



- Analogue and digital
- For measuring and positioning
- For use with pneumatic components

# Displacement encoders

Key features

FESTO

## Analogue displacement encoders

### MLO-POT-...-TLF

- Conductive plastic potentiometer
- Absolute measurements with high resolution
- High speeds of travel and long service life
- Several mounting options on pneumatic linear drives DGPL
- Plug-in connections
- Stroke: 225 ... 2000 mm



### MLO-POT-...-LWG

- Connecting rod potentiometer
- Absolute measurements with high resolution
- Long service life
- High degree of protection
- Plug-in connections
- Stroke: 100 ... 750 mm



## Digital displacement encoders

### MME-MTS-...-AIF








- Magnetostrictive measuring principle
- Contactless with absolute measurements
- High speeds of travel
- Long service life
- High degree of protection
- Several mounting options on pneumatic linear drives DGPL
- Plug-in connections
- Stroke: 225 ... 2000 mm



# Displacement encoders

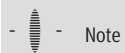
Selection aid

## Recommended combinations of displacement encoder, drive and controller

| Function | Version   | Linear drive<br>DGPL  | Standard cylinder<br>DNC  | End position controller<br>SPC11   | Axis controller<br>SPC200   | → Page/Internet |
|----------|---|---|---|--|---|-----------------|
|          |   |  |  |  |  |                 |
| Analogue | MLO-POT-TLF<br>  | ■ 1)  | –   | ■  | ■   | 4               |
|          | MLO-POT-LWG<br>  | –   | ■ 2)  | ■  | ■   | 6               |
| Digital  | MME-MTS-AIF<br> | ■ 1)  | –   | ■  | ■   | 8               |

1) Mounting kits → 11

2) No mounting kits available.



Note

The displacement encoders can be combined with any linear drive provided that the installation conditions

are adhered to and the customer uses the appropriate mounting.

## Type code

|                            |                               |   |     |   |     |   |     |
|----------------------------|-------------------------------|---|-----|---|-----|---|-----|
|                            | MLO                           | – | POT | – | 225 | – | TLF |
| <b>Type</b>                |                               |   |     |   |     |   |     |
| MLO                        | Analogue displacement encoder |   |     |   |     |   |     |
| MME                        | Digital displacement encoder  |   |     |   |     |   |     |
| <b>Measuring principle</b> |                               |   |     |   |     |   |     |
| POT                        | Potentiometric                |   |     |   |     |   |     |
| MTS                        | Magnetostrictive              |   |     |   |     |   |     |
| <b>Stroke [mm]</b>         |                               |   |     |   |     |   |     |
| <b>Version</b>             |                               |   |     |   |     |   |     |
| TLF                        | Profile                       |   |     |   |     |   |     |
| LWG                        | Connecting rod                |   |     |   |     |   |     |
| AIF                        | Integrated AIF interface      |   |     |   |     |   |     |

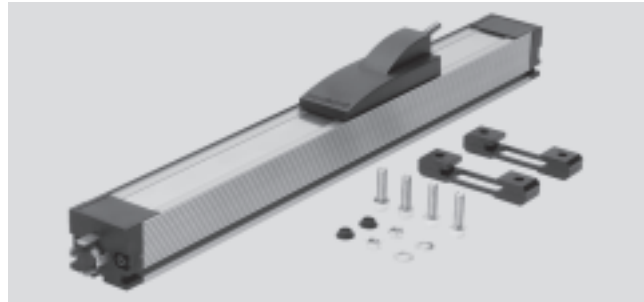
# Displacement encoders MLO-POT, analogue

FESTO

Technical data

## MLO-POT...-TLF

- Stroke length  
225 ... 2000 mm



| General technical data |  |                    |             |      |      |      |      |      |      |      |      |      |      |
|------------------------|--|--------------------|-------------|------|------|------|------|------|------|------|------|------|------|
| Stroke                 |  | 225                | 300         | 360  | 450  | 500  | 600  | 750  | 1000 | 1250 | 1500 | 1750 | 2000 |
| Constructional design  | Open profile with cover strip and sliding cartridge                  |                    |             |      |      |      |      |      |      |      |      |      |      |
| Measuring principle    | Analogue displacement encoder, with contact and absolute measurement |                    |             |      |      |      |      |      |      |      |      |      |      |
| Resolution             | [mm]   | 0.01               |             |      |      |      |      |      |      |      |      |      |      |
| Max. speed of travel   | [m/s]  | 10                 |             |      |      |      |      |      |      |      |      |      |      |
| Max. acceleration      | [m/s <sup>2</sup> ]  | 200                |             |      |      |      |      |      |      |      |      |      |      |
| Mounting position      | Any  |                    |             |      |      |      |      |      |      |      |      |      |      |
| Driver, ball coupling  | Angle offset   | [°]                | ±1          |      |      |      |      |      |      |      |      |      |      |
|                        | Parallel offset  | [mm]               | ±1.5        |      |      |      |      |      |      |      |      |      |      |
| Service life           | Strokes  | [10 <sup>6</sup> ] | Typical 100 |      |      |      |      |      |      |      |      |      |      |
| Connection             | 4-pin plug, type A DIN 43 650  |                    |             |      |      |      |      |      |      |      |      |      |      |
| Product weight         | [g]  | 900                | 1000        | 1100 | 1200 | 1300 | 1500 | 1800 | 2200 | 2500 | 3000 | 3500 | 3900 |

| General electrical data         |             |                  |                  |      |      |      |      |      |      |      |      |      |      |
|---------------------------------|-------------|------------------|------------------|------|------|------|------|------|------|------|------|------|------|
| Stroke                          |             | 225              | 300              | 360  | 450  | 500  | 600  | 750  | 1000 | 1250 | 1500 | 1750 | 2000 |
| Power supply                    | [V DC]      | 10 <sup>1)</sup> |                  |      |      |      |      |      |      |      |      |      |      |
| Max. current consumption        | [mA]        | 4                |                  |      |      |      |      |      |      |      |      |      |      |
| Wiper current                   | recommended | [µA]             | < 1              |      |      |      |      |      |      |      |      |      |      |
|                                 | maximum     | [mA]             | 10 <sup>2)</sup> |      |      |      |      |      |      |      |      |      |      |
| Connection resistance           | [kΩ]        | 5                | 5                | 5    | 5    | 5    | 5    | 10   | 10   | 10   | 20   | 20   | 20   |
| Connection resistance tolerance | [%]         | ±20              |                  |      |      |      |      |      |      |      |      |      |      |
| Independent linearity           | [%]         | 0.07             | 0.06             | 0.05 | 0.05 | 0.05 | 0.05 | 0.04 | 0.04 | 0.03 | 0.03 | 0.03 | 0.02 |
| Temperature coefficient         | [ppm/°K]    | 5                |                  |      |      |      |      |      |      |      |      |      |      |
| Interface                       | Analogue    |                  |                  |      |      |      |      |      |      |      |      |      |      |

- 1) Stabilised power supply is recommended, max. 42 VDC permissible.
- 2) Only permissible in the short-term in the event of a fault.

| Operating and environmental conditions         |  |                                 |     |     |     |     |     |     |      |      |      |      |      |
|--|--|---------------------------------|-----|-----|-----|-----|-----|-----|------|------|------|------|------|
| Stroke   |  | 225                             | 300 | 360 | 450 | 500 | 600 | 750 | 1000 | 1250 | 1500 | 1750 | 2000 |
| Ambient temperature                            | [°C]   | -30 ... +100 <sup>1)</sup>      |     |     |     |     |     |     |      |      |      |      |      |
| Protection class                               | top  | IP40 to IEC 60529               |     |     |     |     |     |     |      |      |      |      |      |
|  | bottom                                       | IP42 to IEC 60529 <sup>2)</sup> |     |     |     |     |     |     |      |      |      |      |      |
| Vibration resistance                           | To DIN/IEC 68 Parts 2 – 6, severity level 2  |                                 |     |     |     |     |     |     |      |      |      |      |      |
| Continuous shock resistance                    | To DIN/IEC 68 Parts 2 – 27, severity level 2 |                                 |     |     |     |     |     |     |      |      |      |      |      |
| CE marking symbol (see conformity declaration) | As per EU EMC directive                      |                                 |     |     |     |     |     |     |      |      |      |      |      |

- 1) Please note temperature ranges of individual components used in a complete system solution.
- 2) The encoder slide points downwards in the inverted mounting position.

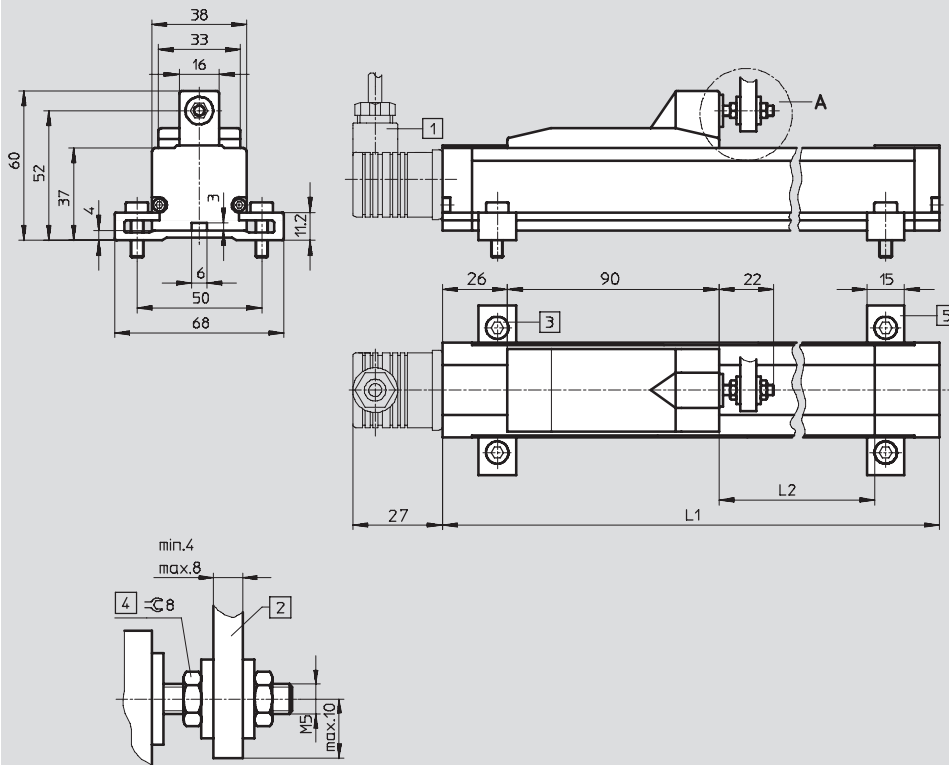
# Displacement encoders MLO-POT, analogue

Technical data and accessories

FESTO

## Dimensions

Download CAD data → [www.festo.com](http://www.festo.com)

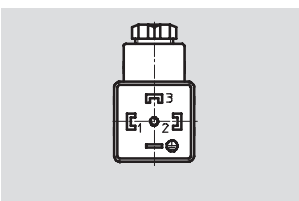


- 1 Plug socket, 4-pin to DIN 43 650  
Insert 90° rotatable  
(not included in scope of delivery)
- 2 Driver  
(not included in scope of delivery)
- 3 Mounting screw M5x18
- 4 Hex nut M5
- 5 Adjustable mounting clips are included

## Dimensions and ordering data

| Stroke [mm] | L1   | L2<br>(effective mechanical/electrical displacement) | Part No. | Type             |
|-------------|------|--|----------|------------------|
| 225         | 376  | 234/228  | 152 625  | MLO-POT-225-TLF  |
| 300         | 452  | 310/304  | 152 626  | MLO-POT-300-TLF  |
| 360         | 514  | 372/366  | 152 627  | MLO-POT-360-TLF  |
| 450         | 605  | 463/457  | 152 628  | MLO-POT-450-TLF  |
| 500         | 656  | 514/508  | 152 629  | MLO-POT-500-TLF  |
| 600         | 758  | 616/610  | 152 630  | MLO-POT-600-TLF  |
| 750         | 910  | 768/762  | 152 631  | MLO-POT-750-TLF  |
| 1000        | 1164 | 1022/1016  | 152 632  | MLO-POT-1000-TLF |
| 1250        | 1418 | 1276/1270  | 152 633  | MLO-POT-1250-TLF |
| 1500        | 1668 | 1526/1520  | 152 634  | MLO-POT-1500-TLF |
| 1750        | 1918 | 1776/1770  | 152 635  | MLO-POT-1750-TLF |
| 2000        | 2168 | 2026/2020  | 152 636  | MLO-POT-2000-TLF |

## Ordering data – Accessories



| PIN | Pin allocation      | Designation    | Part No. | Type      |
|-----|---------------------|----------------|----------|-----------|
| 1   | Power supply        | Connector plug | 171 157  | MSSD-C-4P |
| 2   | Signal              |                |          |           |
| 3   | 0 V                 |                |          |           |
| PE  | PE (yellow), screen |                |          |           |

- Note  
Materials → 10

# Displacement encoders MLO-POT, analogue

Technical data

## MLO-POT...-LWG

- Stroke length  
100 ... 750 mm



| General technical data |                            |  | 100 | 150 | 225 | 300 | 360 | 450 | 500 | 600 | 750 |
|------------------------|----------------------------|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Stroke                 |                            |  |     |     |     |     |     |     |     |     |     |
| Constructional design  |                            | Round profile with connecting rod                                    |     |     |     |     |     |     |     |     |     |
| Measuring principle    |                            | Analogue displacement encoder, with contact and absolute measurement |     |     |     |     |     |     |     |     |     |
| Resolution             | [mm]                       | 0.01   |     |     |     |     |     |     |     |     |     |
| Max. speed of travel   | [m/s]                      | 5  |     |     |     |     |     |     |     |     |     |
| Max. acceleration      | [m/s <sup>2</sup> ]        | 200  |     |     |     |     |     |     |     |     |     |
| Mounting position      |                            | Any  |     |     |     |     |     |     |     |     |     |
| Driver, ball coupling  | Angle offset [°]           | ±12.5  |     |     |     |     |     |     |     |     |     |
|                        | Parallel offset [mm]       | -  |     |     |     |     |     |     |     |     |     |
| Service life           | Strokes [10 <sup>6</sup> ] | Typical 50   |     |     |     |     |     |     |     |     |     |
| Connection             |                            | 4-pin square plug  |     |     |     |     |     |     |     |     |     |
| Product weight         | [g]                        |  |     |     |     |     |     |     |     |     |     |

| General electrical data         |                  |                  | 100  | 150  | 225  | 300  | 360  | 450  | 500  | 600  | 750  |
|---------------------------------|------------------|------------------|------|------|------|------|------|------|------|------|------|
| Stroke                          |                  |                  |      |      |      |      |      |      |      |      |      |
| Power supply                    | [V DC]           | 10 <sup>1)</sup> |      |      |      |      |      |      |      |      |      |
| Max. current consumption        | [mA]             | 4                |      |      |      |      |      |      |      |      |      |
| Wiper current                   | recommended [µA] | < 1              |      |      |      |      |      |      |      |      |      |
|                                 | maximum [mA]     | 10 <sup>2)</sup> |      |      |      |      |      |      |      |      |      |
| Connection resistance           | [kΩ]             | 3                | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 5    | 10   |
| Connection resistance tolerance | [%]              | ±20              |      |      |      |      |      |      |      |      |      |
| Independent linearity           | [%]              | 0.1              | 0.08 | 0.07 | 0.06 | 0.05 | 0.05 | 0.05 | 0.05 | 0.05 | 0.04 |
| Temperature coefficient         | [ppm/°K]         | 5                |      |      |      |      |      |      |      |      |      |
| Interface                       |                  | Analogue         |      |      |      |      |      |      |      |      |      |

- 1) Stabilised power supply is recommended, max. 42 VDC permissible.
- 2) Only permissible in the short-term in the event of a fault.

| Operating and environmental conditions         |      |  | 100 | 150 | 225 | 300 | 360 | 450 | 500 | 600 | 750 |
|--|------|--|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Stroke   |      |  |     |     |     |     |     |     |     |     |     |
| Ambient temperature                            | [°C] | -30 ... +100 <sup>1)</sup>                   |     |     |     |     |     |     |     |     |     |
| Protection class                               |      | IP65   |     |     |     |     |     |     |     |     |     |
| Vibration resistance                           |      | To DIN/IEC 68 Parts 2 – 6, severity level 2  |     |     |     |     |     |     |     |     |     |
| Continuous shock resistance                    |      | To DIN/IEC 68 Parts 2 – 27, severity level 2 |     |     |     |     |     |     |     |     |     |
| CE marking symbol (see conformity declaration) |      | As per EU EMC directive                      |     |     |     |     |     |     |     |     |     |

- 1) Please note temperature ranges of individual components used in a complete system solution.

# Displacement encoders MLO-POT, analogue

Technical data and accessories

**Note**

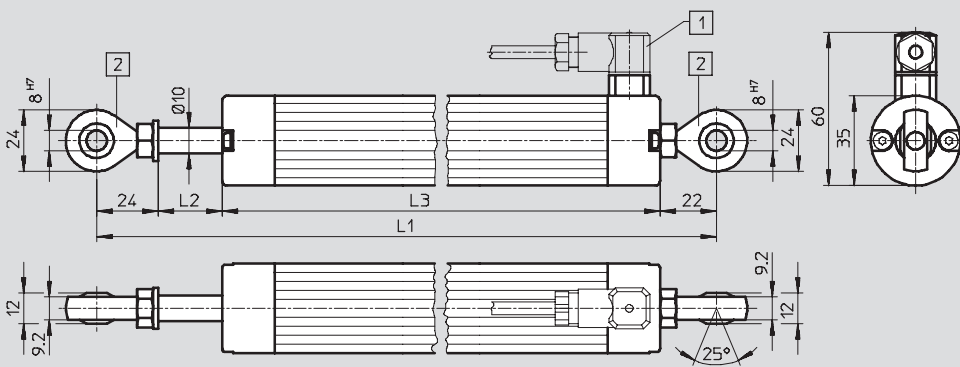
Displacement encoder MLO-POT...-LWG:  
The displacement encoder must be installed insulated from the machine. This isolation is guaranteed if the mechanical coupling is effected via the rod eye, with additional electrically isolated supports if necessary.

The mechanical vibrations of the piston rod must not be transmitted to the displacement encoder. The displacement encoder is earthed to a screw on the end cap using a cable lug or earthing strap that must be connected to the earthing screw of the SPC11...-LWG housing.

The earthing cable should not be longer than the encoder cable of the SPC11...-LWG.

The connection must be designed to be low-resistance. The conductor cross-section must be at least 1.5 mm<sup>2</sup>. An earthing strap (braided) should be used instead of a round cable as earthing straps are considerably more effective at dissipating interference.

**Dimensions**



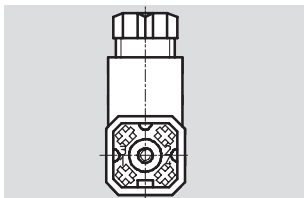
Download CAD data → [www.festo.com](http://www.festo.com)

- 1 Plug socket, 4-pin  
Type: SD-4-WD-7  
Insert 90° rotatable  
(not included in scope of delivery)
- 2 Rod eye, backlash-free

**Dimensions and ordering data**

| Stroke [mm] | L1   | L2 (effective mechanical/electrical displacement) | L3  | Part No. | Type            |
|-------------|------|---|-----|----------|-----------------|
| 100         | 273  | 105/102   | 227 | 192 213  | MLO-POT-100-LWG |
| 150         | 323  | 155/152   | 277 | 192 214  | MLO-POT-150-LWG |
| 225         | 400  | 231/228   | 354 | 152 645  | MLO-POT-225-LWG |
| 300         | 476  | 307/304   | 430 | 152 646  | MLO-POT-300-LWG |
| 360         | 551  | 368/366   | 505 | 152 647  | MLO-POT-360-LWG |
| 450         | 665  | 460/457   | 619 | 152 648  | MLO-POT-450-LWG |
| 500         | 730  | 510/508   | 684 | 152 649  | MLO-POT-500-LWG |
| 600         | 856  | 612/610   | 810 | 152 650  | MLO-POT-600-LWG |
| 750         | 1040 | 764/762   | 994 | 152 651  | MLO-POT-750-LWG |

**Ordering data – Accessories**



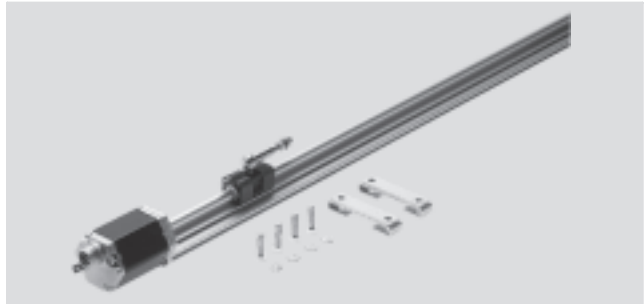
| PIN | Pin allocation      | Designation | Part No. | Type      |
|-----|---------------------|-------------|----------|-----------|
| 1   | Power supply        | Plug socket | 194 332  | SD-4-WD-7 |
| 2   | Signal              |             |          |           |
| 3   | 0 V                 |             |          |           |
| 4   | PE (yellow), screen |             |          |           |

# Displacement encoders MME-MTS, digital

Technical data

## MME-MTS-...-AIF

- Stroke length  
225 ... 2000 mm



| General technical data |  |                      |                   |     |     |     |      |      |      |      |      |      |      |
|------------------------|--|----------------------|-------------------|-----|-----|-----|------|------|------|------|------|------|------|
| Stroke                 |  | 225                  | 300               | 360 | 450 | 500 | 600  | 750  | 1000 | 1250 | 1500 | 1750 | 2000 |
| Constructional design  | Closed profile with outer slide                                    |                      |                   |     |     |     |      |      |      |      |      |      |      |
| Measuring principle    | Digital, magnetostrictive, non-contacting and absolute measurement |                      |                   |     |     |     |      |      |      |      |      |      |      |
| Resolution             | [mm]   | < 0.01               |                   |     |     |     |      |      |      |      |      |      |      |
| Max. speed of travel   | [m/s]  | 10                   |                   |     |     |     |      |      |      |      |      |      |      |
| Max. acceleration      | [m/s <sup>2</sup> ]  | 200                  |                   |     |     |     |      |      |      |      |      |      |      |
| Mounting position      | Any  |                      |                   |     |     |     |      |      |      |      |      |      |      |
| Driver,                | Angle offset   | [°]                  | ±1                |     |     |     |      |      |      |      |      |      |      |
| ball coupling          | Parallel offset  | [mm]                 | ±1.5              |     |     |     |      |      |      |      |      |      |      |
| Service life           | MTBF   | [10 <sup>6</sup> /h] | > 4 <sup>1)</sup> |     |     |     |      |      |      |      |      |      |      |
| Connection             | 6-pin round plug to DIN 45 322                                     |                      |                   |     |     |     |      |      |      |      |      |      |      |
| Product weight         | [g]  | 620                  | 710               | 780 | 890 | 950 | 1070 | 1250 | 1550 | 1850 | 2150 | 2450 | 2750 |

1) For the waveguide

| General electrical data  |                                     |                    |
|--------------------------|-------------------------------------|--------------------|
| Power supply             | [V DC]                              | 24 (-15/+20%)      |
| Max. current consumption | [mA]                                | 90                 |
| Independent linearity    | [%]                                 | 0.02 <sup>1)</sup> |
| Temperature coefficient  | [ppm/°K]                            | 15                 |
| Interface                | Digital, CAN with protocol: SPC-AIF |                    |

1) Min. ±50 µm

| Operating and environmental conditions         |  |                           |
|--|--|---------------------------|
| Ambient temperature                            | [°C]   | -40 ... +75 <sup>1)</sup> |
| Protection class                               | IP65   |                           |
| Vibration resistance                           | To DIN/IEC 68 Parts 2 – 6, severity level 1  |                           |
| Continuous shock resistance                    | To DIN/IEC 68 Parts 2 – 27, severity level 1 |                           |
| CE marking symbol (see conformity declaration) | As per EU EMC directive                      |                           |

1) Please note temperature ranges of individual components used in a complete system solution



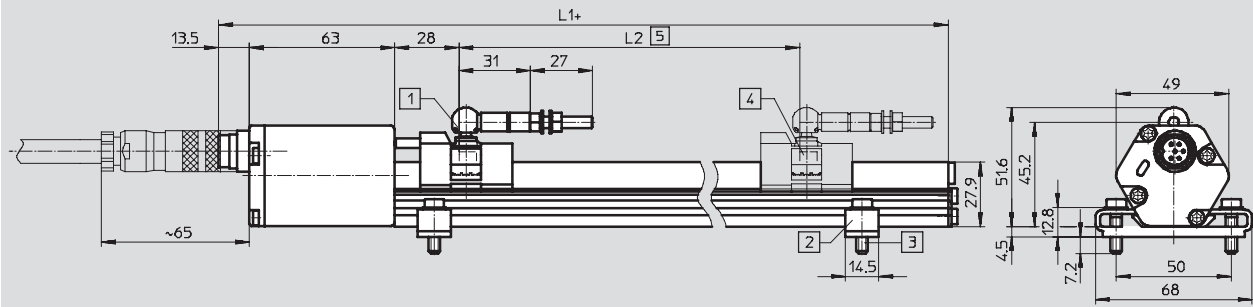
# Displacement encoders MME-MTS, digital

Technical data

FESTO

## Dimensions

Download CAD data → [www.festo.com](http://www.festo.com)



- 1 Slide positions
- 2 Adjustable mounting clips are included
- 3 Socket head screw M5x20
- 4 Magnet
- 5 Effective displacement
- 6 Plug is a component of the axis interface SPC-AIF-MTS and Soft Stop SPC11-MTS-AIF

## Dimensions and ordering data

| Stroke [mm] | L1   | L2 (effective path) | Part No. | Type                 |
|-------------|------|---------------------|----------|----------------------|
| 225         | 395  | 225                 | 178 310  | MME-MTS-225-TLF-AIF  |
| 300         | 470  | 300                 | 178 309  | MME-MTS-300-TLF-AIF  |
| 360         | 530  | 360                 | 178 308  | MME-MTS-360-TLF-AIF  |
| 450         | 620  | 450                 | 178 307  | MME-MTS-450-TLF-AIF  |
| 500         | 670  | 500                 | 178 306  | MME-MTS-500-TLF-AIF  |
| 600         | 770  | 600                 | 178 305  | MME-MTS-600-TLF-AIF  |
| 750         | 920  | 750                 | 178 304  | MME-MTS-750-TLF-AIF  |
| 1000        | 1170 | 1000                | 178 303  | MME-MTS-1000-TLF-AIF |
| 1250        | 1420 | 1250                | 178 302  | MME-MTS-1250-TLF-AIF |
| 1500        | 1670 | 1500                | 178 301  | MME-MTS-1500-TLF-AIF |
| 1750        | 1920 | 1750                | 178 300  | MME-MTS-1750-TLF-AIF |
| 2000        | 2170 | 2000                | 178 299  | MME-MTS-2000-TLF-AIF |

## Pin allocation

| PIN |          |
|-----|----------|
| 1   | CAN LOW  |
| 2   | CAN HIGH |
| 3   | Unused   |
| 4   | Unused   |
| 5   | +24 V    |
| 6   | 0 V      |
| PE  | Screen   |

-  - Note  
Materials → 10

# Displacement encoders

Technical data

FESTO

## Materials

| MLO-POT-...-TLF  |            |                           |
|------------------|------------|---------------------------|
| Housing          |            | Anodised aluminium        |
| Cover            |            | Plastic                   |
| Moving slide     | Housing    | Aluminium, plastic        |
|                  | Connection | Steel ball, carbide plate |
| Cover            |            | Steel band                |
| Resistor element |            | Conductive plastic        |
| Wiper            | Contact    | Stainless steel           |
|                  | Silencer   | Elastomer                 |
| Mounting clip    |            | Polyetherimide            |

| MLO-POT-...-LWG  |          |                           |
|------------------|----------|---------------------------|
| Housing          |          | Anodised aluminium        |
| Bearing cap      |          | Reinforced polyester      |
| Bearing seal     |          | Nitrile rubber            |
| Connecting rod   |          | Corrosion resistant steel |
| Rod seal         |          | Polytetrafluoroethylene   |
| Lubricant        |          | ISOFLEX Topas MB52        |
| Resistor element |          | Conductive plastic        |
| Wiper            | Contact  | Stainless steel           |
|                  | Silencer | Elastomer                 |

| MME-MTS-...-AIF     |            |  |
|---------------------|------------|--|
| Housing             |            | Wrought aluminium alloy, anodised      |
| Cover               |            | Die-cast aluminium, painted            |
| Sensor head housing |            | Die-cast aluminium                     |
| Housing seal        |            | Nitrile rubber                         |
| Moving slide        | Housing    | Reinforced polyester, permanent magnet |
|                     | Connection | Steel ball, hard metal plate           |
| Mounting clip       |            | Polyetherimide                         |

# Displacement encoders

Accessories

FESTO

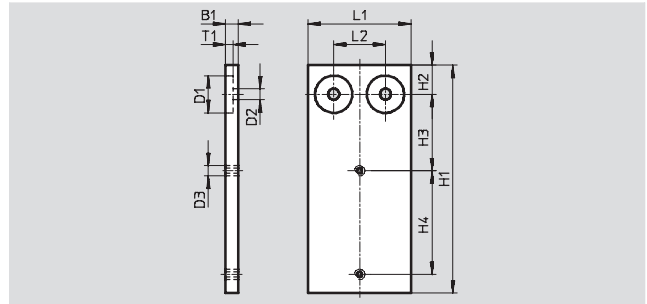
## Mounting kit

BB-TLF-DGPL-...-B

Material:

∅ 25: Steel

∅ 32 ... 63: Wrought aluminium alloy



| Dimensions and ordering data |      |    |         |         |    |       |      |      |    |    |    |    |     |          |                    |
|------------------------------|------|----|---------|---------|----|-------|------|------|----|----|----|----|-----|----------|--------------------|
| for<br>∅                     | Type | B1 | D1<br>∅ | D2<br>∅ | D3 | H1    | H2   | H3   | H4 | H5 | L1 | L2 | T1  | Part No. | Type               |
| 25                           | 1    | 6  | 18      | 5.3     | M5 | 129   | 14   | 56   | 50 | -  | 50 | 25 | 3.5 | 178 441  | BB-TLF-DGPL-25-1-B |
|                              | 2    | 6  | 18      | 5.3     | M5 | 110   | 14   | 37   | 50 | -  | 50 | 25 | 3.5 | 178 442  | BB-TLF-DGPL-25-2-B |
|                              | 3    | 6  | 18      | 5.3     | M5 | 129   | 14   | 56   | 50 | -  | 50 | 25 | 3.5 | 188 515  | BB-TLF-DGPL-25-3-B |
|                              | 4    | 6  | 18      | 5.3     | M5 | 110   | 14   | 37   | 50 | -  | 50 | 25 | 3.5 | 188 516  | BB-TLF-DGPL-25-4-B |
| 32                           | 1    | 8  | 10      | 5.5     | M5 | 130   | 30   | 41   | 50 | 22 | 40 | -  | 3.5 | 178 443  | BB-TLF-DGPL-32-1-B |
|                              | 2    | 8  | 10      | 5.5     | M5 | 116   | 30   | 27   | 50 | 22 | 40 | -  | 3.5 | 178 444  | BB-TLF-DGPL-32-2-B |
| 40                           | 1    | 8  | -       | 5.5     | M5 | 142   | 34   | 49   | 50 | 24 | 40 | -  | -   | 178 445  | BB-TLF-DGPL-40-1-B |
|                              | 2    | 8  | -       | 5.5     | M5 | 126   | 34   | 33   | 50 | 24 | 40 | -  | -   | 178 446  | BB-TLF-DGPL-40-2-B |
| 50                           | 1    | 10 | -       | 6.6     | M5 | 173   | 54.7 | 60.8 | 50 | 40 | 40 | -  | -   | 188 829  | BB-TLF-DGPL-50-1-B |
|                              | 2    | 10 | -       | 6.6     | M5 | 150.5 | 54   | 39   | 50 | 40 | 40 | -  | -   | 188 830  | BB-TLF-DGPL-50-2-B |
| 63                           | 1    | 10 | -       | 6.6     | M5 | 178   | 60   | 59   | 50 | 50 | 40 | -  | -   | 188 831  | BB-TLF-DGPL-63-1-B |
|                              | 2    | 10 | -       | 6.6     | M5 | 161   | 60   | 42   | 50 | 50 | 40 | -  | -   | 188 832  | BB-TLF-DGPL-63-2-B |

## Additional mounting plate

BB-TLF-DGPL-...-ZU

Material:

∅ 25: Steel

∅ 32 ... 63: Wrought aluminium alloy



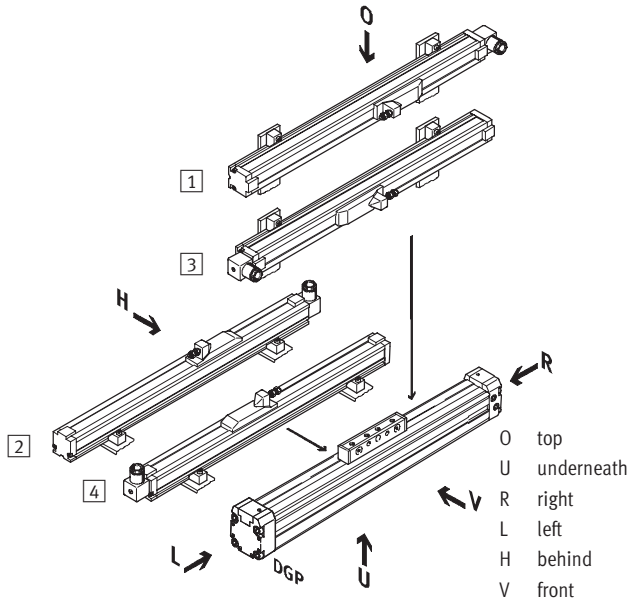
| Dimensions and ordering data |      |    |         |         |    |       |      |      |    |    |    |    |     |          |                     |
|------------------------------|------|----|---------|---------|----|-------|------|------|----|----|----|----|-----|----------|---------------------|
| for<br>∅                     | Type | B1 | D1<br>∅ | D2<br>∅ | D3 | H1    | H2   | H3   | H4 | H5 | L1 | L2 | T1  | Part No. | Type                |
| 25                           | 1    | 6  | 18      | 5.3     | M5 | 129   | 14   | 56   | 50 | -  | 50 | 25 | 3.5 | 161 048  | BB-TLF-DGPL-25-1-ZU |
|                              | 2    | 6  | 18      | 5.3     | M5 | 110   | 14   | 37   | 50 | -  | 50 | 25 | 3.5 | 161 049  | BB-TLF-DGPL-25-2-ZU |
| 32                           | 1    | 8  | 10      | 5.5     | M5 | 130   | 30   | 41   | 50 | 22 | 40 | -  | 3.5 | 161 050  | BB-TLF-DGPL-32-1-ZU |
|                              | 2    | 8  | 10      | 5.5     | M5 | 116   | 30   | 27   | 50 | 22 | 40 | -  | 3.5 | 161 051  | BB-TLF-DGPL-32-2-ZU |
| 40                           | 1    | 8  | -       | 5.5     | M5 | 142   | 34   | 49   | 50 | 24 | 40 | -  | -   | 161 052  | BB-TLF-DGPL-40-1-ZU |
|                              | 2    | 8  | -       | 5.5     | M5 | 126   | 34   | 33   | 50 | 24 | 40 | -  | -   | 161 053  | BB-TLF-DGPL-40-2-ZU |
| 50                           | 1    | 10 | -       | 6.6     | M5 | 173   | 54.7 | 60.8 | 50 | 40 | 40 | -  | -   | 188 849  | BB-TLF-DGPL-50-1-ZU |
|                              | 2    | 10 | -       | 6.6     | M5 | 150.5 | 54   | 39   | 50 | 40 | 40 | -  | -   | 188 850  | BB-TLF-DGPL-50-2-ZU |
| 63                           | 1    | 10 | -       | 6.6     | M5 | 178   | 60   | 59   | 50 | 50 | 40 | -  | -   | 188 851  | BB-TLF-DGPL-63-1-ZU |
|                              | 2    | 10 | -       | 6.6     | M5 | 161   | 60   | 42   | 50 | 50 | 40 | -  | -   | 188 852  | BB-TLF-DGPL-63-2-ZU |

# Displacement encoders

Accessories

## Additional mounting plates for attaching displacement encoder MLO-POT-...-TLF/MME-MTS-...-AIF to linear drive DGP

Mounting variants




Variant **1** Attachment from above / Variant **2** Attachment from behind

Supply ports on right  
Electrical connection on right

Variant **3** Attachment from above / Variant **4** Attachment from behind

Supply ports on right  
Electrical connection on left

| For DGP<br>∅ | Variant | Additional mounting plates<br>Type | Number of additional plates as a function of displacement encoder length |              |               |               |
|--------------|---------|------------------------------------|--|--------------|---------------|---------------|
|              |         |                                    | 10 ... 500   | 600 ... 1000 | 1250 ... 1500 | 1750 ... 2000 |
| 25           | 1/3     | BB-TLF-DGPL-25-1-ZU                | 2  | 3            | 4             | 5             |
|              | 2/4     | BB-TLF-DGPL-25-2-ZU                |  |              |               |               |
| 32           | 1/3     | BB-TLF-DGPL-32-1-ZU                | 2  | 3            | 4             | 5             |
|              | 2/4     | BB-TLF-DGPL-32-2-ZU                |  |              |               |               |
| 40           | 1/3     | BB-TLF-DGPL-40-1-ZU                | 2  | 3            | 4             | 5             |
|              | 2/4     | BB-TLF-DGPL-40-2-ZU                |  |              |               |               |
| 50           | 1/3     | BB-TLF-DGPL-50-1-ZU                | 2  | 3            | 4             | 5             |
|              | 2/4     | BB-TLF-DGPL-50-2-ZU                |  |              |               |               |
| 63           | 1/3     | BB-TLF-DGPL-63-1-ZU                | 2  | 3            | 4             | 5             |
|              | 2/4     | BB-TLF-DGPL-63-2-ZU                |  |              |               |               |

-  - Note  
There is no connecting bracket for the combination with the linear drive DGP.

# Displacement encoders

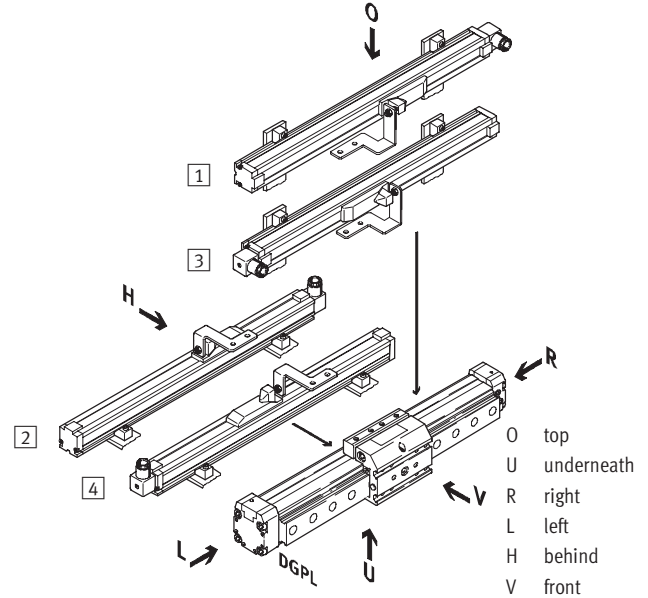
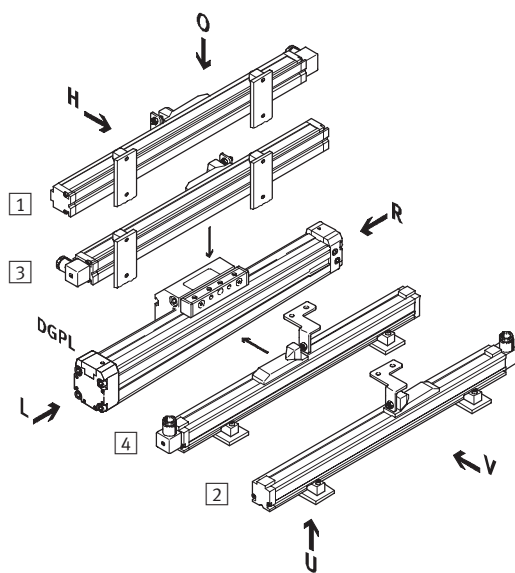
Accessories

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## Mounting kits for attaching displacement encoder MLO-POT-...-TLF/MME-MTS-...-AIF to linear drive DGPL

Attachment to drive variant with slide at rear (SH)<sup>1)</sup>

Attachment to drive variant with slide at front (SV)<sup>1)</sup>



Variant **1** Attachment from above / Variant **2** Attachment from behind

Supply ports on right  
Electrical connection on right

Variant **1** Attachment from above / Variant **2** Attachment from behind

Supply ports on right  
Electrical connection on right

Variant **3** Attachment from above / Variant **4** Attachment from behind

Supply ports on right  
Electrical connection on left

Variant **3** Attachment from above / Variant **4** Attachment from behind

Supply ports on right  
Electrical connection on left

| For DGPL<br>Ø | Variant    | Mounting kits<br>Type | Additional mounting plates<br>Type | Number of additional plates as a function of displacement encoder length |              |               |               |
|---------------|------------|-----------------------|------------------------------------|--|--------------|---------------|---------------|
|               |            |                       |                                    | 10 ... 500   | 600 ... 1000 | 1250 ... 1500 | 1750 ... 2000 |
| 25            | <b>1</b>   | BB-TLF-DGPL-25-1-B    | BB-TLF-DGPL-25-1-ZU                | -  | 1            | 2             | 3             |
|               | <b>2</b>   | BB-TLF-DGPL-25-2-B    | BB-TLF-DGPL-25-2-ZU                |  |              |               |               |
|               | <b>3</b>   | BB-TLF-DGPL-25-3-B    | BB-TLF-DGPL-25-1-ZU                |  |              |               |               |
|               | <b>4</b>   | BB-TLF-DGPL-25-4-B    | BB-TLF-DGPL-25-2-ZU                |  |              |               |               |
| 32            | <b>1/3</b> | BB-TLF-DGPL-32-1-B    | BB-TLF-DGPL-32-1-ZU                | -  | 1            | 2             | 3             |
|               | <b>2/4</b> | BB-TLF-DGPL-32-2-B    | BB-TLF-DGPL-32-2-ZU                |  |              |               |               |
| 40            | <b>1/3</b> | BB-TLF-DGPL-40-1-B    | BB-TLF-DGPL-40-1-ZU                | -  | 1            | 2             | 3             |
|               | <b>2/4</b> | BB-TLF-DGPL-40-2-B    | BB-TLF-DGPL-40-2-ZU                |  |              |               |               |
| 50            | <b>1/3</b> | BB-TLF-DGPL-50-1-B    | BB-TLF-DGPL-50-1-ZU                | -  | 1            | 2             | 3             |
|               | <b>2/4</b> | BB-TLF-DGPL-50-2-B    | BB-TLF-DGPL-50-2-ZU                |  |              |               |               |
| 63            | <b>1/3</b> | BB-TLF-DGPL-63-1-B    | BB-TLF-DGPL-63-1-ZU                | -  | 1            | 2             | 3             |
|               | <b>2/4</b> | BB-TLF-DGPL-63-2-B    | BB-TLF-DGPL-63-2-ZU                |  |              |               |               |

- Note

1) Corresponds to ordering data for modular product DGPL  
→ Internet: dgpl

# Displacement encoders

Accessories

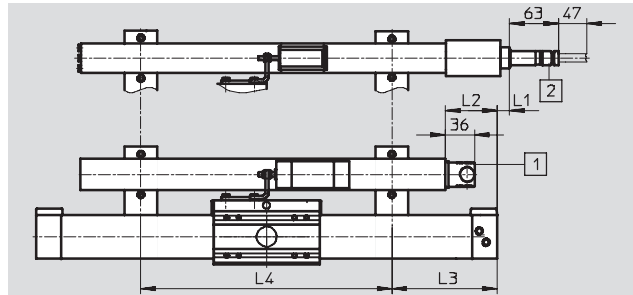
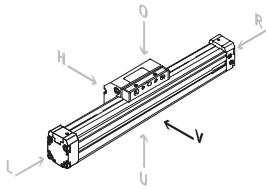
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## Dimensions

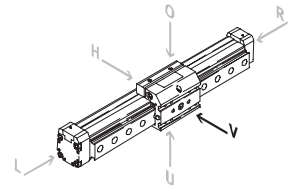
Slide at rear (SH)

Slide at front (SV)

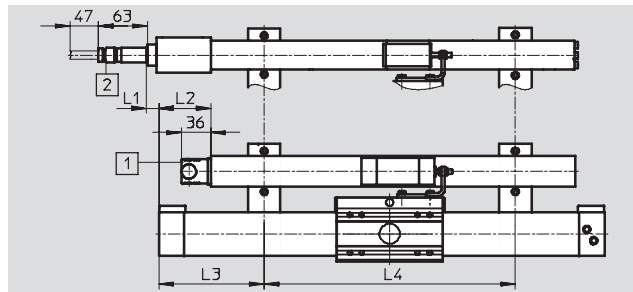
Variant 3<sup>1)</sup>



Variant 1

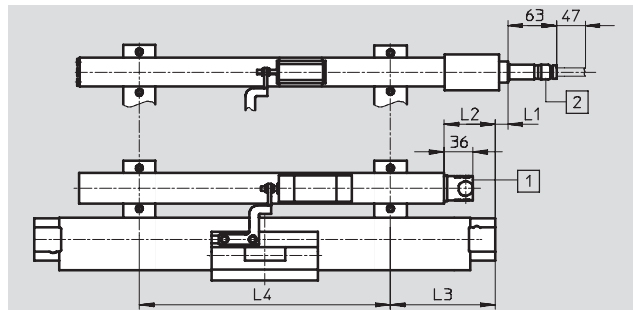
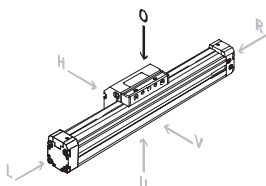


Variant 1<sup>1)</sup>

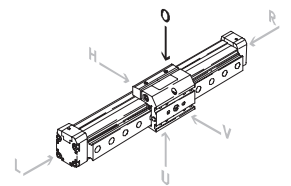


Variant 3

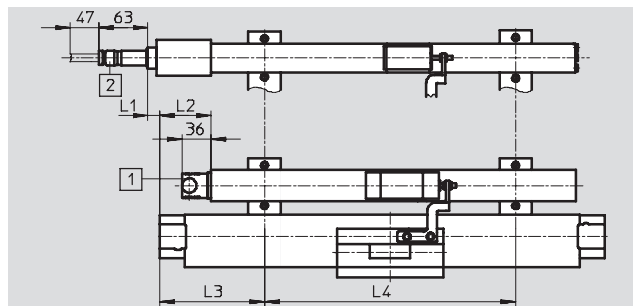
Variant 4<sup>1)</sup>



Variant 2



Variant 2<sup>1)</sup>



Variant 4

1) The dimensions shown correspond to the slide at front variants. All dimensions can be transferred to the guided slide at rear variants.

The correct mounting position for the displacement encoder can be found in the overview and order data for slide at rear variants.

- 1) Angled plug socket, 4-pin to DIN 43 650 for type MLO-...-TLF
- 2) Round plug, straight, 6 pin to DIN 45 322 for type MME-...-AIF

# Displacement encoders

Accessories

FESTO

| Analogue displacement encoders MLO-POT...-TLF |      |      |      |      |      |     |    |     |     |     |     |            |                 |
|---|------|------|------|------|------|-----|----|-----|-----|-----|-----|------------|-----------------|
| DGPL piston Ø [mm]                            |      | L2   |      |      |      |     | L3 |     |     |     |     | L4 approx. | n <sup>1)</sup> |
|   |      | 25   | 32   | 40   | 50   | 63  | 25 | 32  | 40  | 50  | 63  |            |                 |
| Displacement encoder                          | 225  | 18.5 | 18   | 21.5 | 92.5 | 132 | 93 | 135 | 175 | 168 | 207 | 255        | –               |
| Stroke [mm]                                   | 300  | 17.5 | 17   | 20.5 | 92   | 131 | 92 | 133 | 173 | 167 | 206 | 300        | –               |
| for   | 360  | 16.5 | 16   | 19.5 | 91   | 130 | 91 | 132 | 172 | 166 | 205 | 365        | –               |
| slide at rear (SH):                           | 450  | 15.5 | 15   | 19.5 | 91   | 129 | 90 | 132 | 172 | 166 | 205 | 455        | –               |
| Variant 1/2                                   | 500  | 14.5 | 14   | 18.5 | 90   | 128 | 89 | 131 | 171 | 165 | 204 | 505        | –               |
| slide at front (SV):                          | 600  | 13.5 | 13   | 17.5 | 89   | 127 | 88 | 130 | 170 | 164 | 203 | 305        | 1               |
| Variant 3/4                                   | 750  | 11.5 | 11   | 16.5 | 88   | 125 | 86 | 129 | 169 | 163 | 202 | 380        | 1               |
|   | 1000 | 9.5  | 9    | 14.5 | 86   | 123 | 84 | 127 | 167 | 161 | 200 | 507        | 1               |
|   | 1250 | 9.5  | 7    | 12.5 | 84   | 123 | 84 | 125 | 165 | 159 | 198 | 423        | 2               |
|   | 1500 | 9.5  | 7    | 12.5 | 84   | 123 | 84 | 125 | 165 | 159 | 198 | 505        | 2               |
|   | 1750 | 9.5  | 7    | 12.5 | 84   | 123 | 84 | 125 | 165 | 159 | 198 | 442        | 3               |
|   | 2000 | 9.5  | 7    | 12.5 | 84   | 123 | 84 | 125 | 165 | 159 | 198 | 505        | 3               |
| Displacement encoder                          | 225  | 18.5 | 59.5 | 99.5 | 92.5 | 132 | 93 | 62  | 96  | 168 | 207 | 225        | –               |
| Stroke [mm]                                   | 300  | 17.5 | 58.5 | 98.5 | 92   | 131 | 92 | 61  | 95  | 167 | 206 | 300        | –               |
| for   | 360  | 16.5 | 57.5 | 97.5 | 91   | 130 | 91 | 60  | 94  | 166 | 205 | 365        | –               |
| slide at rear (SH):                           | 450  | 15.5 | 57.5 | 97.5 | 91   | 129 | 90 | 60  | 94  | 166 | 205 | 455        | –               |
| Variant 3/4                                   | 500  | 14.5 | 56.5 | 96.5 | 90   | 128 | 89 | 59  | 93  | 165 | 204 | 505        | –               |
| slide at front (SV):                          | 600  | 13.5 | 55.5 | 95.5 | 89   | 127 | 88 | 58  | 92  | 164 | 203 | 305        | 1               |
| Variant 1/2                                   | 750  | 11.5 | 54.5 | 94.5 | 88   | 125 | 86 | 57  | 91  | 163 | 202 | 380        | 1               |
|   | 1000 | 9.5  | 52.5 | 92.5 | 86   | 123 | 84 | 55  | 89  | 161 | 200 | 507        | 1               |
|   | 1250 | 9.5  | 50.5 | 90.5 | 84   | 123 | 84 | 53  | 87  | 159 | 198 | 423        | 2               |
|   | 1500 | 9.5  | 50.5 | 90.5 | 84   | 123 | 84 | 53  | 87  | 159 | 198 | 505        | 2               |
|   | 1750 | 9.5  | 50.5 | 90.5 | 84   | 123 | 84 | 53  | 87  | 159 | 198 | 442        | 3               |
|   | 2000 | 9.5  | 50.5 | 90.5 | 84   | 123 | 84 | 53  | 87  | 159 | 198 | 505        | 3               |

| Digital displacement encoders MME-MTS...-AIF |      |    |    |    |    |       |     |     |     |     |     |            |                 |
|--|------|----|----|----|----|-------|-----|-----|-----|-----|-----|------------|-----------------|
| DGPL piston Ø [mm]                           |      | L1 |    | L2 |    |       | L3  |     |     |     |     | L4 approx. | n <sup>1)</sup> |
|  |      | 25 | 32 | 40 | 50 | 63    | 25  | 32  | 40  | 50  | 63  |            |                 |
| Displacement encoder                         | 225  | 4  | 31 | 0  | 70 | 110.5 | 113 | 155 | 195 | 190 | 230 | 208        | –               |
| Stroke [mm]                                  | 300  | 4  | 31 | 0  | 70 | 110.5 | 113 | 155 | 195 | 190 | 230 | 280        | –               |
| for  | 360  | 4  | 31 | 0  | 70 | 110.5 | 113 | 155 | 195 | 190 | 230 | 340        | –               |
| slide at rear (SH):                          | 450  | 4  | 31 | 0  | 70 | 110.5 | 113 | 155 | 195 | 190 | 230 | 430        | –               |
| Variant 1/2                                  | 500  | 4  | 31 | 0  | 70 | 110.5 | 113 | 155 | 195 | 190 | 230 | 480        | –               |
| slide at front (SV):                         | 600  | 4  | 31 | 0  | 70 | 110.5 | 113 | 155 | 195 | 190 | 230 | 290        | 1               |
| Variant 3/4                                  | 750  | 4  | 31 | 0  | 70 | 110.5 | 113 | 155 | 195 | 190 | 230 | 365        | 1               |
|  | 1000 | 4  | 31 | 0  | 70 | 110.5 | 113 | 155 | 195 | 190 | 230 | 490        | 1               |
|  | 1250 | 4  | 31 | 0  | 70 | 110.5 | 113 | 155 | 195 | 190 | 230 | 410        | 2               |
|  | 1500 | 4  | 31 | 0  | 70 | 110.5 | 113 | 155 | 195 | 190 | 230 | 495        | 2               |
|  | 1750 | 4  | 31 | 0  | 70 | 110.5 | 113 | 155 | 195 | 190 | 230 | 433        | 3               |
|  | 2000 | 4  | 31 | 0  | 70 | 110.5 | 113 | 155 | 195 | 190 | 230 | 495        | 3               |
| Displacement encoder                         | 225  | 4  | 37 | 77 | 70 | 110.5 | 113 | 87  | 120 | 190 | 230 | 208        | –               |
| Stroke [mm]                                  | 300  | 4  | 37 | 77 | 70 | 110.5 | 113 | 87  | 120 | 190 | 230 | 280        | –               |
| for  | 360  | 4  | 37 | 77 | 70 | 110.5 | 113 | 87  | 120 | 190 | 230 | 340        | –               |
| slide at rear (SH):                          | 450  | 4  | 37 | 77 | 70 | 110.5 | 113 | 87  | 120 | 190 | 230 | 430        | –               |
| Variant 3/4                                  | 500  | 4  | 37 | 77 | 70 | 110.5 | 113 | 87  | 120 | 190 | 230 | 480        | –               |
| slide at front (SV):                         | 600  | 4  | 37 | 77 | 70 | 110.5 | 113 | 87  | 120 | 190 | 230 | 290        | 1               |
| Variant 1/2                                  | 750  | 4  | 37 | 77 | 70 | 110.5 | 113 | 87  | 120 | 190 | 230 | 365        | 1               |
|  | 1000 | 4  | 37 | 77 | 70 | 110.5 | 113 | 87  | 120 | 190 | 230 | 490        | 1               |
|  | 1250 | 4  | 37 | 77 | 70 | 110.5 | 113 | 87  | 120 | 190 | 230 | 410        | 2               |
|  | 1500 | 4  | 37 | 77 | 70 | 110.5 | 113 | 87  | 120 | 190 | 230 | 495        | 2               |
|  | 1750 | 4  | 37 | 77 | 70 | 110.5 | 113 | 87  | 120 | 190 | 230 | 433        | 3               |
|  | 2000 | 4  | 37 | 77 | 70 | 110.5 | 113 | 87  | 120 | 190 | 230 | 495        | 3               |

1) Number of additional mounting plates

# Displacement encoders

Accessories

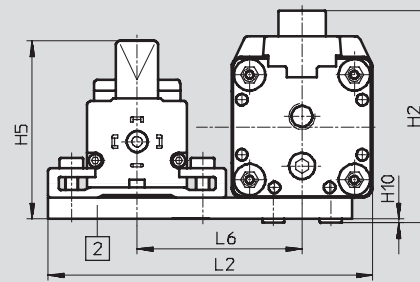
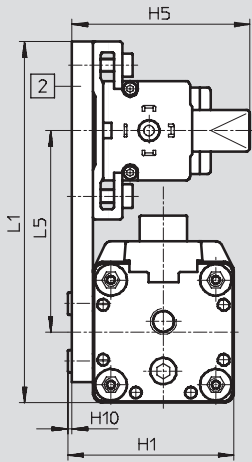
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## Analogue displacement encoder MLO-POT-...-TLF

With linear drive DGP

Variant 1/3

Variant 2/4

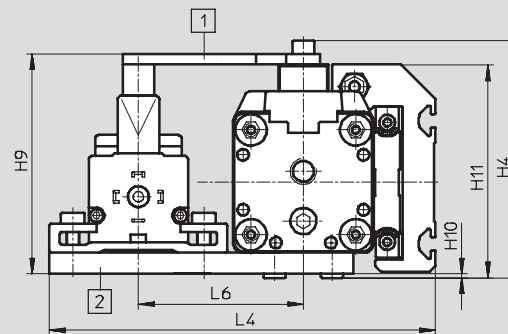
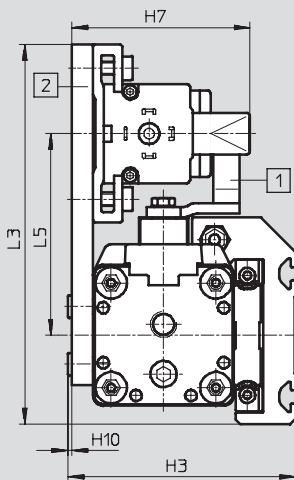


2 Mounting plate

With linear drive DGPL

Variant 1/3

Variant 2/4



1 Connecting bracket  
2 Mounting plate

| ∅    | H1  | H2  | H3    | H4    | H5 | H7 | H9  | H10 | H11 | L1    | L2    | L3    | L4    | L5    | L6 |
|------|-----|-----|-------|-------|----|----|-----|-----|-----|-------|-------|-------|-------|-------|----|
| [mm] |     |     |       |       |    |    |     |     |     |       |       |       |       |       |    |
| 25   | 52  | 70  | 75.5  | 79    | 66 | 66 | 73  | 1   | 70  | 137.5 | 118.5 | 141.5 | 142   | 81    | 62 |
| 32   | 64  | 82  | 87.5  | 91    | 68 | 68 | 84  | 2   | 82  | 138   | 124   | 145   | 147.5 | 77    | 63 |
| 40   | 78  | 100 | 104.5 | 110   | 68 | 68 | 98  | 6   | 100 | 152   | 136   | 162.5 | 162.5 | 86    | 70 |
| 50   | 104 | 129 | 132.5 | 134.5 | 70 | 83 | 129 | 4   | 125 | 183.3 | 161.5 | 192   | 195.5 | 105.8 | 84 |
| 63   | 120 | 145 | 155   | 150.5 | 70 | 82 | 145 | 4   | 141 | 196   | 179   | 207   | 218   | 109   | 92 |



# Displacement encoders

Accessories

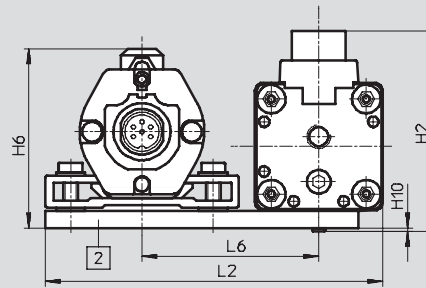
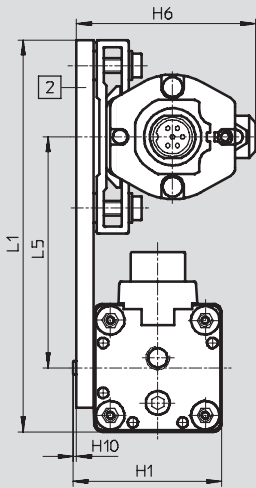
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## Digital displacement encoder MME-MTS-...-AIF

With linear drive DGP

Variant 1/3

Variant 2/4

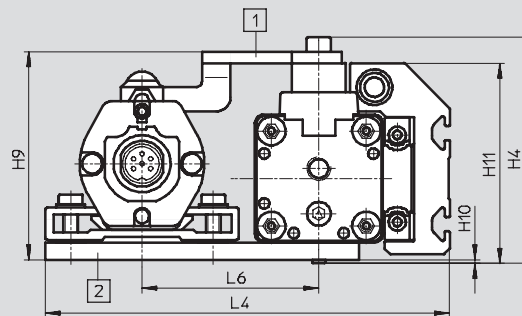
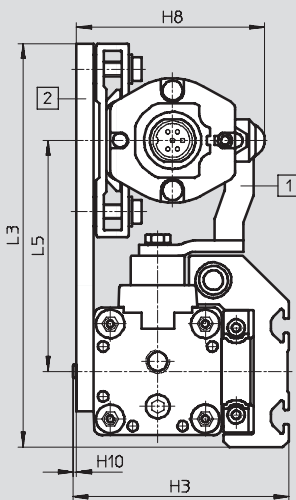


2 Mounting plate

## With linear drive DGPL

Variant 1/3

Variant 2/4



1 Driver  
2 Mounting plate

| ∅    | H1  | H2  | H3    | H4    | H6   | H8   | H9  | H10 | H11 | L1    | L2    | L3    | L4    | L5    | L6 |
|------|-----|-----|-------|-------|------|------|-----|-----|-----|-------|-------|-------|-------|-------|----|
| [mm] |     |     |       |       |      |      |     |     |     |       |       |       |       |       |    |
| 25   | 52  | 70  | 75.5  | 79    | 62.8 | 71.5 | 73  | 1   | 70  | 137.5 | 118.5 | 141.5 | 142   | 81    | 62 |
| 32   | 64  | 82  | 87.5  | 91    | 64.8 | 73.5 | 84  | 2   | 82  | 138   | 124   | 145   | 147.5 | 77    | 63 |
| 40   | 78  | 100 | 104.5 | 110   | 64.8 | 73.5 | 98  | 6   | 100 | 152   | 136   | 162.5 | 162.5 | 86    | 70 |
| 50   | 104 | 129 | 132.5 | 134.5 | 66.8 | 83   | 129 | 4   | 125 | 183.3 | 161.5 | 192   | 195.5 | 105.8 | 84 |
| 63   | 120 | 145 | 155   | 150.5 | 66.8 | 82   | 145 | 4   | 141 | 196   | 179   | 207   | 218   | 109   | 92 |