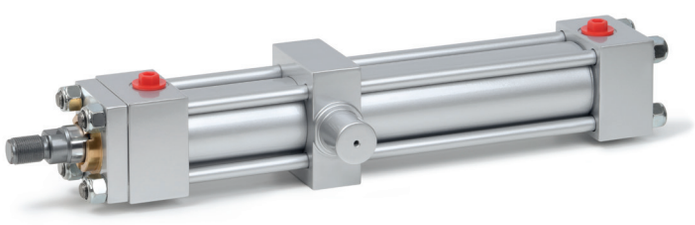
ISO 6020/2 hydraulic cylinders with tie-rods are suitable for a wide range of industrial applications, when a compact, highly reliable and easy-to-maintain product is required, thanks to the configuration with four high-strength tie-rods, the use of the best materials and technical choices guided by the great experience gained through the years.

The overall dimensions, mounting configurations and working pressure of 160 bar comply with ISO 6020/2. The cylinder can be provided with reliable end-of-stroke cushioning, equipped with a quick restart system and adjustable to suit the needs and loads to be cushioned. Available in various sealing configurations to suit the desired operating conditions and performance.
Before delivery, each cylinder is tested in accordance with ISO 10100 and we record these results in our systems to ensure product quality and performance. They can be equipped with various types of switches to detect the piston at the end of the stroke or in intermediate positions, or sensors to detect it continuously along the entire stroke. In addition, the cylinder can be equipped with a CETOP plate for the installation of a control valve with ISO 4401 mounting surfaces.

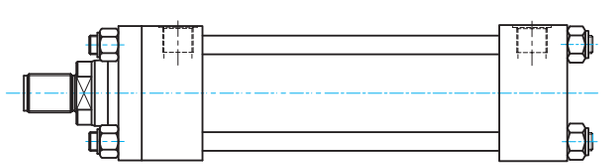
Spare parts are easy to find and are always available at our warehouse, with rapid support service to deal with any urgency.
For strokes over 2000 mm, it is recommended to choose ISO 6020/2 hydraulic cylinders with counterflanges (see page 26).



Standard		ISO 6020/2 - DIN 24554 - tie-rods	
Bore	**mm**	from 25 to 200	
Pressure	**bar**	operational 160	testing 240
Maximum stroke	**mm**	4000	
Fluid		Mineral hydraulic oil Phosphoric esters HFC-fluid	

TIE-RODS CYLINDERS SERIES

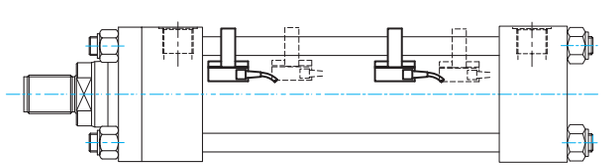
CD	Bore from 25 to 100
DK	Bore from 125 to 200



The CD and DK series hydraulic cylinders are the standard version of the ISO 6020/2 tie-rods cylinders. The technical features, dimensions, versions and options available are detailed on pages 7.
They are available in a wide variety of configurations, with rods in various materials, with CETOP plate for valve and with end-stroke switches integrated in the cylinder heads, as well as many other special options.
In addition, for applications in aggressive environments in contact with substances that promote corrosion, they are available with a chemical nickel-plating surface treatment.

TIE-RODS CYLINDERS SERIES WITH MAGNETIC SWITCHES

MD	Bore from 25 to 125

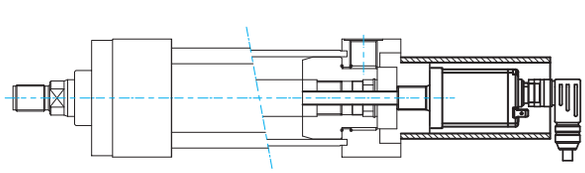


The MD series hydraulic cylinders have the same technical features, dimensions and available options as the standard CD and DK series, but are equipped with a magnetic piston and stainless-steel tube.
One or more magnetic switches can be positioned along the tube, fixed to the tie-rods, to detect the passage of the piston in correspondence with the SR or SH switch.

Special programmable sensors are available on request (see page 20).

TIE-RODS SERVOCYLINDERS SERIES WITH POSITION TRANSDUCER

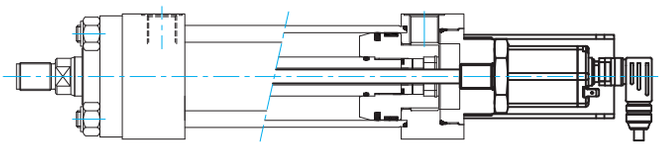
TD	Bore from 40 to 100
TK	Bore from 125 to 200



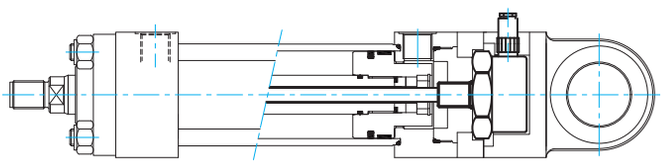
The TD and TK series hydraulic servocylinders have the same technical features, dimensions and available options as the CD and DK series, but are equipped with a magnetostrictive linear position transducer (see page 22) for precise and continuous detection of the piston at any point in the servocylinder stroke.
The external parts of the position transducer are protected against accidental impact during transport, installation and operation by a removable steel cover.

TIE-RODS SERVOCYLINDERS WITH POSITION TRANSDUCER

ISO 6020/2 servocylinders with tie-rods, TD and TK series, are equipped with an electronic transducer that detects the absolute position of the rod.



Version with external transducer for mountings A, E, G, H, L, R, X.



Version with internal transducer for mountings B, C, D, M, Q, S, T.
To be requested to our technical department

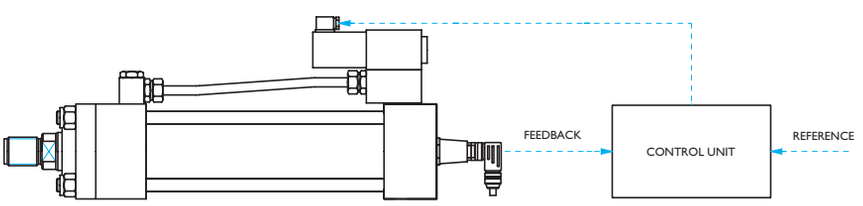
In all versions with an external transducer, the protruding parts of the electronics are completely protected from accidental impacts by a steel protection firmly fastened to the servocylinder.

The servocylinders of the TD and TK series are equipped with a bronze guide bushing and low-friction seals to optimise performance at both high and low speeds, avoiding stick-slip problems.

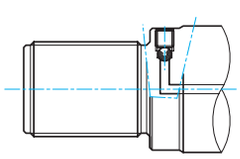
Positioning accuracy is determined by two elements: the resolution of the transducer and the servocylinder control system.

The servocylinders can be equipped with CETOP plates for ISO 4401 valves, which allow the direct fitting on board the servocylinder of:

- ON/OFF solenoid valves
- Proportional solenoid valves
- Servovalves



This configuration combined with a CONTROL UNIT ensures optimal hydraulic rigidity, which significantly improves response time, repeatability and positioning accuracy.



For servocylinders to function correctly, it is essential that they are perfectly purged of air in the servocylinder during installation. For this reason, these servocylinders, in addition to the air bleeds on the heads, have an air bleed at the top of the piston rod that allows the air in the chamber that houses the transducer to escape.

The special position of this air bleed allows operation without removing the rod from its housing.

The TD and TK series servocylinders are equipped with a non-contact absolute linear position transducer to ensure maximum durability and reliability of the measuring system.
The transducers use magnetostrictive technology, which enables high performance over a wide range of lengths, with various mounting options and analogue (0-10V, 4-20mA) or digital output signals (SSI, CANbus, DeviceNet, Profibus, EtherCAT® , EtherNet/IP™, PROFINET, POWERLINK).

The transducer is supplied with a 90° or straight connector, depending on how it is installed on the servocylinder (see drawings on previous page). As an alternative, on demand, it is available without connector, with direct output with flexible cable.

	Analogic output		Digital output	
Features	**MV**	**MA**	**MS**	**MD**
Transducer type	Magnetostrictive		Magnetostrictive	
Output	0-10 V	4-20 mA	SSI (Syncronic Serial Interface)	CANbus, DeviceNet, Profibus, EtherCAT® , EtherNet/IP™, PROFINET, POWERLINK
Supply voltage	24V DC (-15 / +20%)		24V DC (-15 / +20%)	
Temperature	-40 °C / +80 °C		-40 °C / +85 °C	-40 °C / +75 °C
Max stroke	4000 mm		4000 mm	
Resolution	Infinite		0,1 µm	0,5 - 2 µm
Linearity	< ± 0,02 % F.S. (Min ± 50 µm)		< ± 0,01 % F.S. (Min ± 50 µm)	
Repeatability	< ± 0,001 % F.S. (Min ± 2,5 µm)		< ± 0,001 % F.S. (Min ± 2,5 µm)	
Hysteresis	< 4 µm		< 4 µm	
Current drain	100 mA typical		100 mA typical	
Speed	2 m/s		2 m/s	
Protection	IP67		IP67	

CODE COMPOSITION

The entry fields for the example values are mandatory.

TD		MA	50	/	28	/		A	500		L					

Bore	Type
40 / 100	TD
125 / 200	TK

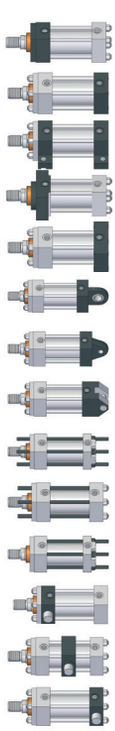
Special version (1)	SX

Transducer	
Magnetostrictive	MV
	MA
	MS
	MD

	Bore	Rod
TD	40	28
	50	28
		36
	63	28
		36
		45
	80	36
		45
		56
	100	45
		56
		70
TK	125	56
		70
		90
	160	70
		90
		110
	200	90
		110
		140

Contact our technical department, for the second rod

See mounting list from page 10	ISO 6020/2	DIN 24554	Mounting
Front threaded holes	MX5		X
Rear threaded holes	MX6		T
Feet	MS2	MS2	E
Front flange	ME5	ME5	A
Rear flange	ME6	ME6	B
Ball jointed eye	MP5	MP5	D
Male clevis	MP3		C
Female clevis	MP1		M
Front and rear extented tie-rods	MX1		Q
Front extented tie-rods	MX3		R
Rear extented tie-rods	MX2		S
Front trunnions	MT1		G
Intermediate trunnions (2)	MT4	MT4	H
Rear trunnions	MT2		L



Options (see from page 16)	

Plate for valve (see page 17)	
BV3-A	CETOP 3
BV3-B	ISO 4401-03 NG6
BV5-A	CETOP 5
BV5-B	ISO 4401-05 NG10

Air bleed	
-	No air bleed
SV	Front only
SZ	Rear only
SK	Front and rear

Rod end (see page 15)		
-		Male thread
SF		Female thread
ST		Floating joint
SL		Male thread DIN 24554

Seals (see page 7)	
L	Low friction
H	Viton®
G	HFC-fluid

Spacer	
-	For stroke from 0 to 1000
SJ 50	from 1000 to 1500
SJ 100	from 1500 to 2000
SJ 150	from 2000 to 3000
SJ 200	over 3000

Stroke in mm

(1) Indicate SX whenever the servocylinder has special requests or executions, by filling in the options section of the code, followed by our drawing number if applicable. (see list of available options from page 16)

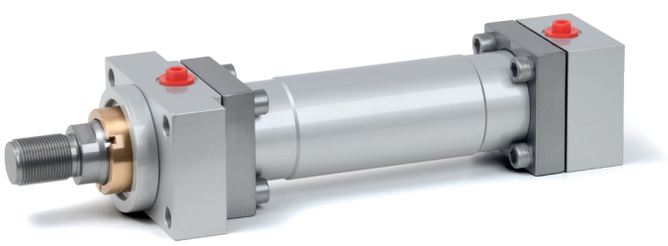
(2) For H mounting (MT4), enter 'XV' at the end of the code followed by the value of dimension XV. (see page 13 and page 14)

Interactive online coding wizard available at www.confortinet.com

ISO 6020/2 hydraulic cylinders with counterflanges are suitable for a wide range of industrial applications, when a compact, highly reliable and easy-to-maintain product is required, thanks to the use of the best materials and technical choices based on years of experience.

The special configuration with counterflanges and high-strength screws makes them particularly suitable for applications with long strokes. In these cases, in fact, while maintaining the same overall dimensions of a cylinder with tie-rods, this configuration is more stable because it does not require the presence of excessively long tie-rods. The overall dimensions and the mounting configurations comply with ISO 6020/2, while the working pressure can rise up to 210 bar. The cylinder can be provided with reliable end-of-stroke cushioning, equipped with a quick restart system and adjustable to suit the needs and loads to be cushioned. Available in various sealing configurations to suit the desired operating conditions and performance. Before delivery, each cylinder is tested in accordance with ISO 10100 and we record these results in our systems to ensure product quality and performance. They can be equipped with various types of switches to detect the piston at the end of its stroke or with position transducers for continuous detection along the entire stroke. In addition, the cylinder can be equipped with a CETOP plate for the installation of a control valve with ISO 4401 mounting surfaces.

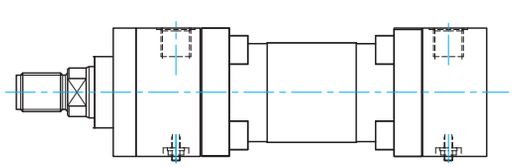
Spare parts are easy to find and are always available at our warehouse, with rapid support service to deal with any urgency.



Standard		ISO 6020/2 - DIN 24554 - with counterflanges	
Bore	**mm**	from 50 to 200	
Pressure	**bar**	operational 210	testing 315
Maximum stroke	**mm**	4000	
Fluid		Mineral hydraulic oil Phosphoric esters HFC-fluid	

HYDRAULIC CYLINDERS SERIES WITH COUNTERFLANGES

HD	Bore from 50 to 100
HK	Bore from 125 to 200

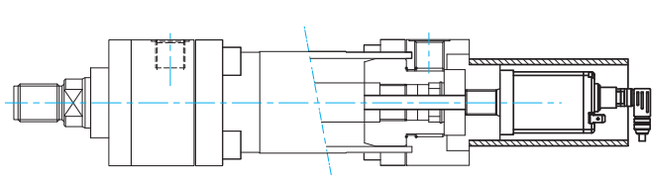


The HD and HK series hydraulic cylinders are the basic version of the ISO 6020/2 counter-flange cylinders. The technical features, dimensions, and available versions and options are detailed from page 27.

They are available in a wide variety of configurations, with rod in various materials, with CETOP plate for valve and with end-stroke sensors integrated in the cylinder heads, and many other special options.

HYDRAULIC SERVOCYLINDERS SERIES WITH COUNTERFLANGES AND POSITION TRANSDUCER

TH	Bore from 50 to 100
TX	Bore from 125 to 200

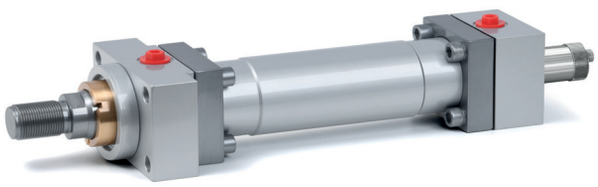


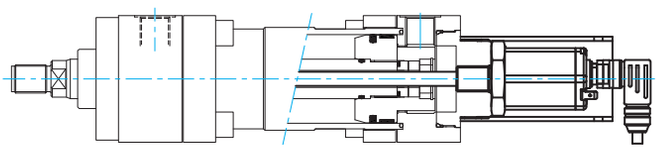
The TH and TX series hydraulic servocylinders have the same technical features, dimensions and available options as the basic HD and HK series, but are equipped with a magnetostrictive linear position transducer (see page 39) for accurate and continuous detection of the piston at any point in the servocylinder stroke.

The external parts of the position transducer are protected against accidental impacts during transport, installation and operation by a removable steel cover.

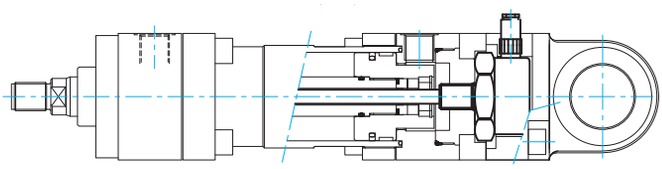
HYDRAULIC SERVOCYLINDERS WITH COUNTERFLANGES AND POSITION TRANSDUCER

ISO 6020/2 servocylinders are available both with counterflanges (TH and TX version) and with tie-rods (TD and TK version see page 22).
The servocylinders are equipped with an electronic transducer that detects the absolute position of the rod.





Compatible with cylinders with A, E, G, L, X mountings.

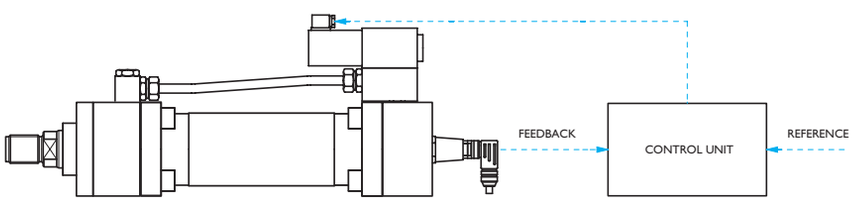


Version with internal transducer for mountings B, C, D, M.
To be requested to our technical department

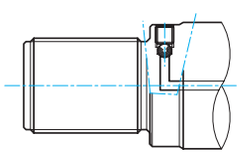
In all versions with an external transducer, the protruding parts of the electronic device are completely protected from accidental impacts by a steel protection firmly fastened to the servocylinder.
The servocylinders of the TH and TX series are equipped with a bronze guide bushing and low-friction seals to optimise performance at both high and low speeds, avoiding stick-slip problems.
Positioning accuracy is determined by two elements: the resolution of the transducer and the cylinder control system.

The servocylinders can be equipped with CETOP plates for ISO 4401 valves, which allow the direct fitting on board the servocylinder of:

- ON/OFF solenoid valves
- Proportional solenoid valves
- Servovalves



This configuration combined with a CONTROL UNIT ensures optimal hydraulic rigidity, which significantly improves response time, repeatability and positioning accuracy.



For servocylinders to function correctly, it is essential that they are perfectly purged of air in the servocylinder during installation. For this reason, these servocylinders, in addition to the air bleeds on the heads, have an air bleed at the top of the piston rod that allows the air in the chamber that houses the transducer to escape.

The special position of this air bleed allows operation without removing the rod from its housing.

The linear absolute position transducer operates non-contact, ensuring maximum durability and reliability of the measuring system.

The transducers use magnetostrictive technology, which enables high performance over a wide range of lengths, with various mounting options and analogue (0-10V, 4-20mA) or digital output signals (SSI, CANbus, DeviceNet, Profibus, EtherCAT® , EtherNet/IP™, PROFINET, POWERLINK).

The transducer is supplied with a 90° or straight connector, depending on how it is installed on the servocylinder.
As an alternative, on demand, it is available without connector, with direct output with flexible cable.

	Analogic output		Digital output	
Features	**MV**	**MA**	**MS**	**MD**
Trasducer type	Magnetostrictive		Magnetostrictive	
Output	0-10 V	4-20 mA	SSI (Syncronic Serial Interface)	CANbus, DeviceNet, Profibus, EtherCAT®, EtherNet/IP™, PROFINET, POWERLINK
Supply voltage	24V DC (-15 / +20%)		24V DC (-15 / +20%)	
Temperature	-40 °C / +80 °C		-40 °C / +85 °C	-40 °C / +75 °C
Max stroke	4000 mm		4000 mm	
Resolution	Infinite		0,1 µm	0,5 - 2 µm
Linearity	< ± 0,02 % F.S. (Min ± 50 µm)		< ± 0,01 % F.S. (Min ± 50 µm)	
Repeatability	< ± 0,001 % F.S. (Min ± 2,5 µm)		< ± 0,001 % F.S. (Min ± 2,5 µm)	
Hysteresis	< 4 µm		< 4 µm	
Current drain	100 mA typical		100 mA typical	
Speed	2 m/s		2 m/s	
Protection	IP67		IP67	

CODE COMPOSITION

The entry fields for the example values are mandatory.

TH		MA	80	/	56	/		A	500		L					

Bore / Type

Bore	Type
50 / 100	TH
125 / 200	TX

Special version (1) — SX

Transducer

Magnetostrictive	MV
	MA
	MS
	MD

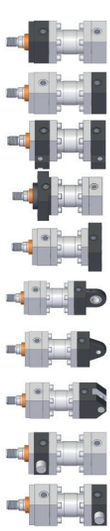
Bore / Rod

	Bore	Rod
TH	50	28
		36
	63	28
		36
		45
	80	36
		45
		56
	100	45
		56
		70
TX	125	56
		70
		90
	160	70
		90
		110
	200	90
		110
		140

Contact our technical department, for the second rod

Mounting

See list of mountings from page 30	ISO 6020/2	DIN 24554	Mounting
Front threaded holes	MX5		X
Rear threaded holes	MX6		T
Feet	MS2	MS2	E
Front flange	ME5	ME5	A
Rear flange	ME6	ME6	B
Ball jointed eye	MP5	MP5	D
Male clevis	MP3		C
Female clevis	MP1		M
Front trunnions	MT1		G
Rear trunnions	MT2		L



Stroke in mm

Spacer

-	For stroke from 0 to 1000
SJ 50	from 1000 to 1500
SJ 100	from 1500 to 2000
SJ 150	from 2000 to 3000
SJ 200	over 3000

Seals (see page 27)

L	Low friction
H	Viton®
G	HFC-fluid

Rod end (see page 35)

-	Male thread
SF	Female thread
ST	Floating joint
SL	Male thread DIN 24554

Air bleed

-	No air bleed
SV	Front
SZ	Rear
SK	Front + Rear

Plate for valve (see page 37)

BV3-A	CETOP 3
BV3-B	ISO 4401-03 NG6
BV5-A	CETOP 5
BV5-B	ISO 4401-05 NG10

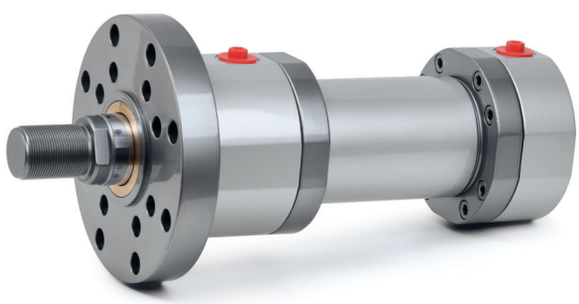
Options (see from page 36)

(1) Indicate SX whenever the servocylinder has special requests or executions, by filling in the options section of the code, followed by our drawing number if applicable.
(see list of available options from page 36)

Interactive online coding wizard available at www.confortinet.com

ISO 6022 hydraulic cylinders are suitable for particularly heavy duty applications, in industrial applications where great robustness, high working pressures (up to 250 bar) and technical solutions that ensure durability and reliability even in difficult environments are required, thanks to the use of the best materials.

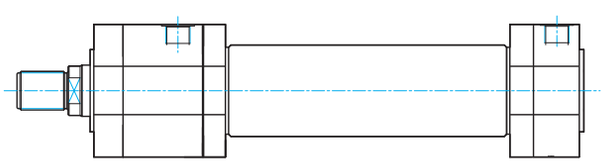
The overall dimensions and the mounting configurations comply with ISO 6022. The cylinder can be provided with reliable end-of-stroke cushioning, equipped with a quick restart system and adjustable to suit the needs and loads to be cushioned.
The cylinder is equipped with a long bronze rod guide bushing and double bronze guides on the piston to offer the best performance even under unexpected radial loads.
Available in various sealing configurations to suit the desired operating conditions and performance.
Before delivery, each cylinder is tested in accordance with ISO 10100 and we record these results in our systems to ensure product quality and performance.
They can be equipped with various types of sensors to detect the piston at the end of the stroke or in intermediate positions, or continuously along the entire stroke. In addition, the cylinder can be equipped with a CETOP plate for the installation of a control valve with ISO 4401 mounting surfaces.
Spare parts are easy to find and are always available at our warehouse, with rapid support service to deal with any urgency.



Standard		ISO 6022 - DIN 24333	
Bore	**mm**	from 50 to 200	
Pressure	**bar**	operational 250	testing 375
Maximum stroke	**mm**	6000	
Fluid		Mineral hydraulic oil Phosphoric esters HFC-fluid	

HEAVY DUTY CYLINDER SERIES

DP Bore from 50 to 200

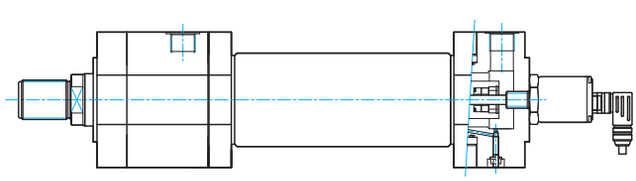


The DP series hydraulic cylinders comply with ISO 6022 standard. Technical characteristics, dimensions, and available versions and options are detailed from page 43.

They are available in a wide variety of configurations, with rod in various materials, with CETOP plate for valve and with end-stroke sensors integrated in the cylinder heads, and many other special options.

HEAVY DUTY SERVOCYLINDER SERIES WITH POSITION TRANSDUCER

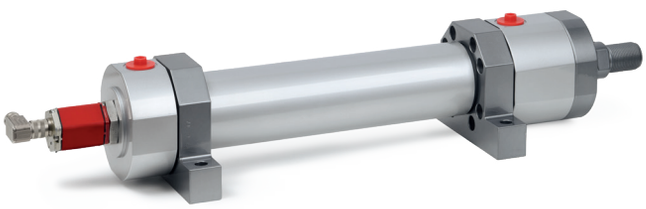
TP Bore from 50 to 200

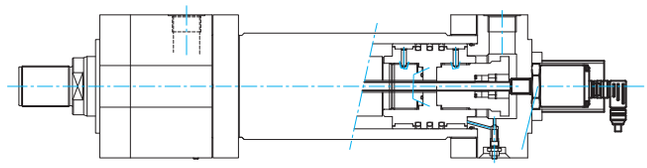


The TP series hydraulic servocylinders have the same technical features, dimensions and available options as the DP basic series, but are equipped with a magnetostrictive linear position transducer (see page 53) for precise and continuous detection of the piston at any point in the servocylinder stroke.
The external parts of the position transducer are protected against accidental impact during transport, installation and operation by a removable steel cover.

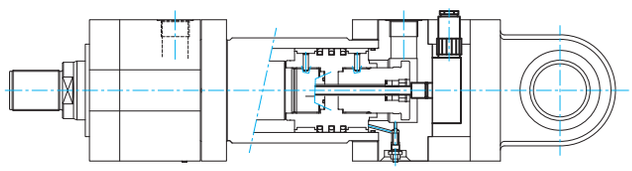
HEAVY DUTY SERVOCYLINDERS WITH POSITION TRANSDUCER

ISO 6022 servocylinders TP series are equipped with an electronic transducer that detects the absolute position of the rod.





Suitable for servocylinder with mountings A, E, H, B.

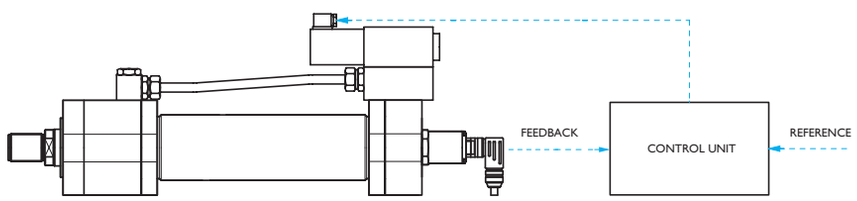


Version with internal transducer for mountings C, D, R, S.
To be requested to our technical department.

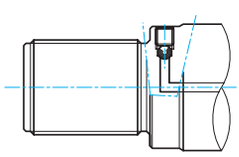
In all versions with an external transducer, the protruding parts of the electronic device are completely protected from accidental impacts by a steel protection firmly fastened to the servocylinder.
The servocylinders of the TP series are equipped with a bronze guide bushing and low-friction seals to optimise performance at both high and low speeds, avoiding stick-slip problems.
Positioning accuracy is determined by two elements: the resolution of the transducer and the servocylinder control system.

The servocylinders can be equipped with CETOP plates for ISO 4401 valves, which allow the direct fitting on board the servocylinder of:

- ON/OFF solenoid valves
- Proportional solenoid valves
- Servovalves



This configuration combined with a CONTROL UNIT ensures optimal hydraulic rigidity, which significantly improves response time, repeatability and positioning accuracy.



For servocylinders to function correctly, it is essential that they are perfectly purged of air in the servocylinder during installation. For this reason, these servocylinders, in addition to the air bleeds on the heads, have an air bleed at the top of the piston rod that allows the air in the chamber that houses the transducer to escape.

The special position of this air bleed allows operation without removing the rod from its housing.

The linear absolute position transducer operates non-contact, ensuring maximum durability and reliability of the measuring system.

The transducers use magnetostrictive technology, which enables high performance over a wide range of lengths, with various mounting options and analogue (0-10V, 4-20mA) or digital output signals (SSI, CANbus, DeviceNet, Profibus, EtherCAT® , EtherNet/IP™, PROFINET, POWERLINK).

The transducer is supplied with a 90° or straight connector, depending on how it is installed on the servocylinder.
As an alternative, on demand, it is available without connector, with direct output with flexible cable.

	Analogic output		Digital output	
Features	**MV**	**MA**	**MS**	**MD**
Trasducer type	Magnetostrictive		Magnetostrictive	
Output	0-10 V	4-20 mA	SSI (Syncronic Serial Interface)	CANbus, DeviceNet, Profibus, EtherCAT®, EtherNet/IP™, PROFINET, POWERLINK
Supply voltage	24V DC (-15 / +20%)		24V DC (-15 / +20%)	
Temperature	-40 °C / +80 °C		-40 °C / +85 °C	-40 °C / +75 °C
Max stroke	4000 mm		4000 mm	
Resolution	Infinte		0,1 µm	0,5 - 2 µm
Linearity	< ± 0,02 % F.S. (Min ± 50 µm)		< ± 0,01 % F.S. (Min ± 50 µm)	
Repeatability	< ± 0,001 % F.S. (Min ± 2,5 µm)		< ± 0,001 % F.S. (Min ± 2,5 µm)	
Hysteresis	< 4 µm		< 4 µm	
Current drain	100 mA typique		100 mA typique	
Speed	2 m/s		2 m/s	
Protection	IP67		IP67	

CODE COMPOSITION

The entry fields for the example values are mandatory.

TP		MA	80	/	56	/		A		500		L					

Options (see from page 50)

Type: **TP**

Special version (1): **SX**

Plate for valve (see page 51)

BV3-A	CETOP 3
BV3-B	ISO 4401-03 NG6
BV5-A	CETOP 5
BV5-B	ISO 4401-05 NG10

Air bleed

-	No air bleed
SV	Front
SZ	Rear
SK	Front + Rear

Transducer

Magnetostrictive	**MV**
	MA
	MS
	MD

Rod end (see page 49)

-	Male thread
SF	Female thread

Bore	Rod
50	**32** / **36**
63	**40** / **45**
80	**50** / **56**
100	**63** / **70**
125	**80** / **90**
140	**90** / **100**
160	**100** / **110**
200	**125** / **140**

Seals (see page 43)

L	Low friction
H	Viton®
G	HFC-fluid

Stroke in mm

Spacer

-	For stroke from 0 to 1500
SJ 50	from 1500 to 2000
SJ 100	from 2000 to 3000
SJ 150	over 3000

Adjustable cushioning

-	Not cushioned
V	Front
Z	Rear
K	Front + Rear

For the second rod, please contact our technical department.

See mounting list from page 46	ISO 6022	Mounting
Front flange	MF3	**A**
Rear flange	MF4	**B**
Dismountable clevis with ball jointed eye	MP6	**D**
Dismountable clevis	MP4	**C**
Extended welded clevis with ball jointed eye	MP5	**S**
Extended welded clevis	MP3	**R**
Intermediate trunnions (2)	MT4	**H**
Feet (3)	MS2	**E**

(1) Indicate SX whenever the servocylinder has special requests or executions, by filling in the options section of the code, followed by our drawing number if applicable.
(see list of available options from page 50)

(2) For H mounting (MT4), enter 'XV' at the end of the code followed by the value of dimension XV
(see page 47)

(3) Not included in the ISO norm

Interactive online coding wizard available at www.confortinet.com