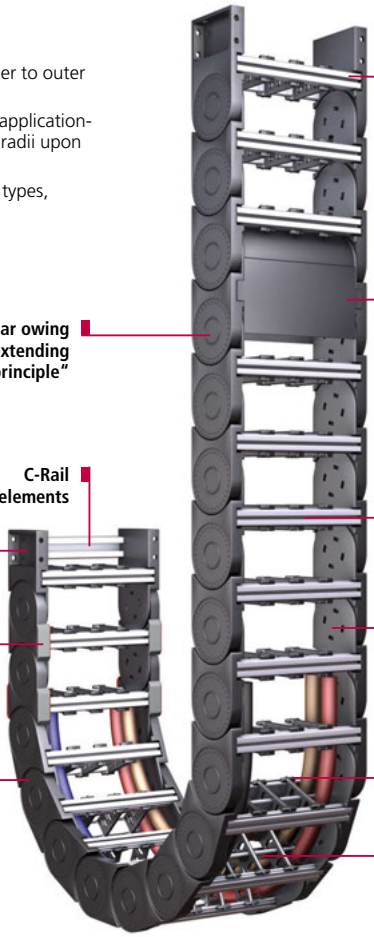

product
design
award
2006
TSUBAKI
ECO
LINK

MASTER Series

Quiet and weight-optimized cable carriers*

- Low intrinsic weight
- Favorable ratio of inner to outer dimensions
- Standard bend radii, application-specific intermediate radii upon request
- Completely enclosed types, see MASTER TUBES



Aluminum stays available in 1 mm width sections

WIDTHSECTIONS 1 mm

Plastic cover available in 25 mm width sections (LT 60)

Minimized hinge wear owing to the "life extending 2 disc principle"

C-Rail for strain relief elements

Can be opened quickly on the inside and the outside for cable laying

Closed and open universal mounting brackets (UMBs)

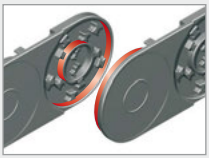
Variable pre-tensioning for the most varied applications is possible

Replaceable glide shoes (H Series)

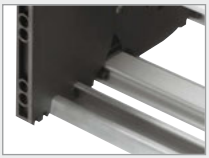
Extremely quiet owing to internal damping system for pre-tension and radius strokes

Dividers can be fixed

Many possibilities for internal subdivision

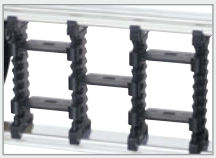


Minimized hinge wear owing to the "life extending 2 disc principle"



C-Rails integrated in the connector

Dividers can be fixed for installations where the carrier is rotated through 90° and applications with high transverse accelerations



Many separation options for the cables

* Some features can be different for certain types for design reasons. Our specialists are happy to advise you.

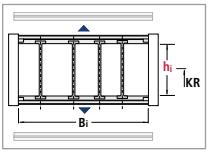
Types MASTER HC/LC

with aluminum stays

- Available in 1 mm width sections (standard widths in 25 mm steps available ex-stock)

WIDTHSECTIONS 1 mm

Type	h_i	B_i	Maximum travel length in m	Dynamics of unsupported arrangement		Page
				Travel speed v_{max} in m/s	Travel acceleration a_{max} in m/s2	
HC 33	33	50 – 400	60	10	50	173
HC 46	46	50 – 400	80	8	40	173
LC 60	60	75 – 600	7*	6	30	173
LC 80	80	100 – 800	8*	5	25	173



* only unsupported

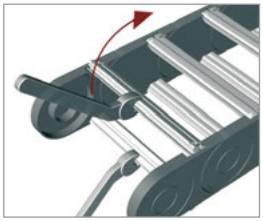
Dimensions in mm

Stay variants

Frame stay RSH

Frame stay made of aluminum

Opening options:
Outside/inside: the cable carrier can be opened quickly and easily simply by rotating the stays.



Stay arrangement

Stays mounted on every chain link.

■ Put the tool in place, **turn it through 15°** and the chain is open.

TUBE SERIES – covered cable carriers

Types LT with plastic cover system

Detailed information can be found in the chapter TUBES – Covered Cable Carriers from page 294 onwards.

Types MASTER HC 33/46, LC 60/80

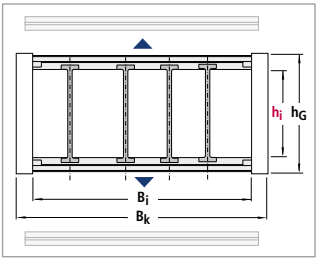
Dimensions and intrinsic chain weight

Type	Stay variant	h_i	h_G	B_i min*	q_k min	B_i max*	q_k max	B_k
HC 33	RSH	33	51	50	1.37	400	3.99	B_i + 22
HC 46	RSH	46	64	50	1.83	400	4.01	B_i + 26
LC 60	RSH	60	88	75	2.78	600	7.10	B_i + 28
LC 80	RSH	80	110	100	3.89	800	10.01	B_i + 32

* Standard widths in 25 mm steps

Dimensions in mm/Weights in kg/m

WIDTHSECTIONS 1 mm



Bend radius and pitch

Type	Bend radii KR mm										
HC 33	60	75	100	125	150	175	200	220	250	300	–
HC 46	75	100	115	125	150	170	200	215	250	300	350
LC 60	135	150	200	250	300	350	400	500	–	–	–
LC 80	–	150	200	250	300	350	400	500	–	–	–

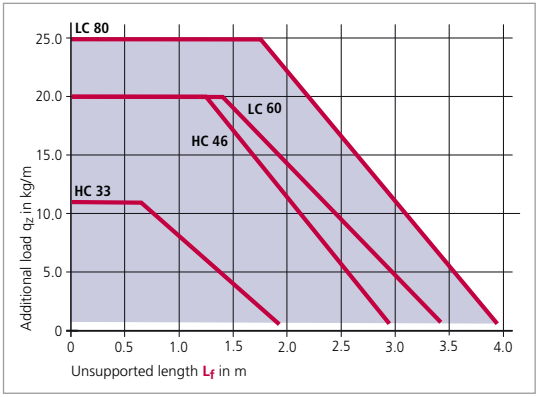
The listed values are standard bend radii.
For special applications it is also possible,
to set any desired intermediate radii at the production stage.

Please do get in touch with us, we would be happy to advise you.

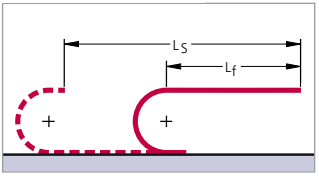
Pitch:
HC 33: t = 56 mm
HC 46: t = 67 mm
LC 60: t = 91 mm
LC 80: t = 111 mm

Load diagram

for unsupported length L_f depending on the additional load



Unsupported length L_f



In the case of longer travel lengths, sag of the cable carriers is technically permissible depending on the application.

In a gliding arrangement, even longer travel lengths are possible (see page 375).

We are at your service to advise on these applications.

Example of ordering

Cable carrier										Divider system		Connection
HC 46	.	200	.	RSH	.	170	-	2010		TS 0	/ 4	FU/MU
Type		Inside width B_i in mm		Stay variant		Bend radius KR in mm		Chain length L_k in mm (without connection)		Divider system	Number of dividers n_T	Connection Fixed point/ Driver

Ordering divider systems:
Please state the designation of the divider system (TS 0, TS 1 ...) and the number of dividers. Possibly attach a sketch with the dimensions.

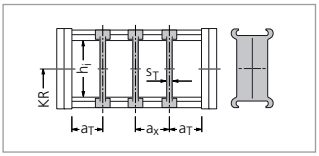
Inside heights
33 – 80

Inside widths
50 – 800

Types MASTER HC 33/46, LC 60/80

Divider system TS 0

Type	h_i mm	S_T mm	$a_{T\,min}$ mm	$a_{x\,min}$ mm
HC 33	33	3	7	13
HC 46	46	3	7	13
LC 60	60	4	9	16
LC 80	80	4	9	16

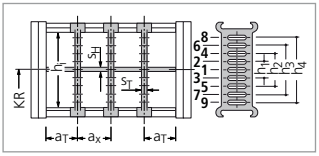


The dividers can be moved in the cross section.
In the standard version, the divider systems are mounted on every second chain link.

Dimensions in mms

Divider system TS 1 with continuous height subdivision made of aluminum

Type	h_i mm	S_T mm	$a_{T\,min}$ mm	$a_{x\,min}$ mm	S_H mm	h_1 mm	h_2 mm	h_3 mm	h_4 mm
HC 33	33	3	7	13	4	18	–	–	–
HC 46	46	3	7	13	4	20	–	–	–
LC 60	60	4	9	16	4	15	30	45	–
LC 80	80	4	9	16	4	15	30	45	60

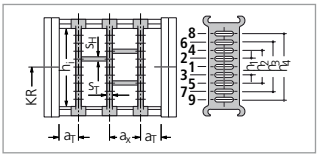


The dividers can be moved in the cross section.
In the standard version, the divider systems are mounted on every second chain link.

Dimensions in mm

Divider system TS 3 with section subdivision, partitions made of plastic

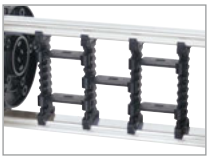
Type	h_i mm	S_T mm	$a_{T\,min}$ mm	$a_{x\,min}$ mm	S_H mm	h_1 mm	h_2 mm	h_3 mm	h_4 mm
HC 33	33	8	6	16*	4	14	–	–	–
HC 46	46	8	6	16*	4	14	28	–	–
LC 60	60	8	6	16*	4	14	28	–	–
LC 80	80	8	6	16*	4	14	28	42	56



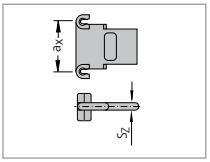
* When using plastic partitions

The dividers are fixed by the partitions, the complete divider system is movable.
In the standard version, the divider systems are mounted on every second chain link.

Dimensions in mm



Dimensions of the plastic partitions for TS 3



Aluminum partitions in 1 mm width sections are also available.

S_Z	a_x (center-to-center dividers)									
4	16	18	23	28	32	33	38	43	48	58
	64	68	78	80	88	96	112	**128**	**144**	**160**
	176	**192**	**208**	–	–	–	–	–	–	–

Dimensions in mm

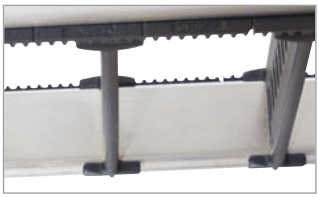
When using **partitions with a_x > 112 mm** there should be an additional central support with a **twin divider**.
Twin dividers are designed for subsequent fitting in the partition system.

Types MASTER HC 33/46, LC 60/80

Fixing the dividers

In the standard version, dividers or the complete divider system (dividers with height subdivisions) can be moved in the cross section.

Fixing profiles can be used to fix the dividers or complete divider systems. Fixing in HC 33/46 and LC 60 in 2 mm steps, LC 80 in 3 mm steps.



■ Fixing on both sides ensures that the dividers have a secure hold.

■ Fixing of dividers with fixing profiles

If the fixed mounting version is desired, please state this when placing your order.

Glide shoes – the economical solution for gliding applications (HC 33/46)

Replaceable glide shoes made of plastic

To extend the life of cable carriers in gliding operations KABELSCHLEPP supplies detachable, exchangeable glide shoes.

Replaceable glide shoes are a very economical solution. When wear occurs only the glide shoes are replaced, and not the complete cable carrier.

Glide shoes for the H Series are made of a highly wear-resistant special material.

Chain height with glide shoes:

HC 33: $h_G' = h_G + 3.2 = 54.2$
HC 46: $h_G' = h_G + 3.2 = 67.2$

Dimensions in mm

Minimum bend radii when using glide shoes:

HC 33: KR_{min} = 100 mm
HC 46: KR_{min} = 100 mm

! By means of a positive snap connection, the glide shoes sit firmly on the chain link.

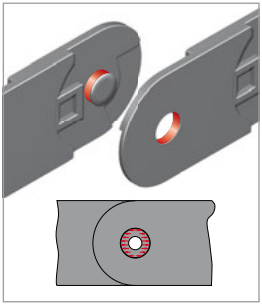
Minimized hinge wear owing to the "life extending 2 disc principle"

In the MASTER Series, the push and pull forces are transmitted via the optimum link design for this purpose.

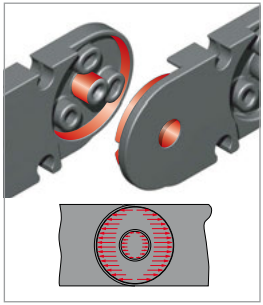
As a result link wear is reduced to a minimum and the life of the cable carrier is considerably lengthened.

The internal stopper and pre-tensioning dampers have a noise-muffling effect. This makes the chain particularly quiet.

Should your application require it, the pre-tensioning (in deviation from the standard pre-tensioning) can be adjusted at the time of production. We can produce a cable carrier with a pre-tension which is exactly suited to the load values of your application.



■ Force transmission with a pin-hole joint

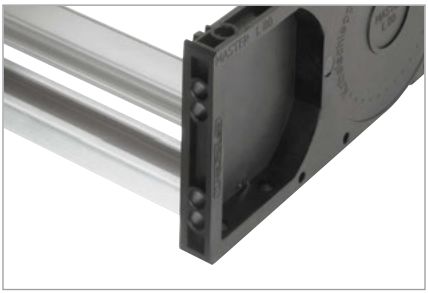


■ Force transmission with the "life extending 2 disc principle"

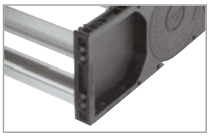
Types MASTER HC 33/46, LC 60/80

UMB (Universal Mounting Brackets) made of plastic

Various universal mounting brackets made of plastic provide a suitable connection for any assembly situation. Each type can be screwed from above, below or as a flange.



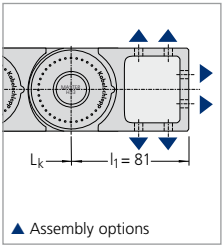
■ **Standard connector**



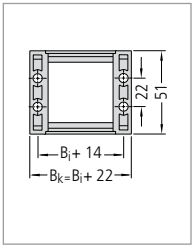
■ **Long, closed connector** for many of the hole patterns commercially available with **large hole intervals (only LC)**

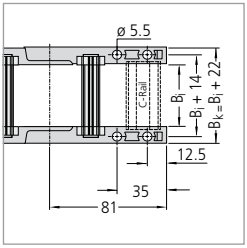
■ **Short, open connector,** easy assembly owing to optimal accessibility of the holes in **restricted installation conditions (only LC)**

Connection dimensions Type HC 33



▲ Assembly options



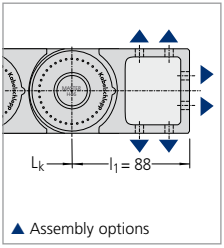


The dimensions of the fixed point and driver connections are identical!

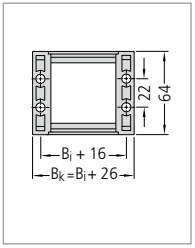
Optional C-rails and strain relief elements for cables can be found on the following pages.

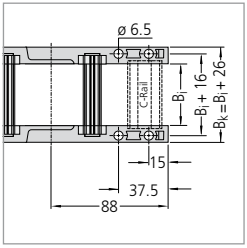
When ordering please specify the connection type FU/MU (see ordering key on page 419).

Connection dimensions Type HC 46



▲ Assembly options





The dimensions of the fixed point and driver connections are identical!

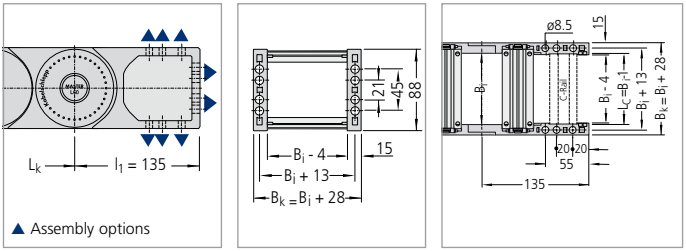
Optional C-rails and strain relief elements for cables can be found on the following pages.

When ordering please specify the connection type FU/MU (see ordering key on page 419).

Types MASTER HC 33/46, LC 60/80

Connection dimensions Type LC 60

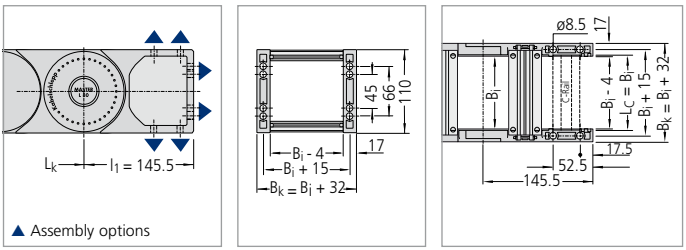
Standard connector and short, open connector



The dimensions of the fixed point and driver connections are identical!
Optional C-rails and strain relief elements for cables can be found on the following pages.
When ordering please specify the connection type FU/MU (see ordering key on page 419).

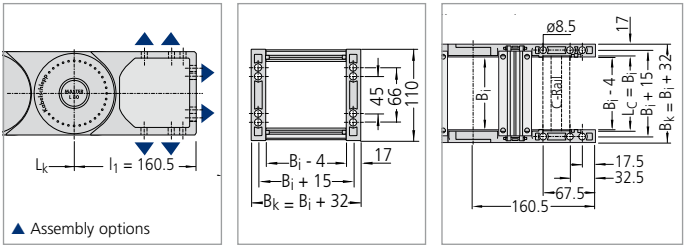
Connection dimensions Type LC 80

Standard connector and short, open connector



The dimensions of the fixed point and driver connections are identical!
Optional C-rails and strain relief elements for cables can be found on the following pages.
When ordering please specify the connection type FU/MU (see ordering key on page 419).

Long, closed connector



The dimensions of the fixed point and driver connections are identical!
Optional C-rails and strain relief elements for cables can be found on the following pages.
When ordering please specify the connection type FU/MU (see ordering key on page 419).

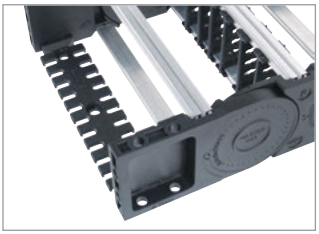
Types MASTER HC 33/46, LC 60/80

Strain relief devices

Strain relief combs made of plastic on both sides for standard carrier widths (MASTER HC)

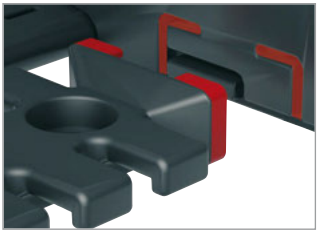
The cables can be fixed securely and simply using the **optional strain relief combs**.
The strain relief combs are installed between the UMBs, and do not need to be bolted on separately or mounted on a C-Rail.

Please state on the order whether strain relief combs are needed.



■ Universal mounting bracket with strain relief comb

■ Dual-sided strain relief comb



■ Fixing in the UMB.

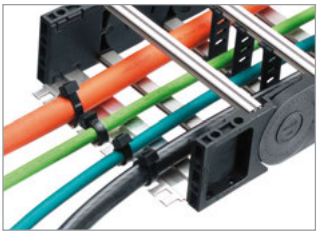
Type	B_i mm	n_Z
HC 33/46	50	3
HC 33/46	75	5
HC 33/46	100	7
HC 33/46	125	9
HC 33/46	150	11
HC 33/46	175	13

n_Z = Number of teeth on one side of the comb
* on request

Strain relief comb made of aluminum on one side for individual carrier widths (MASTER HC)

The cables can be fixed securely and simply using the **optional strain relief combs**.
The strain relief combs are installed between the universal mounting brackets, and do not need to be bolted on separately or mounted on a C-Rail.

Please state on the order whether strain relief combs are needed.



■ Strain relief comb made of aluminum

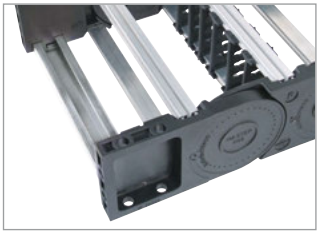
Types MASTER HC 33/46, LC 60/80

Strain relief devices

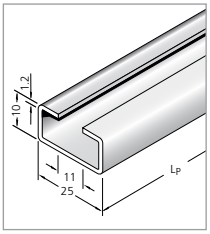
C-rails for LineFix bracket clamps, SZL strain reliefs and clamps

The optional C-rails are fixed by means of the universal mounting brackets and do not have to be screwed separately.

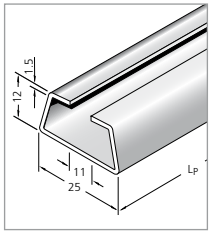
Please state in your order whether C-rails are needed.



■ Universal mounting bracket with C-rail

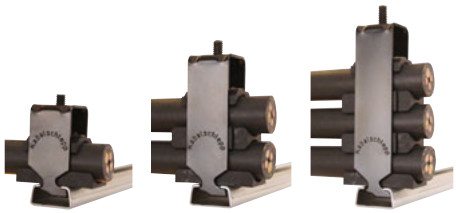


■ **MASTER HC:**
Integratable C-rail
25 x 10 mm,
slit width 11 mm,
material steel,
Item-No. 3931



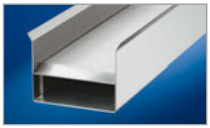
■ **MASTER LC:**
Integratable C-rail
25 x 12 mm,
slit width 11 mm,
material steel,
Item-No. 3934

Our LineFix strain reliefs are optimally suited for the C-rails. (LineFix bracket clamps and other strain relief devices – see Accessories chapter, from page 381 onwards).



■ C-rail with LineFix strain relief

Guide channels
➤ from page 375



Strain relief devices
➤ from page 381

Cables for cable carrier systems
➤ from page 438