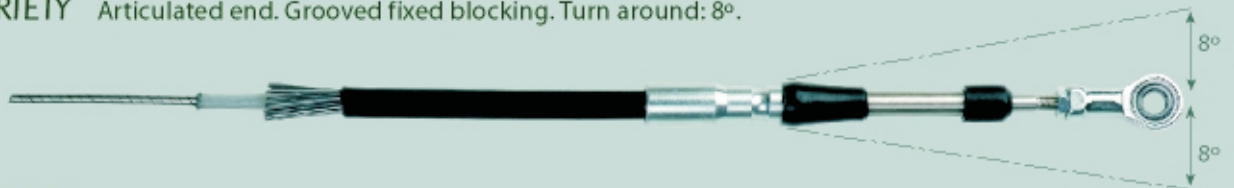
**T VARIETY** Articulated end. Threaded adjustable fixing. Turn around: 8°.



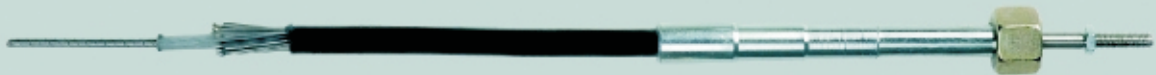
**A VARIETY** Rigid end. Threaded adjustable blocking.



**G VARIETY** Articulated end. Grooved fixed blocking. Turn around: 8°.



**E VARIETY** Rigid end. Direct blocking to lever through sliding nut.



*"We can make a wide range of terminals and tubes according to the customer specifications".*

## MICRO-ADJUSTABLE

- Maximum precision and resistance to vibrations.
- Fine fitting (micrometric) turning the knob head.



## CABLES WITH OR WITHOUT LOCK

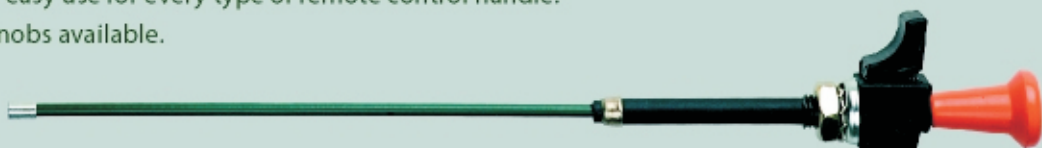
### CONTROL LOCKABLE THROUGH ROTATION

- Once the operator chooses the wanted position, the control is locked when turning it both ways.
- Effective, easy and quick locking.



### CONTROL WITHOUT LOCKING

- Convenient and easy use for every type of remote control handle.
- Wide range of knobs available.

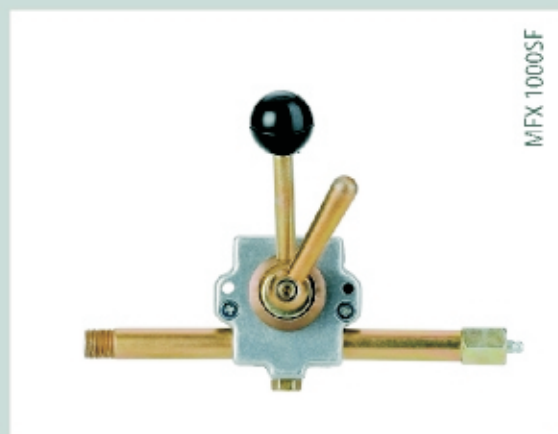




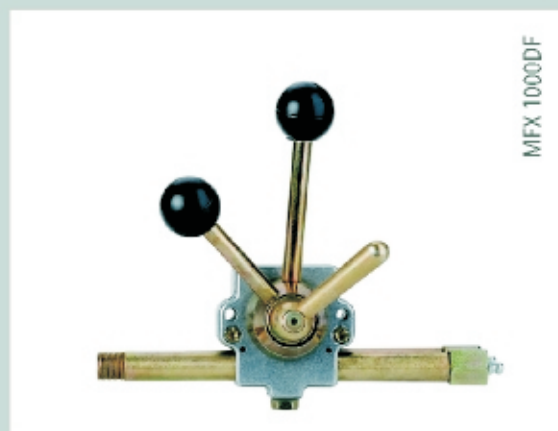
# LEVERS AND CONTROLS

## MFX1000S

- Aluminium body and steel gears.
- Serial stroke: 60 mm and 75 mm.
- Rack and pinion mechanism.
- Small footprint, appropriate for limited spaces with high workloads.
- Applicable to roadworks machines and other high-level vibration environments.
- Adaptable to U, V & L Comercial Series and V & L Utility Series.



- MFX 1000SF: Same as MFX1000S with anti-vibrations brake.
- MFX 1000D: Same as MFX1000S for the two cables.
- MFX 1000DF: Same as MFX1000S for the two cables, with anti-vibrations brake.



## MICRO-ADJUSTABLE



- Made of Zamak.
- Stroke: 90 mm.
- Finishing: Shot peening / Black painted. (Contact us for other colors)
- Workload: 350N.
- Simple and inexpensive lever for manual accelerators, power takeoffs, etc....

- Friction adjustment according to the application needs.
- Adaptable to U, V & L Comercial Series and V & L Utility Series.





## LEVER 60010

- Made of Zamak.
- Stroke: 90 mm.
- Finishing: Shot peening / Black painted. (Contact us for other colors)
- Workload: 350N.
- Simple and inexpensive lever for manual accelerators, power takeoffs, etc....
- Friction adjustment according to the application needs.
- Adaptable to U, V & L Comercial Series and V & L Utility Series.



## LEVER 60020

Version of lever 60010 with positioners that allow to place the lever at the desired point.

## LEVER 60030

Version of lever 60010 with anchor points to lock the lever in the selected position activating the knob on the top.



## LEVER 30500

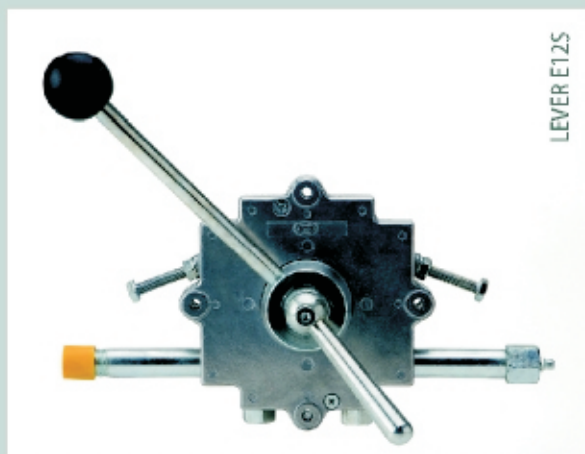


LEVER 30500

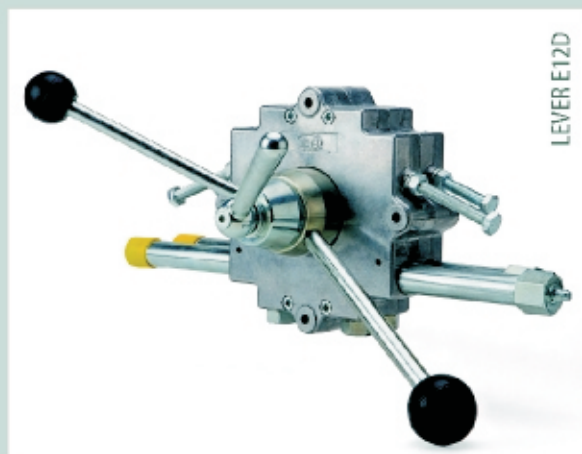
- Can be made of Zamak or aluminium.
- Stroke: 80 mm.
- Finishing in fine shot peening / painted. Please consult us.
- Very inexpensive and simple for applications requiring only traction.
- Friction adjustment according to the application needs.
- Available in left and right hand models.



## LEVERS E12S AND E12D



LEVER E12S



LEVER E12D

### LEVER E12S

- Aluminium body with steel levers, pinions and racks.
- Stroke: 70 mm and 110 mm standard.
- Available with positioners.
- Designed for pumps and accelerators in cement-mixer trucks.
- Compact and very robust, results ideal for extreme environmental conditions and very heavy workloads.
- Features an anti-vibrations brake.

### LEVER E12D

Same as lever E12S for two cables.



## LEVER10055



- Made of Zamak.
- Stroke: 90 mm.
- Finishing: Shot peening / Black painted.
- Very precise and durable mechanism, activated by rack and pinion.
- Individual or double mounting.
- Wide range of knobs and electrical button panels available.
- Designed for the harsh environment of cement-mixer trucks; ready for the most extreme environmental conditions.
- Ideal for open-air use.
- Recommended for hydraulic pumps, accelerators, hydraulic valves, power takeoffs and any applications requiring strength and robustness.
- Contact us for models with anchors and positioners.
- The levers, cams and knob can be customized.



LEVER 10055 CABINA



LEVER 0055 REVERSER



LEVER 10055 ELECTRIC



## LEVER B210



LEVER B212

- Made of cast aluminium with steel inner elements.
- Maximum stroke: 30 mm.
- Compact lever designed to activate hydraulic distributors.
- Quick and easy connection to cable.
- Versions available without neutral central position and through lock.
- Individually or sequentially mountable.



## JOYSTICK 1MJS002

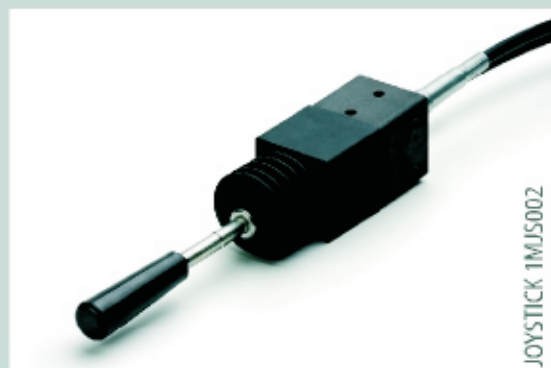
- Body made of machined steel.
- Stroke: 40 mm.
- Grease- and dirt-proof bellows.
- Very robust mechanism through ball-joint bearings.
- Used for activating hydraulic distributors.
- Several connection kits to the distributor valves available.

### 1MJS001

Same as previous one without knob

### 1MJS003

Same as previous one with electric pushbutton on knob.



JOYSTICK 1MJS002

## LEVER B201

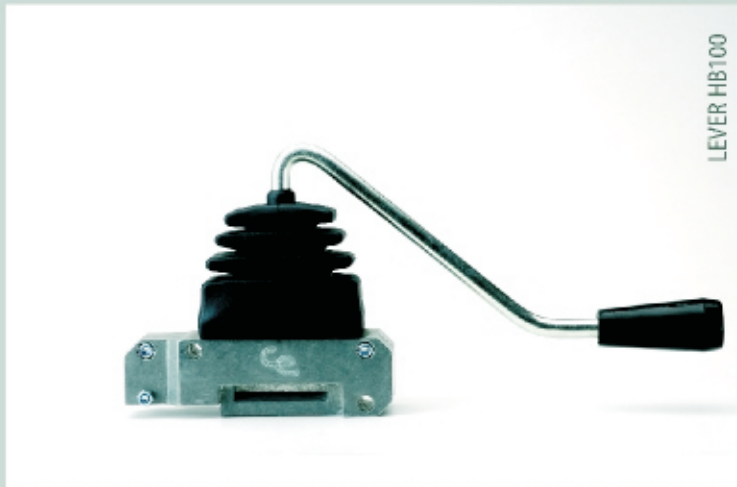


LEVER B201

- Aluminium body.
- Maximum stroke: 32 mm.
- Maximum workload: 300 N.
- Designed for lightweight works.
- Allows the activation of hydraulic distributors, although it can be used in any other applications.
- Cable is coupled with a simple hook to allow an easy assembly.
- Ready for sequential mount of several levers.



## LEVER HB100



LEVER HB100

- Made of Zamak.
- Maximum stroke: 40 mm.
- Flexible, durable grease- and dirt-proof bellows.
- Automatic return to central position.
- Designed for activating hydraulic distributors, it is also appropriate for heavy workload applications.
- The straight handle model is recommended for the maximum precision at the best price.
- Easy cable assemble without needing to disassemble the lever; available in quick coupling version from Cables y Controles.
- Ready for sequential mount of several levers.



LEVER HB100PR

## LEVER B90K

- Made of Zamak.
- Maximum stroke: 40 mm.
- Flexible, durable grease- and dirt-proof bellows.
- Automatic return to central position.
- Designed for activating hydraulic distributors, it is also appropriate for heavy workload applications.
- Easy cable assemble without needing to disassemble the lever; available in quick coupling version from Cables y Controles.
- Ready for sequential mount of several levers.



DIFFERENT COUPLINGS TO LEVER



LEVER B90K

## JOYSTICK B212, B202, B92



JOYSTICK B92

### JOYSTICK B92

- Made of Zamak.
- Maximum stroke: 45 mm.
- Allows to activate two hydraulic distributors at the same time or individually.
- Several connection kits to the distributor valves available.
- Lever used for activating farming hydraulic distributors.

### JOYSTICK B202

- Body, bellows and knob made of biodegradable materials and thermoplastics; recyclable.
- Maximum stroke: 32 mm.
- Maximum workload: 1400N for compression and 900N for traction.
- Allows to activate two hydraulic distributors at the same time or individually.
- Features safety central lock.

Available:

- Multifunction knob with button panel.
- Ergonomic knob.



JOYSTICK B202

### JOYSTICK B212



JOYSTICK B212

- Made of Zamak.
- Flexible, grease- and dirt-proof bellows.
- Maximum stroke: 32 mm.
- Maximum workload: 450N
- Allows to activate two hydraulic distributors at the same time or individually.
- Optional: lock in central position available to activate in the main body or the knob.
- Several similar knobs could function as a button panel with switches.
- Lever for activating hydraulic distributors.

## LEVERS CYC031 AND 3401



LEVER 3401

### LEVER CYC031

- Body made of cast Zamak.
- Stroke: 65 mm.
- It is positioned by friction.
- Ideal lever for lightweight works.
- Cables are left and right mountable.

### LEVER 3401

- Body made of cast Zamak.
- Stroke: 90 mm.
- Black painted.
- It is positioned by friction.
- Cables are left and right mountable.



LEVER CYC031



## LEVERS 1AG001XX AND CH200 SERIES



LEVER 1AG001XX

### LEVER 1AG001XX

- Lever made of very resistant plastic and steel shaft.
- Stroke: 70 mm.
- Ideal for transmitting power through a rod.
- Used in farming and industrial actuations.
- Several versions available.

### LEVER CH200 SERIES

- Body made of Zamak.
- Stroke: 50-70 mm.
- It is positioned by friction.
- Ideal for accelerators and power takeoffs in small machinery.



LEVER CH200 SERIES

## LEVERS B125, B175 Y B140



LEVER B125

LEVER B140

LEVER B175

### LEVER B125

- Made of light aluminium alloy and steel lever.
- Stroke: 65 mm.
- Very precise rack and pinion mechanism, easy and safe to handle.
- Applicable to any uses, it is multipurpose and very valued by the users.
- Individual or double mounting.
- Available with black or red knob.
- Appropriate for using it with medium workloads.
- Recommended for hydraulic pumps, power takeoffs, valves, hydraulic valves, etc...

### LEVER B175

It is a version of lever B125 with central anchor.

### LEVER B140

Dual version with reinforced nylon as the central element of the lever.

# PEDALS

## SHEET STEEL PEDALS 30600 SERIES



- Made of sheet steel, very popular for its flexibility to activate brakes, accelerators, clutches, etc...
- Semi-matte black electrocoat painting.
- Stroke: 70 mm.
- Available some rubber-coated pedal versions.
- Maximum workload applicable: 25 kg.
- There are models for activating directly the hydraulic system.

## ALUMINIUM PEDAL PA50

- Made of aluminium.
- Possibility of semi-matte black electrocoat painting.
- Maximum stroke: 40 mm.
- Maximum workload 20 kilos.
- Cable connectable at 360°. Reversible.
- Used in heavy machinery and buses accelerators.



LEVER PA50

## PEDALS 30500 SERIES



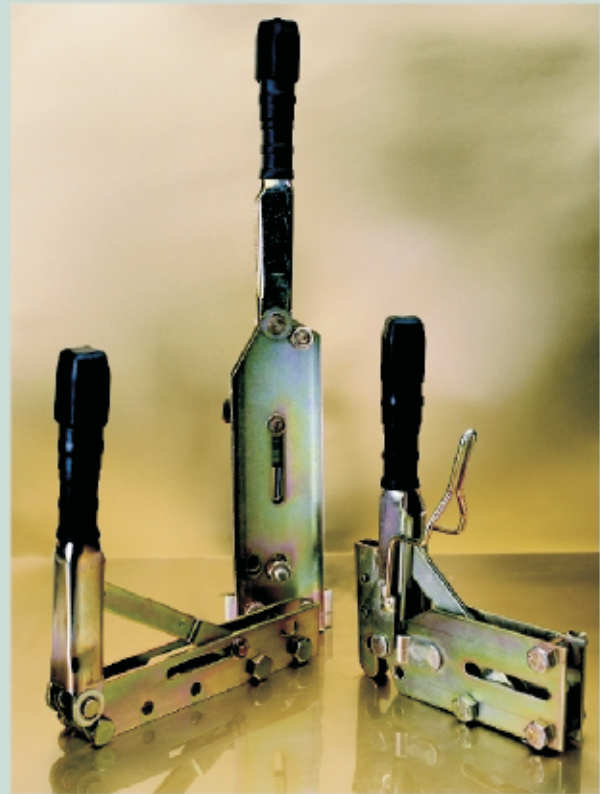
- Made of aluminium.
- Maximum stroke: 60 mm.
- Maximum workload: 20 kilos.
- Used in heavy machinery, buses, and small machinery accelerators.



# BRAKE LEVERS

## LEVER 30010 SERIES

- Made of cut, galvanized sheet steel.
- Maximum stroke: 60 mm.
- Levers with central ratchet.
- Specially designed for forklifts, dumpers and small machinery.
- Very high pull ratio: applying 20 kg., the lever transmits 300 kg. to the cable.



## SHEET STEEL LEVERS 30000 & 40000 SERIES

- Made of cut, folded sheet steel.
- Available in galvanized and black electrocoat paint finishings.
- Stroke 15 to 46 mm.
- Positioned through rack.
- Many versions and ratios available.





# ACCESSORIES

## BRAKE PUMPS

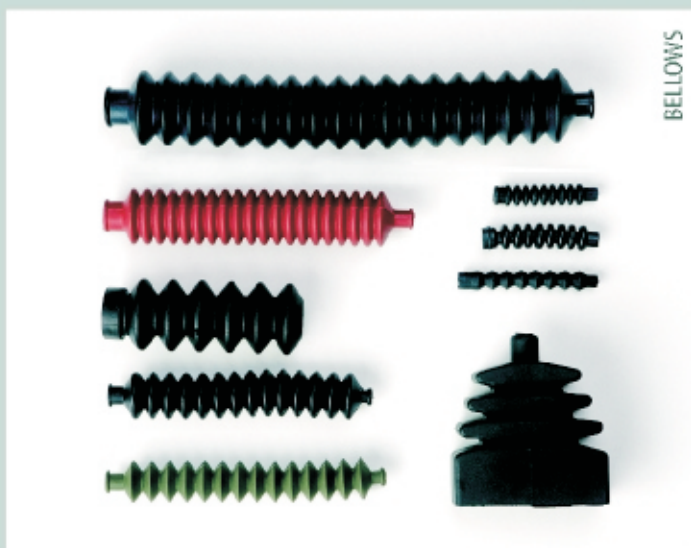


We can offer brake pumps, hydraulic cylinders, miniservos, reservoirs and pressure switches for the machinery brake systems.

Standard products are developed jointly with our customer's technical departments from the very beginning of the project.

Product development is based in a previous study on how the brake system works.

## BELLOWS



We produce our own moulds for the cables and levers bellows, as well as for solving specific needs for a particular customer.

Made of technical materials resistant to the inclemency of the weather, grease and chemical agents usually affecting those materials in daily use.

Please consult us if you want other colors or designs.

## FLEXIBLE TRANSMISSIONS

***"Power or torque transmission cables / cables for speedometers and tachometers."***



Those cables send torque or transmission power through rotation. We can produce several terminals.

There are countless possibilities, models and adaptations: on demand, sending a sample to our production premises or according to the drawings or blueprints provided by the customer.

## KNOBS AND PULLERS

Cables y Controles has knobs and pullers for your cables and levers, as well as a wide range of knobs and pullers applicable to almost every industrial sectors.

Made of thermoplastics and duroplastics, they are very resistant and durable.

Please consult us if you want other colors or designs



## FORKS AND BALL JOINTS

We produce our own ball-joints, forks and joints to be mounted on our cables, and also collaborate with European companies in the production and design of many accessories that are mounted on the cables.

We have the necessary tools for the manufacture of our own forks and ball joints made of sheet steel and cast iron.

Please consult us if you want different designs.





**Ce** Cables y  
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