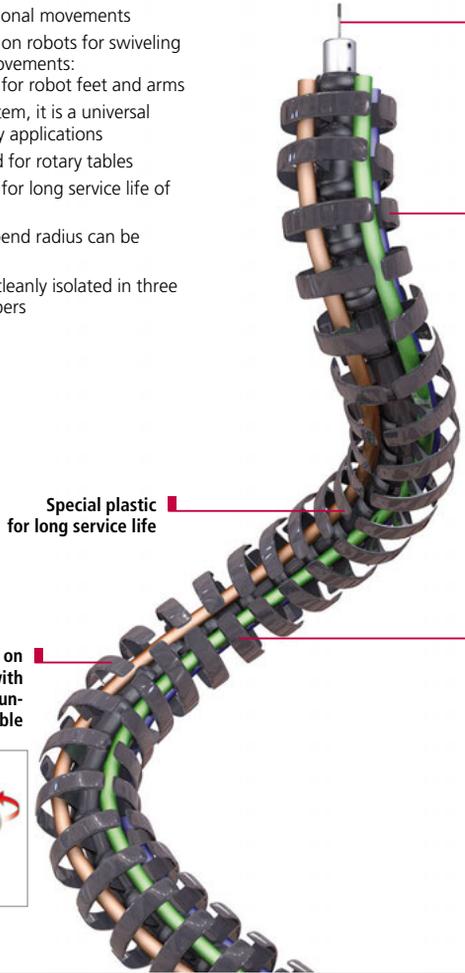


# ROBOTRAX System

## Cable carriers for 3D movements

- For three-dimensional movements
- Can be deployed on robots for swiveling and rotational movements: The same system for robot feet and arms
- With channel system, it is a universal solution for rotary applications
- Also ideally suited for rotary tables
- Optimum system for long service life of the cables:
  - The minimum bend radius can be maintained
  - The cables are cleanly isolated in three separate chambers



**Steel cable for transmission of extremely large tensile forces**

**Open design**  
 – Fast cable laying by simple pressing in of the cables – no threading through is necessary  
 – Simple inspection of all the cables

**Special plastic for long service life**

**Easy fastening on every chain link with quick-opening mounting bracket possible**

**Protective covers or heat shields made of different materials are available for different environmental conditions**

Inside heights



Inside widths



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 Cable carrier configurator

### ROBOTRAX system components



Impact protection



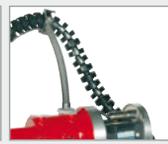
Chucking device



LineFix saddle-type clamps for strain relief\*



Quick-opening bracket on a rotary plate



Quick-opening bracket on a helical spring

Subject to change.

\* for types R075, R085 and R100

## ROBOTRAX System – cable carrier for 3D movements

### Design principle

Inside heights

10  
—  
31

Inside widths

27  
—  
64



#### Chain links

The basic structure of ROBOTRAX consists of plastic links.

These have ball and socket style snap-together connectors on both sides. The individual links can thus be snapped together to form a cable carrier.

Internal bend radius stoppers ensure that the minimum bend radius is maintained in all directions.

Radial link rotation movement is also possible (see table).



#### Steel wire and shim bolts

When the robot arms are moving quickly, high accelerations occur, exerting high pulling forces on the cable carrier.

To be able to transmit these pulling forces ROBOTRAX has a hole in the middle of every chain link, through which a steel wire is drawn. This steel wire adopts the role of force transmission. The steel wire has a shim bolt attached to each end. As a result ROBOTRAX can achieve accelerations up to 10 g and higher.

#### Long service life of the cables and hoses:

The forces are transmitted by the cable carrier and not by the cables and hoses.

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#### Quick-opening mounting brackets

The fixing and further guidance of the ROBOTRAX (on the arms of the robot) is achieved by means of quick-opening mounting brackets, fastened with two screws.

The quick-opening mounting brackets fit any chain link.

The fastening points can therefore be individually matched to the movement sequence of the robot.

Use our free project planning service.



#### Quickly opened:

Simply unlock the lynch pin, pull it out and open the quick-opening mounting bracket.

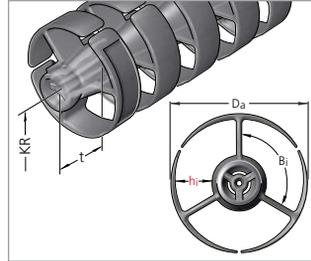
## ROBOTRAX System – cable carrier for 3D movements

### Dimensions

#### Dimensions of ROBOTRAX cable carrier

Type	R 040	R 056	R 075	R 085	R 100
For cable-Ø	2 – 8.5	2 – 11	3 – 18	3 – 20	3 – 27
Bend radius	80	115	145	175	195
Radial link rotation over 1 m length	± 450°	± 300°	± 215°	± 215°	± 215°
D <sub>a</sub>	40	56	75	85	100
B <sub>i</sub>	27	39	52	54	64
h <sub>i</sub>	10	14	22	24	31
t	21.5	32	40	40	40

Dimensions in mm



Inside heights



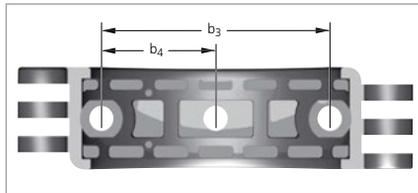
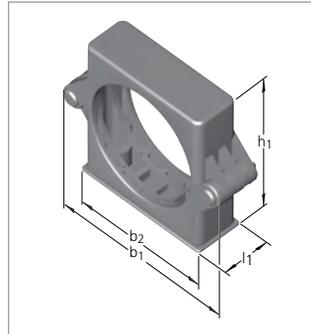
Inside widths



#### Dimensions of ROBOTRAX quick-opening bracket

Type	R 040	R 056	R 075	R 085	R 100
h <sub>1</sub>	54	70	86	105	120
l <sub>1</sub>	15	22	28	30	32
b <sub>1</sub>	82	86	110	133	150
b <sub>2</sub>	50	63	82	96	112
b <sub>3</sub>	36	48	64	72	70
b <sub>4</sub>	18	24	32	36	35

Dimensions in mm



#### Screwing of the quick-opening bracket:

- R 040, R 056 with M4 hexagonal screws
- R 075 with M6 hexagonal screws
- R 085, R 100 with M8 hexagonal screws

### Example of ordering

Cable carrier						
R 075	·	010	·	145	·	1000
Type		Design*		Bend radius KR in mm		Chain length L <sub>k</sub> in mm (without connection)

\* Design 010 (simple insertion of the cables)

Ordering system components: please state separately.

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 Cable carrier configuration

## ROBOTRAX – system components



### Impact protection

When a robot is moving, a striking of the ROBOTRAX against machine components often cannot be avoided.

An impact protective device made of elastomer plastic can easily be attached to each link using a cable tie.

Inside heights

10  
—  
31

Inside widths

27  
—  
64



### Heat shield/Protective sleeve

**Heat shield:** The heat shield, made of aluminum-coated textile fiber, protects the cable carrier and the cables within from flying sparks. A heat shield is recommended where there are flying sparks.

**Protective sleeve:** The protective sleeve made of layered polyester offers protection against aggressive cutting and hydraulic oils as well as from fine dusts and paint sprays (not illustrated).



### Chucking device

This can be used to set the steel wire to the desired tension quickly and easily, and can be readjusted at any time.



### Strain relief

For securing the cables and hoses.

(A strain relief device cannot be used on the same end of the ROBOTRAX as a chucking device.)



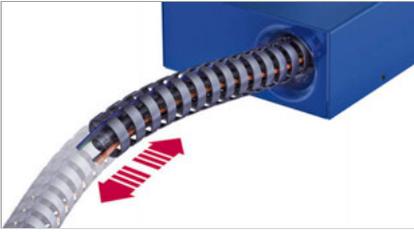
### Strain relief with LineFix saddle-type clamps LFR

(for types R075, R085 and R100)

For secure and gentle cable fixing.

Multilayer strain relief with double and triple clamps possible. Multiple systems can also be mounted one behind the other.

## ROBOTRAX – system components



### Active pull back mechanism

Rapid, repetitive movements of relatively long cable carrier systems in large operating envelopes, constantly hitting the robot arm, are to blame for reducing the service life of the carrier and installed cables. This can lead to a failure of the overall robotic system with expensive downtime and production outages – system failure must be prevented.



### Guidance holder

The cable carrier glides back and forth through holding device, preventing potential system failure due to the cable carrier striking the robot. The guidance holder is an easy and time saving solution for assembly and disassembly. The carrier can be quickly and easily opened or closed for fast cable installation and can be used in combination with the standard holder. The guidance holder is available for all ROBOTRAX sizes.



### Protector

The service life of the cable carriers and cables is significantly reduced through impacts when moving quickly and large operating areas. The protector protects the cable carrier from hard impacts, excessive abrasion and premature wear and, simultaneously, provides limiting of the smallest bend radius. Down times are minimized. The complete cable carrier must not be replaced, but only the Protector.



### Quick-opening bracket mounted on a rotary plate

Yet one more degree of freedom on the fastening points. The quick-opening mounting bracket can also rotate on a rotary plate, thus providing greater flexibility when the robot is performing complex movements.



### Quick-opening bracket on a helical spring

If the bracket is mounted on a helical spring, it can give elastically in all directions, swivel, swing out in 3 dimensions and spring back into place again.



Inside heights



Inside widths



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Cable Carrier Configuration

## ROBOTRAX System – cable carrier for 3D movements

### Part numbers for ordering

Inside heights



Inside widths



### Mounted chain links

Type	R 040	R 056	R 075	R 085	R 100
Bend radius	80	115	145	175	195
Number of links	47	31	25	25	25
Part no.	60301	60401	60501	60601	60701



### Quick-opening bracket for ROBOTRAX

Type	R 040	R 056	R 075	R 085	R 100
Part no.	260410	260510	260110	260210	260310



### Shim bolts – 2 pieces (one pair)

Type	R 040	R 056	R 075	R 085	R 100
Part no.	260420	260520	260220	260220	260320



### Steel wire – Please specify total length or partial lengths

Type	R 040	R 056	R 075	R 085	R 100
Ø	1.8	2.5	3.0	3.0	4.0
Part no.	60583	60584	60580	60580	60581



### Strain relief – 1 piece

Type	R 040	R 056	R 075	R 085	R 100
Part no.	60658	60657	60659	60659	60659



### Locating bolt for LineFix strain relief LFR – 1 piece

Type	R 075	R 085	R 100
Part no.	60669	60669	60669

LineFix strain relief – see page 382.



### Chunking device set – 1 chunking device and 1 shim bolt

Type	R 040	R 056	R 075	R 085	R 100
Part no.	260430	260530	260230	260230	260330



### Impact protection

Type	R 075	R 085	R 100
Part no.	260120	260240	260340

Packing unit: 5 complete items  
consisting of: 10 semi-circular shells and 5 cable ties

## ROBOTRAX System – cable carrier for 3D movements

### Part numbers for ordering



#### Heat shield/Protective sleeve

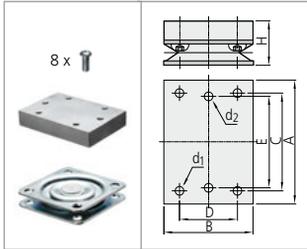
Type	R 040	R 056	R 075	R 085	R 100
Heat shield	60801	60802	60803	60804	60805
Protective sleeve (not illustrated)	60806	60807	60808	60809	60810

Please specify total length or partial lengths.

#### Inside heights



#### Inside widths



#### Rotary plate for quick-opening bracket

Type	R 040	R 056	R 075	R 085	R 100
A	57	65	82	96	112
B	57	57	57	70	70
C	43	43	43	75	75
D	43	43	43	45	45
E	36	48	64	72	70
H	25	25	25	34	34
d <sub>1</sub>	M6	M6	M6	M6	M6
d <sub>2</sub>	M4	M4	M6	M8	M8
Part no.	260580	260590	260550	260560	260570

Appropriate screws are supplied with the rotary plate. Dimensions in mm

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#### Helical spring for quick-opening bracket

Type	R 040	R 056	R 075	R 085	R 100
A	52	64	82	96	112
B	36	48	64	72	70
C	5	5	6.5	8.5	8.5
Length L = 110 mm Part no.	260600	260620	–	–	–
Length L = 150 mm Part no.	260610	260630	–	–	–
Length L = 165 mm Part no.	–	–	60816	60820	60824
Length L = 190 mm Part no.	–	260640	–	–	–
Length L = 230 mm Part no.	–	–	60817	60821	60825
Length L = 315 mm Part no.	–	–	60818	60822	60826
Length L = 465 mm Part no.	–	–	60819	60823	60827

Dimensions in mm