

ROLLON®
BY TIMKEN

Plus System

ROBOT Series



NEW

New Plus System

It simplifies the project, improves the performance and reduces the application cost: **8 main advantages.**

- Avoid costs related to engineering, manufacturing and testing a self-made solution.
- Eliminate all potential risks related to reliability and lack of warranties with one trusted partner.
- Focus your efforts on your core business.



1

High protection for dirty environments

A dedicated polyurethane sealing strip ensures complete protection against dust, dirt and other contaminants.

Optional pressurization system further reduces the ingress of contaminants.

Side cover bands protect the grooves (2 supplied as standard).



2

Resistant to corrosion

Optional stainless steel elements for applications in corrosive environments and/or subject to frequent washdown.



3

High versatility

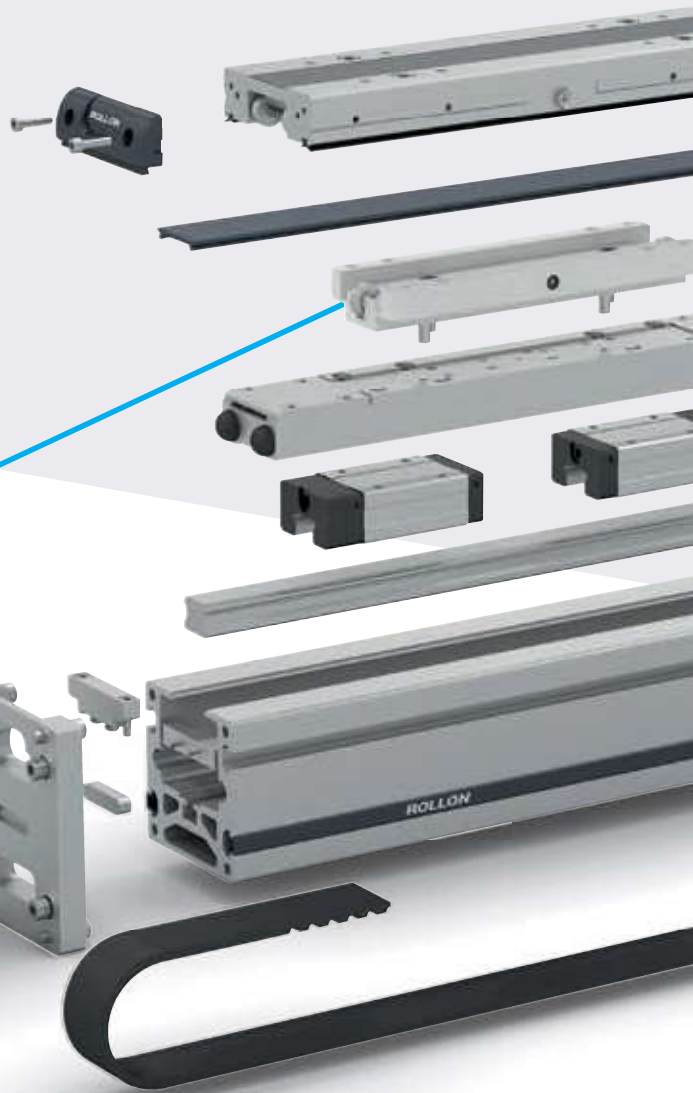
The new re-designed driving head allows for assembly of the gearbox on either the left or the right side of the actuator, by means of a standard assembly kit.



4

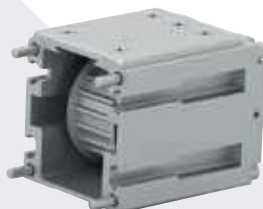
High load capacity

Highly engineered combination of recirculating ball guides and aluminum profile, extruded with elaborate geometries, allows for high stiffness and load capacity.



New Plus System - SC

- Fixed carriage and movable profile for Z-Axes solutions, with omega belt driving system.
- Joinable extension to reach the desired length regardless of the stroke.
- Predisposition for assembling the clamping element.
- Monoblock and lightened driving head for greater precision, reliability and dynamics.
- Through passing profile protects the cables.
- Easy and fast assembly of accessories at the end of the arm improves productivity.



5

Low maintenance

Special lubrication tanks ensure continuous greasing of the ball raceways up to 5000 km.



6

High productivity

High quality design ensures high dynamics with stressful duty cycles: speed up to 5 m/s, acceleration up to 50 m/s².



7

Good repeatability accuracy

Up to ± 0.05 mm.



8

Ideal for multi-axes systems

A dedicated set of accessories allows easy assembly to achieve high performance X-Y-Z multiaxis systems.

ROBOT and SC series are designed to be compatible and assembled without the need for adapter plates.

ROBOT series



> ROBOT series description

ROBOT



Fig. 20

ROBOT

The ROBOT series is particularly well-suited for heavy load applications where significant carriage pitch, yaw or roll moments are applied. As a robust, high load choice, the ROBOT Series is the linear actuator for the most demanding applications.

Available in four sizes from 100 mm to 220 mm, the ROBOT series linear units have a rigid structure made by a heavy rectangular cross-section of extruded and anodized aluminum. The thrust force is transmitted by a steel reinforced polyurethane. The carriage is running on two parallel linear guides with four self-lubricated "maintenance-free" caged ball bearing blocks, positioned to support the carriage and all incident loads and moments. A polyurethane sealing strip ensures complete protection of the driving belt against dirt, chips, liquids and other contaminants.

The ROBOT series is the clear choice for heavy, high-speed, fluctuating load and moment applications in aggressive environments where repeatable, maintenance-free industrial automation is required.

ROBOT 2C

For all sizes of the ROBOT series a 2C version with 2 independent carriages is also available. Each carriage is driven by its own belt. The driving head can accommodate two gearboxes, one on each side. This solution is ideal for pick & place application or loading and unloading machine.

ROBOT 2C - Double independent carriage



Fig. 21

Corrosion resistant version

ROBOT linear actuators are available with stainless steel elements, for applications in harsh environments and/or subject to frequent washes. They are constructed using extruded anodized 6060 and 6082 Anti-Corrosive Aluminum, which houses bearings, linear rails, nuts and bolts and components made of stainless steel, preventing or delaying corrosion caused by humidity experienced in the environments where the linear units are used.

Special no-deposit surface treatments are combined with a food grade lubrication system to allow use in highly sensitive applications, such as the food and pharmaceutical industries where product contamination is prohibited.

- Internal stainless steel elements
- Anodized 6060 and 6082 Anti-Corrosive Aluminum Profile
- AISI 440 stainless steel linear rails
- Lubricated with organic food grade vegetable oils

> The components

Extruded profile

The anodized 6060 aluminum alloy extrusion used for the profile of ROBOT series linear units are designed and manufactured by industry experts to optimize weight while maintaining mechanical strength. The dimensional tolerances comply with EN 755-9 standards. T-slots are provided in the side and bottom faces to facilitate mounting.

Driving belt

ROBOT series linear units use steel reinforced polyurethane drive belts with AT pitch. This belt is ideal due to its high load transmission characteristics, compact size and low noise. Used in conjunction with backlash-free pulleys, smooth alternating motion can be achieved. Optimization of the maximum belt width/body dimension ratio enables the following performance characteristics to be achieved:

- **High speed**
- **Low noise**
- **Low wear**

The provision of guidance for the belt within the body causes it to run central on the pulley, thereby ensuring long service life.

Carriage

The carriage of the ROBOT series linear units are made of anodized aluminum. Each carriage has mounting holes fitted with stainless steel thread inserts. Rollon offers multiple carriages to accommodate a vast array of applications. The unique design of the carriage allows for the sealing strip to pass through it, as well as house brush seals to remove contaminants from the sealing strip.

Sealing strip

ROBOT series linear units are equipped with a polyurethane sealing strip to protect all of the internal components from dust, contaminants, and other foreign objects. The sealing strip runs the length of the body and is kept in position by micro-bearings located within the carriage. This minimizes frictional resistance as the strip passes through the carriage while providing maximum protection.

General data about aluminum used: AL 6060

Chemical composition [%]

Al	Mg	Si	Fe	Mn	Zn	Cu	Impurities
Remainder	0.35-0.60	0.30-0.60	0.30	0.10	0.10	0.10	0.05-0.15

Tab. 34

Physical characteristics

Density	Coeff. of elasticity	Coeff. of thermal expansion (20°-100°C)	Thermal conductivity (20°C)	Specific heat (0°-100°C)	Resistivity	Melting point
$\frac{\text{kg}}{\text{dm}^3}$	$\frac{\text{kN}}{\text{mm}^2}$	$\frac{10^{-6}}{\text{K}}$	$\frac{\text{W}}{\text{m} \cdot \text{K}}$	$\frac{\text{J}}{\text{kg} \cdot \text{K}}$	$\Omega \cdot \text{m} \cdot 10^{-9}$	°C
2.7	69	23	200	880-900	33	600-655

Tab. 35

Mechanical characteristics

Rm	Rp (02)	A	HB
$\frac{\text{N}}{\text{mm}^2}$	$\frac{\text{N}}{\text{mm}^2}$	%	—
205	165	10	60-80

Tab. 36

> The linear motion system

The linear motion system has been designed to meet the load capacity, speed, and maximum acceleration conditions of a wide variety of applications.

ROBOT with ball bearing guides

- Two ball bearing guides with high load capacity are mounted in two dedicated seats on the outer sides of the body.
- The carriage is assembled on four pre-loaded ball bearing blocks.
- The four ball row configuration enable the carriage to withstand loading in the four main directions.
- The four blocks have seals on both sides and, if necessary, an additional scraper can be fitted for very dusty conditions.
- The ball bearing carriages are also fitted with a retention cage that eliminates "steel-steel" contact between adjacent revolving parts and prevents misalignment.
- The lubrication reservoirs (pockets) fitted on the cages considerably decreases re-lubrication frequency. Lubrication reservoirs (pockets) installed on the front of the ball bearing blocks supply the right amount of grease, thus promoting long maintenance interval.

The linear motion system described above offers:

- High speed and acceleration
- High load capacity
- High bending permissible moments
- Low friction
- Long duration
- Maintenance free (dependent on application)
- Low noise

ROBOT section

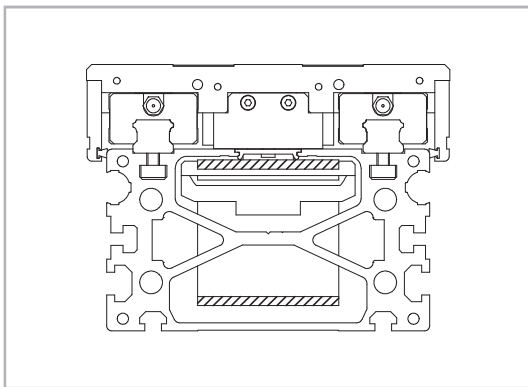


Fig. 22

> The new driving head

The new driving head is designed to allow high freedom while sizing the application and mounting the gearbox on ROBOT series linear actuators. With the new head, it is possible to assembly the gearbox on either the right or the left side of the actuator by means of a standard assembly kit.

The assembly kit includes: shrink disk; adapter plate and fixing hardware; and can be ordered with the actuator. Different kits are available to accommodate gearboxes from the major brands on the market. For more information see pag. PLS-33.

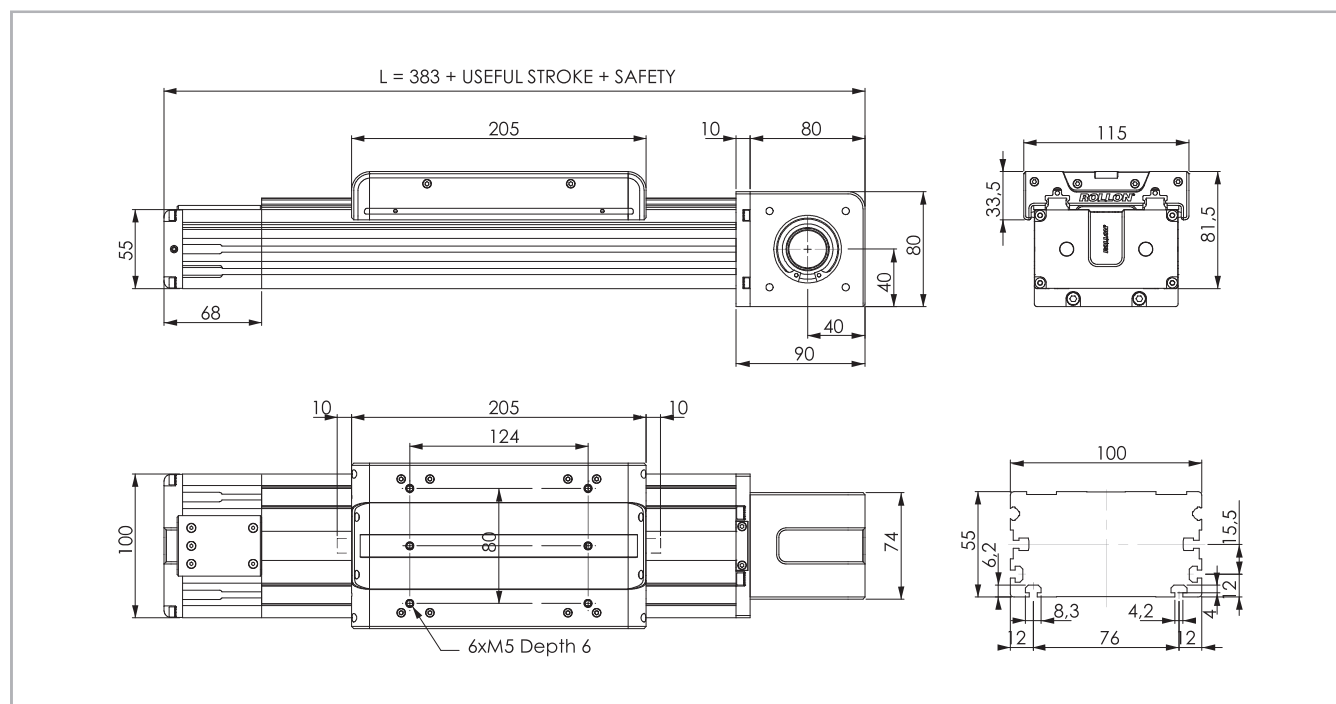
The same logic is valid when mounting the shaft to connect two units in parallel.



The ROBOT-2C driving head can accommodate two gearboxes, one on each side, to control the two independent carriage. This distinctive feature requires that Rollon assembles the gearbox in-house prior the axis shipment. Please contact our Technical Department.

> ROBOT 100

ROBOT 100 Dimensions



The length of the safety stroke is provided on request according to the customer's specific requirements.

Fig. 23

Technical data

	Type
	ROBOT 100
Max. useful stroke length [mm]	6100
Max. positioning repeatability [mm]*1	± 0.05
Max. speed [m/s]	4.0
Max. acceleration [m/s ²]	50
Type of belt	32 AT 5
Type of pulley	Z 23
Pulley pitch diameter [mm]	36.61
Carriage displacement per pulley turn [mm]	115
Carriage weight [kg]	2.4
Zero travel weight [kg]	4.5
Weight for 100 mm useful stroke [kg]	0.8
Starting torque [Nm]	1.3
Moment of inertia of pulleys [g·mm ²]	40004
Rail size [mm]	15 mini

*1) Positioning repeatability is dependent on the type of transmission used

Tab. 37

Load capacity

Type	F _x [N]		F _y [N]		F _z [N]		M _x [Nm]		M _y [Nm]		M _z [Nm]	
	Stat.	Dyn.	Stat.	Dyn.	Stat.		Stat.		Stat.		Stat.	
ROBOT 100	1176	739	22800	21144	22800		775		1322		1322	

See verification under static load and lifetime on page SL-2 and SL-3

F_x in the table represents the maximum capacity of the toothed belt. For the application, the limit of transmittable torque of the shrink disk must be considered too (see page PLS-33).

Tab. 40

Moments of inertia of the aluminum body

Type	I _x [10 ⁷ mm ⁴]	I _y [10 ⁷ mm ⁴]	I _p [10 ⁷ mm ⁴]
ROBOT 100	0.05	0.23	0.28

Tab. 38

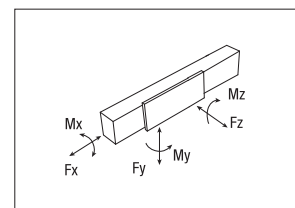
Driving belt

The driving belt is manufactured from a friction resistant polyurethane and with steel cords for high tensile stress resistance.

Type	Type of belt	Belt width [mm]	Weight [kg/m]
ROBOT 100	32 AT 5	32	0.105

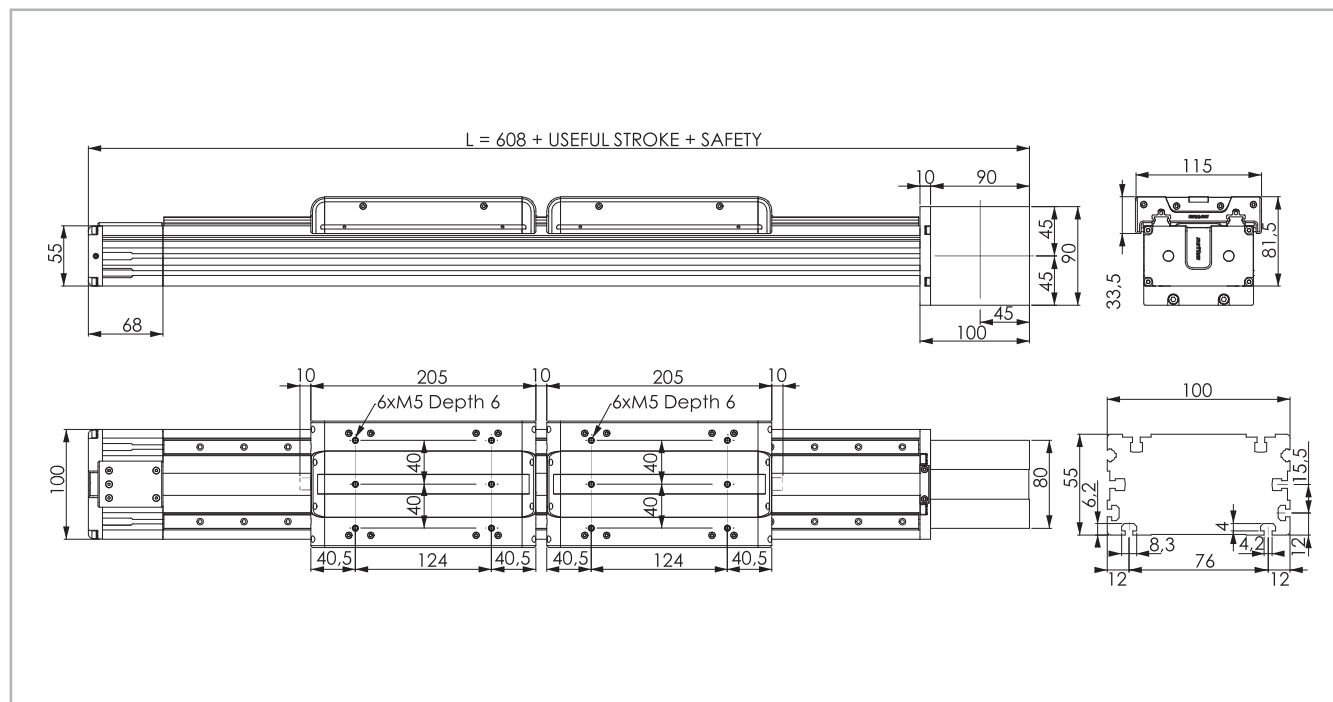
Tab. 39

$$\text{Belt length (mm)} = 2 \times L - 105$$



> ROBOT 100 2C (Double independent carriage)

ROBOT 100 2C Dimensions



The length of the safety stroke is provided on request according to the customer's specific requirements.

Fig. 24

Technical data

	Type
	ROBOT 100 2C
Max. useful stroke length [mm]	5885
Max. positioning repeatability [mm]*1	± 0.05
Max. speed [m/s]	4.0
Max. acceleration [m/s²]	50
Type of belt	16 AT 5
Type of pulley	Z 23
Pulley pitch diameter [mm]	36.61
Carriage displacement per pulley turn [mm]	115
Carriage weight [kg]	2.4
Zero travel weight [kg]	8.0
Weight for 100 mm useful stroke [kg]	0.8
Starting torque [Nm]	1.3
Moment of inertia of pulleys [g·mm²]	16220
Rail size [mm]	15 mini

*1) Positioning repeatability is dependent on the type of transmission used

Tab. 41

Load capacity

Type	F_x [N]		F_y [N]		F_z [N]	M_x [Nm]	M_y [Nm]	M_z [Nm]
	Stat.	Dyn.	Stat.	Dyn.	Stat.	Stat.	Stat.	Stat.
ROBOT 100 2C	588	370	22800	21144	22800	775	1322	1322

See verification under static load and lifetime on page SL-2 and SL-3

F_x in the table represents the maximum capacity of the toothed belt. For the application, the limit of transmittable torque of the shrink disk must be considered too (see page PLS-33).

PLS-20

Moments of inertia of the aluminum body

Type	I_x [10 ⁷ mm ⁴]	I_y [10 ⁷ mm ⁴]	I_z [10 ⁷ mm ⁴]
ROBOT 100 2C	0.05	0.23	0.28

Tab. 42

Driving belt

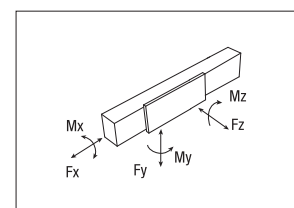
The driving belt is manufactured from a friction resistant polyurethane and with steel cords for high tensile stress resistance.

Type	Type of belt	Belt width [mm]	Weight [kg/m]
ROBOT 100 2C	16 AT 5	16	0.05

Tab. 43

Belt length (mm) = 2 × L - 95

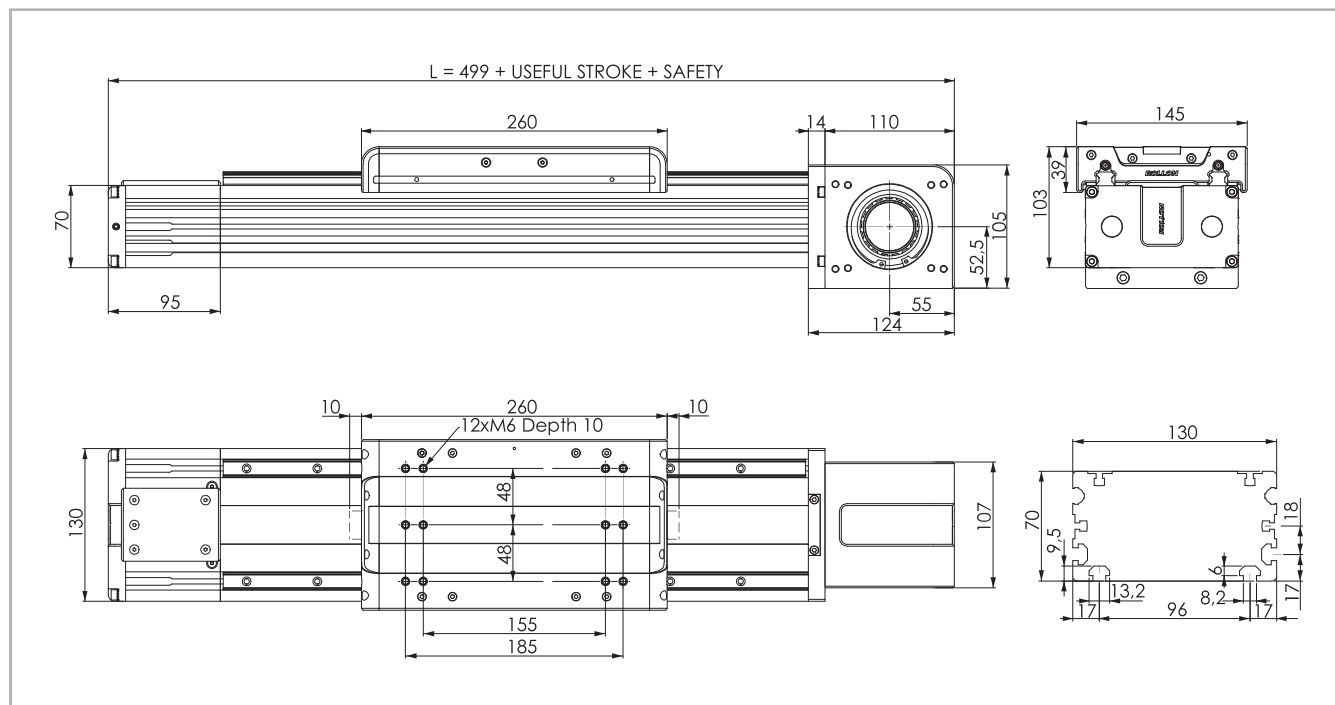
Two belts for each actuator.



Tab. 44

> ROBOT 130

ROBOT 130 Dimensions



The length of the safety stroke is provided on request according to the customer's specific requirements.

Fig. 25

Technical data

	Type
	ROBOT 130
Max. useful stroke length [mm]*1	6050
Max. positioning repeatability [mm]*2	± 0.05
Max. speed [m/s]	5.0
Max. acceleration [m/s ²]	50
Type of belt	50 AT 10
Type of pulley	Z 17
Pulley pitch diameter [mm]	54.11
Carriage displacement per pulley turn [mm]	170
Carriage weight [kg]	2.8
Zero travel weight [kg]	9.1
Weight for 100 mm useful stroke [kg]	1.2
Starting torque [Nm]	2.7
Moment of inertia of pulleys [g·mm ²]	360659
Rail size [mm]	15

*1) It is possible to obtain strokes up to 11000 mm by means of special Rollon joints

*2) Positioning repeatability is dependent on the type of transmission used

Tab. 45

Load capacity

Type	F _x [N]		F _y [N]		F _z [N]	M _x [Nm]	M _y [Nm]	M _z [Nm]
	Stat.	Dyn.	Stat.	Dyn.	Stat.	Stat.	Stat.	Stat.
ROBOT 130	3112	1725	96800	45082	96800	4646	6340	6340

See verification under static load and lifetime on page SL-2 and SL-3

F_x in the table represents the maximum capacity of the toothed belt. For the application, the limit of transmittable torque of the shrink disk must be considered too (see page PLS-33).

Tab. 48

PLS-21

Moments of inertia of the aluminum body

Type	I _x [10 ⁷ mm ⁴]	I _y [10 ⁷ mm ⁴]	I _p [10 ⁷ mm ⁴]
ROBOT 130	0.15	0.65	0.79

Tab. 46

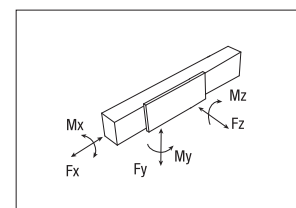
Driving belt

The driving belt is manufactured from a friction resistant polyurethane and with steel cords for high tensile stress resistance.

Type	Type of belt	Belt width [mm]	Weight [kg/m]
ROBOT 130	50 AT 10	50	0.29

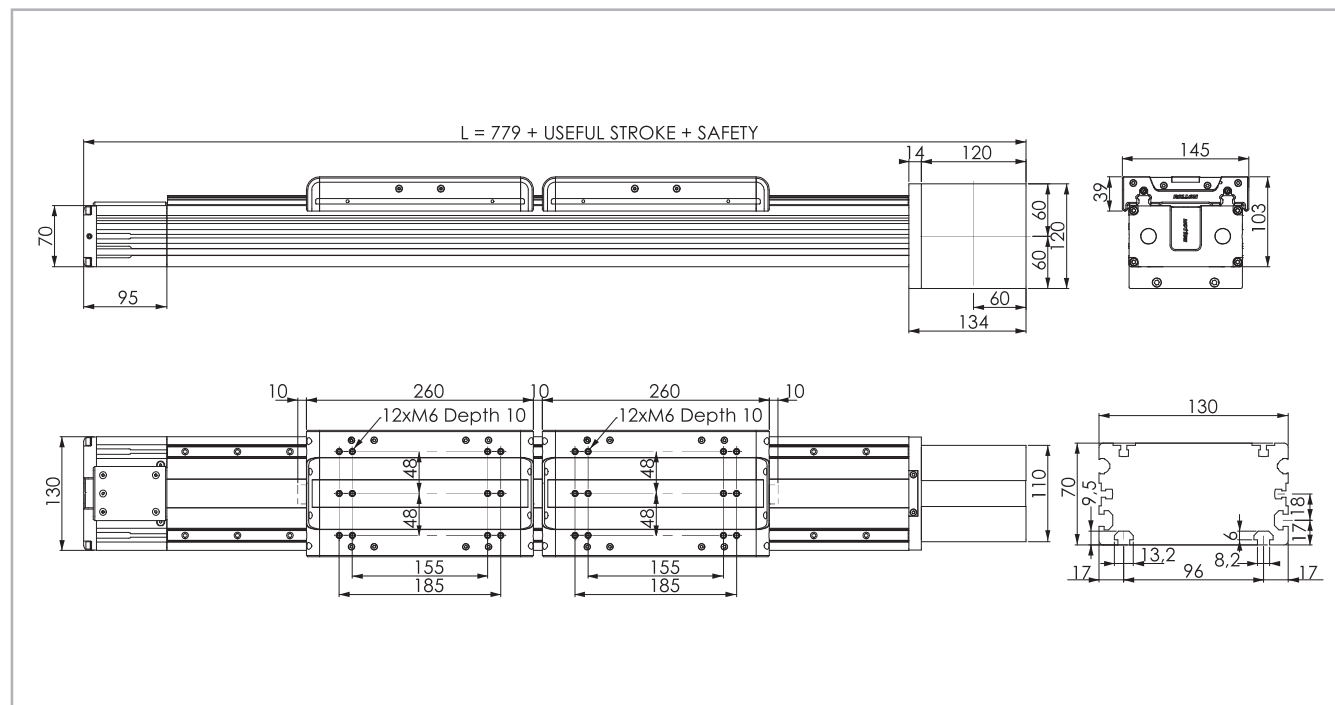
Tab. 47

Belt length (mm) = 2 x L - 80



> ROBOT 130 2C (Double independent carriage)

ROBOT 130 2C Dimensions



The length of the safety stroke is provided on request according to the customer's specific requirements.

Fig. 26

Technical data

	Type
	ROBOT 130 2C
Max. useful stroke length [mm]*1	5780
Max. positioning repeatability [mm]*2	± 0.05
Max. speed [m/s]	5.0
Max. acceleration [m/s ²]	50
Type of belt	25 AT 10
Type of pulley	Z 17
Pulley pitch diameter [mm]	54.11
Carriage displacement per pulley turn [mm]	170
Carriage weight [kg]	2.8
Zero travel weight [kg]	14.9
Weight for 100 mm useful stroke [kg]	1.2
Starting torque [Nm]	2.7
Moment of inertia of pulleys [g·mm ²]	196200
Rail size [mm]	15

*1) It is possible to obtain strokes up to 11000 mm by means of special Rollon joints

*2) Positioning repeatability is dependent on the type of transmission used

Tab. 49

Load capacity

Type	F _x [N]		F _y [N]		F _z [N]	M _x [Nm]	M _y [Nm]	M _z [Nm]
	Stat.	Dyn.	Stat.	Dyn.	Stat.	Stat.	Stat.	Stat.
ROBOT 130 2C	1556	862	96800	45082	96800	4646	6340	6340

See verification under static load and lifetime on page SL-2 and SL-3

F_x in the table represents the maximum capacity of the toothed belt. For the application, the limit of transmittable torque of the shrink disk must be considered too (see page PLS-33).

PLS-22

Moments of inertia of the aluminum body

Type	I _x [10 ⁷ mm ⁴]	I _y [10 ⁷ mm ⁴]	I _p [10 ⁷ mm ⁴]
ROBOT 130 2C	0.15	0.65	0.79

Tab. 50

Driving belt

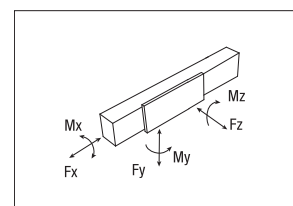
The driving belt is manufactured from a friction resistant polyurethane and with steel cords for high tensile stress resistance.

Type	Type of belt	Belt width [mm]	Weight [kg/m]
ROBOT 130 2C	25 AT 10	25	0.16

Tab. 51

Belt length (mm) = 2 x L - 70

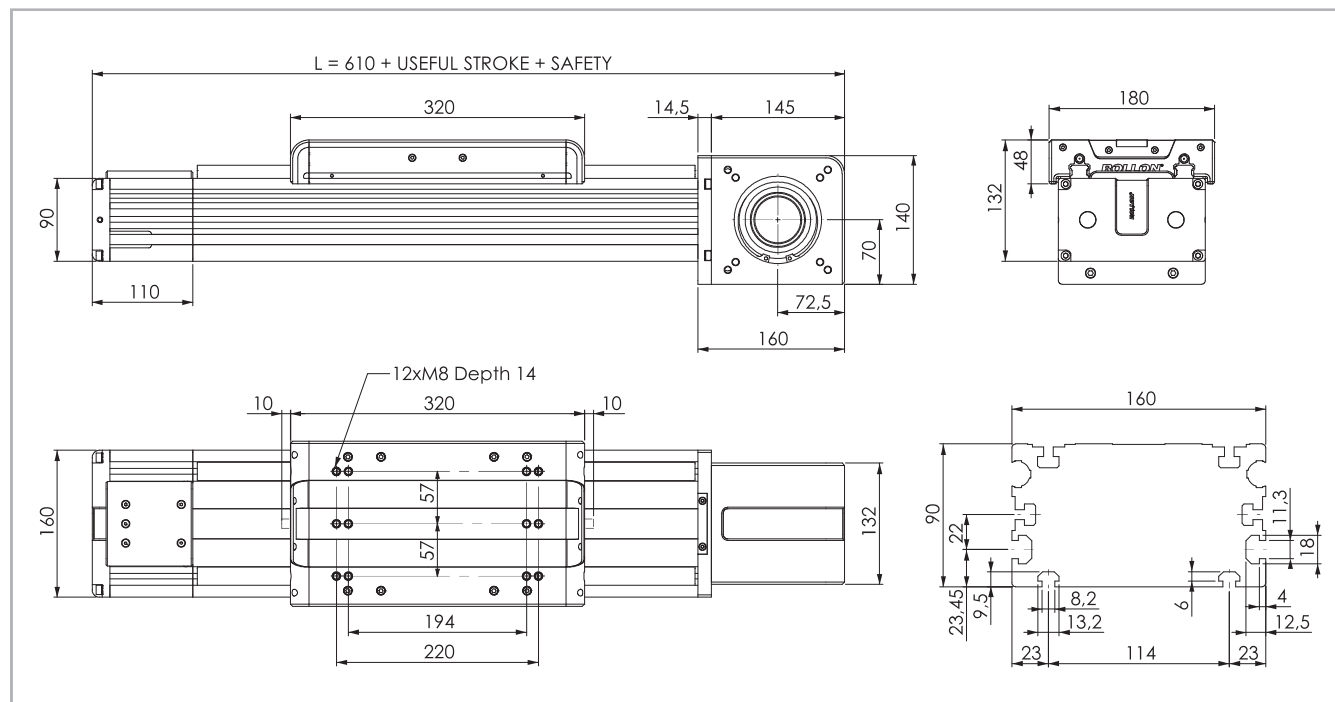
Two belts for each actuator.



Tab. 52

ROBOT 160

ROBOT 160 Dimensions



The length of the safety stroke is provided on request according to the customer's specific requirements.

Fig. 27

Technical data

	Type
	ROBOT 160
Max. useful stroke length [mm]*1	6000
Max. positioning repeatability [mm]*2	± 0.05
Max. speed [m/s]	5.0
Max. acceleration [m/s ²]	50
Type of belt	70 AT 10
Type of pulley	Z 22
Pulley pitch diameter [mm]	70.03
Carriage displacement per pulley turn [mm]	220
Carriage weight [kg]	5.3
Zero travel weight [kg]	21
Weight for 100 mm useful stroke [kg]	1.9
Starting torque [Nm]	4.5
Moment of inertia of pulleys [g·mm ²]	1.303 · 10 ⁶
Rail size [mm]	20

*1) It is possible to obtain strokes up to 11000 mm by means of special Rollon joints

*2) Positioning repeatability is dependent on the type of transmission used

Tab. 53

Load capacity

Type	F _x [N]		F _y [N]		F _z [N]		M _x [Nm]		M _y [Nm]		M _z [Nm]	
	Stat.	Dyn.	Stat.	Dyn.	Stat.		Stat.		Stat.		Stat.	
ROBOT 160	5229	3024	153600	70798	153600		8755		12211		12211	

See verification under static load and lifetime on page SL-2 and SL-3

F_y in the table represents the maximum capacity of the toothed belt. For the application, the limit of transmittable torque of the shrink disk must be considered too (see page PLS-33).

Tab. 56

Moments of inertia of the aluminum body

Type	I _x [10 ⁷ mm ⁴]	I _y [10 ⁷ mm ⁴]	I _p [10 ⁷ mm ⁴]
ROBOT 160	0.37	1.51	1.88

Tab. 54

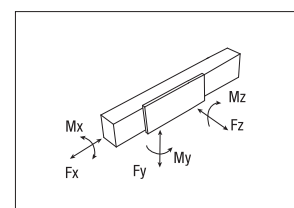
Driving belt

The driving belt is manufactured from a friction resistant polyurethane and with steel cords for high tensile stress resistance.

Type	Type of belt	Belt width [mm]	Weight [kg/m]
ROBOT 160	70 AT 10	70	0.41

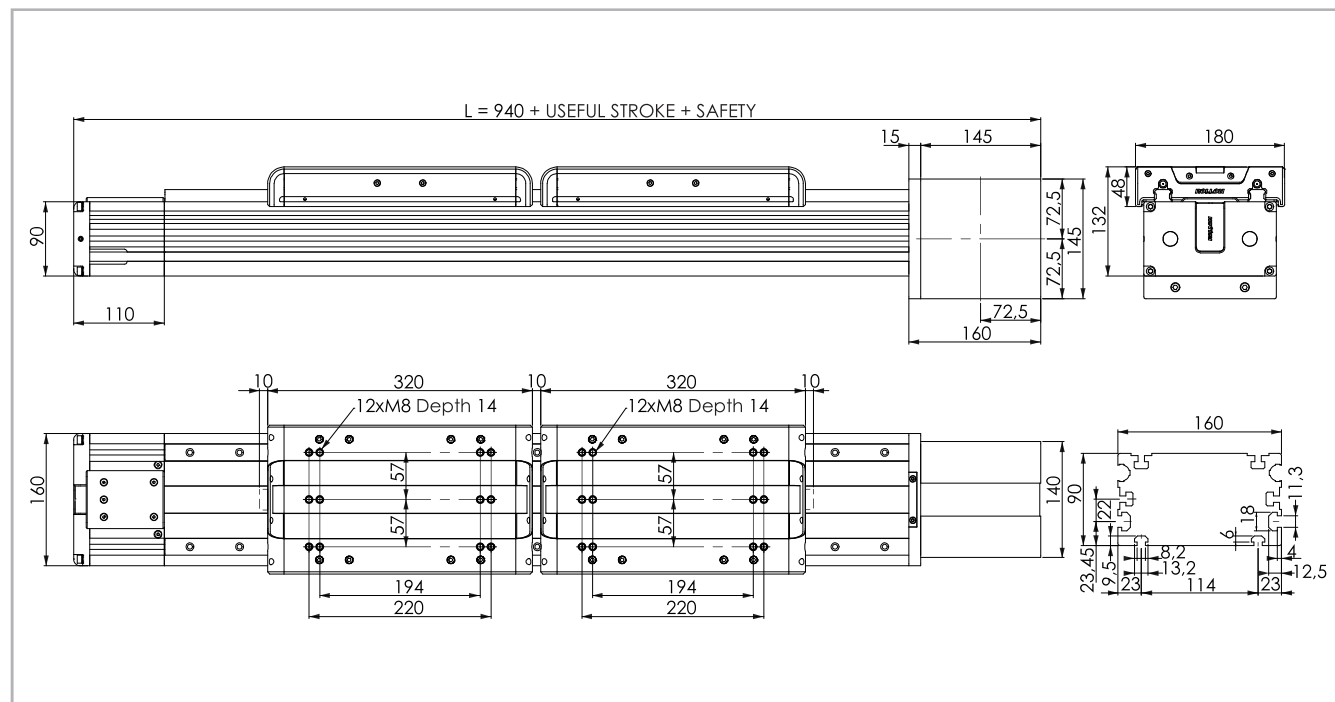
Tab. 55

Belt length (mm) = 2 × L - 120



> ROBOT 160 2C (Double independent carriage)

ROBOT 160 2C Dimensions



The length of the safety stroke is provided on request according to the customer's specific requirements.

Fig. 28

Technical data

	Type
	ROBOT 160 2C
Max. useful stroke length [mm]*1	5670
Max. positioning repeatability [mm]*2	± 0.05
Max. speed [m/s]	5.0
Max. acceleration [m/s²]	50
Type of belt	32 AT 10
Type of pulley	Z 19
Pulley pitch diameter [mm]	60.48
Carriage displacement per pulley turn [mm]	190
Carriage weight [kg]	5.3
Zero travel weight [kg]	30
Weight for 100 mm useful stroke [kg]	1.9
Starting torque [Nm]	4.5
Moment of inertia of pulleys [g·mm²]	210300
Rail size [mm]	20

*1) It is possible to obtain strokes up to 11000 mm by means of special Rollon joints

*2) Positioning repeatability is dependent on the type of transmission used

Tab. 57

Load capacity

Type	F _x [N]		F _y [N]		F _z [N]		M _x [Nm]		M _y [Nm]		M _z [Nm]	
	Stat.	Dyn.	Stat.	Dyn.	Stat.		Stat.		Stat.		Stat.	
ROBOT 160 2C	2258	1306	153600	70798	153600		8755		12211		12211	

See verification under static load and lifetime on page SL-2 and SL-3

F_x in the table represents the maximum capacity of the toothed belt. For the application, the limit of transmittable torque of the shrink disk must be considered too (see page PLS-33).

PLS-24

Moments of inertia of the aluminum body

Type	I _x [10 ⁷ mm ⁴]	I _y [10 ⁷ mm ⁴]	I _p [10 ⁷ mm ⁴]
ROBOT 160 2C	0.37	1.51	1.88

Tab. 58

Driving belt

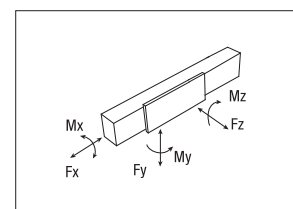
The driving belt is manufactured from a friction resistant polyurethane and with steel cords for high tensile stress resistance.

Type	Type of belt	Belt width [mm]	Weight [kg/m]
ROBOT 160 2C	32 AT 10	32	0.185

Tab. 59

Belt length (mm) = 2 x L - 120

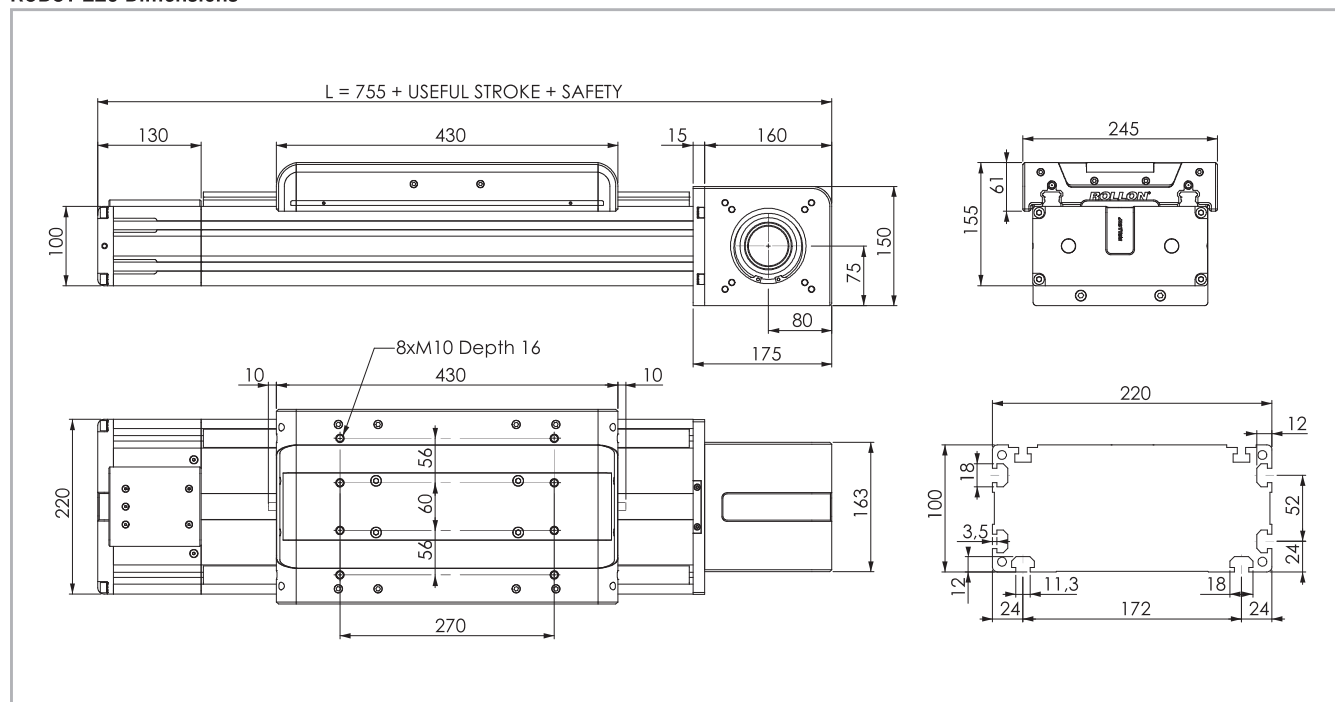
Two belts for each actuator.



Tab. 60

> ROBOT 220

ROBOT 220 Dimensions



The length of the safety stroke is provided on request according to the customer's specific requirements.

Fig. 29

Technical data

	Type
	ROBOT 220
Max. useful stroke length [mm]*1	5900
Max. positioning repeatability [mm]*2	± 0.05
Max. speed [m/s]	5.0
Max. acceleration [m/s ²]	50
Type of belt	100 AT 10
Type of pulley	Z 25
Pulley pitch diameter [mm]	79.58
Carriage displacement per pulley turn [mm]	250
Carriage weight [kg]	14.4
Zero travel weight [kg]	41
Weight for 100 mm useful stroke [kg]	2.5
Starting torque [Nm]	6.4
Moment of inertia of each pulley [g·mm ²]	$3.687 \cdot 10^6$
Rail size [mm]	25

*1) It is possible to obtain strokes up to 11000 mm by means of special Rollon joints

*2) Positioning repeatability is dependent on the type of transmission used

Tab. 61

Load capacity

Type	F _x [N]		F _y [N]		F _z [N]	M _x [Nm]	M _y [Nm]	M _z [Nm]
	Stat.	Dyn.	Stat.	Dyn.	Stat.	Stat.	Stat.	Stat.
ROBOT 220	9545	6325	258800	116833	258800	22257	28986	28986

See verification under static load and lifetime on page SL-2 and SL-3

F_x in the table represents the maximum capacity of the toothed belt. For the application, the limit of transmittable torque of the shrink disk must be considered too (see page PLS-33).

Tab. 64

PLS-25

Moments of inertia of the aluminum body

Type	I _x [10 ⁷ mm ⁴]	I _y [10 ⁷ mm ⁴]	I _p [10 ⁷ mm ⁴]
ROBOT 220	0.65	3.26	3.92

Tab. 62

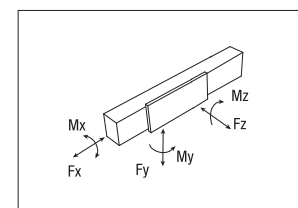
Driving belt

The driving belt is manufactured from a friction resistant polyurethane and with steel cords for high tensile stress resistance.

Type	Type of belt	Belt width [mm]	Weight [kg/m]
ROBOT 220	100 AT 10	100	0.58

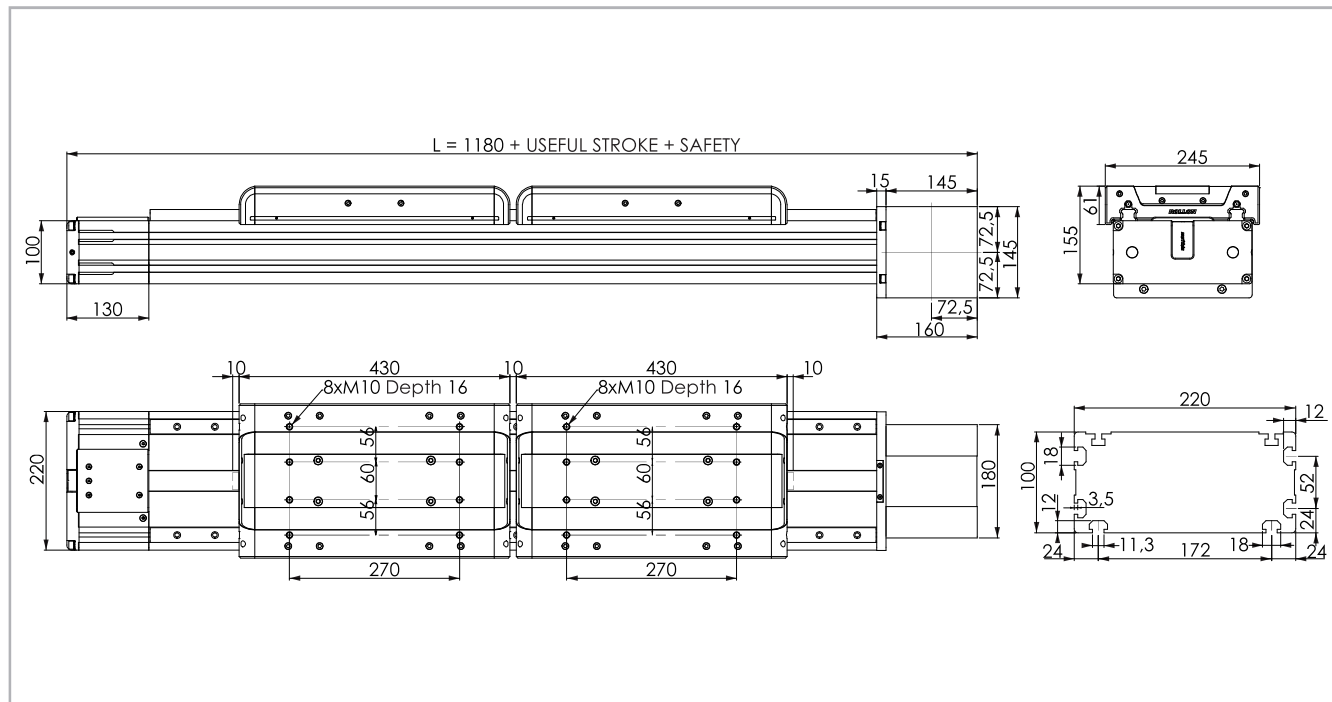
Tab. 63

$$\text{Belt length (mm)} = 2 \times L - 120$$



> ROBOT 220 2C (Double independent carriage)

ROBOT 220 2C dimensions



The length of the safety stroke is provided on request according to the customer's specific requirements.

Fig. 30

Technical data

	Type
	ROBOT 220 2C
Max. useful stroke length [mm]*1	5460
Max. positioning repeatability [mm]*2	± 0.05
Max. speed [m/s]	5.0
Max. acceleration [m/s²]	50
Type of belt	40 AT 10
Type of pulley	Z 25
Pulley pitch diameter [mm]	79.58
Carriage displacement per pulley turn [mm]	250
Carriage weight [kg]	13.3
Zero travel weight [kg]	46
Weight for 100 mm useful stroke [kg]	2.5
Starting torque [Nm]	6.4
Moment of inertia of each pulley [g·mm²]	2.026 · 10 ⁶
Rail size [mm]	25

*1) It is possible to obtain strokes up to 11000 mm by means of special Rollon joints

*2) Positioning repeatability is dependent on the type of transmission used

Tab. 65

Load capacity

Type	F _x [N]		F _y [N]		F _z [N]	M _x [Nm]	M _y [Nm]	M _z [Nm]
	Stat.	Dyn.	Stat.	Dyn.				
ROBOT 220 2C	3818	2530	258800	116833	258800	22257	28986	28986

See verification under static load and lifetime on page SL-2 and SL-3

F_x in the table represents the maximum capacity of the toothed belt. For the application, the limit of transmittable torque of the shrink disk must be considered too (see page PLS-33).

PLS-26

Moments of inertia of the aluminum body

Type	I _x [10 ⁷ mm ⁴]	I _y [10 ⁷ mm ⁴]	I _p [10 ⁷ mm ⁴]
ROBOT 220 2C	0.65	3.26	3.92

Tab. 66

Driving belt

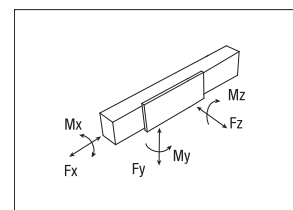
The driving belt is manufactured from a friction resistant polyurethane and with steel cords for high tensile stress resistance.

Type	Type of belt	Belt width [mm]	Weight [kg/m]
ROBOT 220 2C	40 AT 10	40	0.23

Tab. 67

Belt length (mm) = 2 x L - 135

Two belts for each actuator.



Tab. 68

> Lubrication

ROBOT Linear units are equipped with self lubricating linear ball guides. The ball bearing carriages are also fitted with a retention cage that eliminates "steel-steel" contact between adjacent revolving parts and prevents misalignment of these in the circuits.

Special lubrication reservoirs are mounted on the front plates of the linear blocks which continuously provide the necessary amount of grease to the ball raceways under load. These lubrication reservoirs also considerably reduce the frequency of lubrication of the module. This system guarantees a long interval between maintenances: every 5000 km or 1 year of use, based on the value reached first. If a longer service life is required or in case of high dynamic or high loaded applications please contact our offices for further verification.

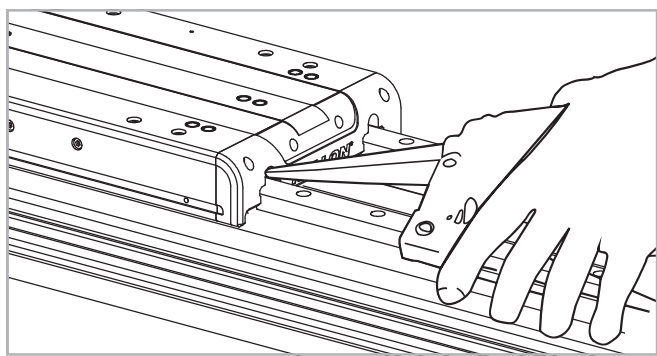


Fig. 31

- Insert grease gun in the specific grease nipples.
 - Type of lubricant: Lithium soap grease of class NLGI 2.
 - For specially stressed applications or difficult environmental conditions, lubrication should be carried out more frequently.
- Apply to Rollon for further advice.

Quantity of lubricant necessary for re-lubrication of each block:

Type	Unit: [cm ³]
ROBOT 100	0.7
ROBOT 130	0.7
ROBOT 160	1.4
ROBOT 220	2.4

Tab. 69

> Simple shaft version

Simple shaft type AS

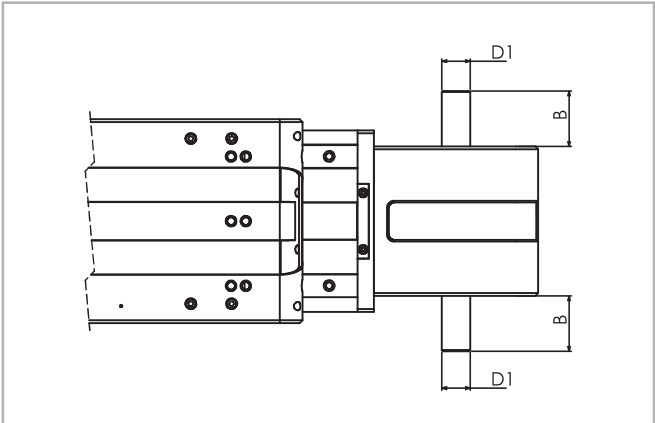


Fig. 32

Unit	Shaft type	B	D1
ROBOT 100	AS 15	35	15h7
ROBOT 130	AS 20	40	20h7
ROBOT 160	AS 25	50	25h7
ROBOT 220	AS 25	50	25h7

Tab. 70

Position of the simple shaft can be to the right, left, or both sides of the drive head.

Unit	Shaft type	B	D1	AS assembly kit code
ROBOT 100	AS 15	35	15H7	G002695
ROBOT 130	AS 20	40	20H7	G002696
ROBOT 160	AS 25	50	25H7	G000649
ROBOT 220	AS 25	50	25H7	G000649

Tab. 71

Simple shaft type AE 10 for encoder assembly + AS

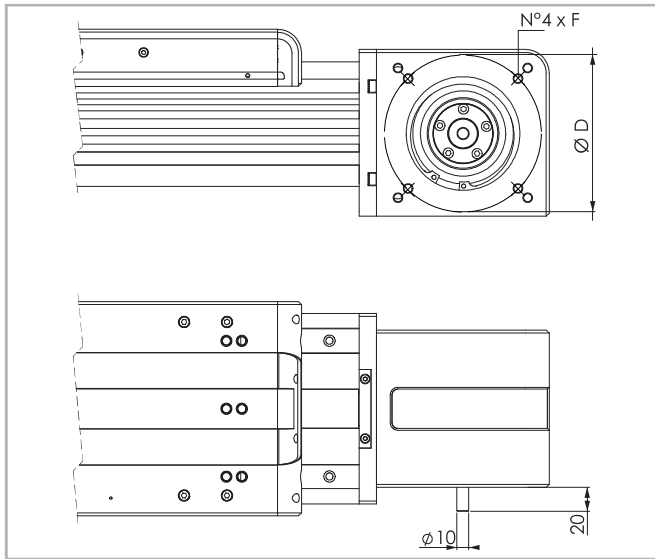


Fig. 33

Unit	Code kit AE	ØD	F
ROBOT 100	G002746	75	M6
ROBOT 130	G002745	100	M6
ROBOT 160	G002370	130	M8
ROBOT 220	G002370	130	M8

Tab. 72

Position of the simple shafts for encoder assembly to the right or to the left on the driving head.

> Hollow shafts

AC hollow shaft type

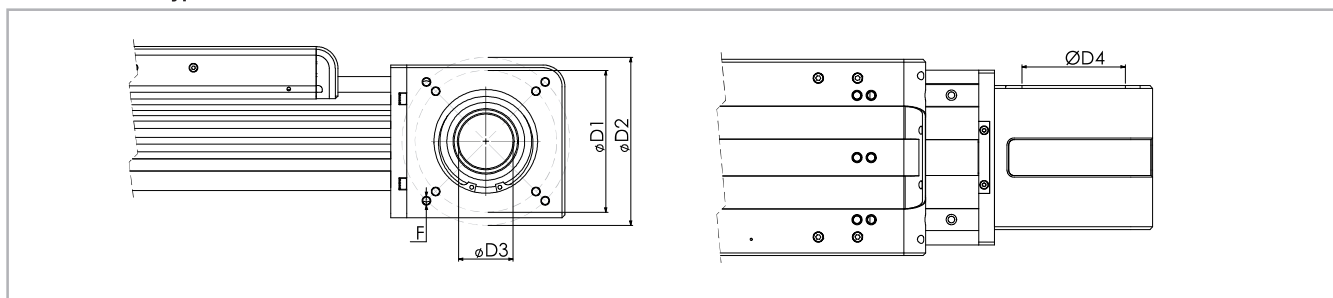


Fig. 34

Unit mm

Applicable to unit	Shaft type	D1	D2	D3	D4	F
ROBOT 100	AC26	75	-	26 H8	47	M5
ROBOT 130	AC41	100	72x92	41 H8	72	M6
ROBOT 160	AC50	130	154	50 H8	95	M8
ROBOT 220	AC50	130	154	50 H8	95	M8

Tab. 73

An (optional) connection flange is required to fit the standard reduction units selected by Rollon.

For further informations contact our offices

> Accessories

Fixing by brackets

The linear motion systems used for the Rollon series ROBOT linear units enable support of loads in any direction. They can therefore be installed in any position.

To install the units, we recommend the use of the dedicated T-slots in the extruded bodies as shown below.

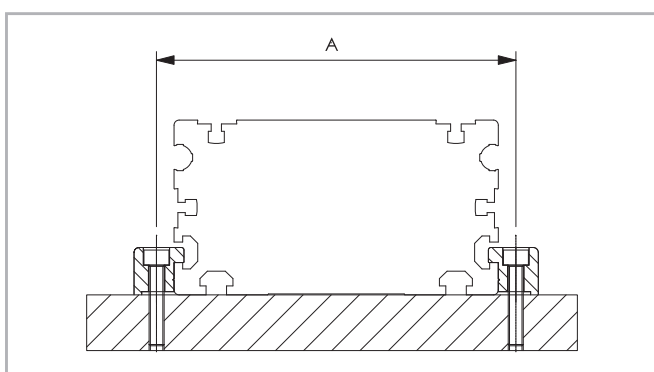


Fig. 35

Unit	A (mm)
ROBOT 100	112
ROBOT 130	144
ROBOT 160	180
ROBOT 220	240

Tab. 74

Fixing brackets

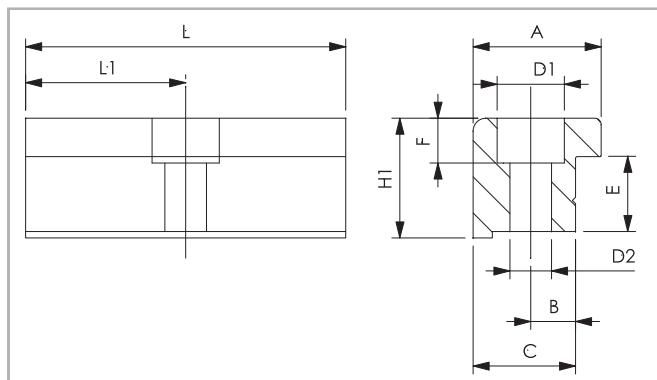


Fig. 36

Anodised aluminum block for fixing the linear units through the side T-slots of the body.

Fixing by T-nuts

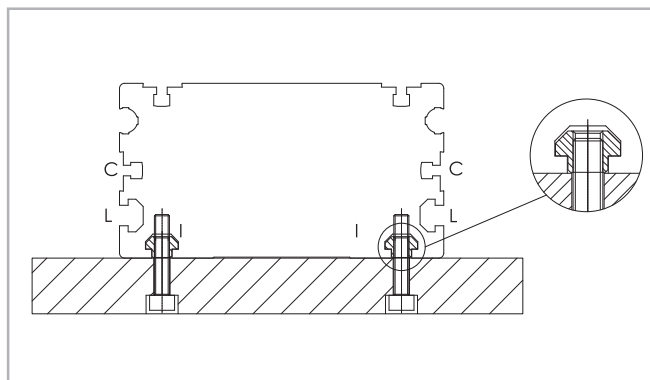


Fig. 37

Warning:

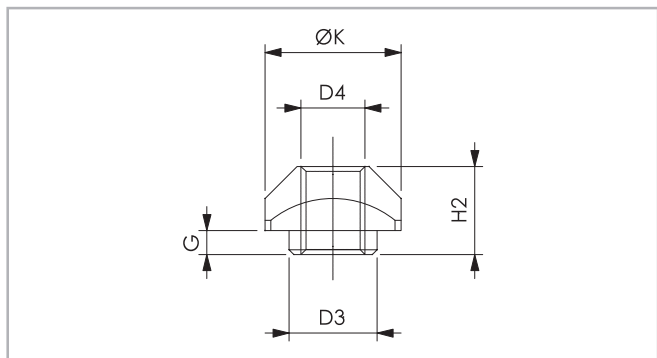
Do not fix the linear units through the drive ends.

Dimensions (mm)

Unit	A	B	C	E	F	D1	D2	H1	L	L1	Code
ROBOT 100	20	6	16	10	5.5	9.5	5.3	14	35	17.5	1000958
ROBOT 130	20	7	16	12.7	7	10.5	6.5	18.7	50	25	1001061
ROBOT 160	36.5	10	31	18.5	10.5	16.5	10.5	28.5	100	50	1001233
ROBOT 220	36.5	10	31	18.5	10.5	16.5	10.5	28.5	100	50	1001233

Tab. 75

T-nuts



L=Side / C=Central / I=Lower - see fig. 37

Fig. 38

Steel nuts to be used in the slots of the body.

Dimensions (mm)

Unit		D3	D4	G	H2	K	Code
ROBOT 100	L-I	-	M4	-	3.4	8	1001046
ROBOT 130	C	-	M3	-	4	6	1001097
ROBOT 130	L-I	8	M6	3.3	8.3	13	1000043
ROBOT 160	C	-	M6	-	5.8	13	1000910
ROBOT 160	I	8	M6	3.3	8.3	13	1000043
ROBOT 160	L	11	M8	2.8	10.8	17	1000932
ROBOT 220	L-I	11	M8	2.8	10.8	17	1000932

Tab. 76

Proximity ROBOT

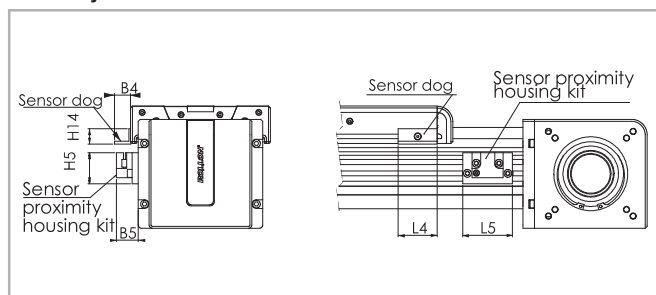


Fig. 39

Sensor proximity housing kit

Red anodized aluminum sensor holder, equipped with T-nuts for fixing into the body slots.

Sensor dog

L-shaped bracket in zinc-plated iron, mounted on the carriage and used for proximity switch operations.

Dimensions (mm)

Unit	B4	B5	L4	L5	H4	H5	For proximity	Sensor dog code	Sensor proximity housing kit code
ROBOT 100	9.5	20	25	45	12	25	Ø 8	G000268	G000092
ROBOT 130	21	28	50	60	20	40	Ø 12	G000269	G000126
ROBOT 160	21	28	50	64	20	40	Ø 12	G000269	G000123
ROBOT 220	21	28	50	70	20	40	Ø 12	G000269	G000207

Tab. 77

Warning:

If a bellows is used, it is not possible to assemble the proximity switch holders to the aluminum body.

Protections

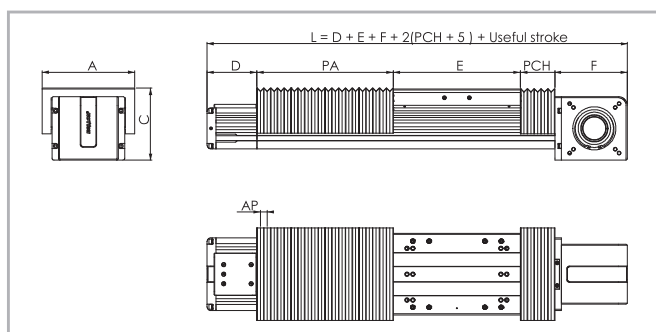


Fig. 40

Standard protections

The Rollon series ROBOT linear units are equipped with a polyurethane sealing strip to protect all parts inside the body against dust and foreign matter. The sealing strip runs the length of the body and is kept in position by micro-bearings located within the carriage. This ensures very low frictional resistance as it passes through the carriage.

Dimensions (mm)

Unit	A	C	D	E	F
ROBOT 130	174	103	95	230	135
ROBOT 160	204	131.5	110	280	160
ROBOT 220	275	149.5	130	380	160

Tab. 78

Protection of ball bearing guides

The four ball bearing blocks have seals on both sides and, where necessary, an additional scraper can be fitted for very dusty conditions.

Special protection

To use these linear units in very critical environments, they can be fitted with a bellows system in addition to the standard protection. The bellows is fixed to the carriage and the ends of the body with Velcro tape for easy assembly and disassembly.

The total length (L) of the linear unit will vary:

See Fig. 40.

Standard material: Thermally welded nylon coated with polyurethane

Materials on demand: Nylon coated with PVC, fiberglass, stainless steel

Warning: The use of bellows does not allow the assembly of the proximity switch holders to the aluminum body.

Assembly kits



Fig. 41



Fig. 42

For the direct assembly of Robot linear units on other types of actuators Rollon offers dedicated assembly kits (brackets) in order to fix those brackets the ends of the actuator must be free of rails. The table below gives the codes of the assembly kit. The allowed combination of assembly as well as the length without rails at each end.

	Kit	Code	X No rail at each end (mm)
	ROBOT 100 - ELM 65	G000205	75
	ROBOT 100 - ROBOT 130	G000201*	155
	ROBOT 100 - ECO 80	G000203	90
	ROBOT 100 - E-SMART 50	G000642	60
	ROBOT 130 - ELM 65	G000196	75
	ROBOT 130 - ELM 80	G000195	90
	ROBOT 130 - ROBOT 130	G000197*	155
	ROBOT 130 - ROBOT 160	G000197*	190
	ROBOT 160 - ELM 80	G000204	90
	ROBOT 160 - ELM 110	G000452	120
	ROBOT 160 - ROBOT 160	G000202*	190
	ROBOT 160 - ROBOT 220	G000202*	255
	ROBOT 220 - ELM 110	G000199	120

* Additional fixing holes are requested on the robot plate

Tab. 79

Gearbox assembly kit

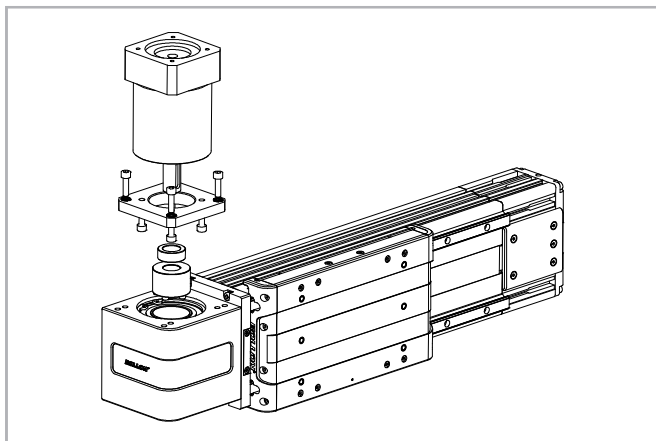


Fig. 43

Codes on the table below refer to the gearbox assembly kit.
The kit includes: shrink disc; adapter plate; fixing hardware.

Unit type	Gearbox type (not included)	Kit Code
ROBOT 100	MP060	G000566
	LC050; PE2; NP005S	G001444
ROBOT 130	P3	G000824
	MP080	G000826
	LC090; MPV01; NP025S; PE4	G000827
	MP105	G000830
	PE3; NP015S; LC070	G001078
	SP075; PLN090	G000859
	SP060; PLN070	G000829
	SW040	G000866
ROBOT 160	AB115	G000481
	MP130	G000482
	LC120; MPV02; NP035S; PE5; AE120	G000483
	LC090, NP025S, PE, NP025S	G000525
	SP+075, PLN090, P4, VRS075, AF075A	G000526
	PSF5; NPS35; SP+100	G000657
	MP105	G000527
ROBOT 220	AB115	G000481
	MP130	G000482
	LC120; MPV02; NP035S; PE5; AE120	G000483
	LC090, NP025S, PE4, NP025S	G000525
	SP+075, PLN090, P4, VRS075, AF075A	G000526
	PSF5; NPS35; SP+100	G000657
	MP105	G000527

Tab. 80

For other gearbox type ask Rollon

Single shrink disc

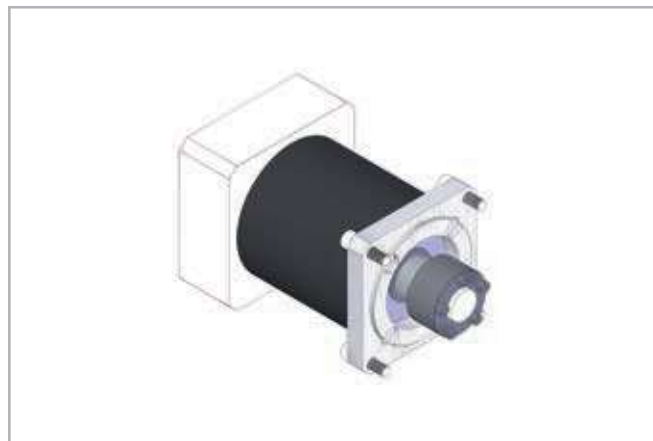


Fig. 44

Codes on the table below refer to a shrink disc ordered as single element.

Unit type	Hollow shaft [mm]	Shrink disc dxD [mm]	Transmittable torque* [Nm]	Shrink disc code
ROBOT 100	26	14x26	36	6005740
ROBOT 130	41	16x41	101	6005733
		19x41	150	6005734
		22x41	174	6005735
		25x41	198	6005736
ROBOT 160 ROBOT 220	50	22x50	286	6005730
		25x50	324	6005731
		32x50	415	6005732

* Transmittable torque in the table represents the maximum capacity of the shrink disc. **Tab. 81**
For the application, the limit of F_x must be considered too.

➤ Identification codes for the ROBOT linear unit

R	13	1R	2000	1R	-075	D	
	10=100						
	13=130						
	16=160						
	22=220						
						Multiple carriage	
					ROBOT	075 ROBOT 130 - ELM 65	090 ROBOT 130 - ELM 80
					on ELM	075 ROBOT 100 - ELM 65	120 ROBOT 130 - ELM 110
						120 ROBOT 130 - ELM 110	<i>see pg. PLS-32</i>
				Linear motion system <i>see pg. PLS-18</i>			
			L = total length of the unit				
		Driving head code					
	Linear unit size <i>see from pg. PLS-19 to pg. PLS-26</i>						
Linear unit serie ROBOT <i>see pg. PLS-16</i>							

In order to create identification codes for Actuator Line, you can visit: <http://configureactuator.rollon.com>

