



**KDS SCREWDRIVERS**

**Torque range: 0.1 - 70 Nm**

# **OPERATOR MANUAL**



## **IDENTIFICATION DATA OF THE MANUFACTURER**

KOLVER S.r.l.  
VIA M. CORNER, 19/21  
36016 THIENE (VI) ITALIA

## **TECHNICAL DATA OF THE PRODUCT**

DIMENSIONS: 254 x 40 mm  
WEIGHT: 0,7 Kg  
VOLTAGE: 40V DC  
POWER: 600W  
NOISE LEVEL: < 70 dB(A)  
VIBRATION LEVEL: < 2.5 m/s<sup>2</sup>

## **DECLARATION OF CONFORMITY**



KOLVER S.r.l. declares that the new tool here described: screwdrivers KDS series (see table) are in conformity with the following standards and other normative documents: 2006/42/CE, LVD 2014/35/UE, EMCD 2014/30/UE, EN 62841-2-2:2014, EN 62841-1: 2015, EN 60204-1, EN 61000-6-2, EN 61000-6-4.

It is also in conformity with RoHS III normative (2011/65/UE and following 2015/863).

Name: Giovanni Colasante  
Position: CEO  
Person authorized to compile the technical file in Kolver

Thiene, January 1st 2021

*Giovanni Colasante*

### IDENTIFICATION DATA OF THE PRODUCT

| Code         | Model          | Torque<br>(Nm) | Speed (rpm) |     |
|--------------|----------------|----------------|-------------|-----|
|              |                |                | Min         | Max |
| 175015       | KDS-MT1.5      | 0.1 - 1.5      | 50          | 850 |
| 175015/ESD   | KDS-MT1.5/ESD  | 0.1 - 1.5      | 50          | 850 |
| 175016/ESD   | KDS-MT1.5P     | 0.1 - 1.5      | 50          | 850 |
| 175016/U/ESD | KDS-MT1.5P/U   | 0.1 - 1.5      | 50          | 850 |
| 175115       | KDS-MT1.5CA    | 0.1 - 1.5      | 50          | 850 |
| 175115/FN    | KDS-MT1.5CA/FN | 0.1 - 1.5      | 50          | 850 |
| 175015/A     | KDS-MT1.5ANG   | 0.1 - 1.5      | 50          | 850 |
| 135006       | KDS-PL6        | 0.5 - 6        | 50          | 850 |
| 135006/ESD   | KDS-PL6        | 0.5 - 6        | 50          | 850 |
| 135007/ESD   | KDS-PL6P       | 0.5 - 6        | 50          | 850 |
| 135007/U/ESD | KDS-PL6P/U     | 0.5 - 6        | 50          | 850 |
| 135106       | KDS-PL6CA      | 0.5 - 6        | 50          | 850 |
| 135106/FN    | KDS-PL6CA/FN   | 0.5 - 6        | 50          | 850 |
| 135006/A/ESD | KDS-PL6ANG     | 0.5 - 5.5      | 50          | 850 |
| 135010       | KDS-PL10       | 0.8 - 10       | 50          | 600 |
| 135010/ESD   | KDS-PL10       | 0.8 - 10       | 50          | 600 |
| 135011/ESD   | KDS-PL10P      | 0.8 - 10       | 50          | 600 |
| 135011/U/ESD | KDS-PL10P/U    | 0.8 - 10       | 50          | 600 |
| 135110       | KDS-PL10CA     | 0.8 - 10       | 50          | 600 |
| 135110/FN    | KDS-PL10CA/FN  | 0.8 - 10       | 50          | 600 |
| 135010/A/ESD | KDS-PL10ANG    | 0.8 - 9        | 50          | 600 |
| 135015       | KDS-PL15       | 0.5 - 15       | 50          | 320 |
| 135015/ESD   | KDS-PL15       | 0.5 - 15       | 50          | 320 |
| 135016/ESD   | KDS-PL15P      | 0.5 - 15       | 50          | 320 |
| 135016/U/ESD | KDS-PL15P/U    | 0.5 - 15       | 50          | 320 |
| 135115       | KDS-PL15CA     | 0.5 - 15       | 50          | 320 |
| 135115/FN    | KDS-PL15CA/FN  | 0.5 - 15       | 50          | 320 |
| 135015/A/ESD | KDS-PL15ANG    | 0.5 - 12       | 50          | 320 |
| 135020       | KDS-PL20       | 2 - 20         | 20          | 210 |
| 135120       | KDS-PL20CA     | 2 - 20         | 20          | 210 |
| 135120/FN    | KDS-PL20CA/FN  | 2 - 20         | 20          | 210 |
| 135030/ANG   | KDS-PL30ANG    | 3 - 30         | 20          | 140 |
| 135035       | KDS-PL35       | 3 - 35         | 20          | 140 |
| 135135       | KDS-PL35CA     | 3 - 35         | 20          | 140 |
| 135135/FN    | KDS-PL35CA/FN  | 3 - 35         | 20          | 140 |
| 135045/ANG   | KDS-PL45ANG    | 4 - 45         | 20          | 90  |
| 135050       | KDS-PL50       | 5 - 50         | 20          | 90  |
| 135150       | KDS-PL50CA     | 5 - 50         | 20          | 90  |
| 135150/FN    | KDS-PL50CA/FN  | 5 - 50         | 20          | 90  |
| 135070/ANG   | KDS-PL70ANG    | 7 - 70         | 20          | 50  |

## DECLARATION OF USE

Screwdriver (class I) suitable for industrial environment only. It shall be used for tightening. No other use will be permitted. For professional use only.

**WARNING:** To reduce the risk of injury, before using or servicing screwdriver, read and understand the following information as well as separately provided safety instructions (item code: 0MS000). The features and descriptions of our products are subject to change without prior notice.

## DECLARATION OF NOISE AND VIBRATION EMISSION

NOISE LEVEL: < 70 dB(A)

VIBRATION LEVEL: < 2.5 m/s<sup>2</sup>

These declared values were obtained by laboratory type testing in compliance with the stated standards and are not adequate for use in risk assessments. Values measured in individual work places may be higher than the declared values. The actual exposure values and risk of harm experienced by an individual user are unique and depend upon the way the user works, the work piece and the workstation design, as well as upon the exposure time and the physical condition of the user. We, KOLVER, cannot be held liable for the consequences of using the declared values, instead of values reflecting the actual exposure, in an individual risk assessment in a work place situation over which we have no control.

## OPERATING MODE

The screwdriver can be manual or used as fixed spindle on an automatic machine.

## CONTROL UNIT

Power source by KDU 1 series, depending on the model.

## MAINTENANCE INSTRUCTIONS

Maintenance should be performed by qualified personnel only.

- Prior to any maintenance task: disconnect the screwdriver.
- When disassembling / reassembling the screwdriver, take the following precautions:
  - Check that the controller is switched off.
  - Disconnect the cable.

According to Directive 2012/19/EU concerning Waste Electrical and Electronic Equipment (WEEE), this product must be recycled.

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## INSTALLATION OF KDS SCREWDRIVER

### Cable connection and part numbers

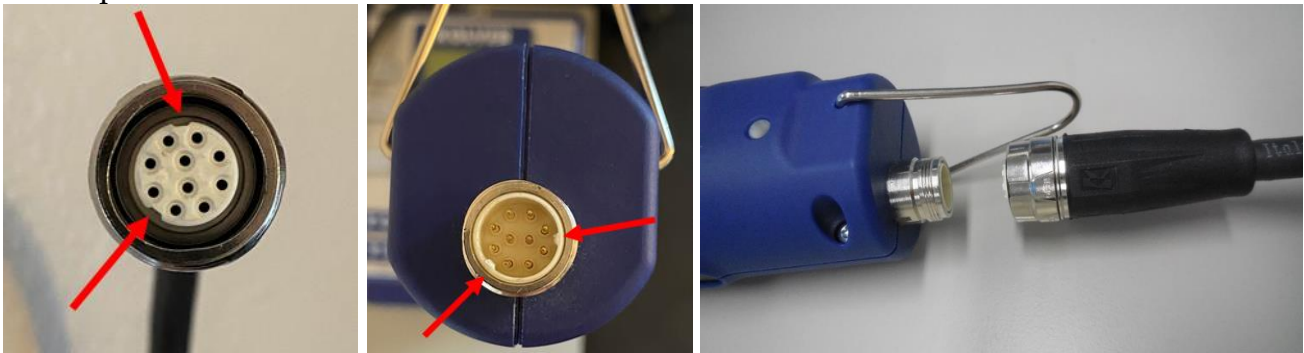
The KDS screwdriver series require one of the following cables:

- 2.5m male/female cable (code 250064)
- 2.5m male/female cable with strain relief (code 250064/H)
- 5.0m male/female cable (code 250564)
- 5.0m male/female cable with strain relief (code 250564/H)



To connect the screwdriver to the unit:

1. insert the male connector into the appropriate TOOL connector on the bottom of the unit, taking care to respect the alignment tabs. Push the connector into its position and turn the OPEN/CLOSE nut\* clockwise.
2. insert the female connector into the appropriate connector at the top of the screwdriver, taking care to respect the alignment tabs. Push the connector into its position and turn the OPEN/CLOSE nut\* clockwise.

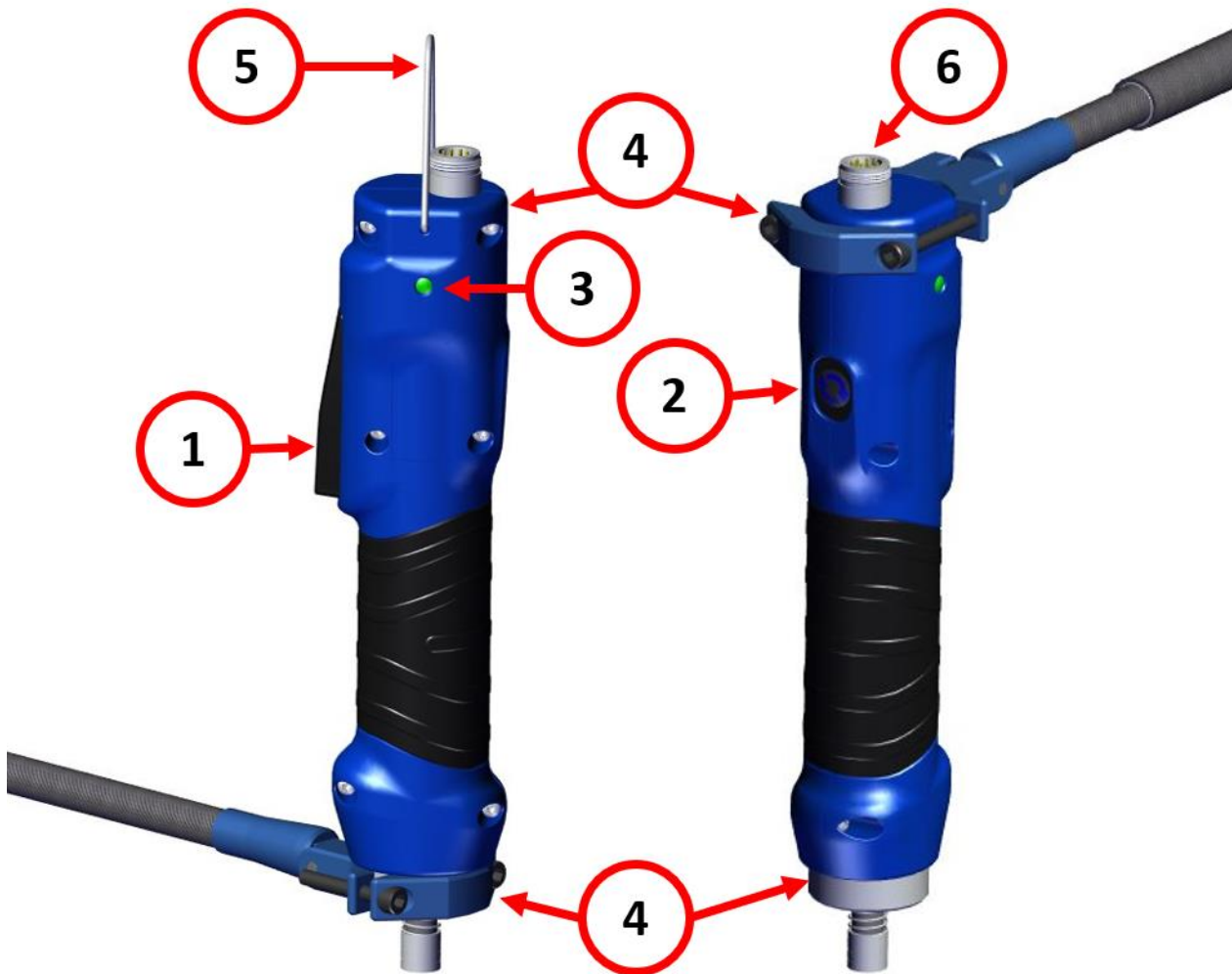


To disconnect the cable:

1. lightly push the connector in towards the screwdriver (or the unit)
2. turn the OPEN/CLOSE nut\* counterclockwise
3. pull the connector out

\*note: some models use a threaded nut instead of an OPEN/CLOSE nut. In this case, tighten the nut all the way until it stops, without overtightening with excessive force.

## OPERATING THE KDS SCREWDRIVER



### (1) Lever

Press and hold the lever to initiate a rundown.

The screwdriver will automatically stop according to the configured program, in either an OK or a NOK state, depending on the success of the rundown.

The screwdriver will also stop if the lever is released in the middle of the rundown, and either return to the READY state or raise the NOK state if the LEVER ERROR option is active for the current program (Programs menu > Other > LEVER ERROR).

### (2) Reverse button

Press and hold the button to initiate a defix run, rotating in the opposite direction of the selected direction of rotation for the lever (see Programs menu > Other > ROTATION).

The behavior of the reverse button can be changed from the general settings menu (General Settings > REVERSE BUTTON).

### (3) LED

The two LEDs indicate the state of the screwdriver:

|                                                                                     |                                                                                                                                                |
|-------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------|
|    | Blinking white: the screwdriver was just connected to the K-Ducer control unit                                                                 |
|    | Off: the screwdriver is ready, or the screwdriver is not connected                                                                             |
|    | Solid green: the last screw result was OK                                                                                                      |
|    | Solid red: the last screw result was NOK                                                                                                       |
|    | Solid blue: screwdriver is running in the tightening direction, either via the lever or via remote control                                     |
|    | Solid purple: the screwdriver is running in the de-fix direction, either via the reverse button, or via remote control                         |
|  | Blinking purple: the reverse button is in switch mode and is activated. The screwdriver is ready to run in de-fix rotation via the main lever. |

#### (4) Reaction arm connections

Fix the reaction arm to one these areas only, and never anywhere else on the screwdriver. Kolver recommends using a reaction arm for operator comfort, especially for applications with torques above 5 Nm.

The KDS series screwdriver has two positions designed for connecting to the reaction arm:

1. The naked metal cylinder near the head of the screwdriver
2. The reinforced plastic section at the very top of the screwdriver
  - **NOT** present on KDS-PL20-35-50
  - **NOT** present on the the pistol-shaped versions

**Warning:** do not connect the reaction arm anywhere other than the above designated areas. Fixing the reaction arm to the middle of the screwdriver handle will squeeze the screwdriver shell, causing damage to the internal components, and failing to absorb the torque reaction safely and reliably.

#### (5) Hanging hook

To hang the screwdriver somewhere easily accessible in the operator's workbench.

#### (6) Female connector

To connect the screwdriver to the K-Ducer control unit

## SCREWDRIVER VARIANTS AND ACCESSORIES

### Pistol screwdrivers

Reaction arm connection:



START / REVERSE button and LEDs are on the back of the screwdriver:



Status LED also found front facing on the top of the screwdriver:



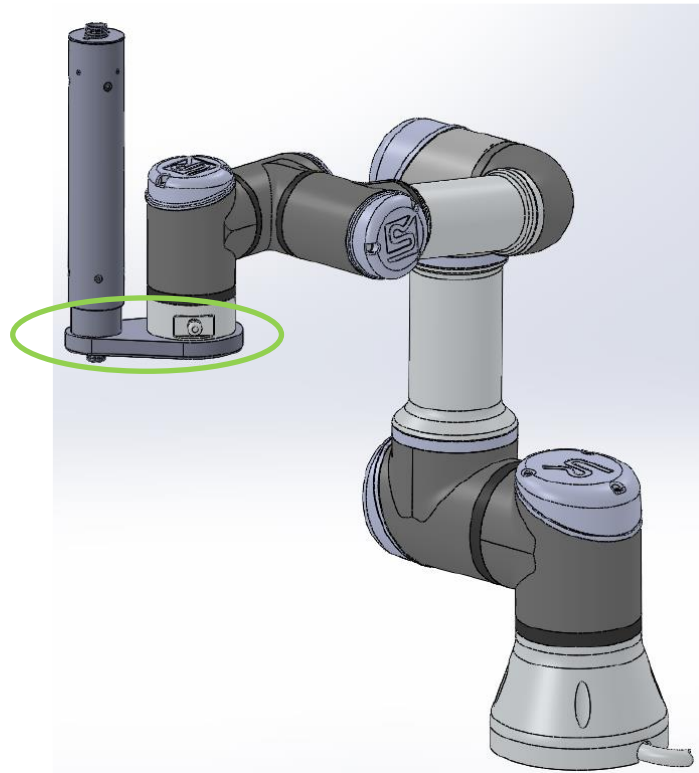
Pistol screwdrivers can be purchased with either bottom or top mounted female cable connector:



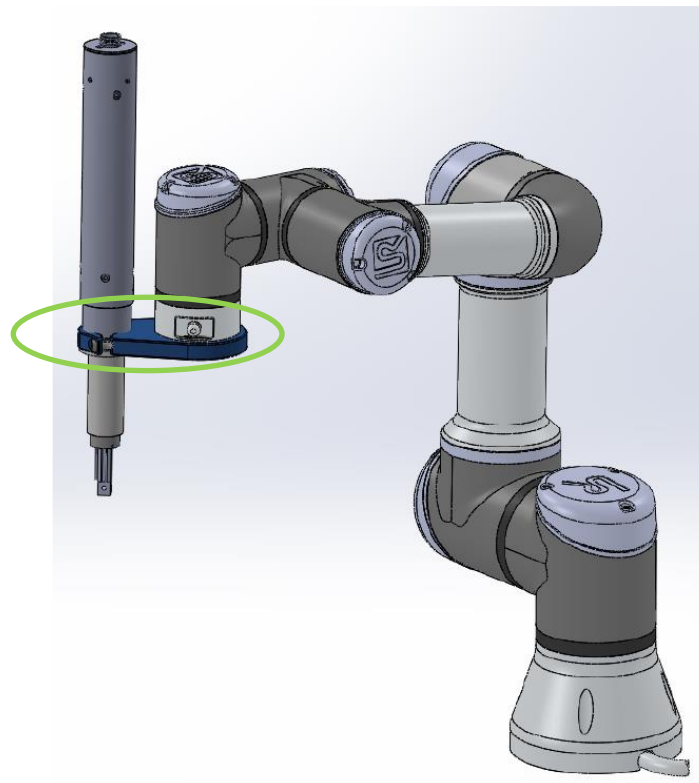
## Pistol screwdriver holder Cod 010175



## Fixing plate for UR Robot KDS xxCA Cod 010695/UR

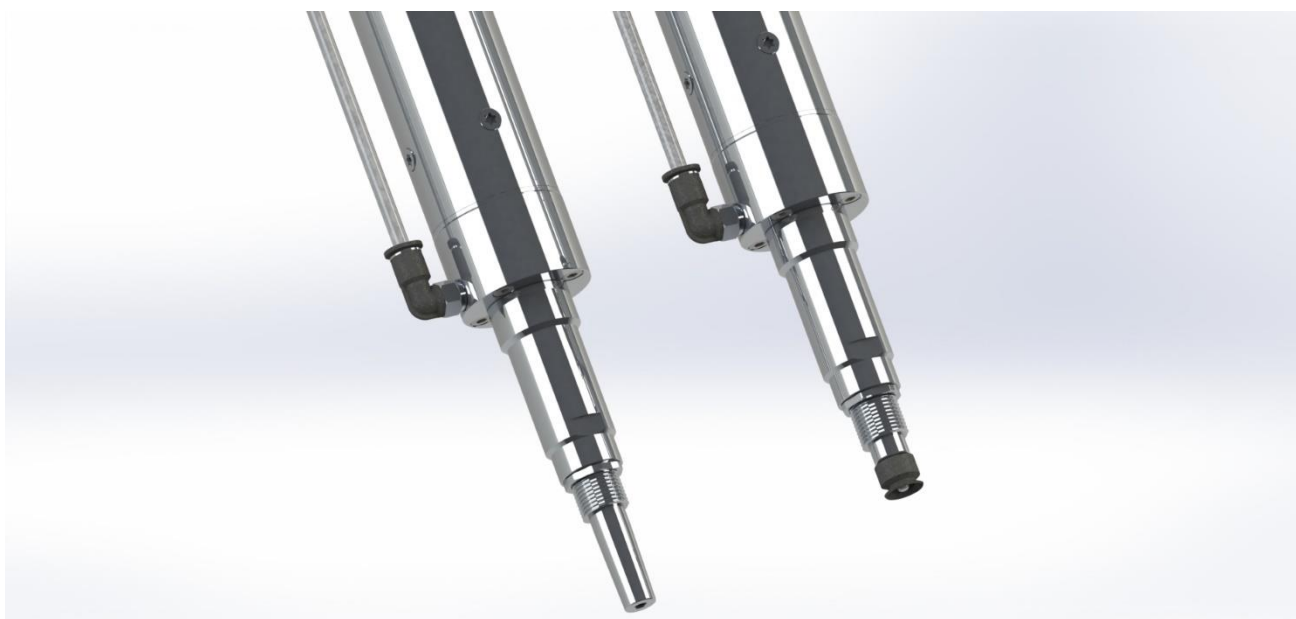


## Fixing plate for UR Robot KDS xxCA/FN (with flange max diameter 37mm) Cod 010695/URN



## Suction heads

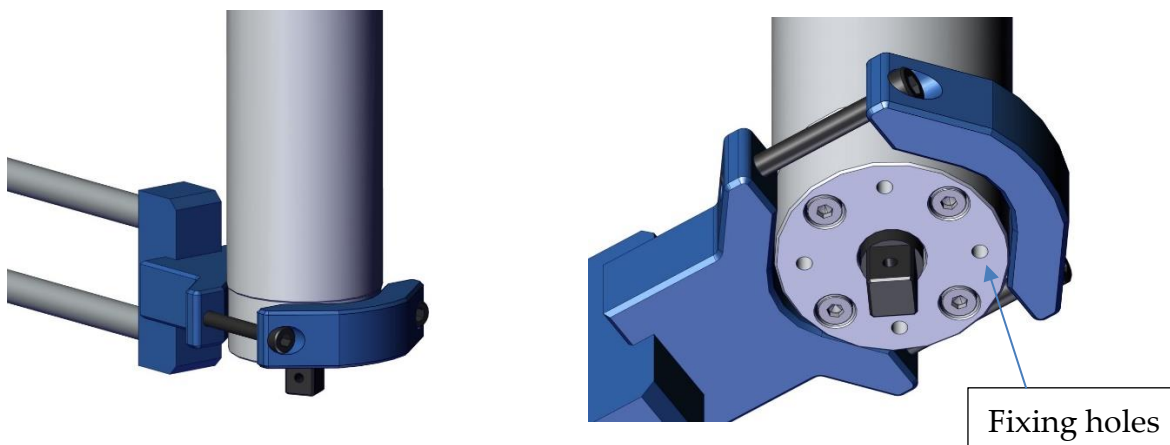
| Code       | Description                              |
|------------|------------------------------------------|
| 010119     | ASP HD8 SUCTION HEAD MITO                |
| 010119/UNI | ASP HD8 SUCTION HEAD MITO WITH TUBE      |
| 010121     | ASP HD9 SUCTION HEAD PLUTO               |
| 010121/UNI | ASP HD9/UNI SUCTION HEAD PLUTO WITH TUBE |



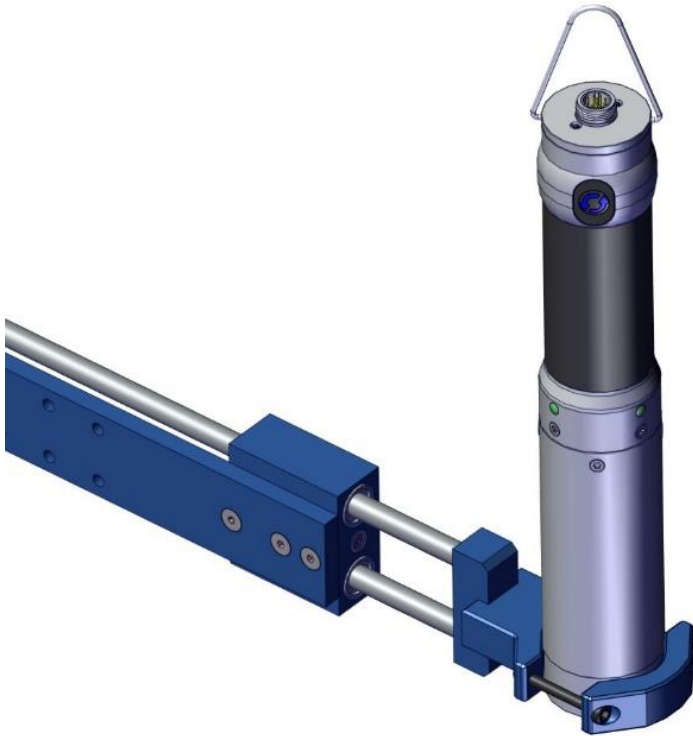
## KDS PL 20 – 35 - 50

### Reaction arm connection and fixing holes

Reaction arm connection is **ONLY** available at the head of the screwdriver  
 Additional M5 fixing holes for custom fixing plates are available at the head of the screwdriver:



## Hand version



START / REVERSE buttons are at the top of the screwdriver:



/CA version



Angle head screwdrivers KDS PL 6-10 ANG

Hand version



/CA version

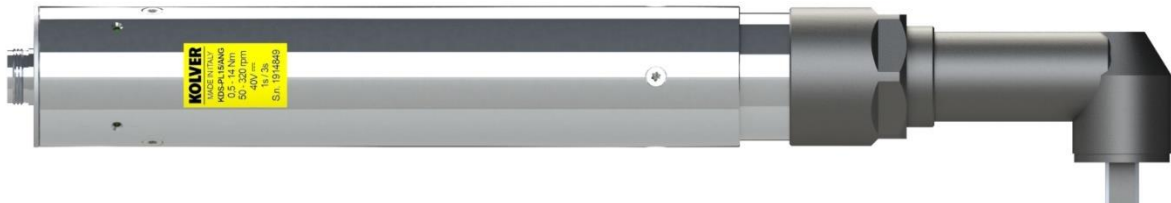


Angle head screwdrivers KDS PL 15 ANG

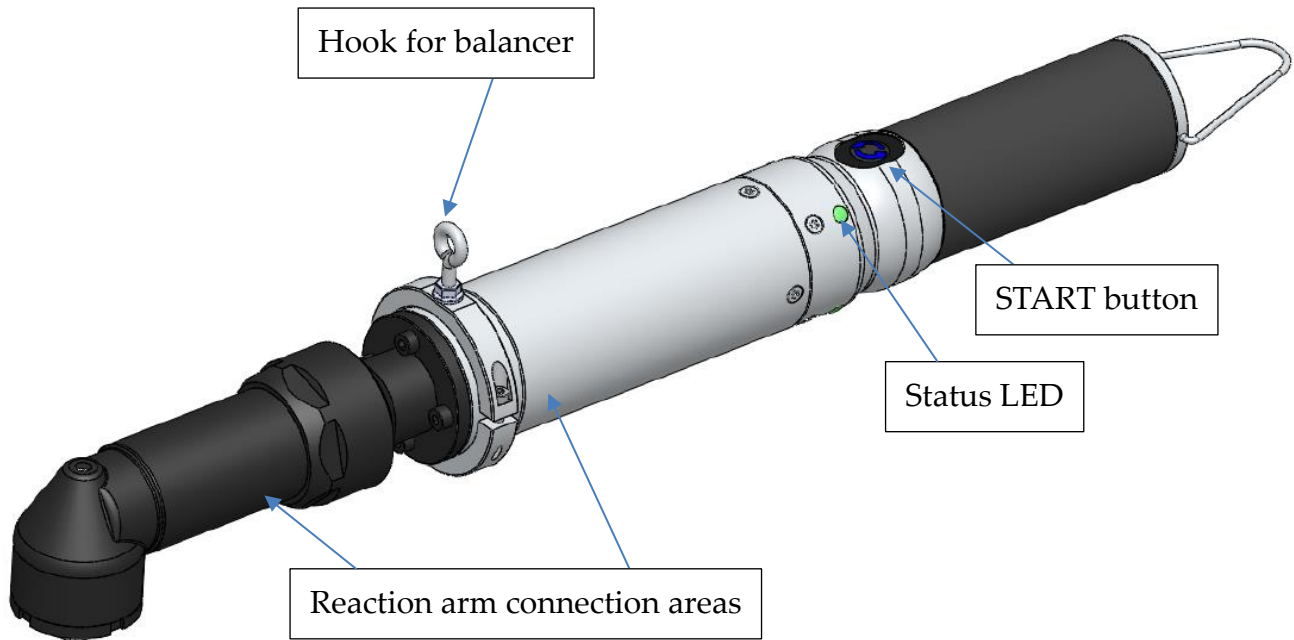
Hand version

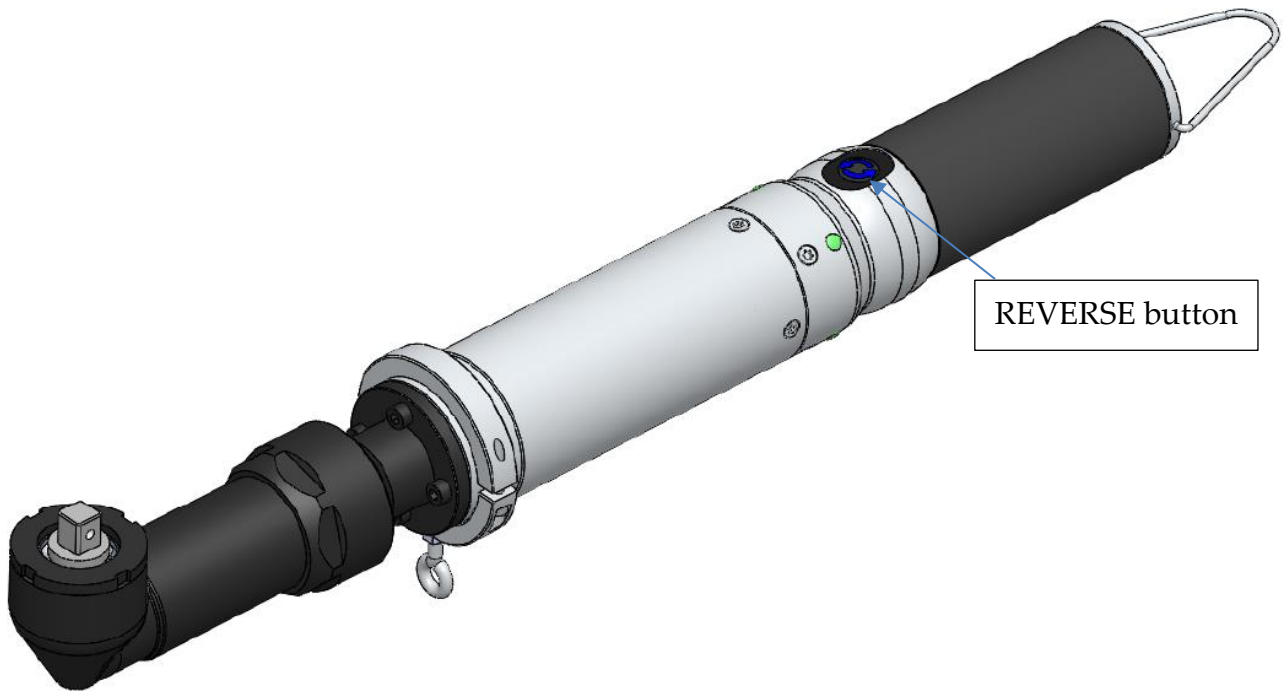


/CA version



## Angle head screwdrivers KDS PL 30-45-70 ANG



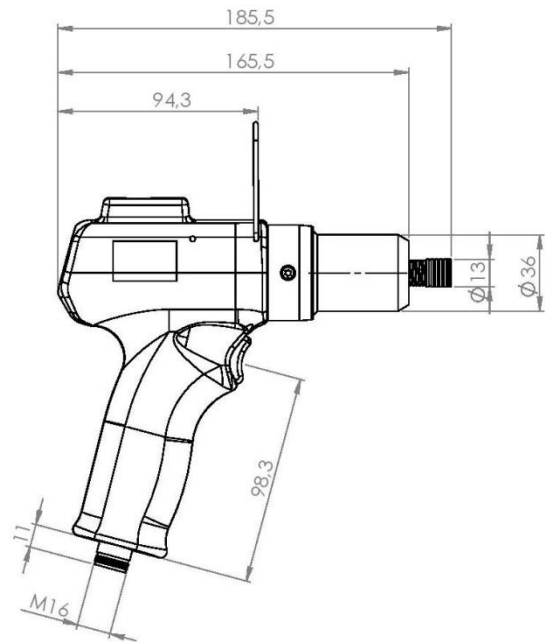
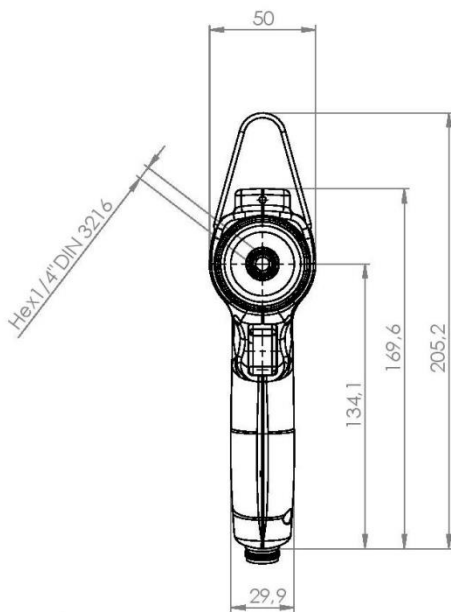
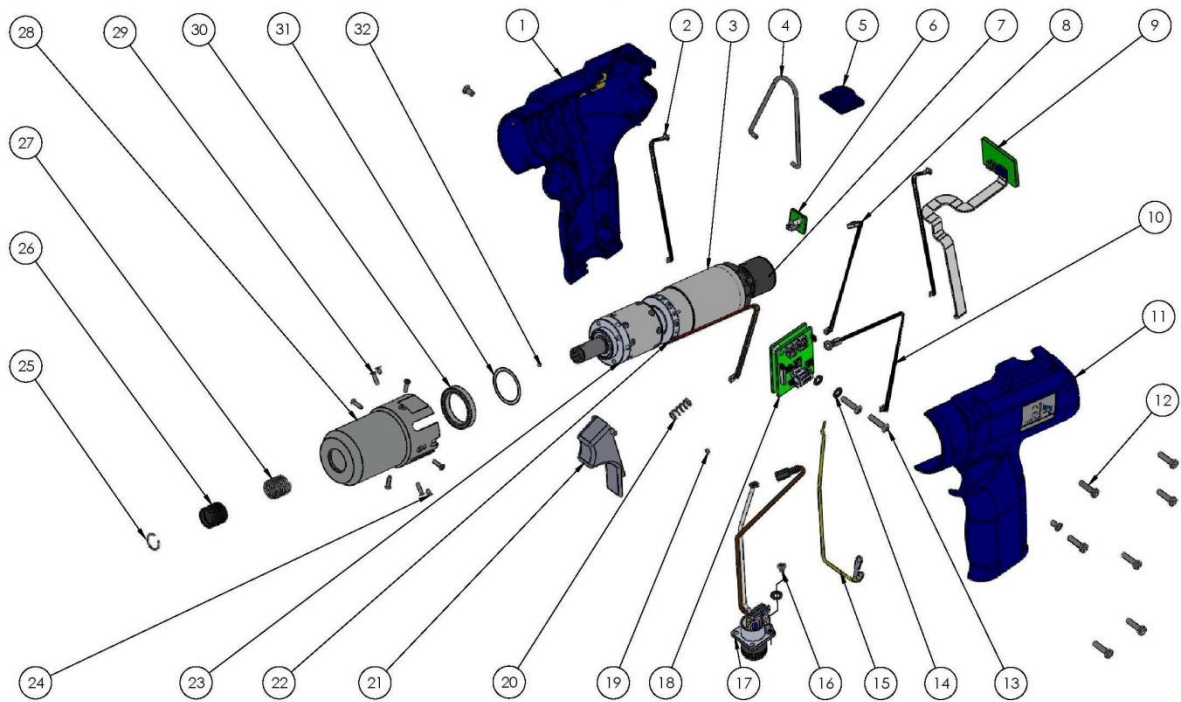




## SPARE PARTS KDS-PLxx:

| Pos. | Description               | Qty | Code       |
|------|---------------------------|-----|------------|
| 1    | HOOK                      | 1   | 200060     |
| 2    | MALE CONNECTOR M16 10 PIN | 1   | 201667     |
| 3    | PCB FLEX – LED BOARD      | 1   | 852537     |
| 4    | SCREW ZN M3X12 TX10       | 1   | 231545     |
| 5    | LED BOARD KDS/D           | 1   | 852535     |
| 6    | SCREW ZN M3X12 TX10       | 6   | 231541     |
| 7    | LED KDS-XX/D              | 2   | 231553     |
| 8    | BOARD                     | 1   | 852528     |
| 9    | SCREW M3X12 ZN TX10       | 1   | 231547     |
| 10   | REVERSE BUTTON            | 1   | 231535     |
| 11   | HOUSING KDS-XX/D          | 1   | 231551     |
|      | HOUSING ESD KDS-XX/D      | 1   | 231551/ESD |
| 12   | MOTOR KDS-6x              | 1   | 231509/L   |
|      | MOTOR KDS-10x             | 1   | 231509/L   |
|      | MOTOR KDS-15x             | 1   | 231509/15L |
| 13   | SENSOR                    | 1   | 231534     |
| 14   | TRANSDUCER                | 1   | 231522/E   |
| 15   | SCREW TSP M2X4 TX6 ZN     | 21  | 231531     |
| 16   | MOTOR SEAT                | 1   | 234505/TD  |
| 17   | SCREW TSP M2X6 TX6 ZN     | 8   | 231527     |
| 18   | BEARING                   | 1   | 231533     |
| 19   | WASHER                    | 1   | 231532     |
| 20   | RING                      | 1   | 200007     |
| 21   | RING                      | 1   | 230020/1   |
| 22   | BALL 2.5MM                | 1   | 219817     |
| 23   | SPRING                    | 1   | 230021     |
| 24   | REDUCTION GEARS KDS-6x    | 1   | 231510/6D  |
|      | REDUCTION GEARS KDS-10x   | 1   | 231510/10D |
|      | REDUCTION GEARS KDS-15x   | 1   | 231510/15D |
| 25   | HOUSING KDS-XX/D          | 1   | 231550     |
|      | HOUSING ESD KDS-XX/D      | 1   | 231550/ESD |
| 26   | ENCODER                   | 1   | 231528     |
| 27   | ENCODER WIRING            | 1   | 231536     |
| 28   | LEVER SPRING              | 1   | 221061     |
| 29   | LEVER                     | 1   | 231552     |
|      | LEVER ESD                 | 1   | 231552/ESD |
| 30   | MAGNET KDS-XX/D           | 1   | 231540     |
| 31   | SCREW M2,2X6 TX6          | 2   | 231538     |
| 32   | WASHER                    | 1   | 800041     |
| 33   | GROUND WIRING             | 1   | 231546     |
| 34   | SCREW M2,5X4 TX8 ZN       | 1   | 872487     |
|      | LABEL                     | 1   | 800199     |
|      | LABEL ESD                 | 1   | 800199/ESD |

## EXPLODED VIEW KDS-PLxxP:



## SPARE PARTS KDS-PLxxP:

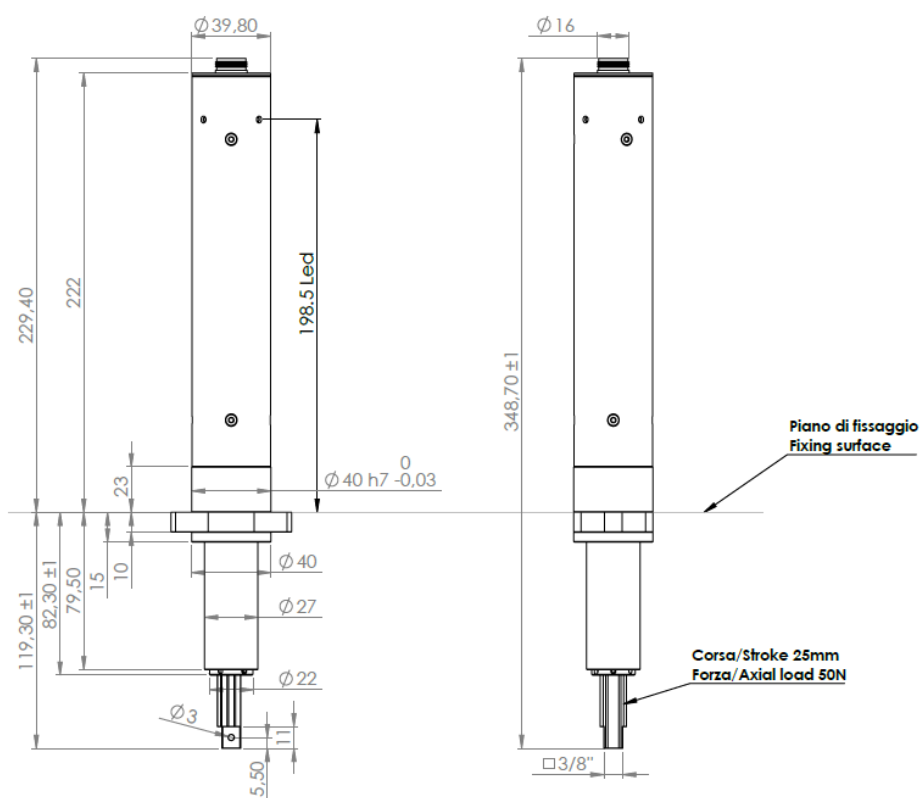
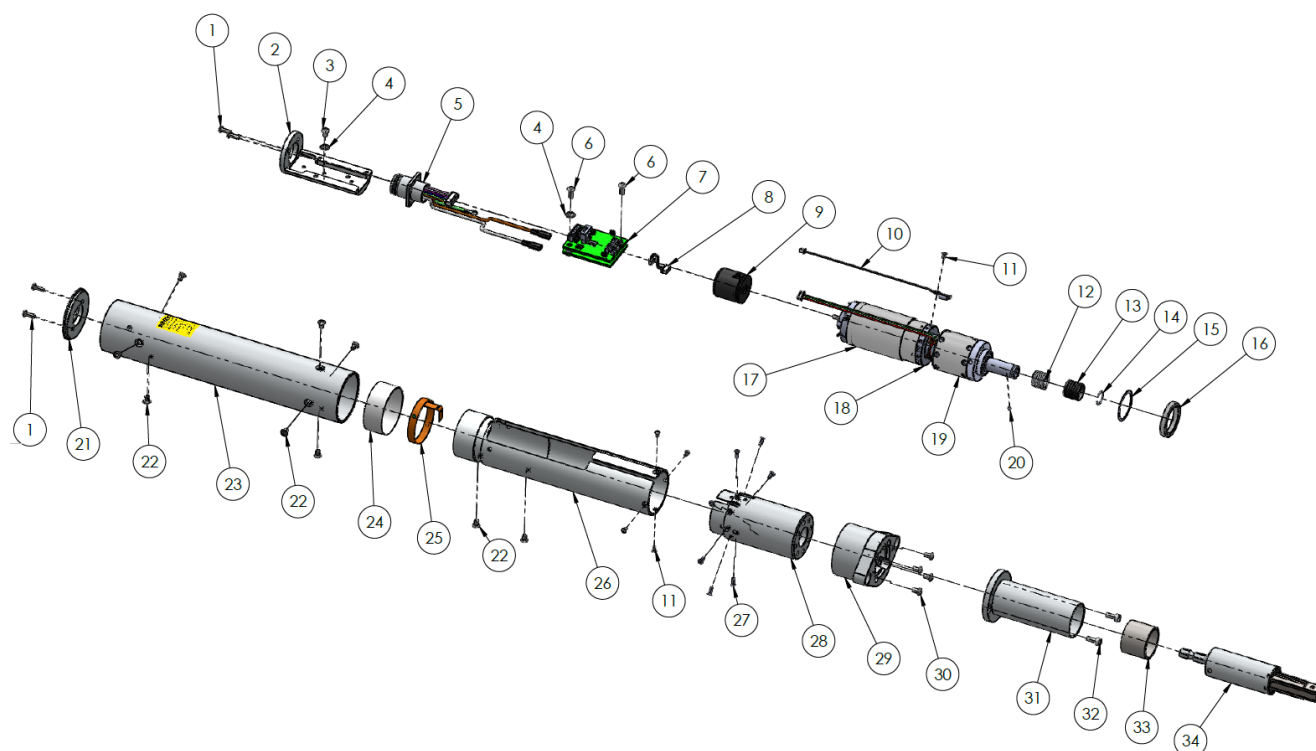
| Pos. | Description                    | Qty | Code       |
|------|--------------------------------|-----|------------|
| 1    | HOUSING KDS-XX/P               | 1   | 231560     |
|      | HOUSING KDS-XX/P-ESD           | 1   | 231560/ESD |
| 2    | PICOBLADE                      | 2   | 231557     |
| 3    | MOTOR KDS-6x                   | 1   | 231509/L   |
|      | MOTOR KDS-10x                  | 1   | 231509/L   |
|      | MOTOR KDS-15x                  | 1   | 231509/15L |
| 4    | HOOK                           | 1   | 200060     |
| 5    | CONNECTOR COVER KDS-XX/P       | 1   | 231562     |
|      | CONNECTOR COVER KDS-XX/P-ESD   | 1   | 231562/ESD |
| 6    | WHITE LED BOARD KDSXX/P        | 1   | 852538     |
| 7    | ENCODER                        | 1   | 231528     |
| 8    | ENCODER WIRING (KDS-PLxxP)     | 1   | 231536/L   |
| 9    | REVERSE SWITCH + LED KDS-PLxxP | 1   | 231535/P   |
| 10   | SENSOR                         | 1   | 231534     |
| 11   | HOUSING KDS-XX/P               | 1   | 231561     |
|      | HOUSING KDS-XX/P-ESD           | 1   | 231561/ESD |
| 12   | SCREW ZN M3X10 TX10            | 7   | 231539     |
| 13   | SCREW M3X12 TESTA ZN TX10      | 2   | 231547     |
| 14   | WASHER M3                      | 2   | 800041     |
| 15   | GROUND WIRING KDS-P            | 1   | 231546/P   |
|      | GROUND WIRING KDS-PU           | 1   | 231546/PU  |
| 16   | SCREW M2,5X6 TX8 ZN TX8        | 1   | 872487     |
| 17   | MALE CONNECTOR M16 10 PIN KDS- | 1   | 201667/P   |
|      | MALE CONNECTOR M16 10 PIN KDS- | 1   | 201667/PU  |
| 18   | BOARD KDS-P                    | 1   | 852528/P   |
| 19   | MAGNET                         | 1   | 231540/P   |
| 20   | SPRING LEVER                   | 1   | 221061     |
| 21   | LEVER KDS-XX/P                 | 1   | 231563     |
|      | LEVER KDS-XX/P-ESD             | 1   | 231563/ESD |
| 22   | TRANSDUCER                     | 1   | 231522/E   |
| 23   | REDUCTION GEARS KDS-6x         | 1   | 231510/6D  |
|      | REDUCTION GEARS KDS-10x        | 1   | 231510/10D |
|      | REDUCTION GEARS KDS-15x        | 1   | 231510/15D |
| 24   | SCREW TSP M2X4 TX6 ZN          | 18  | 231531     |
| 25   | RING                           | 1   | 200007     |
| 26   | RING                           | 1   | 230020/1   |
| 27   | SPRING                         | 1   | 230021     |
| 28   | MOTOR SEAT KDS-PLxxP           | 1   | 234505/TP  |
| 29   | SCREW TSP M2X8 TX6 ZN          | 8   | 231554     |
| 30   | BEARING                        | 1   | 231533     |
| 31   | WASHER                         | 1   | 231532     |
| 32   | BALL 2.5MM                     | 1   | 219817     |
| 33   | SCREW TSP M3X5 TX10 ZN         | 2   | 801003     |
|      | LABEL                          | 1   | 800199     |
|      | LABEL ESD                      | 1   | 800199/ESD |



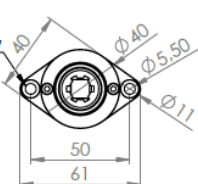
## SPARE PARTS KDS-PLxxCA:

| Pos. | Description                    | Qty | Code       |
|------|--------------------------------|-----|------------|
| 1    | SCREW M2,5X8 TX8 ZN            | 4   | 872478     |
| 2    | BOARD SUPPORT                  | 1   | 231523     |
| 3    | SCREW M3X5                     | 1   | 872444     |
| 4    | WASHER                         | 2   | 800041     |
| 5    | MALE CONNECTOR M16 10 PIN      | 1   | 201667     |
| 6    | SCREW M3X12 ZN TX10            | 2   | 231547     |
| 7    | BOARD                          | 1   | 852528     |
| 8    | ENCODER WIRING                 | 1   | 231536     |
| 9    | ENCODER                        | 1   | 231528     |
| 10   | TEMPERATURE SENSOR             | 1   | 231534     |
| 11   | M2X4MM TX6                     | 5   | 231531     |
| 12   | SPRING                         | 1   | 230021     |
| 13   | RING                           | 1   | 230020/1   |
| 14   | RING                           | 1   | 200007     |
| 15   | WASHER                         | 1   | 231532     |
| 16   | BEARING                        | 1   | 231533     |
| 17   | MOTOR KDS-6x                   | 1   | 231509/L   |
|      | MOTOR KDS-10x                  |     | 231509/L   |
|      | MOTOR KDS-15x                  |     | 231509/15L |
| 18   | TRANSDUCER                     | 1   | 231522/E   |
| 19   | REDUCTION GEAR KDS-PL6X        | 1   | 231510/6D  |
|      | REDUCTION GEAR KDS-PL10X       |     | 231510/10D |
|      | REDUCTION GEAR KDS-PL15X       |     | 231510/15D |
| 20   | BALL 2,5 MM                    | 1   | 219817     |
| 21   | COVER KDS-XXCA                 | 1   | 231526     |
| 22   | SCREW M3X5 TX10                | 9   | 801003     |
| 23   | ALUMINIUM BODY KDS-XXCA        | 1   | 231525     |
| 24   | LED RING KDS-XXCA              | 1   | 231537     |
| 25   | PCB FLEX LED                   | 1   | 852531     |
| 26   | ALUMINIUM BODY (BOARD SUPPORT) | 1   | 231524     |
| 27   | SCREW M2X6MM TX6               | 8   | 231527     |
| 28   | MOTOR SEAT                     | 1   | 234505     |

## EXPLODED VIEW KDS-PLxxCA/FN:



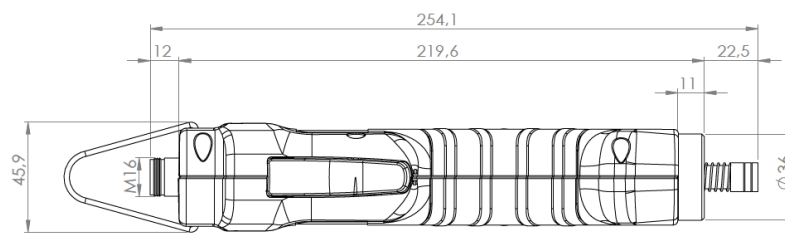
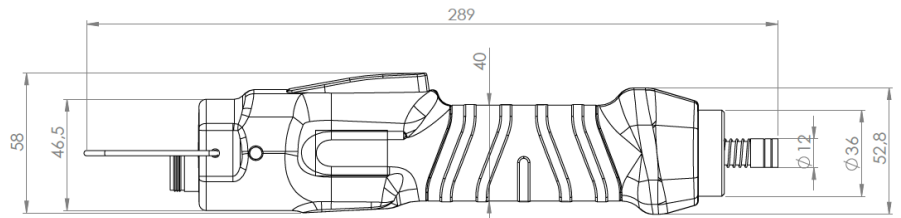
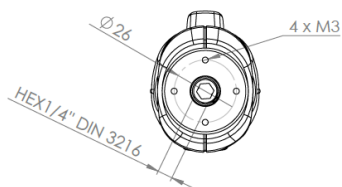
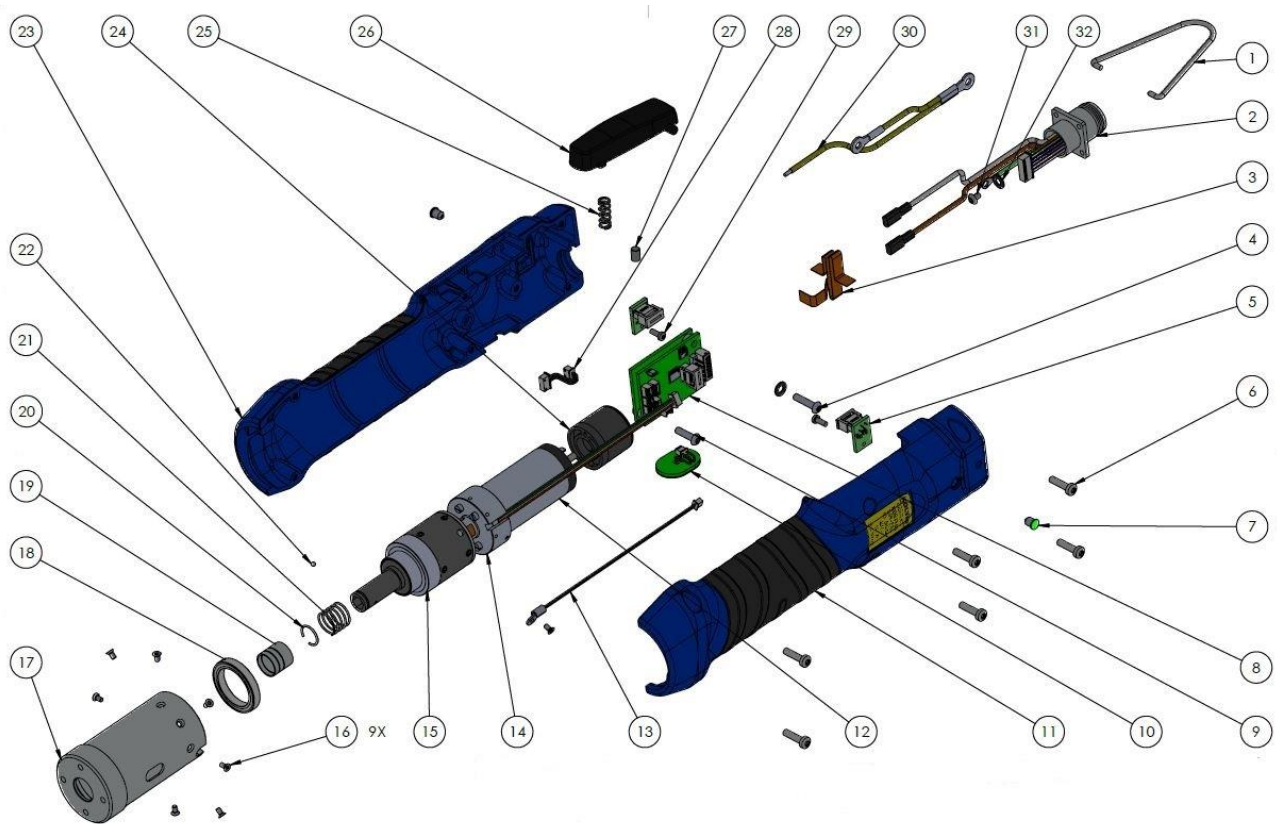
Fissaggio consigliato/  
Recommended fixing  
2 x ISO 4762 M5 screw



## SPARE PARTS KDS-PLxxCA/FN:

| Pos. | Description                    | Qty | Code       |
|------|--------------------------------|-----|------------|
| 1    | SCREW M2,5X8 TX8 ZN            | 4   | 872478     |
| 2    | BOARD SUPPORT                  | 1   | 231523     |
| 3    | SCREW M3X5                     | 1   | 872444     |
| 4    | WASHER                         | 2   | 800041     |
| 5    | MALE CONNECTOR M16 10 PIN      | 1   | 201667     |
| 6    | SCREW M3X12 ZN TX10            | 2   | 231547     |
| 7    | BOARD                          | 1   | 852528     |
| 8    | ENCODER WIRING                 | 1   | 231536     |
| 9    | ENCODER                        | 1   | 231528     |
| 10   | TEMPERATURE SENSOR             | 1   | 231534     |
| 11   | M2X4MM TX6                     | 5   | 231531     |
| 12   | SPRING                         | 1   | 230021     |
| 13   | RING                           | 1   | 230020/1   |
| 14   | RING                           | 1   | 200007     |
| 15   | WASHER                         | 1   | 231532     |
| 16   | BEARING                        | 1   | 231533     |
| 17   | MOTOR KDS-6x                   | 1   | 231509/L   |
|      | MOTOR KDS-10x                  |     | 231509/L   |
|      | MOTOR KDS-15x                  |     | 231509/15L |
| 18   | TRANSDUCER                     | 1   | 231522/E   |
| 19   | REDUCTION GEAR KDS-PL6X        | 1   | 231510/6D  |
|      | REDUCTION GEAR KDS-PL10X       |     | 231510/10D |
|      | REDUCTION GEAR KDS-PL15X       |     | 231510/15D |
| 20   | BALL 2,5 MM                    | 1   | 219817     |
| 21   | COVER KDS-XXCA                 | 1   | 231526     |
| 22   | SCREW M3X5 TX10                | 9   | 801003     |
| 23   | ALUMINIUM BODY KDS-XXCA        | 1   | 231525     |
| 24   | LED RING KDS-XXCA              | 1   | 231537     |
| 25   | PCB FLEX LED                   | 1   | 852531     |
| 26   | ALUMINIUM BODY (BOARD SUPPORT) | 1   | 231524     |
| 27   | SCREW M2X6MM TX6               | 8   | 231527     |
| 28   | MOTOR SEAT                     | 1   | 234505     |
| 29   | SUPPORT PLUTO 10FN             | 1   | 234547     |
| 30   | SCREW M4 x 5                   | 1   | 231502     |
| 31   | GUIDE                          | 1   | 234548     |
| 32   | SCREW M3 X 8                   | 2   | 240005/ZN  |
| 33   | SLIDING BEARING                | 1   | 800317-1   |
| 34   | TELESCOPIC SPINDLE 1/4" - 3/8" | 1   | 800320     |

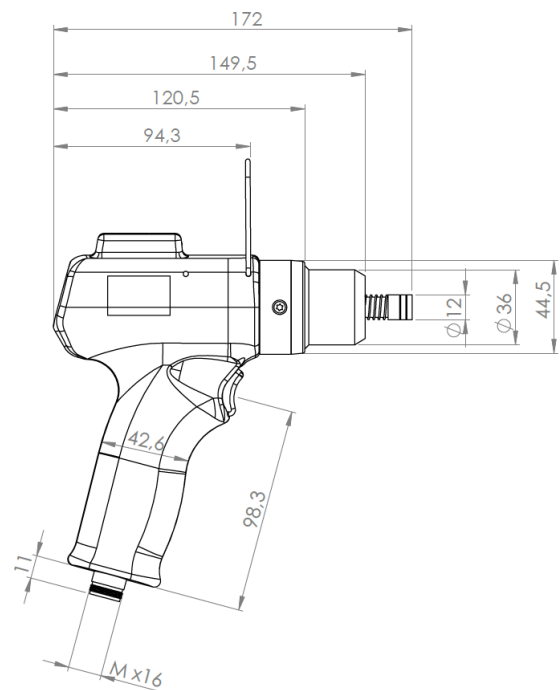
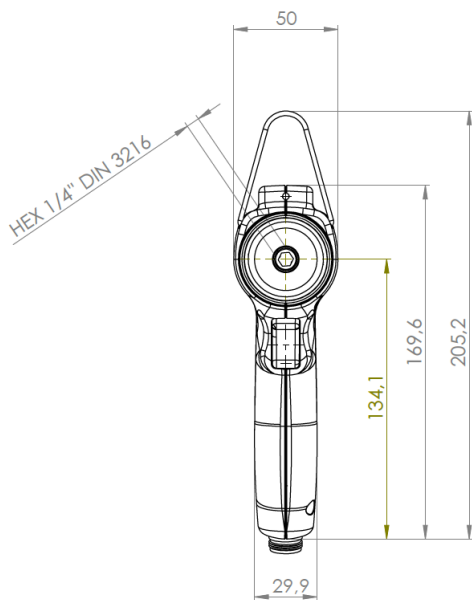
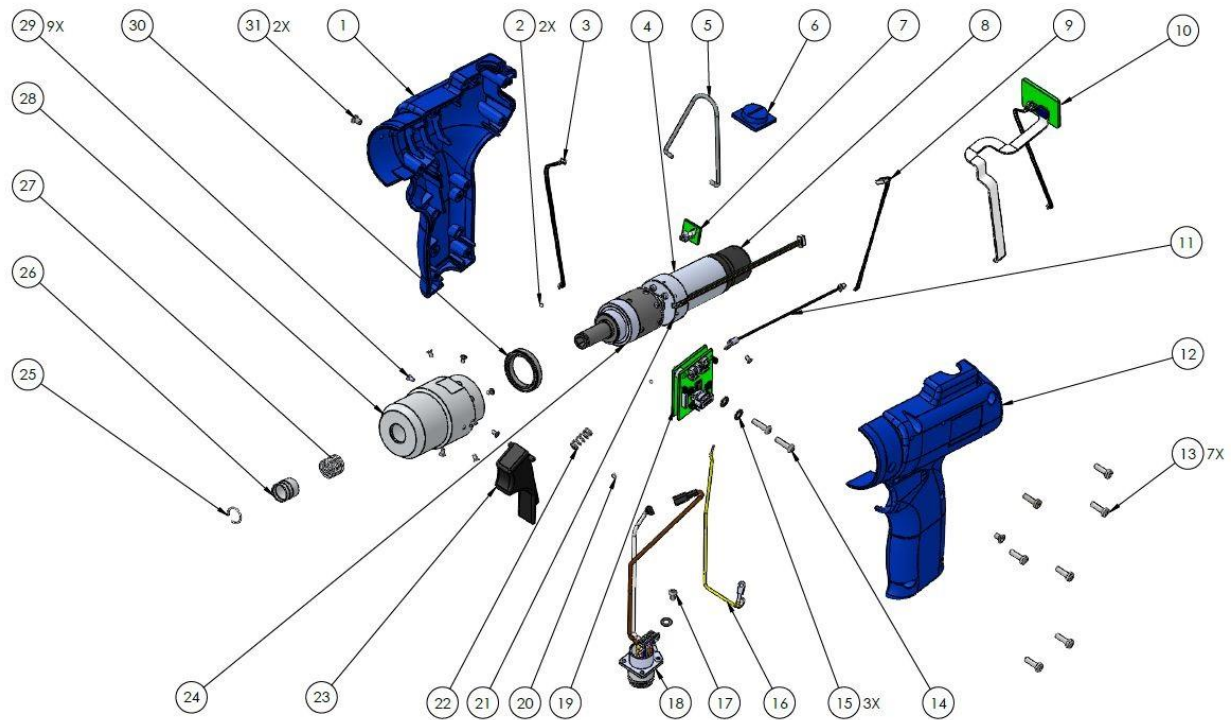
## EXPLODED VIEW KDS-MT1.5:



## SPARE PARTS KDS-MT1.5:

| Pos. | Description               | Qty | Code       |
|------|---------------------------|-----|------------|
| 1    | HOOK                      | 1   | 200060     |
| 2    | MALE CONNECTOR M16 10 PIN | 1   | 201667     |
| 3    | PCB FLEX – LED BOARD      | 1   | 852537     |
| 4    | SCREW ZN M3X12 TX10       | 1   | 231545     |
| 5    | LED BOARD KDS/D           | 1   | 852535     |
| 6    | SCREW ZN M3X12 TX10       | 6   | 231541     |
| 7    | LED KDS-XX/D              | 2   | 231553     |
| 8    | BOARD                     | 1   | 852528     |
| 9    | SCREW M3X12 ZN TX10       | 1   | 231547     |
| 10   | REVERSE BUTTON KDS        | 1   | 231535     |
| 11   | HOUSING KDS-XX/D          | 1   | 231551     |
|      | HOUSING ESD KDS-XX/D      | 1   | 231551/ESD |
| 12   | MOTOR KDS-MT1.5           | 1   | 231509/2L  |
| 13   | SENSOR                    | 1   | 231534     |
| 14   | TRANSDUCER                | 1   | 210050/T   |
| 15   | REDUCTION GEARS KDS-MT1.5 | 1   | 250040/TMT |
| 16   | SCREW TSP M2X4 TX6 ZN     | 3   | 231531     |
| 17   | MOTOR SEAT                | 1   | 234504/TD  |
| 18   | BEARING                   | 1   | 231533     |
| 19   | RING                      | 1   | 230020/1   |
| 20   | RING                      | 1   | 200007     |
| 21   | SPRING                    | 1   | 200009     |
| 22   | BALL 2 MM                 | 1   | 200011     |
| 23   | HOUSING KDS-XX/D          | 1   | 231550     |
|      | HOUSING ESD KDS-XX/D      | 1   | 231550/ESD |
| 24   | ENCODER                   | 1   | 231528     |
| 25   | LEVER SPRING              | 1   | 221061     |
| 26   | LEVER                     | 1   | 231552     |
|      | LEVER ESD                 | 1   | 231552/ESD |
| 27   | MAGNET KDS-XX/D           | 1   | 231540     |
| 28   | ENCODER WIRING            | 1   | 231536     |
| 29   | SCREW 2,2X6 TX6           | 1   | 231538     |
| 30   | ENCODER WIRING            | 1   | 231546     |
| 31   | SCREW M2,5X4 TX8          | 1   | 872487     |
| 32   | WASHER                    | 2   | 800041     |
|      | LABEL                     | 1   | 800199     |
|      | LABEL ESD                 | 1   | 800199/ESD |

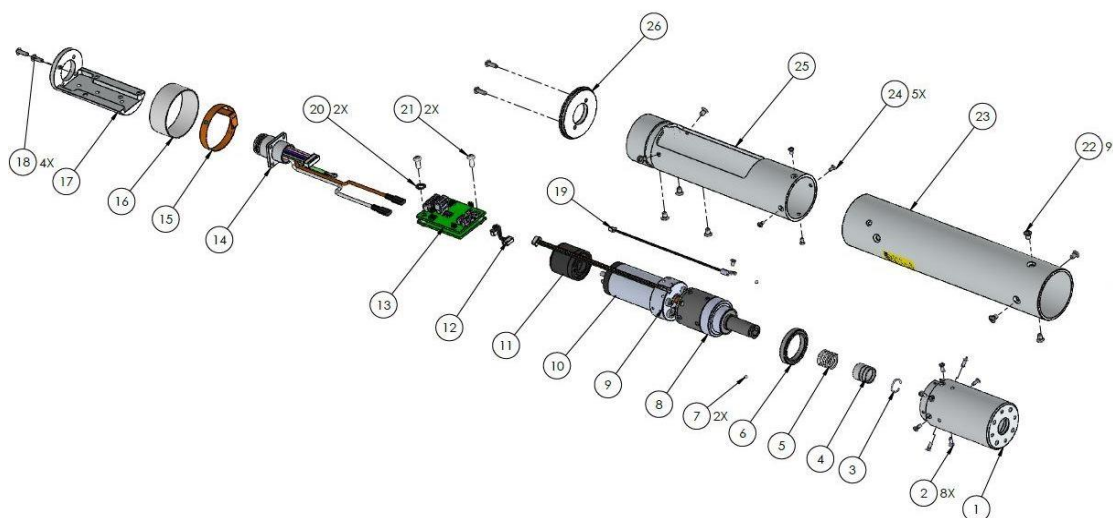
## EXPLODED VIEW KDS-MT1.5P:



## SPARE PARTS KDS-MT1.5P:

| Pos. | Description                    | Qty | Code       |
|------|--------------------------------|-----|------------|
| 1    | HOUSING KDS-XX/P               | 1   | 231560     |
|      | HOUSING KDS-XX/P-ESD           | 1   | 231560/ESD |
| 2    | BALL 2 MM                      | 2   | 200011     |
| 3    | PICOBLADE                      | 2   | 231557     |
| 4    | MOTOR KDS-MT1.5                | 1   | 231509/2L  |
| 5    | HOOK                           | 1   | 200060     |
| 6    | CONNECTOR COVER KDS-XX/P       | 1   | 231562     |
|      | CONNECTOR COVER KDS-XX/P-ESD   | 1   | 231562/ESD |
| 7    | WHITE LED BOARD KDSXX/P        | 1   | 852538     |
| 8    | ENCODER                        | 1   | 231528     |
| 9    | ENCODER WIRING (KDS-PLxxP)     | 1   | 231536/L   |
| 10   | REVERSE SWITCH + LED KDS-PLxxP | 1   | 231535/P   |
| 11   | SENSOR                         | 1   | 231534     |
| 12   | HOUSING KDS-XX/P               | 1   | 231561     |
|      | HOUSING KDS-XX/P-ESD           | 1   | 231561/ESD |
| 13   | SCREW ZN M3X10 TX10            | 7   | 231539     |
| 14   | SCREW M3X12 TESTA ZN TX10      | 2   | 231547     |
| 15   | WASHER M3                      | 3   | 800041     |
| 16   | GROUND WIRING KDS-P            | 1   | 231546/P   |
|      | GROUND WIRING KDS-PU           | 1   | 231546/PU  |
| 17   | SCREW M2,5X6 TX8 ZN TX8        | 1   | 872487     |
| 18   | MALE CONNECTOR M16 10 PIN KDS- | 1   | 201667/P   |
|      | MALE CONNECTOR M16 10 PIN KDS- | 1   | 201667/PU  |
| 19   | BOARD KDS-P                    | 1   | 852528/P   |
| 20   | MAGNET                         | 1   | 231540/P   |
| 21   | TRANSDUCER                     | 1   | 210050/T   |
| 22   | SPRING LEVER                   | 1   | 221061     |
| 23   | LEVER KDS-XX/P                 | 1   | 231563     |
|      | LEVER KDS-XX/P-ESD             | 1   | 231563/ESD |
| 24   | REDUCTION GEARS KDS-MT1.5      | 1   | 250040/TMT |
| 25   | RING                           | 1   | 200007     |
| 26   | RING                           | 1   | 230020/1   |
| 27   | SPRING                         | 1   | 230021     |
| 28   | MOTOR SEAT KDS-MT1.5           | 1   | 234505/TPM |
| 29   | SCREW TSP M2X8 TX6 ZN          | 8   | 231554     |
| 30   | BEARING                        | 1   | 231533     |
| 31   | SCREW M3X5 TX10 ZN             | 2   | 801003     |
|      | LABEL                          | 1   | 800199     |
|      | LABEL ESD                      | 1   | 800199/ESD |

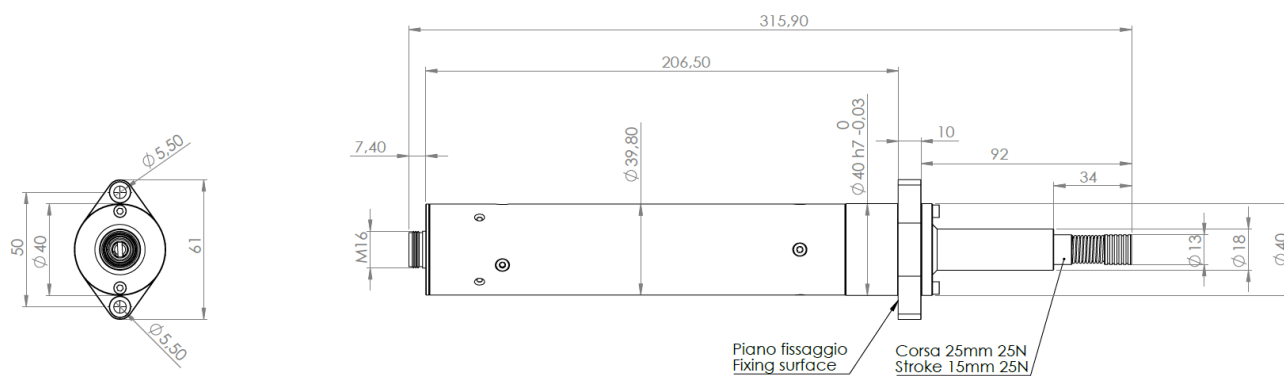
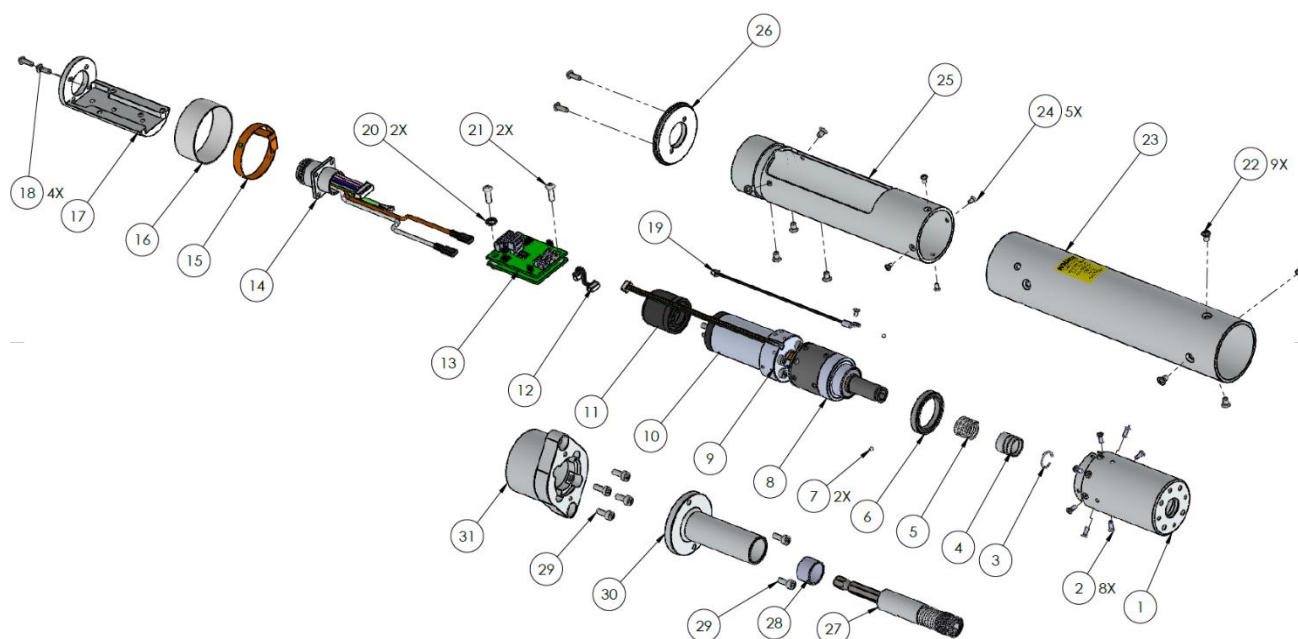
## EXPLODED VIEW KDS-MT1.5CA:



## SPARE PARTS KDS-MT1.5CA:

| Pos. | Description                    | Qty | Code         |
|------|--------------------------------|-----|--------------|
| 1    | MOTOR SEAT                     | 1   | 234505/TCAMT |
| 2    | SCREW TSP M2X6 TX6 ZN          | 8   | 231527       |
| 3    | RING                           | 1   | 200007       |
| 4    | RING                           | 1   | 230020/1     |
| 5    | SPRING                         | 1   | 230021       |
| 6    | BEARING                        | 1   | 231533       |
| 7    | BALL 2 MM                      | 1   | 200011       |
| 8    | REDUCTION GEARS KDS-MT1.5      | 1   | 250040/TMT   |
| 9    | TRANSDUCER                     | 1   | 210050/T     |
| 10   | MOTOR KDS-MT1.5                | 1   | 231509/2L    |
| 11   | ENCODER                        | 1   | 231528       |
| 12   | ENCODER WIRING                 | 1   | 231536       |
| 13   | BOARD                          | 1   | 852528       |
| 14   | MALE CONNECTOR M16 10 PIN      | 1   | 201667       |
| 15   | PCB FLEX LED                   | 1   | 852531       |
| 16   | LED RING KDS-XXCA              | 1   | 231537       |
| 17   | BOARD SUPPORT                  | 1   | 231523       |
| 18   | SCREW M2,5X8 TX8 ZN            | 4   | 872478       |
| 19   | SENSOR                         | 1   | 231534       |
| 20   | WASHER                         | 2   | 800041       |
| 21   | SCREW M3X10 ZN TX10            | 2   | 231530       |
| 22   | SCREW M3X5 TX10 ZN             | 9   | 801003       |
| 23   | ALUMINIUM BODY                 | 1   | 231525/MT    |
| 24   | SCREW M3X5 TX10 ZN             | 5   | 801003       |
| 25   | ALUMINIUM BODY (BOARD SUPPORT) | 1   | 231524/MT    |
| 26   | CAP                            | 1   | 231526       |
|      | LABEL                          | 1   | 800199       |

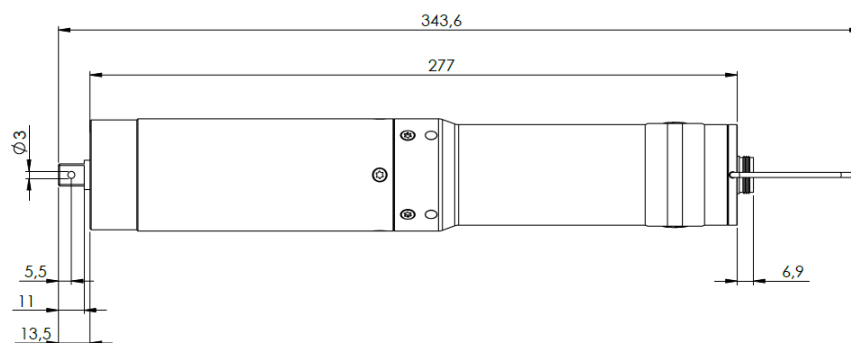
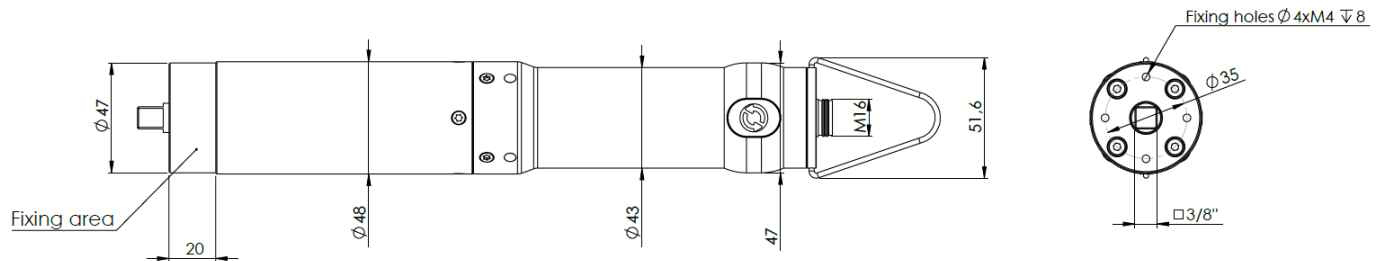
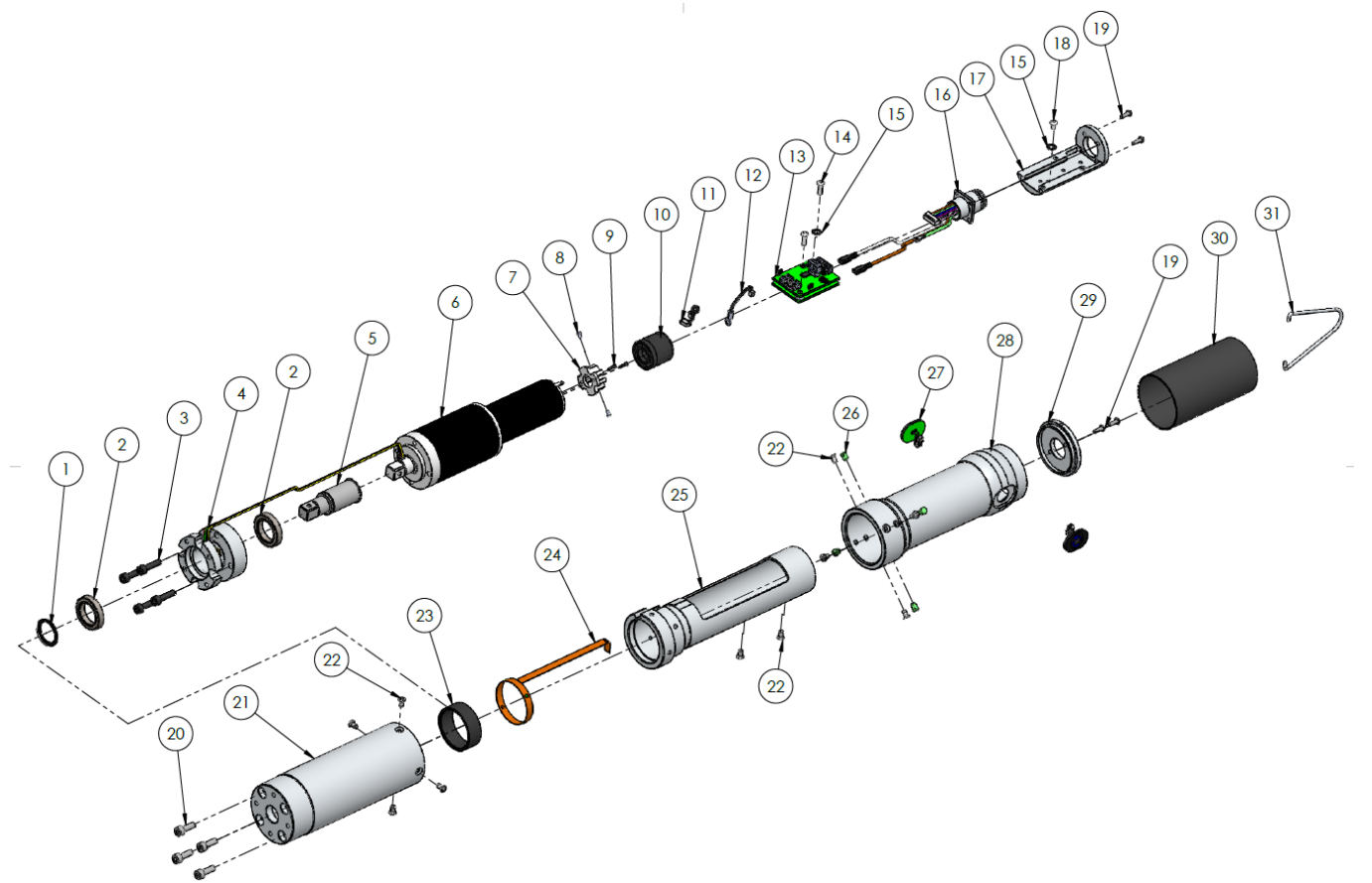
## EXPLODED VIEW KDS-MT1.5CA/FN:



## SPARE PARTS KDS-MT1.5CA/FN:

| Pos. | Description               | Qty | Code         |
|------|---------------------------|-----|--------------|
| 1    | MOTOR SEAT                | 1   | 234505/TCAMT |
| 2    | SCREW TSP M2X6 TX6 ZN     | 8   | 231527       |
| 3    | RING                      | 1   | 200007       |
| 4    | RING                      | 1   | 230020/1     |
| 5    | SPRING                    | 1   | 230021       |
| 6    | BEARING                   | 1   | 231533       |
| 7    | BALL 2 MM                 | 1   | 200011       |
| 8    | REDUCTION GEARS KDS-MT1.5 | 1   | 250040/TMT   |
| 9    | TRANSDUCER                | 1   | 210050/T     |
| 10   | MOTOR KDS-MT1.5           | 1   | 231509/2L    |
| 11   | ENCODER                   | 1   | 231528       |
| 12   | ENCODER WIRING            | 1   | 231536       |
| 13   | BOARD                     | 1   | 852528       |
| 14   | MALE CONNECTOR M16 10 PIN | 1   | 201667       |
| 15   | PCB FLEX LED              | 1   | 852531       |
| 16   | LED RING KDS-XXCA         | 1   | 231537       |
| 17   | BOARD SUPPORT             | 1   | 231523       |
| 18   | SCREW M2,5X8 TX8 ZN       | 4   | 872478       |
| 19   | SENSOR                    | 1   | 231534       |
| 20   | WASHER                    | 2   | 800041       |
| 21   | SCREW M3X10 ZN TX10       | 2   | 231530       |
| 22   | SCREW M3X5 TX10 ZN        | 9   | 801003       |
| 23   | ALUMINIUM BODY            | 1   | 231525/MT    |
| 24   | SCREW M3X5 TX10 ZN        | 5   | 801003       |
| 25   | ALUMINIUM BODY            | 1   | 231524/MT    |
| 26   | CAP                       | 1   | 231526       |
| 27   | COMPENSATOR 1/4"-1/4"     | 1   | 800322       |
| 28   | PERMAGLIDE                | 1   | 800334       |
| 29   | SCREW M3X6                | 6   | 231504/ZN    |
| 30   | TELESCOPIC DRIVE BUSH     | 1   | 250010       |
| 31   | SUPPORT PLATE             | 1   | 234547       |

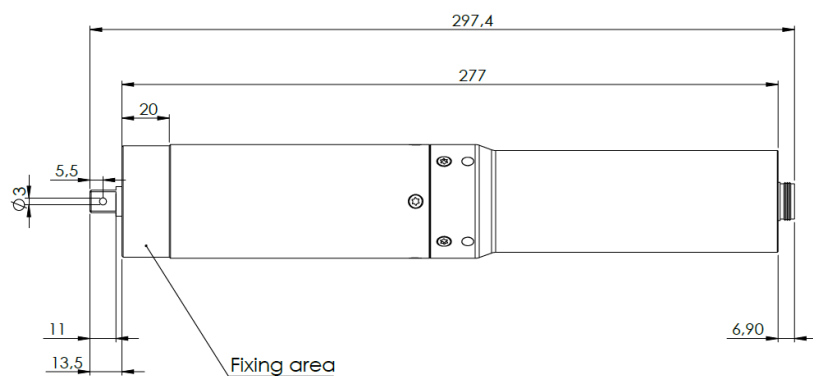
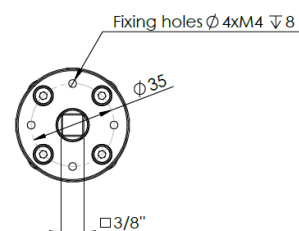
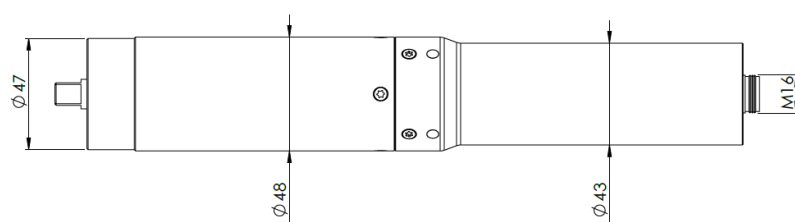
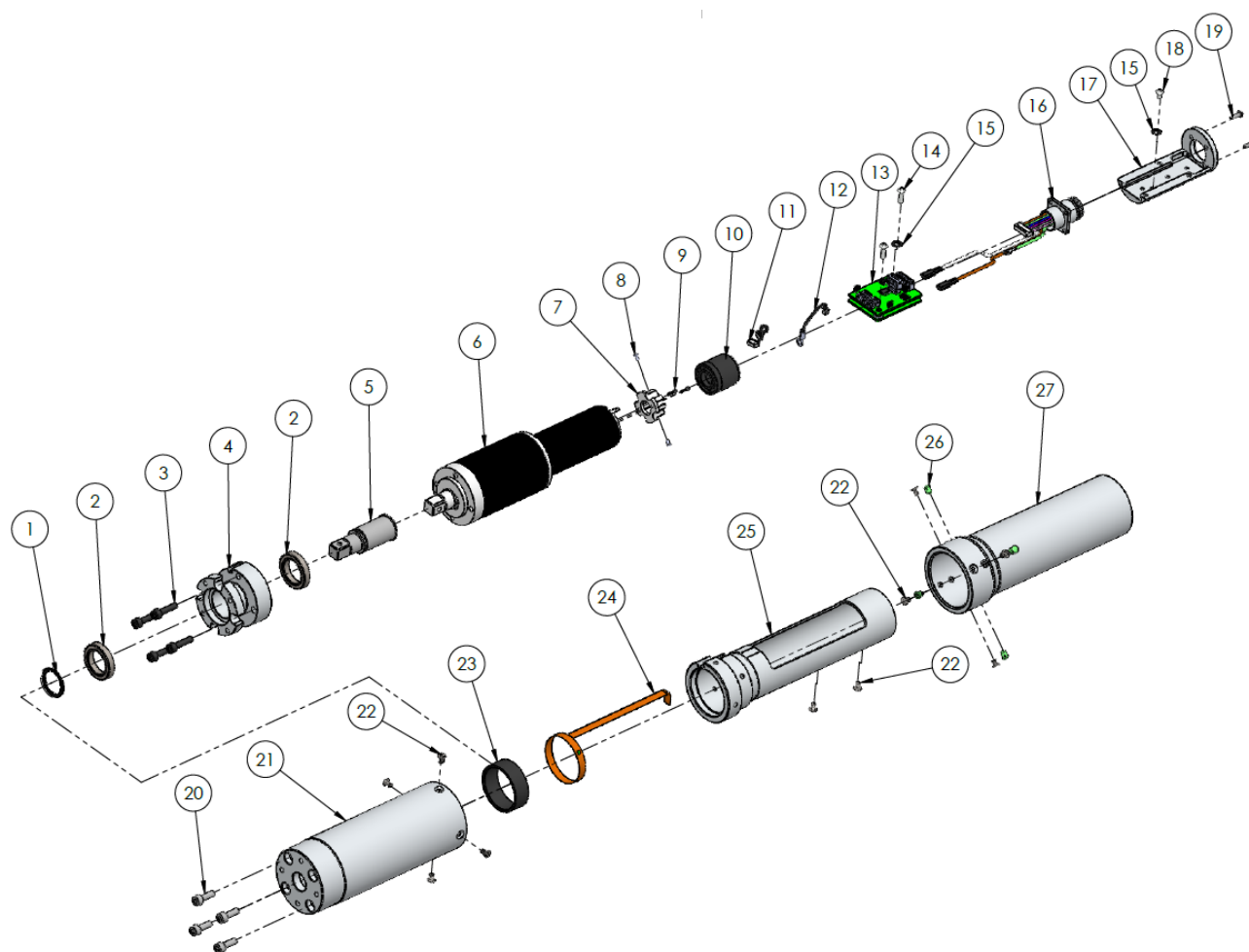
## EXPLODED VIEW KDS-PL20:



## SPARE PARTS KDS-PL20:

| Pos. | Description                    | Qty | Code       |
|------|--------------------------------|-----|------------|
| 1    | RING 17mm                      | 1   | 234920     |
| 2    | TRANSDUCER BEARING KDS PL20    | 2   | 234922     |
| 3    | SCREW 8.8 M4X16                | 4   | 240020     |
| 4    | TRANSDUCER KDS PL20            | 1   | 234903     |
| 5    | JOINT SHAFT KDS PL20           | 1   | 234904     |
| 6    | MOTOR+REDUCTION GEARS KDS PL20 | 1   | 231612/20M |
| 7    | ENCODER CLAMP                  | 1   | 234530/S   |
| 8    | SCREW M2X4                     | 2   | 801004     |
| 9    | SCREW M1.6X6                   | 3   | 872473     |
| 10   | ENCODER                        | 1   | 231528     |
| 11   | ENCODER WIRING                 | 1   | 231536     |
| 12   | SENSOR                         | 1   | 231534     |
| 13   | BOARD                          | 1   | 852528     |
| 14   | SCREW M3X10                    | 2   | 231530     |
| 15   | WASHER                         | 2   | 801005     |
| 16   | MALE CONNECTOR M16 10 PIN      | 1   | 201667     |
| 17   | BOARD SUPPORT                  | 1   | 231523     |
| 18   | SCREW M3X5                     | 1   | 872444     |
| 19   | SCREW M2,5X8 TX8               | 4   | 872478     |
| 20   | SCREW M4X12                    | 4   | 231507     |
| 21   | BODY (REDUCTION GEARS)         | 1   | 234900     |
| 22   | SCREW M3X6 TX10                | 10  | 801002     |
| 23   | BUSH KDS PL20                  | 1   | 234924     |
| 24   | PCB FLEX LED KDS PL20          | 1   | 852531/L   |
| 25   | BOARD SUPPORT BODY             | 1   | 234902     |
| 26   | LED GUIDE KDS-XX/D             | 4   | 231553     |
| 27   | REVERSE/START BUTTON           | 2   | 231535     |
| 28   | BODY (BOARD)                   | 1   | 234901     |
| 29   | CAP KDS PL20-35-50             | 1   | 234911     |
| 30   | HOUSING RUBBER 87 mm           | 1   | 234923     |
| 31   | HOOK                           | 1   | 200060     |

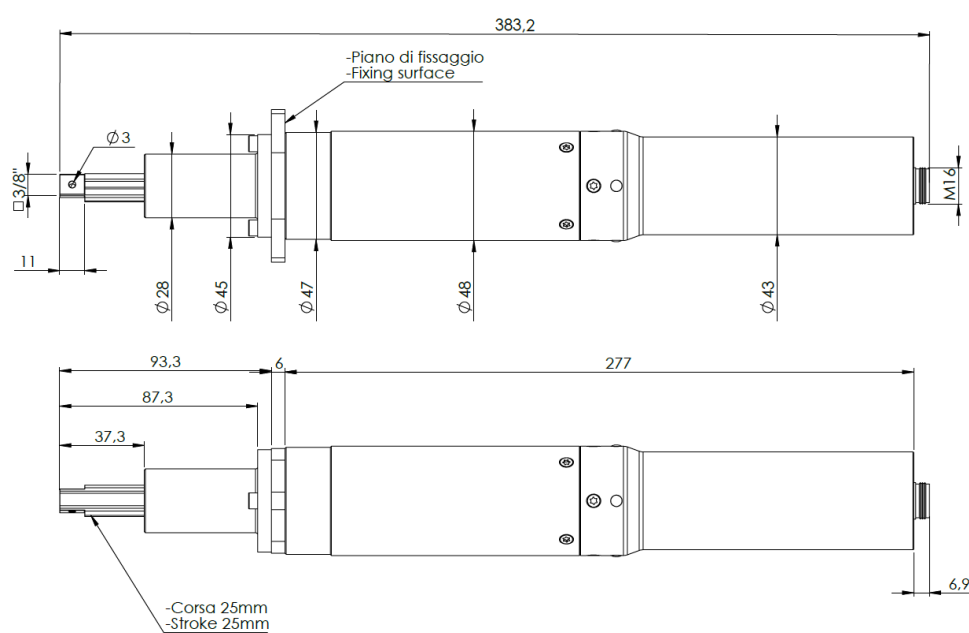
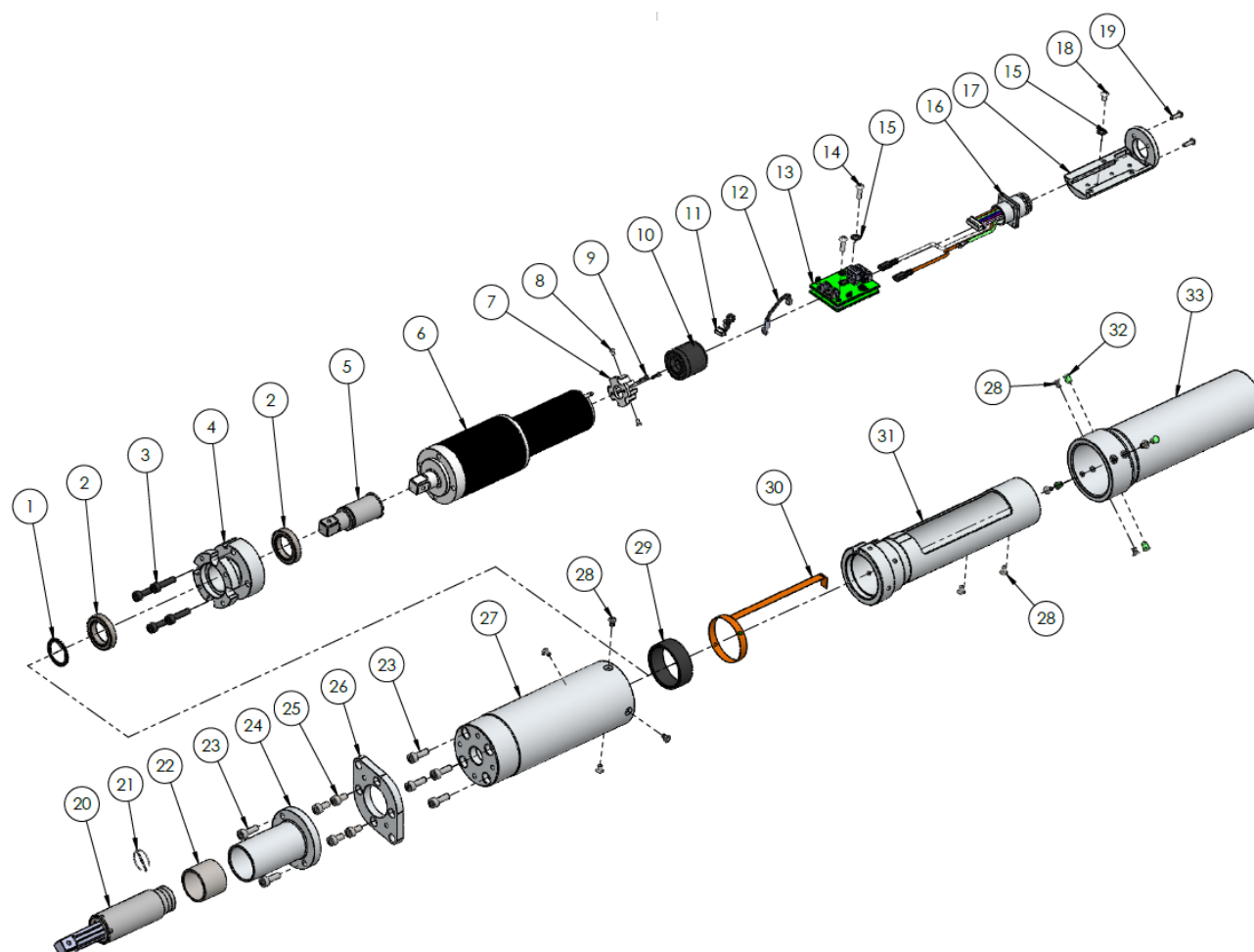
## EXPLODED VIEW KDS-PL20CA:



## SPARE PARTS KDS-PL20CA:

| Pos. | Description                    | Qty | Code       |
|------|--------------------------------|-----|------------|
| 1    | RING 17mm                      | 1   | 234920     |
| 2    | TRANSDUCER BEARING KDS PL20    | 2   | 234922     |
| 3    | SCREW 8.8 M4X16                | 4   | 240020     |
| 4    | TRANSDUCER KDS PL20            | 1   | 234903     |
| 5    | JOINT SHAFT KDS PL20           | 1   | 234904     |
| 6    | MOTOR+REDUCTION GEARS KDS PL20 | 1   | 231612/20M |
| 7    | ENCODER CLAMP                  | 1   | 234530/S   |
| 8    | SCREW M2X4                     | 2   | 801004     |
| 9    | SCREW M1.6X6                   | 3   | 872473     |
| 10   | ENCODER                        | 1   | 231528     |
| 11   | ENCODER WIRING                 | 1   | 231536     |
| 12   | SENSOR                         | 1   | 231534     |
| 13   | BOARD                          | 1   | 852528     |
| 14   | SCREW M3X10                    | 2   | 231530     |
| 15   | WASHER                         | 2   | 801005     |
| 16   | MALE CONNECTOR M16 10 PIN      | 1   | 201667     |
| 17   | BOARD SUPPORT                  | 1   | 231523     |
| 18   | SCREW M3X5                     | 1   | 872444     |
| 19   | SCREW M2,5X8 TX8               | 2   | 872478     |
| 20   | SCREW M4X12                    | 4   | 231507     |
| 21   | BODY (REDUCTION GEARS)         | 1   | 234900     |
| 22   | SCREW M3X6 TX10                | 10  | 801002     |
| 23   | BUSH KDS PL20                  | 1   | 234924     |
| 24   | PCB FLEX LED KDS PL20          | 1   | 852531/L   |
| 25   | BOARD SUPPORT BODY             | 1   | 234902     |
| 26   | LED GUIDE KDS-XX/D             | 4   | 231553     |
| 27   | BODY                           | 1   | 234910     |

## EXPLODED VIEW KDS-PL20CA/FN:



## SPARE PARTS KDS-PL20CA/FN:

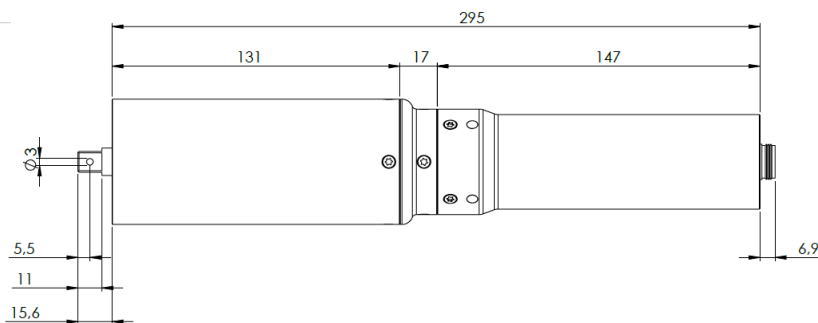
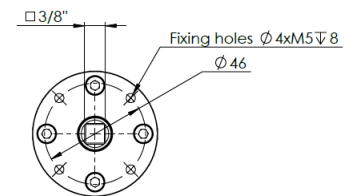
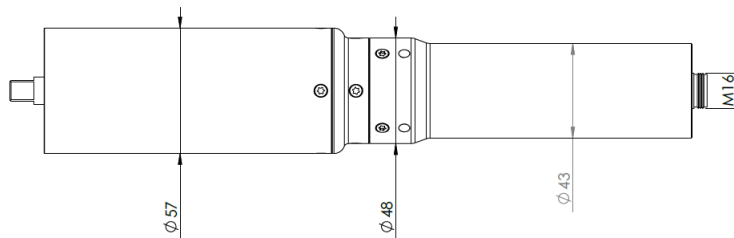
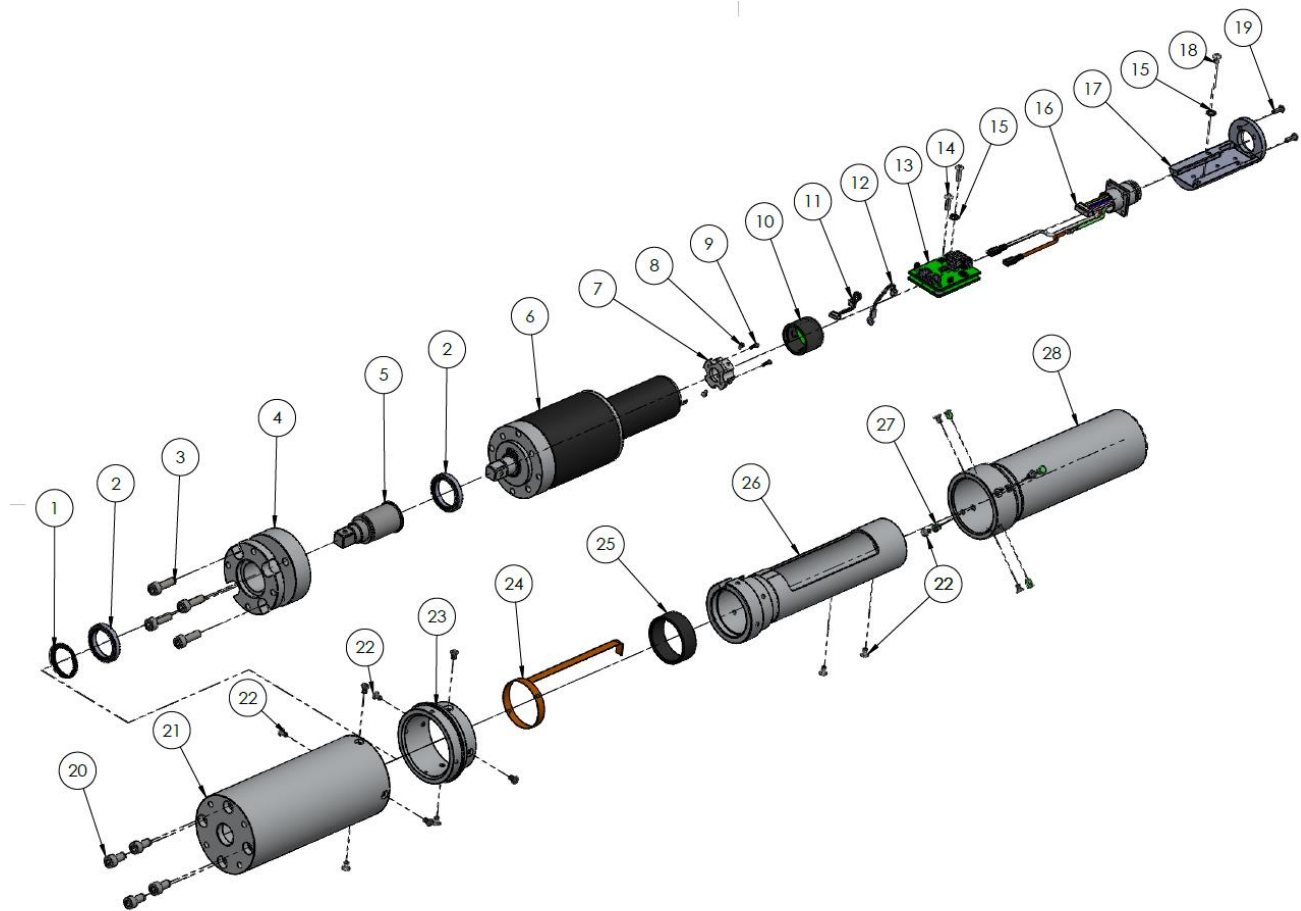
| Pos. | Description                    | Qty | Code        |
|------|--------------------------------|-----|-------------|
| 1    | RING 17mm                      | 1   | 234920      |
| 2    | TRANSDUCER BEARING KDS PL20    | 2   | 234922      |
| 3    | SCREW 8.8 M4X16                | 4   | 240020      |
| 4    | TRANSDUCER KDS PL20            | 1   | 234903      |
| 5    | JOINT SHAFT KDS PL20           | 1   | 234904      |
| 6    | MOTOR+REDUCTION GEARS KDS PL20 | 1   | 231612/20M  |
| 7    | ENCODER CLAMP                  | 1   | 234530/S    |
| 8    | SCREW M2X4                     | 2   | 801004      |
| 9    | SCREW M1.6X6                   | 3   | 872473      |
| 10   | ENCODER                        | 1   | 231528      |
| 11   | ENCODER WIRING                 | 1   | 231536      |
| 12   | SENSOR                         | 1   | 231534      |
| 13   | BOARD                          | 1   | 852528      |
| 14   | SCREW M3X10                    | 2   | 231530      |
| 15   | WASHER                         | 2   | 801005      |
| 16   | MALE CONNECTOR M16 10 PIN      | 1   | 201667      |
| 17   | BOARD SUPPORT                  | 1   | 231523      |
| 18   | SCREW M3X5                     | 1   | 872444      |
| 19   | SCREW M2,5X8 TX8               | 2   | 872478      |
| 20   | COMPENSATOR 3/8"               | 1   | 800321      |
| 21   | 1301-C SPINE 3/8"              | 1   | FE-1301C    |
| 22   | PERMAGLIDE                     | 1   | 800317/1    |
| 23   | SCREW M4X12                    | 6   | 231507      |
| 24   | TELESCOPIC GUIDE               | 1   | 800302/20   |
| 25   | SCREW M4X8                     | 4   | 231505      |
| 26   | CLAMP                          | 1   | 234510/20/3 |
| 27   | BODY (REDUCTION GEARS)         | 1   | 234900      |
| 28   | SCREW M3X6 TX                  | 10  | 801002      |
| 29   | BUSH KDS PL20                  | 1   | 234924      |
| 30   | PCB FLEX LED KDS PL20          | 1   | 852531/L    |
| 31   | BOARD SUPPORT BODY             | 1   | 234902      |
| 32   | LED GUIDE KDS-XX/D             | 4   | 231553      |
| 33   | BODY (BOARD)                   | 1   | 234910      |



## SPARE PARTS KDS-PL35:

| Pos. | Description                    | Qty | Code       |
|------|--------------------------------|-----|------------|
| 1    | RING 17mm                      | 1   | 234921     |
| 2    | TRANSDUCER BEARING KDS         | 2   | 231533     |
| 3    | SCREW 8.8 M4X16                | 4   | 234588     |
| 4    | TRANSDUCER KDS PL35            | 1   | 234907     |
| 5    | JOINT SHAFT KDS PL35           | 1   | 234908     |
| 6    | MOTOR+REDUCTION GEARS KDS PL35 | 1   | 231612/30M |
| 7    | ENCODER KDS                    | 1   | 231528     |
| 8    | ENCODER WIRING                 | 1   | 231536     |
| 9    | SENSOR                         | 1   | 231534     |
| 10   | BOARD                          | 1   | 852528     |
| 11   | MALE CONNECTOR M16 10 PIN      | 1   | 201667     |
| 12   | BOARD SUPPORT                  | 1   | 231523     |
| 13   | WASHER                         | 1   | 800041     |
| 14   | SCREW M3X10                    | 1   | 231530     |
| 15   | SCREW M2,5X8 TX8               | 4   | 872478     |
| 16   | SCREW M5X10                    | 4   | 231503     |
| 17   | BODY (REDUCTION GEARS)         | 1   | 234905     |
| 18   | SCREW M3X6 TX10                | 14  | 801002     |
| 19   | JONCTION                       | 1   | 234906     |
| 20   | PCB FLEX LED                   | 1   | 852531/L   |
| 21   | BUSH                           | 1   | 234924     |
| 22   | BOARD SUPPORT BODY             | 1   | 234902     |
| 23   | LEDGUIDE                       | 4   | 231553     |
| 24   | REVERSE/START BUTTON           | 2   | 231535     |
| 25   | BODY (BOARD)                   | 1   | 234901     |
| 26   | CAP KDS PL20-35-50             | 1   | 234911     |
| 27   | HOUSING RUBBER KDS PL20-35-50  | 1   | 234923     |
| 28   | HOOK                           | 1   | 200060     |

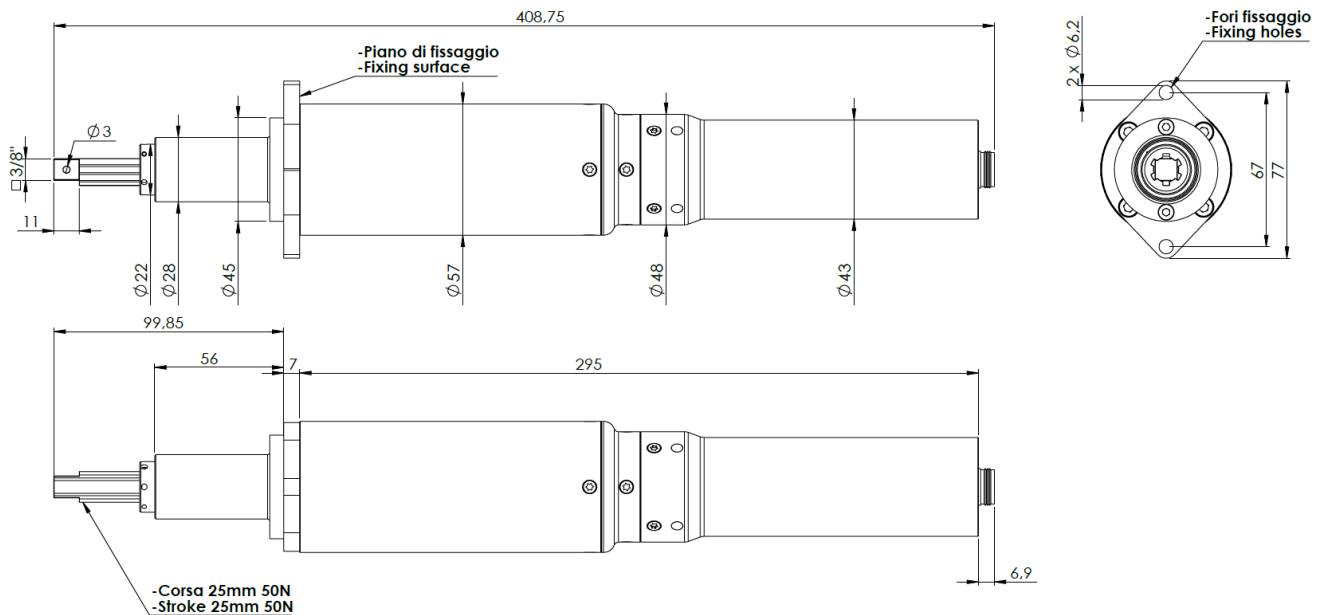
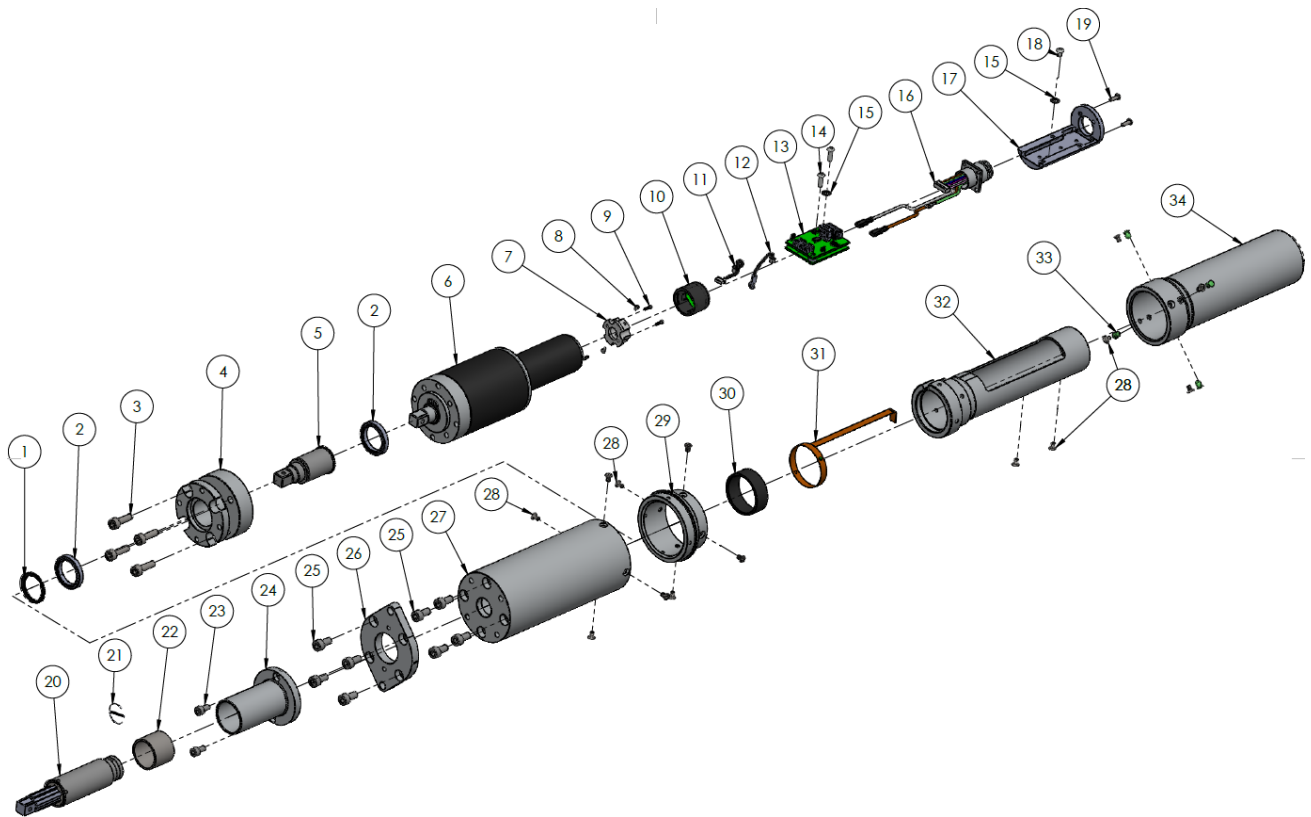
## EXPLODED VIEW KDS-PL35CA:



## SPARE PARTS KDS-PL35CA:

| Pos. | Description                    | Qty | Code       |
|------|--------------------------------|-----|------------|
| 1    | RING 17mm                      | 1   | 234921     |
| 2    | TRANSDUCER BEARING KDS         | 2   | 231533     |
| 3    | SCREW 8.8 M4X16                | 4   | 234588     |
| 4    | TRANSDUCER KDS PL35            | 1   | 234907     |
| 5    | JOINT SHAFT KDS PL35           | 1   | 234908     |
| 6    | MOTOR+REDUCTION GEARS KDS PL35 | 1   | 231612/30M |
| 7    | ENCODER CLAMP                  | 1   | 234530/S   |
| 8    | SCREW M2X4                     | 2   | 801004     |
| 9    | SCREW M1_6X6                   | 2   | 872473     |
| 10   | ENCODER                        | 1   | 231528     |
| 11   | ENCODER WIRING                 | 1   | 231536     |
| 12   | SENSOR                         | 1   | 231534     |
| 13   | BOARD                          | 1   | 852528     |
| 14   | SCREW M3X10                    | 2   | 231530     |
| 15   | WASHER                         | 1   | 800041     |
| 16   | MALE CONNECTOR M16 10 PIN      | 1   | 201667     |
| 17   | SUPPORT BOARD                  | 1   | 231523     |
| 18   | SCREW M3X5                     | 1   | 872444     |
| 19   | SCREW M2,5X8 TX8               | 2   | 872478     |
| 20   | SCREW M5X10                    | 4   | 231503     |
| 21   | BODY (REDUCTION GEARS)         | 1   | 234905     |
| 22   | SCREW M3X6 TX10                | 14  | 801002     |
| 23   | JONCTION                       | 1   | 234906     |
| 24   | PCB FLEX LED                   | 1   | 852531/L   |
| 25   | BUSH                           | 1   | 234924     |
| 26   | BOARD SUPPORT BODY             | 1   | 234902     |
| 27   | LED GUIDE                      | 4   | 231553     |
| 28   | BODY                           | 1   | 234910     |

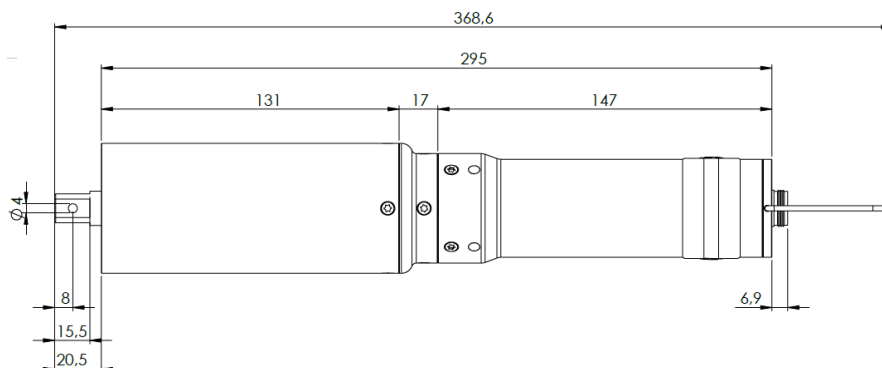
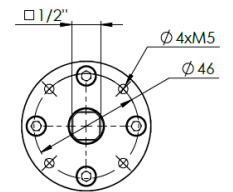
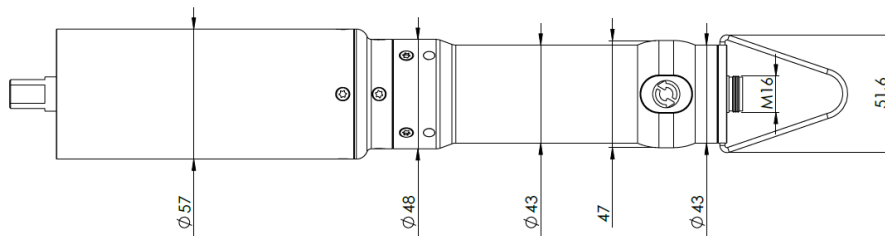
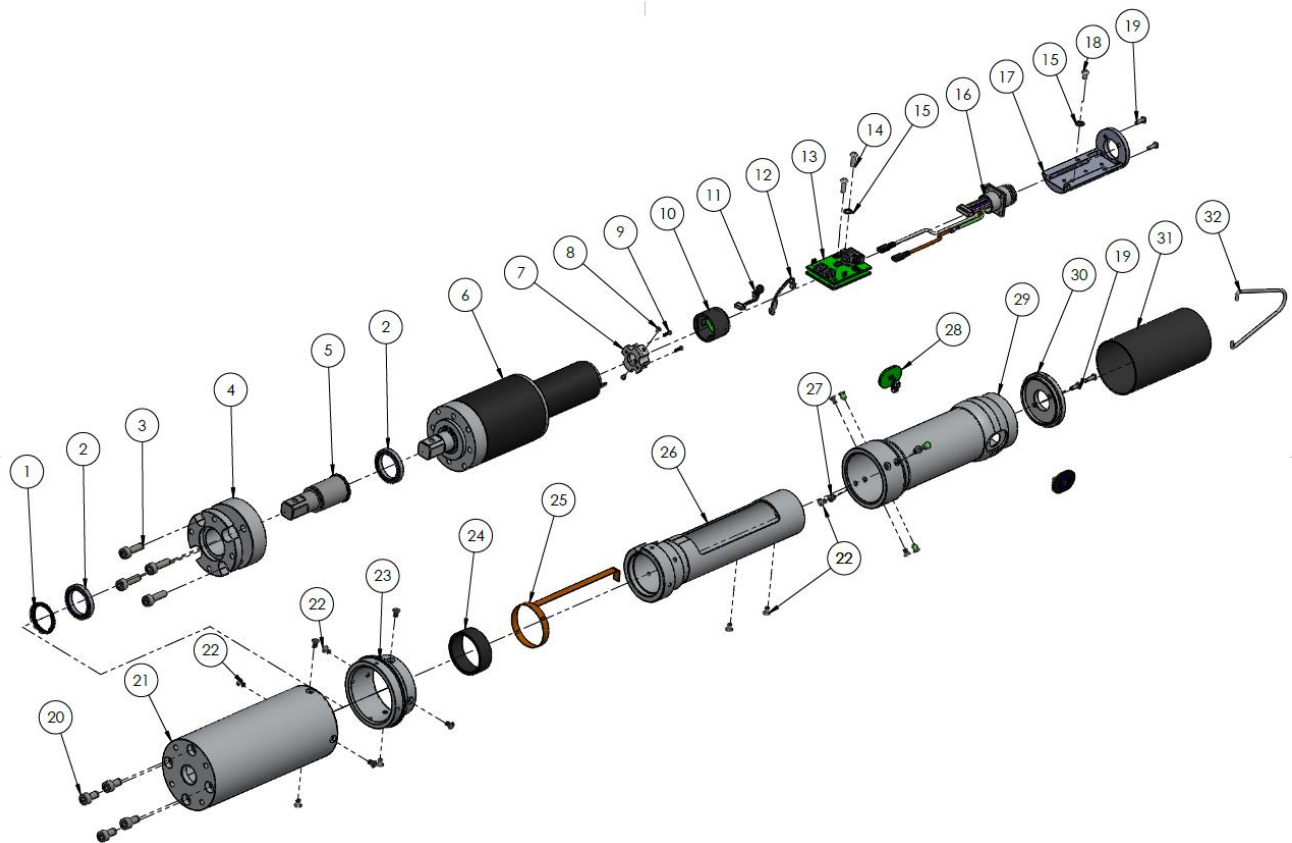
## EXPLODED VIEW KDS-PL35CA/FN:



## SPARE PARTS KDS-PL35CA/FN:

| Pos. | Description                    | Qty | Code        |
|------|--------------------------------|-----|-------------|
| 1    | RING 20mm                      | 1   | 234921      |
| 2    | TRANSDUCER BEARING KDS         | 2   | 231533      |
| 3    | SCREW M5X16                    | 4   | 234588      |
| 4    | TRANSDUCER PL35                | 1   | 234907      |
| 5    | JOINT SHAFT KDS PL35           | 1   | 234908      |
| 6    | MOTOR+REDUCTION GEARS KDS PL35 | 1   | 231612/30M  |
| 7    | ENCODER CLAMP                  | 1   | 234530/S    |
| 8    | SCREW M2X4                     | 2   | 801004      |
| 9    | SCREW M1_6X6                   | 2   | 872473      |
| 10   | ENCODER                        | 1   | 231528      |
| 11   | ENCODER WIRING                 | 1   | 231536      |
| 12   | SENSOR                         | 1   | 231534      |
| 13   | BOARD                          | 1   | 852528      |
| 14   | SCREW M3X10                    | 2   | 231530      |
| 15   | WASHER                         | 1   | 800041      |
| 16   | MALE CONNECTOR M16 10 PIN      | 1   | 201667      |
| 17   | SUPPORT BOARD                  | 1   | 231523      |
| 18   | SCREW M3X5                     | 1   | 872444      |
| 19   | SCREW M2,5X8 TX8               | 2   | 872478      |
| 20   | COMPENSATOR 3/8"               | 1   | 800321      |
| 21   | 1301-C SPINE 3/8"              | 1   | FE-1301C    |
| 22   | PERMAGLIDE                     | 1   | 800317/1    |
| 23   | SCREW M4X8                     | 2   | 231505      |
| 24   | TELESCOPI BUSH GUIDE           | 1   | 800302/20   |
| 25   | SCREW M5X10                    | 8   | 231503      |
| 26   | CLAMP                          | 1   | 234510/30/3 |
| 27   | BODY (REDUCTION GEARS)         | 1   | 234905      |
| 28   | SCREW M3X6 TX10                | 14  | 801002      |
| 29   | JONCTION                       | 1   | 234906      |
| 30   | BUSH                           | 1   | 234924      |
| 31   | PCB FLEX LED                   | 1   | 852531/L    |
| 32   | BOARD SUPPORT BODY             | 1   | 234902      |
| 33   | LED GUIDE                      | 4   | 231553      |
| 34   | BODY                           | 1   | 234910      |

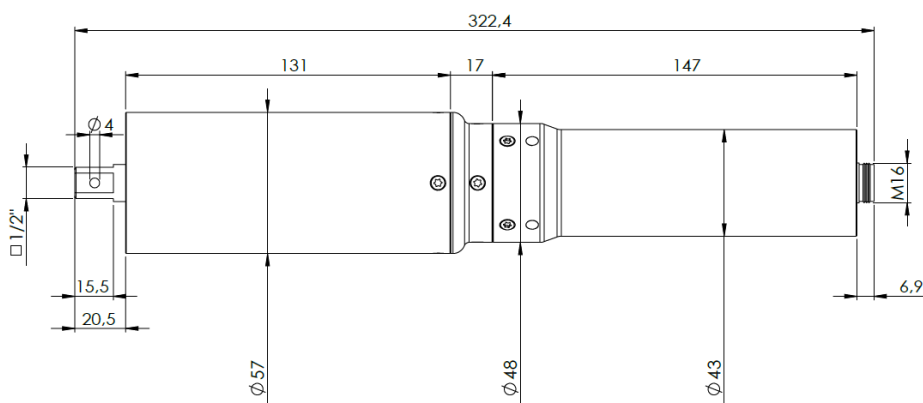
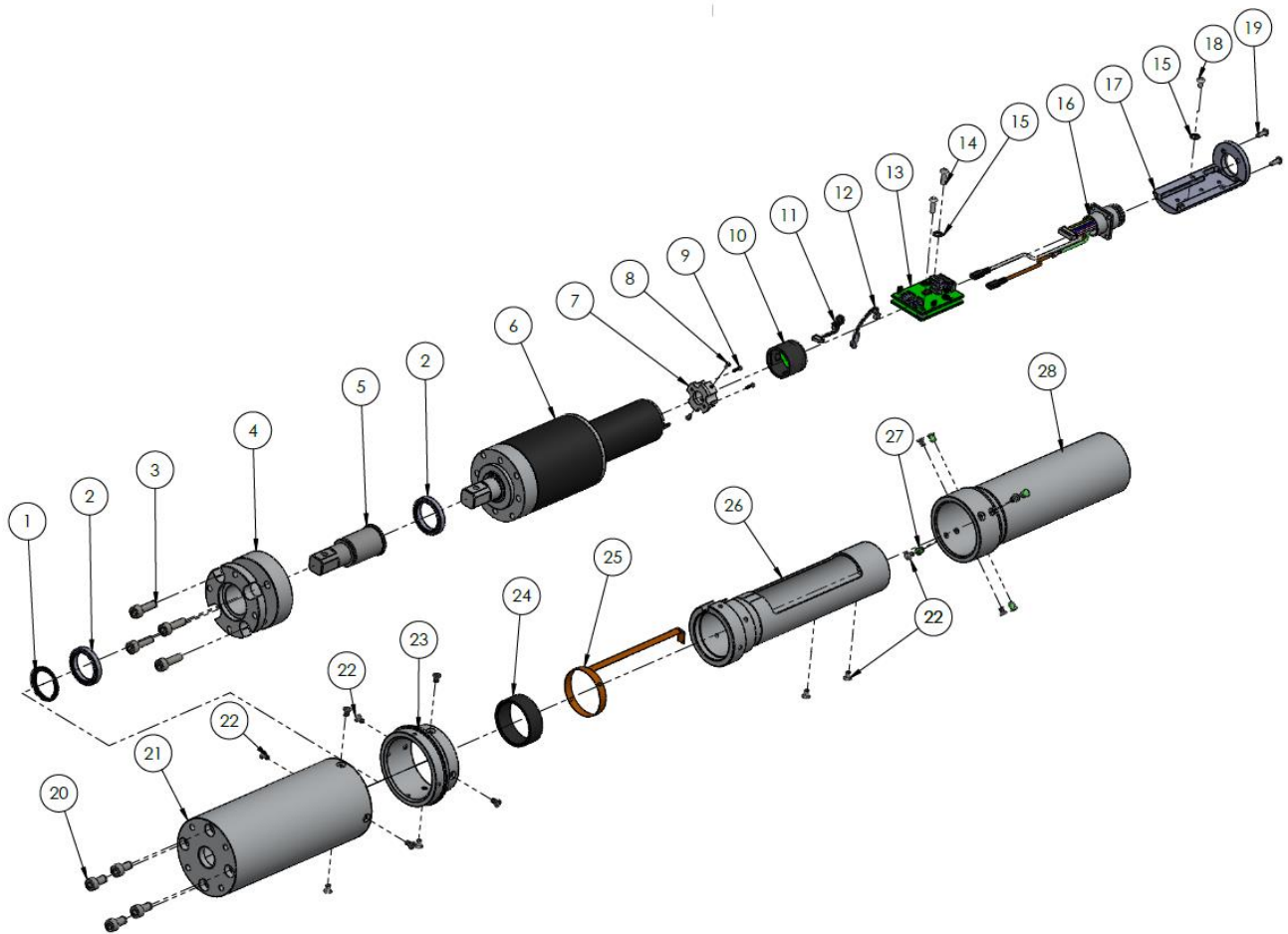
## EXPLODED VIEW KDS-PL50:



## SPARE PARTS KDS-PL50:

| Pos. | Description                    | Qty | Code       |
|------|--------------------------------|-----|------------|
| 1    | RING                           | 1   | 234921     |
| 2    | BEARING                        | 2   | 231533     |
| 3    | SCREW M5X16                    | 4   | 234588     |
| 4    | TRANSDUCER PL35-PL50           | 1   | 234907     |
| 5    | JOINT SHAFT KDS PL50           | 1   | 234909     |
| 6    | MOTOR+REDUCTION GEARS KDS PL50 | 1   | 231612/50M |
| 7    | ENCODER CLAMP                  | 1   | 234530/S   |
| 8    | SCREW M2X4                     | 2   | 801004     |
| 9    | SCREW M1_6X6 ENCODER           | 2   | 872473     |
| 10   | ENCODER                        | 1   | 231528     |
| 11   | ENCODER WIRES                  | 1   | 231536     |
| 12   | SENSOR                         | 1   | 231534     |
| 13   | BOARD                          | 1   | 852528     |
| 14   | SCREW M3X10                    | 2   | 231530     |
| 15   | WASHER                         | 2   | 801005     |
| 16   | MALE CONNECTOR M16 10 PIN      | 1   | 201667     |
| 17   | SUPPORT BOARD                  | 1   | 231523     |
| 18   | SCREW M3X5                     | 1   | 872444     |
| 19   | SCREW M2,5X8 TX8               | 4   | 872478     |
| 20   | SCREW M5X10                    | 4   | 231503     |
| 21   | BODY (REDUCTION GEARS)         | 1   | 234905     |
| 22   | SCREW M3X6 TX10 ZN             | 14  | 801002     |
| 23   | JUNCTION                       | 1   | 234906     |
| 24   | BUSH                           | 1   | 234924     |
| 25   | PCB FLEX LED                   | 1   | 852531/L   |
| 26   | BOARD SUPPORT BODY             | 1   | 234902     |
| 27   | LED GUIDE                      | 4   | 231553     |
| 28   | REVERSE/START BUTTON           | 2   | 231535     |
| 29   | BODY (BOARD)                   | 1   | 234901     |
| 30   | CAP                            | 1   | 234911     |
| 31   | RUBBER                         | 1   | 234923     |
| 32   | HOOK                           | 1   | 200060     |

## EXPLODED VIEW KDS-PL50CA:



## SPARE PARTS KDS-PL50CA:

| Pos. | Description                    | Qty | Code       |
|------|--------------------------------|-----|------------|
| 1    | RING                           | 1   | 234921     |
| 2    | BEARING                        | 2   | 231533     |
| 3    | SCREW M5X16                    | 4   | 234588     |
| 4    | TRANSDUCER PL35-PL50           | 1   | 234907     |
| 5    | JOINT SHAFT KDS PL50           | 1   | 234909     |
| 6    | MOTOR+REDUCTION GEARS KDS PL50 | 1   | 231612/50M |
| 7    | ENCODER CLAMP                  | 1   | 234530/S   |
| 8    | SCREW M2X4                     | 2   | 801004     |
| 9    | SCREW M1_6X6 ENCODER           | 2   | 872473     |
| 10   | ENCODER                        | 1   | 231528     |
| 11   | ENCODER WIRES                  | 1   | 231536     |
| 12   | SENSOR                         | 1   | 231534     |
| 13   | BOARD                          | 1   | 852528     |
| 14   | SCREW M3X10                    | 2   | 231530     |
| 15   | WASHER                         | 2   | 801005     |
| 16   | MALE CONNECTOR M16 10 PIN      | 1   | 201667     |
| 17   | SUPPORT BOARD                  | 1   | 231523     |
| 18   | SCREW M3X5                     | 1   | 872444     |
| 19   | SCREW M2,5X8 TX8               | 2   | 872478     |
| 20   | SCREW M5X10                    | 4   | 231503     |
| 21   | BODY (REDUCTION GEARS)         | 1   | 234905     |
| 22   | SCREW M3X6 TX10                | 14  | 801002     |
| 23   | JONCTION                       | 1   | 234906     |
| 24   | BUSH                           | 1   | 234924     |
| 25   | PCB FLEX LED                   | 1   | 852531/L   |
| 26   | BOARD SUPPORT BODY             | 1   | 234902     |
| 27   | LED GUIDE                      | 4   | 231553     |
| 28   | BODY                           | 1   | 234910     |



## SPARE PARTS KDS-PL50CA/FN:

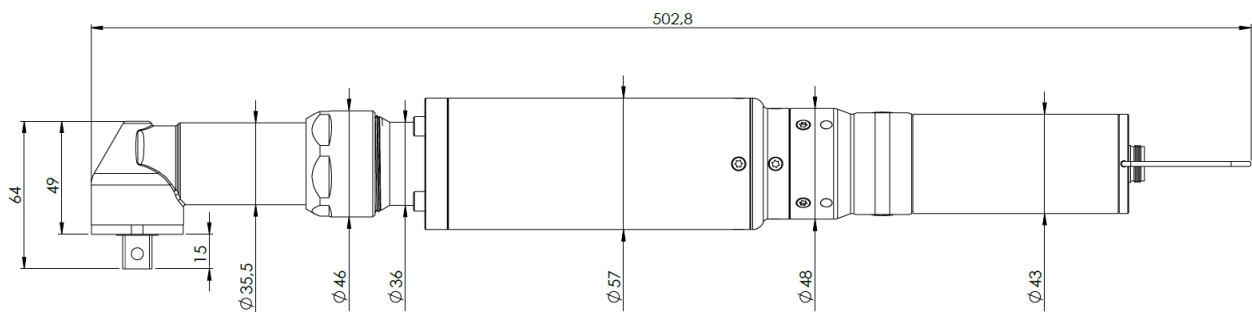
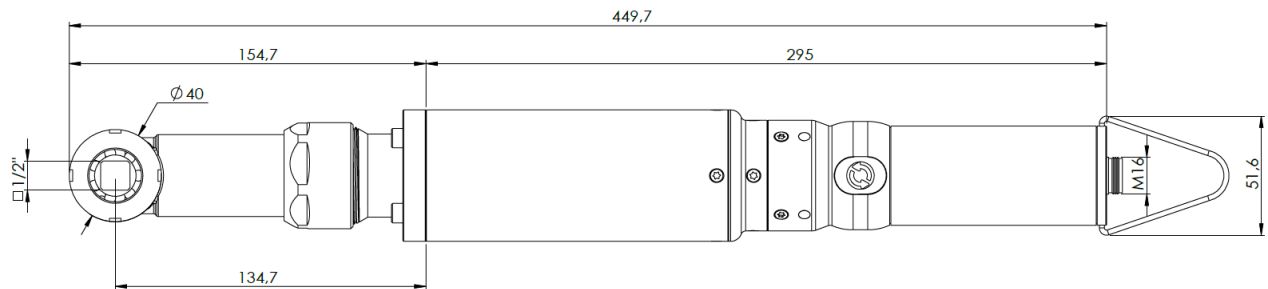
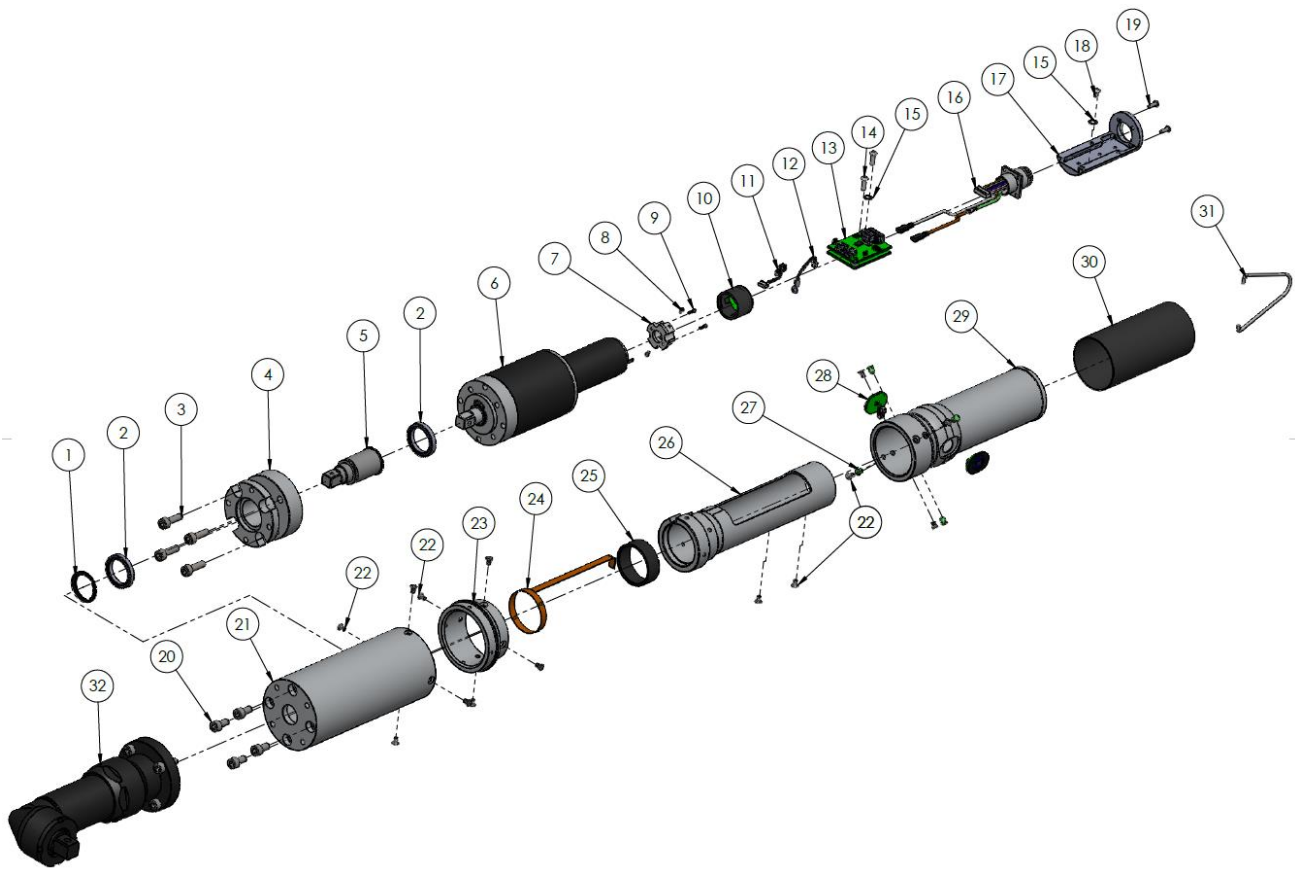
| Pos. | Description                    | Qty | Code       |
|------|--------------------------------|-----|------------|
| 1    | RING                           | 1   | 234921     |
| 2    | BEARING                        | 2   | 231533     |
| 3    | SCREW M5X16                    | 4   | 234588     |
| 4    | TRANSDUCER PL35-PL50           | 1   | 234907     |
| 5    | JOINT SHAFT KDS PL50           | 1   | 234909     |
| 6    | MOTOR+REDUCTION GEARS KDS PL50 | 1   | 231612/50M |
| 7    | ENCODER CLAMP                  | 1   | 234530/S   |
| 8    | SCREW M2X4                     | 2   | 801004     |
| 9    | SCREW M1_6X6 ENCODER           | 2   | 872473     |
| 10   | ENCODER                        | 1   | 231528     |
| 11   | ENCODER WIRES                  | 1   | 231536     |
| 12   | SENSOR                         | 1   | 231534     |
| 13   | BOARD                          | 1   | 852528     |
| 14   | SCREW M3X10                    | 2   | 231530     |
| 15   | WASHER                         | 2   | 801005     |
| 16   | MALE CONNECTOR M16 10 PIN      | 1   | 201667     |
| 17   | SUPPORT BOARD                  | 1   | 231523     |
| 18   | SCREW M3X5                     | 1   | 872444     |
| 19   | SCREW M2,5X8 TX8               | 2   | 872478     |
| 20   | COMPENSATOR 1/2"               | 1   | 800319     |
| 21   | SPINE 1/2"                     | 1   | FE-1401C   |
| 22   | PERMAGLIDE                     | 1   | 800327     |
| 23   | SCREW M4X8                     | 2   | 231505     |
| 24   | TELESCOPIC GUIDE PLUTO50CA     | 1   | 800302/50  |
| 25   | SCREW VITE M5X10               | 8   | 231503     |
| 26   | CLAMP                          | 1   | 234510/50  |
| 27   | BODY (REDUCTION GEARS)         | 1   | 234905     |
| 28   | SCREW M3X6 TX10                | 14  | 801002     |
| 29   | JONCTION                       | 1   | 234906     |
| 30   | BUSH                           | 1   | 234924     |
| 31   | PCB FLEX LED                   | 1   | 852531/L   |
| 32   | BOARD SUPPORT BODY             | 1   | 234902     |
| 33   | LED GUIDE                      | 4   | 231553     |
| 34   | BODY                           | 1   | 234910     |



## SPARE PARTS KDS-PL30ANG:

| Pos. | Description                    | Qty | Code       |
|------|--------------------------------|-----|------------|
| 1    | RING                           | 1   | 234920     |
| 2    | BEARING                        | 2   | 234922     |
| 3    | SCREW M4X16                    | 4   | 240020     |
| 4    | TRANSDUCER PL20                | 1   | 234903     |
| 5    | JOINT SHAFT KDS PL20           | 1   | 234904     |
| 6    | MOTOR+REDUCTION GEARS KDS PL20 | 1   | 231612/20M |
| 7    | ENCODER CLAMP                  | 1   | 234530/S   |
| 8    | SCREW M2X4                     | 2   | 801004     |
| 9    | SCREW M1.6X6 ENCODER           | 3   | 872473     |
| 10   | ENCODER                        | 1   | 231528     |
| 11   | ENCODER WIRES                  | 1   | 231536     |
| 12   | SENSOR                         | 1   | 231534     |
| 13   | BOARD                          | 1   | 852528     |
| 14   | SCREW M3X10                    | 2   | 231530     |
| 15   | WASHER                         | 2   | 801005     |
| 16   | MALE CONNECTOR M16 10 PIN      | 1   | 201667     |
| 17   | BOARD SUPPORT                  | 1   | 231523     |
| 18   | SCREW M3X5                     | 1   | 872444     |
| 19   | SCREW M2,5X8 TX8               | 2   | 872478     |
| 20   | ANG HD20                       | 1   | 010157     |
| 21   | SCREW M4X12                    | 4   | 231507     |
| 22   | BODY (REDUCTION GEARS)         | 1   | 234900     |
| 23   | SCREW M3X6 TX                  | 10  | 801002     |
| 24   | BUSH                           | 1   | 234924     |
| 25   | PCB FLEX LED                   | 1   | 852531/L   |
| 26   | BOARD SUPPORT BODY             | 1   | 234902     |
| 27   | LED GUIDE                      | 4   | 231553     |
| 28   | REVERSE/START BUTTON           | 2   | 231535     |
| 29   | BODY (BOARD)                   | 1   | 234901     |
| 30   | RUBBER                         | 1   | 234923     |
| 31   | HOOK                           | 1   | 200060     |
| 32   | SUPPORT RING KIT               | 1   | 010173     |

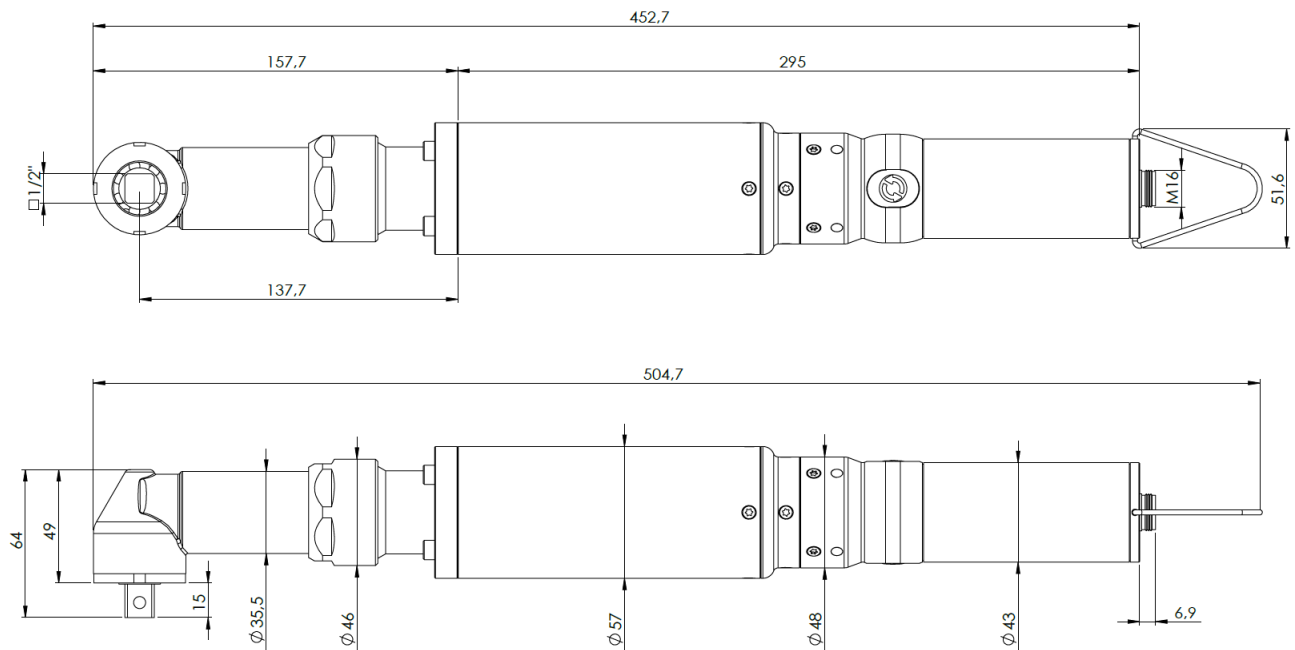
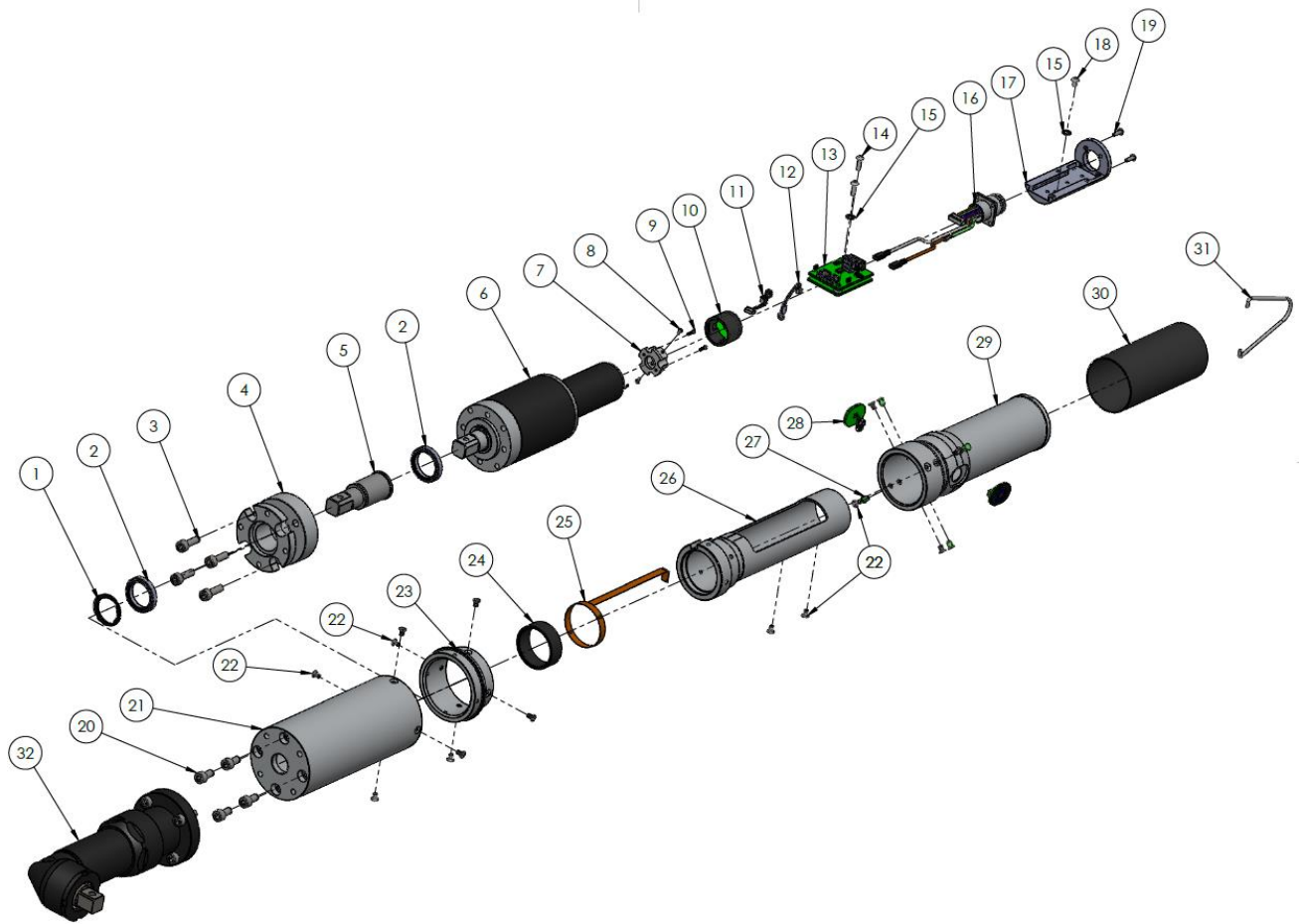
## EXPLODED VIEW KDS-PL45ANG:



## SPARE PARTS KDS-PL45ANG:

| Pos. | Description                    | Qty | Code       |
|------|--------------------------------|-----|------------|
| 1    | RING                           | 1   | 234921     |
| 2    | BEARING                        | 2   | 231533     |
| 3    | SCREW M5X16                    | 4   | 234588     |
| 4    | TRANSDUCER PL35-PL50           | 1   | 234907     |
| 5    | JOINT SHAFT KDS PL35           | 1   | 234908     |
| 6    | MOTOR+REDUCTION GEARS KDS PL35 | 1   | 231612/30M |
| 7    | ENCODER CLAMP                  | 1   | 234530/S   |
| 8    | SCREW M2X4                     | 2   | 801004     |
| 9    | SCREW M1_6X6 ENCODER           | 2   | 872473     |
| 10   | ENCODER                        | 1   | 231528     |
| 11   | ENCODER WIRES                  | 1   | 231536     |
| 12   | SENSOR                         | 1   | 231534     |
| 13   | BOARD                          | 1   | 852528     |
| 14   | SCREW M3X10                    | 2   | 231530     |
| 15   | WASHER                         | 2   | 801005     |
| 16   | MALE CONNECTOR M16 10 PIN      | 1   | 201667     |
| 17   | BOARD SUPPORT                  | 1   | 231523     |
| 18   | SCREW M3X5                     | 1   | 872444     |
| 19   | SCREW M2,5X8 TX8               | 2   | 872478     |
| 20   | SCREW M5X10                    | 4   | 231503     |
| 21   | BODY (REDUCTION GEARS)         | 1   | 234905     |
| 22   | SCREW M3X6 TX10                | 14  | 801002     |
| 23   | JONCTION                       | 1   | 234906     |
| 24   | PCB FLEX LED                   | 1   | 852531/L   |
| 25   | BUSH                           | 1   | 234924     |
| 26   | BOARD SUPPORT BODY             | 1   | 234902     |
| 27   | LED GUIDE                      | 4   | 231553     |
| 28   | REVERSE/START BUTTON           | 2   | 231535     |
| 29   | BODY (BOARD)                   | 1   | 234901     |
| 30   | RUBBER                         | 1   | 234923     |
| 31   | HOOK                           | 1   | 200060     |
| 32   | ANG HD 21                      | 1   | 010158     |

## EXPLODED VIEW KDS-PL70ANG:



## EXPLODED VIEW KDS-PL70ANG:

| Pos. | Description               | Qty | Code       |
|------|---------------------------|-----|------------|
| 1    | RING                      | 1   | 234921     |
| 2    | BEARING                   | 2   | 231533     |
| 3    | SCREW M5X16               | 4   | 234588     |
| 4    | TRANSDUCER PL35-PL50      | 1   | 234907     |
| 5    | JOINT SHAFT               | 1   | 234909     |
| 6    | MOTOR+REDUCTION GEARS KDS | 1   | 231612/50M |
| 7    | ENCODER CLAMP             | 1   | 234530/S   |
| 8    | SCREW M2X4                | 2   | 801004     |
| 9    | VITE M1_6X6 ENCODER       | 2   | 872473     |
| 10   | ENCODER                   | 1   | 231528     |
| 11   | ENCODER WIRES             | 1   | 231536     |
| 12   | SENSOR                    | 1   | 231534     |
| 13   | BOARD                     | 1   | 852528     |
| 14   | BN 6404 M3X10             | 2   | 231530     |
| 15   | WASHER                    | 2   | 801005     |
| 16   | MALE CONNECTOR M16 10 PIN | 1   | 201667     |
| 17   | BOARD SUPPORT             | 1   | 231523     |
| 18   | SCREW M3X5                | 1   | 872444     |
| 19   | SCREW M2,5X8 TX8          | 2   | 872478     |
| 20   | SCREW M5X10               | 4   | 231503     |
| 21   | BODY (REDUCTION GEARS)    | 1   | 234905     |
| 22   | SCREW M3X6 TX10           | 14  | 801002     |
| 23   | JUNCTION                  | 1   | 234906     |
| 24   | BUSH                      | 1   | 234924     |
| 25   | PCB FLEX LED              | 1   | 852531/L   |
| 26   | BOARD SUPPORT BODY        | 1   | 234902     |
| 27   | LED GUIDE                 | 4   | 231553     |
| 28   | REVERSE/START BUTTON      | 2   | 231535     |
| 29   | BODY (BOARD)              | 1   | 234901     |
| 30   | RUBBER                    | 1   | 234923     |
| 31   | HOOK                      | 1   | 200060     |
| 32   | ANG HD 22                 | 1   | 010159     |

## GUARANTEE

This KOLVER product is guaranteed against defective workmanship or materials, for a maximum period of 12 months following the date of purchase from KOLVER, provided that its usage is limited to single shift operation throughout that period. If the usage rate exceeds of single shift operation, the guarantee period shall be reduced on a prorata basis. If, during the guarantee period, the product appears to be defective in workmanship or materials, it should be returned to KOLVER or its distributors, transport prepaied, together with a short description of the alleged defect. KOLVER shall, at its sole discretion, arrange to repair or replace free of charge such items.

This guarantee does not cover repair or replacement required as a consequence of products which have been abused, misused or modified, or which have been repaired using not original KOLVER spare parts or by not authorized service personnel.

KOLVER accepts no claim for labour or other expenditure made upon defective products. Any direct, incidental or consequential damages whatsoever arising from any defect are expressly excluded.

This guarantee replaces all other guarantees, or conditions, expressed or implied, regarding the quality, the marketability or the fitness for any particular purpose.

No one, whether an agent, servant or employee of KOLVER, is authorized to add to or modify the terms of this limited guarantee in any way. However it's possible to extend the warranty with an extra cost. Further information at [kolver@kolver.it](mailto:kolver@kolver.it).